Independent Technical Report for the Chapada Mine and Saúva Copper-Gold Project, Northern Goiás State, Brazil

Report prepared for Lundin Mining Corporation

SRK Consulting (Canada) Inc. ▪ CAPR003158 ▪ February 19, 2025

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Cover Image: North pit at Chapada Mine

srk consulting

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IMPORTANT NOTICE

This report was prepared as a National Instrument 43-101 Standards of Disclosure for Mineral Projects Technical Report for Lundin Mining Corporation (Lundin). This report was prepared by the qualified persons indicated in this report who are each consultants of SRK Consulting (Canada) Inc. (SRK). The quality of information, conclusions, and estimates contained herein are consistent with the quality of effort involved in SRK's services. The information, conclusions, and estimates contained herein are based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Lundin subject to the terms and conditions of its contract with SRK and relevant securities legislation. The contract permits Lundin to file this report as a Technical Report with Canadian securities regulatory authorities pursuant to National Instrument 43-101. Except for the purposes legislated under provincial securities law, any other uses of this report by any third party is at that party's sole risk. The responsibility for this disclosure remains with Lundin The user of this document should ensure that this is the most recent Technical Report for the property as it is not valid if a new Technical Report has been issued.

FORWARD LOOKING INFORMATION

This report contains “forward-looking information” and “forward-looking statements” within the meaning of applicable Canadian and the United States securities legislation which involve a number of risks and uncertainties. Forward-looking information and forward-looking statements include, but are not limited to, statements with respect to the future prices of copper and gold, the estimation of Mineral Resources and reserves, the realization of mineral estimates, the timing and amount of estimated future production, costs of production, capital expenditures, costs (including capital costs, operating costs and other costs) and timing of the LoM, rates of production, annual revenues, requirements for additional capital and government regulation of mining operations.

Often, but not always, forward-looking statements can be identified by the use of words such as “plans”, “expects”, or “does not expect”, “is expected”, “budget”, “scheduled”, “estimates”, “forecasts”, “intends”, “anticipates”, or “does not anticipate”, or “believes”, or variations of such words and phrases or state that certain actions, events or results “may”, “could”, “would”, “might” or “will” be taken, occur or be achieved.

Forward-looking statements are based on the opinions, estimates and assumptions of contributors to this report. Certain key assumptions are discussed in more detail. Forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of Lundin to be materially different from any other future results, performance or achievements expressed or implied by the forward-looking statements.

Such factors include, among others: the actual results of current development activities; conclusions of economic evaluations; capital and operating cost forecasts; changes in project parameters as plans continue to be refined; future prices of gold, copper and other metals; possible variations in mineral grade or recovery rates; failure of plant, equipment or processes to operate as anticipated; accidents, labour disputes, climate change risks and other risks of the mining industry; delays in obtaining governmental approvals or financing or in the completion of development or construction activities; shortages of labour and materials; changes to regulatory or governmental royalty and tax rates; environmental risks and unanticipated reclamation expenses; the impact on the supply chain and other complications associated with pandemics, including global health crises; title disputes or claims, and timing and possible outcome of pending legal or regulatory proceedings; as well as those risk factors discussed or referred to in this report and in Lundin’s documents filed from time to time with the securities regulatory authorities.

There may be other factors than those identified that could cause actual actions, events or results to differ materially from those described in forward-looking statements, there may be other factors that cause actions, events or results not to be anticipated, estimated or intended. There can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers are cautioned not to place undue reliance on forward-looking statements. Unless required by securities laws, the authors undertake no obligation to update the forward-looking statements if circumstances or opinions should change.

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Useful Definitions

This list contains definitions of symbols, units, abbreviations, and terminology that may be unfamiliar to the reader.

Item	Description
Lundin	Lundin Mining Corporation
SRK	SRK Consulting (Canada) Inc.
Chapada Mine	Inclusive of Chapada and Suruca mineral deposits
Saúva Project	Inclusive of Saúva and Formiga mineral deposits
Chapada Property	Claims package inclusive of Chapada Mine, Saúva Project and regional exploration
Technical Report	Report assembled following National Instrument 43-101 requirements, including 'this report'.
QP	Qualified Person(s) as the term is defined by NI 43-101
NI 43-101	National Instrument 43-101

Unit	Description	Unit	Description
°, °C	degree, degree Celsius	lcm	loose cubic metre
bcm	bank cubic metre	L	litre
CAD$	Canadian dollar	lb	pound
cal	calorie	LoM	life of mine
cfm	cubic feet per minute	m	metre
cm	centimetre	M	mega (million)
cm^2	squared centimetre	m^2	square metre
CoV	cut-off value	m^3	cubic metre
d	day	Mm^3	million cubic metres
dmt	dry metric tonne	masl	metres above mean sea level
dwt	dead-weight tonne	µ	micron
ft	foot	µg	microgram
ft^2	square foot	µm	micrometre
ft^2	cubic foot	Mlb	million pounds
ft/s	feet per second	mm	millimetre
g	gram	Mt	million tonnes
G	giga (billion)	MW	megawatt
g/L	grams per litre	MWh	megawatt-hour
g/t	grams per tonne	OK	ordinary kriging
ha	hectare	oz	Troy ounce (31.1035 g)
hr	hour	ppb	parts per billion
ID	inverse distance	ppm	parts per million

k	kilo (thousand)	R$	Brazilian Reais
kcal	kilocalorie	s	second
kg	kilogram	tpd	metric tonnes per day
km	kilometre	tpa	metric tonnes per annum
km^2	square kilometre	TSF	tailings storage facility
kPa	kilopascal	US$	United States dollar
kV	kilovolt	V	volt
kVa	kilovolt-amperes	W	watt
kW	kilowatt	wt%	weight percent
kWh	kilowatt-hour	y	year

Executive Summary

Property Description and Ownership

The Chapada Mine is a mining operation situated in northern Goiás State, Brazil, approximately 320 km north of Goiânia and 270 km northwest of Brasília. The Chapada property includes the Chapada Mine, the Saúva Project, and surrounding exploration concessions. The Chapada Mine comprises the Chapada and Suruca deposits, which are located six km apart. The Saúva Project is located 15 km north of the Chapada Mine and includes the Saúva and Formiga deposits.

Access to the property from Brasilia is via BR-153 (Belem/Brasilia) to Campinorte (GO) and then via GO-465 (Campinorte/Santa Terezinha) west to Alto Horizonte. The town of Alto Horizonte lies between the Suruca and Chapada deposits. The airport closest to Chapada is located close to Alto Horizonte, approximately 4 km northeast of the Chapada Mine.

The overall Chapada property is comprised of 59 mineral claims, totaling approximately 85,571 ha. These claims include 52 exploration licenses and four mining concessions, with additional mining concession applications in progress. Mineração Maracá Indústria e Comércio S/A (MMIC), a wholly-owned subsidiary of Lundin hold the rights to these claims. The mine operates under valid environmental permits, with priority surface rights being negotiated for the Saúva Project to facilitate future exploration and feasibility studies.

Lundin (via MMIC) holds all of the surface rights in the area of the Chapada Mine and Saúva Project, which incorporates all of the proposed locations of buildings, fixed installations, waste dumps, and tailings disposal in the current mine plan. The land ownership is registered with the Registrar of Real Estate in Mara Rosa, Goiás.

History

Exploration in the area began with the discovery of the Chapada deposit in 1973 by a Canadian company, INCO, during a regional program of stream sediment sampling. In May of 1994, the property was subsequently acquired by Mineração Santa Elina Industria e Comercio S/A (SERCOR) through its subsidiary, MMIC.

Drilling was the primary activity performed on the property, as the thick laterite-saprolite cover obscured all but a few outcrops in the area. Drilling occurred in several campaigns from 1976 through 1996 by INCO, Parsons-Eluma, Eluma-Noranda, Santa Elina, and Santa Elina-Echo Bay. The historical Chapada drilling database includes 856 drill holes totaling 67,315 m, as described in Section 9. Santa Elina-Echo Bay also performed exploration work in the region through soil and chip sampling. Over the years, 7,108 soil samples and 341 chip samples were collected in the Chapada district.

Yamana Gold Inc. (Yamana) purchased MMIC in 2003 and began production of the Chapada Mine in 2007. Yamana's exploration activities led to the discovery of several mineralized zones around the Chapada Main deposit, including Chapada SW, Corpo Sul, Sucupira, Baru, and others.

Exploration work completed by Yamana on the Suruca deposit began in 2008 with geological mapping, chip sampling, and shallow drilling. The exploration work was targeting the discovery of potential hydrothermal halos and structures proximal to the Chapada Mine. Airborne magnetic surveys conducted in 2009 and 2018, along with the induced polarization survey from 2010, covered the Suruca area and supported the exploration targeting in the region. Between 2015 and 2018, soil sampling was carried out around Suruca; however, most exploration efforts were concentrated on drilling, as detailed in Section 9.

Exploration on the Saúva Project began in 2014, with soil and chip sampling, and geological mapping. In 2015, Yamana identified the Formiga exploration target, approximately 15 km north of the Chapada mine, based on a copper soil anomaly exceeding 800 ppm, associated with a small occurrence of magnetic gossan.

In April 2019, Lundin announced that it had entered into a definitive agreement with Yamana to purchase its 100 percent ownership in MMIC, which was completed on July 5, 2019. Subsequently, Lundin acquired 41 new Exploration Licenses in 2021, and exploration on these new claims led to the discovery of the Saúva deposit.

Geology and Mineralization

The Chapada Mine and Saúva Project are situated in Central Brazil within the Tocantins Province, in the Goiás Magmatic Arc of the Neoproterozoic Brasilia Orogenic Belt. This region is characterized by a complex tectonic history associated with the Brasiliano Orogeny, which occurred between 900 Ma and 600 Ma. The Goiás Magmatic Arc comprises juvenile orthogneisses and arc-type volcano-sedimentary sequences, forming part of an accretionary orogen.

The Chapada Mine and Saúva Project are located within the metavolcano-sedimentary sub-unit of the Mara Rosa Sequence. This sub-unit includes metavolcanic rocks of mafic to felsic composition, meta-volcaniclastic rocks, and various metasedimentary units. The geological setting suggests remnants of a volcanic arc to back-arc basin pair, with geochemical characteristics akin to modern volcanic arcs.

The Chapada Mine area consists of multiple zones, including Chapada Cava Central and Suruca, with stratigraphy comprising metasedimentary and metavolcanic layers. The mineralization is primarily hosted in biotite gneiss and amphibole-biotite gneiss, with copper and gold associated with early- to inter-mineral porphyry stocks.

The Saúva Project includes the Saúva zone and Formiga exploration target. The stratigraphy is marked by metavolcanic rocks and metadiorite, with mineralization hosted in hydrothermally altered rocks. The Saúva deposit is characterized by porphyry copper-gold mineralization, with well-developed sulfide zoning controlling copper and gold grades.

The Chapada and Saúva Projects feature significant alteration types linked to mineralization. At Chapada, copper-gold mineralization occurs in biotite-plagioclase gneiss and biotite schist, characterized by biotitic alteration with A-type quartz veinlets containing magnetite and chalcopyrite. This is overprinted by sericitic alteration with D-type veinlets. At Saúva, potassic alteration with quartz-feldspar veins and an epidote-rich halo correlate with high copper and gold grades. The Formiga deposit exhibits skarn-type alteration with garnet-epidote-amphibole assemblages, hosting semi-massive chalcopyrite, pyrite, and pyrrhotite, divided into garnet-rich and epidote-amphibole-rich facies.

The property is covered by a 30 m lateritic profile, comprising saprolite and lateritic duricrust, indicative of extensive weathering processes.

Deposit Types

Currently, the most accepted metallogenetic model for Chapada Mine and Saúva Project is a metamorphosed porphyry model associated with skarn system.

The porphyry and skarn system can be separated into two distinct mineralization styles, based on hydrothermal alteration and metal association:

- Copper-Gold Porphyry System: Chapada, Corpo Sul, Sucupira, Baru, Saúva
- Skarn Systems: copper (gold) Formiga deposit and gold (silver-lead-zinc) Suruca deposit

Exploration Status

Since 2019, Lundin has undertaken extensive geological mapping, soil geochemistry, and geophysical surveys, including airborne magnetic and radiometric surveys, to enhance the understanding of the mineralization and identify new exploration targets. Systematic soil and rock sampling, with over 30,000 soil samples and 337 rock samples collected and analyzed to identify geochemical anomalies. Geophysical surveys, such as induced polarization and electromagnetic surveys, have further enhanced the geological understanding, identifying several high-chargeability trends correlating with known ore bodies. In 2024, exploration activities included geophysical surveys (induced polarization/resistivity in the near-mine and borehole electromagnetics at Saúva), soil sampling (regional targets), and core drilling at Chapada Mine, Saúva Project and within the property.

Between 1996 and 2023, a total of 4,160 core boreholes (736,008 m) have been drilled across the Chapada Mine, Saúva Project, and surrounding areas. Drilling completed by Lundin comprises 1,307 boreholes (300,820 m) drilled between 2019 and the end of December 2023. This includes 885 boreholes (174,325 m) drilled at Chapada Mine and 257 boreholes (82,301 m) drilled at Saúva Project.

The drilling density at Chapada and Saúva is considered sufficient to support Mineral Resource estimation. Drill spacing ranges from 50 m by 50 m to 100 m by 100 m, for both the Chapada Mine and Saúva Project. In 2024, exploration activities included geophysical surveys (induced polarization/resistivity in the near-mine and borehole electromagnetics at Saúva Project), soil sampling (regional targets), and core drilling at Chapada Mine, Saúva Project and within the property.

Sample Preparation and Data Verification

Sample preparation and analysis have been conducted by independent accredited laboratories, including Geolab in Brazil, ALS Chemex in Lima, Peru, and SGS GEOSOL in Vespasiano, Brazil.

These laboratories operate under ISO standards. Analytical methods include fire assay for gold and four-acid digestion for copper, with umpire check samples submitted to independent laboratories for verification.

Analytical quality control programs employed by Yamana and Lundin have been robust, involving the insertion of blanks, certified reference materials, and duplicate samples. Additional regular checks were performed at an umpire laboratory to test the reliability and reproducibility of results from the primary laboratory. Data verification processes have involved both internal and external reviews. The QP conducted an independent verification of the exploration data during the site visit, involving a review of data collection and storage procedures to assess reliability of exploration data for the purpose of Mineral Resource estimation. The QP considers the sample preparation, analysis, security, and data verification procedures employed at the Chapada Mine and Saúva Project to be consistent with industry best practices.

Mineral Processing and Metallurgical Testing

Lundin Mining Corporation's Chapada mine started commercial production in 2007 and has undergone several expansions to reach the current plant capacity of 65,000 tpd or 24 Mtpa equivalent. In 2016, Chapada initiated several process optimization projects, including the evaluation of Woodgrove Technologies' Direct Flotation Reactor (DFR) and Staged Flotation Reactor (SFR) cells. This was accompanied by laboratory-scale, pilot-scale testing and plant sampling to evaluate the expected benefits of increased flotation circuit capacity.

An expansion study completed by Ausenco and AtkinsRéalis (formerly SNC-Lavalin) in 2022 looked at options to achieve 32 Mtpa (or 3,900 tph equivalent). This prefeasibility study (PFS) was referred to as Chapada Brownfield Expansion (or CBFE) and included a considerable amount of geometallurgical testwork.

Since 2019, testwork has been focused in three main areas:

- Geometallurgical throughput and recovery model updates
- Expansion studies like CBFE
- Evaluation of low-grade stockpiled material recently included in the mine plan

The Saúva project is located 15 km north of the Chapada operation and includes the Saúva zone and Formiga exploration target. Preliminary studies are investigating a range of options to transport Saúva ore to Chapada, at approximately one-third of the Chapada process plant's capacity.

Metallurgical testing has been undertaken as part of the Saúva scoping study with a total of 38 samples collected from core and coarse rejects sources. Samples were submitted for mineralogy (composites only) hardness/comminution testing and rougher flotation and all work as undertaken by SGS Geosol.

The Suruca deposit is located in the Goiás province of Brazil, approximately 7 km north-east of the Chapada mine and 2 km south-east of Alto Horizonte. It was evaluated by Yamana in 2018 and 2019, with a number of processing options considered for the different ore zones.

The Oxide zone represents 18% of the tonnes at an average grade of 0.3 g/t Au while the Transition/ Sulphide zone is 39% of the tonnes at 0.49 g/t Au on average. The remaining 43% of the tonnes is considered Copper-Gold or the "Southwest" zone and is comparable to current Chapada material with average grades of 0.16% Cu and 0.17 g/t Au.

A number of Oxide zone samples have been evaluated for heap leaching, using both bottle roll and column leach testing methods. The Transition and Sulphide zone material was evaluated for Carbon in Pulp (CIP) gold recovery following grinding and cyanide leaching. The Southwest or Copper-Gold zone is similar in mineralogy to the current Chapada plant feed material; however, samples demonstrated higher sensitivity to grind size.

Mineral Resource Estimate

The Chapada Mine and Saúva Project are comprised of four primary deposit areas: Chapada Main, Suruca within Chapada Mine, Saúva and Formiga deposits within the Saúva Project. The Mineral Resource model for the main Chapada Mine was prepared by Jorge Watanabe of MMIC in August 2023. The resource model for the Suruca deposit of the Chapada Mine was prepared in August 2023 by SLR Consulting (SLR). The Mineral Resource model for the Saúva Project was prepared by Iris Soares of MMIC in August 2023 and reviewed by Dr. Felipe Pinto of Lundin in November 2023. These models were audited by SRK.

Leapfrog Geo software was used to develop geological and mineralization domains to volumetrically constrain grade estimation. A combination of Maptek's Vulcan, Snowden Supervisor and various python-based scripts were used to prepare assay data for geostatistical analysis, construct the block model, estimate copper and gold grades, and tabulate Mineral Resources. Copper and gold grades were estimated using ordinary kriging and inverse distance, conditioned by capped and composited assay grades.

The copper and gold mineralization found in the Chapada Mine and Saúva Project is primarily amenable to open pit extraction, with a small underground portion in the Saúva Project. Lundin performed pit and stope optimization using Datamine's NPV Scheduler to assist with determining which portions of the copper and gold deposits show "reasonable prospect for eventual economic extraction" and to assist with selecting reporting assumptions.

Mineral Resources have been prepared in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves dated May 19, 2014 (CIM (2014) definitions) and CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines dated November 29, 2019. The Mineral Resource statement for the Chapada Mine and Saúva Project is presented in Table i. Mineral Resources are reported at various cut-off values considering a gold price of US$1,840 per ounce of gold, and a copper price of US$4.43 per pound of copper. The effective date of the Mineral Resource Statement is December 31, 2024.

Table i: Audited Mineral Resource Statement, Chapada Mine and Saúva Project, Goiás State, Brazil, SRK Consulting (Canada) Inc., December 31, 2024

Deposit	Extraction	Domain	Category	Tonnes (000's)	Grade		Contained Metal	
					Copper (%)	Gold (g/t)	Copper kt	Gold koz
Chapada	OP	Main	Measured	422,939	0.25	0.13	1,071	1,776
			Indicated	374,206	0.23	0.09	843	1,088
			Measured + Indicated	**797,146**	**0.24**	**0.11**	**1,914**	**2,865**
			Inferred	47,800	0.22	0.09	106	137
		Stockpile	Measured	0	0.00	0.00	0	0
			Indicated	135,585	0.18	0.11	239	464
			Measured + Indicated	**135,585**	**0.18**	**0.11**	**239**	**464**
			Inferred	0	0.00	0.00	0	0
		Suruca Cu Au	Measured	804	0.14	0.15	1	4
			Indicated	85,117	0.16	0.17	136	467
			Measured + Indicated	**85,921**	**0.16**	**0.17**	**137**	**471**
			Inferred	561	0.12	0.16	1	3
		Suruca Au	Measured	16,046	0.00	0.32	0	163
			Indicated	96,527	0.00	0.45	0	1,393
			Measured + Indicated	**112,572**	**0.00**	**0.43**	**0**	**1,556**
			Inferred	1,361	0.00	0.52	0	23
Saúva	OP	Saúva + Formiga	Measured	0	0.00	0.00	0	0
			Indicated	249,858	0.29	0.16	714	1,301
			Measured + Indicated	**249,858**	**0.29**	**0.16**	**714**	**1,301**
			Inferred	2,028	0.20	0.06	4	4
	UG	Saúva	Measured	0	0.00	0.00	0	0
			Indicated	0	0.00	0.00	0	0
			Measured + Indicated	**0**	**0.00**	**0.00**	**0**	**0**
			Inferred	25,184	0.51	0.41	127	332
Total	Cu Au		Measured	423,744	0.25	0.13	1,072	1,780
			Indicated	844,766	0.23	0.12	1,932	3,321
			Measured + Indicated	**1,268,509**	**0.24**	**0.13**	**3,005**	**5,101**
			Inferred	75,573	0.32	0.20	238	476
Total	Au Only		Measured	16,046		0.32		163
			Indicated	96,527		0.45		1,393
			Measured + Indicated	**112,572**		**0.43**		**1,556**
			Inferred	1,361		0.52		23

Notes: Mineral Resources are not Mineral Reserves and have not demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates. Composites were capped where appropriate. Mineral Resources are reported within a conceptual pit shell or optimized stopes at varying Cu cut-off grades and/or net smelter values considering metal prices of US$1,840/oz of gold, and US$4.43/lb of copper. Metallurgical recoveries vary by deposit, domain and/or weathering zones.

The QPs are not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

Other relevant factors that may materially affect the Mineral Resources, including mining, metallurgical recovery, and infrastructure are reasonably well understood according to the assumptions presented in this report.

Mineral Reserve Estimate

The Mineral Reserves of Chapada were estimated by Lundin's Chapada Technical Services Departments. The Mineral Reserve estimates are based on a life of mine (LoM) plan and open pit designs developed using modifying parameters including metal prices, metal recovery based on the performance of the processing plant, operating cost estimates, and sustaining capital cost estimates based on the production schedule and equipment requirements.

Mineral Reserves are derived from Measured and Indicated Mineral Resources after applying economic parameters and other modifying factors following with the "CIM Definition Standards for Mineral Resources & Mineral Reserves" (May 10, 2014) and the "CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines" (Nov 29, 2019).

Project base case economic analysis reviewed by the QP shows that the LoM plan founded on the Mineral Reserve estimates in Table ii provides a positive present value of the net cash flow, confirming that the Mineral Reserves are economically viable, and that economic extraction can be justified.

The QP is not aware of any additional mining, metallurgical, infrastructure, permitting, or other factors not presented in this report that could materially affect the Mineral Reserve estimate.

Table ii: Audited Mineral Reserve Statement for Chapada Mine, Goiás State, Brazil, SRK Consulting (Canada) Inc., December 31, 2024

Reserves Table	Classification	Quantity (Mt)	Cu Grade (%)	Au Grade (g/t)	Contained Cu (kt)	Contained Au (koz)
Open Pit	Proven	305.3	0.25	0.14	776	1,383
Open Pit	Probable	128.3	0.22	0.11	278	438
Open Pit	**Proven & Probable**	**433.6**	**0.24**	**0.13**	**1,055**	**1,821**
Stockpiles	Proven					
Stockpiles	Probable	135.6	0.18	0.11	239	464
Stockpiles	**Proven & Probable**	**135.6**	**0.18**	**0.11**	**239**	**464**
Total	Proven	305.3	0.25	0.14	776	1,383
Total	Probable	263.9	0.20	0.11	518	902
Total	**Proven & Probable**	**569.1**	**0.23**	**0.12**	**1,294**	**2,286**

Source: Lundin Mining, 2024

Notes:

[1] All figures have been rounded to reflect the relative accuracy of the estimates.

[2] The standard adopted in respect of the reporting of Mineral Reserves, following the completion of required technical studies, is in accordance with the NI 43-101 guidelines and the 2014 CIM Definition Standards, and have an effective date of December 31, 2024.

[3] The Qualified Person for the Mineral Reserve estimate is Colleen MacDougall, P.Eng. an employee of SRK Consulting (Canada) Inc.

[4] Mineral Reserves have been prepared using metal prices of US$3.85 per pound of copper, and US$1,600 per ounce of gold.

[5] Mineral Reserves are reported at a cut-off value of US$5.87/t ore.

[6] Factors have been applied to the copper and gold grades based on reconciliation results, 96% to the copper grades and 99% to the gold grades.

Mining Methods

The Chapada Mine's LoM plan includes four operational open pits: Central, North, South, and Southwest (SW) and the development of six other pits: Baru, Sucupira, Buriti, North Buriti, Chapada Northeast (NE), and Cava I. The Chapada Mine produces approximately 25 Mtpa of plant feed.

The geotechnical characterization of the Chapada Mine considers the Rock Mass Rating (RMR) (Bieniawski, 1989) classification system to define the rock masses, supported by geomechanical and geological core logging, with descriptions and photos of the drillholes. Pit slope parameters have been divided into geotechnical classifications for each pit.

Lundin has developed a comprehensive water management plan to mitigate risks associated with excess water and ensure sustainable operations. The plan includes various initiatives categorized by their disposal potential, evaluation status, and facilitation roles. Three scenarios were identified to manage water liabilities in the short, medium, and long term, aiming to reduce approximately 14 Mm^3 of water per year, with additional initiatives potentially reducing another 22 Mm^3/year.

The Mineral Reserves and LoM plan are reported inclusive of dilution and loss, with copper grades factored by 0.96 and gold grades factored by 0.99 based on reconciliation results from 2021-2023.

The pit limits were defined by pit optimization based on a copper price of $3.85/lb and a gold price of $1,600/oz. The revenue factor 1 pit yields 478 Mt of ore at 0.25% Cu and 0.14 g/t Au at a cut-off value of $6.26/t ore. A strategic assessment resulted in a reduced cut-off value from $6.26/t to $5.87/t, optimizing the sequencing of capital expenses and excluding certain infrastructures from the LoM plan. The pit design inventory resulted in 440 Mt of ore at 0.25% Cu and 0.13 g/t Au at a cut-off value of $5.87/t ore.

Waste rock storage areas are located adjacent to the pit to minimize haulage distances, with backfilling opportunities available later in the mine life to enhance stability and reduce environmental impact.

Mine life is projected to be 22 years, with a maximum plant feed throughput of 25 Mtpa, incorporating various scheduling targets and constraints to ensure efficient operations. The Chapada Mine operates with a mix of owner and contractor equipment, with a detailed replacement schedule for major equipment and a workforce of approximately 1,980 staff, employees, and contractors.

Recovery Methods

The Chapada process plant started commercial production in 2007 under the ownership of Yamana, increasing its capacity to 20 Mtpa in 2009 and further to 22 Mtpa in 2011. Lundin acquired Chapada in 2019 and processed 23.4 Mtpa that year, followed by 20.0 Mtpa in 2020 (Covid-19 affected) and 24.1 Mtpa in 2021. Since 2009, head grades have steadily decreased and impacted mainly copper concentrate grade and, to a lesser extent, copper and gold recovery.

The process flowsheet is a conventional crush, grind and flotation circuit, producing a single copper concentrate with payable gold and silver values. Copper concentrate is considered clean with any impurities managed by blending lead, zinc and iron (pyrite) levels before shipping from the Port of Açu, some 1,630 km from site. Final concentrate undergoes thickening and pressure filtration to achieve a final moisture content of around 8% w/w. Copper concentrate is transported to the Port of Açu for storage, blending and shipping to smelters in Europe, Japan and South Korea.

The Chapada process plant has undergone several process improvement phases since 2015 to increase capacity to the current 24 Mtpa. The CBFE expansion study, completed by Ausenco in 2021 investigated a range of scenarios to either debottleneck the existing plant flowsheet or add a second processing line. Based on hardness estimates of future ore sources, it was expected that the current plant capacity would drop to 18 Mtpa, with a second processing line increasing capacity back to between 26 Mtpa and 32 Mtpa.

The LOM plan forecasted plant feed will come from the Main Pit combined with a significant blend of old Baixo Teor (BT) stockpiled material. The Sucupira pit development will provide plant feed starting in 2035, mainly mixed with low-grade, BT stockpiled material. As of 2046, only BT stockpiled material will feed the plant until the end of mine life in 2051.

All tailings' streams report to the tailings storage facility (TSF) where sand cyclones recover process water and produce material suitable for dam construction. Water is reclaimed from the TSF via the process water reservoir, while fresh water is sourced from the Rio dos Bois pump station and the Cava Central mine.

Property Infrastructure

Chapada operates an open pit mine and process plant, and it has all the necessary infrastructure for a mining complex, including:

- An open pit mine and mine infrastructure, which includes a truck shop, truck wash facility, warehouse, fuel storage and distribution facility, explosives storage and magazine sites, and electrical power distribution and substations to support construction projects and mine operations.
- A conventional grind/flotation mill for processing sulphide ore, along with mill infrastructure that includes an assay laboratory, maintenance shops, and offices.
- Mine and mill infrastructure, including office buildings, shops, and equipment.
- The TSF, which comprises a centerline raised dam constructed with cyclone tailings, with current permitted capacity for up to 2 years, and plans for further expansion and in-pit backfill storage.
- Local water supplies as required.
- Electric power from the national grid.
- Haulage roads from the mines to the plant.
- Stockpile areas for high grade and low-grade ore and waste dumps.
- Maintenance facilities.
- Administrative office facilities.
- Core storage and exploration offices.
- Access road network connecting the mine infrastructure to the town site and to public roads.

Capital and Operating Costs

The capital and operating costs are summarized in Table iii and Table ivTable 20-3.

Table iii: Total Capital Cost

Capital Cost ($M)	2025	2026	2027	2028	2029	2030+	LoM
Sustaining							
Automation	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Building & Infrastructure	22.0	33.5	22.1	14.0	9.9	31.3	**132.8**
Furniture & Fixture	0.2	0.0	0.0	0.0	0.0	0.4	**0.7**
Hardware & Software	1.4	0.6	1.2	0.1	0.3	3.9	**7.6**
Land Acquisition	2.0	6.7	3.6	0.0	0.0	0.0	**12.3**
Machinery & Equipments	16.7	25.6	13.9	11.7	35.2	315.9	**419.1**
Sustaining - Other	2.8	2.8	3.1	1.4	0.4	2.4	**13.0**
Tailings Dam Maintenance	7.4	14.9	12.9	14.4	10.4	85.2	**145.3**
Technical Studies	0.5	1.0	0.9	0.0	0.1	4.6	**7.0**
Mine Development	30.1	1.9	11.9	25.2	30.1	464.4	**563.6**
Sub-Total Sustaining	**83.1**	**87.0**	**69.7**	**67.0**	**86.6**	**908.2**	**1,301.5**
Infrastructure Relocation for Sucupira mining	0.0	0.0	0.0	0.0	0.0	202.4	**202.4**
Waste Insourcing Project - Leasing	0.0	1.2	11.0	21.2	21.1	70.9	**125.3**
Total Capital	**83.1**	**88.2**	**80.7**	**88.2**	**107.7**	**1,181.4**	**1,629.2**

Source: Lundin Mining, 2024

Table iv: Total Operating Costs

Operating Cost	Units	2025	2026	2027	2028	2029	2030+	LoM
Mill Feed	kt	23,085	24,054	23,492	23,993	24,029	462,659	**581,313**
Operating Costs								
Mining	$M	116.8	146.5	121.6	87.2	86.3	1,803	**2,361**
Processing	$M	103.1	102.4	100.2	99.1	96.6	1,880	**2,381**
Water Management	$M	14.6	6.2	5.9	6.8	6.8	108	**148**
Transportation	$M	30.5	35.8	34.2	32.8	33.2	596	**762**
G&A	$M	30.1	27.4	25	24.8	24.5	378	**510**
Total	**$M**	**295.1**	**318.3**	**286.9**	**250.6**	**247.5**	**4,764**	**6,162**
Unit Costs								
Mining	$/t milled	5.06	6.09	5.18	3.63	3.59	3.90	**4.06**
Processing	$/t milled	4.47	4.26	4.26	4.13	4.02	4.06	**4.10**
Water Management	$/t milled	0.63	0.26	0.25	0.29	0.28	0.23	**0.25**
Transportation	$/t milled	1.32	1.49	1.45	1.37	1.38	1.29	**1.31**
G&A	$/t milled	1.30	1.14	1.07	1.03	1.02	0.82	**0.88**
Total	**$/t milled**	**12.78**	**13.23**	**12.21**	**10.45**	**10.30**	**10.30**	**10.60**

Source: Lundin Mining, 2024
G&A: General and administrative

Environmental Studies and Permitting

The Chapada Mine, managed by Lundin, is undergoing a comprehensive initiative aimed at enhancing the company's environmental and social governance (ESG) practices. This report provides an update on the environmental studies, permitting, and social or community impact of the Chapada Mine. The environmental management programs currently in place, include monitoring of water quality, air quality, erosion processes, and waste management. Lundin has also implemented measures for environmental education and the assessment of potentially contaminated areas. Recent studies indicate that while there are elevated concentrations of certain metals in surface and underground water, the overall impact on surrounding rivers is minimal. Efforts are ongoing to improve water management and reduce the environmental footprint of the Mine and Project activities.

The permitting process for the property is underway, with all necessary licenses and permits either granted or in the process of renewal. The Operation License # 1986/2012 was granted in August 2012 and was valid until October 2022. The renewal process was initiated by Chapada before the expiration date and as of January 2, 2025, such operating license has been consolidated into a single permit (the Unification License - #20256 valid until January 1, 2030) along with many other specific valid licenses that refer to Chapada’s operational facilities such as waste rock dumps, pits, tailings dam and respective raises, power line, truck shop, in-pit crusher, ore stockpiles and other supporting facilities, pursuant to the Environmental Agreement Term N° 9/2022 - SEMAD/GO. The Unification License streamlines permit management and oversight for both the Company and SEMAD.

The property has a robust social and environmental assessment management system, which includes direct investment in the local community through taxation, local jobs, procurement, and social investments. The property has also established a grievance mechanism to address community concerns related to noise, dust, and vibration. The social acceptance score for the property is high, with the main positive feedback being related to employment opportunities.

Water management is a critical aspect of the Chapada Mine. The property has developed a Drainage Master Plan and a site-wide water balance model to manage water resources effectively. Recent dry years have required the storage of water in pits and tailings facility to ensure a sufficient volume is stored to support operations. Lundin is also exploring alternatives to reduce stored water, including the installation of evaporators and effluent treatability studies. Monitoring programs are in place to track streamflow, rainfall, and water quality, with adjustments being made to improve data accuracy and reliability.

The management of mine waste and tailings is another key focus area. Lundin has implemented measures to capture and treat seepage from waste rock dumps and tailings storage facility. Plans are in place to expand waste rock dumps and develop new disposal strategies to accommodate future waste production. The closure plan for the mine includes detailed actions for the decommissioning and rehabilitation of mine site facilities, with a focus on safety, stability, and socioeconomic transitioning. The estimated cost for the closure plan is approximately USD 351 million, with opportunities identified to minimize future liabilities and costs.

1 Introduction and Terms of Reference

The Chapada Mine is an operating copper-gold mine, located in Goiás State, Brazil, approximately 320 km north of the state capital of Goiânia and 270 km northwest of the national capital of Brasilia. The Chapada Mine encompasses the Chapada and Suruca deposits. The Saúva Project is a Mineral Resource stage polymetallic copper-gold exploration Project located approximately 15 km north of the Chapada Mine from their centres, and 335 km north of the state capital of Goiânia city. The Saúva Project encompasses the Saúva and Formiga deposits. Lundin Mining Corporation (Lundin) owns 100% of the Chapada Mine and Saúva Project through its wholly owned subsidiary Mineração Maracá Indústria e Comércio S/A (MMIC).

In February 2024, Lundin commissioned SRK Consulting (Canada) Inc. (SRK) to audit the Mineral Resources and Mineral Reserves and to prepare an independent technical report for the Chapada Mine and Saúva Project. The services were rendered between May 2024 and February 2025.

This report documents a Mineral Resource and Mineral Reserve statements for the Chapada Mine and Saúva Project, prepared by SRK's Qualified Persons (QPs) of this report. It was prepared following the guidelines of the Canadian Securities Administrators' National Instrument 43-101 and Form 43-101F1. The Mineral Resource and Mineral Reserve statements reported herein were prepared in conformity with generally accepted CIM *Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines* (2019).

1.1 Terms of Reference

The scope of work was defined in an engagement letter executed between Lundin and SRK on February 29, 2024. The scope involves mobilizing a team of qualified persons to visit the subject mineral assets to review the technical information relevant to supporting Mineral Resources and Mineral Reserves estimates prepared by MMIC and Lundin personnel.

The objective of this review is to provide an independent opinion about the Mineral Resources and Mineral Reserves of the Chapada Mine and Saúva Project as of **December 31, 2024**, and to compile a Technical Report pursuant to National Instrument 43-101 to support the disclosure of Mineral Resource and Mineral Reserve Statements for the Chapada Mine and Saúva Project.

1.2 Basis of Technical Report

This report is based on information collected by the QPs of SRK during a site visit performed between July 3 and July 4, 2024, and on additional information provided by Lundin throughout the course of the QP's investigations. The QPs have no reason to doubt the reliability of the information provided by Lundin. Other information was obtained from the public domain. This report is based on the following sources of information:

- Discussions with Lundin personnel

- Inspection of the Chapada Open Pit Mine, Chapada Mine and Saúva Project, surrounding area and infrastructure, including outcrop and drill core
- Review of exploration data collected by Lundin and Chapada Mine staff
- Additional information from public domain sources, including published reports disclosed in Section 26 of this report.

1.3 Qualifications of SRK and SRK Team

The SRK Group comprises more than 1,700 professionals, offering expertise in a wide range of resource engineering disciplines. The independence of the SRK Group is ensured by the fact that it holds no equity in any project it investigates and that its ownership rests solely with its staff. These facts permit SRK to provide its clients with conflict-free and objective recommendations. SRK has a proven track record in undertaking independent assessments of mineral resources and Mineral Reserves, project evaluations and audits, technical reports and independent feasibility evaluations to bankable standards on behalf of exploration and mining companies, and financial institutions worldwide. Through its work with a large number of major international mining companies, the SRK Group has established a reputation for providing valuable consultancy services to the global mining industry.

The technical report was compiled by a group of independent qualified persons from SRK (Table 1-1). The data review, geological and resource evaluation work was completed by Joycelyn Smith, PGeo (EGBC#62513) and Dr. Oy Leuangthong, PEng (EGBC# 62569). The review of the open pit mining aspects was completed by Colleen MacDougall, PEng (EGBC#62292). The mineral processing and metallurgical components were reviewed by Dr. Adrian Dance, PEng (EGBC#37151). Thiago Toussaint, MAusIMM(CP), reviewed the environmental, social and permitting aspects of the Property. Ignacio Ezama, MAusIMM(CP), reviewed the tailings aspects of the Property.

Table 1-1 indicates Independent Qualified Persons as this term is defined by National Instrument 43-101, by virtue of their education, membership to a recognized professional association and relevant work experience. Also listed are SRK personnel that have provided input but are not named as QPs in this report.

Glen Cole, PGeo (PGO#1416), a Principal Consultant with SRK, reviewed drafts of this report prior to their delivery to Lundin as per SRK internal quality management procedures. Mr. Cole did not visit the Property.

Table 1-1: Qualified Persons and SRK Team

Professional	Staff Category	Project Role & QP Responsibilities	Site Visit
Dr. Oy Leuangthong	Corporate Consultant	QP for sections: 1, 2, 13 excluding 13.4, 23, 24.1, 25.1, and parts of Executive Summary	X
Joycelyn Smith	Senior Consultant	QP for sections 3 to 11, 13.4, 13.11, 22, 24.1, 25.1, References and parts of Executive Summary	X
Colleen MacDougall	Principal Consultant	QP for sections 14, 15, 17 excluding 17.3, 18, 20, 21, 24.2, 25.2, and parts of Executive Summary	X
Dr. Adrian Dance	Principal Consultant	QP for sections 12, 16, 24.3, 24.4, 25.3, and parts of Executive Summary	
Ignacio Ezama	Principal Consultant	QP for sections 17.3, 24.5, 25.4, and parts of Executive Summary	
Thiago Toussaint	Principal Consultant	QP for sections 19, 24.6, 25.5, and parts of Executive Summary	X
Edward Saunders	Principal Consultant	Geotechnical Engineering Support	
Glen Cole	Principal Consultant	Technical Report Senior Review	

Notes:

[1] QP = Qualified Person as defined by National Instrument 43-101

[2] Dr. Leuangthong, Ms. Smith, and Ms. MacDougall visited the site from July 3 to July 4, 2024.

[3] Mr. Toussaint and Dr. Leuangthong visited the site from October 19 to October 21, 2022.

1.4 Site Visit

In accordance with National Instrument 43-101 guidelines, Dr. Leuangthong, Ms. Smith and Ms. MacDougall visited the Chapada Mine and Saúva Project from July 3 to July 4, 2024, accompanied by Mr. Cole Mooney, Mr. Gustavo Campos, Ms. Leticia Kwong, Ms. Tais Pian and Mr. Bruno Barbosa of Lundin.

The purpose of the site visit was to review the digitalization of the exploration database and validation procedures, review exploration procedures, define geological modelling procedures, examine drill core, interview project personnel, inspect the operation of the mine and collect all relevant information for the preparation of a revised Mineral Resource model and the compilation of a technical report.

SRK was given full access to relevant data and conducted interviews with Lundin and Project personnel to obtain information on the past exploration work, to understand procedures used to collect, record, store and analyze historical and current exploration data.

Mr. Thiago Toussaint and Dr. Leuangthong previously visited the site from October 19 to October 21, 2022, accompanied by Mr. Cole Mooney and Mr. Arkadius Tarigan of Lundin, for a similar purpose to the 2024 site visit.

1.5 Acknowledgement

SRK would like to acknowledge the support and collaboration provided by Lundin personnel for this assignment. Their collaboration was greatly appreciated and instrumental to the success of the Chapada Mine and Saúva Project.

1.6 Declaration

The QP’s opinion contained herein and effective **December 31, 2024**, is based on information collected by SRK throughout the course of SRK’s investigations. The information in turn reflects various technical and economic conditions at the time of writing this report. Given the nature of the mining business, these conditions can change significantly over relatively short periods of time. Consequently, actual results may be significantly more or less favourable.

This report may include technical information that requires subsequent calculations to derive subtotals, totals, and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, the QPs do not consider them to be material.

SRK and the report authors are not insiders, associates or affiliates of Lundin, and neither SRK nor any affiliate has acted as advisor to Lundin, its subsidiaries or its affiliates in connection with this Project. The results of the technical review by the QPs are not dependent on any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings.

2 Reliance on Other Experts

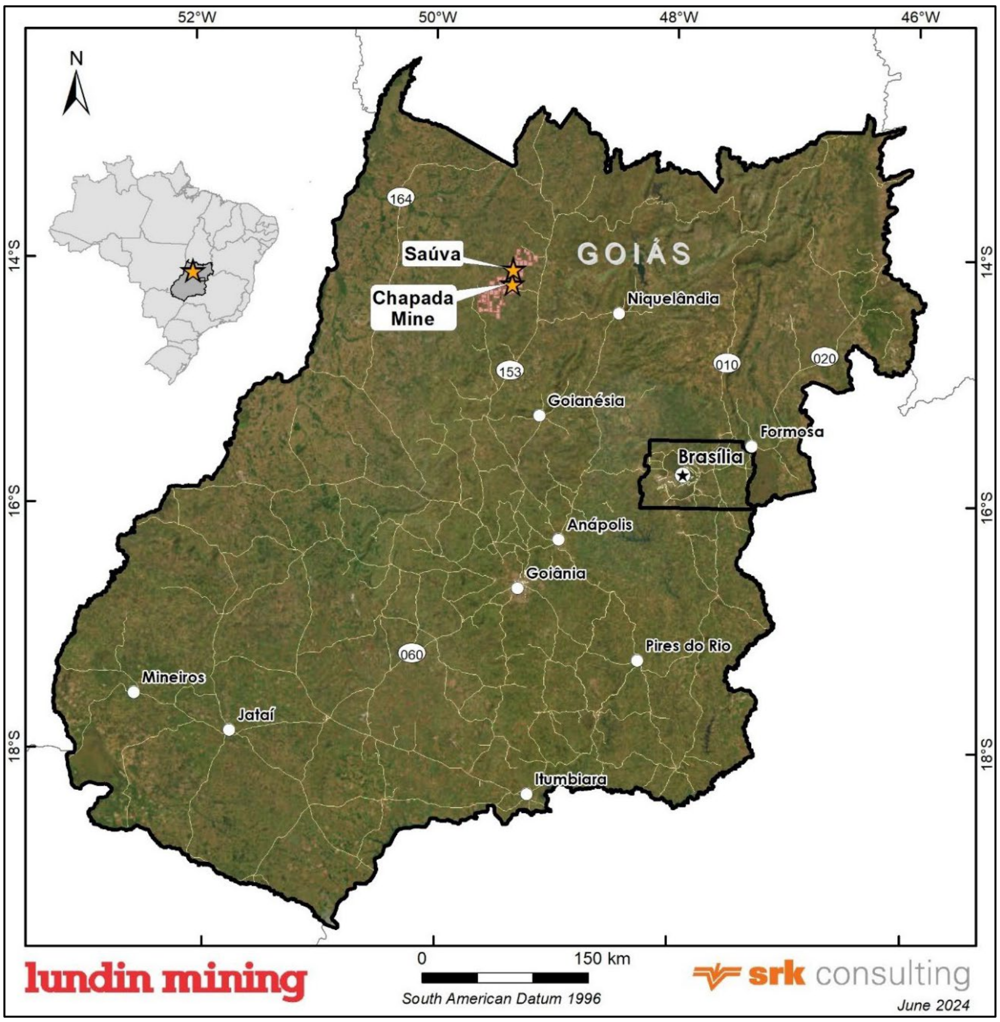
The QPs have not performed an independent verification of land title and tenure information as summarized in Section 3.1 of this report. The QPs did not verify the legality of any underlying agreement(s) that may exist concerning the permits or other agreement(s) between third parties but has relied on publicly available information. The Brazilian government's department responsible for mining land, Agencia Nacional de Mineração (ANM), maintains an internet-based system for accessing information on exploration concessions granted in Brazil, accessed by SRK in June 2024. MMIC has a claim management system and employees that update claim data as required. The reliance applies solely to the legal status of the rights disclosed in Sections 3.1 and 3.2 below.

The QPs were informed by Lundin that there are no known litigations potentially affecting the Chapada Mine and Saúva Project.

3 Property Description and Location

The Chapada Mine is located in northern Goiás State, approximately 320 km north of the state capital of Goiânia and 270 km northwest of the national capital of Brasilia (Figure 3.1). The Chapada Mine encompasses the Chapada and Suruca deposits, which are situated approximately six km apart, positioned at latitude 14° 14′ S and longitude 49° 22′ W, and latitude 14° 11′ S and longitude 49° 20′ W, respectively. The Saúva Project is located 15 km north of Lundin's Chapada Mine, at latitude 14° 06′ S, longitude 49° 21′ W. The Saúva Project encompasses the Saúva and Formiga deposits.

Figure 3.1: Location Map



3.1 Mineral Tenure

The Chapada Mine and Saúva Project comprise 59 mineral claims totaling approximately 85,571 ha (Table 3-1 and Figure 3.2). The claims include 52 exploration licenses (79,779 ha) and four mining concessions (4,676 ha). Additionally, there are three mining concession applications in progress totalling 1,115 ha. MMIC, a 100% owned subsidiary of Lundin, holds the rights to these claims.

The Chapada Mine is located on claim numbers 808.931/1994, 808.923/1974, and 860.273/2003 encompassing 3,830 ha. The Suruca deposit is located on claim number 860.595/2009 totaling 846 ha. The Saúva deposit and Formiga target are located on claim numbers 860.481/2021 and 860.966/2010 encompassing 3,997 ha.

In Brazil, property boundaries are filed electronically with the ANM rather than physically marked. The property claims incorporate Exploration and Mining Licences, as described in Section 3.5 below.

Table 3-1: Mineral Tenure Information

DNPM Process No.	Permit No.	Tenement Type	Grant Date	Expiry Date	Surface Area (ha)
860.163/2016	860163	Mining Concession Application	22/05/2017	22/05/2018	174
861.383/2009	861383	Mining Concession Application	13/06/2013	13/06/2016	843
861.797/2010	861797	Mining Concession Application	20/05/2014	20/05/2017	100
808.923/1974	808923	Mining Concession	11/12/1979	-	3,000
860.273/2003	860273	Mining Concession	15/06/2015	-	258
860.595/2009	860595	Mining Concession	7/6/2018	-	846
860.931/1994	860931	Mining Concession	26/10/2009	-	572
860.966/2010	860966	Final Positive Report Submission	17/07/2018	27/01/2023	1,997
861.327/2013	861327	Final Positive Report Submission	1/6/2016	1/6/2018	939
860.081/2018	860081	Exploration License	1/12/2023	1/12/2026	1,999
860.086/2017	860086	Exploration License	3/3/2020	12/9/2024	1,577
860.092/2018	860092	Exploration License	22/04/2024	22/04/2027	52
860.188/2017	860188	Exploration License	13/05/2020	29/09/2024	15
860.229/2017	860229	Exploration License	3/3/2020	12/9/2024	1,917
860.230/2017	860230	Exploration License	3/3/2020	12/9/2024	1,974
860.346/2018	860346	Exploration License	22/04/2024	22/04/2027	1,257
860.439/2021	860439	Exploration License	27/07/2021	30/09/2024	2,000
860.453/2021	860453	Exploration License	14/06/2021	30/09/2024	1,527
860.481/2021	860481	Exploration License	14/06/2021	30/09/2024	2,000
860.482/2021	860482	Exploration License	14/06/2021	30/09/2024	968
860.483/2021	860483	Exploration License	9/3/2022	9/3/2025	991
860.485/2016	860485	Exploration License	4/11/2019	16/05/2024	1,951
860.485/2021	860485	Exploration License	9/3/2022	9/3/2025	1,114
860.486/2021	860486	Exploration License	14/06/2021	30/09/2024	1,661
860.488/2021	860488	Exploration License	14/06/2021	30/09/2024	1,995
860.489/2021	860489	Exploration License	14/06/2021	30/09/2024	2,000
860.490/2021	860490	Exploration License	14/06/2021	30/09/2024	1,009
860.661/2021	860661	Exploration License	27/07/2021	30/09/2024	1,959
860.662/2021	860662	Exploration License	27/07/2021	30/09/2024	1,847
860.664/2021	860664	Exploration License	27/07/2021	30/09/2024	1,091
860.666/2021	860666	Exploration License	27/07/2021	30/09/2024	1,952
860.668/2021	860668	Exploration License	27/07/2021	30/09/2024	1,923

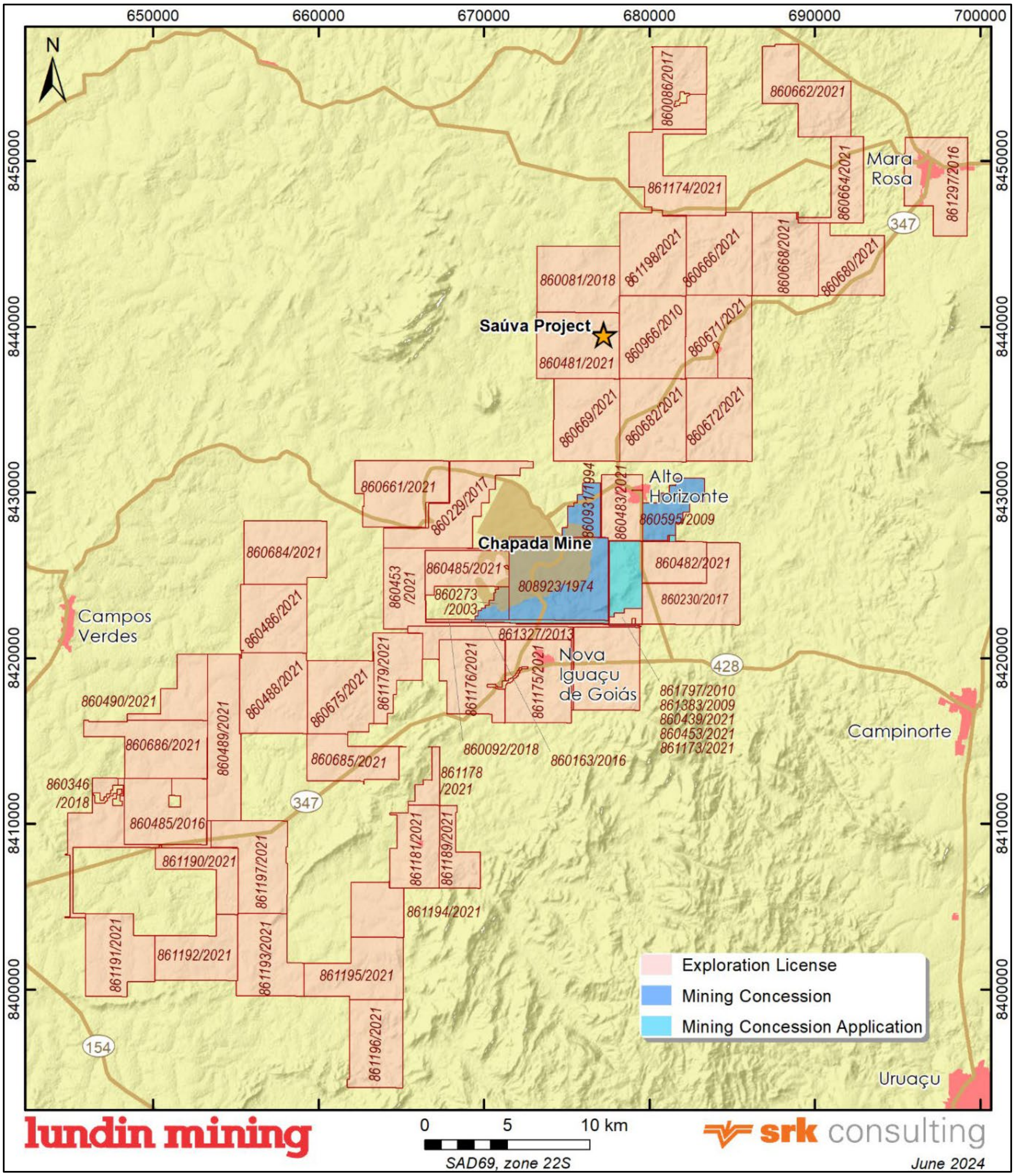
DNPM Process No.	Permit No.	Tenement Type	Grant Date	Expiry Date	Surface Area (ha)
860.669/2021	860669	Exploration License	27/07/2021	30/09/2024	1,986
860.671/2021	860671	Exploration License	9/3/2022	9/3/2025	1,986
860.672/2021	860672	Exploration License	27/07/2021	30/09/2024	2,000
860.675/2021	860675	Exploration License	27/07/2021	30/09/2024	1,740
860.680/2021	860680	Exploration License	27/07/2021	30/09/2024	1,500
860.682/2021	860682	Exploration License	27/07/2021	30/09/2024	1,999
860.684/2021	860684	Exploration License	27/07/2021	30/09/2024	1,870
860.685/2021	860685	Exploration License	27/07/2021	30/09/2024	1,323
860.686/2021	860686	Exploration License	27/07/2021	30/09/2024	1,982
861.173/2021	861173	Exploration License	13/09/2021	30/09/2024	150
861.174/2021	861174	Exploration License	13/09/2021	30/09/2024	1,822
861.175/2021	861175	Exploration License	30/09/2021	30/09/2024	1,973
861.176/2021	861176	Exploration License	30/09/2021	30/09/2024	1,712
861.178/2021	861178	Exploration License	13/09/2021	30/09/2024	316
861.179/2021	861179	Exploration License	13/09/2021	30/09/2024	1,151
861.181/2021	861181	Exploration License	30/09/2021	30/09/2024	1,360
861.189/2021	861189	Exploration License	30/09/2021	30/09/2024	824
861.190/2021	861190	Exploration License	13/09/2021	30/09/2024	1,002
861.191/2021	861191	Exploration License	13/09/2021	30/09/2024	1,780
861.192/2021	861192	Exploration License	13/09/2021	30/09/2024	1,518
861.193/2021	861193	Exploration License	13/09/2021	30/09/2024	1,699
861.194/2021	861194	Exploration License	13/09/2021	30/09/2024	1,026
861.195/2021	861195	Exploration License	30/09/2021	30/09/2024	1,758
861.196/2021	861196	Exploration License	30/09/2021	30/09/2024	1,716
861.197/2021	861197	Exploration License	13/09/2021	30/09/2024	1,931
861.198/2021	861198	Exploration License	13/09/2021	30/09/2024	1,984
861.297/2016	861297	Exploration License	3/3/2020	12/9/2024	1,957
Total					**85,571**

3.2 Underlying Agreements

Chapada is not subject to any rights, agreements, or encumbrances which could adversely affect the value of the property or Lundin's ownership interest. Gold production from Suruca is subject to a two percent net smelter return royalty payable to Sandstorm Gold Ltd. (Sandstorm).

There are copper stream agreements in place with Sandstorm Gold Ltd. (Sandstorm) and Altius Minerals Corporation (Altius). Payments are performed by way of delivery of copper warrants (Altius Minerals Corporation et al. 2016; Sandstorm Gold Ltd. and Yamana Gold (Barbados) Inc., 2015).

Figure 3.2: Land Tenure Map



3.3 Permits and Authorization

Lundin (via MMIC) holds all of the surface rights in the area of the Chapada Mine and Saúva Project, which incorporates all of the proposed locations of buildings, fixed installations, waste dumps, and tailings disposal in the current mine plan. The land ownership is registered with the Registrar of Real Estate in Mara Rosa, Goiás.

Subsequent to the EIA, Yamana obtained the three environmental permits required for mine operations at the Chapada deposit:

- The first Environmental Licence (LP) was issued in December 1999.
- The Construction Licence (LI) was issued in April 2001 and was renewed in April 2003 and April 2006.
- The Operation Licence was published in November 2006, and it was valid until April 2008.

With these permits, Chapada Mine began operating in November 2006. In December 2007, Yamana submitted all necessary documents to obtain the operational environmental licence renewal to the State of Goiás Environmental Agency. The mine possesses all the licences (operation, deforest, water use permit, etc.) needed to operate.

Priority surface rights are being negotiated for the Saúva Project claims to optimize the exploration work and future feasibility and environmental studies necessary for the progress of the property.

3.4 Environmental Considerations

A substantial amount of environmental study, analysis, and regulatory review has been made for the Chapada Mine and Saúva Project by Lundin and previous operators, including an Environmental Impact Study (EIA) completed in November 1996 by Geomina Consultants. The EIA Report was used for public comment and to support the permit applications.

No current environmental liabilities have been identified within the Chapada mine area. Ongoing items such as waste stockpiles and tailings storage facility (TSF) will be rehabilitated during the mine life or at the time of mine closure.

The exploration leases held at the Suruca deposit were covered by exploration permits and a mining licence has been granted by the ANM. Lundin reports that no environmental permits are required at this stage of permitting for Suruca.

3.5 Mining Rights in Brazil

Exploration permits in Brazil are issued based on digital geographic map staking and are not required to be legally surveyed.

In December 2017 Agência Nacional de Mineração (ANM; National Mining Agency), replaced the National Department of Mineral Production (DNPM), taking over the responsibility of managing exploration and mining activities in Brazil, under the control of the Ministry of Mines and Energy (MME).

Any Brazilian or Foreign Company properly registered in Brazil in accordance with Brazilian laws, as well as any Brazilian born citizen, can own mineral rights in Brazil. Mineral rights are granted as concessions by the ANM.

Applications to obtain mineral rights must be filed at the ANM local office for the relevant mineral commodity, with precise reference to the land extents. Once the application is accepted, a concession (Alvará) will be granted, normally for a period of three years. The concession owner can request an additional three-year extension by filing a report that details the completed exploration work and a proposed exploration program.

At the end of the three-year extension period, a final report must be filed to demonstrate the delineation of reserves or resources supported by drill results. Once the final report is approved by the ANM, the concession owner will have a one-year period to complete the equivalent of a feasibility study (FS), known as a PAE (Plano de Aproveitamento Econômico). This can also be renewed for another one-year period, if appropriately justified. During the PAE period, the concession owner must apply for the necessary environmental permits. Once the permits are granted and the PAE report is approved the concession owner has a period of 9 months to commence mining operations.

The granted concession for mining provides the miner a title that warrants the use of the Mineral Resource, through a decree from the Minister of the Mines and Energy (also known as Exploitation Decree or Portaria de Lavra). This title can only be achieved through definition of an economic Mineral Reserve through mineral exploration, which is presented in the PAE.

3.5.1 Prospecting License

A Prospecting Licence entitles the holder to explore for minerals in the area of the licence, but not to conduct commercial mining. A Prospecting Licence may remain in force for up to five years. The holder may apply for a renewal of the Prospecting Licence, which is subject to approval by the ANM. The period of renewal may be up to a further five years.

3.5.2 Exploration License

An Exploration Licence entitles a holder to explore for minerals in the area of the licence, but not to conduct commercial mining. The maximum area of an Exploration Licence is 2,000 ha outside of the Amazonia region, and 10,000 ha within the Amazonia region (Amazonas, Para, Mato Grosso, Amapá, Rondônia, Roraima, and Tocantins States). An Exploration Licence remains in force for a maximum period of three years and can be extended by no more than a further three-year period. Any extension is at the ANM's discretion and will require full compliance with the conditions stipulated by the Mining Code, which must be outlined in a report to the ANM applying for the extension of the licence.

Once all legal and regulatory requirements have been met, exploration authorization is granted under an Exploration Licence, granting its holder all rights and obligations relating to public authorities and third parties. An Exploration Licence is granted subject to conditions regulating the conduct of activities, which includes the obligation to commence exploration work no later than 60 days after the Exploration Licence has been published in the Federal Official Gazette and not to interrupt it without due reason for more than three consecutive months or 120 non-consecutive days. Exploration work on the licence should be completed under the responsibility of a geologist or mining engineer, legally qualified in Brazil. The ANM should be informed of the occurrence of any other mineral substance not included in the exploration permit and of the start or resumption of the exploration work and any possible interruption.

If the holder of an Exploration Licence proves the existence of a commercial mineral deposit on the granted Exploration Licence, the ANM cannot refuse the grant of a Mining Licence with respect to that particular tenement, if the licence holder has undertaken the following:

- An exploration study to prove the existence of a mineral deposit.
- A FS on the commercial viability of the mineral deposit.
- The granting of an Environmental Licence to mine on the particular tenement.

3.5.3 Mining License

A Mining License entitles the holder to work, mine, and take minerals from the mining lease subject to obtaining certain approvals. Mining rights can be denied in very occasional circumstances, where a public authority considers that a subsequent public interest exceeds that of the utility of mineral exploration, in which case the Federal Government must compensate the mining concession holder.

A Mining Licence covers a maximum area ranging from 2,000 ha to 10,000 ha, depending on the geographical area as detailed under an Exploration Licence, and remains in force indefinitely. The holder must report annually on the status and condition of the mine.

As with other mining tenements, a Mining Licence is granted subject to conditions regulating activities. Standard conditions regulating activities include:

- The area intended for mining must lie within the boundary of the exploration area.
- Work described in the mining plan must be commenced no later than six months from the date of official publication of the grant of the Mining Licence, except in the event of a force majeure.
- Mining activity must not cease for more than six consecutive months once the operation has begun, except where there is proof of force majeure.
- The holder must develop the deposit according to the mining plan approved by the ANM.
- The holder must undertake the mining activity according to environmental protection standards detailed in an Environmental Licence obtained by the holder.
- The holder must pay the landowner's share of mining proceeds according to values and conditions of payments set forth by law, which is a minimum of 50% of CFEM (see below), but it is usually agreed to be higher under a contract between the holder of the Mining Licence and the landowner.

- The holder must pay financial compensation to states and local authorities for exploring Mineral Resources by way of a Federal royalty, the Financial Compensation for the Exploitation of Mineral Resources (CFEM), which is a maximum of 3% of revenue, but varies from state to state.

An application for a Mining Licence is granted solely and exclusively to individual firms or companies incorporated under Brazilian law, which will have a head office, management, and administration in Brazil, and are authorized to operate as a mining company.

3.6 Qualified Person Comments

The QP is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform work on the property.

4 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

4.1 Accessibility

The Chapada Mine and Saúva Project are located in northern Goiás State, approximately 320 km north of the state capital of Goiânia and 270 km northwest of the national capital of Brasilia.

Access to the property from Brasilia is via BR-153 (Belem/Brasilia) to Campinorte (GO) and then via GO-465 (Campinorte/Santa Terezinha) west to Alto Horizonte. Suruca is located six km northeast of Chapada and the town of Alto Horizonte lies between the Suruca and Chapada deposits.

The Chapada Airport is located close to Alto Horizonte, approximately four km northeast of the Chapada Mine. The airport has an 800 m-long airstrip, which is suitable for small aircraft.

4.2 Local Resources and Infrastructure

The local economic activity is dominantly agropastoral, however, there are also some small-scale mining activities related to gold in alluvium and quartz veins, as well as for clay to make bricks.

Prominent towns in the region include Uruaçu, Campinorte, Porangatu, Mara Rosa, Alto Horizonte, and Nova Iguaçu de Goiás. All of the mentioned towns have existing infrastructure to support exploration activities, including the availability of mining personnel. The closest municipality, Alto Horizonte, is located between Chapada Mine and Suruca and has a population of approximately 5,800. Other nearby towns, Campinorte, Mara Rosa, and Uruaçu, are within 50 km of site and have estimated populations of 12,300, 10,200, and 36,600, respectively.

The Chapada Mine has all the necessary infrastructure to support exploration activities, including an office building, core sheds for logging, sampling and storage of drill core, and kitchen facilities. There is currently no permanent infrastructure related to the Saúva Project, which uses the Chapada Mine infrastructure to support exploration activities.

The Chapada Mine operation accommodates a production rate of approximately 200,000 tpd of ore and waste from several mineralized structures including stockpiles and waste dumps. The Chapada plant site includes administrative offices, a mill, and associated facilities such as laboratories, coarse ore storage, workshops and warehouses.

Facilities that provide basic infrastructure to the Chapada mine includes access roads, electric power distribution system, water treatment and supply and sewage treatment. Electrical power is provided by the Brazilian National Grid. The power line (230 kV) is 85 km long and taps into the national grid near Itapaci in Goiás State.

The mine has a permit allowing the capture of up to 10.3 Mm^3 per year of water from the nearby Rio dos Bois. Water has not been drawn from the river for the last four years with mine drainage water, rainfall, industrial drainage together with stored water making up the required supply.

4.3 Climate

The region has a tropical climate characterized by two well defined seasons; the rainy season from November to March and the dry season from April to October, with an annual average rainfall of 1,500 mm. The average annual temperature is approximately 22°C. Mining operations occur throughout the year. Exploration activities are carried out throughout the year and are not impacted by seasonal variations.

4.4 Physiography

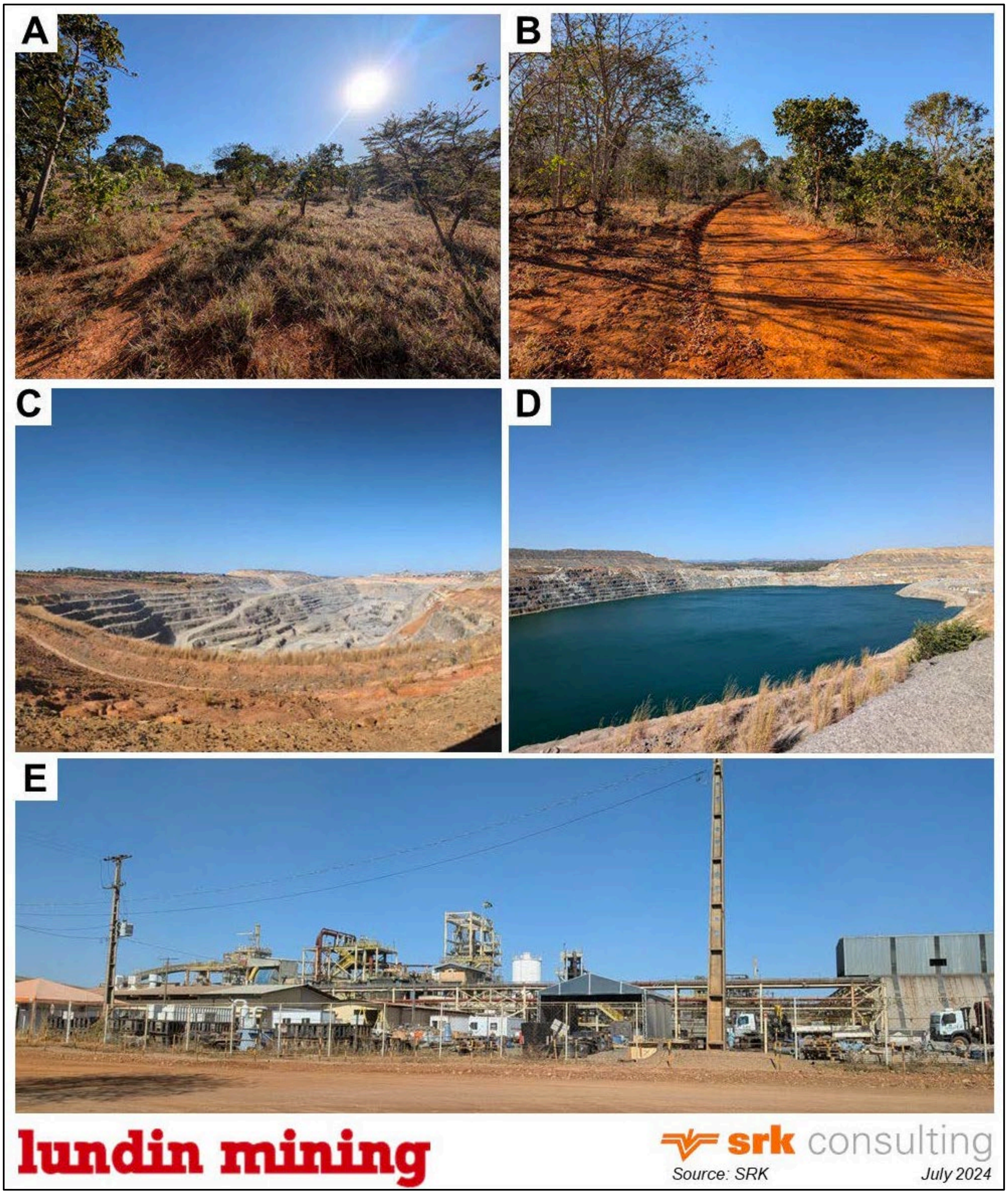
The average elevation of the property area is approximately 300 m above mean sea level. The topography is characterized by low rolling hills, with large contiguous flat areas.

The vegetation is referred to as “cerrado”, a tropical savannah eco-region which comprises a diverse variety of low tropical trees, shrubs, and native grasses, most of which have been cleared, and serves as cattle grazing land owned by local landowners.

The local main river is the Rio dos Bois, and there are four small creeks: Mutuzinho, Goncalves, Seriema, and Suruca. A lateritic mantle related to the peneplain is common in the region and is five m to 30 m thick.

Figure 4.1 provides a summary of typical landscape and infrastructure in the Chapada Mine and Saúva Project area.

Figure 4.1: Typical Landscape in the Project Area



Notes: A: Typical landscape, Suruca deposit area. B: Typical dirt road leading through the Suruca deposit area. C: North Pit, Chapada Mine. D: Central Pit, Chapada Mine. E: Chapada Mine processing plant infrastructure.

5 History

5.1 Ownership History

Ownership history in the area began with the discovery of the nearby Chapada deposit in 1973 by a Canadian company, INCO. The Chapada deposit was subsequently acquired in May of 1994 by SERCOR through a subsidiary, MMIC.

In July 1994, Echo Bay acquires an initial interest in Santa Elina Gold (Santa Elina), SERCOR's subsidiary, by purchasing five percent of the outstanding shares from SERCOR. In September 1995, Santa Elina and Echo Bay approve the Chapada Project Joint Venture. Santa Elina issues approximately three percent of the outstanding shares to Echo Bay, who receives the option to acquire 50 percent interest in the property.

Yamana purchased MMIC in 2003 and began production of the Chapada Mine in 2007. During Yamana's ownership, exploration activities led to the discovery of several orebodies around the Chapada Main Deposit, including Chapada SW, Corpo Sul, Sucupira, Baru, and others. Additionally, the Formiga deposit was identified 15 km from Chapada in 2015.

In April 2019, Lundin announced that it had entered into a definitive purchase agreement with Yamana to purchase its 100 percent ownership in MMIC, which was completed on July 5, 2019. Subsequently, Lundin acquired 41 new Exploration Licences in 2021, and exploration on these new claims led to the discovery of the Saúva deposit.

5.2 Exploration and Development History

The exploration activities completed by historical operators on the Chapada Mine and Saúva Project are summarized in Table 5-1. Historical exploration activities were mainly focused on drilling due to the approximately 30 m thick laterite-saprolite cover in the Chapada Mine area. Drilling activities are described in detail in Section 10.

Table 5-1: Historical Ownership and Exploration Activities for the Chapada Mine and Saúva Project

Date	Company	Activity
1973	INCO	Chapada discovery.
1975-1976		2,000 m x 500 m grid drilling program. Parsons-Eluma Projetos e Consultoria S/C (Parsons), a Brazilian Copper company, acquires a 50% interest in the Project. 200 m x 100 m drill grid.
1976-1979	INCO & Parsons	A 92 m deep shaft was completed with 255 m of crosscuts for exploration and metallurgical sampling.
1979		Mining concession No. 2394 covering 3,000 ha is issued to Mineração Alonte by the Departamento Nacional da Produção Mineral.
1980-1981		Soil drilling completed in the plant, tailings ponds, and potential water dam areas.
1981	Parsons	Feasibility Study completed.
1994-1995		A 4,500 m drilling program re-evaluation of a near surface gold deposit. Preliminary Feasibility Study completed by Watts, Griffis and McOuat.
May 1994	SERCOR	SERCOR acquired the Chapada deposit through a subsidiary, Mineração Maracá.
July 1994	SERCOR and Echo Bay	Echo Bay acquires an initial interest in Santa Elina Gold (Santa Elina), SERCOR's subsidiary, by purchasing 5% of the outstanding shares from SERCOR
Dec 1994		Santa Elina completes its initial public offering.
Sep 1995		Santa Elina and Echo Bay approve the Chapada Project Joint Venture. Santa Elina issues approximately 3% of the outstanding shares to Echo Bay. Echo Bay receives the option to acquire 50% interest in the Project.
May 1996		Santa Elina is privatized, and Santa Elina and Echo Bay become equal owners of the company.
Dec 1996		Santa Elina completed an in-fill drilling program.
Dec 1997		Independent Mining Consultants, Inc. reviewed the Echo Bay model and completed a mine Feasibility Study.
Jan 1998		Kilborn Holdings Inc. (now SNC-Lavalin Group Inc.) completed the Chapada Project Bankable Feasibility Study.
Apr 2001		Construction license issued.
2003	Yamana	Yamana purchased the property.
2004		Feasibility Study completed.
2007		Commercial production began.
2009		Airborne magnetic survey conducted over Chapada & Suruca.
2010		DCIP over near-mine area, including Chapada and Suruca.
2014-2018		Regional soil (200 m x 50 m grid) and chip sampling programs.
		Geological mapping of the Chapada district.
2018		Airborne magnetic survey conducted over Formiga.
2019	Lundin	Acquisition of MMIC.

The Chapada deposit was discovered in 1973 by a Canadian company, INCO, during a regional program of stream sediment sampling. Follow-up work by INCO was conducted in 1974 and 1975, including detailed stream sediment surveys, soil geochemistry, geophysics, trenching, and broadly spaced drilling.

As there were few outcrops in the property area due to laterite-saprolite cover, the deposit definition required extensive drilling exploration. Development drilling of the deposit occurred in several campaigns from 1976 through 1996 by INCO, Parsons-Eluma, Eluma-Noranda, Santa Elina, and Santa Elina-Echo Bay. The historical Chapada drilling database includes 856 drill holes totalling 67,315 m, which is described in Section 9. Santa Elina-Echo Bay also performed exploration work in the region through soil and chip sampling. Over the years, 7,108 soil samples and 341 chip samples were collected in the Chapada district.

Exploration work completed by Yamana on the Suruca deposit began in 2008 with geological mapping, chip sampling, and shallow drilling. The exploration work was targeting the discovery of potential hydrothermal halos and structures proximal to the Chapada Mine. Airborne magnetic surveys conducted in 2009 and 2018, along with the induced polarization survey from 2010, covered the Suruca area and supported the exploration targeting in the region. Between 2015 and 2018, soil sampling was carried out around Suruca; however, most exploration efforts were concentrated on drilling, as detailed in Section 9.

Exploration on the Saúva Project began in 2014 under Yamana's ownership, with soil and chip sampling, together with geological mapping. In 2015, Yamana identified the Formiga exploration target, approximately 15 km north of the Chapada mine, based on a copper soil anomaly exceeding 800 ppm, associated with a small occurrence of magnetic gossan.

5.2.1 Genetic Model and Regional Exploration Works (2008-2021)

In early 2008, in collaboration with consultant Dr. Richard Sillitoe, a genetic model of mineralization was proposed for the Chapada region, featuring a typical porphyry copper-gold system (Cu-Au-Mo association), that underwent intense isoclinal folding and amphibolite facies metamorphism during continental collision at the end of the Neoproterozoic. The new model considered that the original mineralogy may not have been profoundly changed due to the stability of minerals such as quartz, anhydrite, pyrite, chalcopyrite, magnetite, and biotite under amphibolite facies conditions.

Sillitoe (2008) noted that porphyry copper-gold deposits worldwide have a strong tendency to occur in clusters, with as many as a dozen discrete centres being known in some districts (e.g., North Parkes, New South Wales, Australia). In the Chapada region, the marker for these deposits is a quartz-muscovite-kyanite schist horizon, which is believed to be a former advanced argillic lithocap.

The 2008 drill program was designed to discover another deposit in the vicinity of the property and to test for possible extensions of known resources. To achieve these objectives, regional and detailed geological mapping of the open pit were carried out, and a geological model of the mine was prepared. Additionally, historic boreholes were re-logged, chip/soil samples were taken, and 5,530 m of core drilling was carried out in the vicinity of the property.

In 2014, the exploration team restarted the district exploration activities at Chapada, working with a deformed and metamorphosed copper-gold porphyry/skarn model for the region. Consultant Richard Sillitoe assisted with the understanding of the regional geological model and district exploration strategy in early 2014. The primary outcome of this work was the discovery of the Sucupira target in 2014, facilitated by an enhanced understanding of the porphyry zonation.

The Exploration team commenced a soil and chip sampling program, integrated with geological mapping, which began in 2014 and continued to develop over the years. The soil sampling grid typically ranged from 100 m x 50 m to 200 m x 50 m, depending on the region. Rock samples were collected where outcrops were available. This exploration approach, along with new data, resulted in the identification of multiple targets within the Chapada district. A summary of the soil and chip program during Yamana's ownership is presented in Table 5-2.

Table 5-2: Soil and Chip Sampling Completed by Yamana on the Chapada Mine and Saúva Project (2014 to 2019)

Year	Soil Samples	Chip Samples	Target Zones
2014	1,171	172	Formiga, Bom Jesus, Taquaruçu
2015	3,112	49	Suruca, Near-Mine, Formiga, Bom Jesus, Taquaruçu
2016	8,626	1,602	Formiga, Bom Jesus, Amarolândia, Suruca
2017	10,015	1,766	Near-Mine, Suruca, Formiga, Mundinho
2018 to June, 2019	7,256	1,325	Mundinho, Suruca, Formiga, Near-Mine
Total	**2014**	**1,171**	

In 2014, the exploration team identified the Formiga target based on positive soil and chip anomalies, as well as geological mapping. The first drill holes at Formiga intercepted typical skarn alteration, comprising a hydrothermal assemblage of garnet-epidote-amphibole-diopside in metasedimentary rocks.

Soil sampling in 2016 in the Chapada region identified several targets. Also, in 2016 at Formiga, disseminated copper-gold mineralization was identified in metadiorite, exhibiting hydrothermal alteration similar to that at Chapada.

In 2017, ten exploration targets were drilled with the objective of delineating new potential. Additionally, the Buriti target was discovered three km south of the Chapada main pit. The Buriti target comprises copper-gold sulphide mineralization in a two km-long copper geochemical anomaly. It is similar to Chapada, featuring a flat geometry close to the surface and gently plunging to the northwest.

The advancing understanding of the porphyry system, particularly regarding hydrothermal alterations and sulfide zonation, led to the discovery of Baru NE in 2018 within the Chapada Mining Concession. The mineralization is associated with potassic alteration and a high intensity of veins containing chalcopyrite and bornite.

In 2019, the Jatobá target was identified based on soil anomalies located to the east of the Chapada Main Pit and near Buriti. The mineralization is characterized by significant biotite alteration and disseminated chalcopyrite.

5.2.2 Geophysical Surveys (2009-2018)

In 2009, Yamana contracted Fugro Airborne Surveys to complete an airborne magnetic survey over the Chapada Mine and Suruca areas. The survey was designed to cover the target areas within an irregular polygon, encompassing approximately 2,179 km. North-south lines were spaced about 100 m apart at an average flight altitude of 90 m, with east-west control lines set at 1,000 m intervals.

Additionally, a Direct Current Induced-Polarization (DCIP) survey was carried out by Fugro-Geomag in 2009-2010 across the Near Mine and Suruca areas. This survey included around 48 lines, totaling approximately 145 km, and employed a dipole-dipole array with 100 m spacing and ten levels of depth investigation.

Both surveys enhanced the understanding of the region and guided the exploration targeting and drilling strategies in the following years.

In 2018, CGG (now Viridien) completed a detailed airborne magnetic and radiometric survey over the Formiga region. The acquisition polygon had an irregular geometry and aimed to complement the aeromagnetic survey collected in 2009. The 2018 survey comprised a total of 2,225 km, featuring north-south lines spaced 100 m apart and east-west control lines positioned at 1,000 m intervals, with an average flight height of 70 m. The results provided valuable information into the geological and structural framework of the Formiga area.

5.3 Historical Production

The Suruca deposit was characterized by historical small scale local mining activity (termed “garimpeiros”), approximately three km east of Alto Horizonte. It was characterized by an elongated excavation, 600 m long in a N30ºE direction, with an average width of 50 m and a depth of 10 m (locally reaching up to 18 m). The small miners who worked at Suruca in the 1980s estimated that approximately 200 kg of gold was mined.

Yamana purchased MMIC and began production at Chapada Mine in 2007. Chapada is a traditional open pit truck and shovel operation that has been in continuous operation since 2007. As of the end of 2023, total mine production amounted to 346.8 million tonnes (Mt), grading 0.35% copper and 0.29 g/t gold. Table 5-3 summarizes metal production history at Chapada through December 2023.

Table 5-3: Chapada Production History from 2007-2023

Year	Mt	Grade		Metal Production	
		Cu (g/t)	Au (%)	Cu (kt)	Au (koz)
2007	13.5	0.48	0.58	56	179
2008	14.9	0.47	0.44	63	150
2009	17.3	0.43	0.41	65	156
2010	19.2	0.41	0.35	68	136
2011	20.6	0.42	0.32	75	135
2012	21.6	0.39	0.29	68	120
2013	21.8	0.35	0.26	59	104
2014	20.4	0.37	0.28	61	107
2015	19.9	0.37	0.33	59	119
2016	19.8	0.34	0.30	52	107
2017	23	0.32	0.29	58	120
2018	22.9	0.31	0.26	59	121
2019	23.6	0.3	0.24	58	107
2020	19.2	0.3	0.24	50	87
2021	24.1	0.27	0.17	52	76
2022	22.8	0.26	0.16	46	68
2023	22.2	0.26	0.15	46	59
Total	**347**	**0.35**	**0.29**	**995**	**1,883**

5.4 Historical Mineral Resource Estimates

There are a number of documented historical Mineral Resource estimates for Chapada Mine contained within Technical Reports available on Lundin's profile on SEDAR+ at www.sedarplus.com (Table 5-4).

Table 5-4: Summary of Publicly Available Technical Reports Containing Historical Mineral Resource Estimates

Company	Author	Report Title	Effective Date
Yamana Gold Inc.	Hatch Limited and Independent Mining Consultants, Inc.	Chapada Copper-Gold Project, Goias State, Brazil	August 2004
Yamana Gold Inc.	Independent Mining Consultants, Inc.	Chapada Copper-Gold Project, Goias State, Brazil	March 17, 2008
Yamana Gold Inc.	Yamana and HDA Serviços S/S Ltda	Chapada Copper-Gold Project, Goias State, Brazil	February 19, 2009
Yamana Gold Inc.	Yamana, HDA Serviços S/S Ltda and Metálica Consultores S.A.	Chapada Mine and Suruca Project, Goias State, Brazil	March 7, 2011
Yamana Gold Inc.	Roscoe Postle Associates Inc.	Technical Report on the Chapada Mine, Brazil	July 31, 2014
Yamana Gold Inc.	Roscoe Postle Associates Inc.	Technical Report on the Chapada Mine, Goias State, Brazil	March 21, 2018
Lundin Mining Corporation	Roscoe Postle Associates Inc.	Technical Report on the Chapada Mine, Goias State, Brazil	June 30, 2019

In the mid-1990s, Santa Elina estimated that the Suruca deposit contained 11 Mt grading 0.56 g/t Au, totaling 199,400 ounces of gold. This Mineral Resource estimate is historical and was prepared before the implementation of the CIM Standards for Reporting Mineral Resources and Mineral Reserves. This estimate does not conform to the categories defined under NI 43-101 and should not be relied upon. The QP could not verify the historical Mineral Resource estimates, and these estimates are not being treated as current Mineral Resources.

Most recently, in 2019, RPA (now SLR Consulting) estimated the Mineral Resource for the Chapada Mine (Table 5-5). The Mineral Resource estimate followed the guidelines outlined in NI 43-101 and is contained within the 2019 Technical Report prepared for Lundin. Chapada and Suruca SW copper/gold Mineral Resources were estimated at a cut-off value (COV) of US$4.08/t. Suruca gold-only Mineral Resources were estimated at a cut-off grade of 0.16 g/t gold for oxide material and 0.23 g/t gold for sulphide material. Mineral Resources are estimated using a long-term gold price of US$1,600/oz and a long-term copper price of US$4.00/lb.

The QP has not reviewed the RPA estimate, and while it is relevant for comparative purposes, the mineral resource estimate is no longer considered current as it is being replaced by the estimate presented in Section 12.3 of this report. A qualified person has not done sufficient work to classify the historical estimate as current Mineral Resources or Mineral Reserves, and Lundin is not treating the historical estimate as current Mineral Resources or Mineral Reserves.

Table 5-5: Chapada Mine Historical Mineral Resource Estimate, RPA (Effective June 30, 2019)

Deposit	Category	Tonnes ('000 t)	Cu (%)	Au (%)	Contained Cu ('000 t)	Contained Au (Moz)
Chapada	Measured + Indicated	1,090,829	0.24	0.15	2,590	5.24
	Inferred	162,769	0.22	0.08	360	0.41
Suruca	Measured + Indicated	147,518	-	0.53	-	2.49
	Inferred	12,565	-	0.48	-	0.19

6 Geological Setting and Mineralization

6.1 Regional Geology

The Chapada Mine and Saúva Project are located in Central Brazil within the Tocantins Province, on the Neoproterozoic Brasilia Orogenic Belt. They are situated in Goiás Magmatic Arc, which is part of an accretionary orogen with tectonic evolution occurring between 900 Ma and 600 Ma during the Brasiliano Orogeny (Fuck et al., 2014).

The Goiás Magmatic Arc is located in western Goiás and Tocantins, and represents an approximately 1,000 km north-northeast trending belt of Neoproterozoic juvenile orthogneisses associated with arc-type volcano-sedimentary sequences. Two discontinuous areas of Neoproterozoic juvenile continental crust form the Goiás Arc: the northern Mara Rosa Segment and the southern Arenópolis Segment, which are both comprised of dioritic to granitic orthogneisses exposed between narrow north-northeast anastomosed volcano-sedimentary belts.

The Mara Rosa Segment comprises two domains with distinct timing in geologic evolution: the eastern domain, known as the Mara Rosa Metavolcano-Sedimentary Sequence, is interpreted as a typical island arc setting that developed 900 to 800 million years ago. The western domain, known as the Santa Terezinha Sequence, is interpreted as a continental arc that evolved between 670 to 630 million years ago. A geological map of Mara Rosa Magmatic Arc is shown in Figure 6.1.

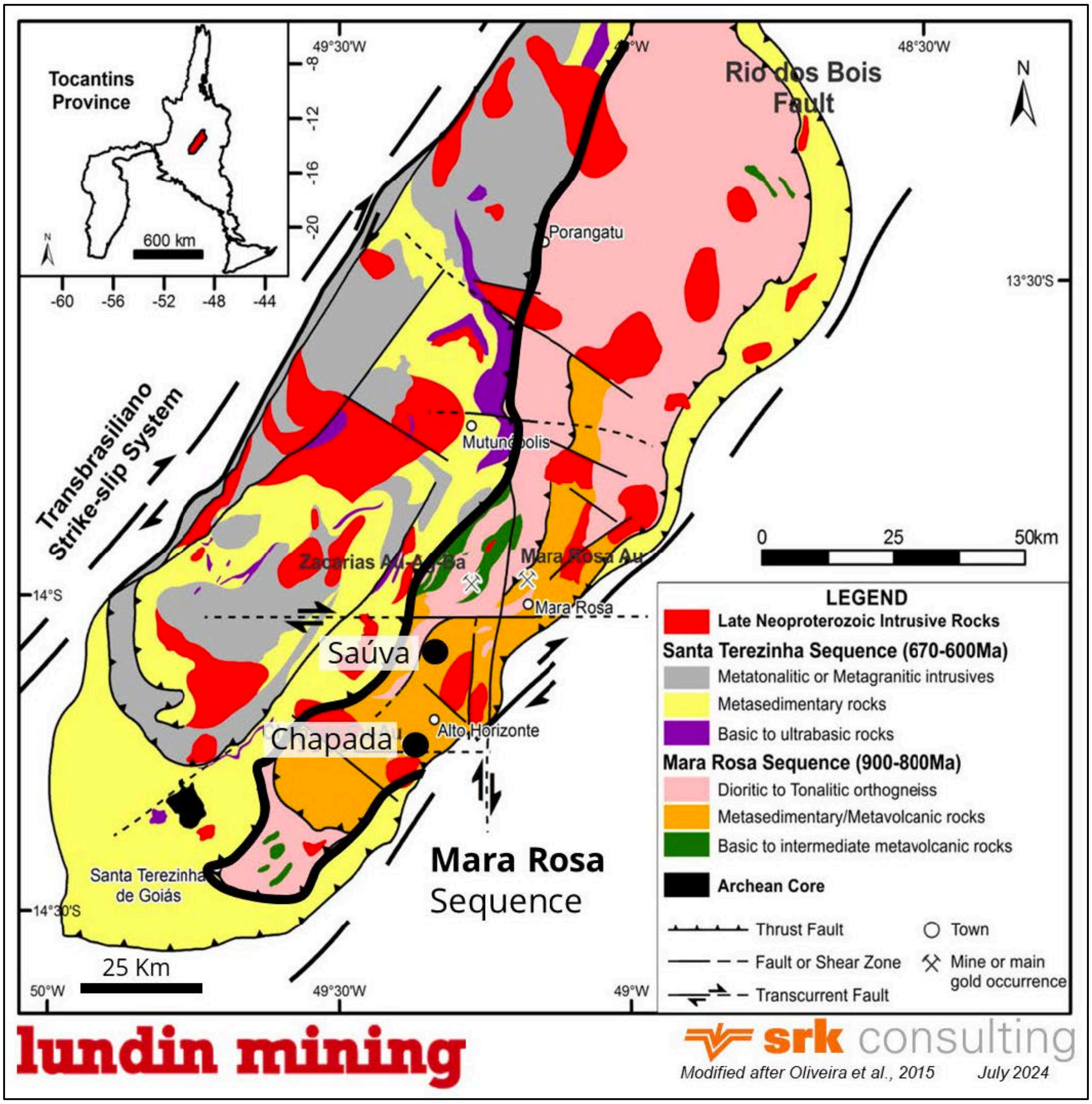
Arantes et al. (1991) divided the Mara Rosa Metavolcano-Sedimentary Sequence into three belts: East, Central, and West, separated by Neoproterozoic tonalitic orthogneisses domains. Oliveira et al. (2006) proposed to update and rename this classification according to spatial association between the outcropping lithologies. As a result, the East belt was renamed metavolcano-sedimentary sub-unit, the Central belt was renamed mafic metavolcanic sub-unit, and the West belt, now interpreted as part of the Santa Terezinha Sequence, was renamed the metasedimentary sub-unit.

The Chapada Mine and Saúva Project are located within the Metavolcano-Sedimentary sub-unit, which comprises metavolcanic rocks of mafic to felsic composition, metavolcanoclastic rocks, fine to medium grained metagreywacke, and various pelitic/psammitic metasedimentary units.

The last magmatic event was characterized by late to post-tectonic granitic intrusions (i.e. the Faina, Angelim, Estrela, and Amador granites) and gabbro-dioritic intrusions (i.e. diorite near the Chapada deposit). The granite bodies primarily consists of biotite granites and two mica leucogranites, with local granodioritic facies. The mafic intrusions are primarily dioritic and, to a lesser extent, gabbroic in composition, and they very commonly display magma mixing structures. The Precambrian geological evolution of the Mara Rosa Segment culminated in an important bimodal magmatic event, which has been interpreted to be associated with the final uplift and collapse of the Brasiliano Orogen.

The most probable geological setting for the Chapada, Saúva and Formiga deposits is remnants of a volcanic arc to back-arc basin pair. According to Oliveira et al. (2015), the geochemical characteristics of the amphibolites and associated plutonic rocks in the region suggest a tectonic setting similar to modern volcanic arcs. In contrast, clinopyroxene amphibolites are comparable to mid-ocean ridge basalts and may have originated in a back-arc spreading environment. Additionally, tonalitic to dioritic rocks have signatures similar to primitive island arc M-type granitoids, and some display characteristics similar to those of modern adakites.

Figure 6.1: Regional Geology Setting



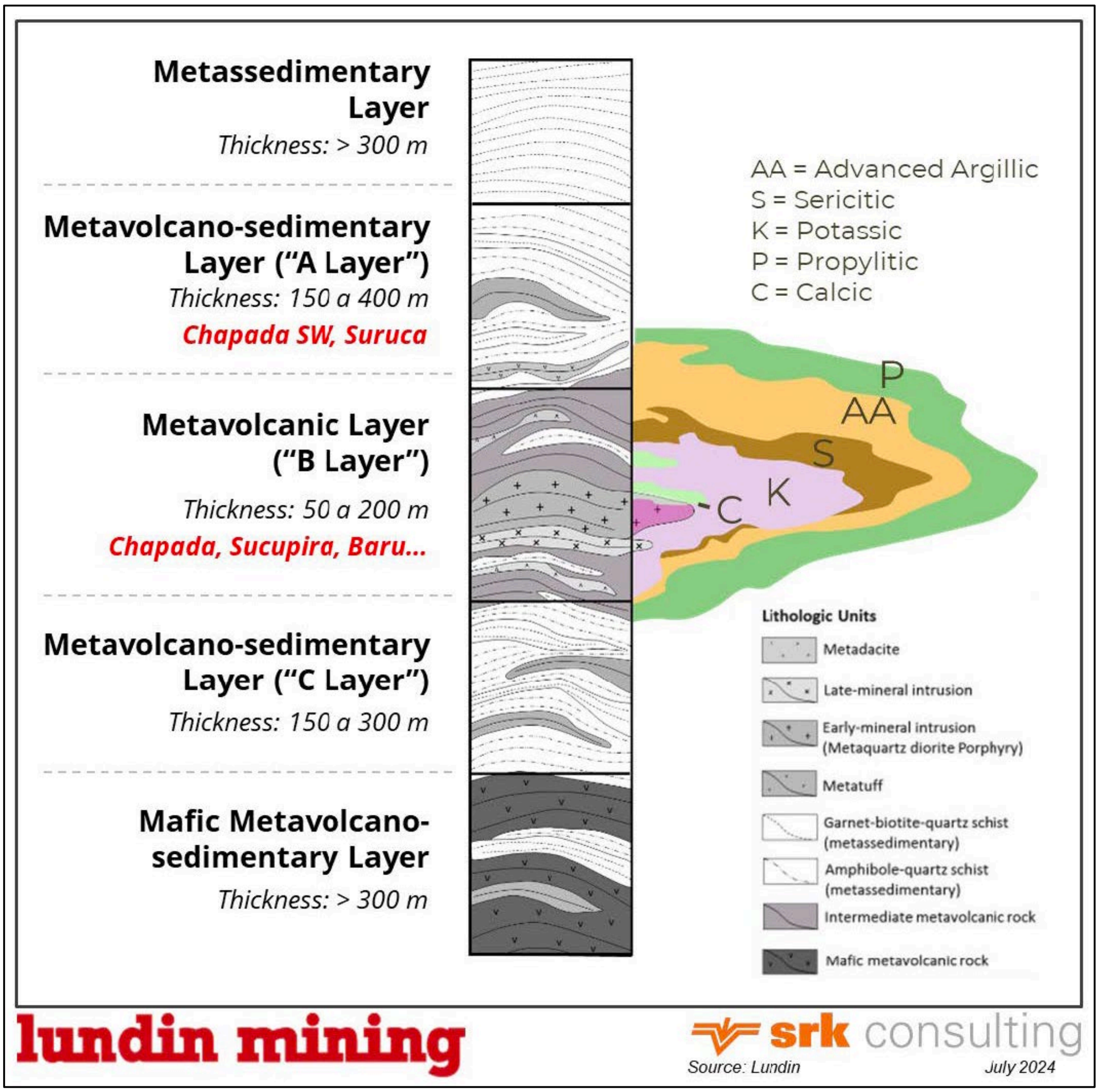
Both the Chapada Mine and Saúva Project are located in the metavolcano-sedimentary sub-unit of Mara Rosa Sequence.

6.2 Chapada Mine Geology

The Chapada Mine area comprises the Cava Central, Cava Norte, Chapada SW, Sucupira, Baru, Baru NE, Corpo Sul and Santa Cruz zones, in addition to the Suruca deposit.

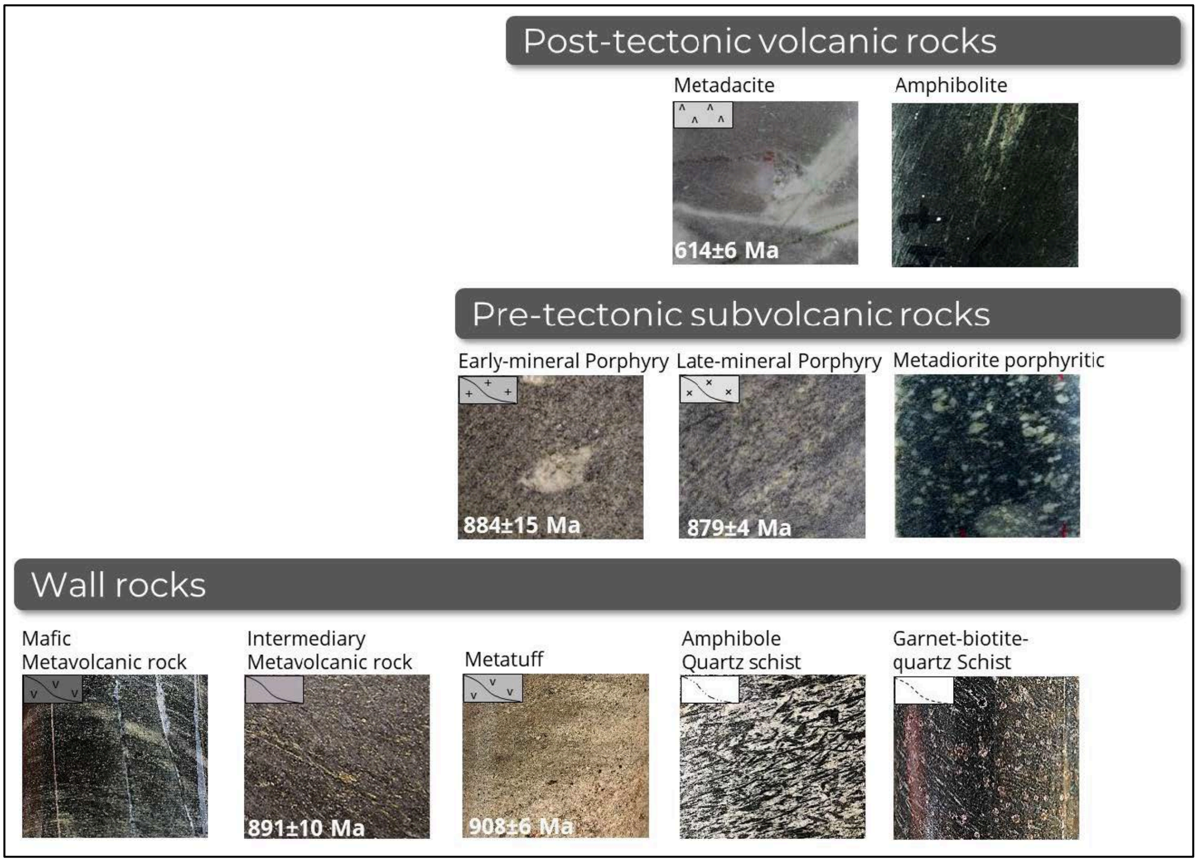
The local stratigraphy comprises five layers as described below, from top to bottom (Figure 6.2 and Figure 6.3).

Figure 6.2: Typical Stratigraphic Sequence of the Chapada and Suruca Deposits



Sources: Lundin 2024

Figure 6.3: Typical Rock Types Observed at the Chapada Mine



Sources: Lundin 2024

6.2.1 Lithology

Metasedimentary Layer

The metasedimentary layer is composed of garnet-biotite-quartz schist with small variations in composition, such as the presence of muscovite, staurolite, epidote, or amphibole. The garnet, as well as some hornblende and kyanite, occur as syn-tectonic porphyroblasts. The remaining minerals comprise a fine-grained matrix with granolepidoblastic texture. The large amount of quartz (30%) suggests a metasedimentary protolith for these schists. Sulphides occur as disseminated pyrrhotite and less pyrite. No economic mineralization is recognized in the metasedimentary layer.

Upper Metavolcano-Sedimentary Layer (A Layer)

The A layer is defined by the interlayering of several lithotypes, such as garnet-biotite-quartz schist (similar to that in the metasedimentary layer), amphibole-quartz schist, biotite-quartz schist, biotite gneiss, amphibole-biotite gneiss, and metatuff.

The amphibole-quartz schist is composed of euhedral porphyroblasts of gedrite and hornblende within a fine grained granoblastic matrix of quartz, plagioclase, and lesser amounts of biotite. This lithotype can also contain garnet porphyroblasts and some staurolite, apatite, and epidote. The mineral assemblage, combined with whole-rock lithogeochemistry, suggests an impure sedimentary protolith, likely derived from the erosion of igneous rocks of the magmatic arc.

The biotite gneiss and amphibole-biotite gneiss are fine grained and vary in composition, with the presence of muscovite and epidote. These rocks are the most important host rocks of the Chapada deposit. Whole-rock lithogeochemistry, combined with petrography, suggests an intermediary metavolcanic protolith for this lithotype.

The metatuff is a fine-grained biotite schist, often exhibiting a mylonitic texture, which contains sigmoidal porphyroclastic quartz-feldspar aggregates immersed in a sulphide-bearing sericitized matrix. U-Pb dating revealed an age of 908 Ma, which coincides with the timing of volcanic activity within the Mara Rosa Arc.

The A layer hosts the mineralization at Baruzinho, Chapada SW, and Suruca.

Metavolcanic Layer (B Layer)

The B layer is defined by a 50 to 200 m-thick layer of biotite-quartz schist, biotite-gneiss, and amphibole-biotite gneiss (same as described in the metavolcano-sedimentary layer).

Intrusive rocks with porphyritic to equigranular texture and dioritic composition are usually associated with the metavolcanic layer. The intrusive rocks display geochemical affinity with M-type granitoids of immature island arcs. Three intrusive facies are observed: metaquartz diorite porphyry, metadiorite porphyry, and intermediate metaplutonic rock. The metaquartz diorite porphyry represents early- to inter-mineral porphyry stocks, which are related to copper-gold mineralization at most orebodies of the Chapada deposit. The metadiorite is interpreted as inter- or late-mineral porphyry stocks and occur throughout the Chapada and Suruca deposits. However, only at Suruca do they serve as the host rock for both copper-gold and gold-only mineralization. The intermediate metaplutonic lithotype represents late-mineral porphyry stocks that crosscut the copper-gold mineralization at the Baru, Sucupira, Corpo Sul, and Santa Cruz orebodies. U-Pb dating of zircon yielded an age of 884 ± 5 Ma for an early-mineral metaquartz diorite porphyry in Corpo Sul and an age of 879± 5 Ma for a late-mineral intermediate metaplutonic in Sucupira.

The early- and inter-mineral stocks are associated with the magmatic fluids responsible for copper-gold and gold-only mineralization, and occur at the centre of thicker zones (>10 m) such as the Chapada deposit, or as several apophyses concordant to the main foliation, as at the Suruca deposit.

The difference in the number of porphyry stocks in the metavolcanic layer compared to other layers is the main reason this layer hosts the majority of the resources at Chapada and Suruca.

Several lithotypes derived from metamorphism of porphyry or skarn hydrothermal halos occur at the metavolcanic layer:

- Biotite schist, muscovite-biotite schist, feldspathic-biotite schist, feldspathic muscovite-biotite schist, and quartz-biotite schist are interpreted as the metamorphosed potassic halo.
- Biotite-muscovite-quartz schist and muscovite-quartz schist are interpreted as the metamorphosed sericitic halo.
- Kyanite-muscovite-quartz schist, muscovite-kyanite-quartz schist, kyanite quartzite, muscovite quartzite, and kyanitite are interpreted as the metamorphosed advanced argillic halo.
- Epidote-rich rocks, e.g., epidosite and epidote bearing schists with more than 20% epidote are interpreted as the metamorphosed calcic halo.
- Unaltered wall rocks with sparse concordant epidote veins or with chloritized matrix are interpreted as the metamorphosed propylitic halo.

A well-defined concentric sulphide zonation is observed in the orebodies, with an outer zone of pyrite-only, ranging through pyrite>chalcopyrite, chalcopyrite>pyrite, chalcopyrite-only, and, in some orebodies, chalcopyrite±bornite.

Lower Metavolcano-Sedimentary Layer (C Layer)

An interlayer of metavolcanic and metasedimentary rocks, identical to the upper metavolcanosedimentary A layer, is located below the metavolcanic layer. No mineralization is observed in this layer.

Mafic Metavolcano-Sedimentary Layer

This layer is interpreted as the basal unit of the local geology. A thick sequence of fine-grained amphibolites interlayered with metasedimentary lithotypes occurs to the northwest of the Corpo Sul deposit. No mineralization is observed in this unit.

Syn-Tectonic to Post-Tectonic Intrusions

The syn-tectonic and post-tectonic intrusions are represented by metadiorite, bimodal deformed dikes, and pegmatites.

The metadiorite is deformed, medium-grained diorite with a salt-and-pepper texture, locally referred to as Chapada Diorite. U-Pb data of zircon indicates an age of 635 ± 7 Ma for this intrusion (Oliveira et al., 2015).

Bimodal syn- to post-tectonic dikes are observed throughout the Chapada and Suruca deposits, with an average thickness ranging from one m to ten m. The dikes are generally subconcordant to the main foliation. The mafic component is represented by fine-grained amphibolites with nematoblastic texture, whereas the felsic component consists of fine-grained metadacites with granoblastic texture. U-Pb dating of zircon from a metadacite yielded an age of 614 ± 8 Ma.

Three phases of pegmatite crystallization are observed: pre-, syn-, and post-tectonic. The pre- and sin-tectonic phases are concordant or subconcordant to the main foliation, and the post-tectonic phase is generally discordant. These pegmatite intrusions vary from one metre to 30 m thick.

The bimodal dikes and pegmatite intrusions are commonly located near faults and shear zones.

6.2.2 Mineralization

Chapada Deposit

Copper is primarily present as chalcopyrite, with minor amounts of bornite. Fine-grained gold is closely associated with the sulphide mineralization and is likely contemporaneous with copper.

The mineralization at the Chapada deposit is represented predominantly by sulphide disseminations along foliation plans (or axial surfaces of folds) and, to a lesser extent, in small, massive concentrations in the hinges of folds. Generally, the ore is formed by chalcopyrite, pyrite and magnetite, with chalcopyrite-magnetite (magnetite-rich ore) and chalcopyrite-pyrite (pyrite-rich ore) being the prevailing associations. Pyrite is the most abundant mineral, magnetite (including hematite, ilmenite and rutile) is subordinate, and galena, bornite, sphalerite, and molybdenite are rarely reported.

The copper mineralization and grade at Chapada Mine are somewhat better in the central zone of the deposit along the anticline axis than in the surrounding anticlinal limbs. However, copper mineralization is pervasive over a broad area. The Chapada deposit footprint is approximately 10.5 km in length, up to 1.5 km in width, and 380 m in depth.

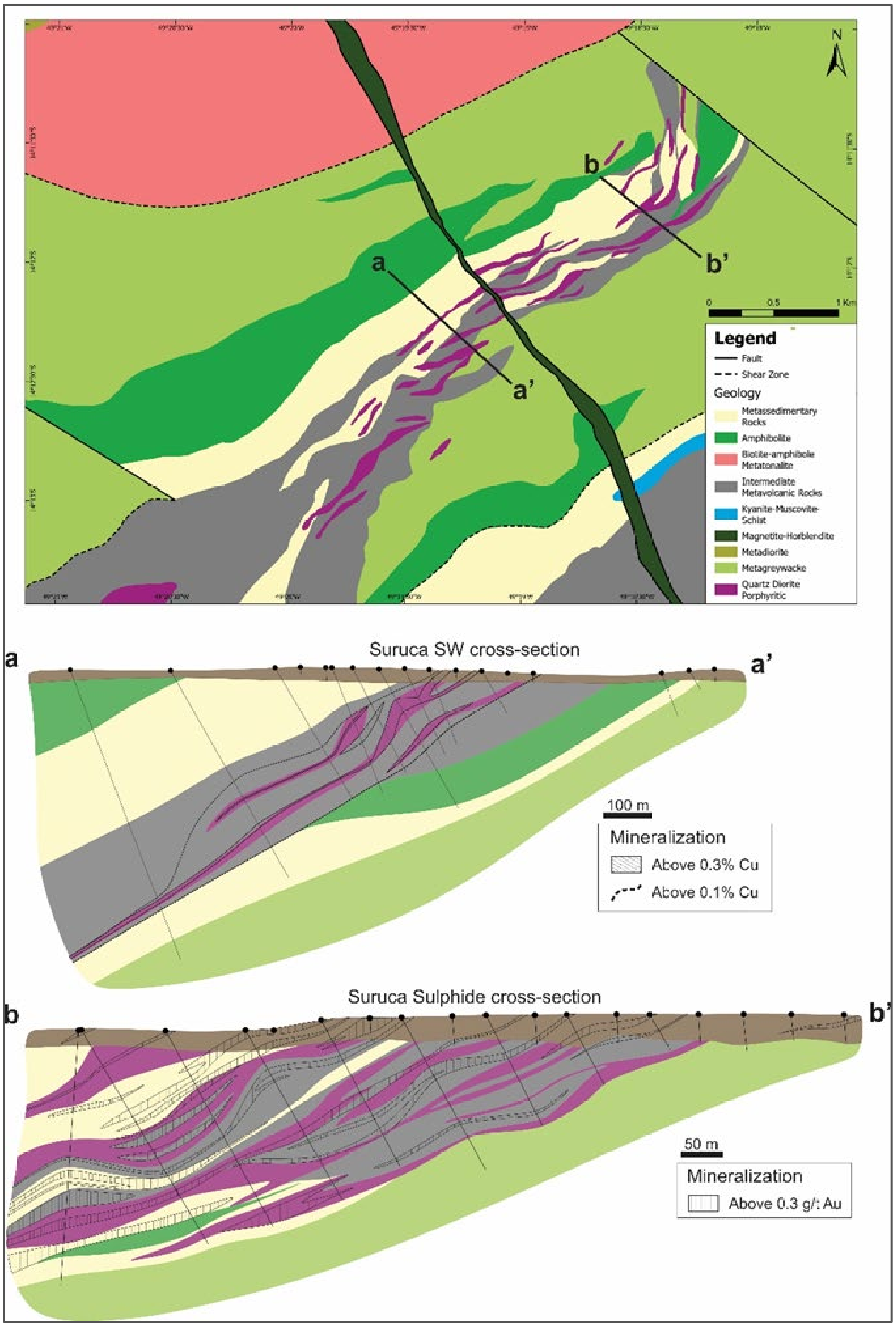
Suruca Deposit

The geology of the Suruca deposit is summarized in Figure 6.4. The gold at the Suruca deposit is related to folded quartz veins/veinlets with sericitic and biotitic alteration, rather than high sulphide concentrations. The second-generation quartz veins/veinlets with sulphides (sphalerite + galena + pyrite), carbonates, and epidote, also host gold, which is related to zinc. The copper mineralization in the southwest area of Suruca is similar to Chapada, with sulphide disseminations and sulphides associated with stockwork quartz veinlets. Generally, Suruca mineralization occurs primarily by chalcopyrite and pyrite, with subordinate sphalerite and molybdenite.

The Suruca deposit comprises three distinct zones, divided according to the contained metals and oxidation zones: Suruca Oxide (gold-only), Suruca Sulphide (gold-only), and Suruca SW (copper-gold). The gold-only portion of the Suruca deposit is approximately 4.3 km in length, 1.0 km in width, and up to 540 m in depth. The Suruca copper-gold deposit is approximately 4 km in length, 700 m in width, and up to 540 m in depth.

The Suruca Oxide zone is hosted in a thick weathering mantle with an average thickness of 35 m to 40 m, with a well-defined zoning from top to bottom, composed of soil, mottled rock, fine saprolite, coarse saprolite, and altered rock.

Figure 6.4: Plan Map and Associated Vertical Cross Sections Showing the Geology of the Suruca Deposit



Sources: Lundin 2024

The remaining mineralization is hosted in the Suruca Sulphide zone and the lithologies are grouped into five domains, including:

- **ANF:** medium grained to finer grained amphibolite to quartz amphibolite, in which epidote and chlorite are common accessory minerals.
- **MTS:** the metasedimentary layer and upper metavolcano-sedimentary layer (A layer).
- **MVI:** metavolcano-sedimentary layer (B layer).
- **QDP:** intrusions of porphyritic metadiorite composed of quartz, biotite, and plagioclase.
- **AQS:** an interlayering between lithotypes with metasedimentary protoliths (e.g., garnet-biotite-quartz schist and garnet-amphibole-quartz schist) and metavolcanic protolith (e.g., biotite-quartz schist).

The main mineralization pre-dates the documented deformation at Suruca. The gold and copper-gold zones are therefore believed to be associated with calcic skarns that were subjected to amphibolite and subsequent greenschist-facies regional metamorphism; however, some structurally controlled features are also observed.

6.2.3 Alteration

The biotite gneiss (GNS) and biotite-rich schists (BFS and MVI) hosts most of the copper-gold mineralization and, with the lower grade mineralization, is believed to correspond to a standard biotitic alteration zone prior to the intense contractional deformation under amphibolite facies metamorphic conditions. Granular A-type quartz veinlets with magnetite and chalcopyrite characterize biotitic alteration zones and, notwithstanding the intense deformation, are still identifiable in the biotite-rich gneiss and schists at Chapada.

The upper parts of biotite alteration zones are commonly overprinted by sericitic alteration, either as a stockwork of D-type veinlets or, in more pervasive form, as the transposed muscovite veinlets. The latter are thought to represent a D-type event, whereas the SQS in the southern part of the pit is considered as a former sericitic zone.

The quartz-muscovite-kyanite schist (SQKS) is a metamorphosed argillic alteration zone. The propylitic system is represented by the association of epidote + chlorite + carbonate in ANF and MVI rocks of the Mara Rosa Sequence.

6.3 Saúva Project Geology

The Saúva Project includes the Saúva zone and Formiga exploration target (Figure 6.5). Saúva Project stratigraphy is shown in Figure 6.6.

The top and bottom of the Saúva deposit stratigraphy is marked by unaltered metadiorite with sparse epidote veins or with chloritized matrix (interpreted as a metamorphosed propylitic halo). The metadiorite is commonly interlayered with metasedimentary rock and amphibolite.

The main host rock of the Saúva mineralization is the metavolcanic layer, which exhibits potassic or epidote hydrothermal alteration. Hydrothermally altered metadiorite also hosts the mineralization, although at lower grades than the metavolcanic rock. The thickness of the metavolcanic layer at Saúva varies from 60 to 120 m.

A package of metasedimentary rock occurs within the metavolcanic domain, bisecting the mineralization. The thickness of the metasediment varies from 30 to 200 m, and in some portions of Saúva, this layer does not appear. It consists of garnet-biotite-quartz schist with intense pyrite, and locally includes kyanite-biotite-quartz schist.

Figure 6.5: Map Showing the Local Geology of Saúva and Formiga

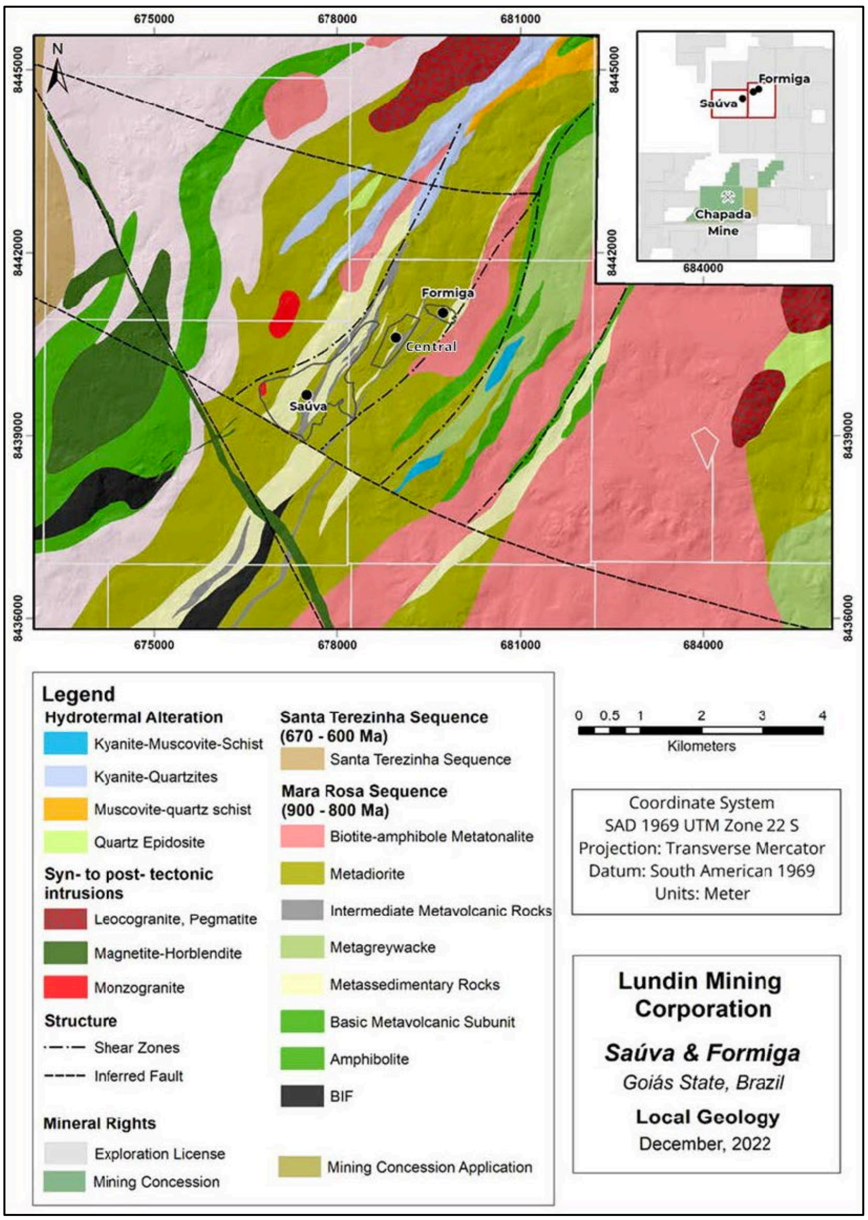
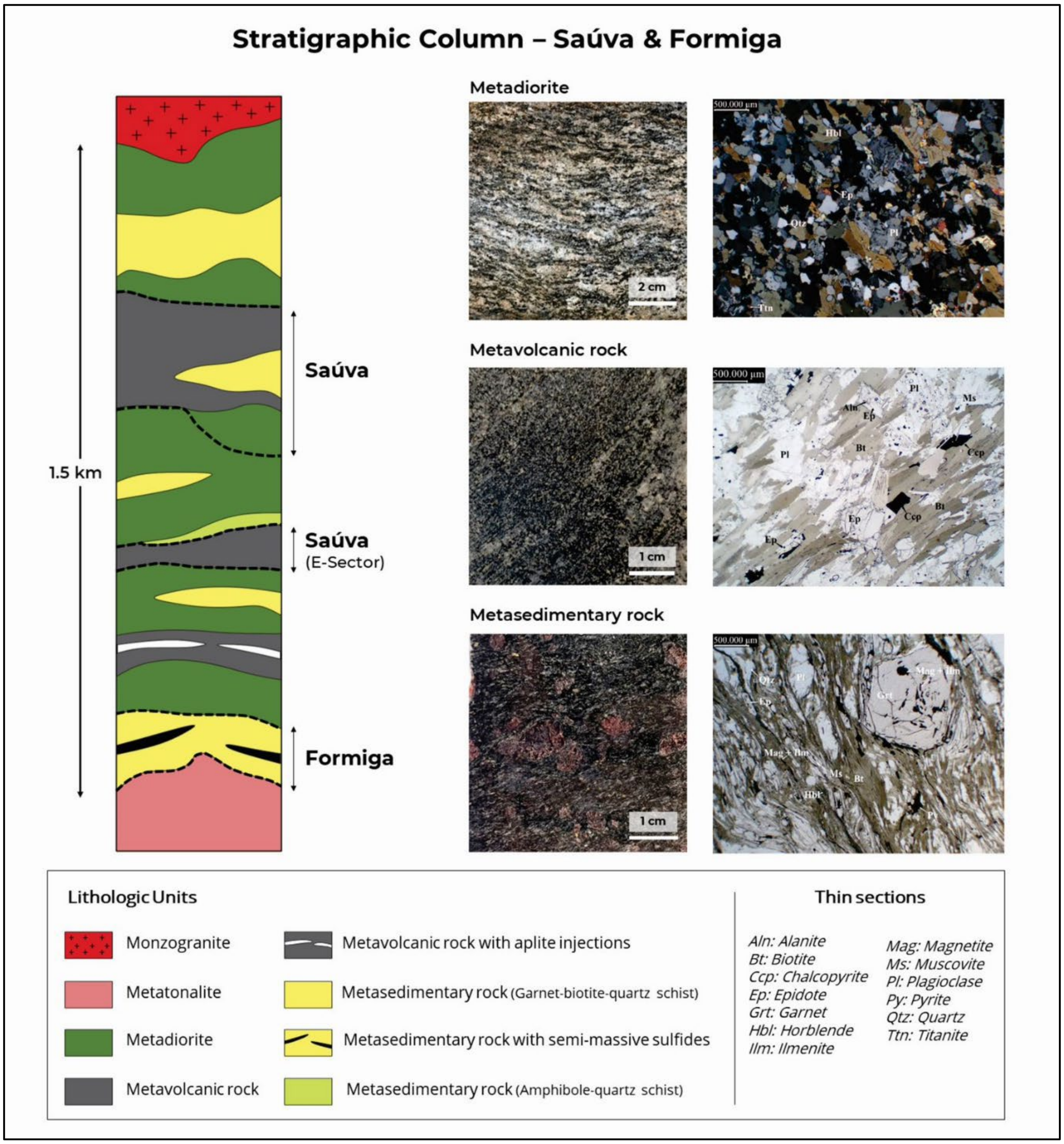


Figure 6.6: Stratigraphic Column of Saúva and Formiga



Source: Lundin 2024

Proximal to the main Saúva deposit, the Formiga target stratigraphy (from top to bottom) includes:

- Metadiorite unit
- Metavolcanic rock with aplite intrusions
- Metasedimentary unit that hosts the mineralization
- Metatonalite unit.

The same metadiorite with epidote veins that occurs at the base of Saúva, defines the hanging wall layer of Formiga. Sulfides occur as weak chalcopyrite, pyrite, or bornite. A continuous layer defined by a metavolcanic rock with aplite injections occurs inside the hanging wall metadiorite. The aplite layer is 30 to 40 m thick at Formiga and is used as a stratigraphic marker. Metatonalite exists at the base of the stratigraphy and is interpreted as the basal unit of the local geology.

6.3.1 Lithology

Metadiorite

The metadiorite is a medium- to coarse-grained rock with localized porphyritic texture, composed mainly of hornblende and/or biotite, plagioclase, and minor amounts of quartz. Accessory minerals include titanite, apatite, allanite, zircon, carbonate, epidote, and magnetite. The foliation is defined by biotite and amphibole and occasionally presents alternating bands of dark (amphibole-biotite) and light (plagioclase-quartz) minerals. The metadiorite occurs both as wall rock and host rock of the mineralization, depending on the hydrothermal alteration.

Metasedimentary Rocks

The metasedimentary units have a fine-grained matrix with a granolepidoblastic texture and comprise garnet-biotite-quartz schists with minor variations in composition, such as the presence of muscovite, staurolite, chlorite, epidote, carbonate, or amphibole. Apatite, zircon, allanite, staurolite, magnetite, and ilmenite are accessory minerals. Garnet with lesser hornblende and kyanite, occur as syn-tectonic porphyroblasts. A large amount of quartz (20 percent) and the aluminosilicate composition suggest a sedimentary protolith for these schists. In general, sulfides occur as disseminated pyrite and pyrrhotite.

Metavolcanic Rocks

The metavolcanic rocks are fine-grained, massive to weakly foliated, and composed mainly of quartz and plagioclase. Various amounts of biotite, amphibole, potassium-feldspar, epidote, and sericite are also present depending on the hydrothermal alteration. Similarly, to the metadiorite, the metavolcanic rocks contain titanite, apatite, allanite, zircon, carbonate, and magnetite as accessory minerals. The rock texture and mineral assembly of this unit suggest an intermediate volcanic protolith.

The metavolcanic lithologies have been subject to the most hydrothermal alteration, which includes potassic or pervasive epidote-rich alteration. A well-defined concentric sulfide zonation is observed, with an outer zone of pyrite-only, ranging through pyrite>chalcopyrite, chalcopyrite>pyrite, chalcopyrite-only, chalcopyrite>bornite and bornite>chalcopyrite.

A 15 to 40 m thick layer of metavolcanic rock with aplite intrusions, acts as a stratigraphic marker, as it defines the base and top of the Saúva and Formiga stratigraphy, respectively.

Metatonalite

The metatonalite is medium-to coarse-grained and represents the basal unit of the local geology. Compositionally, it is similar to the metadiorite; however, the metatonalite contains a higher amount of quartz and plagioclase. This lithology is distinguished by its alternation of light (plagioclase-quartz) and dark (biotite-amphibole with occasional epidote and chlorite) bands. The sulfide intensity is weak and characterized by sparse pyrite, chalcopyrite, or bornite.

Syn-Tectonic to Post-Tectonic Intrusions

The syn-tectonic and post-tectonic intrusions are represented by bimodal and pegmatites dykes. In the western portion of the Saúva deposit, a monzogranite intrusion is defined.

Bimodal syn- to post-tectonic dikes are observed throughout the Formiga and Saúva deposits with an average thickness of one to ten m. The mafic component is fine-grained amphibolite with nematoblastic texture, and the felsic component is fine-grained metadacite with granoblastic texture. The dikes are generally sub-concordant to the main foliation.

Three phases of pegmatite crystallization are observed: pre-, syn-, and post-tectonic. The pre- and syn-tectonic intrusions are concordant or sub-concordant to the main foliation, and the post-tectonic intrusions are discordant. The pegmatite varies from one to five m in thickness.

The monzogranite that occurs at the Saúva deposit is composed of quartz, feldspar, biotite, amphibole, and magnetite.

6.3.2 Mineralization

The Saúva deposit is classified as porphyry copper-gold mineralization hosted by biotitic, quartz-feldspar, and epidote-rich altered rocks. Mineralization is dominantly hosted in intermediate metavolcanic rocks and secondarily in metadiorite. The layers are primarily tabular and elongated, featuring some boudinage, and trend northeast-southwest, dipping northwest and outcropping to the east. The highest-grade portions lie in the southern part of the body. The Saúva deposit is approximately 2.5 km in length, 1.9 km in width, and up to 1.0 km in depth.

The main sulfide phases are pyrite, chalcopyrite, and bornite, with subordinate molybdenite. Oxidation portions with native copper, chalcocite and malachite are observed in parts of the deposit. Saúva displays a well-developed sulfide zoning, which controls the copper and gold grades. The zoning is described as follows, from outer to inner zones:

- Pyrite Zone
- Pyrite and Chalcopyrite Zone
- Chalcopyrite-only Zone
- Chalcopyrite > Bornite Zone
- Bornite > Chalcopyrite Zone

Additionally, there is a MIX Zone within the mineralized layer, present in some portions of the body, believed to be associated with northwest-southeast trending faults.

Mineralization at the Formiga target is mainly hosted by the metasedimentary units and is between 30 to 100 m thick. When affected by an intense garnet-epidote-amphibole-calcite-chlorite-magnetite alteration, the metasedimentary rocks host the semi-massive chalcopyrite-pyrite-pyrrhotite. The metadiorite locally hosts the semi-massive sulfide mineralization at the contact with the metasedimentary unit and where it has been hydrothermally altered.

The Formiga target contains copper-dominant mineralization, with copper grades varying from one to ten percent and gold grades generally less than 0.4 g/t. The mineralization is hosted stratigraphically below Saúva and trends northwest-southeast, plunging approximately 35 degrees to the northwest.

In order of occurrence, the main sulfide phases are chalcopyrite, pyrite and pyrrhotite, occurring as semi-massive to massive sulfide layers that can vary in thickness, from some cm to tens of m. Elevated copper grade mineralization within the Formiga deposit is associated with two distinct hydrothermal alteration zones: (1) massive dark-red garnet and (2) epidote-amphibole-rich alteration. Calcite alteration is common to both zones.

The deposit is interpreted as a skarn domain of a porphyry system. The alteration is best developed in the metasedimentary rocks (exoskarn), although some massive lenses occur in the metadiorite, and are interpreted as endoskarn alteration. The skarn mineralization is restricted in size likely due to deformation, which caused boudinage and dismemberment of the more competent sulphide-rich skarn, with the less competent metasedimentary host. The semi-massive mineralization strikes northwest-southeast, perpendicular to the main foliation, and is probably associated with the fold axis of the D_{n+1} phase.

6.3.3 Alteration

Three main types of alteration are associated with mineralization at the Saúva Project, including potassic, epidote and skarn. Potassic and epidote hydrothermal alteration are associated with the mineralization at the Saúva deposit. The alteration assemblage at the Formiga deposit displays intense garnet-epidote-amphibole-calcite-chlorite-magnetite alteration, which is categorized into skarn-type.

The biotite-rich potassic alteration is defined by pervasive biotite with occasional epidote and muscovite. This alteration zone contains quartz-feldspar, quartz-anhydrite, and sugary quartz (A-type) veins with chalcopyrite and bornite and corresponds to elevated copper and gold grades. A high density of quartz-feldspar veins with bornite and chalcopyrite characterizes the potassium feldspar-rich alteration. This halo is associated with the highest grades at Saúva (above 1.0 percent copper and 2.0 g/t gold) as it is linked to the bornite > chalcopyrite sulfide zone. The potassium feldspar-rich halo is restricted to the southern portion of Saúva, whereas the biotite dominant alteration is widespread throughout the deposit.

The mineralization at Saúva may also be correlated to an epidote-rich halo. It consists of a pervasive alteration, composed of epidote, muscovite, and quartz veins. The intensity of each mineral varies throughout the deposit, but typically there is more than 15 to 20 percent epidote. The mineral assemblage of this halo seems to overprint the potassic alteration at Saúva. The sulfide zoning associated with this alteration varies, and sulfides occur as chalcopyrite + pyrite or chalcopyrite + bornite. There are also epidote-rich zones with only disseminated pyrite. An increase in the density of quartz veins correlates to the higher grades in this alteration halo.

The intense garnet-epidote-amphibole-calcite-chlorite-magnetite alteration that hosts the semi-massive Formiga mineralization is interpreted as a skarn domain of the porphyry system, due to its mineral assemblage and calcic composition. The sulfides occur as semi-massive chalcopyrite, pyrite, and pyrrhotite.

The Formiga skarn alteration is separated into two facies: a garnet-rich (typically more than 50 percent dark red garnet) or an epidote-amphibole-rich facies. These domains are interspersed at Formiga and do not have an exact boundary of occurrence between them. However, they commonly occur close to each other.

6.4 Structural Geology

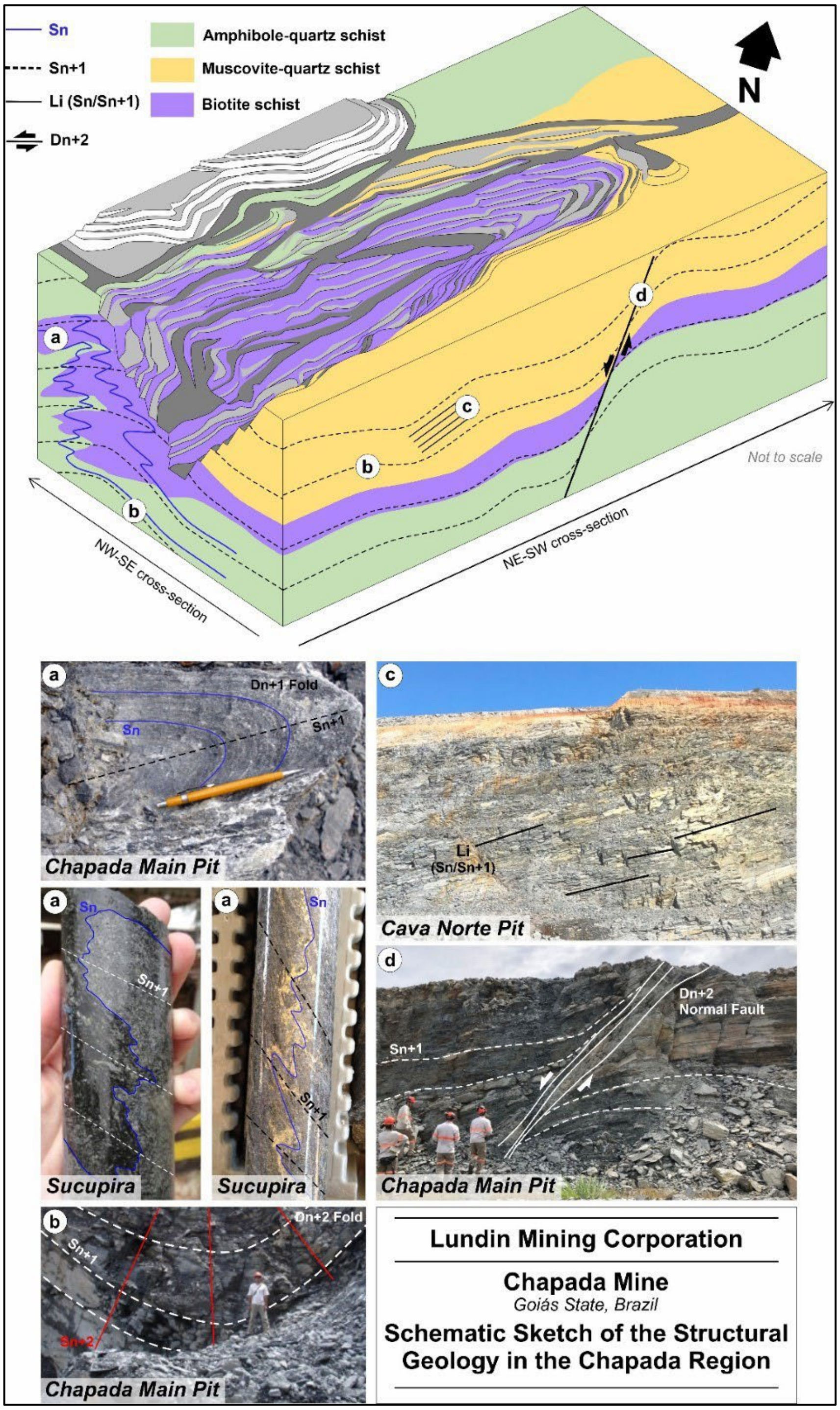
The structural setting of the Chapada Mine and Saúva Project areas is associated with the Brasiliano Orogeny, which took place between 930 Ma and 570 Ma (Giustina et al., 2009), culminating in the closure of Brasiliano Ocean. During this period, large scale and low angle thrust faults were developed, such as the Rio dos Bois Fault, which is the major structure in the Mara Rosa Magmatic Arc. The Rio dos Bois Fault is responsible for the overlapping of the Neoproterozoic Mara Rosa Metavolcano-sedimentary Sequence over the Archean granite-greenstone terrains and the Paleoproterozoic Campinorte Metavolcano-sedimentary Sequence.

The phases of deformation and associated structures are summarized in Table 6-1 below (Figure 6.7 and Figure 6.8).

Table 6-1: Regional Deformation Phases Affecting the Chapada Mine and Saúva Project

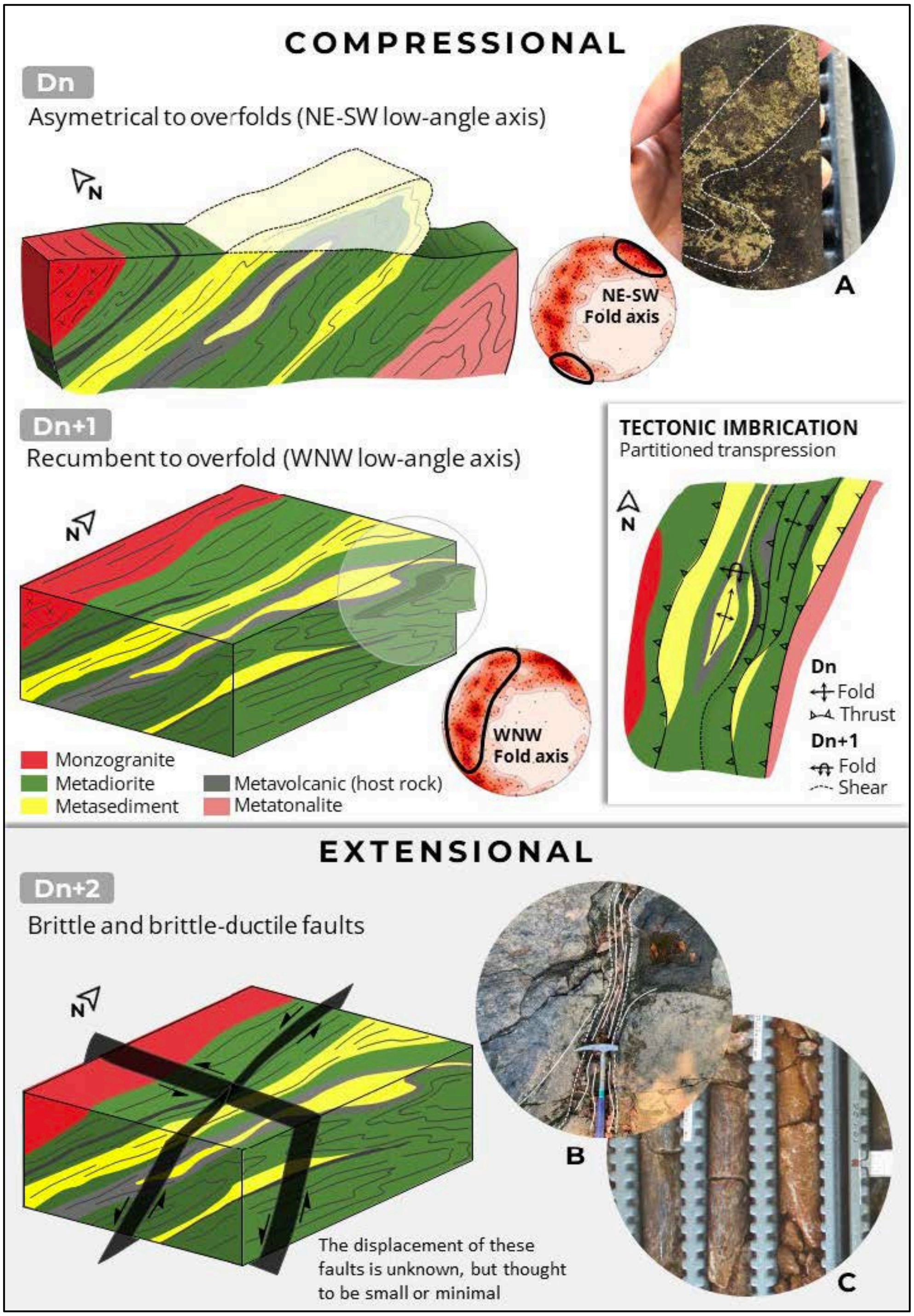
Event	Age	Type	Description
D_n	760-730 Ma (Junges et al., 2002)	Ductile	S_n penetrative foliation produced by intrafolial isoclinal folding.
D_{n+1}	-	Progressive-ductile	Recumbent D_{n+1} folding of S_n foliation S_{n+1} axial planar penetrative foliation
D_{n+2}	-	Brittle-ductile	S_{n+2} spaced cleavage Broad to open folds; dome-and-kneel-pattern at Chapada Mine Second-order northwest brittle-ductile extensional faults at Saúva Project

Figure 6.7: Schematic Representation of the Structural Framework at the Chapada Mine



Notes: a: S_n fabric penetrative foliation produced by intrafolial isoclinal folding. b) S_{n+1} axial planar penetrative foliation. c: Li = intersection lineation defined by the interaction between S_n/S_{n-1}. d: Second-order northwest brittle-ductile extensional (normal) faults at Chapada Mine

Figure 6.8: Schematic Representation of the Saúva and Formiga Structural Setting



Sources: Lundin, 2024

6.4.1 D_n Phase

The D_n ductile deformation phase is represented by S_n penetrative foliation, which is commonly subparallel to the S_0 foliation. The S_n foliation was generated by intrafolial isoclinal folding. It is estimated that the D_n phase took place around 760 Ma to 730 Ma (Junges et al., 2002), associated with the collision of the Mara Rosa Magmatic Arc with the São Francisco Craton. Peak metamorphic conditions associated with the D_n phase have been estimated at 650°C and 9 kBa (Oliveira et al., 2015), which is consistent with regional medium to high amphibolite facies.

6.4.2 D_{n+1} Phase

The D_{n+1} phase is coaxial and progressive to the D_n phase. The D_{n+1} phase developed under ductile conditions is represented by the recumbent folding of early foliation. This recumbent folding generated the penetrative S_{n+1} foliation (Figure 6.8a) The interaction between the S_n and S_{n+1} foliations generated a strong intersection lineation, which plunges in a southwest direction by 30° (Figure 6.8c). Additionally, mylonitic foliations are observed at local and regional scales, with a N20°E to N50°E trend and low to moderate dip to the northwest (290° to 320° dip direction / 10° to 40° dip). The stretching lineation associated with the mylonitic foliation is plunging at 320° azimuth with a 10° to 30° dip (Oliveira et al, 2015).

The D_{n+1} phase is related to the development of the Rio dos Bois Fault, a first order shear zone that comprises a set of thrust to reverse faults formed in response to north-northwest to south-southeast crustal shortening. Peak metamorphic conditions associated with the D_{n+1} phase are estimated at 460°C and 5 kBa (Kuyumjian, 1989).

6.4.3 D_{n+2} Phase

The D_{n+2} phase is represented by open to slightly asymmetric anticlines and synclines with northeast and northwest axes, imprinting a dome-and-keel regional pattern (Figure 6.8b). S_{n+2} spaced cleavage is developed by this folding pattern. Second-order northwest brittle-ductile faults occur frequently, which represent new or existing reactivated faults that locally displace the mineralization and remobilize chalcopyrite and pyrite. An east-west ductile-brittle dextral shear zone is responsible for the offset of the southwest part of Chapada Cava Central from northeast-southwest to east-west. Additionally, northwest extensional faults are related to the late D_{n+2} phase (Figure 6.8d). The D_{n+2} phase marks the orogen closure, characterized by structures formed mainly through stress relief under brittle-ductile conditions.

The Chapada and Suruca deposits are mainly controlled by the D_{n+2} phase and are characterized by slightly open folds with low-angle plunges, normally to the southwest. However, the D_{n+1} stage may locally control the mineralization by thickening the high-grade mineralization through the repetition of layers via recumbent folding.

6.5 Weathering

The Chapada Mine and Saúva Project areas are covered by a 10 to 30 m-thick lateritic profile composed of coarse saprolite, a mottled zone or argillic zone, lateritic duricrust, and pisolitic soils (products of alteration of duricrust) from bottom to top.

7 Deposit Types

Several genetic models have been suggested for Chapada Mine, including: (i) a deformed and metamorphosed porphyry-type copper-gold deposit (Richardson et al., 1986; Oliveira et al., 2015), (ii) a deformed and metamorphosed volcanogenic disseminated sulphide deposit (Silva and Sá, 1986; Kuyumjian, 1989), and (iii) epithermal copper-gold deposit overprinted by metamorphic remobilization (Kuyumjian, 2000). Currently, the most accepted metallogenetic model for Chapada Mine and Saúva Project is a metamorphosed porphyry model associated with a skarn system.

Porphyry Copper-Gold systems are defined as large volumes of hydrothermally altered rocks centered on porphyry stocks, which is the mineralization source (Sillitoe, 2010). Porphyry Copper-Gold systems are defined as large volumes of hydrothermally altered rocks centered on porphyry stocks, which is the mineralization source (Sillitoe, 2010). The typical tectonic setting for Porphyry Copper systems are magmatic arcs formed in subduction zones, although a few exceptions are documented. In addition to porphyry, many deposit types are related to these systems, such as skarns, carbonate-replacement, sediment-hosted, high- and intermediate-sulfidation epithermal types. Porphyry deposits are one the most important sources of copper-gold mineralization worldwide and are often characterized by lower grades and higher tonnage, which reduces operating and discovery costs.

Porphyry deposits have a well-developed zonation of hydrothermal halos, from bottom to top: sodic-calcic, potassic, sericitic and advanced argillic. These halos are formed with the percolation of the hydrothermal fluids through the wall rocks and their interaction with meteoric fluids. Generally, the sulfidation state changes from low to intermediate to high as temperature declines, and the alteration-mineralization types become progressively younger upward, resulting in shallower halos overprinting or partly reconstituting deeper ones (Sillitoe, 2010).

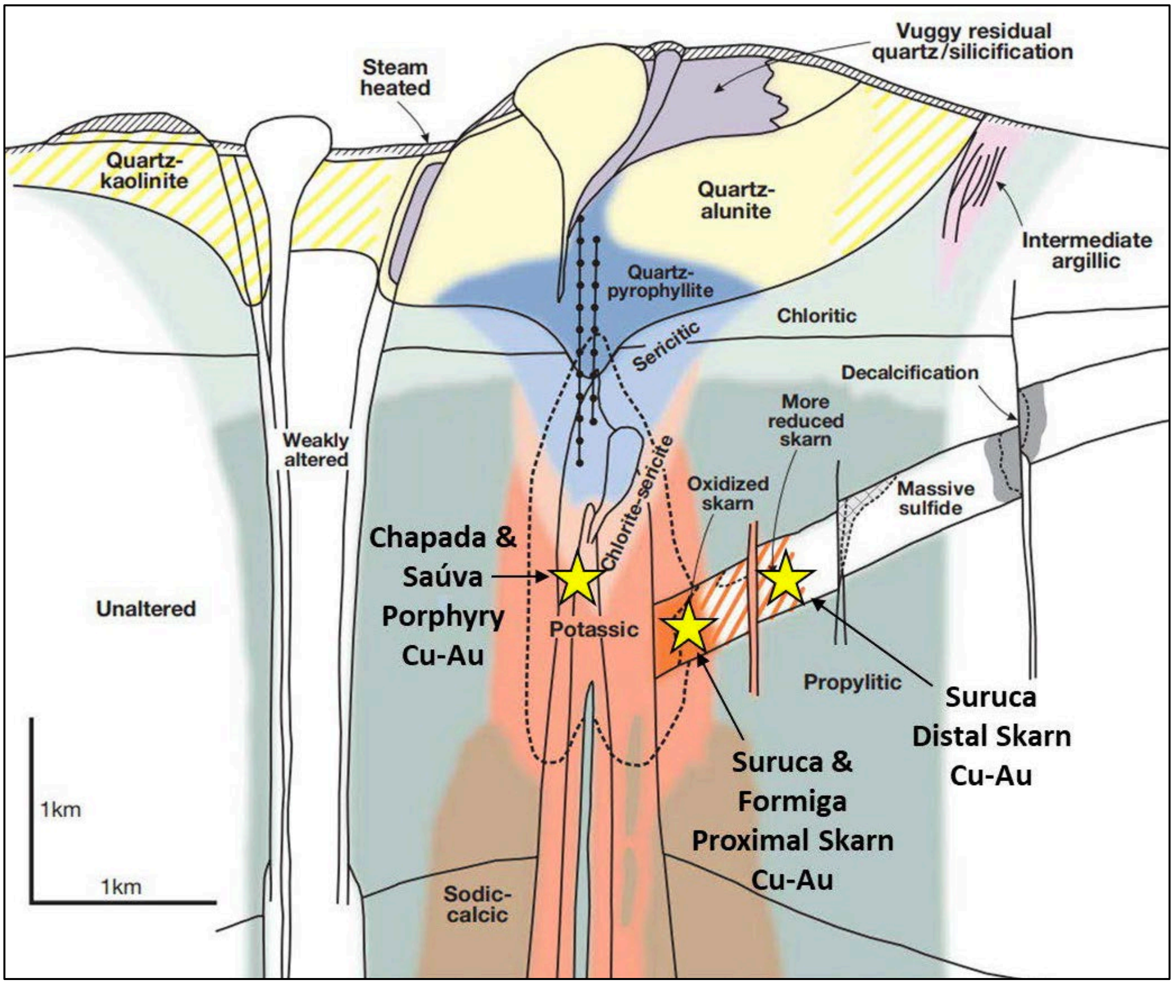
The potassic hydrothermal alteration is related to the mineralization, in which A-type veins are formed (quartz veins with sulfides, possibly containing magnetite) and comprises biotite, potassium-feldspar, pyrite, and chalcopyrite, and may contain magnetite and bornite. Argillic alteration generally occurs in the vadose zone and is defined as the lithocap of the system (Sillitoe, 2010), where relatively low-temperature epithermal deposits are formed. Hydrothermal minerals such as quartz, alunite, pyrophyllite, dickite, kaolinite, pyrite, enargite, chalcocite, and covellite commonly occur in porphyry systems.

The magmatic hydrothermal system at Chapada Mine and Saúva Project was generated in the island arc stage setting (approximately 884 Ma to 879 Ma) and posteriorly overprinted by the remobilization of orogenic fluids during Brasiliano events (ca. 630 Ma). This model is based on the works of Sillitoe (2008), Oliveira et al. (2015), and internal reports of Espada (2010) and Sillitoe (2014).

The deposit types in Chapada Mine were separated into distinctive mineralization styles (Figure 7.1). The porphyry and skarn system can be separated into two distinct mineralization styles, based on hydrothermal alteration and metal association:

- Copper-Gold Porphyry System: Chapada, Corpo Sul, Sucupira, Baru, Saúva
- Skarn Systems: copper (gold) Formiga deposit and gold (silver-lead-zinc) Suruca deposit

Figure 7.1: Schematic of Chapada Mine and Saúva Project Mineralization Systems



Sources: Modified from Sillitoe (2010)

7.1 Copper-Gold Porphyry System

The Chapada and Saúva copper-gold porphyry deposits represent a typical porphyry system prior to extensive modification during the D_n and D_{n+1} deformation event. The characteristics of the copper-gold porphyry mineralization are:

- Association of copper, gold, and molybdenum.
- Transposed remnants of A-type quartz, D-type sericite-bordered pyrite and anhydrite veinlets are recognizable in the biotite-rich gneiss and schist, which is interpreted as a former zone of biotitic alteration.

- The highest copper and gold values are found in biotite-rich metamorphic rocks containing disseminated chalcopyrite and magnetite, but little pyrite (a typical situation in porphyry copper-gold deposits).
- The hydrothermal alteration of potassic (biotite), sericitic, propylitic, and argillic fit with the alteration of younger copper-gold system.

7.2 Skarn System

The Suruca deposit is host to gold mineralization associated with sericite-chlorite-epidote carbonate (- biotite), which corresponds to a skarn system.

According to Sillitoe (2014), the Suruca metal concentrations marked by zinc (sphalerite), lead (galena), and gold associated to epidote/calcite and/or garnet/amphibole rich schists, point to a distal gold (Ag-Zn-Pb) skarn system. These epidote-calcite rich schists are interpreted as skarns, which were subjected to amphibolite and subsequent greenschist facies regional metamorphism. Also, the possible presence of deformed and metamorphosed diorite porphyry in the copper-gold zone suggests that Suruca may be related to a discrete porphyry center represented by Suruca SW.

The Formiga deposit hosts a semi-massive to massive copper mineralization in metasedimentary layers, associated with a calcic (garnet-amphibole-epidote-calcite) alteration that corresponds to an oxidized copper skarn. According to Sillitoe (2017), massive andraditic garnet associated with variable amounts of amphibole and possible remanent diopside contains massive to stringer and disseminated chalcopyrite, which is closely intergrown with pyrrhotite and magnetite. The pyrrhotite is interpreted as a metamorphic product of former pyrite, which remains as isolated grains in places. The massive garnet distinctly differs from the garnet porphyroblasts in the surrounding metasedimentary rocks.

7.3 Brasiliano Orogenic System

The disseminated, low grade character of the mineralization at Chapada is relatively unusual for porphyry and epithermal deposits, which tend to occur more frequently as vein systems or breccia pipes. It is believed that the deformation, mainly D_{n+1} phase, was responsible for epigenetic hydrothermal processes, associated with the Rio dos Bois shear zone at the end of the Brasiliano Orogeny, between 600 Ma and 560 Ma.

The epigenetic hydrothermal fluids are responsible for the remobilization of gold and base metals in both systems (Chapada and Suruca). Chapada is characterized by the transformation of magnetite-biotite gneiss to biotite schist (biotitization) and, in Suruca, the mineralization is disseminated in a propylitic halo that is not usually a skarn system. However, it is not clear if these epigenetic hydrothermal processes contributed new gold and copper metal to the Chapada and Suruca deposits.

8 Exploration

Exploration work completed by previous operators is summarized in Section 5.

8.1 Lundin (2019-2024)

Lundin began exploration of the property in 2019, which has since comprised of geological mapping, soil geochemistry, and geophysical surveys.

8.1.1 Surface Geochemistry (2021 – 2023)

From September 2021 to August 2023, Lundin collected and analyzed 19,214 soil samples and 324 surface rock samples to identify new exploration targets and refine geochemical anomalies. These samples underwent 4-acid digestion and were analyzed for copper, gold, and 47 other elements using Fire Assay, ICP-AES, and ICP-MS (ME-MS61) at ALS Lima, Peru.

To optimize costs and expedite results, an additional 4,749 soil samples were analyzed for copper, molybdenum, zinc, lead, and 44 other elements using portable X-ray fluorescence (pXRF) between February and December 2023. Sample preparation and analysis were carried out in-house at Chapada Exploration facilities using a Bruker CTX-800 portable XRF analyzer.

Soil sampling grids were designed with varying line spacings depending on the exploration stage: 400 to 600 m for regional exploration lines, 200 to 300 m for infill or follow-up investigations, and 50 to 100 m in well-developed areas. Soil samples were typically collected at 50 m intervals, while regional lines had a spacing of 100 m. Surface rock samples were taken from all identified outcrops and floats during the soil sampling process. Table 8-1 summarizes the soil and chip samples completed per year by Lundin.

Table 8-1: Soil and Chip Sampling Completed by Lundin (2021 – 2023)

Year	Soil Samples Count	Chip Samples Count	Target Zones
2021	2,933	61	Saúva, Formiga, Near-mine
2022	10,654	66	Near-mine Saúva Sul, Saúva Norte, Taquaruçu, Bom Jesus, Zacarias
2023	5,627	197	Formiga, Saúva, Saúva Sul, Saúva Norte, Near Mine, Bom Jesus
2023 (pXRF)	4,749	0	Near-Mine, Formiga, Saúva, Taquaruçu, Bom Jesus, Serra das Araras
Total	**23,963**	**324**	

Saúva Soil Geochemistry (2021-2022)

Lundin conducted a systematic chip and soil sampling program in 2021 for the Saúva Project area. This program was designed to target areas with little to no pre-existing exploration information.

Soil samples were collected following a 100 by 50 m grid. Samples were collected by Lundin staff, in teams consisting of one prospector and two field assistants. Samples were collected at a depth of one to two m using a post-hole digger. Staff were responsible for correctly locating and labelling the samples, which were stored and cataloged at the Chapada Mine facility before being sent for analysis.

The results from this soil sampling program identified anomalous copper values (over 1,000 ppm), which lead to the discovery of the Saúva deposit. Table 8-2 summarizes the soil and chip samples collected per year by Lundin.

Table 8-2: Soil and Chip Samples at Saúva Collected by Lundin (2021 – 2022)

Year	# Soil Samples	# Chip Samples
2021	3,723	57
2022	2,037	14
Total	**5,760**	**71**

8.1.2 Geological Mapping

The geological map, originally made by Yamana, has been updated since 2019 by Lundin, incorporating data from new drill holes and interpretations derived from high-resolution radiometric and magnetic airborne maps (surveyed in 2021). The main updates focus on refining geological contacts and additional geological structures. For high-potential claims recently acquired by Lundin in the 2021 ANM bidding, which had limited prior data, detailed mapping campaigns were conducted to enhance geological understanding and address data gaps.

8.1.3 Geophysical Surveys

Since acquiring the property, Lundin has conducted airborne magnetic and radiometric, and induced polarization surveys over Chapada Mine, Saúva Project and surrounding areas.

Fixed-Loop Time Domain Electromagnetic (2020 – 2021)

From October 2020 to February 2021, Geomag Prospecções S/A conducted a fixed-loop electromagnetic (EM) survey in the vicinity of Formiga and surrounded regional targets. This survey utilized a TEM-67 transmitter, a PROTEM receiver, and a 3D-3M coil, all manufactured by Geonics.

The survey configuration comprised nine square loops, each energizing an area of 1x1 km. Measurement points were spaced 50 m apart along the survey lines, which were oriented in a north-south direction and separated by 100 m. In total, the survey covered a linear distance of 103.7 km.

Data preprocessing was carried out, followed by data inversion using the UBC-1EMD code from the UBC-GIF software. The results were presented in time series profiles (early time, mid time, and late time) to identify anomalies, and subsequently in a 3D conductivity model.

Airborne Magnetic Survey (2021)

Between October 8 and November 21, 2021, Xcalibur Multiphysics conducted a MIDAS high-resolution airborne magnetic and radiometric survey over Lundin claims, specifically targeting the northern and southern portions of the block not covered by the historical surveys (2008 and 2018).

The survey covered a total of 8,177.62 linear km, comprising 7,421.31 km of traverse lines spaced 100 m apart in a north-south orientation, and 765.31 km of tie lines spaced 1,000 m apart in an east-west orientation. It was conducted using an AS-350 B3 helicopter, flying at an altitude of 40 m, and equipped with an Xcalibur CF1 Scintrex cesium vapor magnetometer and an Exploranium GR-820 gamma spectrometer.

Following data acquisition and processing, Xcalibur Multiphysics integrated the new grids with the historical grids (acquired by Yamana in 2008 and 2018) achieving comprehensive coverage of all Lundin Exploration Claims.

Lundin Geophysicists, along with structural and geophysical consultants, including Leighn Rankin (Geointerp), assisted the Chapada Exploration Team in interpreting the final data. These interpreted maps have been utilized for updating geological maps, integrating data, and generating exploration targets, thereby enhancing the effectiveness of drilling programs.

Induced Polarization / Resistivity Surveys (2021 - 2023)

From August 4, 2021, to April 14, 2022, AFC Geofísica conducted an Induced Polarization (IP) survey covering 188.9 linear km. Subsequently, from May 23, 2022, to August 1, 2023, Geomag Prospecções S/A continued IP surveying using the same configuration, acquiring an additional 439.9 linear km. In total, Lundin has surveyed 625.8 linear km of IP, focusing on near-mine, Saúva, Formiga and district targets. Table 8-3 summarizes the IP linear km surveyed per year by Lundin.

AFC Geofísica conducted the surveys using a TxII-5000 transmitter from GDD Instrumentation, paired with a traditional Elrec Pro receiver (Iris Instruments). Subsequently, Geomag Prospecções S/A continued the survey with a VIP 5000 transmitter (Iris Instruments), in conjunction with an Elrec Pro receiver equipped with a full waveform system (Iris Instruments).

The surveys used a dipole-dipole array with 100 m electrode spacing and 100 m advances. In areas where deeper data was required, the electrode spacing was increased to 200 m, with 100 m advances. Line spacing was adjusted based on the exploration phase of each target: for well-developed and high-priority targets (e.g. Saúva), a 200 m spacing was used, while regional targets were surveyed with line spacings ranging from 400 to 600 m (e.g. Bom Jesus).

Data processing by the contractors resulted in 2D sections and 3D voxel models of chargeability and resistivity. These models confidently reached depths of up to 350 m and identified several km-scale trends with high chargeability, which correlate with potential extensions of known ore bodies and surface geochemical anomalies. Results of these surveys were used to plan follow-up activities.

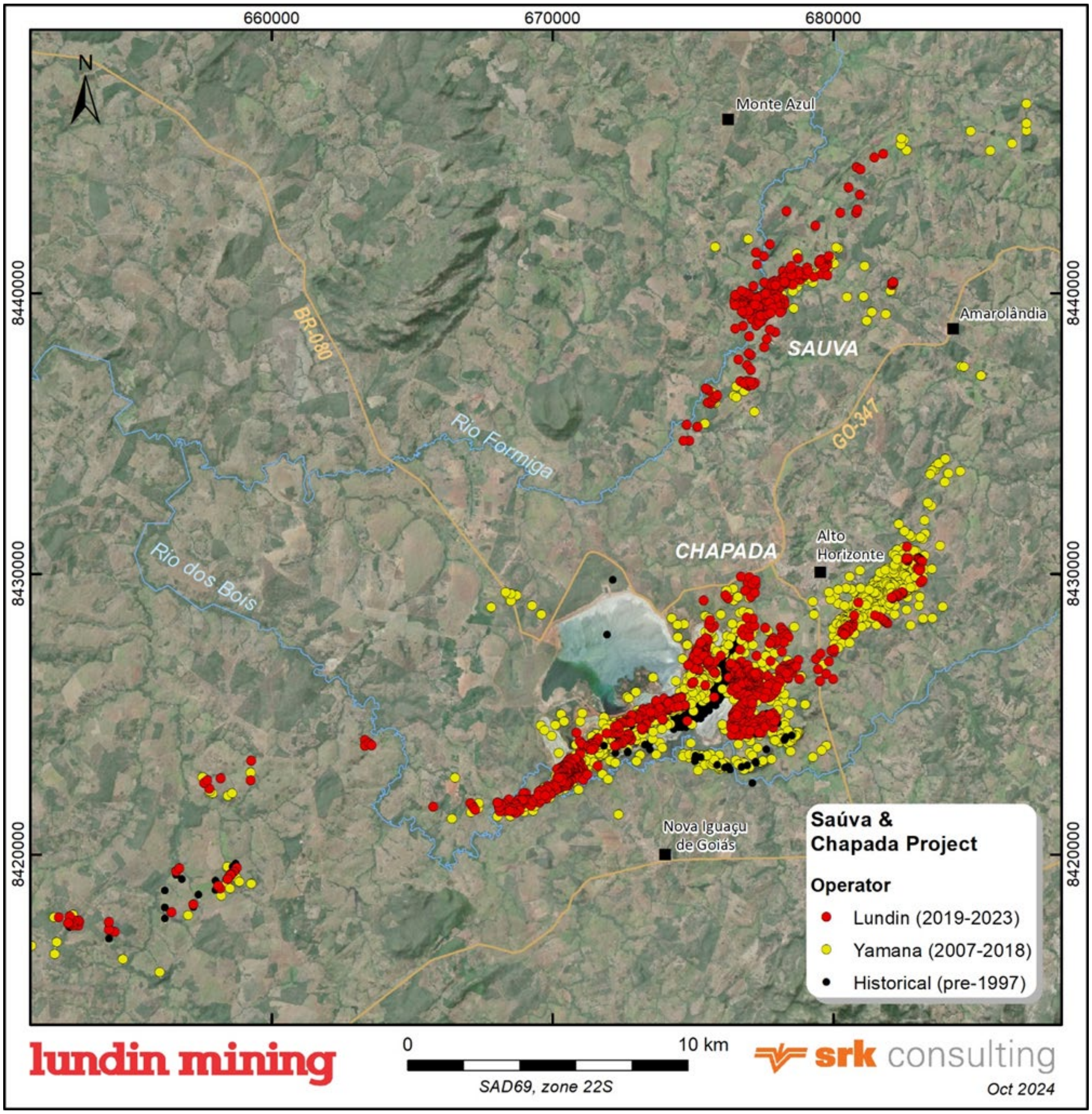
Table 8-3: Induced Polarization Surveys Completed by Lundin (2021 - 2023)

Year	Length (Line km)	Contractor	Target Zones
2021	122.6	AFC	Near-Mine, Saúva, Formiga and Saúva Sul
2022	66.3	AFC	Saúva Norte
2022	203.1	Geomag	Saúva Norte, Saúva Sul, Taquaruçu
2023	233.8	Geomag	Taquaruçu, Bom Jesus, Saúva Norte, Saúva Sul Zacarias, Curicaca
Total	**625.8**		

9 Drilling

Between 1996 and 2023, a total of 4,160 core boreholes (736,008 m) were drilled on the Chapada Mine and Saúva Project and surrounding targets (Figure 9.1), including 1,307 core boreholes (300,820 m) drilled by Lundin (Table 9-1).

Figure 9.1: Map Showing the Distribution of Drilling of Chapada Mine, Saúva Project and Regional Exploration



Sources: Add sources

Table 9-1: Summary of Core Drilling Completed on the Chapada Mine, Saúva Project and Regional Exploration

Company	Period	Chapada Mine				Saúva Project				Regional Exploration		Total	
		Chapada		Suruca		Saúva		Formiga					
		Count	Length (m)	Count	Length (m)	Count	Length (m)	Count	Length (m)	Count	Length (m)	Count	Length (m)
Various	Pre-1997	446	61,283	18	536					44	6,925	**508**	**68,745**
	Subtotal	**446**	**61,283**	**18**	**536**	**0**	**0**	**0**	**0**	**44**	**6,925**	**508**	**68,745**
Yamana	2007	9	1,841									**9**	**1,841**
	2008	30	5,126	7	440							**37**	**5,565**
	2009	8	3,217	16	4,827					6	2,725	**30**	**10,769**
	2010	18	4,373	114	23,264					10	2,399	**142**	**30,036**
	2011	86	19,432	52	9,568					12	5,044	**150**	**34,044**
	2012	140	30,192							14	4,173	**154**	**34,365**
	2013	105	20,937	59	1,982					63	13,470	**227**	**36,389**
	2014	67	17,664	1	150					16	3,152	**84**	**20,966**
	2015	125	35,732					7	986	11	2,224	**143**	**38,942**
	2016	167	36,570	500	16,097	16	3,087	8	1,807	58	5,268	**749**	**62,829**
	2017	98	20,807	239	15,403	12	1,935	5	652	35	5,381	**389**	**44,178**
	2018	134	28,767	60	11,823	4	642			33	5,288	**231**	**46,520**
	Subtotal	**987**	**224,658**	**1,048**	**83,553**	**32**	**5,664**	**20**	**3,445**	**258**	**49,124**	**2,345**	**366,444**
Lundin	2019	163	39,684	34	1,349			5	1,179	6	1,443	**208**	**43,655**
	2020	196	36,557	14	2,047	33	6,495	9	1,993	21	5,151	**273**	**52,243**
	2021	299	64,698	2	702	45	13,374	8	2,056	28	7,774	**382**	**88,604**
	2022	121	16,758	6	1,996	119	43,999			46	12,703	**292**	**75,456**
	2023	47	9,727	3	808	31	10,855	7	2,349	64	17,122	**152**	**40,862**
	Subtotal	**826**	**167,424**	**59**	**6,901**	**228**	**74,724**	**29**	**7,578**	**165**	**44,194**	**1,307**	**300,820**
Total		**2,259**	**453,365**	**1,125**	**90,991**	**260**	**80,388**	**49**	**11,023**	**467**	**100,243**	**4,160**	**736,008**

* Up to December 31, 2023

Notes:

[1] Numbers may diverge from previous Technical Report due to internal review of target names.

9.1 Drilling by Historical Operators (1976 – 1997)

A total of 508 boreholes (68,745 m) are included in the historical database, drilled by historical operators between 1976 and 1997.

9.1.1 Chapada Mine

The historical Chapada Mine database includes 464 boreholes totaling 61,819 m.

At Chapada Mine, the historical drilling was conducted by various operators for three purposes:

- The "CHD" holes were drilled in 1995 by Santa Elina. These were short (approximately 15-20 m deep) and designed to test the saprolite material.
- The "M" series were drilled by Santa Elina between 1976 and 1997. These were typically drilled vertically and were approximately 150 m long.
- The "JVE" series were drilled in 1996 and 2007 by Santa Elina. They were designed to test Chapada's surrounding areas, with depths averaging 100 m in 1996 and 200 m in 2007.

One hundred and twenty drill holes totaling 4,050 m were drilled at Suruca by historical operators. However, the database only contains details of the 1997 Santa Elina/Echo Bay boreholes, totaling 18 boreholes (536 m).

Most of the historical holes were drilled within the saprolite, which was characterized by low grade zones (0.1 g/t gold to 0.5 g/t gold), with occasional high-grade intersections ranging between 0.5 g/t gold and 6.0 g/t gold.

9.2 Yamana Drilling (2001– 2019)

Yamana has drilled a total of 2,345 core boreholes (366,444 m) across Chapada Mine, Saúva Project and regional exploration between 2001 and 2019.

9.2.1 Chapada Mine

The following description of work performed by Yamana is mainly sourced from Rodriguez (2012). Yamana began drilling in the Chapada Mine area in 2007, with nine core boreholes completed totaling 1,841 m. This drilling aimed to confirm mineralization intersected in 1996 by the Santa Elina-Echo Bay joint venture and to test the east syncline area for volcanogenic massive sulphide mineralization.

Between 2008 and 2011, Yamana continued to explore targeting the Near Mine region and south of the deposit area, including Corpo Sul. During 2010, 16 core boreholes were drilled in the southwest pit area and ten infill core boreholes in the northeast area. At the same time, drilling in the Suruca area commenced in 2008 with seven holes totaling 440 m.

Drilling continued at Suruca during the 2009 and 2010 programs, which focused on an area of artisanal mines and to test magnetic anomaly, of which positive results were achieved. The initial programs used a grid of 400 m by 200 m, with infill drilling at 200 m by 200 m. They extended the geometry of the deposit to a known strike length of 2,100 m, a width of 1,000 m, and a depth of 500 m. An infill grid of 100 m by 100 m was drilled in the northern portion of the deposit.

In 2011, the drilling program continued in the southwest pit area of Chapada Mine consisting of 14,362 m in 63 core boreholes. The total drilling for the 2011 campaign amounted to 19,305 m.

In 2012, 30,192 m of drilling was carried out along the Corpo Sul deposit to convert resource classification in grids of 200x200, 100x100 and 50x50 m. Additionally, targets surrounding Chapada were drilled, totaling fourteen holes in 4,173 m.

In 2013, seven exploration holes were drilled for 1,704.09 m in the northeast section of Chapada main pit with the objective of delineation of Inferred Mineral Resource. In the same area, condemnation holes were drilled to sterilize the location of waste dumps in the northeastern portion of the main pit. In Corpo Sul, an infill drilling program was carried out in the southwest portion on a grid of 50 by 50 and 100 by 100 m to upgrade Indicated Mineral Resources to Measured and Inferred Mineral Resources to Indicated.

The infill drilling at Corpo Sul continue in 2014. The total drilling was 20,966 m and it comprises infill drilling, holes in regional targets, and Santa Cruz, plus Sucupira discovery holes.

Santa Cruz, located 2 km from the Corpo Sul mineralization, yielded significant results with hole SC-05 intercepting 49 m grading 0.38% copper and 0.18 g/t gold at 74 m, including 8 m at 0.5% copper and 0.26 g/t gold at 101 m. By the end of 2014, Sucupira’s discovery hole NM-101 returned 172 m grading 0.46 g/t gold and 0.50% copper, including 16.64 m at 0.87 g/t gold and 0.98% copper at 249 m.

In 2015, the mineralization in Sucupira was delineated with a drill grid of 100 m by 50 m along 1.7 km northeast-southwest strike length, 260 m wide, and an average thickness of 110 m. Mineralization has an average vertical depth between 180 m and 240 m from surface and is interpreted as the continuity to southwest of Cava Norte pit mineralization.

In 2016, the Baru target was discovered. It comprises a large tonnage and low-grade envelope of 0.1% copper with a richer gold core. Typical Baru mineralization was intersected by drill hole NM-237 with an intersection 82.6 m long grading 0.12 g/t gold, 0.25% copper at 114 m depth; and 30 m long grading 0.2 g/t gold, 0.35% copper at 150 m depth.

Also, in 2016, an extensive drill program was completed at Suruca to increase the 100 m by 50 m drilling pattern to 35 m by 35 m. This infill drilling was focused primarily on the oxide mineralization and aimed at upgrading Indicated to Measured Mineral Resources.

The Suruca SW mineralization was discovered in 2017. The zone exhibited similar geological features as the Chapada deposit. The mineralization was delineated along a 2.1-km strike length, 650 m width, and an average depth of 50 m. The zone was partially exposed on surface. A drill grid of 100 m by 100 m aimed at upgrading the classification to Indicated in this zone. Typical Suruca SW mineralization was intercepted in borehole SU-943, with intersections 21.93 m long grading 0.27 g/t gold and 0.26%

copper at a depth of 55.05 m, and 16.66 m long grading 0.44 g/t gold and 0.40% copper at 114.38 m depth.

In 2018, the Baru NE target was discovered very close to the Chapada plant facilities at the extension of Baru mineralization. It comprises a low tonnage and high-grade envelope of 0.3% copper. Typical Baru NE mineralization was intersected by borehole NM-288 with intersection of 60.77 m long grading 0.23 g/t gold and 0.57% copper at 60 m of depth; and 23 m long grading 0.5 g/t gold and 1.21% copper at a depth of 93 m. Baru NE was delineated with a drill grid of 100 m by 50 m along a 900 m northeast-southwest strike length, 150 m width, and an average thickness of 50 m.

Additionally, in 2018, the Santa Cruz mineralization was outlined in the south extension of Corpo Sul. Typical Santa Cruz mineralization intersected by borehole SC-24 had 45.48 m long grading 0.15 g/t gold and 0.39% copper at 60 m of depth; 9.66 m long grading 0.31 g/t gold and 065% copper at a depth of 93 m; and 0.15 g/t gold and 0.39% copper at 126.52 m of depth. Santa Cruz was delineated with a drill grid of 200 m by 100 m along a 950 m northeast-southwest strike length, 350 m width, and an average thickness of 130 m.

At Suruca, in 2018, a drill campaign was completed to extend the sulphide mineralization on strike and down-dip. Furthermore, an extensive delineation drilling program, carried out throughout 2018, aimed to convert the remaining sulphide Inferred Mineral Resource to Indicated. Typical Suruca extension sulphide mineralization was intercepted in borehole SU-1018 with intersections 66.00 m long grading 0.90 g/t gold at 238.0 m of depth; and 19.33 m long grading 2.18 g/t gold at 261.52 m of depth.

An additional 33 exploratory drill holes were completed at Suruca during the first half of 2019. These holes were designed to extend the gold mineralization in the outcropping oxide layer. The best intersection was five m long grading 0.39 g/t gold at six m of depth in borehole SU-1061, located in the north extension of the gold deposit.

9.2.2 Saúva Project

In 2015, Yamana identified the Formiga exploration target, approximately 15 km north of the Chapada mine, based on positive chip sampling and regional mapping that was completed during a district-scale soil sampling campaign. At the time, a copper soil anomaly above 800 ppm was identified, associated with a small occurrence of magnetic gossan. The first drill holes at Formiga tested the extension of the gossan identified at surface and intercepted skarn-style alteration comprising hydrothermal assemblage of garnet-epidote-amphibole-diopside in metasedimentary rocks. Core borehole FOR-03 intersected two shallow intervals that returned over three percent copper.

During 2016 and 2017, modest core drilling campaigns were carried out to extend the Formiga skarn-style high grade copper mineralization. In addition, drilling surrounding the area were also carried out to test strong soil copper anomaly (over 1,000 ppm), which successfully reached disseminated copper-gold mineralization, different than exhibited in Formiga. Drill hole FOR-31 intersected 20 m grading 0.76% copper and 0.98 g/t gold at a depth of 35 m. Later in 2021, this mineralization was connected to the main Saúva body.

9.3 Lundin Drilling (2019 – 2023)

Lundin has drilled a total of 1,307 core boreholes (300,820 m) drilled by Lundin between 2019 and 2023. This includes 885 boreholes (174,325 m) drilled at Chapada Mine and 257 boreholes (82,301 m) drilled at Saúva Project to the end of December 2023. The Mineral Resource Statement described herein only considers data to June 2022 for the Chapada Mine, and August 2023 for Suruca deposit and Saúva Project.

9.3.1 Chapada Mine

Lundin took over drilling activities in the last two quarters of 2019. The exploratory drilling campaign was conducted to extend the known mineralization at Corpo Sul towards the southwest.

Additionally, the drilling defined Indicated Resources at the Jatobá and Buriti-Norte targets, using a 100x100 metre grid, and Inferred Resources at the Buriti target with a 200x200 metre grid. The Jatobá, Buriti-Norte, and Buriti targets exhibit typical shallow and narrow mineralization, located near the Chapada main pit. For example, drill hole JTB-02 intersected 37 m grading 0.26% copper and 0.21 g/t gold at a depth of 71 m, including 17.43 m grading 0.4% copper and 0.33 g/t gold at 89.57 m.

In 2020, delineation drilling was carried out to extend Santa Cruz mineralization to downdip and to potentially convert Buriti mineralization from Inferred to Indicated. Drilling at Santa Cruz added new Inferred Resources, supported by a grid of 200 m by 200 m, whereas at Buriti, new Indicated and Inferred Resources were added, as the delineation drilling expanded the Inferred Resources defined in the previous year.

Additionally, in 2020, 14 delineation holes were drilled on Suruca to define and extend a region with copper grades above 0.3% in the sulfide zone at Suruca SW. Only two holes confirmed the hypothesis, and the best intersection was 52 m long grading 0.19% copper and 0.16 g/t gold at 35 m, including 6.77 m grading 0.34% copper and 0.26 g/t gold at 41.23 m in hole SU-1085.

In 2021, exploration focus was to increase Reserves. Thus, a delineation drilling program was designed to convert Inferred to Indicated Resources at Corpo Sul and Santa Cruz.

In 2022, a total of 121 drill holes were completed, covering 16,758 m near the Chapada mine, with the objective of extending the known mineralization at Sucupira, Chapada SW, NE of Cava Norte, and Baru. Additionally, an infill drilling campaign was conducted on a 50 by 50 m grid in Corpo Sul and in the northeast of Chapada to upgrade Indicated Resources to Measured Resources. Regional targets were also drilled with no outstanding results.

To sum up, 9,727 m of drilling were performed in 47 holes in 2023. The focus was the delineation of copper and gold high grade corridors inside Chapada Mine targets. Also, regional prospects like Chapada or Saúva mineralization were drilled with no outstanding results.

9.3.2 Saúva Project

After acquiring 41 new exploration concessions in 2021, including the one adjacent to the known trend near Formiga, Lundin completed two exploratory core boreholes. The locations of the holes were based on a strong copper soil anomaly.

The boreholes intercepted high-grade mineralization comprised of bornite associated with chalcopyrite. The first borehole (FOR_112) intercepted 0.8 percent copper and 0.73 g/t gold over 30 m, beginning at a depth of 21 m, including 16 m of 1.02 percent copper and 1.1 g/t gold at 25 m of depth, and 15 m of 0.3 percent copper and 0.16 g/t gold at 115 m depth.

The second hole (FOR_113) intercepted 0.88 percent copper and 1.14 g/t gold over 55.48 m from 6.52 m depth, including 27.26 m of 1.3 percent copper and 1.88 g/t gold starting from 33.74 m depth. This hole is one of the best of Chapada-Saúva Projects.

Since then, an aggressive drilling campaign began, aiming to delineate the mineralized body with a 100 m by 50 m grid. A total of 228 holes were drilled targeting the Saúva deposit until December 31, 2023, totaling 74,724 m with an average depth of 350 m.

9.4 Drilling Procedures

The drilling procedures applied by Yamana and Lundin were similar and consistent for Chapada Mine, Saúva Project and regional exploration.

The Exploration team is responsible for all core drilling related to exploration, delineation and infill at Chapada Mine and surrounding areas. The Geosciences team is responsible for the ore control drilling, which was done using reverse circulation drilling.

A summary of different drilling methodologies is described in Table 9-2. The Mineral Resource does not consider the ore control drilling.

Table 9-2: Summary Characteristics of Drilling Types Performed by Lundin (2019-2024)

	Exploration			Geosciences
	Exploratory Drilling	**Delineation Drilling**	**Infill Drilling***	**Ore Control**
Drilling Grid	Potential areas	Conversion to Inferred (200 x 200 m) and Indicated (100 x 100 m)	Conversion to Measured (50 x 50 m)	
Drilling Type	Core Drilling			Reverse Circulation
Sample Size	Exploratory targets and/or mineralized zones: 1 m Non-mineralized zones: 2 m		Mostly 2 m	10 m
Laboratory	External Lab			Internal Lab

Notes:

[1] The exploration team assumed responsibility for the infill drilling in 2024. Previously, this task was carried out by the Geosciences Team.

Core drilling was primarily conducted by Servitec Foraco between 2008 and 2015. However, in 2010, two additional companies, Boart Longyear and Geosol, also carried out drilling activities. UTCGEO completed its drilling operations in 2014. Geosol then resumed core drilling from 2016 to 2017. Servitec Foraco returned for another phase of core drilling between 2018 and 2019. Geocontrole BR Sondagens SA took over the exploratory drilling from 2019 to 2023, while Servitec Foraco conducted infill drilling from 2018 to 2022.

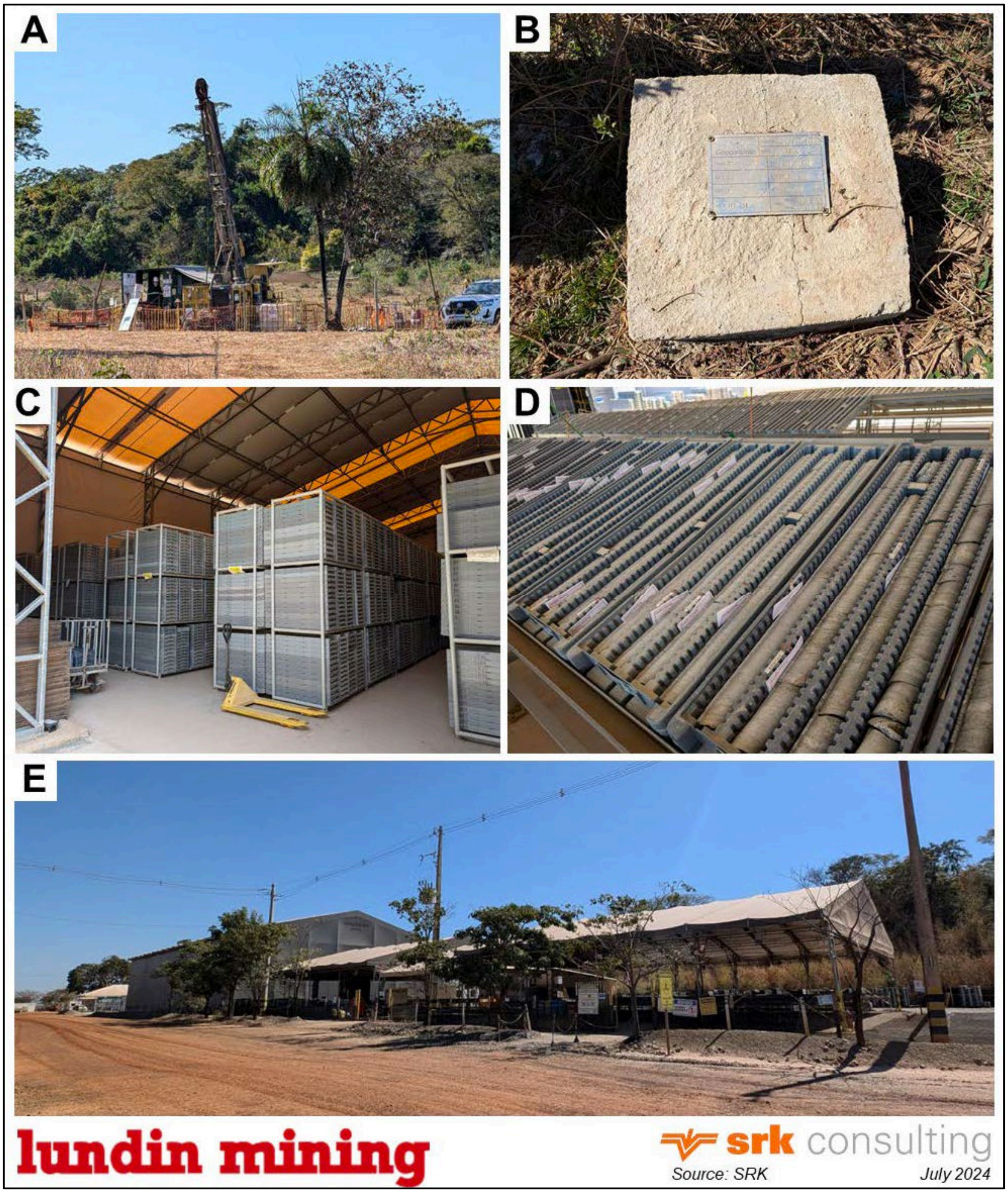
Boreholes completed by Santa Elina/Echo Bay in 1995 and 1996 were NQ or NX core size.

Boreholes completed by Yamana and Lundin were collared at HW diameter, reduced to HQ diameter at the top of the saprolite and changed to NQ or NQ2 when fresh rock was encountered. The drill rods were three-metre long and the wireline core drilling method was employed. Drill hole collars were cased and protected at surface with a cement block affixed with a metal tag stamped with the drill hole number, final depth, inclination, azimuth, and start and finish dates.

Prior to 2015, core was stored in wooden core boxes. Since 2016, core was stored in plastic core boxes with a nominal capacity of approximately four m for NQ or NQ2 sized drill core and three m for HQ or HW sized core. The boxes were labelled with the drill hole number, Project name, box number, and downhole depths, on a metallic tag affixed to the box. Wooden (pre-2015) or plastic (post 2016) downhole core depth markers were placed or affixed in the core box by the driller and labelled by pen marker with the depth, the length of the interval, and the length of the recovered sample.

Core was transported from the drill rig to the core storage facilities at the Chapada exploration camp or Chapada Mine core facility by the drilling contractor, where the geological staff logged and sampled the core (Figure 9.2).

Figure 9.2: Drilling and Core Storage at Chapada Mine



Notes: A: Active drilling on nearby Saúva Project. B: Typical collar monument, shown for borehole FOR-286. C: Core storage facility at Chapada Mine. D: Cut core in plastic core storage containers ready for sampling. E. Core storage facility (left building) and core logging facility (right sheltered area).

9.4.1 Core Logging

Upon arrival of the core at the core logging facility, the hole was checked and marked for lithological contacts using a green pen. Samples were marked down the entire length of the hole at one metre intervals, adjusted for the marked lithological contacts. A red square marked on the box with a pen indicated the start and end of the sample interval after the bar codes were placed in the core box next to the corresponding sample.

Samples were selected down the entire length of the drill hole core, sawn in half with an electric diamond bladed core saw and sampled prior to logging. Half of the core samples were selected by a geology technician or trained sampler. The samples were then placed in a numbered plastic bag along with a paper sample tag and tied closed with a piece of string or a zip tie.

After sampling, the geologist logged the core in detail for lithology, structure, mineralization, and alteration.

Angles of structures such as foliation and faults were recorded, although drill holes were not oriented. Sample intervals and sample numbers were also recorded on the exploration hole log. When the drill hole was an infill hole, the core was quick logged, according to the alteration with fewer details, and no structural drawings.

Core sample recovery was not recorded by the geologist, although a record of the drill hole recovery on a run-by-run basis was recorded manually by the driller. The recovery in the mineralized zones was generally very good, on average better than 95%.

Prior to 2018, core logging was completed by hand on paper, which was transcribed into Microsoft Excel spreadsheets. Between 2018 and 2023, the logged information was collected using a handheld Tablet in digital files using Keep Logging v3.6 software for core boreholes. Since 2024, drill logs have been recorded using Datamine Fusion DH Logger software, and a fully integrated database was compiled for both core (exploration and infill) and reverse circulation (short-term) drilling.

9.4.2 Surveying

All collar locations were surveyed in 1995 and 1996, however only approximately 5% of the boreholes were inclined and subjected to downhole surveys. Vertical boreholes from this period were not surveyed.

Most of the boreholes completed post 1996 targeting the Chapada deposit were drilled at an azimuth of 130° and an -85° dip, whereas holes targeting Suruca were drilled at an azimuth of 130° and a -60° dip with some holes drilled at an azimuth of 310°. At Saúva, most holes were drilled at an azimuth of 120° and 70° dip, perpendicular to the interpreted strike of the mineralized horizon; while at Formiga, most of the holes were drilled with a dip of 50 or 60 degrees, and at an azimuth of 120 degrees. Modifications to the drill orientations were made depending on the local topography and accessibility.

Collar surveys were taken by a Total Station global positioning system (GPS) in UTM coordinates, SAD 69 Brazil datum, Zone 22 South. Since 2017, collar positions were recorded using GPS Trimble Centerpoint RTX with a tolerance of four cm in the X and Y direction, and eight cm in the Z direction.

Downhole surveys were taken by the drilling contractor upon completion of the borehole. Between 2009 and 2020 boreholes with inclinations between 45° and 85° were surveyed every three m downhole using a Reflex Maxibor II or Devico DeviFlex electronic surveying instrument. In 2016 Multishot surveying equipment was also used in a few drillings, every three m. In sub-vertical holes, a PeeWee or EZ-Shot instrument was used. Since 2020 downhole surveys were completed using Reflex Sprint Gyro every three m, from 2024 on, surveys have been carried out with SPT GyroMaster also every three m. To mitigate error, surveys are collected twice, both upwards and downwards, and the difference must be within 1% to be recorded.

Generally, the overall deviation of drilling was below 5% and no significant issues were found to date.

9.5 Drilling Pattern and Density

Drilling has delineated the Chapada and Suruca deposits with a spacing of 100 m by 50 m, with a tighter pattern of 50 m by 50 m in the central portion of Chapada, and 35 m by 35 m in the central portion of Suruca.

The delineation of the main Saúva and Formiga deposits aimed to achieve at least 100 m by 100 m spacing. The drilling pattern spacing varies from 75 m to 200 m within the Saúva resource area and 50 m to 75 m in the Formiga area. In the center of the Saúva deposit, the drill spacing ranges from approximately 50 m to 100 m. The current drilling is sufficiently dense to interpret the geometry and the boundaries of mineralization with confidence.

9.6 Qualified Person Comments

The QP is of the opinion that the drilling density at the Chapada Mine and Saúva Project is sufficient to support the estimation of Mineral Resources. While the details of the quality assurance and quality control (QA/QC) protocols for some of the older historical drilling are not known, most of the historical drilling was carried out by major mining companies and would have likely utilized the best quality control protocols available at the time. The QP reviewed the spatial relationship between older historical drilling and new drilling, as well as the reported Mineral Resources, to ensure that the influence of the drilling on the Mineral Resource estimate was mitigated.

10 Sample Preparation, Analyses, and Security

Echo Bay and Santa Elina used Geolab in Brazil for sample preparation and analysis. Both Yamana and Lundin used ALS Chemex (ALS) in Lima, Peru, and SGS GEOSOL (SGS) in Vespasiano, Brazil for all primary analytical services. The sample preparation and analyses were conducted by SGS from November 2015 to October 2017 and again from November 2023 onwards, while ALS performed these activities from October 2017 to November 2023.

Umpire check samples collected between 2015 and 2016 were submitted to either Acme laboratory in Santiago, Chile or ALS. Yamana used ALS or SGS for samples submitted in 2017. Lundin submitted umpire samples to SGS or ALS.

The ALS group of laboratories operates under a global quality management system accredited to ISO 9001:2008. ALS in Lima is also accredited to ISO 17025:2005 by the Standards Council of Canada (SCC). SGS is accredited to ISO 9001:2008 by the General Certification Council of Inmetro (CGCRE). Acme is accredited to ISO 9001:2008 by Bureau Veritas.

ALS, SGS and Acme are commercial laboratories independent of both Yamana and Lundin.

10.1 Sample Preparation and Analyses

10.1.1 Sampling by Historical Operators (1976-1997)

Few details are available regarding historical sampling, analysis, and security procedures.

In 1996, Echo Bay became actively involved in the drilling and sampling program for the property. The primary laboratory used by Echo Bay and Santa Elina was Geolab in Brazil.

10.1.2 Sampling by Yamana (2003-2019)

Sample preparation and Analyses by Yamana and Lundin followed the same general procedures.

Sampling was done by Yamana staff. Surface samples were collected from broken rock averaging 3.5 kg in weight. Core samples were collected between 1 to 2 m on average. The samples were then placed in a numbered plastic bag along with a paper sample tag and tied closed with a piece of string. Six to eight bagged samples were then placed in a larger plastic bag, loaded onto a truck owned and driven by a locally based transport company, and driven to the ALS Chemex laboratory sample preparation facility in Goiânia, State of Goiás.

Upon receipt, each sample was weighed and dried at 105°C for 8 to 12 hours. The entire sample was then crushed to 90% passing <2 mm (10 mesh), split to 0.5 kg using a riffle splitter, and pulverized to 95% passing 150 mesh. The samples were then split again to 50 g using a rotating splitter/spatula. The crusher and pulveriser were cleaned between each sample. Each reject fraction was retained and returned to the site. These fractions were then sent to ALS Chemex Lima, Peru for repeat analysis.

All samples were analyzed for gold by fire assay and for copper by four acid digestion, with an atomic absorption spectroscopy (AAS) finish for samples analyzed at ALS in Lima, Peru. The analysis protocols for ALS and SGS are summarized in Table 10-1.

Table 10-1: Analytical Procedures used by ALS and SGS (2003-2019)

Laboratory	Code	Description	Instrument
ALS	Au-AA24	Fire assays, Cupellation, Atomic Absorption	Fire Assay/AAS
	Cu-AA61	Copper by Atomic Absorption	AAS
	ME-ICP41	35 Chemical Element Analysis	ICP-AES
	ME-MS61	48 Chemical Element Analysis	ICP-MS
SGS	FAA505	Fire Assay, Cupellation, Atomic Absorption	Fire Assay/AAS
	AAS40B	Copper by Atomic Absorption	AAS
	ICP14B	48 Chemical Element Analysis	ICP-OES

10.1.3 Sampling by Lundin (2019-2023)

Sampling was performed by Lundin staff, following similar procedures as those used by Yamana. The samples are transported from the core shack to the laboratories by a local based transport company.

Since November 2023, Lundin used SGS in Goiânia for preparation, and SGS in Vespasiano as the primary laboratory. The secondary laboratory used by Lundin was ALS in Goiânia for preparation, and ALS in Lima for analyses. All reverse circulation samples collected by the Geosciences team for ore control purposes are analyzed by Lundin's internal laboratory. The reverse circulation chip samples were not considered in the estimation of Mineral Resources.

Samples were prepared at the primary laboratory by standard drying, crushing to 90% passing <2 mm (10 mesh) and pulverization to 95% passing 150 mesh. The analytical methods used by Lundin are listed in Table 10-2.

Lundin changed the analysis from aqua regia and ICP-MS for 35 elements to four acid digestion and ICP-MS for 48 elements in 2019. This was considered a more comprehensive and effective use of pathfinder and immobile trace elements, leading to a better potential understanding of lithogeochemistry, alteration and porphyry zoning.

Table 10-2: Analytical Procedures used by ALS and SGS (2019-2024)

Variable	Laboratory	Code	Description
Copper	SGS	ICM40B	4 acid digestion + ICP-MS/OES
		AAS40B	4 acid digestion + Atomic Absorption
	ALS	Cu-AA61	4-acid digestion + Atomic Absorption
		ME-MS61	4 acid digestion + ICP-MS/AES
Gold	SGS	FAA505	Fire Assay + Atomic Absorption
	ALS	Au-AA24	Fire Assay + Atomic Absorption

10.2 Specific Gravity Data

Specific gravity for the Project has been determined by three different methods on drill core after sampling and logging was completed:

1. Water displacement method
2. Archimedes water immersion method
3. Gravimetric pycnometry

Specific gravity was converted to density using the following formula:

$$Density\ =\ Specific\ Gravity\ x\ Density\ of\ water\ (at\ temperature\ t°C)$$

The factors utilized for converting specific gravity to density are presented in Table 10-3.

Table 10-3: Conversion Factors for Specific Gravity to Density

Temperature (°C)	Density (g/cm^3)
19	0.9984
20	0.9982
21	0.998
22	0.9978
23	0.9975
24	0.9973
25	0.997
26	0.9968

The sampling interval for density analysis was selected by the geology team according to lithology and type of mineralization, at one sample every 40 m in unmineralized material and two samples every ten m in a mineralized zone.

Since 2016, density measurements were carried out using the Archimedes method. The density tests were taken in fresh, mixed, and oxidized material, in all mineralized weathered zones, lithologies, and alteration halos.

Density analyzes were carried out on 25,340 samples, with 19,388 measurements representing 3% of the total samples from Chapada Mine, and 4,123 measurements representing 1% of the total samples from the Saúva Project (Table 10-4).

Table 10-4: Density Measurements Collected at Chapada Property

Method	Count					
	Chapada Mine		Saúva Project		Regional Exploration Targets	Total Count
	Chapada	Suruca	Saúva	Formiga		
Water Displacement	6,707	1,199	388	-	388	8,294
Archimedes	8,558	2,863	1,440	500	1,440-	16,984
Gravimetric	61	-	1	-	1	62
Total	**15,326**	**4,062**	**1,829**	**500**	**1,829-**	**25,340**

Water Displacement Method

The first method used was the water displacement method, performed in the logging shed. This method uses half core samples from 8 to 12 cm long, coated with Vaseline to prevent water impregnation, and placed in a plastic beaker containing 500 ml of water to determine the volume of water displacement. The density value is measured using the following formula:

$$Density = Weight\ of\ sample\ (g) \ / \ (Displaced\ water\ volume\ (ml) - Original\ water\ volume\ (ml))$$

Archimedes Method

The second method is the Archimedes water immersion method, and measurements were completed in the density room. This method uses samples of core 10 to 15 cm in length. Samples are waterproofed with paraffin (oxidized) or Vaseline (sulphide) then dried and subsequently submerged in deionized water, collecting each sample at the water temperature. The density value was measured using the following formula:

$$Density\ \left(\frac{g}{cm^3}\right) = \frac{\left(weight\ of\ the\ dry\ sample\ (g) * Temperature\ Defined\ Water\ Density\ (g/cm^3)\right)}{(weight\ of\ the\ dry\ sample\ (g)\ -\ Weight\ of\ sample\ in\ water\ (g))}$$

Gravimetric Pycnometry

The third method, gravimetric, was performed in the laboratory on pulverized samples. A prepared sample (three grams) was weighed into an empty pycnometer which was filled with methanol and weighed. From the weight of the sample and the weight of the methanol displaced by the sample, the specific gravity was calculated according to the formula below:

$$Specific\ Gravity = \frac{Weight\ of\ sample\ (g)}{Weight\ of\ solvent\ displaced\ (g)\ x\ Specific\ gravity\ of\ solvent}$$

10.3 Sample Security

Historical drill core was stored in wooden core boxes under an open sided roofed structure at the exploration camp. Core drilled more recently by Lundin is stored in plastic core boxes at the Chapada Mine core logging and storage facility. Core is stored in an enclosed and secure structure containing rows of metal core racks. Boxes are labeled clearly with borehole number, depth, and collar coordinates on metal tags.

The samples are transported to the independent sample preparation facility by a locally based transport company to the primary laboratory. The analytical laboratory stores all pulps and coarse rejects for forty-five days, after which they are returned to Lundin to be stored indefinitely at the Chapada core storage facility.

10.4 Quality Assurance and Quality Control Programs

Quality assurance and quality control programs are typically in place to ensure the reliability and trustworthiness of the exploration data. They include written field procedures and independent verifications of aspects such as drilling, surveying, sampling, and assaying, data management and database integrity. Appropriate documentation of quality control measures and regular analysis of quality control data are important as a safeguard for the Project data and form the basis for the quality assurance program implemented during exploration.

Analytical control measures typically involve internal and external laboratory control measures implemented to monitor the precision and accuracy of the sampling, preparation, and assaying. They are also important to prevent sample mix-up and monitor the voluntary or inadvertent contamination of samples. Assaying protocols typically involve regular duplicate and replicate assays and insertion of quality control samples. Check assaying is typically performed as an additional reliability test of assaying results. This typically involves re-assaying a set number of rejects and pulps at a secondary umpire laboratory.

This report reviews the analytical quality control measures implemented by Yamana between August 2008 and July 2019 and by Lundin between July 2019 and December 2023. The review focuses only on the analytical results for the core samples from drilling for the Chapada Mine, Saúva Project and regional exploration. Analytical quality control measures consisted of inserting quality control samples (blanks, reference materials and duplicate samples) within all sample batches submitted for assaying. A total of 64 certified reference materials were used for these periods, procured from ITAK in Brazil, Geostats Pty. Ltd. (Geostats), and Ore Research & Exploration Pty. Ltd. (OREAS) (Table 10-5).

The performance of analytical quality control samples is discussed in Section 11 (Data Verification).

Table 10-5: Specifications of Control Samples Used by Yamana and Lundin Between August 2008 and December 2023

Reference Material	Period Used	Copper			Gold			Source
		Expected Value (%)	SD*	Inserts	Expected Value (g/t)	SD*	Inserts	
G302-7	2009	-	-	-	2.14	0.09	2	Geostats Pty Ltd.
G303-3	2010-2016	-	-	-	1.93	0.09	133	Geostats Pty Ltd.
G303-8	2009-2016	-	-	-	0.26	0.03	480	Geostats Pty Ltd.
G308-4	2016	-	-	-	6.77	0.29	49	Geostats Pty Ltd.
G310-4	2016-2017	-	-	-	0.43	0.03	14	Geostats Pty Ltd.
G311-3	2014-2017	-	-	-	0.27	0.02	306	Geostats Pty Ltd.
G311-6	2017	-	-	-	0.22	0.02	29	Geostats Pty Ltd.
G313-3	2017	-	-	-	0.51	0.03	1	Geostats Pty Ltd.
G397-6	2010-2014	-	-	-	3.95	0.18	145	Geostats Pty Ltd.
G398-10	2015-2016	-	-	-	4.07	0.18	23	Geostats Pty Ltd.
G900-2	2010	-	-	-	1.48	0.06	8	Geostats Pty Ltd.
G900-5	2010	-	-	-	3.21	0.13	3	Geostats Pty Ltd.
G901-2	2008-2015	-	-	-	1.76	0.14	26	Geostats Pty Ltd.
G901-7	2016	-	-	-	1.52	0.06	2	Geostats Pty Ltd.
G906-4	2011-2016	-	-	-	1.93	0.10	169	Geostats Pty Ltd.
G907-1	2016	-	-	-	0.79	0.05	53	Geostats Pty Ltd.
G907-8	2010-2016	-	-	-	6.78	0.27	147	Geostats Pty Ltd.
G909-2	2015-2016	-	-	-	1.94	0.08	267	Geostats Pty Ltd.
G910-5	2015-2016	-	-	-	5.23	0.21	24	Geostats Pty Ltd.
G911-1	2016	-	-	-	1.04	0.11	1	Geostats Pty Ltd.
G911-10	2016	-	-	-	1.30	0.05	69	Geostats Pty Ltd.
G912-5	2015-2016	-	-	-	0.38	0.02	111	Geostats Pty Ltd.
G998-3	2017	-	-	-	0.81	0.05	27	Geostats Pty Ltd.
G998-6	2010-2016	-	-	-	0.8	0.06	488	Geostats Pty Ltd.
G998-9	2010	-	-	-	0.38	0.03	7	Geostats Pty Ltd.
G999-1	2009-2017	-	-	-	0.82	0.06	484	Geostats Pty Ltd.
GBM300-5	2008-2017	1.0779	0.0531	403	-	-	-	Geostats Pty Ltd.
GBM301-8	2016	10.403	0.3662	1	-	-	-	Geostats Pty Ltd.
GBM301-9	2015-2017	0.2881	0.0196	311	-	-	-	Geostats Pty Ltd.
GBM302-7	2009-2011	0.2671	0.0150	33	-	-	-	Geostats Pty Ltd.
GBM302-9	2016-2017	1.2700	0.0469	110	-	-	-	Geostats Pty Ltd.
GBM312-6	2014-2017	0.3705	0.0194	289	-	-	-	Geostats Pty Ltd.
GBM314-6	2016-2017	0.4290	0.0134	95	-	-	-	Geostats Pty Ltd.
GBM903-1	2012	0.2886	0.0143	4	-	-	-	Geostats Pty Ltd.
GBM914-6	2016	0.4700	0.0182	43	-	-	-	Geostats Pty Ltd.
GBM995-1	2008-2015	0.4155	0.0222	421	-	-	-	Geostats Pty Ltd.
GBM995-2	2011-2016	0.2681	0.0140	527	-	-	-	Geostats Pty Ltd.
ITAK-814	2015-2023	0.450	0.0082	91	0.157	0.015	3	ITAK
ITAK-815	2015-2016	0.286	0.0062	119	-	-	-	ITAK

Reference Material	Period Used	Copper			Gold			Source
		Expected Value (%)	SD*	Inserts	Expected Value (g/t)	SD*	Inserts	
ITAK-819	2015-2016	1.080	0.013	29	-	-	-	ITAK
OREAS 111	2021-2023	2.37	0.11	20	-	-	-	Ore Research & Exploration Pty
OREAS 112	2021-2023	5.100	0.24	22	-	-	-	Ore Research & Exploration Pty
OREAS 151A	2021-2023	0.166	0.005	543	0.043	0.002	543	Ore Research & Exploration Pty
OREAS 151B	2021	0.182	0.005	1	-	-	-	Ore Research & Exploration Pty
OREAS 152A	2021-2023	0.385	0.009	479	0.116	0.005	479	Ore Research & Exploration Pty
OREAS 152b	2021-2022	0.375	0.008	2	-	-	-	Ore Research & Exploration Pty
OREAS 153A	2023	0.712	0.025	53	0.311	0.012	53	Ore Research & Exploration Pty
OREAS 153B	2018-2022	0.678	0.015	714	0.313	0.01565	731	Ore Research & Exploration Pty
OREAS 501B	2016-2019	0.26	0.011	269	0.248	0.0124	272	Ore Research & Exploration Pty
OREAS 501C	2017-2021	0.276	0.008	967	0.221	0.01105	1075	Ore Research & Exploration Pty
OREAS 501D	2022-2023	0.272	0.009	453	0.232	0.01	452	Ore Research & Exploration Pty
OREAS 502B	2016-2017	0.773	0.02	176	0.495	0.02475	176	Ore Research & Exploration Pty
OREAS 502C	2017-2022	0.783	0.022	807	0.488	0.0244	890	Ore Research & Exploration Pty
OREAS 503B	2017-2019	0.531	0.023	72	0.695	0.03475	75	Ore Research & Exploration Pty
OREAS 503C	2017-2021	0.538	0.015	381	0.698	0.0349	436	Ore Research & Exploration Pty
OREAS 503D	2021-2023	0.524	0.01	422	0.666	0.0333	422	Ore Research & Exploration Pty
OREAS 504B	2017-2023	1.11	0.042	293	1.61	0.0805	297	Ore Research & Exploration Pty
OREAS 505	2022-2023	0.321	0.008	94	0.555	0.014	93	Ore Research & Exploration Pty
OREAS 506	2021-2023	0.444	0.01	747	0.364	0.01	747	Ore Research & Exploration Pty
OREAS 507	2022-2023	0.622	0.013	59	0.176	0.006	59	Ore Research & Exploration Pty
OREAS 521	2016-2018	0.607	0.015	306	0.376	0.019	306	Ore Research & Exploration Pty
OREAS 522	2016-2021	0.916	0.026	557	0.574	0.0287	561	Ore Research & Exploration Pty
OREAS 523	2016-2022	1.72	0.038	304	1.04	0.052	308	Ore Research & Exploration Pty
OREAS 621	2020-2022	0.363	0.008	188	1.25	0.0625	188	Ore Research & Exploration Pty
Total				**6,175**			**6,852**	

10.4.1 Analytical Quality Control Programs by Historical Operators (1976-1997)

Limited information about the implementation of analytical quality control programs by historical operators is available.

Samples taken by Santa Elina in 1996 were subject to a 'rigorous' quality control program, however the details of this program were unavailable. Samples from this period were sent to various laboratories in North America for umpire check assaying (Silva, 2011).

10.4.2 Analytical Quality Control Programs by Yamana (2003-2019)

Yamana did not complete drill core sampling prior to July 2008.

Yamana implemented external analytical control measures consisting of the use of control samples (blanks, certified reference materials and duplicate samples) inserted between July 2008 to July 2019.

Fifty-one certified reference materials were used during this period for copper and gold analysis, sourced from ITAK in Brazil, Geostats Pty. Ltd. (Geostats), and Ore Research & Exploration Pty. Ltd. (OREAS) (Table 10-5). Blank material was sourced from barren gneiss from an outcrop in Pilar-Goiás exploration area, which underwent random analysis testing to ensure it was free of copper and gold mineralization. Field duplicates were selected every 20 samples from quartered (1/4) core samples.

Blanks and certified reference materials were inserted at a rate of one for every 30 samples. Pulp duplicate samples were submitted in 2016. Additionally, five percent of each batch was randomly selected and submitted to an independent umpire laboratory (SGS or ALS).

10.4.3 Analytical Quality Control Programs by Lundin (2019-2024)

Lundin used a total of 22 certified reference materials for copper and gold analysis, sourced from OREAS (Table 10-5). Blank material was sourced from barren gneiss from an outcrop in Pilar-Goiás exploration area, which underwent random analysis testing to ensure it was free of copper and gold mineralization. Field duplicates were selected from quartered (1/4) core samples. Blanks and certified reference materials were inserted at a rate of one for every 30 samples. Certified reference materials were inserted at a rate of three for every 100 samples. Additionally, five percent of each batch was randomly selected and submitted to an independent umpire laboratory (SGS or ALS).

10.5 Qualified Person Comments

During the site visit, the QP reviewed the field procedures and analytical quality control measures used by Lundin and historical operators where possible. The analysis of analytical quality control data is presented in Section 11 below. Lundin personnel used care in the collection and management of the field and assaying exploration data. Based on historical reports and data, the QP has no reason to doubt the reliability of exploration and drilling information provided by previous Project operators.

In the opinion of the QP, the sampling preparation, analysis and security, and analytical procedures used by Lundin are consistent with generally accepted industry best practices, and are therefore adequate for the purpose of informing the Mineral Resource estimate outlined in Section 12.3.

11 Data Verification

11.1 Verifications by Yamana

Yamana contracted IMC Mining (IMC) to review the quality of historical data. IMC's review included all historical analytical quality control files and conducted check assays on historical samples using umpire analytical laboratories in the United States.

A total of 18 Suruca core boreholes (with prefix CDR) from 1995 and 1996, drilled by Santa Elina, were re-analyzed by Yamana.

11.2 Verifications by Lundin

Lundin has written standard procedures and quality control measures in place for all aspects of drilling, sampling, analyses, and data compilation.

All the drilling, assay, quality control samples, and logging data are input and automatically saved in a structured query language (SQL) database developed in-house. Prior to 2024, Lundin used an in-house database developed and maintained by authorized Lundin staff. As of 2024, the company transitioned to the Fusion database solution by Datamine. Both the in-house system and Datamine Fusion provide data verification features to prevent errors such as gaps, overlaps, and duplicate sample numbers. Governance and security measures are built-in, ensuring that only authorized users can retrieve, update, or query the data. Database backups are performed hourly and stored on a secure local server with restricted access.

Exploration work completed by Lundin was conducted using documented procedures and protocols involving extensive exploration data verifications and validation. During drilling, experienced Lundin geologists implemented industry standard best practices designed to ensure the reliability and trustworthiness of the exploration data.

Lundin monitors analytical quality control data by generating quality assurance reports on a monthly basis and follows a set of procedures for addressing failures and analytical biases observed. A blank sample is considered a failure if its result exceeds five times the laboratory's lower detection limit. For certified reference materials, a failure is identified when the standard score surpasses three. Lundin's quality control procedures include investigation and assay validation to identify and address the causes of failures. Quality control sample failures are thoroughly investigated, with appropriate actions taken, such as re-assaying samples in proximity to the failed ones. Re-assay results replace the original assay data for the affected sample group.

Regular database verifications include checking collar elevations for drillholes against topography, ensuring negative or null samples are appropriately replaced, checking for overlapping intervals or duplicate samples, and missing or blank intervals. For some of these tasks, the database management software automatically flags inappropriate intervals to the geologist, preventing error or overlapping intervals.

As an additional test of the reliability of laboratory results, both Yamana and Lundin submitted core sample pulps to a secondary umpire laboratory for comparative analysis. Samples analyzed by SGS, as the primary lab, between 2015 and 2017 were submitted to Acme or ALS for umpire duplicate analysis. Samples submitted to ALS, as the primary laboratory, between 2017 and 2022 were submitted to SGS for umpire duplicate analysis. The performance of these materials is discussed below.

11.3 Verifications by the QP

The authors of this report undertook various steps to verify the data applied for Mineral Resource estimation. These measures included a site visit, independent verification sampling and, comparison of the assay database with original assay certificates, and verification of analytical quality control data.

11.3.1 Site Visit

In accordance with the National Instrument 43-101 guidelines, Dr. Oy Leuangthong, Ms. Joycelyn Smith, and Ms. Colleen MacDougall from SRK visited the Chapada property from July 3 to July 4, 2024. They were accompanied by Mr. Cole Mooney (Director, Resource Geology) from Lundin as well as two representatives from the Chapada site, Mr. Gustavo Campos Marques (Manager Exploration), Ms. Tais Bischof Pian and Ms. Leticia Kwong (Exploration Geologists) and Mr. Bruno Barbosa (Mining Engineer).

Dr. Leuangthong and Mr. Thiago Toussaint also visited the Chapada property between October 19 and October 21, 2022. They were accompanied by Mr. Cole Mooney (Director, Resource Geology) from Lundin as well as Mr. Gustavo Campos Marques and Ms. Tais Bischof Pian.

All aspects that could materially impact the integrity of the exploration database (such as core logging, sampling, and database management) were reviewed with Lundin staff. The QPs were given full access to all relevant Project data. The QPs were able to interview exploration staff to ascertain exploration procedures and protocols.

The QPs examined core from several boreholes and found that the logging information accurately reflects what was observed in the core. The lithology contacts checked by the QP match the information reported in core logs. Mineralized intervals were identified and correlated well to the assay results. The site visits took place while two active drills were operating at the Saúva Project.

Independent Verification of Drill Collars

To assess the accuracy of the coordinates in the drilling database, the QP verified the locations of 15 recent drill collars using a handheld Garmin GPSMAP 64st GPS.

The results of drill hole collar locations are presented in Table 11-1. The northing and easting coordinates are generally within approximately three m of the database coordinates, which is within the precision of the GPS.

Table 11-1: Collar Coordinate Verification

Hole ID	Database Coordinates		SRK Coordinates		Difference	
	Easting (m)	Northing (m)	Easting (m)	Northing (m)	Easting (m)	Northing (m)
FOR_146	676948	8439594	676949	8439594	0	1
FOR_155	676834	8439662	676831	8439663	-3	1
FOR_157	676862	8439742	676862	8439743	0	2
FOR_189	676802	8439585	676800	8439587	-3	2
FOR_177	676701	8439833	676698	8439832	-3	-1
FOR_261	676600	8439914	676598	8439912	-1	-2
FOR_267	676852	8440022	676850	8440022	-2	0
FOR_291	676513	8439928	676511	8439927	-3	-2
FOR_295	676746	8440077	676746	8440076	-1	-2
SU_1052	682489	8429299	682485	8429295	-4	-4
SU_1053	682469	8429317	682470	8429321	1	3
SU_1054	682449	8429335	682449	8429334	0	-1
SU_1055	682317	8429183	682318	8429180	1	-3
SU_1056	682276	8429216	682275	8429214	0	-2
SU_1057	682236	8429249	682235	8429248	-1	-1

Core Logging Verification

The QP reviewed key mineralized intervals from each Sucapira, Baru, Corpul Sul and Suruca zones from a total of four boreholes, including NM-133, NM-318, CS-453 and SU-1018. The representative intervals selected for review were compared to the geological and mineralization logging in the database, as well as the assay results.

In general, the logging information, including lithological contacts and sample intervals, accurately reflects the logging information within the database. High and low assay values correspond to logged mineralization and alteration, indicating a thorough understanding of the mineralization controls for each of the areas reviewed.

Independent Verification Sampling

SRK collected eight representative half-core samples of high- and low- grade copper and gold mineralization during the site visit conducted from October 19 to 21, 2022. The comparison of original assay results versus the verification samples is summarized in Table 11-2.

Table 11-2: Assay Results for Verification Samples Collected by SRK

Hole ID	From	To	Lundin Original			SRK Duplicate		
			Sample	Cu (%)	Au (g/t)	Sample	Cu (%)	Au (g/t)
FOR_137	32.00	33.00	509466	1.276	1.705	SAU1	1.123	1.725
FOR_137	213.14	214.00	509616	0.470	0.438	SAU2	0.319	0.288
FOR_123	167.00	168.00	510068	1.105	2.910	SAU3	1.129	3.160
FOR_123	303.00	304.00	510231	0.863	0.305	SAU4	0.826	0.322
FOR_133	80.00	81.00	505675	0.677	0.876	SAU5	0.670	0.777
FOR_133	290.00	291.00	505920	0.599	0.565	SAU6	0.584	0.531
FOR_141	224.00	224.68	512100	0.292	0.252	SAU7	0.305	0.230
FOR_141	262.00	263.00	512147	0.966	1.825	SAU8	0.853	1.705

In general, the verification samples agree with the original assay values reported by Lundin for the Saúva Project, with one sample grading less than the original (sample 509616). Considering the small number of samples collected, the differences are likely attributed to the inherent variability of mineralization.

11.3.2 Verifications of Analytical Quality Control Data

The QP analyzed the analytical quality control data produced by Yamana and Lundin from 2009 to 2023 drilling programs. Lundin provided the QP with external analytical control data containing the assay results for the quality control samples for the Chapada Mine and Saúva Project. All data were provided to the QP in Microsoft Excel spreadsheets. The QP aggregated the assay results of the external analytical control samples for further analysis. Control samples (blanks and certified reference materials) were summarized on time series plots to highlight their importance. Paired data (field and pulp duplicates and check assays) were analyzed using bias charts, quantile-quantile, and relative precision plots.

The type of analytical quality control data collected, and their associated performances, are discussed below and summarized in Table 11-3. The external quality control data produced on this Project represents >10% of the total number of core samples collected on the Chapada and Suruca deposits submitted for assaying.

Table 11-3: Summary of Analytical Quality Control Data Produced by Yamana and Lundin on the Chapada Property (2009-2023)

	Copper	(%)	Gold	(%)	Comment
Sample Count	522,207		521,711		
Blanks	13,213	2.53	13,227	2.54	Field Prepared
QC samples	10,405	1.99	11,234	2.15	
G302-7	-		2		Geostats Pty Ltd.
G303-3	-		133		Geostats Pty Ltd.
G303-8	-		480		Geostats Pty Ltd.
G308-4	-		49		Geostats Pty Ltd.
G310-4	-		14		Geostats Pty Ltd.
G311-3	-		306		Geostats Pty Ltd.
G311-6	-		29		Geostats Pty Ltd.
G313-3	-		1		Geostats Pty Ltd.
G397-6	-		145		Geostats Pty Ltd.
G398-10	-		23		Geostats Pty Ltd.
G900-2	-		8		Geostats Pty Ltd.
G900-5	-		3		Geostats Pty Ltd.
G901-2	-		26		Geostats Pty Ltd.
G901-7	-		2		Geostats Pty Ltd.
G906-4	-		169		Geostats Pty Ltd.
G907-1	-		53		Geostats Pty Ltd.
G907-8	-		147		Geostats Pty Ltd.
G909-2	-		267		Geostats Pty Ltd.
G910-5	-		24		Geostats Pty Ltd.
G911-1	-		1		Geostats Pty Ltd.
G911-10	-		69		Geostats Pty Ltd.
G912-5	-		111		Geostats Pty Ltd.
G998-3	-		27		Geostats Pty Ltd.
G998-6	-		488		Geostats Pty Ltd.
G998-9	-		7		Geostats Pty Ltd.
G999-1	-		484		Geostats Pty Ltd.
GBM300-5	403		-		Geostats Pty Ltd.
GBM301-8	1		-		Geostats Pty Ltd.
GBM301-9	311		-		Geostats Pty Ltd.
GBM302-7	33		-		Geostats Pty Ltd.
GBM302-9	110		-		Geostats Pty Ltd.
GBM312-6	289		-		Geostats Pty Ltd.
GBM314-6	95		-		Geostats Pty Ltd.
GBM903-1	4		-		Geostats Pty Ltd.
GBM914-6	43		-		Geostats Pty Ltd.
GBM995-1	421		-		Geostats Pty Ltd.
GBM995-2	527		-		Geostats Pty Ltd.
ITAK-814	91		3		ITAK
ITAK-815	119		-		ITAK

	Copper	(%)	Gold	(%)	Comment
ITAK-819	29		-		ITAK
OREAS 111	20		-		Ore Research & Exploration Pty
OREAS 112	22		-		Ore Research & Exploration Pty
OREAS 151A	543		543		Ore Research & Exploration Pty
OREAS 151B	1		-		Ore Research & Exploration Pty
OREAS 152A	479		479		Ore Research & Exploration Pty
OREAS 152b	2		-		Ore Research & Exploration Pty
OREAS 153A	53		53		Ore Research & Exploration Pty
OREAS 153B	714		731		Ore Research & Exploration Pty
OREAS 501B	269		272		Ore Research & Exploration Pty
OREAS 501C	967		1075		Ore Research & Exploration Pty
OREAS 501D	453		452		Ore Research & Exploration Pty
OREAS 502B	176		176		Ore Research & Exploration Pty
OREAS 502C	807		890		Ore Research & Exploration Pty
OREAS 503B	72		75		Ore Research & Exploration Pty
OREAS 503C	381		436		Ore Research & Exploration Pty
OREAS 503D	422		422		Ore Research & Exploration Pty
OREAS 504B	293		297		Ore Research & Exploration Pty
OREAS 505	94		93		Ore Research & Exploration Pty
OREAS 506	747		747		Ore Research & Exploration Pty
OREAS 507	59		59		Ore Research & Exploration Pty
OREAS 521	306		306		Ore Research & Exploration Pty
OREAS 522	557		561		Ore Research & Exploration Pty
OREAS 523	304		308		Ore Research & Exploration Pty
OREAS 621	188		188		Ore Research & Exploration Pty
Field Duplicates	19,537	3.74	19,552	3.75	-
Preparation Duplicates	4,169		4,499		
Pulp Duplicates	14,574		9,242		
Total QC Samples	**59,741**	**11.85**	**55,615**	**11.07**	
Check Assays					
ALS (primary) and SGS (umpire)	20,467	3.92	11,425	2.19	Pulp duplicates
SGS (primary) and ALS (umpire)	6,629	1.27	3,557	0.68	Pulp duplicates

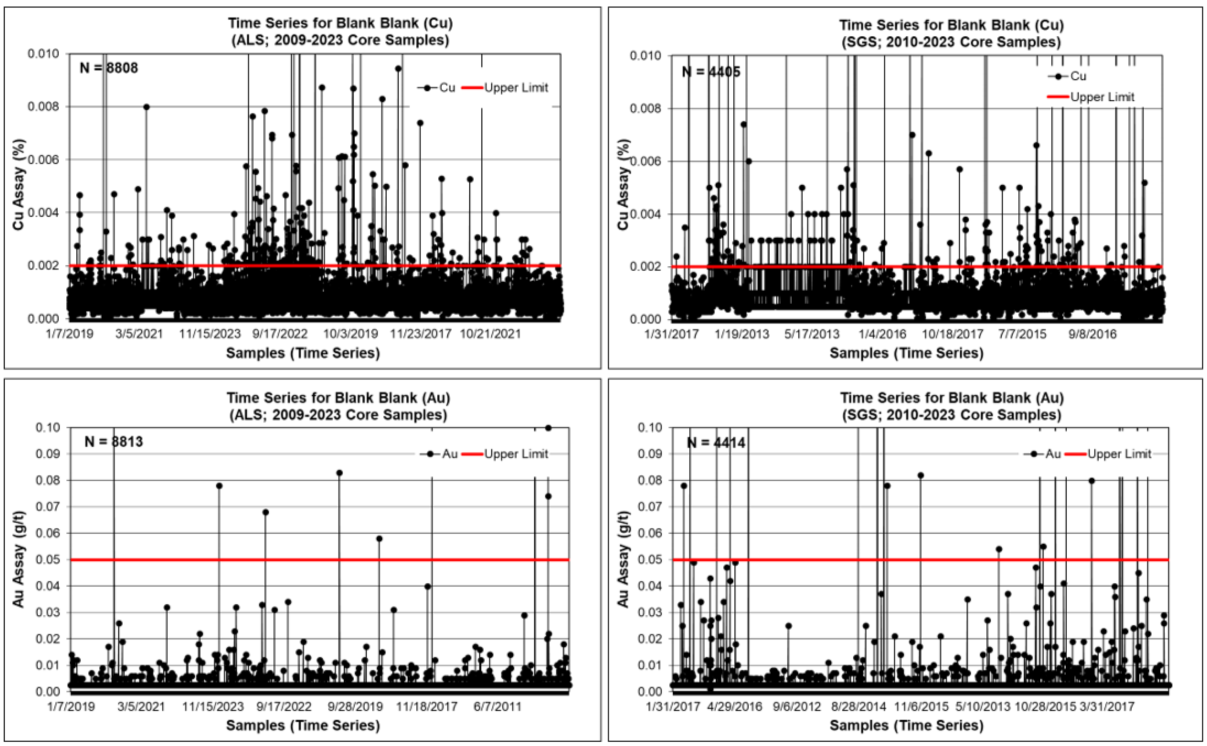
The analysis of blank samples demonstrates that some contamination has occurred for both copper and gold at ALS and SGS (Figure 11.1). The percentage of samples returning values above 10 times the detection limits for ALS and SGS were between 3.5% to 4.3% for copper and 0.2% to 0.5% for gold. The copper contamination appears to be indiscrete, whereas the gold contamination occurs in more discrete events. The copper contamination recorded by SGS has decreased over time.

Figure 11.1: Blank Analytical Quality Control Samples Analyzed by ALS and SGS between 2009 and 2023

srk consulting

Project	Chapada Mine & Sauva Project
Data Series	2009-2023
Data Type	Core Samples
Commodity	Copper (%) and Gold (g/t)
Laboratory	ALS and SGS
Analytical Method	Various
Detection Limit	0.0002% Cu & 0.005 g/t Au

Statistics	CU ALS	CU SGS	Au ALS	AU SGS
Sample Count	8,808	4,405	8,813	4,414
Expected Value	0.000	0.000	0.005	0.0050
Standard Deviation	-	-	-	-
Data Mean	0.001	0.001	0.003	0.004
Upper Limit (10xDL)	3.5%	4.3%	0.2%	0.5%



In general, the QP considers the performance of the standard reference materials to be acceptable. Some failures for standard material are most likely attributed to the mislabeling of reference materials. Exceptions include certain standards exhibiting periods of discrete biases, including OREAS 522 analyzed at SGS during 2017 and ITAK814 analyzed by SGS during 2015 and 2016. The performance of these materials has subsequently been corrected for and improved. The analytical biases observed sometimes carried through for both SGS and ALS, which may indicate an issue with the material. The performances of these materials have improved since their onset, but continued diligence in implementing corrective action is recommended. Example plots for copper and gold reference materials are shown in Figure 11.2, Figure 11.3, and Figure 11.4.

Figure 11.2: Time Series Plots for Certified Reference Material Samples Assayed for Copper by ALS and SGS Between 2016 to 2023

Project	Chapada Mine & Sauva Project
Data Series	2016-2023
Data Type	Core Samples
Commodity	Copper (%)
Laboratory	ALS & SGS
Analytical Method	Fire Assay
Detection Limit	0.0002% copper

Statistics	**OREAS 153B**	**OREAS 502B**	**OREAS 502C**	**OREAS 522**	**OREAS 504B**	**OREAS 523**
Sample Count	714	176	807	557	293	304
Expected Value	0.68	0.77	0.78	0.92	1.11	1.72
Standard Deviation	0.02	0.02	0.02	0.03	0.04	0.04
Data Mean	0.68	0.76	0.79	0.91	1.09	1.68
Outside 3StdDev	1%	4%	0%	1%	1%	1%
Below 3StdDev	2	6	3	3	2	4
Above 3StdDev	3	1	1	2	1	0

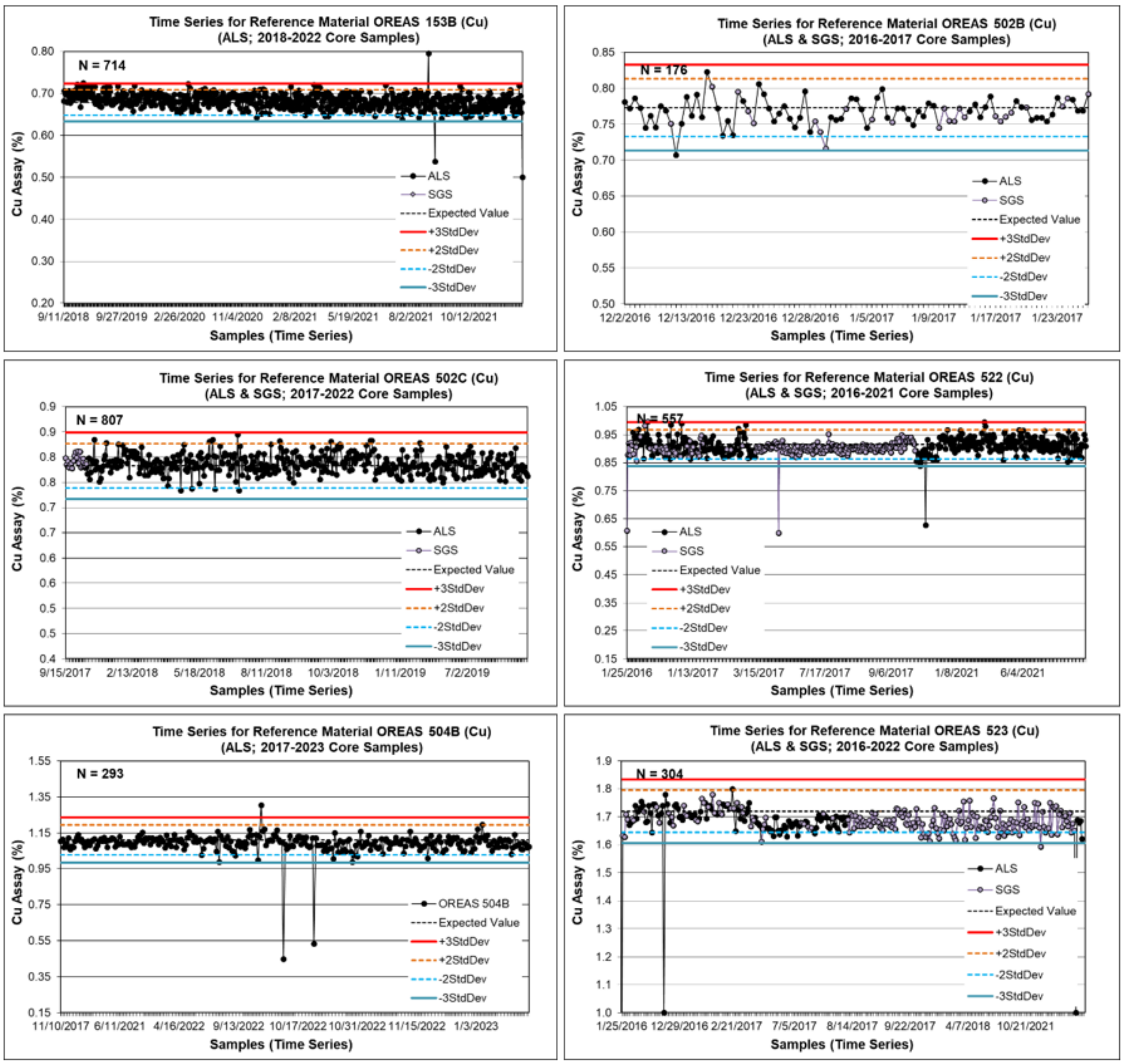


Figure 11.3: Time Series Plots for Certified Reference Material Samples Assayed for Gold by ALS and SGS Between 2016 to 2023

srk consulting

Project	Chapada Mine & Sauva Project
Data Series	2016-2023
Data Type	Core Samples
Commodity	Gold (g/t)
Laboratory	ALS & SGS
Analytical Method	ICP-MS
Detection Limit	0.0002% copper

Statistics	OREAS 153B	OREAS 502B	OREAS 502C	OREAS 522	OREAS 504B	OREAS 523
Sample Count	731	176	890	561	297	308
Expected Value	0.31	0.50	0.49	0.57	1.61	1.04
Standard Deviation	0.02	0.02	0.02	0.03	0.08	0.05
Data Mean	0.31	0.47	0.47	0.56	1.57	1.03
Outside 3StdDev	1%	1%	0%	1%	1%	1%
Below 3StdDev	1	2	2	7	2	4
Above 3StdDev	3	0	1	0	0	0

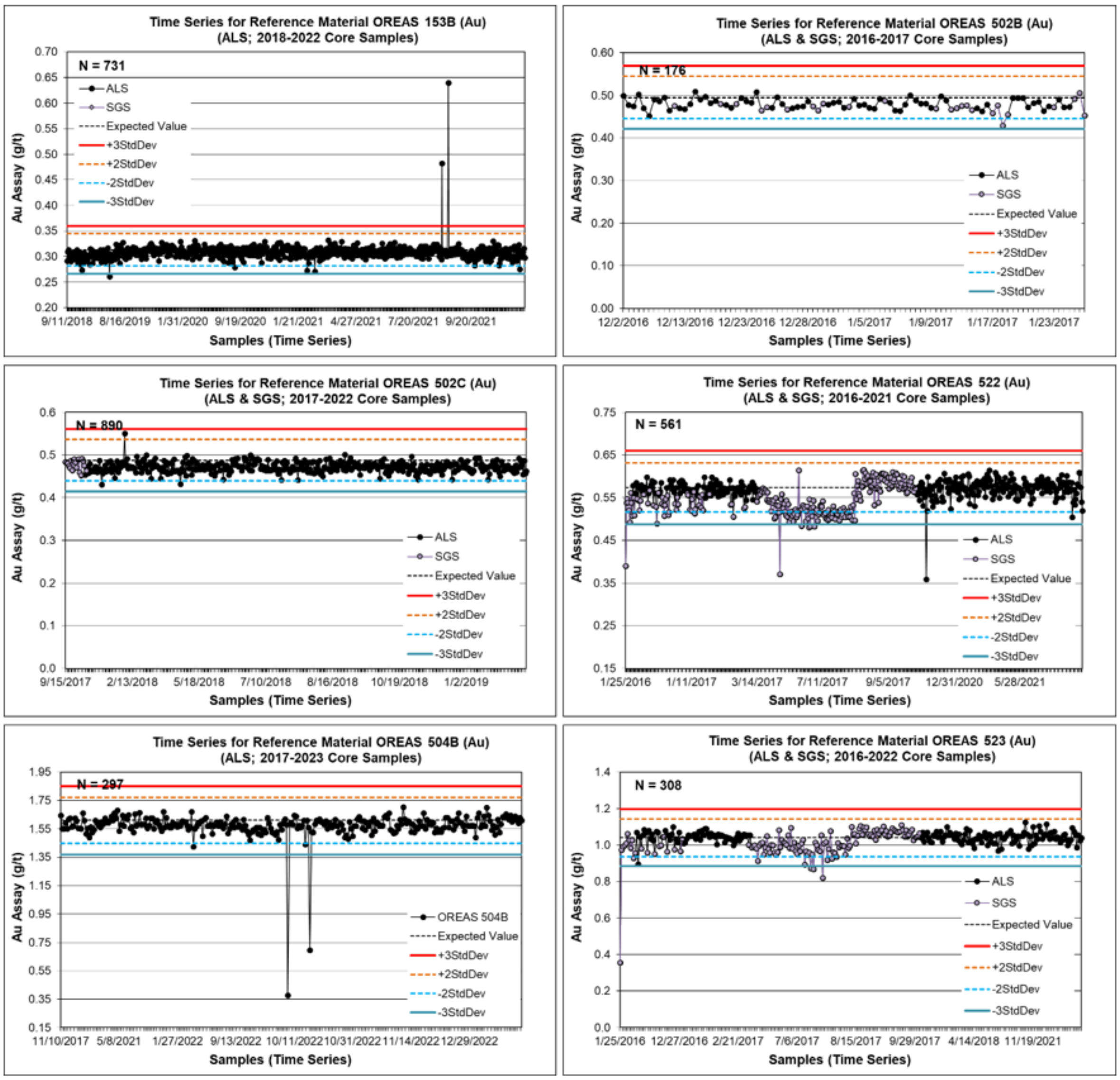
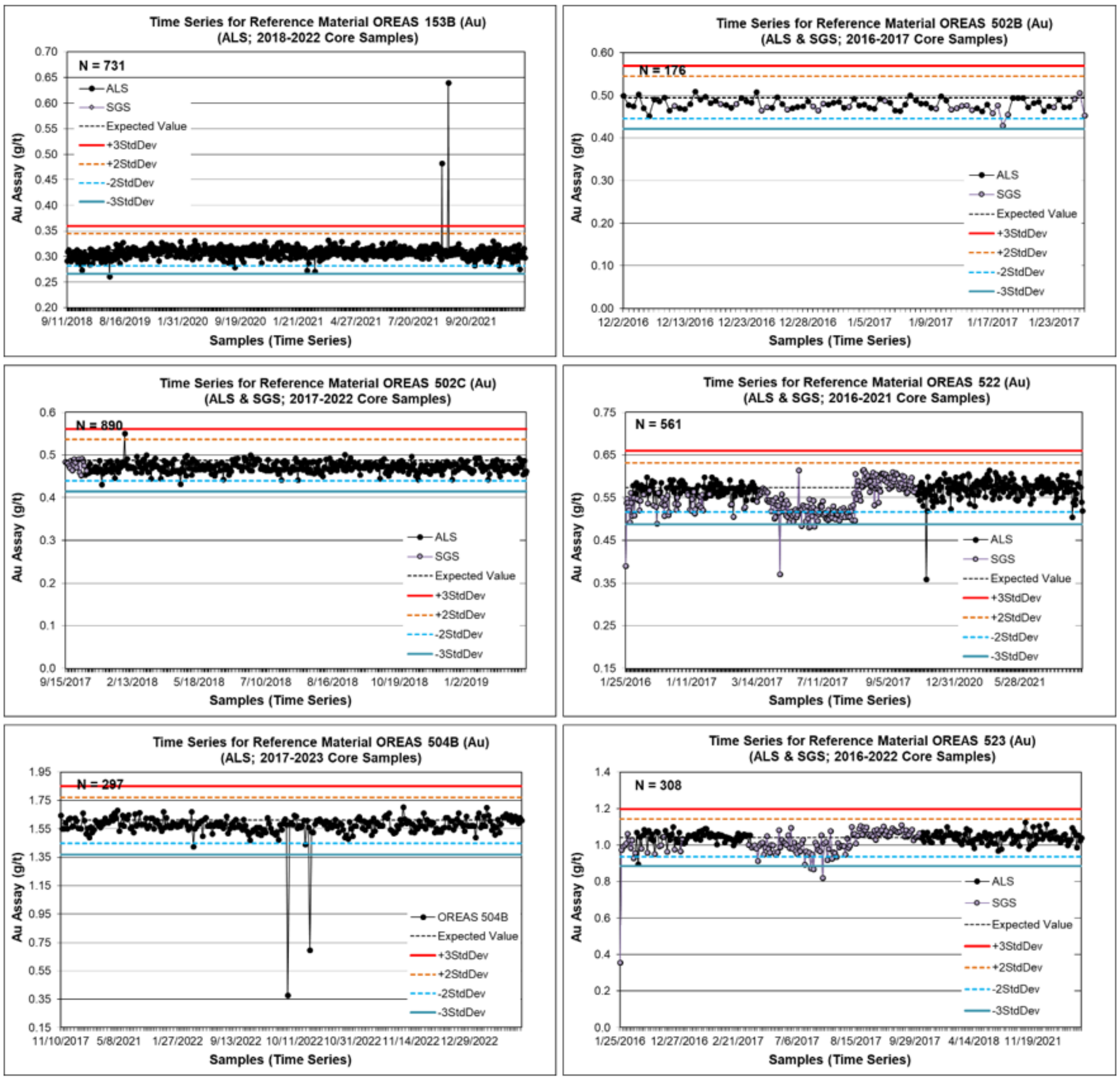


Figure 11.4: Time Series Plots for Certified Reference Material Samples Assayed for Gold by ALS and SGS Between 2016 to 2023

srk consulting

Project	Chapada Mine & Sauva Project
Data Series	2016-2023
Data Type	Core Samples
Commodity	Gold (g/t)
Laboratory	ALS & SGS
Analytical Method	ICP-MS
Detection Limit	0.0002% copper

Statistics	OREAS 153B	OREAS 502B	OREAS 502C	OREAS 522	OREAS 504B	OREAS 523
Sample Count	731	176	890	561	297	308
Expected Value	0.31	0.50	0.49	0.57	1.61	1.04
Standard Deviation	0.02	0.02	0.02	0.03	0.08	0.05
Data Mean	0.31	0.47	0.47	0.56	1.57	1.03
Outside 3StdDev	1%	1%	0%	1%	1%	1%
Below 3StdDev	1	2	2	7	2	4
Above 3StdDev	3	0	1	0	0	0



A summary of duplicate sample types and laboratories is included in Table 11-4.

Table 11-4: Summary of Duplicate Types and Laboratories

Duplicate Type	Laboratory	Period	Variable	Count
Field	ALS	2009-2023	Cu	13,360
			Au	13,360
	SGS	2008-2023	Cu	6,177
			Au	6,192
Coarse Reject	ALS	2017-2023	Cu	3,156
			Au	3,156
	SGS	2016-2017	Cu	3,020
			Au	1,343
Pulp	ALS	2017-2023	Cu	13,713
			Au	9,242
	SGS	2016-2017	Cu	861
			Au	740

In general, the performance of duplicate samples was acceptable, with good reproducibility across both laboratories. Copper performed better overall when compared with the paired gold analyses results, likely due to the more nuggety nature of gold.

Field duplicate samples performed well, with 74% of copper and 80% to 95% of gold samples having Half Absolute Relative Difference (HARD) values below 10% for both ALS and SGS. Coarse reject duplicate sample pairs performed excellently with 96% of copper and 83% to 84% of gold samples having HARD values below 10% for both ALS and SGS. The performance of pulp duplicates was excellent with 99% of copper (Figure 11.5) and 80% of gold (Figure 11.6) samples with HARD values below 10% for both ALS and SGS. Most of the variability exhibited for copper at ALS occurred in samples lower than 0.5% copper. Increased variability at SGS was caused by lower-grade samples approaching the detection limit for both copper and gold. All types of duplicate pairs analyses were absent of any obvious analytical biases.

Umpire pulp duplicate checks performed at ALS and SGS between 2015 and 2022 indicated excellent reproducibility across both laboratories, showing no analytical bias.

Figure 11.5: Bias Charts and Precision Plots for Copper Pulp Duplicate Samples (ALS)

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Project	Chapada & Sauva
Data Series	2017-2023
Data Type	Core Samples
Commodity	Cu in %
Analytical Method	ICP-MS
Detection Limit	0.0001 % Cu
Original Dataset	Original Assays
Paired Dataset	Pulp Duplicate Assays

Statistics	**Original**	**Pulp Duplicate**
Sample Count	13,713	13,713
Minimum Value	0.000	0.000
Maximum Value	2.36	1.00
Mean	0.084	0.083
Median	0.025	0.025
Standard Error	0.001	0.001
Standard Deviation	0.129	0.126
Correlation Coefficien	0.9714	
Pairs ≤ 10%HARD	98.6%	

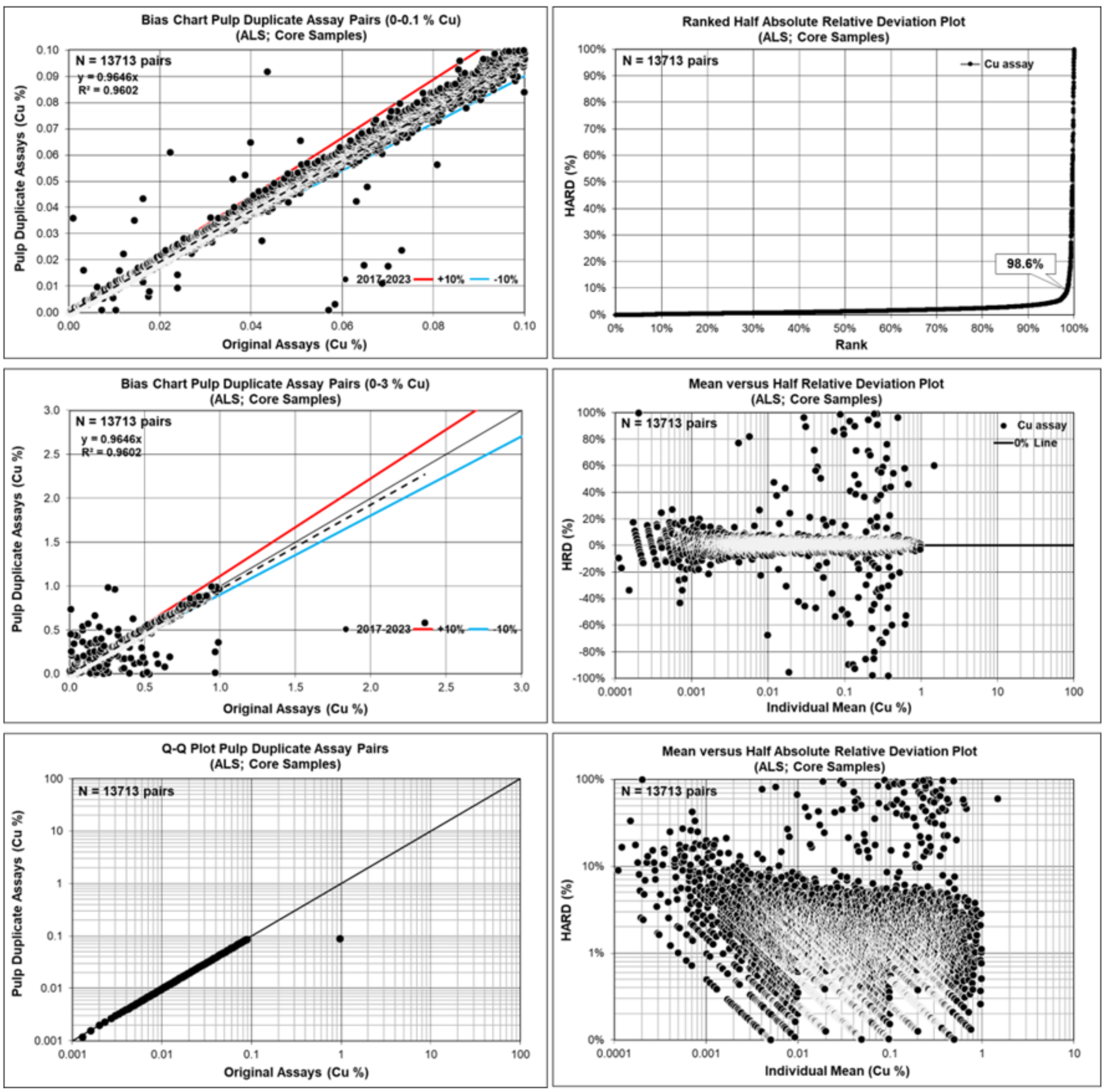
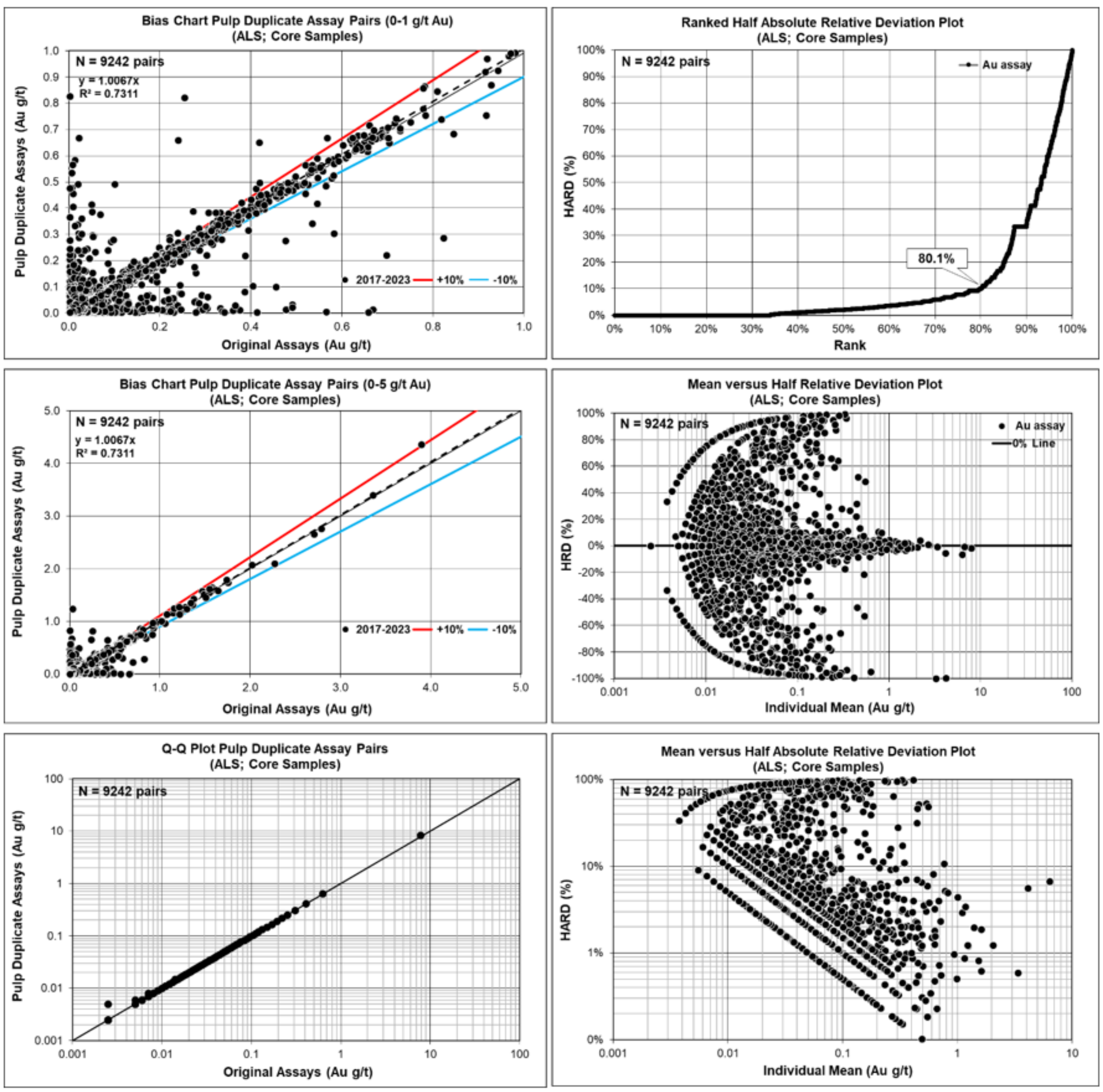


Figure 11.6: Bias Charts and Precision Plots for Gold Pulp Duplicate Samples (ALS)

Project	Chapada & Sauva
Data Series	2017-2023
Data Type	Core Samples
Commodity	Au in g/t
Analytical Method	Fire Assay AAS Finish
Detection Limit	0.0025 g/t Au
Original Dataset	Original Assays
Paired Dataset	Pulp Duplicate Assays

Statistics	Original	Pulp Duplicate
Sample Count	9,242	9,242
Minimum Value	0.003	0.003
Maximum Value	7.78	8.42
Mean	0.055	0.057
Median	0.014	0.015
Standard Error	0.002	0.002
Standard Deviation	0.186	0.221
Correlation Coefficien	0.8447	
Pairs ≤ 10%HARD	80.1%	



11.4 Qualified Person Comments

In general, the QP considers the performance of analytical quality control samples to be acceptable. Blank material has shown signs of improvement over discrete periods, indicating that the performance of blank samples could be enhanced with investigation of sample preparation procedure with the laboratory.

Although analytical quality control data was not available for drilling completed prior to Yamana's ownership in 2003, the distribution of these samples is limited to the Chapada deposit and represents a total of 16% of assays by length for this zone. Furthermore, these samples occur in areas that are mostly already mined out. The remainder of the historical samples from areas that are that are not yet mined are spatially well-supported by recent drilling, which was completed with industry standard analytical quality control practices. Therefore, these historical samples are not believed to impact the integrity of the database or the Chapada Mine Mineral Resource estimate described herein.

12 Mineral Processing and Metallurgical Testing

Lundin's Chapada Mine is a mature operation, having reached commercial production in 2007 and undergone a number of expansions to reach the current plant capacity of 65,000 tpd or 24 Mtpa equivalent. In 2016, Chapada initiated several process optimization projects, including the evaluation of Woodgrove Technologies' Direct Flotation Reactor (DFR) and Staged Flotation Reactor (SFR) cells. This was accompanied by laboratory-scale, pilot-scale testing and plant sampling to evaluate the expected benefits of increased flotation circuit capacity.

An expansion study completed by Ausenco and AtkinsRéalis (formerly SNC-Lavalin) in 2022 looked at options to achieve 32 Mtpa (or 3,900 tph equivalent). This prefeasibility study (PFS) was referred to as Chapada Brownfield Expansion (or CBFE) and included a considerable amount of geometallurgical testwork.

This section includes discussion of results from metallurgical testing done on the Saúva Project, which is in preliminary stages of evaluation by Lundin and is expected to be processed as a minor percentage of the plant feed through the Chapada plant.

12.1 Chapada Deposit

The previous Chapada technical report (RPA 2019) includes a summary of metallurgical testwork conducted before start-up, through commissioning/optimization in 2008 and the Woodgrove studies (Phases I and II). This section will not reproduce that summary.

Since 2019, testwork has focused on three main areas:

- Geometallurgical throughput and recovery model updates
- Expansion studies like CBFE
- Evaluation of low-grade stockpiled material recently included in the mine plan

12.1.1 Chapada Ore Types/Lithologies

The main Chapada ore types or lithologies as shown in Figure 12.1 overlain on a recent pit shell outline. Most of the ore types are either schist or gneiss dominant:

- QSRT quartz sericite schist
- ANX amphibole schist
- SRT sericite schist
- BTO biotite schist
- GNS gneiss

For all mineralised zones, sulphur grades are generally low, with copper occurring mainly as chalcopyrite, with limited chalcocite/covellite. The most abundant form of sulphide is pyrite but occurs at only 3% to 8% of the mineral mass. Cu/S ratios across ore types are relatively consistent at around 0.2, but Fe/S ratios vary considerably at 2.0 to 5.1.

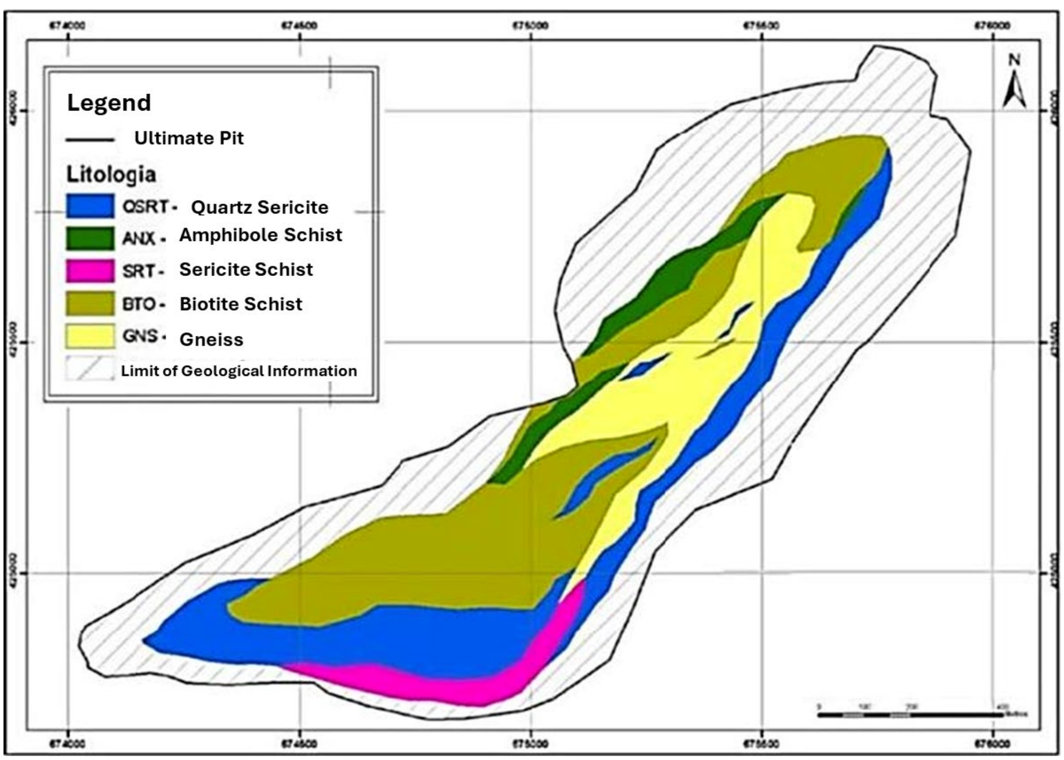
Table 12-1 and Figure 12.1 summarizes the main lithologies along with historical naming conventions used by Lundin.

Table 12-1: Description of Main Lithologies at Chapada Mine

Main Lithologies	Description	Other Historical Equivalents
ANX	Amphibole-quartz schist	ANF; PEG
BTOF	Foliated biotite-quartz schist	MTF; BSS (CS)
BTOS	Silicified biotite-quartz schist	BTO/BTOD; BTT; MPI/MVI; DIO; TON
GNS	Gneiss	SRT
QDPB	Quartz-diorite propylitic alteration c/w biotite	
QSRT	Quartzite	SIL; CRT; QDPB; SQKS
OXI	Oxidized	MIX

Source: Lundin Mining, 2022

Figure 12.1: Chapada Deposit Main Lithological Units

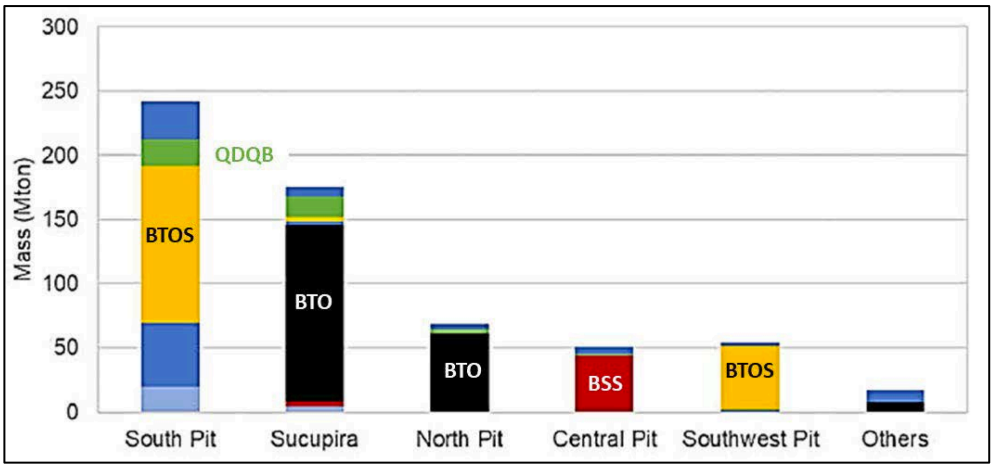


Sources: Lundin 2022

The Chapada deposit is divided into multiple regions: South, North, Central, Southwest and Northeast, but are considered portions of the same mineralization event. This has not been clearly demonstrated for the other deposits. The Sucupira deposit is expected to be mined starting in 2035 and will require relocation of the current crusher/conveyor and coarse ore stockpile.

Figure 12.2 shows the distribution of Mineral Reserves (as of 2022) – divided between main lithologies – with around 240 Mt of material in the South Pit and excludes around 290 Mt contained in low-grade stockpiles.

Figure 12.2: Breakdown of Chapada Ore Sources with Main Lithologies



Sources: Lundin 2022

Low-grade stockpiles (referred to as BT or Baixo Teor) are made up of 70% GNS, 15% BTOS and 15% BTOF.

12.1.2 Chapada Metallurgical Testwork

In 2020, bench-scale tests on samples of the four main lithologies included both comminution and flotation testwork studies. Flotation work looked at rougher-scavenger and cleaner kinetics, recleaner testing and locked cycle tests. While a coarser primary grind 80% passing (P_{80}) size did lower the recovery of both copper and gold, all four samples achieved >80% Cu recovery at a P_{80} of 300 µm.

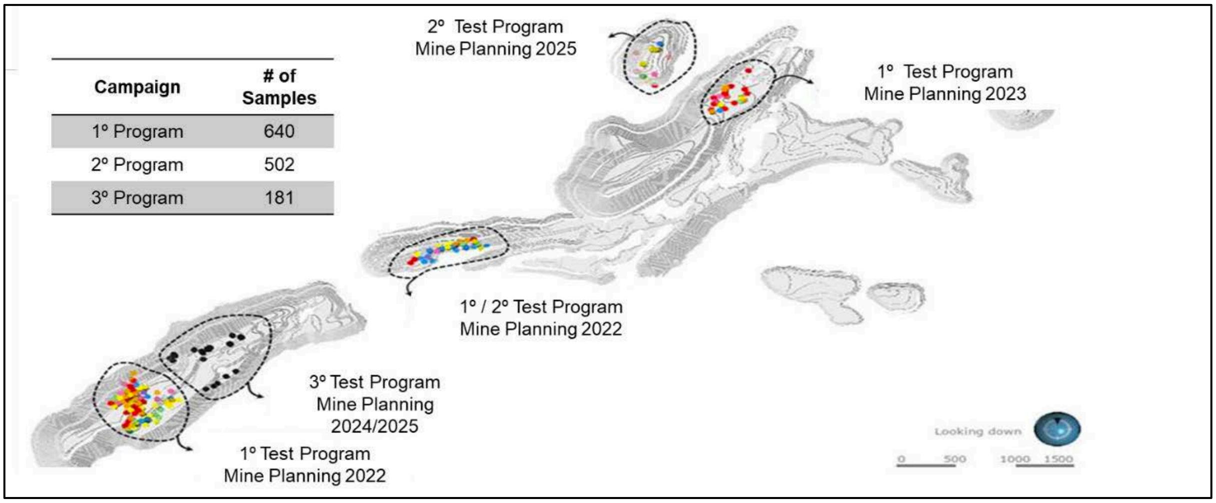
Conclusions from this work included:

- Finer primary grind sizes improved flotation kinetics
- Coarser primary grind sizes reduced recovery, in part due to slower kinetics
- Further testwork was recommended to assess plant pulp chemistry and grinding environment to better understand the differences between lab and plant results
- Investigations into high chrome (or even inert) grinding media were suggested along with specialized pyrite depressant schemes.

Comminution Characterization

As part of an ongoing update to the throughput forecasting model, Lundin has adopted SimSAGe Hardness Index Testing (HIT) for ore hardness characterization. Over the period of 2022 to 2025, three campaigns of sample collection/testing will be completed (see Figure 12.3 for sample locations).

Figure 12.3: HIT Comminution Sample Locations (2022 to 2025)



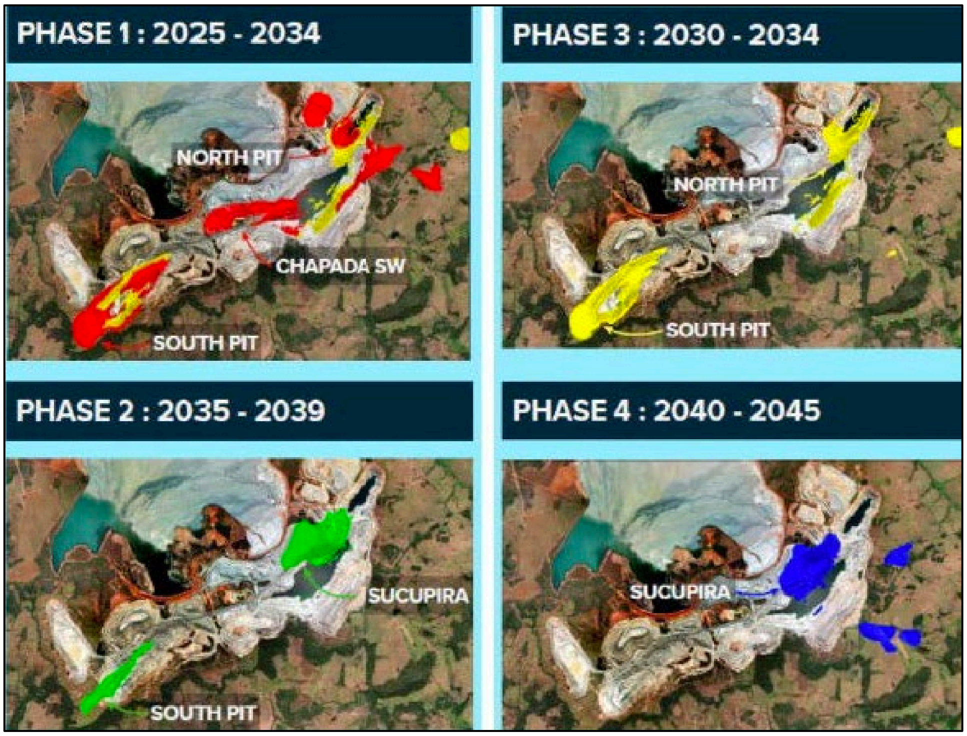
Sources: Lundin 2024

HIT results are used to estimate both single particle breakage test results (e.g. A*b values), as well as Bond Ball Mill Work Index (BWi) results. These are used to forecast expected plant throughput from estimated grinding circuit specific energy (kWh/t) requirements.

Expansion Plan Evaluation

For the CBFE evaluation study, some 97 samples were collected for geometallurgical testing at Alfred H. Knight – Asmin laboratories in Santiago, Chile. Figure 12.4 shows where samples were collected for each of the four phases of evaluation.

Figure 12.4: CBFE Test Program Sample Location by Period



Sources: Lundin 2024

Testing included both comminution and flotation testing to confirm and update the current geometallurgical forecasting estimates.

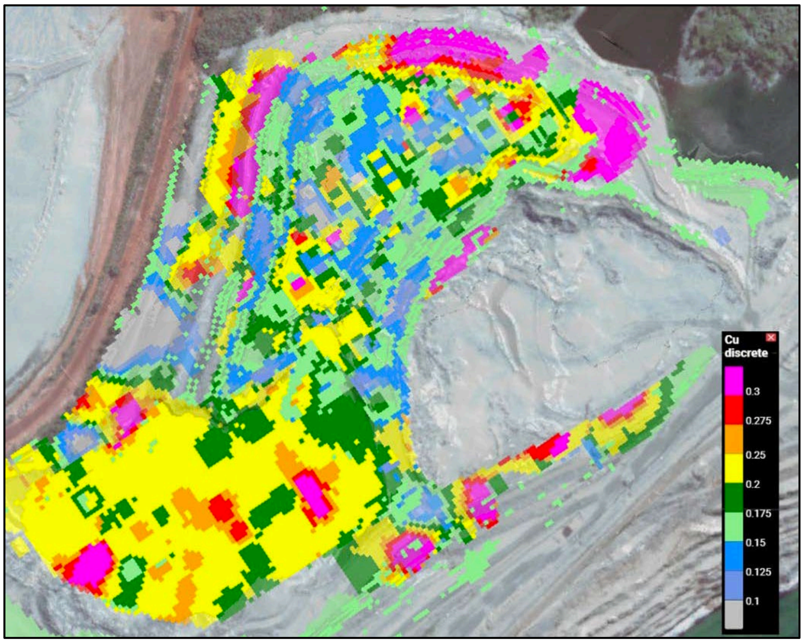
Low-Grade Stockpile Assessment

Since 2021, Lundin has been processing low-grade stockpile material (BT or Old BT) along with direct feed from the different pit areas. The current mine plan shows, after the Sucupira deposit has been depleted in 2045, only BT stockpile material will be processed until the end of mine life. Before 2021, Chapada had assumed constant copper and gold recoveries for all BT stockpile material. Recently, investigations have been underway to better forecast the variable metal recoveries from these low-grade stockpiles.

Since 2021, both reverse circulation (RC) and sonic drilling has been done on 25 by 25 m and 30 by 30 m grid patterns – to supplement earlier drilling done in 2016. Figure 12.5 shows block model estimates of copper grade while Figure 12.6 shows accompanying copper recovery estimates, based on flotation testwork conducted to date.

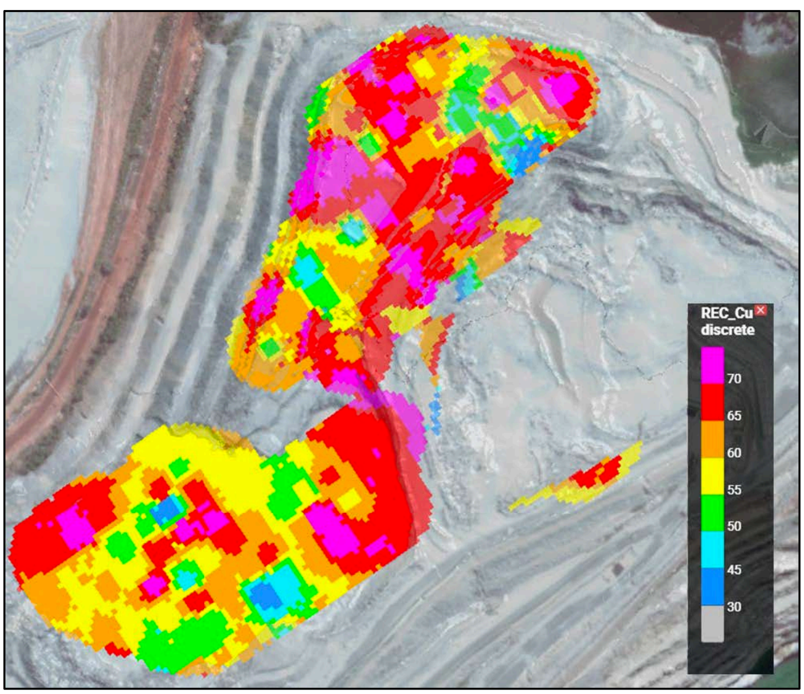
Figure 12.7 shows histograms of 374 flotation test results on BT stockpile samples. Both copper and gold grades appear somewhat lognormal in distribution, with average values of 0.24% Cu and 0.17g/t Au. Mean flotation recovery was reported as 60% for Cu and 48% for Au – with a wide range of results across the samples.

Figure 12.5: Example Stockpile Block Model Estimates of Copper Grade



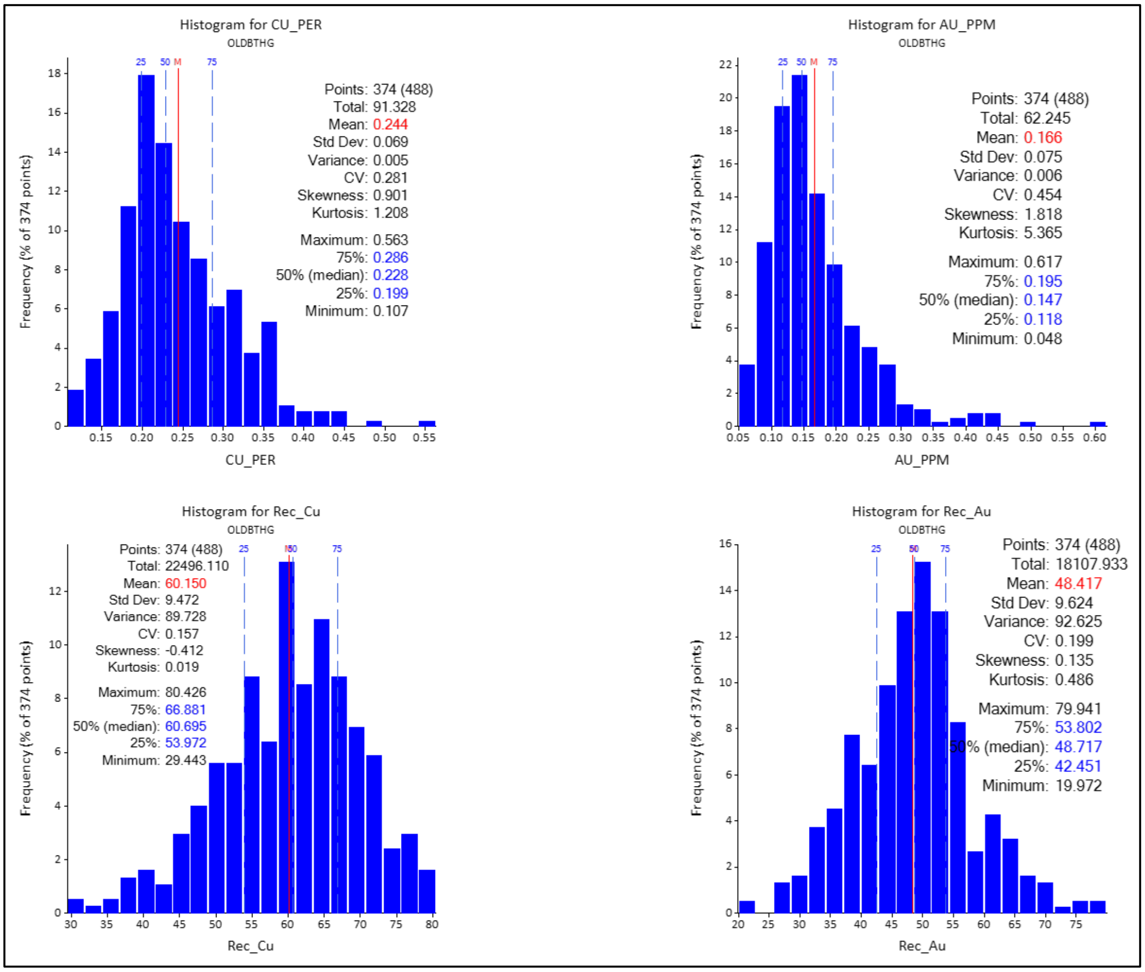
Sources: Lundin 2024

Figure 12.6: Example Stockpile Block Model Estimates of Copper Recovery



Sources: Lundin 2024

Figure 12.7: Histograms of Low-Grade Stockpile Float Tested Samples



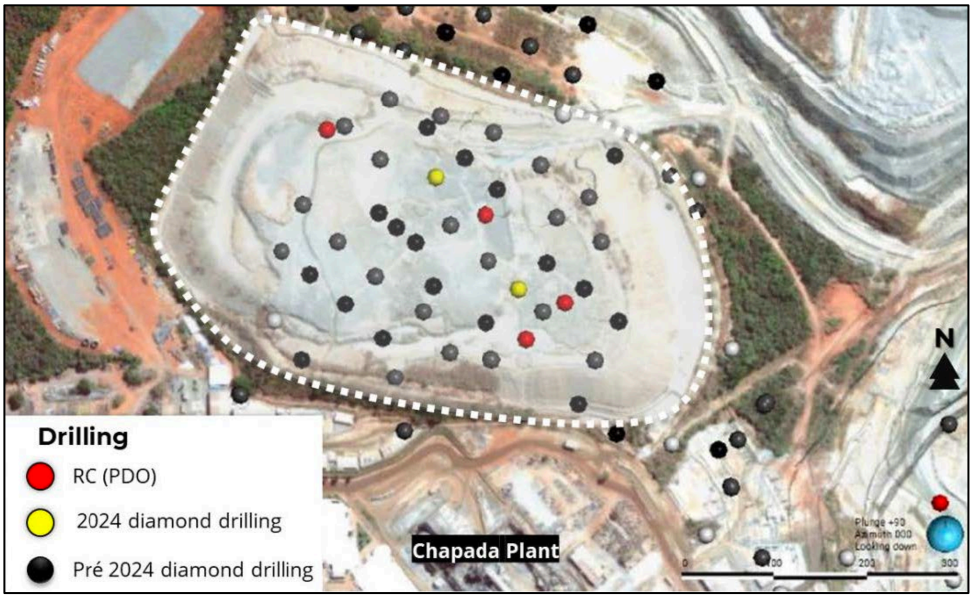
Sources: Lundin 2024

The block modelled estimates of recoveries are used for mine planning and whether blending constraints should be applied for any very poor performing material.

As part of Chapada's investigation into stockpile processing, a 70 t pilot plant campaign was undertaken in 2024 at AHK – Asmin. Pilot plan runs were performed at 200 to 500 kg/hr on a range of BT blends, as well as different levels of sulphidization using sodium hydrosulfide (NaHS).

To evaluate possible processing routes for an oxide material stockpile (see Figure 12.8), testwork is ongoing looking at Controlled Potential Sulphidization (CPS) using NaHS as well as heap leaching of the copper oxide minerals.

Figure 12.8: Oxide North Stockpile Showing Drilling Locations



Sources: Lundin 2024

12.1.3 Plant Performance Estimates

Over their operating history, Lundin has developed estimates of plant throughput, copper and gold recovery and % Cu in copper concentrate. These equations are used in short-term mine planning and LoM forecasting.

Throughput

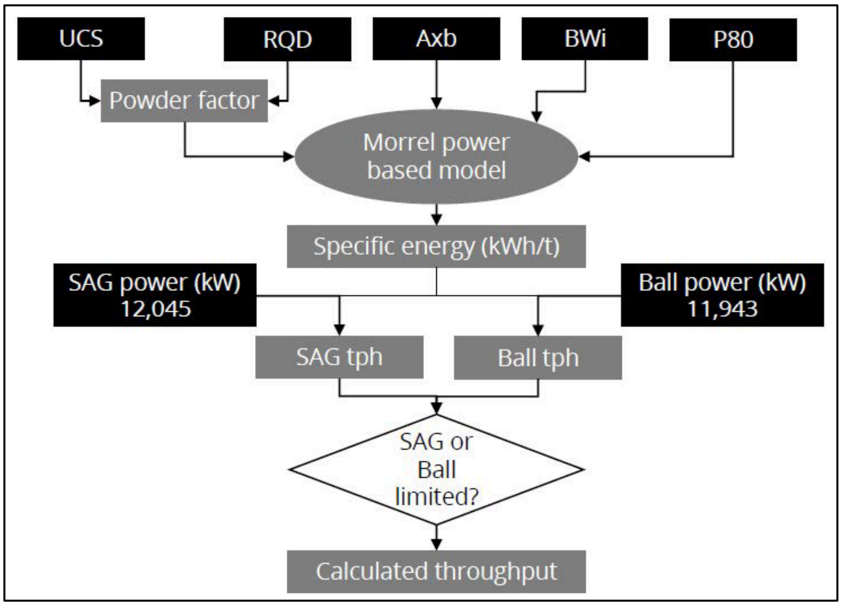
Plant throughput is estimated from modelled grinding Specific Energy (SE, in kWh/t). As the semi-autogenous grinding (SAG) mill or the ball mill circuit can be limiting, both SAG and ball mill SE values are estimated for different ore types and combined into mill feed blends; that is, they are assumed to be linearly additive in the block model.

Chapada currently uses two methods of estimating grinding SE: the Hatch model for all ore types except Sucupira and the SNC-Lavalin (AtkinsRéalis) model for Sucupira. (The SNC model was developed during the Sucupira exploration phase and is expected to be phased out.)

A combination of laboratory sample SMC testing and use of the HIT tester on drill cuttings allows Chapada to estimate the A*b parameter and BWi, at the block model level.

Figure 12.9 shows the Hatch model flowsheet to estimate the Morrell-method SE from blast fragmentation size (based on rock mass properties and powder factor) as well as A*b and BWi from comminution testing and product P_{80} size. With assumed SAG and ball mill operating power draw, circuit limitations are determined and expected plant throughput is estimated.

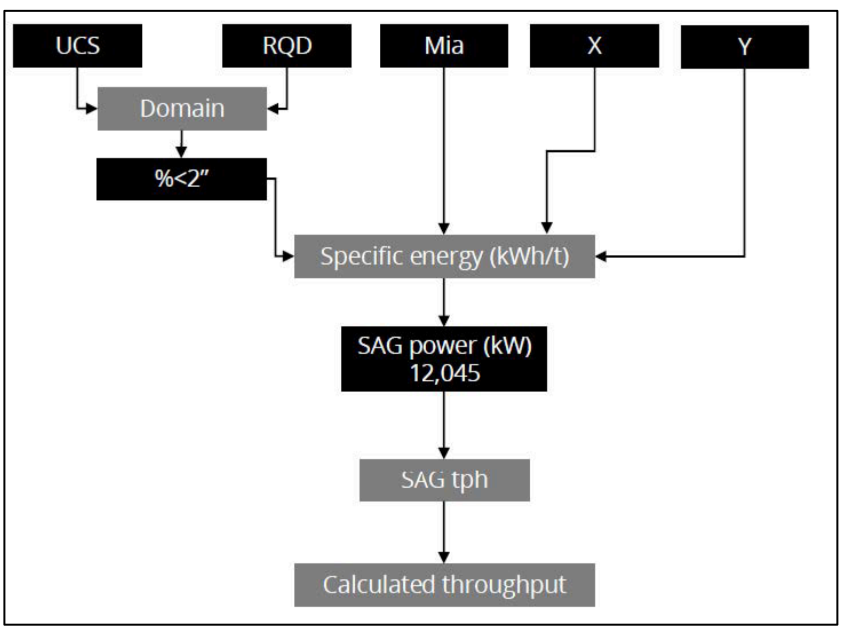
Figure 12.9: Hatch Throughput Model Schematic Flowsheet



Sources: Lundin 2024

For the SNC-Lavalin model (Sucupira only), Figure 12.10 shows the method flowsheet where rock mass domains define the % -2 inch in the SAG mill feed (between 50% and 57%) and the SAG mill SE is estimated for expected plant throughput (ball mill circuit limitations are not considered).

Figure 12.10: SNC-Lavalin Throughput Model Schematic Flowsheet

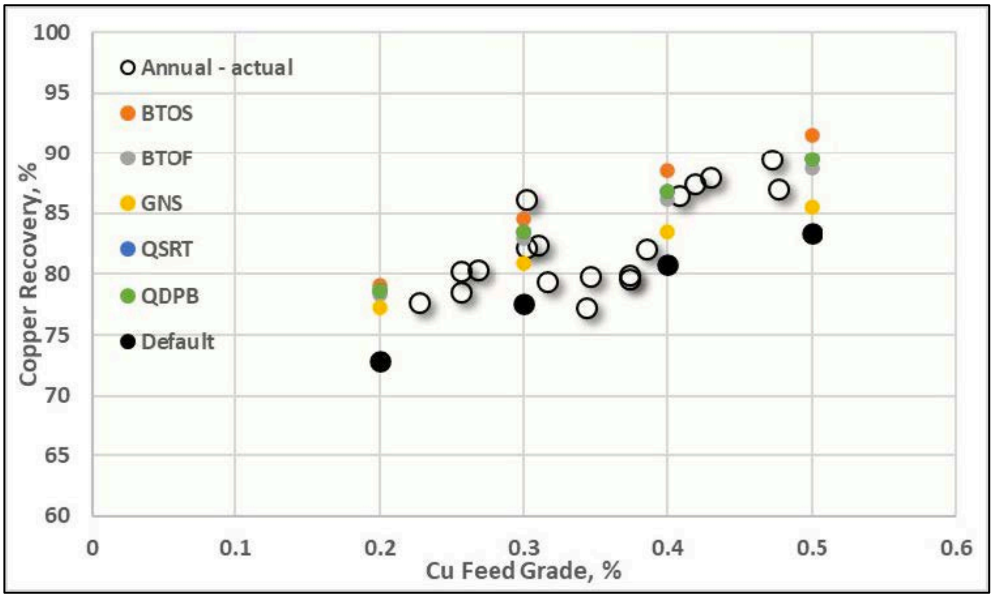


Sources: Lundin 2024

Copper Recovery

Based on laboratory testwork, Chapada have developed relationships for copper recovery across a range of copper head grades (Figure 12.11). These equations are logarithmic functions of head grade and vary by ore type, with BTOS estimated to have the highest recovery and GNS the lowest recovery, at the same head grade. For comparison, actual annual recoveries are shown in Figure 12.11.

Figure 12.11: Copper Recovery vs. Head Grade (actual annual & model estimates 2007 to 2024)



Sources: SRK 2024

Modifications to these recovery estimates include the effect of additional flotation capacity from Woodgrove DFR and SFR cells, the processing of low-grade BT stockpiled material and any weathered material from the northeast area of the Chapada pit.

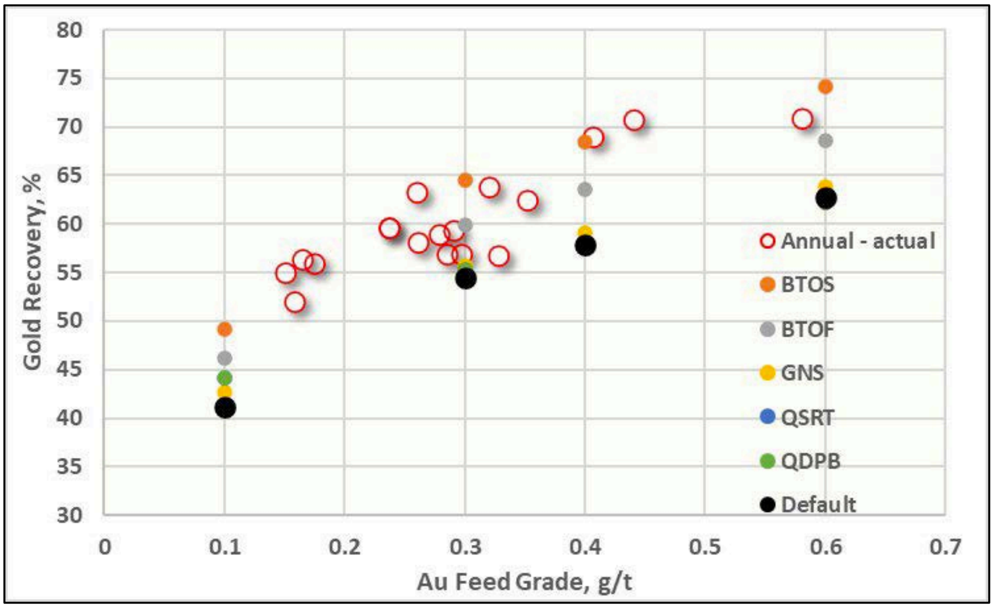
As mentioned previously, a detailed assessment of BT stockpile recoveries is underway to replace the assumption of constant copper recovery that was used previously.

Gold Recovery

Gold recovery is similarly estimated by ore type, using logarithmic functions of gold head grade (see Figure 12.12). As for copper, BTOS has the highest estimated gold recovery and GNS the lowest. Actual annual results are plotted in Figure 12.12 for comparison.

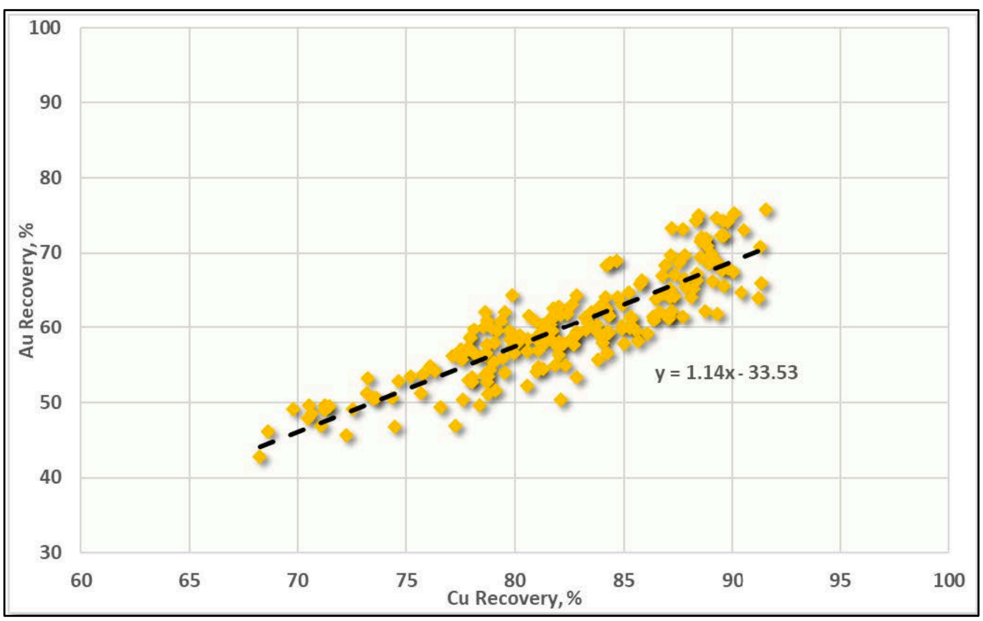
As seen in Figure 12.13, operating data clearly shows the relationship between gold and copper recovery. The 1.14 slope between the two recoveries suggests a modest improvement in gold recovery for higher copper recoveries.

Figure 12.12: Gold Recovery vs. Head Grade (annual & model estimates 2007 to 2024)



Sources: SRK 2024

Figure 12.13: Gold vs. Copper Recovery (monthly 2007 to 2024)



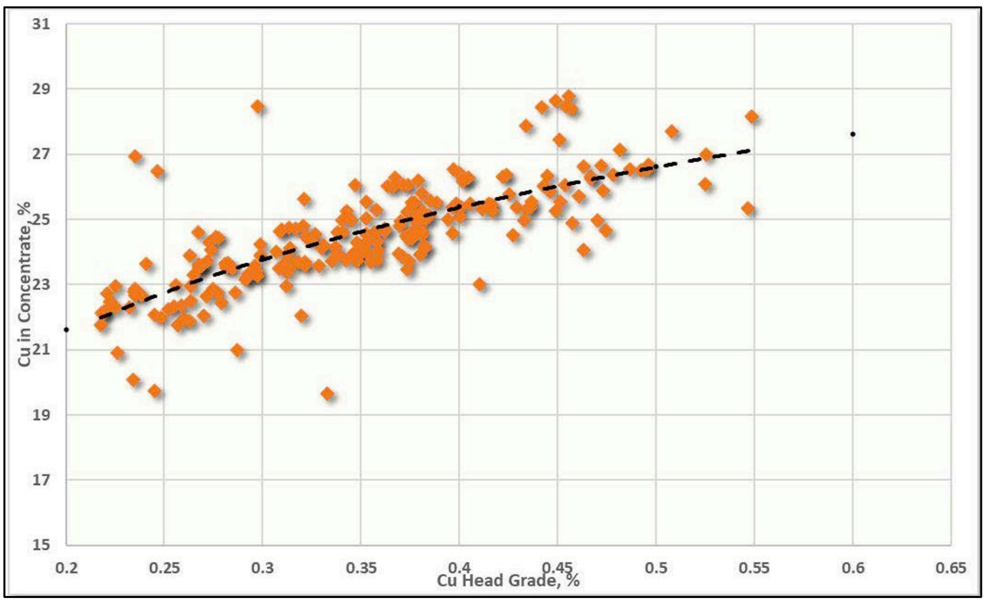
Sources: SRK 2024

Concentrate Grades

For LoM planning, Lundin assume a concentrate copper grade of 22% to 23.5% for Chapada Mine, following the trend shown in Figure 12.14. This relationship is very clear; however, when the mine plan grade falls below 0.2% (i.e. when reprocessing low-grade BT stockpiles), the lower limit on concentrate grade will likely need to be reassessed.

The dashed line shown in Figure 12.14 is the relationship used by Lundin to estimate final concentrate copper grade.

Figure 12.14: Copper in Concentrate vs Copper Head Grade (monthly 2007 to 2024)



Sources: SRK 2024

Final concentrate minor element analysis shows a clean concentrate with only F and Pb levels requiring monitoring or blending (see Table 12-2). Copper content is generally 23% to 25% with payable gold and silver.

Table 12-2: Typical Copper Concentrate Analysis

	Element	Range
Payable	Cu	22 to 27%
	Au	8 to 18g/t
	Ag	25 to 45g/t
Possible Impurity	S	29 to 34%
	Fe	29 to 36%
	As	<30ppm
	Cd	40 to 180ppm
	Cl	25 to 210ppm
	Co	65 to 140ppm
	F	100 to 200ppm
	Hg	<1ppm
	MgO	0.2 to 2.2%
	Pb	0.05 to 0.2%
	Sb	<50ppm
	Se	<310ppm
	SiO_2	1.5 to 6%

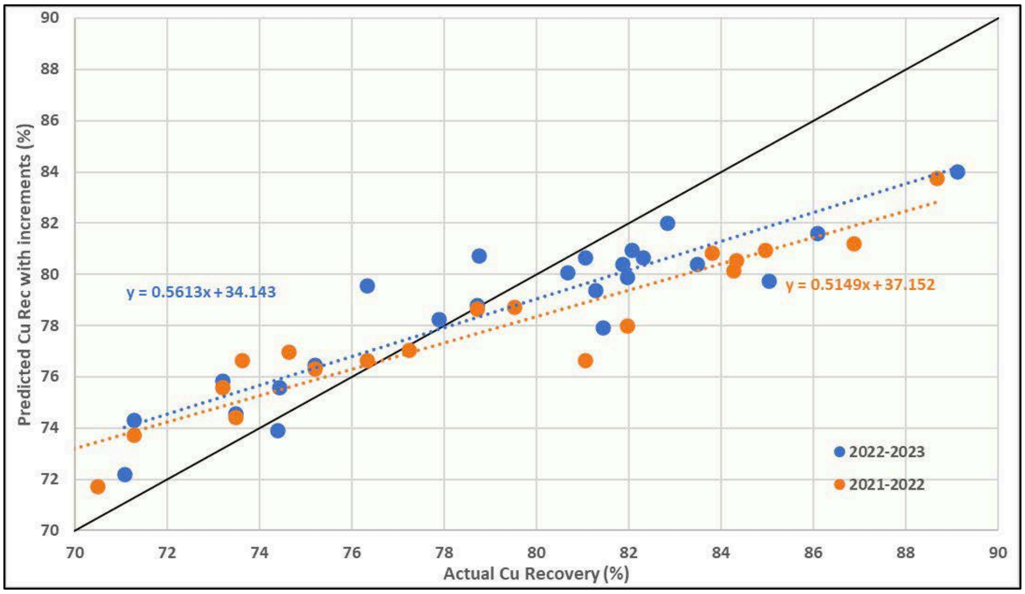
12.1.4 Qualified Person Comments

A review of the current Chapada Mine performance estimates has shown that improvements are possible and, in general, that there are consistent biases in both throughput and recovery using the current equations.

A comparison between actual and modelled plant throughput over a 20-month period to August 2022, showed the model estimates ranged from 2,400 tph to 3,000 tph while the plant achieved 2,500 tph to 3,250 tph. Modelled throughput was low by 10% to 20% and more negatively biased at higher values.

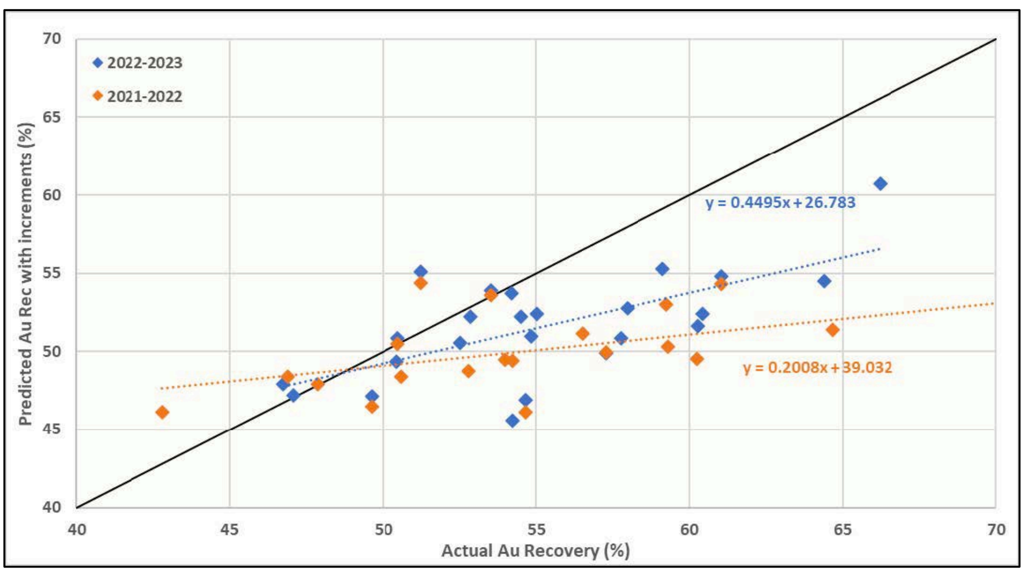
Figure 12.15 and Figure 12.16 show monthly copper and gold recoveries – modelled vs. actual over a 36-month period from 2021 to 2024. The slopes of the two lines (0.51 and 0.20) for the period 2021 to 2022 suggests relatively insensitive recovery estimates compared with actual results. More recently, the period 2022 to 2024 shows the slopes of these lines as 0.56 (copper) and 0.45 (gold). For example, modelled copper recovery ranged from only 72% to 84%. It is the QP's opinion that alternate recovery equations can be developed that more closely follow current plant performance.

Figure 12.15: Estimated vs. Actual Copper Recovery (monthly 2021 to 2023)



Sources: SRK 2024

Figure 12.16: Estimated vs. Actual Gold Recovery (monthly 2021 to 2023)



Sources: SRK 2024

Finally, the assumption of constant copper and gold recovery gains (for all ore types) from the phased flotation circuit expansion should be re-evaluated. In addition, plant operating changes since the review was done in 2020 may have impacted overall circuit performance.

In the QP's opinion, the current investigation being done by Chapada into BT stockpile material performance should result in reasonable estimates of low-grade material that is included in the current mine plan.

12.2 Suruca Deposit

The Suruca deposit is located in the Goiás province of Brazil, approximately 7 km north-east of the Chapada mine and 2 km south-east of Alto Horizonte. It was evaluated by Yamana in 2018 and 2019, with a number of processing options considered for the different ore zones.

The Oxide zone represents 18% of the tonnes at an average grade of 0.3 g/t Au, while the Transition/ Sulphide zone is 39% of the tonnes at 0.49 g/t Au on average. The remaining 43% of the tonnes is considered Copper-Gold or the "Southwest" zone and is comparable to current Chapada material with average grades of 0.16% Cu and 0.17 g/t Au.

12.2.1 Oxide Zone

A number of Oxide zone samples have been evaluated for heap leaching, using both bottle roll and column leach testing methods. Testing was done by Yamana as recently as 2017, with Kappes Cassiday and Associates (KCA) running column tests at a crush size of 37.5 mm over a period of 63 days followed by 35 days of rinsing achieving gold extractions of 85%. Cyanide consumption was 0.7 kg/t with 8 to 12 kg/t cement added during agglomeration. Heap leaching would be done on site.

12.2.2 Transition/Sulphide Zone

The Transition and Sulphide zone material was evaluated for Carbon in Pulp (CIP) gold recovery following grinding and cyanide leaching. Testing done by Yamana in 2010 showed Sulphide samples leached rapidly with >90% of final gold extraction achieved within 24 hours. For 300 µm, 150 µm and 75 µm grind sizes, 24-hour leach extractions were 73% to 81% for gold. The final, 72-hour gold extractions were 80% to 88% for the three grind sizes. To evaluate the Sulphide resource, it is assumed on site, CIP processing will be done with an 84% gold extraction at 75 µm with 36 hours of leach residence time.

12.2.3 Copper-Gold Zone

The Southwest or Copper-Gold zone is similar in mineralogy to the current Chapada plant feed material; however, samples demonstrated higher sensitivity to grind size. It is assumed all Copper-Gold material will be transported (likely by conveyor) to the Chapada process plant and will achieve copper recoveries between 63% and 78% across 0.1% to 0.3% Cu head grades. Gold recovery follows copper to the flotation concentrate and is expected to range between 51% and 63%.

12.3 Saúva Project

The Saúva project is located 15 km north of the Chapada operation and includes the Saúva zone and Formiga exploration target. Preliminary studies are investigating a range of options to transport Saúva ore to Chapada, at approximately one third of the Chapada process plant capacity.

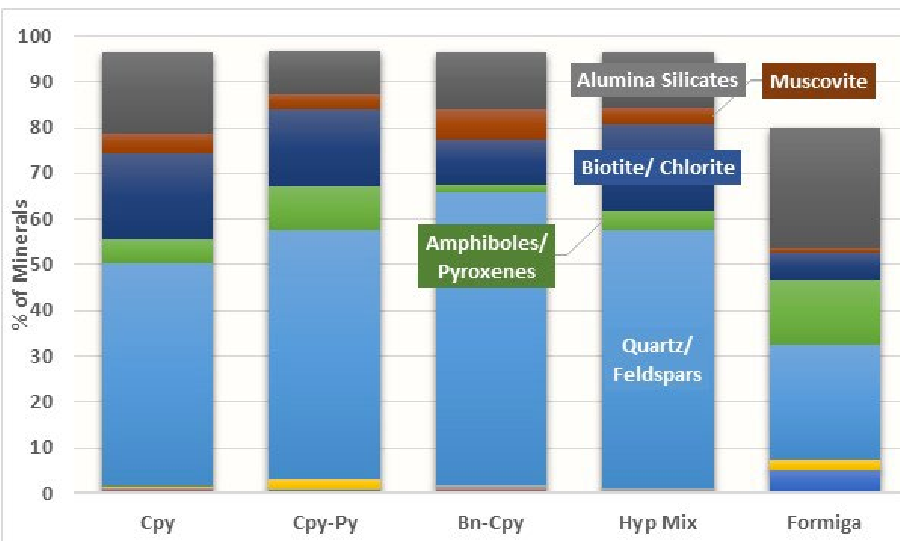
12.3.1 Saúva Mineralization Types/Lithologies

A number of mineralization types/lithologies have been identified by Lundin, including:

- Chalcopyrite rich (Cpy)
- Chalcopyrite-pyrite rich (Cpy-Py)
- Bornite-Chalcopyrite rich (Bn-Cpy)
- Hypogene Mix
- Formiga zone (exploration target)

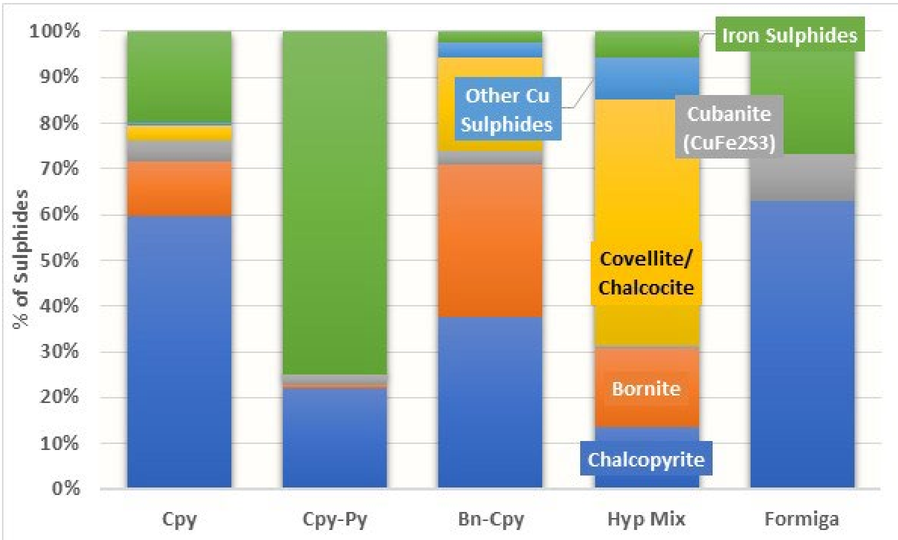
Quantitative mineralogy results (TIMA-X) for samples of each ore type are shown in Figure 12.17 (main minerals) and Figure 12.18 (sulphide minerals). The Formiga zone has higher alumina silicate and lower quartz/feldspar content.

Figure 12.17: Main Mineral Assemblage of Saúva Mineralization Types



Sources: SRK 2024

Figure 12.18: Sulphide Mineral Assemblage of Saúva Mineralization Types



Sources: SRK 2024

The Saúva mineralization type categories are based on mineralogy and clear differences are noted in the sulphide assemblages. Formiga is principally chalcopyrite and pyrite in sulphide content.

Metallurgical testing has been done as part of the Saúva scoping study with a total of 38 samples collected from core and coarse rejects sources. The breakdown of these 38 samples was: 14 Cpy, 14 Cpy-Py, 6 Bn-Py, 2 Hyp-Mix and 2 from Formiga. Samples were submitted for mineralogy (composites only) hardness/comminution testing and rougher flotation and all work as undertaken by SGS Geosol.

Grades of the Saúva composites ranged from 0.26% to 0.69% Cu and 0.09g/t to 0.82g/t Au. The Formiga sample was much higher in copper at 2.35% Cu with 0.22g/t Au.

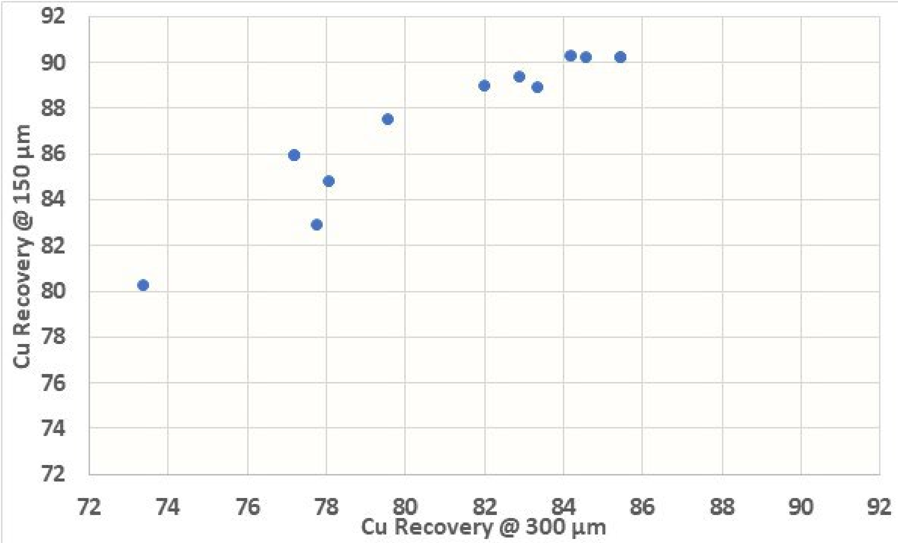
Comminution testing included Bond Ball Mill Work Index (BWi) and SMC A*b single particle breakage. At an unreported closing screen size, BWi values ranged from 9.3 to 12.5kWh/t for Saúva samples with Hyp-Mix being the highest. Formiga reported a BWi of 9.5kWh/t. SMC results for Saúva showed A*b values of 35.9 to 40.0, with Cpy being the most resistant to impact breakage (with the lowest A*b value). Formiga reported an A*b of 42.5. For the size fraction tested for these composites, measured specific gravities were 2.7 to 3.0 with 3.4 for the Formiga sample.

Using the existing Lundin Chapada specific energy model, Saúva and Formiga throughput estimates are 2,460 tph to 2,850 tph.

Rougher flotation tests were conducted at the current Chapada P_{80} grind size of 300 µm, as well as a P_{80} of 150 µm. Rougher copper recoveries varied from 73% to 86% at 300 µm and 80% to 90% at 150 µm. Gold recovery to copper rougher concentrate was similarly affected by the finer grind size.

Figure 12.19 compares Saúva sample copper recoveries to rougher concentrate at the two grind sizes.

Figure 12.19: Rougher Flotation Recovery (150µm vs. 300µm grind size)



Sources: SRK 2024

12.3.2 Recommended Saúva Testwork

Future metallurgical testwork on Saúva and Formiga samples should include:

- Additional comminution testing, with BWi results reported for a range of closing screen sizes
- Rougher-cleaner flotation testing to estimate final concentrate grades and possible impurities
- Blended flotation testing at the expected ratio of Saúva to Chapada material
- Possible locked cycle flotation testing of the blended feed
- Dewatering tests to confirm current thickener/filtration capacities are adequate

13 Mineral Resource Estimates

13.1 Introduction

The Mineral Resource Statement presented herein represents the second Mineral Resource evaluation prepared for the Chapada Mine and Saúva Project since Lundin's acquisition of Chapada Mine, in accordance with the Canadian Securities Administrators' National Instrument 43-101.

The Mineral Resource model for the main Chapada Mine was prepared by Jorge Watanabe of MMIC in August 2023. The resource model for the Suruca deposit of the Chapada Mine was prepared in August 2023 by Renan Lopes, PGeo, Sarah Conolly, PGeo and Luke Evans, PGeo of SLR Consulting (SLR). The Mineral Resource model for the Saúva Project was prepared by Iris Soares of MMIC in August 2023 and reviewed by Dr. Felipe Pinto of Lundin in November 2023.

This section describes the Mineral Resource estimation methodology and summarizes the key assumptions considered by CM, Lundin and SLR in the construction of the Mineral Resource models.

The Mineral Resource model for Chapada considers 4,160 core boreholes drilled by Lundin, Yamana and historical operators during the period of 1996 to 2023 (see Section 13.3). The geological and mineralization interpretation and model was completed using Leapfrog Geo™ software (version 2023.1). Geostatistical analysis and grade estimation were performed using Maptek's Vulcan software.

The Mineral Resource model for Suruca considers 1,130 core boreholes comprised of 97,700 assay samples for 96,745 m of drilling. SLR used Leapfrog Geo™ software (version 2023.1) to construct the geological solids and perform resource estimation, with supporting geostatistical analyses performed using Python and Snowden's Supervisor software.

The Mineral Resource model for Saúva and Formiga deposits that comprise the Saúva Project considers 300 core boreholes (88,323 m), of which 237 boreholes intersect the mineralization. Lundin used Leapfrog Geo™ software (version 2023.1.1) to construct the geological solids and perform resource estimation, with supporting geostatistical analyses performed using Python-based scripting of geostatistical tools.

The databases used to estimate the Chapada Mine and Saúva Project Mineral Resources were audited by the QP. The QP is of the opinion that the current drilling information is sufficiently reliable to interpret with confidence the boundaries for copper and gold mineralization and that the assay data are sufficiently reliable to support Mineral Resource estimation.

The Mineral Resource estimate is based on an open pit mining scenario; the reported Mineral Resources are constrained within optimized pits based on a copper and gold net smelter return (NSR) COV.

In the opinion of the QP, the Mineral Resource evaluation reported herein is a reasonable representation of the global copper and gold Mineral Resources found in the Chapada Mine and Saúva Project at the current level of sampling. The Mineral Resources have been estimated in conformity with generally accepted CIM Estimation of Mineral Resource and Mineral Reserves Best Practices

Guidelines and are reported in accordance with the Canadian Securities Administrators' National Instrument 43-101. Mineral Resources are not Mineral Reserves and have not demonstrated economic viability. There is no certainty that all or any part of the Mineral Resource will be converted into Mineral Reserves.

The geological interpretation and Mineral Resource domaining were audited by Joycelyn Smith, PGeo (EGBC#62513). Dr. Oy Leuangthong PEng (EGBC#62569) audited the Mineral Resource estimation work. Both Ms. Smith and Dr. Leuangthong are appropriate independent Qualified Persons as this term is defined in National Instrument 43-101. The effective date for the Audited Mineral Resource Statement is December 31, 2024.

The QPs are not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

13.2 Resource Estimation Procedures

The resource evaluation methodology involved the following procedures:

- Database compilation and verification
- Audit of wireframe models for the boundaries of the copper and gold mineralization
- Data conditioning (compositing and capping) for geostatistical analysis and variography
- Block modelling and grade interpolation
- Resource classification and validation
- Assessment of "reasonable prospects for eventual economic extraction" and selection of appropriate cut-off grades
- Preparation of the Mineral Resource Statement

13.3 Resource Database and Model Dates

The Mineral Resource block models are estimated using DD holes. All final collar locations were surveyed and reported in SAD 69, Zone 22S Universal Transverse Mercator (UTM) coordinates. The effective dates for the database and models are summarized in Table 13-1. The breakdown of available drilling by deposit is summarized in Table 13-2.

Table 13-1: Summary of Effective Dates for the Database and Models by Deposit

Deposit	Database	Geological Model	Resource Model
Chapada			
Baru	26-Jun-22		2022*
Baruzinho	15-Mar-19		2019*
Buriti	17-May-22		9-Jun-22
Buriti Norte	17-May-22		9-Jun-22
Chapada & Chapada NE	17-May-22	15-Dec-22	9-Jun-22
Chapada SW	20-May-22		28-May-22
Corpo Sul & Santa Cruz	6-Jun-22		5-Jul-22
Jatobá	24-Nov-20		27-Nov-20
Sucupira & Cava Norte	11-Nov-20		20-Nov-20
Suruca	1-Aug-22	2018*	23-Aug-23
Saúva	22-Aug-23	25-Nov-23	15-Sep-23
Formiga	1-Mar-21	25-Nov-23	14-Jun-21

* Specific day unspecified

Table 13-2: Drillhole Database Used for Resource Estimation

Deposit	Data	DDH
Chapada	Collar	152
	Length (m)	135,102
	Assay Count	22,778
Suruca *	Collar	1,130
	Length (m)	96,745
	Assay Count	97,700
Saúva	Collar	300
	Length (m)	88,323
	Assay Count	72,150

Notes:

[1] Differences in DDH tallies from the previous technical report are due to overlapping independent databases used for the Chapada and Suruca estimations prior to 2024. These databases have since been combined, preventing the risk of overlap.

Based on SRK's site visits completed in October 2022 and July 2024, SRK believes that drilling, logging, core handling, core storage, and analytical QC protocols used by Chapada meet generally accepted industry best practices. Historical drillholes that were sampled without the use of detailed analytical quality control data mainly occur in the center of the Chapada deposit, concentrated in areas that are already mined out. Historical drilling that occurs in areas not yet mined are generally spatially supported by newer drilling collected with industry standard analytical quality control practices. As a result, SRK considers that the exploration data collected by Lundin and previous project operators are of sufficient quality to support Mineral Resource evaluation.

13.4 Geological Domain Modelling

Chapada Mine encompasses the Chapada and Suruca deposits. Mineralization at the Chapada deposit is associated with high sulphide concentrations and disseminations along foliation planes and the hinges of folds. Copper mineralization and grade are increased along the anticlinal axis that extends in the central zone of the deposit.

The gold mineralization at the Suruca deposit is associated with folded quartz veins and sericitic and biotite alteration. The Suruca deposit comprises three distinct zones, divided according to the contained metals and oxidation zones: Suruca Oxide (gold-only), Suruca Sulphide (gold-only), and Suruca SW (copper-gold).

Mineralization at the Saúva Project generally occurs alongside the presence of biotite and quartz-feldspar veins, supporting the interpretation of a metamorphosed potassic halo from a Porphyry deposit. The increasing frequency of these veins is directly correlated with higher grades of copper and gold. The Saúva mineralized geometry is primarily controlled by regional foliation trending northeast with a 40 to 45-degree northwest dip. However, the orientation of individual high-grade zones varies, and some sections are influenced by folding.

Lithological models were created for all deposits using logged lithostratigraphic units. At Suruca, oxide, mixed, and sulfide surfaces were modelled to separate the lithological model. Lithology and weathering domains, where relevant, were integrated into the block models, encompassing the Chapada, Suruca, Saúva and Formiga deposits. Lithological, hydrothermal alteration, and structural data were used to interpret the mineralization geometry of all deposits.

The domains for the Chapada deposit were constructed by Lundin staff between 2020 and 2023, considering the use of structural data to support the modelled geometry, a minimum thickness of 5 m, and the use of pinch-outs to terminate wireframe extents aimed at a distance of ½ the drillhole spacing. The 2023 cut-off criteria were lowered from the previous 2018 model since the 2022 high-grade shell, defined at a gold cut-off of 0.2 g/t, did not encompass a lot of gold intercepts. The 2024 Chapada domains were modelled in Leapfrog Geo software with copper thresholds of 0.1% and gold thresholds of 0.7 g/t for Corpul Sul/Santa Cruz and Baru domains and 0.1 g/t for all others (Figure 13.1).

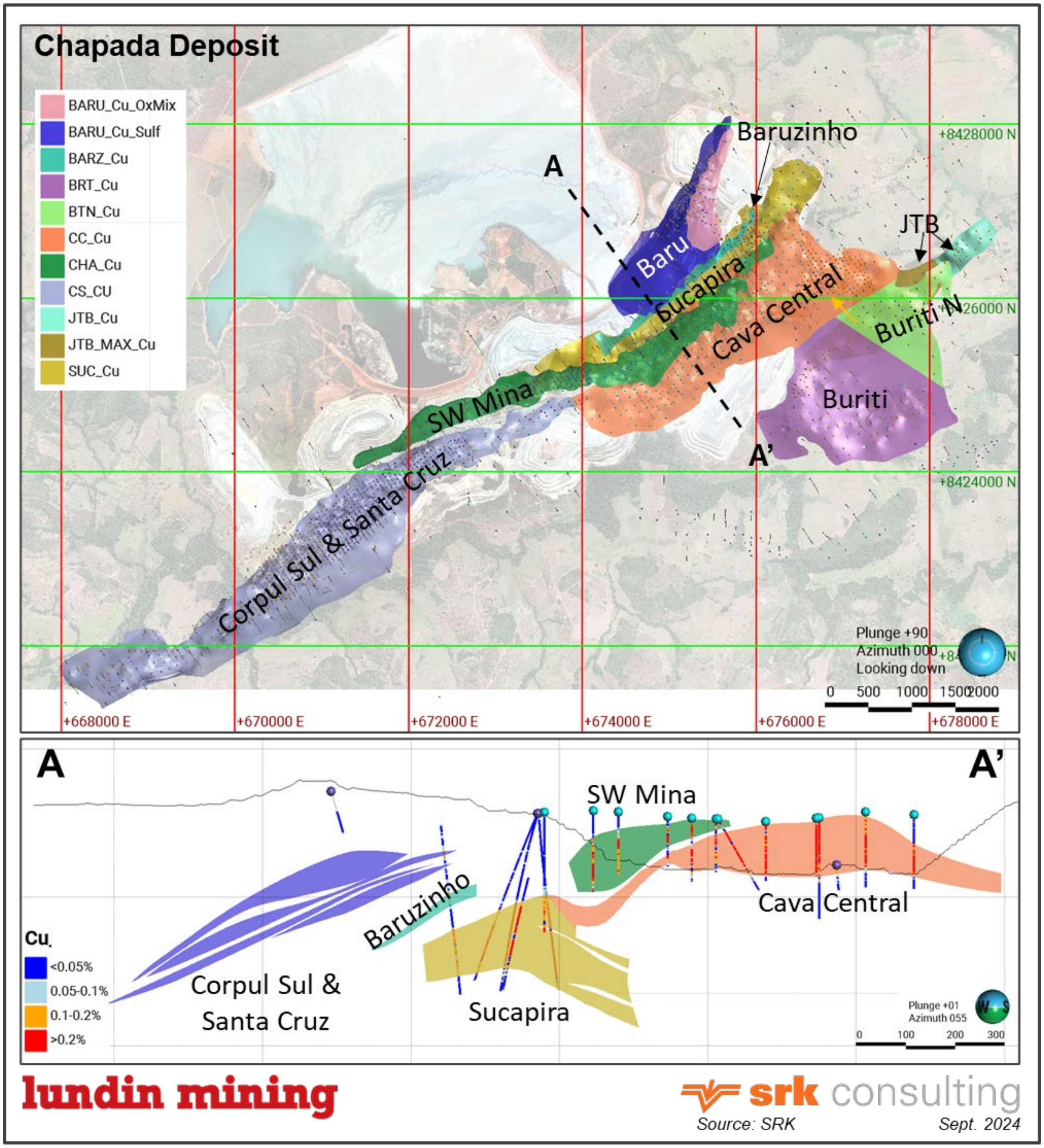
The Suruca deposit domains were generated by RPA in 2022. There are a total of three modelled domains, including low-grade copper using a copper threshold of 0.1%, and low- and high-grade gold, using gold thresholds of 0.1 g/t and 0.2 g/t, respectively (Figure 13.2).

The mineralized domains for the Saúva Project were modelled by Lundin with copper thresholds of 0.1% for low-grade and 0.3% for high-grade (Figure 13.3). Stratigraphic level and orientation guided the modelling, leading to the interpretation of 2 low-grade and 6 high-grade domains (LG Main, LG Satellite, HG Upper, HG Mid3, HG Midgroup and HG Lower, Saúva Central and Formiga). The low grade (1000s) and high-grade domains (3000s) were grouped together for figures and tables. A representative plan view section of the Saúva and Formiga mineralized domains is presented in Figure 13.3.

For all deposits, the extent of the domains was controlled through half-distance criterion, meaning half of the spacing between mineralized and unmineralized holes. For the Chapada and Saúva deposits, waste lenses were modelled for copper grades below the minimum threshold within the primary mineralized layers, provided they were at least 5 m thick and continuous across multiple drill holes and/or sections.

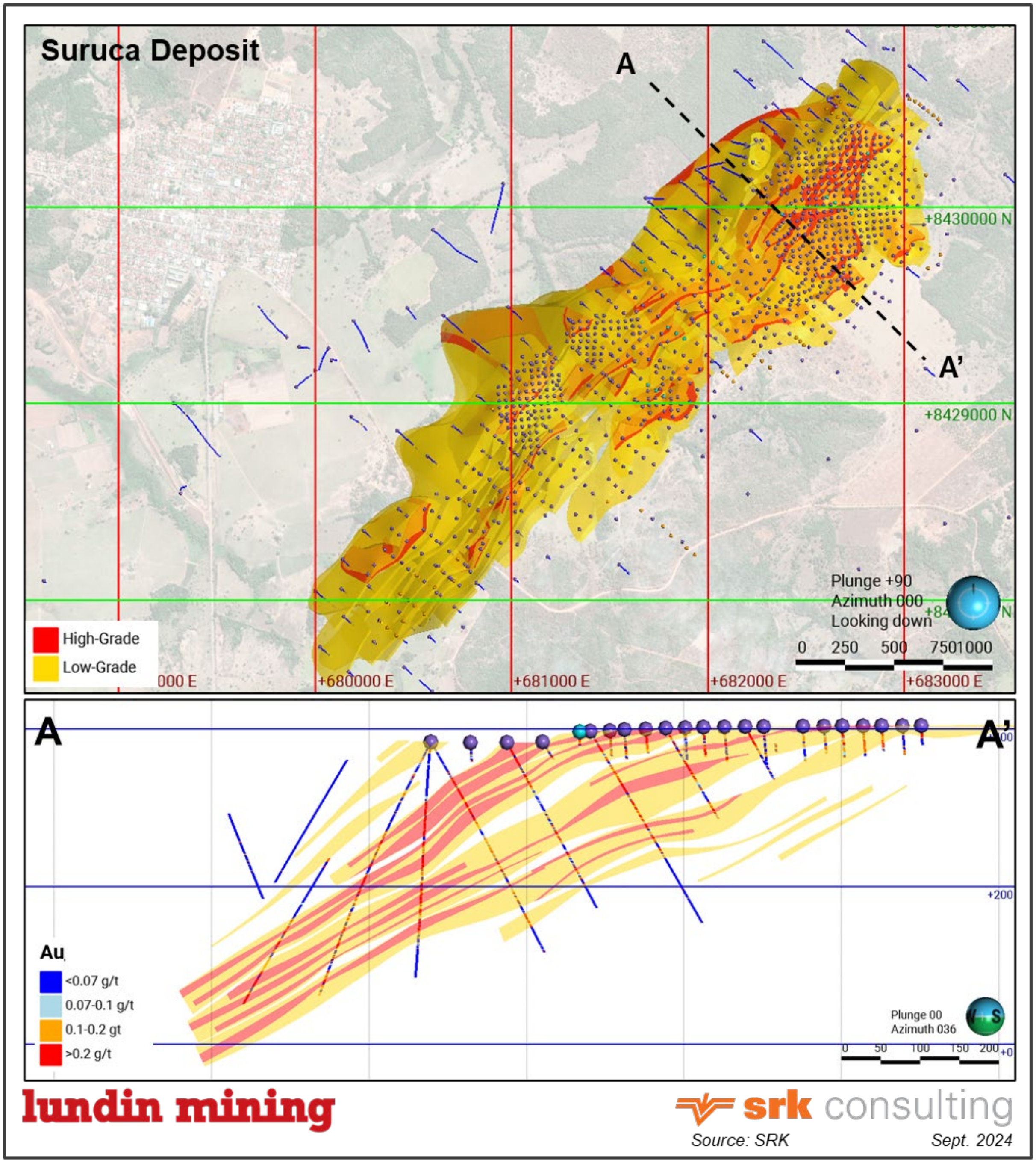
The topography surface was generated by MDT from satellite imagery with 5 m resolution. The surface was adjusted using collar information registered with RTX precision GPS.

Figure 13.1: Chapada Deposit Copper Domains



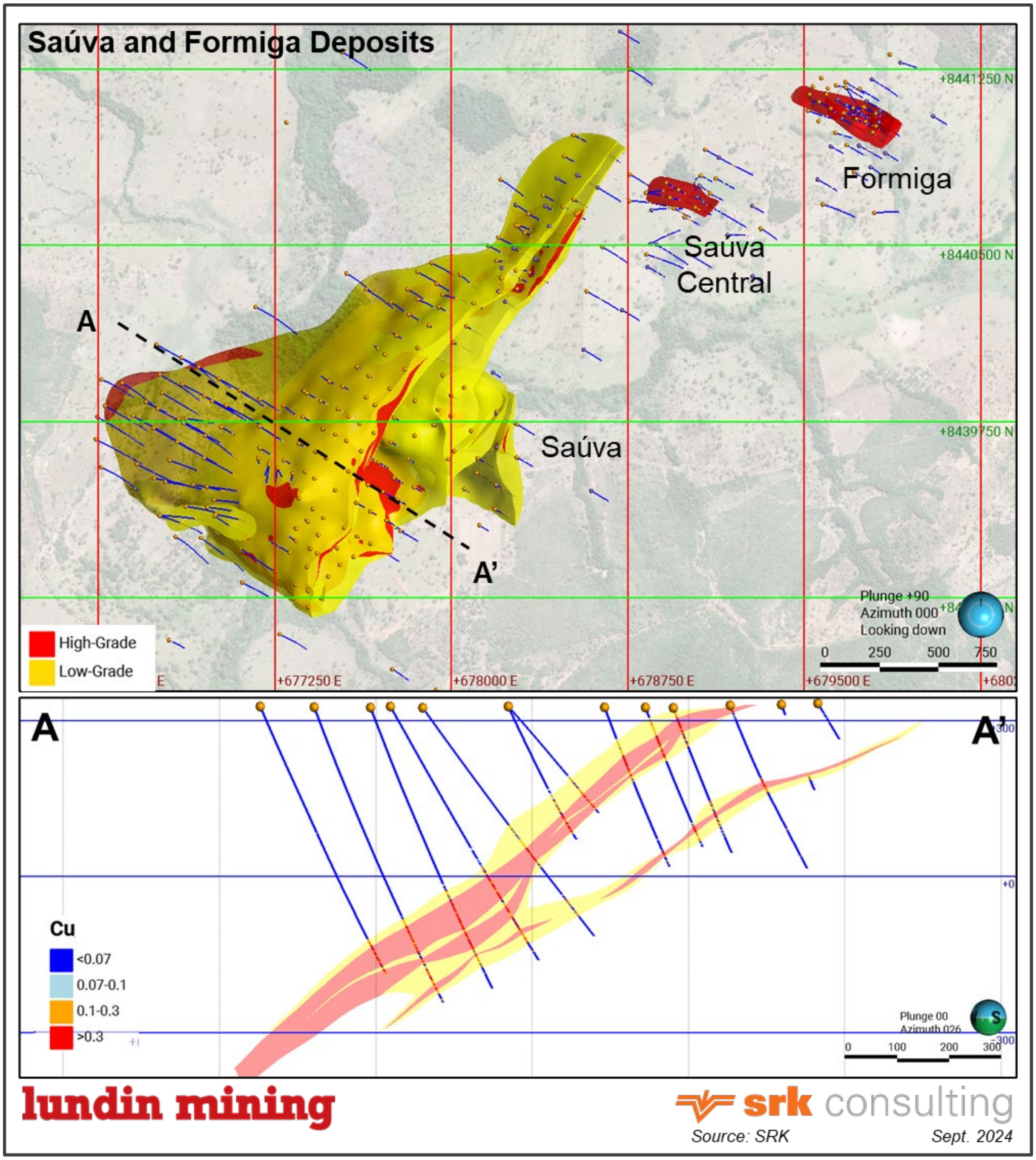
Source: SRK 2024

Figure 13.2: Suruca Deposit Gold Domains



Source: SRK Sept. 2024

Figure 13.3: Sauva and Formiga Copper Domains



SRK reviewed the geological and domain wireframes modelled for the Chapada Mine and Saúva Project. The volumetrics and grade thresholds used for modelling are summarized in Table 13-3.

Table 13-3: Summary of Domain Wireframe Volumetrics

Area	Deposit	Domain	Code	Year	Volume (m^3)		Threshold	
					Copper	Gold	Copper (%)	Gold (g/t)
Chapada Mine	Chapada	Buriti	BRT	2022	34,635,000	14,195,000	0.10	0.10
		Buriti Norte	BTN	2022	10,446,000	8,304,200	0.10	0.10
		SW Mina	CHA		87,808,000	56,713,000	0.10	0.10
		Baru (oxide and mixed)	BARU (Ox & Mix)	2023	5,428,300	3,132,500	0.10	0.07
		Baru (sulfide)	BARU (Sulf)	2023	60,496,000	32,849,000	0.10	0.07
		Baruzinho	BARZ	2019	7,057,500	2,034,000	0.10	0.10
		Jatobá	JTB	2020	7,721,900	4,523,200	0.10	0.10
		Jatobá Max	JTBMAX	2020	27,255,000	12,998,000	0.10	0.10
		Sucapira	SUC	2020	166,460,000	83,403,000	0.10	0.10
		Cava Central	CC	2022	173,080,000	104,490,000	0.10	0.10
		Corpo Sul & Santa Cruz	CS	2022	350,320,000	214,890,000	0.10	0.07
		Subtotal			**930,707,700**	**537,531,900**		
	Suruca	Low-grade	1000s	2023	95,976,000	219,830,000	0.10	0.10
		High-grade	2000s	2023	-	35,940,000		0.20
		Subtotal			**95,976,000**	**255,770,000**		
	Subtotal				**1,026,683,700**	**793,301,900**		
Saúva Project	Saúva	Low-grade	1000s	2023	181,680,000	83,713,000	0.10	0.10
		High-grade	3000s	2023	56,616,000	-	0.30	
		Subtotal			**238,296,000**	**83,713,000**		
	Formiga	Formiga		2021	942,330	942,330	0.30	-
		Saúva Central		2021	265,910	265,910	0.30	-
		Subtotal			**1,208,240**	**1,208,240**		
	Subtotal				**239,504,240**	**84,921,240**		
Total					**1,266,187,940**	**878,223,140**		

SRK examined and validated the 3-D wireframes in Leapfrog Geo™ software and accepted the solid models as a good representation of the copper and gold mineralization. SRK is of the opinion that the solid models agree well with the drill logs and offer a fair representation of the geological understanding based on the current level of sampling.

Some improvements were suggested to Lundin for future mandates to advance the geological domains, including:

- At the Chapada deposit, the wireframes do not appear to be snapped to the selected intervals, introducing a risk that mineralized intervals or waste intervals may be excluded or included, respectively, if not composited with this consideration.

- Although the domains were modelled prioritizing pinch-outs, some of the wireframes in the central zone of the Chapada deposit exhibit planar terminations along faulted zones. Modelling these faults where possible would help to aid in the overall understanding of the domain geometry and help to advance the geological interpretation.
- The domain extents were modelled with consideration of ½ the drillhole spacing, however a few of the main domains at the Chapada deposit (Cava Central, Baru, and Corpo Sul & Santa Cruz) extended further. The classification criteria prevented these areas from being considered as Mineral Resources, however it would be prudent for consistency and to reduce risk for future overestimation of tonnage in these zones.
- Opportunity at the Chapada deposit exists for some wireframes to refine interval selection, pinch-outs and domain constraints to eliminate artifacts and small holes caused by single drilling intercepts.
- SLR reports the domains were terminated against the leached horizon, however the domains are not truncated by weathering layers (saprolite, soil, etc.) and estimation of gold appears to be unaffected by these transitions. Classification of these blocks is Indicated and Measured.

The above recommendations are not considered to be material risks to the current Mineral Resource estimate, but rather should be adopted for future updates to continuously improve the geological domain model.

13.5 Bulk Density

Bulk density (BD) measurements in Saúva and Formiga started in 2015. In total, 4,104 samples were collected throughout the deposits area, whereas 1,831 samples were collected only inside the mineralized domains. Measurements were taken using Archimedes method. More details on how bulk density was measured is given in Section 10.2.

Density domains were separated by oxidation degree and mineralization (outside or within grade shells). The Mix (Hypogene) domain was described in Section 6.4 and is related to post-mineralization faults where oxidized fluids eventually percolated through.

Table 13-4 provides a breakdown of the average bulk density measurements for Chapada Mine and Saúva Project areas. Average bulk densities were applied to block volumes for tonnage conversion. The elevated density value assigned to Formiga domain is due to the presence of semi-massive sulphide as part of the mineralizing skarn system. The semi-massive sulphide mineralization is observed in drill core and uniquely characterizes mineralization for this zone. The QP reviewed the measured density data in this region and independently ran an inverse distance to a power of two (ID2) estimation to validate the elevated density in this domain.

Table 13-4: Specific Gravity Assigned to Block Model Zones for Tonnage Conversion

Deposit	Domain	Weathering	BM Density
Chapada	Main	Oxide	1.64
		Mixed	2.35
		Sulfides	2.74
		Stockpiles or Waste dump	2.20
	Suruca	Oxide	1.52
		Mixed	2.04
		Sulfides	2.80
Saúva	Main	Oxides	2.57
		Mix (Supergene)	2.77
		Mix (Hypogene)	2.76
		Sulfide (Waste)	2.88
		Sulfide (Saúva Mineralized domains)	2.83
	Central	Oxide	1.64
		Mix	2.35
		Sulfide	2.82
	Formiga	Oxide	1.64
		Mix	2.35
		Fresh	3.48

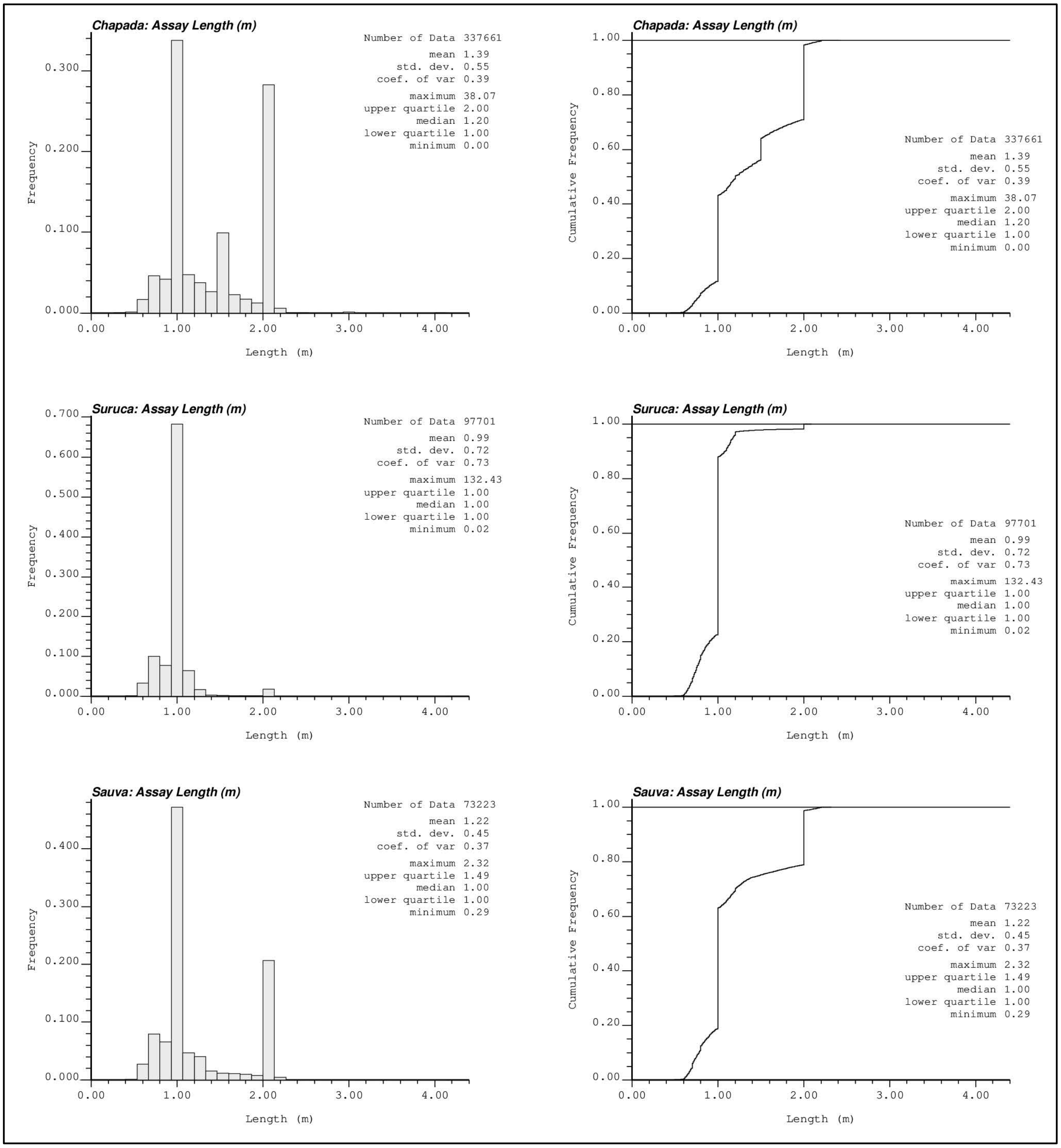
13.6 Assays, Composites and Capping

Lundin selected a composite length of two metres for the Chapada main deposit and Saúva deposits. In Chapada, any assay composite interval below 0.4 m were excluded from the resource estimation during grade interpolation, while in the Saúva Mineral Resource models, residual length composites less than or equal to 0.3 m were added to the previous interval (Figure 13.4).

For Suruca, assay samples were regularized to a 1 m length, which is the average length of the raw samples. Any residual length shorter than 0.5 m was added to the previous interval.

SRK reviewed the assay length distributions in the relevant resource databases and confirmed that the chosen composite lengths correspond to the 98.1, 99.9 and 98.7 percentile of the assay length distributions for Chapada, Suruca and Saúva, respectively. This avoids unnecessarily breaking assays and artificially inflating the number of composites available for grade estimation. The selected composite lengths are reasonable.

Figure 13.4: Histogram (left) and Cumulative Histogram (right) of Assay Lengths in the Assay Database for Chapada (top), Suruca (middle) and Saúva (bottom)



To limit the influence of high-grade outliers during grade estimation, it is common to cap the data prior to estimation. In all block models, the composited data was reviewed to identify any potential outliers and assess the need to cap the data. Capping analyses consisted of a combination of probability plots, and capping sensitivity plots. In the Chapada main deposit, further control on the spatial influence of high-grade composites were imposed during estimation using a high-yield or high-grade restriction. A summary of the chosen cap values and high-yield thresholds (if required) is summarized by deposit and domain in Table 13-5.

Table 13-5: Summary of Cap Values and High Yield Restrictions

Deposit	Domain	Weathering Domain	Top Cut		High Yeld Restriction		No. Capped	
			Cu (%)	Au (ppm)	Cu (%)	Au (ppm)	Cu	Au
Chapada	Baru	Oxi + Mix	0.83	0.52	0.90	0.40	16	4
		Sulf	1.10	0.70	0.81	0.60	51	10
	Baruzinho	Oxi + Mix	-	0.50	0.30	0.50	-	2
		Sulf	0.70	0.40	0.65	1.60	4	67
	Buriti	Oxi	0.20	0.30	0.20	0.25	8	1
		Mix	0.20	-	0.20	0.20	8	-
		Sulf	0.55	0.42	0.55	0.39	2	12
	Buriti Norte	Oxi	0.35	0.70	0.25	0.60	4	2
		Mix	1.10	-	0.90	0.60	4	-
		Sulf	0.65	0.55	0.50	0.42	3	4
	Cava Central	Oxi + Mix	1.50	1.10	1.20	1.10	2	5
		Sulf	1.75	1.90	1.50	1.55	8	17
	Corpo Sul	Oxi	1.05	1.05	0.80	0.82	6	11
		Mix	-	1.60	1.00	1.07	-	5
		Sulf	1.30	2.10	1.04	0.90	25	22
	Jatobá	Oxi	0.75	0.40	0.40	0.40	4	3
		Mix	0.75	0.40	0.40	0.40	4	3
		Sulf	0.65	0.50	0.50	0.50	1	4
	Sucurpira	Oxi	0.85	0.80	0.60	0.65	2	2
		MIX	1.00	0.80	0.65	0.65	2	
		Sulf	1.25	2.20	1.25	1.80	45	24
	SW Mina	Oxi	1.10	1.60	0.95	1.46	18	7
		Mix	0.70	0.80	0.55	0.52	3	3
		Sulf	1.60	1.50	1.10	1.10	14	12
Chapada	Suruca	Mineralized	0.75	5.00			6	112
		Buffer	0.20	0.40			8	100
Saúva	LG Main		0.61	0.43			10	18
	HG Satellite		0.53	0.66			3	2
	HG Upper		2.72	3.89	1.62		3	15
	HG Lower		0.90	0.90	0.68	0.60	5	10
	HG Mid3		0.84	1.00	0.65	0.60	7	6
	HG Midgroup		0.70	0.24	0.56		1	7
Saúva	Central		0.64	0.90	0.36	0.68	8	9
	Formiga		4.75	0.52			8	4

SRK reviewed the assay statistics against the composite statistics for Cu and Au grades and confirmed that the compositing process yielded comparable mean grades and reduced variance as expected (see Table 13-6 and Table 13-7). As well, SRK confirmed that the capped average grades are lower than the uncapped average grades for Cu and Au composites.

13.7 Variography

For Chapada, a copper and gold variogram was modelled for each domain. In Suruca, a global copper (Figure 13.5) and gold variogram was modelled and applied to all mineralized copper and gold domains estimations. While in Saúva, adequate drill spacing in three areas enabled copper and gold variogram creation for the LG Main, HG Upper (Figure 13.6), and HG Lower domains. Where possible, traditional semi-variograms formed the basis for the fitted variogram models; however, correlograms were used for copper grades in Baruzinho and Sucupira, and general relative variogram was used for gold grades in Baruzinho.

For Chapada, this analysis was done using Supervisor, while Leapfrog Edge was used for Suruca and Saúva. Downhole variograms were used to model the nugget effect, while directional variograms were based on the prevalent anisotropy directions in the respective domains.

Table 13-8 summarizes the variograms modelled for copper and gold. Variograms were not modelled in the oxide and mixed sub-domains for all deposits. Similarly, in Saúva Central and Formiga zones, variogram inference was challenging due to lack of data.

Variograms were not modelled in the oxide and mixed sub-domains for all deposits. Similarly, in Saúva Central and Formiga zones, variogram inference was challenging due to lack of data. In these domains / sub-domains, estimation using inverse distance weighting was used so variograms were not required.

Table 13-6: Comparison of Assay and Composite Statistics for Cu Grades

Deposit	Domain	Cu (%) Assays						Cu (%) Composites					Capped Composites		
		Count	Length (m)	Mean	Variance	Minimum	Maximum	Count	Mean	Variance	Minimum	Maximum	Mean	Variance	Maximum
Chapada	Baru	5,844	6,232	0.23	0.05	0.00	2.92	3,164	0.23	0.05	0.00	2.32	0.19	0.01	0.35
	Baru Mixed	123	151	0.22	0.04	0.00	1.57	86	0.24	0.04	0.01	1.23	0.20	0.01	0.40
	Baru Oxide	643	848	0.26	0.05	0.01	1.30	438	0.25	0.05	0.01	1.30	0.25	0.04	1.02
	Baruzinho	1,034	1,267	0.16	0.02	0.00	1.30	651	0.16	0.02	0.00	1.12	0.16	0.01	0.70
	Baruzinho Oxide	30	44	0.20	0.01	0.05	0.40	25	0.20	0.01	0.05	0.39	0.20	0.01	0.39
	Buriti	2,546	2,464	0.20	0.02	0.00	1.05	1,276	0.20	0.01	0.01	0.78	0.20	0.01	0.55
	Buriti Mixed	41	39	0.18	0.02	0.01	0.79	21	0.18	0.01	0.01	0.51	0.14	0.00	0.20
	Buriti Oxide	30	30	0.21	0.07	0.01	1.15	17	0.20	0.06	0.01	0.92	0.13	0.00	0.20
	Buriti Norte	481	486	0.20	0.02	0.01	0.75	253	0.20	0.01	0.03	0.69	0.20	0.01	0.60
	Buriti Norte Mixed	217	208	0.34	0.11	0.01	1.84	109	0.34	0.10	0.06	1.45	0.33	0.08	1.10
	Buriti Norte Oxide	125	123	0.18	0.02	0.04	0.83	65	0.18	0.01	0.05	0.57	0.18	0.01	0.35
	Cava Central	14,722	22,070	0.32	0.07	0.00	4.52	11,170	0.32	0.06	0.00	2.38	0.32	0.06	1.75
	Cava Central Oxide	2,396	3,388	0.25	0.04	0.00	2.20	1,904	0.25	0.04	0.00	1.76	0.25	0.04	1.50
	Corpo Sul	46,016	74,821	0.25	0.03	0.00	2.54	37,817	0.25	0.02	0.00	2.46	0.25	0.02	1.30
	Corpo Sul Mixed	958	1,308	0.30	0.09	0.00	3.15	734	0.30	0.08	0.00	3.05	0.30	0.08	3.05
	Corpo Sul Oxide	2,293	3,249	0.25	0.03	0.00	1.51	1,706	0.25	0.03	0.01	1.23	0.25	0.03	1.05
	Jatoba	1,091	1,088	0.18	0.02	0.00	2.32	559	0.18	0.01	0.00	0.70	0.18	0.01	0.65
	Jatoba Oxide	145	137	0.25	0.05	0.07	1.42	73	0.25	0.04	0.09	0.96	0.25	0.03	0.75
	Sucupira	26,885	33,091	0.25	0.04	0.00	2.60	16,690	0.25	0.03	0.00	2.10	0.25	0.03	1.25
	Sucupira Mixed	231	281	0.32	0.06	0.01	1.90	155	0.31	0.05	0.01	1.57	0.31	0.04	1.00
	Sucupira Oxide	373	528	0.23	0.03	0.03	0.96	280	0.23	0.03	0.04	0.93	0.23	0.02	0.85
	SW Mina	11,768	16,681	0.24	0.04	0.00	4.60	8,430	0.24	0.04	0.00	3.44	0.24	0.03	1.60
	SW Mina Mixed	181	192	0.21	0.02	0.00	1.09	169	0.22	0.03	0.00	1.09	0.22	0.02	0.70
	SW Mina Oxide	1,373	2,270	0.23	0.07	0.00	2.90	1,182	0.23	0.06	0.00	2.78	0.22	0.05	1.10
Suruca	3000s	9,230	8,992	0.16	0.01	0.00	1.07	9,017	0.16	0.01	0.00	1.07	0.16	0.01	0.75
Saúva	LG Main	12,461	12,128	0.19	0.01	0.00	1.84	6,246	0.19	0.01	0.00	1.00	0.19	0.01	0.61
	LG Satellite	64	63	0.31	0.02	0.09	0.65	33	0.31	0.02	0.13	0.60	0.30	0.02	0.53
	HG Upper	4,160	3,967	0.53	0.16	0.01	3.84	2,035	0.53	0.12	0.01	3.37	0.53	0.12	3.37
	HG Lower	1,672	1,628	0.42	0.03	0.01	2.12	842	0.42	0.02	0.02	1.33	0.42	0.02	0.90
	HG Mid	414	393	0.44	0.06	0.00	2.40	211	0.44	0.05	0.07	2.40	0.42	0.03	0.84
	HG Midgroup	398	381	0.41	0.03	0.01	1.06	201	0.41	0.02	0.01	0.78	0.41	0.02	0.70
Formiga		555	502	1.05	3.93	0.00	17.10	272	0.96	1.67	0.00	10.68	0.90	1.22	4.75

Table 13-7: Comparison of Assay and Composite Statistics for Au Grades

Deposit	Domain	Au (ppm) Assays						Au (ppm) Composites					Capped Composites		
		Count	Length (m)	Mean	Variance	Minimum	Maximum	Count	Mean	Variance	Minimum	Maximum	Mean	Variance	Maximum
Chapada	Baru	2,126	2,220	0.17	0.02	0.00	1.67	1,152	0.17	0.02	0.00	1.45	0.17	0.01	0.80
	Baru Mixed	57	67	0.15	0.01	0.01	0.45	39	0.16	0.01	0.01	0.45	0.16	0.01	0.45
	Baru Oxide	300	384	0.20	0.02	0.00	1.28	200	0.20	0.02	0.01	1.28	0.19	0.01	0.50
	Baruzinho	384	490	0.33	0.13	0.00	2.43	256	0.32	0.11	0.00	1.90	0.23	0.02	0.40
	Baruzinho Oxide	18	25	0.34	0.03	0.11	0.74	15	0.34	0.02	0.11	0.53	0.34	0.02	0.50
	Buriti	1,288	1,252	0.18	0.01	0.00	1.33	674	0.18	0.01	0.00	0.87	0.18	0.01	0.42
	Buriti Mixed	17	15	0.14	0.00	0.07	0.27	8	0.14	0.00	0.11	0.21	0.14	0.00	0.21
	Buriti Oxide	21	20	0.21	0.01	0.05	0.36	11	0.21	0.01	0.10	0.32	0.21	0.01	0.30
	Buriti Norte	337	335	0.17	0.06	0.01	3.51	176	0.17	0.03	0.02	1.40	0.15	0.01	0.55
	Buriti Norte Mixed	111	102	0.16	0.01	0.01	0.91	57	0.15	0.01	0.02	0.38	0.15	0.01	0.38
	Buriti Norte Oxide	415	405	0.18	0.04	0.00	2.78	211	0.18	0.02	0.01	1.33	0.18	0.02	0.70
	Cava Central	11,237	16,881	0.28	0.09	0.00	6.91	8,575	0.27	0.07	0.00	4.84	0.27	0.06	1.90
	Cava Central Oxide	1,712	2,351	0.21	0.04	0.00	4.11	1,330	0.21	0.03	0.00	2.07	0.21	0.03	1.10
	Corpo Sul*	31,575	52,360	0.21	0.06	0.00	5.68	26,945	0.20	0.06	0.00	5.64	0.20	0.05	2.10
	Corpo Sul Oxide	2,493	3,423	0.20	0.08	0.00	4.11	1,387	0.19	0.06	0.00	4.11	0.18	0.03	1.05
	Jatoba	653	645	0.16	0.01	0.00	0.99	334	0.16	0.01	0.00	0.67	0.16	0.01	0.50
	Jatoba Oxide	89	84	0.23	0.02	0.04	1.00	45	0.23	0.01	0.08	0.60	0.22	0.01	0.40
	Sucupira	13,400	16,190	0.25	0.08	0.00	4.46	8,222	0.25	0.07	0.00	4.43	0.25	0.06	2.20
	Sucupira Oxide	251	320	0.24	0.03	0.00	1.06	170	0.24	0.02	0.01	0.97	0.23	0.02	0.80
	SW Mina	7,985	11,279	0.25	0.14	0.00	24.02	5,744	0.25	0.08	0.00	12.64	0.25	0.04	1.50
	SW Mina Mixed	95	93	0.24	0.15	0.00	3.20	99	0.23	0.09	0.00	2.52	0.21	0.03	0.80
	SW Mina Oxide	951	1,439	0.26	0.10	0.00	3.50	753	0.26	0.09	0.00	2.39	0.26	0.08	1.60
Suruca	Low-Grade	33,623	32,145	0.22	2.44	0.00	296.00	32,279	0.22	1.24	0.00	107.01	0.21	0.26	20.00
	High-Grade	7,230	6,945	0.65	3.03	0.00	60.51	6,978	0.65	2.86	0.01	60.51	0.64	2.09	28.00
Saúva	LG Main	12,461	12,128	0.07	0.01	0.00	4.57	6,246	0.07	0.01	0.00	2.56	0.07	0.00	0.43
	LG Satellite	64	63	0.38	0.11	0.06	2.34	33	0.38	0.06	0.09	1.15	0.34	0.04	0.66
	HG Upper	4,160	3,967	0.47	0.61	0.00	8.16	2,035	0.47	0.49	0.01	6.64	0.46	0.40	3.89
	HG Lower	1,672	1,628	0.19	0.04	0.00	3.41	842	0.19	0.04	0.01	1.61	0.19	0.03	0.90
	HG Mid	414	393	0.31	0.13	0.00	3.37	211	0.30	0.10	0.03	2.66	0.29	0.07	1.00
	HG Midgroup	398	381	0.12	0.00	0.00	0.46	201	0.12	0.00	0.00	0.43	0.12	0.00	0.24
Formiga		656	615	0.38	0.96	0.00	20.88	332	0.37	0.42	0.00	8.36	0.29	0.07	1.30

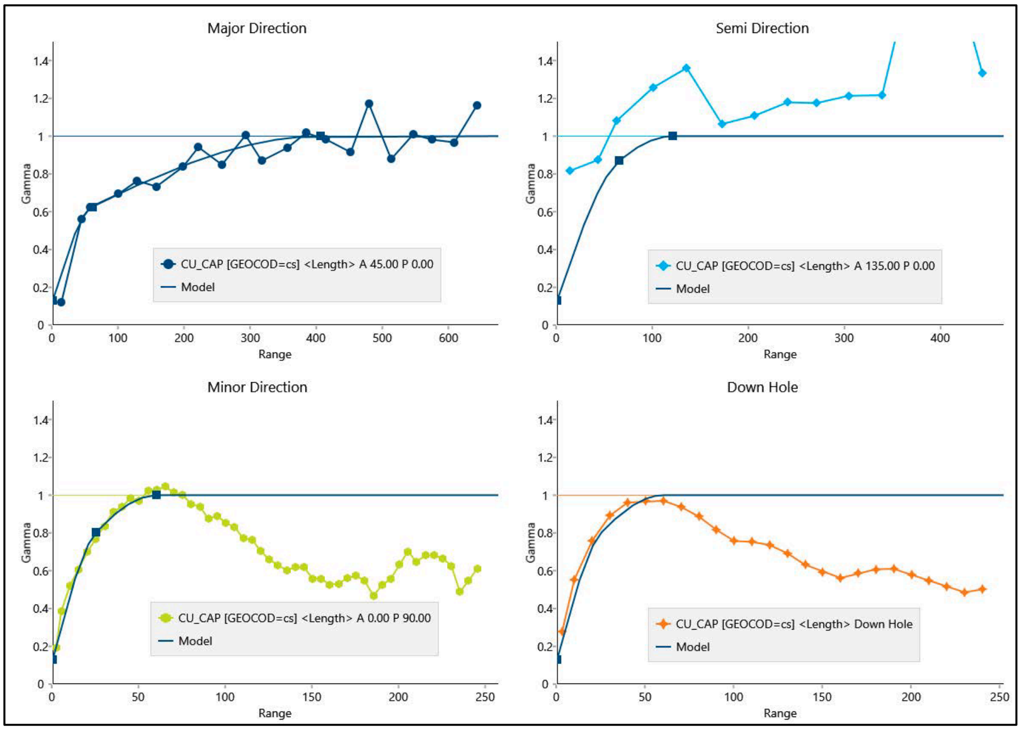
* Mixed + sulphides

Table 13-8: Summary of Copper and Gold Variogram Models

Variable	Deposit	Domains	Orientation*			Nugget Effect	Structure 1					Structure 2					Structure 3				
			A1	A2	A3		CC	Type	Major	Semi	Minor	CC	Type	Major	Semi	Minor	CC	Type	Major	Semi	Minor
Cu	Chapada	Baru	32	10	28	0.10	0.65	Sph	140	68.00	22.0	0.13	Sph	400.0	90	24	Sph	0.12	800	122	35.0
		Baruzinho	40	13	0	0.12	0.48	Sph	70	35.00	9.0	0.40	Sph	210.0	58	19	-	-	-	-	-
		Buriti Norte	45	0	5	0.10	0.65	Sph	52	52.00	6.0	0.25	Sph	120.0	120	13	-	-	-	-	-
		Buriti	140	0	0	0.10	0.50	Sph	140	90.00	4.0	0.46	Sph	212.0	160	8	-	-	-	-	-
		Cava Central	55	0	0	0.10	0.45	Sph	100	15.00	14.0	0.45	Sph	360.0	150	55	-	-	-	-	-
		Corpo Sul	40	0	20	0.10	0.33	Sph	60	45.00	13.0	0.57	Sph	630.0	120	58	-	-	-	-	-
		Jatobá	35	3	0	0.38	0.30	Sph	70	90.00	14.0	0.32	Sph	190.0	170	28	-	-	-	-	-
		Sucupira	40	5	0	0.20	0.28	Sph	83	18.00	18.0	0.20	Sph	130.0	60	35	Sph	0.32	550	110	110.0
		SW Mina	75	5	0	0.15	0.39	Sph	105	15.00	13.0	0.46	Sph	165.0	60	72	-	-	-	-	-
		Suruca	35	307	105	0.19	0.56	Sph	74	95.00	4.0	0.25	Sph	151.0	131	14					
	Saúva	LG Main	303	4	40	0.15	0.65	Exp	50	50.00	10.0	0.20	Exp	250.0	200	40					
		HG Upper	286	19	30	0.15	0.60	Exp	130	110.00	5.0	0.25	Sph	350.0	300	30					
		HG Lower	316	79	43	0.10	0.70	Sph	100	40.00	10.0	0.20	Sph	245.0	230	15					
Au	Chapada	Baru	31	-2	30	0.20	0.40	Sph	90	8.14	19.0	0.30	Sph	173.9	30	26	Sph	0.10	180	40	28.6
		Baruzinho	40	8	0	0.30	0.32	Sph	55	35.00	9.0	0.38	Sph	140.0	40	17	-	-	-	-	-
		Buriti Norte	120	3	0	0.10	0.76	Sph	90	19.92	9.0	0.15	Sph	170.0	55	18	-	-	-	-	-
		Buriti	35	0	5	0.15	0.63	Sph	75	60.00	5.0	0.22	Sph	140.0	100	10	-	-	-	-	-
		Cava Central	60	0	0	0.10	0.44	Sph	100	15.00	10.0	0.46	Sph	360.0	150	50	-	-	-	-	-
		Corpo Sul	45	3	0	0.05	0.50	Sph	85	50.00	30.0	0.45	Sph	330.0	110	50	-	-	-	-	-
		Jatobá	40	3	15	0.55	0.18	Sph	68	180.00	3.2	0.27	Sph	215.0	250	23	-	-	-	-	-
		Sucupira	50	5	0	0.10	0.24	Sph	50	30.00	8.0	0.66	Sph	126.0	45	38	-	-	-	-	-
		SW Mina	80	5	0	0.05	0.95	Sph	93	60.00	21.0	-	-	-	-	-	-	-	-	-	-
		Suruca	35	315	60	0.23	0.46	Sph	218	200.00	1.0	0.32	Sph	374.0	300	10	-	-	-	-	-
	Saúva	LG Main	303	105	40	0.15	0.40	Exp	50	40.00	20.0	0.45	Exp	300.0	200	35					
		HG Upper	286	108	30	0.05	0.70	Exp	190	140.00	4.0	0.25	Exp	400.0	340	30					
		HG Lower	303	27	38	0.05	0.23	Sph	195	85.00	4.0	0.72	Sph	400.0	260	23					

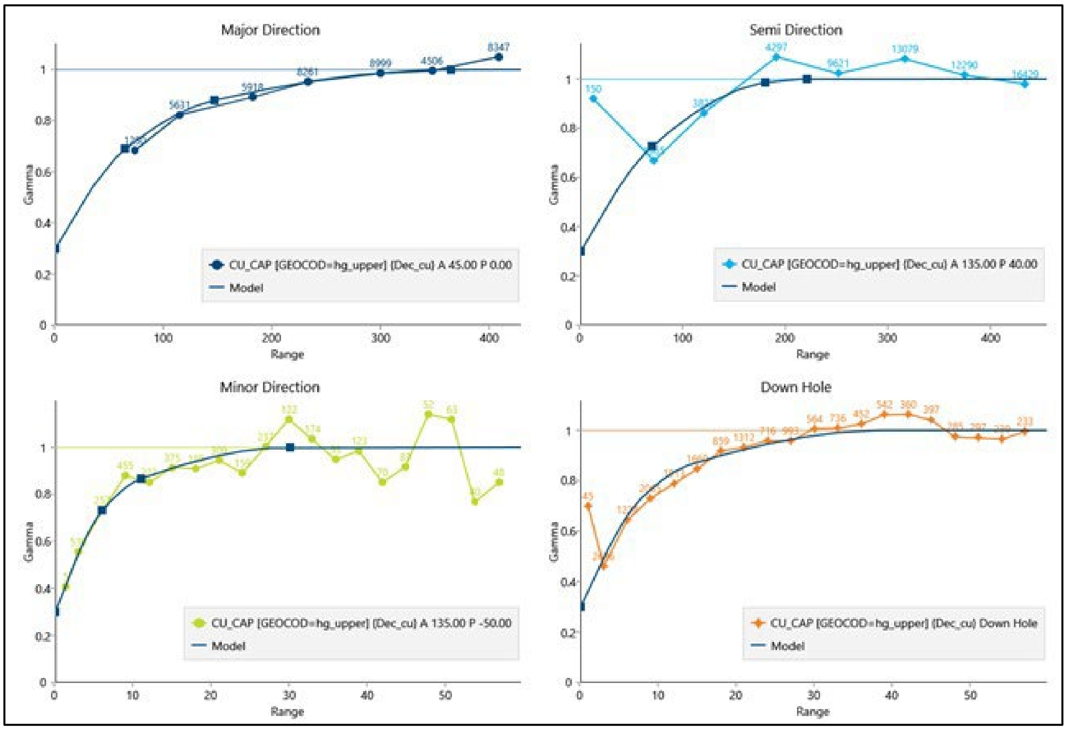
* Orientation angles (A1/A2/A3) are in Vulcan convention (ZYX) for Chapada and Saúva, but in Leapfrog Edge convention (Dip/Azimuth/Pitch) for Suruca.

Figure 13.5: Copper Variogram for Corpo Sul in Chapada Mine



Sources: Lundin, 2024

Figure 13.6: Copper variogram for Hg Upper Sub-Domain of Sauva Project



Sources: Lundin, 2024

13.8 Block Model and Grade Estimation

The block model definitions for the Chapada Mine (Chapada and Suruca) and Saúva Project (Saúva and Formiga) models are provided in Table 13-9. In all four block models, the blocks were flagged by litho-structural domain, grade shell, and weathering zones, and were clipped to the original and surveyed as-mined topographic surfaces.

Table 13-9: Block Model Definitions

Deposit	Domains	Description	X	Y	Z
Chapada	Main Domains	Base Point	668,023	8,416,520	420
		No. Blocks	1600	550	70
		Parent cell size (m)	10	10	10
		Rotation (azm, dip, pitch)	326	0	0
Chapada	Suruca	Base Point	680,200	8,426,000	-200
		No. Blocks	1140	458	140
		Parent cell size (m)	5	5	6
		Sub-blocks	4	4	4
		Rotation (azm, dip, pitch)	310	0	0
Saúva	Saúva	Minimum Corner	674,678	8,440,185	-900
		No. Blocks	800	1000	270
		Parent cell size (m)	5	5	5
		Rotation (azm, dip, pitch)	43	0	0
Saúva	Formiga	Minimum Corner	676,969	8,440,271	-280
		No. Blocks	211	340	73
		Parent cell size (m)	10	10	10
		Rotation (azm, dip, pitch)	56	0	0

Block grades were estimated using Ordinary Kriging (OK) in areas where sufficient composites were available to produce reliable variograms. In the absence of reliable variograms for all other domains, block estimates were performed using Inverse Distance to the third power (ID3). In general, OK was applied in the sulphides in Chapada Mine (main domains and Suruca), and only for the LG satellite, HG lower and HG upper domains within Saúva.

A block discretization of 5 × 5 × 5 was used for Chapada, while 3 × 3 × 3 discretization was used for Suruca and Saúva. Dynamic anisotropy or local varying orientations was used for grade estimation.

Table 13-10 and Table 13-11 summarizes the estimation method and data requirements for copper and gold estimation, respectively, in the Chapada Mine and Saúva Project.

For Chapada and Suruca, the general estimation strategy involves up to three estimation passes with progressively relaxed search ellipsoids and data requirements. Dynamic anisotropy or local varying orientations was used for grade estimation, except for Baru in the Oxide and Mix zones. Search distances were generally based on the ranges derived from the variogram analysis. In some domains, search ranges were reduced to a reasonable distance for Pass 1. The second and/or third pass search ranges are two times that of the first pass, and the fourth pass search is twice the third pass search. Interpolation of copper and gold grade was performed using a hard boundary between the weathering surfaces.

The estimation strategy for Saúva and Formiga involves up to four estimation passes with progressively relaxed search ellipsoids and data requirements. A dynamic search ellipsoid is utilized to better represent the folded nature of the deposit's geometry. Search distances are determined by drilling spacing, with anisotropy guided by variogram analysis. The first pass aligns with the minimum drilling spacing defined in the area, while the second and third passes extend to two and three times the first pass, respectively. The fourth pass widens the search range to ensure complete estimation coverage across mineralized domains. Interpolation of copper and gold grades employs a hard boundary approach.

The QP reviewed the interpolation strategy adopted for Chapada, Suruca, Saúva and Formiga, and considers it to be reasonable for this type of deposit.

Table 13-10: Estimation Parameters for Copper

Deposit	Domain	Weather	Method	Estimate Passes	Search Orientation	Sample Search Range (m)			Samples								HY Restriction			
						Major Axis	Semi-Major Axis	Minor Axis	Discretization	Min Samples	Max Samples	Max per Octant	Min Octant	Min Hole	Max Hole	Max per Hole	Threshold (% Cu)	Major (m)	Semi-Major (m)	Minor (m)
Chapada	Baru	Oxi + Mix	ID3	1	Static	120	110	15		8	20	-	-	3	6	4	0.90	60	55	10
				2		120	110	20		6	18	6	-	2	6	4	0.90	60	55	10
				3		240	220	40		4	12	6	-	-	-	4	0.90	60	55	10
		Sulf	OK	1	Dynamic	70	60	12	5x5x5	7	18	6	-	3	10	3	0.81	60	55	10
				2		120	110	18	5x5x5	7	18	6	-	3	6	6	0.81	60	55	10
				3		120	110	20	5x5x5	7	18	6	-	2	6	4	0.81	60	55	10
				4		240	220	40	5x5x5	4	12	6	-	-	-	6	0.81	60	55	10
	Baruzinho	Oxi + Mix	ID3	1	Dynamic	120	110	15		7	18	6	-	2	6	6	0.30	60	55	10
		Oxi + Mix		2		240	220	40		4	12	6	-	2	6	6	0.30	60	55	10
		Sulf	OK	1	Dynamic	60	55	10	5x5x5	7	18	6	-	2	6	6	0.65	60	55	10
		Sulf		2		120	110	15	5x5x5	7	20	6	-	2	6	6	0.65	60	55	10
		Sulf		3		120	110	20	5x5x5	7	18	6	-	2	6	4	0.65	60	55	10
		Sulf		4		240	220	40	5x5x5	4	12	6	-	-	-	6	0.65	60	55	10
	Buriti	Oxi	ID3	1	Dynamic	240	220	30		7	16	6	-	-	-	6	0.20	60	55	10
		Oxi		2		240	220	40		4	12	6	-	-	-	6	0.20	60	55	10
		Mix	ID3	1	Dynamic	240	220	30		7	16	6	-	-	-	6	0.20	60	55	10
		Mix		2		240	220	40		4	12	6	-	-	-	6	0.20	60	55	10
		Sulf	OK	1	Dynamic	240	220	30	5x5x5	7	16	6	-	-	-	6	0.55	60	55	10
		Sulf		2		240	220	40	5x5x5	4	12	6	-	-	-	6	0.55	60	55	10
	Buriti Norte	Oxi	ID3	1	Dynamic	120	110	15		7	20	6	-	3	6	6	0.25	60	55	10
		Oxi		2		120	110	20		7	20	6	-	2	6	6	0.25	60	55	10
		Oxi		3		240	220	40		4	14	6	-	-	-	6	0.25	60	55	10
		Mix	ID3	1	Dynamic	120	110	15		7	12	6	-	3	6	6	0.90	60	55	10
		Mix		2		150	120	20		7	20	6	-	2	6	6	0.90	60	55	10
		Mix		3		240	220	40		4	14	6	-	-	-	6	0.90	60	55	10
		Sulf	OK	1	Dynamic	120	110	15	5x5x5	7	20	6	-	3	6	6	0.50	60	55	10
		Sulf		2		120	110	20	5x5x5	7	20	6	-	2	6	6	0.50	60	55	10
		Sulf		3		240	220	40	5x5x5	4	14	6	-	-	-	6	0.50	60	55	10
	Cava Central	Oxi + Mix	ID3	1	Dynamic	60	55	10		7	18	6	4	3	6	4	1.20	60	55	10
		Oxi + Mix		2		120	110	15		7	20	6	3	3	6	4	1.20	60	55	10
		Oxi + Mix		3		120	110	20		6	18	6	2	2	6	4	1.20	60	55	10
		Oxi + Mix		4		240	220	40		4	12	6	-	-	-	4	1.20	60	55	10
		Sulf	OK	1	Dynamic	60	55	10	5x5x5	6	20	6	4	3	6	4	1.50	60	55	10
		Sulf		2		120	110	15	5x5x5	6	18	6	3	3	6	4	1.50	60	55	10
		Sulf		3		120	110	20	5x5x5	6	18	6	2	2	6	4	1.50	60	55	10

Deposit	Domain	Weather	Method	Estimate Passes	Search Orientation	Sample Search Range (m)			Samples								HY Restriction			
						Major Axis	Semi-Major Axis	Minor Axis	Discretization	Min Samples	Max Samples	Max per Octant	Min Octant	Min Hole	Max Hole	Max per Hole	Threshold (% Cu)	Major (m)	Semi-Major (m)	Minor (m)
		Sulf		4		240	220	40	5x5x5	4	12	4	-	-	-	4	1.50	60	55	10
	Corpo Sul	Oxi	ID3	1	Dynamic	120	110	15		7	20	6	3	3	10	6	0.80	60	55	10
		Oxi		2		120	110	20		7	20	6	2	2	10	6	0.80	60	55	10
		Oxi		3		240	220	40		4	12	6	-	-	-	4	0.80	60	55	10
		Mix	ID3	1	Dynamic	120	110	15		7	20	6	3	3	10	4	1.00	60	55	10
		Mix		2		120	110	20		7	25	6	2	2	10	4	1.00	60	55	10
		Mix		3		240	220	40		4	12	6	-	-	-	4	1.00	60	55	10
		Sulf	OK	1	Dynamic	85	60	15	5x5x5	8	18	6	4	3	10	6	1.04	60	55	10
		Sulf		2		120	110	20	5x5x5	6	20	6	3	3	10	6	1.04	60	55	10
		Sulf		3		120	110	25	5x5x5	6	25	6	2	2	10	6	1.04	60	55	10
		Sulf		4		240	220	40	5x5x5	4	12	6	-	-	-	6	1.04	60	55	10
	Jatoba	Oxi	ID3	1	Dynamic	120	110	15		7	20	6	-	3	6	6	0.40	60	55	10
		Oxi		2		120	110	20		7	22	6	-	2	6	6	0.40	60	55	10
		Oxi		3		240	220	40		5	14	6	-	-	-	6	0.40	60	55	10
		Mix	ID3	1	Dynamic	120	110	15		6	20	6	-	3	6	6	0.40	60	55	10
		Mix		2		120	110	20		6	22	6	-	2	6	6	0.40	60	55	10
		Mix		3		240	220	40		4	14	6	-	-	-	6	0.40	60	55	10
		Sulf	OK	1	Dynamic	120	110	15	5x5x5	7	20	6	-	3	6	6	0.50	60	55	10
		Sulf		2		120	110	20	5x5x5	7	22	6	-	2	6	6	0.50	60	55	10
		Sulf		3		240	220	40	5x5x5	4	14	6	-	-	-	6	0.50	60	55	10
	Sucupira	Oxi	ID3	1	Dynamic	120	110	15		7	24	6	3	3	6	6	0.60	60	55	10
		Oxi		2		120	110	20		7	20	6	2	3	6	6	0.60	60	55	10
		Oxi		3		240	220	40		6	16	6	-	2	6	6	0.60	60	55	10
		Mix	ID3	1	Dynamic	120	110	15		10	24	6	3	3	6	6	0.65	60	55	10
		Mix		2		120	110	20		8	20	6	2	3	6	6	0.65	60	55	10
		Mix		3		240	220	40		6	16	6	-	2	6	6	0.65	60	55	10
		Sulf	OK	1	Dynamic	60	55	10	5x5x5	10	24	6	4	3	6	6	1.25	60	55	10
		Sulf		2		120	110	15	5x5x5	10	24	6	3	3	6	6	1.25	60	55	10
		Sulf		3		120	110	20	5x5x5	8	20	6	2	2	6	6	1.25	60	55	10
		Sulf		4		240	220	40	5x5x5	6	16	6	-	-	-	6	1.25	60	55	10
	SW Mina	Oxi	ID3	1	Dynamic	60	55	10		7	20	6	-	3	6	6	0.95	60	55	10
		Oxi		2		120	110	15		7	18	6	-	3	6	6	0.95	60	55	10
		Oxi		3		120	110	20		6	18	6	-	2	6	6	0.95	60	55	10
		Oxi		4		240	220	40		4	12	6	-	-	6	6	0.95	60	55	10
		Mix	ID3	1	Dynamic	120	110	15		7	18	6	-	3	6	4	0.55	60	55	10
		Mix		2		120	110	20		7	18	6	-	2	6	4	0.55	60	55	10
		Mix		3		240	220	40		4	12	6	-	-	-	4	0.55	60	55	10

Deposit	Domain	Weather	Method	Estimate Passes	Search Orientation	Sample Search Range (m)			Samples								HY Restriction			
						Major Axis	Semi-Major Axis	Minor Axis	Discretization	Min Samples	Max Samples	Max per Octant	Min Octant	Min Hole	Max Hole	Max per Hole	Threshold (% Cu)	Major (m)	Semi-Major (m)	Minor (m)
		Sulf	OK	1	Dynamic	60	55	10	5x5x5	7	20	6	-	3	6	6	1.10	60	55	10
		Sulf		2		120	110	15	5x5x5	7	18	6	-	3	6	6	1.10	60	55	10
		Sulf		3		120	110	20	5x5x5	6	18	6	-	2	6	6	1.10	60	55	10
		Sulf		4		240	220	40	5x5x5	4	12	6	-	-	-	6	1.10	60	55	10
Chapada	Suruca		OK	1	Dynamic	45	45	4	3x3x3	8	16			-	-	7		-		-
				2		110	110	8	3x3x3	5	16			-	-	7		-		-
				3		200	200	10	3x3x3	3	16			-	-	7		-		-
Saúva	LG Main		OK	1	Dynamic	50	40	8	3x3x3	6	12	6	2	-	-	3		-		-
				2		100	80	16	3x3x3	6	10	6	2	-	-	3		-		-
				3		200	160	32	3x3x3	6	8	6	2	-	-	3		-		-
				4		500	400	80	3x3x3	6	8	6	2	-	-	3		-		-
	LG Satellite		ID3	1	Dynamic	50	43	5	-	6	12	6	2	-	-	3		-		-
				2		100	86	9	-	6	10	6	2	-	-	3		-		-
				3		200	171	17	-	6	8	6	2	-	-	3		-		-
				4		700	600	60	-	6	8	6	2	-	-	3		-		-
	HG Lower		OK	1	Dynamic	50	47	5	3x3x3	6	12	6	2	-	-	3	0.68	75		-
				2		100	94	6	3x3x3	6	10	6	2	-	-	3	0.68	50		-
				3		200	188	12	3x3x3	6	8	6	2	-	-	3	0.68	25		-
				4		490	460	30	3x3x3	6	8	6	2	-	-	3	0.68	25		-
	HG Mid3		ID3	1	Dynamic	50	43	5	-	6	12	6	2	-	-	3	0.65	75		-
				2		100	86	9	-	6	10	6	2	-	-	3	0.65	50		-
				3		200	171	17	-	6	8	6	2	-	-	3	0.65	25		-
				4		700	600	60	-	6	8	6	2	-	-	3		-		-
	HG Midgroup		ID3	1	Dynamic	50	43	5	-	6	12	6	2	-	-	3	0.56	75		-
				2		100	86	9	-	6	10	6	2	-	-	3	0.56	50		-
				3		200	171	17	-	6	8	6	2	-	-	3	0.56	25		-
				4		700	600	60	-	6	8	6	2	-	-	3		-		-
	HG Upper		OK	1	Dynamic	50	43	5	3x3x3	6	12	6	2	-	-	3	1.73	75		-
				2		100	86	9	3x3x3	6	10	6	2	-	-	3	1.73	50		-
				3		200	171	17	3x3x3	6	8	6	2	-	-	3	1.73	25		-
				4		700	600	60	3x3x3	6	8	6	2	-	-	3	1.73	25		-
	Central	Oxi + Mix	ID3	1	Dynamic	240	220	30	5x5x5	6	16	6	2	-	-	4				
		Sulf	ID3	1	Dynamic	240	220	30	5x5x5	6	16	6	2	-	-	4	0.36	60	55	10
				2		240	220	30	5x5x5	4	12	6	2	-	-	4	0.36	60	55	10
	Formiga	Oxi + Mix	ID3	1	Dynamic	240	220	30	5x5x5	6	16	6	2	-	-	4				
		Sulf	ID3	1	Dynamic	240	220	30	5x5x5	6	16	6	2	-	-	4				
				2		240	220	30	5x5x5	4	12	6	2	-	-	4				

Table 13-11: Estimation Parameters for Gold

Deposit	Domain	Weather	Method	Estimate Passes	Search Orientation	Sample Search Range (m)			Samples								HY Restriction			
						Major Axis	Semi-Major Axis	Minor Axis	Discretization	Min Samples	Max Samples	Max per Octant	Min Octant	Min Hole	Max Hole	Max per Hole	Threshold (ppm Au)	Major (m)	Semi-Major (m)	Minor (m)
Chapada	Baru	Oxi + Mix	ID3	1	Static	120	110	15		6	18	6	-	3	6	4				
		Oxi + Mix		2		120	110	20		6	20	6	-	3	6	6				
		Oxi + Mix		3		240	220	40		4	14	6	-	-	-	4				
		Sulf	OK	1	Dynamic	60	55	10	5x5x5	7	18	6	-	3	6	6	0.60	60	55	10
		Sulf		2		120	110	20	5x5x5	7	18	6	-	2	6	6	0.60	60	55	10
		Sulf		3		240	220	40	5x5x5	4	14	6	-	-	-	6	0.60	60	55	10
	Baruzinho	Oxi + Mix	ID3	1	Dynamic	120	110	15		7	18	6	-	2	6	6	0.50	60	55	10
		Oxi + Mix		2		120	110	20		4	12	6	-	2	6	6	0.50	60	55	10
		Sulf	OK	1	Dynamic	60	55	10	5x5x5	7	18	6	-	2	6	6	1.60	60	55	10
		Sulf		2		120	110	15	5x5x5	8	18	6	-	2	6	6	1.60	60	55	10
		Sulf		3		120	110	20	5x5x5	7	18	6	-	2	6	6	1.60	60	55	10
		Sulf		4		240	220	40	5x5x5	4	12	6	-	-	-	6	1.60	60	55	10
	Buriti	Oxi	ID3	1	Dynamic	240	220	30		7	16	6	-	-	-	6	0.25	60	55	10
		Oxi		2		240	220	40		4	12	6	-	-	-	6	0.25	60	55	10
		Mix	ID3	1	Dynamic	240	220	30		7	16	6	-	-	-	6	0.20	60	55	10
		Mix		2		240	220	40		4	12	6	-	-	-	6	0.20	60	55	10
		Sulf	OK	1	Dynamic	240	220	30	5x5x5	7	16	6	-	-	-	6	0.39	60	55	10
		Sulf		2		240	220	40	5x5x5	4	12	6	-	-	-	6	0.39	60	55	10
	Buriti Norte	Oxi + Mix	ID3	1	Dynamic	120	110	15		7	18	6	-	3	6	6	0.60	60	55	10
		Oxi + Mix		2		120	110	20		7	18	6	-	2	6	6	0.60	60	55	10
		Oxi + Mix		3		240	220	40		4	12	6	-	-	-	6	0.60	60	55	10
		Sulf	OK	1	Dynamic	120	110	15	5x5x5	7	18	6	-	3	6	6	0.42	60	55	10
		Sulf		2		120	110	20	5x5x5	7	18	6	-	2	6	6	0.42	60	55	10
		Sulf		3		240	220	40	5x5x5	4	12	6	-	-	-	6	0.42	60	55	10
	Cava Central	Oxi + Mix	ID3	1	Dynamic	60	55	10		7	18	6	4	3	6	4	1.10	60	55	10
		Oxi + Mix		2		120	110	15		7	18	6	3	3	6	4	1.10	60	55	10
		Oxi + Mix		3		120	110	20		6	14	6	2	2	6	4	1.10	60	55	10
		Oxi + Mix		4		240	220	40		4	12	6	-	-	-	-	1.10	60	55	10
		Sulf	OK	1	Dynamic	60	55	10	5x5x5	7	18	6	4	3	6	4	1.55	60	55	10
		Sulf		2		120	110	15	5x5x5	6	18	6	3	3	6	4	1.55	60	55	10
		Sulf		3		120	110	20	5x5x5	6	16	6	2	2	6	4	1.55	60	55	10
		Sulf		4		240	220	40	5x5x5	4	12	6	-	-	-	4	1.55	60	55	10
	Corpo Sul	Oxi	ID3	1	Dynamic	120	110	15		7	20	6	3	3	10	6	0.82	60	55	10
		Oxi		2		120	110	20		7	25	6	2	3	10	6	0.82	60	55	10
		Oxi		3		240	220	40		4	12	6	-	-	-	-	0.82	60	55	10
		Mix	ID3	1	Dynamic	120	110	15		7	20	6	3	3	10	4	1.07	60	55	10

Deposit	Domain	Weather	Method	Estimate Passes	Search Orientation	Sample Search Range (m)			Samples								HY Restriction			
						Major Axis	Semi-Major Axis	Minor Axis	Discretization	Min Samples	Max Samples	Max per Octant	Min Octant	Min Hole	Max Hole	Max per Hole	Threshold (ppm Au)	Major (m)	Semi-Major (m)	Minor (m)
		Mix		2		120	110	20		7	25	6	2	2	10	4	1.07	60	55	10
		Mix		3		240	220	40		4	12	6	-	-	-	4	1.07	60	55	10
		Sulf	OK	1	Dynamic	60	55	15	5x5x5	7	18	6	4	3	10	6	0.90	60	55	10
		Sulf		2		120	110	15	5x5x5	6	20	6	3	3	10	6	0.90	60	55	10
		Sulf		3		120	110	20	5x5x5	6	25	6	2	2	10	6	0.90	60	55	10
		Sulf		4		240	220	40	5x5x5	4	12	6	-	-	-	6	0.90	60	55	10
	Jatoba	Oxi	ID3	1	Dynamic	120	110	15		7	18	6	-	3	6	6	0.40	60	55	10
		Oxi		2		120	110	20		7	18	6	-	2	6	6	0.40	60	55	10
		Oxi		3		240	220	40		4	14	6	-	-	-	6	0.40	60	55	10
		Mix	ID3	1	Dynamic	120	110	15		6	18	6	-	3	6	6	0.40	60	55	10
		Mix		2		120	110	20		6	18	6	-	2	6	6	0.40	60	55	10
		Mix		3		240	220	40		4	14	6	-	-	-	6	0.40	60	55	10
		Sulf	OK	1	Dynamic	120	110	15	5x5x5	7	18	6	-	3	6	6	0.50	60	55	10
		Sulf		2		120	110	20	5x5x5	7	18	6	-	2	6	6	0.50	60	55	10
		Sulf		3		240	220	40	5x5x5	4	14	6	-	-	-	6	0.50	60	55	10
	Sucupira	Oxi + Mix	ID3	1	Dynamic	120	110	15		8	18	6	3	3	6	6	0.65	60	55	10
		Oxi + Mix		2		120	110	20		6	16	6	2	3	6	6	0.65	60	55	10
		Oxi + Mix		3		240	220	40		4	12	6	-	2	6	6	0.65	60	55	10
		Sulf	OK	1	Dynamic	60	55	10	5x5x5	8	18	6	4	3	6	6	1.80	60	55	10
		Sulf		2		120	110	15	5x5x5	8	18	6	3	3	6	6	1.80	60	55	10
		Sulf		3		120	110	20	5x5x5	6	18	6	2	2	6	6	1.80	60	55	10
		Sulf		4		240	220	40	5x5x5	4	16	6	-	-	-	6	1.80	60	55	10
	SW Mina	Oxi	ID3	1	Dynamic	60	55	10		7	18	6	-	3	6	6	1.46	60	55	10
		Oxi		2		120	110	15		7	18	6	-	3	6	6	1.46	60	55	10
		Oxi		3		120	110	20		6	16	6	-	2	6	6	1.46	60	55	10
		Oxi		4		240	220	40		4	12	6	-	-	-	6	1.46	60	55	10
		Mix	ID3	1	Dynamic	120	110	15		7	18	6	-	3	6	4	0.52	60	55	10
		Mix		2		120	110	20		7	16	6	-	2	6	4	0.52	60	55	10
		Mix		3		240	220	40		4	12	6	-	-	-	4	0.52	60	55	10
		Sulf	OK	1	Dynamic	60	55	10	5x5x5	7	18	6	-	3	6	6	1.10	60	55	10
		Sulf		2		120	110	15	5x5x5	7	18	6	-	3	6	6	1.10	60	55	10
		Sulf		3		120	110	20	5x5x5	6	16	6	-	2	6	6	1.10	60	55	10
		Sulf		4		240	220	40	5x5x5	4	12	6	-	-	-	6	1.10	60	55	10
Chapada	Suruca		OK	1	Dynamic	45	45	4	3x3x3	8	16			-	-	7		-		-
				2		110	110	8	3x3x3	5	16			-	-	7		-		-
				3		200	200	10	3x3x3	3	16			-	-	7		-		-
Saúva	LG Main		OK	1	Dynamic	50	38	6	3x3x3	6	12	6	2	3	-	3		-		-

Deposit	Domain	Weather	Method	Estimate Passes	Search Orientation	Sample Search Range (m)			Samples								HY Restriction			
						Major Axis	Semi-Major Axis	Minor Axis	Discretization	Min Samples	Max Samples	Max per Octant	Min Octant	Min Hole	Max Hole	Max per Hole	Threshold (ppm Au)	Major (m)	Semi-Major (m)	Minor (m)
				2		100	77	12	3x3x3	6	10	6	2	3	-	3		-		-
				3		200	153	23	3x3x3	6	8	6	2	3	-	3		-		-
				4		600	460	70	3x3x3	6	8	6	2	3	-	3		-		-
	LG Satellite		ID3	1	Dynamic	50	43	5	-	6	12	6	2	3	-	3		-		-
				2		100	85	8	-	6	10	6	2	3	-	3		-		-
				3		200	170	15	-	6	8	6	2	3	-	3		-		-
				4		800	680	60	-	6	8	6	2	3	-	3		-		-
	HG Lower		OK	1	Dynamic	50	33	5	3x3x3	6	12	6	2	3	-	3	0.60	75		-
				2		100	65	6	3x3x3	6	10	6	2	3	-	3	0.60	50		-
				3		200	130	12	3x3x3	6	8	6	2	3	-	3	0.60	25		-
				4		800	520	46	3x3x3	6	8	6	2	3	-	3	0.60	25		-
	HG Mid3		ID3	1	Dynamic	50	43	5	-	6	12	6	2	3	-	3	0.60	75		-
				2		100	65	6	-	6	10	6	2	3	-	3	0.60	50		-
				3		200	120	12	-	6	8	6	2	3	-	3	0.60	25		-
				4		800	520	46	-	6	8	6	2	3	-	3		-		-
	HG Midgroup		ID3	1	Dynamic	50	33	5	-	6	12	6	2	3	-	3		-		-
				2		100	65	6	-	6	10	6	2	3	-	3		-		-
				3		200	130	12	-	6	8	6	2	3	-	3		-		-
				4		800	520	46	-	6	8	6	2	3	-	3		-		-
	HG Upper		OK	1	Dynamic	50	43	5	3x3x3	6	12	6	2	3	-	3		-		-
				2		100	85	8	3x3x3	6	10	6	2	3	-	3		-		-
				3		200	170	15	3x3x3	6	8	6	2	3	-	3		-		-
				4		800	680	60	3x3x3	6	8	6	2	3	-	3		-		-
Saúva	Central	Oxi + Mix	ID3	1	Dynamic	240	220	30	5x5x5	6	16	6	2	-	-	4				
		Sulf	ID3	1	Dynamic	240	220	30	5x5x5	6	16	6	2	2	6	4	0.68	60	55	10
				2		240	220	30	5x5x5	4	12	6	2	2	6	4	0.68	60	55	10
Saúva	Formiga	Oxi + Mix	ID3	1	Dynamic	240	220	30	5x5x5	6	16	6	2	-	-	4				
		Sulf	ID3	1	Dynamic	240	220	30	5x5x5	6	16	6	2	-	-	4				
				2		240	220	30	5x5x5	4	12	6	2	2	6	4				

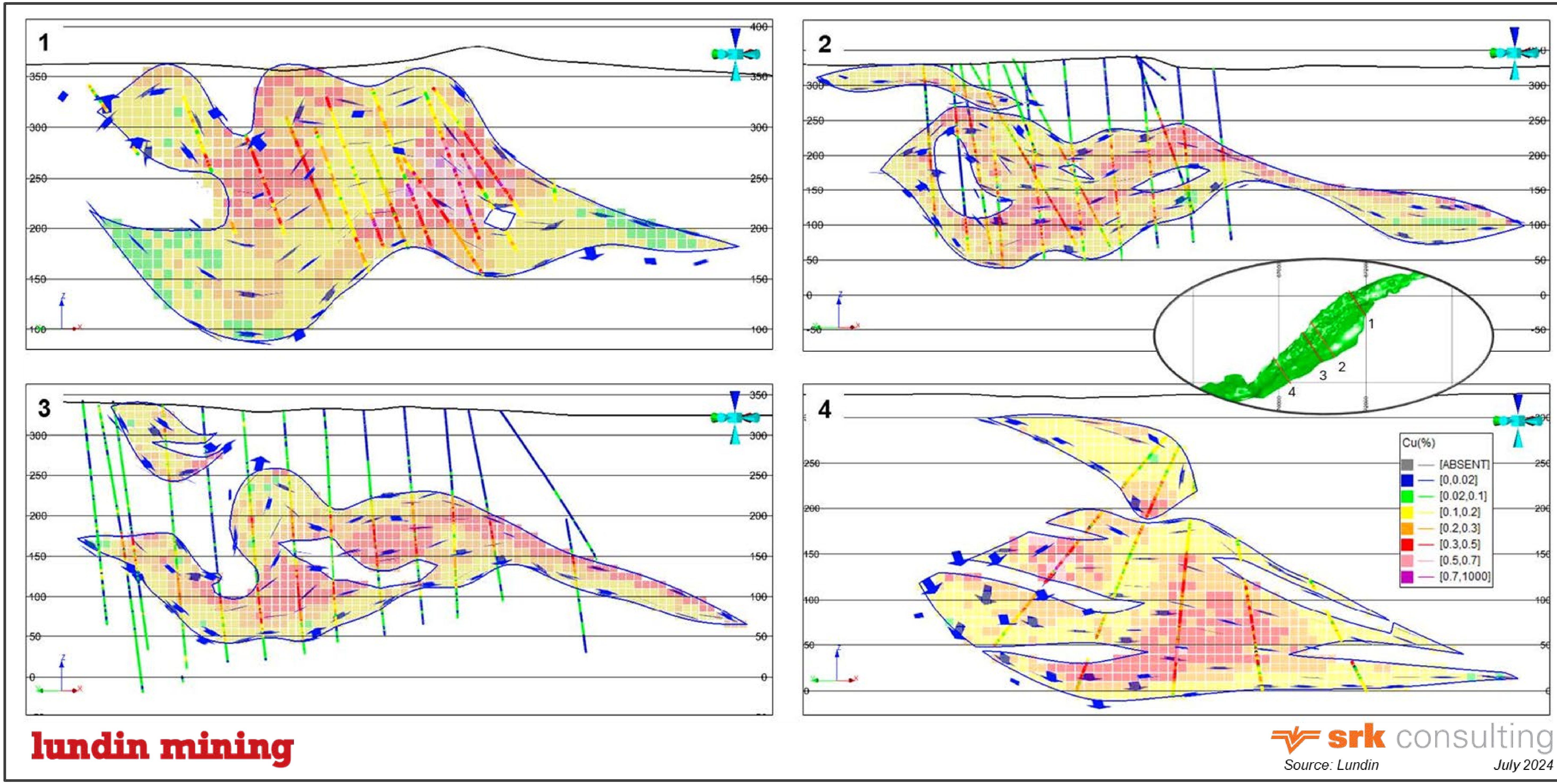
13.9 Model Validation and Sensitivity

The block models were validated using a combination of visual and statistical checks. Figure 13.7 shows the sectional comparisons of the estimated copper grades against the nearby composite data for the main Chapada block model. Figure 13.7, Figure 13.8 and Figure 13.9 show a similar visual check on cross section and longitudinal section for the Saúva block model. The QP reviewed the block models on sectional and planar views against informing data and confirmed that the estimated grades show good correspondence to nearby composites.

Swath plots were also generated for the various block models. Figure 13.10 and Figure 13.11 shows the Y (or Northing) direction swath plots for the Cava Central domain in Chapada Mine and the Saúva Project, respectively. As expected, the various estimation approaches yield similar grade trends particularly in areas of high data density (which does correspond to highest tonnage), and departures in grade profiles are observed in areas of sparse data coverage.

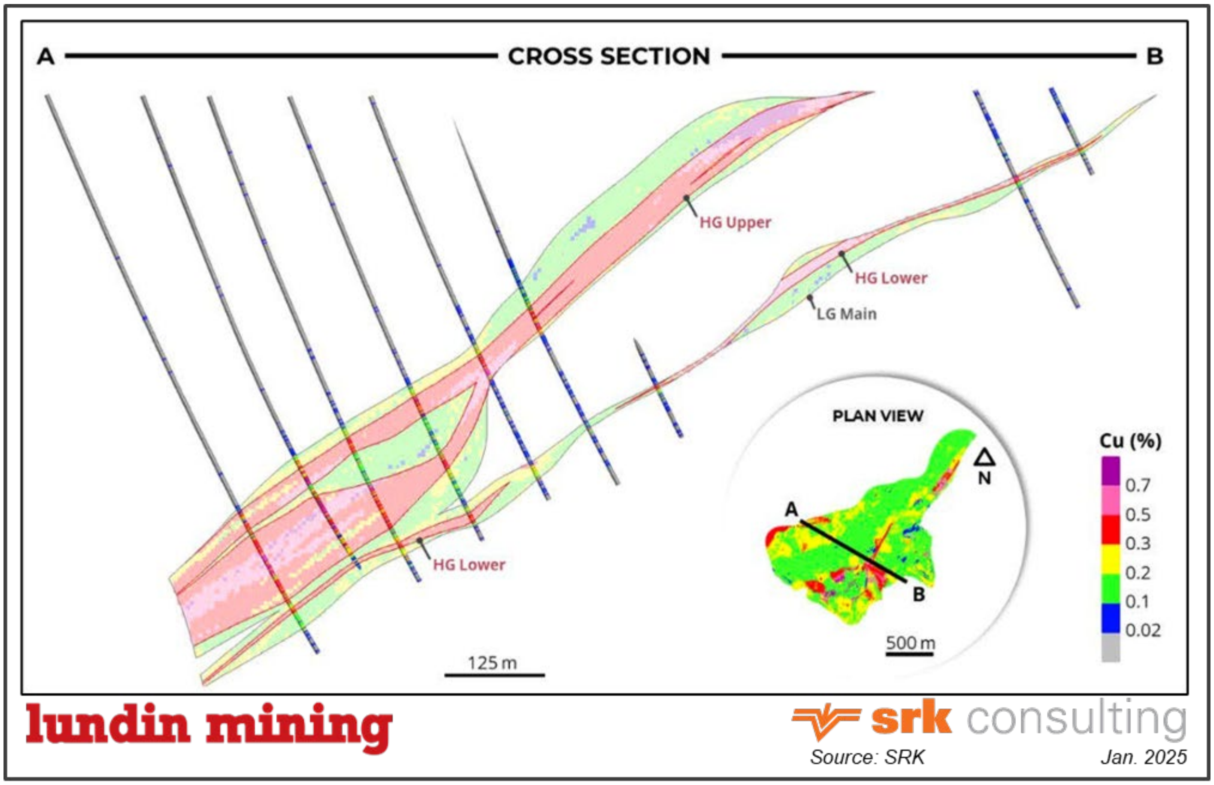
A statistical comparison of the average OK copper and gold grades to alternate estimators like ID3 and nearest neighbours (NN) was reviewed. SRK reviewed these statistics and note that percentage differences across the various estimators generally range within ±2 percent in the sulphide zones of the larger domains, such as Corpo Sul, Sucupira, and Chapada SW and Cava Central. These four domains have historically accounted for almost 90 percent of the Mineral Resources at Chapada Mine. Not surprisingly, smaller domains like Baru and Baruzinho and/or the oxide and mixed zones across all the domains show larger differences between different estimators.

Figure 13.7: Sectional Validation Showing Estimated Copper Grades Against Informing Composites for Chapada Mine



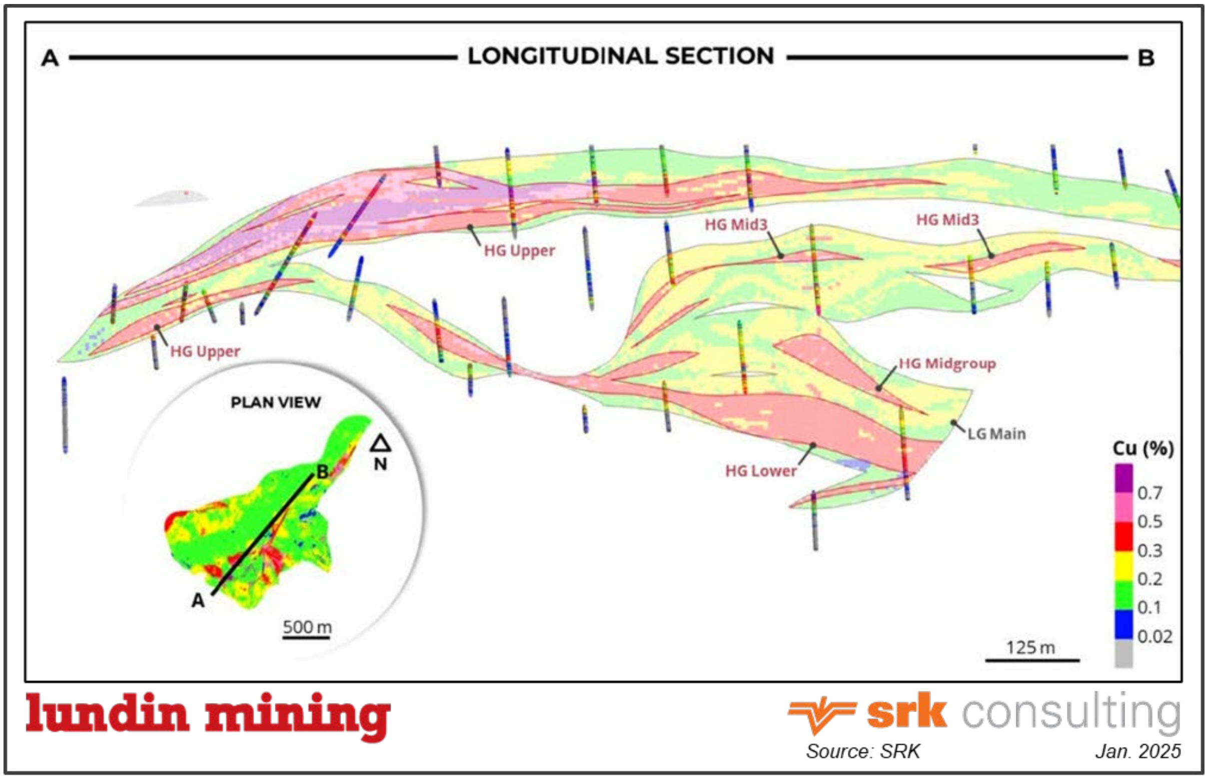
Source: Lundin, 2024

Figure 13.8: Cross Section Showing Copper Block Grade to Drillhole Assays in Sauva Block Model



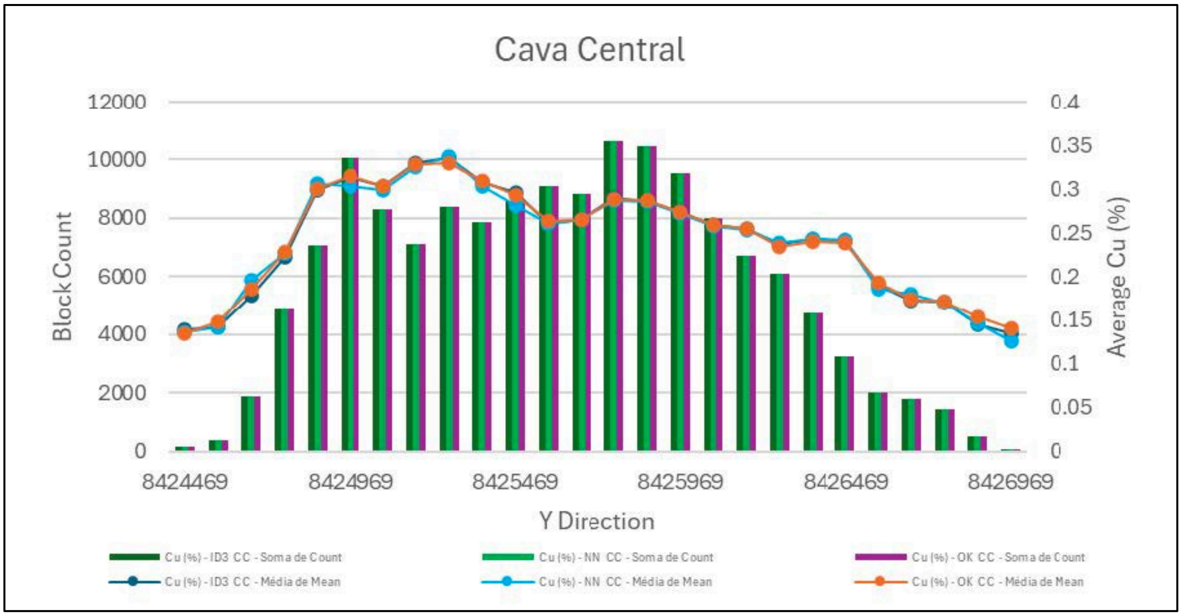
Source: Lundin, 2024

Figure 13.9: Longitudinal Section Showing Copper Block Grade to Drillhole Assays in Sauva Block Model



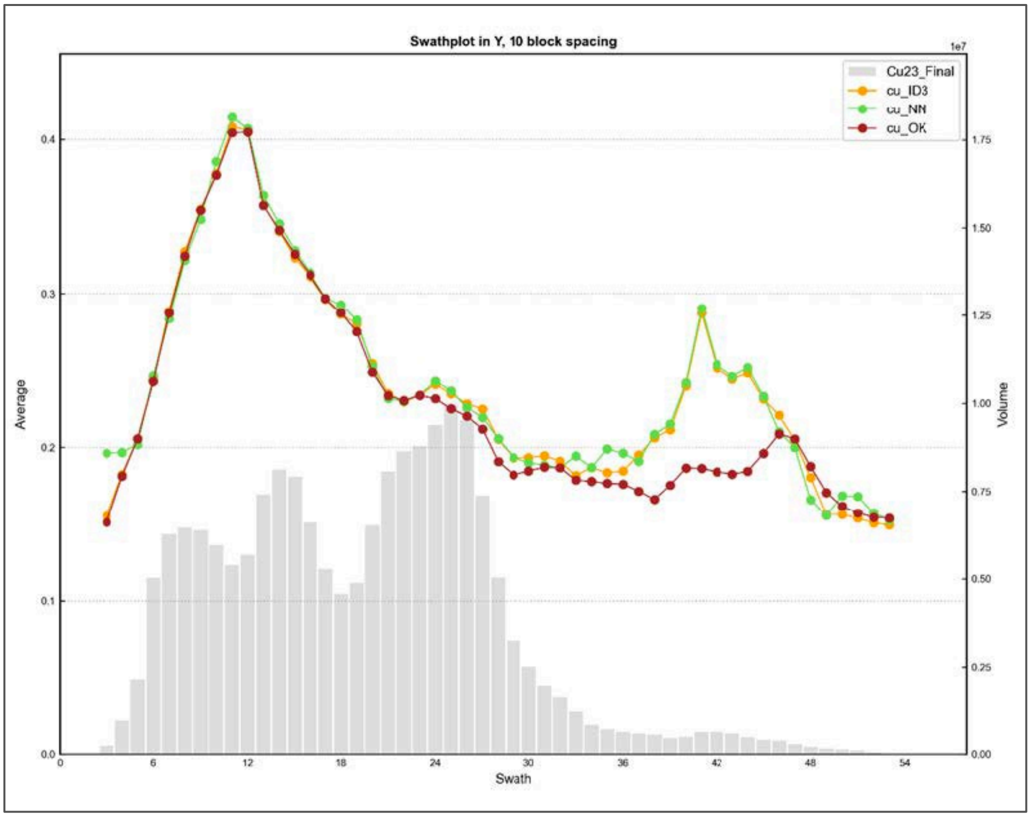
Source: Lundin, 2024

Figure 13.10: Swath Plot Along Northing Direction for the Cava Central Domain, Chapada Mine, Comparing OK, ID3 and NN Estimates of Cu Grades



Source: Lundin, 2024

Figure 13.11: Swath Plot Along Northing Direction for the Sauva Project, Comparing OK, ID3 and NN Estimates of Cu Grades



Source: Lundin, 2024

13.10 Mineral Resource Classification

Mineral Resource classification is typically a subjective concept. Industry best practices suggest that resource classification should consider the confidence in the geological continuity of the mineralized structures, the quality and quantity of exploration data supporting the estimates, and the geostatistical confidence in the tonnage and grade estimates. Appropriate classification criteria should aim at integrating these concepts to delineate regular areas at similar resource classification.

SRK is satisfied that the geological modelling honours the current geological information and knowledge. The location of the samples and the assay data are sufficiently reliable to support resource evaluation. The sampling information was acquired primarily by core drilling on sections spaced at 30 to 100 m.

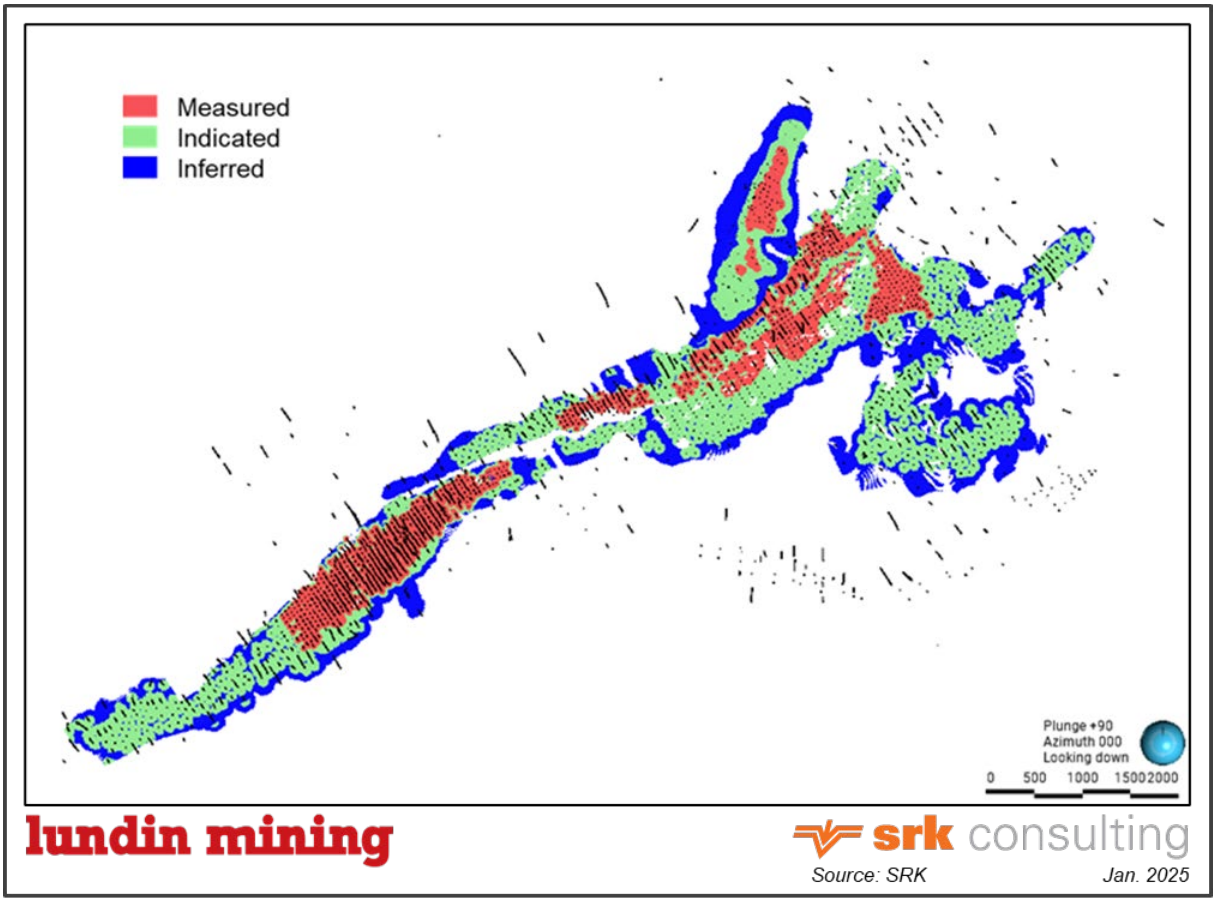
For Chapada, Lundin commissioned a conditional simulation study for the Sucupira domain in 2019, to determine a suitable drill spacing to achieve a relative standard error (RSE) within 15 percent for quarterly and annual production for Measured and Indicated categories, respectively. For Saúva, the block classification strategy considers drillhole spacing and geologic confidence. In general, the criteria used to classify blocks is as follows:

- **Measured:** Blocks within 50 m drill spacing in the main domains of Chapada Mine. There are no Measured blocks in the Saúva Project or Suruca domain within Chapada Mine.
- **Indicated:** Blocks within 100 m drill hole spacing.
- **Inferred:** Blocks estimated within 100 to 200 m drill hole spacing.

A smoothing post-processing step to avoid isolated blocks in the final classification was performed.

SRK reviewed the classification for Chapada, Suruca, Saúva and Formiga block models to confirm the drillhole spacing criteria as specified above was used for the preliminary classification. Upon review of the resource classification, SRK applied additional smoothing to the Measured category blocks in Corpo Sul, Suruca, Chapada SW, and Cava Central to improve continuity of this block category. Further, SRK downgraded Measured blocks within Baru, Baruzinho, and Jatoba to the Indicated category. Figure 13.12 and Figure 13.13 shows the final classification for Chapada Mine and Saúva Project, respectively.

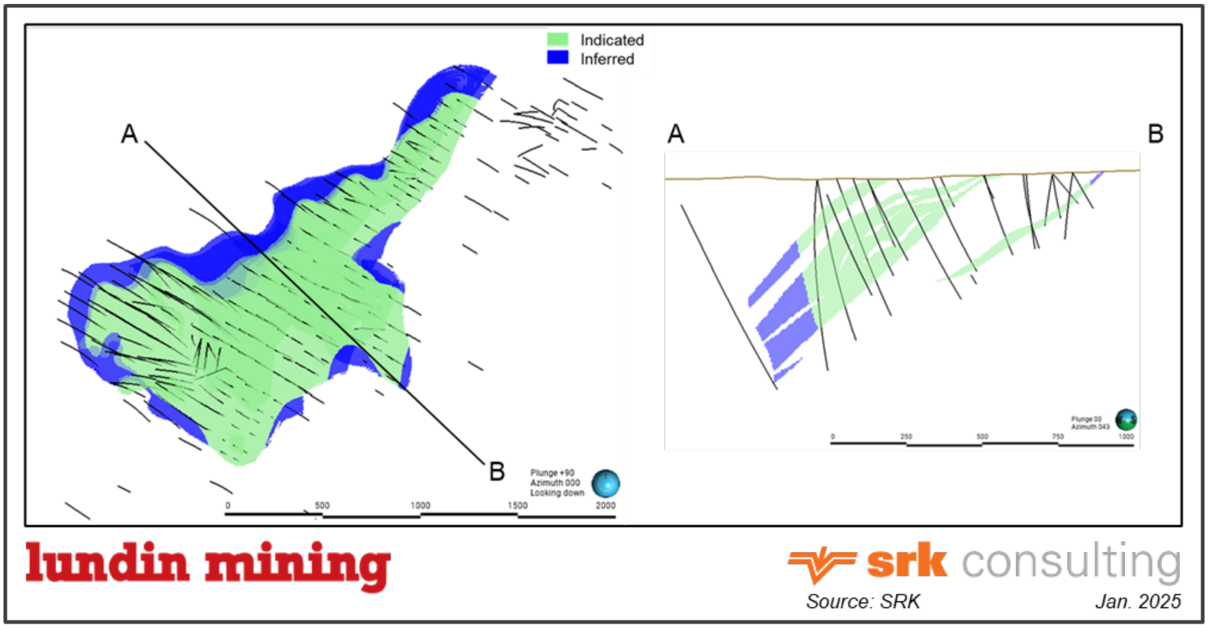
Figure 13.12: Plan View of Classified Blocks at the Chapada Mine



Notes:

[1] Informing Composites shown as black traces

Figure 13.13: Classified Blocks with Informing Composites for the Saúva Project



Notes: Plan Map and Cross section A-B showing drillhole traces

13.11 Mineral Resource Statement

CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014) defines a Mineral Resource as:

> *"A Mineral Resource is a concentration or occurrence of solid 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 eventual economic extraction.*
>
> *The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling."*

The "reasonable prospects for eventual economic extraction" requirement, generally implies that the quantity and grade estimates meet certain economic thresholds and that the Mineral Resources are reported at an appropriate cut-off grade that considers extraction scenarios and processing recoveries. In order to meet this requirement, SRK considers that major portions of the Chapada Mine and Saúva Project are amenable for open pit extraction.

In order to determine the quantities of material offering "reasonable prospects for eventual economic extraction" by an open pit, MMIC used Datamine NPV Scheduler Mine Planning Software and corporately approved mining, processing, and G&A costs from Lundin to generate a conceptual pit shell. Underground stopes were optimized beneath the open pit, but further studies are needed to assess the economic viability of mining through underground methods. The optimization parameters considered for the Chapada Mine, Suruca, and Saúva Project are tabulated in Table 13-12.

The reader is cautioned that the results from the pit optimization and stope optimization are used solely for the purpose of testing the "reasonable prospects for eventual economic extraction" by an open pit and underground extraction and do not represent an attempt to estimate Mineral Reserves. The results are used as a guide to assist in the preparation of a Mineral Resource Statement and to select an appropriate resource reporting cut-off grade.

Table 13-12: Assumptions Considered for Conceptual Optimization for Chapada Mine, Suruca & Saúva Projects

Description	Units	Chapada	Suruca	Saúva
Price Cu	$/lb	4.43	4.43	4.43
Price Au	$/oz	1,840	1,840	1,840
Exchange Rate	R$/US$	5	5	5
Base Mining Cost - Open Pit	$/t mined	144-2.25	1.64-2.76	2.25-2.85
Haulage Mining Cost – Open Pit		Variable	Included in base mining cost	
Mining Cost - Underground	$/t feed	-	-	27.38
Processing Cost - Flotation	$/t feed	6.26	6.80	7.12
Processing Cost - Heap Leach (Oxide)	$/t feed	-	6.80	-
Processing Cost - CIP (Mixed/Transition)	$/t feed	-	11.42	-
G&A Cost	$/t feed	0.81	Included in processing	
Sustaining Capex	$/t feed	1.27	Included in processing	
Payability Cu - Flotation	%	95.60	95.61	95.61
Payability Au - Flotation	%	95.14	95.13	95.13
Payability Au - Heap Leach & CIP	%	-	99.00	-
Refining Charge Cu	$/lb	0.09	0.09	0.09
Refining Charge Au - Flotation	$/oz	5.00	5.00	5.00
Refining Charge Au - Heap Leach & CIP	$/oz	-	20.10	-
Moisture Content	%	8	8	8
Concentrate Treatment	$/dmt	90	90	90
Trucking Transportation	$/wmt	80.79	77.3	80.79
Shipping Transportation	$/wmt	61.72	102.12	61.72
Royalty (CFEM)	%	2	2	2
Royalty (Landowners)	%	1	1	1
Royalty Cu (Stream)	%	3.11	-	3.11
Recovery Cu - Flotation	%	17.0-92.0	46-85.5[1]	46-85.5[1]
Recovery Au - Flotation	%	15.7-95.0	40-78.1[1]	40-78.1[1]
Recovery Au - Heap Leach (Oxide)	%	-	85	-
Recovery Au - CIP (Mixed/Transition)	%	-	84	-
Cut-off Value - Flotation - Open Pit	$/t feed	6.26	6.80	7.12
Cut-off Value - Flotation - Underground	$/t feed	-	-	34.50
Cut-off Value - Heap Leach - Open Pit	$/t feed	-	6.80	-
Cut-off Value - CIP - Open Pit	$/t feed	-	11.42	-

1: Recoveries are dependent on Cu grade ≥ 0.1%.

SRK considers that the blocks located within the conceptual pit envelope, and in the case of Saúva, those blocks within an optimized minable stope shape, show “reasonable prospects for eventual economic extraction” and can be reported as a Mineral Resource. These are illustrated in Figure 13.14 and Figure 13.15 for Chapada Mine and Saúva Project, respectively. The audited Mineral Resource Statement is presented in Table 13-13.

Figure 13.14: Plan showing Classified Mineral Resources for Chapada Mine

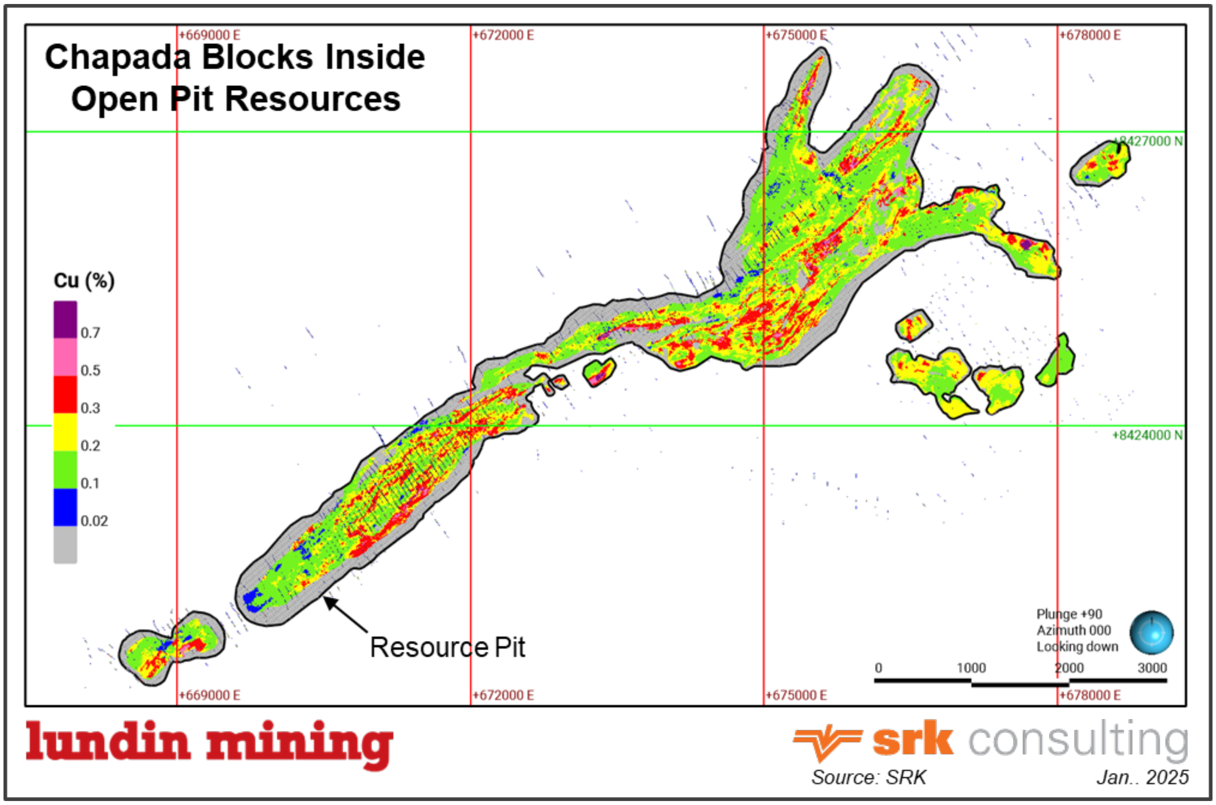
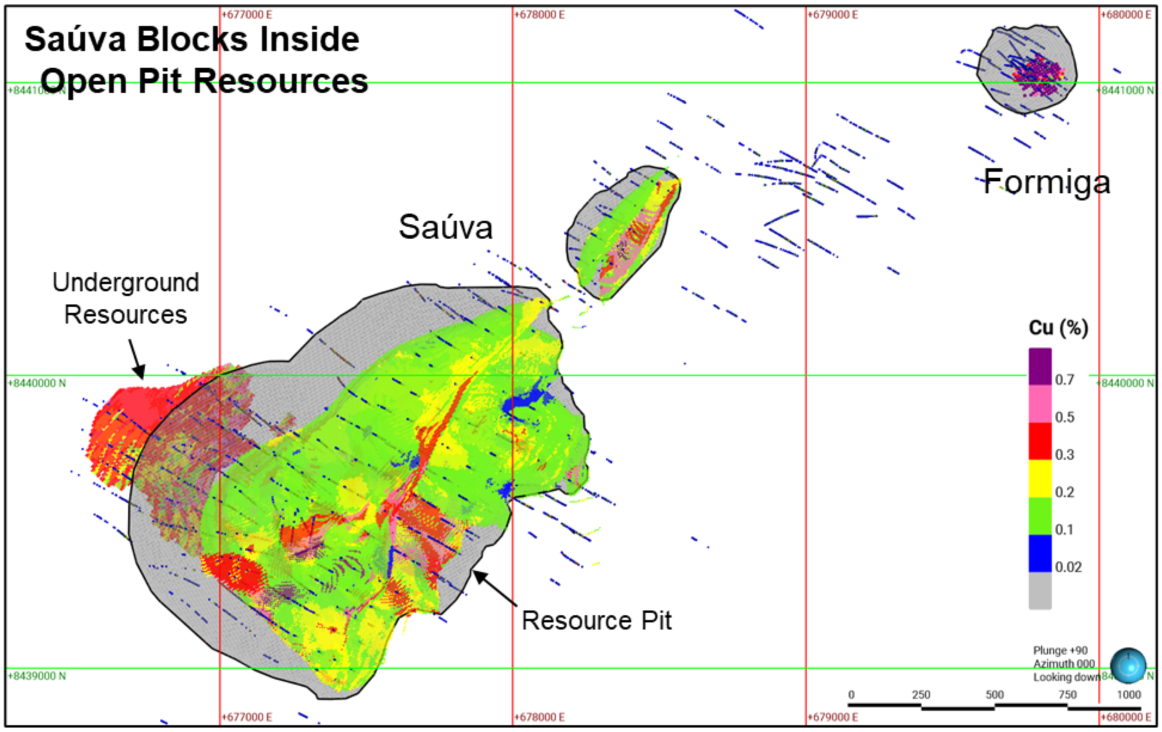


Figure 13.15: Plan map showing Saúva and Formiga Mineral Resources



Source: SRK Jan. 2025

Table 13-13: Audited Mineral Resource Statement, Chapada Mine and Saúva Project, Goiás State, Brazil, SRK Consulting (Canada) Inc., December 31, 2024

Deposit	Extraction	Domain	Category	Tonnes (000's)	Grade		Contained Metal	
					Copper (%)	Gold (g/t)	Copper kt	Gold koz
Chapada	OP	Main	Measured	422,939	0.25	0.13	1,071	1,776
			Indicated	374,206	0.23	0.09	843	1,088
			Measured + Indicated	**797,146**	**0.24**	**0.11**	**1,914**	**2,865**
			Inferred	47,800	0.22	0.09	106	137
		Stockpile	Measured	0	0.00	0.00	0	0
			Indicated	135,585	0.18	0.11	239	464
			Measured + Indicated	**135,585**	**0.18**	**0.11**	**239**	**464**
			Inferred	0	0.00	0.00	0	0
		Suruca Cu Au	Measured	804	0.14	0.15	1	4
			Indicated	85,117	0.16	0.17	136	467
			Measured + Indicated	**85,921**	**0.16**	**0.17**	**137**	**471**
			Inferred	561	0.12	0.16	1	3
		Suruca Au	Measured	16,046	0.00	0.32	0	163
			Indicated	96,527	0.00	0.45	0	1,393
			Measured + Indicated	**112,572**	**0.00**	**0.43**	**0**	**1,556**
			Inferred	1,361	0.00	0.52	0	23
Saúva	OP	Saúva + Formiga	Measured	0	0.00	0.00	0	0
			Indicated	249,858	0.29	0.16	714	1,301
			Measured + Indicated	**249,858**	**0.29**	**0.16**	**714**	**1,301**
			Inferred	2,028	0.20	0.06	4	4
	UG	Saúva	Measured	0	0.00	0.00	0	0
			Indicated	0	0.00	0.00	0	0
			Measured + Indicated	**0**	**0.00**	**0.00**	**0**	**0**
			Inferred	25,184	0.51	0.41	127	332
Total	Cu-Au		Measured	423,744	0.25	0.13	1,072	1,780
			Indicated	844,766	0.23	0.12	1,932	3,321
			Measured + Indicated	**1,268,509**	**0.24**	**0.13**	**3,005**	**5,101**
			Inferred	75,573	0.32	0.20	238	476
Total	Au Only		Measured	16,046		0.32		163
			Indicated	96,527		0.45		1,393
			Measured + Indicated	**112,572**		**0.43**		**1,556**
			Inferred	1,361		0.52		23

Notes: Mineral Resources are not Mineral Reserves and have not demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimates. Composites were capped where appropriate. Mineral Resources are reported within a conceptual pit shell or optimized stopes at varying Cu cut-off grades and/or net smelter values considering metal prices of US$1,840 per ounce of gold, and US$4.43 per pound of copper. Metallurgical recoveries vary by deposit, domain and/or weathering zones.

13.12 Reconciliation to 2023 Mineral Resource Statement

Table 13-14 shows the reconciliation between the December 31, 2023 and the December 31, 2024 Mineral Resource statements.

Table 13-14: Comparison of 2023 and 2024 Mineral Resource Statement for Chapada Mine

Year	Domain	Category	Tonnes (000's)	Grade		Contained Metal	
				Copper (%)	Gold (g/t)	Copper kt	Gold Koz
2023	Cu-Au	Measured	509,076	0.25	0.12	1,271	2,031
		Indicated	792,760	0.23	0.13	1,864	3,254
		Measured + Indicated	**1,301,835**	**0.24**	**0.13**	**3,135**	**5,285**
		Inferred	108,927	0.31	0.18	343	615
	Au Only	Measured	16,608		0.32		173
		Indicated	141,715		0.45		2,062
		Measured + Indicated	**158,323**		**0.44**		**2,235**
		Inferred	4,997		0.63		101
2024	Cu-Au	Measured	423,744	0.25	0.13	1,072	1,780
		Indicated	844,766	0.23	0.12	1,932	3,321
		Measured + Indicated	**1,268,509**	**0.24**	**0.13**	**3,005**	**5,101**
		Inferred	75,573	0.32	0.20	238	476
	Au Only	Measured	16,046		0.32		163
		Indicated	96,527		0.45		1,393
		Measured + Indicated	**112,572**		**0.43**		**1,556**
		Inferred	1,361		0.52		23
Difference 2024-2023	Cu-Au	Measured	-85,332	0.00	0.01	-199	-251
		Indicated	52,006	-0.01	-0.01	68	67
		Measured + Indicated	**-33,326**	**-0.01**	**0.00**	**-130**	**-184**
		Inferred	-33,354	0.00	0.02	-105	-139
	Au Only	Measured	-562		0.00		-10
		Indicated	-45,188		0.00		-669
		Measured + Indicated	**-45,751**		**-0.01**		**-679**
		Inferred	-3,636		-0.11		-78

The Cu-Au domains in the Project comprise Chapada Main, stockpiles, Suruca Cu-Au domains, and the Saúva and Formiga deposits. While the block models for these deposits remain largely unchanged from the 2023 year end models, the following aspects were revisited in 2024:

- Slight reduction in Measured Resources in Chapada Main due to smoothing of classification to improve continuity of Measured blocks; this also contributes to a gain in Indicated tonnage.
- A review of the metal recovery in Suruca gold domains led to a reduced recovery of 84% compared to 88% used in 2023 Mineral Resources for the transition / sulphide domains. Combined with updated prices for gold and copper, this resulted in a smaller optimized pit shell for the purposes of Mineral Resource reporting of the Suruca deposit. Another impact of the Suruca re-optimization is the re-allocation of some transition / sulphide material to the Chapada processing circuit. While this re-allocation of material adds some tonnage to the overall material reported from the Cu-Au domains, it does not offset the impact of the reduced pit shell for Suruca.

- No material change to Saúva / Formiga open pit material. Underground mining costs increased from US$16/t to US$27.38/t to reflect the additional cost of backfill. This resulted in an increase in the NSR COV accompanied by fewer underground stope shapes for Mineral Resource reporting.

The Au-only domains from Suruca reduced by 29% in tonnage and contained gold ounces in Measured and Indicated Resources. This is mostly attributed to the smaller optimized pit as a result of a lower recovery rate of 84% for transition / sulphide material, as well as re-allocation of material from the CIP circuit to the flotation circuit at Chapada Mine.

14 Mineral Reserve Estimates

The Mineral Reserves for the Chapada Mine were estimated by Lundin's Chapada Technical Services Departments. No Mineral Reserves are defined for the Saúva Project. The Mineral Reserve estimates are based on a LoM plan and open pit designs developed using modifying parameters including metal prices, metal recovery based on performance of the processing plant, operating cost estimates, and sustaining capital cost estimates based on the production schedule and equipment requirements.

The Mineral Reserve estimation process involved the following tasks:

- Selection of optimization parameters
- Pit optimization to define optimum pit limit
- Selection of mining cut-off grade
- Preparation of a pit design, including pit phases
- Preparation of a LoM production schedule
- Cost estimation and economic analysis

The pit optimization parameters used to define the Mineral Reserves and the cut-off grade are defined in Section 15.

The QP accepting the professional responsibility for the Mineral Reserve estimates section is Ms. Colleen MacDougall, P.Eng. (EGBC #62292). Ms. MacDougall audited the mine planning work supporting the preparation of the Mineral Reserve statement. Mineral Reserves are derived from Measured and Indicated Mineral Resources after applying economic parameters and other modifying factors following with the "CIM Definition Standards for Mineral Resources & Mineral Reserves (May 10, 2014) and the "CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines" (Nov 29, 2019). Inferred Mineral Resources were treated as waste in the life-of-mine plan. Mineral Reserves are classified using the following criteria:

- Proven Mineral Reserves are the Measured Mineral Resources where development work for mining and information on processing, metallurgy and other relevant factors demonstrate that economic extraction is achievable. A proven Mineral Reserve implies a high degree of confidence in the modifying factors.
- Probable Mineral Reserves are those Measured and Indicated Mineral Resources where development work for mining and information on processing/metallurgy and other relevant factors demonstrate that economic extraction is achievable. The confidence in the modifying factors applying to a Probable Mineral Reserve is lower than that applying to a Proven Mineral Reserve.

The audited Mineral Reserves for Chapada Mine have an effective date of December 31, 2024, and are founded on and included within the Mineral Resource estimates with an effective date of December 31, 2024. The reference point at which the Mineral Reserve is identified is where the ore is delivered to the processing plant referred to as plant feed. The difference between the Mineral Reserves and inventory of the LoM plan are due to a slight variation in the expected and actual mined quantities in

2024. There was an additional 6.4 Mt of mineralized material mined from the pit in 2024 and 4.6 Mt additional material on the stockpile at the end of 2024, resulting in a 1.8 Mt difference in Mineral Reserves in the statement as compared to the LoM plan presented in Section 15. These differences are not considered material to the outcomes of the LoM plan.

Project base case economic analysis reviewed by the QP shows that the LoM plan founded on the Mineral Reserve estimates in Table 14-1 provides a positive present value of the net cash flow, confirming that the Mineral Reserves are economically viable, and that economic extraction can be justified.

The QP is not aware of any additional mining, metallurgical, infrastructure, permitting, or other factors not presented in this report that could materially affect the Mineral Reserve estimate.

Table 14-1: Audited Mineral Reserve Statement Chapada Mine, Goiás State, Brazil, SRK Consulting (Canada) Inc., December 31, 2024

Reserves Table	Classification	Quantity (Mt)	Cu Grade (%)	Au Grade (g/t)	Contained Cu (kt)	Contained Au (koz)
Open Pit	Proven	305.3	0.25	0.14	776	1,383
Open Pit	Probable	128.3	0.22	0.11	278	438
Open Pit	**Proven & Probable**	**433.6**	**0.24**	**0.13**	**1,055**	**1,821**
Stockpiles	Proven					
Stockpiles	Probable	135.6	0.18	0.11	239	464
Stockpiles	**Proven & Probable**	**135.6**	**0.18**	**0.11**	**239**	**464**
Total	Proven	305.3	0.25	0.14	776	1,383
Total	Probable	263.9	0.20	0.11	518	902
Total	**Proven & Probable**	**569.1**	**0.23**	**0.12**	**1,294**	**2,286**

Source: Lundin Mining, 2024

Notes:

1 All figures have been rounded to reflect the relative accuracy of the estimates.

2 The standard adopted in respect of the reporting of Mineral Reserves, following the completion of required technical studies, is in accordance with the NI 43-101 guidelines and the 2014 CIM Definition Standards, and have an effective date of December 31, 2024.

3 The Qualified Person for the Mineral Reserve estimate is Colleen MacDougall, P.Eng. an employee of SRK Consulting (Canada) Inc.

4 Mineral Reserves have been prepared using metal prices of US$3.85 per pound of copper, and US$1,600 per ounce of gold.

5 Mineral Reserves are reported at a cut-off value of US$5.87/t ore.

6 Factors have been applied to the copper and gold grades based on reconciliation results, 96% to the copper grades and 99% to the gold grades.

15 Mining Methods

15.1 Introduction

The Chapada Mine currently includes four operational open pits: Central, North, South, and Southwest (SW). In addition, the LoM plan includes the development of six other pits: Baru, Sucupira, Buriti, North Buriti, Chapada Northeast (NE), and Cava I. The North, Central, SW and Sucupira pits will eventually join into a single pit.

Table 15-1: Summary of the Chapada Mine Pits

Pit	Status	Final Length (m)	Final Width (m)	Start Operation	Final Operation
Central	Inoperative until 2029	1,516	932	2006	2031
North	Operating	2,541	1,017	2013	2025
South	Operating	3,537	780	2014	2033
SW	Operating	1,765	543	2020	2034
Chapada NE	Inoperative until 2032	-	-	2022	2035
Baru	Project	1,091	515	2025	2027
Sucupira	Project	-	-	2035	2046
Buriti	Project	663	254	2031	2037
North Buriti	Project	1,372	777	2029	2033
Pit I	Project	240	821	2045	2045

Source: Lundin Mining, 2024

The current annual production capacity is around 25 Mtpa, with the processing plant located at the northwest end of the Chapada Mine and processed material being disposed of as tailings.

The LoM production schedule is based on the Mineral Reserve inventory in Section 14.

15.2 Geotechnical Considerations

The geotechnical characterization of the Chapada Mine is done by consultants, validated by the internal team of Lundin; following national regulations, along with Lundin's Standards, which are based on international standards and best practices. The reports consider the Rock Mass Rating (RMR) (Bieniawski, 1989) classification system to define the rock masses, supported by geomechanical and geological core logging, with descriptions and photos of the drillholes.

15.2.1 Pit Slope Design Recommendations

The slope design recommendations are divided into the following geotechnical classifications:

- I-II Slightly fractured rock (very good and good rock quality)
- III Slightly altered and moderately fractured (regular rock quality)
- IV Highly altered and fractured (poor rock quality)

- V Soil and completely altered and fractured (very poor rock quality)

The slope design recommendations for Chapada are tabulated in Table 15-2. The geotechnical sectors corresponding to these recommendations are illustrated in Figure 15-1 to Figure 15-10.

Table 15-2: Chapada Mine Pit Slope Parameters

Pit	Zone	Class	Bench Face Angle (º)	Berm width (m)	Bench height (m)	Inter-Ramp Angle (º)	Inter-Ramp Height (m)	Safety Berm* (m)
South Pit - North Area	1	V	45	7	10	30	40	
		IV	75	7	10	46	40	
		I-II, III	75	8.5	20	57	100	
	2	V	45	7	10	30	40	
		IV	70	7	10	43	40	
		I-II, III	70	8.5	20	53	100	
	3	V	45	7	10	30	40	
		IV	55	7	10	36	40	
		I-II, III	55	8.5	20	43	100	
South Pit - Central	2	I-II, III	75	8.5	20			
		IV	65	8.5	20			
		V	45	7	10			
South Pit - South Area	1	V	45	7	10	30	40	
		IV	75	7	10	46	40	
		I-II, III	75	8.5	20	57	100	
	2	V	45	7	10	30	40	
		IV	70	7	10	43	40	
		I-II, III	70	8.5	20	53	100	
	3	V	45	7	10	30	40	
		IV	55	7	10	36	40	
		I-II, III	55	8.5	20	43	100	
	4	V	45	7	10	30	40	
		IV	50	7	10	33	40	
		I-II, III	50	8.5	20	39	100	
North Pit	1	V	27	7	10			
	2	I-II, III	75	8.5	20			
		IV	70	7	10			
		V	45	7	10			
	3	I-II, III	80	8.5	20			
		IV	70	7	10			
		V	45	7	10			

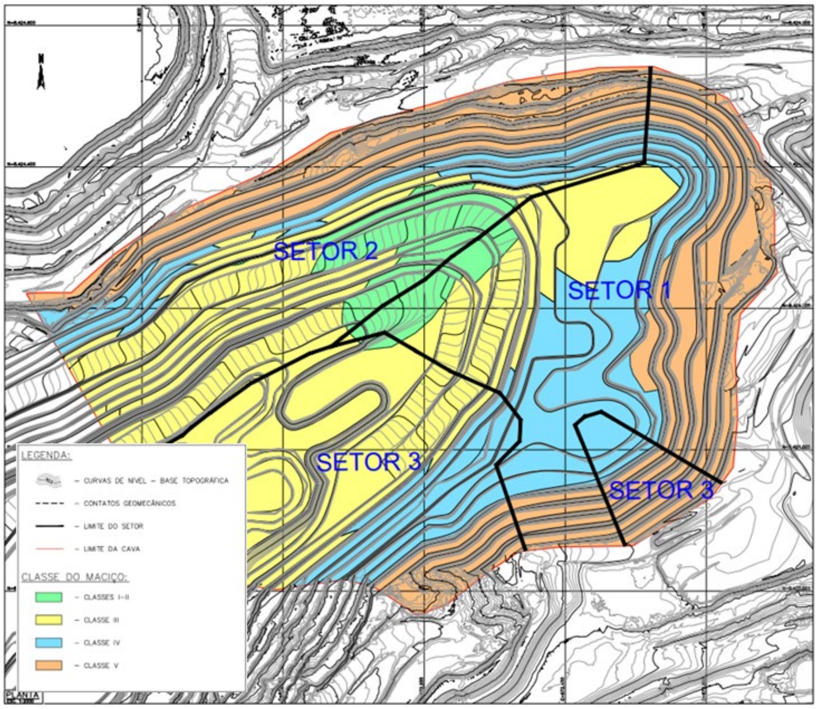
Pit	Zone	Class	Bench Face Angle (º)	Berm width (m)	Bench height (m)	Inter-Ramp Angle (º)	Inter-Ramp Height (m)	Safety Berm[1] (m)
Central Pit	1	I-II	70	8.5	20	52	160	20
		III	70	8.5	20	52	160	
		IV	70	7	10			
		V	45	7	10			
	2	I-II, III	75	8.5	20	55	160	20
		IV	70	7	10			
		V	45	7	10			
	3	I-II, III	70	7	10			20
		IV	70	7	10			
		V	45	7	10			
NE Pit	1	I-II, III, IV	70	7	10			
		V	27	7	10			
Sucupira	1	I-II, III	70	8.5	20	52	160	20
		IV	70	7	10			
		V	40	7	10	28	50	
	2	I-II, III	75	8.5	20	55	160	20
		IV	70	7	10			
		V	40	7	10	28	50	
Baru	1	V	45	7	10	30	40	
		IV	75	7	10	46	40	
		I-II, III	75	8.5	20	57	100	
	2	V	45	7	10	30	40	
		IV	70	7	10	43	40	
		I-II, III	75	8.5	20	57	100	
	3	V	45	7	10	30	40	
		IV	60	7	10	60	40	
		I-II, III	65	8.5	20	50	100	
SW	1	V	45	7	10	30	40	
		IV	75	7	10	46	40	
		I-II, III	75	8.5	20	57	100	
	2	V	45	7	10	30	40	
		IV	70	7	10	43	40	
		I-II, III	70	8.5	20	53	100	
	3	V	45	7	10	30	40	
		IV	50	7	10	33	40	
		I-II, III	50	8.5	20	39	100	
Buriti & Jatoba	1	V	27	7	10			
		I-II, III, IV	70	7	10			
Default Areas	First 2 benches	V	40	7	10			
	Remaining benches	I-II, III, IV	65	8.5	20			

Source: Lundin Mining, 2024

Notes:

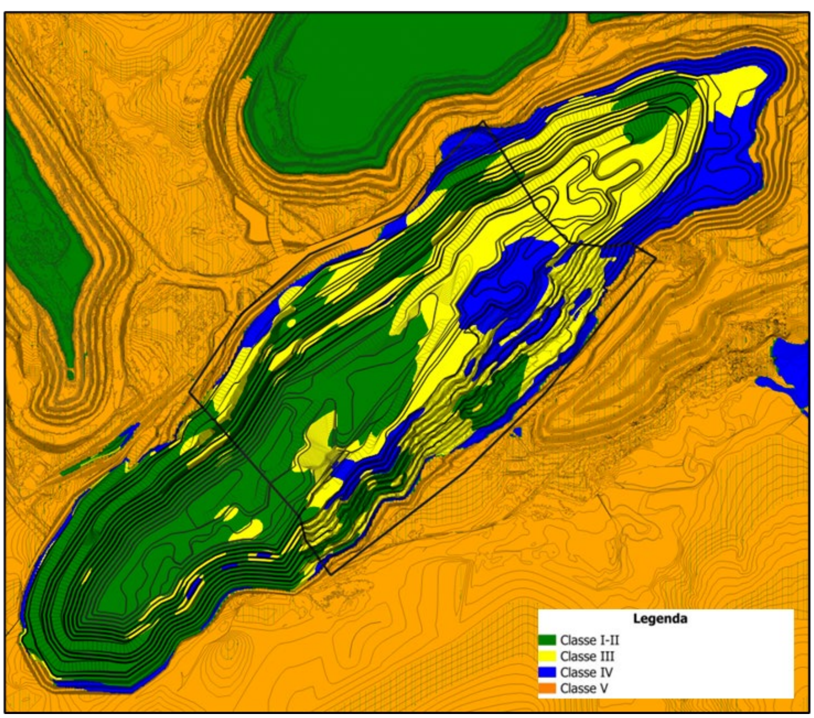
[1] If necessary, safety berms will be used for geotechnical or hydrogeological monitoring.

Figure 15-1: Chapada Geotechnical Sectors – South Pit North Area



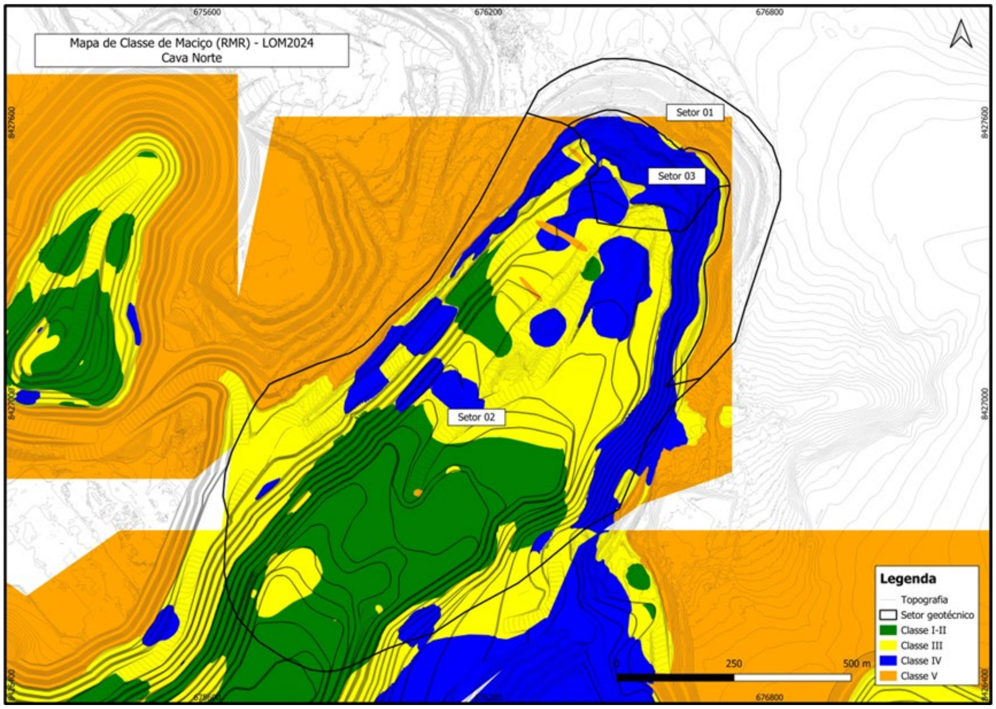
Source: Lundin Mining, 2024

Figure 15-2: Chapada Geotechnical Sectors – South Pit Central Area



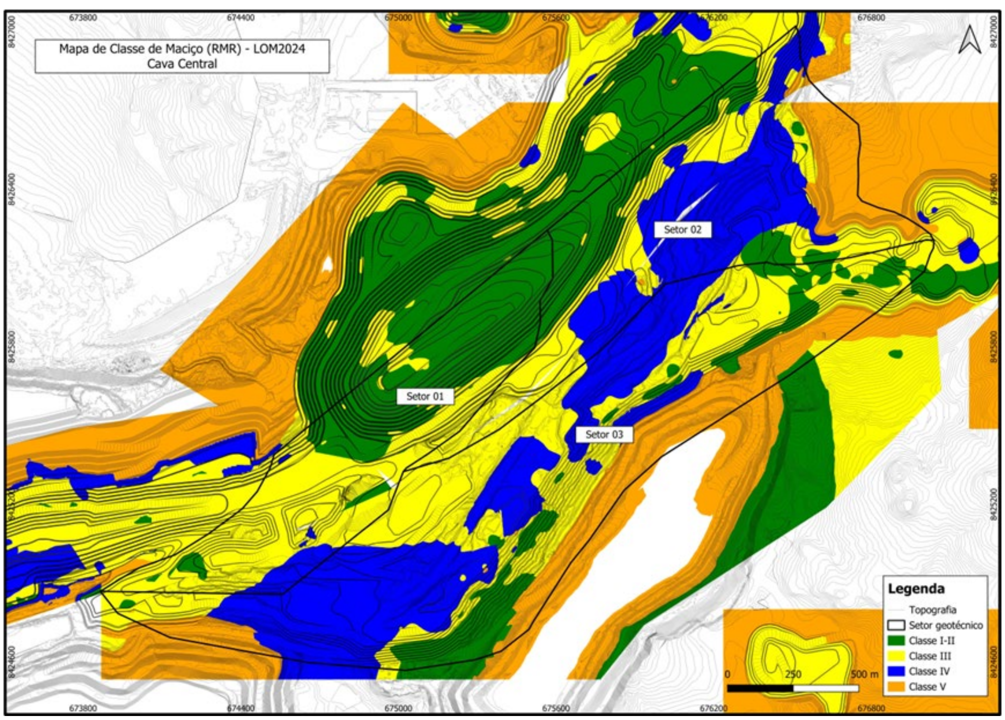
Source: Lundin Mining, 2024

Figure 15-3: Chapada Geotechnical Sectors – South Pit South Area



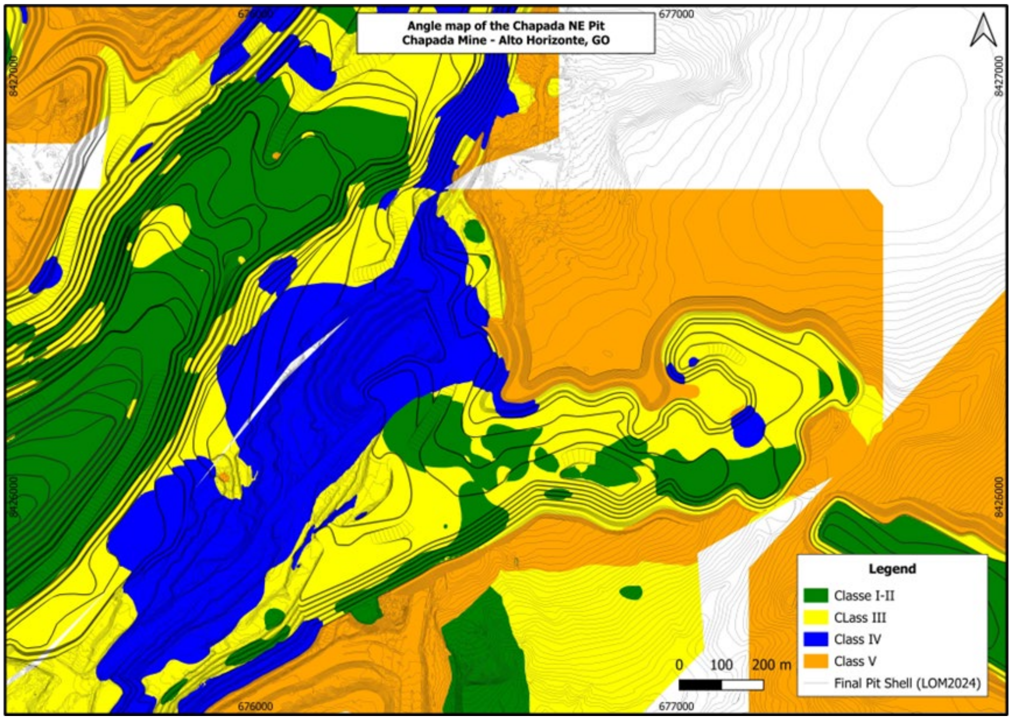
Source: Lundin Mining, 2024

Figure 15-4: Chapada Geotechnical Sectors – Central Pit



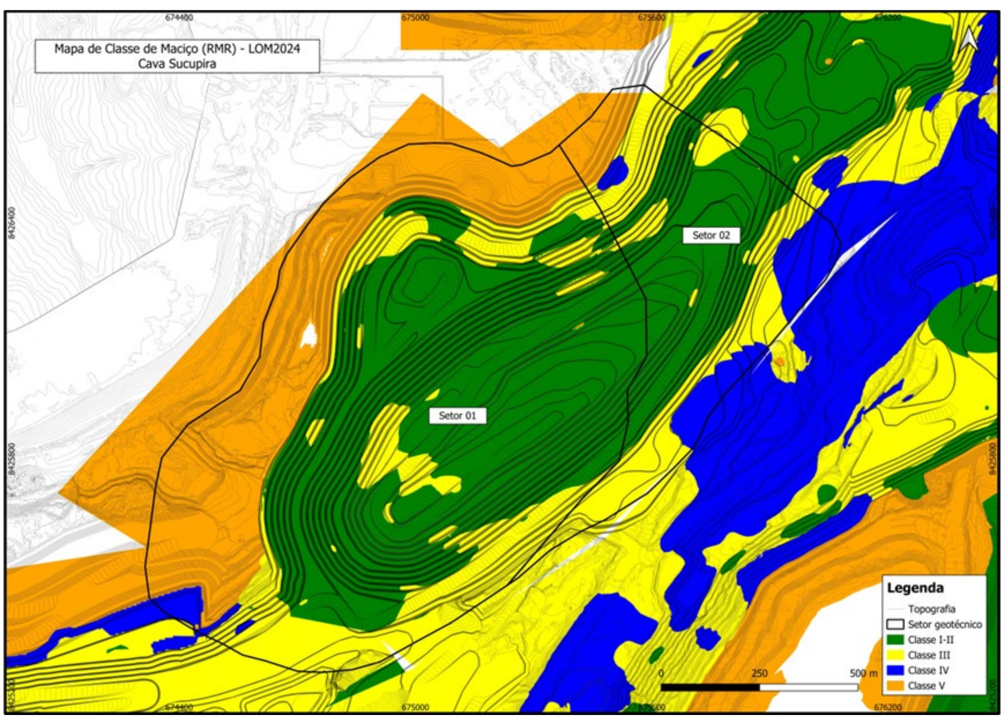
Source: Lundin Mining, 2024

Figure 15-5: Chapada Geotechnical Sectors – Chapada Northeast Pit



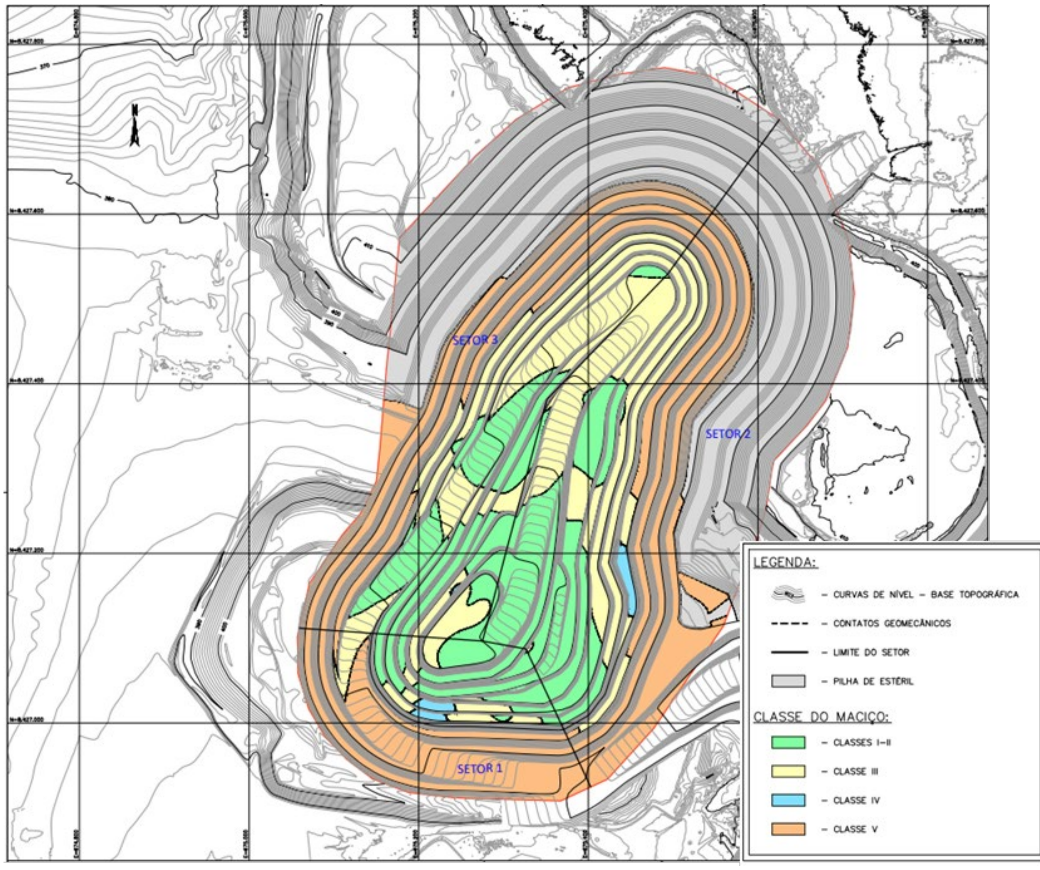
Source: Lundin Mining, 2024

Figure 15-6: Chapada Geotechnical Sectors – Sucupira Pit



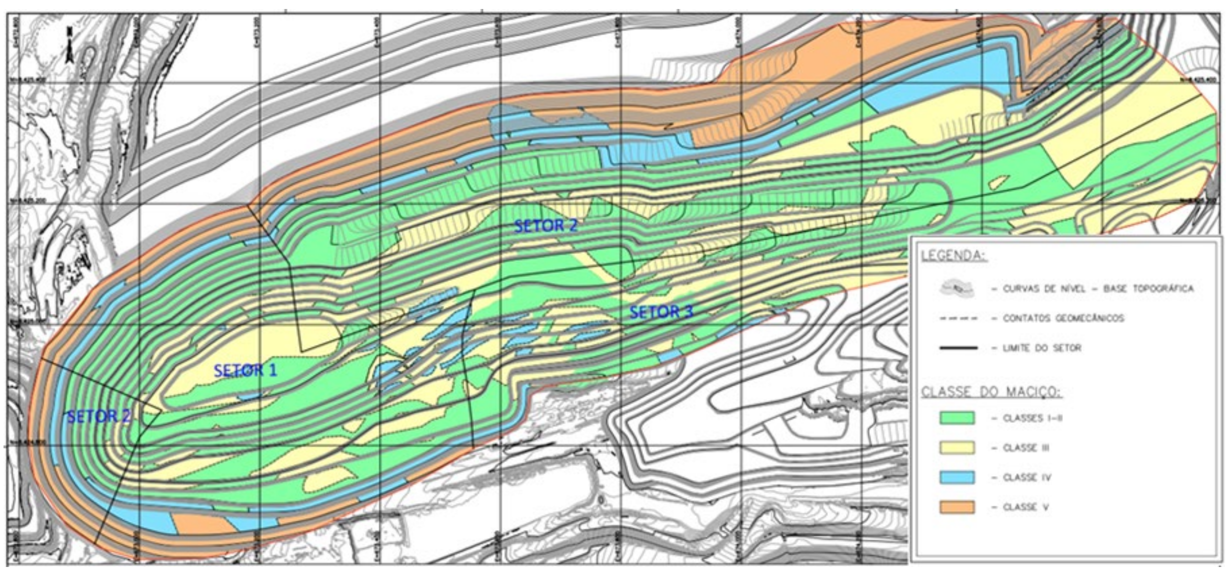
Source: Lundin Mining, 2024

Figure 15-7: Chapada Geotechnical Sectors – Baru Pit



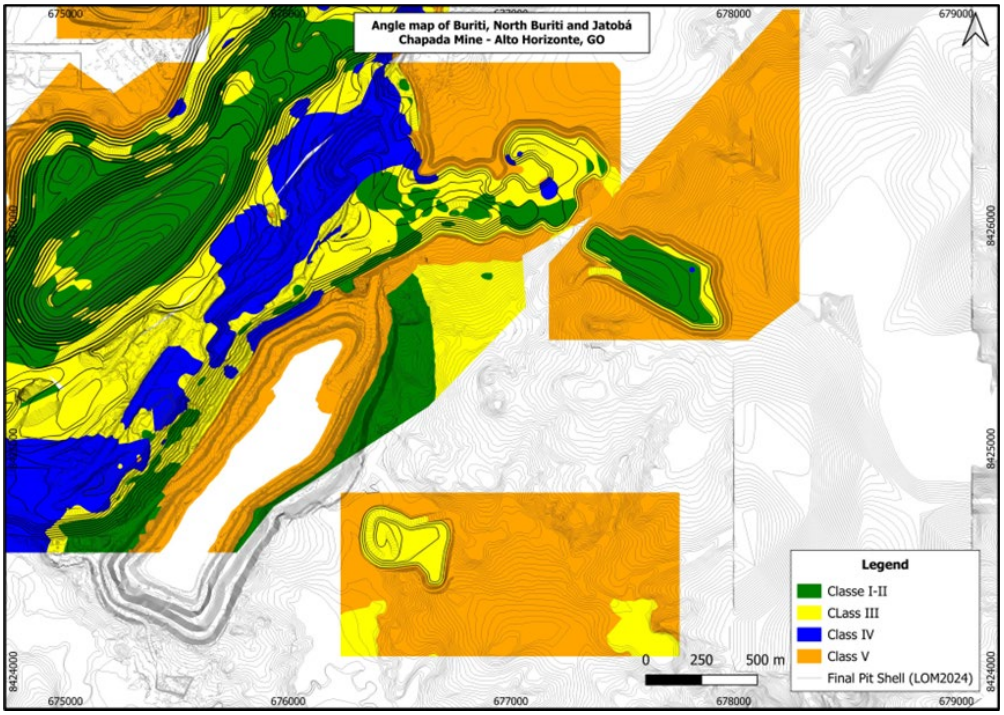
Source: Lundin Mining, 2024

Figure 15-8: Chapada Geotechnical Sectors – Southwest Pit



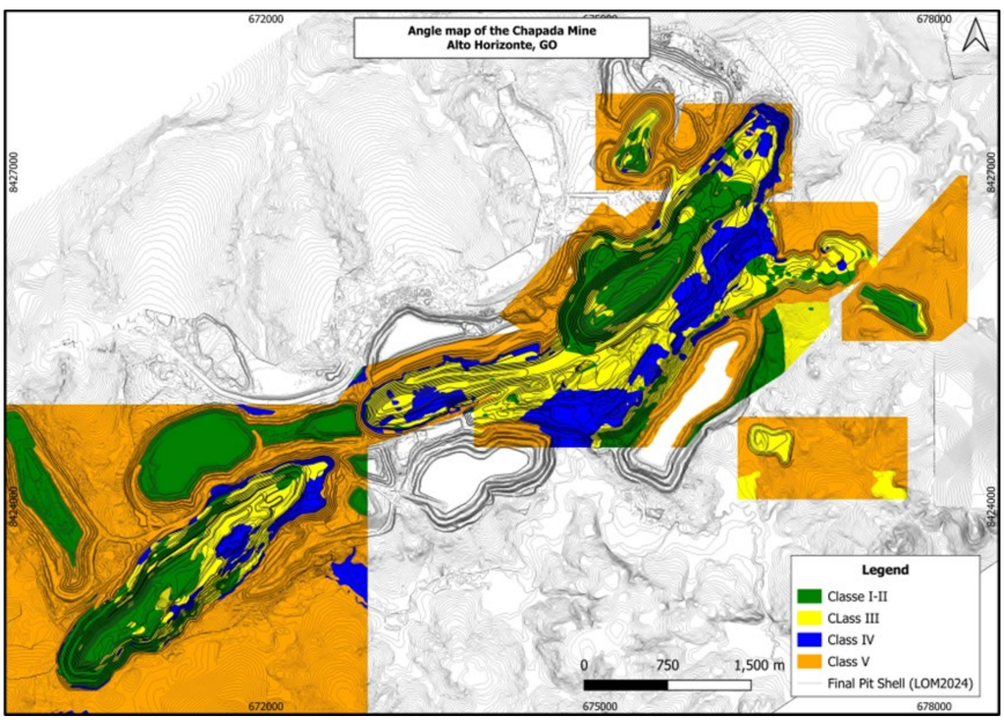
Source: Lundin Mining, 2024

Figure 15-9: Chapada Geotechnical Sectors – Buriti & Jatobá Pit



Source: Lundin Mining, 2024

Figure 15-10: Chapada Geotechnical Sectors – Default Areas

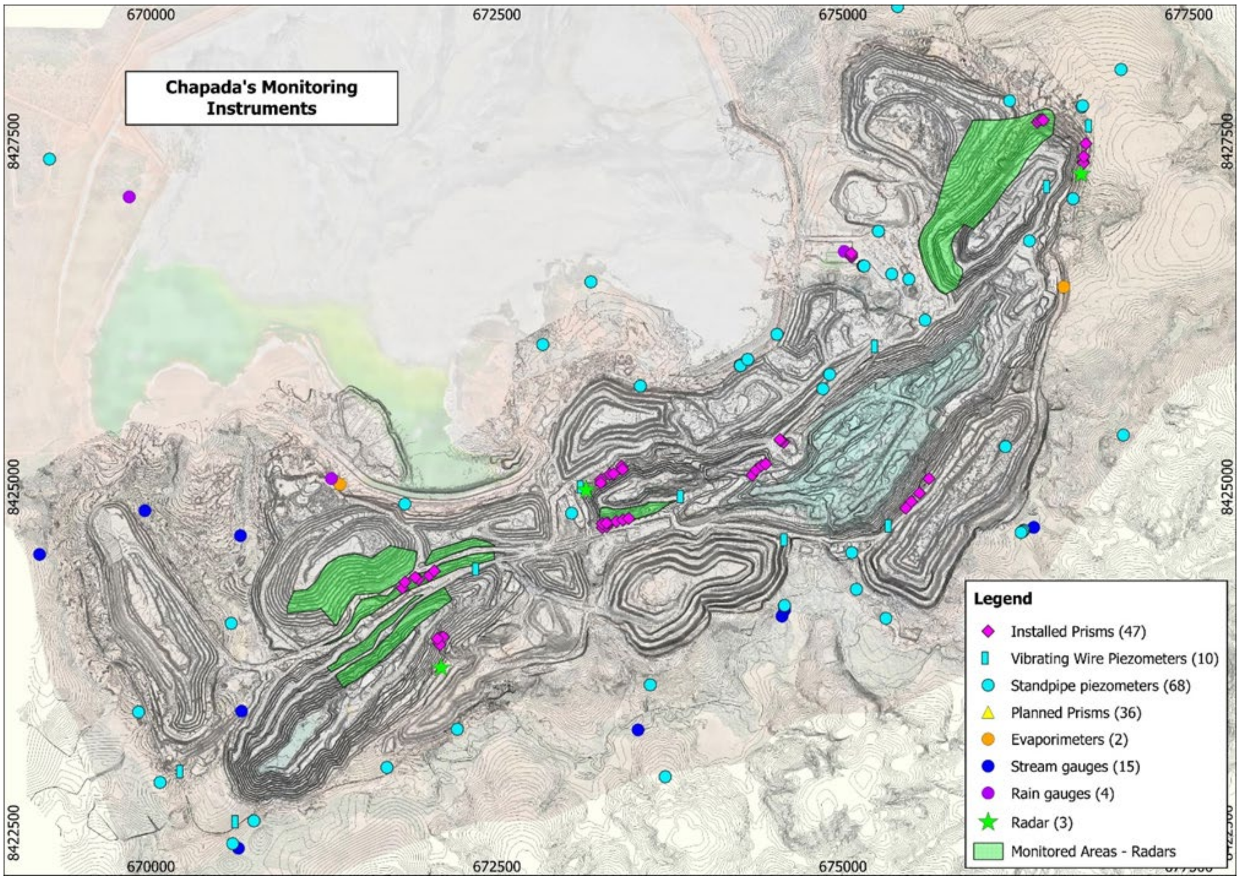


Source: Lundin Mining, 2024

15.2.2 Geotechnical and Hydrogeological Monitoring

The location of the main geotechnical and hydrogeological monitoring instruments is shown in Figure 15-11.

Figure 15-11: Location of Chapada Mine Monitoring Instruments



Source: Lundin Mining, 2024

There are 47 topographic prisms installed in the Chapada mine. These prisms monitor the:

- In-pit Crusher (3): concrete slopes related to the in-pit crusher.
- Water reservoir near the ADM (3).
- South Pit (11): Northeast slopes, and 2024-2025 pushbacks.
- North Pit (8): saturated slopes and circular failure.
- Central Pit (4): interface with South Waste dump.
- Southwest Pit (18): rock bridge between Central Pit and Southwest Pit and pushback.

Geomechanical weekly inspections consist of a visual assessment of active operational areas in the mine or areas with geotechnical risk, and are categorized into ordinary and extraordinary:

- Periodic/Ordinary: the Geotechnical, Safety, Infrastructure, Mining Operations, and Drilling & Blasting teams meet weekly for an interdisciplinary evaluation of the conditions of active mining and deposition areas. At the end of the inspection, a meeting is held to present the discussed points, outlining the agreed action plans, their responsible parties, and respective deadlines.
- Extraordinary: Related to any deviation, event, or specific demand.

All inspections are documented with photographic records, and a report is prepared detailing the areas visited in the field. Action plans are registered in Lundin's internal portal. The reports are sent to all inspection participants as well as to the leaders of each area.

Hydrodynamic monitoring aims to track the seasonal and local variations of surface water bodies and groundwater. At Chapada Mine, 68 hydrogeological monitoring instruments (standpipe piezometers, monitoring wells, and water level indicators), 10 vibrating wire piezometers, and 21 hydrological monitoring instruments (stream gauges, rain gauges, and evaporimeters) are installed.

The geotechnical monitoring at Chapada Mine is done by SSR-XT radar models with 3D Real Aperture technology from GroundProbe, which operate in the main operational mining fronts. They scan the area in a grid pattern to provide three-dimensional images, ensuring real-time monitoring of the entire area of interest. The average reading interval at each point is 7 to 10 minutes. The equipment features an integrated camera, a weather station, and covers a range of 3.5 km and a resolution of 8.7 m by 8.7 m, 270° horizontal coverage, and 120° vertical coverage. It operates on diesel generators, AC power, and battery banks.

The remote geotechnical monitoring service operates 24 hours a day, 7 days a week, and includes: guidance on Trigger Action Response Plan (TARP) thresholds, standardization of emergency procedures with a clear and objective escalation plan for responsible parties, a dedicated local team for Chapada Mine, system diagnostics, reliability tracking, secure data backup and free data restoration, periodic reporting, and firmware updates.

15.3 Water Considerations

Three scenarios were identified to mitigate the risks associated with excess water to manage liabilities in the short, medium, and long term. Additionally, a realistic plan was developed that will allow Lundin to reduce approximately 14 Mm^3 of water per year, ensuring the maintenance of current water inventory levels. Concurrently, other complementary initiatives could result in an additional reduction of around 22 Mm^3 per year. The three scenarios are summarized in Figure 15-12.

Figure 15-12: Potential Mapped Scenarios for Water Management

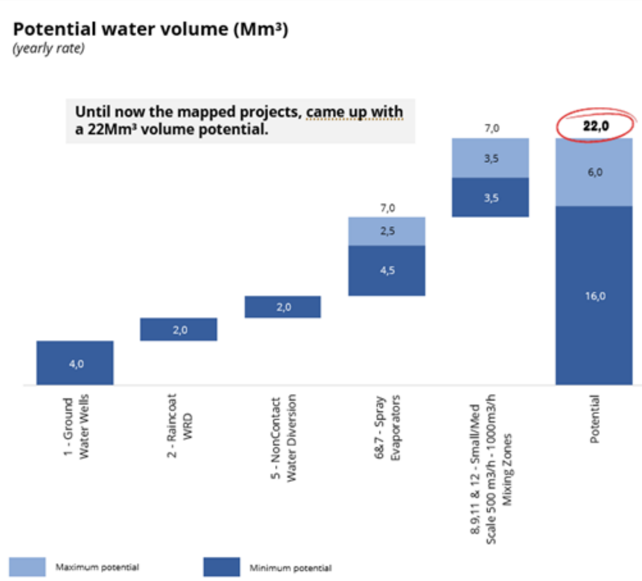
As Is	Realist	Ambitious
Reduce 7m³/year discharge	Reduce14m³/year discharge	Reduce 22m³/year discharge
No additional effort keeps working with: • Small-scale TSF Plant, discharging water on the River Formiga, with the same evaporators and dusty controls	Optimize LOM 2025, adding: • Ground Water wells (4 Mm³) • Non-Contact Water Diversion (2 Mm³) • Small Scale Plant (3.5 Mm³) using Rio do Bois and Formiga • Adding more evaporators to treat additional (4.5 Mm³)	Optimize LOM 2025, adding: • Ground Water wells (4Mm³) • Non-Contact Water Diversion (2Mm³) • Small Scale Plant (3.5Mm³) + full-scale Plant (7Mm³) using Rio do Bois, Formiga, and Land (Dry Season) • Adding more evaporators to treat additional (7Mm³)

Source: Lundin Mining, 2024

15.3.1 Lundin Mining, 2024 Key Water Management Initiatives

The key water management initiatives are divided into three main categories, including initiatives with disposal potential, initiatives still under evaluation to determine their actual impact, and others that will facilitate the process (Figure 15-13 and Table 15-3).

Figure 15-13: Water Volume Reduction Potentials



The 22Mm³ reduction potential can increase, the initiatives bellow are still under evaluation.

ID	Initiative
3	Progressive Reclamation (Cost + Impact + Implementation)
4	Smaller Footprint (Cost + Impact)
10	Wetland Systems
13	Discharge - Land Application of Treated Water (Dry Season) (Cost + Impact)
14	Permits (Assessment + Schedule)
15	Optimized Mine Plan in function of the other decisions
16	Increase Baru Pit
17	Increase # sumps

Source: Lundin Mining, 2024

The Ground Wall Water initiative aims to establish a pit drainage plan with the preliminary capacity to pump 4 Mm³ of water per year using vertical and directional wells. This initiative contributes to lowering the water table, positively impacting mine operations and reducing water inflow into the system. A drilling campaign has begun to install vibrating piezometers, and the Hydrogeological Numerical Model is under development.

The Water Treatment Plant Small Scale (WWTP Small Scale) has a treatment capacity of 500 m³/h, reaching a total volume of approximately 3.5 Mm³ annually. This plant is currently in the implementation phase, with construction completion expected in the second quarter of 2025.

In addition to the WWTP Small Scale, there is an initiative to build and operate a WWTP Full Scale with the capacity to treat and discharge 7 Mm³/year. This initiative is currently in an advanced stage of basic engineering, with a peer review by the QP underway for the basic design. The current schedule foresees the start of the Full-Scale plant's operation in the third quarter of 2027.

Lastly, Lundin has the Evaporator as one of the initiatives, for which the study to increase the number of units has been completed with a projected disposal of 7 Mm³ per year.

Despite the progress in major initiatives, Lundin is continually seeking new solutions for water balance. An example of this is the preliminary study of an evaporation pond as an alternative for disposal from the WWTP Small Scale during the dry season when the river's capacity to receive treated effluent is reduced. If confirmed through the ongoing study, this pond could increase disposal by around 7 Mm³, including the full-scale WTP. This project has already been discussed with SEMAD, which agrees that utilizing the plants during the dry season in Goiás is an exciting approach.

Table 15-3: Summary of Key Water Management Initiatives

ID	Initiative	Potential	Status	Main Comments
1	Ground Water Wells	4Mm³	Ongoing	Additional details introduced during the calibration of the hydrogeological model have extended the required worktime. The business case with operational benefits has been completed and demonstrates encouraging economic numbers.
2	Raincoat WRD	2Mm³	Completed after deadline	Operationally, the raincoat only provides partial coverage of waste dumps. The study was completed, and CAPEX and OPEX values were higher than anticipated.
3	Progressive Reclamation	Enabler	Ongoing	Mine Closure Cost Workshop with SRK team and Lundin Belo Horizonte occurred on October 17th, 2024. Four closure scenarios were defined, and SRK mapped costs related to technical assumptions.
4	Smaller Footprint	Enabler	Completed on time	Higher NPV in mine planning financial model when compared to LoM 2024.
5	Noncontact Water Diversion	2Mm³	Completed on time	Of the analyzed points, only one is in a condition to be discarded - Aprecida Dam. As detailed in the Drainage Plan, all other points mustbe directed by pumping to the dam.
6	Spray Evaporators	4.5Mm³	Completed after deadline	Next steps are to define a location in the LoM. Efficient test under planning.
7	Spray Evaporators	7Mm³	Completed after deadline	Next steps are to define a location in the LoM. Efficient test under planning.
8	Small Scale 500 m3/h	3.5Mm³	Ongoing	The deforestation license was obtained on September 4th. Earthworks for the construction of foundation have been

ID	Initiative	Potential	Status	Main Comments
				completed. Start of construction of foundations
9	Full Scale	7Mm^3	Completed after deadline	Engineering Flow completed. SRK Consulting for validation of the treatment process initiated.
10	Wetland Systems	Enabler	Ongoing	The electrical, earthworks, waterproofing, surface drainage, isometric and general flowchart designs have been received. An alignment meeting will be scheduled to review the projects.
11	Discharge River Dos Bois - Mixing Zones	TBD	Completed on time	The mixing zone simulations for the rivers with a view to maximizing the release of treated effluent have been completed.
12	Discharge River Formiga - Mixing Zones	TBD	Completed on time	The mixing zone simulations for the rivers with a view to maximizing the release of treated effluent have been completed.
13	Discharge - Land Application of Treated Water (Dry Season)	TBD	Ongoing	Experiment with pots started in August 2024 to verify potential agricultural uses of soybean, corn, and Brachiaria. In November, the experimental phase in the greenhouse was completed, and it is currently in the statistical analysis phase for both plants and soil.
14	Permits (Assessment + Schedule)	Enabler	Ongoing	Initiatives related to dewatering through underground wells, wetland systems, and WWTP already have a licensing schedule in progress.
15	Optimized Mine Plan in fuction of the other decisions	Enabler	Ongoing	GoldSim will be updated until July 2024 to define the best deck of initiatives.
16	Increase Baru Pit	TBD	Ongoing	The final pit has already been designed, and phases are ongoing (forecast: June 2024). Increase of ~2Mm3 (from 8.6Mm3 to ~8.8Mm3) with more ~1.8Mt of mass (~1.3Mt ore and ~0.5Mt).
17	Increase number of sumps	TBD	Ongoing	The excavation of the sump and canal for sump 10 has been completed, and the project is now in the waterproofing phase. For sump 5, the team is working to address the water seepage issue. Sumps 1, 3, 4, and 12 continue excavation activities.

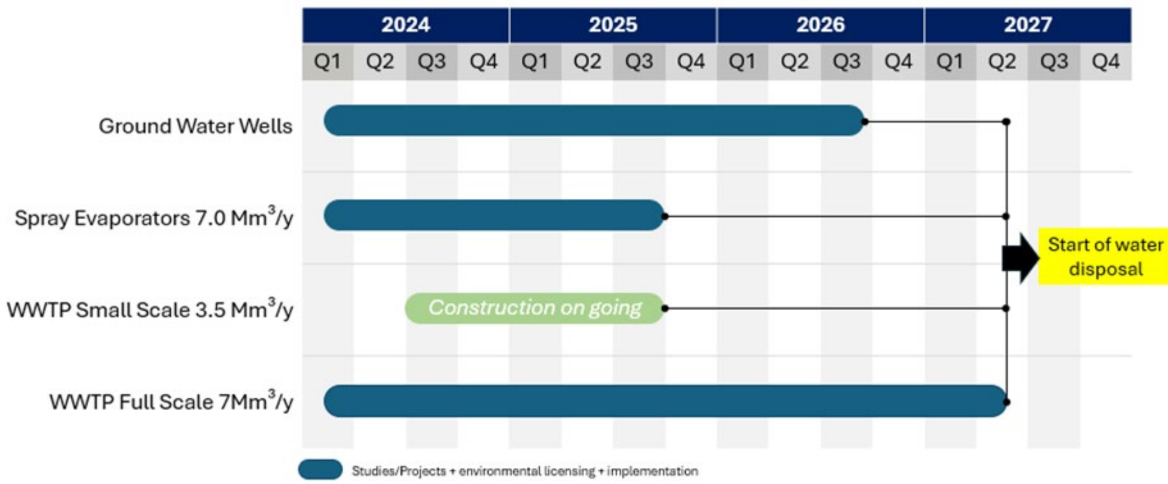
15.3.2 Chapada Mine Water Balance

The Chapada Mine water balance model has undergone adjustments and refinements, enhancing alignment with Chapada's operational reality and aiming for integration with mine planning in the LoM. In this context, fundamental assumptions that form the model have been revised, including the pit capacities over the years, mining elevations, the area of the stockpiles, and alignment with the current phase of mine planning.

The governance of the water balance model is currently being implemented, which will include regular updates in the forecast and an assumptions book with all assumptions detailed and validated by all involved parties. This governance process aims to ensure that water balance assumptions are up-to-date and aligned with operational and strategic conditions, providing a reliable basis for decision-making and a more robust integration across areas.

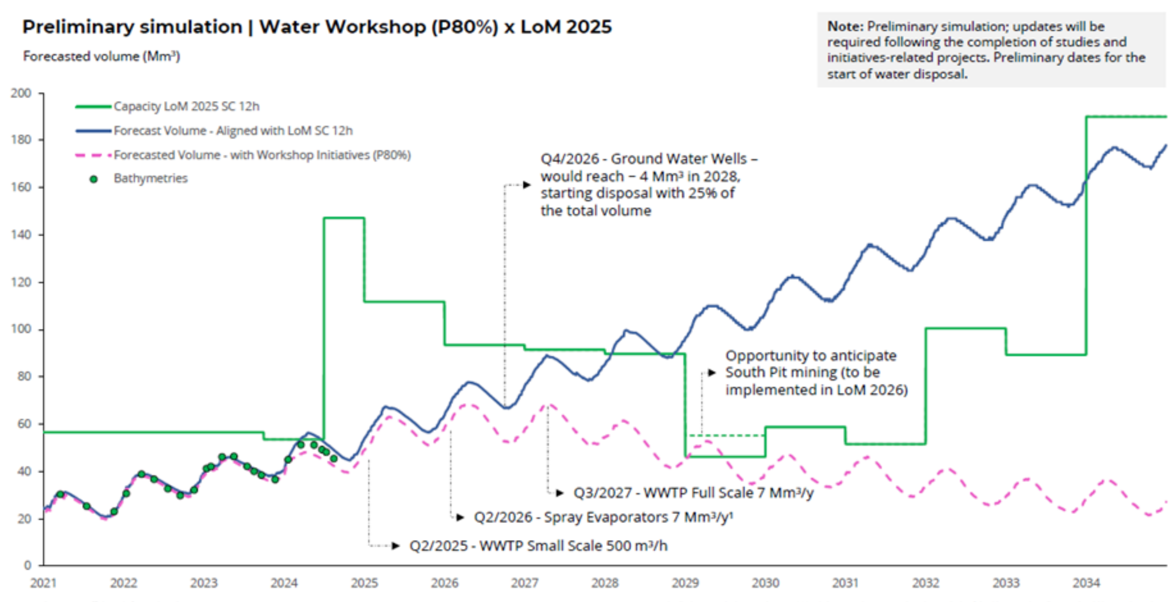
Preliminary simulations have already been conducted, considering the disposal timing of the main initiatives and projecting water volume until 2034, where the main challenges lie. Figure 15-14 and Figure 15-15 presents the water volume forecast (in Mm³) with the initiatives aligned with LoM 2025. The green line indicates the projected water storage capacity, while the blue and pink lines represent the projected volume and the projected volume with the initiatives (P80).

Figure 15-14: Water Volume Reduction Potentials



Source: Lundin Mining, 2024

Figure 15-15: Water Volume Reduction Potentials



Source: Lundin Mining, 2024

It is observed that, starting from the fourth quarter of 2026, the Ground Water Wells will begin to discharge an estimated volume of 4 Mm^3 in 2028, representing 25% of the total volume. Additionally, there is an opportunity to advance the mining of the South Pit, initially planned for LoM 2026.

Key milestones include the implementation of the WWTP Small Scale (500 m^3/h) in Q2 2025, the Spray Evaporators (7 Mm^3/year) in Q2 2026, and the WWTP Full Scale (7 Mm^3/year) planned for Q3 2027. These initiatives have been integrated into the simulation to ensure more efficient and sustainable water management throughout the mine's life, which is continuously detailed in the model. Other unmapped opportunities in the model include the modular advancement of the full-scale water treatment plant's start-up and model adjustments that, in 2024 alone, already accounted for about 3 Mm^3 less stored water, which would generate a correction in the model without requiring further adjustments.

15.3.3 Short-Term Plan – Circuit Closure

In February 2024, it was established that all water drainage points to the environment should be closed. A closed-loop internal pumping circuit must be implemented to ensure no water is discharged into the environment without prior treatment.

As part of this effort, a short-term plan aligned with the Environment Agency's requirements was defined for implementing these structures in 2024. Sixteen drainage points were identified in the initial mapping, for which sumps and drainage systems are planned to enable a closed circuit.

The action plan defined includes the construction of 7 sumps by 2024, 6 of which are currently in the implementation phase. All pumping operations are expected to be operational by January 2025.

The Environmental and Water Monitoring Center (CMAA) has been implemented. It is already equipped with automation and continuous monitoring of the water operation systems, operating 24 hours a day, ensuring excellent reliability in operations. This system also allows for anticipating risk mitigation actions based on rainfall forecasts exceeding 30 mm/h, for example.

15.4 Modifying Factors

The Mineral Reserves are reported inclusive of dilution and loss. These factors have been estimated based on average reconciliation results from 2021-2023. The following modifying factors have been applied to the copper and gold grades:

- Copper grades: 0.96
- Gold grades: 0.99

15.5 Pit Optimization

The pit optimization parameters were estimated using cost data from the 2023 Chapada Mine financial model, with price forecasts provided by Lundin's corporate office. The parameters applied for pit optimization are outlined from Table 15-4 to Table 15-5.

Table 15-4: Pit Optimization Parameters & Cut-off Value

Description	Units	Value
Price – Copper	$/lb	3.85
Price – Gold	$/oz	1,600
Payable Metal – Copper	%	95.60
Payable Metal – Gold	%	95.14
Concentrate Grade	%	22.0 – 23.5
Refining Charges – Copper	$/lb	0.09
Refining Charges – Gold	$/oz	5.00
Moisture Content	%	8.00
Concentrate Treatment	$/dmt	90.00
Truck Transportation	$/wmt	80.79
Ship Transportation	$/wmt	61.72
Tax | CFEM (Net of TC/RC)	%	2.00
Royalties | Landowners (Net of TC/RC)[1]	%	1.00
Streaming (Copper Gross Revenue)	%	3.11
Metallurgical Recovery – Copper Mixed Baru Pit	%	17.0
Metallurgical Recovery – Copper Mixed Other Pits	%	46.0
Metallurgical Recovery – Copper Sulfide	%	Equation 1
Metallurgical Recovery – Gold Mixed Baru Pit	%	15.7
Metallurgical Recovery – Gold Mixed Other Pits	%	41.0
Metallurgical Recovery – Gold Sulfide	%	Equation 2
Base Mining Cost	$/t mined	1.09
Drilling and Blasting Cost – Ore[2]	$/t basted	0.69 – 1.16
Drilling and Blasting Cost – Waste[2]	$/t basted	0.35 – 0.49
Hauling Cost	Variable according to haulage profile and destination	
Processing Cost	$/t milled	4.18
General & Administrative Cost	$/t milled	0.81
Sustaining Capital Cost	$/t milled	1.27
Cut-off Value	**$/t milled**	**6.26**

Source: Lundin Mining, 2024

[7] Landowners royalty applied according to land management agreements.

Variable mining costs are applied based on rock domain

CFEM: Financial Compensation for the Exploitation of Mineral Resources

TC: Treatment charges

RC: Refining charges

Equation 1: $Cu\ Recovery = \alpha \times ln\,(cu\ grade) + \beta + 1.5 + 1.0$

Equation 2: $Au\ Recovery = \alpha \times ln\,(au\ grade) + \beta + 1.9 + 1.0$

Where:

Lithotype	Cu		Au	
	α	B	α	β
Silicified biotite-quartz schist	13.626	99.487	13.948	79.787
Foliated biotite-quartz schist	11.411	95.172	12.529	73.521
Gneiss	9.080	90.357	11.791	68.321
Quartzite and Quartz-diorite propylitic alteration c/w biotite	11.799	96.158	10.099	65.882
Default	11.479	89.862	12.092	67.474

Exceptions:

- Northeast bench 370 and 360: recoveries are zero.
- Northeast, weathering surface = 2 and S grade < 1.75: Cu recovery = 40%, Au recovery = 36%.
- Northeast, weathering surfaces = 3, lithotype = Metatuff and S grade < 1.75: reduce recoveries by 35%.

Table 15-5: Pit Optimization Overall Slope Angles

Pit	Sector	RMR	Overall Slope Angle (º)
South	1N, 1S, 2N, 2S, 3S	V	25
	2C	V	26
	3N, 4S	V	33
	1S	IV	42
	2N, 2S	I- III	43
	1N, 1S, 2C, 3N, 3S	I- III	45
	2C, 2N, 2S	IV	45
	1N, 3N, 3S, 4S	IV	48
	4S	I- III	51
Baru	1, 2	I-III	50
	1, 2, 3	V	25
	1	IV	52
	2	IV	48
	3	I-III	44
	3	IV	42
Central	1, 2, 3	V	26
	1, 2, 3	IV	40
	1	I-II, III	54
	2.1	I-II, III	57
	2.2	I-II, III	52
	3	I-II, III	40
Chapada NE	1	I-IV	44
	1	V	22
North	1	V	22
	2, 3	V	33
	2, 3	IV	44
	2	I-III	52
	3	I-III	61
Sucupira	1, 2, 3	V	30
	1, 2, 3	IV	44
	1	I-II, III	44
	2	III	52

Pit	Sector	RMR	Overall Slope Angle (º)
	2	I-II	47
Southwest	1	V	33
	1	IV	52
	1	I-III	50
	2	V	25
	2, 3	IV	33
	2	I-III	40
	3	IV	36
	3	I-III	35
	1, 2, 3	V	24
	1, 2, 3	I-IV	41
Buriti & North Buriti	1	I-IV	40
	1	V	18
Default Areas	First 2 Benches	V	24
	Remaining Benches	I-IV	45

Source: Lundin Mining, 2024

The pit optimization results are shown in Table 15-6. Two methodologies were applied to define the optimal result. The first is the Lerchs-Grossman approach, which generates pits based on revenue factors. The second is Direct Block Scheduling (DBS), which optimizes the pit block by block, considering time effects during optimization and is used as phase design guideline. Both methods are applied in Deswik.Go.

The Lerchs-Grossman results at revenue factor (RF) 1.0, yields 478 Mt of ore at 0.25% Cu and 0.14 g/t Au. DBS has proven effective in Chapada, serving as a solid foundation for initial phase designs. The methodology begins with an initial set of pushbacks based on DBS. Subsequently, an incremental set of pushbacks is designed between the DBS final pit and the Lerchs-Grossman RF1.0 pit. The economic viability of each pushback can then be assessed during mine planning scheduling. Figure 15-16and Figure 15-17 present results of both methodologies.

Table 15-6: Pit Optimization Results

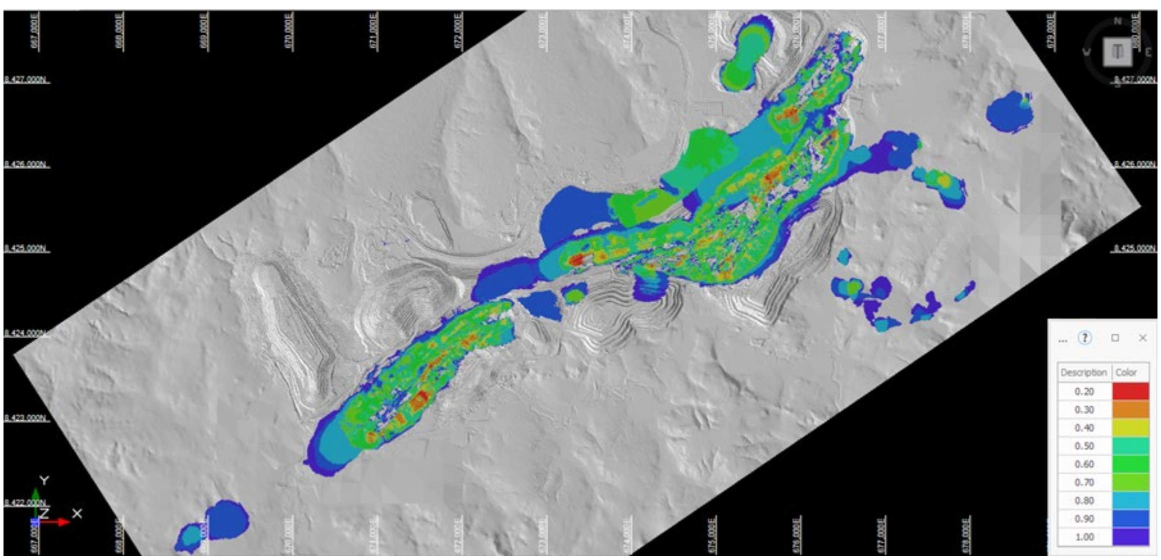
Revenue Factor	ROM (Mt)	NSR ($/t)	Cu (%)	Au (g/t)	Waste (Mt)	Total (Mt)
0.2	0.54	58.55	0.64	0.56	0.04	0.59
0.3	2.89	41.71	0.48	0.40	0.44	3.33
0.4	9.79	31.80	0.39	0.32	2.68	12.46
0.5	29.91	25.59	0.33	0.25	15.45	45.36
0.6	68.74	21.99	0.29	0.21	42.62	111.35
0.7	112.45	19.94	0.27	0.19	83.78	196.23
0.8	298.68	18.89	0.26	0.16	408.53	707.21
0.9	461.05	17.32	0.25	0.14	669.09	1,130.13
1	478.48	17.19	0.25	0.14	707.24	1,185.72

Source: Lundin Mining, 2024

Notes: Results stated at a CoV of 6.26 $/t ore.

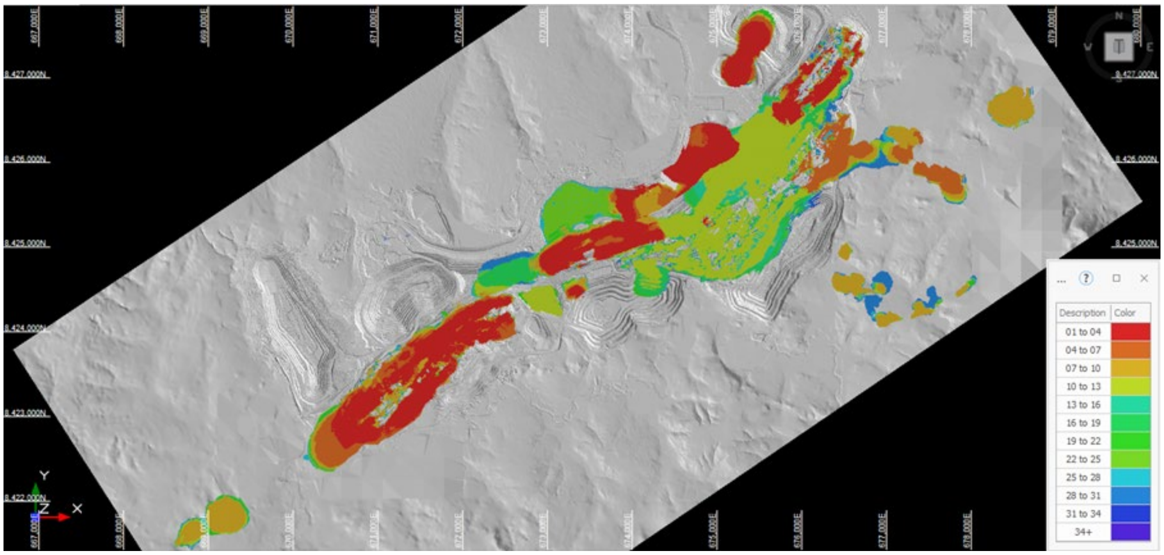
The heatmaps Figure 15-16 and Figure 15-17 illustrate the importance of incorporating the time factor into the optimization process, a key aspect that DBS considers, whereas Lerchs-Grossman does not. While Lerchs-Grossman focuses on spatial optimization to determine ultimate pit limits, it does not inherently account for time. In contrast, DBS integrates both spatial and time-based considerations, enabling a more dynamic and realistic optimization. This leads to improved phase design, better resource allocation, and enhanced overall efficiency, as evidenced by the heatmap analysis.

Figure 15-16: Pit Optimization Results - Lerchs-Grossman



Source: Lundin Mining, 2024

Figure 15-17: Pit Optimization Results - Direct Block Scheduling (DBS)



Source: Lundin Mining, 2024

15.6 Mine Design

15.6.1 Pit Design

Pit design parameters are tabulated in Table 15-7, and are in accordance with geotechnical classifications by pit, sector and rock mass rating.

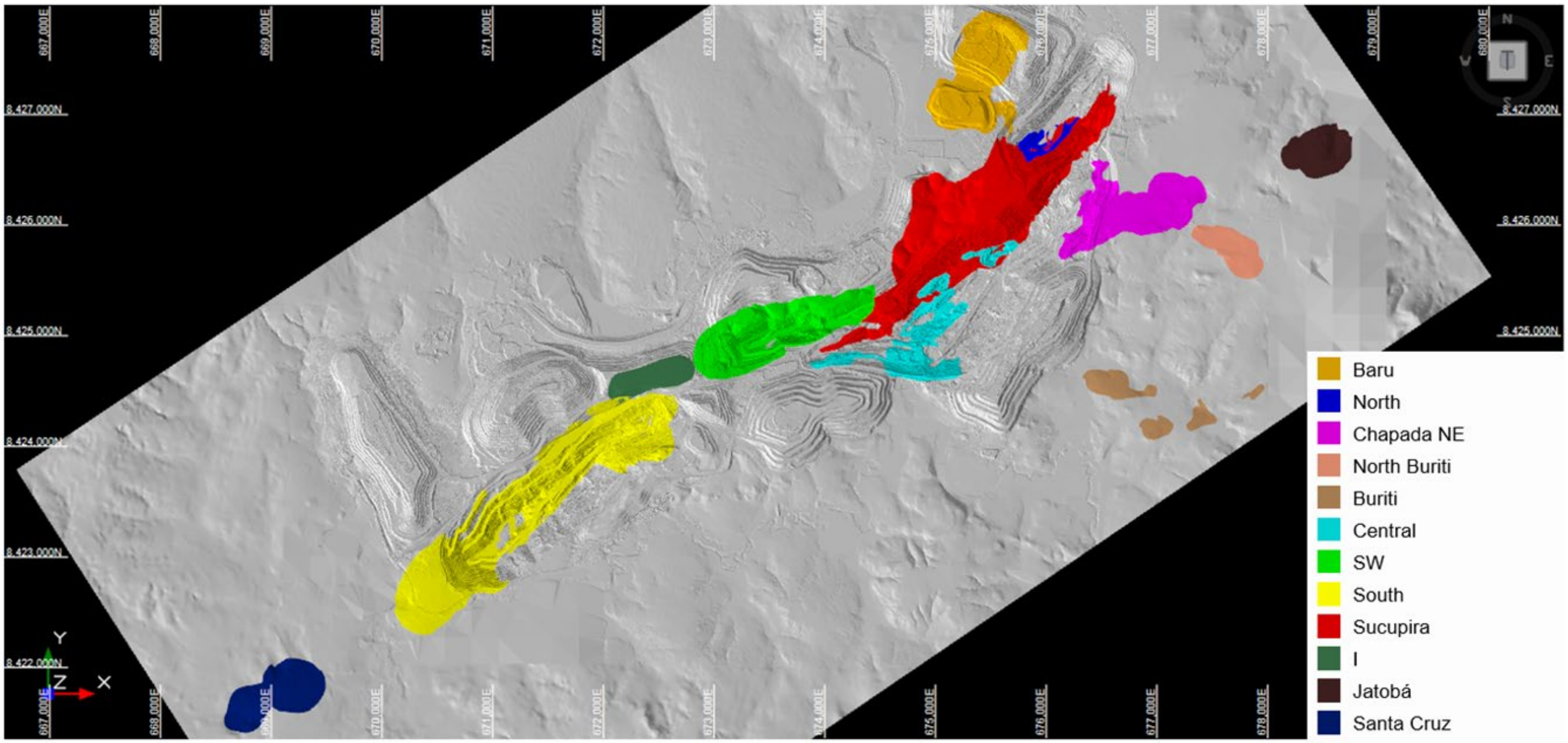
Table 15-7: Pit Design Parameters

Description	Units	Value
Bench height	m	10 – 20
Berm width	m	7.5 – 8.5
Batter Angle	º	27 – 80
Inter Ramp Angle	º	21 – 60
Ramp width	m	32
Minimum pushback width	m	80
Ramp gradient (centerline)	%	8
Minimum mining width	m	40

Source: Lundin Mining, 2024

Mine designs are guided by DBS and the results of phase designs are shown in Figure 15-18 with economic and non-economic pits, once economic viability of each pushback is assessed during mine planning scheduling.

Figure 15-18: Chapada Pit Designs



Source: Lundin Mining, 2024

A comparison of the selected pit shell inventory to the pit design is shown in Table 15-8. There was no considerable difference during pit design. There is a ROM loss of 6.3% and a reduction in waste of 6.9% due to regions that do not achieve mine design parameters without a significant increase of waste. The main differences are in Central and South pits and are shown in Figure 15-19.

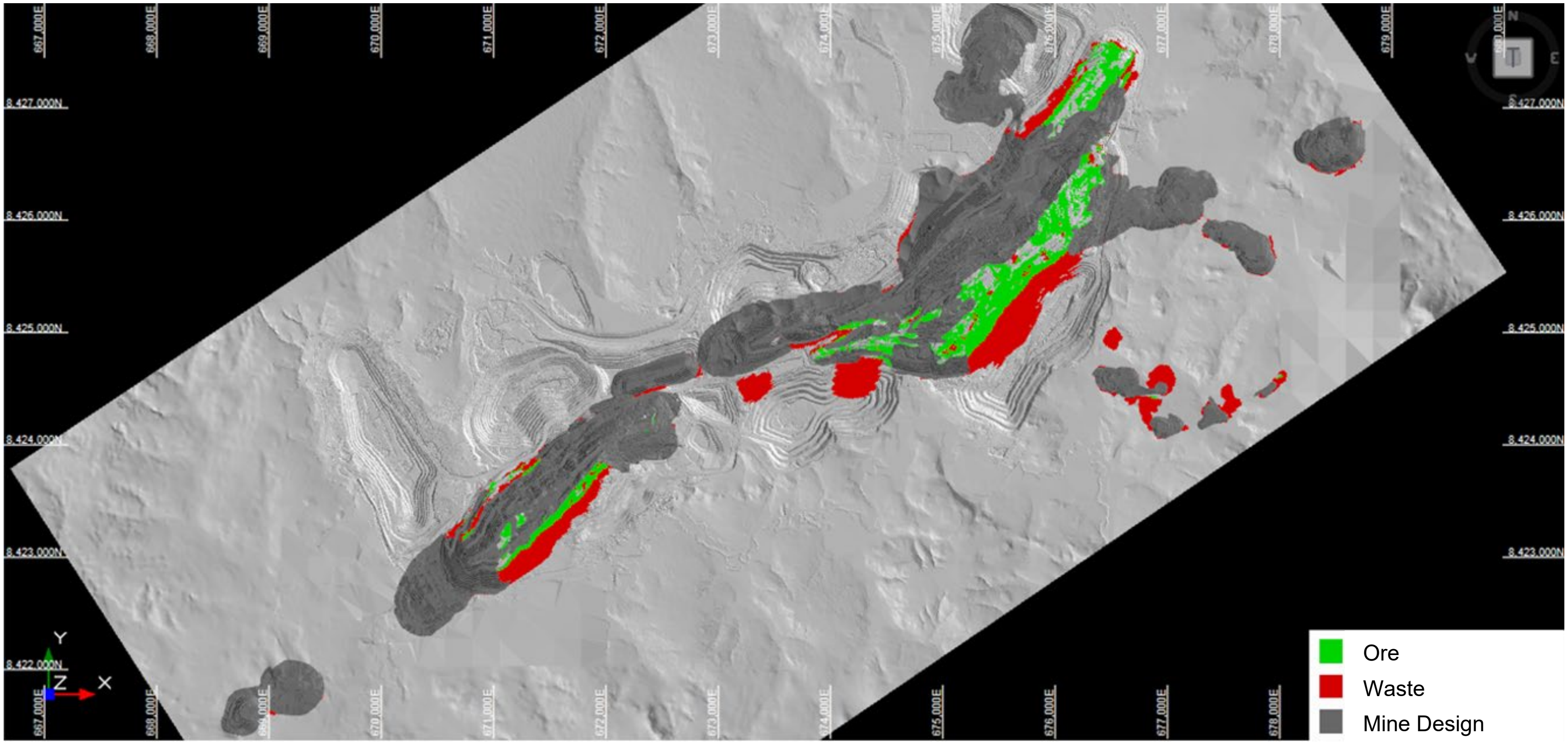
Table 15-8: Comparison of Selected Pit Shell to Pit Design Inventory

	Unit	Lerchs-Grossman RF=1.0	Pit Design Inventory	Difference (%)
ROM	Mt	478.5	448.5	-6.3
Cu Grade	%	0.25	0.25	-1.4
Au Grade	g/t	0.14	0.14	-2.5
NSR	$/t	17.2	16.9	-1.7
Waste	Mt	707.2	658.2	-6.9
Strip Ratio	t:t	2.48	2.47	-0.4
Total	**Mt**	**1,185.7**	**1,106.7**	**-6.7**

Source: Lundin Mining, 2024

Notes: Reported at a CoV of 6.26 $/t ore.

Figure 15-19: Comparison of Selected Pit Shell to Pit Design Inventory



Source: Lundin Mining, 2024

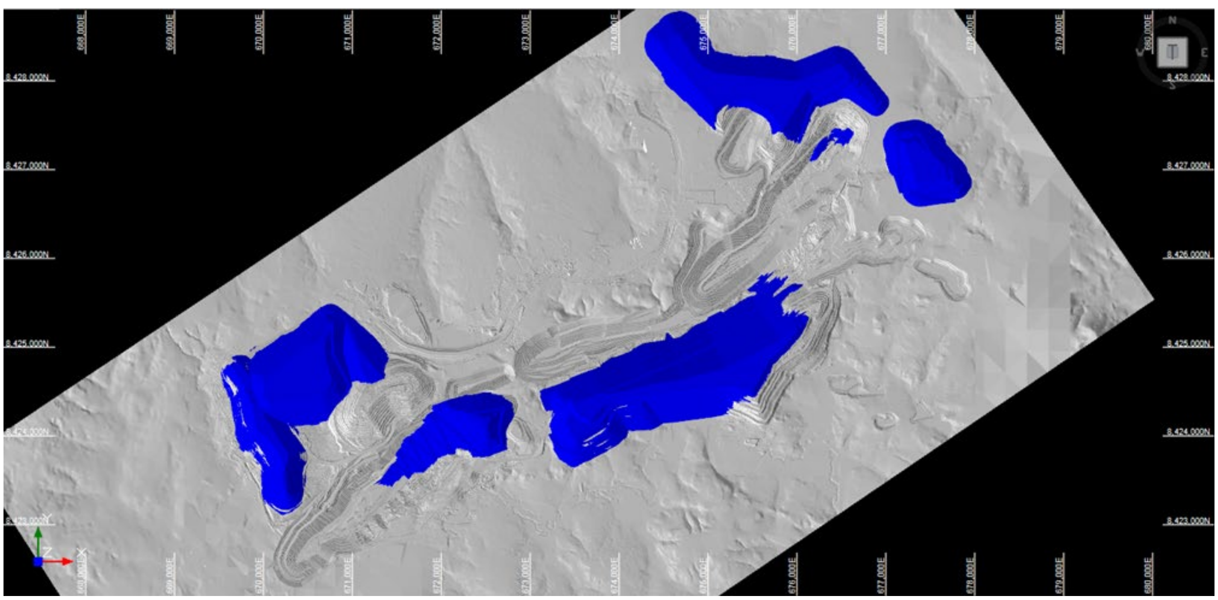
15.6.2 Waste Rock Storage Areas

Waste rock storage areas (WRSA) are located adjacent to the Chapada open pit. The WRSAs are limited to just past the ultimate pit rim to minimize waste haulage distances. In addition, pit backfilling opportunities will be available later in the mine life.

The waste backfilling will be started once portions of the mine become exhausted while mining continues in the same pit. For example, the South pit will continue mining in the south-west with waste disposal in the north-east. In addition, once the South pit is exhausted, tailings will also be backfilled into the void. Backfill improves structural stability by filling mined-out voids, reducing the risk of ground subsidence and enhancing overall safety. It also offers environmental advantages, as placing tailings below surface minimizes above surface storage requirements, lowers the environmental footprint, and decreases long-term tailings management costs. Additionally, backfill can enhance water quality control by preventing surface contamination, reduce dust and other emissions, and support more sustainable mining practices through efficient land use. These combined benefits make backfill a strategically valuable option while further analysis is completed.

The WRSA designs have been designed with an overall slope angle of 22° and are shown in Figure 15-20 and capacities in Table 15-9.

Figure 15-20: Chapada Waste Rock Storage Areas



Source: Lundin Mining, 2024

Table 15-9: Chapada Waste Rock Storage Capacity

Waste Rock Storage Area	Required (kt)	Required (kbcm)	Required (klcm)	Capacity (klcm)
Aparecida	71,349	28,689	34,427	87,381
In Pit CN	313	114	137	686
In Pit CS	99,228	38,422	46,107	60,523
In Pit J	322,675	121,153	145,384	146,146
North 1	47,055	21,795	26,154	77,384
Northeast	36,310	16,744	20,093	28,491
PAG 03	19,798	7,976	9,572	12,712
Southwest	19,574	7,886	9,463	10,409
Total Waste	**616,303**	**242,780**	**291,336**	**423,732**

Source: Lundin Mining, 2024

Notes:

[1] bcm: bank cubic meters

[2] lcm: loose cubic meters

15.7 Strategic Assessment

A strategic assessment was undertaken to assess the optimal sequencing options. The strategic assessment highlighted that part of the sustaining capital will occur in the extension of mine life and therefore could be converted to a capital-based decision. This part of sustaining capital consists mainly of land management, infrastructure projects of waste dumps and stockpiles foundation and power line relocation. The mine planning software was utilized to determine the optimal timing for this capital expense. Therefore, the CoV was reduced from 6.26 $/t to 5.87 $/t.

A capital-based decision methodology also helped to define the economically viability of phases and pits that depend on infrastructures projects like Jatobá and Santa Cruz, which were excluded from the LoM plan and there not included in the Mineral Reserves.

Table 15-10 shows the ultimate pit design inventory at a CoV of 5.87 $/t ore.

Table 15-10: Pit Design Inventory

	Unit	Pit Design Inventory
ROM	Mt	439.8
Cu Grade	%	0.24
Au Grade	g/t	0.13
NSR	$/t	16.77
Waste	Mt	627.1
Strip Ratio	t:t	2.43
Total	**Mt**	**1,066.9**

Source: Lundin Mining, 2024

Notes: Reported at a CoV of 5.87 $/t ore.

The inventory by pit is shown in Table 15-11.

Table 15-11: Pit Design Inventory by Pit

Inventory	ROM (Mt)	Cu Grade (%)	Au Grade (g/t)	NSR ($/t)	Waste (Mt)	Strip Ratio (t:t)	Total (Mt)
Baru	7.09	0.33	0.13	22.36	34.80	5.91	41.89
Buriti	2.11	0.22	0.13	14.07	4.42	3.10	6.53
North Buriti	3.36	0.30	0.15	16.57	5.30	2.58	8.66
Central	7.68	0.20	0.10	12.51	3.84	1.50	11.53
I pit	5.04	0.23	0.12	15.32	13.61	3.70	18.65
North	4.22	0.28	0.17	20.67	0.31	1.07	4.53
South	142.25	0.24	0.11	15.22	120.62	1.85	262.87
SW	30.64	0.27	0.18	20.33	75.42	3.46	106.05
Chapada NE	16.38	0.22	0.14	14.36	26.58	2.62	42.96
Sucupira	221.17	0.24	0.14	17.41	331.39	2.50	552.56

Source: Lundin Mining, 2024

Notes: Reported at a cut-off value of 5.87 $/t ore.

15.8 Life of Mine Plan

Chapada uses Minemax, a mine planning software suite that incorporates linear and mixed-integer optimization algorithms for complex problem solving. During mine planning, one or more pushbacks may be discarded due to discounted cash flow outcomes. The mine life from the pits is 22 years plus an additional four years at the end for processing the remainder of the stockpiles. The main scheduling targets and constraints are as follows:

- Maximum plant feed throughput of 25 Mtpa (dry).
- Plant feed limit is limited by domain and rock hardness.
- The proportion of stockpile plant feed should be less 33% and will be processed intermittently throughout the mine life.
- The sinking rate is limited to a maximum of 90m vertical m per year.

Table 15-12 presents the LoM schedule by year. The differences between the LoM schedule and Mineral Reserves estimate are due to an estimated starting topography for both the pits and stockpiles when the mine schedules were produced. The Mineral Reserves are based on actual topography from the effective date. There was an additional 6.4 Mt of mineralized material and 13.6 Mt of waste mined from the pit in 2024 and 4.6 Mt additional material on the stockpile at the end of 2024. These differences are not considered material to the outcomes of the LoM plan.

Table 15-12: Overall Life of Mine Plan

Mine Production Plan	Unit	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Plant Feed	Mt	570.89	22.03	23.88	23.47	23.97	22.9	23.55	22.55	21.78	23.31	17.85	23.4	24.01	22.65	24.31	22.54	20.57	20.83	21.31	21.48	19.9	22.2	24.18	24	24	24	6.22
Cu Grade	%	0.23	0.24	0.25	0.24	0.24	0.24	0.22	0.22	0.29	0.26	0.3	0.21	0.22	0.17	0.17	0.21	0.28	0.35	0.25	0.22	0.34	0.26	0.16	0.16	0.16	0.15	0.15
Au Grade	g/t	0.13	0.14	0.15	0.14	0.15	0.14	0.11	0.11	0.14	0.13	0.21	0.18	0.15	0.09	0.08	0.1	0.15	0.24	0.13	0.11	0.28	0.21	0.04	0.01	0.02	0.03	0.02
Cu Contained Metal	Mt	1.3	0.05	0.06	0.06	0.06	0.05	0.05	0.05	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.05	0.06	0.07	0.05	0.05	0.07	0.06	0.04	0.04	0.04	0.04	0.01
Au Contained Metal	Moz	2.3	0.1	0.12	0.1	0.12	0.1	0.09	0.08	0.1	0.09	0.12	0.13	0.11	0.07	0.06	0.07	0.1	0.16	0.09	0.07	0.18	0.15	0.03	0.01	0.01	0.03	0
Total Movement	**Mt**	**1,281.50**	**52.12**	**50**	**48.44**	**50**	**52**	**56**	**55.68**	**53**	**58.79**	**54.67**	**55.92**	**60**	**60.08**	**76**	**76**	**76**	**60.93**	**63.41**	**40.02**	**40**	**40**	**24.21**	**24**	**24**	**24**	**6.22**
Ore Mined to Mill	Mt	345.63	14.03	18.09	15.47	15.97	14.9	15.55	15.59	21.78	23.31	17.85	15.83	24.01	5.78	6.53	12.77	20.08	20.83	19.83	14.26	19.9	13.09	0.18	-	-	-	-
Cu Grade	%	0.27	0.28	0.25	0.26	0.23	0.24	0.26	0.25	0.29	0.26	0.3	0.21	0.22	0.19	0.19	0.25	0.28	0.35	0.25	0.26	0.34	0.33	0.3	-	-	-	-
Au Grade	g/t	0.16	0.17	0.15	0.13	0.13	0.12	0.13	0.13	0.14	0.13	0.21	0.19	0.15	0.12	0.07	0.12	0.15	0.24	0.14	0.12	0.28	0.31	0.32	-	-	-	-
Ore Mined to Stock	Mt	94.31	1.31	5.12	2.02	4.09	2.36	1.97	2.75	6.16	3.04	7.3	1.76	1.83	1.68	3.42	2.66	14.98	18.14	2.37	0.82	8.16	2.37	-	-	-	-	-
Cu Grade	%	0.16	0.14	0.15	0.14	0.15	0.14	0.14	0.14	0.15	0.15	0.17	0.14	0.13	0.14	0.14	0.14	0.16	0.17	0.14	0.13	0.18	0.18	-	-	-	-	-
Au Grade	g/t	0.02	0.02	0.04	0.03	0.02	0.02	0.03	0.01	0.03	0.01	0.06	0	0	0	0	0	0.01	0.02	0.01	0	0.02	0.01	-	-	-	-	-
Waste Mined	Mt	616.3	28.77	21.01	22.95	21.94	26.74	30.48	30.38	25.06	32.44	29.51	30.77	34.17	35.75	48.27	50.8	40.45	21.96	39.73	17.71	11.94	15.43	0.03	-	-	-	-
Strip Ratio	-	1.4	1.88	0.91	1.31	1.09	1.55	1.74	1.66	0.9	1.23	1.17	1.75	1.32	4.79	4.85	3.29	1.15	0.56	1.79	1.17	0.43	1	0.17	-	-	-	-
Reclaiming	Mt	225.26	8	5.78	8	8	8	8	6.96	-	-	-	7.57	-	16.87	17.78	9.77	0.49	-	1.48	7.22	-	9.11	24	24	24	24	6.22
Cu Grade	%	0.17	0.17	0.22	0.21	0.25	0.24	0.16	0.15	-	-	-	0.2	-	0.17	0.16	0.15	0.15	-	0.16	0.15	-	0.15	0.16	0.16	0.16	0.15	0.15
Au Grade	g/t	0.07	0.1	0.17	0.15	0.2	0.18	0.08	0.08	-	-	-	0.14	-	0.08	0.08	0.08	0.08	-	0.08	0.08	-	0.08	0.04	0.01	0.02	0.03	0.02

Source: Lundin Mining, 2024

Table 15-13: Life of Mine Plan by Zone

Production by Pit	Unit	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Baru																												
Ore Mined to Mill	Mt	6.21	1.08		5.13																							
Cu Grade	%	0.36	0.44		0.34																							
Au Grade	g/t	0.14	0.13		0.14																							
Ore Mined to Stock	Mt	0.88	0.11		0.77																							
Cu Grade	%	0.14	0.14		0.14																							
Au Grade	g/t	0.05	0.07		0.05																							
Waste Mined	Mt	34.8	10.76	10.55	13.48																							
Strip Ratio	t:t	4.91	9.04		2.28																							
Buriti																												
Ore Mined to Mill	Mt	1.77							1.28						0.49													
Cu Grade	%	0.24							0.26						0.19													
Au Grade	g/t	0.15							0.16						0.14													
Ore Mined to Stock	Mt	0.34							0.18						0.16													
Cu Grade	%	0.15							0.16						0.15													
Au Grade	g/t																											
Waste Mined	Mt	4.42							3.11						1.32													
Strip Ratio	t:t	2.1							2.13						2.03													

Production by Pit	Unit	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033
North Buriti											
Ore Mined to Mill	Mt	3.03					0.06	2.43			0.55
Cu Grade	%	0.32					0.33	0.33			0.23
Au Grade	g/t	0.15					0.1	0.17			0.1
Ore Mined to Stock	Mt	0.32					0.01	0.29			0.02
Cu Grade	%	0.18					0.23	0.18			0.18
Au Grade	g/t	0.1					0.07	0.1			0.09
Waste Mined	Mt	5.3					1.73	1.83		0.84	0.9
Strip Ratio	t:t	1.58					26.56	0.67			1.59
Central											
Ore Mined to Mill	Mt	7.03					6.36	0.44	0.08		
Cu Grade	%	0.2					0.2	0.23	0.19		
Au Grade	g/t	0.11					0.11	0.1	0.12		
Ore Mined to Stock	Mt	0.65					0.51	0.04	0.04		
Cu Grade	%	0.14					0.14	0.15	0.14		
Au Grade	g/t	0.02					0.02	0.01	0.08		
Waste Mined	Mt	3.84					3.53	0.24	0.03		
Strip Ratio	t:t	0.5					0.51	0.5	0.26		
I Pit											
Ore Mined to Mill	Mt	5.04									
Cu Grade	%	0.23									
Au Grade	g/t	0.12									
Ore Mined to Stock	Mt										
Cu Grade	%										
Au Grade	g/t										
Waste Mined	Mt	13.61									
Strip Ratio	t:t	2.7									
North											
Ore Mined to Mill	Mt	3.8	3.8								
Cu Grade	%	0.29	0.29								
Au Grade	g/t	0.19	0.19								
Ore Mined to Stock	Mt	0.42	0.42								
Cu Grade	%	0.14	0.14								
Au Grade	g/t										
Waste Mined	Mt	0.31	0.31								
Strip Ratio	t:t	0.07	0.07								
Cava Sul											
Ore Mined to Mill	Mt	117.99	9.16	18.09	10.34	14.19	5.53	12.68	9.71	21.77	16.52
Cu Grade	%	0.25	0.26	0.25	0.22	0.22	0.21	0.24	0.25	0.29	0.27
Au Grade	g/t	0.12	0.16	0.15	0.12	0.12	0.06	0.12	0.1	0.14	0.1
Ore Mined to Stock	Mt	24.26	0.77	5.12	1.24	3.49	1.71	1.63	2.22	6.15	1.92
Cu Grade	%	0.15	0.14	0.15	0.14	0.15	0.14	0.14	0.14	0.15	0.15
Au Grade	g/t	0.03	0.03	0.04	0.02	0.03	0.02	0.02	0	0.03	0.01
Waste Mined	Mt	120.62	17.7	10.45	4.45	9.55	20.86	27.87	18.61	10.28	0.86
Strip Ratio	t:t	0.85	1.78	0.45	0.38	0.54	2.88	1.95	1.56	0.37	0.05
Cava SW											

Production by Pit	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
North Buriti																	
Ore Mined to Mill																	
Cu Grade																	
Au Grade																	
Ore Mined to Stock																	
Cu Grade																	
Au Grade																	
Waste Mined																	
Strip Ratio																	
Central																	
Ore Mined to Mill	0.15																
Cu Grade	0.28																
Au Grade	0.07																
Ore Mined to Stock	0.05																
Cu Grade	0.18																
Au Grade	0.01																
Waste Mined	0.04																
Strip Ratio	0.2																
I Pit																	
Ore Mined to Mill												5.04					
Cu Grade												0.23					
Au Grade												0.12					
Ore Mined to Stock																	
Cu Grade																	
Au Grade																	
Waste Mined												13.61					
Strip Ratio												2.7					
North																	
Ore Mined to Mill																	
Cu Grade																	
Au Grade																	
Ore Mined to Stock																	
Cu Grade																	
Au Grade																	
Waste Mined																	
Strip Ratio																	
Cava Sul																	
Ore Mined to Mill																	
Cu Grade																	
Au Grade																	
Ore Mined to Stock																	
Cu Grade																	
Au Grade																	
Waste Mined																	
Strip Ratio																	
Cava SW																	

Production by Pit	Unit	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Ore Mined to Mill	Mt	26.34				1.78	2.95		4.52	0.01	6.24	10.84																
Cu Grade	%	0.29				0.28	0.36		0.23	0.21	0.23	0.32																
Au Grade	g/t	0.21				0.18	0.25		0.19	0.07	0.19	0.22																
Ore Mined to Stock	Mt	4.29			0.02	0.6	0.13		0.3	0	1.1	2.15																
Cu Grade	%	0.15			0.19	0.15	0.14		0.14	0.19	0.14	0.16																
Au Grade	g/t	0.02			0.14	0.01	0.02		0.02	0.14	0.01	0.03																
Waste Mined	Mt	75.42			5.02	12.39	0.62	0.54	8.63	12.58	29.29	6.33																
Strip Ratio	t:t	2.46			329.49	5.21	0.2		1.79	778.93	3.99	0.49																
Northeast																												
Ore Mined to Mill	Mt	10.99										6.86	4.13															
Cu Grade	%	0.24										0.26	0.22															
Au Grade	g/t	0.17										0.18	0.15															
Ore Mined to Stock	Mt	5.39										5.1	0.28															
Cu Grade	%	0.18										0.18	0.15															
Au Grade	g/t	0.07										0.08	0.01															
Waste Mined	Mt	26.58								1.36	1.39	23.14	0.69															
Strip Ratio	t:t	1.62										1.93	0.16															
Sucupira																												
Ore Mined to Mill	Mt	163.43											11.69	24.01	5.29	6.53	12.77	20.08	20.83	19.83	14.26	19.9	8.05	0.18				
Cu Grade	%	0.27											0.21	0.22	0.19	0.19	0.25	0.28	0.35	0.25	0.26	0.34	0.39	0.3				
Au Grade	g/t	0.18											0.21	0.15	0.12	0.07	0.12	0.15	0.24	0.14	0.12	0.28	0.42	0.32				
Ore Mined to Stock	Mt	57.75											1.48	1.83	1.52	3.42	2.66	14.98	18.14	2.37	0.82	8.16	2.37					
Cu Grade	%	0.16											0.14	0.13	0.14	0.14	0.14	0.16	0.17	0.14	0.13	0.18	0.18					
Au Grade	g/t	0.01											0	0	0	0	0	0.01	0.02	0.01	0	0.02	0.01					
Waste Mined	Mt	331.39											30.07	34.17	34.43	48.27	50.8	40.45	21.96	39.73	17.71	11.94	1.81	0.03				
Strip Ratio	t:t	1.5											2.28	1.32	5.05	4.85	3.29	1.15	0.56	1.79	1.17	0.43	0.17	0.17				
Old Low Grade																												
Reclaiming	Mt	32.36	2.47	5.57	4.94	8	7.13						4.26															
Cu Grade	%	0.24	0.19	0.23	0.24	0.25	0.25						0.23															
Au Grade	g/t	0.19	0.14	0.17	0.2	0.2	0.2						0.19															
New Low Grade																												
Reclaiming	Mt	192.89	5.53	0.21	3.06		0.87	8	6.96				3.31		16.87	17.78	9.77	0.49		1.48	7.22		9.11	24	24	24	24	6.22
Cu Grade	%	0.16	0.17	0.16	0.16		0.16	0.16	0.15				0.16		0.17	0.16	0.15	0.15		0.16	0.15		0.15	0.16	0.16	0.16	0.15	0.15
Au Grade	g/t	0.05	0.08	0.08	0.08		0.08	0.08	0.08				0.08		0.08	0.08	0.08	0.08		0.08	0.08		0.08	0.04	0.01	0.02	0.03	0.02

Source: Lundin Mining, 2024

15.9 Mine Equipment

The Chapada Mine operates with a mix of owner and contractor equipment for its mining processes.

The loading and haulage processes is carried out by the Chapada fleet and complemented by the contractor. The Chapada fleet operates preferably in ore fronts, while contractor is assigned preferably to waste. The loading fleet consists of equipment ranging in capacity from 11 m³ to 34 m³, while the size of the trucks varies from 96 t to 290 t.

The drilling process occurs in a similar way, in which the Chapada fleet is complemented by the contractor. In this fleet, equipment capacity varies between drillhole diameter of 6 3/4 inches to 9 inches.

In addition, blasting process is carried out by the specialized company and supervised by the Chapada team.

Table 15-14 presents the major mine equipment fleet for Chapada owner and contractors.

Table 15-14: Chapada Mine Fleet

Fleet	Equipment	Quantity
Chapada Mine		
Drilling	Epiroc D65 SmartRoc	3
Drilling	Epiroc DML	2
Drilling	Atlas Copco ROC L8 RC Drill	1
Load	Hitachi EX 2600 Excavators	3
Load	Caterpillar 993 Wheel Loader	2
Haulage	Caterpillar 785C Haul Truck	13
Haulage	Caterpillar 777G Haul Truck	6
Auxiliary	Caterpillar 16M Motor Grader	3
Auxiliary	Caterpillar D9 Bulldozers	2
Auxiliary	Caterpillar D10 Bulldozers	3
Auxiliary	Caterpillar 834 Wheel Dozer	1
Contractor - Mine Movement		
Load	Hitachi EX 5500 Excavators	2
Load	Hitachi EX 2500 Excavators	2
Haulage	Komatsu 930 Haul Truck	7
Haulage	Komatsu 730 Haul Truck	7
Auxiliary	Caterpillar 16H Motor Grader	3
Auxiliary	Caterpillar D9 Bulldozers	2
Auxiliary	Caterpillar D10 Bulldozers	4
Contractor - Drilling		
Drilling	Epiroc D65 FlexRoc	6

Source: Lundin Mining, 2024

Replacement of existing units in the major equipment fleet is required to meet the LoM production schedule. Table 15-15 summarizes the major equipment replacement schedule. No additional equipment replacements are scheduled beyond 2041.

Table 15-15: Mine Equipment Replacement Schedule

Actual Fleet Replacement Plan	2025	2026	2027	2028	2029	LoM 2030+
DML HP Drill	2	-	-	-	-	-
D65 Smart Roc Rock Drill	-	-	-	-	-	3
240 t Truck	-	-	-	4	1	8
D10 Bulldozer	-	-	-	-	-	2
D9 Bulldozer	-	-	-	-	-	1
16 Motor Grader	-	-	-	-	-	6
844 Wheel Dozer	-	-	-	-	1	-
Wheel Loader - 17m³	-	-	-	1	-	-
Excavator 29m³ - 34m³	-	-	-	-	-	2

Source: Lundin Mining, 2024

It is important to note that the current truck fleet will be replaced by a larger fleet (240 t), starting in 2028, as shown Table 15-15.

In addition to replacing current equipment, Chapada plans to insource waste movement, which will require the acquisition of trucks, excavators and auxiliary equipment to begin this operation in 2028. This fleet will consist of 11 trucks with a 240 t payload, two excavators with 2 9m³ and 34 m³ bucket capacities, two D10 bulldozers, two motor graders and one wheel dozer.

In years 2032, 2033, 2038-2040, additional equipment will be needed for mine movement. Lundin has assumed a contractor will undertake this additional material movement and has included the appropriate costs.

15.10 Mine Labour

Chapada operates on a 24 hour per day, 365 days per year schedule. For most operating positions, there are four work crews with two on site within 12-hour shifts per day.

Mining operating manpower is based on approximately four operators for each operating position. Mining manpower for operations, maintenance, and technical services in 2024 is approximately 1,979 staff, employees, and contractors shown in Table 15-16. During the mine life a waste insource project was predicted that will change the proportion of owner labour and contractor.

Table 15-16: Mine Labour Requirements

Area	Company	Contract	Total
Mine Operating	216	370	586
Mine Maintenance	178	35	213
Geology & Planning	52	1	53
Plant Maintenance & Operation Plant	268	128	396
Administration	153	182	335
Laboratory	29	-	29
HSE, Community Relations & Projects	92	17	109
Infrastructure and Tailings Dam	100	137	237
Exploration	21	-	21
Total	**1,109**	**870**	**1,979**

Source: Lundin Mining, 2024

Notes: HSE: Health, Safety and Environment

16 Recovery Methods

16.1 Introduction

The Chapada process plant started commercial production in 2007 under Yamana Gold ownership and increased capacity to 20 Mtpa in 2009 and again to 22 Mtpa in 2011. In 2015, in-pit crushing and conveying (IPCC) was implemented with a grinding optimization study completed in 2017.

Lundin acquired Chapada in 2019 and processed 23.4 Mtpa that year, followed by 20.0 Mtpa in 2020 (Covid-19 affected) and 24.1 Mtpa in 2021. Since 2009, head grades have steadily decreased and impacted mainly copper concentrate grade and, to a lesser extent, copper and gold recovery.

Figure 16-1 shows an overview of the process plant facilities with the IPCC product belt on the left, adjacent to the jaw crusher and MMD sizer. In 2031, portions of the crushing and stockpiles will need to be relocated for the Sucupira pit development.

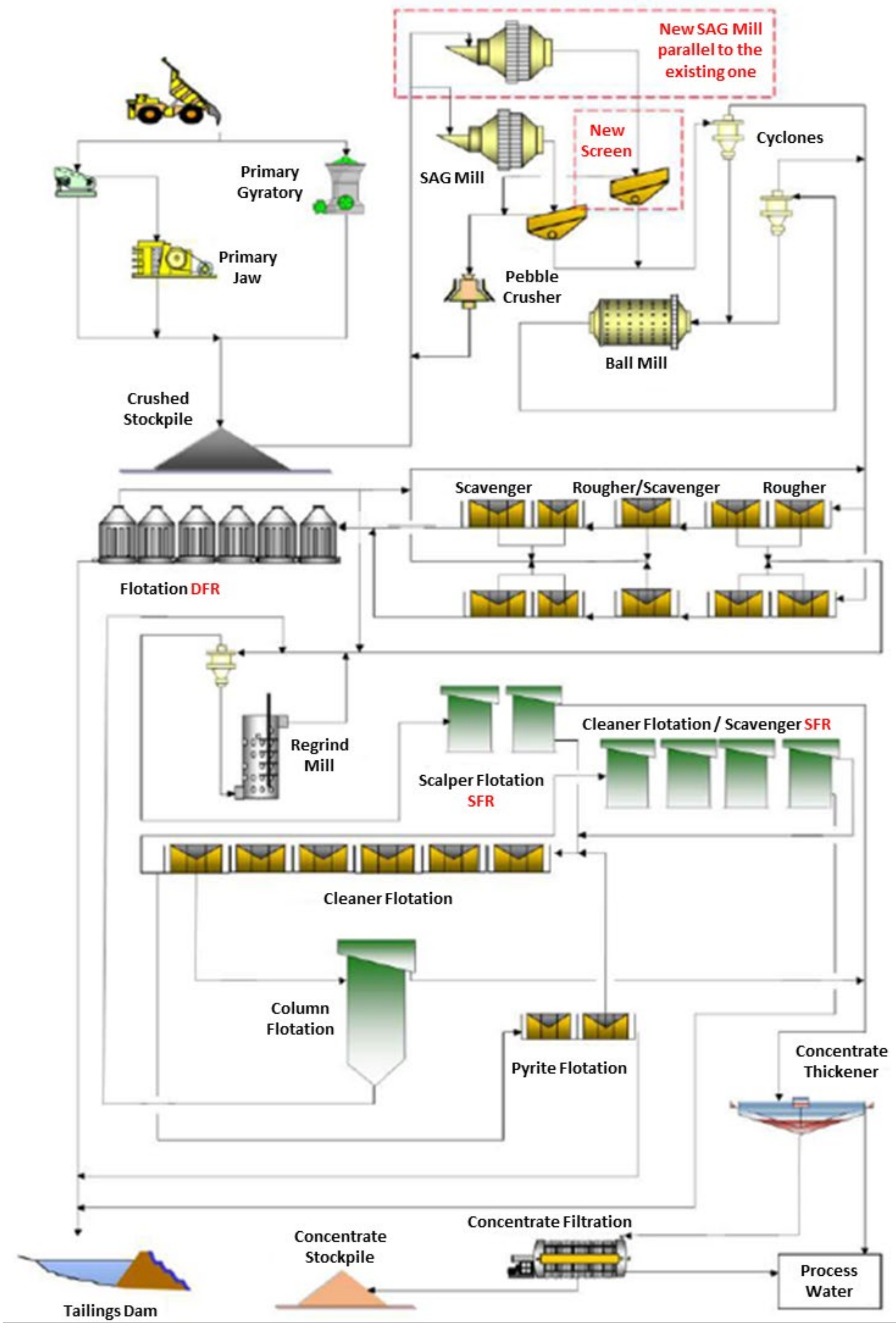
Figure 16-1: Overview of Chapada Process Plant Facilities

Source: Lundin Mining Chapada 2022

16.2 Process Flowsheet

Figure 16-2 shows the complete Chapada process flowsheet while Table 16-1 lists major equipment numbers and sizes.

Figure 16-2: Chapada Mine Flowsheet



Source: Lundin Mining Chapada 2022

Table 16-1: Chapada Major Processing Equipment

Area	Unit process	Equipment
Crushing	Primary	Jaw (Metso C160)
		ThyssenKrupp (KB63-89)
		MMD 1000 sizer
	Pebble	2 x cone crushers (HP800)
	Coarse stockpile	200,000t live capacity
Mill processing	Primary grinding	1 x SAG mill 10.4m x 5.8m EGL, 12.5MW
	Classification	6 x 813mm cyclones (5 to 6 operating)
	Secondary grinding	1 x ball mill 7.3m x 12.2m EGL, 12.5MW
	Classification	9 x 813mm cyclones (6 to 8 operating)
Flotation	Rougher	10 x rougher cells, 160m3
	Regrinding	1 x Vertimill, VTM-1000-WB, 748kW
	Re-scavenger	6 x DFR# re-scavenger cells
	Cleaner 1	2 x SFR# scalper, 4 x SFR# cleaner cells
	Cleaner 2	2 x cleaner cells, 160m3
	Cleaner 3	1 x column cleaner cell

Source: Lundin Mining Chapada 2024
 # SFR = Staged Flotation Reactor; DFR = Direct Flotation Reactor

The process flowsheet is a conventional crush, grind and flotation circuit, producing a single copper concentrate with payable gold and silver values. Copper concentrate is considered clean with any impurities handled by blending lead, zinc and iron (pyrite) levels before shipping from the Port of Açu, some 1,630 km from site.

Nominal plant capacity is 65,000 tpd (24 Mtpa equivalent) fed by two crushing lines: an IPCC gyratory in parallel with an MMD sizer followed by a jaw crusher. Both products feed the same, 200,000 t live capacity coarse ore stockpile. A portion of this material is secondary crushed through a semi-mobile crushing (SMC) plant.

Primary grinding is an SABC circuit – semi-autogenous grinding (SAG) mill with pebbles crushed and screen undersize reporting to a single ball mill. Both mills have 12.5 MW in installed power with a circuit product 80% passing (P80) size of 250 to 300 µm. Flotation consists of conventional rougher cells followed by Woodgrove Direct Flotation Reactor (DFR) cells in re-scavenger duty. Rougher-scavenger concentrate is reground in a vertical stirred Vertmill to a P80 size of 65µm.

Reground concentrate reports to the cleaner circuit, comprising two Staged Flotation Reactor (SFR) cells in scalping duty ahead of a conventional cleaning circuit. A further four SFR cells are operating in cleaner-scavenger duty with final cleaning done in a column cell.

Final concentrate is sent to thickening and pressure filtration to achieve a final moisture of around 8% w/w. Copper concentrate is transported to the Port of Açu for storage, blending and shipping to smelters in Europe, Japan and South Korea.

All tailings streams report to the Tailings Storage Facility (TSF) where sand cyclones recover process water and produce material suitable for dam construction. Water is reclaimed from the TSF via the process water reservoir while fresh water is sourced from the Rio dos Bois pump station and the Cava Central mine.

16.3 Historical Plant Performance

The Chapada concentrator is a mature operation, having been in commercial production for 17 years. Over this period, it has undergone a series of expansion projects, including the addition of both DFR and SFR cells to increase flotation circuit capacity (see section 16.4).

Figure 16-3 shows the plant capacity (in tonnes per day, reported quarterly) since the start. Since 2017, there have been periods where production exceeded the nominal design capacity of 65,000tpd. A failure of the IPCC unit in 2016 is noted in this figure, along with its impact on plant capacity.

Figure 16-3: Chapada Mine Process Capacity (2007 to 2023 quarterly)

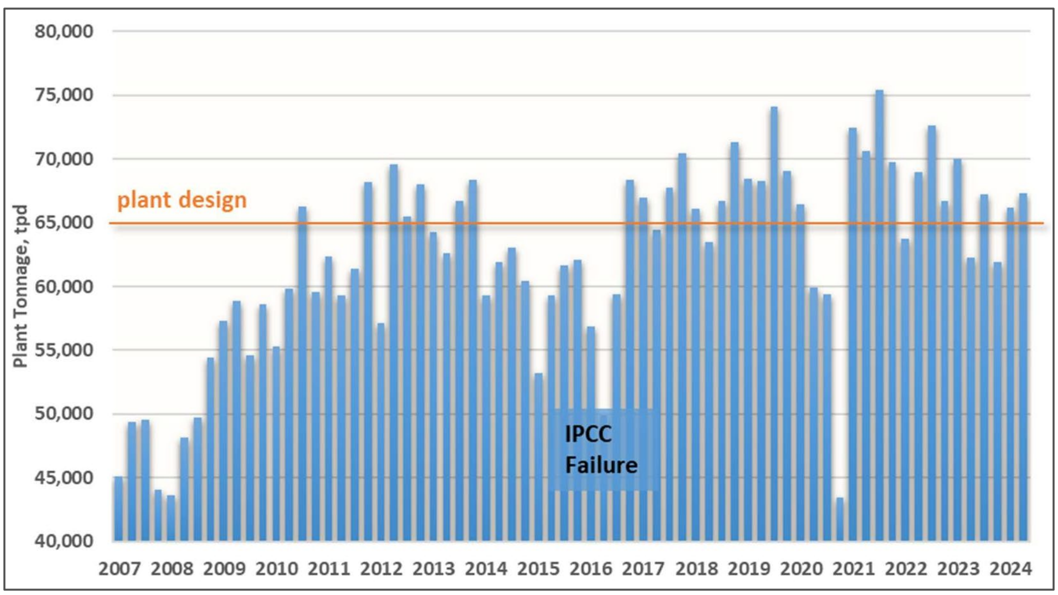


Figure 16-4 shows 90% to 95% plant operating time (availability * utilization) has been typically achieved since 2011.

Figure 16-4: Chapada Mine Operating Time (%; 2007 to 2024 quarterly)

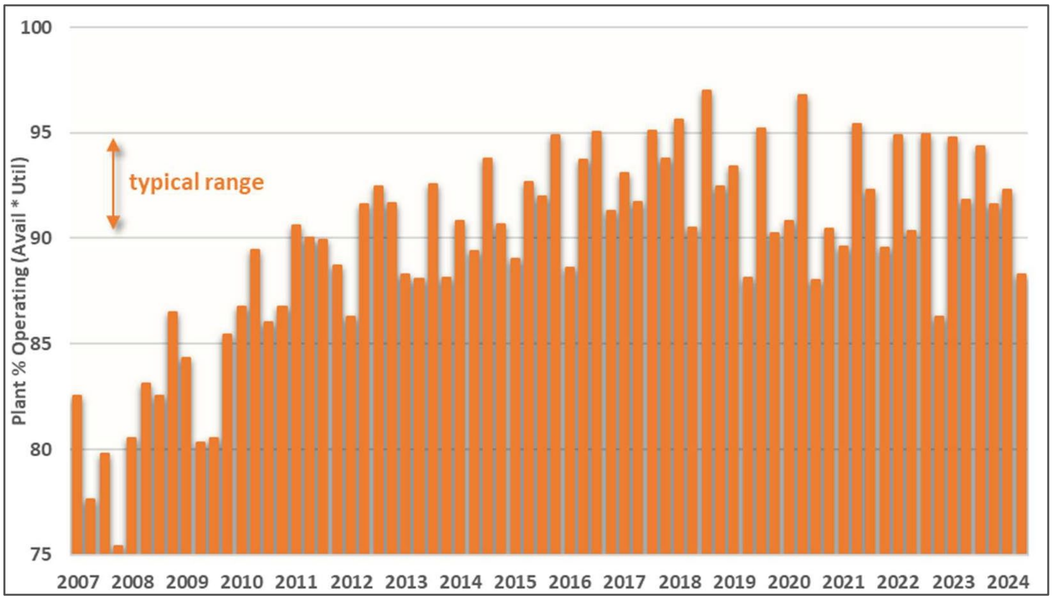


Figure 16-5 shows plant throughput (in tonnes per hour) with the step increase after 2016 when the SAG mill power was upgraded to 12.5MW. Chapada have only reported grinding circuit P80 sizes since 2017, which are quite coarse for copper flotation, typically between 250µm and 300µm.

Figure 16-5: Chapada Throughput and Grind P80 Size (2007 to 2024 monthly)

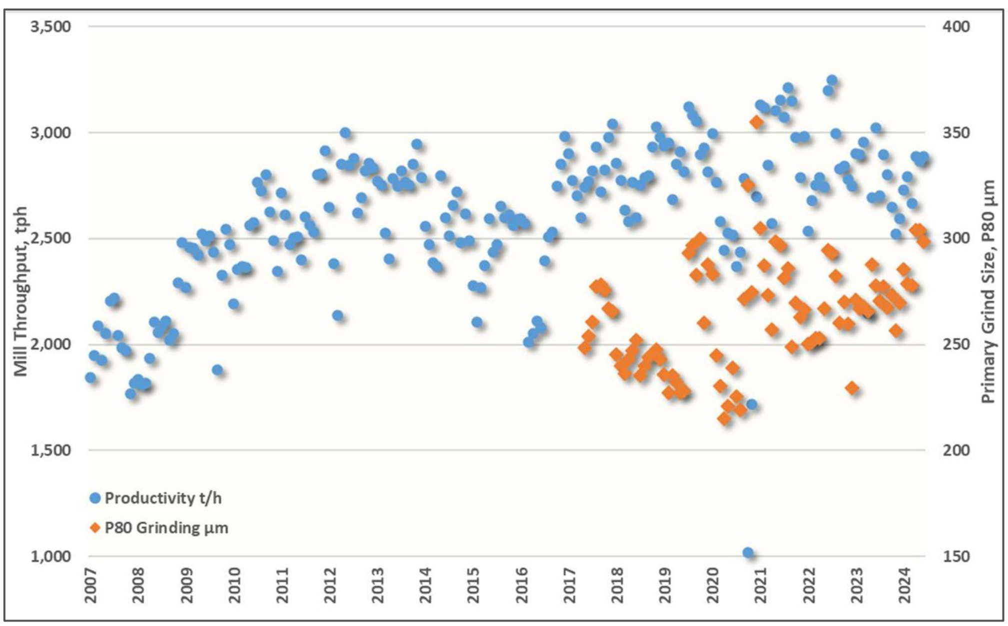
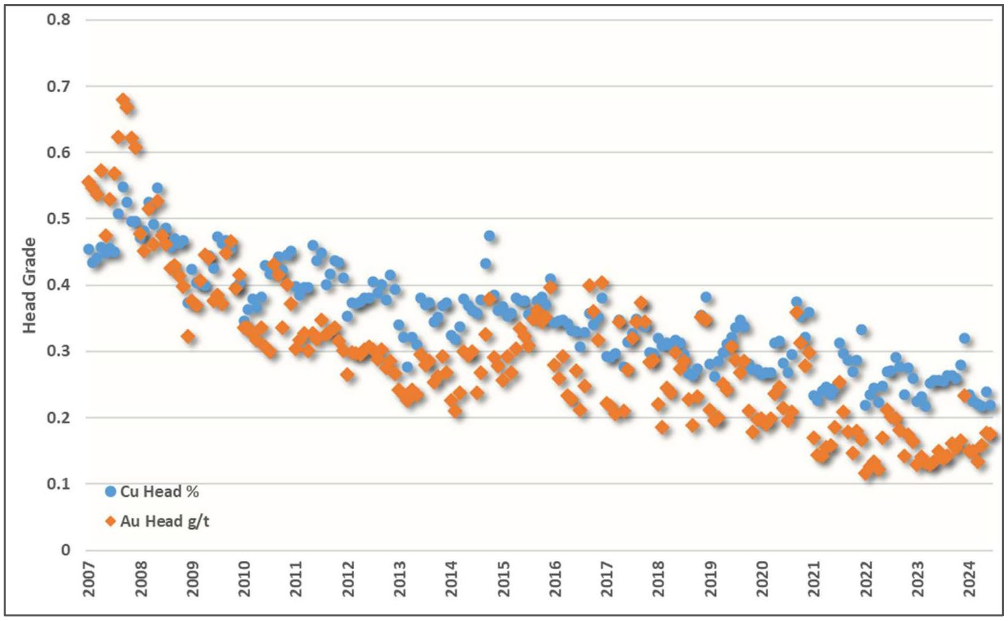


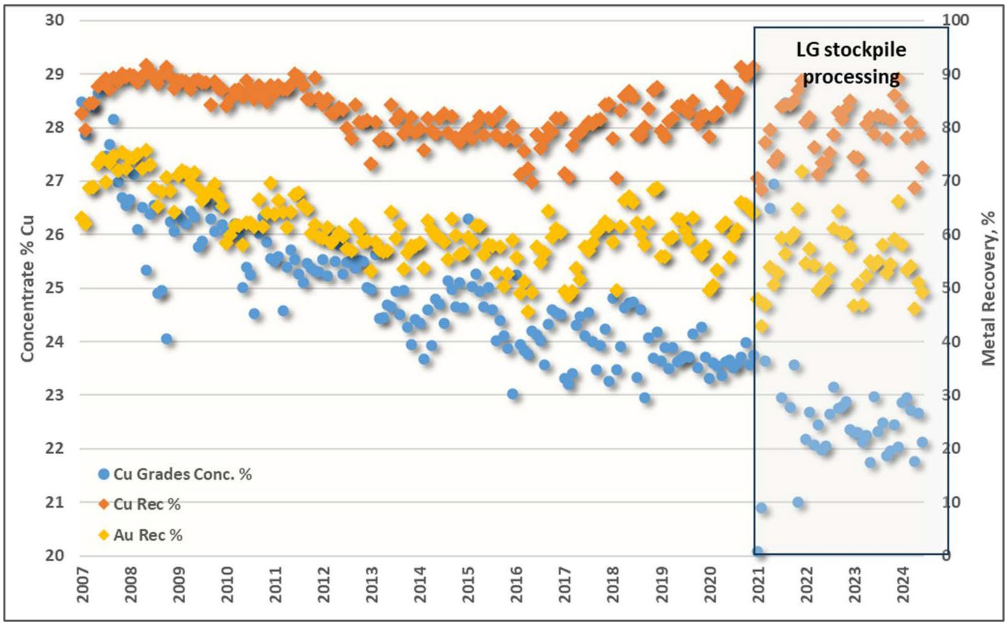
Figure 16-6 shows the steady decrease in mill head grades since 2009, with copper dropping from 0.5% to 0.2% and gold falling a similar proportion. The effect of decreasing head grade is evident on final concentrate Cu grade (Figure 16-6) and, to a lesser extent, copper and gold recovery. Both metal recoveries have stabilized since 2012 due to flotation circuit expansions with the DFR and SFR cells operating in either scavenger or scalping duty.

Figure 16-6: Chapada Head Grades (2007 to 2024 monthly)



Since 2021, Chapada Mine has processed a variable amount of low-grade, Baixo Teor or BT stockpile material. This is evident in Figure 16-7 with the increase in plant variability for both throughput and metal recoveries.

Figure 16-7: Chapada Recovery & Concentrate Grade (2007 to 2024 monthly)



16.4 Reagents and Consumables

Chapada uses a suite of chemicals for flotation, pH control and dewatering of final copper concentrate. Table 16-2 lists the reagents used, range of consumption levels and typical usage, in g/t. An estimate of typical grinding media consumptions (125 mm, 65 mm and 25 mm sizes) is also shown in this table.

Table 16-2: List of Processing Plant Consumables

Reagent / Grinding Media	Name & Supplier	Consumption (g/t)	
		Range	Typical
Primary collector	Hostaflot 7856 (Clariant)	19 to 35	25
Secondary collector	Potassium Amyl Xanthate (PAX) (China)	5 to 10	7
Frother 1	Methyl Isobutyl Carbinol (MIBC) (Solvay)	8 to 18	13
Frother 2	Dowfroth 400 (Dow)	15 to 25	19
Lime	Lhoist Belocal (Brazil)	380 to 750	530
Flocculant	Flonex 934 SH (SNG Brazil)	14 to 17	15
125mm media	China	180 to 220	190
63mm media	Longteng	210 to 350	280
25mm media	Longteng	22 to 35	30

All of these consumptions have remained fairly constant over the past few years.

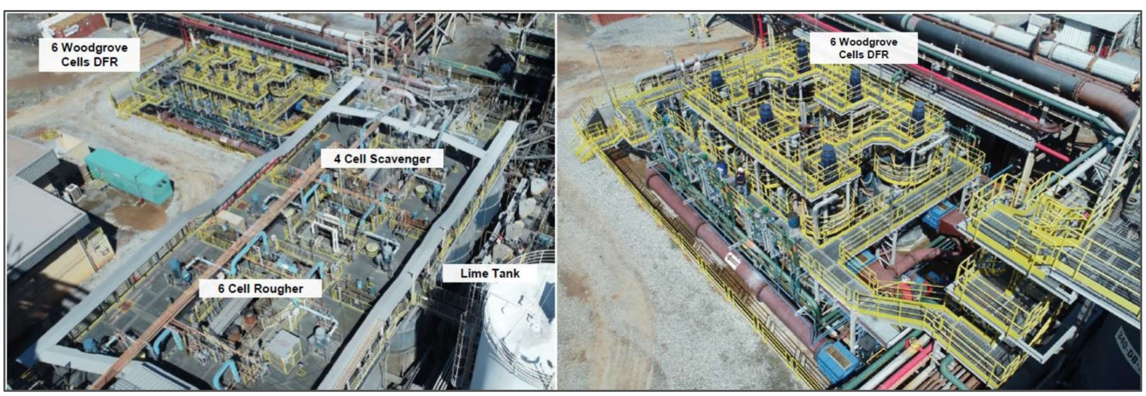
16.5 Process Improvements Initiatives

The Chapada process plant has undergone several process improvement phases since 2015, aimed to increase capacity to the current 24 Mtpa. In addition, expansion studies have been completed involving engineering companies Hatch, Ausenco and AtkinsRéalis (formerly SNC-Lavalin). A brief summary of these activities includes:

- 2015: Woodgrove AwaRE® process control system to optimize flotation performance
- 2017: Woodgrove Phase I flotation capacity increase
- 2019: Woodgrove Phase II flotation capacity increase
- 2019: Hatch expansion review to achieve 3,900tph (32Mtpa)
- 2020: Addition of the semi-mobile crusher to process a portion of SAG mill feed
- 2021: Adoption of the HIT device for geometallurgical testing of material hardness
- 2021: Ausenco completed Chapada Expansion study to achieve 26Mtpa or 32Mtpa
- 2022: Woodgrove Phase III flotation capacity increase

As mentioned, Chapada Mine has undergone a number of flotation capacity expansion projects, focused on the implementation of Woodgrove Technologies flotation cells. Figure 16-8 shows an overhead of the DFR cells in re-scavenger duty while Figure 16-9 shows the SFR cell installations; both cleaner-scavenger (left) and concentrate scalping (right) duties.

Figure 16-8: Woodgrove DFR Flotation Cells (re-scavenger circuit)



Source: Lunding Mining Chapada 2022

Figure 16-9: Woodgrove SFR Flotation Cells (left: cleaner scalper; right: final concentrate scalper)

Source: Lunding Mining Chapada 2022

In 2019, Hatch completed an expansion project study to achieve 3,900 tph (32 Mtpa equivalent) through several different comminution circuit options. The study concluded the most favourable option to be secondary crushing of the SAG mill feed along with an additional ball mill.

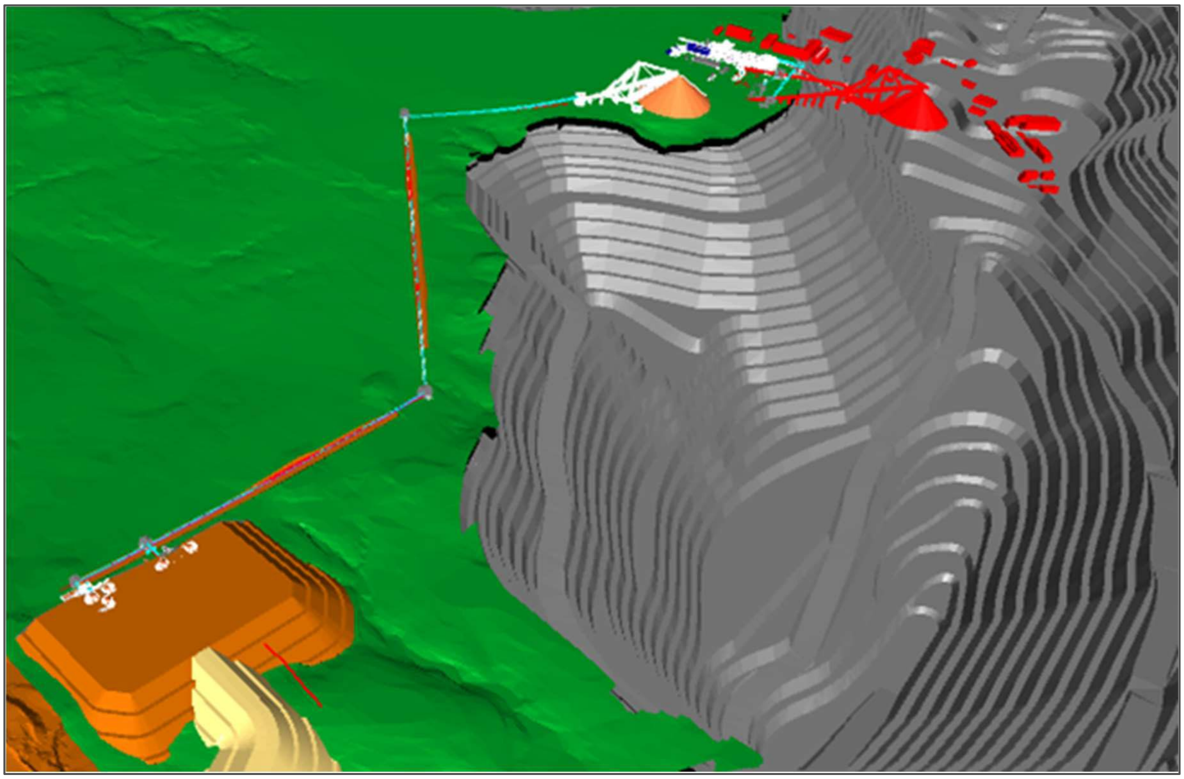
The CBFE expansion study completed by Ausenco in 2021 investigated a range of scenarios to either debottleneck the existing plant flowsheet or additional of a second processing line. Based on hardness estimates of future ore sources, it was expected the current plant capacity to drop to 18Mtpa with a second processing line to increase capacity back to between 26 Mtpa and 32 Mtpa.

16.6 Sucupira Pit Development

The current mine plan includes the development and mining of the Sucupira deposit. The Sucupira mineralization extends beneath parts of the Chapada processing facilities. Figure 16-10 shows the location of the process facilities in relation to the Sucupira pit. The following facilities will need to be relocated in advance:

- Primary gyratory crusher and conveying system
- Primary jaw crusher and conveying system
- Pebble crushing system
- Truck shop and fuel station
- Chemical and process laboratories
- Warehouse facilities

Figure 16-10: Highlighted Process Structures to be Relocated Due to Sucupira Pit



Source: Lundin Mining Chapada 2022

In addition, the 230 kV power transmission line and main substation will be relocated and power to the process plant will be supplied by a new substation. Work on the relocation is expected to start in 2031 and be completed by 2034.

16.7 Forecasted Future Performance

The LoM plan forecasted plant feed by principal source is shown in Figure 16-11. For the next few years, plant feed will come from the Main Pit combined with a significant blend of Old BT stockpiled material. The Sucupira pit development will provide plant feed starting in 2035, mainly mixed with low-grade, BT stockpiled material. As of 2046, only BT stockpiled material will feed the plant until the end of the mine life in 2051.

Figure 16-11: Chapada Forecasted Plant Feed by Principal Source

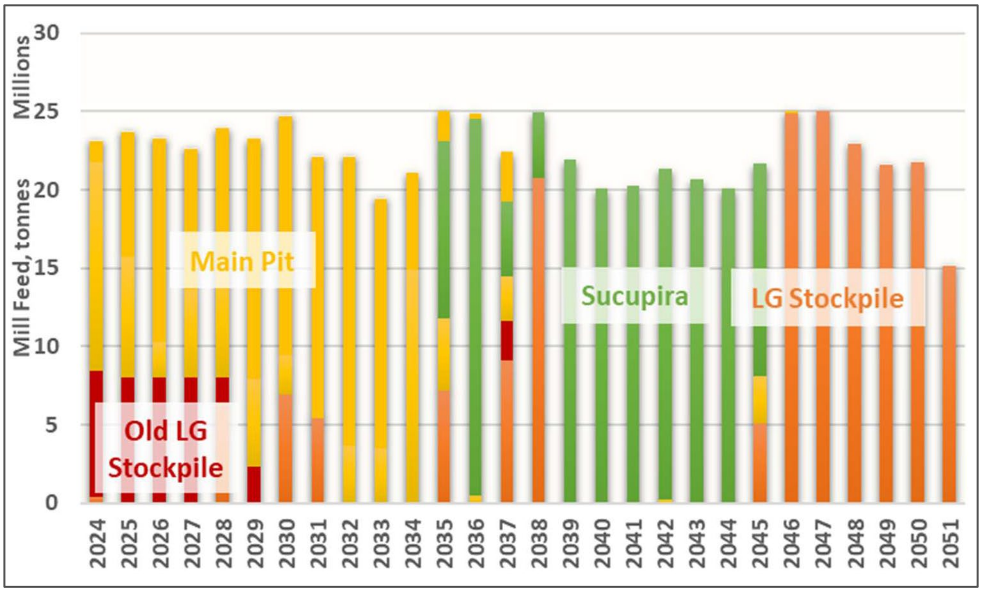


Figure 16-12 shows the expected copper and gold head grades over this same period. Copper and gold track each other with increased grades during the Sucupira pit development period. The effect of BT stockpiled material grades is evident just before Sucupira comes online and afterwards, when only BT material is to be processed. Lundin has been drilling, sampling and testing the low-grade stockpiles (Old BT and BT) since 2021 to develop block model estimates of both grade and expected plant performance.

Figure 16-12: Chapada Forecasted Head Grades

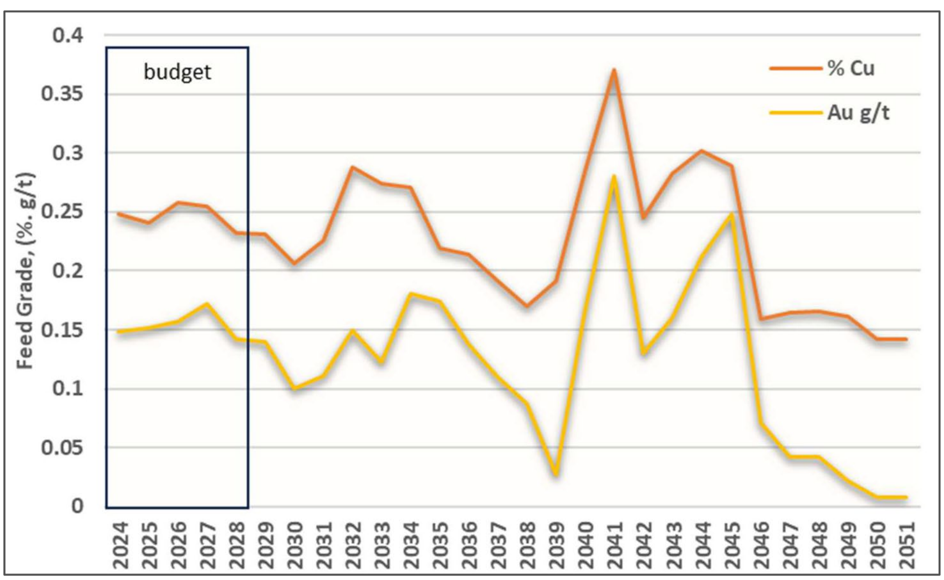
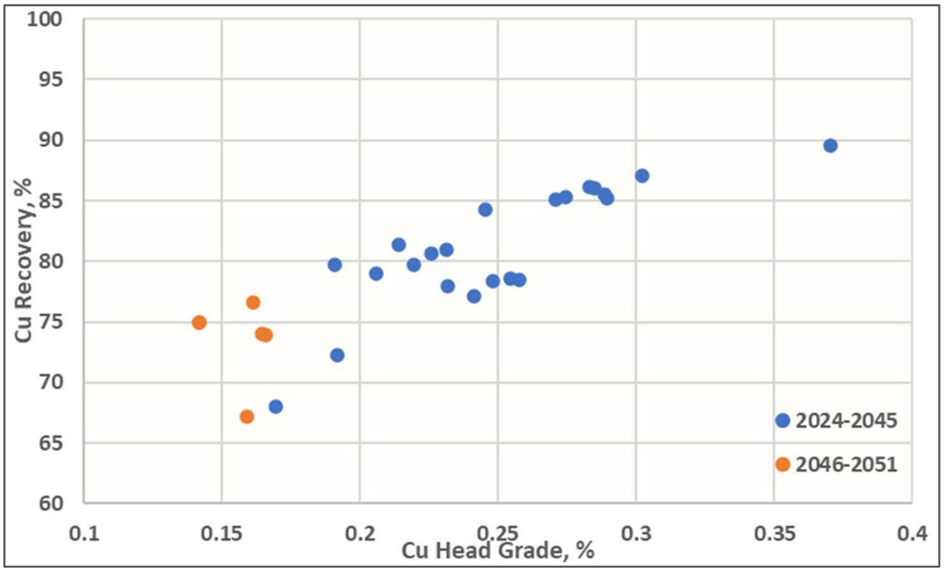


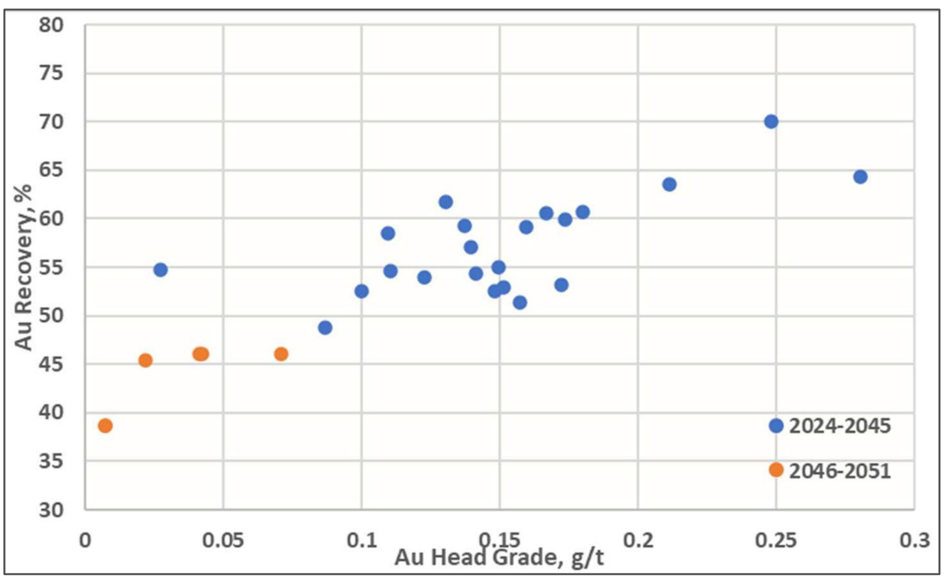
Figure 16-13 shows the forecasted copper recovery versus head grade on an annual basis. Once again, the impact of low-grade, BT stockpiled material is evident; in particular, the last six years of stockpile-only plant feed.

Figure 16-13: Chapada Forecasted Copper Recovery vs. Head Grade



A similar plot of forecasted gold recovery versus head grade is shown in Figure 16-14, with stockpile-only years shown as orange icons.

Figure 16-14: Chapada Forecasted Gold Recovery vs. Head Grade



17 Project Infrastructure

Chapada operates an open pit mine and process plant and has all the required infrastructure necessary for a mining complex including:

- Open pit mine and mine infrastructure including truck shop, truck wash facility, warehouse, fuel storage and distribution facility, explosive's storage and magazine sites, and electrical power distribution and substations to support construction projects and mine operations.
- A conventional grind/flotation mill for processing sulphide ore and mill infrastructure including assay laboratory, maintenance shops, and offices.
- Mine and mill infrastructure including office buildings, shops, and equipment.
- A tailings storage facility (TSF), which comprises a centerline raised dam constructed with cyclone tailings with current permitted capacity for up to 2 years and plans for further expansion.
- Local water supplies as required.
- Electric power from the national grid.
- Haulage roads from the mines to the plant.
- Stockpile areas for high grade and low-grade ore and waste dumps.
- Maintenance facilities.
- Administrative office facilities.
- Core storage and exploration offices.
- Access road network connecting the mine infrastructure to the town site and to public roads.

17.1 Power Supply and Distribution

The Project is connected to the National Electric Grid through a 230 kV Transmission Line connected to the CELG electric substation at the city of Itapaci, GO. The Chapada power line is an 84 km private line that connects to the mine's 230 kV/13.8 kV main power substation with three 42 MVA transformers. The current power demand at the Project is 46.5 MW. The capacity limit for the power line is 100 MVA. In 2017, a 230 kV power line was completed from Serra de Mesa to Itapaci via Barro Alto, duplicating the original line and increasing the regional capacity. In 2024, a strategic agreement was reached to purchase renewable electricity at favorable pricing. The agreement is fully effective from January 2025 onwards, however the benefit from implementing the self-production incentive model is expected to begin in August 2025. The self-production incentive model takes advantage of significant tax and tariff benefits, reducing the price of power by approximately 30% (to approximately R$20/MWh).

The alignment of the power line through the Project site includes a section that passes through the TSF. Current engineering studies plan for this section of the line to be rerouted outside the TSF boundary as part the plant equipment and infrastructure relocation to accommodate the mining of the

Sucupira deposit. The main substation is planned to be relocated to the northeast of the plant. Figure 18-1 shows the new alignment of the power line and the location of the new substation.

After transformation from 230 kV to 13.8 kV, power is distributed to secondary substations (4,160 V and 460 V), e-houses in distribution lines. Secondary substations are located at main power consuming areas of the plant including primary crushing, secondary crushing, grinding and concentrator, tailings pumping, water pond and existing stockpile.

17.2 Water Supply

Process water is pumped from a water pumping station located in the water reservoir adjacent to Dike II in the TSF area to the process water reservoir at the process plant. A booster pump station is located outside of the TSF in the reclaim water pipeline. Each station is equipped with a set of three submersible centrifugal pumps operating in parallel for a combined capacity of 7,600 m^3/h.

17.3 Tailings Storage Facility

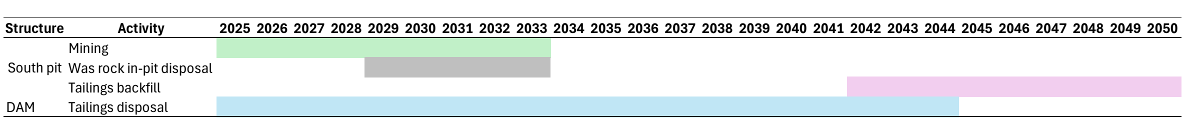
The Chapada Mine site has an operational tailings storage facility (TSF), licensed until April 29, 2028, with a maximum elevation of 382 masl. The TSF employs a centerline raising method using cyclone tailings, with design slope angles ranging from 3.5:1 to 6:1 (horizontal to vertical). A production ratio of underflow below 15% is required for constructing the containment structures, aligning with current production rates. Geotechnical investigations, including Cone Penetration Testing (CPT), confirm that adequate shear values are being achieved for the existing configuration.

Under the current licensing, the TSF offers a total storage capacity of 375 Mt, divided into underflow and overflow tailings for construction purposes. The next lift elevation is to 398 masl with an additional capacity of 500 Mt considering dam massif, dam and closure.

The current LoM plan requires at least 195 Mt of additional tailings storage following the final 398 masl raise of the TSF. An in-pit TSF in the South pit will be backfilled with tailings once mining has been completed and partial backfill with waste rock into the void is executed. Additional studies are required for the in-pit TSF prior to commencing tailings backfill.

A schedule of mining at South pit, waste rock in-pit disposal, tailings backfill, and dam tailings disposal are showed in Figure 17-1.

Figure 17-1: Tailings Disposal Schedule



Source: Lundin Mining, 2024

18 Market Studies and Contracts

The copper concentrate is expected to have an average copper grader 22% to 24% with 8 to 12 g/t of gold. The concentrates are clean and expected to have low content of impurities such as lead, zinc, arsenic, antimony, bismuth, and mercury. Due to the location of the mine, the copper concentrate has access to all major markets.

Chapada concentrate is currently sold through a mix of long-term sales contracts and short-term sales contracts into the spot sales market. All long-term contracts will be referenced against annual copper smelter treatment terms while the shorter-term contracts will be market based at the time of sale. There are copper stream agreements in place with Altius and Sandstorm, the terms of which are consistent with industry norms.

The copper concentrate produced at the Chapada mine is transported by truck to the Port of Açu located in the province of Rio de Janeiro. The distance between the mine and the port is approximately 1,600 km.

The material is stored in a covered warehouse on an asphalted floor located 300 m from the mooring berth. When the vessel loading operation begins, the copper concentrate is placed in an articulated box which is then moved alongside the vessel. The box is lifted with a crane above the vessel and lowered into the hold before the material is released.

19 Environmental Studies, Permitting, and Social or Community Impact

This section builds upon an internal mandate completed by the same QP in 2022. This section update considers all previous information shared with the QP in 2022, along with timely updates on permitting, water management and closure. As SRK is engaged with Lundin for the Chapada mine site's mine closure and cost estimation update, the QP had the opportunity to conduct a complementary site visit in early August 2024, which provided a more current understanding of ESG aspects and captured new information.

19.1 Environmental Studies

Lundin performed an Environmental Impact Assessment in 1996 to support its initial licensing process. Currently, the following environmental management programs are in place for the Project:

- Monitoring of surface and underground water quality (receiving environment)
- Monitoring of rainfall and effluent water quality control
- Monitoring of erosion processes
- Study of the geochemical characteristics of waste material and groundwater contamination
- Air quality monitoring
- Solid waste management
- Monitoring of flora
- Monitoring of terrestrial fauna
- Monitoring of ichthyofauna
- Monitoring of environmental compensation areas
- Monitoring of deforestation and rescue/management of wild animals
- Environmental education for employees and the surrounding community
- Assessment of potentially contaminated areas
- Assessment of Acid Rock Drainage for waste rock and low-grade ore

Chapada periodically develops environmental control reports as part of its legal commitments related to environmental licenses. The most recent report dated March 2024, submitted to the environmental agency, was prepared internally by the technical team and made available for review. The 2024 report presents the control programs currently in place and includes annexes with specific studies developed by other local companies related to the assessment and monitoring results for each program.

According to the Hidrogeo report dated July 2021, which consolidates streamflow and surface and underground water quality monitoring data since 2010, elevated concentrations of iron, manganese, aluminum, copper, pH, and sulphate have been observed in surface water within the impacted area.

However, there is insufficient evidence of impact on the surface water quality in the surrounding rivers. For underground water quality, iron and manganese are often found in concentrations above the standard, suggesting high baseline concentrations, according to Hidrogeo. Although Chapada operates in a closed system with pump-back seepage to the existing tailings dam, the Hidrogeo report notes high concentrations of iron, manganese, copper, cadmium and nickel, as well as low pH in some of the facility's seepage, such as the PAG WRD (PAG03). The recommendation to develop an effluent treatability study is a work in progress, and an Industrial Effluent Treatment Station is being installed at Chapada Mine.

According to the assessment and reinterpretation of the acid rock drainage potential results performed by Hidrogeo, waste rock material from the South, North and Central pits is PAG, thus the waste rock dumps PAG3, SW, Feijão and N1 are identified as PAG, with evidence of low pH already observed. Regarding the tailings within the existing dam, although they are PAG, the calcium content is significantly higher compared to the WRD, providing a significant neutralizing potential that explains the higher pH within the tailings dam. Additional metal leaching and acid rock drainage potential characterization is recommended and is already ongoing.

According to the control plan prepared by the Lundin technical team, as detailed in the annex of the 2024 report, air quality monitoring is conducted weekly, and results indicate compliance with applicable limits. Road irrigation is regularly carried out at the site and on access roads for dust suppression. The ECOAR report indicates that noise monitoring is conducted monthly at six locations, as defined in the Noise and Vibration Monitoring Program carried out by the TRUST consultancy and no non-conforming values have been observed.

Based on the studies made available, there is no speleological and paleontological risk for the operation, as no caves were identified during the assessment carried out in 2021.

Complementary studies are also recommended and highlighted in the most recent closure plan prepared by Golder in 2021. Although these studies primarily aim to capture key information that will likely reduce uncertainties around closure costs estimation, Lundin is currently developing a package of studies focused on water management. These studies aim to reduce stored water within the site by treating and discharging contact water, assessing the impact of the discharged effluents in the Formiga and Dos Bois rivers, and conduct hydrogeological studies to reduce groundwater inflow into the pits. All these efforts are expected to be completed in 2024.

19.2 Permitting

According to the information provided, Chapada has been granted all required licenses related to the project, its facilities, and expansions. The Operation License # 1986/2012 was granted in August 2012 and was valid until October 2022. The renewal process was initiated by Chapada before the expiration date and as of January 2, 2025, such operating license has been consolidated into a single permit (the Unification License - #20256 valid until January 1, 2030) along with many other specific valid licenses that refer to Chapada’s operational facilities such as waste rock dumps, pits, tailings dam and respective raises, power line, truck shop, in-pit crusher, ore stockpiles and other supporting facilities, pursuant to the Environmental Agreement Term N° 9/2022 - SEMAD/GO. The Unification License streamlines permit management and oversight for both the Company and SEMAD.

The Chapada mine site holds several specific licenses for operational facilities such as waste rock dumps, pits, the tailings dam and respective raises, power lines, truck shop, IPC, ore stockpiles, and other supporting facilities. All these licenses are valid and currently undergoing a license unification process with the environmental agency, as per the Environmental Agreement Term Nº 9/2022 - SEMAD/GO. The TCA was valid until February and is being renewed through the Ipê System process, which aims to unify all Chapada operating licenses.

Chapada has also been granted numerous water permits related to water management, the pumping system, and the water treatment station, all of which are valid. However, none of these permits are for industrial water uptake, as only recirculated process water is used.

Table 19 1 presents a summary provided by Chapada of the permits currently in place.

Table 19-1: Summary of the Main Permits of the Chapada Mine Site

Type	License	Issued Date	Expiration Date	Status
Water permit	155/2018 – Water reserve – Tailings dam	7/2/2018	7/2/2030	valid
	87/2019 – Pumping North Pit	28/01/2019	28/01/2031	valid
	1408/2018 – Pumping Central Pit	22/10/2018	22/10/2030	valid
	890/2019 - Pumping South Pit	24/07/2019	11/7/2025	valid
	877/2014 - Embankment Leonardo creek	3/4/2014	3/4/2026	valid
	878/2014 - Embankment Aparecida creek	3/4/2014	3/4/2026	valid
	879/2019 - Embankment Berenice creek	3/4/2014	3/4/2026	valid
	2978/2013 - Embankment N1	11/11/2013	11/11/2025	valid
	955/2020 – Water treatment station Labs	26/10/2020	27/10/2032	valid
	448/2020 – Water treatment station Administrative building	27/04/2020	27/04/2032	valid
Installation License	491/2021 – 10º Tailings Dam Raise	23/12/2021	23/12/2027	valid
	150/2021 - Pit SW	22/03/2021	22/03/2027	valid
	94/2022 - BT South	31/03/2022	31/03/2028	valid
	223/2022 - BT Feijão	15/07/2022	7/7/2028	valid
	374/2022 – PDE N1	22/11/2022	22/11/2028	valid
	367/2022 - Baru Pit	22/11/2022	22/11/2028	valid
	74/2024 – ETE Small Scale	20/06/2024	20/06/2029	valid
Operation License	1986/2012 - Operation License/Functioning	10/8/2012	15/08/2022	Under renewal
	09/2022 - TCA	16/02/2022	16/02/2024	Under renewal
	8868/2013 - Pit South Ore Body	11/2/2014	11/2/2016	Currently under the Unification Process
	16673/2014 - Pit South Ore Body phase II	19/12/2014	19/12/2020	
	7262/2017 - WRD PAG 3	13/08/2018	13/08/2024	
	18330/2012 - WRD Sul	26/04/2013	26/04/2015	
	18328/2012 - WRD SW	26/04/2013	26/04/2015	
	19007/2012 - WRD N1	9/5/2013	9/5/2015	

Type	License	Issued Date	Expiration Date	Status
	14456/2015 - WRD N1 Phase II	15/06/2016	15/06/2022	
	16570/2014 - WRD SWA	8/7/2015	4/3/2021	
	14457/2015 - WRD NAG 3	23/06/2016	23/06/2022	
	16564/2014 - WRD 2A	8/7/2015	23/02/2021	
	21063/2013 - WRD Feijão	27/02/2014	27/02/2016	
	21064/2013 - BT South Ore Body	9/7/2015	27/02/2016	
	7290/2013 - WRD BT N1	10/3/2014	10/3/2016	
	21065/2013 - WRD Oxidize South Ore Body	12/2/2014	12/2/2016	
	19009/2012 - WRD Oxidize Faz. Paraguai	26/04/2013	26/04/2015	
	6804/2017 - Dam 378m	28/06/2018	28/06/2024	
	5301.01905/1996-1 - explosives magazine	31/01/2007	8/11/2008	
	18702/2013 - IPC	12/2/2014	12/2/2016	
	13723/2009 - Fuel station	18/10/2012	16/10/2016	
	20214/2013 - Power Line 230kV – Traçado Alterado	21/03/2014	21/03/2016	
	5601.32162/2005-2 - Power Line 230kV - Original	19/12/2006	31/08/2015	
	260/2019 - Truck shop	9/3/2020	9/4/2026	
	09/2022 - Termo de Compromisso Ambiental	17/02/2022	17/02/2024	valid
	LO 082/2020 – Diesel station	28/08/2020	27/08/2022	Currently under the Unification Process
	339/2022 - Pit SW	28/07/2021	28/07/2027	Valid
	128/2022 - 10º Tailings Dam Raise	44597	29/04/2028	Valid
	278/2022 - BT Sul	24/08/2022	24/08/2028	Valid
	61504036 – Autorização Operação BT Feijão	20/06/2024	26/06/2029	Valid
Deforestation	25200038 - ASV 152,5728 ha	11/12/2020	11/12/2022	Valid
	25200200 - ASV 54 ha	15/07/2021	15/07/2023	Valid
	202423852 -– CAI 18,0058	30/08/2024	30/08/2029	Valid
	20242427 - ASV 137,7654 ha	3/9/2024	3/9/2029	Valid
	20242435 – CAI 432,0083 ha	4/9/2024	4/9/2029	Valid
	20242437 - ASV 4,96 ha	4/9/2024	4/9/2029	Valid
Wildlife management	Wildlife Mgmt Authorization	31/08/2023	31/08/2025	Valid

It is important to note that the current permit for the dam crest elevation to 382 masl is in place and valid until April 2028. According to site personnel, the life of mine is not supported by the current dam, necessitating additional raises. Additional raises are planned from 382 to 398 masl, followed by an in-pit disposal strategy for tailings in the South pit once it is exhausted. The in-pit disposal is subject to specific environmental permits and authorization from the Brazilian National Mining Agency, and this strategy must be evaluated against any remaining reserves.

The in-pit strategy is also under evaluation by Lundin for the disposal of mining wastes. Lundin has advanced designs for one new WRD (Aparecida), and the expansion of WRD N1. The QP did not have access to any information regarding the permitting of these facilities or the timing constraints related to the mine and waste deposition planning.

19.3 Social or Community Requirements

19.3.1 Social and Environmental Assessment Management Systems

Chapada demonstrates strong integration with the local community through direct investment. The primary sources of investment include taxation, local employment, procurement, and social investments.

19.3.2 Grievances

Although the Project has been accepted, local community members have raised concerns regarding unintended impacts such as noise, dust, and vibration. Lundin provides a toll-free line and a WhatsApp channel to enable community members to voice concerns and grievances, which are recorded, investigated, and considered as criteria for Lundin's Social License. The commitments are tracked and monitored in order to report back to communities on progress and to ensure continued engagement for improvement.

19.3.3 Community Welfare

In 2018, the Project voluntarily partnered with the Commonwealth Scientific Industrial Research Organization based in Australia to incorporate a Social License to Operate (SLO) index. The SLO is intended to benchmark efforts made by the Project to integrate social performance and maintain ongoing engagement with the local community. Follow-up reporting indicates that the Project continues to be accepted by the local community and is responsive to feedback for improvements. Lundin incorporated two criteria in its community survey, including (i) environmental perception and (ii) environmental complaints. According to Lundin, the social acceptance score was 3.9 out of 5 in 2024. The main complaint observed in the survey relates to impacts on air quality due to dust dispersion and water quality, while the main positive outcome is employment opportunities.

Lundin maintains a positive relationship with the surrounding community and has ongoing actions to mitigate environmental impacts, such as those affecting water quality and dust. In addition to maintaining a good dialogue with the directly affected community, Lundin's mitigatory actions include implementing more effective controls and planning for the relocation of properties that are highly affected by dust.

19.3.4 Land Acquisition and Resettlement

The critical areas required for impact management and risk mitigation are related to resettlement. In 2019, the Land Management Committee established a Buffer Zone near the South Pit and PAG 3 due to ongoing and expected future impacts on landowners whose houses are within less than 700 m from Chapada. Additionally, some properties within this Zone (belonging to the Barreto and Araujo families) are situated along the banks of the Bois River and a creek that forms the boundary with Chapada's property. In recent years, there has been an exponential increase in complaints and negative perceptions from these neighboring landowners about dust, vibration, noise, and water quality impacts.

The planned expansion by Chapada from 2023 to 2025 is expected to exacerbate these impacts, making the acquisition of the areas from the Araujo and Barreto families the primary social risk mitigation activity for Chapada. According to Lundin, the acquisition process needs to adhere to International Standards (IFC – PS5).

19.3.5 Indigenous Peoples

Based on available information provided by Brazil's Indigenous Agency, FUNAI, there is no evidence of Indigenous populations living in the area. Additionally, there are no "Quilombola" communities present near the site, according to a database provided by Fundação Palmares, the government entity responsible for promoting the rights of Afro-Brazilians.

19.3.6 Cultural Heritage

The Chapada project obtained permits and conducted a cultural heritage and archeological program as part of the initial permitting process. Surveys and non-destructive analysis were executed, and archeological artifacts were recovered from all directly affected areas of the operation. This involved projects carried out with IPHAN (the national agency responsible for archaeological heritage), named the Chapada Project, Project Expansion Tailings Dam and South Body Project. A Cultural Heritage Education plan was developed and provided to local communities.

Considering the structures foreseen in the LoM, the Aparecida Waste Dump area was prospected in conjunction with the Corpo Sul Project. The area already has a certificate of rescue for existing archaeological occurrences. The N1 waste dump is part of the Archaeological Project called Chapada NE Project, which began in 2022, and authorization was obtained to rescue the archaeological sites in 2024. The installation of the waste dump occurs concurrently with the rescue of the archaeological occurrences identified in the area.

19.4 Water Management

According to the 2022 Environmental Control Report, a Drainage Master Plan has been developed and integrated into a site-wide water balance model using GoldSim software. According to Lundin personnel, this model is frequently updated as it supports the mine planning team. During the site visit and conversations with site personnel, it was verified that the current model has a good fit and reasonably represents the mine site's water management. However, the Chapada WBM uses stochastic simulation for natural evaporation. For rain simulations, although stochastic simulation is not used, the Monte Carlo simulation is employed, and it is now possible to input a deterministic storm event. The model has not considered a validity check in the precipitation data series, which adds up precipitation form different locations without a consistency analysis, and it uses a 2018 study frequency analysis. Additionally, some aspects related to the TSF, WRD, and pits were highlighted in the Montgomery Chapada GoldSim Water Balance Model Peer-Review dated February 2021.

As per information provided during the site visit, the Chapada property has experienced dry years recently and decided to store water in pits that are not in operation, as well as in the existing tailings dam, to ensure sufficient volume for operations. Over recent years, no freshwater has been taken from Dos Bois River, and the water management team is now developing alternatives to reduce stored volume: (i) installation of evaporators, (ii) effluent treatability studies, and (iii) studies focused on a hydraulic barrier around the Central pit to minimize groundwater inflow that is currently mixed with contact water. These three alternatives were chosen because Chapada Mine operates in a closed system, with the vast majority of water being retained on-site, including both contact and non-contact water. Recent work has enabled the full catchment of WRD runoff and acidic seepage in excavated downstream sumps, with the volume being pumped back to the TSF and Central pit.

As part of the water management plan for the coming years, the goal is to reduce stored water to approximately 18 Mm^3, which aligns with the current water demand. This plan considers storage in the TSF, North Pit (after 2026, until 2039), Central Pit (until 2029 and after 2047), South Pit (after 2034) and Baru Pit (to be exhausted in 2028). Between 2025 and 2027, passive and active treatment systems will be installed to treat and release water to the environment in compliance with required standards.

According to hydrogeological studies by Hidrogeo, the Chapada mine site has a negative water balance. However, Lundin personnel do not foresee a significant risk of water shortage in the region due to the management actions implemented over the past years.

The current water management and site-wide water balance focus on supporting mine planning. It is planned to fully dry out the North pit by 2025 and use it as a reservoir until 2039, at which point it will be dried out again to allow connectivity with Sucupira Pit. The Sucupira Pit will be able to store water after 2047. According to Lundin personnel, all water within the Central Pit will be pumped to the TSF and treated in a WTP until 2029. The effluent treatment system is mandatory to reduce stored water within the site and is constrained by the seasonal variation of the Formiga and Dos Bois rivers. Chapada is evaluating the excavation of a pond to store treated effluent during the dry season and provide soil for WRD closure actions.

19.4.1 Monitoring

Chapada has an ongoing monitoring program that includes streamflow, rainfall, surface and groundwater quality. There are four automatic rainfall monitoring stations and ten streamflow monitoring stations that monitor six of the surrounding rivers (Dos Bois, Formiga, Caraiba, Bacupari, Tum-Tum and Pouso Falso). There are 19 monitoring points currently used for assessing surface water quality in these rivers at locations that could capture any influence from the mine site facilities. Additionally, 43 monitoring wells are currently active to monitor groundwater quality within the directly impacted area and the surrounding mine site area.

The monitoring activities have different periodicities but are in compliance with regulatory agency requirements.

According to the Hidrogeo report, there is evidence that some mine site facilities are influencing surface water quality, which seems to be related to the infiltration of dissolved metals, such as manganese, from the TSF and likely runoff from the WRD that is not captured and is directly released into the environment. However, Hidrogeo highlights the need for adjustments in the QA/QC protocol and suggests low confidence in the historical dissolved data due to potential errors during past field sampling work and inadequate maintenance of some groundwater monitoring wells. Recommendations have been made and are currently being considered by Chapada, according to its personnel.

19.5 Mine Waste and Tailings

19.5.1 Tailings Management

Currently, the plan for tailings disposal in the existing TSF (main dam) throughout the LoM is approximately 25 Mtpa. The TSF consists of three dams: the Main Dam, Dike II, and Dike III. The Main Dam's starter dam was constructed from compacted local borrow material (clay to clayey silt soil) and has been subsequently raised by the centerline construction method using cycloned tailings to raise the downstream portion of the dam.

In 2024, the Main Dam had a crest elevation of 380 masl and is licensed to be raised up to 382 masl, with an average raise of 1 m per year. Lundin initiated the licensing process for an additional raise to 398 masl in 2024, expecting the license to be granted in 2025. However, no updates on the status of the licensing process have been made available, which may imply a constraint regarding tailings disposal after 2028 if the permitting schedule for the 398 masl raise is delayed.

It is important to note that the 398 masl raise does not support the entire life of mine tailings production. An in-pit disposal strategy has being evaluated and is included in the LoM. However, there is no guarantee that this alternative will be accepted by the Brazilian Mining Agency. An additional raise and a co-disposal facility are also being evaluated.

According to Hidrogeo (2021), which reported reinterpretations of historical data for the site's geochemical characterization and presented the results of kinetic tests, the tailings were characterized as PAG by static tests. However, the kinetic tests showed that the acid neutralizing potential is five times higher for the tailings due to a higher concentration of carbonates compared to the waste rock material, and the sulfur content is 20% to 30% lower, which promotes a controlling mechanism for acid generation within the TSF. Nonetheless, Lundin has implemented a pumping system downstream of the dam to recirculate the seepage, which remains a concern regarding pH and metal concentration.

19.5.2 Waste Rock Dumps

Waste rock dumps are located adjacent to the open pits at Chapada. The majority of the waste rock at the mine has been classified as PAG, with little neutralizing potential. Currently, Chapada manages one of the WRD (PAG 03) in which PAG material is disposed of and managed. Seepage is fully captured by sumps located downstream of each WRD and recirculated to the Central Pit and/or TSF under the current water management criteria for subsequent treatment and release processes being developed.

Recent information refers to a new dump (Aparecida), situated between PAG03 and Feijão dumps, and the expansion of dump N1. Recent mine planning indicates that both Aparecida and N1 Expansion are expected to receive waste in 2025 and 2026, respectively. Although engineering designs are advanced, no information about the permitting process for these facilities has been made available.

It is important to note that the same mine planning also refers to a dump named Jao, the expansion of dump SW, and in-pit disposal in North and South pits starting in 2025 and 2026, respectively. According to the designs provided and waste production projections over the LoM for 2050, the property lacks about 410 Mt of waste storage capacity.

Currently, all drainage systems of the waste rock dumps are being redesigned, totaling seven sumps, with others planned for the coming years. Sump 12 will serve the PAG 3, Feijão, and future Aparecida dumps; sump 10 will serve the NAG 3 dump; sump 08 will be designated for the NAG-03, MT-GO, and Oxidado Sul dumps; sump 05 for the SW dump; sumps 03 and 04 for the South Dump; and sump 01 will be responsible for the N1 dump.

The purpose of the sumps is to contain all sediment flow and leachate from the waste rock dumps, preventing their possible discharge into the external environment, such as the Caraíba, Tum-tum, and Malacacheta streams, as well as the Bois River. A new pumping system is under construction and will be connected to the existing system, allowing the recirculation of these waters throughout the site, between the sumps, pits, and dam.

Two water treatment systems are in the planning and construction phase at the Chapada mine. The first is an active effluent treatment plant, which will receive leachate water from the dam. Initially, in a pilot phase, the plant will have the capacity to treat 500 m^3/h, with a definitive version planned to treat 1500 m^3/h. The second system is based on passive treatment through wetlands, currently in a pilot testing phase with a capacity of 150 m^3/day, designed to receive part of the effluents from the N1 dump.

19.5.3 Low-Grade Ore Piles (BT WRDs)

The recent mine planning indicates nine dumps: BT Central, BT Feijão, BT 04, BT NE, and BT Jao. Approximately 93 Mt of mining waste is planned to be conveyed to these dumps over the next 25 years, with an existing stored material tonnage of about 130 Mt. These facilities are considered PAG, and there is evidence of intense acidic drainage with high metal loads.

Currently, all contact water is being captured and conveyed to the Central Pit lake as part of the current water management strategy. As per Lundin's personnel, none of these dumps were designed with a low permeability bottom layer, thus groundwater contamination is also an issue that needs to be investigated.

The stored tonnage is planned to be reclaimed over the next 25 years. Although no specific information is available, it is the QP's understanding that the reclaiming plan of low-grade ore dumps presents opportunities to minimize environmental liabilities, as the materials are classified as PAG. It is recommended that closure concepts be considered as guidelines for future optimization of production and reclaiming plans.

It is important to note that two of the planned BT dumps, BT NE and BT Jao, are planned to start operations in 2028 and 2030, respectively. No information has been made available regarding the designs for these facilities or the status of the permitting process.

19.6 Closure

The mine closure conceptual plan has been recently updated by Golder, dated December 2021. The current plan considers all mine site facilities, including: (i) TSF, (ii) Pits, (iii) WRD, (iv) ore stockpiles, (v) dikes and sumps, and (vi) infrastructure, administrative and industrial buildings.

The current plan was prepared in accordance with national and international standards and best practices (IBRAM, ANM, ICMM) and complies with legal requirements in Brazil and corporate standards, which mandate updates every three years.

As part of its vision, the plan considers key objectives such as safety, chemical, physical, and ecological stability, socioeconomic transitioning, risk control, and long-term care and maintenance. The plan considers 3 stages over the LoM, extending up to 2050:

- Pre-closing actions (2020-2050)
  - General actions
  - Surveys and complementary studies
  - Reviews and detailing of the closure plan
- Closing actions (2051-2054)
  - General and administrative actions
    - Execution of socio-environmental programs
    - Management of closing actions
  - Engineering actions and environmental recovery
- Post-closing/monitoring actions (2055-2065)
  - Monitoring
  - Maintenance

Physical stability considers engineering work for pits, the TSF and WRD in accordance with GISTM and national legal requirements for geotechnical stability.

An in-pit lake will be allowed to form, and the TSF will be drained and covered by tailings up to a crest elevation of 398 m, followed by revegetation. NAG waste rock will be used as cover for other WRDs, and an additional low permeability layer will be placed on those characterized as PAG, followed by revegetation.

The current plan includes covering facilities (TSF, WRD, pits and ore stockpiles) with organic soil to support vegetation growth, and an additional low permeability cover layer for facilities that are potentially acid generating. Surface drainage considers the construction of channels to route water towards the Dos Bois River, coupled with sediment control structures.

Decommissioning involves permanently ending mining and mineral processing operations and removing all equipment and facilities not designated for future use.

Effluent treatment is assumed to occur over a 10-year period after closure.

In terms of future use, the plan reassesses potential alternatives from previous plans, using the Analytical Hierarchy Process methodology to identify which among the selected alternatives presents the best cost-benefit ratio. It is important to note that the proposed alternative is not considered for the entire site but for each so-called Sector, which groups facilities by their characteristics.

Regarding Stakeholder Engagement, although Lundin has implemented a Social Communication program with 90 identified stakeholders, discussions with the community regarding closure have not yet commenced. The report highlights the importance of engaging with the community, as the main positive outcome regarding the social license is employment opportunities. It presents a socioeconomic transitioning plan with respective programs.

The plan outlines success criteria in accordance with the ICMM and includes a schedule of closure actions from 2021 to 2065. A closure cost estimate breakdown is presented at R$ 1.757 billion (without contingency), approximately US$ 316 million at an exchange rate of 5.5 (R$/US$).

Considering all the assumptions of the current closure plan, the QP understands that the overall cost estimate is in the right order of magnitude. Based on Pulino (2010) and factoring in inflation for the period from 2011 to 2021, the cost estimate for the two main components (WRDs and TSF) is in the range of R$ 1.07B and R$ 1.37B, while the current cost estimate stands at R$ 1.17B.

However, based on the recent site visit, the QP understands that there is significant uncertainty over several key assumptions used in the closure cost estimation. These include the availability of covering material within 5km radius, temporary monitoring, care and maintenance of PAG WRDs with springs underneath, and passive effluent treatment needs for TSF and WRDs seepage, which currently require active treatment, not only passive treatment as considered by Golder. The QP also understands that there are opportunities to minimize current and future liabilities and costs. Additionally, Lundin's closure governance aligns with international best practices and the concept of designing for closure.

While these opportunities have the potential to reduce current cost estimates, such as leveraging mine planning to implement progressive closure in order to minimize required volumes of covering materials from borrowing areas and to reduce effluent volumes needing treatment throughout the LoM, it is expected that the next closure plan and cost estimates update will see an increase in current costs. This is primarily due to waste handling, haulage, and water management components in the post-closure stage.

Furthermore, the 2021 closure plan does not consider new facilities such as Aparecida WRD. According to Lundin, this facility will add approximately 170 Mm^3 of disposed wastes. A rough estimate for the incremental volumes, based on a unit cost rate and assumptions from the most recent closure plan of 79,49 R$/$m^2$, represents an additional cost of around R$ 168 million. As an opportunity, this new facility, as well as others like the N1 Expansion, can incorporate closure concepts to effectively minimize closure costs.

20 Capital and Operating Costs

20.1 Capital Costs

20.1.1 Assumptions

Estimated capital costs for Chapada over the next five years are tabulated below, considering the US dollars using an exchange rate of 5.50BRL. It is noted that over 80% of the capital costs are forecast to be locally denominated in R$. The property capital includes about $99M for deferred stripping, $294M for sustaining capital and $54M for capital leasing (used to acquire mobile mining equipment for the waste insourcing project).

Lundin capitalizes waste stripping costs when strip ratios are higher than the average planned strip ratio for each pushback phase by pits under development. During the production phase of the Chapada open pit, waste stripping costs, which provide probable future economic benefits and improved access to the orebody are capitalized.

20.1.2 Summary

The main sustaining capital costs include TSF routine dam raises and distribution pipeline raises and relocations, fleet maintenance acquisitions and water management (including water treatment plan installation, sumps and pumping system). These three items represent over 70% of total sustaining capital.

Table 20-1: Total Capital Cost

Capital Cost ($M)	2025	2026	2027	2028	2029	2030+	LoM
Sustaining							
Automation	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Building & Infrastructure	22.0	33.5	22.1	14.0	9.9	31.3	**132.8**
Furniture & Fixture	0.2	0.0	0.0	0.0	0.0	0.4	**0.7**
Hardware & Software	1.4	0.6	1.2	0.1	0.3	3.9	**7.6**
Land Acquisition	2.0	6.7	3.6	0.0	0.0	0.0	**12.3**
Machinery & Equipment	16.7	25.6	13.9	11.7	35.2	315.9	**419.1**
Sustaining - Other	2.8	2.8	3.1	1.4	0.4	2.4	**13.0**
Tailings Dam Maintenance	7.4	14.9	12.9	14.4	10.4	85.2	**145.3**
Technical Studies	0.5	1.0	0.9	0.0	0.1	4.6	**7.0**
Mine Development	30.1	1.9	11.9	25.2	30.1	464.4	**563.6**
Sub-Total Sustaining	**83.1**	**87.0**	**69.7**	**67.0**	**86.6**	**908.2**	**1,301.5**
Infrastructure Relocation for Sucupira mining	0.0	0.0	0.0	0.0	0.0	202.4	**202.4**
Waste Insourcing Project - Leasing	0.0	1.2	11.0	21.2	21.1	70.9	**125.3**
Total Capital	**83.1**	**88.2**	**80.7**	**88.2**	**107.7**	**1,181.4**	**1,629.2**

Source: Lundin Mining, 2024

Lundin are projected to spend approximately $1.6 G in capital over the next 25 years. Reclamation and closure costs are estimated to be $316 M.

20.1.3 Water Management

The capital estimates for water management are described in Table 20-2.

Table 20-2: Water Management Capital Costs

Capital Cost ($M)	2025	2026	2027	2028	2029	2030+	LOM
Building & Infrastructure	8.3	14.1	15.5	5.3	2.6	5.3	**51.2**
ETE FULL SCALE 1,500m3/h	0.0	6.4	4.3	0.0	0.0	0.0	**10.7**
ETE SMALL SCALE 500m3/h	2.0	0.0	0.0	0.0	0.0	0.0	**2.0**
SUMPS	2.2	7.7	8.2	5.3	1.8	2.2	**27.4**
Pumping System	3.5	0.0	3.0	0.0	0.8	3.1	**10.5**
Automation - CMA	0.6	0.0	0.0	0.0	0.0	0.0	**0.6**
Machinery & Equipments	1.1	8.4	0.0	0.1	0.0	0.0	**9.6**
New Evaporators {25}	0.0	8.4	0.0	0.0	0.0	0.0	**8.4**
TSF Pumping for CC	1.1	0.0	0.0	0.0	0.0	0.0	**1.1**
4 Stand-by Pumps for Evaporators	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
7 Meter Kits (Meters + Installation Valves)	0.1	0.0	0.0	0.0	0.0	0.0	**0.1**
Sustaining - Other	2.4	2.5	2.2	0.4	0.4	2.4	**10.3**
Pilot Pumping Wells and Vertical Pumping Wells	1.8	1.8	1.7	0.0	0.0	0.0	**5.3**
New groundwater monitoring wells and piezometers	0.6	0.7	0.4	0.4	0.4	2.4	**5.0**
Total Capital	**11.8**	**25.1**	**17.7**	**5.8**	**3.1**	**7.8**	**71.2**

Source: Lundin Mining, 2024

WTP: Water treatment plant

CMAA: Environmental and Water Monitoring Center

20.2 Operating Costs

20.2.1 Summary

The forecasted unit operating costs for the next five years are summarized in Table 20-3 below. The forecast operating costs are estimated using an exchange rate of 5.50 R$/US$ and it is noted that over 70% of the operating costs are locally denominated in BRL. Total average forecast unit costs for the mine are $2.65/t moved for the next five years, including ore stockpile movements and exclusive of mine development costs to be capitalized. The average operating costs over the full LoM is expected to trend lower particularly when treating stockpiled ores.

Table 20-3: Total Operating Costs

Operating Cost	Units	2025	2026	2027	2028	2029	2030+	LoM
Mill Feed	kt	23,085	24,054	23,492	23,993	24,029	462,659	**581,313**
Operating Costs								
Mining	$M	116.8	146.5	121.6	87.2	86.3	1,803	**2,361**
Processing	$M	103.1	102.4	100.2	99.1	96.6	1,880	**2,381**
Water Management	$M	14.6	6.2	5.9	6.8	6.8	108	**148**
Transportation	$M	30.5	35.8	34.2	32.8	33.2	596	**762**
G&A	$M	30.1	27.4	25	24.8	24.5	378	**510**
Total	**$M**	**295.1**	**318.3**	**286.9**	**250.6**	**247.5**	**4,764**	**6,162**
Unit Costs								
Mining	$/t milled	5.06	6.09	5.18	3.63	3.59	3.90	**4.06**
Processing	$/t milled	4.47	4.26	4.26	4.13	4.02	4.06	**4.10**
Water Management	$/t milled	0.63	0.26	0.25	0.29	0.28	0.23	**0.25**
Transportation	$/t milled	1.32	1.49	1.45	1.37	1.38	1.29	**1.31**
G&A	$/t milled	1.30	1.14	1.07	1.03	1.02	0.82	**0.88**
Total	**$/t milled**	**12.78**	**13.23**	**12.21**	**10.45**	**10.30**	**10.30**	**10.60**

Source: Lundin Mining, 2024

G&A: General and Administrative

21 Economic Analysis

Producing issuers may exclude the information required under Item 22 for technical reports on properties currently in production unless the technical report includes a material expansion of current production. As of the effective date of the report, Lundin is a producing issuer, the Chapada Mine is in production, and a material expansion is not being planned.

22 Adjacent Properties

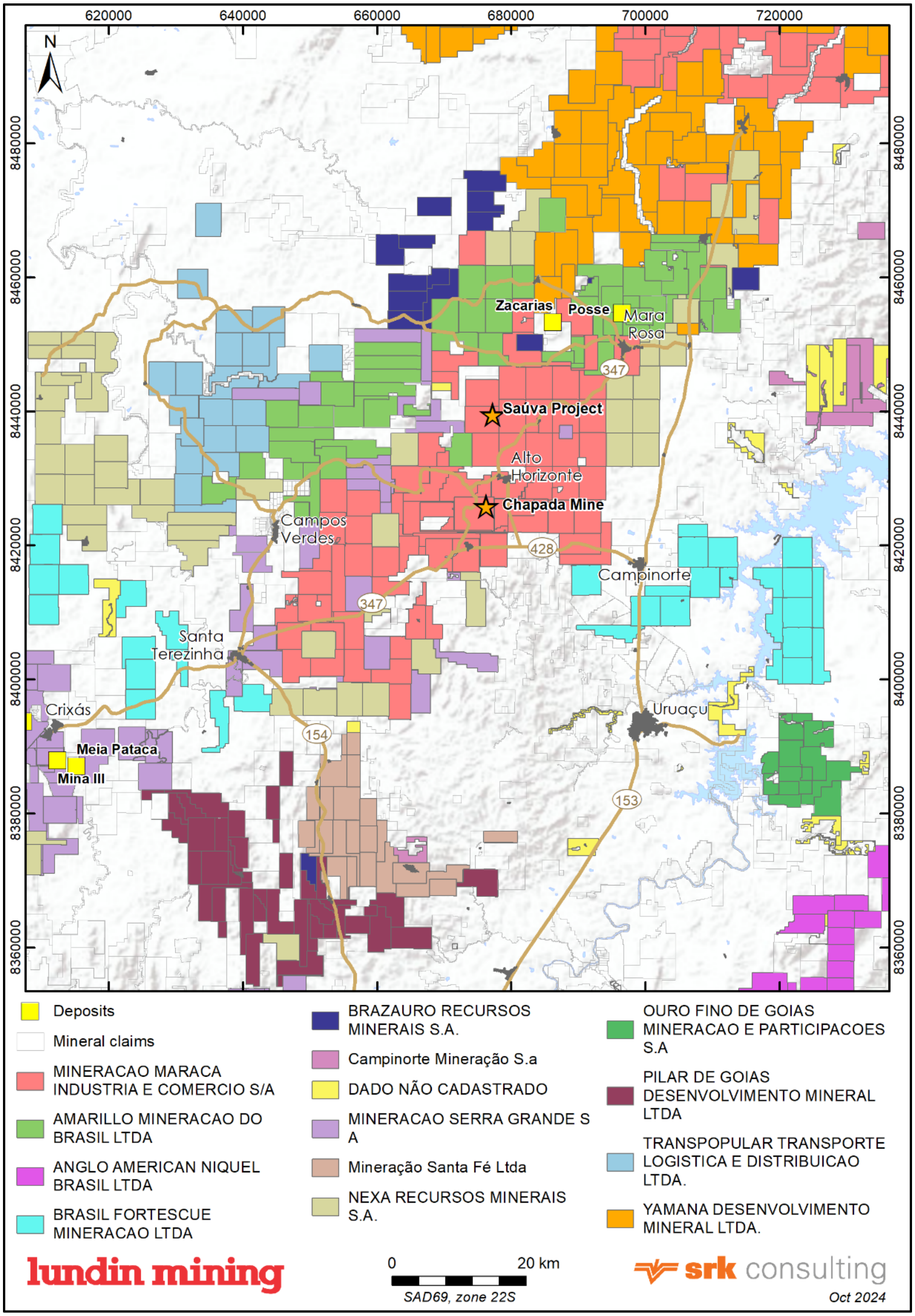
Several significant deposits occur in the Mara Rosa Region (Figure 22-1). The Chapada porphyry copper-gold mine is roughly 10 km south of the Saúva Project.

The Posse and Zacarias deposits were discovered in 1987 by Mineração Colorado (BHP Utah), who was conducting a soil sampling program to investigate an Au anomaly indicated by regional sampling of stream sediments. From 1988, Mineração Jenipapo S.A. (WMC Mineração) continued exploration in the area under a joint-venture agreement with the previous operator, acquiring the remaining equity in 1990.

The Posse Mine, a shear-hosted mesothermal lode gold deposit, is roughly 20 km northeast of the Saúva Project. The area was developed over decades, with various feasibility studies conducted to assess the deposit's economic and geological potential. In 2021, Hochschild Mining acquired the property through its wholly owned subsidiary Amarillo Mineração do Brasil Ltda and carried out further development steps. After the necessary infrastructure was built, commercial operations began in 2024. The property, which reached a processing capacity of approximately 7,000 tons per day, is expected to produce between 83,000 and 93,000 ounces of gold per year.

The Zacarias gold-silver-barite stratiform syngenetic exhalative or shear-related epigenetic high sulphidation deposit is also located in the Mara Rosa region approximately 15 km east of the Saúva Project. Mining of the southern and central orebodies commenced in 1991 and exhausted reserves in mid-1994.

Figure 22-1: Adjacent Properties



23 Other Relevant Data and Information

There is no other relevant data available about the Chapada Mine and Saúva Project.

24 Interpretation and Conclusions

24.1 Geology and Resources

Since its acquisition in 2019, Lundin has undertaken extensive exploration work on the Chapada property. Geological mapping, soil geochemistry, and geophysical (airborne magnetic and radiometric) surveys have been completed to improve the geological understanding of the deposit and surrounding exploration targets. A total of 4,160 core boreholes (736,008 m) have been drilled across the Chapada property since 1996, including 1,307 boreholes (300,820 m) drilled by Lundin. Most of the drilling represents a general spacing of approximately 50 m by 50 m, to 100 m by 100 m for both the Chapada Mine and Saúva Project deposits.

The analytical quality control program employed by Lundin involves the insertion of blanks, certified reference materials, and duplicate samples. Additional regular checks were performed at an umpire laboratory to test the reliability and reproducibility of results from the primary laboratory. The QP conducted an independent verification of the exploration data during the site visit, involving a review of data collection and storage procedures to assess reliability of exploration data for the purpose of Mineral Resource estimation. The QP considers the sample preparation, analysis, security, and data verification procedures employed by both Yamana and Lundin at the Chapada Mine and Saúva Project were consistent with industry best practices.

Analytical quality control data was not available for drilling completed prior to 2003; however, a large portion of this data occurs in mined-out areas or is otherwise spatially supported by newer data. The historical data are not believed to impact the integrity of the database or the Chapada Mine Mineral Resource estimate.

The geological and domain models for the Chapada, Saúva and Formiga deposits were constructed by Lundin between 2020 and 2023. The wireframes for Suruca were produced by RPA in 2022. All models were subsequently audited by SRK and determined to be appropriate for use in Mineral Resource estimation. Recommendations were provided for future iterations of geological and domain modelling to improve the consistency between models and further improve the accuracy of the domained mineralization.

The Mineral Resource models for Chapada, Saúva and Formiga were constructed by various parties, and audited by SRK. In all four block models, copper and gold grades were estimated using capped composites via a combination of OK and ID^3, and constrained within mineralization volumes.

SRK considers that the Mineral Resources for the Chapada Mine and Saúva Project have been estimated in conformity with the generally accepted CIM Estimation of Mineral Resource and Mineral Reserves Best Practices Guidelines. The Mineral Resources are classified in accordance with the CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014). The copper-gold mineralization in the Chapada Mine and Saúva Project is amenable for open pit extraction and a portion of the Saúva Project is amenable to underground extraction. Open pit Mineral Resources are reported at a cut-off grade of 0.10% Cu within a conceptual pit shell that is based on an NSR CoV of

US$6.26/t, US$6.80/t, and US$7.80/t for Chapada, Suruca and Saúva, respectively. Underground Mineral Resources are reported within mineable shapes at an NSR CoV of US$24.50/t at Saúva.

Relative to the 2023 Mineral Resource statement, the 2024 Mineral Resources generally reflect adjustments due to a slight increase in Cu price from US$4.20/lb to US$4.43/lb and depletion at Chapada. In Saúva, the underground Mineral Resource tonnage decreased by approximately half as a result of an increased underground mining cost to reflect the use of backfill. Overall, the Measured and Indicated Mineral Resources from the Cu-Au domains remains largely unchanged, with a 3% reduction in tonnage and metal content. In Suruca, a reduction in the recovery factor for gold in the mixed and sulphide zones reduced the size of the conceptual pit shell used for reporting, contributing to approximately 30% less tonnage and metal content in the Au-only domains.

24.2 Mining

The pit limits were defined by pit optimization based on a copper price of $3.85/lb and a gold price of $1,600/oz. The pit design inventory resulted in 440 Mt of ore at 0.25% Cu and 0.13 g/t Au at a CoV of $5.87/t ore. The Mineral Reserves estimate is 569.1 Mt at 0.23% Cu and 0.12 g/t Au. The LoM plan includes 616 Mt of waste stripping for a strip ratio of 1.4 over 22 years with a maximum plant feed throughput of 25 Mtpa.

24.3 Metallurgical Testwork

The previous Chapada technical report (RPA 2019) includes a summary of metallurgical testwork conducted before start-up, through commissioning/optimization in 2008 and the Woodgrove studies (Phases I and II). Since 2019, testwork has focused on geometallurgical model updates, expansion studies and evaluations of low-grade stockpiled material.

Preliminary studies for the Saúva Project are investigating a range of options to transport ore to the Chapada process plant, at approximately one third of the Chapada plant capacity. Testwork on both Saúva and Formiga samples has indicated a finer grind size will enhance both copper and gold recoveries to the flotation concentrate.

The Suruca deposit was evaluated by Yamana in 2018 and 2019 with a number of processing options considered for the different ore zones. A number of Oxide zone samples have been evaluated for heap leaching, using both bottle roll and column leach testing methods. The Transition and Sulphide zone material was evaluated for CIP gold recovery following grinding and cyanide leaching. The Southwest or Copper-Gold zone is similar in mineralogy to the current Chapada plant feed material; however, samples demonstrated higher sensitivity to grind size.

24.4 Recovery Methods

The Chapada process plant started commercial production in 2007 under Yamana ownership and increased capacity to 20 Mtpa in 2009 and again to 22 Mtpa in 2011. Lundin acquired Chapada in 2019, and processed 23.4 Mtpa that year, followed by 20.0 Mtpa in 2020 (Covid-19 affected) and

24.1 Mtpa in 2021. Since 2009, head grades have steadily decreased and impacted mainly copper concentrate grade and, to a lesser extent, copper and gold recovery.

The Chapada process plant has undergone a number of process improvement phases since 2015 to increase capacity to the current 24 Mtpa. The CBFE expansion study completed by Ausenco in 2021 investigated a range of scenarios to either debottleneck the existing plant flowsheet or add a second processing line. Based on hardness estimates of future ore sources, it was expected that the current plant capacity would drop to 18 Mtpa, with a second processing line increasing capacity back to between 26 Mtpa and 32 Mtpa.

The LoM plan forecasts that plant feed will come from the Main Pit, combined with a significant blend of Old BT stockpiled material. The Sucupira pit development will provide plant feed starting in 2035, primarily mixed with low-grade, BT stockpiled material. From 2046 onwards, only BT stockpiled material will feed the plant until the end of mine life in 2051.

24.5 Project Infrastructure

The project includes an open pit mine, a conventional grind/flotation mill, a TSF, and various administrative and maintenance facilities. The power supply is connected to the National Electric Grid, and the water supply is sourced from a water reservoir adjacent to the TSF area.

The TSF is licensed until April 29, 2028, and employs a centerline raising method using cyclone tailings. The current LoM plan requires additional tailings storage, and an in-pit TSF in the South pit will be backfilled with tailings once mining is completed.

24.6 Environmental Studies and Permitting

The Chapada Mine and Saúva Project faces significant challenges related to the management of structures with potential for acid rock drainage. The waste rock dumps and low-grade ore piles have been identified as potentially acid generating (PAG), with little neutralizing potential. This poses a risk of acidic seepage, which can lead to contamination of surface and groundwater. The project has implemented measures to capture and treat seepage from these structures, including the installation of sumps and a pumping system to recirculate the water to the TSF and Central pit for treatment. However, the effectiveness of these measures is contingent on continuous monitoring and maintenance to prevent environmental contamination.

Water treatment is another critical aspect of the Chapada Mine and Saúva Project. The site operates in a closed system, with the majority of water being kept within the site. Lundin is exploring alternatives to reduce stored water, and an active effluent treatment plant is being developed to treat contact water from the TSF. Additionally, a passive treatment system through wetlands is in the pilot testing phase. These initiatives are crucial for maintaining water quality and ensuring compliance with environmental standards.

The mine closure plan for the Chapada Mine presents several uncertainties, particularly related to cost estimates and the availability of covering materials. The current plan has significant uncertainties over key assumptions used in the closure cost estimation, such as the availability of covering material within a 10 km radius and the need for active treatment of effluents from the TSF and WRDs. The estimated cost for the closure plan is approximately US$ 316 million, but this figure may increase due to waste handling, haulage, and water management components in the post-closure stage.

Lundin has identified opportunities to minimize future liabilities and costs through progressive closure actions during the LoM. However, the closure plan does not currently consider new facilities such as the Aparecida WRD, which will increment a total of approximately 170 Mm^3 of disposed wastes. Incorporating closure concepts into the design of new facilities can effectively minimize closure costs.

From the perspective of the QP, the Chapada Project is considered socially and environmentally viable. Lundin has demonstrated a strong commitment to environmental and social governance, with comprehensive management programs and robust permitting processes in place. The ongoing efforts to monitor and manage environmental impacts, particularly in the areas of water quality and waste management, are key for the positive performance. Continuous improvement and adaptive management strategies will be essential to address the challenges and uncertainties identified, ensuring the long-term sustainability of the property. In conclusion, while the Chapada Mine has made significant progress in managing environmental impacts and developing a robust closure plan, there are ongoing challenges related to ARD, water treatment, and uncertainties in cost estimates.

25 Recommendations

Recommendations for the advancement of the Chapada Mine and Saúva Project are described herein.

Overall, the QPs estimate that the cost of the combined phases of work is expected to cost $7.18 million as outlined in Table 25-1. The studies listed in the table relate to the greater Saúva Project Scoping Study. The delineation and exploration drilling refer to the Chapada Mine and Saúva Project, approved for 2025. The recommendations and associated budget, shown in Table 25-1, are described in the sub-sections that follow.

Table 25-1: Estimated Cost for the Exploration Program Proposed for the Chapada Mine and Saúva Project

Area	Description	Units	Total Cost (US$)
Chapada Mine and Saúva Project	Delineation drilling (infill and step out)	8,000 m	2,000,000
	Exploration core drilling (all inclusive)	12,000 m	3,000,000
Saúva Project	Engineering studies (Scoping Study)		500,000
	Update resource models		50,000
	Environmental and social impact baseline studies		300,000
	Metallurgical testing		300,000
	Mineralogy studies		50,000
	Geotechnical studies		150,000
	Mine engineering design		80,000
	Preparation of scoping level technical report		100,000
Subtotal			6,530,000
Contingency (10%)			653,000
Total			**7,183,000**

The QPs are unaware of any other significant factors and risks that may affect access, title, or the right or ability to perform the exploration work recommended for the Chapada Mine and Saúva Project.

25.1 Geology and Resources

While the existing geology model and Mineral Resource estimates are reasonable representations of the mineralization, refinements to the models are suggested. For future updates of the domains, these include improvements to data snapping at Chapada, structural modelling of cross-cutting faults and offsetting zones at Chapada, tightening of domain extents in some areas, elimination of some small artifacts caused by interval selections and pinch-outs, and consideration of the implications and application of weathering zones.

In future updates of the Suruca block model, SRK recommends considering a larger block size, given that open pit extraction is anticipated. Additionally, the continuity of Measured and Indicated blocks can be further refined within the Chapada main deposits. These suggested refinements are not considered material to the Mineral Resources but should lead to improved models for resource evaluation.

Future work programs to advance the Chapada Mine and Saúva Project areas should focus on continued drilling programs, along with updates to the geological and Mineral Resource models, to advance both project areas.

In Chapada Mine, drilling programs should target:

- Mineral Resources and Mineral Reserves Growth: Exploratory work focused on adding high-grade resources near the Chapada Mine to optimize the LoM.
- Geological Knowledge & Modelling Updates: Drilling will further advance the understanding of high-grade controls, particularly in areas with significant structural complexity, such as Corpo Sul, thereby enhancing confidence in the data used for mine planning and operation strategies.
- Stockpiles: Evaluate diamond drilling on selected stockpiles, such as Old BT, to gather additional data that could assist in creating estimate domains for the block model and predicting zones with varying characteristics, particularly in relation to oxidation and its impact on recovery.

Focus on the Saúva Project should aim to improve the delineation of the known deposit and assess the potential to expand the current resource base. In particular, drilling programs should target:

- Down-dip area of the Saúva deposit to test the extension of a high-grade trend, which may increase underground resources and expand the resource base.
- Shallow opportunities that may be amenable to open pit extraction near the known Saúva and Formiga deposits.
- Test exploratory prospects within a 10 km area of the Saúva deposit, based on geochemical and geophysical anomalies.

The drilling programs will provide high-quality data to improve the geological understanding of the deposit, and to support future technical studies for mine planning.

25.2 Mining

The following are recommended to improve the accuracy and reliability of the Chapada Mine plan:

- Improve the accuracy and reliability of internal dilution and loss estimation in the mining plan, by implementing a data-driven methodology that integrates advanced geological modeling, real-time monitoring, and robust simulation techniques. This approach should leverage 3D geological models to capture detailed orebody characteristics, including variability in ore grade, density, and structural features.
- Incorporate real-time data from blast hole sampling and geostatistical analysis to help refine estimates of ore and waste boundaries and minimize uncertainties. Advanced simulation tools, such as Monte Carlo simulations, should be used to assess variability and optimize operational parameters, ensuring that the dilution and loss estimates align closely with actual mine performance.
- Regularly validate and update the methodology based on production data and reconciliation results to further enhance the accuracy of forecasts and improve overall resource management.

25.3 Metallurgy and Processing

A review of the current Chapada Mine performance estimates has shown improvements are possible, and, in general, there are consistent biases in both throughput and recovery using the current equations.

A comparison between actual and modelled plant throughput over a 20-month period showed that modelled throughput was low by 10% to 20% and more negatively biased at higher values. It is the Processing QP’s opinion that alternate recovery equations can be developed to more closely align with current plant performance.

As part of the Chapada geometallurgical modelling work, additional samples should be tested for hardness, flotation recovery, and concentrate quality. Particular emphasis should be placed on BT stockpile material, which will constitute a significant part of the mill feed blend starting 2035.

Future metallurgical testwork on Saúva and Formiga samples should include:

- Additional comminution testing, with BWi results reported for a range of closing screen sizes
- Rougher-cleaner flotation testing to estimate final concentrate grades and possible impurities
- Blended flotation testing at the expected ratio of Saúva to Chapada material
- Possible locked cycle flotation testing of the blended feed
- Dewatering tests to confirm that current thickener/filtration capacities are adequate

Additional testing on all three Suruca ore types should be undertaken to better estimate expected plant performance.

25.4 Project Infrastructure

Further studies should be implemented to improve the understanding of stability, environmental implications and cost requirements of the in-pit TSF.

25.5 Environmental Recommendations and Work Plans

Future work plans to improve the environmental aspects of the Chapada Mine and Saúva Project should include:

- Enhance Water Management: Continue to explore and implement alternatives to reduce stored water within the site, including the installation of evaporators and the development of effluent treatability studies. Ensure that the water balance model is regularly updated and validated to support effective mine planning.
- Improve Monitoring Programs: Enhance the accuracy and reliability of monitoring programs by addressing identified gaps in data collection and maintenance. Implement recommendations from recent studies to improve the quality assurance and quality control protocols for water quality monitoring.

- Expand Waste Management Strategies: Advance the permitting process for new waste rock dumps and disposal strategies to accommodate future waste production. Incorporate closure concepts into the design of new facilities to minimize future closure costs and environmental liabilities.
- Strengthen Community Engagement: Continue to engage with the local community through the established grievance mechanism and social communication programs. Address community concerns related to noise, dust, and water quality, and provide regular updates on the progress of mitigation measures.
- Optimize Closure Plan: Regularly review and update the closure plan to incorporate new information and best practices. Explore opportunities to implement progressive closure actions during the LoM to minimize required volumes of covering materials and reduce effluent volumes that need treatment.

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CERTIFICATE OF QUALIFIED PERSON

To accompany the technical report titled "Independent Technical Report for the Chapada Mine and Saúva Copper-Gold Project, Northern Goiás State, Brazil" with an Effective Date of December 31, 2024 (the "Technical Report").

I, Joycelyn Smith, P.Geo., do hereby certify that:

1. I am a Senior Consultant at SRK Consulting (Canada) Inc. (SRK) with an office at 155 University Avenue, Suite 1500, Toronto, Ontario, Canada M5H 3B7.
2. I graduated from Brock University with a B.Sc. (Honours) degree in Earth Sciences in 2013. I am a graduate of Laurentian University in 2016 with a M.Sc. in Geology focused on an intrusion-related porphyry-style mineral deposit. I have worked as a Geologist for a total of 9 years since my most recent graduation from university. My relevant experience includes database management and assessment of analytical quality control data, geological modeling, geostatistical analyses and mineral resource estimation.
3. I am a Professional Geoscientist registered with the Engineers and Geoscientists British Columbia (EGBC#62513).
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Chapada Project property between July 3-4, 2024.
6. I am a co-author of the Technical Report, responsible for Sections 3 to 11, 13.4, 13.11, 22, 24.1, 25.1, References and portions of the Executive Summary.
7. I am independent of Lundin Mining Corporation applying all of the tests in section 1.5 of NI 43-101.
8. I have not had prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
10. As of the Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contains all scientific and technical information that is required to be disclosed to make the portion of the Technical Report for which I am responsible not misleading.

Dated this 19th day of February, 2025.

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To accompany the technical report titled "Independent Technical Report for the Chapada Mine and Saúva Copper-Gold Project, Northern Goiás State, Brazil" with an Effective Date of December 31, 2024 (the "Technical Report").

I, Oy Leuangthong, Ph.D., P.Eng., do hereby certify that:

1. I am a Corporate Consultant at SRK Consulting (Canada) Inc. (SRK) with an office at 155 University Avenue, Suite 1500, Toronto, Ontario, Canada M5H 3B7.
2. I am a graduate of the University of Toronto in 1998 where I obtained a B.A.Sc. (Honours) in Civil Engineering. I am a graduate of the University of Alberta in 2003 with a Ph.D. in Mining Engineering (Geostatistics). My relevant experience includes research in resource modelling and geostatistics, teaching activities in resource estimation and advanced geostatistics, and since 2010, geostatistical support and modelling for exploration projects and operations in the Americas, Australia, and Africa.
3. I am a Professional Engineer registered with the Engineers and Geoscientists British Columbia (EGBC#62569).
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Chapada Project property between July 3-4, 2024 and October 19-21, 2022.
6. I am a co-author of the Technical Report, responsible for Sections 1, 2, 13 excluding 13.4, 23, 24.1, 25.1 and portions of the Executive Summary.
7. I am independent of Lundin Mining Corporation applying all of the tests in section 1.5 of NI 43-101.
8. I have had prior involvement with the property that is the subject of the Technical Report. In 2022, I was involved in a review of the Mineral Resource model for the Chapada deposit. The result of this review did not get included in a public document.
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
10. As of the Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contains all scientific and technical information that is required to be disclosed to make the portion of the Technical Report for which I am responsible not misleading.

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I, Ignacio Ezama, MAusIMM (CP), do hereby certify that:

1. I am Principal Consultant (Geotechnical Engineer) of SRK Consulting (Argentina) S.A., Ciudad Oeste – Manzana 28 Lote 6, San Lorenzo (4401), Salta, Argentina.
2. I graduated with a degree in Civil Engineering from the University of Buenos Aires in 2012. I have worked as a Engineer for a total of 12 years since my graduation from university. My relevant experience tailings management solutions, including thickened, dry stack, cyclone, co-disposal and conventional tailings covering a variety of commodities in both tropical and arid climates around the world.
3. I am a Member (#324970) and Chartered Professional (CP) in Geotechnical (Mining) according the Australasian Institute of Mining and Metallurgy (AusIMM).
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I have not visited the Chapada Project property.
6. I am a co-author of the Technical Report, responsible for Sections 17.3, 24.5, 25.4 and portions of the Executive Summary.
7. I am independent of Lundin Mining Corporation applying all of the tests in section 1.5 of NI 43-101.
8. I have not had prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
10. As of the Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contains all scientific and technical information that is required to be disclosed to make the portion of the Technical Report for which I am responsible not misleading.

Dated this 19th day of February, 2025.

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To accompany the technical report titled "Independent Technical Report for the Chapada Mine and Saúva Copper-Gold Project, Northern Goiás State, Brazil" with an Effective Date of December 31, 2024 (the "Technical Report").

I, Colleen MacDougall, P.Eng., do hereby certify that:

1. I am a Principal Consultant at SRK Consulting (Canada) Inc. (SRK) with an office at 155 University Avenue, Suite 1500, Toronto, Ontario, Canada M5H 3B7.
2. I am a graduate of McGill University in Montreal, Quebec, Canada with a BEng in Mining in 2006. I have practiced my profession continuously since 2006. I focus on open pit mining engineering projects worldwide. I have been directly involved in technical reviews, audits, and technical studies for base metals projects and operations.
3. I am a Professional Engineer registered with the Engineers and Geoscientists British Columbia (#62292).
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Chapada Project property between July 3-4, 2024.
6. I am responsible for Sections 14, 15, 17 excluding 17.3, 18, 20, 21, 24.2, and 25.2 and portions of the Executive Summary.
7. I am independent of Lundin Mining Corporation applying all of the tests in section 1.5 of NI 43-101.
8. I have not had prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
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Dated this 19th day of February, 2025.

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To accompany the technical report titled "Independent Technical Report for the Chapada Mine and Saúva Copper-Gold Project, Northern Goiás State, Brazil" with an Effective Date of December 31, 2024 (the "Technical Report").

I, Adrian Dance, P.Eng., do hereby certify that:

1. I am a Principal Consultant (Metallurgy) with the firm of SRK Consulting (Canada) Inc. with an office at 26th Floor, 320 Granville Street, Vancouver, British Columbia, Canada.
2. I am a graduate of the University of British Columbia in 1987 and the University of Queensland in 1991 where I obtained a BASc in Mineral Processing and a PhD in Mineral Processing. I have practiced my profession continuously since 1991 where I have both worked at copper processing operations in Canada and Peru as well as consulted on a range of copper-gold processing projects around the world.
3. I am a Professional Engineer registered with the Engineers and Geoscientists British Columbia (EGBC#37151).
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I have not visited the Chapada Project property.
6. I am a co-author of the Technical Report, responsible for Sections 12, 16, 24.3, 24.4, 25.3, and portions of the Executive Summary.
7. I am independent of Lundin Mining Corporation applying all of the tests in Section 1.5 of NI 43-101.
8. I have had prior involvement with the property that is the subject of the Technical Report. In 2022, I completed a review of metallurgical recoveries related to the Mineral Resource estimate. The result of this review did not get included in a public document.
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
10. As of the Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contains all scientific and technical information that is required to be disclosed to make the portion of the Technical Report for which I am responsible not misleading.

Dated this 19th day of February, 2025.

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I, Thiago Toussaint Marcelino Moreira, MAusIMM CP(Env), do hereby certify that:

1. I am Principal Environmental Engineer in SRK Consultores do Brasil Ltda, located at Rua Gonçalves Dias, 89, 10th floor, Funcionários, Belo Horizonte, Minas Gerais, Brazil.
2. I am graduate of Universidade FUMEC, Brazil, in 2008 with a degree in Environmental Engineering and in 2022 with a Master of Science degree of Universidade Federal de Minas Gerais in Water Resources. I have worked as a professional Environmental Engineer for over 17 years since my graduation. My relevant experience includes, environmental management and planning, environmental geochemistry, water management, mine closure and permitting.
3. I am a Member (#335799) and Chartered Professional (CP) in Environment according the Australasian Institute of Mining and Metallurgy (AusIMM).
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I have visited the Chapada Project property on October 19 to 21, 2022.
6. I am a co-author of the Technical Report, responsible for Sections 19, 24.6, 25.5 and portions of the Executive Summary.
7. I am independent of Lundin Mining Corporation applying all of the tests in section 1.5 of NI 43-101.
8. I have had prior involvement with the property that is the subject of the Technical Report. In 2022, I was involved in a review of the Environmental, Social and Permitting aspects for the Chapada project. The result of this review did not get included in a public document.
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
10. As of the Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contains all scientific and technical information that is required to be disclosed to make the portion of the Technical Report for which I am responsible not misleading.

Dated this 19th day of February, 2025.

["*original signed and sealed*"]

Thiago Toussaint M. Moreira, MSc., MAusIMM CP(Env)