Southern Copper

and

Grupo México
MINERÍA

Los Chancas Project
Peru
Technical Report Summary

Report prepared for:

Southern Copper Corporation

Report prepared by:

Wood Group USA, Inc.

wood.

Report current as at:

December 31, 2021.

Date and Signature Page

This technical report summary (the Report), entitled “Los Chancas, Peru, Technical Report Summary” is current as at December 31, 2021. The Report was prepared by Wood Group USA, Inc. (Wood), acting as a Qualified Person Firm.

Dated: February 24, 2022.

“signed”

Wood Group USA, Inc.

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1 EXECUTIVE SUMMARY

1.1 Introduction

This technical report summary (the Report) was prepared for Southern Copper Corporation (Southern Copper) by Wood Group USA, Inc. (Wood, acting as the QP Firm) on the Los Chancas copper project (the Project), located in the province of Aymaraes, Apurímac Department, Peru.

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 Los Chancas Project in Southern Copper's Form 10-K for the year ending December 31, 2021.

Mineral resources are reported for the Los Chancas deposit. There are no current mineral reserves estimated for the Los Chancas deposit.

Unless otherwise indicated, the metric system is used in this Report.

Mineral resources are reported using the definitions in Subpart 229.1300 – Disclosure by Registrants Engaged in Mining Operations in Regulation S–K 1300 (SK1300).

The Report uses US English.

1.3 Property Setting

The Los Chancas Copper Project is located in the Andes Range in southern Peru. The site is approximately 65 km southwest of the city of Abancay in the Department of Apurimac.

The Project site can be accessed using Highway 1, a paved road, from Lima to Nazca (460 km), from Nazca to Santa Rosa (250 km), using road 30A, and a gravel road from Santa Rosa to the Project site (32 km). Access within the Project area is via gravel roads. Access to drill sites is via unimproved roads cut with bulldozers.

The closest airport is at Cuzco, which is served by daily flights from Lima (approximately one hour flying time). There are a number of ports within an 800 km distance of the Project that could potentially be used for concentrate shipment.

The Los Chancas Project is located in a sub-alpine climate. Mining operations in the district operate year-round, and it is expected that any future mining operation at Los Chancas will be year-round. Exploration activities are conducted year-round, but may be temporarily curtailed by heavy rains.

The site is currently a greenfields site with limited infrastructure that is only suitable to support exploration-level activities.

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

The Project consists of 31 concessions, covering an area of approximately 22,700 ha

Surface rights are currently being negotiated. A final agreement is subject to the land ownership being legally defined. The procedure re-started in 2021. The localities in the Project's area of direct influence belong to two different districts, Pocohuanca and Tapairíhua, where land ownership is communal. The area where surface rights are required is within the Tiaparo and Tapairíhua rural community boundaries. However, the communities are discussing the precise location of their boundaries.

Southern Copper holds two water rights that cover water from four spring sources.

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. There is also a mining tax payable, based on operating income, with rates that range from 2–8.4%.

An overall 1.5% royalty over the gross sales of minerals mined is payable on the Chanca Uno, Chanca Dos and Chanka Tres concessions to the heirs of Mr. Percy Bush, who will receive 75% of the agreed royalty, and to Royal Gold, Inc., who will receive 25% of the royalty. Under the acquisition terms for the concessions, it was agreed that if mining at the concessions did not begin by 2003, Southern Copper would make annual US$100,000 advance royalty payments, to be deducted from future royalty payments made once mining in the concessions is initiated.

Baseline studies were completed from 2012–2020, and covered aspects such as: acid rock drainage, metals leaching potential; social characterization; baseline environmental assessments; and internal mining studies.

As part of the application for the EIAsd, an archaeological survey was completed in 2020 that identified a number of archaeological sites within the Project area. Southern Copper will be required to obtain a Certificate of Non-Existence of Archaeological Remains (CIRA) before starting activities that would disturb these sites. If it is absolutely necessary to locate infrastructure over an archaeological site, Southern Copper must obtain authorization from the Ministry of Culture to clear the area of archaeological remains (*"rescate arqueológico"*) before starting proposed activities.

During 2018, the Environmental Evaluation and Oversight Agency completed an Early Assessment review, which included water sampling from surface water points, and rock chip sampling of outcrops. Some parameters did not comply with the National Standards for Water Quality (ECAs), including pH, manganese, copper, iron and aluminum.

Southern Copper prepared a series of preventive, control and/or mitigation measures to address the effect that exploration activities could have on physiography, air, noise, land, water, flora, terrestrial fauna, aquatic fauna and the landscape. These measures included provision for follow-up monitoring.

Any future operations will require a comprehensive environmental monitoring program and will need to address any commitments that may be imposed during the permitting process.

Although there has not been any operation specifically identified in the area of direct Project influence, illegal and informal miners are known to be operating in the general area because they use the nearby roads. Southern Copper has no relationship with these groups.

The initial Environmental Assessment of the Los Chancas Project was conducted in 2001 (Resolución Directoral N° 220-2001-EM/DGAA), and updated in 2008 (Resolución Directoral N° 170-2008-EM/DGM). A semi-detailed environmental impact assessment (EIAsd) was completed in 2010 (Resolución Directoral N° 344-2010-EM/DGM). The closure plan developed for the EIAsd that covers exploration activities is conceptual, and covers temporary, progressive and final closure.

Southern Copper has determined the key permits that will be required for exploration activities. Current site activities are support by an existing exploration permit. Southern Copper is currently obtaining the supporting information required for, and preparing the application to, obtain exploitation permits. Southern Copper expects to complete the application process and obtain the exploitation permits by 2023.

Southern Copper has community initiatives in place in the Project area of influence. These are projects (proyectos por convocatoria) that are evaluated by community committees to best address social needs and to establish aspects of the programs that required follow-up activities. Southern Copper created two community committees for the Tiaparo and Tapairíhua communities, and a community care service that is accessible by the communities.

Any future Project development is expected to affect at least the Tiaparo and Tapairíhua communities that are included in the list of indigenous communities prepared by the Ministry of Culture and will be subject to prior consultation requirements and considerations.

Southern Copper is managing an ongoing social conflict with the Tiaparo and Tapairíhua communities due to requests by the communities to increase the Southern Copper's social investment. Southern Copper prepared a social strategy to manage the conflict, with the aim of reaching consensus and agreements. This plan includes participation in community assemblies, meetings with communal authorities, explanations about and information on the EIA preparation process, and updates on the Project status. The community care service is expected to help Southern Copper address grievances and complaints and provide solutions; and the community committees will allow the company a better understanding of any social issues that may arise.

After reviewing the information provided by Southern Copper, and following consultation with Southern Copper staff, Wood is of the opinion that Southern Copper has appropriately implemented a system to identify and mitigate social issues that would arise during the pre-development, development and operating activities. Wood opines that social risks to the Project are well-understood by Southern Copper and should be able to be appropriately managed and mitigated.

1.5 Geology and Mineralization

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

The Los Chancas Project is located in the Middle Eocene to Early Oligocene (~48–32 Ma) Andahuaylas–Yauri Batholith along the western margin of the Apurimac Copper Porphyry–Skarn Belt. Regionally, the most important structural feature is a series of northwest-trending faults that may have produced structurally weak areas that favorable for post Andahuaylas–Yauri batholith intrusive events.

The Los Chancas deposit is about 1,200 m in diameter, extends for at least 1,000 m at depth, and most drill holes bottom in mineralization. The deposit remains open to the southeast and at depth. Sedimentary rocks of the Jurassic–Cretaceous Ferrobamba, Mara, Soraya, and Chuquibambilla Formations form a north-facing anticline that is eroded along the axial plane. The sediments were intruded by three generations of monzonite intrusion.

The intrusions have formed garnet skarns where in contact with Ferrobamba Formation limestones, and biotite-rich contact aureoles where in contact with pelitic rock types. Alteration associated with the porphyry system includes potassic, phyllic, silicic, and argillic types.

Mineralization is hosted by quartz monzonite and surrounding quartzite and siltstone country rocks. Sulfide mineralization consists of hypogene chalcopyrite, bornite, molybdenite, and pyrite. Sulfides are hosted in quartz veins, occur as small sulfide streaks/veins, or form disseminations in the intrusive and sedimentary rocks. This primary mineralization was oxidized and leached, and a zone of supergene enrichment developed. The major area of leaching is to the east, and vertically above, the primary mineralized zone. The oxide zone is sub-parallel to topography. Brochantite and chrysocolla are the dominant copper oxide minerals, with subordinate azurite and malachite. Sulfide minerals within the supergene enrichment zone include chalcocite, covellite, digenite, cuprite, and native copper. Copper oxides are also be present as a minor constituent.

1.6 History

Southern Copper commenced exploration in the Los Chancas area in 1997. Work conducted to the Report effective date includes geological mapping, reconnaissance exploration, rock chip and grab sampling, ground induced polarization (IP) and magnetic surveys, core drilling, metallurgical testwork, baseline environmental studies, studies in support of Project permitting and mining studies

1.7 Exploration, Drilling, and Sampling

Exploration programs identified the Los Chancas deposit, and initial-stage evaluation data are superseded by drill information.

Drilling totals 325 core holes for 155,389 m. Drilling that supports mineral resource estimation consists of 318 core holes for 152,600 m.

Logging identified and recorded lithology, alteration, structure, mineralization (including primary, oxide and supergene mineralogy), and geotechnical parameters such as faults, fractures and rock quality designation (RQD). All logging was done on paper and entered into Excel files.

Core recovery information was collected by the drilling contractors on paper logs and is recorded for 110 of 325 core holes. Core recovery was typically of the order of 90–100% with an overall average recovery of about 94%.

Drill collars were surveyed by Southern Copper personnel using a hand-held global positioning system (GPS) instrument in the earliest drill programs, and a Nikon total station instrument in later campaigns.

The majority of the drill holes have no down-hole surveys. Where surveys are noted, they were performed using a FlexIT tool. The FlexIT tool is acceptable as long as there are minimal magnetic minerals in the rocks traversed by the drill hole. In the event that significant magnetic minerals are encountered, other downhole survey instrument types should be used. There is no record of any other instrument types used at Los Chancas.

Because FlexIT is a magnetometer-based instrument, it determines magnetic north and a declination correction must be applied to obtain true north. There is no evidence that declination was applied to the azimuths determined with the FlexIT tool.

Project records indicate that 37 of the pre-2004 holes were downhole surveyed. Eight had dips measured using acid tests, 14 were measured using a Reflex multi-shot instrument, and seven were measured using a single-shot FlexIT tool. Acid tube surveys generate inclination data with no azimuths and must have a meniscus correction applied. There is no indication that such a correction was applied. There is no indication of these surveys in the Project database.

Wood reviewed the downhole surveys and found that, for the most part, the data indicated extremely straight holes over as much as 600 m. The trajectories of many of the holes were impossibly straight. The source of the errors is unknown. Wood recommended that none of the downhole survey data now in the database be used for mineral resource estimation. Because there are no reliable downhole surveys, all blocks in the block model below 100 m below the topographic surface should be restricted to inferred mineral resources at best. Above 100 m below the topographic surface, blocks should be restricted to the indicated and inferred categories.

Core samples were collected at 3 m intervals, regardless of lithology. Core was split using a manual or hydraulic core splitter. One-half was bagged for analysis and the other half was returned to the core box. A duplicate sample was collected every 15–30 m.

The density database consists of 50,744 specific gravity determinations from 322 drill holes, completed by Southern Copper personnel using the water displacement method on 2.5–3.3 cm whole-core samples. Wood noted that the core samples may be too short to provide reliable data. More typically within the mining industry, specific gravity data are collected on 10–20 cm-long samples. Wood requested Southern Copper send 20 samples of longer core to SGS Peru (SGS) for density determinations using wax-coat, immersion methods. Results from SGS indicate that the SGS specific gravity data are biased high relative to the original Southern Copper specific gravity data. There are too few specific gravity data from SGS to support reliable conclusions, but there is a risk that the tonnages in the mineral resource estimate may be somewhat underestimated.

Samples were primarily prepared by ALS Chemex (Lima), SGS (Lima) and CIMM Perú (Lima) during the exploration program. Each of the three laboratories was independent of Southern Copper. Laboratory accreditations at the time the work was conducted are not known.

Depending on the laboratory and drill campaign, sample preparation could include drying, crushing to 90% or 95% passing -10 mesh, pulverizing to 85% passing 200 mesh or 95% passing 150 mesh.

A number of independent laboratories were used for analysis, including SGS Lima, ALS Geolab (now part of ALS Global), ALS Chemex (now ALS Global), Barringer (acquired by Smiths Group plc in 2001), CIMM Peru (now Certimin SA), Bondar Clegg (part of ALS Global since 2001), and BS Inspectorate. Laboratory accreditations at the time the work was conducted are not known.

Analytical methods included:

- Acid-soluble copper (CuS): 0.5 g aliquot with sulfuric acid digestion and atomic absorption spectroscopy (AAS) finish,
- Cyanide soluble copper (CuCN): 0.5 g aliquot with NaCN digestion and AAS finish,
- Residual copper (CuR): three acid digestion with AAS finish
- Gold: 30 g fire assay with AAS finish; overlimits by 30 g fire assay with gravimetric finish
- Copper, molybdenum, silver, lead, zinc, arsenic, bismuth, iron, and antimony: 0.5 g aliquot, three acid digestion and AAS finish.

The 1998–2004 quality assurance and quality control (QA/QC) program included the resubmission of check samples to various secondary laboratories, (SGS, ALS Chemex, CIMM, Barringer, Bondar Clegg and BS Inspectorate). None of the check sample batches appear to have included additional control samples (standards, duplicates, blanks). Check assays for copper, molybdenum and gold indicated that these elements were biased ≤5%; therefore, they are considered to be acceptably non-biased in both oxide and sulfide areas. Southern Copper inserted duplicate, standard, and blank samples in the 2008–2010 sample stream. Wood found low failure rates in the duplicate data, all <0%, and concluded that precision is acceptable.

In 2006, approximately 1238 pulp and core samples from the 1998–2004 drilling programs were submitted to ALS Chemex for check assaying. Those samples were accompanied by pulp and coarse blanks, standards, and both pulp and core duplicates. Check assays on pulp samples showed biases of <±5% for copper, molybdenum, gold, silver, and arsenic. Check assays based on core samples show biases of <±5% for copper, molybdenum, gold, and arsenic. Bias for silver is about 7%. These results indicate that the original assays were adequately accurate to support mineral resource estimation; however, a few original data from SGS in 2002 had significantly higher lower detection limits than ALS Chemex did in 2006 and were not evaluated for precision. The check assay program in 2006 included pulp and coarse blanks, standards, and duplicate samples for quality control. Blanks indicated that no significant contamination occurred during sample preparation or analysis. Pulp duplicate data indicate that copper, molybdenum, and gold were adequately precise to support mineral resource estimation. Silver and arsenic data were too low grade to support meaningful conclusions. Standards indicate that accuracy for all elements was acceptable and that the laboratories were in control.

For routine analytical from 2008–2010, Wood concluded that copper, gold, silver and arsenic data were adequately accurate, precise, and error-free to support mineral resource estimation. Molybdenum, with only one standard, lacked sufficient data to support meaningful conclusions regarding accuracy of molybdenum assays. Classification of molybdenum mineral resource estimates should therefore be restricted to inferred mineral resources at best.

The total copper, acid-soluble copper, molybdenum and gold oxide tests of the 2006 sample verification program in Los Chancas are considered to be sufficiently accurate for the purposes of mineral resource estimates. The total copper, molybdenum and gold sulfide tests of the 2006 re-sampling verification program in Los Chancas were considered to be sufficiently accurate for mineral resource and estimate purposes. Acid soluble copper sulfide tests demonstrate an unacceptable deviation that needs further research or adjustment before using it in mineral resource estimation.

1.8 Data Verification

Selected Wood personnel in the disciplines of geology, and mineral resource estimation visited the Project site during 2021. During the site visit, Wood personnel inspected drill core stored in the Project core shed, and drill platforms in the field.

Wood performed a review of available data in the database, including: inspecting the position of lithological and mineralization contacts; review of lithology and mineralization models; comparison of collar locations of 69 drill holes to topography; comparison of resurveyed collar locations to original surveys; review of assay methods; evaluation of procedures for determining specific gravity; reviewed quality control procedures; and reviewed results of a check assay program.

Wood considers that a reasonable level of verification has been completed, and that no material issues would have been left unidentified from the programs undertaken. The verified data can be used in support of mineral resource estimation.

1.9 Metallurgical Testwork

Metallurgical laboratories involved in the Project testwork include FLSmidth-Dawson Metallurgical Laboratories in Salt Lake City, Utah (Dawson), McClelland Laboratories Inc. in Sparks, Nevada (McClelland), C.H. Plenge & CIA. S.A., in Lima, Peru (Plenge), and Mountain States R&D International, Inc. of Vail, Arizona (Mountain States), SGS Canada Inc. in Lakefield, Ontario (SGS Lakefield), Phillips Enterprises LLC in Golden, Colorado (Phillips), and ThyssenKrupp Resource Technologies Research Center in Beckum, Germany (Polysius). These facilities are independent of Southern Copper. There is no international standard of accreditation provided for metallurgical testing laboratories or metallurgical testing techniques.

Testwork completed included bottle roll and flotation tests, mineralogy (bulk and QEMSCAN), batch and locked cycle tests, column leach tests, development of molybdenum plant flowsheet, comminution (Bond crusher work index, abrasion index, Bond rod mill and Bond ball mill work index, grindability, JK SMC tests, McPherson semi-autogenous grind (SAG) and crushing tests), variability flotation testing, high pressure grind rolls (HPGR) testing and grind characterization of the HPGR test products, and thickening tests.

Metallurgical testing has shown that the Los Chancas deposit can be processed by conventional heap leaching of the oxide mineralization, and conventional flotation concentration processing of the sulfide mineralization. The material has a low to moderate Bond work index although some zones are abrasive.

Column leach tests on the oxide mineralization indicate that copper recovery is in line with expectations based on acid soluble copper assays of the composite samples. Copper recovery on samples crushed to minus 12.5 mm ranged between 19–73% and averaged 56%. Projected acid consumption is less than 10 kg sulfuric acid per kilogram copper.

The sulfide mineralization responds well to milling and flotation with locked-cycle tests returning copper and molybdenum recoveries ranging between 90.1–94.9%, and 60.1–87.6% respectively.

The early testwork program focused on composite samples of the secondary oxide, enriched and transition mineralization. The samples selected would generally represent material that would be in the first years of a mine plan. However, there is insufficient testwork to cover deposit and mineralization variability. Variability testing across mineralization types was not adequately addressed during the testwork phases. The metallurgical testwork data is of sufficient quality to support a prefeasibility study and an indicated mineral resource classification. Additional support for confidence category upgrades, from the perspective of metallurgical modifying factors, will require supporting testwork to address geometallurgy and the variability across the deposit.

The arsenic assays in the Project database indicate that there are some areas of the deposit where arsenic values are elevated, and there is a risk that the arsenic may report to concentrate at concentrations that could cause smelters to impose penalties on the concentrate, or limit concentrate marketability to those smelters who are able to blend high-arsenic concentrates with lower arsenic grade concentrate feeds. Additional testing and analysis should be performed to determine if the arsenic can be rejected in the process. There may be potential to control the concentrate arsenic content with good mine planning and grade control.

1.10 Mineral Resource Estimates

1.10.1 Estimation Methodology

Southern Copper estimated total copper (CuT), CuS, CuCN, molybdenum, gold, silver and arsenic. Copper is the only element, however, reported in the mineral resource estimate.

Exploratory data analysis was completed on the assay data using histograms, contact plots, and box plots.

The geological model was based on the geological interpretations of lithology, alteration and mineralization from a series of east–west and north–south sections spaced 50 m apart, and bench plans spaced at 15 m intervals. Southern Copper interpreted seven lithological units. Quartzite and the intrusive with megacrysts were the lithology units with the largest volumes; the fine-grained intrusion was preferentially mineralized with respect to copper and molybdenum.

Southern Copper modeled the leached zone, oxide zone, mixed zone (transition from oxide to enriched), secondary enrichment zone, transitional zone (transition from enriched to primary) and the primary sulfide zone. The primary zone represents 73% of the total mineralization. Six alteration units were modeled. Argillic and potassic alteration are the most common alteration types.

Each estimation domain was assigned the mean specific gravity for that domain. Samples were composited to 7.5 m intervals, based on an assumption of 15 m bench heights in an open pit mining operation. Grade capping of CuT, CuS, and CuCN samples was completed. Copper grade caps ranged from no capping imposed to a maximum of 7%. Variograms were constructed to provide appropriate search ranges to be used during estimation.

Grades were interpolated using inverse distance weighting to the second or third power (ID2 or ID3), using 20 x 20 x 15 m blocks.

The Los Chancas mineral resource estimate was validated by visual methods, global bias estimation, local bias estimation, and change of support evaluation.

Drill spacing studies were performed to determine an appropriate initial spacing to support mineral resource confidence classification. These showed that indicated mineral resources would be supported by a maximum drill hole spacing of about 150 x 150 m. Inferred mineral resources are classified at a drill hole spacing >150 m and within the constraining pit shell.

To meet the content requirements of an Initial Assessment to support Mineral Resource estimates, Wood evaluated the content requirements set out in Table 1 of §229.1302 (Item 1302) "Qualified person, technical report summary, and technical studies". For the purpose of this initial assessment, the optimization is based on copper only. It is expected that molybdenum will be included as a by-product in future estimates of the mixed and sulfide material. Gold and silver could represent a potential opportunity for adding value also to the mixed and sulfide material if sufficient supporting information is developed for inclusion of these metals in future mineral resource estimates.

Wood constrained the mineral resource estimate within a conceptual pit shell using a Lerchs–Grossmann algorithm and the parameters set out in Table 1-1. Pit slope angles range from 33–45º. Metallurgical recoveries were assumed at 81.8% from copper leaching and 84.3% from copper milling.

To establish the copper price forecasts Wood used a combination of information derived from 22 financial institutions, from pricing used in technical reports filed with Canadian regulatory authorities over the previous 12-month period, from pricing reported by major mining companies in public filings such as annual reports in the previous 12-month period, spot pricing, and three-year trailing average pricing. Wood considers that a long-term price forecast of US$3.30/lb Cu is reasonable. It is in accordance with industry-accepted practice to use higher metal prices for the mineral resource estimates than the pricing used for mineral reserves. The copper price forecast of US$3.30/lb was increased by 15% to provide the mineral resource estimate copper price estimate of US$3.80/lb. The assumed exchange rate was US$1.00 = PENS/3.60. This exchange rate was provided by Southern Copper.

Table 1-1: Conceptual Parameters Used in Constraining Pit Shell

Parameter	Units	Value	Cu Concentrate	Cu Cathodes
Copper price	US$/lb	3.80		
Maximum processing rate (concentration and leaching)	t/day	108,000		
Dilution	%	0		
Mining losses	%	0		
Physical constraints		No		
Process recovery - by mineralization type (MIN)				
Cu, Quaternary	%		0	0
Cu, barren (EST)	%		0	0
Cu, leach capping (LC)	%		0	(0.968 * CuSS + 0.509 * CuCN + 0.045 * (CuT – CuSS - CuCN))/CuT
Cu, oxides (OXI)	%		0	
Cu, enriched (ENR)	%		(CuT-CuSS)/CuT	0
Cu, primaries (PRI)	%			0
Cu, mixed (MIX)	%			0
Cu, transitional (TRA)	%			0
As, all	%		66.20	0
Rock mining cost	US$/t	1.70		
Flotation	US$/t processed	5.82		
Heap leach and SX/EW	US$/t processed	4.29		
Sustaining capital cost	US$/t processed	0.25		
G&A cost	US$/t processed	1.06		
Closure cost	US$/t processed	0.51		
Copper royalty	%NSR	1.5		
Government royalty (minimum Modified Mining Royalty payable)	%NSR	1		
Smelter terms - concentrate				
Moisture	%		8.00	—

Parameter	**Units**	**Value**	**Cu Concentrate**	**Cu Cathodes**
Grade	%		25.20	
Copper minimum deduction	%		1	—
Payable metal				
Copper	%		96.50 subject to a minimum deduction of 1%	100
Cu cathode premium	US$/lb pay.		—	0.03
Penalties for arsenic				
For each 0.1% above 0.2% to 0.5%	US$/t concentrate		2.5	—
For each 0.1% above 0.5% to 1.0%	US$/t concentrate		3.5	—
For each 0.1% above 1.0% to 1.5%	US$/t concentrate		5	—
For each 0.1% above 1.5%	US$/t concentrate		10	—
Treatment cost				
Treatment	US$/dt		90	—
Refining cost				
Copper	US$/lb payable		0.09	—
Concentrate sales cost				
Trucking	US$/wmt		63.33	58.33
Port	US$/wmt		10.30	11.40
Ocean freight	US$/wmt		55.23	55.34
Total	US$/wmt		128.86	125.07
Concentrate losses	%		0.50	NA

Wood calculated net smelter return (NSR) values for each block based on smelter terms. The marginal cut-off is determined at the pit rim. Mined material is considered for processing if the mineralization contains a value that is greater than the costs to process it, i.e., is above the marginal cut-off. Mined material with less value than the marginal cut-off at the pit rim would be sent to the WRSF. The marginal NSR cut-off values were US$6.11/t for material amenable to heap leach methods and US$7.64/t for material amenable to milling and flotation concentration. Wood considers those blocks within the constraining resource pit shell and above the cut-off applied to have reasonable prospects for economic extraction.

Arsenic penalties were applied to the NSR calculations.

1.10.2 Mineral Resource Statement

Mineral resources are reported using the mineral resource definitions set out in SK1300. The reference point for the estimate is in situ. The indicated mineral resource estimates for the Los Chancas Project are provided in Table 1-2. The inferred mineral resource estimates are included in Table 1-3. Wood is the QP Firm responsible for the estimates.

Areas of uncertainty that may materially impact the mineral resource estimates include: changes to long-term metal price and exchange rate assumptions; changes in local interpretations of mineralization geometry such as presence of unrecognized mineralization off-shoots; faults, dikes and other structures; and continuity of mineralized zones; changes to geological and grade shape, and geological and grade continuity assumptions; changes to metallurgical recovery assumptions; changes as to assumptions regarding deleterious elements; changes to the input assumptions used to derive the conceptual open pit shell that is used to constrain the estimates; changes to the cut-off values applied to the estimates; variations in geotechnical (including seismicity), hydrogeological and mining assumptions; and changes to environmental, permitting and social license assumptions.

Table 1-2: Indicated Mineral Resource Statement

Zone	NSR (US$/t)	Tonnage Mt)	Copper Grade (%)	Contained Copper (Mlb)
Oxide	25.8	98	0.45	972
Sulfide	26.92	52	0.59	676
Total		***150***	***0.50***	***1,648***

Table 1-3: Inferred Mineral Resource Statement

Type	NSR (US$/t)	Tonnage Mt)	Copper Grade (%)	Contained Copper (Mlb)
Oxide	19.64	33	0.38	276
Sulfide	22.32	1,400	0.45	13,889
Total		***1,433***	***0.45***	***14,165***

Notes to Accompany Mineral Resource Tables

1. Mineral resources are reported in situ and are current as at December 31, 2021. Mineral resources are not mineral reserves and do not have demonstrated economic viability. Wood is the QP Firm responsible for the estimate.
2. Mineral resources are reported within a conceptual pit shell that uses the following input parameters: metal prices of US$3.80/lb Cu; metallurgical recoveries from copper leaching of 81.8% and from copper milling of 84.3%; base mining costs of US$1.70/t; sustaining capital costs of US$0.25/t processed; heap leach and electrowinning process operating costs of US$4.29/t, mill process operating costs of US$5.82/t, general and administrative costs of US$1.06/t processed; and closure costs of US$0.51/t processed. The marginal net smelter return cut-off values were US$6.11/t for material amenable to heap leach methods and US$7.64/t for material amenable to milling and flotation concentration.
3. Numbers in the table have been rounded. Totals may not sum due to rounding.

Specific factors that may affect the estimates include:

- The lack of adequate downhole surveys for a considerable percentage of drill holes can lead to local inaccuracies in both geological contacts and the location of resource blocks and uncertainty about estimated copper grades in those blocks. None of the downhole surveys are considered to be valid so effectively no downhole surveys were used at Los Chancas, which is a significant source of uncertainty and limits mineral resource confidence classification to inferred mineral resources below 100 m below surface

- Supporting documentation (e.g., original survey records) is lacking for a significant percentage of collar and downhole surveys, which creates uncertainty in sample location at depth, further contributing to confidence category downgrading
- The density used is based on a small sample size, and there is a risk that the tonnage estimate using the density data is biased, which may result in a slight understatement of the estimated mineral resource tonnage.

The lack of a structural model will be a risk for future geotechnical evaluations. There is a risk that such a model could result in changes in assumed pit slope angles in the conceptual pit that is used to constrain the mineral resource estimates. Such a model should be constructed as part of the next mineral resource estimate update.

1.11 Risks and Opportunities

Risks that may affect the mineral resource estimates were outlined in Chapter 1.10.2.

1.11.1 Risks

Other risks that could affect proposed Project development and the resource estimate include the following.

The tenor of the arsenic assays in the Project database indicate that there are some areas of the deposit where arsenic values are elevated, and there is a risk that the arsenic may report to concentrate at tenors that could cause smelters to impose penalties on the concentrate, or limit concentrate marketability to those smelters that are able to blend high-arsenic concentrates with lower arsenic concentrate to achieve an acceptable concentrate feed. Limited metallurgical variability testing has been conducted. Although sufficient to support mineral resource estimation up to the Indicated category, there may be some unrecognized portions of the deposit that have metallurgical characteristics significantly different from what has been assumed.

As part of the application for the EIAsd, an archaeological survey was completed in 2020 that identified a number of archaeological sites within the Project area. Although it appears from the site descriptions that the areas are in a state of poor preservation, Southern Copper will be required to obtain a CIRA before starting activities that would disturb these sites. If it is absolutely necessary to locate infrastructure over an archaeological site, Southern Copper must obtain authorization from the Ministry of Culture to clear the area of archaeological remains (“*rescate arqueológico*”) before starting proposed activities. If the sites are found to be of significance, there is a risk that the conceptual open pit as envisaged in this Report would require modification. There is also a risk that the conceptual project infrastructure locations that were assumed in the Initial Assessment would not be able to be constructed where provisionally envisaged, and additional studies would be required.

As with any large mining project in Peru, the Los Chancas Project is subject to certain risks, including:

- Potential social conflicts based on negative community or regulatory perceptions. These could include unfulfilled expectations, new leadership with new ideas as to how agreements should be concluded, differing ideas of appropriate compensation, or changes in the community boundaries
- Agreements with communities are not respected by certain members of a community and further demands are made for social investment or other considerations not covered by the agreements
- Governmental changes to mining policies and mining regulations
- Non-governmental organizations that promote an anti-mining culture.

1.11.2 Opportunities

Opportunities for the Los Chancas Project include:

- Upgrade of some or all of the inferred mineral resources to higher-confidence categories, such that such better-confidence material could be used in mineral reserve estimation
- Higher metal prices than assumed could present upside opportunities
- Slightly more tonnage may be able to be estimated due to the possible negative bias in specific gravity values.

1.12 Conclusions

Under the assumptions presented in this Report, the Los Chancas Project represents a substantial mineral resource that warrants technical evaluation and mining studies.

Additional work is justified on the Project to upgrade the mineral resource confidence categories.

1.13 Recommendations

The recommendations cover the discipline areas of geology, geotechnical, mineral resource estimates, infrastructure and environmental. The total recommended budget estimate to complete the programs is US$10.3–US$13.4 M.

Recommendations include:

- Geology
  - Completion of a 15,000 m twin drill hole program consisting of oriented core holes
  - Complete a re-survey program to locate all drill collars still visible in the field
  - Complete a downhole survey program on all drill holes that are still open, and can be surveyed
  - Complete density determinations on the core generated during the twin hole program
- Geotechnical
  - Log the oriented core from the twin-hole drill program and collect samples for geomechanical tests
- Mineral resource estimates
  - Update geological interpretations and models
  - Develop alteration, structural and mineralization interpretations and models
  - Update mineral resource estimates
- Metallurgy
  - Complete a deposit and mineralization variability testwork program. This should be based on PQ core collected from a dedicated 5,000 m metallurgical drill program.
  - Construct a geometallurgical model
- Infrastructure
  - Complete trade-off studies to determine sites for key infrastructure
  - Evaluate alternatives for tailings and waste disposal

- Mineral reserve estimate:
  - Once all work programs other than the environmental are complete, prepare a mineral reserve estimate
- Environmental
  - Update environmental baseline studies
  - Complete archaeological surveys and archaeological mapping
  - Southern Copper should continue with its community relations efforts and plans
  - Southern Copper should set up a Community Care Service

2 INTRODUCTION

2.1 Registrant

This technical report summary (the Report) was prepared for Southern Copper Corporation (Southern Copper) by Wood Group USA, Inc. (Wood, acting as the QP Firm) on the Los Chancas Project (the Project), located in the province of Aymaraes, Apurímac Department, Peru (Figure 2-1).

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 estimates, for the Los Chancas Project in Southern Copper's Form 10-K for the year ending December 31, 2021.

Mineral resources are reported for the Los Chancas deposit. There are no current mineral reserves estimated for the Los Chancas deposit.

2.2.2 Terms of Reference

Unless otherwise indicated, the metric system is used in this Report.

Mineral resources are reported using the definitions in Subpart 229.1300 – Disclosure by Registrants Engaged in Mining Operations in Regulation S–K 1300 (SK1300).

The Report uses US English.

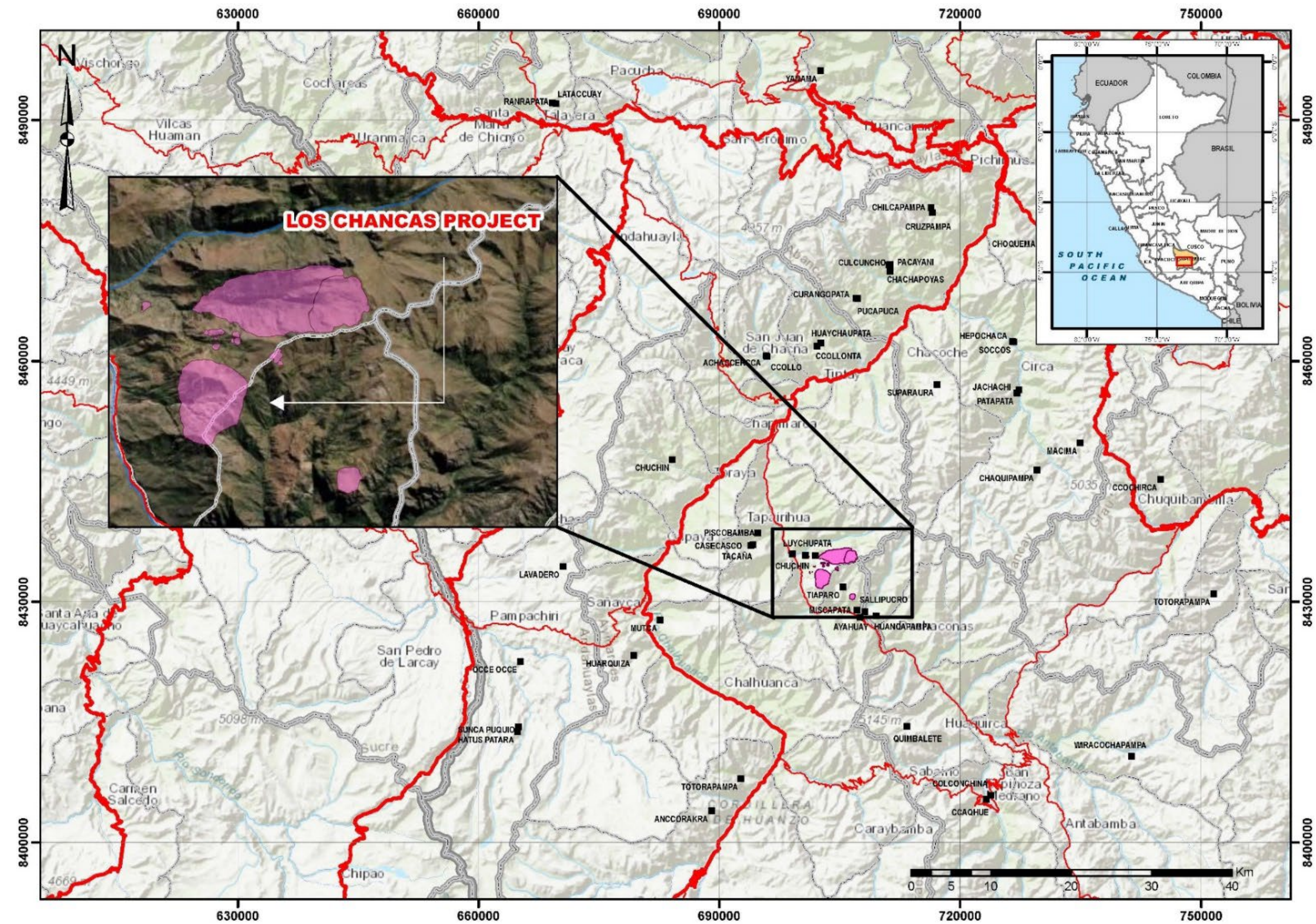
2.3 Qualified Persons

Wood is using the allowance for a third-party firm consisting of mining experts to date and sign the Report.

Wood had appropriate individual Qualified Persons (QPs) prepare the content that is summarized in this Report.

A portion of the information was provided by Southern Copper as the registrant as set forth in Chapter 25. Wood has relied on the registrant for the information specified in Chapter 25.

Figure 2-1: Project Location Map



Note: Figure prepared by Wood, 2021. Infrastructure locations shown are conceptual only, for the purposes of the Initial Assessment discussed in Chapter 11.11.1. Actual locations will require additional studies, trade-offs and evaluations.

2.4 Site Visits and Scope of Personal Inspection

Wood QPs and support staff visited the Project site. The scope of inspection by each discipline area is summarized in Table 2-1.

2.5 Report Date

The Report is current as at December 31, 2021.

2.6 Information Sources

The reports and documents listed in Chapter 24 and Chapter 25 of this Report were used to support Report preparation.

2.7 Previous Technical Report Summaries

Southern Copper has not previously filed a technical report summary on the Project.

Table 2-1: Scope of Personal Inspection

Discipline Area	Site Visit Date	Scope of Personal Inspection
Geology/mineral resources	October 13–15, 2021	Visited the core warehouse located in the city of Abancay. The objective of this visit was to review data acquisition procedures implemented by Southern Copper, including core logging and sampling. Visited the Project site. Visited and inspected drilling platforms.

3 PROPERTY DESCRIPTION

3.1 Property Location

The Los Chancas Copper Project is located in the Andes Range in southern Peru. The site is approximately 65 km southwest of the city of Abancay in the Department of Apurimac, Peru at coordinates UTM 8433300 S, 703,270 E – WSG84, or latitude 14° 9.904'S, longitude 73° 6.608'W. The Los Chancas deposit is located at 14º 10' 11.59" S and 73º 0.7' 08.14" W.

3.2 Property and Title in Peru

The QP Firm 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 Agriculture and the Ministry for Culture. The Environmental Evaluation and Oversight Agency (OEFA) monitors environmental compliance.

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 US$3/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 1 January, 2019. "Minimum Annual Production" is defined as one tax unit (UIT) per hectare per year, which is which is S/4,400 in 2021 (about US$1,220)
  - 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 is not paid for two consecutive years
- The applicable penalty is not paid for two consecutive years

- The Minimum Annual Production Target 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 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.

Expropriation procedures have been considered for cases in which landowners are reluctant to allow mining companies to have access to a mineral deposit. 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 Ministry of Agriculture. There are three types of water 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
- Authorization: this right is granted for a specified quantity of water and for a specific purpose. The grant period is two years, which may be extended for an additional year, for example for drilling.

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

- Make all required payments including water tariffs
- 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.

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) has to 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 start mineral exploration activities, a company is required to comply with the following requirements and obtain a resolution of approval from MINEM, as defined by Supreme Decree No. 020-2012-EM of 6 June 2012:

- Resolution of approval of the Environmental Impact Declaration
- Work program
- A statement from the concession holder indicating that it is owner of the surface land, or if not, that it has authorization from the owners of the surface land to perform exploration activities
- Water License, Permission or Authorization to use water
- Mining concession titles
- A certificate of non-existence of archeological remains (CIRA) whereby the Ministry of Culture certifies that there are no monuments or remains within a project area. However, even with a CIRA, exploration companies can only undertake earth movement under the direct supervision of an onsite archeologist.

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 obtained from the sale of minerals 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

The QP Firm used the Investment Attractiveness Index from the 2020 Fraser Institute Annual Survey of Mining Companies report (the Fraser Institute survey) 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.

The QP Firm 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 2020, the rankings were from the most attractive (1) to the least attractive (77) jurisdiction, of the 77 jurisdictions included in the survey. Peru ranked 34 out of 77 jurisdictions in the attractiveness index survey in 2020; 42 out of 77 in the policy perception index; and 30 out of 77 in the best practices mineral potential index.

3.3 Ownership

The Project is wholly owned by Southern Perú Copper Corporation, Sucursal del Perú (Southern Perú Branch). which is a majority-owned, indirect subsidiary of Grupo Mexico S.A.B de CV. (Grupo Mexico). An ownership organogram is provided in Figure 3-1.

3.4 Property Agreements

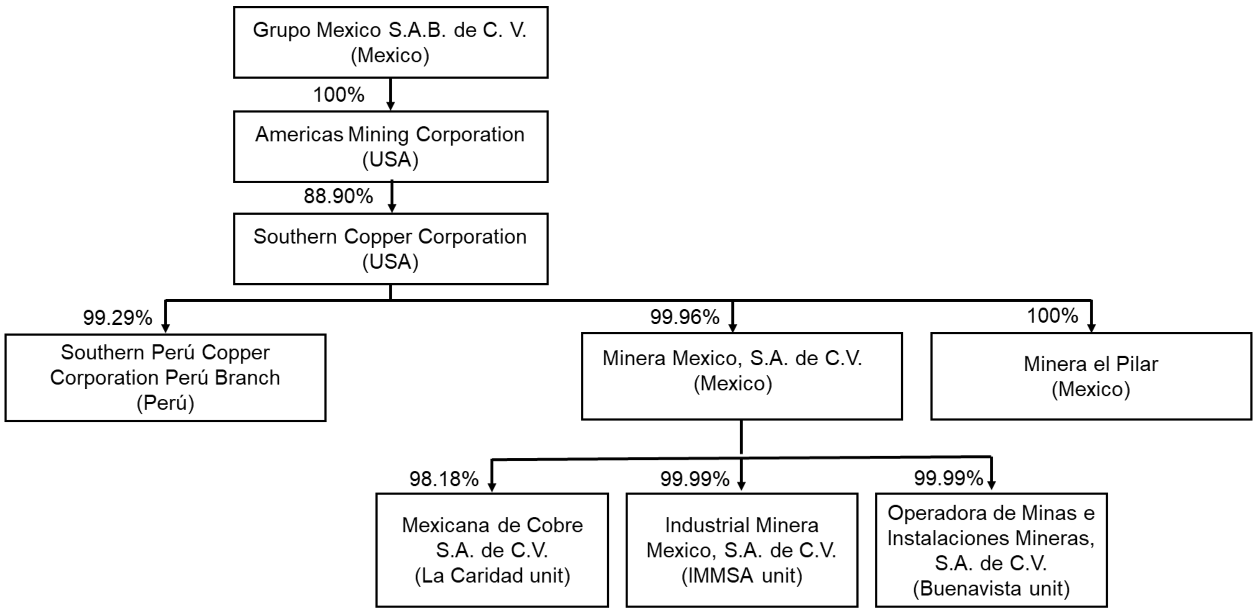
There are currently no property agreements relevant to the Project.

3.5 Mineral Title

The Project consists of 31 concessions, covering an area of approximately 22,700 ha, as summarized in Table 3-1 and shown in Figure 3-2.

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

Figure 3-1: Ownership Organogram



Note: Figure prepared by Southern Copper, 2021.

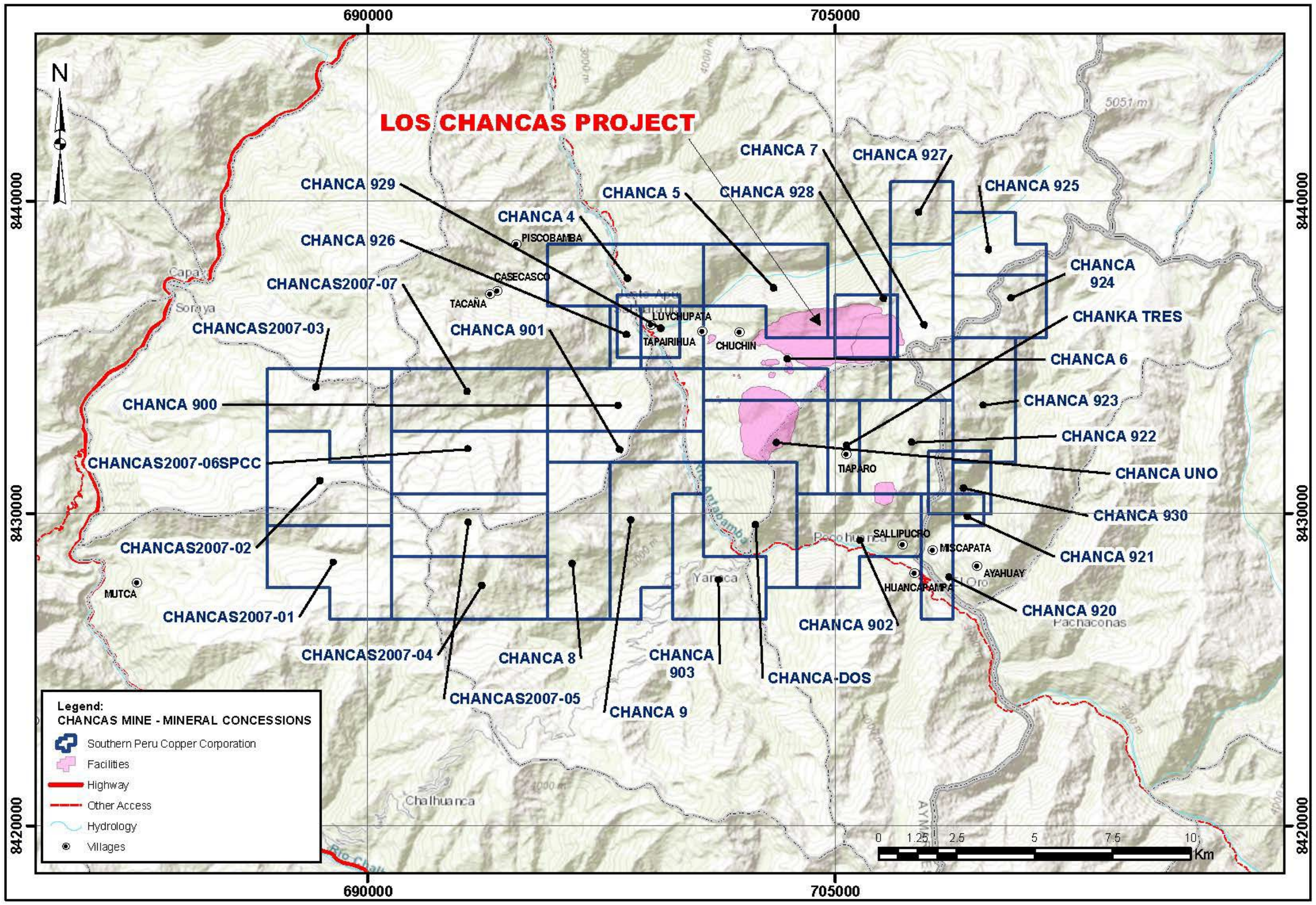
Table 3-1: Mineral Tenure Summary Table

Code	Mining Concession	Holder	Date Of Concession Grant	Area (ha)
10826095	Chanca Uno	Southern Copper	20/12/1996	900
10825995	Chanca-Dos	Southern Copper	18/02/1997	1,000
10059296	Chanka Tres	Southern Copper	28/04/1997	300
10248398	Chanca 7	Southern Copper	2/06/1999	1,000
10248498	Chanca 8	Southern Copper	22/10/1999	1,000
10248098	Chanca 4	Southern Copper	29/10/1999	1,000
10248298	Chanca 6	Southern Copper	29/10/1999	1,000
10248198	Chanca 5	Southern Copper	26/11/1999	1,000
10248598	Chanca 9	Southern Copper	3/12/1999	1,000
10032806	Chanca 900	Southern Copper	13/03/2006	1,000
10032906	Chanca 901	Southern Copper	13/03/2006	500
10033006	Chanca 902	Southern Copper	13/03/2006	1,000
10033106	Chanca 903	Southern Copper	6/04/2006	800
10205307	Chancas2007-03	Southern Copper	14/06/2007	1,000
10205107	Chancas2007-01	Southern Copper	20/06/2007	1,000
10205507	Chancas2007-05	Southern Copper	20/06/2007	1,000
10205407	Chancas2007-04	Southern Copper	18/07/2007	1,000
10205707	Chancas2007-07	Southern Copper	31/07/2007	1,000
10205607	Chancas2007-06Southern Copper	Southern Copper	5/09/2007	1,000
10205207	Chancas2007-02	Southern Copper	14/12/2007	1,000
10320713	Chanca 920	Southern Copper	27/12/2013	400
10049814	Chanca 926	Southern Copper	14/04/2014	200
10049414	Chanca 922	Southern Copper	23/10/2014	900
10049514	Chanca 923	Southern Copper	28/11/2014	800
10342813	Chanca 921	Southern Copper	22/07/2015	100
10265014	Chanca 927	Southern Copper	22/04/2016	400
10049714	Chanca 925	Southern Copper	14/03/2017	500
10049614	Chanca 924	Southern Copper	21/08/2017	600
10276616	Chanca 929	Southern Copper	7/11/2017	100
10030317	Chanca 930	Southern Copper	29/08/2018	100

Code	Mining Concession	Holder	Date Of Concession Grant	Area (ha)
10281416	Chanca 928	Southern Copper	3/10/2018	100
				22,700

Note: According to GEOCATMIN (official web page), the summary sheet for mining concessions Chanca 928, Chanca 929 and Chanca 930 has the concessions with an area of 400 ha each. In 2019, the since 2019 the maintenance payments for these concessions was reduced to the value of 100 ha each. The table reflects the 100 ha area per concession.

Figure 3-2: Mineral Tenure Location Plan



Note: Figure prepared by Wood, 2021.

3.6 Surface Rights

Surface rights are currently being negotiated. The localities in the Project's area of direct influence belong to two different districts, Pocohuanca and Tapairíhua, where land ownership is communal. The area where surface rights are required is within the Tiaparo and Tapairíhua rural community boundaries (Figure 3-3). However, the communities are discussing the precise location of their boundaries.

The Tiaparo rural community registered their ownership rights with the Land Registry, under Electronic File N° 11017941, in the Rural Land Chapter, Registry Zone No. 10, based in Cusco. The Tiaparo rural community's ownership right was established by Court Decision No. 207 dated 31 January, 2005, issued in the land demarcation and titling process No. 1995-006, on the grounds of a title granted during colonial times dated 4 April, 1778.

The Tapairíhua rural community, however, have filed alleging fraud judicata (File No. 2006-108), to have the ruling in favor of the Tiaparo rural community declared null and void.

A final agreement is subject to the land ownership being legally defined. The procedure re-started in 2021.

3.7 Water Rights

Southern Copper holds two water rights (Table 3-2) that cover water from four spring sources.

3.8 Royalties

3.8.1 State Royalties

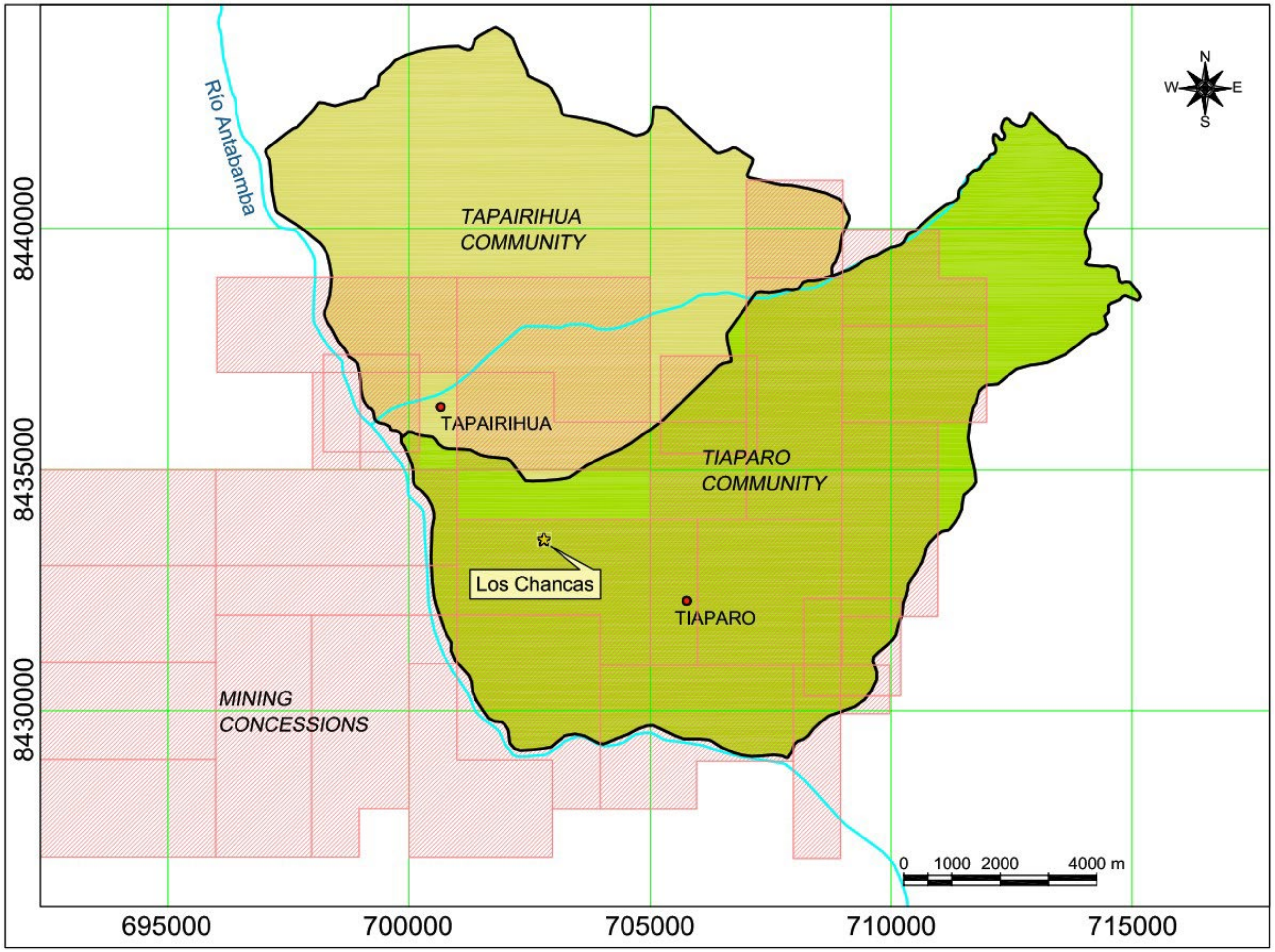
The mining royalties discussed in Chapter 3.2.7 will be payable on production.

3.8.2 Private Royalties

In 1997, Southern Copper indirectly acquired title to the Chanca Uno, Chanca Dos and Chanka Tres concessions from Mr. Percy Bush (who held a 75% interest) and by Mr. Fausto Valdeavellano (who held the remaining 25% interest).

As part of the consideration for the purchase, Southern Copper agreed to pay Mr. Bush and Mr. Valdeavellano an overall 1.5% royalty over the gross sales of the minerals mined from the concessions. This royalty has, because of the deductions allowed, a structure very similar to that of a NSR royalty. Under the agreement, Mr. Bush was to receive 75% of the agreed royalty and Mr. Valdeavellano the remaining 25%.

Figure 3-3: Community Lands Location



Note: Figure prepared by Wood, 2021.

Table 3-2: Water Rights

Resolution of Approval	Local Water Administration	Location	Flow (L/sec)	Annual Amount (m^3)	Water Extraction Purpose
Resolución Administrativa N° 095-2002-DRA-AP/ATDR-AB	Administración Técnica de Distrito de Riego Abancay	Manantiales Senejapuquio, Ñoñoyani, Mujinipuquio, Pajaripata	1.5	46,656	Non-industrial use
Resolución Administrativa N° 096-2002-DRA-AP/ATDR-AB	Administración Técnica de Distrito de Riego Abancay	Manantiales Senejapuquio, Ñoñoyani, Mujinipuquio, Pajaripata	1.0	1,893,456	Mining

It was further agreed that if mining at the concessions did not begin by 2003, Southern Copper would make annual US$100,000 advance royalty payments, to be deducted from future royalty payments made once mining in the concessions was initiated.

Mr. Bush passed away in 2016, and Southern Copper currently pays the portion of the royalty held by Mr. Bush to his seven heirs as per their relevant interests in Mr. Bush's estate. The portion of the royalty originally was payable to Mr. Valdeavellano is currently owned by Royal Gold, Inc., following the purchase of the royalty interest from Mr. Valdeavellano in 2020.

3.9 Environmental Considerations

3.9.1 Baseline Studies

The following baseline studies were completed from 2012–2020:

- Acid rock drainage, metals leaching potential: acid–base accounting (ABA) tests, mineralogy using X-ray diffraction, non-acid generating (NAG) tests pH, carbon and metal content, particle size, and kinetics, based on moisture cells
- Social characterization, and identification of the possible impacts and proposed social management and mitigation measures
- Baseline environmental assessment: described and evaluated the environmental, physical and biological conditions of the Project area. An environmental action plan

was prepared that includes the areas of complementary studies necessary for Project development

- Internal mining study: review of potential development routes, conceptual throughput rates, potential capital and operating costs, provisional conceptual financial analysis, and conceptual early-stage environmental and social management plans.

3.9.2 Archaeology

As part of the application for the EIAsd, an archaeological survey was completed in 2020. This identified a number of archaeological sites within the area that could be used for Project-related infrastructure to support any future mining activity. The survey observed that three sites were within the area of the proposed open pit. However, the sites, historic corrals, were noted to be in a state of poor preservation.

Southern Copper will be required to obtain a CIRA before starting activities that would disturb these sites. If it is absolutely necessary to locate infrastructure over an archaeological site, Southern Copper must obtain authorization from the Ministry of Culture to clear the area of archaeological remains (“*rescate arqueológico*”) before starting proposed activities.

3.9.3 Early Assessment Review

During 2018, OEFA completed an Early Assessment review, which included water sampling from surface water points, and rock chip sampling of outcrops. The following parameters did not comply with the National Standards for Water Quality (ECAs): pH, manganese, copper, iron and aluminum.

Sampling in the period 2015–2017 was referred to by OEFA in the Early Assessment report, noting that certain samples exceeded the Peruvian Environmental Standards, including:

- Soil quality: elevated arsenic, lead, hexavalent chromium
- Water quality: elevated pH, dissolved oxygen, arsenic, aluminum, cadmium, copper, iron, manganese, mercury, zinc and lead
- River sediment quality: elevated arsenic and cadmium.

Southern Copper prepared a series of preventive, control and/or mitigation measures to address the effect that exploration activities could have on physiography, air, noise, land, water, flora, terrestrial fauna, aquatic fauna and the landscape. These measures included provision for follow-up monitoring.

Any future operations will require a comprehensive environmental monitoring program and will need to address any commitments that may be imposed during the permitting process.

3.9.4 Artisanal Mining

Although there has not been any operation specifically identified in the area of direct Project influence, illegal and informal miners are known to be operating in the general area because they use the nearby roads. Southern Copper has no relationship with these groups.

3.10 Permitting

3.10.1 Permitting Requirements

The initial Environmental Assessment of the Los Chancas Project was conducted in 2001 (Resolución Directoral N° 220-2001-EM/DGAA), and updated in 2008 (Resolución Directoral N° 170-2008-EM/DGM). An EIAsd was completed in 2010 (Resolución Directoral N° 344-2010-EM/DGM).

The following permits are normally required for exploration activities:

- Approval of Environmental Impact Assessment by MINEM
- Water use license
- Mining activities permit granted by MINEM
- Agreement or purchase of surface land use
- Certificate of non-existence of archaeological remains.

3.10.2 Permitting Timelines

Current site activities are support by an existing exploration permit.

Southern Copper is currently obtaining the supporting information required for, and preparing the application to, obtain exploitation permits. Southern Copper expects to complete the application process and obtain the exploitation permits by 2023.

3.10.3 Permit Conditions

Southern Copper must conduct water, air, noise and biological quality monitoring. The company must also report annually to the Ministry on compliance with its environmental and social commitments.

The closure plan developed for the EIAsd that covers exploration activities is conceptual, and covers temporary, progressive and final closure.

3.11 Social Considerations

Southern Copper has community initiatives in place in the Project area of influence. These are projects (proyectos por convocatoria) that are evaluated by community committees to best address social needs and to establish aspects of the programs that required follow-up activities. During 2019, prior to the pandemic, a total of 26 initiatives were underway. Six local suppliers provide Project services.

Social funding included the following areas:

- Competitive funds: funding provided to generate social investment projects shared between the communities and Southern Copper, with a focus on improving living conditions and promoting community development
- Capital funding of community projects: commenced in 2019:
  - 26 projects were initiated in 2019, of which 23 were selected by the community committees in the areas of health, education, environmental, production and culture
  - 15 projects were completed in 2020, and eight remain underway
- Pandemic: provision of donations and support (e.g., supplies, materials and medical equipment, food, sanitation) to communities facing the COVID-19 pandemic.

Southern Copper created two community committees, one for each of Tiaparo and Tapairíhua, and a community care service that is accessible by the communities. The community committees are forums where Southern Copper and the communities can discuss and analyze proposed projects and obtain community approval. Community committees for the Tiaparo and Tapairíhua communities were established in April 2019. The community care service is a medium whereby communities can lodge concerns, suggestions, complaints, special cases or contingency reports with the company.

Any future Project development is expected to affect at least the Tiaparo and Tapairíhua communities that are included in the list of indigenous communities prepared by the Ministry of Culture and will be subject to prior consultation requirements and considerations.

Southern Copper is managing an ongoing social conflict with the Tiaparo and Tapairíhua communities due to requests by the communities to increase the amount of social investment by the company. Southern Copper prepared a social strategy to manage the conflict, with the aim of reaching consensus and agreements. This plan includes participation in community assemblies, meetings with communal authorities, explanations about and information on the EIA preparation process, and updates on the Project status. The community care service is expected to help Southern Copper address grievances and complaints and provide solutions; and the community committees will allow the company a better understanding of any social issues that may arise.

3.12 Violations and Fines

There are no current material violations or fines, as imposed in the mining regulatory context of the Mine Safety and Health Administration (MSHA) in the United States, that apply to the Los Chancas Project.

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

As with any large mining project in Peru, the Los Chancas Project is subject to certain risks, including:

- Potential social conflicts based on negative community or regulatory perceptions. These could include unfulfilled expectations, new leadership with new ideas as to how agreements should be concluded, differing ideas of appropriate compensation, or changes in the community boundaries
- Agreements with local communities are not respected by certain members of a community and further demands are made for social investment or other considerations not covered by the agreements
- Governmental changes to mining policies and mining regulations
- Non-governmental organizations that promote an anti-mining culture.

After reviewing the information provided by Southern Copper, and following consultation with Southern Copper staff, Wood is of the opinion that Southern Copper has appropriately implemented a system to identify and mitigate social issues that would arise during the pre-development, development and operating activities. In Wood's opinion, social risks to the Project are well-understood by Southern Copper and should be able to be appropriately addressed and mitigated

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 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 Physiography

The Project is located in mountainous terrain of the Andean Cordillera, where elevations vary between approximately 2,500–4,500 masl. The elevation of the known mineralization ranges between approximately 3,000–4,000 masl.

Topography across the site consists of moderate to steep valleys and ridges. Exposed bedrock is present throughout much of the site with intermittent stream channels present on the valley floors. The main water stream flow in the Antabamba River is perennial.

In general, the Project is above the tree line. Vegetation consists primarily of native grasses, cactus, and small shrubs along the ridges and valley walls with thin stands of trees present on the lower valley floors.

Some areas of the Project are under cultivation by local farmers or are used for grazing.

A site-specific earthquake hazard assessment study was completed for the Los Chancas Project. The main objective of the study was to characterize the probability of risk of earth movement of the project site associated with possible future earthquakes in the region. The maximum ground acceleration (PGA) for seismic events for different return periods was estimated. The PGA corresponding to a 50% to 0.5% probability of exceedance in 50 years (equivalent return periods in the range of 72 years to 9,975 years) were analyzed. The earthworks characteristics associated with these hazard levels were estimated using a seismic hazard probability analysis (PSHA) method. The Latin American seismic source model integrated in the EZ-FRISK software by Risk Engineering (2011) was used for the analyses. The horizontal PSHA results have been revised with Deterministic Seismic Hazard Analysis (DSHA) based on the distribution of the epicenters of earthquakes, quaternary faults, and Holocene volcanoes within approximately 200 km of the site. The most likely source of seismicity at the Los Chancas Project site will come from an earthquake of nearby origin, a larger earthquake in the Quaternary fault line, or a major earthquake in the Nazca subduction zone.

According to the Peruvian seismic hazard zoning, the Los Chancas Project is located in Zone 3, characterized by a high-level seismic probability, with a Z factor of 0.35, which is interpreted as the maximum horizontal acceleration that it has a 10% chance of being exceeded in 50 years.

4.2 Accessibility

The Project site can be accessed using a Highway 1, a paved road, from Lima to Nazca (460 km), from Nazca to Santa Rosa (250 km), using road 30A, and a gravel road from Santa Rosa to the Project site (32 km). Alternatively, access is available from Cuzco, via paved road, to Santa Rosa (170 km), and uses the same gravel road from Santa Rosa to the Project site (32 km).

Access within the Project area is via gravel roads. Access to drill sites is via unimproved roads cut with bulldozers. The topography is extremely steep so site roads are narrow and steep. Many of the access roads used for exploration were only partially accessible at the Report effective date.

The closest airport is at Cuzco, which is served by daily flights from Lima (approximately one hour flying time).

Port options that may be available to the Project for concentrate shipment include:

- Port of San Juan de Marcona: approximately 500 km by road from the Project site
- Port of General San Martin at Pisco: depending on the road route, about 640–800 km from the Project site.

4.3 Climate

The Los Chancas Project is located in a sub-alpine climate. The dry season is generally considered to be May–October (winter) and the wet season typically runs from November–April (summer). In the province of Aymaraes, maximum temperatures are about 15.3–17.9°C, and minimum temperatures vary from -4.7°C and 2.3°C. The average temperature during the year varies from 5.4–9.3°C.

The majority of the precipitation occurs from October to March. Precipitation can range from about 33 mm (two-year event) to 65 mm (200-year event). Total annual pan evaporation is assumed to be 1,147.4 mm.

Mining operations in the district operate year-round, and it is expected that any future mining operation at Los Chancas will be year-round. Exploration activities are conducted year-round, but may be temporarily curtailed by heavy rains.

4.4 Infrastructure

The site is currently a greenfields site with limited infrastructure that is only suitable to support exploration-level activities.

4.4.1 Water

Water required for exploration programs was obtained under permits and licenses granted by the national water authority.

Conceptual plans for water sourcing for any future development propose that the Project will use a system of infiltration galleries beneath the deposit to capture water, and pumping stations in the Antabamba River basin to supply the camp and the processing facilities. Capture tunnel alternatives could include drilling deep wells and pumping groundwater directly. Once the Project is in operation, it is envisaged that most of the process water will be recovered and reused; however, some make-up water will be required.

4.4.2 Electricity

Electrical power is available by the Peruvian power grid. Upgrading of the existing Cotaruse Electrical Substation and a new overhead line would be required in support of any future operations.

4.4.3 Personnel

All of the current manual labor requirements for the Project, which consist of exploration activities and environmental studies, are met by personnel from nearby communities.

During future mine operations, it is envisaged that the majority of the positions will be filled by Peruvian citizens. Unskilled Labor will be sourced locally or within the area, according to local law and union agreement. Certain technical trades will have to be obtained from outside the area. Southern Copper's hiring policy is to hire locally as much as possible. Senior staff positions will be filled by current Southern Copper personnel if possible but recruitment from outside the area may be required to secure experienced and competent senior personnel.

Due to the remote location and high altitude of the Project, a combined temporary construction and permanent operations camp may be required to provide accommodation during the construction phase for mine and for process plant personnel.

4.4.4 Supplies

The city of Abancay (~80,000 people) is the closest major town to the Project area. Abancay can provide basic needs for exploration and development stages; however, the majority of mining-related equipment and services for support of operations would need to be obtained from Lima.

Internet service is operational at the exploration camp and is the only method of direct communication from the camp. No fixed or cellular telephone service is available within the Project area.

5 HISTORY

There is no information as to any earlier work programs that may have been conducted by other companies.

Southern Copper commenced regional exploration in the Los Chancas area in 1997. The regional exploration program identified color and geochemical anomalies consistent with the presence of copper mineralization. The Las Chancas deposit was discovered in 1999.

Work conducted to the Report effective date includes geological mapping, reconnaissance exploration, rock chip and grab sampling, ground induced polarization (IP) and magnetic surveys, core drilling, metallurgical testwork, baseline environmental studies, studies in support of Project permitting and mining studies (Table 5-1).

Table 5-1: Exploration and Development History

Year	Operator	Work Conducted
1997	Southern Copper	Reconnaissance mapping and prospecting. Ground magnetic geophysical survey covering 7.44 linear km, on lines 100–300 m apart and 25 m station spacing.
1998		8 drill holes, 1,340.25 m.
1999		20 drill holes, 6,286.57 m. Discovery of Las Chancas deposit.
2000		30 drill holes,9,477.45 m
2001		47 drill holes, 22,912.25 m
2002		36 drill holes, 17,574.80 m
2003		51 drill holes, 27,862.75 m
2004		21 drill holes, 10,595.40 m
2006		Ground induced polarization geophysical survey.
2008		15 drill holes, 8,101.00 m
2009		77 drill holes, 42,748.30 m
2010		20 drill holes, 8,490.80 m
		1:2,000 scale geological mapping
		Semi-systematic rock chip sampling along road cuts, and from outcrops. Detailed rock chip sampling over two areas, one 50 x 100 m, the second 100 x 100 m. Total of 5,000 samples collected.
2013		Internal mining study
2014		Updated internal mining study
2020		Internal mining study updated for second time

6 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

6.1 Deposit Type

The Los Chancas 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 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.

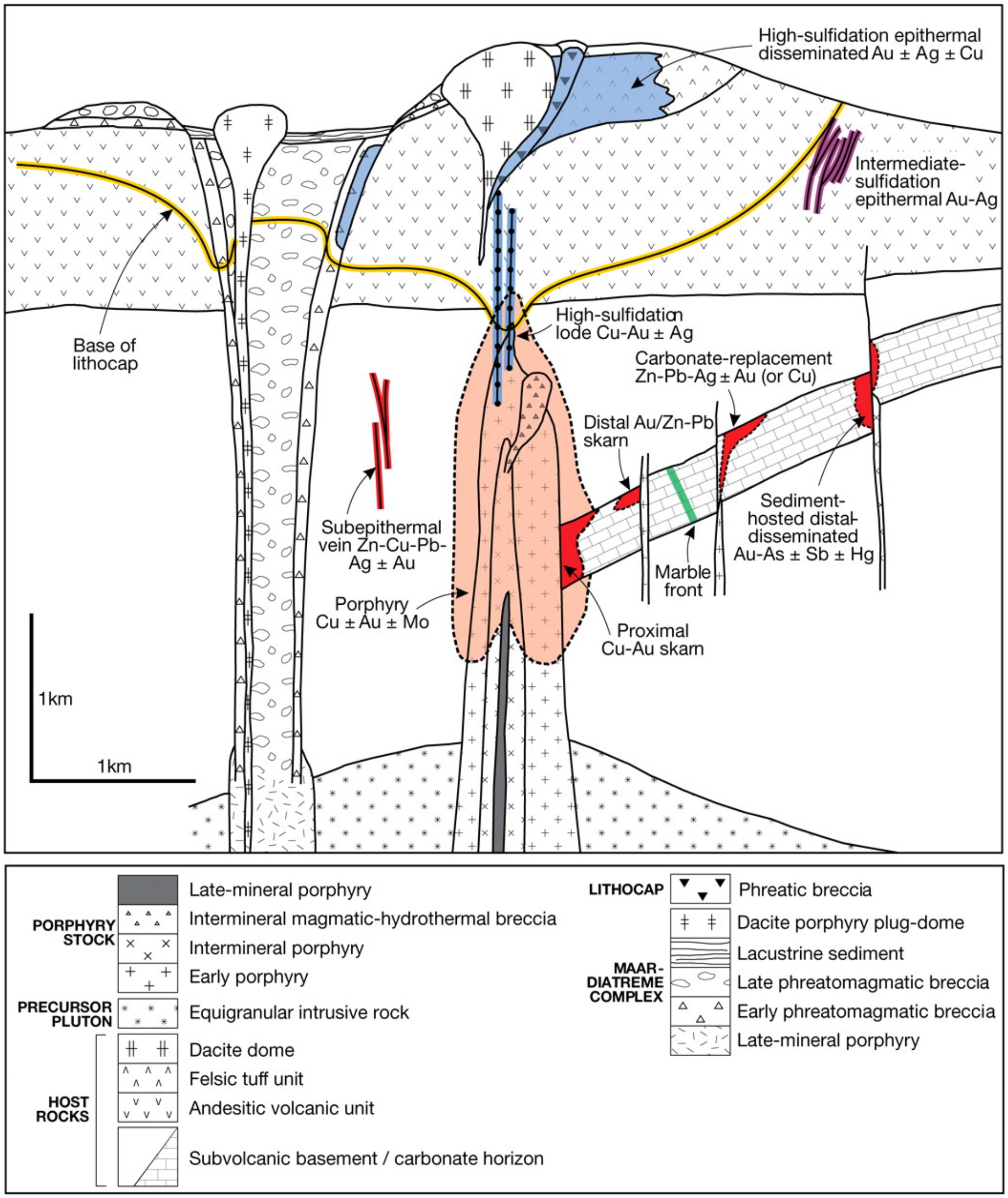
Deposits commonly form irregular, oval, solid or "hollow" cylindrical and inverted cup shapes (Figure 6-1). Orebodies can occur separately, overlap each other, or be stacked on top of each other. They are characteristically zoned, with barren cores and crudely concentric metal zones that are surrounded 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

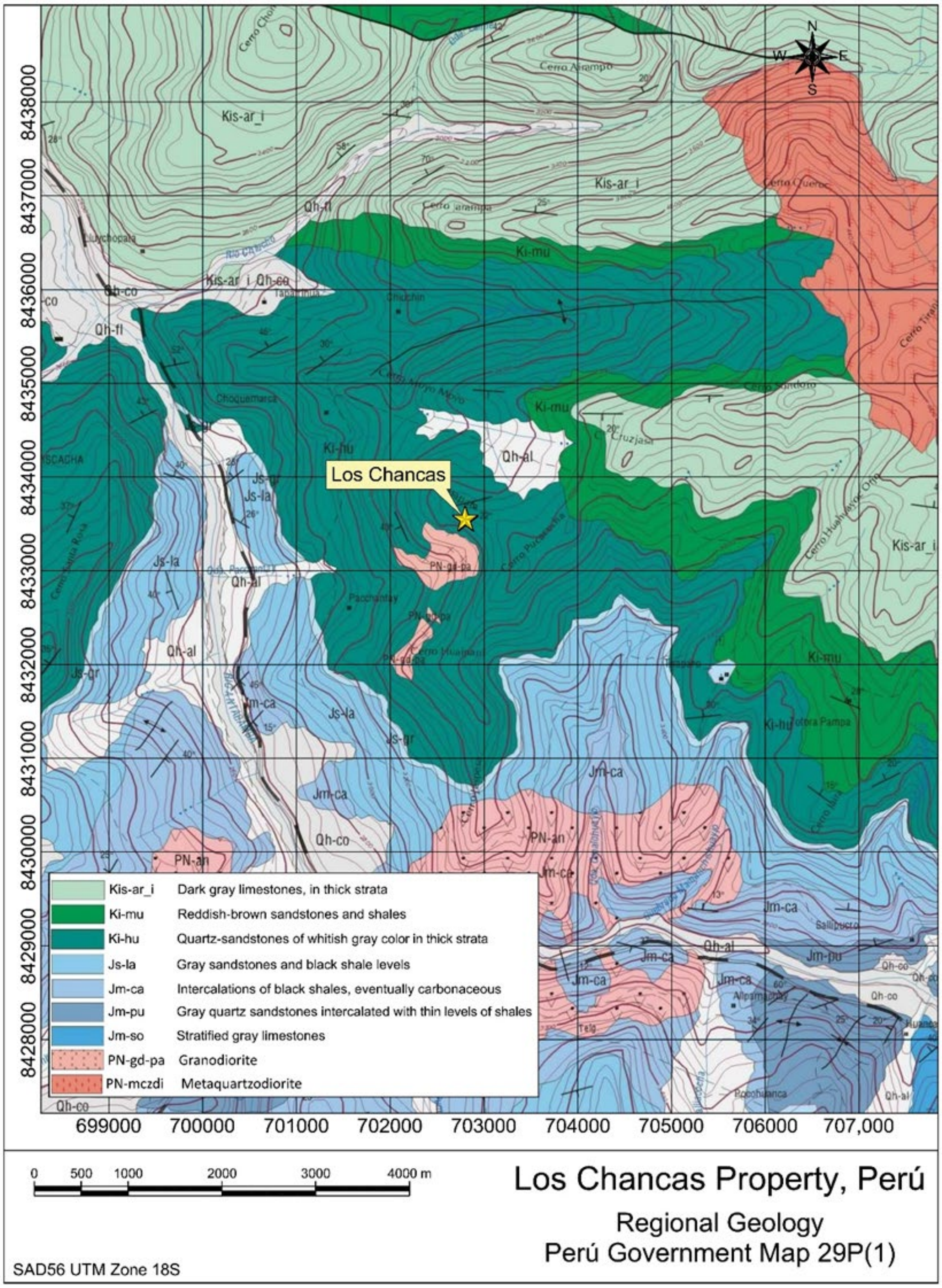
The Los Chancas Project is located in the Middle Eocene to Early Oligocene (~48–32 Ma) Andahuaylas–Yauri Batholith along the western margin of the Apurimac Copper Porphyry–Skarn Belt. The northwest-trending Andahuaylas–Yauri belt extends over an area of about 25,000 km^2 in southeastern Peru. It includes calc-alkaline intrusive bodies that form a major regional batholith, and related porphyry stocks, dikes and sills. The batholith has intruded a folded sequence of Jurassic–Cretaceous quartzite, meta-siltstone, meta-mudstone and limestone (Figure 6-2). The Andahuaylas–Yauri Belt lies within the "Abancay Deflection" a structurally-complex area of Peru where the principal northwest-trending structures and geological units of the Andean Cordillera deviate to an almost east–west orientation for several hundred kilometers.

Figure 6-1: Porphyry Deposit Model



Note: Figure from Sillitoe, 2010.

Figure 6-2: Regional Geology Map



Note: Figure prepared by Wood, 2021, based on Peruvian Government mapping.

6.3 Local Geology

6.3.1 Lithologies and Stratigraphy

The major sedimentary and intrusive rock types in the general Los Chancas Project area are summarized in Table 6-1 and Table 6-2, respectively. A stratigraphic column is provided as Figure 6-3. A geology plan is provided in Figure 6-4.

6.3.2 Structure

Regionally, the most important structural feature is a series of northwest-trending faults that may have produced structurally weak areas that were favorable for post Andahuaylas–Yauri batholith intrusive events.

6.3.3 Alteration

In the vicinity of the porphyry system, potassic, phyllic, silicic, and argillic alteration were recognized.

6.3.4 Mineralization

The only known major mineralization in the Project area is that of the Los Chancas copper–molybdenum porphyry.

6.4 Property Geology

6.4.1 Deposit Dimensions

The deposit is about 1,200 m in diameter, extends for at least 1,000 m at depth, and most drill holes bottom in mineralization. The deposit remains open to the southeast and at depth.

6.4.2 Lithologies

The sedimentary rocks form a north-facing anticline that is eroded along the axial plane. The units dip to the west and east at 10–70º, averaging 30º.

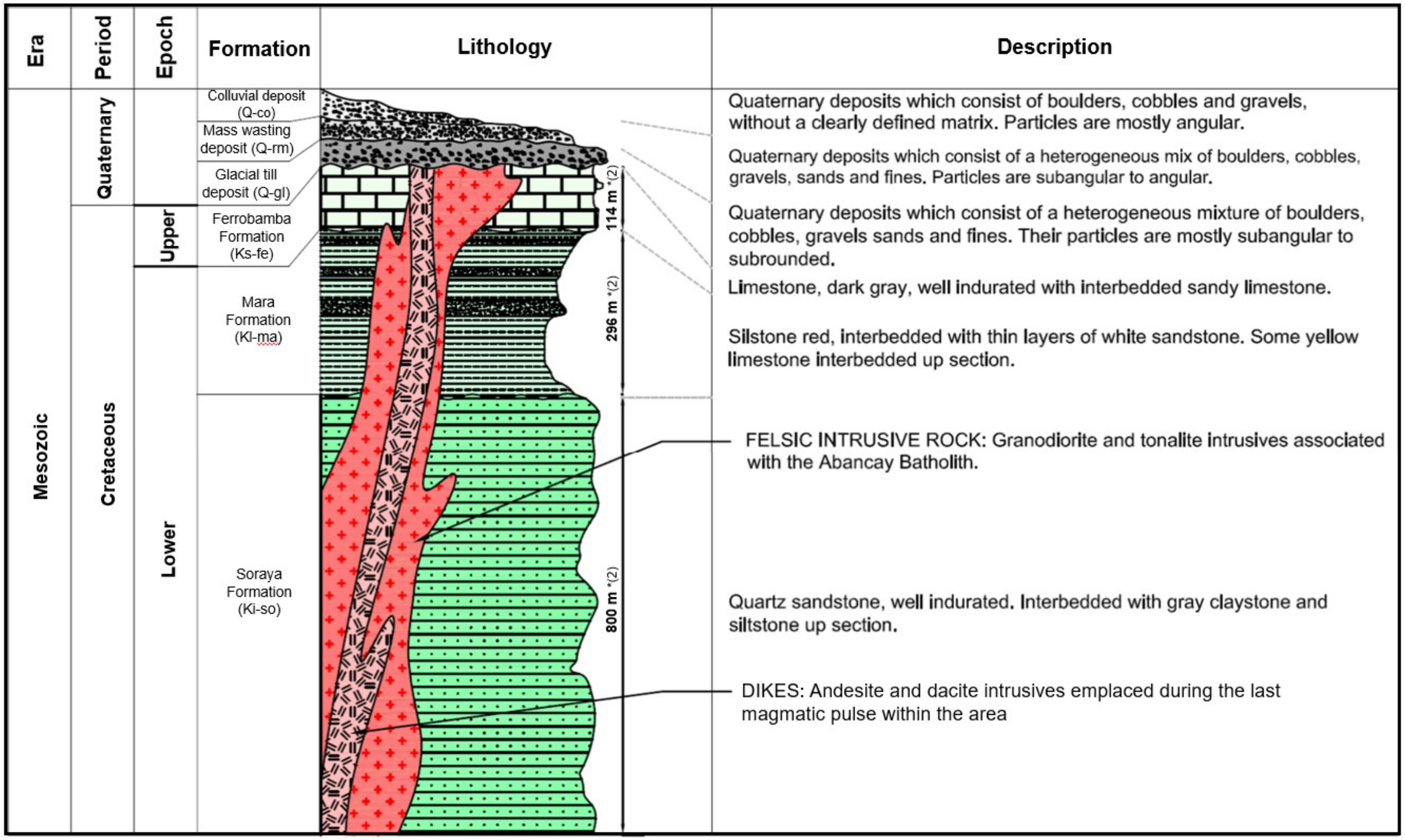
Table 6-1: Sedimentary Lithology Table

Unit Name	Date	Description	Note
Recent		Glacial, fluvioglacial and alluvial deposits consisting of till, colluvium and talus	
Ferrobamba Formation	Upper Cretaceous	Monotonous 800 m thick sequence of massively stratified black to grey limestone, deposited as shallow platform limestones	Erosional non-conformity with underlying units
Mara Formation	Lower Cretaceous	Approximately 200 m thick. Silty sandstones and shales, generally orange–red in color	Can be completely eroded away
Soraya Formation	Upper Jurassic to Lower Cretaceous	Ranges from 665–800 m in thickness. Quartzite with local thin intercalations of sandstone and schist; grey to pinkish-red	Ferrobamba Formation rocks may be directly deposited on Soraya Formation units
Chuquibambilla Formation	Upper to Mid Jurassic	Thickness of >800 m. Sandstones, limestones and shale	

Table 6-2: Intrusive Lithology Table

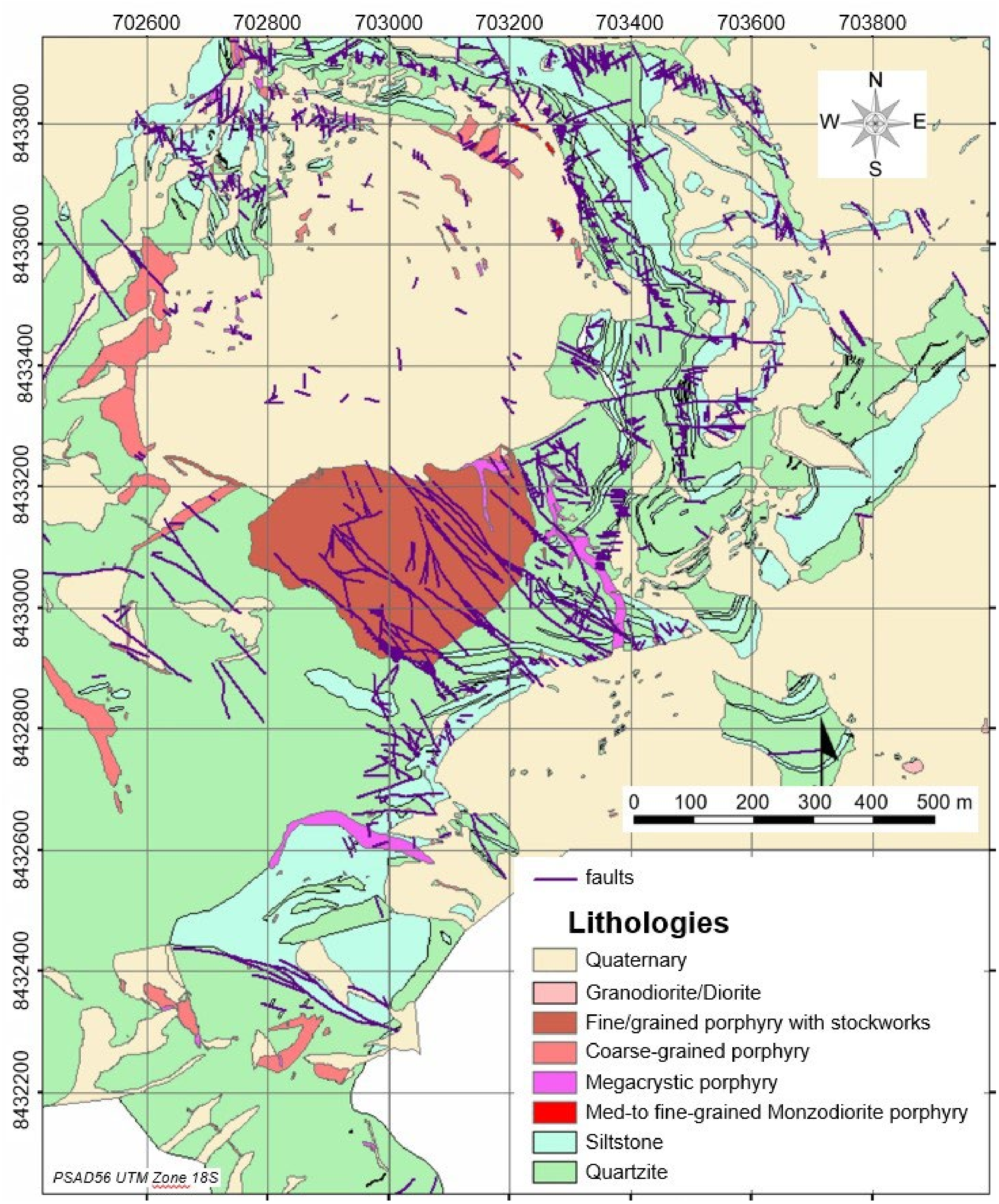
Phase	Date	Description	Note
	28 Ma	Syenite stocks	
Late	Circa 40–32 Ma	Granodioritic magmas: monzodiorite, quartzite diorite, quartzite monzodiorite, and granodiorite	Associated with mineralization in the Andahuaylas–Yauri belt
Early	Circa 48–43 Ma	Mafic magmas: gabbro, troctolite, olivine gabbro, gabbro-diorite and diorite)	

Figure 6-3: Stratigraphic Column



Note: Figure prepared by Wood, 2021.

Figure 6-4: Project Geology Map



Note: Figure prepared by Wood, 2021.

Three generations of intrusions are associated with the Los Chancas deposit:

- Phase 1: coarse-grained monzonite (QZMG) stock intruded into Soraya Formation quartzite, 600–700 m in diameter
- Phase 2: fine-grained quartz monzonite (QZMF), occurs on southern margin of the Phase 1 stock; 300–400 m in diameter; associated with mineralizing events
- Phase 3: feldspar-megacrystic quartz monzonite (QZMM), forms steep northwest-trending dikes; post-mineralization; common in fine-grained quartz monzonite; also associated with mineralizing events.

Intrusive contacts are rarely observed in outcrop due to the depth of surficial cover.

A geology plan of the deposit is included as Figure 6-5. A geological cross-section through the deposit is included as Figure 6-6 and a mineralization cross-section as Figure 6-7.

6.4.3 Structure

There are three main fault orientations:

- Northwesterly: defined by the Manantial fault that is pre-mineralization and other subordinate faults. Has a N45° W orientation and an 85° SW dip
- Northeasterly: defined by the Pachantay fault system, also considered to be pre-mineralization but later than the Manantial fault. Has an N60° E orientation and an 85º NE dip. A secondary system, northwest of the Pachantay fault system, strikes N20–N30º E and dips at 80º to the southeast
- Northerly: defined by the Huipani fault, which is post-mineralization. Oriented N06°W and is subvertical.

The major faults have been reactivated, resulting in a complex of stepped subvertical secondary faults (Figure 6-5).

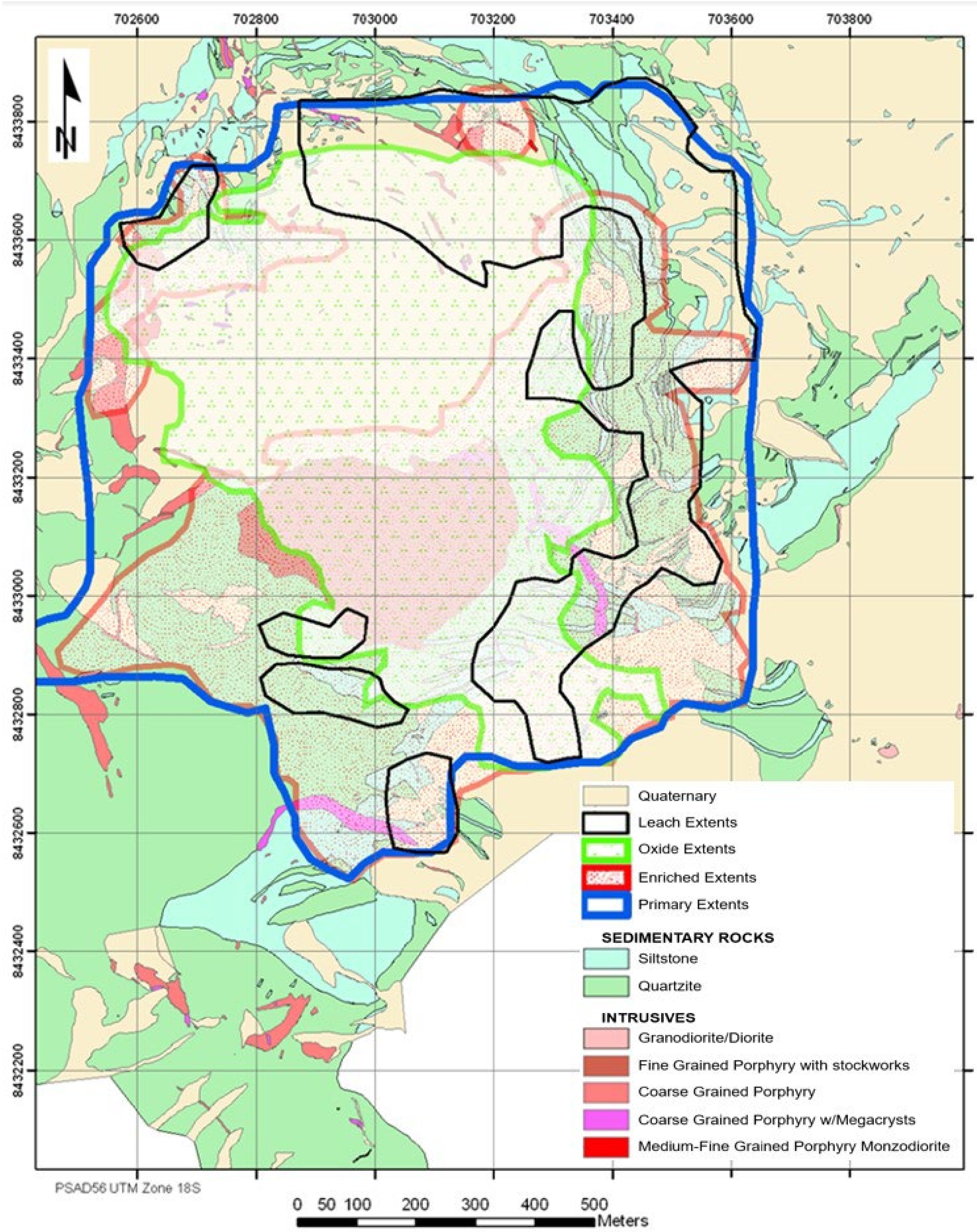
6.4.4 Metamorphism

The intrusions have formed garnet skarns where in contact with Ferrobamba Formation limestones, and biotite-rich contact aureoles where in contact with pelitic rock types. These contact metamorphic features are irregular in occurrence, size, shape, and composition.

6.4.5 Alteration

Alteration types are typical of porphyry copper–molybdenum deposits and are summarized in Table 6-3.

Figure 6-5: Los Chancas Geology Map



Note: Figure prepared by Wood, 2021.

Figure 6-6: Geological Cross-Section

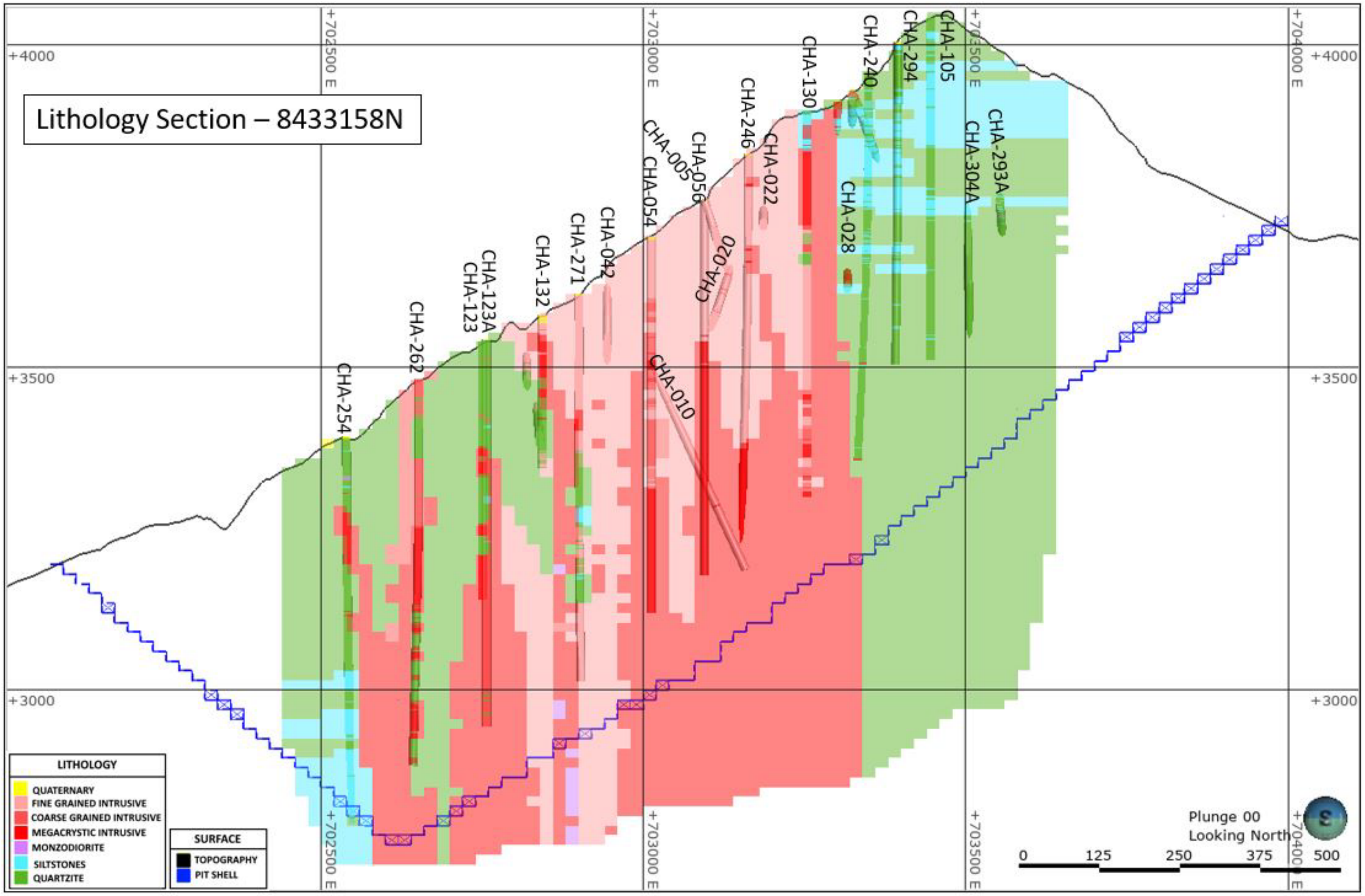
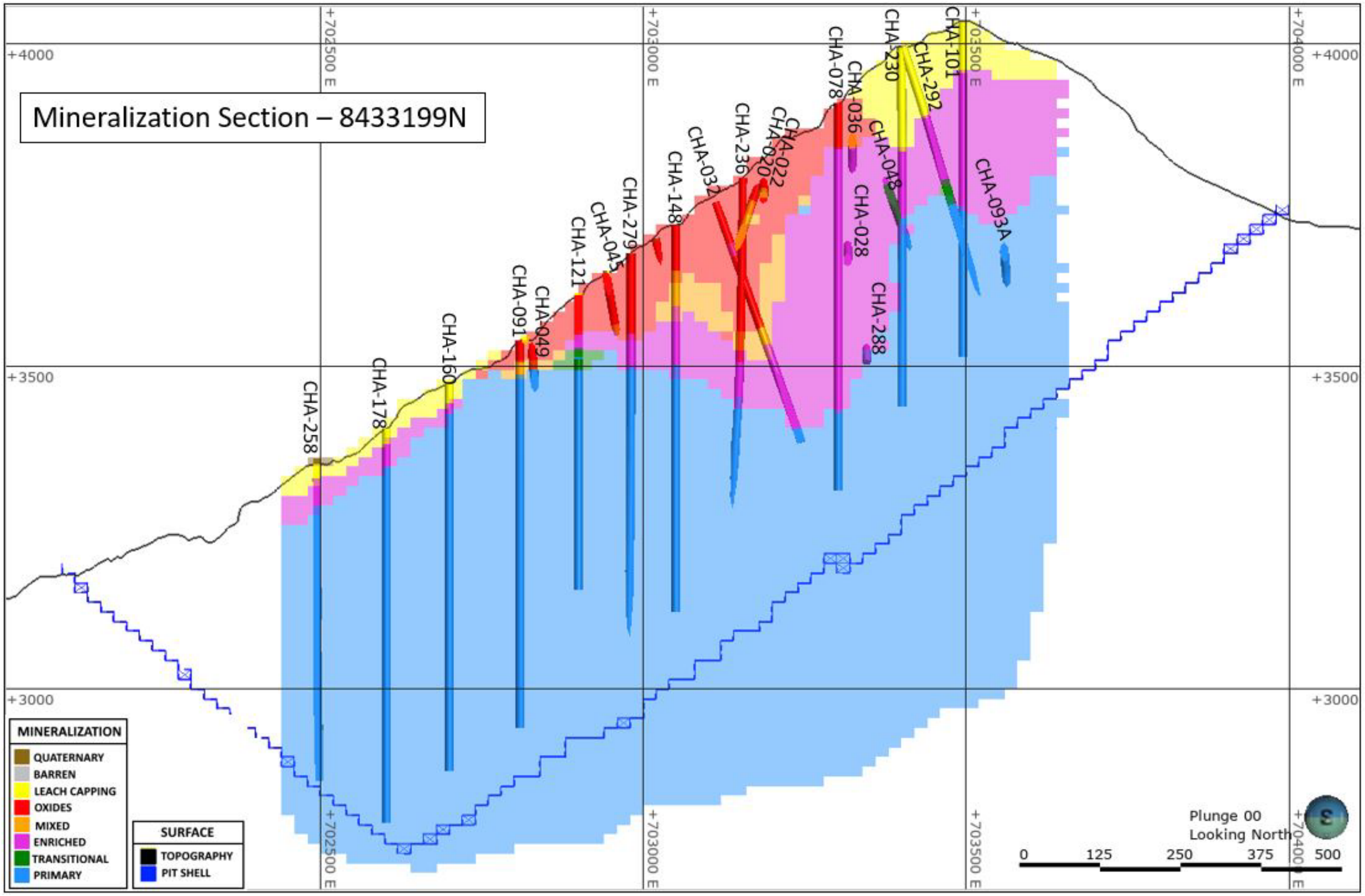


Figure prepared by Wood, 2021.

Figure 6-7: Mineralization Cross-Section



Note: Figure prepared by Wood, 2022.

Table 6-3: Alteration Styles

Alteration Type	Description	Note
Potassic	Quartz–biotite–orthoclase	Associated with quartz stockwork zones. Pervasive but selective in the rock matrix and associated with the development of small quartz veins in stockwork zones.
Phyllic	Quartz–sericite	Co-eval with potassic alteration; not texturally-destructive
Silicic	Quartz veins	A-type veins without sulfides; quartz–chalcopyrite–bornite microveins; small, thick, vitreous quartz veins with a central opening filled with chalcopyrite ± molybdenite
Argillic	Illite, clays	Not associated with mineralization. Assumed to be generated during sulfide weathering and oxidation

6.4.6 Mineralization

Mineralization is associated with Phase 2 intrusions and hosted by quartz monzonite and surrounding quartzite and siltstone country rocks.

Sulfide mineralization consists of hypogene chalcopyrite, bornite, molybdenite, and pyrite. Sulfides are hosted in quartz veins, occur as small sulfide streaks/veins, or form disseminations in the intrusive and sedimentary rocks. This primary mineralization was oxidized and leached, and a zone of supergene enrichment developed.

The major area of leaching is to the east, and vertically above, the primary mineralized zone. Evidence of mineralization consists of hematite, goethite, and jarosite.

The oxide zone is sub-parallel to topography, ranges in thickness from 20–120 m, and covers an approximate area of 1,000 x 700 m, elongate to the northwest. Brochantite and chrysocolla are the dominant copper oxide minerals, with subordinate azurite and malachite.

The supergene enrichment zone covers an area of 600 x 800 m in plan view, and ranges in thickness from 170–240 m. Sulfide minerals include chalcocite, covellite, digenite, cuprite, and native copper. Copper oxides are also be present as a minor constituent.

The following grade ranges are recorded in the database:

- Copper: ranges from 0.001–12.05%, and averages 0.4% Cu
- Gold: ranges from 0.005–5.82 g/t, and averages 0.046 g/t Au
- Silver: ranges from 0.1–187 g/t, and averages 5.35 g/t Ag

- Molybdenum: ranges from 0.001–1.44%, and averages 0.03% Mo
- Arsenic: ranges from 1–8,414 ppm, and averages 202 ppm.

7 EXPLORATION

7.1 Exploration

7.1.1 Grids and Surveys

All data are located using a UTM projection based on the Provisional South American (PSDA) datum 18S Zone 56.

A topographic map with a contour interval of 2 m, developed by Horizons, Inc. in 1997 in AutoCAD format is used for topographic control. An updated survey was completed by Horizons South America S.A.C. in 2008 using the UTM PSAD56 datum.

7.1.2 Geological Mapping

A 1:2,000 scale geological surface map of the Project area was completed in 2004. The mapping program characterized alteration and mineralization in the area, identified the distribution of different lithological types, and determined the geometry of the lithological types. The work focused on understanding lithological relationships (genesis of the deposit) and the association of mineralization and alteration.

7.1.3 Geochemistry

A total of 5,000 rock chip, grab, and channel samples were collected between 1997–2002 from outcrops and road cuts. Two areas of semi-detailed sampling were completed over a 100 x 100 m area and a 50 x 100 m area. Sample locations are shown in Figure 7-2. Sample locations displayed in grid-like fashion represent rock chip (grab) samples and sample location defining sinuous lines represent 3 m rock chip sampling along road cuts.

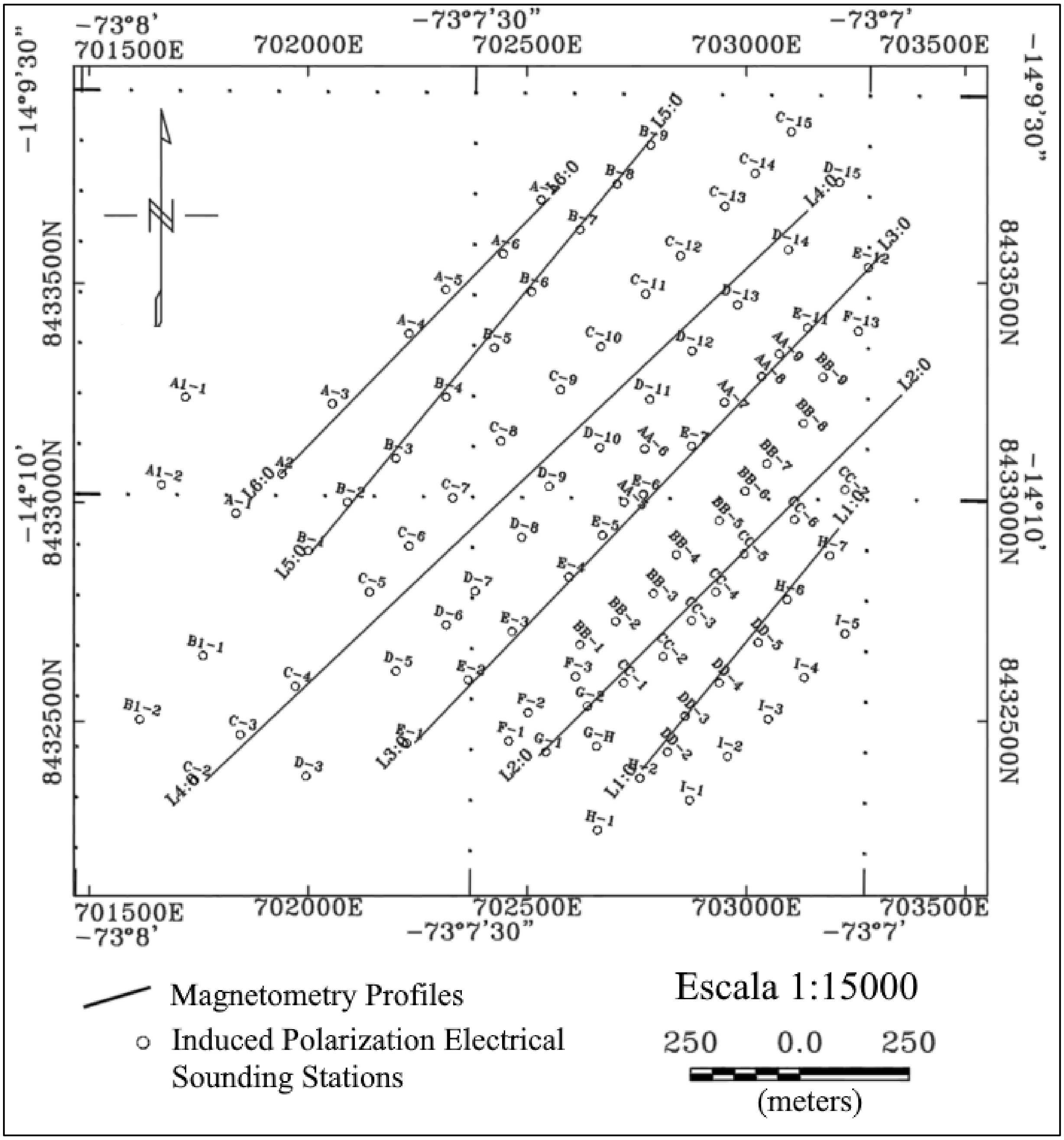
Sampling indicated that elevated copper grades were preferentially associated with underlying intrusive units, and molybdenum values were preferentially elevated in the sedimentary lithologies in contact with the intrusions.

7.1.4 Geophysics

In November 1997, a combined induced polarization (IP) and ground magnetics survey was completed by third-party consultant José Arce Geofisicos de Exploraciones. The ground magnetics survey was completed on northeast–southwest oriented lines spaced at 100–350 m for a total 7.44 line km of survey. A total of 71 geophysical surveys were completed.

Station and line locations are shown in Figure 7-1.

Figure 7-1: Location Map, Geophysical Survey Lines and Stations



Note: Figure courtesy Southern Copper, 2021. Escala = scale.

The survey data were considered to provide information to about 200 m depth below ground surface. Areas where anomalous chargeability responses coincided with low resistivity responses were considered to have exploration potential and warranted drill testing.

A second geophysical program was apparently conducted in 2006; however, details of and information on this program could not be located by Southern Copper.

7.1.5 Exploration Potential

The Los Chancas deposit remains open at depth and to the south, and southwest.

7.1.6 Qualified Person's Interpretation of the Exploration Information

The exploration conducted by Southern Copper provided vectors to geochemical surface anomalies that were drill tested. This work identified the Los Chancas deposit.

7.2 Drilling

7.2.1 Overview

Drilling totals 325 core holes for 155,389 m, and is summarized in Table 7-1. There are an additional 12 drill holes (2,972 m) completed for geotechnical purposes that are not included in the drill table.

Drilling that supports mineral resource estimation consists of 318 core holes for 152,600 m (Table 7-2). Drill collar locations are shown for the entire Project area in Figure 7-3 and the collars of those drill holes used in mineral resource estimation are shown in Figure 7-4.

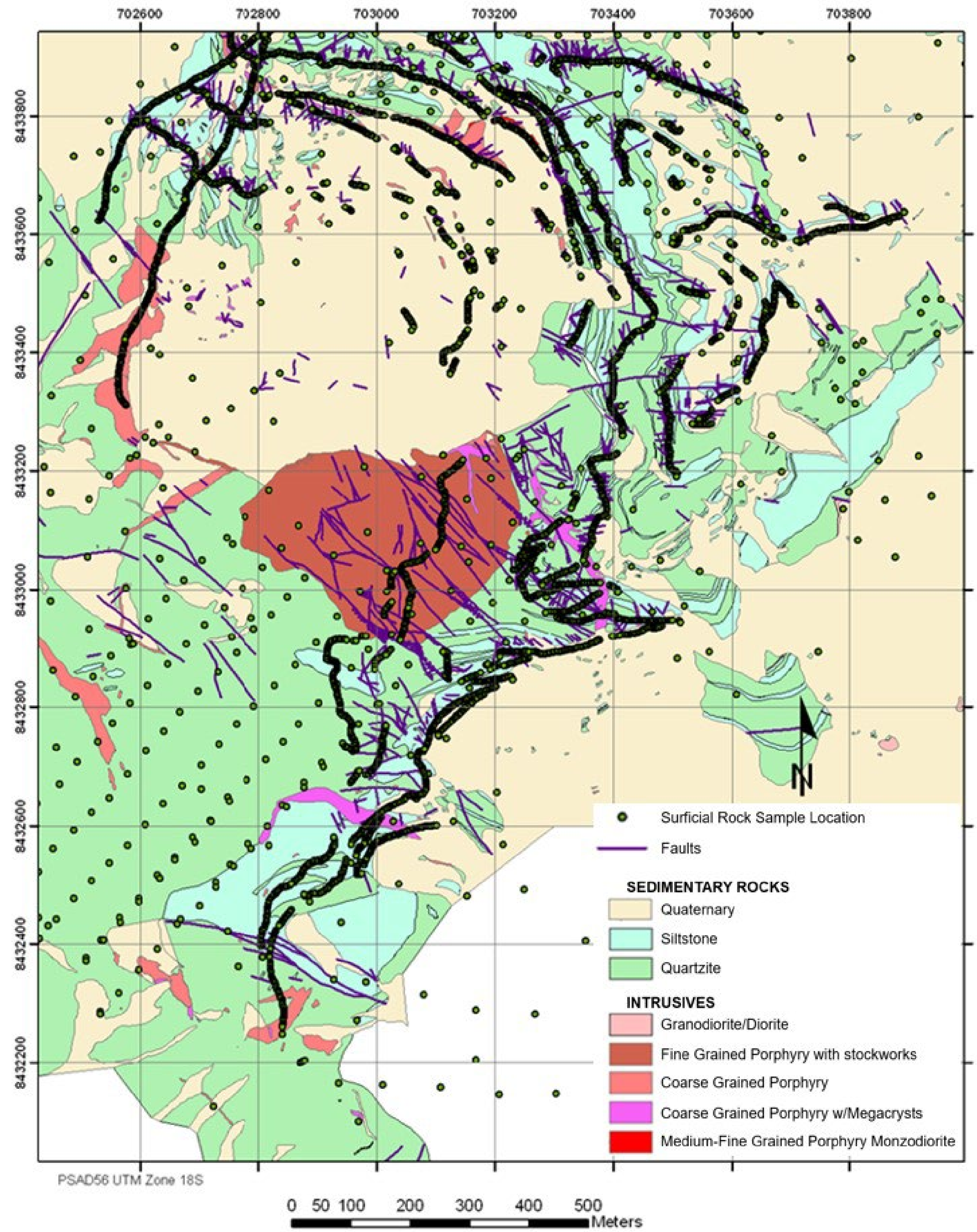
There are seven drill holes that were not used for the mineral resource estimate due to their distance from the main Los Chancas deposit. The excluded holes are part of the 2001 drilling campaign and total 3,650.15 m. The geotechnical drill holes are also excluded from estimation support.

7.2.1 Drill Methods

All holes were core holes drilled with diamond-tipped tools. A total of 245 holes were drilled vertically with 80 angle holes with inclination of -45 to -85°.

Three of the initial eight drill holes drilled in 1998 were BX diameter cores with a core diameter of 33.4 mm and the remaining five drill holes were started as HQ (63.5 mm core diameter) and reduced to NQ (47.6 mm core diameter) at depths between 120–150 m.

Figure 7-2: Geochemical Sample Location Map



Note: Figure prepared by Wood, 2021.

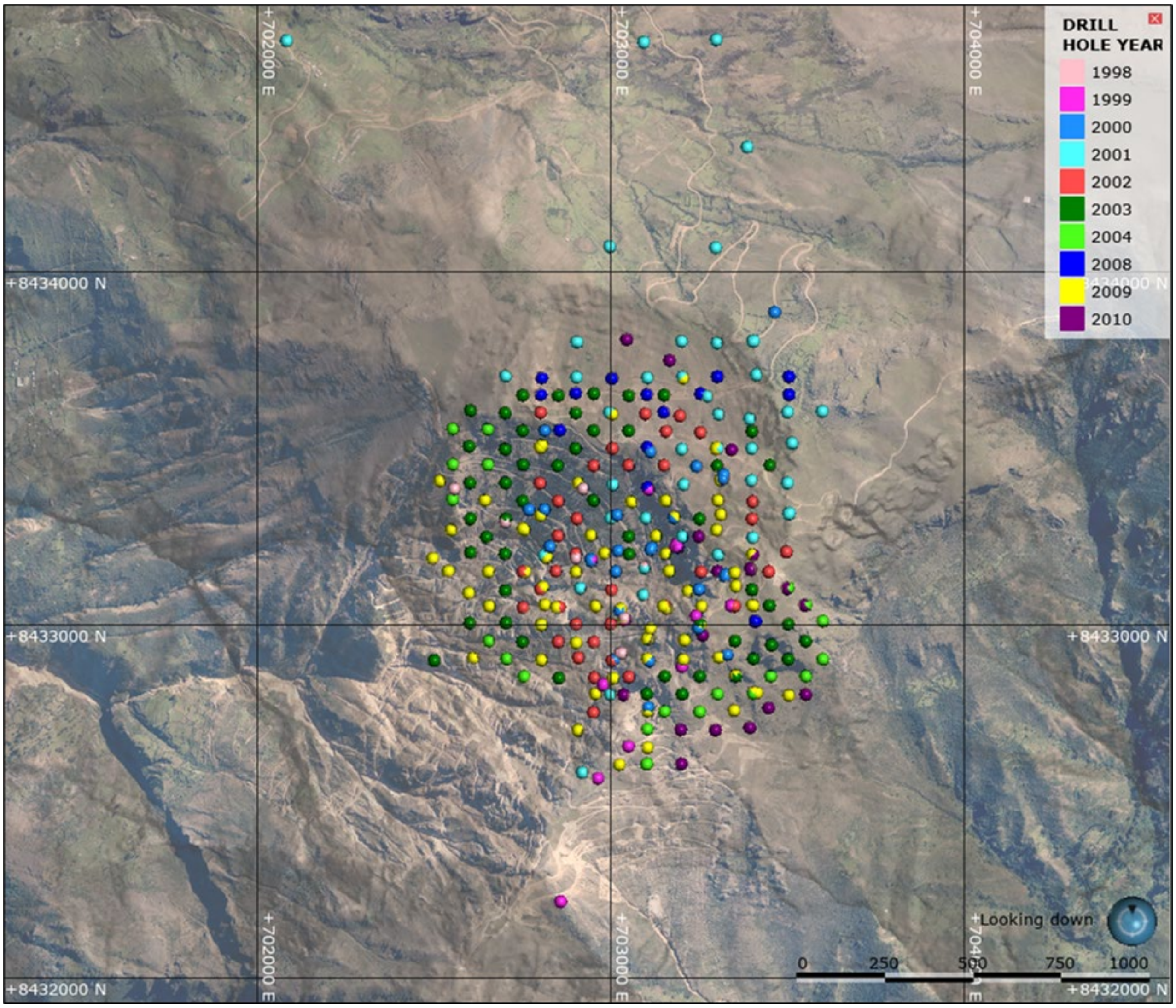
Table 7-1: Property Drill Summary Table

Year	Operator	Number of Drill Holes	Total Meters
1998	Southern Copper	8	1,340.3
1999		20	6,286.6
2000		30	9,477.5
2001		47	22,912.3
2002		36	17,574.8
2003		51	27,862.8
2004		21	10,595.4
2008		15	8,101.0
2009		77	42,748.3
2010		20	8,490.8
Total		***325***	***155,389.6***

Table 7-2: Drill Summary Table Supporting Mineral Resource Estimates

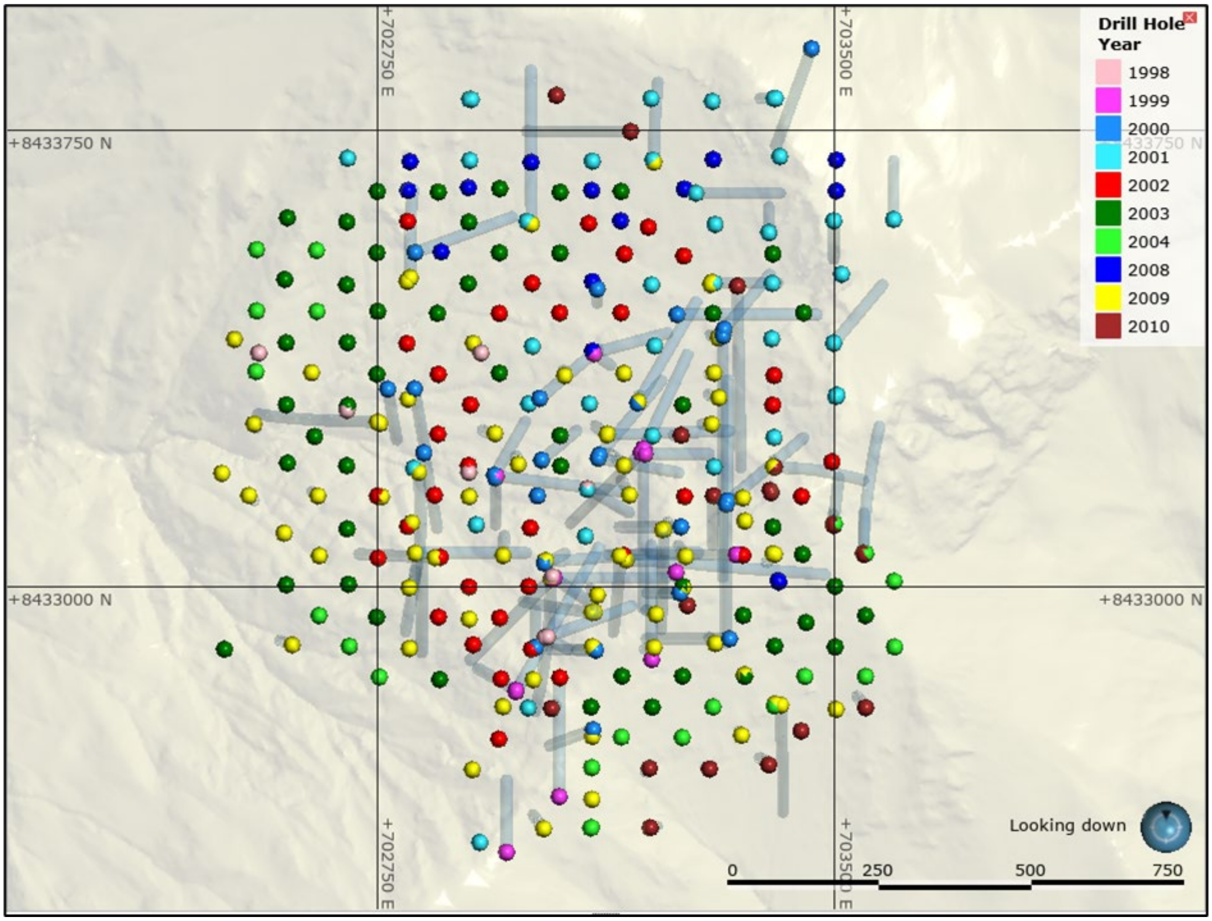
Year	Operator	Number of Drill Holes	Total Meters
1998	Southern Copper	8	1,340.30
1999		20	6,286.60
2000		30	9,477.50
2001		40	19,262.15
2002		36	17,574.80
2003		51	27,862.80
2004		21	10,595.40
2008		15	8,101.00
2009		77	42,748.30
2010		20	8,490.80
Total		***318***	***151,739.65***

Figure 7-3: Property Drill Collar Location Plan



Note: Figure prepared by Wood, 2021.

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



Note: Figure prepared by Wood, 2021.

All drill holes in subsequent programs commenced with HQ and then reduced to NQ at depths of 87–438 m; most of the holes were changed to NQ at between 200–260 m. Approximately 49% of the drill meters were HQ, 50% in NQ, and 1% in BX.

7.2.2 Logging

Core was checked at the drill to ensure that it was correctly ordered and that the boxes were properly labeled. Core was transported from the drills by Southern Copper personnel, taking care to ensure that the core remained fixed in the boxes.

Logging identified and recorded lithology, alteration, structure, mineralization (including primary, oxide and supergene mineralogy), and geotechnical parameters such as faults, fractures and rock quality designation (RQD). All logging was done on paper and entered into Excel files. The logged data were migrated to an Access database in 2021.

Core was not photographed.

7.2.3 Recovery

Core recovery information was collected by the drilling contractors on paper logs and is recorded for 110 of 325 core holes. Recovery was recorded as a percentage of the recovered core between the drilled intervals. Core recovery was typically of the order of 90–100% with an overall average recovery of about 94%. Zones of poorer recovery were associated with fractured rock, and structural features.

7.2.4 Collar Surveys

Drill collars were surveyed by Southern Copper personnel using a hand-held global positioning system (GPS) instrument in the earliest drill programs, and a Nikon total station instrument in later campaigns. Global Mapping S.A.C. checked the collar coordinates with a differential GPS (DGPS) in 2011.

Sixteen of the early drill holes could not be located due to the locations either being destroyed, hidden under landslides, or buried as a result of road construction, and were assigned an approximate position, based on a GPS location to approximate the collar location.

7.2.5 Downhole Surveys

The majority of the drill holes have no down-hole surveys. The database contains 88 holes with downhole surveys and indicates that all were surveyed with a FlexIT tool. One hole was drilled and surveyed in 2000 (CHA-053B), one in 2008 (CHA-220), and the remainder were drilled and surveyed in 2010. In the database, there is no other indication of downhole surveys performed before 2009.

The FlexIT tool relies on magnetometers and accelerometers to determine azimuth and inclination. The FlexIT, and several similar tools such as Reflex's magnetometer-based instruments, are widely used for exploration applications and are acceptable as long as there are minimal magnetic minerals in the rocks traversed by the drill hole. In the event that significant magnetic minerals are encountered, other downhole survey instrument types should be used. There is no record of any other instrument types used at Los Chancas.

Because FlexIT is a magnetometer-based instrument, it determines magnetic north and a declination correction must be applied to obtain true north. There is no evidence that declination was applied to the azimuths determined with the FlexIT tool.

Project records, however, indicate that 37 of the pre-2004 holes were downhole surveyed. Eight had dips measured using acid tests, 14 were measured using a Reflex multi-shot instrument, and seven were measured using a single-shot FlexIT tool. Acid tube surveys generate inclination data with no azimuths and must have a meniscus correction applied. There is no indication that such a correction was applied. There is no indication of these surveys in the Project database.

Wood reviewed the downhole surveys and found that, for the most part, the 2010 data indicated extremely straight holes over as much as 600 m. The trajectories of many of the holes were impossibly straight with deviations of as little as 0.9° azimuth and 0.2° inclination over 600 m. This review makes all of the data suspect and Wood recommended that none of the downhole survey data now in the database be used for mineral resource estimation. The source of the errors is unknown. Wood recommended that the original data be recovered and reprocessed to determine if the problem was with the survey instrument or the software used to process the data. If those data are not available, each of the accessible holes should be re-entered, cleaned, and re-surveyed.

Because there are no reliable downhole surveys, all blocks in the block model below 100 m below the topographic surface should be restricted to inferred mineral resources at best. Above 100 m below the topographic surface, blocks should be restricted to the indicated and inferred categories.

7.2.6 Comment on Material Results and Interpretation

Drill spacing varies from approximately 70 to 100 m in the better drilled deposit areas to about 300 m spacing on the less well drilled portions of the deposit.

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.

Drilling, collar surveying and geological and geotechnical logging are consistent with industry-standard practices; however, only 88 holes have downhole surveys and most of the data for those surveys are questionable. This lack of downhole surveying and questionable downhole surveys precludes classification of mineral resource at higher than inferred mineral resources below 100 m below the current topographic surface. Above 100 m below current topography, classification can be applied as the data indicate.

Review of recovery data indicated no correlation between grade and zones of lower recovery.

Overall, the drill data are considered to be adequate to support inferred mineral resources below 100 m below the current topographic surface. Above 100 m below the topographic surface, blocks should be restricted to the indicated and inferred categories.

7.3 Hydrogeology

Hydrological data were collected and analyzed as part of internal mining studies. Heap leach facility and waste rock storage facility (WRSF) flows were estimated based on field observations and experience with similar projects.

7.3.1 Sampling Methods and Laboratory Determinations

Surface water samples were collected by Southern Copper personnel, properly preserved and sent to the laboratory for analysis. Some samples were analyzed at ALS in Lima. ALS (Lima) is accredited as a Water Quality Testing Laboratory by the Peruvian accreditation body INCAL.

Surface water sampling in the area indicate that surface waters are near neutral to somewhat acidic with high metal concentrations.

7.3.2 Water Balance

A probabilistic water balance model was developed to support conceptual designs for the heap leach facility; estimate the required solution storage within the pregnant solution storage area; and estimate potential makeup water and water treatment requirements. The water balance was developed using GoldSim modeling software. All water entering the heap leach facility was accounted for and tracked within the model. Inflows to the heap leach facility included direct precipitation, solution application, and natural moisture content in the mineralized material. Outflows from the heap leach facility considered in the model included evaporation, water absorption in the mineralization, and removal of pregnant leach solution for processing. Modeling indicated that about 620,000 m^3 of solution storage could be required within the pregnant solution storage area during operations and that makeup water requirements would be approximately 99 L/sec during the wet season. The heap leach facility design assumption was that eventually the facility would be covered with waste and become part of the proposed waste rock storage facility (WRSF).

A probabilistic water balance model was developed to support the conceptual heap leach facility and WRSF designs, estimate storage requirements for an underdrain collection pond; and estimate potential makeup water and water treatment requirements. The model was based on the geometries developed using a 2013 conceptual mine plan. Water entering the heap leach facility and WRSF was estimated and tracked with the model. System inflows included direct precipitation, makeup water, runoff, seepage captured by the foundation underdrain, leach solution application, and natural moisture content in the mineralized material, waste rock and tailings. Outflows from the system included evaporation, absorption of water in the ore and waste material, removal of pregnant leach solution for processing, and controlled releases to the environment. Modelling suggested that a seasonal water reservoir would require a capacity of about 3.5 Mm^3.

7.3.3 Comment on Results

The available hydrological data collected to date are suitable for use in conceptual water studies and in support of reasonable prospects for economic extraction assessments for mineral resource estimates.

7.4 Geotechnical

Geotechnical data were collected and analyzed as part of internal mining studies.

The conceptual open pit slope angles used as part of reasonable prospects for economic extraction assessments for mineral resource estimates were based on data gathered in 2010, consisting of geotechnical drilling, laboratory testing, geotechnical re-logging of previously drilled core holes and line and cell structural mapping. The work was conducted by Ausenco Vector (2010).

Proposed infrastructure site locations were investigated in 2012–2013, using geological mapping, bore holes, geophysical techniques, and laboratory testing of soil samples. No drilling for geotechnical purposes was conducted due to local community issues.

7.4.1 Sampling Methods and Laboratory Determinations

The 2010 field investigation for the proposed open pit consisted of 12 HQ3 diameter, triple-tube core holes. Geotechnical logging of the rock units included intact rock strength based on International Society for Rock Mechanics (ISRM) guidelines, rock quality designation (RQD), fracture frequency, discontinuity condition. Geomechanical parameters were sufficient for Ausenco Vector to estimate the rock mass rating of the core runs.

Mapping of existing rock outcrops was performed at 121 locations using line and cell mapping techniques to characterize geomechanical properties of the rock and discontinuities and orientations of the structures.

A total of 23 previously-drilled core holes were re-logged for field rock strength estimates, discontinuity characteristics and degree of fracturing.

Geotechnical testwork was performed by Vector Perú S.A.C. (an Ausenco group company), Lima, Perú, the Rock Mechanics Laboratory of the Universidad Nacional de Ingenieria, Lima, Perú, and the Geotechnical Laboratory of CISMID-UNI, Lima, Perú. There is no international standard of accreditation provided for geotechnical testing laboratories or geotechnical testing techniques. Testwork included uniaxial compressive strength tests, point load tests, unit weight determinations, triaxial compressive strength, and direct shear tests on rock discontinuities and soils.

7.4.2 Comment on Results

Wood reviewed the information and conclusions contained in the Ausenco Vector (2010) report, and noted that:

- 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 designs were developed
- There was no mention of a geotechnical risk register.

Wood considers the open pit geotechnical field investigation data and laboratory testing data summarized in the Ausenco Vector report to be appropriate for the determination of rock mass properties for use in conceptual assumptions of the Los Chancas open pit slopes for the purposes of assessing reasonable prospects for economic extraction assessments for mineral resource estimates.

Wood notes that the supporting data are consistent with generally-accepted industry standard practices for the level of geotechnical effort required to support open pit slope designs as set out in Read & Stacey, (2010).

8 SAMPLE PREPARATION, ANALYSES, AND SECURITY

8.1 Sampling Methods

Rock chip samples were typically collected at 3 m intervals from 30–50 cm wide channels. Rock chip samples were not used in mineral resource estimation.

Core samples were collected at 3 m intervals, regardless of lithology. Core was split using a manual or hydraulic core splitter. One-half was bagged for analysis and the other half was returned to the core box. A duplicate sample was collected every 15–30 m.

8.2 Sample Security Methods

Core was transferred from the drill site to the Los Chancas camp by drill contractors or Southern Copper employees. Southern Copper employees logged and sampled the core on site. Samples were placed in plastic bags, sealed by a stapler, and then transferred to Southern Copper's Abancay facilities. In Abancay, samples were transferred into locked boxes and shipped to the laboratories in Lima via a commercial carrier.

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

The density database consists of 50,744 specific gravity determinations from 322 drill holes, completed by Southern Copper personnel using the water displacement method on 2.5–3.3 cm whole-core samples.

Wood noted that the core samples may be too short to provide reliable data. More typically within the mining industry, specific gravity data are collected on 10–20 cm-long samples. Wood requested Southern Copper send 20 samples of longer core to SGS Peru (SGS) for density determinations using wax-coat, immersion methods. Results from SGS indicate that the SGS specific gravity data are biased high relative to the original Southern Copper specific gravity data. There are too few specific gravity data from SGS to support reliable conclusions. The tonnage in the mineral resource estimate may be somewhat underestimated.

Wood recommends that Southern Copper implement a check specific gravity determination program where larger samples adjacent to the original Southern Copper samples are used to determine if there are significant biases introduced by the very small samples. Wood has experience with other projects where demonstrated biases occurred when small samples were used. Wood does not recommend, however, restricting confidence classifications in the mineral resource estimation process due to such possible specific gravity biases.

Wood also observed that there were about 160 data in the database with specific gravity values above 3.5 which is very unlikely in a porphyry copper deposit. Those data were excluded from use for mineral resource estimation.

8.4 Analytical and Test Laboratories

Samples were prepared by ALS Chemex (Lima), SGS (Lima) and CIMM Perú (Lima) during the exploration program.

Table 8-1 lists the laboratories used for assaying, the year(s) used and accreditations.

8.5 Sample Preparation

Where known, sample preparation procedures consisted of:

- ALS Chemex: drying, crushing to 90% passing -10 mesh, pulverizing to 85% passing 200 mesh
- SGS: drying, crushing to 95% passing 10 mesh, pulverizing to 95% passing 150 mesh
- CIMM Peru: drying, crushing to 90% passing -10 mesh, pulverizing to 95% passing 150 mesh.

8.6 Analysis

Analytical methods are summarized in Table 8-2. All laboratories used the same methods.

Table 8-1: Laboratories Used for Assaying at Los Chancas

Laboratory	Location	Year(s) Used	Accreditation	Independent
SGS	Lima	2000–2010	Currently holds NTP-ISO/IEC 17025 and ISO 9001 accreditation, but it is not clear in the record when those accreditations were first obtained	Yes
ALS Geolab (now part of ALS Global)	Lima	1999	No accreditations are known	Yes
ALS Chemex (now ALS Global)	Lima	1999–2004, 2006	ISO 9001:2000 accredited in Peru in 2007 but it is not clear when that accreditation was obtained	Yes
Barringer (acquired by Smiths Group PLC in 2001)	Lima	1998	No certifications are known	Yes
CIMM Peru (now CERTIMIN SA)	Lima	1998–1999	ISO 9001 accreditation since 2000 TP-ISO/IEC 17025 Accreditation is indicated in their website	Yes
Bondar Clegg (part of ALS Global since 2001)	Lima	2000	No accreditations are known	Yes
BS Inspectorate (now Bureau Veritas).	Sample preparation in Peru, analysis in Reno	1999–2000	No accreditations are known	Yes

Table 8-2: Analytical Methods

Element	Method (ALS)	Description	Lower Detection Limits
Cu, total copper (CuT), acid-soluble copper (CuS), cyanide-soluble copper (CuCN) and residual copper (CuR)	Sequential, Cu-LI01	CuS: 0.5 g aliquot with sulfuric acid digestion and atomic absorption spectroscopy (AAS) finish, CuCN: 0.5 g aliquot with NaCN digestion and AAS finish, CuR: three acid digestion with AAS finish	Cu: 0.001%
Au	Au-AA23	30 g fire assay with AAS finish; overlimits by 30 g fire assay with gravimetric finish	Au: 10 ppb
Cu, Mo, Ag, Pb, Zn, As, Bi, Fe, Sb	ME-AA64p	0.5 g aliquot, three acid digestion and AAS finish	Cu, Mo: 0.001%; Ag: 10 ppm; Pb, Zn, As, Bi, Sb: 100 ppm; Fe: 0.01%
Cu, Mo, Ag, Pb, Zn, As, Bi, Fe, Sb overlimits	ME-AA62b	0.5 g aliquot, three acid digestion and AAS finish	

8.7 Quality Assurance and Quality Control

The 1998–2004 quality assurance and quality control (QA/QC) program included the resubmission of check samples to various secondary laboratories, (SGS, ALS Chemex, CIMM, Barringer, Bondar Clegg and BS Inspectorate). None of the check sample batches appear to have included additional control samples (standards, duplicates, blanks). The check samples accounted for approximately 8% of all samples collected and assayed. Check assay results show that copper, molybdenum and gold assays in oxide and sulfide mineralization have biases of ≤5%; therefore, they are considered to be acceptably unbiased.

The record suggests that standards, blanks and duplicate samples were inserted, but none were found in the 1998–2004 database.

Southern Copper inserted duplicate, standard, and blank samples in the 2008–2010 sample stream. Wood found low failure rates in the duplicate data, all <10%, and concluded that precision is acceptable.

Accuracy analysis was based on certified reference materials (standards) of low-, medium- and high-grade used in the oxide zone. Accuracy for copper is good, while for molybdenum there a small bias in the high grades, possibly due to the high number of outliers.

Wood did not observe any contamination during the analytical process. There is no clear evidence of contamination of the samples in the sample preparation process.

8.8 Resampling Programs

In 2006, approximately 1238 pulp and core samples from the 1998–2004 drilling programs were submitted to ALS Chemex for check assaying. Those samples were accompanied by pulp and coarse blanks, standards, and both pulp and core duplicates.

Check assays on pulp samples showed biases of <±5% for copper, molybdenum, gold, silver, and arsenic. Check assays based on core samples show biases of <±5% for copper, molybdenum, gold, and arsenic. Bias for silver is about 7%. These results indicate that the original assays were adequately accurate to support mineral resource estimation; however, a few original data from SGS in 2002 had significantly higher lower detection limits than ALS Chemex did in 2006 and were not evaluated for precision.

The check assay program in 2006 included pulp and coarse blanks, standards, and duplicate samples for quality control. Blanks indicated that no significant contamination occurred during sample preparation or analysis. Pulp duplicate data indicate that copper, molybdenum, and gold were adequately precise to support mineral resource estimation. Silver and arsenic data were too low grade to support meaningful conclusions. Standards indicate that accuracy for all elements was acceptable and that the laboratories were in control.

For routine analytical work from 2008–2010:

- Pulp and coarse blanks indicate that copper, molybdenum, gold, silver, and arsenic were acceptably contamination-free with few failures
- Pulp duplicates indicated that copper, molybdenum, and gold were adequately precise. Silver and arsenic had too few data above 10x the lower detection limit to support any meaningful conclusions
- Standard data indicated that bias for copper and gold was generally acceptable (<±5%) and that the laboratory was in control. Silver and arsenic were acceptable in most cases. When the lower detection limit is approached, the data become difficult to interpret. Molybdenum had only one standard and that standard exhibited trends and a significant number of failures.

Wood concluded that copper, gold, silver and arsenic are adequately accurate, precise, and error-free to support mineral resource estimation. Molybdenum, with only one standard, lacked sufficient data to support meaningful conclusions regarding accuracy of molybdenum assays. Classification of mineral resource estimates for molybdenum should be restricted to inferred mineral resources at best.

8.9 Database

Prior to 2021, data were stored in Excel files. Data were manually entered using a double entry procedure to minimize errors in the data. Currently, an automated import process is used to minimize data entry errors.

Wood was provided with the Project data in Excel files. Those files were migrated, by Wood, to Access in 2021. Wood selected 30% of the total drill holes in the database for a data integrity review that covered the entire Project area. Observation qualification criteria were established to measure the quality of the data provided by Southern Copper by classifying differences after comparing the Southern Copper data with the data in the supporting documents.

8.10 Qualified Person's Opinion on Sample Preparation, Security, and Analytical Procedures

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

Total copper, acid-soluble copper, molybdenum and gold check assays completed in 2006 verified that results for those elements in the 1998–2004 drill programs are sufficiently accurate to support mineral resource estimates.

9 DATA VERIFICATION

9.1 Introduction

The majority of data used in the delineation of the Los Chancas deposit was derived from core drilling. Core recovery was recorded on driller log sheets and later transferred to a database. Drill hole geology was logged on paper and some of that information was later transferred to a database. A sample number database was created independently of the drill log. Sample numbers were assigned from pre-printed sample books with tear-off tags. Hole number, sample number and sample interval were later transferred to a database. Specific gravity was measured for each sampled interval and recorded in a separate database. All drill hole data are stored in labeled drill hole report binders stored in Southern Copper's Lima office.

9.2 Internal Data Verification

Southern Copper performed high-level checks by performing statistical analyses of the assay data to verify that those data were internally consistent.

9.3 External Data Verification

AMEC, a predecessor company to Wood audited the geological data and mineral resource estimate in 2006. AMEC compared the MineSight database to original data and concluded that:

- Collar easting and northing data were acceptable. Collar elevations in two tables were found to vary by as much as 18 m. Southern Copper attributed the discrepancies to adjusting the elevations to the surveyed topography which was assumed to be correct
- Collar azimuth and inclination and total depth were found to be reasonable
- Downhole survey data were checked for outliers and none were found
- Lithology data matched well
- Assay data were found to be suitable for mineral resource estimation.

AMEC collected four surface and four core samples for assay at SGS Lima. Those results compared reasonably well with the Southern Copper results.

AMEC concluded that the data were adequate to support mineral resource estimation.

Mintec reviewed the MineSight Database Contribution Report and found that the data were recorded according to existing nomenclature and coded using the established system.

9.4 Data Verification by Qualified Person

9.4.1 Site Visit

Representatives from Wood visited the Los Chancas Project, as outlined in Chapter 2.4. Observations from the visit were incorporated into Wood's conclusions as appropriate to the discipline areas in this Report, or incorporated into the recommendations in Chapter 23.

While on site at Los Chancas, Wood personnel verified:

- Geological data acquisition processes
- Geological logging accuracy was verified by relogging of seven holes (495 m). Wood produced quick core logs and identified minor discrepancies in lithological contacts, alterations and mineralization. Wood observed a good visual correlation between chalcocite and covellite in the secondary mineralization zone, as well as between the visual occurrence of chalcopyrite in the zone of primary mineralization
- Inspection of drill platforms
- Lithologies by investigation of outcrops on the Project site. Wood found that the main lithologies in the geological model are consistent with lithologies in the field
- Procedures for density determination
- Core splitting procedures.

9.4.2 Data Verification

Wood found that Southern Copper stored data as Excel files which is contrary to industry standards. Wood then migrated the data to an Access database. Wood selected 30% of the drill holes to review to verify the integrity of the database. No assay discrepancies were noted. Numerous minor discrepancies were noted in the position of lithological and mineralization contacts. Wood accepted the lithology and mineralization data. Alteration data showed some minor discrepancies. The lithology, mineralization, and alteration discrepancies are possibly due to undocumented reinterpretation of the data.

Wood compared the locations of 69 holes to topography. Some minor elevation differences were noted. With a few exceptions, the differences were within 3–6 m, which was judged to be acceptable. The differences are likely due to slight differences in the elevation datum for surveying and the topographic survey. Differences in equipment and time may have had a role.

Wood had Southern Copper resurvey 20 collar locations. With one exception, those locations were within 0.2 m of the location recorded in the database. The one location was 1.2 m different. Wood considered these data to acceptably verify the drill hole locations.

Wood reviewed assay methods and found them to be consistent with industry practices.

Wood reviewed procedures for determining specific gravity and found that samples were 2.5–4 cm long which is much smaller than what is normally used in the industry. Wood sent 20 samples to the SGS laboratory for check determinations. The results show that the SGS data are generally higher than the Southern Copper data. This result suggests that the specific gravity used for mineral resource estimation is biased low and will result in an underestimate of tonnage in the deposit.

Wood reviewed the quality control procedures and found that there was no documented quality control measures for data collection from 1998 to 2004. From 2008 to 2010, Southern Copper inserted duplicate, blank and standard samples. Wood concluded that the data from 2008 to 2010 was adequately accurate, precise, and contamination-free to support mineral resource estimation.

Wood reviewed the results of the Southern Copper's 2006 check assay program and concluded that the check assay results validated the accuracy of the 1998–2004 data.

Wood reviewed the geological models prepared by Southern Copper. Wood reviewed the lithology and mineralization models and concluded that there was acceptable three-dimensional consistency between the models and original data. The alteration model was found to be in need of improvement; however, it was not used to control mineral resource estimation.

9.4.3 Peer Review

Wood requested that information, conclusions, and recommendations presented in the body of this Report be peer reviewed by Wood 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 chapters, consistency of interpretation of the data between different discipline areas, checked for data omissions, verified that errors identified during Wood's gap analyses were appropriately addressed or mitigated, and reviewed the appropriateness of the individual QP's opinions, interpretations, recommendations, and conclusions as summarized by the QP Firm.

9.5 Qualified Person's Opinion on Data Adequacy

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

The data can be used in support of mineral resource estimation.

10 MINERAL PROCESSING AND METALLURGICAL TESTING

10.1 Introduction

Metallurgical testing has shown that the Los Chancas deposit can be processed by conventional heap leaching of the oxide mineralization, and conventional flotation processing of the sulfide mineralization. The material has a low to moderate Bond work index, although some zones are abrasive.

Column leach tests on the oxide mineralization indicate that copper recovery is in line with expectations based on acid soluble copper assays of the composite samples. Copper recovery on samples crushed to -12.5 mm ranged between 19–73% and averaged 56%. Projected acid consumption is less than 10 kg sulfuric acid per kilogram copper.

The sulfide mineralization responds well to milling and flotation with locked-cycle tests returning copper and molybdenum recoveries ranging between 90.1–94.9%, and 60.1–87.6% respectively.

10.2 Test Laboratories

Metallurgical laboratories involved in the Project testwork include FLSmidth-Dawson Metallurgical Laboratories in Salt Lake City, Utah (Dawson), McClelland Laboratories Inc. in Sparks, Nevada (McClelland), C.H. Plenge & CIA. S.A., in Lima, Peru (Plenge), and Mountain States R&D International, Inc. of Vail, Arizona (Mountain States), SGS Canada Inc. in Lakefield, Ontario (SGS Lakefield), Phillips Enterprises LLC in Golden, Colorado (Phillips), and ThyssenKrupp Resource Technologies Research Center in Beckum, Germany (Polysius). These facilities are independent of Southern Copper. There is no international standard of accreditation provided for metallurgical testing laboratories or metallurgical testing techniques.

10.3 Metallurgical Testwork

Metallurgical testwork completed in support of Project development is summarized in Table 10-1. Testwork was conducted from 2001–2014. No testwork has been completed since 2014.

Table 10-1: Metallurgical Testwork Summary Table

Year	Laboratory	Work Completed
2001	Mountain States R&D MSRDI	Phase 1 - Bottle roll and flotation tests, mineralogy (bulk and QEMSCAN), Bond work index (BWi) tests, and locked cycle tests Phase 2: Bottle leach tests
2004	Mountain States R&D MSRDI	Column leach tests, development of molybdenum plant flowsheet, comminution (grindability, McPherson semi-autogenous grind (SAG) and crushing tests)
2007	Plenge	Variability flotation testing
2013	SGS Lakefield	High pressure grind rolls (HPGR) testing and grind characterization of the HPGR test products
2013	Polysius	HPGR ATWAL testing
2013	Phillips	Bond crusher work index, abrasion index, Bond rod mill and Bond ball mill work index
2014	FLS Dawson	Grind characterization (JK SMC tests) bottle roll and column leach tests, batch and locked cycle flotation tests, thickening tests

10.3.1 Mineralogy

Mineralogical evaluation was conducted to determine the overall gangue mineralogy, determine the copper deportment including particle size, and determine liberation/locking characteristics and gangue mineralogy issues that could impact flotation or leaching.

Chalcopyrite and chalcocite were the major copper minerals. Some of the composites contained sulfide minerals that were tarnished and could affect flotation kinetics. Lesser concentrations of bornite, covellite, enargite and tetrahedrite–tennantite copper minerals were also identified. About 25% of the pyrite was rimmed with chalcocite, indicating that pyrite had the potential to dilute concentrate grade. Pyrite content was low, but ubiquitous in all samples, and was intimately associated with copper minerals, in particular with tetrahedrite–tennantite.

Molybdenite occurred within gangue, or was intimately intergrown with chalcopyrite and pyrite.

Sulfide particles ranged in size from <1–>1,000 µm. Pyrite and chalcopyrite had average particle sizes that are generally similar for all composites for all composites. The wide range in particle size could affect the primary grind size and flotation response.

Enargite and tennantite were present in some composites indicating that arsenic may be recovered to a flotation concentrate. Copper-bearing clays, micas and wad were noted in low and varying concentration in all composites. The copper associated with these minerals can be difficult to recover by flotation.

10.3.2 Comminution

Crushing and grinding tests performed on the oxide samples indicated that the quartzite composites were very abrasive when compared to the intrusive composites. The crusher work index was highly variable with the siltstone material being soft and the feldspar-megacrystic quartz monzonite intrusive material having the highest crusher work index.

Mill composites were found to be highly variable in their crush and grind characteristics.

The crusher work index for the primary coarse-grained quartz monzonite and primary feldspar-megacrystic quartz monzonite intrusive composites are very high. Other crusher work index values are in the low to medium range. Rod mill and ball mill work index values are generally low and indicate soft ore. The quartzite mill composites were the most abrasive; the mill composites typically ranged from moderately abrasive to very abrasive.

Resistance to impact breakage (Axb) and the resistance to abrasion (ta) follow similar trends for all samples tested. The primary mineralization is slightly harder with two composites categorized as moderately soft and two as medium. The monzodiorite composite was categorized as moderately hard and the siltstone composite is hard. However, the majority of the mineralization, hosted in quartzite and feldspar-megacrystic quartz monzonite was classified as soft to moderately soft. Variability tests by rock types showed fairly consistent rock hardness within each rock type with the exception of some soft coarse-grained quartz monzonite samples.

HPGR processing decreased the Bond work index by 8–18%. When consideration was given to the additional fines included in the HPGR discharge compared to the feed to the Bond test, an overall reduction of 17–28% in the ball mill power was projected by SGS Lakefield for material that was processed through the HPGR system. These reductions are much higher than typical and exceed 60–90% of the values in the SGS Lakefield database. The HPGR tests at Polysius showed that the quartzite mineralization type is highly abrasive to the rolls. As a result, roll life would be expected to be relatively short and resulting roll resurfacing and replacement costs would be higher than normal.

Overall, the mineralization tested was amenable to SAG–ball milling, and this option was selected for process design based on viability of the process and to minimize the site area needed for the plant, given the rugged topography.

10.3.3 Leach Composite Testing

The six column leach tests that evaluated the effect of operating parameters on the leaching behavior of the oxide mineralization varied the crush size, cure acid concentration, irrigation rate and acid concentration in the leach solution. The oxide sample responded to variations in the leach conditions in a manner typical of other copper oxide ores.

The results of the leach bottle roll test showed that copper recovery increased as the particle size reduced; however, acid consumption increased when reducing the particle size. Copper recovery was affected by the acid soluble copper content.

Approximately 90% of the oxide copper was recovered in 35 days and 50% of the secondary copper was recovered in 70 days. Acid consumption was low with gross acid consumption (no credit for acid generated in electrowinning) of 1.5 kg per kg copper recovered.

10.3.4 Flotation Testing

Rougher kinetic tests were run on each composite to establish flotation parameters and determine the effects of primary grind size and flotation time on recovery.

Rougher copper recovery increased at finer grind sizes but reached a plateau in the range of 118–137 µm. For all rock types, except quartzite, the copper recoveries were similar at 88–90% at the 118–137 µm grind. At the same grind size, copper recovery in the quartzite was >94%. A similar finding was made for molybdenum, where for all rock types, except quartzite, molybdenum recoveries were 82–85% at the 118–137 µm grind. The molybdenum recovery for quartzite was >90% at the same grind size.

A review of the likely economics at different grind sizes indicated that the optimum grind ranged from 70 µm for the feldspar-megacrystic quartz monzonite to 170 µm for monzodiorite, and averaged 120 µm for all lithologies.

10.3.5 Batch Cleaning Tests

Batch cleaning tests were conducted to develop the cleaning parameters for the locked cycle tests. The third-stage concentrate grade from the quartzite composites approached 25% Cu when the cleaning pH was increased to 11.5. The feldspar-megacrystic quartz monzonite composite was difficult to clean with the third cleaner concentrate grade ranging from 15–

20% copper at lower overall copper recovery of 80–85%. For the locked cycle test, the feldspar-megacrystic quartz monzonite composite was reground to a P80 of 30 µm and the resulting concentrate grade was >25% Cu. The siltstone composite returned a high concentrate grade of >40% Cu due to the presence of secondary copper mineralization.

10.3.6 Locked Cycle Tests

Copper and molybdenum recovery results for the Dawson test program were higher than the results from the Mountain State test program, but Dawson used a finer grind and the rougher flotation time was longer. Conversely, the Mountain State results had higher copper grades in concentrates since the samples tested were higher in oxide copper.

The Dawson tests returned copper recoveries from 90–95%, and averaged 91.8%. The concentrate copper grade ranged from 22–33.8%, copper and averaged 28%. The molybdenum recovery to the bulk concentrate ranged from 60–87.6%, and averaged 80% recovery. The Mountain States testwork reported in Phase 2B indicated 85–90% of the molybdenum in the bulk concentrate could be recovered to a marketable molybdenum concentrate.

Results indicated that arsenic may be present in concentrations that are likely to be of concern to smelters. Depending on the composite, aluminum, cadmium, and antimony could be present at penalty levels. Fluorine, chlorine and mercury values were generally below the penalty level. It is likely all elements except arsenic can be controlled by blending. Higher arsenic values were associated with the quartzite-hosted mineralization, which is one of the principal mineralized lithologies. The arsenic concentration in the locked cycle test concentrate produced from the Mountain States testwork reported in Phase 2B was lower than that from Dawson, and there is potential to control the concentrate arsenic content with good mine planning and ore control.

10.3.7 Solid–Liquid Separation

Thickening tests were run on each of the mill composite tailing samples. These tests were used to calculate the minimum thickener unit area, thickener underflow density, tailings viscosity, and recommended flocculant dosages.

Vacuum filtration did not perform as well as pressure filtration due to vacuum limitations at the site because of the altitude. Tailing filtration tests using pressure filtration gave acceptable results.

10.4 Recovery Estimates

The Mountain States Phase 2B column leach test program indicated that the copper recovery could be predicted by the acid soluble copper, cyanide soluble copper and total copper assays. The following equation was put forward by Mountain States to estimate column copper recovery based on a 70-day recovery time factor:

- % Copper Recovery = [(0.968 x % Acid Soluble Copper)+(0.509 x % Cyanide Soluble Copper)+(0.045 x (% Total Copper - % Acid Soluble Copper - % Cyanide Soluble Copper)] / % Total Copper.

The copper recovery to a rougher concentrate by flotation acceptably correlate with the percentage of copper present as sulfide copper (Figure 10-1). Copper recovery predictions included copper losses to cleaner tailings, which resulted in the copper recovery equation prediction:

- % Copper Recovery = [% Total Copper - % Acid Soluble Copper]/[% Total Copper] x 100.

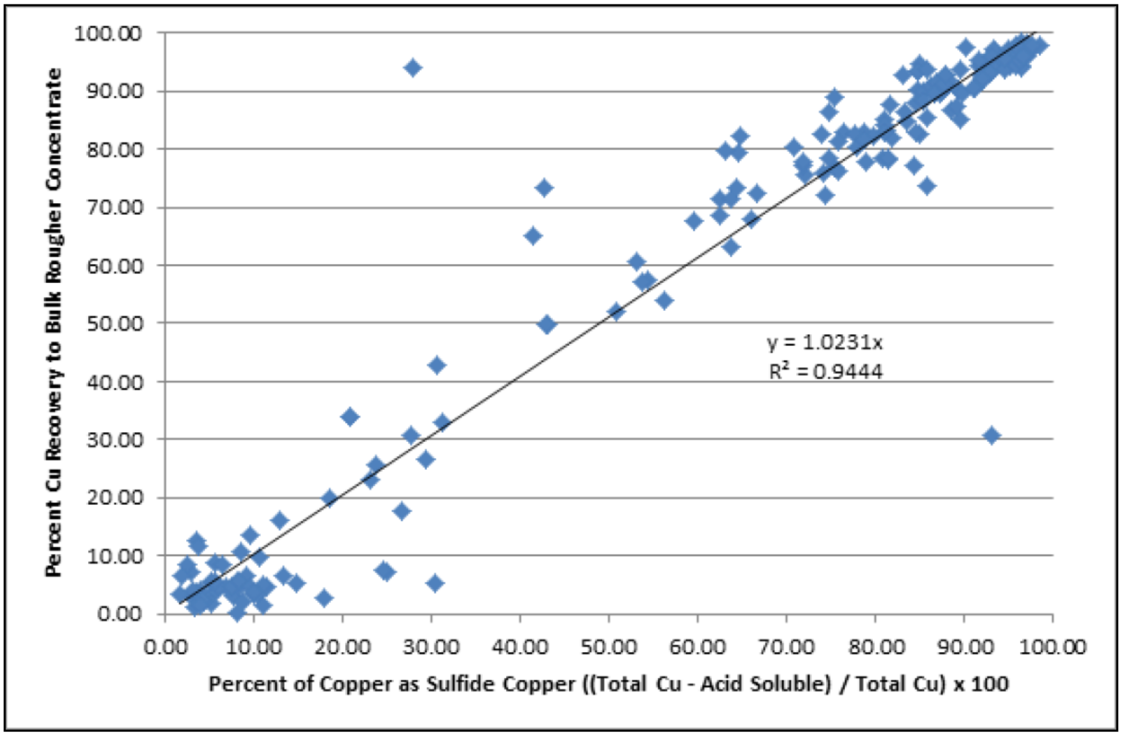
Capping copper recovery for all rock types except the quartzite at 86% and capping the quartzite at 92% in line with values demonstrated in the Dawson program, was recommended as a final step for the copper recovery estimate.

The Mountain States data indicated that the molybdenum recovery to a rougher concentrate by flotation correlated with the molybdenum head and the fraction of copper present as acid soluble copper. To allow for molybdenum losses in the bulk cleaner circuit and the molybdenum plant recovery an overall recovery factor of 85% was suggested. This resulted in the molybdenum recovery formula:

- % Molybdenum Recovery from Final Moly Concentrate = 64+ 92 x [Head % Mo] - 63 x [[% Acid Soluble Copper]/[% Total Copper]].

Capping molybdenum recovery for all rock types except the quartzite at 70% and capping the quartzite at 78% in line with values demonstrated in the Dawson program, was recommended as a final step for the molybdenum recovery estimate.

Figure 10-1: Rougher Concentrate Copper Recovery vs. Percentage of Copper as Sulfide Copper



Note: Figure prepared by M3, 2020.

For mineral resource estimation purposes, the recommended recovery assumptions were:

- Copper (leaching): 81.8%
- Copper (mill): 84.3%
- Molybdenum (mill): 60.5%.

10.5 Metallurgical Variability

The early Phase 1 and Phase 2 testwork program focused on composite samples of the secondary oxide, enriched and transition mineralization. The Phase 2 testwork was carried out on Phase 1 samples composited by grade. The testwork results showed variability across the samples tested. No specific variability testing on the individual ore types was carried out.

The later Dawson testwork program was carried out on composite samples representing the mineralization as defined by ore type and oxidation state in the 2020 mine plan, addressing both primary and secondary mineralization. The testwork results demonstrated variability across the samples tested. Apart from limited comminution, no variability testing on the individual ore types was carried out.

The overall testwork results indicate that there is substantial variability across the ore types, which must be addressed in future testwork programs.

10.6 Deleterious Elements

The arsenic assays in the Project database indicate that there are some areas of the deposit where arsenic values are elevated, and there is a risk that arsenic may report to concentrate at levels that could cause smelters to impose penalties on the concentrate, or limit concentrate marketability to those smelters who are able to blend high-arsenic concentrates with better concentrate feeds.

Additional testing and analysis should be performed to determine if the arsenic can be rejected in the process. There is potential to control the concentrate arsenic content with good mine planning and grade control.

No other elements are present in concentrations that cannot be managed by blending.

10.7 Qualified Person's Opinion on Data Adequacy

The early Phase 1 and Phase 2 testwork program focused on composite samples of the secondary oxide, enriched and transition mineralization. The samples selected would generally represent material that would be in the first years of a mine plan. However, there is insufficient testwork to cover deposit and mineralization variability. Variability testing across mineralization types was not adequately addressed during the testwork phases.

The metallurgical testwork data is of sufficient quality to support a prefeasibility study and an indicated mineral resource classification. Additional support for confidence category upgrades from the perspective of metallurgical modifying factors, will require supporting testwork to address geometallurgy and the variability across the deposit.

11 MINERAL RESOURCE ESTIMATES

11.1 Introduction

Southern Copper estimated total copper (CuT), acid soluble copper (CuS), cyanide-soluble copper (CuCN), molybdenum, gold, silver and arsenic. Total copper is the only variable, however, reported in the mineral resource table.

11.2 Exploratory Data Analysis

Exploratory data analysis (EDA) of the copper, gold, molybdenum, silver and arsenic data was undertaken to quantify the characteristics of the geological model. Wood performed a basic EDA on assay data and supplemental EDA on composite data used for estimation. EDA was used as a basis for defining estimation domains that limited unwanted mixing of data during interpolation, such that the resulting grade model would adequately reflect the unique properties of each domain.

Summary copper assay statistics for each lithology, mineralization, and alteration code were calculated. Wood prepared histograms of copper for each lithology to ensure that there was not more than one lithology represented by a code. Boxplots for copper were prepared for all lithology and mineralization types. Boxplots for copper composites were prepared by lithology and mineralization type. Histograms were prepared for copper in each lithology and mineralization type.

The estimation domains were based firstly on the mineralization types, which considered each mineralization type as a hard contact, and secondly on the lithology types. These groupings were based on the similarity of total copper (CuT) distribution and the spatial location of the samples. Domains for acid-soluble (CuS), cyanide-soluble (CuCN), gold, molybdenum, silver, and arsenic were identified. Domain boundaries were hard boundaries in all cases.

The domains for CuT, CuS and CuCN are provided in Table 11-1, broken out by mineralization, lithology and alteration codes. The key to those codes is provided in Table 11-2.

Table 11-1: Estimation Domains and Subdomains for Cu, CuS, CuCN

Mineralization Domain	Lithology Subdomain
Quaternary (100)	Q(1), LIM(3), CZ(4), IG(6), IM(7)
Barren (101)	LIM(3), IF(5), IG(6)
	CZ(4)
Leach Capping (102)	LIM(3)
	CZ(4)
	IF(5), IG(6), IM(7), MZDI(8)
Oxide (103)	LIM(3)
	CZ(4)
	IF(5)
	IG(6), IM(7), MZDI(8)
Enriched (104)	LIM(3)
	CZ(4)
	IF(5), MZDI(8)
	IG(6), IM(7)
Primary (105)	LIM(3)
	CZ(4)
	IF(5)
	IG(6), IM(7), MZDI(8)
Mix (106)	LIM(3), MZDI(8)
	CZ(4)
	IF(5), IG(6), IM(7)
Transitional (107)	LIM(3), IG(6)
	CZ(4)
	IF(5), MZDI(8)
	IM(7)

Table 11-2: Lithology, Mineralization, and Alteration Units in the Geological Model

Rock Number	Rock Code	Rock Type
1	Q	Quaternary
3	LIM	Siltstones
4	CZ	Quartzite
5	IF	Fine grained intrusive
6	IG	Coarse grained intrusive
7	IM	Megacrystic intrusive
8	MZDI	Monzodiorite
Mineralization Number	**Mineralization Code**	**Mineralization Type**
100	Q	Quaternary
101	EST	Barren
102	LC	Leach capping
103	OXI	Oxides
104	ENR	Enriched
105	PRI	Primary
106	MIX	Mixed
107	TRA	Transitional
Alteration Number	**Alteration Code**	**Alteration Type**
200	Q	Quaternary (not altered)
211	PROP	Propylitic
212	ARG	Argillic
213	FIL	Phyllic
214	POT	Potassic
215	SIL	Silicified
-1	NAP	Not altered

11.3 Geological Models

The geological model was based on the geological interpretations of lithology, alteration and mineralization from a series of east–west and north–south sections spaced 50 m apart, and bench plans spaced at 15 m intervals. Southern Copper interpreted seven lithological units. Quartzite and the intrusive with megacrysts were the units with the largest volumes; the fine-grained intrusion was preferentially mineralized with respect to copper and molybdenum.

Southern Copper modeled the leached zone, oxide zone, mixed zone (transition from oxide to enriched), secondary enrichment zone, transitional zone (transition from enriched to primary) and the primary sulfide zone (refer to Table 11-2). The primary zone represents 73% of the total mineralization, while the enriched or secondary zone represents 12%. Oxide mineralization represents only 5% of the total volume and the remainder of the zones represent smaller percentages.

Six alteration units were modeled (refer to Table 11-2). Argillic and potassic alteration are the most common alteration types.

No structural geology model was created.

Wood compared the plans and sections with logged data from the drill holes and concluded that there is acceptable three-dimensional consistency in the lithology and mineral type models and that the models respected the majority intervals in lithology and mineral type recorded. Local discrepancies were observed between the two section orientations but the impact was negligible. The alteration model was less refined than the lithology and mineral type models; therefore, the alteration model was not used directly in the construction of estimation domains.

11.4 Density Assignment

Each estimation domain was assigned the mean specific gravity for that domain. Those assignments are summarized in Table 11-3.

11.5 Grade Capping/Outlier Restrictions

Wood evaluated possible capping or outlier restrictions by analyzing the cumulative probability curves, where the presence of the change in slope or break in the curve at high grades would indicate the presence of erratic highs. Table 11-4 summarizes the capping levels for CuT, CuS, and CuCN.

Table 11-3: Specific Gravity Assignments by Estimation Domain

Lithology		Mineralization						
	Quaternary (100)	Waste (101)	Leach Capping (102)	Oxide (103)	Enriched (104)	Mix (106)	Transitional (107)	Primary (105)
Quaternary (1)	2.48	2.48	2.48	2.48	2.48	—	—	—
Siltstone (3)	2.48	2.56	2.58	2.52	2.61	2.5	2.59	2.65
Quartzite (4)	2.48	2.56	2.57	2.54	2.58	2.54	2.58	2.58
Intrusive Fine (5)	2.48	2.56	2.45	2.46	2.5	2.48	2.5	2.53
Intrusive Coarse (6)	2.48	2.39	2.43	2.48	2.5	2.48	2.51	2.54
Intrusive Megacrysts (7)	2.48	2.43	2.41	2.5	2.5	2.49	2.52	2.55
Monzodiorite (8)	2.48	2.5	2.36	2.46	2.46	2.52	2.51	2.55

Table 11-4: Copper Grade Capping by Estimation Domain

Mineralization Model	Lithology Model	No. Total Composites	Cu (%)	CuS (%)	CuCN (%)
Barren (101 EST)	3 LIM	32	0.5	—	—
	4 CZ	166	0.6	0.1	0.2
	5 IF	11	—	—	—
	6 IG	5	—	—	—
Leach capping (102 LC)	3 LIM	707	0.7	1	1
	4 CZ	1334	1	1	0.4
	5 IF	55	1	0.4	0.4
	6 IG	102	1	0.4	0.4
	7 IM	63	2	0.4	0.4
	8 MZDI	19	—	—	—
Oxide (103 OXI)	3 LIM	344	2	1	1
	4 CZ	164	2	—	1
	5 IF	514	2	—	1
	6 IG	356	—	—	—
	7 IM	419	2	—	—
	8 MZDI	35	—	—	—
	3 LIM	791	7	1	4

Mineralization Model	Lithology Model	No. Total Composites	Cu (%)	CuS (%)	CuCN (%)
Enriched (104 ENR)	4 CZ	2239	5	—	4
	5 IF	625	3	1	—
	6 IG	300	2	0.6	2
	7 IM	300	3	0.6	2
	8 MZDI	45	—	1	—
Primary (105 PRI)	3 LIM	341	2	0.1	1.0
	4 CZ	4466	3	0.2	1.0
	5 IF	768	—	0.2	—
	6 IG	1349	—	0.2	1.0
	7 IM	3662	2	0.2	1.0
	8 MZDI	85	1	0.2	1.0
Mix (106 MIX)	3 LIM	75	4	—	—
	4 CZ	43	2	—	—
	5 IF	255	3	—	2.0
	6 IG	43	-	—	—
	7 IM	84	-	—	—
	8 MZDI	10	2	—	—
Transitional (107 TRA)	3 LIM	35	2	—	—
	4 CZ	149	2	0.2	0.2
	5 IF	62	—	—	—
	6 IG	29	2	—	2.0
	7 IM	68	2	0.3	—
	8 MZDI	2	—	—	—

Wood complemented the grade capping analysis with a metal-at-risk analysis and considers the level of capping applied to be appropriate.

11.6 Composites

Samples were composited to 7.5 m intervals, based on an assumption of 15 m bench heights in an open pit mining operation. Composites honor mineralization contacts.

11.7 Variography

Variograms were completed, with results for copper as summarized in Table 11-5.

11.8 Estimation/Interpolation Methods

Grades were interpolated using inverse distance weighting to the second or third power (ID2 or ID3), using 20 x 20 x 15 m blocks. No rotation was applied. The copper interpolation parameters are set out in Table 11-6.

11.9 Validation

The Los Chancas mineral resource estimate was validated by visual validation, global bias estimation, local bias estimation, and change of support evaluation.

Visual validation compared the estimated grades in the block model to composite grades and composites along drill hole traces. The block grades were considered to reasonably reflect the composite grades.

Global bias was evaluated by comparing the estimation model to a nearest neighbor (NN) model by metal. Copper bias is about 1.1% which is considered to be acceptable. Other metals range from -1.3 to 1.3% which is within the ±5% limits generally accepted by the industry.

Local bias was evaluated using north–south, east–west, and horizontal swath plots. Those plots compared the ID2 and ID3 and NN estimates along swaths. No significant bias was detected.

Wood evaluated the degree of smoothing of estimated total copper grade using a change of support methodology that involved comparing the ID2 or ID3 model to a HERCO NN model. Wood concluded that the degree of smoothing of the total copper grades was reasonable at low, high, and very high total copper grades (0.2%, 0.4%, and 0.8% respectively).

Table 11-5: Copper Variogram Model

Variogram Model Parameters		Oxide	Enriched	Primary	Mix	Transitional
1st rotation (L) in Z		90	90	90	-60	-30
2nd rotation (L) in Y		0	0	0	-15	-75
3rd rotation (L) in X		0	0	0	0	0
Nugget		0.033	0.05	0.017	0.17	0.015
Structure 1	**Type**	**Spherical**	**Exponential**	**Exponential**	**Spherical**	**Exponential**
	C1	0.46	0.58	0.58	0.4	0.23
	Range in X	25	120	40	25	10
	Range in Y	25	60	40	160	70
	Range in Z	12	25	40	25	70
Structure 2	**Type**	**Spherical**	**Exponential**	**Exponential**	**Spherical**	**Exponential**
	C2	0.507	0.37	0.403	0.43	0.755
	Range in X	210	430	330	175	125
	Range in Y	200	430	320	175	120
	Range in Z	195	430	500	150	70

Table 11-6: Estimation Plan for Cu, CuS, CuCN

Pass	Mineralization	Lithology	Search Distances			Number of Composites				Interpolator
			X	Y	Z	Min	Max	Max. per DDH	Max. per Octant	
1	101	3, 5, 6	40	40	30	3	16	1	-	ID2
		4	40	40	30	3	16	1	-	ID3
	102	3	40	40	30	3	16	1	-	ID3
		4	40	40	30	3	16	1	-	ID3
		5, 6, 7, 8	40	40	30	3	16	1	-	ID2
	103	3	40	40	30	3	16	1	-	ID3
		4	40	40	30	3	16	1	-	ID3
		5	40	40	30	3	16	1	-	ID2
		6, 7, 8	40	40	30	3	16	1	-	ID2
	104	3	40	40	30	3	16	1	-	ID3
		4	40	40	30	3	16	1	-	ID3
		5, 8	40	40	30	3	16	1	-	ID2
		6, 7	40	40	30	3	16	1	-	ID2
	105	3	40	40	30	3	16	1	-	ID3
		4	40	40	30	3	16	1	-	ID3
		5	40	40	30	3	16	1	-	ID2
		6, 7, 8	40	40	30	3	16	1	-	ID2
	106	3, 8	40	40	30	3	16	1	-	ID3
		4	40	40	30	3	16	1	-	ID3
		5, 6, 7	40	40	30	3	16	1	-	ID2
	107	3, 6	40	40	30	3	16	1	-	ID2
		4	40	40	30	3	16	1	-	ID3
		5, 8	40	40	30	3	16	1	-	ID2
		7	40	40	30	3	16	1	-	ID2
2	Same as above	Same as above	80	80	60	2	16	1	4	Same as above
3	Same as above	Same as above	200	200	60	1	16	1	4	Same as above

Pass	Mineralization	Lithology	Search Distances			Number of Composites				Interpolator
			X	Y	Z	Min	Max	Max. per DDH	Max. per Octant	
4	Same as above	Same as above	800	800	580	1	16	1	4	Same as above

11.10 Confidence Classification of Mineral Resource Estimate

11.10.1 Mineral Resource Confidence Classification

Drill spacing studies were performed to determine an appropriate initial spacing to support mineral resource confidence classification. These showed that indicated mineral resources would be supported by a maximum spacing of about 150 x 150 m. Inferred mineral resources are beyond 150 m and within the constraining pit shell.

11.10.2 Uncertainties Considered During Confidence Classification

Following the statistical analysis in Chapter 11.10.1 that classified the mineral resource estimates into the indicated and inferred confidence categories, uncertainties regarding sampling and drilling methods, data processing and handling, geological modelling, and estimation were incorporated into the classifications assigned. The areas with the most uncertainty were assigned to the inferred category, and the areas with fewer uncertainties were classified as indicated.

11.11 Reasonable Prospects of Economic Extraction

11.11.1 Initial Assessment Assumptions

To meet the content requirements of an Initial Assessment to support Mineral Resource estimates, Wood evaluated the content requirements set out in Table 1 of §229.1302 (Item 1302) "Qualified person, technical report summary, and technical studies". The assumptions used by Wood in support of the Initial Assessment are summarized in Table 11-7.

For the purpose of this initial assessment, the optimization is based on copper only. Molybdenum, gold and silver could represent a potential opportunity for adding value in sulfide mineralization if supporting information is developed for inclusion of these metals in future mineral resource estimates.

Table 11-7: Initial Assessment Assumptions

Factors	Initial Assessment Requirement	Los Chancas
Site infrastructure	Establish whether or not access to power and site is possible. Assume infrastructure location, plant area required, type of power supply, site access roads, and camp/town site, if required.	Gravel access road in place. Power can be sourced from Peruvian grid. Site location reviewed to ensure that key infrastructure can be located within the mining tenure held. Assumed on-site. operations/construction camp.
Mine design & planning.	Mining method defined broadly as surface or underground. Production rates assumed.	Assumed open pit mining method
Processing plant	Establish that all products used in assessing prospects of economic extraction can be processed with methods consistent with each other. Processing method and plant throughput assumed.	The only commodity in the mineral resource estimate is copper; therefore, the requirement that "products reported in the mineral resource statement can be processed with methods consistent with each other" is met. Assumed 108,000 t/d throughput. Assumed conventional flotation technology for sulfide mineralization and conventional heap leach and solvent extraction/electrowinning (SX/EW) technology for oxide mineralization.
Environmental compliance & permitting.	List of required permits & agencies drawn. Determine if significant obstacles exist to obtaining permits. Identify pre-mining land uses. Assess requirements for baseline studies. Assume post-mining land uses. Assume tailings disposal, reclamation, and mitigation plans.	Preliminary list of permits and agencies compiled by Southern Copper. Risk matrix compiled by Southern Copper. Pre-existing land use is restricted to small areas of cultivation or grazing. Aspects requiring baseline studies determined by Southern Copper. Post-mining land use is assumed to be grazing. Assumed co-disposal of tailings and waste rock as per internal studies conducted by Southern Copper in 2020. Reclamation and mitigation plans assumed based on prior Southern Copper experience in Peru.

Factors	Initial Assessment Requirement	Los Chancas
Other relevant factors.	Appropriate assessments of other reasonably assumed technical and economic factors necessary to demonstrate reasonable prospects for economic extraction.	Mineral resource estimates confined within a conceptual pit shell.
Capital costs	Optional. If included: Accuracy: ±50%. Contingency: ±25%.	Not relevant to this Report.
Operating costs	Optional. If included: Accuracy: ±50%. Contingency: ±25%.	Not relevant to this Report.
Economic analysis	Optional. If included: Taxes and revenues are assumed. Discounted cash flow analysis based on assumed production rates and revenues from available measured and indicated mineral resources	Not relevant to this Report.

As per Wood's resource reclassification, the resource block model does not have any blocks with measured classification.

Wood identified blocks that produced concentrates with very high arsenic content (>2% As). For this study only arsenic penalties were applied to the NSR calculations, but future studies the concentrate marketability and applicable commercial terms due to high arsenic content must be assessed.

The resource pit optimization analysis was carried out using the Pseudoflow algorithm using the GEOVIA Whittle (Whittle) software. The Pseudoflow algorithm takes the individual block revenue (NSR) and costs, and slope configuration to generate pits that yield maximum profit. This Pseudoflow algorithm creates the same optimal pits achieved using the traditional Lerchs-Grossmann algorithm, but with far more time efficiency.

11.11.2 Input Assumptions Used to Constrain the Mineral Resource Estimates

The NSR value was calculated in MinePlan using python scripts and implemented in the block model. The NSR calculation considered copper price, copper grades, resource classification, process recoveries, sales costs, refining costs, royalties, and smelter terms. A NSR pit optimization method was used to account for the variable recovery by lithology in the optimization.

Table 11-8 summarizes the primary inputs applied during the Los Chancas resource pit optimization.

Geotechnical sectors used for pit slopes were sourced from M3 (2020), and pit slope angles ranged from 33–45º. Metallurgical recoveries were assumed at 81.8% from copper leaching and 84.3% from copper milling.

The block model containing estimated tonnage, geotechnical zones, mining cost and NSR values were imported into optimization software. The optimization run was completed using indicated and inferred mineral resources to define mining limits.

Material considered to meet reasonable prospects for economic extraction had an NSR value higher than the operating costs, including process and mining costs, giving a block value higher than 0. Marginal material had an NSR value that covered the process costs only (including process, G&A, closure, and sustaining capital cost), but excluded the mining cost. Mined material is considered for processing if the mineralization contains a value that is greater than the costs to process it, i.e., is above the marginal cut-off. Mined material with less value than the marginal cut-off at the pit rim would be sent to the WRSF.

Table 11-8: Conceptual Parameters Used in Constraining Pit Shell

Parameter	Units	Value	Cu Concentrate	Cu Cathodes
Copper price	US$/lb	3.80		
Maximum processing rate (concentration and leaching)	t/day	108,000		
Dilution	%	0		
Mining losses	%	0		
Physical constraints		No		
Process recovery - by mineralization type (MIN)				
Cu, Quaternary	%		0	0
Cu, barren (EST)	%		0	0
Cu, leach capping (LC)	%		0	(0.968 * CuSS + 0.509 * CuCN + 0.045 * (CuT – CuSS - CuCN))/CuT
Cu, oxides (OXI)	%		0	
Cu, enriched (ENR)	%		(CuT-CuSS)/CuT	0
Cu, primaries (PRI)	%			0
Cu, mixed (MIX)	%			0
Cu, transitional (TRA)	%			0
As, all	%		66.20	0
Rock mining cost	US$/t	1.70		
Flotation	US$/t processed	5.82		
Heap leach and SX/EW	US$/t processed	4.29		
Sustaining capital cost	US$/t processed	0.25		
G&A cost	US$/t processed	1.06		
Closure cost	US$/t processed	0.51		
Copper royalty	%NSR	1.5		
Government royalty (minimum Modified Mining Royalty payable)	%NSR	1		
Smelter terms - concentrate				
Moisture	%		8.00	—

Parameter	Units	Value	Cu Concentrate	Cu Cathodes
Grade	%		25.20	
Copper minimum deduction	%		1	—
Payable metal				
Copper	%		96.50 subject to a minimum deduction of 1%	100
Cu cathode premium	US$/lb pay.		—	0.03
Penalties for arsenic				
For each 0.1% above 0.2% to 0.5%	US$/t concentrate		2.5	—
For each 0.1% above 0.5% to 1.0%	US$/t concentrate		3.5	—
For each 0.1% above 1.0% to 1.5%	US$/t concentrate		5	—
For each 0.1% above 1.5%	US$/t concentrate		10	—
Treatment cost				
Treatment	US$/dt		90	—
Refining cost				
Copper	US$/lb payable		0.09	—
Concentrate sales cost				
Trucking	US$/wmt		63.33	58.33
Port	US$/wmt		10.30	11.40
Ocean freight	US$/wmt		55.23	55.34
Total	US$/wmt		128.86	125.07
Concentrate losses	%		0.50	NA

The break-even pit shell used a copper price of US$3.45/lb, which equates to a copper price at US$3.80/lb and a revenue factor 0.908 pit.

The marginal NSR cut-off values were US$6.11/t for material amenable to heap leach methods and US$7.64/t for material amenable to milling and flotation concentration.

Arsenic penalties were applied to the NSR calculations.

11.11.3 Commodity Price

Commodity prices used in resource estimation were based on long-term mining analysts and investment bank forecasts, supplemented by Wood's assessment of mining industry consensus of long term metal prices. The estimated timeframe used for the price forecasts is 20 years, which is considered reasonable time frame over which the deposit could be developed and mined.

11.11.3.1 Market Overview

Southern Copper provided Wood with an overview of the copper market as sourced from third-party experts, Wood Mackenzie, which was dated June, 2021. The report provided information on the copper market out to 2040, and covered information such as copper price forecasts, scenario modelling, demand in detail, and supply in detail.

These data support that there is a reasonable basis to assume that the key products will be saleable at the assumed commodity pricing.

11.11.3.2 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. This approach would be used to market any concentrate or cathode production from the Project.

Depending on concentrate quality, Southern Copper's concentrates are currently primarily sold onto Asian or European market. Cathode copper produced by Southern Copper's existing operations is sold onto the Asian, European, Brazilian and/or North American markets. These markets would be the primary destination of any concentrate and cathode production from the Los Chancas Project.

11.11.3.3 Commodity Pricing

To establish the copper price forecasts Wood used a combination of information derived from 22 financial institutions, from pricing used in technical reports filed with Canadian regulatory authorities over the previous 12-month period, from pricing reported by major mining companies in public filings such as annual reports in the previous 12-month period, spot pricing, and three-year trailing average pricing. Wood considers that a long-term price forecast of US$3.30/lb Cu is reasonable.

It is in accordance with industry-accepted practice to use higher metal prices for the mineral resource estimates than the pricing used for mineral reserves. The copper price forecast of US$3.30/lb was increased by 15% to provide the mineral resource estimate copper price estimate of US$3.80/lb.

The assumed exchange rate was US$1.00 USD = PENS/3.60. This exchange rate was provided by Southern Copper.

11.11.4 Cut-off

Wood calculated NSR values for each block based on the smelter terms shown in Table 11-8.

The marginal cut-off is determined at the pit rim. Mined material is considered for processing if the mineralization contains a value that is greater than the costs to process it, i.e., is above the marginal cut-off. Mined material with less value than the marginal cut-off at the pit rim would be sent to the WRSF. The marginal NSR cut-off values were US$6.11/t for potentially leachable material and US$7.64/t for potential mill feed flotation material.

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

11.11.5 QP Statement

Wood 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 additional work. Porphyry-copper style deposits are a well-known and studied deposit type, and Southern Copper has experience with mining operations that exploit these types of deposit.

There is sufficient time before a final decision is made to develop the Project for Southern Copper to address any issues that may arise, or perform appropriate additional drilling, testwork and engineering studies to mitigate identified issues with the estimates.

11.12 Mineral Resource Estimate

11.12.1 Mineral Resource Statement

Mineral resources are reported using the mineral resource definitions set out in SK1300. The reference point for the estimate is in situ. The indicated mineral resource estimates for the Los Chancas Project are provided in Table 11-9. The inferred mineral resource estimates are included in Table 11-10. Wood is the QP Firm responsible for the estimate.

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

Areas of uncertainty that may materially impact all of the mineral resource estimates include:

- Changes to long-term metal price and exchange rate assumptions
- Changes in local interpretations of mineralization geometry such as presence of unrecognized mineralization off-shoots; faults, dikes and other structures; and continuity of mineralized zones
- Changes to geological and grade shape, and geological and grade continuity assumptions
- Changes to metallurgical recovery assumptions
- Changes to assumptions as to deleterious elements
- Changes to the input assumptions used to derive the conceptual open pit shell that is used to constrain the estimates
- Changes to the cut-off values applied to the estimates
- Variations in geotechnical (including seismicity), hydrogeological and mining assumptions
- Changes to environmental, permitting and social license assumptions.

Table 11-9: Indicated Mineral Resource Statement

Zone	NSR (US$/t)	Tonnage Mt)	Copper Grade (%)	Contained Copper (Mlb)
Oxide	25.8	98	0.45	972
Sulfide	26.92	52	0.59	676
Total		***150***	***0.50***	***1,648***

Table 11-10:Inferred Mineral Resource Statement

Type	NSR (US$/t)	Tonnage Mt)	Copper Grade (%)	Contained Copper (Mlb)
Oxide	19.64	33	0.38	276
Sulfide	22.32	1,400	0.45	13,889
Total		***1,433***	***0.45***	***14,165***

Notes to Accompany Mineral Resource Tables

4. Mineral resources are reported in situ and are current as at December 31, 2021. Mineral resources are not mineral reserves and do not have demonstrated economic viability. Wood is the QP Firm responsible for the estimate.

5. Mineral resources are reported within a conceptual pit shell that uses the following input parameters: metal prices of US$3.80/lb Cu; metallurgical recoveries from copper leaching of 81.8% and from copper milling of 84.3%; base mining costs of US$1.70/t; sustaining capital costs of US$0.25/t processed; heap leach and electrowinning process operating costs of US$4.29/t processed, mill process operating costs of US$5.82/t processed, general and administrative costs of US$1.06/t processed; and closure costs of US$0.51/t processed. The marginal net smelter return cut-off values were US$6.11/t for material amenable to heap leach methods and US$7.64/t for material amenable to milling and flotation concentration.

6. Numbers in the table have been rounded. Totals may not sum due to rounding.

Specific factors that may affect the estimates include:

- The lack of deviation measurement of a considerable percentage of holes can lead to local inaccuracies in both geological contacts and in the estimation of the estimated elements. None of the downhole surveys appear to be valid surveys so there are effectively no downhole surveys at Los Chancas, which is a significant risk and limits mineral resource confidence classification to inferred mineral resources below 100 m below surface
- Supporting documentation (e.g., original survey records) is lacking for a significant percentage of collar and downhole surveys, which creates uncertainty in sample location at depth, further contributing to confidence category downgrading
- The density used is based on a small sample size, and there is a risk that the tonnage estimate using the density data could be slightly understated.

The lack of a structural model will be a risk for future geotechnical evaluations. There is a risk that such a model could result in changes in assumed pit slope angles in the conceptual pit that is used to constrain the mineral resource estimates. Such a model should be constructed as part of the next mineral resource estimate update.

12 MINERAL RESERVE ESTIMATES

This Chapter is not relevant to this Report.

13 MINING METHODS

This Chapter is not relevant to this Report.

14 PROCESSING AND RECOVERY METHODS

This Chapter is not relevant to this Report.

15 INFRASTRUCTURE

This Chapter is not relevant to this Report.

16 MARKET STUDIES

This Chapter is not relevant to this Report.

17 ENVIRONMENTAL STUDIES, PERMITTING, AND PLANS, NEGOTIATIONS, OR AGREEMENTS WITH LOCAL INDIVIDUALS OR GROUPS

This Chapter is not relevant to this Report.

18 CAPITAL AND OPERATING COSTS

This Chapter is not relevant to this Report.

19 ECONOMIC ANALYSIS

This Chapter is not relevant to this Report.

20 ADJACENT PROPERTIES

This Chapter is not relevant to this Report.

21 OTHER RELEVANT DATA AND INFORMATION

This Chapter is not relevant to this Report.

22 INTERPRETATION AND CONCLUSIONS

22.1 Introduction

Wood notes the following interpretations and conclusions, based on the review of data available for this Report.

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

The Project is wholly owned by Southern Copper.

The Project covers 22,700 ha in 31 concessions.

Surface rights are currently being negotiated. The area where surface rights are required is within the Tiaparo and Tapairíhua rural community boundaries. However, the communities are discussing the precise location of their boundaries. A final agreement is subject to the land ownership being legally defined.

Southern Copper holds two water rights that cover water from four spring sources.

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. There is also a mining tax payable, based on operating income, with rates that range from 2–8.4%.

There is a1.5% royalty over the gross sales of the minerals mined payable to the heirs of Mr. Percy Bush and to Royal Gold, as successor to Mr. Fausto Valdeavellano. Since 2003, advance payments have been paid to the royalty holders.

The following baseline studies were completed from 2012–2020: acid rock drainage, metals leaching potential; social characterization, and identification of the possible impacts and proposed social management and mitigation measures; baseline environmental assessment; internal mining studies.

Southern Copper prepared a series of preventive, control and/or mitigation measures to address the effect that exploration activities could have on physiography, air, noise, land, water, flora, terrestrial fauna, aquatic fauna and the landscape. These measures included provision for follow-up monitoring.

Any future operations will require a comprehensive environmental monitoring program and will need to address any commitments that may be imposed during the permitting process.

Although there has not been any operation specifically identified in the area of direct Project influence, illegal and informal miners are known to be operating in the general area because they use the nearby roads. Southern Copper has no relationship with these groups.

The initial Environmental Assessment of the Los Chancas Project was conducted in 2001. An EIAsd was completed in 2010. The closure plan developed for the EIAsd that covers exploration activities is conceptual, and covers temporary, progressive and final closure.

Southern Copper have identified the key permits that would be required for exploration-stage activities. Current site activities are support by an existing exploration permit. Southern Copper is currently obtaining the supporting information required for, and preparing the application to, obtain exploitation permits. Southern Copper expects to complete the application process and obtain the exploitation permits by 2023.

Southern Copper has community initiatives in place in the Project area of influence. Southern Copper created two community committees for each of the Tiaparo and Tapairíhua communities, and a community care service that is accessible by the communities.

Any future Project development is expected to affect at least the Tiaparo and Tapairíhua communities that are included in the list of indigenous communities prepared by the Ministry of Culture and will be subject to prior consultation requirements and considerations.

Southern Copper is managing an ongoing social conflict with both the Tiaparo and Tapairíhua communities due to requests by the communities to increase the amount of social investment by the company. Southern Copper prepared a social strategy to manage the conflict, with the aim of reaching consensus and agreements. This plan includes participation in community assemblies, meetings with communal authorities, explanations about and information on the EIA preparation process, and updates on the Project status. The community care service is expected to help Southern Copper address grievances and complaints and provide solutions; and the community committees will allow the company a better understanding of any social issues that may arise.

After reviewing the information provided by Southern Copper, and following consultation with Southern Copper staff, Wood is of the opinion that Southern Copper has appropriately implemented a system to identify and mitigate social issues that would arise during the pre-development, development and operating activities. Wood opines that social risks to the Project are well-understood by Southern Copper and should be able to be appropriately managed and mitigated.

22.3 Geology and Mineralization

The Los Chancas deposit is an example of a porphyry copper 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 exploration programs completed to date are appropriate for the deposit style.

Drilling totals 325 core holes for 155,389 m. Drilling that supports mineral resource estimation consists of 318 holes for 152,600 m. There are seven drill holes that were not used for the mineral resource estimate due to their distance from the main Los Chancas deposit. Geotechnical drilling is also not used in estimation support.

Drill spacing varies from approximately 70–100 m in the better drilled deposit areas to about 300 m spacing on the less well drilled portions of the deposit.

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.

Drilling, collar surveying, and geological and geotechnical logging are consistent with industry-standard practices. Some downhole surveys appear to be missing from the database. Some downhole surveying is questionable and may not have been performed to industry standards. All drill holes should have high-quality downhole surveys.

Wood recommends that none of the downhole survey data now in the database be used for mineral resource estimation. The source of the errors is unknown. Wood recommends that the original data be recovered and reprocessed to determine if the problem was with the survey instrument or the software used to process the data. If those data are not available, each of the accessible holes should be re-entered, cleaned, and re-surveyed.

Because there are no reliable downhole surveys, all blocks in the block model below 100 m below the topographic surface should be restricted to inferred mineral resources at best. Above 100 m below the topographic surface, classification is not restricted due to lack of downhole surveys.

Core samples used for specific gravity determination may be too short to provide reliable data. Wood recommends that Southern Copper implement a check specific gravity determination program where larger samples adjacent to the original Southern Copper samples are used to determine if there are significant biases introduced by the very small samples.

Check results from SGS indicate that the SGS specific gravity data are biased high relative to the original Southern Copper specific gravity data. There are too few specific gravity data from SGS to support reliable conclusions, but there is a risk that the tonnages may be somewhat underestimated.

The sample preparation, analysis, quality control, and security procedures are acceptable for mineral resource estimation. The sample preparation, analysis, quality control, and security procedures are sufficient to provide reliable data to support estimation of mineral resources.

Wood concluded that copper, gold, silver and arsenic are adequately accurate, precise, and error-free to support mineral resource estimation. Molybdenum, with only one standard, lacked sufficient data to support meaningful conclusions regarding accuracy of molybdenum assays. Classification of molybdenum mineral resource estimates should therefore be restricted to inferred mineral resources at best.

22.5 Data Verification

Data verification performed by Wood included site visits, database checks and peer reviews.

The data verification programs concluded that the data collected from the Los Chancas Project area adequately support the geological interpretations and constitute a database of sufficient quality to support the use of the data in mineral resource estimation.

22.6 Metallurgical Testwork

Metallurgical testwork was conducted by a number of independent testwork facilities.

Industry-standard tests for copper–molybdenum porphyry deposits were performed. Metallurgical tests were carried out at bench-scale on oxide and sulfide mineralization. Testwork programs were acceptable for the mineralization type.

The overall testwork results indicate that there is substantial variability across the ore types, which must be addressed in future testwork programs. There is insufficient testwork to cover deposit and mineralization variability. Variability testing across mineralization types was not adequately addressed during the testwork phases.

The arsenic assays in the Project database indicate that there are some areas of the deposit where arsenic values are elevated, and there is a risk that the arsenic may report to concentrate at concentrations that could cause smelters to impose penalties on the concentrate, or limit concentrate marketability to those smelters who are able to blend high-arsenic concentrates with better concentrate feeds. Additional testing and analysis should be performed to determine if the arsenic can be rejected in the process. There is potential to control the concentrate arsenic content with good mine planning and grade control.

Wood reviewed the metallurgical testwork results, and based on these checks, in Wood's opinion, the metallurgical testwork results and recovery forecasts support the estimation of mineral resources. The metallurgical testwork data is of sufficient quality to support a prefeasibility study and an indicated mineral resource classification. Additional support for confidence category upgrades from the perspective of metallurgical modifying factors, will require supporting testwork to address geometallurgy and the variability across the deposit.

22.7 Mineral Resource Estimates

The mineral resource estimate is reported using the definitions set out in SK-1300. The reference point for the estimate is in situ. The estimate is based on core drilling.

Areas of uncertainty that may materially impact the mineral resource estimates include: changes to long-term metal price and exchange rate assumptions; changes in local interpretations of mineralization geometry such as presence of unrecognized mineralization off-shoots; faults, dikes and other structures; and continuity of mineralized zones; changes to geological and grade shape, and geological and grade continuity assumptions; changes to metallurgical recovery assumptions; changes to assumptions regarding deleterious elements; changes to the input assumptions used to derive the conceptual open pit shell that is used to constrain the estimates; changes to the cut-off values applied to the estimates; variations in geotechnical (including seismicity), hydrogeological and mining assumptions; and changes to environmental, permitting and social license assumptions.

Specific factors that may affect the estimates include:

- The lack of deviation measurement of a considerable percentage of holes can lead to local inaccuracies in both geological contacts and in the estimation of the estimated elements. None of the downhole surveys appear to be valid surveys so there are effectively no downhole surveys at Los Chancas, which is a significant risk and limits mineral resource confidence classification to inferred mineral resources below 100 m below surface

- Supporting documentation is lacking for a significant percentage of collar and downhole surveys, which creates uncertainty in sample location at depth, further contributing to confidence category downgrading
- The lack of QA/QC information for the 1998–2004 campaigns; the inherent risk is the imprecision of the sampling and preparation of this portion of the drill campaigns. The 2006 check assay program provided some mitigation of this risk
- The lack of a structural model will be a risk for future geotechnical evaluations. Such a model should be constructed in the next estimate update
- The density used is based on a small sample size, and there is a risk that the tonnage estimate using the density data could be slightly understated.

22.8 Risks and Opportunities

Risks to the mineral resource estimate were summarized in Chapter 11.12.2.

22.8.1 Risks

Other risks that could affect proposed Project development and the resource estimate include the following.

The tenor of the arsenic assays in the Project database indicate that there are some areas of the deposit where arsenic values are elevated, and there is a risk that the arsenic may report to concentrate at tenors that could cause smelters to impose penalties on the concentrate, or limit concentrate marketability to those smelters who are able to blend high-arsenic concentrates with better concentrate feeds.

As part of the application for the EIAsd, an archaeological survey was completed in 2020 that identified a number of archaeological sites within the Project area. Although it appears from the site descriptions that the areas are in a state of poor preservation, Southern Copper will be required to obtain a CIRA before starting activities that would disturb these sites. If it is absolutely necessary to locate infrastructure over an archaeological site, Southern Copper must obtain authorization from the Ministry of Culture to clear the area of archaeological remains before starting proposed activities. If the sites are found to be of significance, there is a risk that the conceptual open pit as envisaged in this Report would require modification. There is also a risk that the conceptual project infrastructure locations that were assumed in the Initial Assessment would not be able to be constructed where provisionally envisaged, and additional studies would be required.

As with any large mining project in Peru, the Los Chancas Project is subject to certain risks, including:

- Potential social conflicts based on negative community or regulatory perceptions. These could include unfulfilled expectations, new leadership with new ideas as to how agreements should be concluded, differing ideas of appropriate compensation, or changes in the community boundaries
- Agreements with communities are not respected and local communities make major demands for social investment or other considerations not covered by the agreements
- Governmental changes to mining policies and mining regulations
- Non-governmental organizations that promote an anti-mining culture.

22.8.2 Opportunities

Opportunities for the Los Chancas Project include:

- Upgrade of some or all of the inferred mineral resources to higher-confidence categories, such that such better-confidence material could be used in mineral reserve estimation
- Higher metal prices than assumed could present upside opportunities
- Slightly more tonnage may be able to be estimated due to the possible negative bias in specific gravity values.

22.9 Conclusions

Under the assumptions presented in this Report, the Los Chancas Project represents a substantial mineral resource that warrants technical evaluation and mining studies.

Additional work is justified on the Project to upgrade the mineral resource confidence categories.

23 RECOMMENDATIONS

23.1 Introduction

The recommended work programs total US$10.3–US$13.4 M.

23.2 Geology

A 15,000 m twin drill hole program is recommended. The drill holes should be drilled as closely as possible to the original drill hole location dips and azimuths. All drill holes should be oriented to provide structural data, using modern core orientation tools. The drill holes should be surveyed using borehole televiewer surveys. The program should include appropriate QA/QC protocols.

A re-survey program to locate all drill collars still visible in the field should be completed.

A downhole survey program should be conducted on all drill holes that are still open, and can be surveyed.

The density used is based on a small sample size and is biased. Density determinations should be completed on the core generated during the twin hole program.

A budget estimate for this work, assuming an all-in drilling cost of US$250/m for oriented core, is about US$5.5–US$6.5 M.

23.3 Geotechnical

The oriented core from the proposed twin-hole drill program should be logged for geotechnical parameters to provide quantitative geotechnical data to support analyses and pit slope designs. Samples should be collected for geomechanical tests such as point load tests.

Costs for this program are included in the cost estimate in Chapter 23.2.

23.4 Mineral Resources

Once the geology program outlined in Chapter 23.2 is complete, the geological interpretations and geological model should be updated Alteration, structural and mineralization interpretations should be completed and models developed for these parameters.

Mineral resource estimates should be updated, and the update should be based on all available drill holes, including the results of the twin hole program. Updates should include full data reviews including EDA, compositing, grade and outlier capping/restriction, variography, determination of appropriate interpolation methods, review of confidence classifications, model validation, and updated input parameters to the conceptual pit shell constraining the estimates.

A budget estimate for this work is approximately US$0.2–US$0.25 M.

23.5 Metallurgy

A deposit and mineralization variability testwork program should be completed. This should be based on PQ core collected from a dedicated 5,000 m metallurgical drill program.

A geometallurgical model should be constructed.

Metallurgical tests should include mineralogy, comminution, flotation, and variability tests. Additional testwork may include rheology, and acid base accounting.

A budget estimate for this work is US$2–US$3 M, assuming an all-in drilling cost for PQ core of US$250/m.

23.6 Infrastructure

Trade-off studies should be performed to determine sites for key infrastructure. These will need to be carefully sited to avoid significant disturbance to the lagoons and wetlands (bofedales) in the vicinity of the planned open pit.

Alternatives for tailings and waste disposal should be evaluated, and the use of dry-stack facilities should be considered.

A budget estimate for this work is US$0.1–US$0.15 M.

23.7 Environmental

The environmental baseline studies require update, and should include at a minimum:

- Bofedales
- Streams, ponds, and lagoons
- Water quality
- Noise
- Flora
- Fauna

- Soils
- Social environment
- Local resources and current land use.

An archaeological survey should be completed and include an archaeological mapping program over the planned area of the open pit and any areas that are considered likely to be suitable sites for infrastructure.

Southern Copper should continue with its community relations efforts and plans. Southern Copper should set up a Community Care Service that is accessible by local communities to obtain Project information and to provide feedback to Southern Copper, whether positive or negative.

A budget estimate for this work is US$2.5–US$3.5 M.

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24.2 Abbreviations and Symbols

Abbreviation/Symbol	Term
AAS	atomic absorption spectrometry
BX	33.4 mm core diameter
DGPS	digital global positioning system
EIA	Environmental Impact Assessment
EIAsd	semi-detailed Environmental Impact Assessment
G&A	general and administrative
GPS	global positioning system
HPGR	high pressure grinding rolls
HQ	63.5 mm core diameter
ID2	inverse distance weighting to the second power
ID3	inverse distance weighting to the third power
Mt	million tonnes
Mlb	million pounds
NAG	net acid generation
NQ	47.6 mm core diameter
NSR	net smelter return
QP	Qualified Person
RQD	rock quality description
SAG	semi-autogenous grind
US	United States
US$	United States dollars
US$/t	United States dollars/tonne
WRSF	waste rock storage facility

24.3 Glossary of Terms

Term	Definition
acid rock drainage/ acid mine drainage	Characterized by low pH, high sulfate, and high iron and other metal species.
alluvium	Unconsolidated terrestrial sediment composed of sorted or unsorted sand, gravel, and clay that has been deposited by water.
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
azimuth	The direction of one object from another, usually expressed as an angle in degrees relative to true north. Azimuths are usually measured in the clockwise direction, thus an azimuth of 90 degrees indicates that the second object is due east of the first.
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.
Bond work index (BWi)	A measure of the energy required to break an ore to a nominal product size, determined in laboratory testing, and used to calculate the required power in a grinding circuit design.
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 below which the material is not “ore” and considered to be uneconomical to mine and process. The minimum grade of ore used to establish reserves.
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 of 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
disclosure	Any oral statement or written disclosure made by or on behalf of an issuer and intended to be, or reasonably likely to be, made available to the public in a jurisdiction of Canada, whether or not filed under securities legislation, but does not include written disclosure that is made available to the public only by reason of having been filed with a government or agency of government pursuant to a requirement of law other than securities legislation.
discounted cash flow (DCF)	Concept of relating future cash inflows and outflows over the life of a project or operation to a common base value thereby allowing more validity to comparison of projects with different durations and rates of cash flow.
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.
encumbrance	An interest or partial right in real property which diminished the value of ownership, but does not prevent the transfer of ownership. Mortgages, taxes and judgements are encumbrances known as liens. Restrictions, easements, and reservations are also encumbrances, although not liens.
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.

Term	Definition
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.
gangue	The fraction of ore rejected as tailing in a separating process. It is usually the valueless portion, but may have some secondary commercial use
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.
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.
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.
locked cycle test	A standard laboratory flotation test where certain intermediate streams are recycled into previous separation stages and the test is repeated across a number of cycles. This test provides a more realistic prediction of the overall recovery and concentrate grade that would be achieved in an actual flotation circuit, compared with a more simple batch flotation test.
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.
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,

Term	Definition
	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.
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 (NSR)	A defined percentage of the gross revenue from a resource extraction operation, less a proportionate share of transportation, insurance, and processing costs.

Term	Definition
open pit	A mine that is entirely on the surface. Also referred to as open-cut or open-cast mine.
penalty elements	Elements that when recovered to a flotation concentrate, attract a penalty payment from the smelting customer. This is because those elements are deleterious, and cause quality, environmental or cost issues for the smelter. Includes elements such as arsenic, mercury and lead.
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.
potassic alteration	A relatively high temperature type of alteration which results from potassium enrichment. Characterized by biotite, K-feldspar, adularia.
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

Term	Definition
	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 colour. Minerals include chlorite, actinolite and epidote. Typically contains the assemblage quartz-chlorite-carbonate
proven mineral reserve	A proven mineral reserve is the economically mineable part of a measured mineral resource. For a proven mineral reserve, the qualified person has a high degree of confidence in the results obtained from the application of the modifying factors and in the estimates of tonnage and grade or quality. A proven mineral reserve can only result from conversion of a measured mineral resource.
qualified person	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: (A) Be either: (1) An organization recognized within the mining industry as a reputable professional association, or (2) A board authorized by U.S. federal, state or foreign statute to regulate professionals in the mining, geoscience or related field; (B) Admit eligible members primarily on the basis of their academic qualifications and experience; (C) Establish and require compliance with professional standards of competence and ethics; (D) Require or encourage continuing professional development; (E) Have and apply disciplinary powers, including the power to suspend or expel a member regardless of where the member practices or resides; and; (F) Provide a public list of members in good standing.
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.
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.

Term	Definition
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.
semi-autogenous grinding (SAG)	A method of grinding rock into fine powder whereby the grinding media consists of larger chunks of rocks and steel balls.
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 remobilisation of metals in an oxidised 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
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 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

25.1 Introduction

Wood fully relied on the registrant for the guidance in the areas noted in the following sub-sections.

Wood considers it is reasonable to rely on Southern Copper because the company has considerable experience in developing and operating mines in Peru.

25.2 Macroeconomic Trends

- Information relating to inflation, interest rates, discount rates, foreign exchange rates, taxes.

This information is used in the economic analysis in Chapter 19. It supports the mineral resource estimate in Chapter 11, and the mineral reserve estimate in Chapter 12.

25.3 Markets

- Information relating to market studies/markets for product, market entry strategies, marketing and sales contracts, product valuation, product specifications, refining and treatment charges, transportation costs, agency relationships, material contracts (e.g. mining, concentrating, smelting, refining, transportation, handling, hedging arrangements, and forward sales contracts), and contract status (in place, renewals).

This information is used when discussing the market, commodity price and contract information in Chapter 16, and in the economic analysis in Chapter 19. It supports the mineral resource estimate in Chapter 11, and the mineral reserve estimate in Chapter 12.

25.4 Legal Matters

- 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 Chapter 3, the permitting and closure discussions in Chapter 17, and the economic analysis in Chapter 19. It supports the mineral resource estimate in Chapter 11, and the mineral reserve estimate in Chapter 12.

25.5 Environmental Matters

- 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 property ownership information in Chapter 3, the permitting and closure discussions in Chapter 17, and the economic analysis in Chapter 19. It supports the mineral resource estimate in Chapter 11, and the mineral reserve estimate in Chapter 12.

25.6 Stakeholder Accommodations

- 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 Chapter 17, and the economic analysis in Chapter 19. It supports the mineral resource estimate in Chapter 11, and the mineral reserve estimate in Chapter 12.

25.7 Governmental Factors

- Information relating to taxation and government royalty considerations at the Project level.

This information is used in the economic analysis in Chapter 19. It supports the mineral resource estimate in Chapter 11, and the mineral reserve estimate in Chapter 12.