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ORoCO

Santo Tomás Copper Project

NI 43-101 Technical Report and Preliminary Economic Assessment Update

Sinaloa/Chihuahua/Sierra Madre Occidental Region, Mexico

Effective Date: August 15, 2024

Report Date: August 20, 2024

Prepared for:
Oroco Resource Corporation
1201-1166 Alberni Street
Vancouver, British Columbia, Canada, V6E 3Z3

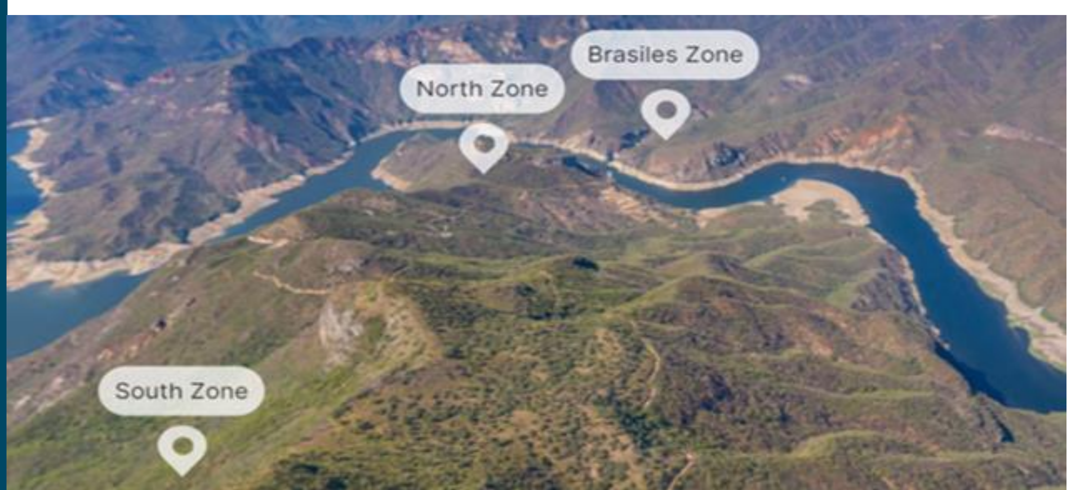
Prepared by:
Ausenco Engineering USA South Inc.
595 S. Meyer Avenue
Tucson, Arizona, 85701 USA

List of Qualified Persons:

James Arthur Norine, P.E., Ausenco Engineering USA South Inc.
Peter Mehrfert, P. Eng., Ausenco Engineering Canada ULC
James Millard, M. Sc., P. Geo., Ausenco Sustainability ULC
Scott C. Elfen, P.E., Ausenco Engineering Canada ULC
Andy Thomas, M. Eng., P. Eng., SRK Consulting (Canada), Inc.
Fernando Rodrigues, BS Mining, MBA, MMSAQP, SRK Consulting (U.S.), Inc.
Ron Uken, PhD, PrSciNat, SRK Consulting (Canada), Inc.
Scott Burkett, RM-SME B.Sc. Geology, SRK Consulting (U.S.), Inc.

***Notice to the Reader:**

This report replaces the “Santo Tomás Copper Project NI 43-101 Technical Report and Preliminary Economic Assessment Update Sinaloa/Chihuahua/Sierra Madre Occidental Region, Mexico” filed on August 20, 2024. Please note the words, “North Zone” have been corrected in some instances to state, “South Zone”, throughout the text where applicable.



CERTIFICATE OF QUALIFIED PERSON
James Arthur Norine, P.E.

I, James Arthur Norine, P.E., certify that I am employed as Vice President, Southwest USA with Ausenco Engineering USA South Inc. (“Ausenco”), with an office address of 595 S. Meyer Avenue, Tucson, Arizona, USA.

1. This certificate applies to the technical report titled, “Santo Tomás Copper Project, NI 43-101 Technical Report and Preliminary Economic Assessment Update” (the “Technical Report”), prepared for Oroco Resource Corporation (the “Company”) that has an effective date of August 15, 2024, (the “Effective Date”).
2. I graduated from Northern Arizona University, Flagstaff, Arizona with a B.S. in Mechanical Engineering.
3. I am a registered Professional Engineer in the State of Arizona, USA, license #42008.
4. I have practiced my profession for 23 years. My relevant experience includes Mechanical Engineering and Project Management as they relate to the Delivery of Base and Precious Metals Processing plants in North America. I have practiced Mechanical Engineering and Project Management for over 23 years. I have worked for previous engineering consulting and construction management companies for over 18 1/2 years and over 4 years for Ausenco Engineering. I have been working in my profession continuously since 2000.
5. I have read the definition of “Qualified Person” set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects (“NI 43-101”) and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a “Qualified Person” for those sections of the Technical Report that I am responsible for preparing.
6. I visited the Santo Tomás site between September 21, 2023 – September 23, 2023.
7. I am responsible for 1.1, 1.2, 1.13, 1.14.1, 1.14.2, 1.16.1, 1.16.3, 1.17.1, 1.17.2, 1.18.7, 1.18.8.4, 1.18.8.7, 1.19.1, 2.1 - 2.3, 2.4.1, 2.5, 2.8, 3.3, 5, 18.1, 18.2.1, 18.2.3, 18.2.4, 18.2.5, 18.3.1, 18.3.3 - 18.3.7, 19, 21.1, 21.2.1, 21.2.3, 21.3.1, 21.3.4, 21.3.5, 22, 24, 25.8, 25.10.3, 25.11.5, 25.11.10, 25.11.11, 25.12.6, 25.12.8, 26.5.1, 26.5.2.2, and 27 of the Technical Report.
8. I am independent of the Company as independence is defined in Section 1.5 of NI 43-101.
9. I have been previously involved with the Company serving as a QP and contributing author on the Santo Tomás NI 43-101 Technical Report with an effective date of April 21, 2023, and Santo Tomás PEA NI 43-101 Technical Report with an effective date of December 1, 2023.
10. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Date: August 20, 2024.

“Signed and Sealed”
James Arthur Norine, P.E.

CERTIFICATE OF QUALIFIED PERSON
Peter Mehrfert, P.Eng.

I, Peter Mehrfert, P. Eng., certify that I am employed as a Process Engineer with Ausenco Engineering Canada ULC (“Ausenco”), with an office at 1050 W Pender St, Vancouver, BC V6E 3S7.

1. This certificate applies to the technical report titled, “Santo Tomás Copper Project, NI 43-101 Technical Report and Preliminary Economic Assessment Update” (the “Technical Report”), prepared for Oroco Resource Corporation (the “Company”) that has an effective date of August 15, 2024, (the “Effective Date”).
2. I graduated from the University of British Columbia in 1996 where I obtained a Bachelor of Applied Science in Mining and Mineral Process Engineering.
3. I am a Professional Engineer, registered with Engineers and Geosciences of British Columbia, member number 24527.
4. I have practiced my profession continuously for 28 years and have been involved in the design, evaluation, and operation of mineral processing facilities during that time. Approximately half of my professional practice has been the supervision and management of metallurgical test work related to feasibility and prefeasibility studies of projects involving flotation technologies. Previous copper projects that I have worked on that have similar features to Santo Tomás are Gibraltar, Mt Milligan, Jose Maria, and Highland Valley Copper.
5. I have read the definition of “Qualified Person” set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects (“NI 43-101”) and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a “Qualified Person” for those sections of the Technical Report that I am responsible for preparing.
6. I have not visited the Santo Tomás Property.
7. I am responsible for 1.9, 1.12, 1.18.4, 1.18.8.2, 1.19.1, 13, 17, 21.3.4, 25.4, 25.7, 25.10.2, 25.11.2, 25.11.4, 25.12.2, 25.12.4, 26.3, 26.5.2.1, and 27 of the Technical Report
8. I am independent of the Company as independence is defined in Section 1.5 of NI 43-101.
9. I have been previously involved with the Company serving as a QP and contributing author on the Santo Tomás NI 43-101 Technical Report with an effective date of April 21, 2023, and the Santo Tomás PEA NI 43-101 Technical Report with an effective date of December 1, 2023.
10. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Date: August 20, 2024.

“Sign and Sealed”

Peter Mehrfert, P. Eng.

CERTIFICATE OF QUALIFIED PERSON

James Millard, M. Sc, P. Geo.

I, James Millard, P. Geo., certify that I am employed as a Director, Strategic Projects with Ausenco Sustainability ULC, a wholly owned subsidiary of Ausenco Engineering Canada ("Ausenco"), with an office address of Suite 100, 2 Ralston Avenue, Dartmouth, NS, B3B 1H7, Canada.

1. This certificate applies to the technical report titled, "Santo Tomás Copper Project, NI 43-101 Technical Report and Preliminary Economic Assessment Update" (the "Technical Report"), prepared for Oroco Resource Corporation (the "Company") that has an effective date of August 15, 2024 (the "Effective Date").
2. I graduated from Brock University in St. Catharines, Ontario in 1986 with a Bachelor of Science in Geological Sciences, and from Queen's University in Kingston, Ontario in 1995 with a Master of Science in Environmental Engineering.
3. I am a member (P. Geo.) of the Association of Professional Geoscientists of Nova Scotia, Membership No. 021.
4. I have practiced my profession for 25 years. I have worked for mid- and large-size mining companies where I have acted in senior technical and management roles, in senior environmental consulting roles, and provided advise and/or expertise in a number of key subject areas. These key areas included: feasibility-level study reviews; NI 43-101 report writing and review; due diligence review of environmental, social, and governance areas for proposed mining operations and acquisitions, and directing environmental impact assessments and permitting applications to support construction, operations, and closure of mining projects. In addition to the above, I have been responsible for conducting baseline data assessments, surface and groundwater quantity and quality studies, mine rock geochemistry and water quality predictions, mine reclamation and closure plan development, and community stakeholder and Indigenous peoples' engagement initiatives. Recently, I acted in the following project roles: Qualified Person for the environmental/sustainability aspects for "Puquios Project, Feasibility Study Report, La Higuera, Coquimbo Region, Chile", "Volcan Project, NI 43-101 Technical Report on Preliminary Economic Assessment, Tierra Amarilla, Atacama Region, Chile" and, "Colomac Gold Project, NI 43-101 Technical Report and Preliminary Economic Assessment, Northwest Territories, Canada"; and principal author for the environmental/sustainability sections for the "Kwanika-Stardust Project, NI 43-101 Technical Report and, Preliminary Economic Assessment, British Columbia, Canada".
5. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
6. I have not visited the Santo Tomás site.
7. I am responsible for 1.15, 1.18.8.6, 1.19.1, 3.2, 20, 25.9, 25.11.9, 25.12.7, 26.8, and 27 of the Technical Report.
8. I am independent of the Company as independence is defined in Section 1.5 of NI 43-101.
9. I have been previously involved with the Company serving as a QP and contributing author on the Santo Tomás PEA NI 43-101 Technical Report with an effective date of December 1, 2023.
10. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Date: August 20, 2024.

"Signed and Sealed"
James Millard, M. Sc, P. Geo.

Ausenco

CERTIFICATE OF QUALIFIED PERSON
Scott Cameron Elfen, P.E.

I, Scott Cameron Elfen, P.E., certify that I am employed as the Global Lead Geotechnical and Civil Services within Ausenco Engineering Canada ULC with ("Ausenco"), with an office address of 1050 West Pender Street, Suite 1200, Vancouver, BC V6E 3S7, Canada.

1. This certificate applies to the technical report titled, "Santo Tomás Copper Project, NI 43-101 Technical Report and Preliminary Economic Assessment Update" (the "Technical Report"), prepared for Oroco Resource Corporation (the "Company") that has an effective date of August 15, 2024, (the "Effective Date").
2. I graduated from the University of California, Davis, California, in 1991 with Bachelor of Science degree in Civil Engineering (Geotechnical).
3. I am a Registered Civil Engineer in the State of California (license no. C56527) by exam since 1996 and I am also a member in good standing of the American Society of Civil Engineers (ASCE), and the Society for Mining, Metallurgy & Exploration (SME).
4. I have practiced my profession continuously for 26 years with experience in the development, design, construction and operations of mine waste storage facilities, such as waste rock storage facilities and tailings storage facilities ranging from slurry to dry stack facilities, focusing on precious and base metals, both domestic and international. In addition, I have developed geotechnical design parameters for pit slope design, plant foundation design, and other supporting infrastructure. Examples of projects I have worked on include Skeena's Eskay Creek Project PEA, PFS and FS, O3 Mining's Marban Project PEA and PFS, First Mining Gold's Springpole PEA and PFS. SSR Mining's Puna Silver In-Pit Tailings Disposal PFS, and Detailing Engineering, and the Company's Cangrejos Project PEA.
5. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
6. I have not visited the Santo Tomás Project.
7. I am responsible for sections 1.13, 1.18.8.5, 1.19.1, 18.2.2, 18.3.2, 18.3.8, 18.3.9, 18.3.10, 21.3.3, 25.8, 25.11.6-25.11.8, 25.12.5, 26.6.1 - 26.6.3, 26.7, and 27 of the Technical Report.
8. I am independent of Oroco Resource Corp. as independence is described by Section 1.5 of the NI 43-101.
9. I have been previously involved with the company serving as a QP and contributing author to the 2023 PEA Technical Report (Ausenco, 2023) for the Santo Tomás Project.
10. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Date: August 20, 2024.

"Signed and Sealed"

Scott Cameron Elfen, P.E.

CERTIFICATE OF QUALIFIED PERSON

Andy Thomas, M. Eng., P.Eng.

I, Andy Thomas, M.Eng., P.Eng., certify that I am employed as a Principal Consultant (Rock Mechanics) with SRK Consulting (Canada) Inc. ("SRK"), with an office address of 2600-320 Granville Street, Vancouver, BC V6C 1S9.

1. This certificate applies to the technical report titled, "Santo Tomás Copper Project, NI 43-101 Technical Report and Preliminary Economic Assessment Update" (the "Technical Report"), prepared for Oroco Resource Corporation (the "Company") that has an effective date of August 15, 2024 (the "Effective Date").
2. I graduated from the University of Adelaide in Adelaide, Australia in 2004 where I obtained a Bachelor of Engineering (Civil & Environmental) and a Bachelor of Science (Geology). I am also a graduate of The University of British Columbia in Vancouver, Canada in 2014 where I obtained a Master of Engineering (Geological).
3. I am a Professional Engineer of Engineers and Geoscientists British Columbia, license #44961.
4. I have practiced my profession for eighteen years. I have been directly involved in pit geotechnical studies and technical reports for open pit projects and mines worldwide.
5. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
6. I visited the Santo Tomás Project site between 21 and 24 May 2022 for a visit duration of four days.
7. I am responsible for 1.11.3, 1.18.5, 1.19.1, 2.4.2, 16.2, 26.4.3, and 27 of the Technical Report.
8. I am independent of Oroco Resource Corp. as independence is defined in Section 1.5 of NI 43-101.
9. I have been previously involved with the Company serving as a QP and contributing author on the Santo Tomás PEA NI 43-101 Technical Report with an effective date of December 1, 2023.
10. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Date: August 20, 2024.

"Signed and Sealed"

Andy Thomas, M.Eng., P.Eng.

CERTIFICATE OF QUALIFIED PERSON
Fernando Rodrigues, BS Mining, MBA, MMSAQP

I, Fernando Rodrigues, BS Mining, MBA, MMSAQP do hereby certify that, certify that I am employed as a Practice *Leader and Principal Consultant (Mining Engineer) of SRK Consulting (U.S.), Inc., 999 Seventeenth Street, Suite 400, Denver, CO, USA, 80202*.

1. This certificate applies to the technical report titled "Santo Tomás Copper Project NI 43-101 Technical Report and Preliminary Economic Assessment Update" with an Effective Date of August 15, 2024 (the "Technical Report").
2. I graduated with a Bachelor of Science degree in Mining Engineering from South Dakota School of Mines and Technology in 1999.
3. I am a QP member of the Mining and Metallurgical Society of America (MMSA). I have worked as a Mining Engineer for a total of 25 years since my graduation from South Dakota School of Mines and Technology in 1999. My relevant experience includes mine design and implementation, short term mine design, dump design, haulage studies, blast design, ore control, grade estimation, database management, equipment selection and mining cost estimation.
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 did not visit the Santo Tomás property.
6. I am responsible for Sections 1.11.1, 1.11.2, 1.16.2, 1.18.6, 1.18.8.3, 1.19.1, 16.1, 16.3 - 16.8, 21.2.2, 21.3.2, 25.6, 25.10.1, 25.11.3, 25.12.3, 26.4.1, 26.4.2, and 27 of the Technical Report.
7. I am independent of the issuer 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 aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Date: August 20, 2024.

"Signed and Sealed"

Fernando Rodrigues, BS Mining, MBA, MMSAQP

CERTIFICATE OF QUALIFIED PERSON

Ron Uken, Ph.D., Pr. Sci. Nat.

I, Ronald Uken, Pr.Sci.Nat., certify that I am a Principal Consultant employed as a Structural Geologist with SRK Consulting (Canada) Inc., with an office address of 2600-320 Granville St., Vancouver, BC V6C 1S9.

1. This certificate applies to the technical report titled, "Santo Tomás Copper Project, NI 43-101 Technical Report and Preliminary Economic Assessment Update" (the "Technical Report"), prepared for Oroco Resource Corporation (the "Company") that has an effective date of August 15, 2024, (the "Effective Date").
2. I graduated from the University of Natal (KwaZulu-Natal), South Africa in 1999 with a Ph.D. in the Faculty of Science, (Structural and Metamorphic Geology). I am a Professional Scientist of the South African Council for Natural Scientific Professions for Geological Sciences (Reg. No 400322/11)
3. I have practiced my profession for 24 years since graduating with a Ph.D. My relevant experience includes employment in academia and as a consultant to the mining industry. My specialization is in structural mapping and 3D structural modelling of ore deposits. This includes the application of structural geology to exploration, mineral resource estimation, geotech and hydrogeology. I have worked on a range of precious and base metal projects throughout Africa, the Middle East, and the Americas, offering structural geology support as well as working with site geologists assisting with mapping, data collection, logging, and structural interpretation.
4. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
5. I visited the Santo Tomás project site between January 19 to January 24, 2022; March 29 to April 11, 2022; and March 28 to April 3, 2023, for a total duration of 26 days.
6. I am responsible for 1.4, 1.18.1, 2.4.3, 7, 8, 9, 23, 25.2, and 27 of the Technical Report.
7. I am independent of the Company as independence is defined in Section 1.5 of NI 43-101.
8. I have been previously involved with the Company serving as a QP and contributing author on the Santo Tomás NI 43-101 Technical Report with an effective date of April 21, 2023, and the Santo Tomás PEA NI 43-101 Technical Report with an effective date of December 1, 2023. In addition, I was directly involved with assisting the Company with surface geological and structural mapping, drill core investigation and interpretation. I undertook structural modelling and assisted with interpreting the structural controls on mineralisation as inputs into the resource estimation.
9. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument.
10. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Date: August 20, 2024.

"Signed"

Ron Uken, Principal Consultant, Ph.D., Pr.Sci.Nat.

CERTIFICATE OF QUALIFIED PERSON
Scott Burkett, RM-SME B.Sc. Geology

I, Scott Burkett, B.Sc. Geology, SME-RM, certify that I am employed as a I am Principal Consultant of SRK Consulting (U.S.), Inc., 999 Seventeenth Street, Suite 400, Denver, CO, USA, 80202.

1. This certificate applies to the technical report titled, "Santo Tomás Copper Project, NI 43-101 Technical Report and Preliminary Economic Assessment Update" (the "Technical Report"), prepared for Oroco Resource Corporation (the "Company") that has an effective date of August 15, 2024, (the "Effective Date").
2. I graduated with a degree in B.S Geology from University of Idaho in 2007. I am a Registered Member of the Society for Mining, Metallurgy & Exploration. I have worked as a Geologist for a total of 17 years since my graduation from university. My relevant experience includes mineral exploration, QA/QC and mineral resource estimates.
3. I am a *Registered Member* of *Society for Mining, Metallurgy & Exploration*
4. I have practiced my profession for 17 years. I have been directly involved in mineral exploration, QA/QC and mineral resource estimates as a consultant for seven years and as Vice President of Exploration for four years. My relevant experience included developing and reviewing geologic models, resource models and mineral resource estimation for mineral projects in North and South America and Europe since 2014. Relevant projects include:
    a. Santo Tomas, Sinaloa and Chihuahua Mexico 2023 OP Cu
    b. Ocelot, Arizona 2023 UG Cu
    c. Copper Cities, Arizona 2022 OP Cu
    d. Miami East, Arizona 2022 UG Cu
    e. Rudnica, Serbia 2019 OP Cu
5. I have read the definition of "Qualified Person" set out in the National Instrument 43-101 Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for those sections of the Technical Report that I am responsible for preparing.
6. I visited the Santo Tomás property on March 30, 2023, for three days.
7. I am responsible for 1.3, 1.5 - 1.8, 1.10, 1.18.2, 1.18.3, 1.18.8.1, 1.19.1, 2.4.4, 2.6, 2.7, 3.1, 4, 6, 10, 11, 12, 14, 15, 25.1, 25.3, 25.5, 25.11.1, 25.12.1, 26.1, 26.2, and 27 of the Technical Report.
8. I am independent of the Company as independence is defined in Section 1.5 of NI 43-101.
9. I have been previously involved with the Santo Tomás serving as a QP for the MRE in the Santo Tomás NI 43-101 Technical Report date of April 21, 2023 (the "Effective Date") and Santo Tomás PEA NI 43-101 Technical Report date of December 1, 2023.
10. I have read NI 43-101 and the sections of the Technical Report for which I am responsible have been prepared in compliance with that Instrument. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the sections of the Technical Report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the Technical Report not misleading.

Date: August 20, 2024.

"Signed and Sealed"

Scott Burkett, B.Sc. Geology, SME-RM

Important Notice

This report was prepared as National Instrument 43-101 Technical Report for Oroco Resource Corporation (Oroco) by Ausenco Engineering USA South Inc., Ausenco Engineering Canada ULC, Ausenco Sustainability ULC, SRK Consulting (Canada), Inc., SRK Consulting (U.S.), Inc., collectively the Report Authors. The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in the Report Authors' services, 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 Oroco subject to terms and conditions of its contracts with each of the Report Authors. Except for the purposes legislated under Canadian provincial and territorial securities law, any other uses of this report by any third party are at that party's sole risk.

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1 SUMMARY

1.1 Introduction

This document was prepared as a Canadian National Instrument 43-101 (NI 43-101) Technical Report on a Preliminary Economic Assessment (PEA) for Oroco Resource Corporation (Oroco or the Company) by Ausenco Engineering USA South Inc., Ausenco Engineering Canada, ULC and Ausenco Sustainability, ULC (collectively Ausenco), SRK Consulting (US), Inc., and SRK Consulting (Canada) (collectively SRK) on the Santo Tomás Project (the Project).

The responsibilities of the engineering companies who were contracted by Oroco to prepare this updated technical report are as follows:

- Ausenco managed and coordinated the work related to the report. Ausenco reviewed the metallurgical test results, site-related environmental studies, site topography (including developing an overall site water balance) and permitting status to develop a PEA-level design, recovery methods, PEA-level capital and operating cost estimates and financial analysis for the Project’s requisite process plant along with the general on- and off-site infrastructure including the tailings and waste rock storage facilities.
- SRK completed the data verification work and developed the Mineral Resource Estimate and Statement for the Project. This included data verification of the drilling, exploration program, sample preparation and analysis, and geological interpretation. SRK also developed the mine plan and associated mine cost model. SRK completed the work related to geological setting, deposit type, exploration, and mapping work.

1.2 Property Description and Location

The Santo Tomás Property (the Property) is in the municipality of Choix, in northern Sinaloa State, Mexico. The Property is centered at latitude 26°53’00” North (N) and longitude 108°11’30” West (W). The Property comprises concessions with a total of 1,172.9 hectares (ha), covering the initial area of exploration and the area of the Santo Tomás North and South porphyry copper mineralization.

Access to the Property is by way of a 170-kilometer (km) paved highway and a two-lane road from the Pacific Ocean Port of Topolobampo, through the city of Los Mochis to the northern town of Choix. The southern end of the Property is reached either by an access road, originally built to service the El Sauzal Mine of Goldcorp in the state of Chihuahua or by using the current access road that passes through Cajón de Cancio and Rancho La Soledad. Total distance from El Ranchito to the Project site is 38 km along mostly unimproved but maintained dirt roads.

The Property area is mountainous and part of the southwestern Sierra Madre Occidental (SMO). The topography of the area is deeply incised. Steep-walled valleys rise in elevation from Río Fuerte, at 220 meters above sea level (masl), to 1,340 masl at the El Bienestar Ranch.

1.3 Mineral Tenure and Ownership

One hundred percent of the legal title of the Core Concessions Santo Tomás, Bob, Roberto Verde, Esme, Karisu, Karisu Fracc 1 and Toña, have been registered to Xochipala Gold (XG), an Oroco subsidiary since March 2, 2020 (1,172.9 ha). Oroco indirectly (via subsidiaries) holds 95% of the issued shares of XG (5% are held by a Mexican individual). XG's 100% legal title is subject to a 10% contractual (not registered) interest in favour of third parties. Oroco holds a net 85.5% interest in the Core Concessions (95% in XG multiplied by 90% net interest in the concessions).

1.4 Geology and Mineralization

Porphyry copper (Cu), molybdenum, gold, and silver (Mo-Au-Ag) mineralization on the Property is closely associated with intrusives linked to the Late Cretaceous to Paleocene (90 to 40 Ma) Laramide orogeny. Santo Tomás and most of the known porphyry copper deposits in Mexico lie along a 1,500 km-long, NNW trending belt sub-parallel to the western coast of Mexico extending from the southwestern United States through to the state of Guerrero in Mexico. The tectonomagmatic evolution of this belt is linked to the accretion of allochthonous terranes, onto the continental margin of North America in the Mesozoic and earliest Cenozoic, the largest represented by the Guerrero Composite Terrane. More specifically the Santo Tomás Property lies within the Tahue Terrane, a subterrane of the Guerrero Composite Terrane. This comprises a basement of Paleozoic accreted sedimentary rocks and Triassic rift-related, meta-igneous rocks. These basement strata are unconformably overlain by Middle Jurassic and Early Cretaceous age arc-related rocks of the Guerrero Arc (Ortega-Gutiérrez et al., 1979; Henry and Fredrikson, 1987; Roldán-Quintana et al., 1993; Freydier et al., 1995). Island arc-related strata, comprising volcanic and volcaniclastic sequences of oceanic affinity and associated intrusive plutonic suites were accreted onto North America in the Late Cretaceous during the Laramide orogeny (Campa and Coney, 1983; Centeno-García et al., 1993). Exposed batholiths and associated stock and dykes form a NW-SE trending belt; the most extensive represented by the Sinaloa-Sonora Laramide batholith complex (Anderson and Silver, 1969; Gastil and Krummenacher, 1977; Valencia-Moreno et al., 2003; Ramos-Velázquez et al., 2008). Laramide contraction was followed by Basin and Range Province extension. This was associated with the eruption and deposition of an extensive middle Cenozoic (Tertiary) volcano-sedimentary sequence, the SMO volcanic province, comprising andesitic volcaniclastics and flows, rhyolite ignimbrites, and intercalated sediments.

In the Santo Tomás area, Mesozoic-aged country rocks, comprising limestone, marble bodies, sandstones, and large volumes of andesitic volcanic rocks were intruded by a range of Laramide-age intrusions including the extensive Sinaloa-Sonora Batholith. Multiple phases are recognized ranging from dioritic to monzonitic in composition. At Santo Tomás, the dominant intrusive lithology, closely associated with mineralization, is a Late Cretaceous (~75 Ma) quartz-monzonite. Mineralization is strongly structurally controlled by the Laramide-age deformation which controlled both the emplacement of the quartz-monzonite dyke system and related hydrothermal alteration, hydrothermal breccias, and sulphide mineralization. Sulphides are dominated by pyrite-chalcopyrite–(molybdenite) with minor bornite, covellite, and chalcocite distributed in quartz-monzonite and altered andesite country rock. Alteration comprises extensive zones of potassic, phyllic, propylitic, silica-albite and argillic hydrothermal alteration. Mineralization forms a tabular, south-southeast (SSE) striking, west-southwest (WSW) dipping zone primarily defined by finely disseminated sulphides and fracture-fillings with subordinate sulphides hosted in stockwork quartz veinlets. Minor mineralization is associated with skarn and replacement-style mineralization in the hanging wall limestone. Copper oxides occur near the surface.

Oroco, together with SRK, undertook a detailed mapping campaign on the Property. All mapping data were compiled into an ArcGIS project, comprising lithology and structural orientation data, and included active links to field photographs. All data were imported into 3D software (Leapfrog Geo™) and integrated with high-resolution drone data, lineament analysis data, geophysics data and drill hole data to further constrain lithology domains, contacts and structures and inform the lithostructural modeling and resource modeling process.

1.5 History - Exploration Programs

1.5.1 Exploration Programs

Santo Tomás has attracted the attention of mining companies since the late 1960's, though artisanal mining is evident in the main zone of mineralization. These workings are believed to date back to the early 1900's. Workings observed, typically exploited high-grade oxide copper (Ox-Cu) mineralization hosted in what appear to be breccias associated with mass wasting and collapse of large sections of limestone. Extensive zones of oxide copper at surface were likely the original attraction to the area.

Numerous companies carried out significant drilling programs and evaluation efforts. These drilling programs, resource estimates and mining engineering studies initially formed the basis for the re-evaluation of the deposit by Oroco. Approximately 60% of historic core was available. Historical engineering work culminated in a series of metallurgical test work, historic resource estimations based on an additional 4,000 m of drilling in 40 holes completed in 1993/94 (33 reverse circulation drill holes +7 diamond drill holes).

In 2010, John Thornton (Thor Resources LLC) compiled all the historical documentation and issued a Mineral Resource Estimate (MRE). This resource is classified as an historical estimate the qualified person has not done sufficient work to classify the historical estimate as current. The mineral resources are superseded by the resource presented in Section 14 of this report. The exploration history is summarized in Table 1-1.

Table 1-1: Project Historical Technical Work and Studies

Year	Company	Work	Results
Early 1900's	Artisanal Miners	High-grade Ox-Cu Mining	No information on tonnes of material removed
1968 to 1971	ASARCO	Road Building and drilling, 43 vertical diamond core holes and 16 vertical rotary percussion holes, 15,088 m total drilling	Property relinquished in 1973 after spending 1 million dollars
1973 to 1977	Tormex - Peñoles	26 ASARCO holes re-logged. 5,336 m of 1/2 core split and assayed. 2,401 m of new drilling in 7 holes	New resource estimation undertaken. No information available. Property relinquished
1973	Davidge and Clark	Preliminary Geology and Mineralization of the Choix Area	Presumably data collected was capture by the governmental mapping program
1975	Lakefield Research (Canada)	Metallurgical test work, microscopic evaluation & recovery of Cu	Chalcopyrite is 3% weight of sample and 95% of rougher flotation Cu recoveries for grind size 60% minus 200 mesh, head grade 1% Cu
1990	Esmeralda Group	Review and updating geological sections and plans	No information available

Year	Company	Work	Results
1991	Minera Real De Ángeles	Re-logged 12 ASARCO holes and re-assayed 2 holes	There was a correlation between new assay results and those reported previously
1992	Exall Resources Limited	Acquired property	--
1993	Exall Resources Limited	4,000 m of 33 reverse circulation drill holes and 7 diamond drill holes	MRE completed
1993	Exall Resources Limited	Bateman Engineering Inc. retained to undertake a Prefeasibility Study (PFS)	Metallurgy and Mine plan produced
1994	Exall Resources Limited	Metallurgical test work performed by Minetek S.A. de C.V. and Mountain States Research and Development	Test work indicated 90.7% Cu recovery rate using standard concentration methods at 200 mesh resulting in a 28% Cu concentrate from a 0.56% Cu feed grade composite sample
1994	Exall Resources Limited	Preliminary pit constrained mineral resource developed on previous Tormex and ASARCO drilling	Deposit evaluated as two pits: North and South. An estimate of the mineral resources was reported
2011	Thor Resources LLC	Technical Report and mineral resource estimation (historical)	MRE completed

1.6 Exploration and Drilling

1.6.1 Drilling History

Drilling campaigns were conducted by ASARCO, Tormex, and Exall Resources Limited (Exall) between 1968 and 1993, with the most recent pre-Oroco drilling completed by Exall in 1993. A total of 106 drill holes (reverse circulation, percussion, and diamond drill holes, collectively the 'historical' or 'legacy' drill holes) were completed on the Property (Thornton, 1994). ASARCO completed sixteen percussion holes in the late 1960s to early 1970s, but the logs and results for these holes have not been identified (Spring, 1992). The historical Santo Tomás drill hole database contains information on 90 drill holes (reverse circulation and diamond drill holes), totaling 21,075 m of lithological data, including 7,244 Cu assays.

Reverse circulation holes drilled up to 1991 are designated herein as the "STD series" drill holes. Exall Resources Limited drilled an additional 40 holes up to 1994, designated herein as the "STE series" drill holes (Table 1-2).

Table 1-2: Historical and Oroco Drilling Campaigns, Total Assays, Holes and Meters Drilled

Historical Drilling	No. of Assays	No. Drill holes	Total Length (m)	Average Length (m)
STD series to 1991	4,707	50	16,004	320
STE series, to 1994	2,537	40	5,071	127
Total Drilling	**7,244**	**90**	**21,075**	**234**

1.6.2 Oroco Drilling

Commencing on July 28, 2021, continuing through March 28, 2023, Oroco completed its Phase 1 drilling campaign which consisted of 76 diamond drill holes with a total of 48,480.88 m. Seven of these holes were drilled for exploration purposes at the Brasiles Zone (5,116.36 m) and have been excluded from consideration in the resource estimation presented in Section 14, as was drill hole GT001, a recent geotechnical hole drilled by Oroco (Table 1-3). The resource estimation reported herein was made using assay data from 68 (43,063 m) of the Phase 1 Oroco drill holes combined with available legacy Cu assay results (29,992 Cu assays in total).

Table 1-3: Oroco Drill Hole Inclusion/Exclusion Table

Inclusion status	Drill holes	Meters
Included	ST21-N001 to ST21-N010, N11 to N047, S001 to S021	43,063
Excluded	GT001, B001 to B007	5,418
Total	**76**	**48,481**

Drill holes ST21-N001 through ST21-N010 and N011 through N047 are located in the Project's North Zone. Holes S001 through S021 are located in the South Zone. Holes B001 through B007 are exploration holes drilled at the Brasiles prospect (a.k.a. Brasiles). Hole GT001 is the first (and so far, the only) geotechnical drill hole on the Project and is located in southern North Zone. Holes B001-B007 and GT-001 are excluded from the mineral resource.

The now complete Phase 1 drilling campaign, undertaken by Oroco (2021 – 2023), has confirmed and extended the distribution of known mineralization at North and South Zones, allowing for the calculation of the resource estimate being presented in this report (albeit the resource estimate excludes hole GT001). B003 is the first significantly mineralized hole for which Oroco has copper assays in the Brasiles prospect area, and so represents the discovery hole at Brasiles.

The latest drilling program statistics (Table 1-4) reflect longer drill holes in general. The change in drill hole orientation to angled rather than vertical, as in previous historical campaigns, increased hole lengths. In general, the new holes were drilled to terminate in the footwall andesites, and not left terminating in mineralization. The Oroco drill holes were drilled approximately orthogonal to the mineralization strike and dip based on new geological models developed using the historical drilling.

Table 1-4: 2021-2023 Core Drilling Program Undertaken by the Oroco Program and Used in the Resource Estimation

Oroco 2021-23 Drilling	No. of Assays	No. Drill holes	Total Length (m)	Average Length (m)
North Zone	14,618	47	30,909	657
South Zone	5,503	21	12,154	578
Total Drilling	**20,121**	**68**	**43,063**	**633**

1.6.3 Exploration by Oroco

Exploration work undertaken by Oroco from 2017 to 2019 is described in Bridge (2020). Since 2019, Oroco conducted an exploration program consisting of remote sensing, and airborne and ground geophysical surveys in preparation for a resource drilling campaign at North and South Zones. With the commencement of resource drilling, surface exploration works mostly comprised selective geological mapping and a seven-drill hole exploration drilling initiative, campaigned at Brasiles. The location of each major contracted remote sensing and geophysical survey is displayed in Section 9.

Remote sensing work included an airborne LiDAR survey used to update and improve the resolution, accuracy, and precision of the Project digital elevation model and orthophotography record. The 342 km^2 LiDAR survey over the Project was flown during the April dry season of 2021. Oroco has used the products of the LiDAR survey to compile a master digital elevation model/digital terrain model (DEM / DTM) for the Project, where it has been used in the Project GIS and three-dimensional (3D) modeling platforms.

Geophysical surveys focused on an airborne magnetometry survey (with surface radiometric emission sensors and very low frequency-electromagnetic (VLF-EM) transmissions receivers) and a targeted (area-constrained) ground-based 3D direct current (DC) electrical resistivity and induced polarization (DCIP) survey. The selection of these geophysical products provided a broad geophysical interpretation of the site's major lithologies (by acquiring passive magnetics and radiometric measurements, especially of potassium (K)), major geological structures (from VLF and resistivity contrasts) and metal-sulphide mineralized units (from chargeability measurements). Secondary alteration was also evidenced in electrical data sets (resistivity) and in alteration forming secondary magnetic iron oxides (magnetics, magnetic remanence effects).

Table 1-5 presents the previous technical work and studies resulting from Oroco's drilling and exploration campaigns between 2017 to 2023.

Table 1-5: Technical Work and Studies by Oroco

Year	Work	Results
2017 – 2019	Access road rebuilding, surveying, field mapping, and radar data acquisition	Enhanced access, accurate data collection, improved geological understanding
2019	Remote sensing, airborne and ground geophysical surveys exploration program	Defined drilling program
2020	Field geological and structural mapping	Mineral Resource Estimation (historical) Technical Report
2022	Detailed structural mapping programme (SRK)	Updated geological and structural map
2021-2023	Core Drilling Program	MRE completed
2022/2023	Regional geological modeling and structural modeling	Used for resource estimation
2022-2023	Metallurgical Test work Program	Developed process design criteria
2023	Mineral resource revised and process flowsheet development	MRE and Preliminary Economic Assessment (PEA) completed

The helicopter-borne magnetics survey comprised approximately 2,022-line km of traverse line flying at a line spacing of 50 m with a 500 m tie-line spacing, totaling approximately 252-line km. A magnetic susceptibility inversion model was developed from the airborne magnetics dataset to assist with exploration and targeting of porphyry Cu mineralization.

A 3D DCIP ground survey of the Project, ultimately covering some 22 km^2 was undertaken between September 2020 and March 2021. The final dataset, with approximately 715,000 pole-dipole data points over the grid, enabled the generation of an unconstrained inversion model that defined areas of chargeability and resistivity (conductivity). These domains were a critical targeting tool for the resource and exploration drilling. A constrained model was subsequently developed and has been used to assist with the definition of major structural features.

Geological mapping and surface channel sampling, as well as the location of historical artisanal mining adits, has been undertaken in support of Project exploration. This work is detailed in Section 7.

1.7 Sample Preparation, Analysis, Security and QA/QC

Sample preparation, analysis, security, and quality assurance/quality control (QA/QC) at Santo Tomás protocols have been reviewed by the QP for the Oroco programs and are considered to follow CIM Mineral Exploration Best Practice Guidelines (2018). There is full chain-of-custody (COC) documentation from the drill rig to the assay laboratory. Drill core cutting, sampling and insertion of standards is fully documented and follows on-site Standard Operating Procedures (SOP). Drill core and standards are held in limited access, locked facilities.

All pulps and coarse rejects from the Oroco drilling program are returned to Choix, cataloged, and stored in a built-for-purpose locked facility. Sample pulps are stored in locked containers. Coarse rejects are stored in large plastic, metal reinforced containers. Drill core samples are fully cataloged, and labeled drill core boxes are stored by hole number under cover in a locked facility.

The submission rate of blanks, Certified Reference Materials (CRMs) and pulp/core/coarse reject duplicates is to industry standard. Lab failures are resolved with re-assays as required according to the Santo Tomás SOP. Results are not publicly released until QA/QC is completed.

Specific gravity (SG), point load, magnetic susceptibility, and Uniaxial Compressive Strength (UCS) data are collected under sampling programs defined in Santo Tomás SOP. Required calibrations and calibration frequencies for the sampling equipment are also defined in the SOPs. Spectral scanner data is collected on a systematic basis to resolve alteration and lithology if needed. Potassium Feldspar staining is undertaken to verify alteration when required.

Drill core logging, cutting, sampling a submission occurs under a well-designed and controlled program.

1.8 Data Verification

The QP reviewed Oroco's internal quality control program for analytical data and drilling survey confidence. The current procedures and protocols in place for data collection and validation are considered acceptable for use in mineral resource estimation.

The QP performed an independent review and validation of a select number of analytical samples to check for congruence and accuracy with the provided drilling database on the Santo Tomás Project. Five percent (5%) of assay intervals were manually checked with original digital assay certificates from the laboratory. All checked assays were deemed acceptable and align with laboratory reported values.

The QP performed statistical analyses on the drilling database to check for potential erroneous data in the collar, down-hole survey, geology/lithology, specific gravity, and assay tables. The review included calculation of descriptive statistics, multiple charts, and review of potential outlier and erroneous data. This validation check aimed to identify errors common among drilling databases including use of zero value, treatment of below detection limits, negative or non-numeric values, extreme outlier identification, and interpretation of the distribution of mineralization across the Property.

1.9 Mineral Processing and Metallurgical Testing

Metallurgical testing of Santo Tomás mineralized materials and host rocks began in 1975 (Bateman, 1994) with a limited amount of metallurgical flotation and acid leaching test work conducted between 1991 and 1994 to support the Prefeasibility Study that Bateman Engineering Incorporated prepared for Exall published in 1994. Ausenco's review of the previous test work found much of it to be conceptual in nature and not suitable to support a modern technical study. As such, a recent test work program was employed to represent an open pit operation proposed for Santo Tomás that would utilize current froth flotation methodology and reagents to produce saleable copper and molybdenum concentrates. Nine spatially representative variability samples were selected from the 2022 drilling campaign and shipped to ALS Metallurgy in Kamloops, BC for subsequent testing in Q3 2022. A Master Composite was then assembled from portions of selected samples to achieve a target feed grade of 0.34 percent copper.

The results of the recent test work program are summarized below:

Mineral composition was measured for all samples using QEMSCAN techniques. Chalcopyrite accounted for at least 98% of the copper observed in the samples. Molybdenite and sphalerite accounted for less than 0.1% of and pyrite accounted for 1.5% of the total mass. A detailed QEMSAN Particle Mineral Analysis (PMA) conducted on the Master Composite sample indicated that chalcopyrite was 40% liberated at a primary grind size of 150 µm and pyrite showed increased liberation levels averaging 61% at this grind size.

Each of the variability samples was tested for comminution properties and a Rod Mill Work Index test was conducted on the Master Composite that returned a value of 18.4 kWh/tonne (kWh/t). The 75th percentile values of Axb & ball mill work index from the variability samples were 30 and 18.3 kWh/t, respectively These data suggests that High Pressure Grinding Roll (HPGR) crushing should be considered over semi-autogenous grinding (SAG) milling for this Project since several of the samples are characterized as hard with respect to impact breakage. Additional test work on South Zone mineralized material is required along with additional single rock type and alteration type samples to better define deposit comminution properties. A comparison of point load testing data between the North and South zones suggests differences in rock hardness implying that the design of the comminution circuit planned for Phase II be investigated further in the next stage of study.

A locked cycle test conducted on the Master Composite achieved a bulk concentrate grading 24.7% copper (Cu) and 0.68% molybdenum (Mo) and recoveries of 82.6% and 61.8% for copper and molybdenum, respectively. The bulk concentrate from the lock cycle test contained 1.1 parts per million (ppm) gold and 114 ppm silver. The current test program did not include copper - molybdenum (Cu-Mo) separation test work.

Final concentrate produced from the Master Composite locked cycle test was analysed for deleterious elements with zinc (Zn) and mercury (Hg) being elevated. These elements have been identified as associated with the skarn materials which have been flagged for exclusion from the mine plan moving forward. Excluding mining of skarn-associated materials, no deleterious elements are anticipated in the concentrate at levels that will impact marketability and payability. However, penalty limits for these elements should be confirmed with a concentrate marketing specialist in conjunction with the mine production schedule.

From the recent variability flotation test work results, Ausenco forecasts the following recoveries which are employed by SRK to develop the mineral resources presented in Section 14:

- Cu Recovery – 83.3%
- Mo Recovery – 59.2%
- Au Recovery – 53.9%
- Ag Recovery – 53.2%

After the publication of the Santo Tomás MRE in 2023, Oroco submitted 420 kg of ¼ and ½ HQ drill core for sulphide & oxide leach test work. Preliminary results from column leach tests performed on low grade sulphide materials demonstrated higher than expected acid consumption suggesting that these materials are not amenable for this process.

Acid-base accounting (ABA) analyses were completed on master composite flotation test products which indicated that the sulphur depleted rougher tailings were not acid generating, however the combined rougher plus cleaner tailings may be acid generating. Further testing is required to understand the acid generation potential of materials placed in the tailings management facility.

1.10 Mineral Resource Estimation

The mineral resource estimation has been prepared by SRK with an effective date of July 23, 2024. The resource estimation is supported by a robust lithostructural model and constraining mineralized geology-grade domains. A full description of the resource estimation methodology is provided in Section 14.

In order to meet the "reasonable prospects for eventual economic extraction" (RPEEE) requirement, the Project has been deemed amenable to open pit mining. Using economic assumptions from Oroco and their consultants, supported by the PEA, an economic cut-off grade (CoG) was calculated at 0.114% Cu. For the purpose of this PEA and to align with consistent reporting from the 2023 MRE and 2023 PEA, the qualified person (QP) and Oroco have elected to maintain an effective CoG of 0.15% Cu. Mineral resources are reported above this effective CoG and constrained by an economic pit shell.

Mineral resources on the Santo Tomás Property have been classified into Indicated and Inferred categories based on Canadian Institute of Mining, Metallurgy, and Petroleum (CIM) Standard Definitions. SRK assigned the resource classification based on geological complexity, confidence in drilling locations and analyses, QA/QC, spatial continuity assessment, mean estimation distance to samples for copper, geometallurgical characterization, and bulk density determination. No measured mineral resources are classified for the Project at this stage of study due to the preliminary nature of the oxide-sulphide boundary assessment, reliance on historical drilling data, and lack of historical multi-element analyses.

The block model used to generate the Mineral Resource Statement (MRS) in this report remains unchanged from the PEA Technical Report effective October 11, 2023. No additional drilling has been added and the estimation methodology remains unchanged. The updated Mineral Resource which has an effective date of July 23, 2024, reflects changes in the assumptions used to define reasonable prospects for eventual economic extraction, to reflect the latest findings. Differences in the MRS shown in Table 1-6 from the previous MRS are due to: 1) inclusion of oxidized mineralization in the North Zone Pit and South Zone Pit and 2) updated economic and pit slope assumptions based on the updated PEA study.

Table 1-6: Mineral Resource Statement for the Santo Tomás Porphyry Copper Project (Effective Date July 23, 2024)

Category	Zone	Tonnes Mt	Average Grade					In-situ Metal(3)				
			CuEq(10) (%)	Cu (%)	Mo (%)	Au (g/t)	Ag (g/t)	CuEq(10) (M lb)	Cu (11) (M lb)	Mo (11) (M lb)	Au(11) (koz)	Ag (11) (koz)
Indicated	North Zone Pit - sulphide	540.6	0.37	0.33	0.008	0.028	2.1	4,465	3,976	95.4	483.4	36,524
	Total Indicated	**540.6**	**0.37**	**0.33**	**0.008**	**0.028**	**2.1**	**4,465**	**3,976**	**95.4**	**483.4**	**36,524**
Inferred	North Zone Pit - sulphide	90.0	0.34	0.31	0.005	0.021	1.7	679	620	10.2	61.4	4,949
	North Zone Pit - oxide	4.4	0.31	0.31	0.002	0.053	1.6	29	29	0.2	7.4	228
	South Zone Pit - sulphide	399.2	0.36	0.32	0.008	0.023	2.0	3,132	2,789	71.2	294.4	26,200
	South Zone Pit - oxide	36.7	0.27	0.27	0.004	0.020	1.6	218	218	2.8	23.8	1,851
	Total Inferred	**530.3**	**0.35**	**0.31**	**0.007**	**0.023**	**1.9**	**4,058**	**3,657**	**84.4**	**387.1**	**33,229**

Notes:

1. Mineral resources are not mineral reserves and do not have demonstrated economic viability.
2. Abbreviations used in the table above include: Mt = million metric tonnes, % = percent, g/t = grams per metric tonne, M lb = million pound, and Koz = thousand troy ounces.
3. All figures are rounded to reflect the relative accuracy of the estimates. Totals in Table 1-6 may not sum or recalculate from related values in the table due to rounding of values in the table, reflecting fewer significant digits than were carried in the original calculations.
4. Metal assays are capped where appropriate. At this stage of the Project, it is the Company's opinion that all the elements included in the metal equivalents calculation have a reasonable potential to be recovered and sold.
5. All dollar amounts are presented in US dollars.
6. Bulk density is estimated on a block basis using specific gravity data collected on diamond drill core.
7. Economic pit constrained resource with reasonable prospects of eventual economic extraction ("RPEEE") were based on a copper price of $4.00/lb, molybdenum price of $13.50/lb, a gold price of $1,700/oz, and a silver price of $22.50/oz. Metal recovery factors of 83.7% for copper, 66% for molybdenum, 53% for gold and 53% for silver have been applied. Selling costs are $0.56/lb copper, $1.69/lb molybdenum, $191.71/oz gold and $2.94/oz silver. Slope angles varied by pit sector and range from 40 degrees to 49 degrees.
8. The in-situ economic copper (CoG) was calculated resulting in a 0.15% Cu CoG.
9. CoG assumptions include: a copper price of $4.00/lb, molybdenum price of $13.50/lb, gold price of $1,700/oz, and silver price of $22.50/oz. Suitable benchmarked technical and economic parameters for open pit mining, including a 98% mining recovery and costs of mining at $2.40/t, processing at $4.79/t, G&A at $0.67/t, with Private Royalties at 1.5% for molybdenum, gold, silver, and copper, have been applied in consideration of the RPEEE. Recoveries are applied as listed in Note 7.
10. Equivalent Copper (CuEq) percent is calculated with the formula CuEq% = ((Cu grade * Cu recovery [83.7% sulphide or 75.0% oxide] * Cu price) + (Mo grade * Mo recovery [59%] * Mo price) + (Au grade * Au recovery [53%] * Au price) + (Ag grade * Ag recovery [53%] * Ag price)) / (Cu price * Cu recovery [83.7% sulphide or 75.0% oxide]). It assumed that the Santo Tomás Project will produce a conventional (flotation) copper concentrate product based on metal recoveries at 83.7% Cu (sulphide) or 75% Cu (oxide), 59% Mo, 53% Au, and 53% Ag based on initial preliminary metallurgical test work.
11. Reported contained individual metals in Table 1-6 represent in-situ metal, calculated on a 100% recovery basis, except for CuEq% (see Note 10).

In the opinion of the QP, the Company has completed detailed and thorough geologic characterization programs to support a robust geological model and reporting of a mineral resource under NI 43-101 disclosure standards. The models adequately reflect the geologic setting that both controls and limit mineralization in the North and South Zone. The oxidation model is rudimentary, however delineates oxidized material from reduced (sulphide) material that can be isolated in the block model. Mineralization domains are utilized to constrain the resource estimate and limiting geologic features are used when tabulating the Mineral Resource Statement. The Mineral Resource Statement for the Santo Tomás Project conforms to satisfactory industry practices and satisfies the requirements of the Canadian Institute of Mining, Metallurgy, and Petrolem (CIM) Definition Standards on Mineral Resources and Mineral Reserves (CIM, 2014) required for disclosure under NI 43-101.

1.11 Mining Methods

1.11.1 Mining Methods Introduction

In this study, the proposed mining method is conventional open pit truck and shovel operation with 10-meter bench intervals. Haul trucks will be used for hauling mineralized material to the crushing plant, long-term stockpile facilities, and waste to the waste rock storage facilities (WRSFs).

The mine production plan contains 825.5M tonnes of mineralized sulphide material with an average grade of 0.37% CuEq and 1,139.4M tonnes of waste material (including mineralized oxide), resulting in a strip ratio of 1.38 over the life of mine (LOM). CuEq is calculated as is mentioned in Table 1-6.

Mining operations will be carried out by the owner on a 24-hour per day, 365 days per year schedule. Total mined tonnes will start at 27.2M tonnes mined during the pre-stripping year and eventually ramp up to a maximum of 116 million tonnes per annum (Mtpa) in Year 13. The Project has a total life of 24 years, which includes 1 year of pre-stripping and one final year of stockpile rehandling to the mill. Expansion Phase II is in operation starting Year 8.

The mining sequence consists of 20 phases (10 in the North Zone Pit and 10 in the South Zone Pit), which vary in minimum mining width according to the type of equipment to be used. Early years focus on mining the North Zone Pit, while transitioning to larger equipment to be used once the South Zone Pit has opened up to wider benches.

1.11.2 Mining Fleet

Mining operations will use two fleets, with a transition from predominantly small-scale equipment early in the mine life to predominantly large-scale mining equipment later in the mine life. The small-scale equipment fleet will include 200 mm diameter blast hole drills, 16.5 cubic meter (m^3) hydraulic shovels, 13 m^3 front-end loaders, and 72 t capacity haul trucks. The large-scale equipment fleet will include 250 mm diameter blast hole drills, 34 m^3 hydraulic shovels, 21.4 m^3 front-end loaders, and 240 t capacity haul trucks.

The rationale for deploying a predominantly small-scale equipment fleet in the early years of the Project is that the open pits have been designed to initially use multiple smaller pit phases to reduce waste stripping and allow for faster access to mill feed. These smaller phases have narrower access roads that require the use of small-scale haul trucks (72 t capacity). Later in the mine life, the pit phases are typically larger and will allow for the use of large-scale haul trucks

(240 t capacity). Over the life of the Project, including the pre-production waste mining year, 80% of the ex-pit tonnes will be mined with the large-scale equipment fleet.

Ancillary equipment such as motor graders, dozers and water trucks will be utilized to support the mining operations. This equipment will be required throughout the life of mine for maintaining roads, loading areas, waste dumps and stockpiles.

1.11.3 Geotechnical Overview

Based on the geotechnical characterization, three-dimensional models, and planned pit configurations, SRK's QP defined four pit design sectors and composite sub-sectors. With reference to standard industry empirical methods and findings of the high level geomechanical assessments, the QP developed PEA level overall slope angle (OSA) guidance for each sector. SRK's QP found that stability in Sub-sector 1a was influenced by the potential for high phreatic surface and rock mass strength, while in Sub-sector 1b rock mass strength was the dominant influence. In Sector 2 stability was influenced by both rock mass strength and fault interaction. In Sub-sector 3a stability was influenced by the potential for high phreatic surface and rock mass strength, while in Sub-sector 3b, rock mass strength was the dominant influence. Sector 4 is sub-domained based on rock mass strength and fault interaction (Sub-sector 4a). As the geotechnical characterization evolves in future studies the controls on slope stability will need to be reviewed and continue to be refined.

1.12 Recovery Methods

The process plant for the Santo Tomás Project is initially designed for a nominal throughput of 60,000 t/d, referred to as Phase I, and is expected to produce 817 t/d of copper concentrate, with an average grade of 26.6% Cu and 5.3 t/d molybdenum concentrate grading 45% Mo. In Year 7, a duplicate processing line will be installed to accommodate throughput increase up to 120,000 t/d (Phase II) in Year 8. A simplified overall flow diagram of the process design is presented in Figure 1-1.

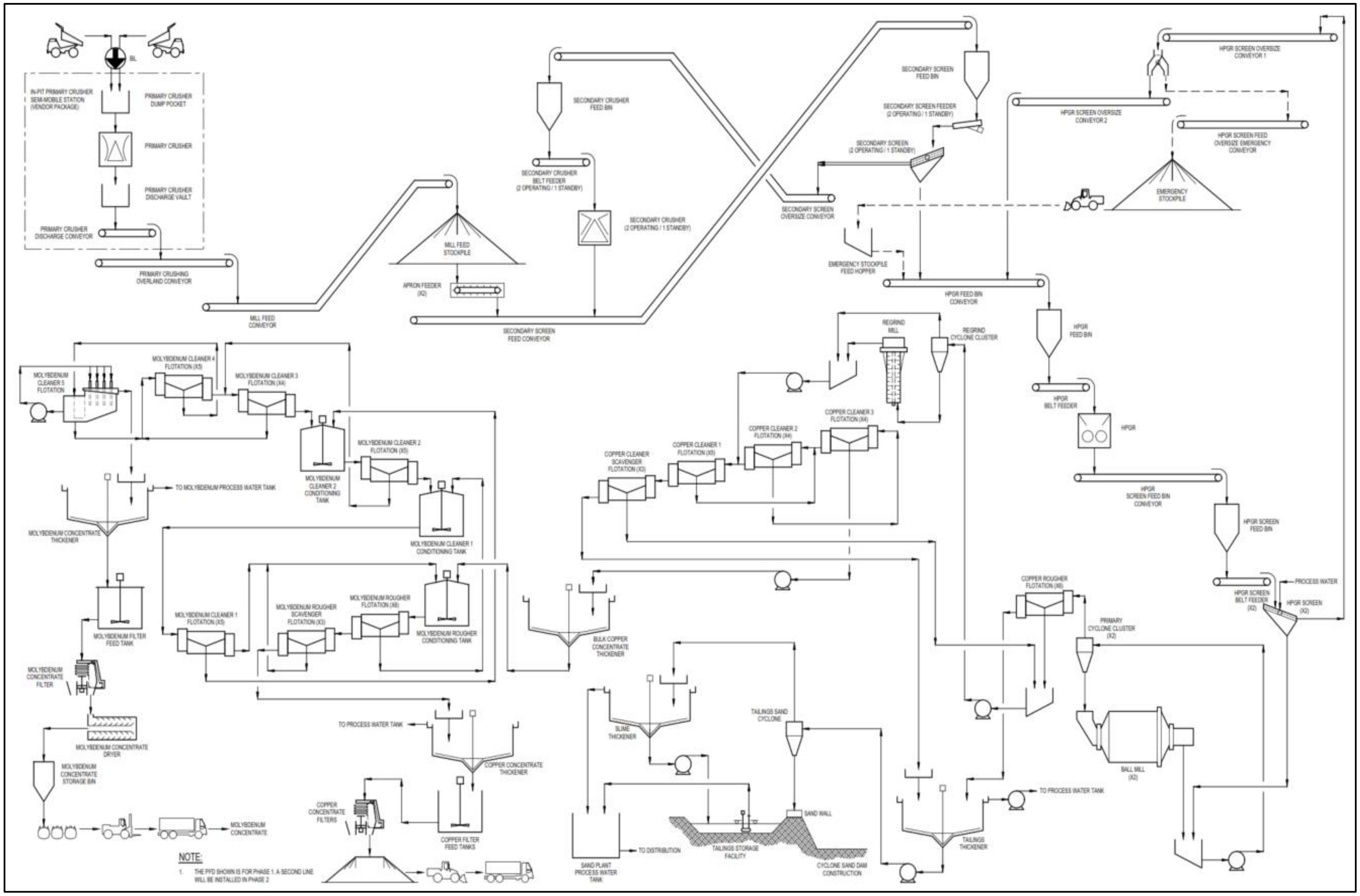
All major Phase I equipment is designed for a nominal throughput of 60,000 t/d except the conveyor to the mill feed stockpile.

The overall process flowsheet includes a three-stage crushing circuit, grinding, rougher flotation, regrinding, cleaner and scavenger flotation, concentrate dewatering and tailings dewatering and storage.

Key project design criteria for the plant are as follows:

- Primary crushing will reduce the size of the Run-of-Mine (ROM) mineralized material from a top size F_{100} of 1,200 mm to a P_{80} of 143 mm.
- The secondary crushing circuit will reduce the material size from a F_{80} of 143 mm to a P_{80} of 42 mm.
- The tertiary HPGR crushing will reduce the material size to a P_{80} of 5.6 mm.

Figure 1-1: Overall Flow Diagram



Source: Ausenco, 2024

- The grinding circuit reduces the size of the mineralized material even further, from a F_{80} of 5,600 µm to a P_{80} of 150 µm.
- Bulk rougher flotation will recover a mixed Cu-Mo concentrate.
- The regrind circuit will reduce the particle size of the rougher concentrate from a F_{80} of 125 µm to a P_{80} of 23 µm.
- Bulk cleaner flotation will float Cu and Mo, increasing their grades.
- Molybdenum rougher flotation will selectively float Mo. The Mo rougher flotation tails are Cu concentrate.
- Molybdenum cleaner flotation will increase the Mo grade to 45%.
- Both Cu and Mo concentrates are first thickened using a hi-rate thickener to a solids density of 60% (w/w).
- Thickened Cu concentrate is then filtered using a vertical pressure filter to obtain a final copper concentrate with 9% moisture. The Mo concentrate is also filtered using a vertical pressure filter to obtain a filtered Mo concentrate with 15% moisture content. Additionally, the filtered Mo concentrate is further dried to 5% moisture and packed into bulk bags.
- Flotation tailings will report to a thickener and the thickener U/F will advance to a sand cyclone system to recover suitable quality sand for tailings dam construction.
- The cyclone O/F fines will be thickened in a slimes thickener and deposited in the tailings storage facility (TSF).
- Recovered water from the slimes thickener will overflow to the sand plant process water tank which will report back to the process plant.
- Quicklime will be used as a pH modifier and fuel oil will be used as a flotation promoter. They will be added into the grinding circuit.
- Methyl Isobutyl Carbinol will be used as a frother and Aerophine 3418A will be used as a collector. These reagents will be added to the bulk rougher & cleaner flotation circuits.
- Flocculant will be added to the concentrate thickeners, tailings thickener and slimes thickener to promote sedimentation of solids and dewatering.
- Sodium hydrosulphide will be used as to depress Cu in the Mo flotation circuit.

The plant makeup water is estimated to be 1,122 m^3/h at 60, 000 t/d doubling to 2,244 m^3/h at 120,000 t/d. Makeup water for the plant will be from multiple sources including contact water in the TSF and waste rock storage facility (WRSF) seepage ponds, the pit and groundwater pumping.

1.13 Project Infrastructure

This section reports on the infrastructure design for the Santo Tomás Project and modifications made to the design since the 2023 PEA Technical Report was issued. As was the case in the previous PEA, the infrastructure plans for the Project are broken out by phase, Phase I (throughput of 60,000 t/d) and Phase II (throughput of 120,000 t/d) and are briefly described below:

For Phase I, the Project includes on-site infrastructure such as earthworks development, crushing and process plant facilities and ancillary buildings such as warehouses and workshops, on-site roads, water management systems, and site electrical power facilities. Off-site infrastructure for Phase I includes a site access road, plant roads, groundwater supply, power supply (power transmission line), two WRSFs, the TSF, and surface water management structures. For Phase II, on-site infrastructure will include earthworks development, a second crushing and processing line along with associated facilities and buildings, water management systems, and site electrical power facilities. No upgrades are contemplated for the off-site infrastructure during Phase II.

Access to the Project site is by way of a 170 kilometers (km) paved highway and a two-lane road from the Pacific Ocean Port of Topolobampo, through the city of Los Mochis to the northern town of Choix. Phase I of the Project is envisioned to access the Santo Tomás site via a newly created road that will be a derivation of an existing access road that passes through Cajón de Cancio and Rancho La Soledad. No changes are contemplated for the access road during Phase II of the Project.

The Project includes all the necessary infrastructure to support the mining and processing operations, all infrastructure buildings will be built as per applicable codes and regulations. Buildings include workshops for mine and maintenance, administrative and operation offices, warehouses for mine and process plant, process plant control room and assay laboratory, and other minor facilities. The permanent accommodation camp will be a modular building with capacity for 160 individual dormitories for Phase I, expanded to accommodate 230 individual dormitories during Phase II. Sewage will be treated via a wastewater treatment plant sized to meet the demand. A pre-engineered building for security and medical facilities is also part of the Project infrastructure. Water management structures will include diversion channels, collection ditches and ponds.

The following paragraphs detail the modifications proposed for the updated infrastructure design:

The primary crushing facility is now located closer to both pits and is situated immediately southeast of the North Zone Pit boundary with ramp access from both North Zone and South Zone Pits. This new location reduces the hauling distance to the dump pocket by over a kilometer and allows for a shorter haul to dispose of initial waste rock at the smaller (30 MT) of the two WRSFs which will be built up over Phase I of the Project. This WRSF is immediately adjacent to the primary crushing pad. Furthermore, the primary crushing facility has been replaced with an in-pit crushing, semi-mobile station, which comes fully equipped with a feed hopper, gyratory crusher, a discharge hopper, truck ramps, semi-mobile support structure for the gyratory crusher and direct drive, a bridge crane, rock breaker, and discharge conveyor. Mill feed discharged from the primary crusher will be conveyed through a 1.5 km tunnel which daylights close to the mill feed stockpile via a single 1.7 km conveyor that will be sized to accommodate the Phase II throughput at the start of the Project. Space has been allotted for a pad extension and the installation of a second identical primary crushing station at the time of expansion (Phase II).

Groundwater is the proposed freshwater option to supplement the process makeup water. This resource will also be tapped for other freshwater uses at the plant and ancillary facilities such as fire water, utility water, gland water and tepid, potable water for safety showers/eyewashes. In the previous PEA Technical Report, groundwater was to be supplied from a well-field located upstream and within a 25 km radius of the plant. For this report, it is proposed that the groundwater well-field be located closer to the plant and adjacent to the anticipated northern end of the North Zone Pit boundary. The advantage of pumping groundwater at this location is that it will serve to help drawdown the water table ahead of pit excavation to mitigate seepage into the pit and prevent water pollution. In Year 10, a grout curtain will be installed to further mitigate seepage. Groundwater pumping from this location to meet process water requirements for Phase I (1,122 m^3/h) is required for the first five years and will consist of twelve 90 m deep wells, three pump stations, each one having two 450 kW pumps. The revised pipeline to deliver freshwater to the plant from this location consists of a combination of 1 km of 600 mm diameter carbon steel pipe, 1.5 km of 400 mm diameter carbon steel pipe, and 4.5 km of 760 mm diameter of SDR 11 HDPE pipe to meet the pressure ratings encountered along the length of this pipeline. After such time, an additional set of deeper wells will be installed within the pit boundaries along the northern edge to further mitigate seepage. This groundwater pumping system is sized to meet the plant makeup water demand estimated for Phase II (2,244 m^3/h) and will consist of 15 wells tapped into groundwater ahead of the pit development. Each well will be fitted with a 187-kW submersible pump and will tie into a similar pumping system equipped as described for Phase I but with larger pumps.

Permanent electrical power will be provided through a new power transmission line that will be interconnected to a newly built-up self-generation power plant owned and operated by a third-party. Power at the plant will be generated via the combustion of natural gas and all the necessary electrical equipment for this interconnection will be an integral part of the new self-generation power plant. The supply of natural gas to the power plant and the provision of electricity to power the Santo Tomás processing plant will be contractual between Oroco and the third-party at an estimated rate of US$0.072 per kWh. This is compared to the current (2024) going rate of US$ 0.11 per kWh from the Comisión Federal de Electricidad (CFE, the state-owned utility company). The capital cost to route the new power transmission line from the new power plant to the main substation at the Project site are included as part of the off- and on-site infrastructure, respectively. The new power transmission line will be designed to supply power for both Project phases and any upgrade requested for the self-generation plant will be the direct responsibility of the third-party.

Waste rock resultant from the open pits will be stored in two external waste rock storage facilities (WRSFs); a smaller facility to the east of the pits adjacent to the primary crushing facility and the original facility, which resides at the same location in the natural valley west of the pits, but which has been expanded into the natural shallower valleys to the south to better suit the new mine plan and schedule. Permanent storm water diversion channels along the perimeter WRSFs will be constructed to reduce the amount of water in contact with these materials.

Provisions have been made to supply liquefied natural gas (LNG) to the Project site. This will include siting an LNG plant including storage off-site at the same natural gas tie-in point as the proposed power plant. LNG will be trucked to site for haul truck fueling to minimize diesel consumption, improve air quality and reduce mine operating costs.

Changes to the design of the tailings storage facility (TSF) were not contemplated for this report. The TSF design is developed in accordance with Global Industry Standard on Tailings Management (2020). This facility will be constructed in stages over the life of mine to optimize the economics of the facility.

1.14 Markets and Contracts

1.14.1 Markets

No market studies or product valuations were completed for this study. Market price assumptions were based on a review of public information, industry consensus, standard practices, and specific information from comparable operations in the region.

Treatment charges (TC), refining charges (RC) and payability terms were estimated based on a review of information from comparable recent studies. The assumed payability terms for the metals contained in both concentrates are represented in Table 1-7 below and TC/RCs are shown in Table 1-8.

Table 1-7: Summary of Assumed Metal Payability Terms

Metal	Net Payability Average LOM
Copper (Cu Concentrate)	96.2%
Molybdenum (Mo Concentrate)	98.5%
Gold (Credit in Cu Concentrate)	70.2%
Silver (Credit in Cu Concentrate)	90.0%

Table 1-8: Summary of Assumed TC/RC Terms

Metal	Treatment Charge	Refining Charge
Copper (Cu Concentrate)	75.0 $/dmt	0.075 $/ lb Cu
Molybdenum (Mo Concentrate)	-	1.30 $/ lb Mo
Gold (Credit)	-	5.00 $/ t.oz Au
Silver (Credit)	-	0.50 $/ t.oz Ag

1.14.2 Contracts

Oroco does not currently have any contracts in place for transportation or off-take of the concentrates, supply of reagents, utilities, or other bulk commodities.

1.15 Environmental, Permitting and Social Considerations

The Santo Tomás Project is sited in the vicinity of the Río Fuerte, which is one of the longest rivers in Mexico. The river basin drains part of the states of Chihuahua (Sierra Tarahumara) and Sinaloa (Altos del Fuerte and Choix, and the Valle del Fuerte) and it flows from the Sierra Madre Occidental to the Pacific Ocean in the Gulf of California. The Project is located within Priority Hydrological Region No. 18 (RHP No. 18), called "Cuenca Alta del Río Fuerte". The Project is also located near the Huites Dam and reservoir complex which provides flood surge protection, water for community use and supports a hydro agricultural irrigation network (channels) in the 075 Río Fuerte Irrigation District.

1.15.1 Environmental Considerations

Three sources of environmental baseline data are presently available for the Project. Two site-based studies include very general exploration-level surveys of limited scopes in support of applications for exploration drilling and small exploration camps located at Brasiles and at the Santo Tomás North and South Zones during 2021 and 2022. The third source of baseline data originates from a 2019 Environmental Impact Statement (EIS) filed on behalf of the Mexico Communications and Transportation Secretary related to the construction of a bridge located relatively near the Project site at km 217+400 (Huites Dam) located in the Choix-Bahuichivo district. Some of the baseline data collected as part of the 2019 EIS are relevant to environmental conditions of the Santo Tomás Project.

There are environmentally sensitive areas located adjacent to the Project area such as the Huites Dam and reservoir complex which is important for sustaining the local population and ecosystem health. Future environmental and socio-economic and cultural baseline studies will better characterize these aspects. Based on available government databases, there may be risks to threatened and endangered wildlife species in the Project area which require assessment by means of seasonal site-based field surveys.

As the Project advances through feasibility and the Environmental Impact Statement / permitting stages, site-focused baseline studies that document existing conditions will be required to supplement current understanding. Recommended baseline studies to support the Project include water resources studies; geochemistry; aquatics, terrestrial and wildlife; air quality and noise; soil; and socio-economic, cultural baseline studies and community engagement; and environmental constraints mapping. In addition, several environmental management and monitoring plans will be required for the purpose of guiding the development and operation of the Project and mitigating and limiting environmental and social impacts. These plans will be complementary to the engineered designs that will be required for the storage of tailings, waste rock, mineralized material, and conveyance/storage/treatment of mine contact water.

1.15.2 Permitting Considerations

The Project is currently in the exploration stage, for which the company has the necessary authorizations obtained by means of submitted notices of work; work is carried out subject to federal government body, Secretariat of Environment and Natural Resources (SEMARNAT) regulations. Exploration activities have included drilling, surface mapping, limited road development, camp construction and support, and geophysics at three main locations (Brasiles Property and the Santo Tomás Project, North and South Zones).

Development of the mine will be subject to acquiring several permits from the federal SEMARNAT. Anticipated permits to support mine development and operations include an Environmental Impact Assessment (MIA), Land Use Change, Risk Analysis, and a number of other permits related to mining waste, general waste, water, air, fixed source emissions, closure, protection of flora and fauna, and noise. Issuance of permits related to surface and groundwater (extraction of freshwater or discharge of effluent) are subject to authorization by the National Water Commission (CONAUGA).

In April 2023, the Mexican Congress approved a decree amending the Mining Law and other national laws impacting new mining and water concessions (the Amendments). The Amendments to laws concerning the mining industry, commonly referred to as a Structural Reform of the Mining Industry (the Mining Reform) impose tighter regulations on the mining industry. These Amendments are not considered likely to impact the Project given that the Project is comprised entirely of existing concessions. As for the Other Amendments which may apply to existing concessions, such as those related to entering into the MIA process, it is assumed that they are not material to the advancement of the Project at this time. Furthermore, various challenges to the legal validity of the Amendments and the Other Amendments have commenced in the Supreme Court of Mexico. In March 2024, the Supreme Court published a binding whereby they granted a temporary injunction suspending the application of the Amendments and the Other Amendments against existing concessions in 24 states, including Sinaloa.

1.15.3 Closure and Reclamation Considerations

The permits require that land disturbance caused by exploration activities is reclaimed in accordance with applicable requirements. Reclamation activities include the stabilization of slopes, filling of exploration wells, scarification of soils, grouting drill holes, revegetation, and forest restoration. A preliminary financial estimate was developed from a scoping level closure plan developed for the Project. The scoping level closure plan includes regrading, reclaim and revegetating all surface disturbances as proposed in the site layout. This includes removing the existing infrastructure and salvaging equipment. Detailed closure plans still need to be developed in accordance with Mexican regulations and applicable international standards through subsequent study stages as the Project advances. Mine reclamation is addressed in Article 27 of the Mexican Constitution and multiple Mexican regulations applicable to closure conditions will be considered.

1.15.4 Social Considerations

Baseline socio-economic and cultural baseline studies have not yet been completed for the Santo Tomás Project. These studies will be required at the appropriate time as the Project advances into the feasibility and permitting phases and the full extent of the disturbed footprint of the Project is known. In addition, the recent reform of the mining law establishes that in the case of lots located in the territories of Indigenous or Afro-Mexican peoples or communities, the Secretariat, for the granting of a mining concession or assignment, will require consultation to obtain the consent of the subject communities. This consultation along with a social impact study may need to be carried out along with the MIA.

Oroco maintains an ESG manual (Revision C, undated) for the Project which provides a framework for its community outreach efforts which according to the manual are focused on education, ongoing employment, Indigenous engagement and employment, and community mapping. The Company has demonstrated ongoing efforts to engage with the local communities near the Project including supporting and funding community improvements and providing educational resources to support local school improvements.

The ESG manual states that Oroco employs 12 people full-time in Mexico and that contractors and their employees increase this number to around 110 people in total, principally during multi-rig drilling programs. The Company has, however, undertaken a detailed community mapping project for the communities surrounding the Project area, excluding Choix and its immediate neighbouring communities.

1.16 Capital and Operating Costs

1.16.1 Capital Cost Estimate

The capital cost estimate developed for the Santo Tomás Project conforms to the Class 5 guidelines of the Association for the Advancement of Cost Engineering International (AACE International), with an estimated accuracy of -30%/+50% dated the 2nd Quarter 2024. It was developed in U.S. dollars based on Ausenco's and SRK's databases of projects and advanced studies as well as experience from similar operations.

The updated total initial capital cost estimate for the Santo Tomás Project is US$1,104M which is the sum of the process plant and infrastructure initial capital, total mining capital including indirect costs and contingency net of leasing costs, deposit, and capital deferment.

Table 1-9 presents a summary breakdown of the capital cost estimate developed for the Project over the life of the mine. The estimate is broken out into following:

- Initial capital - the costs to lease the equipment required for pre-stripping/preproduction and a 60,000 t/d (Phase I) processing facility,
- Expansion capital - the cost estimate to add a second process line (Phase II) doubling the plant throughput to 120,000 t/d,
- Sustaining capital - the sum of the capital cost required to replace worn processing equipment in Year 10, continued development of the TSF over the LOM and lease payments accrued over the 5-year term and the closure capital, the cost to reclaim and monitor the Project once mining and processing of materials ceases, and
- Total capital – the sum of the initial, expansion and sustaining capital.

Table 1-9: Capital Cost Summary

Capital Category	Initial Capital (US$M)	Expansion Capital (US$M)	LOM Sustaining Capital (US$M)	Total Capital (US$M)
Mining Equipment (Net of Leasing)(1)	81.0	-	952.4	1,033.4
Water Management	8.3	-	14.1	22.4
Crushing Facility & Process Plant	427.8	380.3	10.4	818.4
Infrastructure	124.7	47.8	-	172.5
Tailings Storage Facility	25.9	0.1	51.2	77.2
Closure Costs	-	-	174.3	174.3
Total Directs	**667.5**	**428.1**	**1,202.4**	**2,298.2**
Project Indirect	141.1	105.8	-	246.9
Owner's Cost	23.5	17.1	-	40.6
Process/Closure Contingency	187.7	135.9	53.8	377.4
Capitalized Mine Development OPEX	75.5	-	-	75.5
Capitalized Interest & Fees(2)	8.3	-	-	8.3
Total with Mining Equipment Lease Applied	**1,103.5**	**687.2**	**1,256.0**	**3,046.7**

Notes:
1. Includes supplier-sourced 5-year lease term with 10.3% interest, 0.5% upfront fee, and no residual payment (October 2023) applied to preproduction mining capital cost with deferral of capital attributable to leasing from initial capital to sustaining capital.
2. Leasing costs incurred prior to production.
3. Values shown are rounded and may not match those presented in the press release. Totals may not sum due to rounding.

1.16.2 Mining Capital Costs

The mine capital cost considers that the mine will be owner-operated and is based on the requirements of the mining plan. The mining capital costs were estimated from first principles by SRK Consulting (U.S.) Inc.

The LOM mining equipment capital cost is estimated at US$1,033.4M, including 15% contingency. Of this amount, US$81.0M (8%) corresponds to the initial mining equipment capital cost and US$952.4M (92%) corresponds to the sustaining capital, which includes principal payments for leased equipment, the costs of purchasing additional equipment units, renewing equipment, and performing major equipment maintenance to sustain mining operations. Additionally, the initial mining capital cost estimate includes pre-production mining costs in Year -1 of US$75.5M (including 5% contingency). The overall LOM mining capital cost estimate, including initial and sustaining equipment costs and pre-production mining, is US$1,108.9M.

The contingencies applied by SRK are 15% for capitalized equipment purchases and rebuilds, and 5% for capitalized pre-production mining costs (i.e., pre-stripping costs that are capitalized for Year -1). The purpose of the contingency provisions is to allow for uncertain cost elements which are predicted to occur but are not included in the cost estimate.

1.16.3 Operating Cost Estimate

The mine operating costs were estimated from first principles by SRK Consulting (U.S.) Inc. based on the requirements of the mine plan. The estimate is based on the operating hours of the equipment and includes ownership cost and operational cost such equipment repairs, drilling consumables, fuel consumption, manpower, explosives consumption, contractor blasting services, tire consumption etc. The cost of equipment operators and the mechanical maintenance workforce was included as part of the operating costs of the equipment. The costs were distributed among the direct mining functions such as drilling, loading, hauling, etc.

The process operating cost estimate is based on a 60,000 t/d mill for Phase I and 120,000 t/d mill for Phase II of the Project, which includes the following operations: crushing, grinding, bulk rougher flotation, regrind, bulk cleaner flotation, Cu-Mo separation, copper concentrate dewatering, molybdenum concentrate handling, and tailings handling.

A summary of the average operating costs for the Project are presented below in Table 1-10. The unit operating cost, on average is US$9.57/t milled, including an annual average LOM G&A cost of US$24M. The following subsections describe the basis of the operating costs estimate and a detailed build up of the both the mining and process components of the operating costs presented here. Mining operating cost include US$46M in leasing interest and fees.

Table 1-10: Average LOM Operating Costs

Category	Total LOM (US$M)	Annual Cost (US$M/y)	US$/t milled
Mining	3,995	177	4.78
Process	3,363	149	4.04
G&A	539	24	0.65
Total Operating Cost	**7,897**	**350**	**9.57**

1.17 Economic Analysis

1.17.1 Economic Summary

The economic analysis was performed assuming an 8% discount rate. On a pre-tax basis the net present value discounted at 8% (NPV8%) is US$2,640.5M; the internal rate of return (IRR) is 30.3%, and payback period is 2.9 years. On a post-tax basis, the NPV8% is US$1,475.4M; the IRR is 22.2%, and the payback period is 3.8 years. The analysis was done on an annual cashflow basis; the Project economics are summarized in Table 1-11 and cashflow output is shown graphically in Figure 1-2.

Table 1-11: Economic Analysis Summary

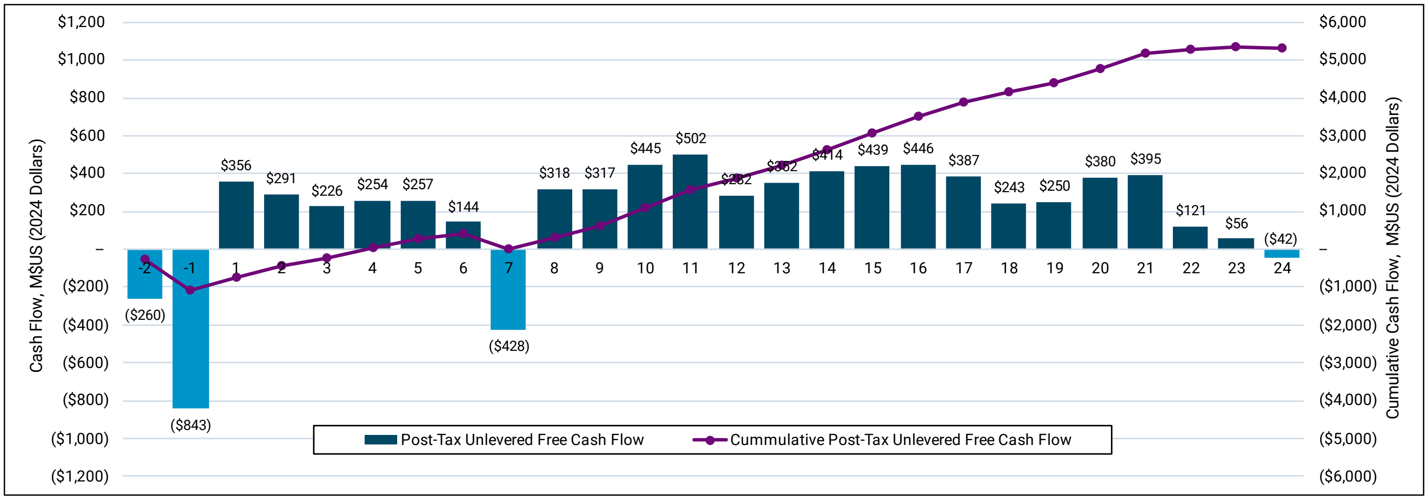
General	Units	LOM Total / Avg.
Copper Price	US$/lb	4.00
Molybdenum Price	US$/lb	15.00
Gold Price	US$/oz	1,900
Silver Price	US$/oz	24.00
Mine Life	Years	22.6
Total Mill Feed	kt	825,475
Production	**Units**	**LOM Total / Avg.**
Mill Feed Grade – Cu	%	0.33
Mill Feed Grade – Mo	%	0.008
Mill Feed Grade – Au	g/t	0.028
Mill Feed Grade – Ag	g/t	2.08
Total Metal Content – Cu	M lb	5,916
Total Metal Content – Mo	M lb	138.7
Total Metal Content – Au	koz	753.4
Total Metal Content – Ag	koz	55,200
Recovery Rate – Cu	%	83.8%
Recovery Rate – Mo	%	59.1%
Recovery Rate – Au	%	56.8%
Recovery Rate – Ag	%	53.7%
Total Production – Cu	M lb	4,960
Total Production – Mo	M lb	82.0
Total Production – Au	koz	427.9
Total Production – Ag	koz	29,636
Annual Production – Cu	M lb/y	219.2
Average Annual Production – Mo	M lb/y	3.6
Average Annual Production – Au	koz/y	18.9
Average Annual Production – Ag	koz/y	1,309.6
Operating Costs	**Units**	**LOM Total / Avg.**
Mining Cost (1)	US$/t mined	2.04
Mining Cost (1)	US$/t milled	4.78
Mining Leasing Cost	US$/t milled	0.06
Processing Cost	US$/t milled	4.04
G&A Cost	US$/t milled	0.65
Total Operating Costs(1)	US$/t milled	9.57
C1 Cash Costs(2)	US$/lb Cu	1.54
C3 Cash Costs (AISC)(3)	US$/lb Cu	2.00
Capital Costs	**Units**	**LOM Total / Avg.**
Initial Capital(4)	US$M	1,103.5
Expansion Capital	US$M	687.2
Sustaining Capital(4)	US$M	1,047.0
Closure Costs	US$M	209.2

Financials	Units	Pre-Tax	Post-Tax
$NPV_{8\%}$	US$M	2,640.5	1,475.4
IRR	%	30.3	22.2
Payback	Years	2.9	3.8

Notes:
1. Excluding leasing costs.
2. C1 Cash costs consist of mining costs, processing costs, mine-level G&A and refining charges and royalties on a by-product basis.
3. C3 Cash costs (AISC) include cash costs plus sustaining capital, expansion capital, and closure costs on a by-product basis.
4. Net of leasing costs, deposits, and capital deferment.

Readers are cautioned that the PEA is preliminary in nature. It includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves, and there is no certainty that the PEA financial results will be realized.

Figure 1-2: Free Cash Flow - Post-Tax



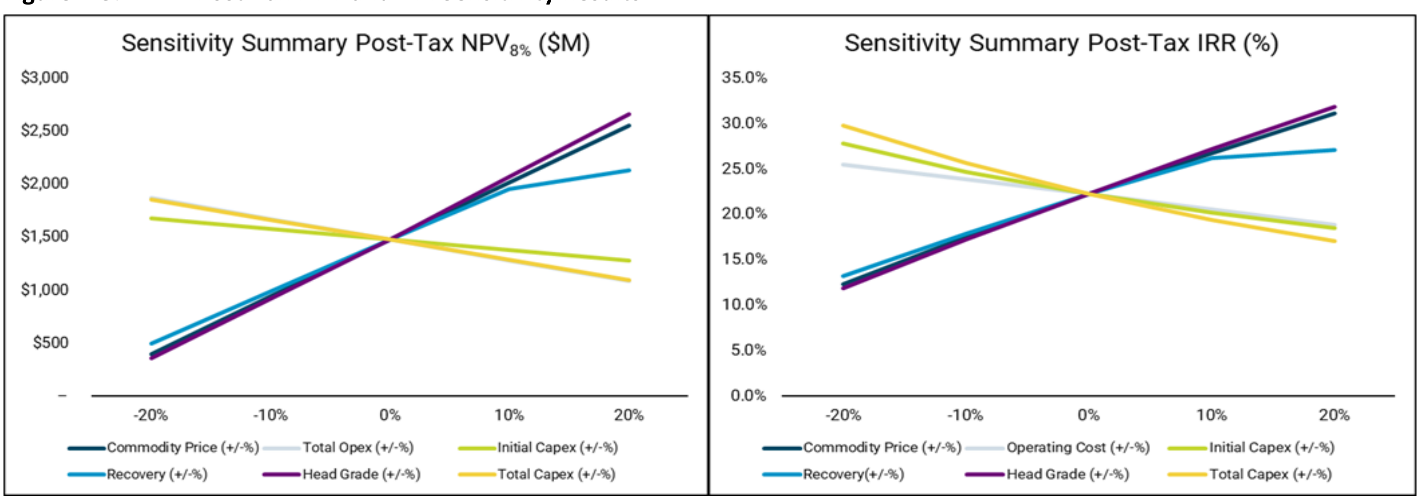
Source: Ausenco, 2024.

1.17.2 Sensitivity Analysis

A sensitivity analysis was conducted on the base case pre-tax and post-tax NPV and IRR of the Project, using the following variables: metal prices, discount rate, head grade, recovery, total operating cost (OPEX), and initial capital cost.

A summary of post-tax economic sensitivities to head grade, metal price, metal recovery, total OPEX, initial CAPEX, and total CAPEX is shown in Figure 1-3 and detailed in Table 1-12.

Figure 1-3: Post-Tax NPV and IRR Sensitivity Results



Source: Ausenco, 2024.

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Table 1-12: Post-Tax Sensitivity Summary

Post-Tax Sensitivity to Metal Price

Discount Rate	Post-Tax $NPV_{8\%}$ (USM)Sensitivity to Discount Rate						Discount Rate	Post-Tax IRR (%) Sensitivity to Discount Rate				
		Commodity Price						Commodity Price				
		(20.0%)	(10.0%)	--	10.0%	20.0%		(20.0%)	(10.0%)	--	10.0%	20.0%
	3.0%	$1,367	$2,303	$3,235	$4,168	$5,100	3.0%	12.3%	17.5%	22.2%	26.7%	31.1%
	5.0%	$885	$1,626	$2,364	$3,102	$3,840	5.0%	12.3%	17.5%	22.2%	26.7%	31.1%
	7.0%	$537	$1,134	$1,728	$2,323	$2,917	7.0%	12.3%	17.5%	22.2%	26.7%	31.1%
	8.0%	$400	$939	**$1,475**	$2,013	$2,549	8.0%	12.3%	17.5%	**22.2%**	26.7%	31.1%
	10.0%	$182	$627	$1,069	$1,512	$1,954	10.0%	12.3%	17.5%	22.2%	26.7%	31.1%

Total OPEX	Post-Tax $NPV_{8\%}$ (USM) Sensitivity to OPEX						Total OPEX	Post-Tax IRR (%) Sensitivity to OPEX				
		Commodity Price						Commodity Price				
		(20.0%)	(10.0%)	--	10.0%	20.0%		(20.0%)	(10.0%)	--	10.0%	20.0%
	(20.0%)	$796	$1,332	$1,869	$2,406	$2,942	(20.0%)	16.1%	20.9%	25.4%	29.8%	34.0%
	(10.0%)	$598	$1,136	$1,672	$2,209	$2,746	(10.0%)	14.2%	19.2%	23.8%	28.3%	32.6%
	--	$400	$939	**$1,475**	$2,013	$2,549	--	12.3%	17.5%	**22.2%**	26.7%	31.1%
	10.0%	$200	$742	$1,279	$1,816	$2,352	10.0%	10.2%	15.7%	20.6%	25.2%	29.6%
	20.0%	($1)	$544	$1,083	$1,619	$2,156	20.0%	8.0%	13.8%	18.9%	23.6%	28.1%

Initial CAPEX	Post-Tax $NPV_{8\%}$ (USM) Sensitivity to Initial CAPEX						Initial CAPEX	Post-Tax IRR (%) Sensitivity to Initial CAPEX				
		Commodity Price						Commodity Price				
		(20.0%)	(10.0%)	--	10.0%	20.0%		(20.0%)	(10.0%)	--	10.0%	20.0%
	(20.0%)	$600	$1,140	$1,676	$2,213	$2,749	(20.0%)	15.8%	22.0%	27.8%	33.4%	38.7%
	(10.0%)	$500	$1,039	$1,576	$2,113	$2,649	(10.0%)	13.9%	19.5%	24.7%	29.7%	34.5%
	--	$400	$939	**$1,475**	$2,013	$2,549	--	12.3%	17.5%	**22.2%**	26.7%	31.1%
	10.0%	$300	$839	$1,375	$1,912	$2,449	10.0%	11.0%	15.8%	20.2%	24.4%	28.3%
	20.0%	$200	$739	$1,275	$1,812	$2,349	20.0%	9.8%	14.4%	18.5%	22.4%	26.0%

Mill Recovery	Post-Tax $NPV_{8\%}$ (USM) Sensitivity to Mill Recovery						Mill Recovery	Post-Tax IRR (%) Sensitivity to Mill Recovery				
		Commodity Price						Commodity Price				
		(20.0%)	(10.0%)	--	10.0%	20.0%		(20.0%)	(10.0%)	--	10.0%	20.0%
	(20.0%)	($406)	$56	$492	$924	$1,352	(20.0%)	3.1%	8.6%	13.2%	17.3%	21.1%
	(10.0%)	$9	$500	$985	$1,468	$1,951	(10.0%)	8.1%	13.3%	17.9%	22.1%	26.2%
	--	$400	$939	**$1,475**	$2,013	$2,549	--	12.3%	17.5%	**22.2%**	26.7%	31.1%
	10.0%	$776	$1,364	$1,954	$2,543	$3,131	10.0%	15.9%	21.2%	26.1%	30.9%	35.4%
	20.0%	$915	$1,523	$2,131	$2,739	$3,347	20.0%	16.9%	22.1%	27.0%	31.8%	36.3%

Head Grade	Post-Tax $NPV_{8\%}$ (USM) Sensitivity to Head Grade						Head Grade	Post-Tax IRR (%) Sensitivity to Head Grade				
		Commodity Price						Commodity Price				
		(20.0%)	(10.0%)	--	10.0%	20.0%		(20.0%)	(10.0%)	--	10.0%	20.0%
	(20.0%)	($527)	($65)	$359	$776	$1,192	(20.0%)	1.6%	7.3%	11.8%	15.9%	19.7%
	(10.0%)	($48)	$436	$914	$1,389	$1,864	(10.0%)	7.4%	12.6%	17.2%	21.4%	25.5%
	--	$400	$939	**$1,475**	$2,013	$2,549	--	12.3%	17.5%	**22.2%**	26.7%	31.1%
	10.0%	$867	$1,468	$2,070	$2,671	$3,271	10.0%	16.7%	22.1%	27.1%	31.9%	36.6%
	20.0%	$1,328	$1,994	$2,659	$3,324	$3,988	20.0%	20.9%	26.5%	31.8%	36.9%	41.9%

Total CAPEX	Post-Tax $NPV_{8\%}$ (USM) Sensitivity to Total CAPEX						Total CAPEX	Post-Tax IRR (%) Sensitivity to Total CAPEX				
		Commodity Price						Commodity Price				
		(20.0%)	(10.0%)	--	10.0%	20.0%		(20.0%)	(10.0%)	--	10.0%	20.0%
	(20.0%)	$779	$1,318	$1,854	$2,391	$2,927	(20.0%)	18.1%	24.1%	29.8%	35.2%	40.5%
	(10.0%)	$589	$1,128	$1,665	$2,202	$2,738	(10.0%)	14.9%	20.5%	25.6%	30.6%	35.3%
	--	$400	$939	**$1,475**	$2,013	$2,549	--	12.3%	17.5%	**22.2%**	26.7%	31.1%
	10.0%	$211	$750	$1,286	$1,823	$2,360	10.0%	10.1%	15.0%	19.4%	23.6%	27.6%
	20.0%	$21	$561	$1,097	$1,634	$2,171	20.0%	8.2%	12.8%	17.0%	21.0%	24.7%

1.18 Interpretation and Conclusions

1.18.1 Geology and Mineralization

The geology of the deposit is considered well understood and the controls on mineralization are better defined with the completion of recent drilling program. An improved understanding of structural controls and structure bounding limits on mineralization has been captured in the updated 3D geology, alteration and structural model and applied to the PEA presented in this technical report. Additional drilling will be required in the southwest sector of the South Zone to better understand the limits on the mineralization and alteration observed and mapped at surface.

1.18.2 Exploration, Drilling and Analytical Data Collection Support of Mineral Resource Estimation

Additional surface mapping and exploration has been incorporated with the drilling-supported 3D models. Surface mapping and exploration should be continued to more precisely define the western footwall fault and resource internal faulting defined through drilling. Analytical data collection in support of the Mineral Resource Estimation should continue with a focus on historical drill re-logging and check sampling for comparison of historical results. This will confirm some of the historical reporting on the repeatability of target economic elements. Additional drilling in resource defined as Inferred will increase confidence in the resource estimate, especially in the South Zone that is currently all classified as Inferred.

An ongoing review of the sulphide bearing veins and their orientations will continue to refine additional drilling program design with regards to the dips and azimuth of drill holes.

1.18.3 Mineral Resource Estimate

In the opinion of the QP, Oroco has completed detailed and thorough geologic work programs to support the construction of a robust geologic model and fundamentally sound structural domain model. The models adequately reflect the geologic setting that both controls and limits mineralization in the North and South Zones. The oxidation model is rudimentary; however, it delineates oxidized material from reduced material in the block model. Mineralization domains are utilized to constrain the MRE and limiting geologic features are used when tabulating the Mineral Resource Statement. The MRE for the Santo Tomás Project conforms to satisfactory industry practices and satisfies the requirements of the CIM Definition Standards required for disclosure under NI 43-101.

1.18.4 Metallurgy and Recovery Methods

The samples evaluated from the Santo Tomás Project exhibit metallurgical responses to conventional processing techniques that are typical of copper porphyry deposits. The process plant for the Santo Tomás Project is initially designed for a nominal throughput of 60,000 t/d doubling in size in Year 8. The material hardness properties measured through comminution testing were somewhat hard, suggesting that tertiary crushing with high pressure grinding rolls (HPGR) may be more appropriate than SAG milling. Copper occurs nearly exclusively as chalcopyrite and is well recovered via froth flotation at a primary grind sizing of 150 µm P_{80}. Copper and molybdenum concentrates of saleable quality, void of significant levels of deleterious elements, are expected to be produced following regrinding and typical dilution cleaning at final recoveries averaging 83% and 59%, respectively. The process plant is expected to produce 817 t/d of copper concentrate, with an average grade of 26.6% Cu and 5.3 t/d molybdenum concentrate grading 45% Mo.

1.18.5 Geotechnical Considerations

Based on the geotechnical characterization, 3D models, and planned pit configurations, SRK's QP defined four pit design sectors and composite sub-sectors. Based on standard industry empirical methods and findings of the high level geomechanical assessments, the QP developed overall slope angle (OSA) guidance for each sector. SRK's QP found that stability in Sub-sector 1a was controlled by the potential for high phreatic surface and rock mass strength, while in Sub-sector 1b rock mass strength was the sector influence. In Sector 2 stability was controlled by both rock mass strength and structures. In Sub-sector 3a stability was controlled by the potential for high phreatic surface and rock mass strength, while in Sub-sector 3b, which is located further from the reservoir, rock mass strength was the dominant influence. Sector 4 is sub-domained based on rock mass strength and fault interaction (Sub-sector 4a).

1.18.6 Mine Engineering

The total mineralized sulphide material is to be processed is 825.5 Mt at an average grade of 0.37% CuEq. The open pit is mined in twenty phases with 23 years of ex-pit mining, which includes 1 year of pre-production stripping. Total waste mined is 1.1B tonnes (strip ratio 1.38), which include 73.4M tonnes of mineralized oxide material at an average grade of 0.19% Cu. The south WRSF designed is large enough to allow for the segregation of this material and maintain the optionality of processing it in the future. Four geotechnical zones were considered for the pit design with OSA angles between 40° and 49°.

Over the life of mine, two mining fleets will be used and the operator will transition from predominantly small-scale mining equipment early in the mine life to predominantly large-scale mining equipment later in the mine life. The small-scale equipment fleet will include 200 mm diameter blast hole drills, 16.5 m^3 hydraulic shovels, 13 m^3 front-end loaders, and 72 t capacity haul trucks. The large-scale equipment fleet will include 250 mm diameter blast hole drills, 34 m^3 hydraulic shovels, 21.4 m^3 front-end loaders, and 240 t capacity haul trucks.

1.18.7 Financial Assessment

Based on the assumptions and parameters presented in this report, the Project shows positive economics including a post-tax $NPV_{8\%}$ of US$1,475.4M and a 22.2%, post-tax IRR. The updated results continue to support a decision to carry out additional studies to progress the Project further into detailed assessment.

1.18.8 Risks and Opportunities

1.18.8.1 Mineral Resources

The QP has identified the following risks that may materially impact the understanding, interpretations, and current assumptions for geology and mineral resources at the Santo Tomás property which are summarized below:

- Ability to recover all stated metals at the assumed recovery factors and metal price assumptions.
- Changes to the geotechnical, hydrogeological, mining and input economic assumptions used in the determination of CoG and pit shell modeling.
- Identification and assessment of potentially deleterious materials or elements.
- Ability to demonstrate a feasible path to mining in the Huites Reservoir area with appropriate offset or other land or infrastructure constraints that may be identified in future studies.

- Changes to assumptions or ability to continue with existing agreements, renew, or renegotiate those agreements and to environmental, permitting, and social license assumptions which may materially alter the area of assumed mining and mineral resource.

The QP has identified the following opportunities exists to minimize some of these risks:

- Additional drilling is required to upgrade mineral resource classifications. Currently, the South Zone is classified as inferred resources but with additional drilling there is potential to upgrade the classification and delineate additional mineralized tonnages.
- Further logging and (re)sampling of historical drill core should be undertaken to increase confidence in the geologic interpretation and resource estimation.

1.18.8.2 Metallurgy and Recovery Methods

The study was performed using a preliminary metallurgical assessment as the basis for design. As such risks exists in the design and additional metallurgical test work should focus on expanding the grade range and add confidence to the metallurgical recovery estimates. Further comminution testing should also be undertaken on discreet core samples to understand the variability of mill feed hardness over the mine life. Recent analysis of point load testing (PLT) data by the field geologists also suggests differences in rock hardness and competency between the two pits. Hence, the quantity and spatial distribution of samples taken and tested during the initial test work program is not sufficient to confirm an appropriate crushing and grinding circuit design for each phase of the Project.

The metallurgical performance of a Cu-Mo separation circuit has not yet been demonstrated in test work. Testing may show that circuit modifications are required to achieve target metallurgical performance for molybdenum. Additional metallurgical testing may identify strategies to improve the metallurgical performance through both flotation circuits to improve both copper and molybdenum recoveries by further evaluating reagent dosing, regrinding, pulp chemistry and the inclusion of a cleaner scavenger.

Evaluating coarse particle flotation in a rougher scavenging application may allow for a reduction in the primary grinding energy while maintaining suitable copper and molybdenum recoveries.

Additionally, continued tests should be conducted on the oxide copper resource evaluation as these materials are now included in the current resource estimate.

1.18.8.3 Mining Methods

The following risks were identified during the development of Santo Tomás mine design:

- Eliminating the small-scale equipment fleet (i.e., using only a large-scale equipment) could lead to an increase in waste mined.
- Mining regulations should be periodically monitored to assess potential impact on planned mining operations.
- Starting new phases will require constructing steep roads and mining narrow widths. This will require the smaller fleet to be maintained for the duration of the mine life.
- Due to the steep topography, changes to the overall slope angles used in the different geotechnical zones could alter the mill feed and waste content in future designs.

The QP has identified the following mining and mining method opportunities:

- A detailed pioneering road design should be investigated to the starting benches of every phase to determine the number of tonnes required to be moved using a small fleet.
- Revisiting the pit design and scheduling could minimize LOM stripping while still focusing on reducing the pre-stripping required.
- The mining cost for the open pit operation largely relates to the haulage distance. Any relocation of the current infrastructure (such as the waste dump, crusher, or stockpiles) will require that the fleet be reassessed and balanced.

1.18.8.4 Site Infrastructure

Should a risk assessment of the proposed tunnel conveyor arrangement deem this option unsuitable, further studies can be completed to compare the economics as well as constructability/operability of alternative options, such as a flying belt conveyor design.

The ground conditions and stability of the proposed process plant area, TSF, WRSF, and other infrastructure areas are unknown as a geotechnical program has not been completed. The slopes and heights of the stockpiles, WRSF, and TSF may change as future site geotechnical programs are completed impacting the capital, sustaining capital and operating costs of the Project.

An opportunity exists to investigate the placement of waste rock at the foot of the dam. This would minimize the footprint of the TSF and improve dam stability over time especially since pre-stripping materials will be available early on.

Additionally, an opportunity still exists to consider acquiring power from another alternate power source provider, a third-party supplier of CCGT (Combined Cycle Gas Turbine) power generation located at or near the Huites Hydroelectric Plant.

1.18.8.5 Site Water

A recent preliminary water balance developed for the site suggests groundwater pumping along the northern most and west boundary of the North Zone Pit is required to mitigate seepage into the pits due to its proximity to the Río Fuerte. This finding poses several risks to the Project.

- All process plant makeup water will be sourced from this location as proposed but groundwater quality test work is needed to assess its suitability to serve as a potable water source and whether additional treatment is required.
- Seepage rates were benchmarked against similar situations from other projects and will need to be verified. Pumping costs may increase if the hydrological and hydrogeological assumptions taken during this exercise were inaccurate and the rock is more fractured than presumed.
- Surplus water (contact or groundwater) may require treatment prior to discharge back into the environment. Hydrological, hydrogeological and geochemical studies are paramount to understanding the extent of groundwater pumping, treatment options needed for discharge and use at the process plant and associated costs.

1.18.8.6 Environmental Permitting

The main risks associated with the permitting schedule for the Project include:

- Potential lack of support from community and Indigenous population.
- Potential impacts to potable water supplies or ecosystems from groundwater extraction (potential drawdown of groundwater table) and effluent discharge of mine contact water to surface waters.
- Potential impacts to listed / threatened species due to surface land disturbance/footprint in relation to protection and mitigation/compensation requirements as outlined by Mexican federal regulations and guidelines.

Opportunities as listed below should be considered as the Project continues along the development path:

- Continued engagement and discussions with the local community and Indigenous and regulatory bodies regarding the proposed Project, anticipated impacts, and proposed impact mitigation, and potential benefits of the Project.
- The timely initiation of targeted environmental and socio-economic baseline studies that will inform impact mitigation and risk reduction measures associated with infrastructure footprint, design and use of appropriate low impact and sustainable technologies.
- Regarding hydrological, hydrogeological, and geochemical studies, there are opportunities to work closely and collaborate with the geotechnical, water resources, and processing engineering teams and hence, reduce effort and costs.

1.18.8.7 Operating Costs

The fluctuating costs of reagents and consumables have the potential to impact the Project financials, as does a single US$0.01 change in the unit power rate.

A comprehensive site wide water balance and hydrogeological study is required to ascertain the appropriate concessions tariffs as issued by CONAGUA for makeup water.

1.19 Recommendations

1.19.1 Overall Recommendations

The Santo Tomás Project demonstrates positive economics, as shown by the results presented in this technical report. Continuing to develop the Project towards a pre-feasibility study is recommended. Table 1-13 summarizes the proposed budget to advance the Project through to the next stage. Additional details on recommendations are included in Section 26.

Table 1-13: Proposed Budget Summary for All Recommendations

Item	Budget (US$M)
Additional Drilling (Resource Upgrade, Exploration, Geology and Mineral Resource Expansion	5.5
Metallurgical test work	0.5
Mining Methods	1.7
Process and Infrastructure Engineering (including trade off studies)	0.9
Hydrogeological Studies	0.5
Geotechnical Studies	0.8
Environmental Studies	0.8
Total	**10.7**

Note: Totals may not sum due to rounding.

2 INTRODUCTION

2.1 Introduction

The Santo Tomás Property, in Sinaloa State, Mexico is a copper exploration project, located in northeastern Sinaloa State, near the border with Chihuahua, Mexico. Oroco Resource Corp. (Oroco) commissioned by Ausenco Engineering USA South Inc., Ausenco Engineering Canada, ULC and Ausenco Sustainability ULC (collectively, Ausenco) to compile a Preliminary Economic Assessment (PEA) of the Santo Tomás Property. The PEA was prepared in accordance with the Canadian disclosure requirements of National Instrument 43-101 (NI 43-101) and with the requirements of Form 43-101 F1. Recommendations presented herein conform to the generally accepted Canadian Institute of Mining, Metallurgy and Petroleum's (CIM) Mineral Exploration Best Practice Guidelines.

The responsibilities of the engineering companies who were contracted by Oroco to prepare this technical report are as follows:

- Ausenco managed and coordinated the work related to the technical report and developed PEA-level design, including metallurgical testing, capital and operating cost estimates for the process plant, general site infrastructure, water management, the TSF, geotechnical assessment, environment and permitting, economic analysis, and completed a review of the environmental studies.
- SRK Consulting (U.S.) Inc. and SRK Consulting (Canada) Inc. (collectively SRK) developed the MRE and geotechnical considerations for the Santo Tomás Property and completed the work related to property description, accessibility, local resources, geological setting, deposit type, drilling, exploration works, sample preparation and analysis and data verification. SRK also revised the design of the open pit mining, produced an updated mine production schedule, mine capital and operating costs.

2.2 Terms of Reference

The scope of work, as defined in a letter of engagement executed on the effective date of February 10, 2024, between Oroco, SRK, and Ausenco includes the review of historical technical information that was assembled by Oroco and its supporting consultants and the preparation of this independent, updated technical report.

The report was prepared in accordance with the Canadian disclosure requirements of National Instrument 43-101 (NI 43101) and Form 43-101 F1, and is prepared using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards for Mineral Resources and Mineral Reserves (CIM, 2014) and the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (CIM, 2019).

The report supports disclosure by Oroco in a news release dated August 20, 2024, entitled "Oroco Announces $1.48 Billion After-tax NPV and 22.2% IRR for its Santo Tomas Project".

All measurement units used in this technical report are SI units unless otherwise noted. Currency is expressed in United States dollars (US$).

2.3 Qualified Persons

The contributing Qualified Persons are listed in Table 2-1. By virtue of their education, experience, and professional association membership, they are considered a Qualified Person as defined by NI 43-101.

Table 2-1: Report Contributors

Qualified Person	Professional Designation	Position	Employer	Independent of Oroco Resource Corporation	Report Section
James Arthur Norine	P.E.	Vice President, Southwest USA	Ausenco Engineering USA South Inc.	Yes	1.1, 1.2, 1.13, 1.14.1, 1.14.2, 1.16.1, 1.16.3, 1.17.1, 1.17.2, 1.18.7, 1.18.8.4, 1.18.8.7, 1.19.1, 2.1 - 2.3, 2.4.1, 2.5, 2.8, 3.3, 5, 18.1, 18.2.1, 18.2.3, 18.2.4, 18.2.5, 18.3.1, 18.3.3 - 18.3.7, 19, 21.1, 21.2.1, 21.2.3, 21.3.1, 21.3.4, 21.3.5, 22, 24, 25.8, 25.10.3, 25.11.5, 25.11.10, 25.11.11, 25.12.6, 25.12.8, 26.5.1, 26.5.2.2, and 27
Peter Mehrfert	P. Eng.	Principal Process Engineer	Ausenco Engineering Canada ULC	Yes	1.9, 1.12, 1.18.4, 1.18.8.2, 1.19.1, 13, 17, 21.3.4, 25.4, 25.7, 25.10.2, 25.11.2, 25.11.4, 25.12.2, 25.12.4, 26.3, 26.5.2.1, and 27
James Millard	M. Sc., P. Geo.	Director, Strategic Projects	Ausenco Sustainability ULC	Yes	1.15, 1.18.8.6, 1.19.1, 3.2, 20, 25.9, 25.11.9, 25.12.7, 26.8, and 27
Scott C. Elfen	P.E.	Global Lead Geotechnical Services	Ausenco Sustainability ULC	Yes	1.13, 1.18.8.5, 1.19.1, 18.2.2, 18.3.2, 18.3.8, 18.3.9, 18.3.10, 21.3.3, 25.8, 25.11.6- 25.11.8, 25.12.5, 26.6.1 - 26.6.3, 26.7, and 27
Andy Thomas	M. Eng., P.Eng.	Principal Rock Mechanics Engineer	SRK Consulting (Canada), Inc.	Yes	1.11.3, 1.18.5, 1.19.1, 2.4.2, 16.2, 26.4.3, and 27
Fernando Rodrigues	BS Mining, MBA, MMSAQP	Practice Leader, Principal Consultant (Mine Plan, Mining CAPEX & OPEX)	SRK Consulting (U.S.), Inc.	Yes	1.11.1, 1.11.2, 1.16.2, 1.18.6, 1.18.8.3, 1.19.1, 16.1, 16.3 - 16.8, 21.2.2, 21.3.2, 25.6, 25.10.1, 25.11.3, 25.12.3, 26.4.1, 26.4.2, and 27
Ron Uken	PhD, PrSciNat	Principal Structural Geologist	SRK Consulting (Canada), Inc.	Yes	1.4, 1.18.1, 2.4.3, 7, 8, 9, 23, 25.2, and 27
Scott Burkett	RM-SME B.Sc. Geology	Principal Consultant (Resource Geology)	SRK Consulting (U.S.), Inc.	Yes	1.3, 1.5 - 1.8, 1.10, 1.18.2, 1.18.3, 1.18.8.1, 1.19.1, 2.4.4, 2.6, 2.7, 3.1, 4, 6, 10, 11, 12, 14, 15, 25.1, 25.3, 25.5, 25.11.1, 25.12.1, 26.1, 26.2, and 27

2.4 Site Visits and Scope of Personal Inspection

2.4.1 Site Inspection by James Arthur Norine, P.E.

Mr. James Arthur Norine conducted a site visit on September 21 through 23, 2022, to review existing infrastructure at the site and surrounding area.

2.4.2 Site Inspection by Andy Thomas, M. Eng., P.Eng.

Mr. Andy Thomas conducted a site visit on behalf of SRK on May 21 through 24, 2022, to carry out investigation of drill core, provide additional training in-person, view the core and conduct logging for QA/QC, and refining the structural logging protocols.

2.4.3 Site Inspection by Ron Uken, PhD, PrSciNat

Dr. Ron Uken visited the Project site between January 19 and 24, 2022; March 29 and April 11, 2022; and March 28 and April 3, 2023, for a total duration of 24 days. Dr. Uken was involved in field geological and structural mapping and verification of geological model for the resource estimation effort.

2.4.4 Site Inspection by Scott Burkett, RM-SME B.Sc. Geology

Mr. Scott Burkett conducted a site visit on behalf of SRK on March 28, 2023. For three days he spent reviewing Oroco's core facility and evaluation of logging, sampling and geological, alteration and structural data collection. Mr. Burkett worked with Oroco consultants in the development of the geological and structural models specifically as applied to the resource estimation efforts.

2.5 Effective Dates

The effective date of the technical report is August 15, 2024.

2.6 Sources of Information

The sources of information include historical data and studies compiled by previous consultants and researchers of the Project and supplied by Oroco personnel, as well as other documents cited throughout the report and referenced in Section 27. All the QPs relied on various email exchanges with Oroco representatives, excel spreadsheets, and previously completed reports filed on System for Electronic Document Analysis and Retrieval (SEDAR) by previous owners.

The QPs' opinion contained herein is based on information provided by Oroco throughout the course of the investigations. Ausenco's QPs relied upon the metallurgical test work results provided by the ALS Laboratory for metallurgy aspects in support of this technical report, as noted in Section 2.2. The QPs have relied on internal experts and legal counsel for details on Project history, regional geology, geological interpretations, and information related to ownership. The QPs have relied on Oroco for forward-looking commodity pricing assumptions. The QPs are relying upon mineral title verification surveys provided by Oroco.

SRK's QP has not performed an independent verification of land title and tenure information as summarized in Section 4, which was verified separately by Oroco legal counsel. The QP did not verify the legality of any underlying agreement(s) that may exist concerning the permits or other agreement(s) between Oroco and third parties. As such, the QP expresses no opinion as to the ownership status of the Project.

This report has been prepared using the documents noted in the References section (Section 27). The QPs used their experience to determine if the information from previous reports was suitable for inclusion in this technical report, and adjusted information that required amending. This report includes technical information that required 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.

The exploration database was compiled and maintained by Oroco and third-party consultants. The contained information was reviewed by SRK's QPs, where needed. The geological cross-sections and outlines for the copper mineralization were constructed from the geological database provided by Oroco and its supporting consultants. In the opinions of the QPs the geological model and drill hole data base developed for the Property is a reasonable representation of the distribution of the targeted mineralization at the current level of sampling. Neither QP has a reason to doubt the reliability of the information provided by Oroco.

2.7 Previous Technical Reports

The Santo Tomás Project has been the subject of the following previous technical reports:

- Ausenco Engineering USA South Inc., (2023). Santo Tomás Copper Project NI 43-101 Technical Report and Preliminary Economic Assessment, Sinaloa/Chihuahua/Sierra Madre Occidental Region, Mexico, Effective Date: October 11, 2023. Filing date: November 30, 2023.
- Ausenco Engineering USA South Inc., (2023). Santo Tomás Project NI 43-101 Technical Report, Mineral Resource Estimate, Sinaloa/Chihuahua/Sierra Madre Occidental Region, Mexico, Effective Date: April 21, 2023. Filing date: June 15, 2023.
- Bridge, D. (2019). Geology, Mineralization, and Exploration of the Santos Tomás Cu-(Mo-Au-Ag) Porphyry Deposit, Sinaloa, Mexico: NI 43-101 Technical Report prepared by Dane A. Bridge Consulting Inc., for Oroco Resource Corp. and Altamura Copper Corp. Effective date: August 22, 2019, Filing date: September 10, 2019.
- Bridge, D. (2020). Revised – Geology, Mineralization, and Exploration of the Santos Tomás Cu-(Mo-Au-Ag) Porphyry Deposit, Sinaloa, Mexico: NI 43-101 Technical Report prepared by Dane A. Bridge Consulting Inc., for Oroco Resource Corp. and Altamura Copper Corp. Effective date: August 22, 2019, and Revised April 21, 2020; Filing date: April 22, 2020.
- Bateman Engineering Inc., (1994). Prefeasibility Study, Exall Resources, Santo Tomás Project, Sinaloa, Mexico, Bateman Engineering Inc., Tucson, Arizona.

2.8 Units and Abbreviations

All map locations and drill hole positions are in meters, and Universal Transverse Mercator (UTM) coordinates are in World Geodetic System (WGS) 84 Zone 12. All units and measurements presented in this technical report t are in metric, except for the price weight of copper and molybdenum, which are presented in dollars per pound (lb.). Dollar values presented are in the United States of America dollars (US$) unless otherwise stated. The most common units and abbreviations presented in this document are listed below in Table 2-2 and Table 2-3, respectively.

Table 2-2: List of Units

Unit	Meaning
%	Percent
°	Degree
Ω	Ohms
°C	Degrees Centigrade
µm	Micron
A	Ampere
A/m^2	Amperes per square meter
cfm	Cubic feet per minute
cm	Centimeter
cm^2	Square centimeter
cm^3	Cubic centimeter
d	Day
dia.	Diameter
dmt	Dry metric tonne
g	Gram
g-mol	Gram-mole
g/L	Gram per litre
g/t	Grams per tonne
h	Hour
ha	Hectare
hp	Horsepower
kA	Kiloamperes
kg	Kilograms
km	Kilometer
km^2	Square kilometer
koz	Thousand troy ounces
koz/y	Thousand troy ounces per year
kPa	Kilopascal
kt	Thousand (kilo) tonnes
kt/d	Thousand (kilo) tonnes per day
kt/y	Thousand (kilo) tonnes per year
kV	Kilovolt
kW	Kilowatt
kWh	Kilowatt-hour
kWh/t	Kilowatt-hour per metric tonne
L	Litre
L/s	Litres per second
lb	Pound
m	Meter
M	Million
m^2	Square meter
m^3	Cubic meter
$m^3/h/m^2$	Cubic meters per hour per square meter
m^3/h	Cubic meter per hour
masl	Meters above sea level
mg/L	Milligrams/litre
min	Minute
M lb	Million pounds
mm	Millimeter
mm^2	Square millimeter
mm^3	Cubic millimeter
mm/y	Millimeter per year

Unit	Meaning
ms	Milliseconds
mV	Millivolt
MA	Moving average
M lb	Million pounds
M lb/y	Million pounds per year
MMBtu	Metric Million British thermal units
Moz	Million troy ounces
Mt	Million tonnes
Mtpa	Million tonnes per year
MV	Megavolt
MW	Megawatt
MXN	Mexican peso
nT	Nanotesla (10−9 tesla), a unit of magnetism
oz	Troy ounce
ppb	Parts per billion
ppm	Parts per million
s	Second
t	Tonne (metric ton - 2,204.6 pounds)
t/d	Tonnes per day
t/h	Tonnes per hour
t/y	Tonnes per year
US$	United states dollar
V	Volts
W	Watt
wmt	Wet metric tonne
y	Year

Table 2-3: List of Abbreviations

Abbreviation	Term
2P	Proven and Probable
2SD	2 standard deviations
3D	Three-dimensional
3D DCIP	Three-dimensional direct current resistivity induced polarization
3P	Proven, Probable, and Possible
3S	3S Services LLC.
3SD	3 standard deviations
5PDL	5x the Practical Detection Limit
A	Andesite
AA	Atomic absorption
ABA	Acid-base Accounting
ADL	Analytical detection limit
Ag	Silver
AGL	Above ground level
ALS	ALS Metallurgy Services
ANFO	Ammonium nitrate fuel oil
AR	Análisis de Riesgos / Risk Analysis
ASCII	American Standard Code for Information Interchange
Atf	Andesite tuff
ATV	Acoustic televiewer
Au	Gold
AuEq	Gold equivalent
AVRD	Absolute Value of the Relative Difference
AWG	American wire gauge

Abbreviation	Term
Axb	Grinding hardness parameter
BV	Best value
$CaCO_3$	Calcium carbonate
CAD	Canadian dollar
CAPEX	Capital expenditures
CBH	Containerized bulk handling
CCD	Counter-current decantation
CCGT	Combined cycle gas turbine
CCK	Consultoría Constructiva y de Kontrol S.C
CDCI	Cerro de Cobre Inc.
CDUP	Course duplicate sample
CENACE	Centro Nacional de Control de la Energía / National Center for Energy Control
CFE	Comisión Federal de Electricidad / Federal Commission of Electricity
CIL	Carbon-in-leach
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CLA	Composite length analysis
CMR	Compañía Minera Ruero, S.A. de C.V.
COC	Chain of Custody
CoG	Cut-off grade
CONAGUA	Comisión Nacional del Agua / National Water Commission
ConfC	Confidence code
CPF	Coarse particle flotation
CRec	Core recovery
CRM	Certified reference material / commercial reference materials
CSS	Closed-side setting
CTW	Calculated true width
Cu	Copper
Cu-Mo	Copper - molybdenum
CuEq	Copper equivalent
CURP	Clave Única de Registro de Población / Unique Population Registry Code
CuS	Acid soluble copper percent
CuT	Total copper percent
CV	Certified value
CVR	Common voltage reference
DC	Direct current
DCIP	Direct current resistivity induced polarization
DEM/DTM	Digital elevation model / digital terrain model
DGPS	Differential GPS
DHDB	Drill hole Database
DTU	Documento técnico unificado / unified technical document
DUP	Duplicates
DVD	Digital video disk
EDA	Exploratory data analyses
EEL	Electrical equipment list
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
ENE	East northeast
ESG	Environmental, Social and Governance
EXA	Exploratory data analysis
EY	Ernst and Young Law LLP.
FA	Fire-assay
FDUP	Field duplicate samples
FOS	Factors of safety

Abbreviation	Term
G&A	General and administrative
GD	Granodiorite
GPS	Global positioning system®
HDPE	Height density polyethylene
Hg	Mercury
HPGR	High pressure grinding rolls
HTW	Horizontal true width
IATA	International air transport association
ICP	Inductively coupled plasma
ICP-AES	Inductively coupled plasma – atomic emission spectroscopy
ID2	Inverse distance squared
ID3	Inverse distance cubed
Idas	Availability index
IDF	Inflow design flood
IDW	Inverse distance to the 3rd power interpolation method
IDW2	Inverse distance weighted squared
IDW3	Inverse distance weighted cube
IFC	International finance corporation
ILS	Intermediate leach solution
IMU	Inertial measurement unit
INAH	Instituto Nacional de Antropología e Historia / National Institute of Anthropology and History
INEGI	Instituto Nacional de Estadística y Geografía / National Institute of Statistics and Geography
INS-GNSS	Inertial Navigation System-Global Navigation Satellite System (GNSS aided INS)
IP	Induced polarization
IRR	Internal rate of return
ITRF08	International terrestrial reference frame 2008
IUGS	International Union of Geological Sciences
JtKap	Jurassic-Cretaceous andesite
Jetti	Jetti Services Canada Incorporated
K	Potassium
KEV	Key economic variables
LGEEPA	Ley General de Equilibrio Ecológico y Protección al Ambiente / General Law for Ecological Balance and Environmental Protection
LGPGIR	Ley General para la Prevención y Gestión Integral de Residuos / General Law for the Prevention and Integral Management of Waste
LHD	Long-Haul Dump truck
LiDAR	Light Detection and Ranging
LLDDE	Linear low-density polyethylene
LNG	Liquefied natural gas
LOM	Life of Mine
LS	Limestone
MCE	Maximum credible earthquake
MDA	Mine development associates
MEL	Mechanical Equipment list
MEM	Mercado Eléctrico Mayorista / Mexican wholesale electricity market
MME	Mine & mill engineering
MMLM	Valle Del Fuerte International Airport – Los Mochis
Mo	Molybdenum
MRE	Mineral Resource Estimate
MRS	Mineral Resource Statement
MSRDI	Mountain States Research and Development Inc.
MTO	Material take off
MTW	Measured true width

Abbreviation	Term
MZ	Monzonite
N	North
NAD27	North America vertical datum 1927
NGO	Non-governmental organization
NI 43-101	Canadian National Instrument 43-101
NNE	North northeast
NNP	Net neutralization potential
NNW	North northwest
NP	Neutralization potential
NPV	Net present value
NSR	Net smelter return
NW	Northwest
ODBC	Open database connectivity
OK	Ordinary kriging
OPEX	Operating expenditures
OREAS	Ore Research & Exploration Pty Ltd
OSA	Overall slope angle
OSC	Ontario securities commission
OTV	Optical televiewer
P.E.	Process engineer
P/F	Pass/fail
PAX	Potassium amyl xanthate
Pb	Lead
PBLNK	Pulp blank
PDL	Practical detection limit
PDUP	Pulp duplicate samples
PEA	Preliminary Economic Assessment
PFS	Prefeasibility study
pH	Potential of hydrogen
PL	Point load
PMA	Particle mineral analysis
PMF	Probable maximum flood
PMP	Probable maximum precipitation
PRM	Public Registry of Mining
PROFEPA	Procuraduría Federal de Protección al Ambiente / Federal Environmental Protection Agency
QA/QC	Quality assurance/quality control
QAPF	Quartz-alkali feldspar-plagioclase-feldspathoid
QMP	Quartz-monzonite Porphyry
QP	Qualified person
R	Rhyolite tuff
R&R	Resources and Reserves
RC	Refining charges
RF	Revenue factor
RMA	Reduction of the Major Axis
RoM	Run-of-Mine
RPEEE	Reasonable Prospects for Eventual Economic Extraction
RQD	Rock quality designation
S	Sulphur
S&R	Smelting and Refining
S/R	Strip ratio
SAR	Synthetic aperture radar
SC	Shear compression
SD	Standard deviations

Abbreviation	Term
SEC	U.S. Securities & Exchange Commission
SEDAR	System for Electronic Document Analysis and Retrieval
SEM	Scanning electron microscopy
SEMARNAT	Secretaría del Medio Ambiente y Recursos Naturales / The Secretary's office of Environment and Natural Resources
SG	Specific gravity
SGA	Semi-autogenous grinding
SGM	Servicio Geológico Mexicano / Mexican Geological Service
SIRGAS	Geodetic Reference System for the Americas
SK	Simple kriging
SMO	Sierra Madre occidental
SMU	Selective mining unit
SOP	Standard operating procedures
SPT	Standard penetration testing
SRK	SRK consulting inc.
SSE	South southeast
SSW	South southwest
SW	Southwest
SWIR	Short wave near infrared
TC	Treatment charges
TMI	Total magnetic intensity
TSF	Tailings storage facility
TSP	Total suspended particulates
U.S.	United States
UCS	Uniaxial compressive strength
UTM	Universal transverse mercator
VFD	Variable frequency drive
VLF-EM	Very low frequency - electromagnetics
VUGALIT	Consultoría Ambiental Vugalit S.C.
W	West
WNW	West northwest
WRSF	Waste rock storage facility
WSW	West southwest
XRD	X-ray diffraction
Zn	Zinc

3 RELIANCE ON OTHER EXPERTS

3.1 Property Agreements, Mineral Tenure, Surface Rights and Royalties

The QPs have not independently reviewed ownership of the Project area and any underlying property agreements, mineral tenure, surface rights, or royalties. The QPs have fully relied upon, and disclaim responsibility for, information derived from Oroco, and legal experts retained by Oroco for this information through the following documents:

- Rose, D. 2023. Concession Titles/Boundary Coordinates. Email sent 11/20/23 at 2:18pm. Oroco provided title certificates for the 13 concessions of the Santo Tomás Project. In Mexico, the coordinates of each concession are projected from a specified point marked with a permanent "monument" and Mr. Norine having observed three key monuments during his field inspection of the property undertaken on September 21 through 23, 2022.

The QPs relied on this information in section 1.3, 4 and 25.1.

3.2 Environmental, Permitting, Closure, Social and Community Impacts

The QPs have fully relied upon the following information supplied by Oroco and experts retained by Oroco for information related to environmental (including tailings and water management) permitting, permitting, closure planning and related cost estimation, and social and community impacts as follows:

- Dias Geophysical Limited., 2021. Logistical Report, Minera Xochipala, S.A. de C.V., Santo Tomás Project, Sinaloa, Mexico, Dias Geophysical Limited, Canada.
- Fierce Investments Ltd. Santo Tomás Copper Property Technical Report Choix, Sinaloa, Mexico Revised September 23, 2011.
- Borovic, I.R., 2006. Exploration of the Santo Tomás Copper Porphyry Deposit, Choix, Sinaloa, Mexico, IGNA Engineering & Consulting Ltd., Vancouver, British Columbia.
- SEMARNAT, Manifestación de Impacto Ambiental modalidad particular para la construcción de puente ubicado en el Km 217 + 400 (presa Huites) en el tramo Choix-Bahuichivo de la carretera eje Topolobampo-Chihuahua en el estado de Sinaloa., CCK Consultoría Constructiva y de Kontrol, S.C.
- CONAGUA, 2020. Average annual availability of water in the Río Fuerte aquifer (2501), update. Sinaloa State. Groundwater Technical Management Office, Dec. 2020. Mexico.
- VUGALIT, 2022, Resumen Ejecutivo del Documento Técnico Unificado Modalidad B Particular, Executive Summary Report submitted in support of the “informe preventivo” and DTU applications: filed by Lic. Gabriela Zavala Quintero, technical content by Consultoría Ambiental VUGALIT S.C. directed by M.I. Claudia Angelica Santos Rodriguez, 81p.
- Oroco Resource Corp., April 24, 2023. Environment, Social and Governance Site Manual Santo Tomás Project.
- Graham, I., 2023. Communities Map. Email sent 9/20/23 at 11:56 am.
- Graham, I., 2023. YouTube Video Library. Emailed sent 11/20/23 at 10:08am.

The QPs relied on this information in sections 1.15, 4.4, 20 and 25.9.

3.3 Taxes

The QPs relied on tax information and guidance supplied by Oroco's tax consultant, Ernst and Young Law LLP. (EY), via email. EY reviewed and approved the taxes developed by Ausenco for the financial model:

- Reséndiz, Martha, 2024. RE: Santo Tomás Tax Model Review. Email sent on August 14, 2024, at 6:37 p.m.

The QPs relied on this information in sections 1.17, 22 and 25.10.3.

4 PROPERTY DESCRIPTION AND LOCATION

4.1 Property Location

The Santo Tomás Project (the Project) consists of three zones (South Zone, North Zone, and Brasiles Zone) within 13 mineral concessions (the “Project Property also described as Peripheral and Core Concessions”) in the municipality of Choix, straddling the northern border of Sinaloa State and the southern border of Chihuahua State, Mexico, centered at latitude 26°53’00” N and longitude 108°11’30” W (see Figure 4-1). The mineral resource which is the subject of this technical report is hosted in the North Zone and South Zone (the “Resource Property also described as Core Concessions”), which are entirely located in Sinaloa State on the south bank of the Río Fuerte in the Sierra Madre Occidental.

4.2 Mexican Mineral Tenure System

4.2.1 Governing Law and Regulations

Mexico (Estados Unidos Mexicanos) has a well-established system of mineral land tenure which is regulated by Article 27 of the Mexican Constitution and the Mining Law and its Regulations (the Mining Law). Article 27 of the Constitution establishes that the Federal Republic owns all minerals found in Mexican territory. Application of the Mining Law is the responsibility of the Federal Executive (the President’s office) through the Ministry of the Economy.

The Mexican Congress approved a decree amending the Mining Law and other national laws, regarding mining and water concessions (the Amendments), on May 8, 2023. The Amendments focus principally, but not exclusively, on the process of the granting of new concessions and their associated rights and obligations, which are not seen as being applicable to Oroco given that the Project comprises existing concessions. The amendment reducing the initial term of mineral concessions from 50 years to 30 years is not, therefore, thought to affect the term of current concessions.

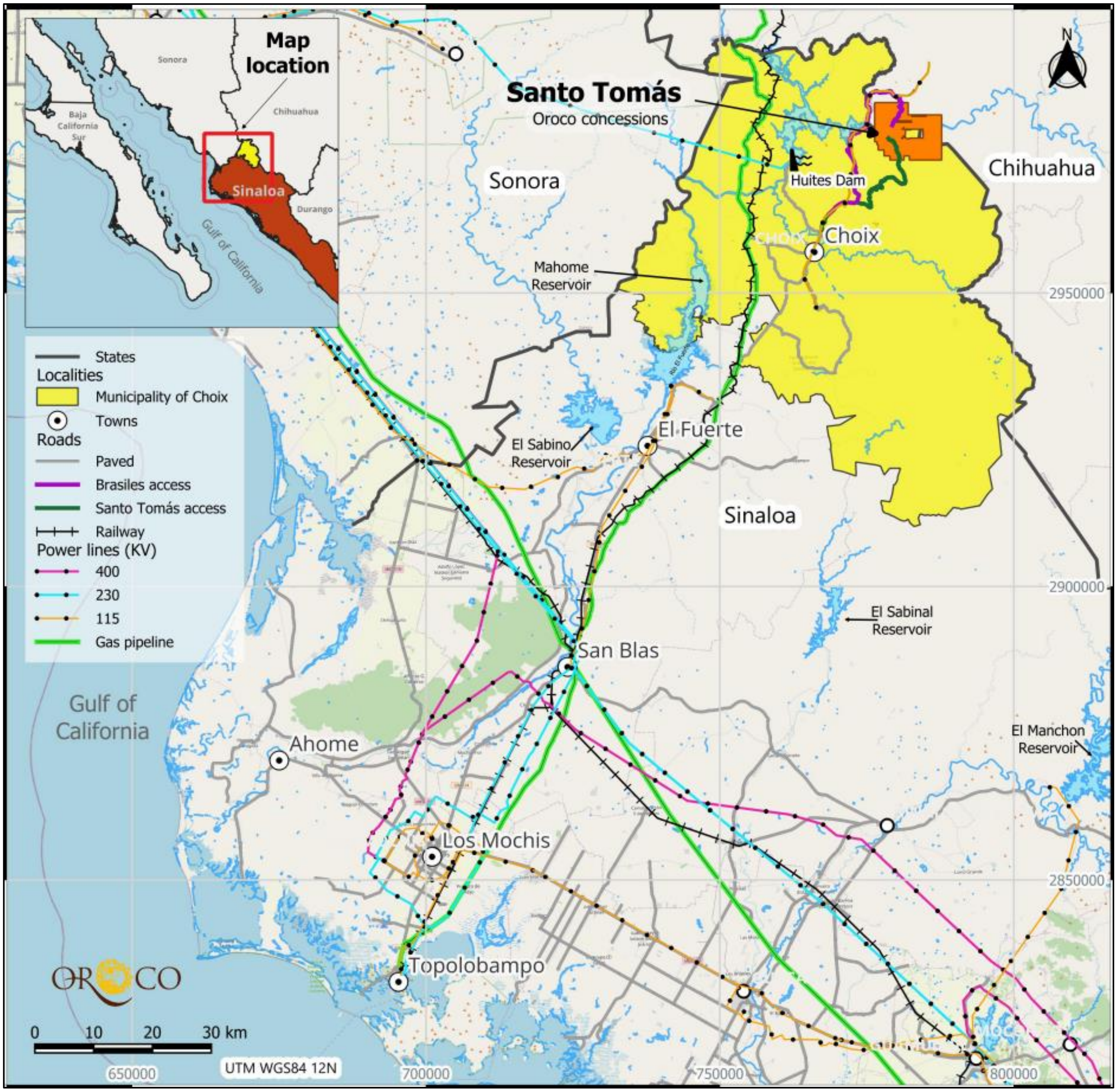
4.2.2 Mexican Public Registry of Mining

The Mexican Public Registry of Mining (the PRM) is the central titles registration office under the Mexican Mines Bureau. All concessions must be registered with the PRM, with title being evidenced through such registration. Both Oroco’s subsidiaries, Minera Xochipala S.A. de C.V. (Minera Xochipala), with six Peripheral Concessions (see Table 4-1 and Table 4-2 below), and the resource property held by Xochipala Gold S.A. de C.V. (Xochipala Gold) are fully registered in the PRM.

4.2.3 Assessment Work, Reporting and Mining Duties

Pursuant to the Mining Law, concession holders are obligated to either expend a minimum amount per year (subject to certain temporary, fact specific exemptions) on the exploration and assessment of each mineral concession, or to produce a minimum value of mineral products per year, and to pay, on a semi-annual basis, government mining concession duties. The amount of the minimum expenditure obligation and the mining duties are calculated based on the size and age of the concession and are updated each year to adjust for inflation. Oroco is up to date on the payment of all concession duties on the Project Property.

Figure 4-1: Property Location Map



Source: Oroco, 2024.

Concession holders are obligated to file an expenditure verification report by the end of May of the following year, and, for mineral concessions older than six years, a report of any mineral production from the concession within the first 30 days of the following year. Oroco is up to date on the filing of all assessment work verification and mineral production reports for 2024.

4.2.4 Location Surveys

In Mexico, the location of a concession is determined by the location of a single claim monument, with all corners being located based on surveyed distances and bearings from that monument. A licensed surveyor (a Perito Minero) must determine these distances and bearings. The monument may be placed outside of the surveyed claim boundaries. All meets and bounds of the concession boundaries are defined in metric dimensions.

Historically, coordinates cited in the Mexican Mineral tenure system are based on a UTM grid, North American Datum (NAD) 27 datum. The National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía) under Article 26 of Part B of the Constitution of Mexico approved a change to the coordinate system used to display and publish geospatial data. This change is to improve the quality and accuracy of the geospatial data they present. This transition is from datum NAD27 (North America Vertical Datum 1927) to ITRF08 (International Terrestrial Reference Frame, 2008), which is compatible with WGS84 (World Geodetic System 1984) and SIRGAS (Geodetic Reference System for the Americas). The change was published in the Official Gazette on December 23, 2010, and entered into law the following day. All geospatial data from the Mexican Government since 2010 contains metadata detailing the coordinate system used and any transformations applied to the original data (Diario Oficial de la Federación, 2010).

4.3 Mineral Tenures of the Project Property and the Resource Property

The Project property comprises 13 mineral concessions totaling 9,034.16 ha, of which seven (the Core Concessions) are 100% owned by Xochipala Gold, and six (the Peripheral Concessions) are 80% owned by Minera Xochipala and 20% owned by either of two, third-party Mexican companies or a Mexican individual (the Third Parties).

The Santo Tomás Property is the entire package of 13 concessions held as follows:

- Xochipala Gold - 7 Core Concessions: Santo Tomás, Bob, Roberto Verde, Esme, Karisu, Karisu Fracc 1 and Toña.
- Minera Xochipala - 80% interest in 6 "Peripheral Concessions: La China II, Papago Fracc 1, Papago 17, Rossy, Rossy 1 and AMP STO Tomás Red 1.

The Resource Property is located on the six Core Concessions located in Sinaloa State south of the Río Fuerte (Bob, Roberto Verde, Karisu, Karisu Fracc 1, Esme and Toña) and one of the Peripheral Concessions (Papago 17) to the immediate south thereof (see Figure 4-2).

The Peripheral Concessions, other than Papago 17, are not the subject of the MRE of this technical report. The Peripheral Concessions are described herein and named above.

Oroco initially acquired a 66.6% interest in Xochipala Gold, which interest has been increased to 95% with the expenditure of $30,000,000 Canadian dollars in relation to the acquisition and development of the Santo Tomás Project. A Mexican individual holds the remaining 5% of Xochipala Gold.

The Third Parties initially held a 15% contractual interest in the Core Concessions, which interest was also subject to dilution on the Santo Tomás Project-related expenditure of $30,000,000, reducing the Third Parties contractual interest to the current 10%. Therefore, Oroco currently holds a net 85.5% interest in the Core Concessions (95% of Xochipala Gold’s net 90% interest in the Core Concessions) and an 80% interest in the Peripheral Concessions. Both the Core Concessions and the Peripheral Concessions are subject to an aggregate 1.5% net smelter returns royalty interest held by various parties.

Santo Tomás Project expenditures made by Oroco exceeding CAD$30M are being made as a loan to the Santo Tomás Project, with the loan terms to be established.

Xochipala Gold's Core Concessions are listed in and shown in Figure 4-2 Minera Xochipala's Peripheral Concessions are listed in Table 4-2 and are also shown in Figure 4-2 below.

Table 4-1: List of Xochipala Gold, S.A. de C.V.'s Santo Tomás Core Concessions

Concession Name	Title No.	Area (ha)	Expiry Date (dd/mm/yyyy)
ESME	211954	326.3	27/07/2050
Karisu	209594	63.2	02/08/2049
Karisu Fracc 1	209595	4.1	02/08/2049
Toña	215721	85.6	11/03/2052
Roberto Verde	149672	221.7	27/06/2068
Santo Tomás	212003	242.7	17/08/2050
Bob	149675	229.2	27/06/2068
Total Area (ha)	-	**1,172.8**	-

Table 4-2: List of Mineral Xochipala, S.A. de C.V.'S Santo Tomás Peripheral Concessions (80% Interest)

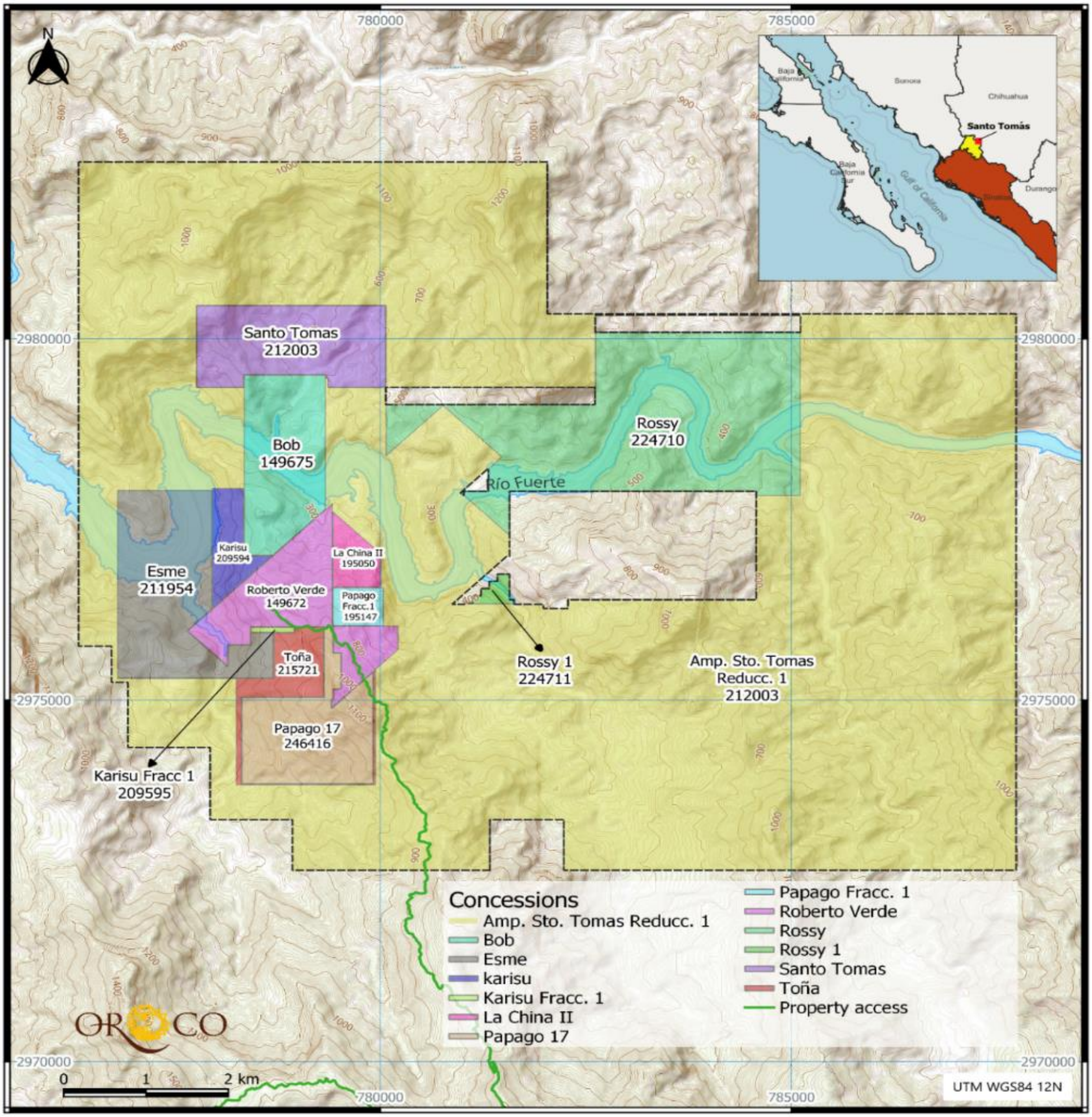
Concession Name	Title No.	Area (ha)	Expiry Date (dd/mm/yyyy)
AMP STO Tomás Reducc 1	227732	6,660.4	20/01/2053
La China II	195050	168.0	24/08/2042
Rossy	224710	766.7	30/05/2055
Rossy 1	224711	13.1	30/05/2055
Papago Fracc 1	195147	40.3	24/08/2042
Papago 17	246416	212.8	18/06/2068
Total Area (ha)	-	**7,861.3**	-

The recently promulgated Mining Law Amendments do not affect the current term of the Core Concessions or the Peripheral Concessions but do reduce the term of renewal to a one-time period of 25 years, with the right to bid for the concession thereafter if the holder matches 90% of the highest bid for the concession in a public bidding process.

4.3.1 Legal Survey of the Property

Barney Green Lee Portillo and Israel Alejandro Iza Estrada, both Perito Mineros (Registered Surveyors) verified the positions of the concession monuments of the Project concessions. This work was commissioned by Oroco to obtain definitive information on the position of the concession monuments and key historical diamond drill hole collars. See a listing of the Project concessions in Table 4-1 and Table 4-2 and see Figure 4-2 for the Project map of the concessions.

Figure 4-2: Oroco Controlled Concessions: The Property



Source: Oroco, 2023.

4.3.2 Obligations to Maintain the Property

Concession duties payable for the Project concessions are fully paid and up to date. All required assessment expenditure verification and production reports have been filed for the Project concessions.

Oroco has no obligation to any third party required to maintain Oroco's interest in the Santo Tomás Project concessions.

Principal Amendments affecting existing concessions are: (1) the reduction of the term of renewal to a one-time period of 25 years, with the right to bid for the concession thereafter if the concessionaire matches 90% of the highest bid in a public bidding process; (2) the requirement of government approval for the transfer of mineral concessions; (3) the addition of grounds for cancellation, including: (i) failure to pay mining fees for two consecutive years; (ii) failure to submit verification reports for works for two consecutive years or five non-consecutive years; (iii) failure to initially commence work within one year; (iv) failure to carry out work for a period of two consecutive years; (v) failure to submit a mine closure plan within the time required; and (vi) lack of a valid water concession; and (4) the elimination of mining's preferential nature and the related right to expropriate land when required.

4.3.3 Surface Rights

The lands over the Project Property are largely rugged, unimproved, unutilized, or lightly ranched areas with xerophilous scrub vegetation. Surface rights over the Oroco areas of operation in the Project Property are held by two Ejidos (Macoribo and Boca de Arroyo) and the individual member of the Third Parties. Surface rights over the Resource Property are held by the Boca de Arroyo Ejido (South Zone and part of the North Zone) and the Mexican individual member of the Third Parties (the balance of the North Zone).

Oroco has surface rights agreements with Macoribo and Boca de Arroyo Ejidos and the individual member of the Third Parties covering the current areas of operation (Brasiles, North Zone, and South Zone) of the Project Property, including all of the Resource Property (see Section 4.2.3, Valid Concession Holders & Surface Rights). The surface rights agreements with the Mexican individual and Boca de Arroyo Ejido fully cover the Resource Property. The surface rights agreement with the Macoribo Ejido covers the Brasiles Zone.

Figure 4-3: Access Road Stability Retaining Walls Built by Community Members with Oroco Financial Support

Source: Ubaldo Trevizo Ledezma, 2022.

Oroco anticipates no impediment to the future acquisition on fair commercial terms of any other surface rights which may be required, principally for waste rock storage and tailings, as the area is of limited utility for any other purpose other than very light ranching.

Oroco can legally access the Property via publicly accessible roads that connect from the southwest, originating in Choix. The road from the local public highway continuing northward to the Project Property's North Zone is a public municipal road administered from Choix. The local residents, ejidatarios and ranchers look to the municipality to maintain their access to the region, the maintenance of which the Company has agreed with the municipality to support. For example, Oroco has funded the construction of several retaining walls on this municipal road to improve safety and continuity of access.

4.4 Permitting and Liabilities

Prior to the acquisition by Oroco of the Core Concessions, the Project Property had not been drilled since the Exall drill program completed in 1994. The Company obtained an exploration permit for the Brasiles Zone from SEMARNAT in 2021. Permit applications and notices of work with regard to the South Zone and North Zone were filed with SEMARNAT in 2021 and 2022, providing Oroco with the necessary approvals and rights to conduct its 2021-2023 exploration program.

No outstanding environmental liabilities have been reported to the QP, and none are expected to have arisen from fieldwork performed since 1994 on the Property.

Additional drilling in 2024 may necessitate the construction of new access roads and mechanized construction work which may require permits from SEMARNAT. Additional drilling from existing drill pads using existing access roads is an option under consideration.

4.5 Risks

A review of the Amendments to the Mining Law, as of May 8, 2023, found that some modifications to the law may pose minor risks to the Project as detailed in Section 20.4.2 otherwise, there are no other known significant factors that may affect access, title or the ability to perform work on the property.

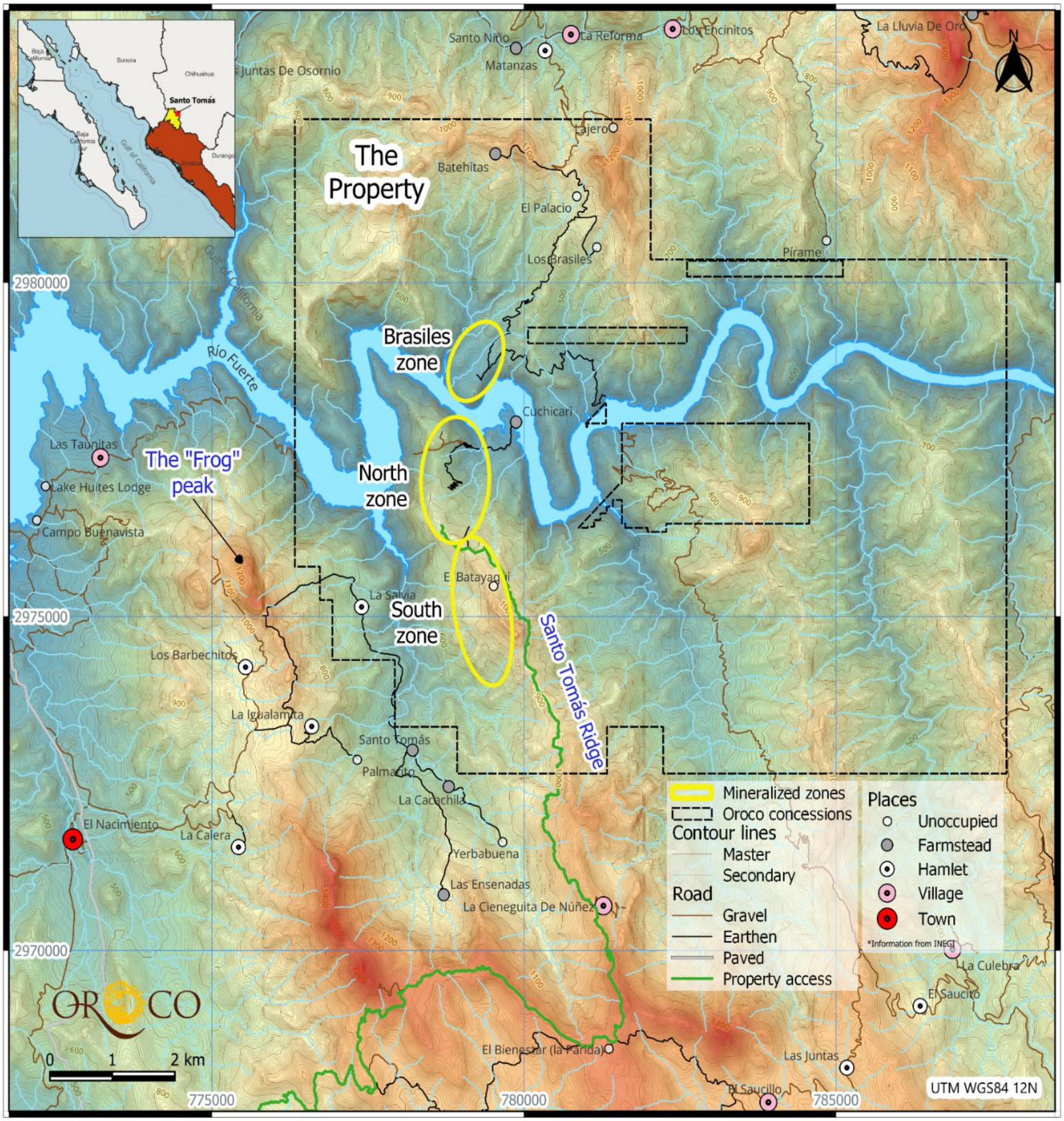
5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Physiography

The Santo Tomás area is mountainous and part of the southwestern slopes of the Sierra Madre Occidental Mountain range. The area is characterized by deeply incised, steep-walled valleys that rise in elevation from Río Fuerte valley at 225 m elevation, to 1,340 m at El Bienestar Ranch. Vegetation changes gradually southward and to higher elevations through brush and scrub-covered woodlands, and climate transitions to a temperate zone at elevations between 1,100 to 1,300 m. Pine and oak forests characterize the temperate climatic zone (Borovic, 2006). Figure 5-1 illustrates the following place names on and around the Property that are referred to in this technical report:

- El Bienestar Ranch, old site of the Santo Tomás core storage facility. It is serviced by an existing powerline.
- El Ranchito, current offices, core processing and storage and pulp/reject storage facility in Choix, State of Sinaloa, Mexico.
- Santo Tomás Village located NNW of El Bienestar by road. It is serviced by a powerline.
- Santo Tomás Ridge that is the prominent north-south trending ridge connecting the village of Santo Tomás to Río Fuerte.
- South Zone is the mineralized zone that was previously was studied by Bateman (1994) and falls within the current economic pit. It largely falls on and under the western slopes of the Santo Tomás Ridge.
- North Zone is the main mineralized zone on the Property that was previously was studied by Bateman (1994) and falls within the current economic pit. The zone lies on the eastern flank of the Santo Tomás Ridge and extends westward toward the western bounding valley under post mineral rocks and limestones. The eastern expression of the North Zone mineralization is defined by oxide copper mineralization at surface, hosted in quartz-monzonites and andesites.
- Brasiles is a mineralized zone to the north of the Río Fuerte/ Huites Reservoir. It is probable that the mineralized zone encountered in seven drill holes is a continuation of the mineralized system defined to the south. The Brasiles Zone (a.k.a. Brasiles Prospect) is excluded from the MRE.
- Huites Reservoir that inundates Río Fuerte at the Property for most of the year. When flooded, the water way provides alternate access to the Project for exploration activities.
- Cuchicari is the village on the south side of the Río Fuerte and east of the North Zone that was abandoned due to the flooding of the Huites Reservoir.
- The “Frog” that is a prominent peak lying on the ridge to the west of the Santo Tomás Ridge. It was the site of a limestone quarry in the 1990s.

Figure 5-1: Local Physiography with Mineralized Zones – North Zone, South Zone and Brasiles Zone



Source: Oroco, 2023.

Note: Occupancy classifications based on population: 0 occupants = unoccupied, <10 = farmstead, 10-40 = hamlet, 40-200 = village, >200 = town.

Lying on the same ridge is the Microwave Tower that is serviced by a power line. The site is accessed by roads from the Frog: mainly from the south by the access road to El Bienestar. The tower now provides cell phone and internet connectivity between El Ranchito and the Project site. It is suitable for installing additional communications infrastructure for the Project.

An aerial view of the three mineralized zones is shown in Figure 5-2.

Figure 5-2: View of the Santo Tomás Deposit Area Indicating North Zone, South Zone, and Brasiles Toward the Northeast

Source: Oroco/VRIFY, 2022.

5.2 Local Resources

The nearest supply center is the town of Choix, with a population of 10,300, located 38 road km to the SW of the Project. The town of El Fuerte and the city of Los Mochis are well-serviced with industrial supply and repair facilities, due to the region's port, agricultural, and mining activities.

Labour and experienced mining technicians and equipment operators are available in northwestern Mexico, a consequence of the region's long mining history.

5.3 Accessibility

Access to the Property is by way of a 170 km paved highway from the Port of Topolobampo, through the city of Los Mochis to the northern town of Choix. From El Ranchito to the Project area via the current access road it a further 38 km along mostly unimproved dirt roads via Cajón de Cancio. From the Chihuahua Pacific Highway, access is by secondary, unsurfaced roads that are usable in all seasons.

Historically, the Property was explored from an exploration camp located on the El Bienestar Ranch (La Parida Ranch) that is located on a ridge south of the Property. The ranch and camp buildings remain on-site and include a core storage building where diamond drill core and rotary drilling cuttings were stored. All operations and core storage were subsequently moved the El Ranchito Facility, north of Choix in the summer of 2021.

Access to the North Zone of the Property is also afforded from the end of the Chihuahua-Pacific highway at the Huites Reservoir. From there, a boat is used to access the northern area of the Property. Access is now available from the western side of the North Zone, thus eliminating the truck use on the switchback access from the north. Ongoing road repair is required to maintain access during the monsoon season.

5.4 Climate

Elevation effects on the climate over the Property boundaries are dramatic. The climate varies from subtropical at the northern end of the Property to temperate climates at higher elevations in the south at El Bienestar Ranch. The deep river valley is hot and humid.

Excluding the river valley surrounds, the overall climate is dry and arid for most of the year and with heavy, monsoon rains during the period from July to September. Levels of Río Fuerte are highly variable during this period. Localized flooding may also occur requiring engineering of access and roadways to mitigate erosion and landslides in the steep terrain.

The operating season is effectively 365 days a year. Some access restrictions may occur during the monsoon season.

5.5 Infrastructure

5.5.1 Regional Infrastructure

Facilities for ocean shipping of concentrate would need to be arranged at the Port of Topolobampo (see Figure 4-1); a distance of 170 km from the Property via the Chihuahua Pacific Highway. The Port has recently completed significant upgrades to berth-side storage including the installation of additional berths, cranes, and ship-handling tugboats (Secretaría de Comunicaciones y Transportes, 2014). Containerized concentrate shipping is the preferred option. This would eliminate port contamination with concentrate spillage.

The nearby international airport at Los Mochis (Aeropuerto Federal del Valle del Fuerte: IATA Code LMM; ICAO Code MMLM) services scheduled commercial jet aircraft.

The Port of Topolobampo and Los Mochis are serviced by several rail lines, including the Chihuahua Pacific railroad that connects to El Paso, Texas. The latter line passes within 90 km of the west of the Property. Alternate port facilities are located to the north at Guaymas in Sonora though this is a significantly longer truck haul for concentrates.

The Chihuahua Pacific Highway is currently under construction with plans to improve the route between the Huites Reservoir and El Paso, Texas, USA Work is complete from Topolobampo to the Huites Reservoir, passing within 6 km of the Property. Bridge construction to cross the Huites Reservoir / Río Fuerte is permitted but has not commenced.

The Texas to Sinaloa large capacity natural gas line passes near by the Project around 25 km to the west. The pipeline lies 6.5 km to the west of the 422 MW Huites hydroelectric facility.

5.5.2 Local Infrastructure

Adequate surface water for mining operations is available from Río Fuerte and Huites reservoir if a suitable allotment is arranged by permit. However, if that permitted allotment is not available, drilling of local aquifers for well-field water would be required. For the purposes of this study, a well-field located in the vicinity of the Project site. Proposed in this report is to tap into the water table on the southside of Huites Reservoir in the North Zone.

The large Huites dam (officially known as the Luis Donaldo Colosio Dam) was constructed for irrigation and power generation (422 MW capacity) and is located on the Río Fuerte 20 km from the Property. The dam produces an average of 911 million kWh annually. The Colosio dam is connected to the main power transmission grid of northwestern Mexico, via a 230 kV power line. However, this report contemplates self generated power.

A smaller 110 kV power transmission line to the former La Reforma Mine and Jinchuan's Bahuerachi property passes within 4 km west of the Property. A smaller powerline services the ranch houses located on the Esme mineral concession proximal to the areas of exploration and drilling on the Property. The line is suitable for servicing camp facilities in support of work on the Property, though to date camp power has been delivered by diesel generator.

TransCanada Pipelines brought a large capacity natural gas pipeline into service on June 29, 2018, that connects the city of Ahome and the Port of Topolobampo with existing pipelines in the State of Chihuahua. The pipeline has a capacity of 670 million cubic feet (19.0 million cubic m) per day. Infrastructure related to power generation and the LNG plant has been sited around 33 km of the Property and offers an alternate energy supply to the mine infrastructure.

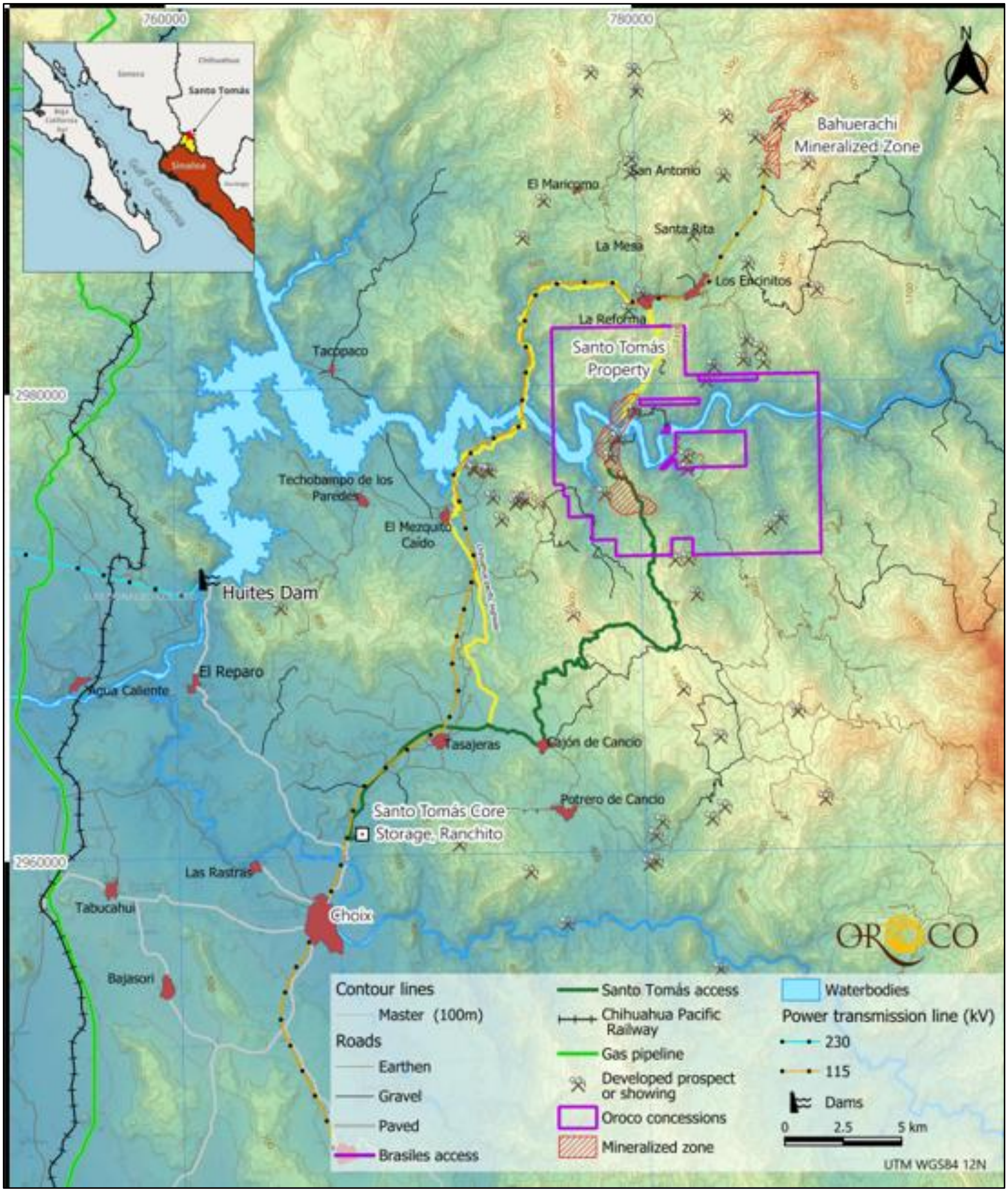
A representation of the local infrastructure is shown in Figure 5-3.

5.5.3 Infrastructure for Exploration

Oroco has acquired access to project surface land through the execution of a series of lease agreements with the surface landowners. The lands over the Property are largely unimproved and are comprised of unutilized or lightly ranched pasture only. Land rights are held by several owners, both Ejido groups and private ranchers. Oroco anticipates no impediment to the future acquisition of these surface rights on fair commercial terms for the possible construction of my related infrastructure.

A fit for purpose field camp was constructed on the Project site between the North and South Zones. Upwards of 40 people can be accommodated at camp, cutting out the three hours round trip transit time from Choix to site via an unimproved road. An upgraded core processing facility was constructed at El Ranchito (Figure 5-4 and Figure 5-5).

Figure 5-3: Local Infrastructure



Source: Oroco, 2024.

Figure 5-4: South Camp Aerial View (Left), and El Ranchito Core Processing Facility Inside View (Right).

Source: Oroco Photo, El Ranchito Core Processing Facility. May 5, 2023.

Figure 5-5: The El Ranchito Secure Core and Sample Pulp Storage Facility

Source: Oroco, 2023.

6 HISTORY

6.1 Exploration History

Most of the historical drill holes were collared in the northern area of the Property, in what has subsequently been referred to as the "North Pit" area (Bateman,1994), located directly south of Río Fuerte. Additional drilling was conducted on more widely spaced locations 2 km to the south where additional copper-bearing mineralization was found in an area named the "South Pit" (Bateman, 1994). In this technical report, these "pits" will be called the North and South Zones, respectively.

Previous exploration programs and MREs are summarized in Table 6-1.

Table 6-1: Previous Exploration Programs and Mineral Resource Estimates

Year	Company	Work	Results
Early 1900's	Artisanal Miners	High-grade Ox Cu Mining	No information on tonnes of material removed
1968 to 1971	ASARCO	Road Building and drilling, 43 vertical diamond core holes and 16 vertical rotary percussion holes, 15,088 m total drilling	Property relinquished in 1973 after spending 1 million dollars
1973 to 1977	Tormex - Peñoles	26 ASARCO holes re-logged. 5,336 m of 1/2 core split and assayed. 2,401 m of new drilling in 7 holes	New resource estimation undertaken. No information available. Property relinquished
1973	Government supported mapping by Davidge and Clark	Preliminary Geology and Mineralization of the Choix Area	presumably data collected was capture by the governmental mapping program
1990	Esmeralda Group	Review and updating geological sections and plans	No information available
1991	Minera Real De Ángeles	Re-logged 12 ASARCO holes and re-assayed 2 holes	Positive correlation between assay results reported
1992	Exall	Acquired property	-
1993	Exall	4,000 m of 33 reverse circulation drill holes and 7 diamond drill holes	MRE completed
1993	Exall	Bateman Engineering Inc. retained to undertake a PFS	-
1994	Exall	Metallurgical test work. Minetek S.A. de C.V. and Mountain States Research and Development	Test work indicates a 90% copper recovery rate using standard concentration methods, resulting in a 28% copper concentrate
1994	Exall	Preliminary pit constrained Mineral Resource developed on previous Tormex and ASARCO drilling	Deposit evaluated as two pits: North and South. An estimate of the mineral resources was reported
2011	Thor Resources LLC	Technical Report and mineral resource estimation (historical)	MRE completed
2023	Oroco Resource Corp	NI 43-101 Technical Report. Santo Tomás Mineral Resource Estimate	MRE completed
2023	Oroco Resource Corp	NI 43-101 Technical Report and Preliminary Economic Assessment	PEA completed and revised MRE

Informal miners have been working at the Santo Tomás site sporadically since the early 1900s resulting in several small excavations and two small adits in the North and South Zones. Davidge (1973) reported that local villagers were working the Property in the 1970s and that approximately 1 tonne of mineral material was being removed per week.

The first systematic exploration at Santo Tomás was initiated by ASARCO Mexicana S.A. (ASARCO). Commencing in 1968, ASARCO constructed an access road to the Property from El Bienestar Ranch and conducted a predominantly drill-based exploration program. A total of 43 vertical diamond-drill holes totaling 13,697 m and 16 vertical rotary percussion holes totaling 1,391 m were completed by 1971. Most of the ASARCO drill holes were in the North Zone.

Tormex Mining Developers Ltd. (Contratista Tormex S.A.) and Industria Minera Peñoles (Peñoles) optioned the Property in 1973 and conducted exploration and re-sampling to 1977, mainly on the North Zone. Twenty-six ASARCO core holes from the North Zone were re-logged, and 5,336 m of half-core was re-split and sent for assay. Tormex completed an additional seven drill holes totaling 2,401 m in 1974. A new mineral resource estimation was made, and a revised geological interpretation depicted a shallowly west-dipping mineralized zone.

In the 1980s and 1990s, the Santo Tomás deposit region was included in a series of regional airborne magnetic surveys, helicopter surveys, LANDSAT imagery and geological mapping by Mexican government agencies. The Esmeralda Group and Minera Real de Ángeles S.A. de C.V. interpreted existing data and produced mineral resource calculations. However, the results of these studies are not available.

Exploration activity on the Property resumed in 1990 when the Esmeralda Group produced a new set of geologic sections and plan maps, which summarized the previous exploration work and provided a new Mineral Resource calculation.

In 1991, Minera Real de Ángeles S.A. de C.V. re-logged 12 ASARCO drill holes and re-assayed two holes. A block model resource calculation was produced, but the results of this study are not available.

A Canadian Company – Cerro de Cobre Inc. (CDCI) entered into a purchase agreement with the Esmeralda Group for the Property and then optioned the Property to Exall Resources Ltd. (Exall) in 1992. Exall focused on the higher-grade near-surface oxide zone. Exall engaged Watts, Griffis and McOuat Ltd (WGM) to review the available data. WGM recommended that ongoing exploration was warranted with a focus on higher-grade, near-surface oxide mineralization.

In 1993, Exall conducted a 4,000 m drill program composed of 33 reverse circulation drill holes and seven diamond drill holes. A new resource estimate based on 14,881 m of drilling information was completed (49 ASARCO/Tormex and 40 Exall drill holes). Exall retained Bateman Engineering Inc. (Bateman) of Phoenix, Arizona, to prepare a Pre-feasibility study and contracted metallurgical testing from Mintek S.A. de C.V. and Mountain States Research and Development Inc. of Tucson, Arizona (MSRDI). Also, Mintec, Inc. of Arizona (Mintec), was retained to prepare a MRE and a mining study, as part of the Bateman studies.

The MSRDI testing included flotation tests, bottle roll leaching tests, and concentrate bioleaching tests. They concluded that the Santo Tomás mineralization responds favorably to flotation but is not amenable to direct leaching using sulphuric acid. The test work shows that 90% of the contained copper is recoverable through standard concentration methods, yielding a concentrate of 28% Cu.

During and after the Exall drilling programs, in the period 1992 to 1995, the Luis Donaldo Colosio Dam (Huites Dam) was constructed 15 km downstream from the Property on Río Fuerte. The maximum water level was raised 70 m after the dam completion. The new water level of the reservoir impinges on the northern flank of the Santo Tomás North Zone.

In 1997, Exall relinquished its option on the Santo Tomás Property.

In 1997-1998, Morgain Minerals Inc. (Morgain) and its wholly owned Mexican subsidiary Minera MGM S.A. de C.V. (MGM) signed an agreement with Mr. Rubén Rodríguez for the acquisition of 100% interest in the Property. Morgain evaluated the Santo Tomás Project technical data in conjunction with consultants and with Cominco Engineering Services Ltd. (CESL) regarding bench-scale testing of copper concentrates and produced a series of north-facing vertical sections at 1:1,000 scale. The Author was not able to locate any further information regarding this agreement.

In 2002, Rubén Rodríguez Villegas (Rodríguez) transferred 100% ownership of the Property to Compañía Minera Ruero, S.A. de C.V. (CMR), a private registered mining company in Mexico. CMR is owned 99.998% by Ruero International Ltd. (Ruero International), a Bahamas company, and 0.002% by Rodríguez.

In 2002, Fierce Investments Ltd., a USA company, entered into a Share Purchase agreement with Rodríguez to acquire the shares of Ruero International.

IGNA Engineering and Consulting Ltd. (IGNA) was engaged to conduct a geological study and evaluation of the Santo Tomás Property in 2002. IGNA conducted field examinations of the Project in 2002 and 2006. Eight complete holes and a few partial holes were re-logged and verification samples collected. Examination of the drill core led to a new interpretation of the geology that the mineralized quartz-monzonite is quartz-monzonite dyke, is striking NNE and dipping steeply to the NW, rather than shallowly dipping.

IGNA noted that Tormex, Minera MGM and Exall interpreted the geology and structure in different ways. IGNA concluded that the mineral resource calculations completed by various companies appeared to be acceptable within the limitations of the drill spacing. Additional drilling and exploration were recommended to improve and upgrade the Mineral Resources for both the North and South Zones.

Re-logging and selective resampling of drill core were done by Tormex in 1977 on 1971 ASARCO core, in 1991 by Minera Real de Ángeles S.A. de C.V. on ASARCO core and by IGNA in 2002. Positive correlations have been obtained from all the past re-sampling programs.

In 2003, Bateman prepared an update to the completed PFS of 1994. The PFS focused on plant design and metallurgical test work and incorporated the 1994-dated MREs. Later in 2003, Mintec conducted a review of potential target areas for additional drilling and suggested that the area lying to the south and west of the South Zone was open for finding additional copper mineralization. A systematic drill program at 250 m spacing was recommended.

Cambria Geological Ltd. (in 2005) and Cambria Geosciences Inc. (together, Cambria) (2006-2009) conducted several technical reviews of the Santo Tomás Property throughout 2005 to 2009.

In 2010, John Thornton, P.Eng. of Thor Resources LLC, prepared a revised report (Thornton, 2011) summarizing the MREs for all mineral resource classifications, scoping the Project with current costs, and metal prices to determine a pit constrained MRE, now classified as an historical resource.

In 2015, 100% ownership of Ruero International reverted to Rodríguez under a decision of the Supreme Court of the Commonwealth of the Bahamas. Ruero International is currently owned 50% by Altamura and 50% by Rodríguez.

In June 2016, XG acquired a 100% interest in the Property from CMR. Registration of the sale agreement and transfer of title to XG was impeded by a court judgment which was nullified in 2019.

CMR was the prior registered holder of title to the seven core concessions until December 2019, at which time a 2016 concession assignment agreement between CMR and Xochipala Gold assigning 100% of title to Xochipala Gold, was finally registered in the Public Registry of Mining (PRM).

Exploration from 2017 to current by Oroco has consisted of access road rebuilding, surveying, limited outcrop and structural field mapping, acquisition of Synthetic Aperture Radar data, and structural interpretation based on a digital terrain model and an orthophoto; the structural interpretation was supplemented field mapping and structural measurement in 2019.

6.2 Historical Mineral Resource Estimate

The current MRE, presented in Section 14 of this technical report, supersedes any prior Mineral Resource Estimate. A qualified person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves; and the issuer is not treating the historical estimate as current mineral resources or mineral reserves. They are reported to maintain the Project history.

Early MREs included estimation work by ASARCO and Tormex. However, the reporting as described in Spring (1992) lacks the details of the methods and geological controls to mineralization. The results are not acceptable under the current standards of disclosure. Therefore, these historical mineral resources estimates are not cited here. In 1993, Mintec Inc. was retained to review the MREs, to assess the Project's overall potential and to design conceptual pit phases, as part of the Prefeasibility Study requested by Exall Resources (Bateman, 1994). The Author does not cite herein the historical MRE included in Bateman (1994) and Mintec (1994).

John Thornton, P. Eng., of Thor Resources LLC prepared the most recent a 2011 Mineral Resource and Reserve calculation of the Santo Tomás deposit. Summary of Thornton (2011) Historical Estimate Results at a 0.15% total copper percent (CuT) cut-off grade (CoG), the results showed a large historical Measured and Indicated (M&I) MRE consisting of 211.2 million tonnes at 0.35% Cu (measured) and 610.6 million tonnes at 0.31% Cu (indicated) for a total of 822 million tonnes at an average grade of 0.32% CuT, for a total of 5.8 billion contained pounds of copper. The results were presented in the document titled, "Santo Tomás Copper Project, Choix, Sinaloa, Mexico, Technical Report" dated September 23, 2011 (Thornton, 2011). The MRE prepared by Thornton (2011) is a Historical Estimate as defined under NI 43-101 - Standards of Disclosure for Mineral Projects (NI 43-101). Thornton (2011) addressed certain important limitations of the 1994 MRE released by Bateman (1994). Thornton (2011) revised the block modeling scheme to better accommodate the structural geology by using a 3D volume of the main mineralized zones to constrain his Historical Estimate.

An important conclusion of the Bateman (1994, 2003) studies was that gold, silver, and molybdenum report to the concentrates during processing Bateman (1994) and Thornton (2011), not withstanding that the recovery rates for these metals were not determined in the initial metallurgical test work conducted for either of the 1994 or 2003 technical reports.

7 GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

The Project area is covered by the 1:50 000 scale Tasajeras map (Sheet G12-B59) from Servicio Geológico Mexicano (SGM). SGM's notes on the map, along with their respective map unit abbreviations, are used as the basis for the regional geology description (Figure 7-1).

Western Mexico developed from allochthonous terranes accreted to the continental margin of North America in the Mesozoic and earliest Cenozoic (Dickinson and Lawton, 2001; Keppie, 2004), the largest represented by the Guerrero Composite Terrane (Campa and Coney, 1983, Centeno-García et al., 2008). The Tasajeras area is underlain by the Tahue Terrane, a subterrane of Guerrero Composite Terrane. This comprises a basement of Paleozoic accreted arc and eugeoclinal sedimentary rocks and Triassic rift-related meta-igneous rocks. These strata are unconformably overlain by arc-related rocks interpreted as part of the Guerrero Arc (Ortega-Gutiérrez et al., 1979; Henry and Fredrikson, 1987; Roldán-Quintana et al., 1993; Freydier et al., 1995). Mesozoic arc-related strata comprise volcanic and volcaniclastic sequences of oceanic affinity associated with island arcs of Middle Jurassic and Early Cretaceous age that accreted onto North America in the Late Cretaceous during the Laramide orogeny (Campa and Coney, 1983; Centeno-García et al., 1993). Numerous batholiths, forming a NW-SE trending belt, were emplaced between 90 and 40 Ma during the Laramide orogeny and associated subduction, the most extensive represented by the Sinaloa-Sonora Laramide batholith complex (Anderson and Silver, 1969; Gastil and Krummenacher, 1977; Valencia-Moreno et al., 2003; Ramos-Velázquez et al., 2008). Laramide contraction was followed by Basin and Range extension and deposition of an extensive middle Cenozoic volcano-sedimentary sequence. This comprised andesitic volcaniclastic rocks and flows; rhyolite ignimbrites; and intercalated sediments including polymictic conglomerates and breccia termed the SMO volcanic province.

The following summary presents a brief description of the geology according to (i) the Tasajeras map sheet area (Figure 7-1), (ii)The Geology, Mineralization, and Exploration of the Santos Tomás Cu-(Mo-Au-Ag) Porphyry Deposit, Sinaloa, Mexico: NI 43-101 Technical Report (Bridge, 2019) published in 2019 for the Santo Tomás area, and (iii) additional published research on the region.

7.1.1 Stratified Rocks

7.1.1.1 Mesozoic Volcanic and Sedimentary Rocks

Mesozoic strata consist of limestone, marble bodies, sandstones, and extensive andesitic volcanic rocks (Borovic, 2006). The Tasajeras map sheet refers to the lower greenschist metamorphosed Mesozoic intermediate volcanic, and volcanic-sedimentary rocks as Jurassic-Cretaceous meta-andesite (JtKapMA). Thick limestone, marl and marble beds are common, termed Jurassic-Cretaceous meta-limestone (JtKapMCz). Similar limestone units, that are floored and enclosed by the Sinaloa-Sonora Batholith are locally termed meta-limestone (KaMCz) although they are likely equivalent to the JtKapMCz unit (Figure 7-1).

7.1.1.2 Cenozoic (Formally Tertiary) SMO Volcanic Rocks

The SMO extends from the southwestern United States to central Mexico representing the largest continuous ignimbrite province in the world (Aguirre-Díaz et al., 2008), a result of Cretaceous-Cenozoic magmatic and tectonic episodes related to the subduction of the Farallon plate beneath North America and opening of the Gulf of California. In the northern part of its distribution, the SMO is composed of silicic ash-flow tuffs and rhyolitic lavas with minor andesitic lavas. The average thickness exceeds 1 km (McDowell and Clabaugh, 1979) and the ages cluster in two discrete periods, the Eocene and Oligocene.

In the Tasajeras map sheet (Figure 7-1), the oldest SMO units are Oligocene sandstone and polymictic conglomerate (TeoAr-Cgp), and andesite and rhyolite tuff (ToA-TR, TomTR). Dacitic volcanic rocks at the Bahuerachi deposit, located 15 km northeast o the Property, produced an age of 59 Ma (Eocene) and importantly, are interpreted as post-mineralization. Younger SMO units comprise the largest volumes of silicic ash-flow tuffs and rhyolitic lavas, termed rhyolite tuff, and ignimbrite (TomTR-Ig). Feeder dykes and small felsic intrusions coeval with the SMO are locally termed rhyolite intrusions (TmR)(Figure 7-1).

SMO volcanism is ascribed to fractional crystallization of mantle-derived basalts (Johnson, 1991; Wark, 1991) with volcanism contemporaneous with the waning of Laramide orogenesis and initiation of Basin and Range extension (Wark et al., 1990; Aguirre-Díaz and McDowell, 1991, 1993). The oldest Eocene SMO units may represent the extrusive components of the youngest Laramide intrusive events, as indicated by age data from the Bahuerachi deposit.

7.1.2 Intrusive Rocks

On the regional map (Figure 7-1) the intrusive suites broadly comprise two tectonomagmatic series, an older Late Cretaceous, pre-Laramide age group (Sonora Batholith), and a younger Laramide-age group.

7.1.2.1 Pre-Laramide Intrusions

On the regional map the pre-Laramide intrusions are represented by granodiorite and tonalite intrusive suites to the north and south of the property. Detailed work from this investigation brings the age relationships and the extent of these intrusion into question with granodiorite on the property likely of a younger Paleocene, Laramide age.

7.1.2.2 Laramide Intrusions

7.1.2.2.1 Late Cretaceous Intrusions

Locally, Laramide-age intrusive rocks are emplaced into north and north-east trending fault zones. These are represented by the porphyritic quartz-monzonite (Te(?)PqMz), porphyritic andesite (Te(?)PA) and granite (Te(?)Gr) (Figure 7-1). The Laramide intrusions in the region of the Property were originally considered to be Paleocene in age, although Re-Os mineralization and intrusion ages, developed as part of this investigation (Table 7-1), now confirm an earlier Late Cretaceous age for the porphyritic quartz-monzonite (Te(?)PqMz). On the Tasajeras map sheet, granodiorite (Te(?)Gd & KsTe-Gd) is of uncertain age, but this investigation now indicates a younger Paleocene age (Table 7-1).

7.1.2.2.2 Paleocene Intrusions

New age data results (Table 7-1) now confirm that the Sinaloa-Sonora Batholith on the Property is younger than the monzonite and quartz monzonite dyke system and is of Early Paleocene age. The batholith contains multiple phases of intrusive rocks ranging in composition from diorite and tonalite to granite and quartz-monzonite. The emplacement of intrusions was partially controlled and subsequently offset by several phases of faulting ranging in age from Late Cretaceous to the Cenozoic. In the region near the Property, the Sinaloa-Sonora Batholith is mostly granodiorite (KsGd) and tonalite (KsTn) (Figure 7-1).

7.1.2.2.3 Late Dykes

Younger Mid- to Late-Cenozoic intrusive rocks, mostly in the form of dykes cut the older sedimentary rocks and early intrusive rocks. Reported dyke rocks include rhyolite and trachyte (TmR) and mafic (basalt equivalent) varieties (Figure 7-1).

7.1.3 Structural Geology and Mineralization

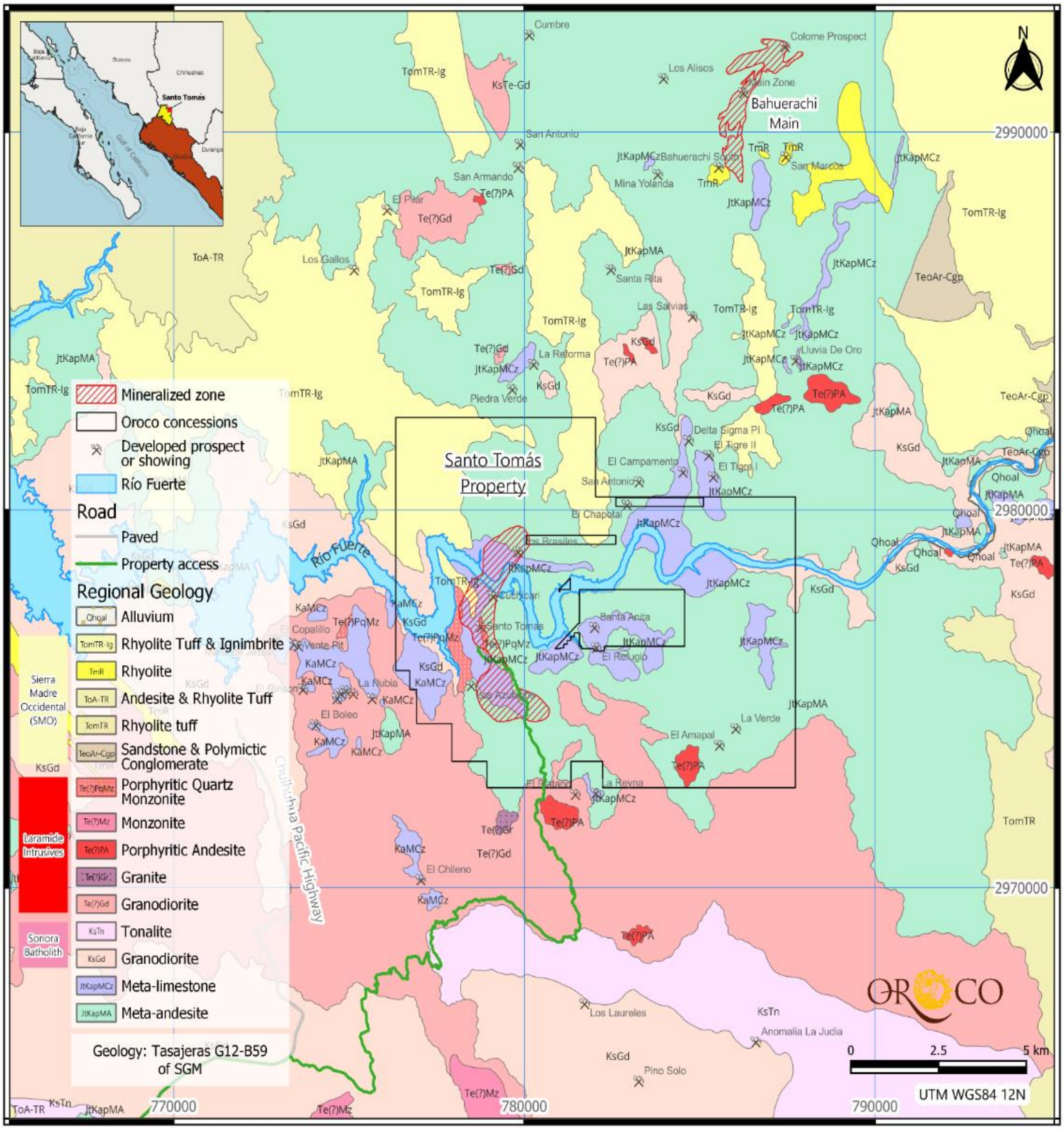
Mineralization at Santo Tomás is strongly structurally controlled and is understood within the context of three regional tectonomagmatic events: 1) The development of the Guerrero arc, 2) Laramide-age contractional deformation and, 3) Basin and Range extension and development of the SMO volcanic province.

Regional structural relationships indicate that the Mesozoic sedimentary and volcanic sequence is tilted and folded to varying degrees. The mozonitic intrusive dyke system and Sinaloa-Sonora Batholith were emplaced into the Mesozoic succession with country rock strata preserved as wedges between intrusives, or as roof pendants forming gently dipping meta-andesite and meta-limestone (KaMCz) rafts (Figure 7-1). Limestone is typically recrystallized to marble with associated skarn alteration. Contact metamorphic lithologies include marble, magnetite-epidote-wollastonite exoskarn, and locally, endoskarn in the Cretaceous granodiorite. To the north of the Santos Tomás Property, in the vicinity of the La Reforma and Bahuerachi deposits (Figure 7-1), thick Mesozoic limestone units and meta-andesite (JtKapMA) are gently dipping. Within the Property, massive fault bounded, limestone/marble (JtKapMCz) blocks dip gently northwards and westwards.

Laramide tectonics was marked by oblique subduction, transpression, and intrusions. In the type of area, the Laramie Mountains in eastern Wyoming, it was initiated at ca. 90-80 Ma as a series of deep-rooted thrust faults significantly inland from the coast (Schwartz et al., 2023). Andean-style thick skinned tectonics lasted approximately 40 to 60 Ma resulting in mountain building, the formation of foreland basins, and the development of mineralization from Canada to northern Mexico. In western Mexico, Laramide tectonics is not manifested in the same way that it is to the north in the Rocky Mountains and Colorado Plateau where it is typified by basement block uplift and plutonism at ca. 75-40 Ma (Hamilton, 1988; Livaccari, 1991; Coney, 1989; Ward, 1995). In western Mexico, the Laramide tectonomagmatic event is characterized by plutonism, minor volcanism and diachronous thin-skinned thrust faulting that occurred from the Late Cretaceous to the end of the Eocene (ca. 75-35 Ma) (Haxel et al., 1984; Nourse, 2001; Calmus et al., 2011).

Extensive Laramide melt and fluid production, between ca. 75 and 52 Ma, was linked to porphyry copper mineralization and associated deposits (skarn, breccia pipe, base metal replacement, and veins), and orogenic gold deposits within the Cretaceous to Eocene Caborca Orogenic Gold Belt (COGB) (Izaguirre, et al., 2017). Orogenic gold at La Rumorosa on the Baja California Peninsula was contemporaneous with the first generation (~76-74 Ma) of copper porphyries within the southern North American Cordillera belt (Lazcano et al., 2023) that includes Santo Tomás. These deposits occur along a wide NNW-SSE–oriented belt that was active during the Laramide orogeny between ca. 80 and 40 Ma. Crustal thickening during the early Laramide orogeny contraction (~90-70 Ma) resulted in the generation of metamorphic dehydration reactions of deep-seated basement rocks. Late Laramide syn-convergent upper crustal extension in the forearc region triggered multistage crustal dewatering with fluids focused along reactivated compressional shear structures and newly created brittle structures (Izaguirre, 2017). Syn-convergent extension was initiated by flat-slab subduction at ~70 Ma due to shallowing of Farallon slab subduction (Coney and Reynolds, 1977; Damon et al., 1983; Barra et al., 2005; Valencia-Moreno et al., 2017). This generated rapid eastward migration of the magmatic arc and successive Late Cretaceous-Eocene porphyry Cu-Mo mineralization across northwestern Mexico and the southwestern United States (Izaguirre, 2017). Orogenic gold deposits formed in the amagmatic forearc region, whereas the porphyries were simultaneously generated in the magmatic arc region (Izaguirre, 2017).

Figure 7-1: Regional Geology Plan



Source: Oroco, 2023.

Laramide-age deformation in the Tasajeras map sheet area is considered to be dominated by brittle faulting. Early Laramide contractional deformation is preserved as northerly trending and westerly dipping thrust and duplex fault zones. These were associated with regional dextral strike-slip fault zones. Later Laramide extension and reactivation was associated with NNE and NE trending normal faults that controlled Laramide-age dyke swarms, hydrothermal brecciation, hydrothermal alteration, and sulphide mineralization. NNE and NE trending intrusive bodies and hydrothermal breccia have been documented at Bahuerachi (e.g., Tyler Resources Technical Report: Jutras and McCandlish (2003)), in the barren Santa Rita hydrothermal breccia body, and on the Property within the Santo Tomás North Zone, South Zone, and Brasiles.

Late-stage deformation is characteristically normal listric style faulting forming the Choix horst and graben structures representing a period of Oligocene-Miocene extensional deformation and part of the Basin and Range Province. These structures have offset and modified the contact relationships between the older phases of intrusive rocks, metasedimentary host rocks and mineralization.

Locally, late-stage faulting has served to control and localize the emplacement of younger, Miocene-aged SMO rhyolitic volcanic rocks. At Santo Tomás, late-stage faulting also displaces SMO volcanic strata and appears to exploit certain of the early-stage fault planes of the Santo Tomás deposit.

7.2 Project Geology

7.2.1 Introduction

The Santo Tomás Cu-(-Mo-Au-Ag) porphyry deposit is associated with Laramide-age porphyritic quartz monzonite (Te(?)PqMz, QM) stocks and dikes. Recently acquired radiometric ages (Table 7-1) from drill core and surface samples support a Late Cretaceous age for magmatism, with ages between 76 and 72 Ma. These were emplaced into Jurassic-Cretaceous strata comprising metamorphosed andesite, limestone and minor argillaceous and clastic units. Mineralization is strongly structurally controlled and associated with the Laramide-age Santo Tomás fault and fracture zone (an "Early-Stage Structural zone") which provided the pathway for the quartz monzonite dikes swarm and related hydrothermal alteration, hydrothermal breccias, and sulphide mineralization. Sulphides dominated by pyrite-chalcopyrite–(molybdenite) are distributed in quartz monzonite and altered andesite. Mineralization forms a tabular, south-southeast (SSE) striking, west-southwest (WSW), primarily defined by finely disseminated sulphides and fracture-fillings with subordinate sulphides hosted in stockwork quartz veinlets. Minor mineralization is associated with skarn and replacement-style mineralization in the hanging wall limestone.

Oroco together with SRK undertook a detailed mapping campaign on the Property to update the map presented in the 2020 Technical Report (Bridge, 2020). All mapping data were compiled into an Arc GIS project. This comprised lithology and structural orientation data, line work and contacts, and included active links to field photographs. Mapping data and Arc GIS shape files were also imported into 3D space (Leapfrog Geo) software. In Leapfrog Geo the data were integrated with high-resolution drone data, lineament analysis data, geophysics data and drill hole data to further constrain lithology domains, contacts and structures and inform the lithostructural modeling and resource modeling process. In addition, a database with 1027 field stations, a total of 17 samples (Table 7-1), from surface (8 samples) and drill holes (9 samples) were selected for geochronological analysis (Ar/Ar, U/Pb and Re-Os) to support stratigraphic interpretation and timing of alteration-mineralization. The results of the field mapping campaigns are represented in the geological map (Figure 7-2) and stratigraphic column (Figure 7-3), while structural data and interpretations are presented in the structure section. Sample locations and descriptions presented in Table 7-1 are illustrated in Figure 7-3.

Table 7-1: Santo Tomás Porphyry Deposit Geochronological Analysis

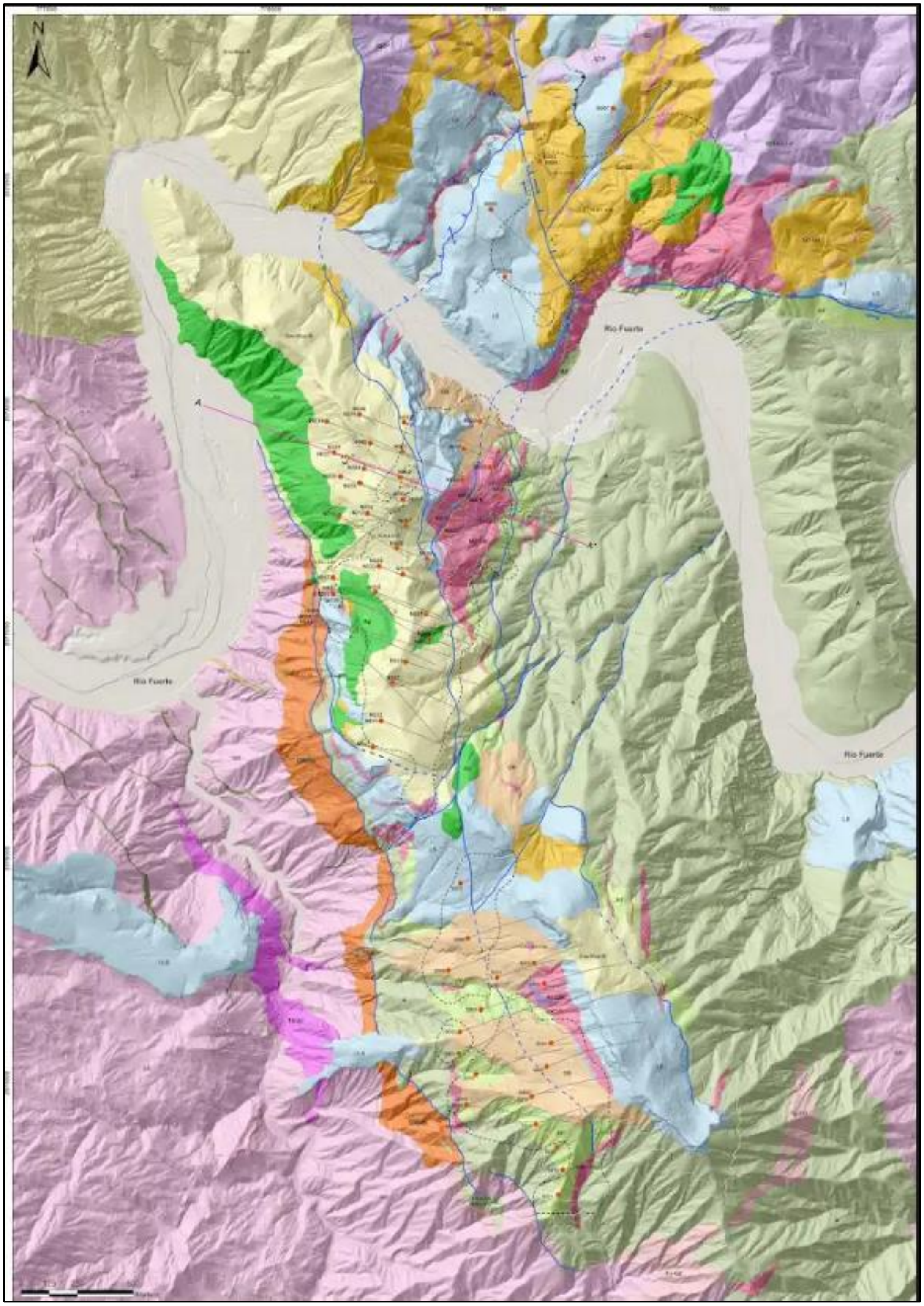
Sample ID	Hole/ Station	Method	Code	Sample Material	Approximate Age	Location	Weight (kg)	Radiometric Age (Ma)
300221	ST176	U-Pb/Zr	U-ISTP02	Intrusive Monzonite	Late Cretaceous	Surface	2.4	74.89 ± 1.04
300222	B414	U-Pb/Zr	U-ISTP02	Quartz-Diorite Porphyry	Late Cretaceous	Surface	1.6	74.61 ± 1.04
300223	ST29	U-Pb/Zr	U-ISTP02	Intrusive Hornblende Quartz-monzonite	Late Cretaceous	Surface	2.1	73.02 ± 1.15
300224	B004	U-Pb/Zr	U-ISTP02	Intrusive Quartz-Monzonite	Late Cretaceous	Core	2	75.11 ± 1.07
300225	S019	U-Pb/Zr	U-ISTP02	Intrusive Monzonite	Paleocene	Core	2	64.99 ± 0.89
300226	N004	U-Pb/Zr	U-ISTP02	Granodiorite -Sonora Batholith	Paleocene	Core	2.8	58.82 ± 0.85
300227	S006	U-Pb/Zr	U-ISTP02	Granodiorite - Sonora Batholith	Paleocene	Core	3.6	64.49 ± 0.88
300228	ST75	Ar-Ar /Micas	Ar-ISTP01	Andesite Trachyte	Jurassic	Surface	1.6	pending
300229	ST288	Ar-Ar /Micas	Ar-ISTP01	Felsic Dyke	Paleogene	Surface	2.1	pending
300230	B188	Ar-Ar /Micas	Ar-ISTP01	Intermediate Dyke	Paleogene	Surface	0.9	pending
300231	SW-1	Ar-Ar /Micas	Ar-ISTP01	Hornblende Volcanic	Late Cretaceous - Paleogene	Surface	2.6	pending
300232	S018	Ar-Ar /Micas	Ar-ISTP01	Andesite Tuff	Jurassic	Core	2.1	pending
300233	N021	Ar-Ar /Micas	Ar-ISTP01	Andesite Porphyry	Late Cretaceous - Paleogene	Core	2.7	pending
300234	N018	Ar-Ar /Micas	Ar-ISTP01	Alteration (Phyllic - Sericitic)	Late Cretaceous - Paleogene	Core	2.6	pending
300235	ST241	Re-Os / Mo	Re-ISTP01	Mineralization	Late Cretaceous	Surface	0.3	72.07 ± 0.30
300236	B003	Re-Os / Mo	Re-ISTP01	Mineralization	Late Cretaceous	Core	0.7	76.20 ± 0.32
300237	N018	Re-Os / Mo	Re-ISTP01	Mineralization	Late Cretaceous	Core	0.5	76.48 ± 0.32

7.2.2 Stratified Rocks

7.2.2.1 Andesite (A)

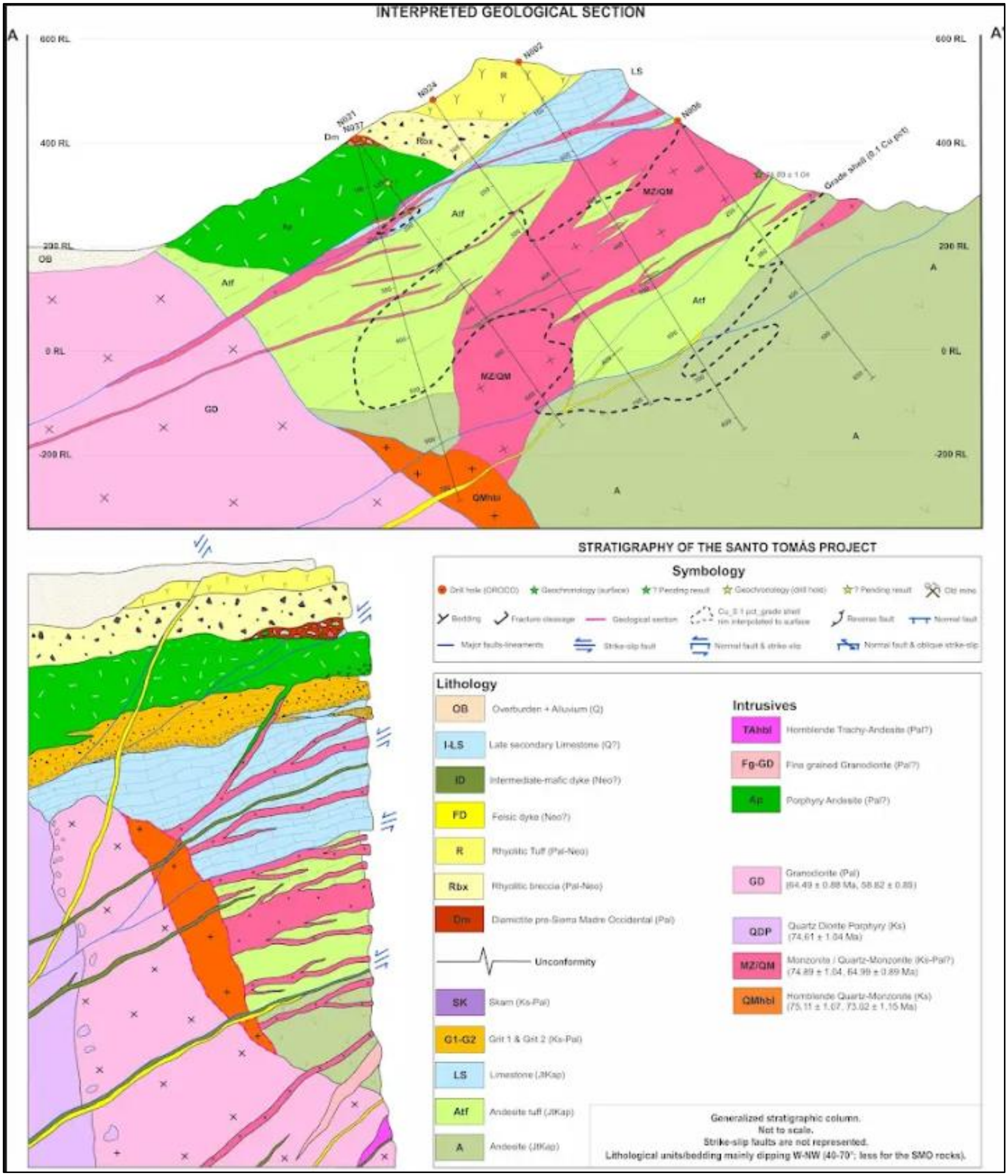
The Jurassic-Cretaceous andesite (JtKap) comprises an extensive undifferentiated andesitic succession exposed to the east of the Santo Tomás Ridge. Surface mapping indicates that the thickness exceeds 500 m with the thickest intercept of 394.62 m, recorded by drill hole ST21-N001. The andesites are mostly massive flows with poorly developed bedding. The rocks are medium to dark grey coloured, aphanitic to fine-grained, and may be porphyritic containing 10%, 1-3 mm subhedral plagioclase phenocrysts. The lower part of the sequence is represented by grey to grey-reddish andesite with a trachytic texture defined by oriented plagioclase laths (av. 40%) in an aphanitic matrix that often contains secondary quartz amygdales.

Figure 7-2: Project Geology, Mapped by Oroco Project Geologists and SRK Geology Consultants



Source: Oroco, 2023.
The legend is presented in Figure 7-3.

Figure 7-3: Geological Section A-A' and Schematic Stratigraphy. 0.1 Cu pct Grade Shell (Dotted Outline)



Source: Oroco, 2023.

7.2.2.2 Andesite Tuff (Atf)

A unit of andesite tuff was recognized within the regional andesite (JtKap) sequence. The tuff overlies the more massive andesites and immediately underlies the limestone. Thickness is highly variable with a maximum thickness of 370.85 m recorded in drill hole S003. The rock is typically fine-grained, medium to dark grey in colour with a greenish tint. The texture varies from massive and aphanitic to fine-grained porphyritic. Phenocrysts include plagioclase up to 8 mm in size which may be locally aligned together with scattered mafic phenocrysts up to 2 mm in length.

7.2.2.3 Limestone (LS)

The limestone (JtKap) at Santo Tomás and Brasiles forms prominent cliff faces and scarps. Limestones are typically massive, fine to coarse-grained, and frequently recrystallized to a marble. In places bivalves, ostracods and coral fragments are preserved. Bedding is poorly defined on outcrops but in places a crude layering may be observed. The preserved erosional thickness of this unit varies, with a maximum thickness of 352.47 m recorded in drill hole B005.

7.2.2.4 Siltstone (G1) – Conglomerate (G2)

The units G1 (argillaceous) and G2 (arenaceous, pebbly quartz conglomerate and sandstones) refer to a clastic sequence KsTpa? that immediately overlies and may be interbedded with the upper parts of the Limestone unit. The most extensive outcrops are found at Brasiles with smaller occurrences at North Zone and South Zone. Strata dip to the E-SE in the Brasiles area and drill hole intercepts indicate a thicker sequence in Brasiles, with 98.86 m in drill hole B002 and 111 m recorded in drill hole B003. G1 is represented by pale brown to greenish, fine to medium grained siltstone-sandstone that may be laminated with occasional normal graded bedding preserved. G2 is a pale greenish grey coloured, mature mainly clast-supported quartz conglomerate. Clasts are moderately to well sorted, composed mainly of subrounded to rounded quartz less than 2 cm in size with occasional igneous clasts of silicified monzonite and andesite. The unit is generally massive but graded bedding may be visible in places.

7.2.2.5 Sierra Madre Occidental Volcanic Rocks

Miocene rhyolite tuff and Ignimbrite (TomTR-Ig, V) form a discontinuous blanket over the tops and flanks of the ridges on the Property. Two units are recognized on the Property, a lower unit (Rbx) characterized by debris flow deposits and rhyolite breccias, and an upper unit largely comprising rhyolite tuff (R). The SMO paleosurface had significant relief in places exposing pre-SMO deformation and Santo Tomás mineralization, but as preserving the mineralization from post-SMO erosion.

7.2.2.6 Diamictite and Rhyolitic Breccia (Rbx)

This unit comprises diamictite overlain by rhyolitic breccia. Diamictite directly overlies the unconformity and marks the base of the SMO. Diamictites are typically red-hematite stained and matrix-supported. Clasts are polymictic, poorly sorted, angular to rounded, usually less than 15 cm in size, but locally up to 30 cm. Clasts commonly comprise fragments of the underlying limestone, porphyritic rhyolite, andesite, altered monzonite, and quartz. Clasts may be elongated and aligned, and in places beds are normally graded. Diamictite is represented in the stratigraphic column, although, in the geological map the diamictite (Dm), rhyolitic breccia (Rbx) and rhyolitic tuff (R) are grouped into a single unit. The rhyolite breccia, overlying the diamictite, is medium red to pale pink in colour with a fine-grained matrix containing clasts that are mostly matrix-supported but locally clast-supported. Clasts are moderately to poorly sorted and aligned in places and subangular to rounded. Clast types are dominated by rhyolitic compositions, up to 8 cm in size, with subordinate andesite clasts up to 4 cm in size and subhedral xenocrysts of feldspars and anhedral quartz. A Rbx thickness of 145.15 m was intersected in drill hole N040 in the North Zone with the unit thickening northwestward of the North Zone and northeastward of Brasiles.

7.2.2.7 Rhyolite Tuff (R)

The rhyolite tuff unit (R) overlies the rhyolite breccia (Rbx). It is a pale to dark pink coloured, fine-grained, crystal-rich, tuffaceous rock with an ash-lapilli matrix. Crystals are typically less than 2 mm in size and include subhedral to anhedral biotite, amphibole, quartz, and plagioclase. Angular to subangular volcanic fragments up to 4 cm, mainly of rhyolitic composition, are common with oxidized fiamme. The unit is mostly massive, but some intervals may show flow texture and normal graded intervals. The thickest interval of 156.5 m was recorded by drill hole ST21-N009.

7.2.3 Intrusions

Intrusive rocks were emplaced into the older Mesozoic sedimentary and volcanic rocks and consist of several varieties and overlapping phases of quartz-monzonite, quartz-diorite, tonalite, granodiorite and granite. Geochronological results to date (Table 7-1) support an initial Late Cretaceous monzonitic suite with associated mineralization, followed by the regionally extensive emplacement of the granodioritic Sinaloa-Sonora Batholith suite. This was followed by a series of late hypabyssal felsic, trachytic and intermediate-mafic dykes.

7.2.3.1 Late Cretaceous to Paleogene Intrusions

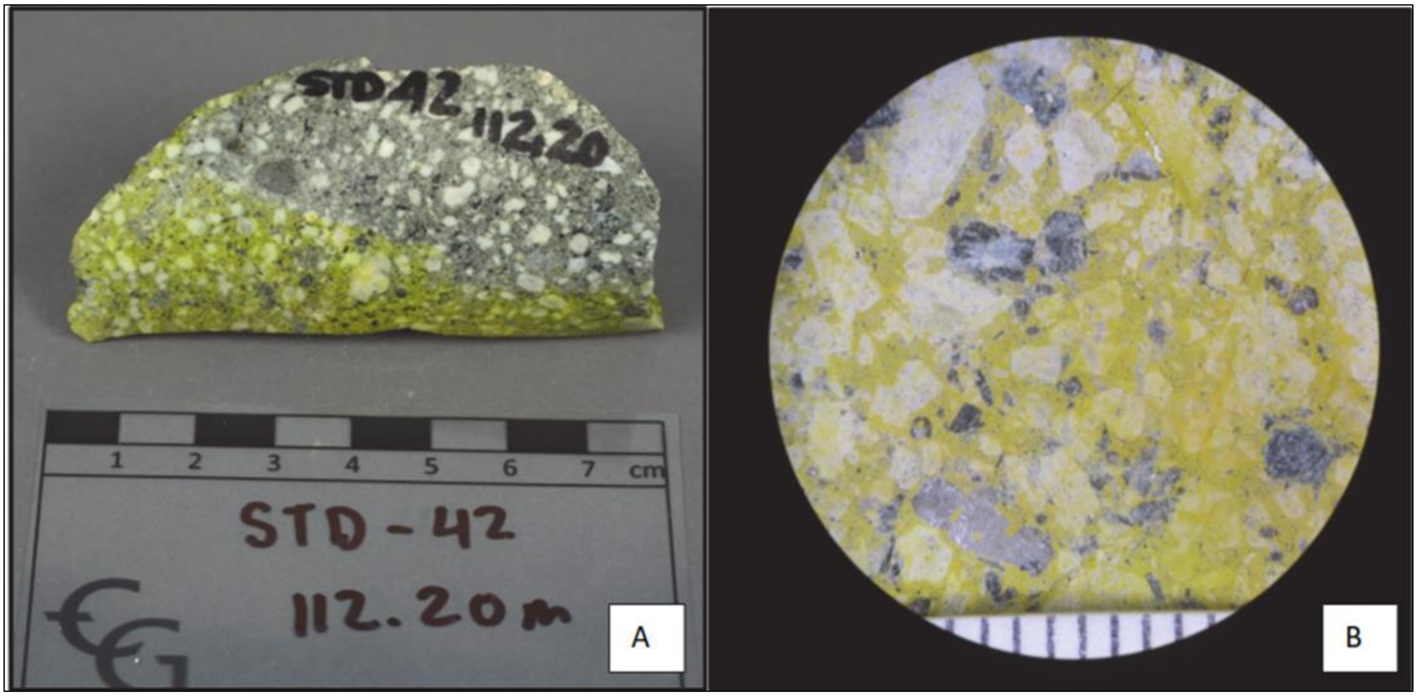
7.2.3.1.1 Monzonite/Quartz-Monzonite (MZ/QM)

The Santo Tomás Cu (Mo-Au-Ag) mineralization is associated with Laramide-age MZ and QM porphyry stocks (Stratified Rocks (Figure 7-2 and Figure 7-3) and dykes, emplaced into Jurassic-Cretaceous andesite and limestone strata (Figure 7-1). On the Property, the MZ/QM (Te(?)) is exposed in windows through the overlying LS cap rocks and the younger SMO volcanics. The MZ intrusions are typically pinkish pale-grey varying from a porphyritic texture with a very fine-grained groundmass to a crowded crystal-texture. Phenocrysts include feldspar, usually 3 mm in size but may be up to 9 mm in size, subhedral to euhedral biotite, amphibole, and anhedral quartz. QM is pale-grey and porphyritic with a variable phenocryst percentage from 45 to 60%. Feldspar phenocrysts are subhedral to euhedral up to 5 mm in size with sporadic 1.5 cm zoned plagioclase. Mafic phenocrysts include subhedral to euhedral biotite and amphiboles up to 4 mm in size. Quartz is typically anhedral constituting less than 10% of the rock. Previously (Bridge, 2020) determined, the average modal mineralogy for the QM intrusions as: Plagioclase 35%, K-feldspar 43%, Quartz 8%, Mafic minerals (mostly hornblende, biotite) 11%, Sulphides 0.5%, Other 2.5%. These modal percentages normalize to 41% plagioclase, 50% K-feldspar and 9% quartz, yielding a composition of quartz-monzonite under the IUGS (International Union of Geological Sciences) plutonic rock classification scheme following the Quartz-Alkali Feldspar-Plagioclase- Feldspathoid (QAPF) diagram (Walker and Cohen, 2009).

7.2.3.1.2 Paleocene Sinaloa-Sonora Batholith (KsGD)

Granodiorite (KsGD) of the Late Cretaceous Sinaloa-Sonora Batholith crops out to the west of the Santo Tomás Ridge and extends northward into Brasiles (Figure 7-1). This unit is light to medium grey, medium grained, with a phaneritic texture comprising subhedral feldspars, anhedral quartz, and dark brown euhedral biotite and euhedral hornblende, disseminated magnetite and traces of pyrite. Some plagioclase phenocrysts are visibly zoned and have a sieve texture.

Figure 7-4: Quartz-monzonite K-feldspar Staining



Source: Oroco, 2023.
A. Quartz-monzonite from drill hole STD-42. Note yellow K-feldspar stain.
B. Magnified photograph showing porphyritic texture and distribution of K-feldspar mainly in the groundmass. Scale is in millimeters.

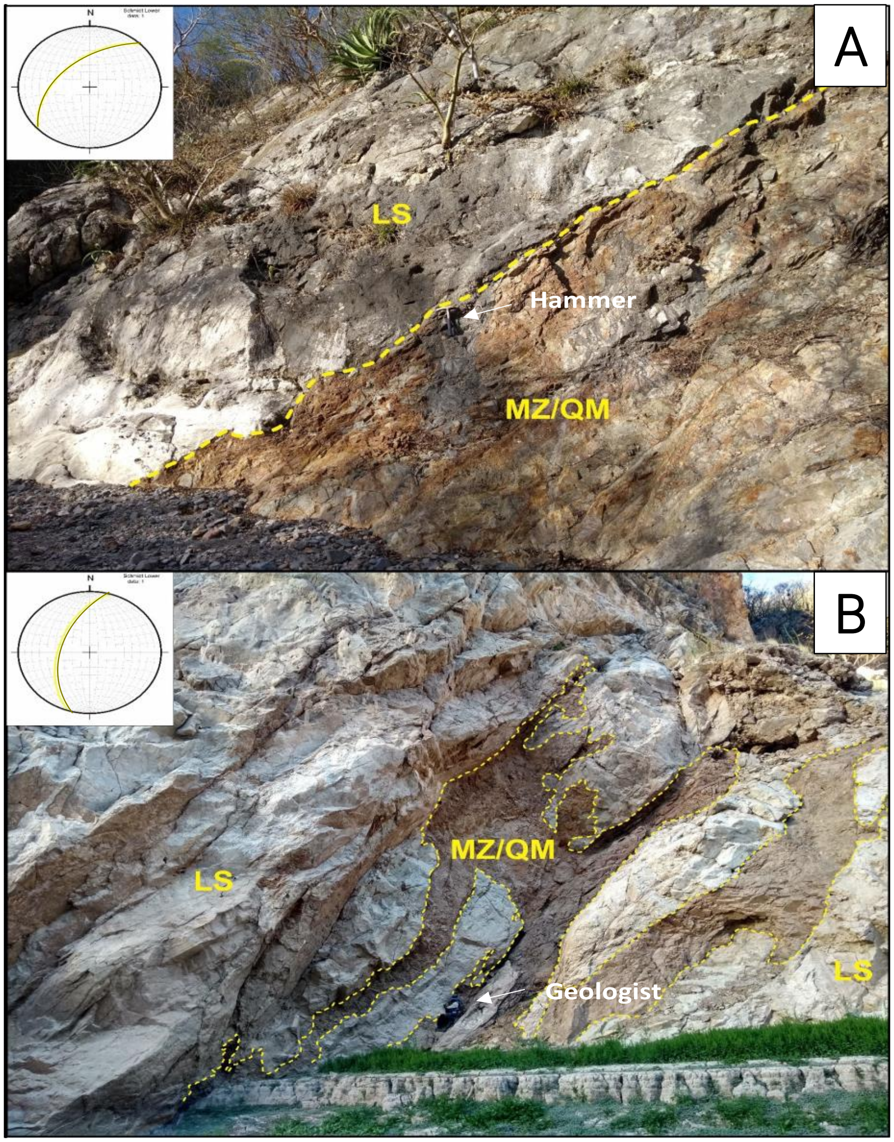
7.2.3.1.3 Hornblende Quartz-Monzonite (QMhbl)

The unit QMhbl (Ks) crops out along the western side of the Santo Tomás Ridge. This rock is grey in colour, inequigranular and hypidiomorphic. Visual estimates indicate that K-feldspar exceeds plagioclase, and modal quartz is greater than 8%. Mafic minerals include amphiboles and biotite and scattered magnetite. Contact relationships between the MZ/QM and the QMhbl are not clear, however the MZ/QM intrusions dip westerly while the QMhbl is interpreted to dip easterly.

7.2.3.1.4 Porphyry Andesite (Ap)

This unit is classified as an intermediate intrusion characterized by a high plagioclase phenocrysts content. It is typically medium green to grey in colour with a porphyritic texture. Phenocrysts comprise subhedral to anhedral plagioclase up to 5 mm in size and scattered subhedral biotite, up to 3 mm in size. Large sporadic plagioclase phenocrysts up to 2 cm in size are observed.

Figure 7-5: Intrusive Contact Relationships Between Monzonite (MZ/QM) and Limestone (LS)



Source: Oroco, 2023.
A. North-westerly dipping contact view toward drill holes B003 and-B004.
B. Westerly dipping contacts. Outcrop on the Río Fuerte. View toward drill hole B005.
Note: Intrusive contact relationships between monzonite (MZ/QM) and Limestone (LS). Insets show intrusive context orientation.

7.2.3.2 Late Hypabyssal Intrusions

7.2.3.2.1 Hornblende Trachyandesite (TAhbl)

A late hypabyssal intrusion (Te?), intruding the GD was mapped west of Santo Tomás Ridge. The rock is light to medium brown coloured with a porphyritic to trachytic texture. It is characterized by elongated and tabular hornblende with lesser euhedral to subhedral feldspars, up to 5 mm in size and very fine-grained disseminated magnetite.

7.2.3.2.2 Fine-Grained Granodiorite (Fg-GD)

A phase of late fine-grained granodiorite intrusion occurs in the southeastern portion of the area. It is light grey in colour, with a composition similar to the more extensive GD unit. The rock has a phaneritic texture and usually contains disseminated pyrite and tourmaline.

7.2.3.2.3 Felsic Dyke (FD)

Felsic dykes up to 3 m wide are pale pink to light grey in colour. They are porphyritic to aphanitic with sporadic subhedral to euhedral biotite and amphibole less than 2 mm in size, and anhedral feldspar less than 1 mm in size. Felsic intrusions were seen in several locations at Santo Tomás, with the most significant intrusion outcrops noted on the Río Fuerte valley extending northwest toward North Zone. Felsic dykes intrude the LS and G1/G2 units, suggesting a probable Oligocene-Miocene age, coeval with the SMO volcaniclastics.

7.2.3.2.4 Intermediate-Mafic Dykes (ID)

A series of andesitic-basaltic dykes were mapped in the area. These typically display a dark grey colour, have an aphanitic texture, and in some cases fine-grained plagioclase crystals are visible. The rocks have moderate magnetism containing disseminated magnetite and thin veinlets. ID intrusions post-date the FD intrusions suggesting a very young age, possibly linked to Pliocene-Quaternary magmatism, and represented by scoria cones found some 20 km west of Santo Tomás.

7.2.3.3 Overburden (OB)

Quaternary unconsolidated and semi-consolidated deposits comprise talus deposits and alluvium valley fill. Thick talus is locally developed below cliffs, and where these are of limestone the talus may include secondary limestone and tufa aprons. Thick alluvial valley fill is developed along the Río Fuerte with more recent silt accumulations associated with impoundment by the (Huites) Luis Donaldo Colosio Dam.

7.2.4 Alteration

Alteration of the country rocks includes contact metamorphism and hydrothermal alteration. Hydrothermal alteration is recognized by zones of hydrothermal breccia, and zones of propylitic, sodic-calcic, potassic, phyllic and argillic alteration.

7.2.4.1 Contact Metamorphism: Hornfelsed Andesite

Thermal metamorphism of host lithologies, mostly andesite, in contact with quartz-monzonite is widely reported on the Property. Andesitic lithologies described as hornfels are aphanitic to very fine-grained, commonly light-coloured and mottled with sections of medium- to dark-grey colour with a bleached or slightly waxy, baked appearance. In addition to the bleached appearance, is the absence of identifiable mafic or chlorite grains in the groundmass compared to the unaltered andesite protolith. The light-coloured hornfelsed andesite may be slightly albitic, biotitic, potassic or silicified and is commonly micro-fractured with cm to mm spaced fractures.

7.2.4.2 Hydrothermal Breccia

Hydrothermal breccias are developed in MZ/QM, A and Atf units. Breccias are medium grey in colour and comprise variable sized lithic fragments usually less than 8 cm in size in a cement of quartz, clay, disseminated pyrite, and locally tourmaline. The breccia may have an overprint of weak to moderate silicification. The geometry and thickness of hydrothermal breccia domains are highly variable, with the most volumetric zone recorded in the South Zone with 143.78 m intercepted in drill hole S016 and 100 m intersected in drill hole S018. Hydrothermal breccias developed in andesite consist of well-rounded clasts, mainly 2-3 cm to 10 cm, locally up to 15 cm in size in a fine-grained granular matrix. They vary from packed clast-supported to matrix-supported with up to 75% matrix. Pervasive hydrothermal alteration is not apparent, but some clasts may contain a thin, light grey alteration rim. Limestone hydrothermal breccias consist of angular 1 to 10 cm sized, matrix-supported limestone clasts in a recrystallized limestone matrix that may have been derived from a comminuted limestone rock-flour matrix but is texturally similar to the limestone clasts. They have a similar off-white to light grey colour as the massive, recrystallized limestones.

7.2.4.3 Veining

Pervasive veining within the main mineralized zone is represented by a series of vein types that along with hydrothermal alteration provide important vectors to mineralization. Detailed logging at Santo Tomás has revealed ten vein types (Table 7-2). Most notably are copper-bearing vein stages that characterize the main mineralization zone, specifically the Early Dark Micaceous (EDM) and A and B veins. EDM veins are hosted in the quartz-monzonite and characterized by dark micas (muscovite with secondary biotite) along with anhydrite, quartz, and chalcopyrite, and typically have a coarsely crystalline subhedral biotite halo. EDM veins are known to characterize the proximal zones of porphyry copper deposits (e.g., Haquira, Peru; Resolution Copper, Arizona; Batu Hijau, Indonesia; Los Pelambres, Chile). Type A veins are usually pervasive and characterized by anhydrite-bornite with a chalcopyrite median line and disseminated biotite-magnetite. Type B veins cut the Type A veins and are hosted within both the quartz-monzonite and andesite. The vein assemblage is dominated by quartz and chalcopyrite with fine molybdenite on vein margins or vein sutures with a K-feldspar and illite halo. High densities of A and B veins, characterized by chalcopyrite-molybdenite (minor bornite), are typically associated with Potassic and Phyllic (QSP) alteration zones. Preliminary fluid inclusion analysis has reported the A and B vein types associated with fluids up to 53.6 NaCl (wt%) and temperatures up to 442°C. Type E veins are represented by a late-stage mineralizing event that cuts the A and B veins and characterized by a quartz-calcite-pyrite assemblage with associated chalcopyrite-sphalerite in proximal zones and sphalerite-galena in distal zones.

Table 7-2: Oroco Vein Type Classification Developed for the Santo Tomás Project

Code	Description
EDM	Early Dark Micaceous veins: Biotite + Anhydrite + Chalcopyrite
LG	Quartz + Biotite + Chlorite ± Magnetite veins
M	Magnetite veins
A	First mineralized veins: Quartz + Chalcopyrite ± Bornite ± Magnetite
B	Second mineralized veins: Quartz + Molybdenite ± Chalcopyrite + Pyrite ± K-feldspar
D	Forth mineralized veins (QSP): Quartz + Sericite + Pyrite
E	Firth mineralized veins: Quartz + Sericite + Pyrite + Carbonate ± Sphalerite ± Galena
DX	Pyrite + Cobalt / Pyrite / Pyrite + Chlorite
QTP	Quartz + Tourmaline + K-feldspar ± Pyrite

7.2.4.4 Propylitic Alteration

Propylitic alteration is the distal or peripheral alteration phase at Santo Tomás. Propylitic alteration generally occurs in two stages: the epidote stage and the epidote-free stage (Seki, 1973). The epidote-stage reveals mineral assemblages of epidote-chlorite-sericite, chlorite-sericite, and chlorite-epidote-calcite (with or without albite and quartz) whereas the epidote-free stage assemblages include calcite, chlorite, and sericite.

7.2.4.5 Sodic-Calcic Alteration

Albitic alteration is an early-stage, high-temperature alteration that develops deeper or in the core of porphyry systems. At Santo Tomás sodic-calcic or albitic alteration is poorly defined due to overprinting by later potassic alteration. In drill hole STD-45, silica-albite alteration is locally developed in quartz-monzonite at 315.5 m, and in STD-44 at 333 m. It is typically light-coloured consisting of 50% opaque to semi-translucent albite(?) and 50% transparent to translucent, colourless quartz. Minor euhedral plagioclase phenocrysts remnants and quartz phenocrysts attest to a quartz-monzonite precursor. Irregular tourmaline patches and minor remnants of chlorite are common. The overall character is a whiter colour compared to unaltered quartz-monzonite with absent to minor chlorite. Chlorite, if present, is typically a bright green within the white groundmass. Localized potassic alteration associated with the silica-albite alteration may indicate that albitic alteration of plagioclase phenocrysts and groundmass predates potassic alteration. Silica-albite alteration is associated with higher-than-normal sulphide concentrations with a high proportion of pyrite relative to chalcopyrite.

7.2.4.6 Potassic Alteration

Potassic alteration is characterized by the exchange of K for Ca and Na ions, leading to the replacement of Ca-Na bearing mineral phases by potassic minerals commonly developed in the core of porphyry Cu-systems. Typical assemblages are orthoclase and biotite after plagioclase and hornblende. At Santo Tomás potassic alteration affects most of the mineralized quartz-monzonite and andesites and extends along dyke contacts with limestone and limestone related sedimentary rocks and local skarn assemblages. Thin potassic alteration halos may be cryptic and are identified along the margins of quartz and quartz-sulphide veins using K-staining, with unstained rock showing little alteration colour contrast. Potassic alteration in andesite alters the groundmass from an aphanitic texture to a slightly translucent hypidiomorphic granular texture. Alteration is commonly medium grey in colour, with minor chlorite replacing mafic minerals. Staining reveals abundant, up to 50-60% potassic alteration, locally with associated fine-grained black tourmaline. Where potassic alteration has produced biotite in either andesite or hornfels, the rock is slightly softer characterized by a dark to a nearly black colour and an aphanitic to very fine-grained texture. Potassic alteration in quartz-monzonite varies from weak alteration along vein margins and speckling in the groundmass to total groundmass replacement and partial replacement of the plagioclase phenocrysts.

7.2.4.7 Phyllic Alteration

Phyllic alteration is commonly associated with sericite-quartz-pyrite-chlorite assemblages in porphyry copper settings. It forms by the decomposition of feldspars in acidic conditions, occurring at higher levels than the potassic or peripheral to the potassic alteration. Much of the phyllic alteration described in the core at Santo Tomás appears to be confined to the zone of early-stage faulting and fracturing and quartz-monzonite intrusion. The tabular morphology of the mineralization, compared to the more common stock or batholithic shape to many porphyry systems, may account for the restricted development of phyllic alteration at Santo Tomás. Where it is recorded in altered quartz-monzonite, it is uniformly medium grey, slightly translucent, waxy, and produces a weak colour contrast between plagioclase phenocrysts and groundmass with hornblende replaced by chlorite. Phyllic alteration is rarely described in andesites in drill core. It may constitute part of the alteration assemblage in bleached hornfelsed andesites, but there has not been any petrographic work to confirm this.

Figure 7-6: Outcrop of Phyllic Alteration Superimposed to Potassic Alteration and Cu Oxides in Quartz-monzonite Porphyry Within the North Zone. View Toward the West

Source: Oroco, 2023.

7.2.4.8 Argillic Alteration

Argillic alteration plays a key role in the formation of clay minerals, including kaolinite, smectite and illite. Argillic alteration is generally a low-temperature late-stage alteration event. The earliest signs of argillic alteration include the bleaching of feldspars. Advanced argillic alteration, a subcategory of argillic alteration, consists of kaolinite + quartz + hematite + limonite, with feldspars leached and altered to sericite. The presence of this assemblage indicates highly acidic conditions and temperatures of less than 220°C. At higher temperatures, the mineral pyrophyllite (white mica) forms in place of kaolinite. At Santo Tomás no significant and pervasive upper-level argillic alteration was identified although argillic alteration that is described from fault zones and near surface drill holes, is likely fault gouge and surface weathering.

Figure 7-7: Outcrop of Contact between Hornfelsed Andesite and a Quartz-Monzonite Dyke

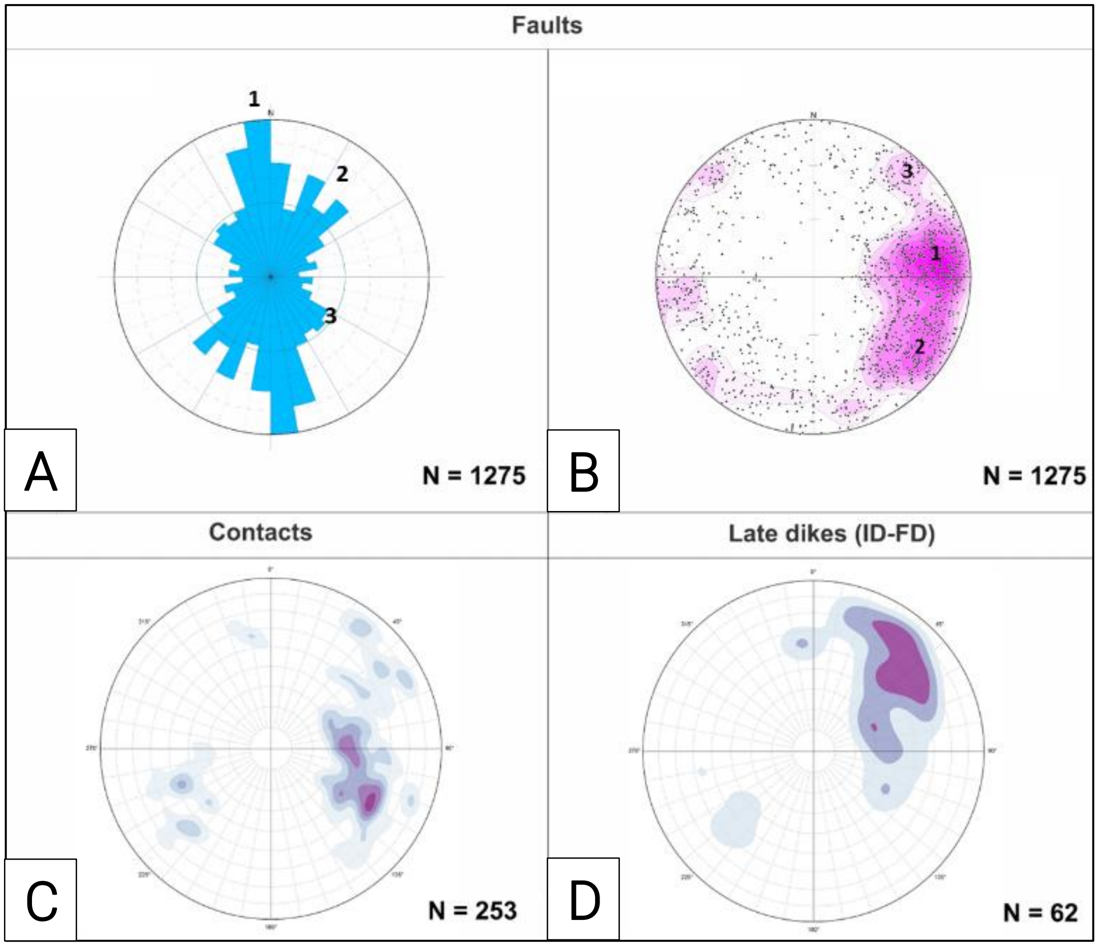
Source: Oroco, 2023.
Note: Outcrop of Contact between Hornfelsed Andesite (left) and a Quartz-monzonite Dyke (right). The view is toward Azimuth 200 (Contact strike is 020° with 50°W dip), the site is near STE-27, North Zone.

7.2.5 Structure

7.2.5.1 Deposit Morphology

The Santo Tomás – Brasile's porphyry copper system is atypical in that it consists of a 300-400 m wide dyke complex with a strike extent of at least 5 km. This gives it a tabular morphology with a very high aspect ratio in the range of 12 to 17:1 rather than the more typical stock or batholith morphologies evident in many porphyry systems. The permeability and fluid flow that produced the alteration and mineralization is linked to multiple fault and associated fracture systems, developed in response to regional and local tectonic processes.

Figure 7-8: Orientation Data Plots from The Geological Mapping Campaign



Source: Oroco, 2023.
A. Histogram of Fault Trends with Three Major Fault Trends
B. Poles to Fault Planes Showing Three Major Fault Sets.
C. Poles to Lithology Contacts
D. Poles to Late Dykes.
Note: Orientation Data Plots from The Geological Mapping Campaign.

7.2.5.2 Surface Mapping Structure

Field mapping campaigns during 2022 and 2023 generated a significant structural database with a total of 2,191 structural measurements, 1,275 of these were collected on fault and shear zones. Data analysis (Figure 7-8), indicates three main fault systems:

5. A first order fault system trending NNW-SSE with dips greater than 40° mainly to the WSW.
6. A second order fault system trending NE-SW primarily dipping to the NW but with subordinate SE dips. Dips are usually greater than 45°.
7. A minor NW-SE trending fault system.

Lithology contact orientations are dominated by NNE-SSW trends with a WNW dip-direction (Figure 7-8). These orientations conform to the MZ/QM dyke orientations and support a conformable intrusion relationship to the andesite-limestone contact orientation. The minor NW-SE trending fault system is best represented by the late intrusions (ID-FD), which usually dip to the SW (Figure 7-9) suggesting that the fault set is the youngest structural system of the area.

Figure 7-9: Northwest Trending and South-Westerly Dipping Dykes (ID) Emplaced into Granodiorite (GD)

Source: Oroco, 2023.
Note: Northwest Trending and South-westerly Dipping Dykes (ID) Emplaced into Granodiorite (GD). Outcrop On the Río Fuerte And West of Drill holes N032-41. Dyke Orientations Are Represented in The Stereonet Inset. View Looking South.

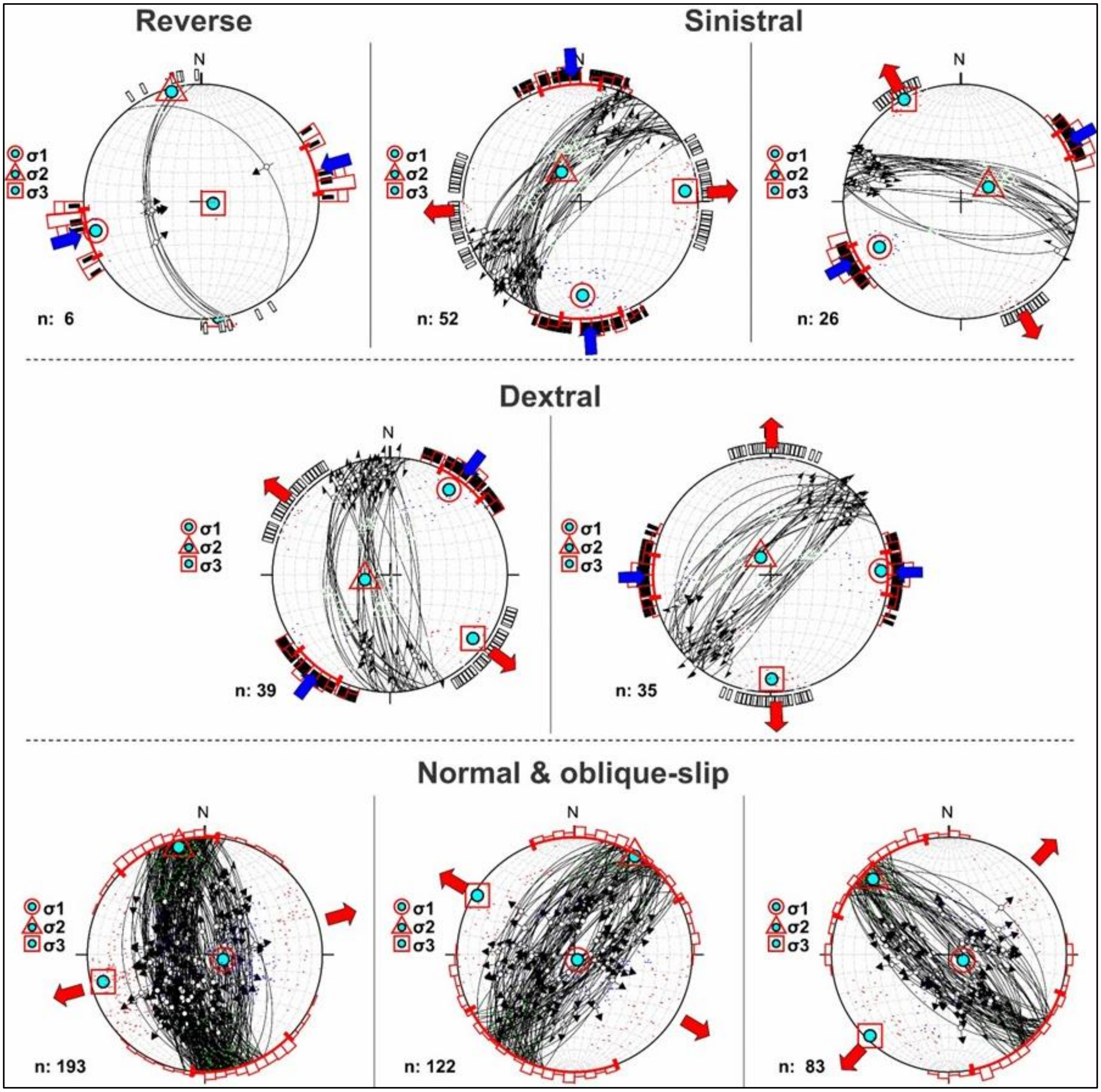
7.2.5.3 Kinematic Analysis

Kinematic analysis of the fault systems was used to develop a kinematic and paleostress history for the area and understand the timing relationship between fault sets. All faults with measured kinematic indicators (slip directions) from surface mapping were imported into Win-Tensor software (Delvaux and Sperner, 2003) and the associated paleostress conditions determined. Reverse, strike-slip, and normal and oblique slip faults were recognized (Figure 7-9).

The following kinematics were recorded for the three dominant fault orientations (Figure 7-10):

1. Primary NNW trending fault set recorded both reverse, dextral, and normal kinematics.
2. Secondary NE trending fault set is associated with sinistral, dextral, and normal kinematics.
3. The NW trending fault is dominated by normal kinematics.

Figure 7-10: Stereonets of the Main Fault Systems



Source: Oroco, 2023.

Note: Stereonets showing the main fault systems of the Santo Tomás area in terms of orientation and kinematics. Paleo-stresses are calculated for every stereonet.

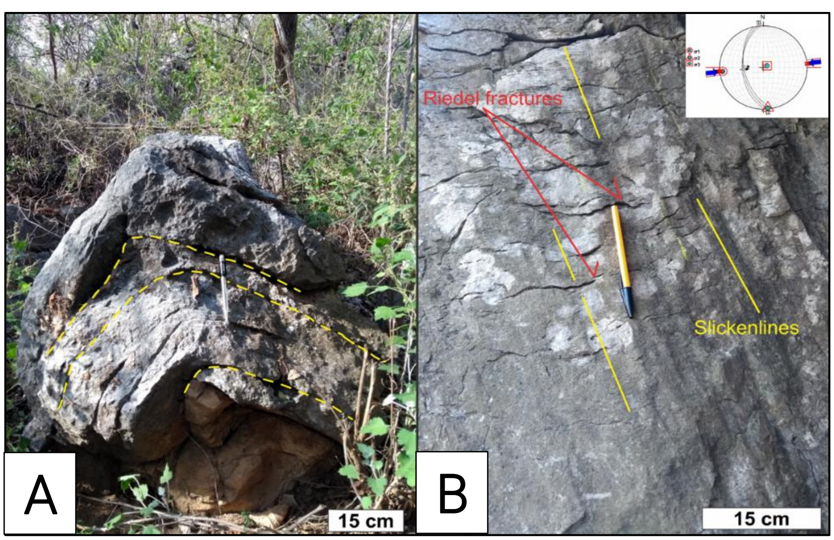
Reverse faults are considered the earliest phase of deformation. In the Brasiles, a reverse fault with an associated drag fold was mapped (Figure 7-11) and a thrust duplex system was interpreted in limestones (LS) exposed on the banks of the Río Fuerte (Figure 7-12). Reverse and thrust faulting preceded MZ/QM intrusions but was overprinted by younger extensional and strike-slip faulting that tilted the rhyolitic tuffs of the SMO (Figure 7-11). Additional data on reverse structures were measured in the North Zone on faults cutting the Atf unit.

Sinistral faults occur in two main trends NNE-SSW and ESE-WNW (Figure 7-10). The NNE-SSW trending set dip to the NW at between 45° and 90° and comprises transtensive and transpressive structures. These orientations match those of the main system of veins/veinlets of the Santo Tomás porphyry. The ESE-WSW trending set dips to the SSW and is subordinate to the NNE-SSW trend although it is represented by major fault-shear zones in Brasiles identified in drill hole data.

Dextral strike-slip faults are subdivided in two main systems, a dominant NNW-SSE trending set and secondary NNE to NE trending set. The NNW-SSE trending set is represented by low to high dips angles (25°- 90°) to the WSW. Some major faults have associated strike-slip and normal oblique kinematics. NNW-SSE dextral faults were observed cutting and displacing mineralized structures in the Brasiles area (Figure 7-11). The NNE to NE trending set is represented by moderately to steeply dipping structures with dips usually greater than 50° to both the NW and SE.

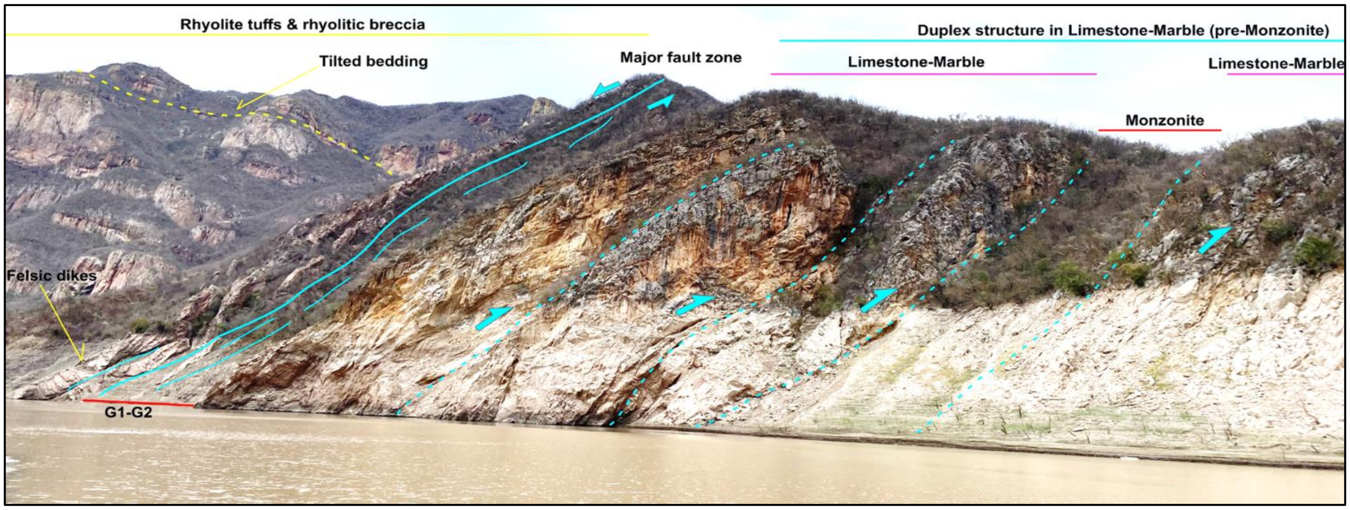
Extensional structures are the most common features of the area. Three fault systems, characterized by normal to oblique slip kinematics were identified, trending NNW-SSE, NW-SE, and NE-SW. The NNW-SSE trending set represent the dominant normal fault system in terms of data density. Faults dip moderately to steeply (60°-90°) to the WSW and ENE. The NW-SE trending set dip to the SW and NE at between 50° and 90°. The NE-SW trending set has dips usually steeper than 60° to the NW and SE. The NNW-SSE and NW-SE trending normal fault sets represent some of the youngest structures in the area. This is indicated by the emplacement of the late dykes (ID and FD) along these features and by a NNW-SSE normal fault cutting an ID dyke in the northern section of Brasiles (Figure 7-11). A NE-SW directed extensional setting was likely associated with the development of both the NNW-SSE and NW-SE trending normal faults, synchronous with, and after dyke emplacement.

Figure 7-11: Contractional Phase Structures Identified in Brasiles



Source: Oroco, 2023.
A. drag fold associated with reverse fault,
B. inset shows E-W compression kinematics.

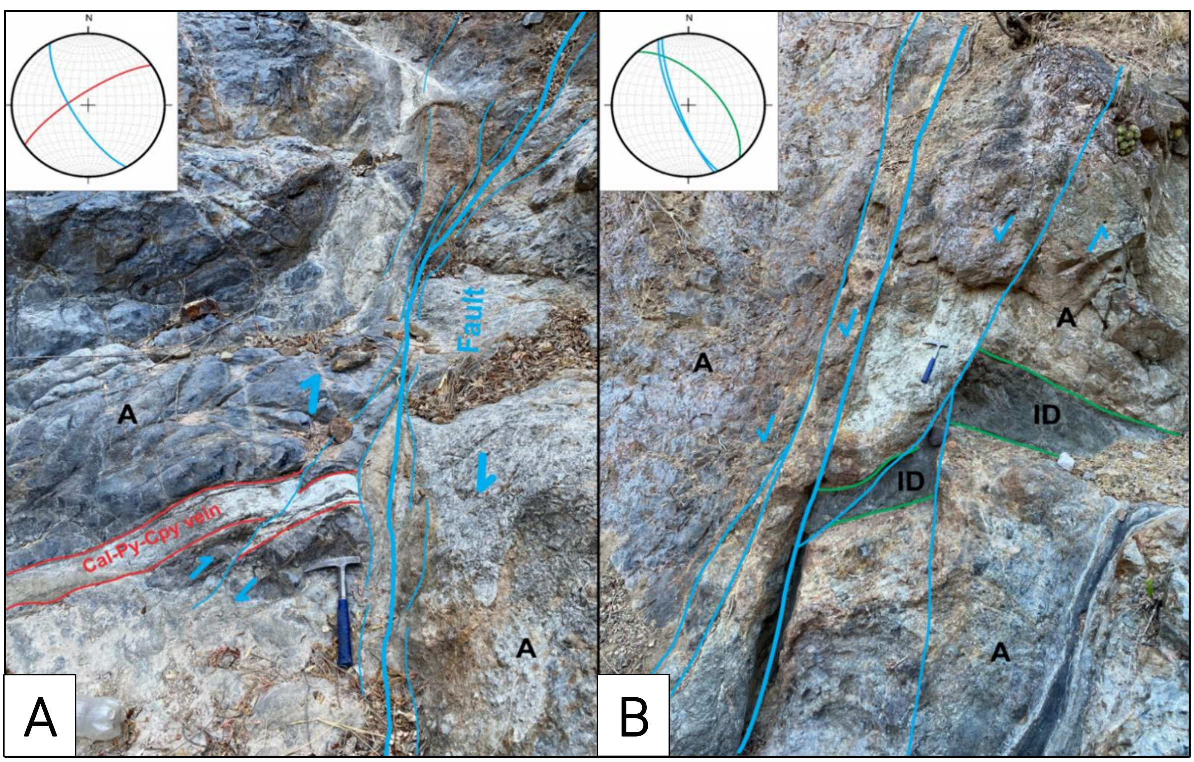
Figure 7-12: Thrust Fault System within Limestones



Source: Oroco, 2023.

Note: View looking North onto the north bank of the Río Fuerte. Thrust Fault System was subsequently intruded by Monzonite dykes and reactivated as an extensional fault.

Figure 7-13: Plan View of Faulting Displacing Veining and Dykes



Source: Oroco, 2023.

A. Plan view of NW trending dextral fault displacing NE trending mineralized Calcite-Pyrite-Chalcopyrite Vein.

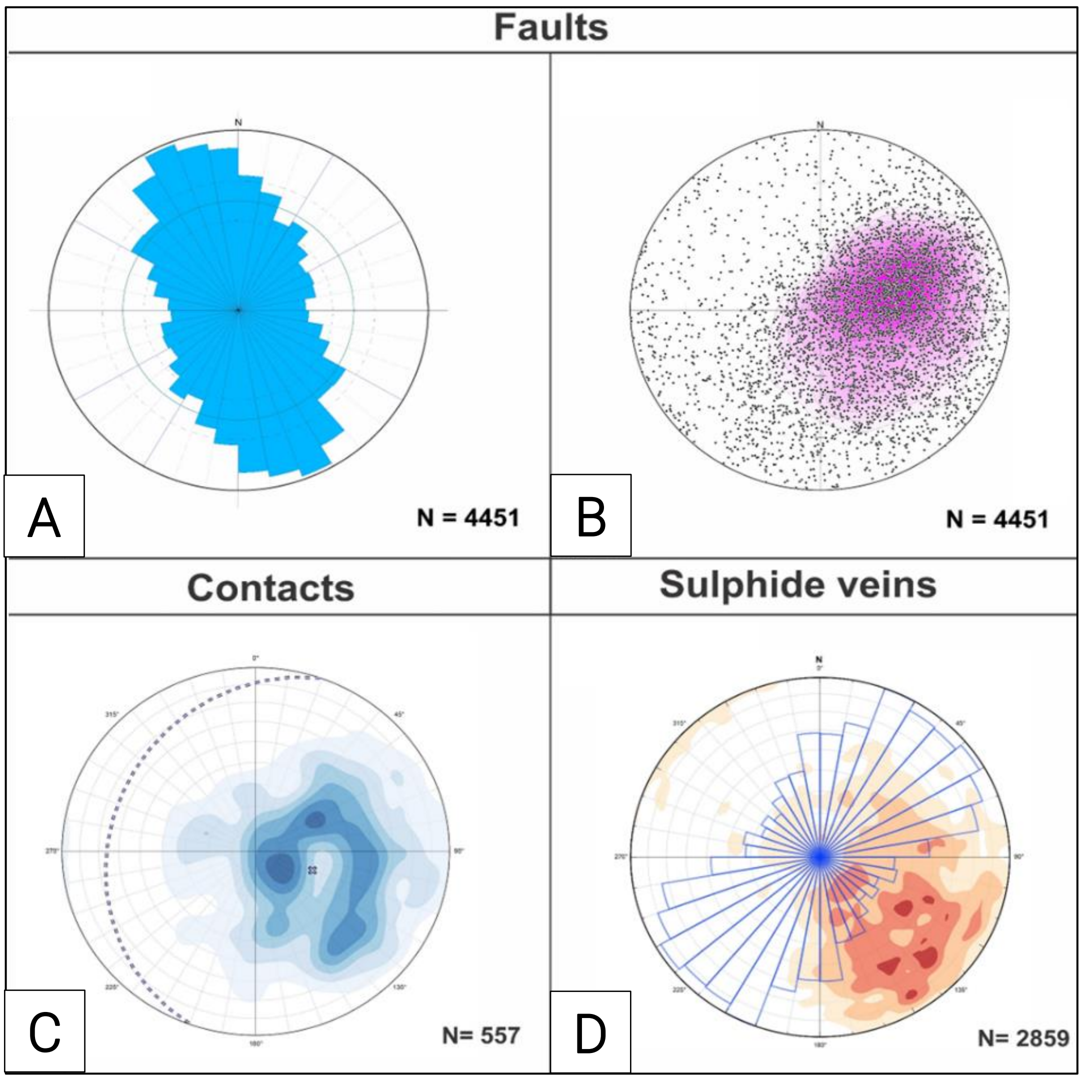
B. Section view toward the NNE of NW trending normal fault system displacing Intermediate-Mafic Dyke (ID) in Andesite (A). Orientations are represented on stereonet insets (Red -Mineralized Vein, Green -Dykes, Blue – Faults).

7.2.5.4 Drill Hole Structures

Structural logging generated a data base with 11,498 oriented structural measurements, in North Zone, South Zone and Brasiles (Figure 7-14, Figure 7-15 and Figure 7-16) represented primarily by orientation of faults, contacts and mineralized veins.

Structural analysis of drill holes data from North Zone (Figure 7-14) indicates that the main fault system is represented by NNW-SSE trends with dips mainly to the WSW. Contacts dip at low to moderate angles to the W, with dispersion to the WNW and WSW and mineralized veins are dominated by NE-SW to NNE-SSW trends dipping north-westerly.

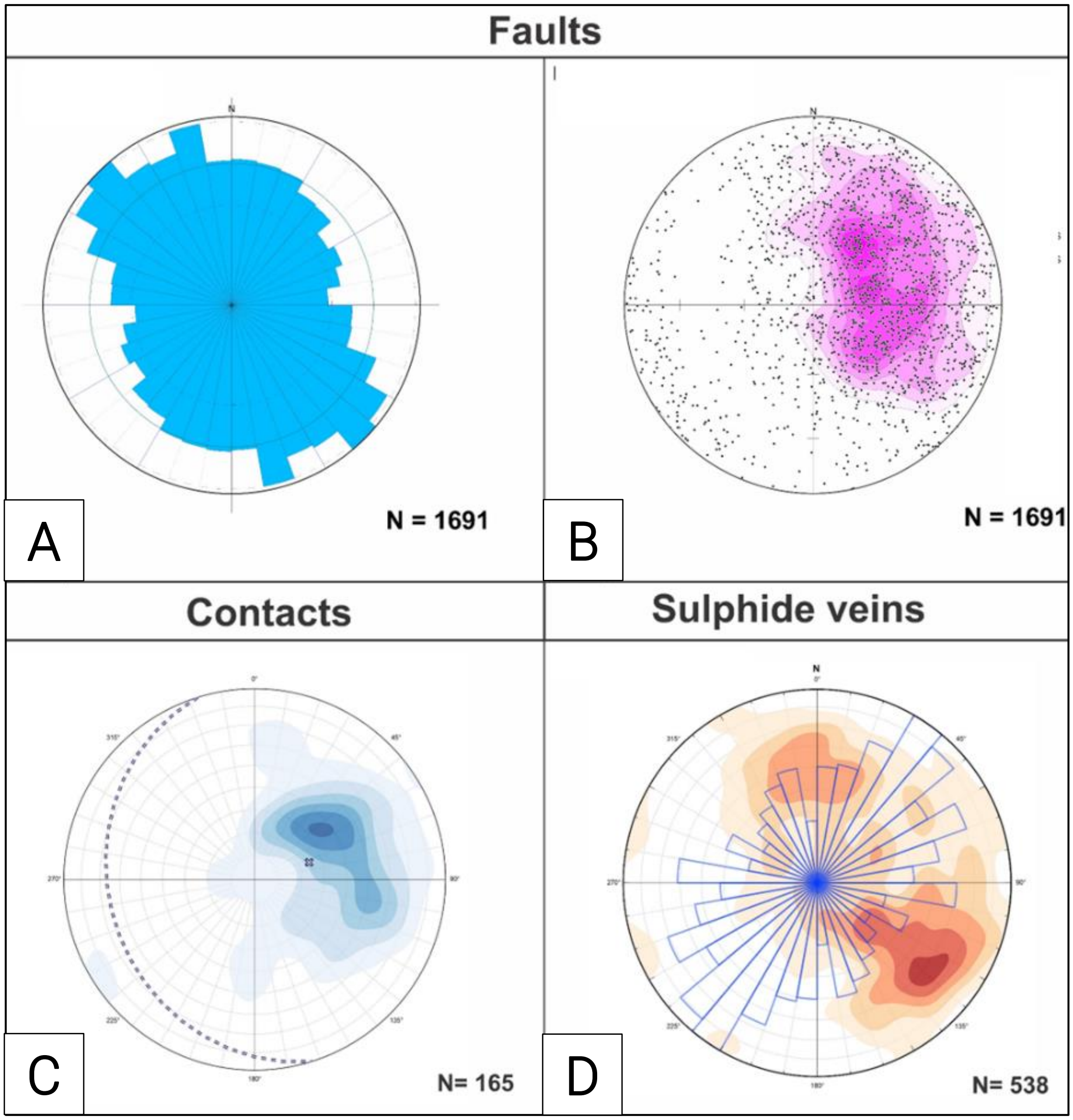
Figure 7-14: Oriented Structural Data from North Zone Drill Holes



Source: Oroco, 2023.
A. Rose Diagram Plot of fault trends.
B. Stereonet Plot of poles to fault planes.
C. Contoured Plot of poles to lithology contacts.
D. Trends and Contoured Polar Plot of mineralized veins.

Fault data for the South Zone (Figure 7-15) is more dispersed in comparison to Brasiles and North Zone, with NW-SE and NNW-SSE trends and dips to the SW and WSW. Lithology contacts show a major NW-SE trend with a SW dip-direction. Mineralized veins exhibit a high dispersion in terms of orientation, dip-direction, and inclination, although, two sets are prominent. A principal set corresponds to an NNE-SSW trend dipping to the WNW and a secondary set is represented by an E-W trend dipping to the S.

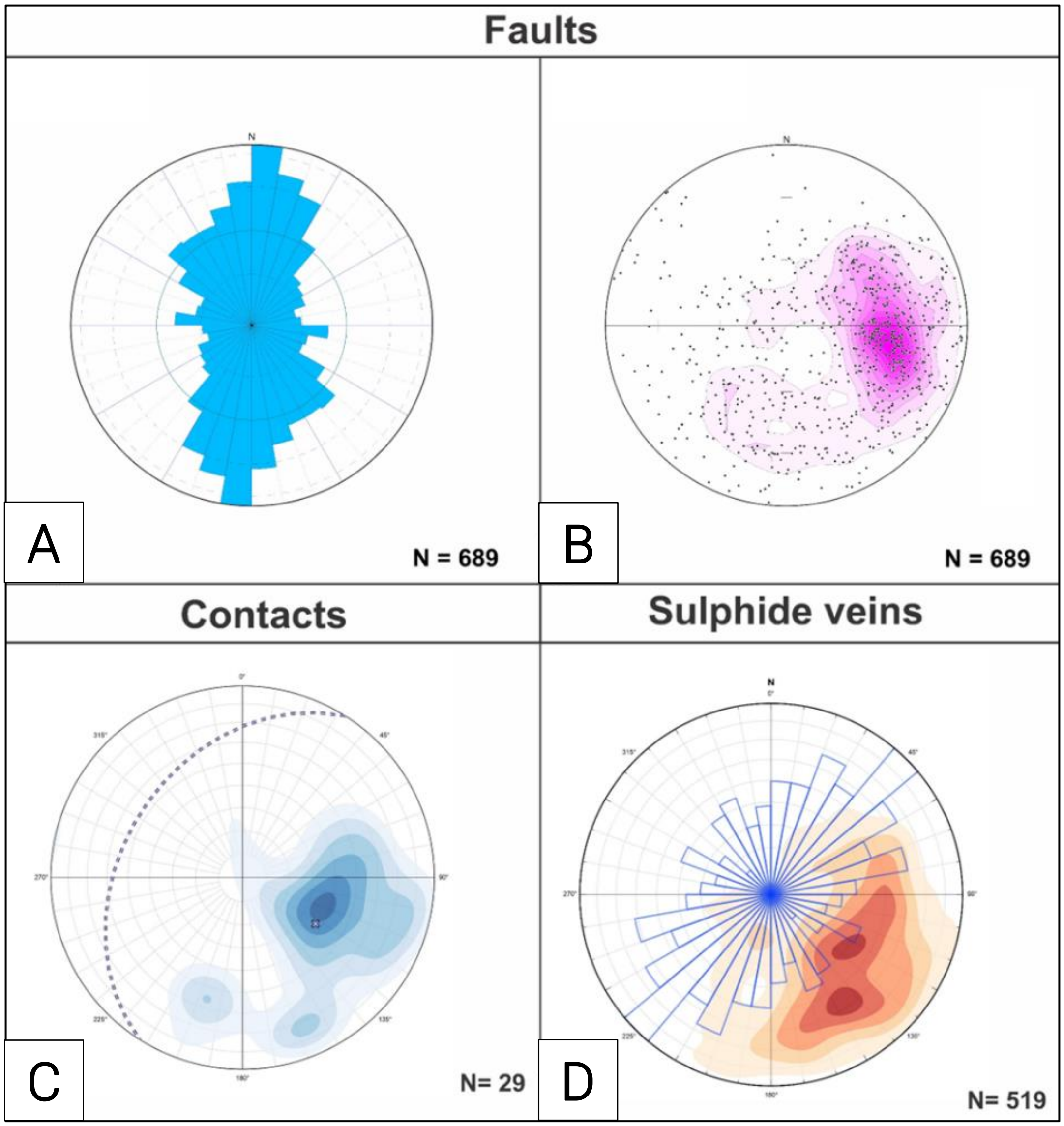
Figure 7-15: Oriented Structural Data from South Zone Drill Holes



Source: Oroco, 2023.
A. Rose Diagram Plot of fault trends,
B. Stereonet Plot of poles to fault planes,
C. Contoured Plot of poles to lithology contacts, and
D. Trends and Contoured Polar Plot of mineralized veins.

Structural analysis for the drill hole data collected in Brasiles (Figure 7-16) shows a relationship between fault data, lithological contacts, and mineralized veins. The main fault system is NNE-SSW trending and dips mainly to the WNW. Measured contacts highlight a dominant set of structures with NNE-SSW trends (slightly more NE than the faults) with an overall WNW dip-direction and mineralized veins are dominated by NE-SW trends dipping to the NW.

Figure 7-16: Oriented Structural Data Collected on Drill Holes from Brasiles



Source: Oroco, 2023.
A. Rose Diagram Plot of fault trends,
B. Stereonet Plot of poles to fault planes,
C. Contoured Plot of poles to lithology contacts, and
D. Trends and Contoured Polar Plot of mineralized veins.

7.2.5.5 Major Structures

Major structures were defined using the surface structural data and lineament interpretation in combination with the structural logging database.

The dominant and primary fault system is characterized by brittle-ductile shear zones (usually up to 30 m wide) occasionally with development of mylonites (Figure 7-17). Logging confirmed that these structures occur mainly along lithological contacts that have been repeatedly reactivated, resulting in a complex kinematic history.

Faults identified with a significant influence on the geometry of the mineralization in the North Zone are indicated in the geological map (Figure 7-17) as F1, F2, F3 and F4.

- F1 is a sheared contact developed between the GD and Mesozoic cover. It marks the western limit of the mineralization. It has an NNW-SSE trend and ENE dip.
- F2 corresponds to the western fault usually intercepted at the base of the R-Rbx. It has an NNW-SSE trend and dips to the WSW.
- F3 is shear zone contact developed along the lower contact of LS. It has an NNE-SSW trend and dips to the WNW.
- F4 is represented by a shear zone in the footwall of the mineralization. It trends parallel to F3.

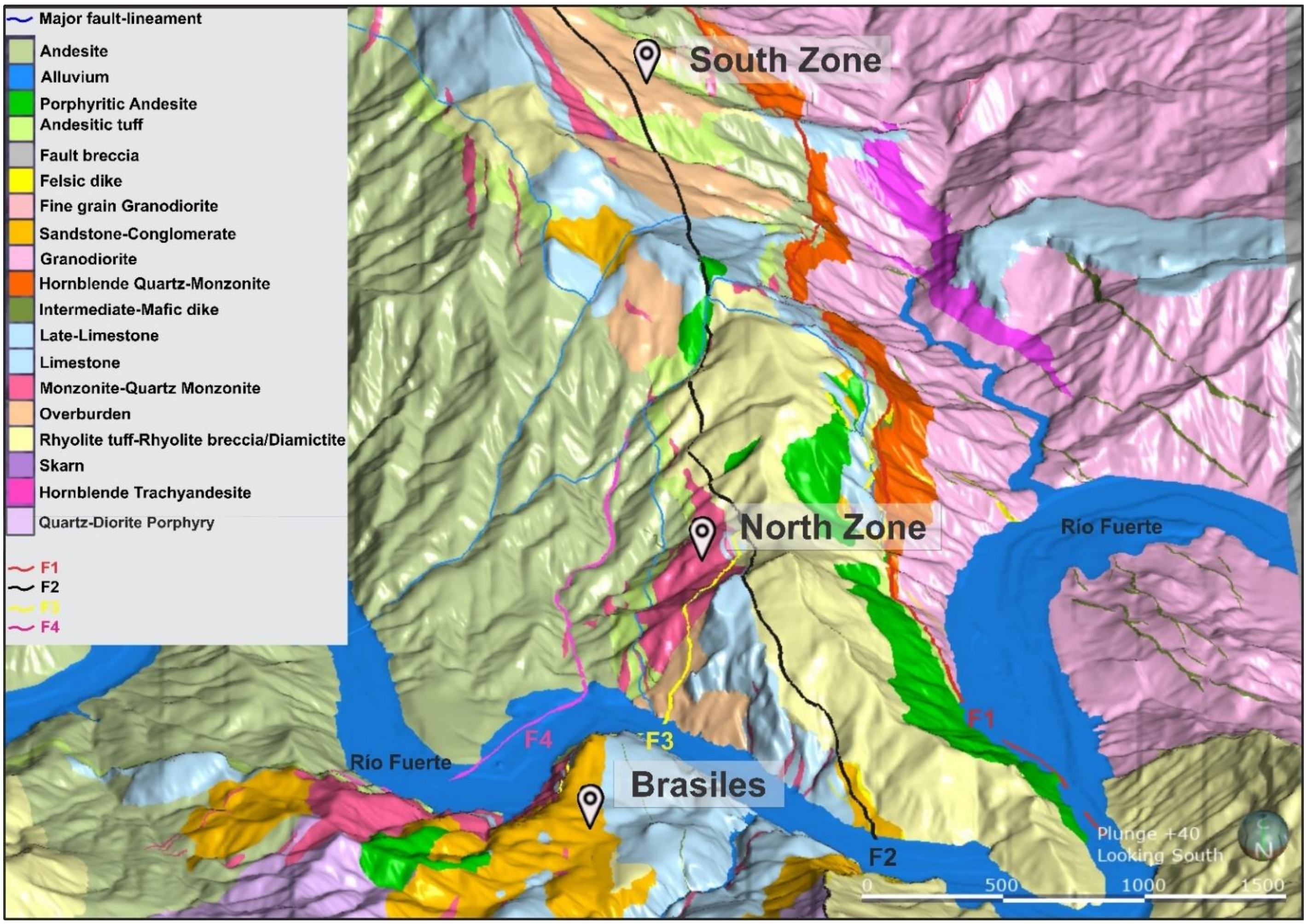
Figure 7-17: Examples of Major Structures in Drill Core

Source: Oroco, 2023.

Note: Structures are represented by Cataclasite-Mylonitic textures developed during Brittle-Ductile deformation. SC-type structures, rotated clasts, enlarged clasts and offsets are observed within the shear zones. Drill hole number and depths are indicated.

The structural mapping and kinematic analysis suggest that main Santo Tomás fault system is a regional-scale, anastomosing fault zone with inferred Laramide-age dextral displacement with several episodes of movement. The NE trending faults are interpreted as extensional structures linking onto strike-slip structure. The combination of translational and extensional zones likely controlled the emplacement Laramide quartz-monzonite intrusions and related sulphide mineralization. These observations broadly relate to early Laramide orogeny contraction (90-70 Ma) followed by late Laramide syn-convergent upper crustal extension ca. 70 Ma, initiated by flat-slab subduction. This initiated crustal dewatering with fluids focused along extensionally reactivated compressional shear structures and newly created brittle structures (Izaguirre, 2017).

Figure 7-18: Oblique Southerly View of Brasiles, North Zone and South Zone with The Major Faults (F1, F2, F3 and F4) Shown



Source: Oroco, 2023.

7.2.6 Santo Tomás Mineralization

Mineralization at Santo Tomás is developed along a 5 km strike length below a cap of Cretaceous limestone and later felsic volcanics. Erosion has exposed the mineralization along the Santo Tomás Ridge with the main area of surface exposure in the North Zone on the east flank of the ridge, above the Río Fuerte. Mineralization is mostly continuous along strike, but a lower-grade area separates the North Zone and South Zone and the Río Fuerte separate the North

Zone from Brasiles area (Figure 7-18). Indications are that mineralisation extends down dip until it intersects the Granodiorite (GD) as either an intrusive contact or a faut bounded contact, as interpreted in the 3D geological model (Figure 14-4). The North Zone lies on the eastern flank of the prominent N-S trending Santo Tomás Ridge whereas the South Zone lies on western flank. The main mineralized zone varies in thickness between 100 to 400 m (locally 600 m) in true thickness and dips moderately to the west at 50° in the North Zone. Similar moderate angle dips are apparent in the southerly portion of the South Zone where mineralization dips sub-parallel, or slightly steeper than, the west-facing slope of the Santo Tomás Ridge. The moderate westerly dip of the mineralized zone is cut by later post mineralization faults faulting along the western fault zone.

Santo Tomás Cu (Mo-Au-Ag) mineralization is characterized by copper porphyry and skarn/replacement style mineralization linked to the Laramide orogeny (80-40 Ma age). Technical reports published by Bridge (2020) and the MRE (Ausenco, 2023) reported a K-Ar age of 57.2 ± 1.2 Ma for a quartz-monzonite. This age was originally reported by Damon et al., (1983), relating it to the age of the mineralization. This age is likely from a sample of an intrusive collected from a location not consistent with the Santo Tomás mineralization. To develop confidence in the mineralization age and genesis, Oroco undertook a comprehensive sampling program to develop a set of precise ages for the mineralization, and the intrusive and extrusive lithologies on the Property (Table 17-1). Results from the Re-Os dating, define the Santo Tomás mineralization at between 76 and 72 Ma, coeval to the QMhbl and MZ/QM intrusions, which yielded U-Pb ages between 75.11 and 64.99 Ma, contemporaneous with the first generation (76–74 Ma) of copper porphyries within the southern North American Cordillera belt (Lazcano et al., 2023), and other associated Laramide-age deposits.

At Santo Tomás Laramide intrusions were emplaced into Jurassic-Cretaceous strata comprising metamorphosed andesite, limestone, and minor argillaceous and clastic units. Mineralization is strongly structurally controlled and associated with the Laramide-age Santo Tomás fault and fracture zone, interpreted as an early-stage structural zone which provided the pathway for the quartz-monzonite dyke swarm and related hydrothermal alteration, hydrothermal breccias, and sulphide mineralization. This early-stage structural zone can be mapped as a well-defined fracture zone (Mx) of sheeted quartz-monzonite dykes, and screens of highly fractured, hornfelsed andesite, and lesser limestone. Mineralization distributed along this zone forms a tabular NW dipping zone primarily defined by finely disseminated sulphides and fracture-fillings with subordinate sulphides hosted in stockwork quartz veinlets. Sulphides are dominated by pyrite-chalcopyrite–(molybdenite) and are distributed in altered quartz-monzonite and altered andesite. Minor mineralization is associated with skarn and replacement-style mineralization in the hanging wall limestone.

The mineralogy comprises chalcopyrite, pyrite and molybdenite with minor bornite, covellite, and chalcocite. Sulphides occur as fracture fillings, veinlets, and fine disseminations together with potassium feldspar, quartz, calcite, chlorite, and locally, tourmaline. Minor copper oxides occur near surface. Chalcopyrite is the main copper mineral associated with the altered monzonitic intrusives and andesites. Chalcopyrite occurs with pyrite both as fine-grained disseminations and in 1 mm to 2-3 mm microfractures associated with quartz and potassium feldspar, and locally tourmaline. Chlorite and magnetite may also present. Oroco developed a vein classification system to characterize the complex vein system (Table 7-2) and along with hydrothermal alteration, develop vectors to higher-grade mineralized zones, associated with potassic and phyllic (QSP) alteration. Mineralization is closely related to extant “white micas” and the zones of pervasive A and B-type veining with a sulphide assemblage of chalcopyrite-molybdenite and minor bornite. Increased vein thickness, up to 2.5 cm, is typically also accompanied by higher grades. B-type veinlets are the dominant Cu-Mo mineralization microstructures at Santo Tomás, hosted within altered quartz-monzonite and andesite. Proximal B-type veins are typified by quartz and chalcopyrite with molybdenite developed as a thin vein selvage or along the vein suture and a K-feldspar and illite alteration halo. Distal veins are typified by quartz with molybdenite-chalcopyrite and pyrite and an illite and green sericitic alteration halo.

8 DEPOSIT TYPES

The Santo Tomás exploration programs have primarily focused on Cu-Mo-Au-Ag porphyry deposit types. Herein, exploration recommendations continue with this deposit-type target.

8.1 Porphyry Deposits

Porphyry deposits are large, low- to medium-grade deposits in which primary (hypogene) minerals are dominantly structurally controlled and which are spatially and genetically related to felsic to intermediate porphyritic intrusions (Sinclair, 2007). The generalized geological setting of porphyry-related deposits is shown in Figure 8-1. The large size and structural control exhibited by veins, vein sets, stockworks, fractures, 'crackled zones' and associated hydrothermal breccias serve to distinguish porphyry deposits from a variety of deposits that may be peripherally associated, including skarns, high temperature mantos, breccia pipes, peripheral mesothermal veins, and epithermal precious metal deposits.

Lowell and Guilbert (1970) proposed a relatively simple model characterized by lateral and vertical zoning of the primary and alteration mineralogy, which is centered on an intrusive body characterized by a porphyritic texture. Sillitoe (1973) proposed that the mineralizing porphyries are calc-alkaline stocks emplaced at depths of 1.5–3 km in the crust, which grade downward to stockwork mineralization and potassic alteration zones in a larger equigranular intrusive.

In general, the longevity and dynamism of the hydrothermal activity, as well as the presence of favourable physical-chemical conditions in the fluid-rock relation, are important factors for producing economic deposits (e.g., Clark, 1993). Along with these factors, the repetition and superimposition of the mineralizing events in a system produce a progressive enrichment of the deposit, which is particularly important for the concentrations of copper (Gustafson et al., 2001). Evidence includes multiple stages of vein- and fractured- controlled mineralization, and the overprinting of alteration assemblages.

8.2 Laramide-Age Porphyry Deposits of NW Mexico

Most of the known porphyry copper deposits in Mexico lie along a 1,500 km-long, NW trending belt sub-parallel to the western coast of Mexico (Valencia-Moreno et al., 2007; Hammarstrom et al., 2010;). This belt extends from the U.S. border through the states of Sonora (the Cananea and La Caridad deposits), western Chihuahua, Sinaloa, Michoacán (the Inguarán deposit), and Guerrero.

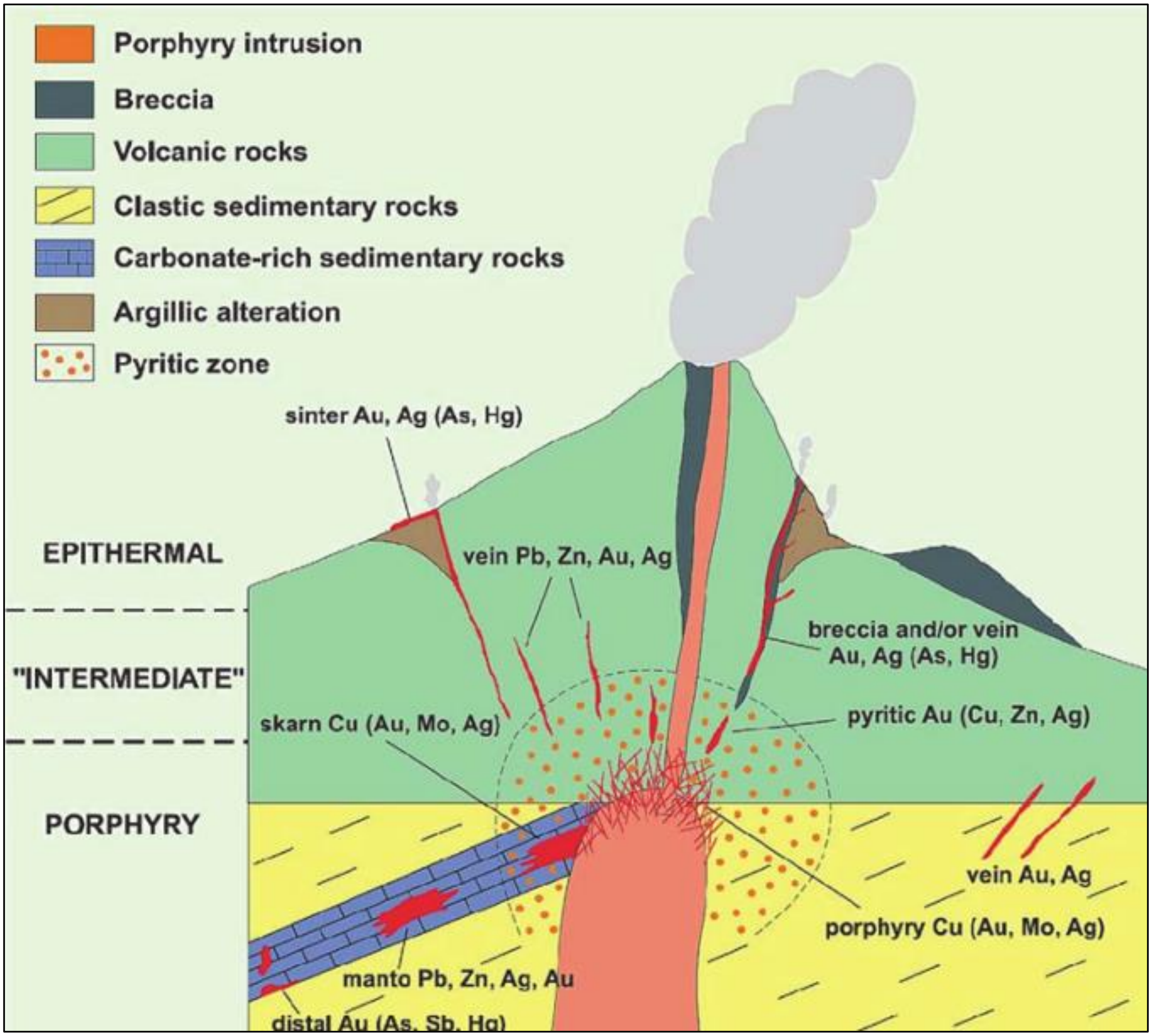
The deposit at Cananea with ~30 Mt contained copper (Valencia-Moreno, et. Al., 2007) in Sonora is among the 15 largest porphyry copper deposits in the world. These deposits are part of a globally important belt of porphyry copper deposits in the southwestern United States and Mexico that is Laramide (80 to 40 Ma) in age. This information is not necessarily indicative of mineralization on the Property that is the subject of this technical report.

Deposits and intrusions of the Laramide orogeny in NW Mexico are shown in Figure 8-2.

These Laramide-age deposits formed in a continental arc tectonic setting related to the subduction of the Farallon Plate beneath the North American Craton. Laramide igneous rocks in the western part of the Cordillera arc (within 500 km of the paleo-trench) are calc-alkalic, whereas the igneous rocks farther inland (700 to 1,000 km) tend to be alkalic (Damon et al.,1983).

The Laramide porphyry copper deposits of southwestern U.S. and northern Mexico are one of the great concentrations of porphyry deposits, rivaling the Cenozoic deposits in the southern Andes or the Philippines. The Laramide porphyry copper belt is interpreted as being a result of an Andean-type arc that evolved as high-angle subduction of the Farallon oceanic plate under the North American continental block. The angle of subduction flattened at the end of the Cretaceous, possibly due to an increase in the rate of plate convergence (Valencia-Moreno et al., 2007).

Figure 8-1: Schematic Diagram of a Porphyry Cu System from Sinclair (2007)



Source: Sinclair, 2007.

Note: Porphyry Cu system in the root zone of an andesitic stratovolcano showing mineral zonation and possible relationship to skarn, manto, "mesothermal" or "intermediate" precious- metal and base-metal vein and replacement, and epithermal precious- metal deposits.

The porphyry copper systems of Mexico, including some associated skarn and hydrothermal breccia pipe deposits, occur along an NNW-SSE–oriented belt exposed along most of the western side of the country. Close to 60 deposits are recognized in this belt, 70% of which occur in northwestern Mexico, particularly in the states of Sonora and Sinaloa.

The porphyry copper deposits of Mexico can be classified in two main geographic groups (Valencia-Moreno et al., 2007).

1. A first group, which comprised the northern and central domains and was developed under the significant influence of old continental crust, is characterized by Cu-Mo-W deposits, and includes the world-class deposits of Cananea and La Caridad.
2. The second group comprises the southern domain of the belt and exhibits clear genetic relations with a relatively young oceanic basement. It is dominated by Cu-Au mineralization and has a significant number of deposits, but most are relatively small for the size commonly observed for this type of mineralized deposit system. Two exceptions are the large El Arco deposit in Baja California and Santo Tomás at the junction of Sonora, Sinaloa, and Chihuahua.

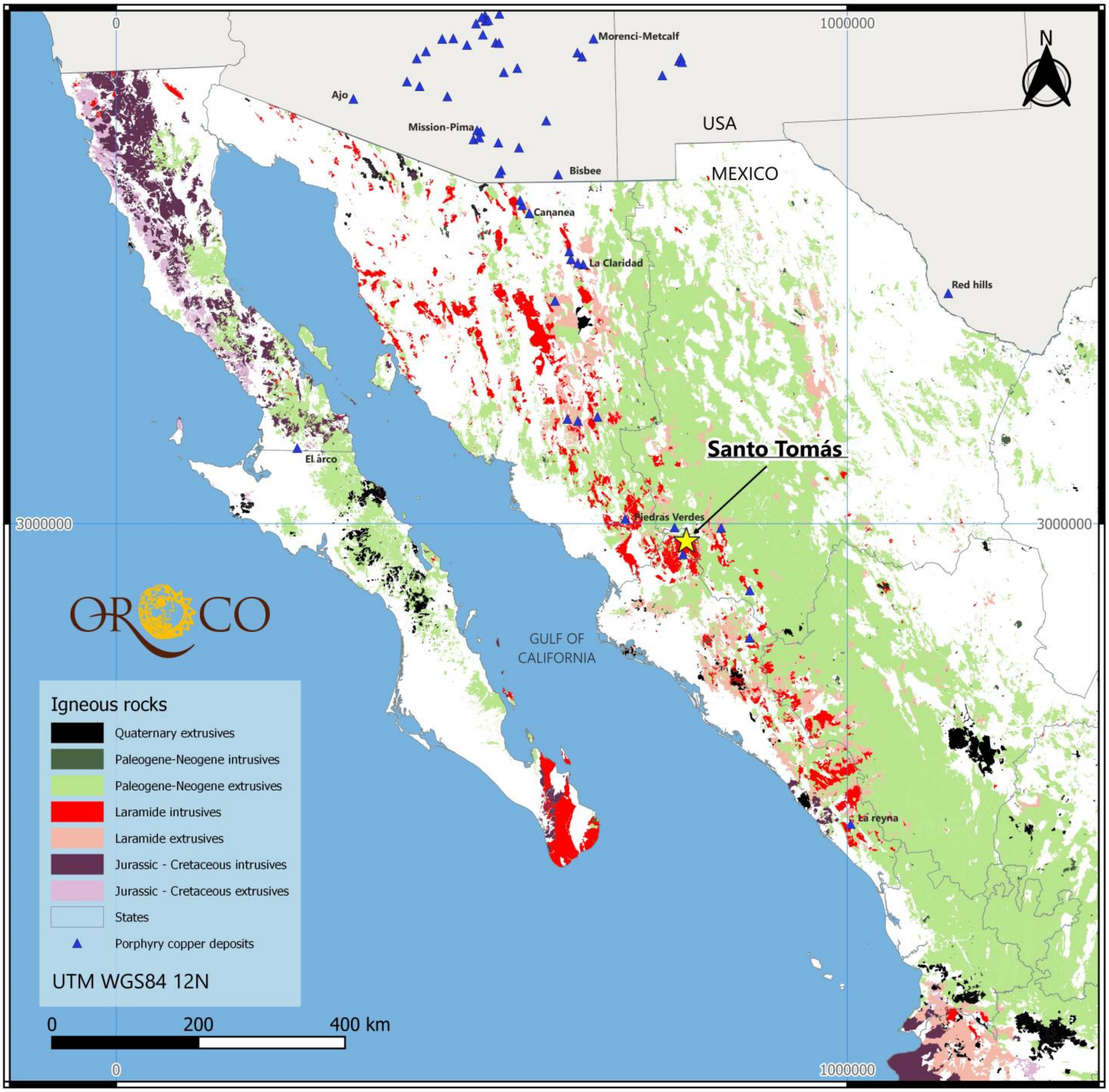
The intrusive rocks related to porphyry copper deposits include granite, quartz-monzonite, monzonite, granodiorite, Tonalite, and diorite for the general porphyry copper deposit model, and syenite in addition to the preceding rock types for the Cu-Au porphyry copper deposit subtype.

There are many general classifications of porphyry copper systems, but the Laramide deposits are grouped into three main categories: a) those dominated by a stock or batholithic intrusive body, b) those dominated by a structurally controlled intrusive body within a structural domain and c) and those dominated by hydrothermal breccias.

The model described by Lowell and Guilbert (1970) was developed to apply mainly to the stock or batholithic type, with or without hydrothermal breccias. The Laramide deposits are commonly characterized by extensive zones of potassic, phyllic, propylitic, and argillic hydrothermal alteration, associated with subvolcanic stocks of monzonitic to quartz-dioritic compositions. The mineralization mainly occurs as stockwork zones or is disseminated, especially when hosted in Laramide volcanic rocks of intermediate composition, as well as in the subvolcanic plutons themselves. The porphyry copper deposits can be described as zones of copper and molybdenum sulphides occurring as disseminations and stockworks of veinlet sulphides emplaced in various host rocks that have been altered by hydrothermal solutions into concentric zonal patterns when the mineralizing system is dominated by a stock or batholitic intrusion.

In contrast, most of the porphyry copper deposits in the western part of the Sierra Madre Occidental (in Sonora and Sinaloa) were emplaced in structurally controlled, highly fractured rocks during the Paleocene to Eocene (Ferrari et al., 2007). Hydrothermal breccias are important components of the Mexican deposits and, in some cases; copper mineralization is restricted to breccias (Sillitoe, 2007). Barton et al. (1995) noted the association of porphyry copper deposits with breccia pipes as well as with numerous small copper skarns in the states of Sonora, Guerrero, and Michoacán.

Figure 8-2: Late Cretaceous to Early Paleogene-Neogene "Laramide" Intrusion-Related Deposits of Northwestern Mexico



Source: Modified of United States Geological Services (2010).
Note: Porphyry Copper Assessment of Mexico. Reston, VA: U.S. Geological Survey.

9 EXPLORATION

Historical exploration programs are described in the History section of this technical report. Since 2019, Oroco has conducted an exploration program of remote sensing, airborne and ground geophysical surveys in preparation for a resource drilling campaign at North Zone and South Zone and a small exploration drilling initiative was campaigned at Brasiles. In the course of Phase 1 drilling, from mid-2021 through early 2023, geology mapping has been selectively campaigned in key areas of the Project.

The location of each major contracted remote sensing and geophysical survey is displayed in Figure 9-1, including the outline of a vegetation study undertaken in support of site permitting.

9.1 Remote Sensing

In preparation for field work, Oroco commissioned an airborne LiDAR survey to update and improve the resolution, accuracy, and precision of the existing 2017 project digital elevation model and orthophotography record. The earlier satellite-derived dataset was based upon Synthetic Aperture Radar (SAR) data acquired for Oroco by Auracle Geospatial Science, Inc., and MacDonald, Dettwiler and Associates Ltd. using the RADARSAT-2 acquisition platform (Bridge, 2020).

9.1.1 2021 LiDAR Survey

Eagle Mapping Ltd., (Eagle) of Langley, BC, Canada, was contracted by Oroco to fly a 342 km^2 airborne LiDAR survey over the Project during the April dry season of 2021 to minimize foliage interference for both laser ranging and visible spectrum data acquisition of ground surface features. The survey was flown at 1,600 m AGL on April 6th and 7th, 2021, using a Riegl VQ780II LiDAR unit and a PhaseOne iXM-150F camera, to produce 10 pulse/m^2 LiDAR density and 20 cm pixel photo imagery (Eagle Mapping, 2021). The survey was not coordinated from ground markers, with navigation and positioning based upon an Applanix POS AV610 (IMU 57) coupled INS-GNSS, processed using POSPac MMS v8.6 software.

Post delivery of the LiDAR survey, ground-based DGPS surveys of features that were clearly visible in the processed, tiled LiDAR product confirmed that at seven points the DGPS coordinates agreed to within 30 cm (range 11 to 29 cm) in the X-Y plane and to within 25 cm (Z).

The LiDAR data was delivered to Oroco in LAS (.las) point cloud format, with 1,000 m project tiles of ASCII (.txt) DEM, band tone and 1 m contour Shape (.shp) files, and Hillshade and Orthophoto GeoTiff (.tif) files in EPSG 6367 map projection (UTM 12N, ITRF08 epoch 2010.0 horizontal datum, NAVD88 vertical datum, on the GGM10 geoid). In all 400 tiles of up to 1 km^2 were generated and delivered to Oroco by Eagle.

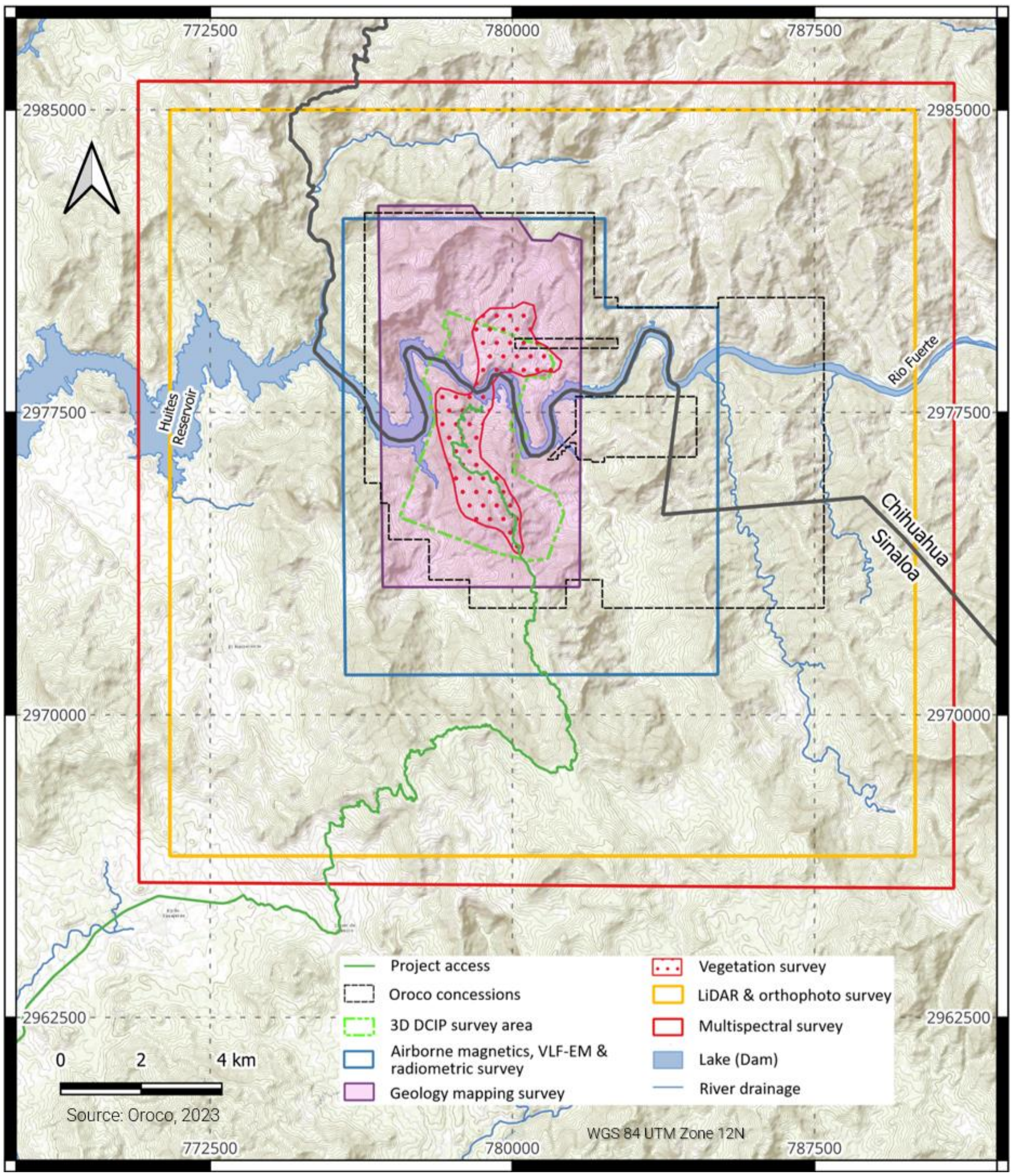
Oroco has used the products of the LiDAR survey to compile the master DEM/DTM for the Project, where it has been used in the Project GIS and other technical software platforms. Most importantly the surface was imported into the 3D Leapfrog (Edge/Geo) software and used to for drilling location information and surface mapping in support of the geological map generation, geological and structural modeling, and resource estimation. The LiDAR products have also been used with the site standard DGPS applications to corroborate the spatial locations of inter alia DGPS injection and recording stations, sample sites, roads, drill pads and drill hole collars. The Company has also used the LiDAR to search for evidence of disturbance to locate overgrown roads, former drill sites, remnants of old farm walls and the like.

The LiDAR survey raw data, and certain Oroco generated map products, have been filed (by Eagle and Oroco respectively) with the Mexican Government Geoinformatics branch, for reference by government agencies. The SEMARNAT and CONAGUA (Environment and Water Affairs agencies) have both made reference to the LiDAR-derived shaded topographic maps in consultation with Oroco.

The Company has generated a number of topographic map bases, including themed slope and elevation maps for internal use. The DEM / DTM and contour products are presently being used for engineering and site design purposes by Ausenco and SRK in their PEA work efforts.

The Project has in general replaced the prior 2019 project 'AW3D Enhanced DTM' referenced in Bridge (2020), except in some online applications where the lower resolution of the historical product allows for faster viewing.

Figure 9-1: Location Outlines for the Project Datasets



Source: Oroco, 2023.

Note: Location outlines for the Project LiDAR, airborne magnetics (plus radiometrics and VLF-EM), ground 3D DCIP survey, geological mapping, and vegetation survey coverage.

9.1.2 Satellite Multispectral Review

During the course of late 2021 and 2022, Rodrigo Díaz Martínez of Díaz Remote Sensing Geology (‘Díaz’) commenced a satellite multispectral data compilation of NW Mexico and the Project area for Oroco, with a view to evaluating structural and alteration features detectible using the various sensors deployed on orbital satellite platforms. Though the Project was started, it has not advanced past early evaluation owing to the ill-health of Mr. Díaz Martínez, ‘Díaz’ principle technical service professional.

Alternative services were subsequently contracted to assemble project area multispectral data, which had been received since publication of the Company’s 2023 MRE technical report (Ausenco, 2023). ImagenGeo of Guadalajara, Jal., Mexico, was contracted in early 2023 to acquire data from the European Space Agency’s Maxar-operated WorldView Series environment-monitoring commercial satellite program. ImagenGeo acquired WorldView-3 data over a defined area of 380 km^2 covering the Santo Tomás Project and environs during the ‘dry’ period in March-April 2023 (when low forest foliation permits maximum ground surface reflectance).

WorldView-3 is a high-resolution multi-payload and super-spectral orbital satellite platform operating at an orbital altitude of 617 km. The WorldView-3 camera instrument (WorldView-110) collects images at a resolution of 0.31 m panchromatic and at 1.24 m in eight VNIR bands, 3.7m in eight SWIR bands and at 30 m resolution in the CAVIS (Clouds, Aerosols, Vapors, Ice and Snow) bands. WorldView-3 has bands for enhanced multispectral analysis (coastal blue, yellow, red edge, NIR2) designed to improve segmentation and classification of land and aquatic features. WorldView-3 has an average revisit time <1 day and can collect up to 680,000 km^2 of data daily (https://earth.esa.int/eogateway/ missions/ worldview-3). The images collected have been corrected for atmospheric interference effects and orthorectified for application in the Project GIS projections. The work was focused on consideration for specific wavelength bands known to be useful in identifying alteration minerals associated with porphyry-style mineralized systems. Using a reference spectral library and certain defined algorithms for spectral treatment, ImagenGeo has provided Oroco with a set of preliminary interpretive spectral maps that seek to define areas where certain specific alteration mineral species may be developed and exposed at surface as defined by the absorption and reflectance characteristics of the collected image spectra. ImagenGeo has provided processed images and map interpretations for areas with potential for advanced argillic alteration minerals (alunite-pyrophyllite), argillic to phyllic alteration minerals (kaolinite-muscovite-illite-smectite), propylitic alteration minerals (chlorite, epidote, calcite), dolomitic rocks, hydrous silicates (jarosite-smectite) and areas where significant ferrous and ferric oxides present.

The ImagenGeo initial products will be applied to assist with future mapping and alteration model development.

9.2 Geophysical Surveys

Oroco has focused its geophysical data collection on an airborne magnetometry survey (with surface radiometric emission sensors and VLF-EM transmissions receivers), and a targeted (area-constrained) ground-based electrical 3D DCIP survey.

The selection of methods targets geophysical products that can specifically assist with broad geological definition of lithologies (passive magnetics and radiometric measurements, especially of potassium (K)), major geological structures (VLF and resistivity contrasts) and targeting of metal-sulphide mineralized units (chargeability). Secondary alteration may also be evidenced in electrical data sets (resistivity) and in alteration forming secondary magnetic iron oxides (magnetics, magnetic remanence effects).

9.2.1 Airborne Magnetics Survey

Oroco contracted Terraquest Ltd of Markham, ON, Canada (Terraquest) to fly a Helicopter-borne High-Resolution Aeromagnetic, Radiometric, Matrix VLF-EM/Resistivity Survey over the Santo Tomás Project. The Project was flown between February 20-27, 2021, with the Bell 206 L4 Long Ranger helicopter, owned and operated by Heliservicios Internacionales. The helicopter was based at the then in-construction El Ranchito Core Storage facility for the duration of the survey.

The survey comprised 2,022-line km, with a line spacing of 50 m with 500 m tie lines, totaling approximately 252 km. The 233 traverse lines were flown on Azimuth 090°/270° and the 19 tie lines on Azimuth 000°/180° (nominal, true), for some 2,231-line km of data collected. Some traverse lines were locally double flown to correct for excessive terrain clearance on some lines in very steep sections of the survey (Figure 9-2).

The primary airborne geophysical equipment included one high sensitivity cesium vapor magnetometer (Scintrex CS-3 Cesium Vapor), a gamma ray spectrometer system (Radiation Solutions: RS-500 Advanced Digital Spectrometer Gamma Ray Detector Pack and Radiation Solutions RSX-4 1024 in 3 (16.8 litres) and a proprietary Matrix VLF-EM (Terraquest Ltd: Matrix Digital VLF-EM) system. Ancillary support equipment included a tri-axial fluxgate magnetometer (Billingsley: TFM100-LN), data acquisition system, radar altimeter, barometric altimeter, GPS receiver with a real-time correction service, and a navigation system.

Oroco received WGS 84, UTM Zone 12N projected final data and maps to be delivered in Geosoft™ database (.gdb) and grid (.grd) formats with PDF / PNG images of all printed map products. Additionally, geophysical data and associated vector overlays (flight path, contours, etc.) were delivered in GeoTiff (geo-referenced .tif) image format. Products included Total Magnetic Intensity (‘TMI’), Vertical Magnetic Gradient (calculated vertical derivative of the TMI), Total Count, K, Th, U & Ternary radiometric data, and a Digital Terrain Model derived from GPS and radar altimeter data. The data were provided as an Archive Data Set, delivered on DVD, including all map products and a database of all measured and calculated data in a Geosoft format. An Operations Report (Dias Geophysical Limited, 2021) was also delivered on the DVD.

Oroco has used the magnetics data maps to assist with surface mapping and to define surface expressions of the major magnetically distinct lithologies. VLF-EM structural lineament maps supplied by Terraquest have also been considered with other evidence of apparent structural discontinuities in the evaluation of evidence for major faults or structural fabric features on the Project property. The potassium radiometrics locally reflect potassic alteration and monzonitic intrusive rock outcrop as these rocks contain potassium feldspars.

The Terraquest survey suffered from some local deviation from the terrain clearance specifications defined for the survey. In general, the instances of out-of-spec terrain clearance occurred distal from the central area of the Project where work is focused on the occurrence of mineralization. However, a desire to build an inversion model based on magnetic susceptibility required some post-processing and inversion modeling, discussed following.

9.2.1.1 Inversion of the Magnetic Survey and Review of VLF-EM

Oroco retained the services of Condor Consulting, Inc of Lakewood, Colorado, USA (Condor) to assist with some flight line clearance corrections and build a magnetic susceptibility inversion model to interpret the airborne magnetic data over and surrounding the Santo Tomás Project and so to assist in exploration and targeting of porphyry Cu mineralization.

Condor work was also undertaken to characterize magnetic lineaments, magnetic domains, lineaments, and domains associated with mineralization in the hope of defining potential prospective mineralized areas. The program included leveling and de-corrugating of magnetic data, production of magnetic filters and upward-continued grids, the compilation and assessment of published geology and mineralization over the study area in the context of interpretation of the magnetic data aimed at identifying major structures, magnetic domains, and exploration areas.

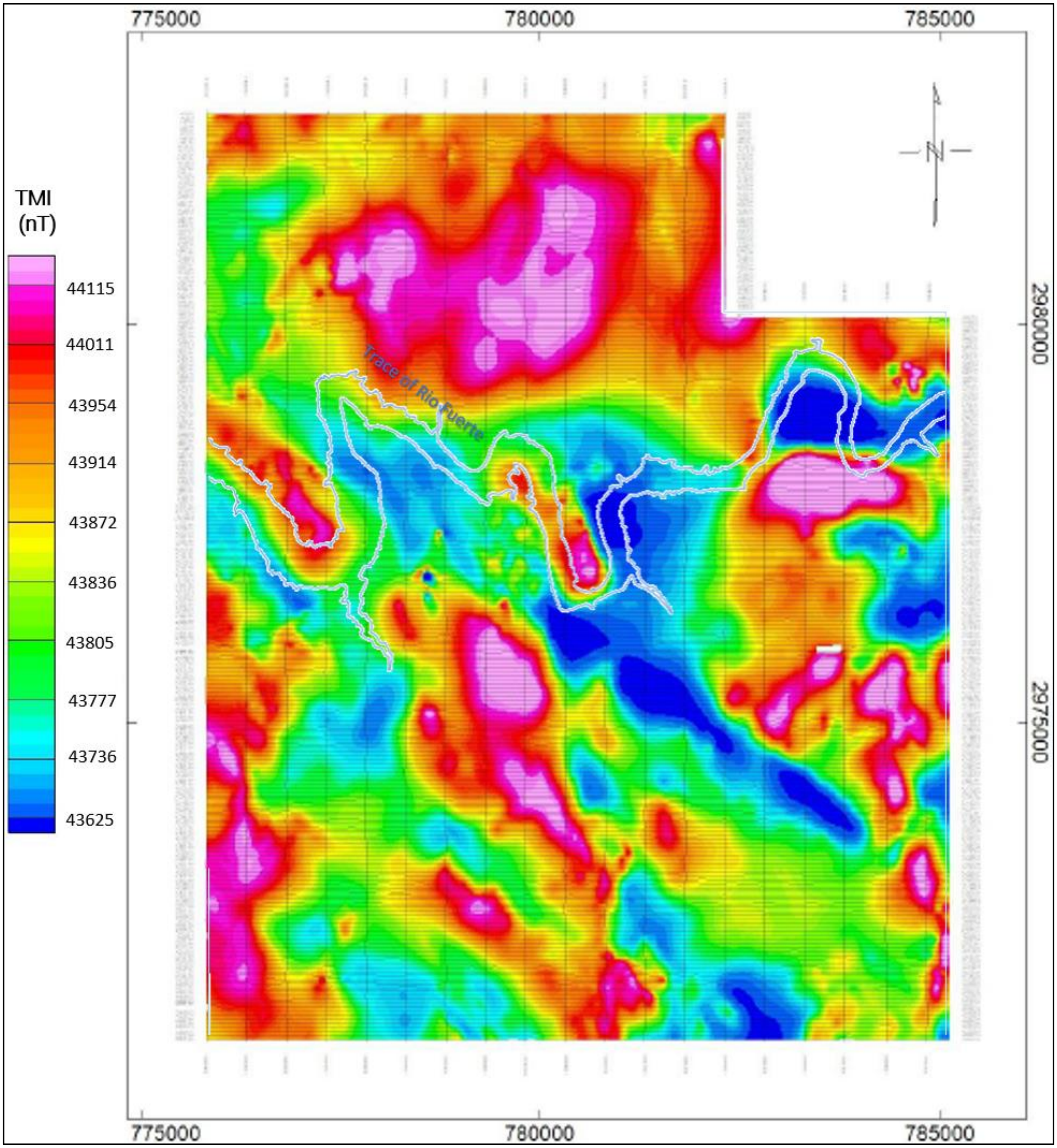
The products of the lineaments work program included a GIS data package, a PowerPoint summary report, and a poster-sized map. Airborne magnetic data has shown it can be utilized to identify domains associated with porphyry Cu mineralization at the Santos Tomás project. The work also showed that radiometric data can also be used to identify domains of mineralization, albeit more broadly. Government mapped lithology and structures do not correspond well with magnetic data, while the government lithology does correspond to radiometric data, while structures do not. The main magnetic fabric is SSE- and NNE-trending.

Historic mines and mineral showings and the porphyry mineralized zone at Santos Tomás tend to occur to within 100 m of SSE trending low magnetic intensity lineaments, within 100 m of the ends of high magnetic intensity lineaments, within 100 m of magnetic source edges, and in radiometric domains relatively depleted in K, Th, U. The resulting magnetic-radiometric prospectivity map produced is sufficient for application in conjunction with other geologic data, but expressly not in isolation, for targeting.

Condor North Consulting ULC (also Condor) generated an unconstrained, smooth model, magnetic susceptibility inversion using Seequent VOXI software (Moul, 2021). The process required several model runs (allowed for 50 x 50 x 25 m cells size at altered centers to capture the 50 m line separation constraints and maximum VOXI inversion runs) on a de-trended and heading corrected TMI file. This file required corrections to the source TMI data set for diurnal effect, heading effect and removal of a 1Mst order polynomial regional trend in the data to produce the input file for the magnetic inversions (Figure 9-3 and Figure 9-4).

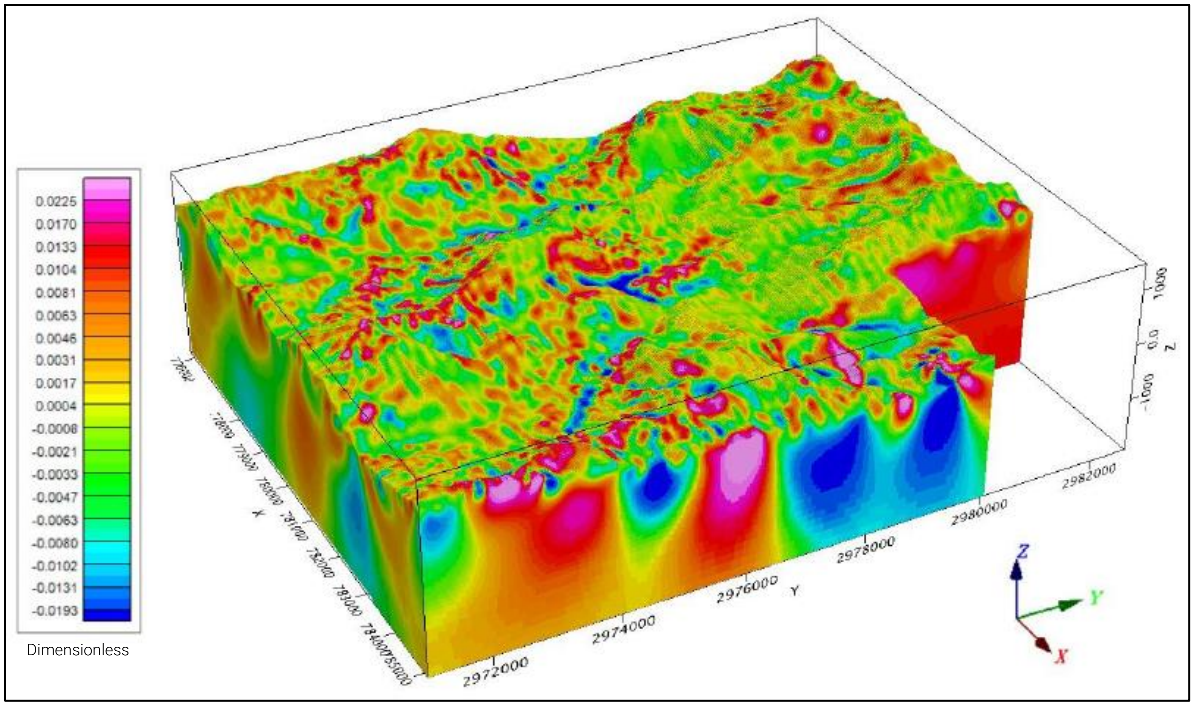
The process defined 3D domains of magnetic susceptibility. Strong coherence between the shallower parts of the model and known geological domains have been observed, while some deeper domains are locally inconsistent with the now known magnetic susceptibility characteristics of those rock units (as measured in drilling) or have been untested. However, down-hole magnetic susceptibility surveys on some holes (refer to Section 10) and the routine collection of point source magnetic susceptibility data on drill core, will permit a constrained (re-) inversion of the data.

Figure 9-2: The Microlevelled TMI Grid



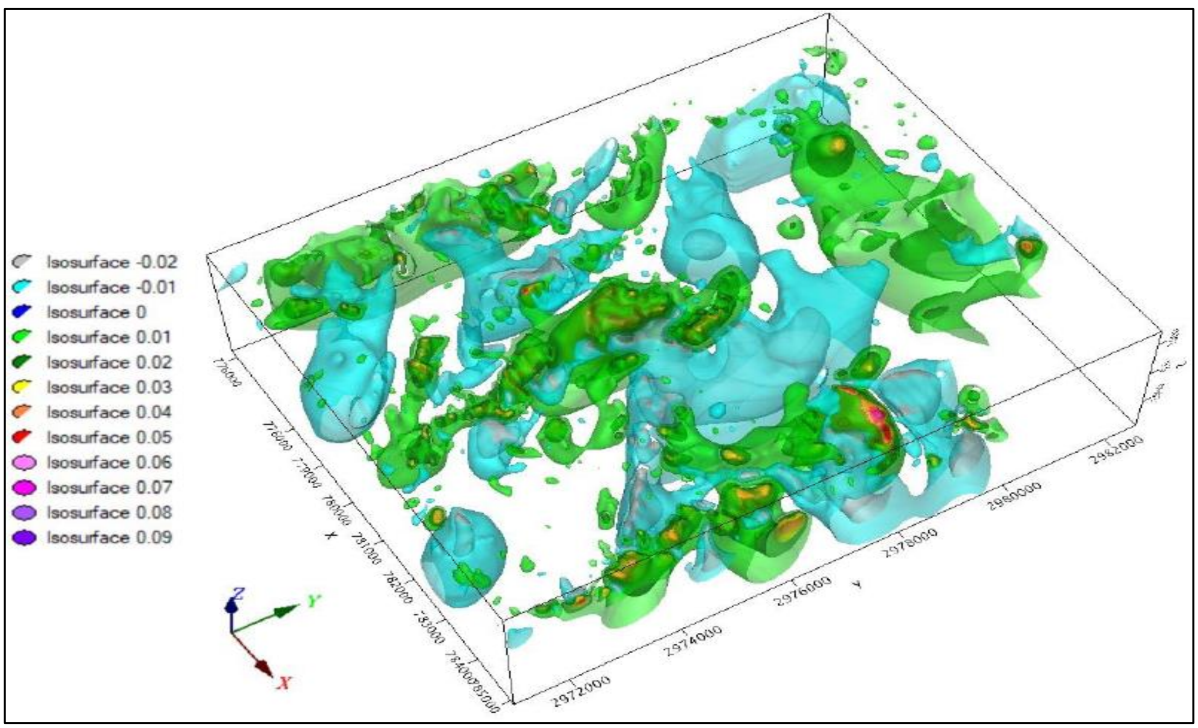
Source : Terraquest, 2021.

Figure 9-3: VOXI Susceptibility Inversion Model



Source: Oroco, 2023.

Figure 9-4: Iso-surfaces Generated from VOXI Magnetic Susceptibility Inversion Model



Source: Oroco, 2023.

9.2.2 Surface 3D DCIP Survey

Dias Geophysical Limited of Saskatoon, SK, Canada (Dias) was contracted by Oroco (through Xochipala Gold S.A. de C.V., a Mexican subsidiary of Oroco, XG) to undertake a 3D DC resistivity and induced polarization (3D DCIP) survey of the Project. The survey fieldwork continued from September 1st, 2020, until March 16th, 2021.

The survey, with a 2D DCIP extension to the east of South Zone, was undertaken using the DIAS32 system (Dias, 2021). The geophysical program was carried out to detect the electrical resistivity and chargeability signatures associated with potential targets of interest. This was achieved using the DIAS32 acquisition system in conjunction with one of Dias' proprietary GS5000 transmitters. The survey was completed using a rolling distributed partial 3D DCIP array and a 2D distributed array, each with a pole-dipole configuration. The full survey covered an area spanning near 20 km^2, and was carried out in two phases, a first phase spanning from September 1st until December 5th, 2020, and a second phase carried out between February 10th and March 16th, 2021.

Dias Geophysical completed a 3D rolling distributed pole-dipole array survey in common voltage reference ('CVR') mode where the main grid, surveyed using a 3D rolling array comprising 26 receiver lines alternating with 27 transmitter lines. These lines were oriented ESE with an azimuth of 110°. All lines were 2.4 km long and separated by 100 m, with receiver line (L10100N through L15100N) receiver stations spaced 100 m apart. Five additional receiver stations were setup at 100 m spacing off the eastern end of the three northern-most receiver lines (L14500N, 14700N and 14900N) in order to provide extra coverage over an area of interest at Brasiles. Along the transmitter lines (lines L10000N through L15200N) injection stations were spaced 200 m apart: when access allowed, at least one extension injection was carried out 200 m off both ends of each transmitter lines. Additionally, up to 5 extensions were carried out at 200 m spacing off the ends of five select transmitter lines (10800N, 11400N, 12400N, 13000N, 132000N, 134000N and 13600N) in order to offer greater depth of investigation along the edge of the grid in these areas. Current (injection) extensions at lines 12400N through 13600N were strategically carried out along the opposite Río Fuerte riverbank from the survey lines to provide coverage beneath the riverbed (Figure 9-5).

The results of the first phase of the survey identified a sizable IP feature of interest in the southeast corner of the grid. As a result, decision was made to add four 2D survey lines to follow this IP feature east. These 2D lines were spaced 400 m apart and extended south-southwest-north-northeast, perpendicularly to the main grid, with an azimuth of 20°. The first line, Line 140E, started at the level of station 140E on the main grid and all lines extended in grid latitude between main grid lines 10100N and 11900N, except for the eastern-most 2D line L260E that extended between main grid L10300N to 11500N only. Along the 2D lines receiver and transmitter stations were spaced 200 m apart. The transmitter stations were setup at mid-point between consecutive receiver stations. For the 2D survey the full receiver line was setup and remained active for all current injections, leading to N=8 dipoles being collected for each injection (Figure 9-5), except for line 260E where N=6 was collected.

The same 'remote' local current electrode reference station was used for the entire program and was established ~3.5 km southeast of the main survey grid at 780762E, 2970462N and comprised 8 steel cylindrical 1.2-meter rods. The rods were placed in damp ground and in the shade. A barrier dam was placed around the electrodes maintain dampness for as long as possible. Both the local current and current remote were deployed using 16 AWG transmission wire connected to the transmitter site.

Survey procedures required careful safety co-ordination to ensure safety during all current injections and field activities in some very steep country. The Dias GS5000 transmitter used for the Project provided output up to 10.0 kW and 4000 V, and the transmitted current ranged from 0.2 A to 4.8 A. The current transmission was maintained for a recording time of 4-6 minutes per station. Where the current varied by more than 10% during this recording time, the transmission was terminated, the injection electrode contact was improved, and the transmission re-started to provide a stable current for the duration of the recording. Whenever the injected current caused the nearest receivers to overvoltage, double injections were carried out: the first injection was carried out at maximum current and the closest receivers were disconnected, and a second injection was carried out at lower current and with all receivers active. For the Santo Tomás Project, a total of 439 current injections were carried out, including 18 double injections were carried out.

The receiver stations measure integrated normalized secondary voltages (i.e., chargeability) in milliseconds (ms) over a standard two-second time base with 20 sample intervals. The total integrated chargeability is computed as the sum of each normalized secondary voltage multiplied by the length of its sample interval, divided by the total sample interval (i.e., 1.88 s for the two-second time-base data). In the case of the Santo Tomás data and in consultation with the client, the apparent chargeabilities were calculated using a reduced integration window (480-1120 ms).

For the Project, dipoles of lengths varying between 100 m and 850 m were generated using a blanket dipole generation approach. In the case of the Santo Tomás 3D part of the grid, for each injection with up to 4 active receiver lines, 2,000 receiver dipoles were generated, yielding a final dataset with 715,000 pole-dipole data points over the entire grid.

9.2.2.1 Inversion of the 3D DCIP Survey

After a thorough quality control, all the “accepted” data were used to produce a set of unconstrained 3D DC and IP models using the SimPEG inversion code (version 2.0 -https://www.simpeg.xyz/). A coarse model unconstrained inversion series to establish inversion parameters is run, with final unconstrained inversion using a fine mesh to yield the final 3D models following further data trimming suggested by the coarse modeling runs. The fine mesh size is 1/4 of the closest nominal spacing between receiver electrodes in the horizontal and vertical directions. The inversion parameters are further modified as needed to improve the model results until the fine models are considered acceptable.

The parameters used for the Santo Tomás grid DC and IP fine inversions are detailed in Dias, 2021. A flat standard deviation error combined with a floor were assigned as uncertainties for both DC (error = 5% and floor = 10th percentile) and IP (error = 5% and floor = 2.5e-5mV/V) inversions. The DC inversion was carried out first followed by the IP inversion and both inversions used a uniform background (for DC 241.42 Ωm; and for IP 1e-5 mV/V). The final DC model was used for the IP inversion.

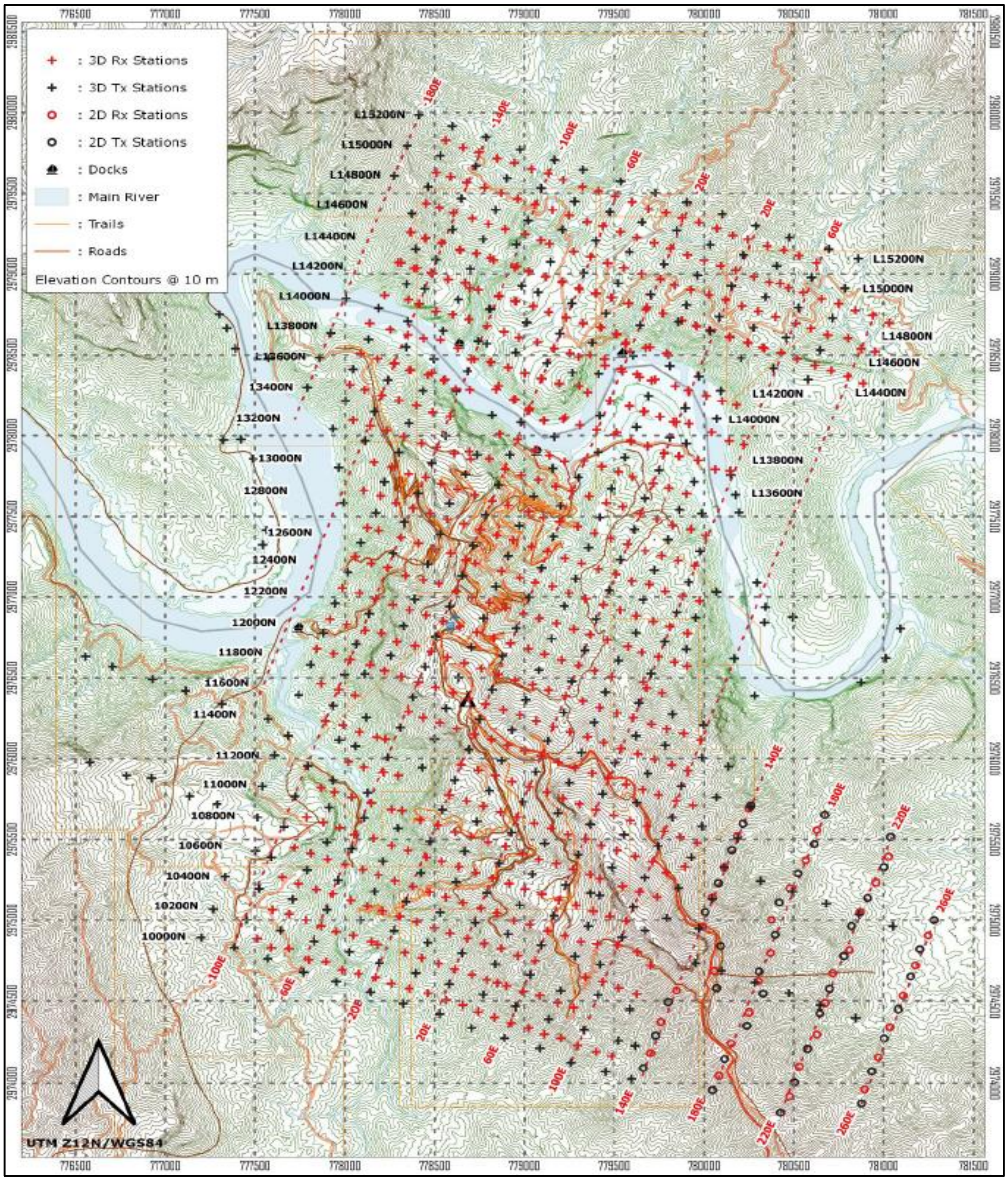
The inversions were carried out in UTM coordinates, and given its relative proximity to the grid, the current remote was included in the inversion calculation. The Eagle Mapping LiDAR DEM was used for the harmonization of the survey station elevations and was also the topographic file for the inversion.

The unconstrained inversion models have been extensively used by Oroco as the primary targeting tool for the resource and exploration drilling.

Copper mineralization has been found to commonly occur in areas of intermediate chargeability (+14.4 mV/V to <40 mV/V). Areas in which coarser pyrite is developed, and most commonly associated with low copper mineralization, are characterized by zones of highest chargeability. In general, no metal-sulphide mineralization of interest has been found associated with areas of low chargeability. Oroco has included colour-ramp chargeability inversion model backgrounds in cross-sections used in the public disclosure of drilling assay data (In addition, areas of low resistivity commonly correlate with areas of extensive hydrothermal potassic alteration that are also well correlated with copper mineralization of interest, particularly in areas of shallower (< 300 m depth) low resistivity zones. The Company has used chargeability, resistivity and where relevant the results of historical drilling to guide drill targeting. In the course of drilling, Oroco collected down-hole IP data in a number of drill holes. This data was particularly collected for deeper holes, and holes that intersected a wide range of modelled chargeability. It is expected that the down-hole chargeability and resistivity data will be aid in the planned constrained (re-)inversion of the DCIP data set. A listing of the specific methods used in each of the holes drilled by Oroco is available in Section 10.2.

9.2.2.2 Application of the DCIP Inversion Models

Figure 9-5: DCIP Survey Coverage on the Santo Tomás Project



Source: Oroco, 2023.
Note: DCIP Survey coverage on the Santo Tomás Project, showing the locations of the transmitter/Injection station sites and the receiver station locations (2D and 3D).

In addition, areas of low resistivity commonly correlate with areas of extensive hydrothermal potassic alteration that are also well correlated with copper mineralization of interest, particularly in areas of shallower (< 300 m depth) low resistivity zones. The Company has used chargeability, resistivity and where relevant the results of historical drilling to guide drill targeting.

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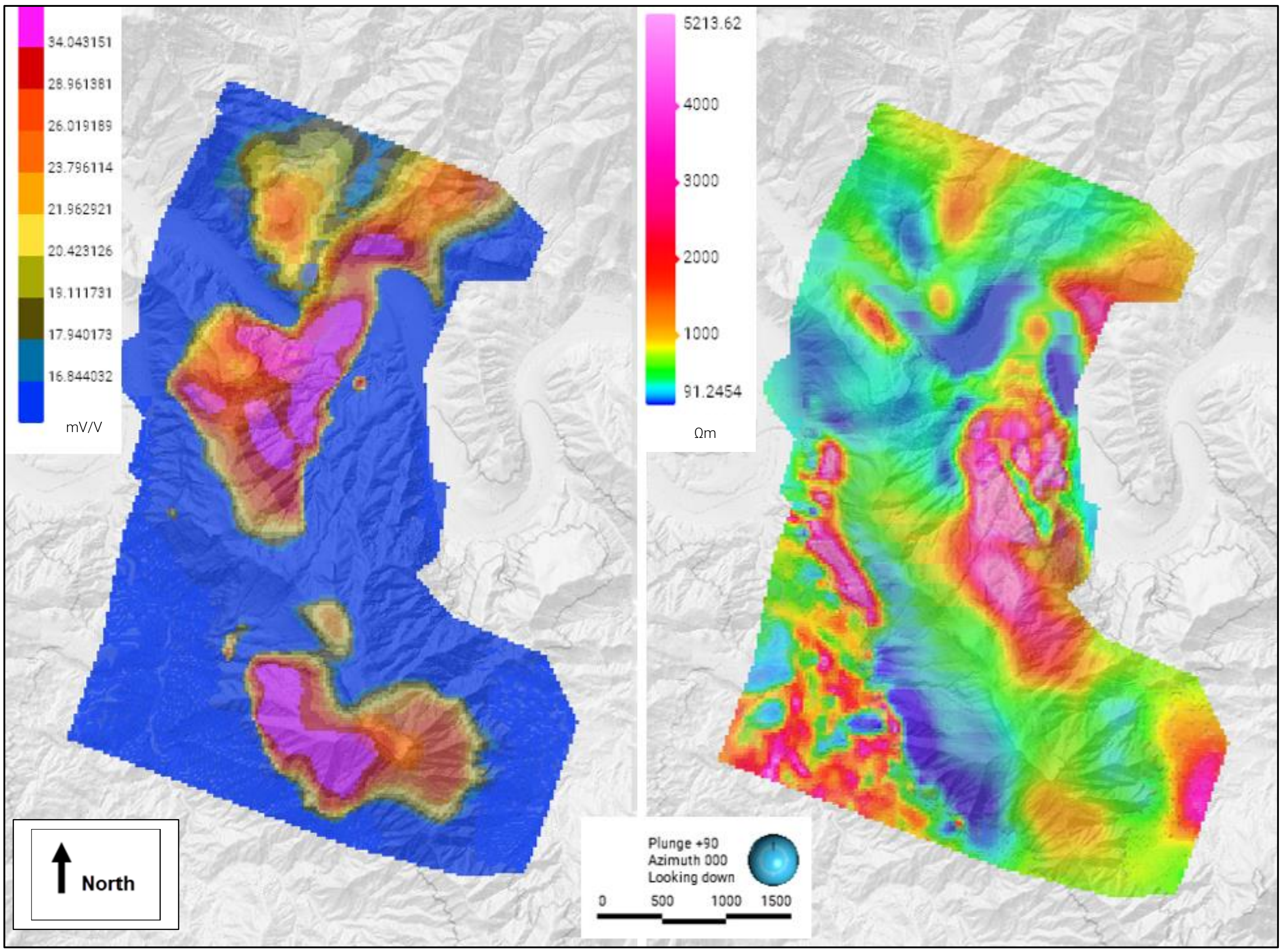
Figure 9-6: Plan View of the Santo Tomás Chargeability and Resistivity Inversion Model



Source: Oroco, 2023.
Note: Plan view of the Santo Tomás chargeability inversion model and the resistivity inversion model where the inversion model in each case is sectioned by a plane dipping north at 10˚.

9.2.2.3 Detailed Interpretation from the DCIP Models

A 2D geological interpretation of the Project area was conducted based on geophysical data, geological mapping, and drilling data by Mira Geoscience of Vancouver, BC, Canada (‘Mira’). The purpose of the interpretation was to identify important geophysical and geological domains for modeling and to construct a fault network to support interpretation of geophysical data (Mira Geoscience, 2022). The interpreted structural history and setting were interpreted and reconciled with other proprietary and public information about the Project area. Fault dips were interpreted based on unconstrained geophysical inversion results, geological mapping, and structural measurements. A 3D fault network was constructed and used as a framework for geological interpretation and modeling. Geological surfaces were constructed based on constraints generated from mapping, drill hole data, and interpretations from geophysical data. Geological surfaces and faults were used to define a lithology property on a 3D block model (voxet) for use during geophysical inversion.

9.2.2.3.1 Fault Network

Faults were interpreted from geological mapping, drilling data, magnetic and 3D IP data and models, satellite imagery, and LiDAR data. Two main families of faults occur in the Project area. The first family is a series of predominantly NNW-striking moderately to steeply dipping faults. They are interpreted to have a predominant strike-slip or dip-slip sense of motion. These structures are interpreted to have formed during the Laramide orogeny.

The first set of faults are cut by NW-striking normal faults with extensive strike lengths that define a series of grabens in the Project area. These grabens appear to control the location and thickness of SMO volcanics and sediments. They offset Laramide intrusions and are interpreted to offset both the porphyry dyke complex and mineralization at the North Zone. The normal faults are related to the end of Laramide compression and beginning of basin and range tectonism and extension.

9.2.2.3.2 Alteration and Lithology

Mira used unconstrained DCIP and magnetics inversion models with other public and Oroco data to construct a geological/alteration voxet model for the distribution of major rock types and rock type <> alteration associations. This voxet model was used to run theoretical constrained inversion models with a view to focusing on the structural implications of the models and possibly the recognition of deeper features.

Well-developed zoning in the 3D IP data and to a lesser extent the magnetic data does not coincide directly with lithological units and are interpreted by Mira to partially represent alteration systems related to mineralization. A zone of irregular conductivity and moderate chargeability is related to the mineralization at the North Zone. There are broad trends in the magnetic data that may correspond to portions of a porphyry alteration system. A linear, NNW-striking magnetic low feature is interpreted to represent a key fluid pathway within the hydrothermal alteration system at the North Zone. A broad magnetic high feature east of the North Zone is interpreted to represent either propylitic alteration (as observed in core logging) or preserved magnetite in country rocks.

In addition to the observed lateral zonation, alteration signatures are expected to be zoned vertically, which combined with the “telescoping” effect of normal faulting in the area implies that geophysical anomalies must also be interpreted with respect to their expected vertical position within the system.

9.2.2.3.3 Recommendations

Mira recommended that petrophysical study of all rock types in the Project area would improve further use of geophysical data: this recommendation encouraged Oroco to continue to collect the down-hole in-situ geophysics in selected holes.

The continued collection of magnetic susceptibility data was recommended to discriminate intrusive phases and alteration zones. Quantitative measurement of alteration data using a portable X-ray fluorescence (XRF) or short wave near infrared (SWIR) device would enable 3D modeling of alteration zones and improve future inversions as well as conceptual targeting models – this data has been systematically collected (refer to Section 10).

The geological model was recommended to be reviewed against new drilling data collected in areas of sparse information and updated to reflect known geology so that the inversions can be rerun using the updated geological model when sufficient data has been collected.

9.3 Geological Mapping and Mineral Sampling

Mapping and surface sampling as well as the location of historical artisanal mining adits has been undertaken in support Project exploration. This work is detailed in other sections of this technical report, with general mapping cover illustrated in Figure 9-1.

Oroco together with SRK undertook a detailed mapping campaign on the Property to update the map presented in the 2020 Technical Report (Bridge, 2020). All mapping data were compiled into an Arc GIS project. This comprised lithology and structural orientation data, line work and contacts, and included active links to field photographs. Mapping data and Arc GIS shape files were also imported into 3D space (Leapfrog Geo) software. In Leapfrog Geo the data were integrated with high-resolution drone data, lineament analysis data, geophysics data and drill hole data to further constrain lithology domains, contacts and structures and inform the lithostructural modeling and the resource modeling process.

The field work developed by Oroco geologists produced a database with 1027 field stations (518 in North and South Zone, and 509 Brasiles) and 1190 structural measurements, additionally to the 926 field stations and 926 measurements of SRK. A group of 17 samples () from surface (8) and drill holes (9) were selected for geochronological analysis (Ar40/Ar39, U/Pb and Re-Os) to support stratigraphic interpretation and timing of alteration-mineralization. The results of the field mapping campaigns are represented in the geological map and stratigraphic column (Figure 7-2 and Figure 7-3), while structural data and interpretations are presented in the structural section.

9.4 Site Access for Exploration

The Santo Tomás Project site access has been improved since the commencement of drilling to improve road stability and access using boats. In particular, over a km of new access road was constructed in collaboration with and at the request of the Cieneguita del Núñez community, to avoid poor quality access along the unstable west side of the ridge near the El Bienestar Ranch site.

10 DRILLING

10.1 Drilling on the Property

Drilling campaigns were conducted by ASARCO, Tormex and Exall between 1968 and 1993, with the most recent pre-Oroco drilling completed by Exall in 1993. 106 drill holes (reverse circulation, percussion, and diamond-drill holes, collectively the 'historical' or 'legacy' drill holes) were completed on the Property (Thornton, 1994). ASARCO completed sixteen percussion holes in the late 1960s to early 1970s, but the logs and results for these holes have not been identified (Spring, 1992). Therefore, the 16 percussion holes are not included in the drill hole database assembled by Exall.

Commencing on 28th July 2021 and continuing through March 28th, 2023, Oroco completed 76 diamond drill holes for 48,480.88 m of diamond core drilling. This campaign represents the entirety of Phase 1 drilling by Oroco. Seven of these holes were drilled for exploration purposes at the Brasiles prospect (5,116.36 m) and have been excluded from consideration in the resource estimation presented in this report. Table 10-1 displays Oroco Phase 1 drill holes and reports total meters that were included and excluded in the present PEA.

The PEA was therefore conducted using assay data from 68 (43,063.07 m) of the Phase 1 Oroco drill holes combined with legacy results (Table 10-1). A single geotechnical hole drilled by Oroco, GT001, was also excluded.

Table 10-1: Oroco Drill Hole Inclusion / Exclusion Table

Inclusion status	Drill holes	Meters
Included	ST21-N001 to ST21-N010, N11 to N047, S001 to S021	43,063.07
Excluded	GT001, B001 to B007	5,417.81
Total	**76**	**48,480.88**

Oroco's entire updated drill hole database (with PEA excluded holes) contains 166 new and legacy drill holes (reverse circulation and diamond drill holes) totaling 69,556 m with lithological logging data and 29,992 Cu assays. The assay database statistics used to develop the PEA is presented in Table 10-2. This database was used to develop the PEA resource estimate.

Table 10-2: Oroco and Historical Drilling and Assaying as Used in The PEA Resource Estimate

Phase of Drilling	No. of Cu Assays	No. of Drill holes	Total Length (m)	Average Length (m)
Pre-Exall, STD Series, to 1991[1]	4,707	50	16,004	320
Exall STE Series[1]	2,537	40	5,071	127
Oroco PEA[2] ST21, N and S series	20,121	68	43,063	633
Total (PEA)	**27,365**	**158**	**64,138**	**-**

Note: Historical / legacy drilling as recorded in the Exall database acquired by Oroco. Drill holes statistics for holes included in the PEA resource estimate, excluding Brasile's series holes and GT001.

All the legacy drill holes are vertical except for five Exall drilled holes (STE-28, STE-51, STE-61, STE-62, and STE-63), for which the dip ranges from -60° to -70°. No down-hole surveys have been located for any of the legacy drill holes (Thornton, 2011). Figure 10-1 through Figure 10-4 present maps of the drill collars with drill traces for inclined drill holes.

The STE series drilling employed wireline diamond drilling methods, and samples for analysis taken from a ½ split of the core using a Longyear core splitter. The STD holes were sampled using a rotary drill and a split of the cuttings obtained for analysis.

During the Exall drilling program, every 1 in 5 samples in the drill sample sequence was analysed for Mo, Au, Ag and Fe, in addition to the Cu analyses, yielding a total of 534 samples analysed for the suite of Cu, Mo, Au, Ag and Fe. Exall assembled the database of historical drilling during the 1992-1993 exploration program. Review of the historical reports and drill logs indicate there are no known drilling, sampling or recovery factors that could materially impact the accuracy and reliability of the historical drilling results.

Oroco's Phase 1 drilling sampling and assay protocols are reviewed in greater detail in Section 11. Drill holes ST21-N001 through ST21-N010 and N011 through N047 are located in the Project's North Zone. Holes S001 through S021 are located in the South Zone. Holes B001 through B007 are exploration holes drilled at the Brasiles prospect. B003 is the first significantly mineralized hole for which Oroco has copper assays in this zone, and also represents the discovery hole on the Brasiles prospect. Hole GT001 is the first (and so far, the only) designated geotechnical drill hole on the Project. It is located in the southern part of the North Zone (Figure 10-2, same collar location as N038).

Table 10-3: Project Drill Collars – Coordinates in WGS84 UTM Zone 12NHole_ID

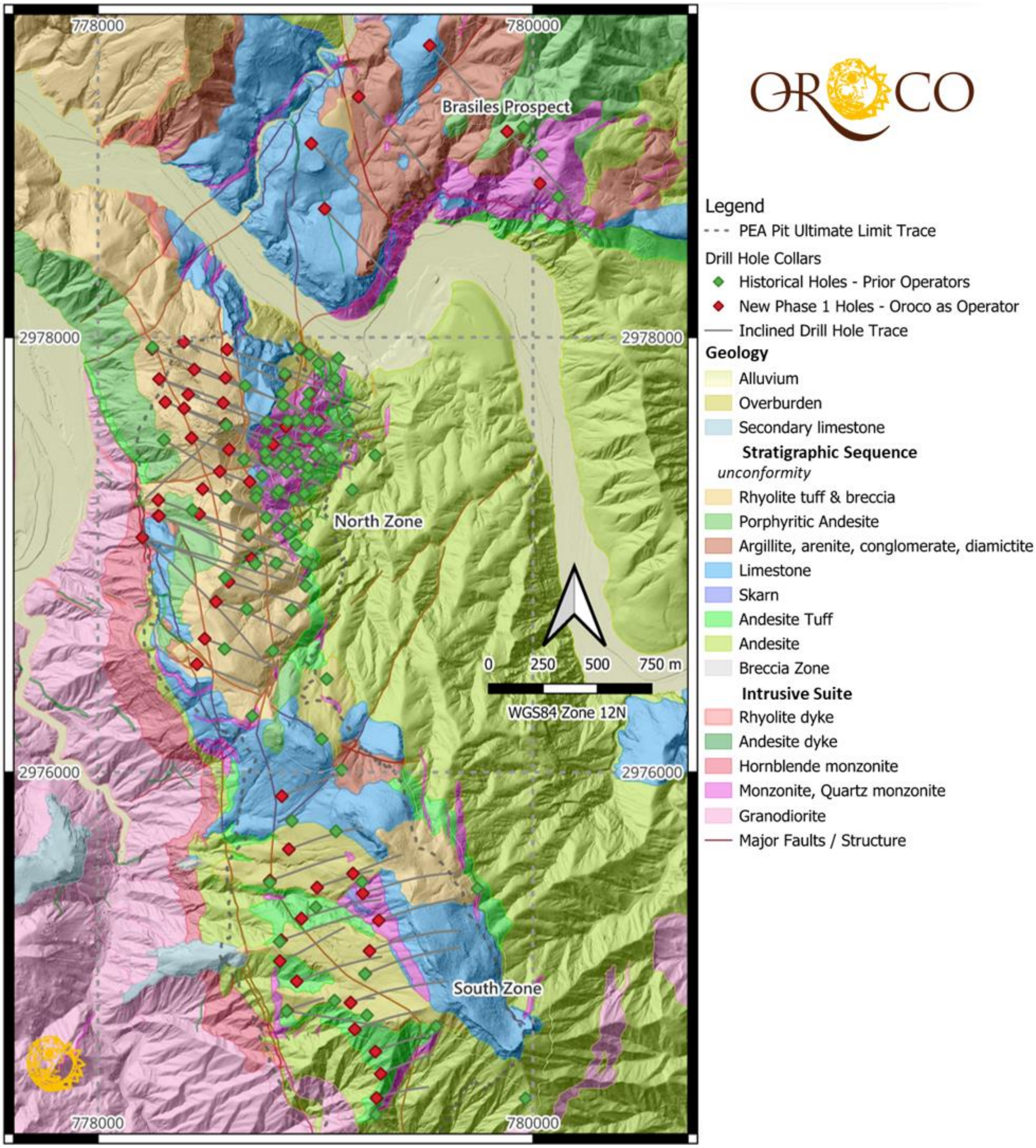
Hole_ID	UTM_E	UTM_N	RL	Az	Dip	TD
ST21-N001	778,588	2,977,601	580	110	-55	1,024
ST21-N002	778,576	2,977,698	555	110	-55	829
ST21-N003	778,586	2,977,814	515	110	-55	881
ST21-N004	778,585	2,977,601	580	225	-55	856
ST21-N005	778,864	2,977,590	443	110	-55	37
ST21-N006	778,864	2,977,590	443	110	-55	621
ST21-N007	778,602	2,977,484	526	110	-55	753
ST21-N008	778,560	2,977,384	526	110	-55	692
ST21-N009	778,443	2,977,852	524	110	-55	911
ST21-N010	778,588	2,977,267	526	110	-55	609
N011	778,860	2,977,826	371	110	-55	685
N012	778,431	2,977,538	508	110	-55	734
N013	778,594	2,977,944	480	110	-62	920
N014	778,431	2,977,538	508	110	-74	740
N015	778,465	2,977,188	488	110	-55	710
N016	778,394	2,977,979	482	110	-62	1,002
N017	778,277	2,977,252	396	110	-55	713
N018	778,304	2,977,528	416	120	-55	625
N019	778,249	2,977,947	407	110	-55	871
N020	778,601	2,976,876	654	110	-55	658
N021	778,281	2,977,809	412	110	-55	683
N022	778,853	2,977,686	444	110	-55	597
N023	779,016	2,977,617	383	110	-55	390
N024	778,415	2,977,737	481	110	-55	719
N025	778,805	2,977,508	445	110	-55	475
N026	778,976	2,977,744	367	110	-55	399
N027	778,775	2,977,436	450	110	-55	533

Hole_ID	UTM_E	UTM_N	RL	Az	Dip	TD
N028	778,931	2,977,948	271	110	-55	439
N029	778,310	2,977,702	431	110	-65	725
N030	778,697	2,977,336	510	110	-55	469
N031	778,692	2,977,090	546	110	-55	503
N032	778,491	2,976,614	667	110	-55	643
N033	778,481	2,977,303	471	110	-80	484
N034	778,481	2,977,303	471	110	-55	615
N035	778,707	2,976,982	560	110	-80	463
N036	778,707	2,976,982	560	110	-50	402
N037	778,281	2,977,809	412	110	-75	728
N038	778,277	2,977,179	381	110	-50	710
N039	778,396	2,977,673	488	110	-55	753
N040	778,394	2,977,979	482	110	-85	923
N041	778,491	2,976,614	667	0	-90	478
N042	778,542	2,976,784	670	110	-55	606
N043	778,455	2,976,496	655	110	-55	509
N044	778,205	2,977,081	383	110	0	706
N045	778,204	2,977,081	382	110	-25	624
N046	778,205	2,977,080	383	131	0	796
N047	778,281	2,977,179	383	110	0	664
S001	779,229	2,975,073	826	70	-55	736
S002	778,836	2,975,131	691	70	-55	617
S003	779,161	2,974,940	818	70	-55	702
S004	779,249	2,975,178	825	70	-55	701
S005	778,842	2,975,228	703	70	-55	656
S006	778,790	2,975,501	646	70	-55	623
S007	779,291	2,975,319	828	70	-55	608
S008	778,936	2,975,327	693	70	-55	636
S009	778,877	2,975,646	658	70	-55	592
S010	779,217	2,975,443	808	70	-55	693
S011	779,007	2,975,470	690	70	-55	465
S012	778,845	2,975,890	677	70	-55	531
S013	779,172	2,975,534	798	70	-55	416
S014	779,180	2,974,817	814	70	-55	558
S015	778,869	2,974,904	674	70	-55	310
S016	779,162	2,974,940	818	70	-80	696
S017	779,275	2,974,715	809	70	-55	483
S018	778,870	2,974,903	674	100	-35	581
S019	779,300	2,974,613	797	70	-55	468
S020	778,914	2,975,038	677	70	-55	693
S021	779,280	2,974,502	775	70	-55	393
GT001	778,277	2,977,179	380	110	-75	301
STD-01	778,974	2,977,623	404	0	-90	227
STD-02	778,826	2,977,289	471	0	-90	307
STD-03	778,729	2,976,963	562	0	-90	303

Hole_ID	UTM_E	UTM_N	RL	Az	Dip	TD
STD-04	778,804	2,976,558	665	0	-90	310
STD-05	778,962	2,977,401	399	0	-90	331
STD-06	778,306	2,977,534	445	0	-90	95
STD-07	778,251	2,977,955	449	0	-90	302
STD-08	778,848	2,977,741	418	0	-90	306
STD-09	778,672	2,977,438	492	0	-90	400
STD-10	778,890	2,976,748	598	0	-90	421
STD-11	779,051	2,976,429	630	0	-90	353
STD-12	778,987	2,976,954	472	0	-90	403
STD-13	778,874	2,977,098	469	0	-90	452
STD-14	779,275	2,977,458	278	0	-90	292
STD-15	779,082	2,977,473	324	0	-90	362
STD-16	779,159	2,977,627	293	0	-90	359
STD-17	779,169	2,977,298	349	0	-90	240
STD-18	778,776	2,977,612	496	0	-90	412
STD-19	779,074	2,977,782	285	0	-90	304
STD-20	778,874	2,977,439	407	0	-90	285
STD-21	778,693	2,977,095	564	0	-90	317
STD-22	778,674	2,977,786	503	0	-90	303
STD-23	778,732	2,977,291	481	0	-90	318
STD-24	778,948	2,977,283	395	0	-90	202
STD-25	778,584	2,976,896	655	0	-90	244
STD-26	778,434	2,977,206	489	0	-90	41
STD-27	778,859	2,977,833	365	0	-90	334
STD-28	778,685	2,976,750	639	0	-90	314
STD-29	778,588	2,977,264	547	0	-90	289
STD-30	778,590	2,977,596	580	0	-90	288
STD-31	778,710	2,976,258	748	0	-90	275
STD-32	779,123	2,976,016	801	0	-90	310
STD-33	779,019	2,976,117	810	0	-90	318
STD-34	779,094	2,975,729	770	0	-90	376
STD-35	778,892	2,975,776	666	0	-90	332
STD-36	779,228	2,975,072	826	0	-90	368
STD-37	778,790	2,975,493	645	0	-90	329
STD-38	779,214	2,975,496	803	0	-90	426
STD-39	778,835	2,975,221	703	0	-90	352
STD-40	778,594	2,976,577	710	0	-90	380
STD-41	779,015	2,977,880	266	0	-90	356
STD-42	778,926	2,977,950	272	0	-90	305
STD-43	778,820	2,976,961	535	0	-90	362
STD-44	778,870	2,977,616	441	0	-90	352
STD-45	778,852	2,977,704	444	0	-90	370
STD-46	778,957	2,977,696	405	0	-90	277
STD-47	778,872	2,977,533	411	0	-90	298
STD-48	778,772	2,977,524	463	0	-90	383

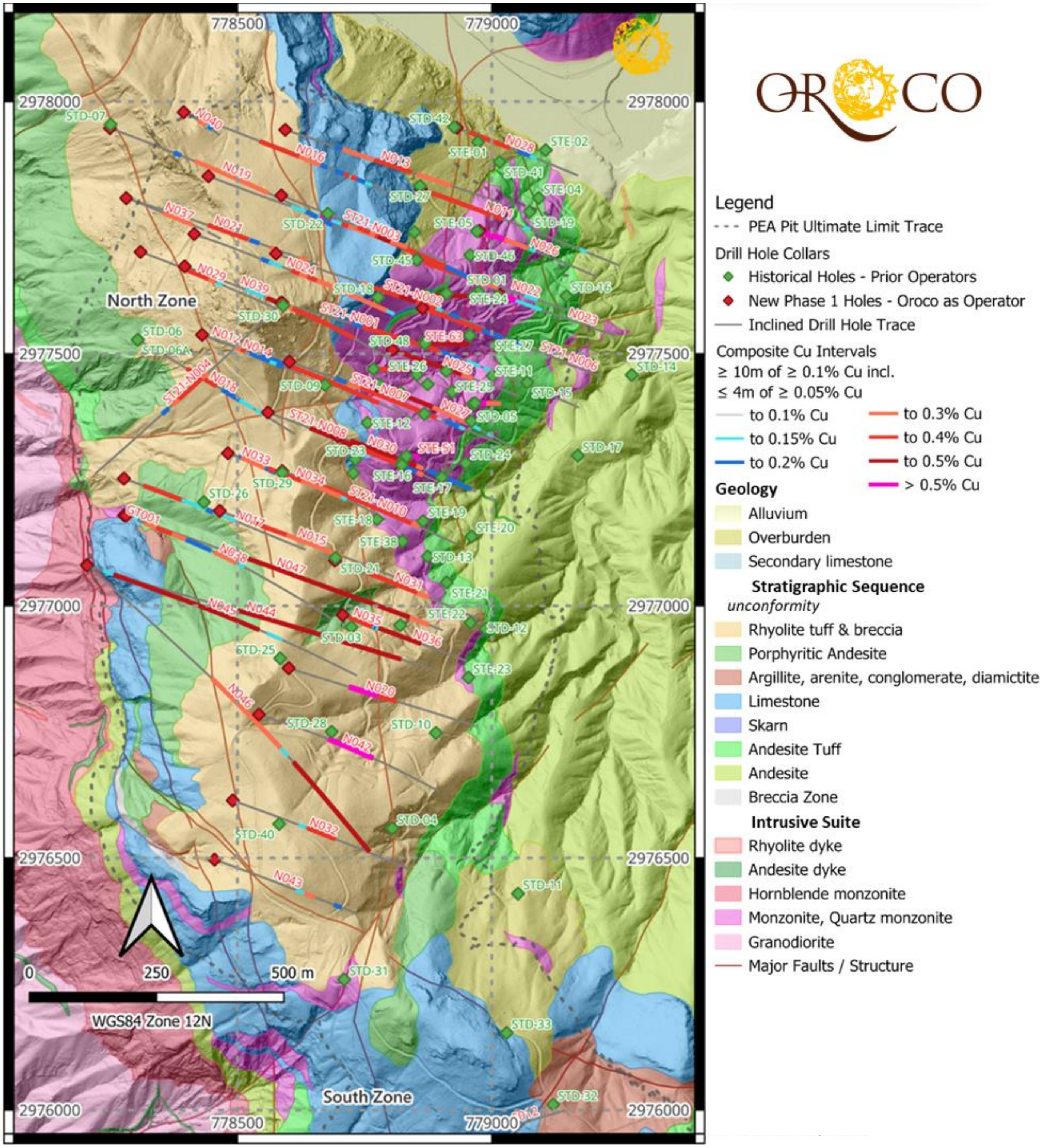
Hole_ID	UTM_E	UTM_N	RL	Az	Dip	TD
STD-49	778,778	2,977,438	450	0	-90	352
STD-50	779,088	2,974,949	802	0	-90	371
STE-01	778,972	2,977,920	270	0	-90	98
STE-02	779,106	2,977,904	205	0	-90	80
STE-04	779,094	2,977,809	277	0	-90	80
STE-05	778,971	2,977,743	366	0	-90	80
STE-07	778,911	2,977,619	422	0	-90	80
STE-08	779,011	2,977,613	385	0	-90	80
STE-09	778,957	2,977,536	372	0	-90	80
STE-10	778,910	2,977,465	385	0	-90	100
STE-11	779,001	2,977,456	367	0	-90	100
STE-12	778,756	2,977,363	489	0	-90	82
STE-13	778,867	2,977,381	442	0	-90	80
STE-14	778,960	2,977,366	402	0	-90	80
STE-15	778,727	2,977,263	476	0	-90	80
STE-16	778,823	2,977,279	471	0	-90	80
STE-17	778,901	2,977,255	408	0	-90	90
STE-18	778,774	2,977,171	467	0	-90	76
STE-19	778,865	2,977,168	443	0	-90	80
STE-20	778,960	2,977,138	403	0	-90	80
STE-21	778,911	2,977,046	464	0	-90	80
STE-22	778,958	2,976,967	500	0	-90	80
STE-23	778,954	2,976,858	514	0	-90	80
STE-24	778,965	2,977,614	404	0	-90	150
STE-25	778,922	2,977,425	403	0	-90	126
STE-26	778,853	2,977,459	408	0	-90	120
STE-27	779,008	2,977,517	335	0	-90	80
STE-28	778,967	2,977,402	399	90	-65	110
STE-29	778,821	2,977,423	435	0	-90	130
STE-38	778,824	2,977,128	476	0	-90	70
STE-51	778,832	2,977,297	473	90	-70	56
STE-52	778,867	2,974,901	674	0	-90	268
STE-53	779,279	2,974,425	747	0	-90	250
STE-54	779,237	2,974,882	867	0	-90	227
STE-55	779,002	2,975,379	695	0	-90	250
STE-56	779,745	2,975,464	868	0	-90	174
STE-57	779,556	2,974,831	966	0	-90	250
STE-58	779,966	2,974,500	946	0	-90	250
STE-59	780,134	2,974,093	899	0	-90	250
STE-61	778,767	2,977,470	453	90	-70	197
STE-62	778,873	2,977,616	441	90	-65	201
STE-63	778,868	2,977,520	410	90	-60	166
STE-64	780,117	2,978,647	442	0	-90	1
STE-65	780,040	2,978,839	431	0	-90	1
STE-66	779,956	2,978,967	463	0	-90	1

Figure 10-1: Santo Tomás Project Drill Collar and Hole Trace Locations for North and South Zone Resource Drilling, and Exploration Drilling at Brasiles



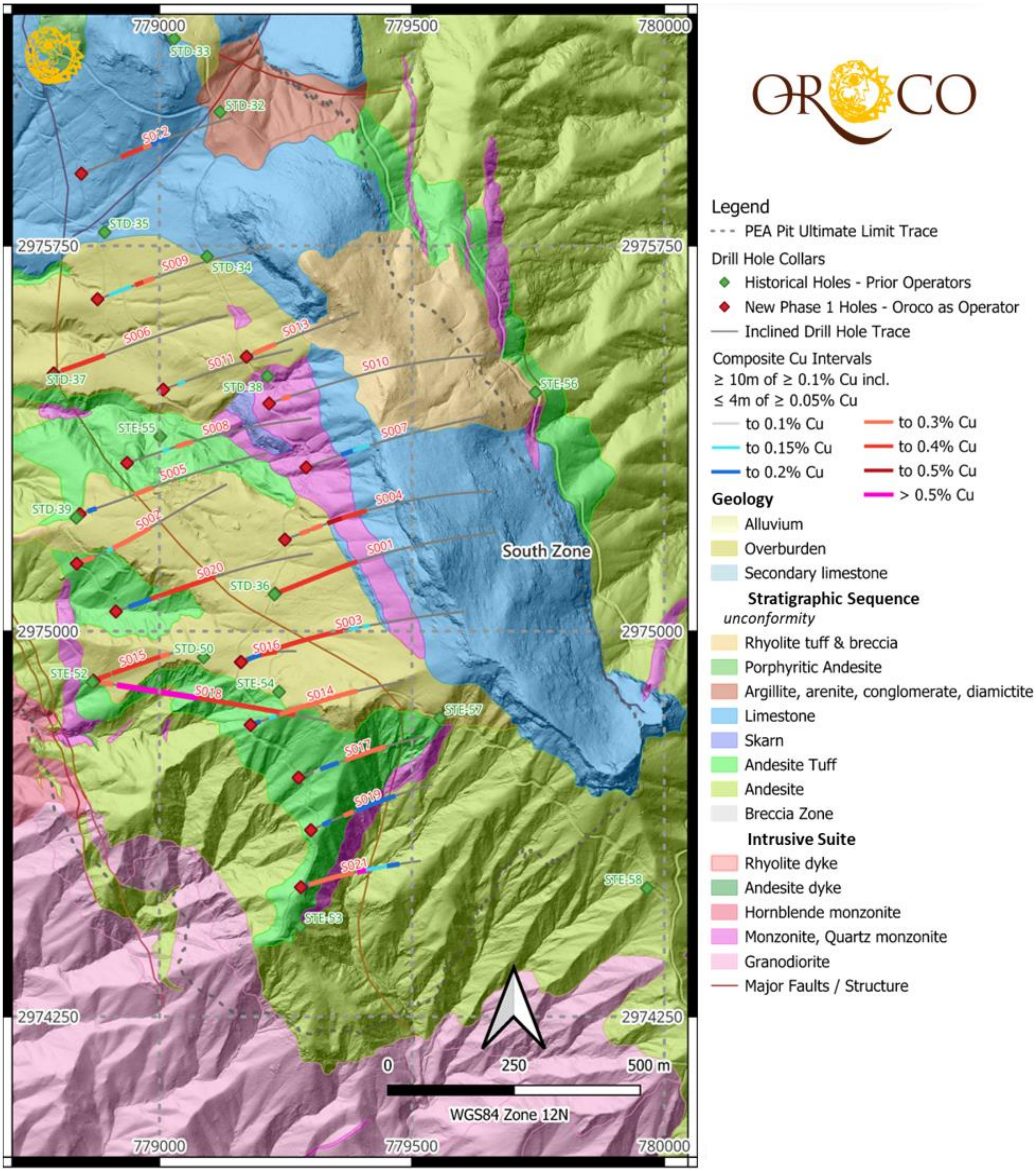
Source: Oroco, 2023.

Figure 10-2: North Zone Drill Hole Collar Locations and Drill Hole Traces Showing Composite Intervals > 0.1% Cu



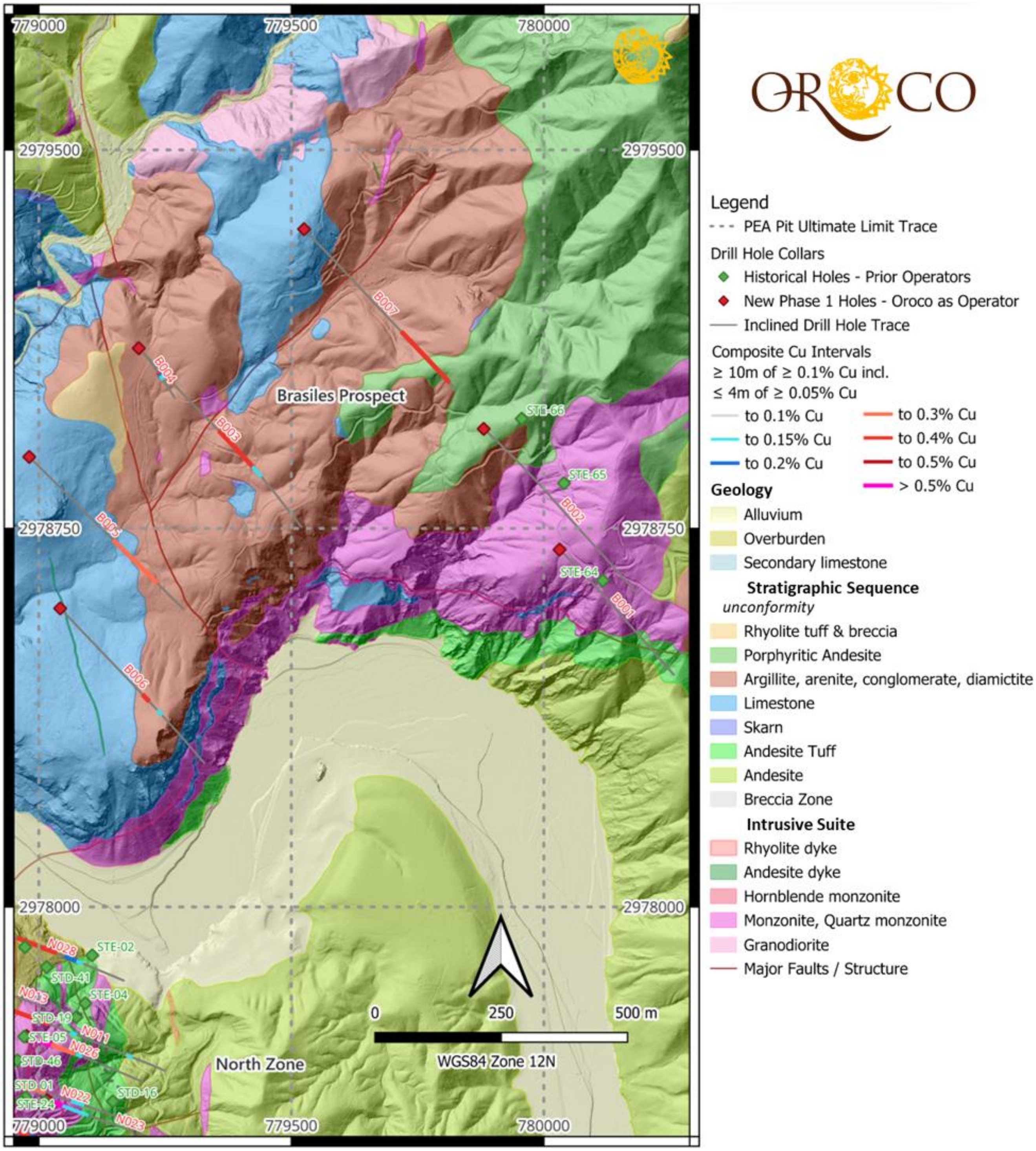
Source: Oroco, 2023.

Figure 10-3: South Zone Drill Hole Collar Locations and Drill Hole Traces Showing Composite Intervals > 0.1% Cu



Source: Oroco, 2023.

Figure 10-4: Brasiles Exploration Drill Hole Collar Locations and Drill Hole Traces Showing Composite Intervals > 0.1% Cu



Source: Oroco, 2023.

Note: Hole GT001 is not included in the PEA resource estimate. The Brasiles exploration prospect, also sometimes referenced as the Brasiles prospect, was drilled as part of the Oroco Phase 2 drilling campaign to explore the area located north of the North Zone. The hole location data are presented in Table 10-4.

Table 10-4: Brasiles Exploration Drill Hole Collar Information (WGS84 UTM Zone 12N)

Hole_ID	UTM_E	UTM_N	RL	Az	Dip	TD
B001	780,031	2,978,708	437	135	-55	557
B002	779,881	2,978,947	424	135	-55	752
B003	779,198	2,979,107	332	135	-55	822
B004	779,198	2,979,107	332	135	-80	740
B005	778,981	2,978,892	342	135	-55	789
B006	779,042	2,978,591	302	135	-55	700
B007	779,525	2,979,343	427	135	-55	755

Note: These holes are excluded from the PEA resource estimate.

10.2 Down-hole Surveys

There is no record of down-hole surveys being conducted as part of any of the historical drilling work at Santo Tomás.

Drilling by Oroco at Santo Tomás has included the collection of hole altitude surveys Table 10-5, initially using an EZ-Trac magnetic azimuth tool (holes ST21-N001 and -N002). The magnetic declination adjustment was made by the site team post data collection during the drill program.

Subsequently, down-hole surveys were completed using the north-seeking EZ-Gyro equipment for holes ST21-N003 to N016 and B001-B004. For drill holes N017 onwards, all South Zone holes and B005 to B007 a Sprint-IQ (also by Reflex™) down-hole tool, which also includes a north-seeking gyro, was used for down-hole survey data collection.

Drill holes were aligned at setup using a gyro-equipped Reflex TN14 device from Hole ST21-N006 onward. Only the holes measured with Sprint-IQ have their collar azimuth adjusted using the TN14 tool.

Several tools were employed for the down-hole collection of certain petrophysical parameters in-situ. The QL40-GR and EZ-Gamma instruments are used for detecting gamma radiation. The QL40-IP instrument is used to measure induced polarization, while the QL40-ELOG instrument measures resistivity. The QL40-MGS and KT instruments are used to measure magnetic susceptibility. The QL40-ABI serves as an acoustic televiewer, while the QL40-OBI is an optical televiewer. Both televiewers are utilized for identifying rock structures with post-processing allowing for the identification of planar features in real orientation.

Table 10-5: In-hole Attitude and Geophysical Surveys by Drill Hole, Including Set-Out Method and Number of Samples Taken

DHH	Drill Rig	Collar Orient	Hole Survey	Gamma	IP/Res	Mag Susc	Tele viewer	Samples
ST21-N001	H6	-	EZ-Trac	IDS	IDS	KT	-	853
ST21-N002	H5	-	EZ-Trac	-	-	KT	-	523
ST21-N003	H5	-	EZ-Gyro	IDS/EZ-Gamma	IDS	KT	-	577
ST21-N004	H6	-	EZ-Gyro	IDS/EZ-Gamma	IDS	KT	-	331
ST21-N005	H5	-	-	-	-	KT	-	21
ST21-N006	H5	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	KT	-	414
ST21-N007	H6	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	KT	-	500
ST21-N008	H5	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	KT	-	382
ST21-N009	H6	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	IDS/KT	-	484
ST21-N010	H5	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	IDS/KT	-	316

DHH	Drill Rig	Collar Orient	Hole Survey	Gamma	IP/Res	Mag Susc	Tele viewer	Samples
N011	H6	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	IDS/KT	-	431
N012	H5	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	IDS/KT	-	389
N013	H6	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	IDS/KT	-	563
N014	H5	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	IDS/KT	-	385
N015	H2	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	IDS/KT	ATV	373
N016	H5	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	IDS/KT	ATV/OTV	543
N017	H2	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	IDS/KT	ATV/OTV	417
N018	H5	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	IDS/KT	ATV/OTV	389
N019	H2	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	IDS/KT	ATV/OTV	449
N020	H5	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	343
N021	H2	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	KT	ATV/OTV	349
N022	H5	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	383
N023	H4	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	240
N024	H2	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	KT	ATV/OTV	382
N025	H5	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	301
N026	H4	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	253
N027	H5	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	334
N028	H4	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	228
N029	H2	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	367
N030	H5	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	287
N031	H4	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	266
N032	H4	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	386
N033	H5	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	300
N034	H5	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	364
N035	H4	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	286
N036	H4	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	IDS/KT	ATV	222
N037	H2	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	362
N038	H5	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	KT	ATV	370
N039	H2	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	401
N040	H6	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	446
N041	H4	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	KT	ATV/OTV	281
N042	H5	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	215
N043	H4	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	301
N044	16021	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	412
GT-001	H5	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	192
N045	16021	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	348
N046	16021	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	429
N047	16021	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	405
S001	MX-79	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	453
S002	15001	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	IDS	ATV	319
S003	MX-79	TN14az	Sprint-IQ	EZ-Gamma	-	IDS	ATV/OTV	422

DHH	Drill Rig	Collar Orient	Hole Survey	Gamma	IP/Res	Mag Susc	Tele viewer	Samples
S004	MX-79	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	KT	ATV	432
S005	15001	TN14az	Sprint-IQ	EZ-Gamma	-	KT	ATV/OTV	320
S006	15000	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	KT	ATV	209
S007	MX-79	TN14az	Sprint-IQ	EZ-Gamma	-	KT	ATV/OTV	373
S008	15001	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	KT	ATV/OTV	280
S009	15000	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	KT	ATV/OTV	305
S010	MX-79	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	KT	ATV	305
S011	15001	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	KT	ATV	250
S012	15000	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	289
S013	MX-79	TN14az	Sprint-IQ	IDS/EZ-Gamma	-	KT	-	227
S014	15001	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	322
S015	15000	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	KT	ATV	178
S016	MX-79	TN14az	Sprint-IQ	EZ-Gamma	IDS	KT	ATV/OTV	290
S017	15001	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	302
S018	15000	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	361
S019	15001	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	KT	ATV/OTV	296
S020	MX-79	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	KT	ATV/OTV	408
S021	MX-79	TN14az	Sprint-IQ	EZ-Gamma	IDS	KT	ATV/OTV	243
B001	H7	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	IDS/KT	-	367
B002	H7	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	IDS/KT	ATV/OTV	478
B003	H7	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	IDS/KT	-	523
B004	H7	TN14	EZ-Gyro	IDS/EZ-Gamma	IDS	IDS/KT	ATV	462
B005	H7	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	IDS/KT	ATV/OTV	503
B006	H7	TN14az	Sprint-IQ	IDS/EZ-Gamma	IDS	IDS/KT	ATV/OTV	318
B007	H7	TN14az	Sprint-IQ	EZ-Gamma	-	KT	-	296

Note: In the "Gamma," "IP/Res," "Mag Sus," and "Televiewer" columns, the abbreviation "IDS" corresponds to the instrument names. The instrument names are as follows: QL40-GR for Gamma, QL40-IP for IP, QL40-ELOG for Resistivity, and QL40-MGS for Mag Sus. In the Televiewer column, the ATV corresponds with instrument type QL40-ABI and OTV corresponds with instrument type QL40-OBI.

10.2.1 Down-hole Geophysical Survey

Oroco undertook down-hole electrical and magnetic surveys on selected holes at the Santo Tomás Project. The collection of these geophysical datasets has identified distinct petrophysical units, which has assisted the Company with focusing its geological logging of the drill core. In addition, these data will be used to re-invert the airborne magnetics and ground 3D DCIP surveys (Section 9). Detail regarding which holes were surveyed by method is presented in Table 10-5.

10.2.2 Down-hole Televiewer Survey

Oroco surveyed a select number of holes using Acoustic Televiewer (ATV) and Optical Televiewer (OTV) technologies with the intention of using the results to calibrate the effectiveness of the Company’s oriented core program and to supplement the core geotechnical data collection program. The drill holes surveyed with ATV and OTV techniques are shown in the Table 10-5. The televiewer service provider is currently generating structural interpretations from some of these surveys. The results have yet to be integrated with the structural and rock quality data sets.

10.3 Summary and Interpretation of Relevant Results

The North and South Zone drilling is characterized by broad zones of sulphide mineralization and mineralized zones where copper grades at greater than 0.10% Cu. The mineralized zones are proximal to quartz-monzonite dykes that intruded the host andesites and limestones. Areas of higher-grade copper mineralization commonly show (post mineral) fault and fracture structural opening caused by tectonic stresses in addition to syn-mineral hydrothermal brecciation resulting from intrusion.

Summarized in Table 10-6 and Table 10-7 is a listing of drill intersections of composite sample intervals where the length-weighted average grade of each composite is equal to or greater than (≥) 0.4% Cu. These intervals of mineralization comprise ≥ 10 m of contiguous samples with a minimum grade of 0.1% Cu but may include up to 4 m of samples of ≥ 0.05% Cu in grade. Such intervals are considered to represent intercepts of significant mineralization at the Santo Tomás Project.

Table 10-6 presents such intervals sorted for their location in the North Zone or South Zone but are otherwise listed by Hole-ID. Included in the composite calculations are the molybdenum, gold and silver values for each composite, and a calculation of the “Copper Equivalent” as CuEq%. The CuEq% is calculated as:

CuEq (for drill hole reporting) = ((Cu grade * Cu recovery * Cu price) + (Mo grade * Mo recovery * Mo price) + (Au grade * Au recovery * Au price) + (Ag grade * Ag recovery * Ag price)) / (Cu price * Cu recovery). These recovery values were used to report drill hole intercepts only and were based upon early global metallurgy study estimates of recovery. The following values were used: 84.3% Cu,66% Mo, 57% Au, and 54% Ag. Commodity prices used are in US$: Cu $3.80/lb, Mo $12.00/lb, Au $1,650/troy oz and Ag $22/troy oz.

In addition, the tables present an estimate of the approximate true width of the presented intercepts. The true width estimate is based upon a generalized estimated attitude of the mineralization (including consideration of lithology and alteration), of ~ 40° to WNW at North Zone, ~ 35° to W at South Zone.

Table 10-7 presents composite intervals generated from the exploration drilling at the Brasiles prospect. The attitude of mineralization for the calculation of approximate true width at Brasiles prospect is ~40° to the NW.

10.4 Drill Methods

The historical drilling was a mix of diamond drilling for reverse circulation, percussion, and diamond-drill holes.

The drilling undertaken by Oroco has followed a common practice of starting holes in PQ diameter in broken rock formations (limestone and faulted limestone contact intervals). This was then followed by a reduction to HQ diameter (HQ or HQ3), and the drill holes were completed with NQ3 diameter. Where holes collared into competent rock, drilling commenced in HQ.

Owing to challenging access in the southern parts of North Zone, a modified underground rig capable of horizontal drilling was employed to drill holes N044 to N047.

Table 10-6: Listing of Significant Cu Composite Intervals from the North Zone and South Zone

Hole ID	Zone	From	To	Length (m)	Cu (%)	CuEq (%)	Mo (ppm)	Au (ppm)	Ag (ppm)	Interval Labels
ST21-N001	North	365.00	419.20	54.20	0.55	0.62	73	0.097	2.568	54.20m @ 0.55 Cu%
ST21-N001	North	439.00	460.89	21.89	0.46	0.53	137	0.053	2.182	21.89m @ 0.46 Cu%
ST21-N001	North	474.00	523.00	49.00	0.49	0.56	154	0.029	3.162	49m @ 0.49 Cu%
ST21-N002	North	393.00	407.00	14.00	0.46	0.51	42	0.060	2.186	14m @ 0.46 Cu%
ST21-N002	North	436.00	451.40	15.40	0.45	0.51	115	0.023	3.552	15.40m @ 0.45 Cu%
ST21-N002	North	506.00	580.00	74.00	0.46	0.52	142	0.018	3.493	74m @ 0.46 Cu%
ST21-N002	North	600.00	616.00	16.00	0.45	0.50	65	0.009	4.412	16m @ 0.45 Cu%
ST21-N003	North	370.00	384.30	14.30	0.50	0.55	85	0.026	3.329	14.30m @ 0.50 Cu%
ST21-N003	North	456.00	470.00	14.00	0.46	0.54	209	0.024	3.857	14m @ 0.46 Cu%
ST21-N003	North	476.00	495.00	19.00	0.55	0.63	227	0.016	3.947	19m @ 0.55 Cu%
ST21-N003	North	510.60	597.70	87.10	0.45	0.51	123	0.017	2.972	87.10m @ 0.45 Cu%
ST21-N004	North	434.33	456.20	21.87	0.46	0.52	113	0.019	2.809	21.87m @ 0.46 Cu%
ST21-N004	North	468.00	483.00	15.00	0.46	0.53	171	0.021	2.341	15m @ 0.46 Cu%
ST21-N006	North	65.00	163.00	98.00	0.51	0.56	25	0.064	2.885	98m @ 0.51 Cu%
ST21-N006	North	171.00	187.00	16.00	0.46	0.51	41	0.071	2.631	16m @ 0.46 Cu%
ST21-N007	North	335.00	351.90	16.90	0.46	0.50	30	0.034	3.96	16.90m @ 0.46 Cu%
ST21-N007	North	352.90	364.00	11.10	0.48	0.54	53	0.039	4.793	11.10m @ 0.48 Cu%
ST21-N007	North	386.20	405.15	18.95	0.46	0.53	186	0.026	3.09	18.95m @ 0.46 Cu%
ST21-N008	North	233.00	319.00	86.00	0.62	0.69	26	0.095	3.248	86m @ 0.62 Cu%
ST21-N008	North	325.00	351.00	26.00	0.49	0.55	136	0.035	3.008	26m @ 0.49 Cu%
ST21-N008	North	411.00	442.00	31.00	0.46	0.53	127	0.016	5.062	31m @ 0.46 Cu%
ST21-N009	North	438.00	470.00	32.00	0.68	0.74	110	0.021	4.897	32m @ 0.68 Cu%
ST21-N009	North	655.20	665.60	10.40	0.46	0.50	131	0.010	2.206	10.40m @ 0.45 Cu%
ST21-N009	North	671.35	685.00	13.65	0.47	0.53	133	0.024	2.752	13.65m @ 0.47 Cu%
ST21-N010	North	181.00	200.00	19.00	0.45	0.51	29	0.072	2.647	19m @ 0.45 Cu%
ST21-N010	North	205.90	286.05	80.15	0.50	0.56	76	0.054	3.025	80.15m @ 0.50 Cu%
ST21-N010	North	307.00	357.00	50.00	0.47	0.55	224	0.023	3.279	50m @ 0.47 Cu%
N011	North	51.00	63.00	12.00	0.46	0.50	36	0.039	3.55	12m @ 0.46 Cu%
N011	North	83.00	115.00	32.00	0.45	0.51	45	0.083	3.167	32m @ 0.45 Cu%
N011	North	150.00	219.00	69.00	0.52	0.57	79	0.034	3.902	69m @ 0.52 Cu%
N012	North	345.00	362.00	17.00	0.47	0.55	142	0.075	3.129	17m @ 0.47 Cu%
N012	North	366.00	382.00	16.00	0.45	0.50	57	0.055	2.563	16m @ 0.45 Cu%
N012	North	386.00	410.77	24.77	0.46	0.53	142	0.029	3.428	24.77m @ 0.46 Cu%
N012	North	456.00	497.00	41.00	0.46	0.54	233	0.017	3.435	41m @ 0.46 Cu%
N012	North	529.00	539.00	10.00	0.46	0.51	104	0.019	2.645	10m @ 0.46 Cu%
N013	North	417.00	427.32	10.32	0.46	0.53	117	0.059	3.964	10.32m @ 0.46 Cu%
N013	North	485.00	534.00	49.00	0.47	0.54	190	0.019	2.835	49m @ 0.47 Cu%
N013	North	584.00	598.00	14.00	0.47	0.53	157	0.022	2.971	14m @ 0.47 Cu%

Hole ID	Zone	From	To	Length (m)	Cu (%)	CuEq (%)	Mo (ppm)	Au (ppm)	Ag (ppm)	Interval Labels
N015	North	184.46	253.56	69.10	0.49	0.55	63	0.060	3.39	69.10m @ 0.49 Cu%
N015	North	279.00	304.00	25.00	0.46	0.55	256	0.021	2.999	25m @ 0.46 Cu%
N016	North	398.00	420.00	22.00	0.47	0.52	61	0.051	2.945	22m @ 0.47 Cu%
N016	North	426.61	446.38	19.77	0.48	0.53	54	0.043	2.295	19.77m @ 0.48 Cu%
N016	North	481.00	505.00	24.00	0.47	0.55	151	0.027	4.925	24m @ 0.47 Cu%
N016	North	726.00	736.00	10.00	0.47	0.52	84	0.035	3.48	10m @ 0.47 Cu%
N017	North	109.00	126.16	17.16	0.46	0.52	125	0.031	2.287	17.16m @ 0.46 Cu%
N017	North	153.83	177.09	23.26	0.49	0.54	96	0.043	2.458	23.26m @ 0.49 Cu%
N018	North	212.00	222.00	10.00	0.47	0.53	144	0.022	3.14	10m @ 0.47 Cu%
N018	North	273.00	290.92	17.92	0.46	0.53	154	0.024	2.602	17.92m @ 0.46 Cu%
N019	North	389.00	409.00	20.00	0.46	0.52	98	0.023	3.62	20m @ 0.46 Cu%
N020	North	223.36	308.23	84.87	0.53	0.59	10	0.101	2.683	84.87m @ 0.53 Cu%
N020	North	313.00	331.28	18.28	0.52	0.57	88	0.024	2.974	18.28m @ 0.52 Cu%
N021	North	353.00	380.38	27.38	0.49	0.55	92	0.038	4.592	27.38m @ 0.49 Cu%
N021	North	397.52	408.59	11.07	0.78	0.84	104	0.036	3.706	11.07m @ 0.78 Cu%
N022	North	50.60	69.00	18.40	0.47	0.55	129	0.099	1.562	18.40m @ 0.47 Cu%
N022	North	95.00	130.00	35.00	0.51	0.59	79	0.107	1.919	35m @ 0.51 Cu%
N022	North	199.00	217.00	18.00	0.45	0.51	49	0.062	2.429	18m @ 0.45 Cu%
N023	North	4.00	55.00	51.00	0.59	0.64	55	0.057	2.924	51m @ 0.59 Cu%
N025	North	24.00	41.95	17.95	0.46	0.51	43	0.049	2.114	17.95m @ 0.46 Cu%
N025	North	67.00	175.00	108.00	0.51	0.56	20	0.064	2.49	108m @ 0.51 Cu%
N025	North	189.00	216.00	27.00	0.45	0.50	30	0.044	3.388	27m @ 0.45 Cu%
N025	North	222.00	232.00	10.00	0.48	0.53	64	0.039	3.254	10m @ 0.48 Cu%
N026	North	14.90	91.00	76.10	0.67	0.74	110	0.064	2.139	76.10m @ 0.67 Cu%
N027	North	93.00	153.00	60.00	0.56	0.62	12	0.079	4.25	60m @ 0.56 Cu%
N027	North	179.00	212.20	33.20	0.52	0.57	31	0.039	4.899	33.20m @ 0.52 Cu%
N028	North	55.00	121.00	66.00	0.49	0.54	66	0.044	3.545	66m @ 0.49 Cu%
N029	North	313.00	337.00	24.00	0.45	0.51	134	0.022	3.025	24m @ 0.45 Cu%
N030	North	103.00	120.20	17.20	0.46	0.51	31	0.074	1.694	17.20m @ 0.46 Cu%
N030	North	136.00	238.00	102.00	0.52	0.59	8	0.101	2.937	102m @ 0.52 Cu%
N031	North	228.05	240.00	11.95	0.46	0.51	117	0.022	2.498	11.95m @ 0.45 Cu%
N032	North	280.34	294.00	13.66	0.46	0.50	22	0.036	3.039	13.66m @ 0.46 Cu%
N032	North	299.00	315.00	16.00	0.46	0.50	49	0.036	2.488	16m @ 0.46 Cu%
N034	North	192.00	206.00	14.00	0.45	0.50	37	0.062	2.3	14m @ 0.45 Cu%
N034	North	212.00	240.00	28.00	0.47	0.52	38	0.057	3.365	28m @ 0.47 Cu%
N034	North	248.00	287.00	39.00	0.46	0.54	136	0.052	2.988	39m @ 0.46 Cu%
N034	North	329.00	341.00	12.00	0.48	0.56	219	0.014	4.35	12m @ 0.48 Cu%
N035	North	114.00	222.00	108.00	0.47	0.53	30	0.068	2.894	108m @ 0.47 Cu%
N036	North	110.36	168.00	57.64	0.55	0.64	7	0.160	2.822	57.64m @ 0.55 Cu%
N036	North	197.00	220.00	23.00	0.46	0.51	19	0.068	2.975	23m @ 0.46 Cu%

Hole ID	Zone	From	To	Length (m)	Cu (%)	CuEq (%)	Mo (ppm)	Au (ppm)	Ag (ppm)	Interval Labels
N038	North	314.00	324.00	10.00	0.47	0.62	511	0.016	3.02	10m @ 0.47 Cu%
N039	North	318.00	330.00	12.00	0.72	0.78	81	0.024	5.417	12m @ 0.72 Cu%
N039	North	383.00	393.00	10.00	0.48	0.51	5	0.011	3.78	10m @ 0.48 Cu%
N039	North	473.00	485.00	12.00	0.45	0.52	178	0.013	2.726	12m @ 0.45 Cu%
N039	North	526.00	557.00	31.00	0.45	0.49	63	0.025	2.819	31m @ 0.45 Cu%
N039	North	558.75	572.00	13.25	0.46	0.51	120	0.019	2.543	13.25m @ 0.45 Cu%
N040	North	526.00	548.00	22.00	0.45	0.52	142	0.018	4.191	22m @ 0.45 Cu%
N041	North	251.00	305.00	54.00	0.58	0.62	31	0.053	3.109	54m @ 0.58 Cu%
N042	North	260.00	381.00	121.00	0.56	0.62	44	0.080	3.158	121m @ 0.56 Cu%
N044	North	289.55	312.00	22.45	0.47	0.50	21	0.047	2.668	22.45m @ 0.46 Cu%
N044	North	328.00	390.00	62.00	0.51	0.56	33	0.042	4.457	62m @ 0.51 Cu%
N044	North	402.00	472.00	70.00	0.59	0.65	13	0.071	4.329	70m @ 0.59 Cu%
N044	North	556.00	606.00	50.00	0.46	0.50	95	0.018	2.751	50m @ 0.46 Cu%
N045	North	79.00	159.00	80.00	0.53	0.58	79	0.042	3.052	80m @ 0.53 Cu%
N045	North	180.00	284.00	104.00	0.50	0.55	43	0.053	3.434	104m @ 0.50 Cu%
N045	North	320.00	391.00	71.00	0.47	0.56	268	0.018	3.392	71m @ 0.47 Cu%
N046	North	492.55	504.00	11.45	0.46	0.50	60	0.030	1.776	11.45m @ 0.46 Cu%
N046	North	572.00	607.00	35.00	0.46	0.49	17	0.045	2.191	35m @ 0.46 Cu%
N046	North	628.00	730.00	102.00	0.51	0.55	35	0.043	2.978	102m @ 0.51 Cu%
N047	North	219.00	440.00	221.00	0.55	0.61	23	0.064	3.597	221m @ 0.55 Cu%
N047	North	449.00	464.00	15.00	0.46	0.50	64	0.027	3.319	15m @ 0.46 Cu%
N047	North	471.50	487.00	15.50	0.45	0.49	49	0.017	4.389	15.50m @ 0.45 Cu%
STD-01	North	15.50	83.60	68.10	0.67	-	-	-	-	68.10m @ 0.67 Cu%
STD-01	North	97.40	132.30	34.90	0.47	-	-	-	-	34.90m @ 0.46 Cu%
STD-02	North	65.40	168.50	103.10	0.52	-	-	-	-	103.10m @ 0.52 Cu%
STD-02	North	258.00	276.50	18.50	0.46	-	-	-	-	18.50m @ 0.46 Cu%
STD-02	North	285.70	297.90	12.20	0.47	-	-	-	-	12.20m @ 0.47 Cu%
STD-03	North	123.40	234.40	111.00	0.53	-	-	-	-	111m @ 0.53 Cu%
STD-03	North	252.10	279.50	27.40	0.54	-	-	-	-	27.40m @ 0.54 Cu%
STD-04	North	145.10	182.00	36.90	0.48	-	-	-	-	36.90m @ 0.48 Cu%
STD-05	North	9.00	78.90	69.90	1.04	-	-	-	-	69.90m @ 1.04 Cu%
STD-05	North	235.50	268.80	33.30	0.45	-	-	-	-	33.30m @ 0.45 Cu%
STD-08	North	104.20	140.10	35.90	0.54	-	-	-	-	35.90m @ 0.54 Cu%
STD-08	North	190.20	202.10	11.90	0.47	-	-	-	-	11.90m @ 0.47 Cu%
STD-08	North	227.20	238.00	10.80	0.47	-	-	-	-	10.80m @ 0.46 Cu%
STD-08	North	276.20	306.40	30.20	0.45	-	-	-	-	30.20m @ 0.45 Cu%
STD-09	North	278.60	304.90	26.30	0.45	-	-	-	-	26.30m @ 0.45 Cu%
STD-09	North	371.10	384.40	13.30	0.46	-	-	-	-	13.30m @ 0.46 Cu%
STD-12	North	3.10	20.50	17.40	0.50	-	-	-	-	17.40m @ 0.50 Cu%
STD-13	North	15.30	47.30	32.00	0.46	-	-	-	-	32m @ 0.46 Cu%

Hole ID	Zone	From	To	Length (m)	Cu (%)	CuEq (%)	Mo (ppm)	Au (ppm)	Ag (ppm)	Interval Labels
STD-13	North	211.60	225.40	13.80	0.45	-	-	-	-	13.80m @ 0.45 Cu%
STD-18	North	195.20	218.20	23.00	0.60	-	-	-	-	23m @ 0.60 Cu%
STD-18	North	284.30	354.30	70.00	0.50	-	-	-	-	70m @ 0.50 Cu%
STD-18	North	393.70	411.90	18.20	0.47	-	-	-	-	18.20m @ 0.47 Cu%
STD-19	North	20.00	77.90	57.90	0.55	-	-	-	-	57.90m @ 0.55 Cu%
STD-20	North	3.00	22.90	19.90	0.97	-	-	-	-	19.90m @ 0.97 Cu%
STD-20	North	23.30	131.00	107.70	0.64	-	-	-	-	107.70m @ 0.64 Cu%
STD-20	North	131.30	175.40	44.10	0.47	-	-	-	-	44.10m @ 0.47 Cu%
STD-20	North	215.10	247.40	32.30	0.49	-	-	-	-	32.30m @ 0.49 Cu%
STD-21	North	149.50	199.60	50.10	0.50	-	-	-	-	50.10m @ 0.50 Cu%
STD-21	North	205.20	309.00	103.80	0.48	-	-	-	-	103.80m @ 0.48 Cu%
STD-23	North	53.50	215.20	161.70	0.58	-	-	-	-	161.70m @ 0.58 Cu%
STD-23	North	296.80	318.10	21.30	0.49	-	-	-	-	21.30m @ 0.49 Cu%
STD-27	North	50.10	73.90	23.80	0.52	-	-	-	-	23.80m @ 0.52 Cu%
STD-27	North	169.30	198.80	29.50	0.51	-	-	-	-	29.50m @ 0.51 Cu%
STD-27	North	234.50	257.90	23.40	0.46	-	-	-	-	23.40m @ 0.46 Cu%
STD-27	North	262.80	304.50	41.70	0.59	-	-	-	-	41.70m @ 0.58 Cu%
STD-27	North	304.80	333.90	29.10	0.57	-	-	-	-	29.10m @ 0.57 Cu%
STD-28	North	177.90	279.20	101.30	0.49	-	-	-	-	101.30m @ 0.49 Cu%
STD-29	North	214.50	225.90	11.40	0.48	-	-	-	-	11.40m @ 0.48 Cu%
STD-29	North	254.90	273.40	18.50	0.50	-	-	-	-	18.50m @ 0.50 Cu%
STD-31	North	147.40	175.40	28.00	0.65	-	-	-	-	28m @ 0.65 Cu%
STD-40	North	233.70	246.50	12.80	0.46	-	-	-	-	12.80m @ 0.46 Cu%
STD-40	North	281.60	373.10	91.50	0.52	-	-	-	-	91.50m @ 0.52 Cu%
STD-41	North	3.00	41.70	38.70	0.53	-	-	-	-	38.70m @ 0.53 Cu%
STD-41	North	51.80	64.80	13.00	0.47	-	-	-	-	13m @ 0.47 Cu%
STD-41	North	124.00	137.80	13.80	0.48	-	-	-	-	13.80m @ 0.48 Cu%
STD-42	North	32.50	102.90	70.40	0.69	-	-	-	-	70.40m @ 0.69 Cu%
STD-42	North	159.50	171.60	12.10	0.52	-	-	-	-	12.10m @ 0.52 Cu%
STD-42	North	197.10	223.50	26.40	0.50	-	-	-	-	26.40m @ 0.50 Cu%
STD-42	North	261.20	273.40	12.20	0.49	-	-	-	-	12.20m @ 0.49 Cu%
STD-43	North	74.90	88.20	13.30	0.47	-	-	-	-	13.30m @ 0.47 Cu%
STD-43	North	118.70	159.10	40.40	0.48	-	-	-	-	40.40m @ 0.47 Cu%
STD-43	North	168.20	196.90	28.70	0.51	-	-	-	-	28.70m @ 0.51 Cu%
STD-44	North	144.00	328.00	184.00	0.51	-	-	-	-	184m @ 0.51 Cu%
STD-45	North	60.00	92.00	32.00	0.48	-	-	-	-	32m @ 0.48 Cu%
STD-45	North	144.00	248.00	104.00	0.57	-	-	-	-	104m @ 0.57 Cu%
STD-45	North	284.00	300.00	16.00	0.45	-	-	-	-	16m @ 0.45 Cu%
STD-45	North	312.00	370.00	58.00	0.59	-	-	-	-	58m @ 0.59 Cu%
STD-46	North	24.00	36.00	12.00	0.48	-	-	-	-	12m @ 0.48 Cu%

Hole ID	Zone	From	To	Length (m)	Cu (%)	CuEq (%)	Mo (ppm)	Au (ppm)	Ag (ppm)	Interval Labels
STD-46	North	52.00	212.00	160.00	0.60	-	-	-	-	160m @ 0.60 Cu%
STD-47	North	8.00	76.00	68.00	0.45	-	-	-	-	68m @ 0.45 Cu%
STD-47	North	84.00	108.00	24.00	0.45	-	-	-	-	24m @ 0.45 Cu%
STD-47	North	120.00	192.00	72.00	0.45	-	-	-	-	72m @ 0.45 Cu%
STD-47	North	216.00	276.00	60.00	0.50	-	-	-	-	60m @ 0.50 Cu%
STD-48	North	224.00	382.60	158.60	0.50	-	-	-	-	158.60m @ 0.49 Cu%
STD-49	North	132.00	144.00	12.00	0.48	-	-	-	-	12m @ 0.48 Cu%
STD-49	North	152.00	172.00	20.00	0.47	-	-	-	-	20m @ 0.47 Cu%
STD-49	North	180.00	324.00	144.00	0.52	-	-	-	-	144m @ 0.52 Cu%
STE-01	North	30.00	98.00	68.00	0.46	-	-	-	-	68m @ 0.46 Cu%
STE-05	North	16.00	32.00	16.00	0.47	-	-	-	-	16m @ 0.47 Cu%
STE-07	North	30.00	50.00	20.00	0.46	-	-	-	-	20m @ 0.45 Cu%
STE-07	North	56.00	80.00	24.00	0.46	-	-	-	-	24m @ 0.46 Cu%
STE-08	North	12.00	30.00	18.00	0.78	-	-	-	-	18m @ 0.78 Cu%
STE-08	North	40.00	66.00	26.00	0.46	-	-	-	-	26m @ 0.46 Cu%
STE-09	North	0.00	74.00	74.00	0.76	-	-	-	-	74m @ 0.76 Cu%
STE-10	North	10.00	54.00	44.00	0.52	-	-	-	-	44m @ 0.52 Cu%
STE-11	North	0.00	64.00	64.00	0.46	-	-	-	-	64m @ 0.46 Cu%
STE-13	North	6.00	80.00	74.00	0.49	-	-	-	-	74m @ 0.48 Cu%
STE-14	North	0.00	80.00	80.00	1.14	-	-	-	-	80m @ 1.14 Cu%
STE-15	North	48.00	80.00	32.00	0.67	-	-	-	-	32m @ 0.67 Cu%
STE-16	North	24.00	80.00	56.00	0.48	-	-	-	-	56m @ 0.48 Cu%
STE-17	North	12.00	24.00	12.00	0.47	-	-	-	-	12m @ 0.47 Cu%
STE-19	North	4.00	30.00	26.00	0.48	-	-	-	-	26m @ 0.48 Cu%
STE-21	North	2.00	40.00	38.00	0.58	-	-	-	-	38m @ 0.58 Cu%
STE-22	North	68.00	80.00	12.00	0.46	-	-	-	-	12m @ 0.46 Cu%
STE-23	North	56.00	70.00	14.00	0.45	-	-	-	-	14m @ 0.45 Cu%
STE-24	North	6.00	86.00	80.00	0.58	-	-	-	-	80m @ 0.58 Cu%
STE-24	North	98.00	122.00	24.00	0.46	-	-	-	-	24m @ 0.46 Cu%
STE-25	North	14.00	40.00	26.00	0.46	-	-	-	-	26m @ 0.46 Cu%
STE-25	North	46.00	114.00	68.00	0.52	-	-	-	-	68m @ 0.52 Cu%
STE-26	North	0.00	108.00	108.00	0.85	-	-	-	-	108m @ 0.85 Cu%
STE-27	North	0.00	30.00	30.00	0.46	-	-	-	-	30m @ 0.46 Cu%
STE-28	North	0.00	30.00	30.00	0.59	-	-	-	-	30m @ 0.59 Cu%
STE-28	North	36.00	62.00	26.00	0.95	-	-	-	-	26m @ 0.95 Cu%
STE-29	North	50.00	130.00	80.00	0.48	-	-	-	-	80m @ 0.48 Cu%
STE-38	North	52.00	70.00	18.00	0.66	-	-	-	-	18m @ 0.66 Cu%
STE-51	North	32.00	56.00	24.00	0.67	-	-	-	-	24m @ 0.67 Cu%
STE-61	North	142.00	154.00	12.00	0.46	-	-	-	-	12m @ 0.46 Cu%
STE-62	North	62.00	128.00	66.00	0.51	-	-	-	-	66m @ 0.51 Cu%

Hole ID	Zone	From	To	Length (m)	Cu (%)	CuEq (%)	Mo (ppm)	Au (ppm)	Ag (ppm)	Interval Labels
STE-62	North	150.00	164.00	14.00	0.46	-	-	-	-	14m @ 0.46 Cu%
STE-62	North	180.00	198.00	18.00	0.47	-	-	-	-	18m @ 0.47 Cu%
STE-63	North	0.00	84.00	84.00	0.47	-	-	-	-	84m @ 0.47 Cu%
STE-63	North	90.00	116.00	26.00	0.46	-	-	-	-	26m @ 0.46 Cu%
S001	South	186.00	234.00	48.00	0.46	0.51	27	0.036	4.091	48m @ 0.46 Cu%
S001	South	258.00	274.00	16.00	0.47	0.52	39	0.065	2.392	16m @ 0.47 Cu%
S002	South	268.00	279.00	11.00	0.47	0.60	405	0.012	4.596	11m @ 0.47 Cu%
S003	South	315.00	377.20	62.20	0.57	0.62	55	0.029	4.001	62.20m @ 0.57 Cu%
S004	South	132.00	145.00	13.00	0.62	0.67	15	0.054	5	13m @ 0.62 Cu%
S004	South	167.00	215.00	48.00	0.47	0.53	5	0.084	2.787	48m @ 0.47 Cu%
S004	South	239.00	263.00	24.00	0.48	0.52	37	0.049	2.37	24m @ 0.48 Cu%
S006	South	109.80	182.10	72.30	0.46	0.52	24	0.079	2.824	72.30m @ 0.46 Cu%
S012	South	177.00	211.00	34.00	0.56	0.61	22	0.051	4.106	34m @ 0.56 Cu%
S015	South	23.00	45.70	22.70	0.48	0.53	97	0.026	2.621	22.70m @ 0.48 Cu%
S015	South	78.40	126.00	47.60	0.53	0.63	273	0.034	2.335	47.60m @ 0.53 Cu%
S016	South	158.00	171.00	13.00	0.47	0.53	25	0.055	5.927	13m @ 0.47 Cu%
S016	South	198.00	211.00	13.00	0.47	0.50	36	0.020	3.499	13m @ 0.47 Cu%
S016	South	226.00	302.00	76.00	0.46	0.49	19	0.036	2.629	76m @ 0.46 Cu%
S016	South	308.00	332.00	24.00	0.46	0.50	47	0.028	2.658	24m @ 0.46 Cu%
S016	South	416.00	437.11	21.11	0.46	0.54	215	0.034	2.213	21.11m @ 0.46 Cu%
S018	South	80.00	252.00	172.00	0.52	0.58	115	0.040	2.451	172m @ 0.52 Cu%
S018	South	260.00	274.00	14.00	0.46	0.49	49	0.026	1.807	14m @ 0.46 Cu%
S018	South	312.00	326.00	14.00	0.47	0.51	47	0.024	2.243	14m @ 0.47 Cu%
S020	South	142.55	195.00	52.45	0.47	0.52	109	0.031	2.182	52.45m @ 0.47 Cu%
S020	South	254.00	264.00	10.00	0.46	0.53	173	0.040	2.59	10m @ 0.46 Cu%
S021	South	207.00	232.00	25.00	0.72	0.79	141	0.027	3.648	25m @ 0.72 Cu%
STD-31	South	255.40	275.40	20.00	0.67	-	-	-	-	20m @ 0.67 Cu%
STD-35	South	94.40	106.40	12.00	0.50	-	-	-	-	12m @ 0.50 Cu%
STD-35	South	114.40	162.40	48.00	0.54	-	-	-	-	48m @ 0.54 Cu%
STD-36	South	144.00	180.00	36.00	0.45	-	-	-	-	36m @ 0.45 Cu%
STD-36	South	224.00	236.00	12.00	0.50	-	-	-	-	12m @ 0.50 Cu%
STD-36	South	240.00	256.00	16.00	0.47	-	-	-	-	16m @ 0.47 Cu%
STD-36	South	316.00	336.00	20.00	0.54	-	-	-	-	20m @ 0.54 Cu%
STD-36	South	344.00	368.02	24.02	0.49	-	-	-	-	24.02m @ 0.49 Cu%
STD-37	South	50.00	146.00	96.00	0.49	-	-	-	-	96m @ 0.49 Cu%
STD-39	South	135.00	203.00	68.00	0.47	-	-	-	-	68m @ 0.47 Cu%
STD-50	South	95.00	107.00	12.00	0.49	-	-	-	-	12m @ 0.49 Cu%
STD-50	South	151.00	179.00	28.00	0.45	-	-	-	-	28m @ 0.45 Cu%
STD-50	South	239.00	263.00	24.00	0.49	-	-	-	-	24m @ 0.49 Cu%
STD-50	South	271.00	303.00	32.00	0.45	-	-	-	-	32m @ 0.45 Cu%

Hole ID	Zone	From	To	Length (m)	Cu (%)	CuEq (%)	Mo (ppm)	Au (ppm)	Ag (ppm)	Interval Labels
STD-50	South	335.00	370.45	35.45	0.47	-	-	-	-	35.45m @ 0.47 Cu%
STE-52	South	56.00	68.00	12.00	0.45	-	-	-	-	12m @ 0.45 Cu%
STE-52	South	86.00	114.00	28.00	0.45	-	-	-	-	28m @ 0.45 Cu%
STE-53	South	108.00	118.00	10.00	0.45	-	-	-	-	10m @ 0.45 Cu%

Note: The table lists composite sample intervals where the length-weighted average grade of each composite ≥ 0.4% Cu. The composites ≥ 10 m of contiguous samples with a minimum grade of 0.1% Cu but may include up to 4 m of samples of ≥ 0.05% Cu in grade.

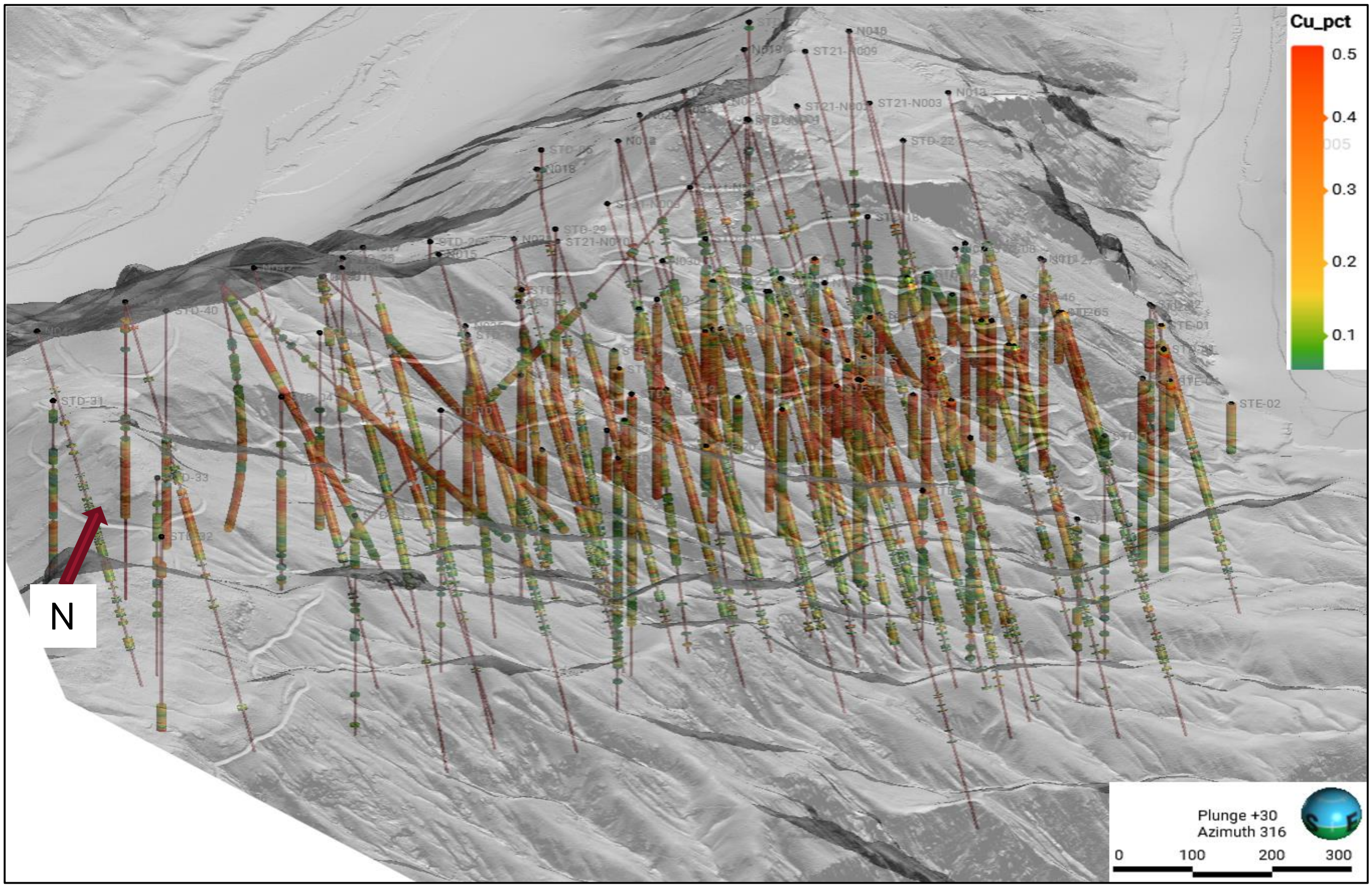
Table 10-7: Listing of Significant Cu Composite Intervals from the Brasiles Exploration Drilling

Hole ID	Zone	From	To	Length (m)	Cu (%)	CuEq (%)	Mo (ppm)	Au (ppm)	Ag (ppm)	Interval Labels
B003	Brasiles	450.00	505.00	55.00	0.48	0.55	-	0.070	4.657	55m @ 0.48 Cu%
B003	Brasiles	555.00	569.00	14.00	0.47	0.53	-	0.024	5.17	14m @ 0.47 Cu%
B004	Brasiles	398.00	412.00	14.00	0.45	0.51	-	0.031	2.729	14m @ 0.45 Cu%
B005	Brasiles	427.54	464.49	36.95	0.51	0.57	-	0.057	3.996	36.95m @ 0.51 Cu%
B007	Brasiles	609.00	637.00	28.00	0.46	0.53	-	0.072	4.257	28m @ 0.46 Cu%
B007	Brasiles	649.00	671.00	22.00	0.45	0.55	-	0.067	4.333	22m @ 0.45 Cu%

10.5 North Zone Drilling

The North Zone has been the focus of historical drilling campaigns and the contemporary program of drilling undertaken by Oroco. Historically prioritization was driven by the dominance of mineralized outcrop along the eastern ridge of the North Zone. Drilling by Oroco prioritized the North Zone to confirm and extend historical results, and to test the areas of highest interest indicated by chargeability determined from the 3D DCIP survey. The North Zone is drilled at the closest spacing on the Property. The along-strike continuity of the North Zone historical drilling results and the subsequent drilling by Oroco is best viewed from the SE toward the NE (Figure 10-5 and Figure 10-6).

Figure 10-5: View of North Zone Historical and Contemporary Drilling Through Topography Showing Thematic Assay Sample Results.



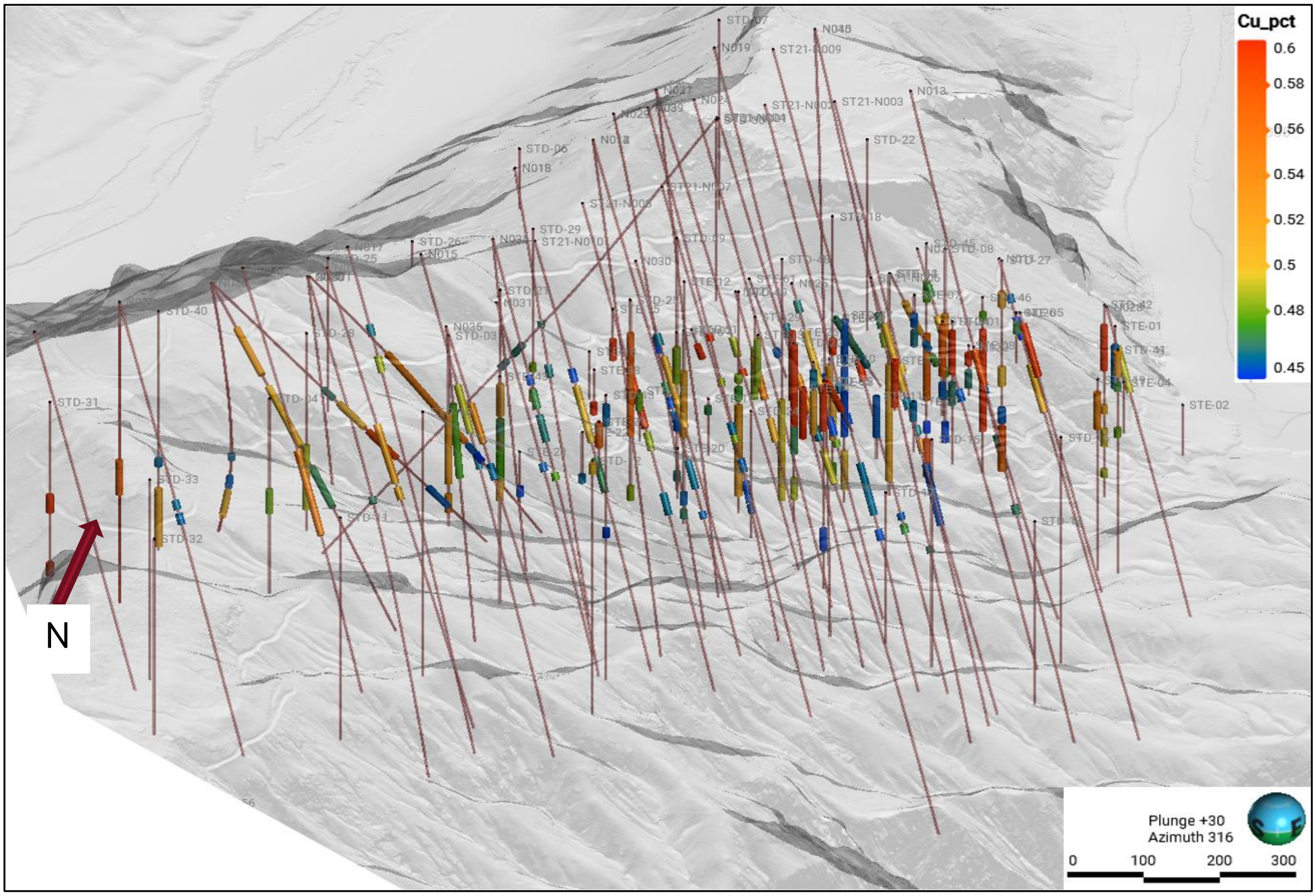
Source: Oroco, 2023.

Based upon historical geostatistics and a preliminary structural and lithological understanding of the North Zone (as presented in Bridge, 2020), the Oroco drill program sought to drill predominantly on azimuth 110° and most commonly angled at -55°. The intent was to generate near true width intercepts of the geology and mineralization. Drill holes were extended so that a significant number of holes would drill across the North Zone Pit deposit from hanging wall, through mineralization and into the footwall. This pattern was maintained for the majority of the program, though hole ST21-N004 was drilled to the SW to infill an area for which collar locations due to access constraints were not available. Drill hole ST21-N004 also tested an IP feature that suggested mineralization to the west of the mineralization known from historical work.

Holes N044 through N047 were drilled using a modified underground drill rig to allow flat and shallow angle drilling, also to solve the challenge of steep and inaccessible terrain at locations that would have maintained the general drilling pattern.

The layout of the North Zone drilling program also sought to intersect major structural features that had been mapped at surface. Hole ST21-N004 sought also to test the existence of a large monzonite body mapped/inferred by the SGM and to define a potential basement contact. Several of the historical drill holes were terminated while still in mineralization. The drill holes completed by Oroco continued into the footwall, allowing for appropriate domain limiting of mineralization and definition of the footwall alteration suite.

Figure 10-6: View of North Zone Historical and Contemporary Drilling Through Topography



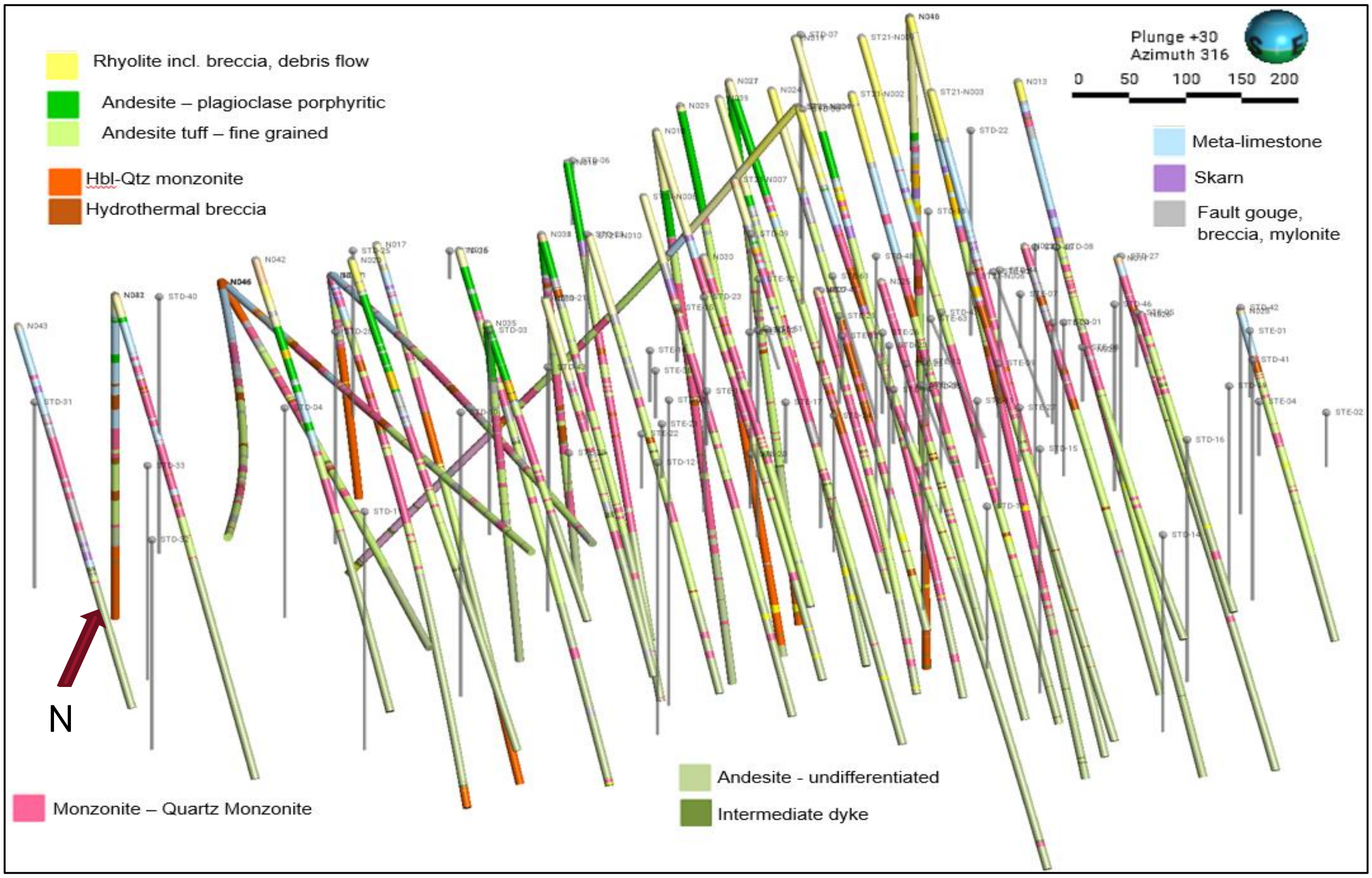
Source: Oroco, 2023.
Note: View of North Zone historical and contemporary drilling through topography showing the disposition of the significant Cu composite intervals from the North Zone as listed in Table 10-5.

North Zone drilling commenced on the central part of the Zone and targeted the intermediate depth parts of the historically defined mineralized system, as defined by the historical grade shell (Bridge, 2020). Drilling progressed northward and southward, and then began to test the areas of potential deeper development of the system as indicated by the chargeability by drilling from the western slope of the ridge and from the north northwestern spine of the ridge (to test the deep mineralization at the north end of North Zone). Late in the program the shallower eastern ridge was angle drilled to confirm and infill some of the historical work, and to properly drill into the footwall and so to define the base of mineralization to the north.

As work progressed, the correlation between resistivity and areas of potassic alteration that host mineralization was recognized: this feature has become a factor considered in drill hole targeting.

Geological modeling of the North Zone is largely constrained by the geological logging by Oroco of the drill core. The Company also recovered and re-boxed some of the historical core that had been located at the El Bienestar Ranch location (as described in Bridge, 2020). The disposition of the logged lithologies in the North Zone Pit drilling by Oroco is displayed in Figure 10-7.

Figure 10-7: View of North Zone Historical and Contemporary Drilling Absent Topography

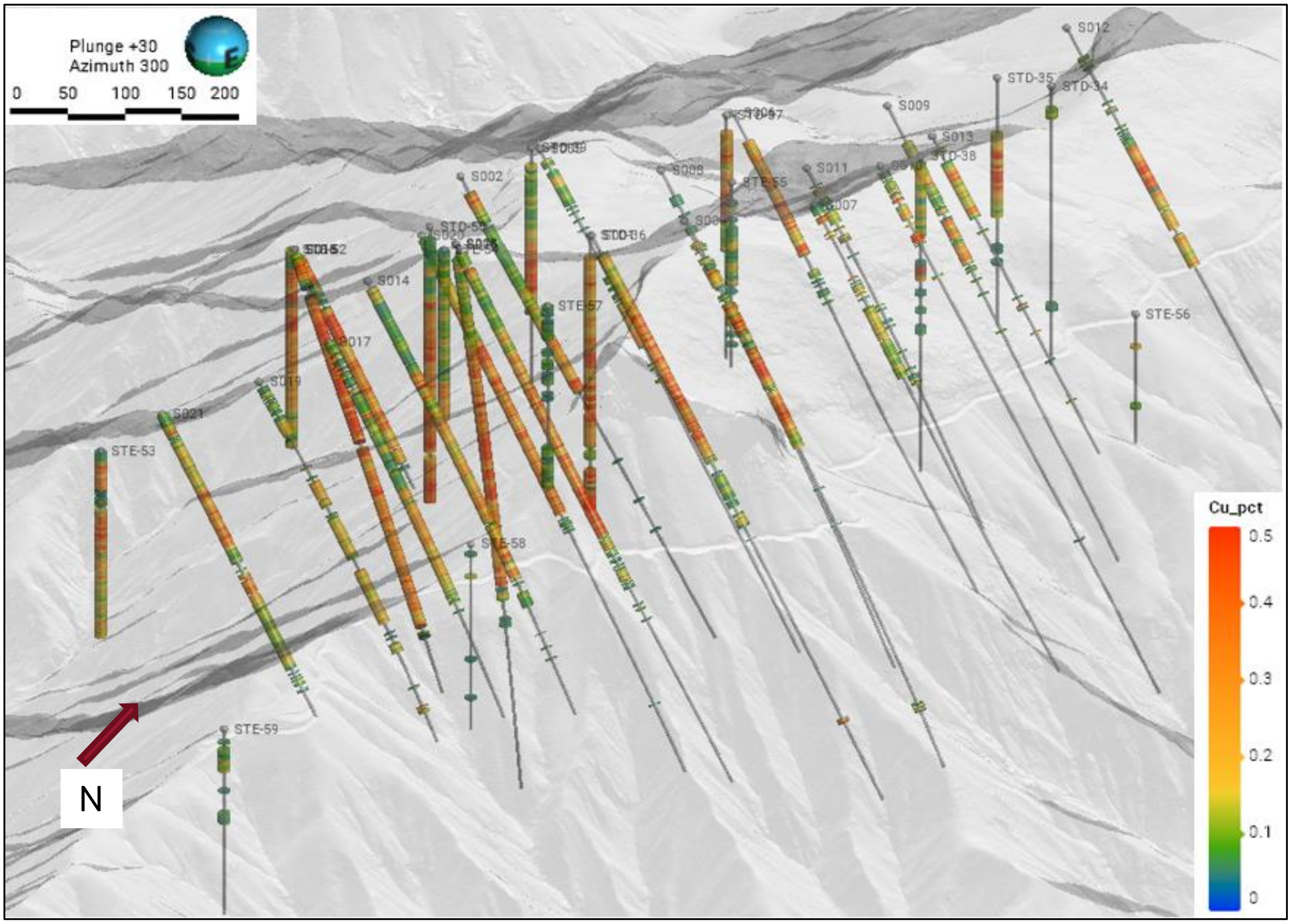


Source: Oroco, 2023.
Note: View of North Zone Historical and Contemporary Drilling absent topography and displaying key logged lithologies used to constrain geological modeling in the North Zone.

10.6 South Zone Drilling

Historical drilling in the South Zone (Figure 10-8) was widely spaced and undertaken to explore for a potentially fault-displaced, southern extension of North Zone copper mineralization (Bridge, 2020). Two of the historical holes intersected important mineralized intervals (STD-50 intersected 192m of 0.37% Cu at a 0.3% Cu Cut-off (from 111 m depth) and STD-36 intersected 208 m of 0.32% Cu (from 28 m) and two deeper intercepts of 20.0 m of 0.54% and 24.0 m of 0.49% Cu at a 0.3% Cu cut-off: both holes bottomed in mineralization). The first intercept is longer than cited in Table 10-6, but of lower composite grade.

Figure 10-8: View of South Zone Historical and Contemporary Drilling Through Topography Showing Thematic Assay Sample Results Data



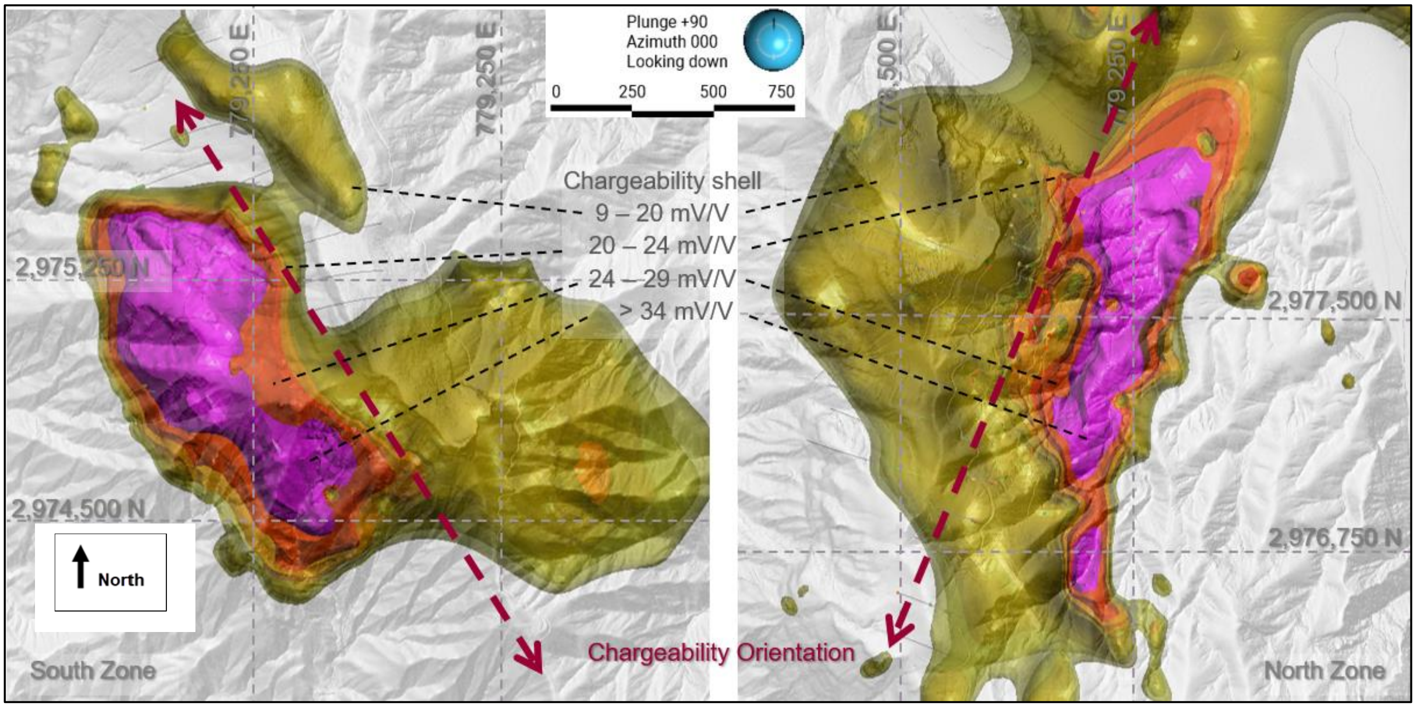
Source: Oroco, 2023.

These historical results strongly supported an Oroco drilling campaign at South Zone. Phase 1 drilling, comprised of 21 holes, was undertaken by Oroco at South Zone Pit in 2022 and was completed in early 2023. The detection of extensive volumes comprising target chargeability and resistivity ranges that correlate well with areas of well-developed and pervasive mineralization at North Zone Pit were also isolated in the South Zone Pit coverage by the 3D DCIP survey.

The South Zone drilling program successfully defined areas of mineralization in the north part of South Zone and in general confirmed buried chargeability features. Drilling has begun to delineate an area of more pervasive, extensive, and coherent mineralization in the southern part of the South Zone that also correlates well with chargeability trends. Surface mapping and sampling has located strong zones of alteration and mineralization above the geophysical anomalies. This area of mineralization has not been fully defined or constrained by the Phase 1 drilling and remains open to the west and southwest.

The layout of the South Zone drilling program also sought to test structural features that had been mapped at the surface, and to begin to define a lower (potentially structural) contact between the western extent of South Zone and basement granodioritic rocks. Based upon some preliminary observations of possible structures and the orientation of the 3D DCIP defined chargeability shells at South Zone – which differed from North Zone in apparent expression as is shown in Figure 10-9 below, the drilling at South Zone has been targeted on azimuth 070° and typically dipping at -55°. For reasons of ready access, hole S018 was drilled at 100° and -35° dip and S016 was drilled at -80° from the S003 setup.

Figure 10-9: View of South Zone (Left) and North Zone (Right) Chargeability Shells from The Unconstrained 3D DCIP Inversion.



Source: Oroco, 2023.
Note: View of South Zone (left) and North Zone (right) Chargeability Shells from The Unconstrained 3D DCIP Inversion, Showing the Apparent of Orientation of Each Zone.

Key historical drill holes, including STD-50 and STD-36 bottomed in mineralization. The drill holes completed by Oroco continue well into the footwall, allowing for appropriate bracketing of mineralization and confident recognition of the footwall alteration suite.

Logging and consideration of the vein orientation data at South Zone are being reviewed with respect to the 070° drilling orientation azimuth. It is probable that future drilling will be oriented for a drill azimuth to the south of due east that will target better sampling of the predominant vein set orientations.

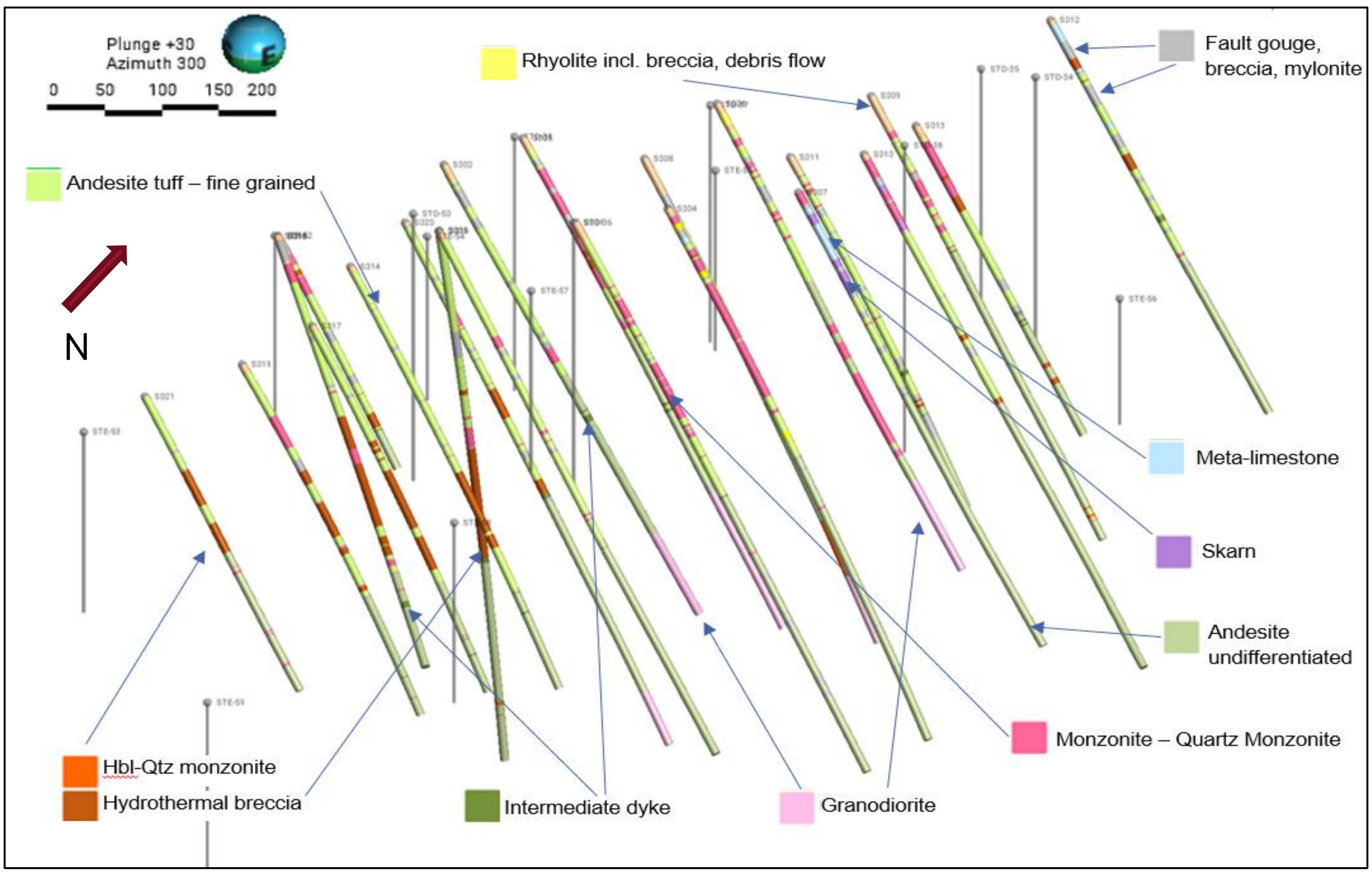
Drilling commenced in the central latitude of South Zone an initially progressed northward. Some of the proposed holes in the northern sector were delayed once initial results suggested there may be greater promise southward, and holes N015 through N021 sought to define the potential south of the initial holes. This approach paid off by permitting the definition of shallow, low strip mineralization of higher aggregate grades in the south-south-central and southwest parts of South Zone. However, the program did not adequately define mineralization that is likely to prevail between the North and South Zone: the potential for such mineralization justifies future drilling at the north end as a priority as a zone of above cut-off mineralization will impact the cost effectiveness of a potential revised mine design.

A program to confirm the locations of historical collars resulted in the discovery of collars for some of the South Zone holes at significant offset from the locations initially derived from the repositioning of historical grid locations as presented in Bridge. Hole STD-50 was found to be located significantly south (150 m) of the originally presumed location.

Drilling at South Zone intersected some compelling grade-width intersections using a 0.3% copper cut-off. Hole S016 intersected 349.2 m of 0.36% Cu; hole S018 returned two significant intersections of 187.9 m of 0.51% and 234.3 m of 0.34% respectively; hole S003 returned 277.4 m of 0.34% Cu; S001 drilled 271 m of 0.33% Cu; S020 returned 221.7 m of 0.37% Cu and S015 drilled 179.2 m of 0.36% Cu.

Geological modeling of the South Zone is largely constrained by the geological logging by Oroco of the drill core. The disposition of the logged lithologies in the South Zone drilling by Oroco is displayed in Figure 10-10. The existence of significantly brecciated zones in key holes of central latitude South Zone (S003, S016 and S018/15) has presented some challenges in modeling and will require some infill and drill section extensions to increase resolution of the PEA resource estimate.

Figure 10-10: View of South Zone Historical and Contemporary Drilling Absent Topography



Source: Oroco, 2023.
Note: View of South Zone historical and contemporary drilling absent topography and displaying key logged lithologies used to constrain geological modeling in the South Zone.

10.7 Geological Logging

Diamond core drill holes have been geologically logged for lithology, structure, alteration, vein types and mineralization. Select samples were stained to highlight feldspar compositions at an on-site rock staining facility. Particular attention was paid to structural geology feature logging. Much of the core on the Project was oriented core, and structural and geotechnical data was recorded in true orientation where core orientation was achieved. All drill core was logged prior to sampling.

A program of comparison between the oriented core data and down-hole ATV/OTV data is strongly recommended.

10.8 Recovery

Core recovery was systematically recorded from the commencement of coring to end of hole, by reconciling against driller's depth blocks in each core box. Core recoveries are typically between 90% to 100% with isolated zones of lower recovery associated with fault zones. No sample bias has been identified associated with core loss. Core loss is marked in the core box by the drillers at the time of drilling.

The Project team is photographing the sawn core as a further source of qualitative information regarding rock breakage characteristics. It is expected that the post-cutting sizing of remnant material may assist with ROM predictive crushing performance.

10.9 Geotechnical and Hydrological Drilling

Geotechnical Rock Quality Designation (RQD) data was collected from the commencement of Oroco-supervised exploration drilling. SRK field staff were trained on the geotechnical data collection protocols at the commencement of drilling. Owing to SARS-COV2 epidemic, initial training was done remotely: an audit conducted early in the program showed that initial data are reliable for RQD, though some consistency improvements were made. Uniaxial compressive strength (UCS) measurements were taken systematically through the program by on-site point load testing.

Preliminary recommendations for geotechnical and hydrogeological investigations have been received, but holes drilled on azimuths that would broaden the representativity of data for geotechnical purposes have not been drilled yet. A program for piezometer installation has been proposed by the QP. The Phase 1 drilling program focuses on resource delineation work resulted in that recommendation being delayed for future implementation.

11 SAMPLE PREPARATION, ANALYSIS AND SECURITY

11.1 Sampling Methods

11.1.1 Historical Sampling Methods

According to Spring (1992) and Thornton (2011), historically the drill core was logged at the El Bienestar Ranch facility south of the Santo Tomás deposit areas. Facilities for sawing the drill core and crushing and riffling the samples were maintained on-site (Thornton, 2011).

The drill core was oriented and marked for sampling by the geologist. For all diamond-drill core, the intervals selected for sampling were cut in half using either a diamond saw or with a mechanical splitter. The mechanical splitter was used on samples where it was suspected that the cooling water for the saw might wash out the copper minerals. One-half of the core was retained in the core box for further consideration and the other half was placed in properly marked sample bags for shipment to the laboratory (Thornton, 2011).

Sample lengths varied to reflect the geology and mineralization. ASARCO assayed at various lengths, generally between 1 and 3 m (Spring, 1992). Where no visible mineralization was encountered, sample lengths of 4 m or greater were assayed. Exall prepared samples of 2 m lengths (Thornton, 2011) for assaying.

11.1.2 Oroco Sampling Methods

Figure 11-1 are photos illustrating Oroco's Phase 1 logging and sampling management. Phase 1 drilling by Oroco conducted core orientation and marking at the drill rig by drilling and geological staff. A quick log and mobile phone photograph of each core is taken before the core is transported to the core logging facility at 'El Ranchito'. Upon arrival at El Ranchito, core is washed, and a daily report quick log prepared. Staff review the core at this time to inform drilling decisions (e.g., hole termination). The diamond drill core is then processed through core photography (Figure 11-2) geotechnical markup and logging, structural geology measurement and geological logging. Specific gravity (SG, or density) samples are selected during logging.

Assay sample selections are based on visual observation of mineralization and lithological associations, and the sample intervals are marked on core boxes. An adhesive sample tag is attached to the core box by the geologist before being moved to the core cutting area. Tags for bagging are placed with the core to be sampled. In the core saw facility, the core is cut in half using a manually operated diamond-bladed saw. If the core is extremely fractured and/or composed of clays, it is not cut. A representative one-half split is taken using a spoon instead, leaving the remaining core in its original position in the core box. Sample lengths are nominally 2 m for HQ and NQ. Samples may be shorter depending on geological or mineralogical boundaries. For holes N001 to N018, the half-core was cut in half (quartered) to preserve core for initial metallurgical work. Core duplicates are either the second quarter fraction or the remaining half-core.

Cut core is placed in plastic bags direct from the saw with the remnant core placed back in the core box. The plastic bag is sealed with a cable tie and added to a gunny sack which contains five to ten bagged samples. Each gunny sack is cable tied and sealed with a security zip-seal and labeled with indelible marker. Gunny sacks are placed on assay consignment pallets in a secure, access-controlled sample cage. Consignments of samples are collected at El Ranchito by ALS laboratory staff using their owned and operated trucks, commencing the laboratory chain-of-custody direct from the sample cage prior to the samples leaving the El Ranchito core processing facility.

Figure 11-1: Photos of Oriented Core Logging, CRM Storage and Samples for Shipping

Source: Oroco, 2023.

Figure 11-2: A: Core Photo Capture Station at El Ranchito; B: Core Photo Preparation and QA in IMAGO®

Source: Oroco, 2023.

11.2 Density (Specific Gravity) Determinations

11.2.1 Historical Density

A historical tonnage conversion factor of 2.6 t/m^3 was applied universally to modelled blocks by Thornton (2011).

11.2.2 Oroco Density Program

During Oroco's Phase 1 drilling campaign, some 2,351 density measurements were made using the weigh-in- air/weigh-in-water specific gravity technique. Samples were whole core, with dry weights of greater than 200 g averaging 684 g. Samples were selected from drill holes, their location, lithology, alteration, and mineralization type recorded. Selected samples were geologically intact but the occurrence of vuggy veins and the common occurrence of water absorbent clays in altered samples necessitated coating of samples with paraffin wax starting early in the program.

The mean density for the sampled SG for the Project is 2.68 g/cm^3.

The weight-in-water measurement of the samples stabilized quickly, and no air bubbles were observed owing to the wax-sealed condition of each sample. QA/QC was maintained by measuring a reference zinc-nickel weight provided with the electronic scale (294.11 g, see item front-left of scale in Figure 11-3).

Figure 11-3: A: Specific Gravity Displacement Weight Equipment and Paraffin Wax Pot; B: UCS Point Load Tester

Source: Oroco, 2023.

11.3 Analytical and Test Laboratories

11.3.1 Historical Samples

ASARCO used their professional laboratories in Mexico for assaying. The laboratories were located at Nacozari in Sonora, San Luis Potosí in San Luis Potosí, and Parral in Chihuahua (Spring, 1992).

Tormex sent their samples to Ensayadores Químicos del Noroeste in Hermosillo, Mexico, with one sample in ten being sent for check assay to TSL Laboratories in Toronto, Canada (Spring, 1992).

Exall analysed the Santo Tomás samples for total copper percent (CuT), acid-soluble copper (CuS), and assayed for copper, gold, silver, molybdenum, and iron (Thornton, 2011). Exall also prepared several samples for metallurgical testing at Mountain States Research and Development Inc. (MSRDI) and at Minetek in 1993 and 1994 (Bateman, 1994).

In 2002, Borovic selected a total of 48.65 m of core (18 samples) and had them assayed at ALS Chemex, in Hermosillo (Borovic, 2002).

11.3.2 Phase 1 Drilling by Oroco

All of Oroco's Phase 1 drill assays were analysed at ALS Limited in Hermosillo and Vancouver. Both laboratories are accredited under a group certificate issued to ALS Limited by SCC (Standards Council of Canada) File Number: 15722. The laboratories comply with Accreditation Standard(s) ISO/IEC 17025:2017 satisfying the general requirements for the competence of testing and calibration laboratories for the Chemical/Physical Fields of Testing in the Mineral Analysis Program Specialty Area: (Initial Accreditation: 2005-05-18, Most Recent Accreditation: 2022-07-26, Accreditation Valid to: 2025-05-18). Both laboratories, ALS Minerals – Magnolia #16, Esq. Laureles Col. Libertad, Hermosillo, Sonora 83130 Mexico, and ALS Minerals - Unit 150 - 2155 Dollarton Hwy, North Vancouver, BC V7H 2B2 Canada, are covered under the same certificate.

The ALS Limited laboratories are accredited for the analytical code packages requested by Oroco:

- The Au-AA series assay package for the determination of gold in the samples - Determination of Au by Lead Collection Fire-Assay and Atomic Absorption.
- ME-ICP61 Multi-Element Determination by 4-Acid Digestion and Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES) for assays of copper, molybdenum and silver and over-limits procedures.

11.3.3 Metallurgical Laboratory

ALS Canada Ltd. Metallurgy Services of Kamloops, BC, Canada undertook the Metallurgical test work reported in Section 13. ALS Metallurgy Kamloops is a fully integrated mineral processing laboratory and is ISO 9001:2008 certified.

11.3.4 Laboratory Independence

The ALS group of companies and all of their laboratories are independent of Oroco Resource Corp., Ausenco, and SRK and all of their affiliates.

11.4 Sample Preparation and Analysis

Samples were submitted to the Mexican division of ALS Limited in Hermosillo, Mexico, for sample preparation to pulps. Sample pulps were then sent to ALS Canada Ltd. in Vancouver, Canada, for analysis. Total copper, silver and molybdenum contents were determined by four-acid digestion with atomic absorption spectrophotometry finish. Gold was determined by fire-assay (Au-AA25) of a 50-gram charge or alternately by Au-AA23 of a 30-gram charge (1 Assay ton).

Sample preparation methods include crushing and pulverizing by ALS preparation code PREP-31Y using crushers with rotary splitter. The method crushes the material to 70 % passing 2 mm, then rotary splits off 250 g, then pulverizes the split to 85% passing 75 microns (85% passing (P85) a −200 mesh (<75 µm) sieve).

The analytical package has consistently used ALS multi-element package code ME-ICP61 with over-limits re-assay. ALS method ME-ICP61 involves a 4-acid digestion (Hydrochloric-Nitric-Perchloric-Hydrofluoric) followed by ICP-AES determination. Samples that return 'over-limits' Cu grades >10,000 ppm were analysed by ALS "ore grade" method Cu-AA62, which is a 4-acid digestion, followed by AES measurement to 0.001%Cu.

11.5 Sample Security

11.5.1 Historical Sample Security

None of the historical procedures for sample and drill core security are available for review by the QP. Since 1994, data for the drill core sampling and logging has been in the continuous custody of John Thornton, P. Eng., formally a principal with Mintec, Inc.

Historical core was archived at the El Bienestar Core Storage shed in 2008 by prior workers. The facility was not secured until 2021 and some core rack collapse occurred. Some rack metal and timber supports were disturbed by local ranchers, but in general core boxes were left in place. Oroco undertook a detailed core recovery and careful re-boxing in new, securely, and individually strapped project standard core boxes in 2021. The re-boxed core was re-located to the El Ranchito core handling and storage facility, where it has recently begun to be re-logged and is securely stored.

The process of core re-boxing was done with utmost care. Where no reliable evidence of core identification was available for boxed core at El Bienestar, the core was discarded. Fortunately, this impacted fewer than 30 cardboard boxes of historical core. To date, no further sampling of historical core has been undertaken. The Company intends to seek independent QP advice with respect to the further sampling of historical core following this PEA.

Historical assay pulps and coarse rejects have not been located.

11.5.2 Phase 1 Core Program Sample Security

Core material recovered from Phase 1 drilling was oriented at the drill site, marked by the drilling and geotechnical site crews, and checked by the site support field geologist before the core was telephone-photographed, foam-packed and security strapped for transport by pickup to El Ranchito. Phone core photographs were discarded once the core was received, intact, at El Ranchito.

Phase 1 drill core is secured within the access-controlled core logging facility on a 24/365 basis. Once core is sampled and bagged, it is added together with the QA/QC program sample bags to gunny sacks (refer to Section 11.1.2) and consigned to the access-controlled Project Sample Cage, where the security sealed gunny sacks are added to laboratory consignment pallets. The sample pallets are only removed from the Cage when loading onto ALS-provided secure laboratory sample shipment trucks under chain-of-custody (COC). The Cage is locked at all times, except, when the Sampling Supervisor is storing samples or retrieving Standards. Only approved personnel may enter the Cage, always under the supervision of the on-duty sampling manager. Oroco directors and officers and persons with a direct project interest are barred from entry to the Project Sample Cage.

Once assay samples are in the custody of ALS, the ALS collection team are required to remain with the truck when stopping for refreshments or refuelling upon return to the laboratory. Once in Hermosillo, ALS locks the trucks in a secure facility at the laboratory until the truck is unloaded and the samples are received into the laboratory's management and tracking system. The same applies when sample pulps and coarse rejects are returned to the El Ranchito facility for long-term storage.

Remnant core is securely stored to ensure integrity in the event of future assay or metallurgical sampling requirements.

11.5.3 Commercial Reference Material Security

All of the CRM sample materials are stored prior to use in the access-controlled Project Sample Cage at El Ranchito.

11.6 Sample Storage

11.6.1 Historic Pulp and Coarse Reject Storage

There are no known remnants of historical assay sample pulps or coarse rejects.

11.6.2 Phase 1 Oroco Pulp and Coarse Reject Storage

Oroco sample pulps and coarse rejects returned from ALS under ALS's secure sample COC and are stored securely at Oroco's El Ranchito secure and access-controlled facility. Pulps are stored in metal lock boxes that are in turn secured in locked pulp-box racks (Figure 11-4).

11.7 Quality Control and Quality Assurance

11.7.1 Historical QA/QC

The QPs have not been able to directly review the nature, extent, and results of historical quality control procedures employed and the quality assurance actions taken during the drilling and sample analyses of the 90 historical drill holes for which Oroco has data (7,244 assays for Cu, of which 534 samples were also analysed for the suite of Mo, Au, Ag and Fe). The historical drilling data is, therefore, too sparse for characterization of Mo, Au, and Ag values in the Santo Tomás deposit. Due to the extant standards of reporting prior to 1994, the technical reports published in 2019 & 2020 did not include data listings or detailed description of the quality control procedures.

The QPs are not aware of the sampling procedures at the laboratories used by any of the previous companies, nor are they aware of the use of any quality control samples in the sampling program. It is assumed that the laboratories performed their QA/QC for each sample batch analysed, as this was common practice at the accredited laboratories used during the historical drill programs.

Figure 11-4: Sample Pulp Coarse Rejects, Core Racking, and Storage

Source: Oroco, 2023.
Note: Sample Pulp Lockbox Secure Racking Storage (left); Coarse Reject Sample Offloading, (center); Cut Core Racking and Storage with Engraved Metal Box Tags (right) at the El Ranchito Secure Storage Facility.

Since the original assay certificates are not available, it is not currently possible to determine whether there are transcription errors or inconsistencies between the assay certificates and the original drill logs for the historical drilling before 1992.

The QPs are relying on reported historical programs of quality control, documented as follows:

- Check assaying was conducted by Tormex on one in every ten samples (Spring, 1992).
- Check assay programs conducted by Tormex, Minera Real de Ángeles, and Exall showed an excellent correlation of results between the original assays reported by ASARCO and the re-assays (Thornton, 2011).
- Spring (1992) states "The considerable check assaying done, at different laboratories and at different times coupled with the very good agreement among the various investigators, suggests that the copper values as reported represent the drill core values."
- The most recent drill core sample intervals obtained from the El Bienestar core storage facility by Borovic in 2002 returned virtually identical results to the historical assays (Borovic, 2006).

Thornton (1994) prepared a mineral resource estimation and stated: "With the amount of core removed from the drilling programs for re-assay and comparison to the previous assay results, the comparisons summarized leave the authors who have reviewed them with the view that extreme care was taken with the physical data, and they summarize very closely with each other" (Thornton, 2011).

These statements lead to a high degree of confidence in the historical copper analytical results in the Santo Tomás database. Thornton and Mintec, separately, have maintained a continuous COC of that data since 1994.

11.7.2 Oroco Phase 1 Program QA/QC

The Oroco Phase 1 QA/QC program is based upon the routine use of standards, duplicate samples and blanks inserted into the sample stream with the purpose of identifying analytical drift in accuracy and sample contamination by smearing from prior samples to assure a high level of confidence in assay values received from the laboratory, and to submit for re-assay samples that do not meet defined hurdle criteria to assure data reliability. Table 11-1 lists the duplicate and standard insertion scheme utilized.

“Blanks” are samples that do not contain significant amounts of base or precious metals and check for possible contamination in the assay laboratory sample processing. CBLK.2 is a coarse blank, utilizing fragments of hammer-broken unmineralized fresh granodiorite, which is inserted into the sample stream every 70 samples. This is done to check for potential contamination in the laboratory sample preparation process (crushing and pulverizing). Previously a coarse blank was prepared using marble, CBLK. However, this material is a poor matrix match for monzonite and andesite. A fine pulp blank (PBLNK), OR23b, is a certified CRM which is inserted into the sample stream every 30 samples. This is done to check for potential contamination post the sample crushing and pulverizing circuit in the acid digestion and assay processes.

Duplicates (DUP) samples are additional samples taken for assaying from a particular drill hole interval, to measure the precision of assay results. The duplicates program includes the selection of certain Pulp Duplicate Samples (PDUP), where a duplicate pulp sample is split from the shatter box rock pulps prepared by the laboratory. The PDUP is requested to be done by the laboratory in the consignment instruction forms submitted by the Project teams and is done on every 60th sample, to the extent possible. The PDUP process is performed to measure the precision in pulp sample splitting and assaying. A Course Duplicate Sample (CDUP) program is also conducted, wherein a duplicate sample that is split from coarsely crushed (≤ 2 mm) rock prepared by the laboratory is sampled by the laboratory and assayed. The process is requested to be done by the laboratory and is performed on every 60th sample. The procedure measures the precision in coarse fraction splitting, pulping, pulp splitting and assaying.

To measure precision through the process. the Field Duplicate Samples (FDUP) is a duplicate assay of an equivalent fraction of the sawed sample over the matching interval is taken. On the Phase 1 drilling program this has been done every 60th sample. At Santo Tomás the FDUP sample is the remnant half of the core for a selected sample interval. Up to hole N018, samples and duplicates comprised sawn quarter core: this approach was adopted to ensure an abundance of remnant core materials was available for re-assay and for metallurgical work. Observed stability in assays allowed for the program to transition to half-core samples wherein it is expected that an improvement in sampling variance may be captured. The FDUP process is performed to measure the precision in assay results from the same core interval, which confirms a largely natural variability in metal distribution.

A critical component of the QA/QC process is the introduction of ‘known’ standard materials into the sample stream. The standard materials used comprise of certified CRMs, which have been thoroughly tested by numerous laboratories (up to 21), to arrive at an accepted “true” or reference value for copper and select other metals. These CRM-based standards are inserted every 16 samples on a staggered basis and is designed to measure the variance between the laboratory assay value and the accepted value, to identify potential assay process errors in the laboratory. Their selection is based on lithology and apparent degree of copper mineralization as estimated during logging.

The standards used by Oroco are OR505, OR506, OR701, OR151b and OR151a, sourced from OREAS North America Inc. of Sudbury, ON, Canada.

Table 11-1: QA/QC Duplicate and Standard Insertion Scheme

QA/QC Sample Inserts	Frequency
CBLK.2	One every ± 70th sample
OR23b (Pblank)	One every ± 30th sample
FDUP, PDUP, CDUP	One of each every 60th sample – staggered
OR505, OR506, OR701, OR151b or OR151a	Four selected in runs of ± 60 sample intervals

Table 11-2: QA/QC Standard CRM Insertion Criteria

CRM Name	Use: Geological Basis
OR505	Medium to high Cu – altered monzonite & andesite
OR506	Medium to high Cu – altered monzonite & andesite
OR701	High Cu – skarn
OR151b (Out of stock) or OR151a	Low Cu – altered monzonite & andesite

The refence standard results are rigorously tracked upon the receipt of assay certificates from the laboratory, and deviation beyond pre-established tolerance levels from the anticipated results trigger immediate re-assay requirements under the Oroco QA/QC protocols.

11.7.2.1 QA/QC Sample Insertion Detail

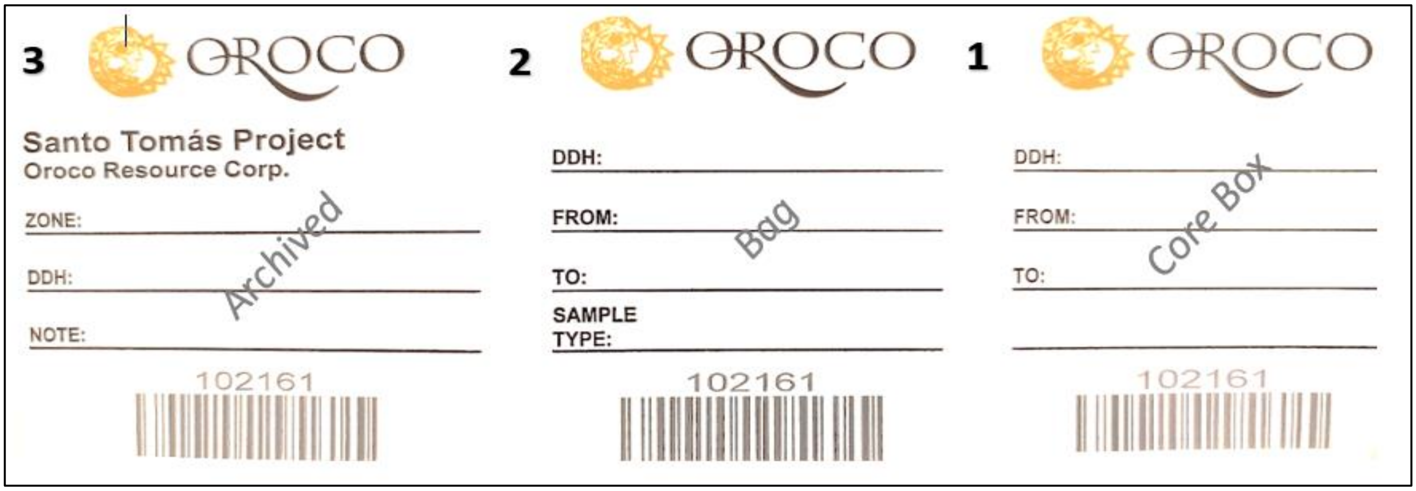
QA/QC sample insertions are included in each batch of samples as if each insertion is a sample of sawn core, and each is inserted according to the QA/QC criteria and verified by the geologist and sampling technician. Table 11-2 lists the QA/QC standard CRM insertion criteria. These QA/QC samples are placed into the sample sequence at their insertion frequency in any given run of core samples. An empty bag is placed at the appropriate position in the sequence indicating to the assay lab that a CDUP or PDUP sample is required. For the PDUP samples the type of sample is written on the Oroco Sample Number Sticker Tags 1, 2 and 3 (Figure 11-5). For the CDUP samples (material CBLK2), the sample name is written on Sticker Tags 1 and 3, while on Sticker Tag 2, which labels the bagged sample material, only the drill hole name and depth interval of the prior up-hole interval is written. Between 250-300 g of the broken granodiorite is placed into the bag.

The CRMs are maintained in the Controlled Access Sample Cage. Only the on-duty sampling manager has access to the Sample Cage and is responsible for removing CRMs for daily use in the sawing and sampling area. Every CRM standard packet removed from its box in the Cage is registered in the Standards Control List. Once selected, the CRM sample in its envelope is placed in a standard sample bag Figure 11-6. Before the number of the OREAS sample is erased from its containing envelope, the sample ID is written over that envelope (Figure 11-6). The CRM identifier is erased after verification and comparison with the insertions list. For CRMs the standard number, and depth interval of the up-hole sample interval is written on Sticker Tags 1 and 3. Only the hole name and depth interval are written in Sticker Tag 2.

For the FDUP duplicates, FDUP is written on Sticker Tags 1 and 3, along with the corresponding drill hole name and depth interval. Sticker Tag 2 is placed on an empty bag by the sampling supervisor, with the sample number written on the bag, and the remaining half of the sawn or spoon-split core is placed in the bag by the saw operator.

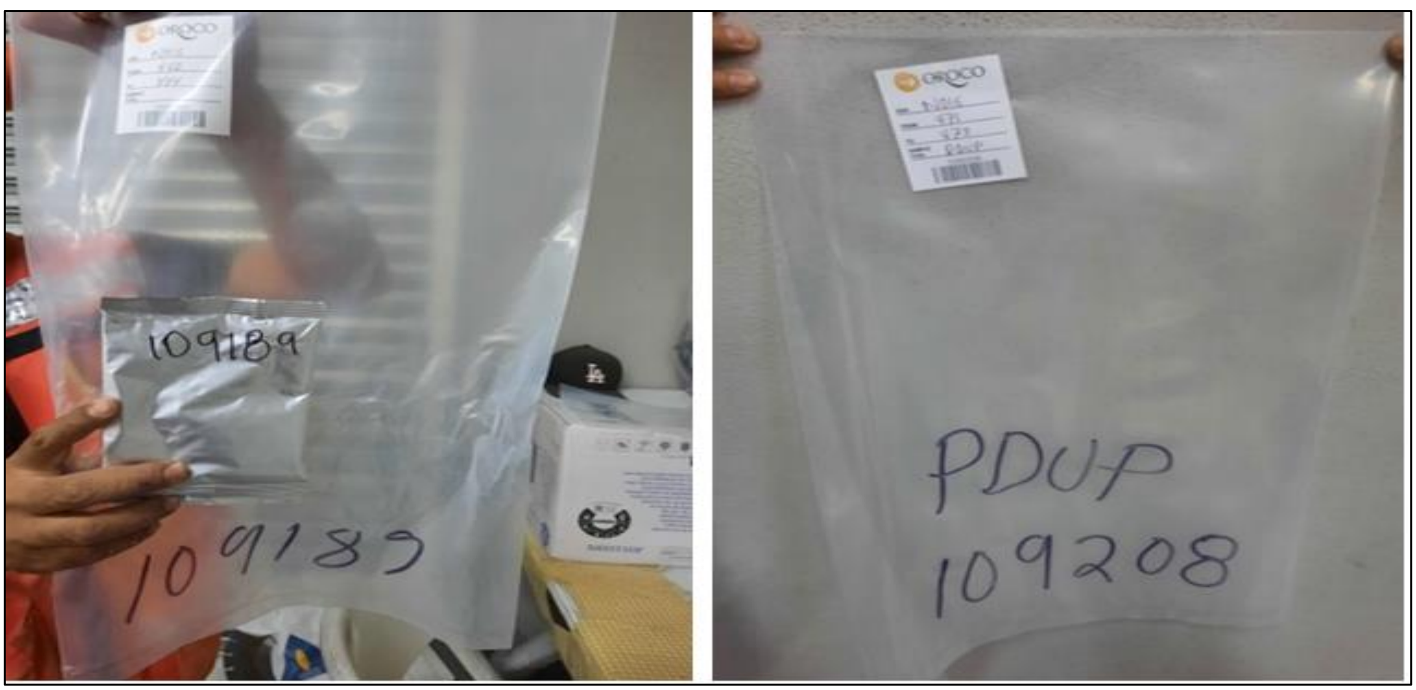
For PBLNK, only the CRM sample number (OR23b) is written on stickers 1 and 3. On Sticker 2, only the drill hole name and depth interval of the prior up-hole interval is written. The sample number is added to the CRM container envelope, and the number compared with the number on the sample bag. Once confirmed by the sampling supervisor, the CRM identifier is erased from the envelope, and the CRM sample in its envelope is placed in the sample bag.

Figure 11-5: Oroco Sample Tag Stickers



Source: Oroco, 2023.

Figure 11-6: Standard Envelope with Oroco Sample Number Added and Bagged (Left) and Empty PDUP (Pulp Duplicate Marker) Bag (Right)



Source: Oroco, 2023.

11.8 Check and Re-Assay Programs

11.8.1 Historical Check and Re-Assay

The Authors are relying on historical programs of quality control, documented as follows:

- Ex on one in every ten samples (Spring, 1992).
- Check assay programs conducted by Tormex, Minera Real de Ángeles, and Exall showed an excellent correlation of results between the original assays reported by ASARCO and the re-assays (Thornton, 2011).
- Spring (1992) states, "The considerable check assaying done, at different laboratories and at different times coupled with the very good agreement among the various investigators, suggests that the copper values as reported represent the drill core values".
- The most recent drill core sample intervals obtained from the El Bienestar core storage facility by Borovic in 2002 returned virtually identical results to the historical assays (Borovic, 2006).

11.8.2 Phase 1 Oroco Drilling Check Assay

A program of random check assays by a laboratory independent of ALS has not been undertaken ahead of the MRE.

A program of check assays is intended to be undertaken on a semi-random population of samples following the publication of a PEA that will utilize the resource included in this MRE. The check assays will be randomly drawn from subsets of higher, intermediate, and lower-grade assay class samples, and may comprise up to 5% of the samples assayed in each class (excluding DUP and Standard samples).

11.8.3 Oroco Re-Assays

Oroco has re-assayed samples that fall within a range of samples both up-hole and down-hole of Standard and DUP series samples that do not meet the hurdle requirements on return of the assays. Oroco has treated the QA/QC review of returned sample consignment assays in some 16 'batches' each comprising multiple certificates. CRM, pulp blank and other QA/QC DUP 'failures' are identified and are flagged for re-assay, usually in sample series windows of 20 to 32 samples. The re-assays are returned by ALS in assay certificates and again reviewed for compliance: once the hurdle requirements are met, the re-assayed sample window batch is 'passed' for inclusion into the sample database. The Oroco QA/QC Manager writes QA/QC reports for each batch of samples processed and writes follow-up reports for each batch once the re-assays are received. The re-assay program has generally resulted in data that are included into the assay database, though a small number of failures have resulted in laboratory 'incident' reviews to detail causes and to implement corrective actions. The small incidence of identified issues is not material to this MRE.

11.9 Databases

Assay data are received from ALS by email, from ALS.Reporting@ALSGlobal.com, in an ALS standard assay certificate format (.csv, comma-separated-value). The filename is the ALS-generated unique consignment identifier (e.g., HE23069419.csv). The emails are directed to the Oroco Data QA/QC and Database Manager, who receives and evaluates the contents of the certificates for QA/QC. Some QA/QC re-assays are reported via updated certificates of the same name; where the re-assays are more complex, ALS may assign a new ALS batch number. The order of qualification for admission to the Oroco database is managed by the Oroco QA/QC and Database Manager and is reported in the QA/QC Batch reports and Batch update reports.

The Oroco database for drilling information and geochemical and assay data is archived in an industry specific database platform (Datashed 5) provided by MaxGeo. The core sample assays, and QA/QC sample assays are warehoused in use-specific data tables, and project drill collar, down-hole directional survey, down-hole geophysical, core petrophysical, core geotechnical, core structural and lithological logging information are all stored in relational tables on the Datashed 5 platform. The datasets are provided to the Database Manager in .csv, MS-Excel .xlsx and geophysical standard. las formats for importation into Datashed 5.

To date, the principal platforms used for 3D geological and resource modeling and management are not ODBC (Open Database Connectivity) linked to the Oroco Database: managed datasets are exported from Datashed as .csv files and are directly imported into Leapfrog and QGIS for application by technical users.

11.9.1 Santo Tomás Phase 1 Drilling – QA/QC Detailed Analysis

For Santo Tomás Phase 1 drilling, carried out between August 2021 and February 2023, Oroco implemented a quality assurance and quality control (QA/QC) program consisting of standards, duplicates and blanks inserted into the regular sample stream. Duplicates included pulp, coarse and field duplicates (or twin samples) and blanks included both pulp and coarse blank material. The following QA/QC analysis is based on assay results from the seventy-six Phase 1 drill holes (N001-N047, B001-B007, S001-S021 and GT001), consisting of 22,748 regular assays and 4,569 QA/QC assays. An additional five percent of total samples are currently being selected for an upcoming external check assay program. Sample preparation and analysis was carried out by ALS Global in Hermosillo, Mexico and Vancouver, Canada.

The overall insertion rate of QA/QC samples for this program was 17% (Table 11-3). The insertion rate will increase to 22% with the addition of the check assays. Although there is no definite industry standard for QA/QC insertion rates, the recommendations for best industry practices by regulatory organizations as well as the preference of the mining industry is a QA/QC sample insertion rate close to 20%, including standards, duplicates, blanks, and external checks (Simon, A. Control Sample Insertion Rate, IAGS, June 2007).

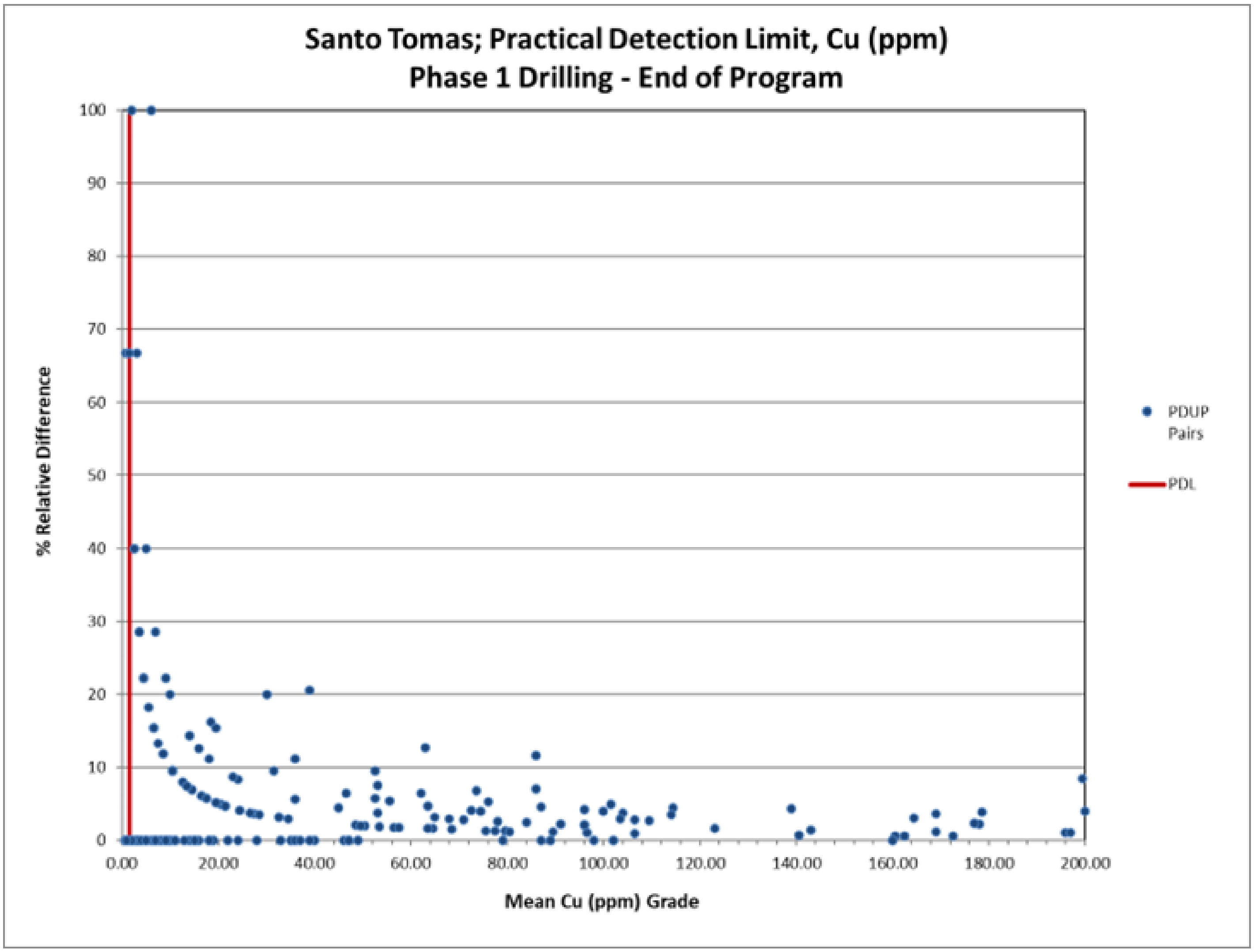
Table 11-3: Santo Tomás Phase 1 Drilling (MRE) QA/QC Sample Insertion Rate

Sample Type		Count	% Total	
Standards	OREAS 151a	862	3.2	6.6
	OREAS 151b	56	0.2	
	OREAS 505	472	1.7	
	OREAS 506	361	1.3	
	OREAS 701	59	0.2	
Duplicates	PDUP	523	1.9	5.2
	CDUP	442	1.6	
	FDUP	447	1.6	
Blanks	OREAS 23b (Pulp)	845	3.1	4.9
	CBLK1, CBLK2 (Coarse)	502	1.8	
Regular Samples		22,748	83.3	
Total Assays		**27,317**	**100**	

Samples were assayed at ALS using analysis methods (Table 11-4). ME-ICP61 (33 element suite with four-acid digestion and an ICP/AES finish) and Au-AA23 (30g Au by Fire-Assay and an AAS finish). Over-limits were analysed with methods ME-OG62 and Au-GRA21. QA/QC analysis focused on the four main elements of interest for this deposit: Cu, Au, Ag and Mo, and used both the laboratory analytical detection limit (ADL) and a determined practical detection limit (PDL).

Lower PDLs were determined visually by plotting mean grade vs the relative difference of returned pulp duplicate pairs; the detection limit is defined by the asymptotic curve where the relative error between the paired data approaches 100% i.e., the assay results become very unreliable. See example plot in Figure 11-7 and the summary table of determined lower PDLs (Table 11-5).

Figure 11-7: PDL Determination, Mean Grade vs. Relative Difference, Cu (ppm)



Source: Oroco, 2023.

Table 11-4: ALS Methods and Analytical Detection Limits

Method	Analytical Detection Limits							
	Au (ppm)		Cu (ppm)		Ag (ppm)		Mo (ppm)	
	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Au-AA23	0.005	100	-	-	-	-	-	-
Au-GRA21	0.05	10,000	-	-	-	-	-	-
ME-ICP61	-	-	1	10,000	0.5	100	1	10,000
ME-OG62	-	-	10	500,000	1	1,500	10	100,000

Table 11-5: Determined Lower Practical Detection Limits

Lower Practical Detection Limit			
Au (ppm)	Cu (ppm)	Ag (ppm)	Mo (ppm)
0.005	1.5	0.5	1.5

11.9.2 Standards

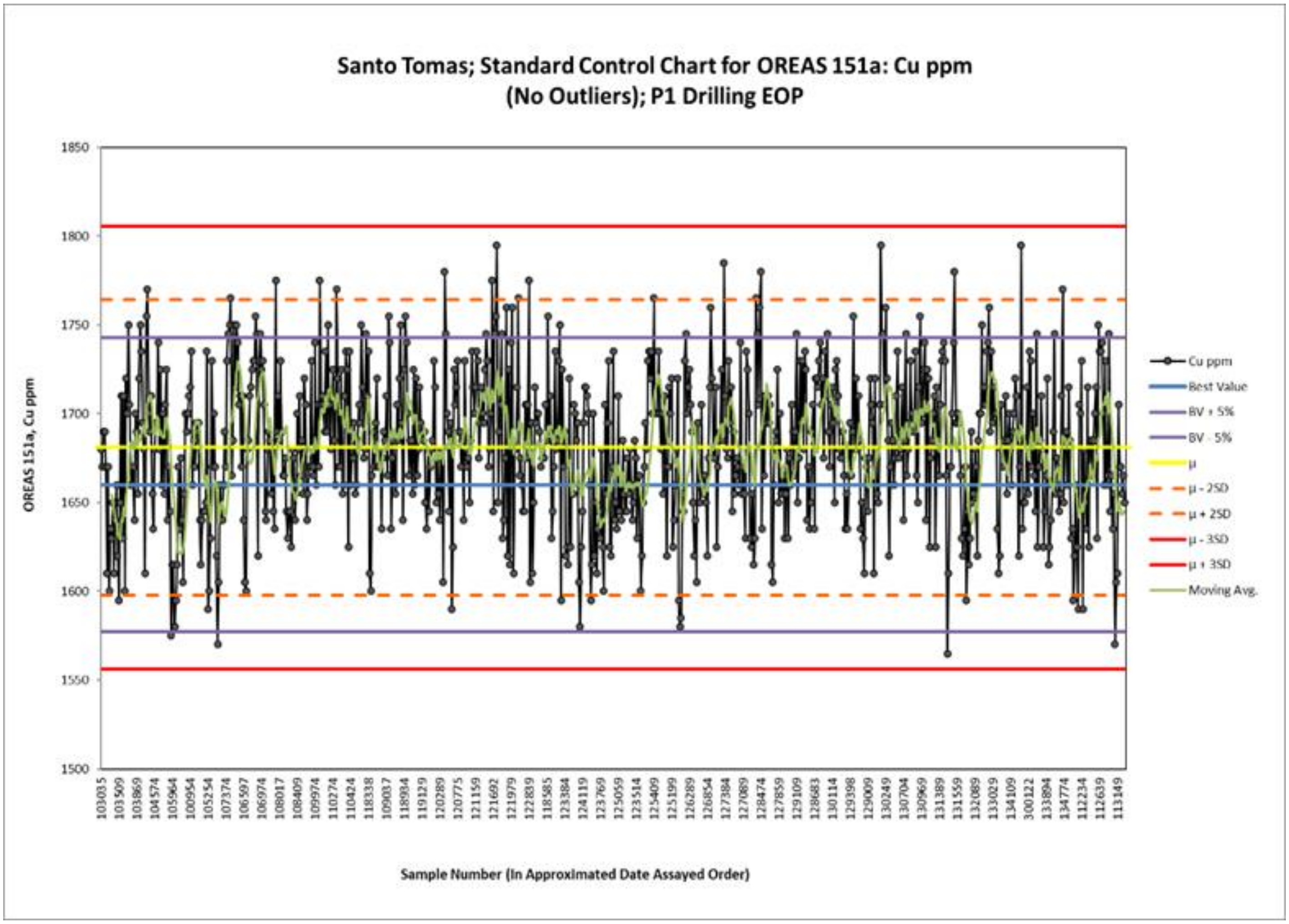
To assess the accuracy of the assay laboratory results, certified CRMs or "Standards" were inserted into the regular sample stream. Five different certified standards were purchased from ORE Research & Exploration Pty Ltd. (OREAS), of Victoria, Australia and used at Santo Tomás: OREAS 151a, OREAS 151b, OREAS 505, OREAS 506 and OREAS 701. These standards are comprised of a granodiorite matrix (OR151a, OR151b, OR505 and OR506) or skarn matrix (OR701) and cover the potential low-, mid- and high-grade ranges of the deposit (Table 11-6).

Table 11-6: CRM Best Values (BV), Based on 4-Acid Digest/ICP Finish (Cu, Ag, Mo) or Fire-Assay/ICP Finish (Au)

Element	OREAS 151a		OREAS 151b		OREAS 505		OREAS 506		OREAS 701	
	BV	SD	BV	SD	BV	SD	BV	SD	BV	SD
Au (ppm)	0.043	0.002	0.065	0.006	0.555	0.014	0.364	0.01	1.11	0.05
Cu (%)	0.166	0.005	0.182	0.005	0.321	0.008	0.444	0.01	0.491	0.012
Ag (ppm)	-	-	0.551	0.068	1.53	0.072	1.88	0.075	1.12	0.14
Mo (ppm)	40	3	55	2.2	66	2.1	87	3.6	254	21.4
S (%)	0.856	0.035	-	-	-	-	-	-	-	-

Standard results were plotted against the BV, the Best Value ± 5%, the Mean (μ), ± 2 Standard Deviations (±2SD), ± 3 Standard Deviations (±3SD) and the Moving Average (MA) (Figure 11-8). Ideally, the MA should remain within ±5% of the Best Value, and 95% of the samples should fall within ±2 standard deviations of the mean (Simon, A and Long, S. of AMEC International, 2007). Failures outside of three Standard Deviations should be sent for re-assay. Refer to Table 11-7 and for the majority of standards, ≥ 95% of the samples fell within 2SD of the mean for all four elements of interest. Exceptions include Au, Ag and Mo for OREAS 151b, Ag for OREAS 505 and OREAS 506 and Au and Ag for OREAS 701, refer to Table 11-8 for failure rates and calculated bias.

Figure 11-8: Standard Control Chart for OREAS 151a Cu (ppm)



Source: Oroco, 2023.

Table 11-7: Standard Failure Count and Calculated Bias for Cu and Au

Standard	Count	Cu					Au				
		2SD		3SD		Bias	2SD		3SD		Bias
		Failed	%	Failed	%		Failed	%	Failed	%	
OREAS 151a	862	37	4.3	0	0	1.27	16	1.9	0	0	2.33
OREAS 151b	56	3	5.4	0	0	2.2	4	7.1	0	0	1.54
OREAS 505	472	19	4	1	0.2	0.12	25	5.3	6	1.3	0
OREAS 506	361	18	5	1	0.3	-0.14	15	4.2	1	0.3	0.27
OREAS 701	59	3	5.1	0	0	0.37	4	6.8	0	0	-1.17

For the majority of standards, ≥ 95% of the samples fell within 2SD of the mean for all four elements of interest. Exceptions include Au, Ag and Mo for OREAS 151b, Ag for OREAS 505 and OREAS 506 and Au and Ag for OREAS 701.

Table 11-8: Standard Failure Count and Calculated Bias for Ag and Mo

Standard	Count	Ag					Mo				
		2SD		3SD		Bias	2SD		3SD		Bias
		Failed	%	Failed	%		Failed	%	Failed	%	
OREAS 151a	862	26	3	0	0	-	20	2.3	0	0	-2.5
OREAS 151b	56	6	10.7	0	0	3.45	5	8.9	1	1.8	-1.82
OREAS 505	472	34	7.2	1	0.2	3.27	4	0.8	0	0	-1.52
OREAS 506	361	23	6.4	1	0.3	1.6	3	0.8	0	0	-3.45
OREAS 701	59	5	8.5	0	0	7.14	1	1.7	0	0	-1.97

Note: OREAS 151a is not certified for Ag.

For OREAS 151b, Au, Ag and Mo had 2SD failure rates of 7.1%, 10.7% and 8.9%, respectively. OREAS 151b was the initial low-grade standard and was replaced by 151a when the limited supply ran out. The small sample population is potentially contributing to the larger apparent failure rates due to a lack of robust statistics. In addition, the certified BV for Ag is only slightly above the lower ADL for Ag for the ME-ICP61 method, and the BV for Au is ten times the lower ADL for Au for the Au-AA23 method. As increased variability and reduced precision is expected near the lower ADL, this is likely also contributing to increased failure rates for this standard.

OREAS 505, OREAS 506 and OREAS 701, had 2SD failure rates for Ag of 7.2%, 6.4%, and 8.5%, respectively. The Ag in this deposit is sometimes not fully digestible using the ME-ICP61 method, which may be contributing to an increased number of low 2SD failures, although overall bias rates are above the mean, not below.

OREAS 701 also had a 2SD failure rate for Au of 6.8%. As with the failure rates for OREAS 151b, this apparent elevated 2SD failure rate may be a result of a small sample population and a lack of robust statistics.

All 3SD failures were sent for re-assay. Those that remained post re-assay and are noted in the above tables were reviewed and considered acceptable.

For OREAS 151b, the remaining Mo failure reported 58ppm which is 1 ppm over the upper 3SD failure line. This sample is from early in the program, when there were fewer returned results and at the time of the initial QA/QC review, this sample was within range. As the pass/fail (P/F) limits for each standard are generated from all returned assay values, they are refined with additional analyses. As more results were accumulated over the duration of the program, the P/F window for OREAS 151b was narrowed and this sample was eventually bumped over the limit line.

For OREAS 505, there was a total of eight remaining 3SD failures following re-assay. The Ag failure reported a value of 2pm which is within a rounding error of the upper 3SD limit line of 1.97 ppm. The one Cu failure reported a value of 3470ppm which is above the upper 3SD limit line of 3452.5 ppm Cu. As with the Mo failure for OREAS 151b, this sample occurred earlier in the program and was not identified as a failure during initial QA/QC review. It was only later bumped over the limit line, as the P/F window was refined with additional analyses. Of the six Au failures, two are a result of a missing/blank value in the database (noted above) and the remaining four had values of 0.505, 0.5, 0.511 and 0.495 ppm, which fall below the lower 3SD limit line of 0.59 7 ppm Au. Like the Cu failure, all four of these assays occurred early in the program and were not flagged as outliers during the initial QA/QC analysis. Looking at the OREAS 505 Au standard chart, there appears to have been a slight upwards shift in the reported Au results following this first batch of samples, possibly due to a recalibration of equipment or digestion issue at the lab.

For OREAS 506, there were three remaining 3SD failures. One Au failure reported 0.34 ppm Au, which is below the lower 3SD cut-off of 0.389 ppm Au. Like the Au failures for OREAS 505, this failure occurred early in the program and was not flagged as an outlier during the initial QA/QC analysis. The Cu failure reported 4090 ppm Cu, which is below the lower failure limit of 4105.8 ppm. The original assay for this sample did in fact pass QA/QC for Cu with a value of 4480 ppm, but initially failed for Ag. Following re-assay, the sample was found in range for Ag, but low for Cu. Lastly, the remaining 3SD Ag failure reported 1.5 ppm which is just below the lower 3SD limit line of 1.52 ppm Ag.

For all standards, although some minor areas of high or low bias were seen, the MA generally remains within ±5% of the Best Value and data points fluctuate above and below the BV line. The most notable observed pattern was a high bias of 7% for Ag for OREAS 701. Across the other standards, Ag results displayed a slight high bias but all less than 5% and is therefore no cause for concern. Mo results displayed a low bias for all standards but again, less than 5%. A slight high bias was noted for both Cu and Au for OREAS 151a and 151b, and Au results displayed a slight low bias for OREAS 701 but also all less than 5%, which is considered acceptable.

11.9.2.1 Duplicates

Three different types of duplicate samples were inserted into the sampling stream at Santo Tomás: field duplicates (or twin samples) taken in the field and comprised of the other quarter of the half-cut core, coarse duplicates taken at the lab as a second split of material at the initial crush stage, and pulp duplicates taken as a second split of material following pulverization. The ALS standard crushing specifications are >70% passing a 2 mm screen. This type of sample can be used to assess the variability due to the first stage of sample splitting at the laboratory. The ALS standard pulverizing specifications are >85% passing a 75 µm screen (Tyler 200 mesh). This type of sample can be used to assess the variability due to the final stage of sample splitting at the laboratory.

The duplicate results were analysed via Min/Max plots and AVRD (Absolute Value of the Relative Difference) charts for all elements of interest. For the Min/Max plots, the maximum value of each pair was plotted against the minimum value, to reduce bias and have data points rotate above the y = x line. No more than 10% of sample pairs should fall outside the acceptable range bounded by the y = x line and the Pass/Fail (P/F) line for each type of duplicate (Simon, A. AMEC International, 2007). The P/F line is defined by the hyperbola $y^2 = m^2x^2 + b^2$, where slope m is calculated for b = 0 and relative errors for the different types of duplicates (Table 11-9).

Table 11-9: Relative Error and Calculated Slope for Different Duplicate Types

Duplicate Type	Relative Error	Slope (m)
PDUP	10%	1.11
CDUP	20%	1.22
FDUP	30%	1.35

The precision of duplicate pairs can also be represented as an AVRD vs Cumulative Frequency (Percentile Rank) plot. Outliers in the duplicate pairs can be visually identified as points that fall to the right of the inflection point, where the slope of the line steepens greatly. Ideally, less than 10% of the pairs should occur to the right of this point and the shape of the curve prior to the inflection point should be relatively shallow/flat. In addition, failures should not exceed 10%, i.e., 90% of the pairs should ideally have an AVRD <0.3 for FDUPs, <0.2 for CDUPs or <0.1 for PDUPs (Long, S., AMEC International, 2001).

11.9.3 Field Duplicates

For the Max/Min analysis, the Au and Ag pairs meet the above stated criteria of at least 90% passing but Cu and Mo pairs are only ~80% passing. Although this failure rate is higher than recommended, increased variability is expected in field duplicate pairs due to the inequitable spread of mineralization across the two core halves, especially in areas of veined mineralization. The Au pairs exhibit a low R value; most of the returned Au results are very low-grade with little difference observed between the paired values, however, a few (relatively) higher-grade Au samples exhibit a much larger difference between the paired results, indicating a clumpy nature or nugget effect. A summary table and an example Min/Max plot for FDUPs can be seen below (Table 11-10) and plotted in (Figure 11-9). Evaluating the FDUPs using the AVRD method, the pairs fall below the desired 90% passing (see Table 11-11). The plot (Figure 11-10) also displays steeper curves prior to the inflection point than desired. As stated above, although this failure rate is higher than recommended, it is understandable due to the nature of FDUP pairs and the inequitable spread of mineralization across the core halves.

Evaluating the FDUPs using the AVRD method, the pairs fall below the desired 90% passing (Table 11-11). The plot (Figure 11-10) also displays steeper curves prior to the inflection point than desired. As stated above, although this failure rate is higher than recommended, it is understandable due to the nature of FDUP pairs and the inequitable spread of mineralization across the core halves.

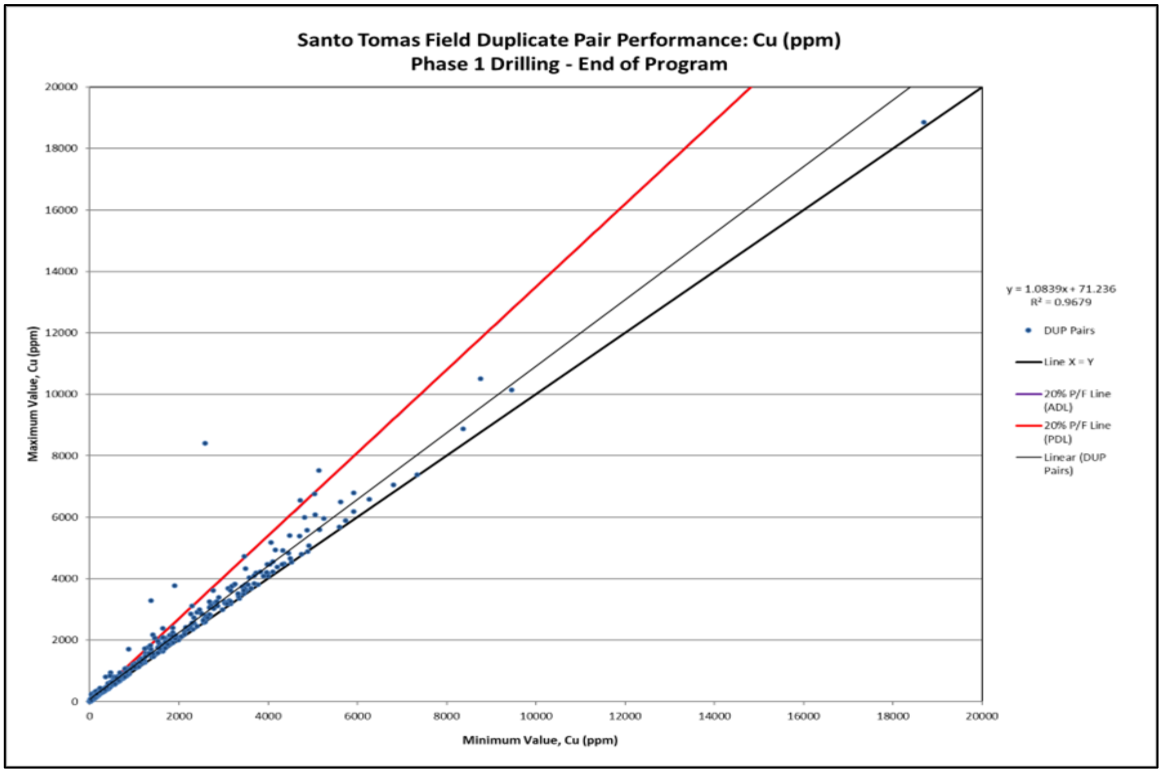
Table 11-10: Summary of Min/Max Plot Analysis for FDUP Pairs

Duplicate Type	Element	Total Pairs	Analytical Detection Limit			Practical Detection Limit			R2	R
			Value	Failures	% Passing	Value	Failures	% Passing		
FDUP	Cu ppm	447	1	86	80.8	1.5	83	81.4	0.9679	0.9838
	Au ppm	447	0.005	12	97.3	0.005	12	97.3	0.5905	0.7684
	Ag ppm	447	0.5	12	97.3	0.5	12	97.3	0.9295	0.9641
	Mo ppm	447	1	98	78.1	1.5	90	79.9	0.8702	0.9328

Table 11-11: Summary Table of AVRD Analysis for FDUP Pairs

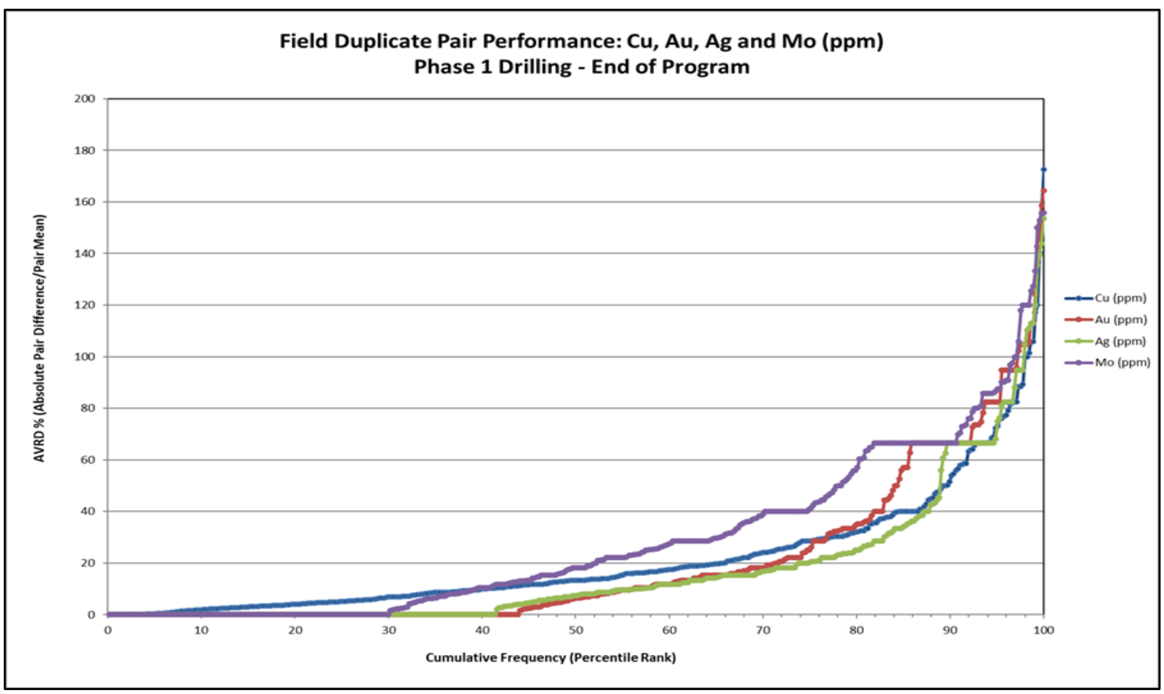
Element	FDUP Pairs w AVRD<0.3
Cu	77.0
Au	76.7
Ag	82.8
Mo	65.3

Figure 11-9: FDUP min Cu vs. Max Cu Plot



Source: Oroco, 2023.

Figure 11-10: FDUP Cumulative Frequency vs. AVRD Plot for Cu, Au, Ag, and Mo



Source: Oroco, 2023.

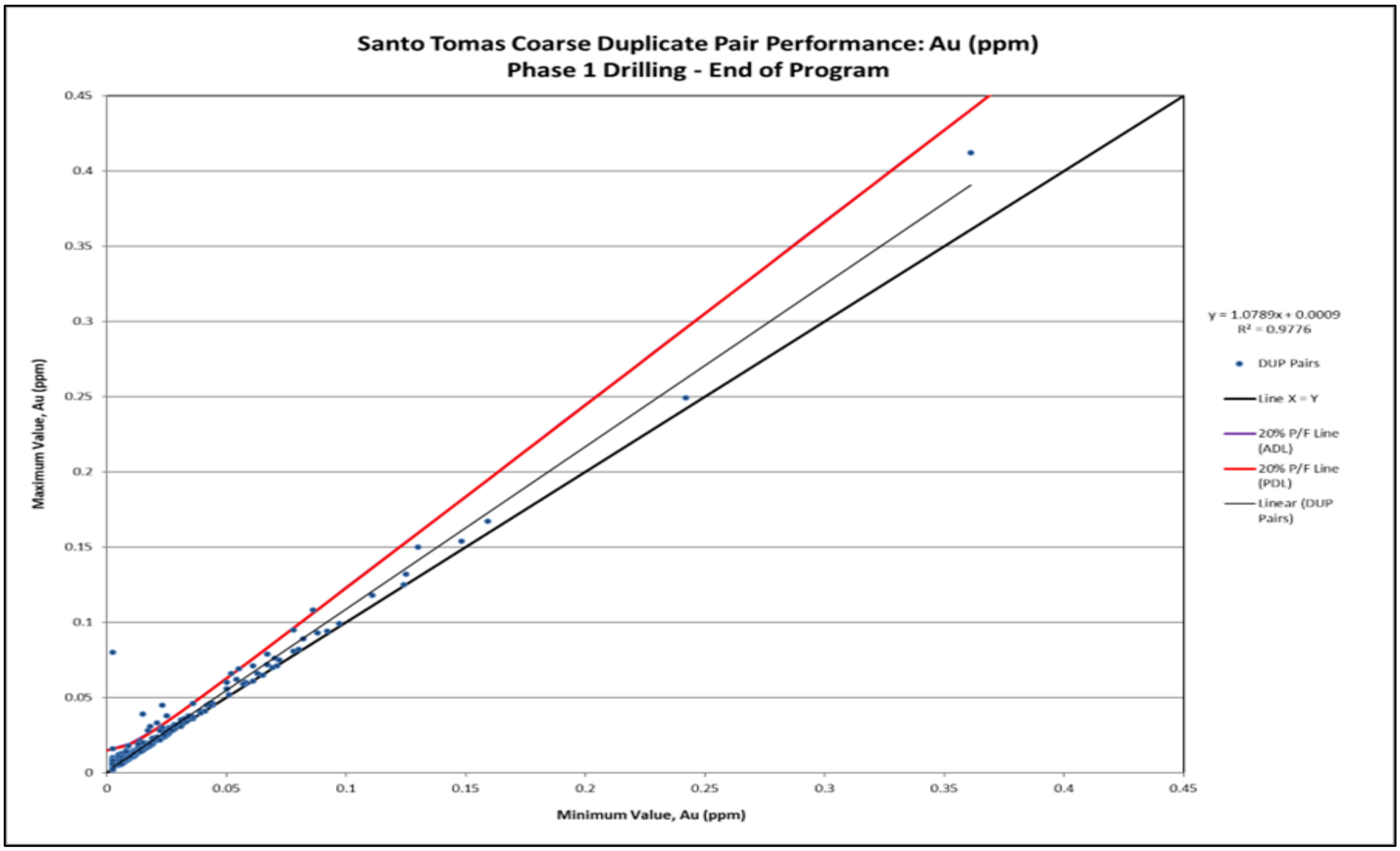
11.9.4 Coarse Duplicates

For the Max/Min analysis, Cu, Au, Ag and Mo pairs meet the above stated criteria of at least 90% passing. A summary table (Table 11-12) and an example Min/Max plot (Figure 11-11) for CDUPs can be seen below.

Table 11-12: Summary of Min/Max Plot Analysis for CDUP Pairs

Duplicate Type	Element	Total Pairs	Analytical Detection Limit			Practical Detection Limit			R2	R
			Value	Failures	% Passing	Value	Failures	% Passing		
CDUP	Cu ppm	442	1	8	98.2	1.5	7	98.4	0.9992	0.9996
	Au ppm	442	0.005	11	97.5	0.005	11	97.5	0.9776	0.9887
	Ag ppm	442	0.5	6	98.6	0.5	6	98.6	0.9819	0.9909
	Mo ppm	442	1	21	95.3	1.5	15	96.6	0.9958	0.9979

Figure 11-11: Course Duplicate min Au vs. Max Cu Plot



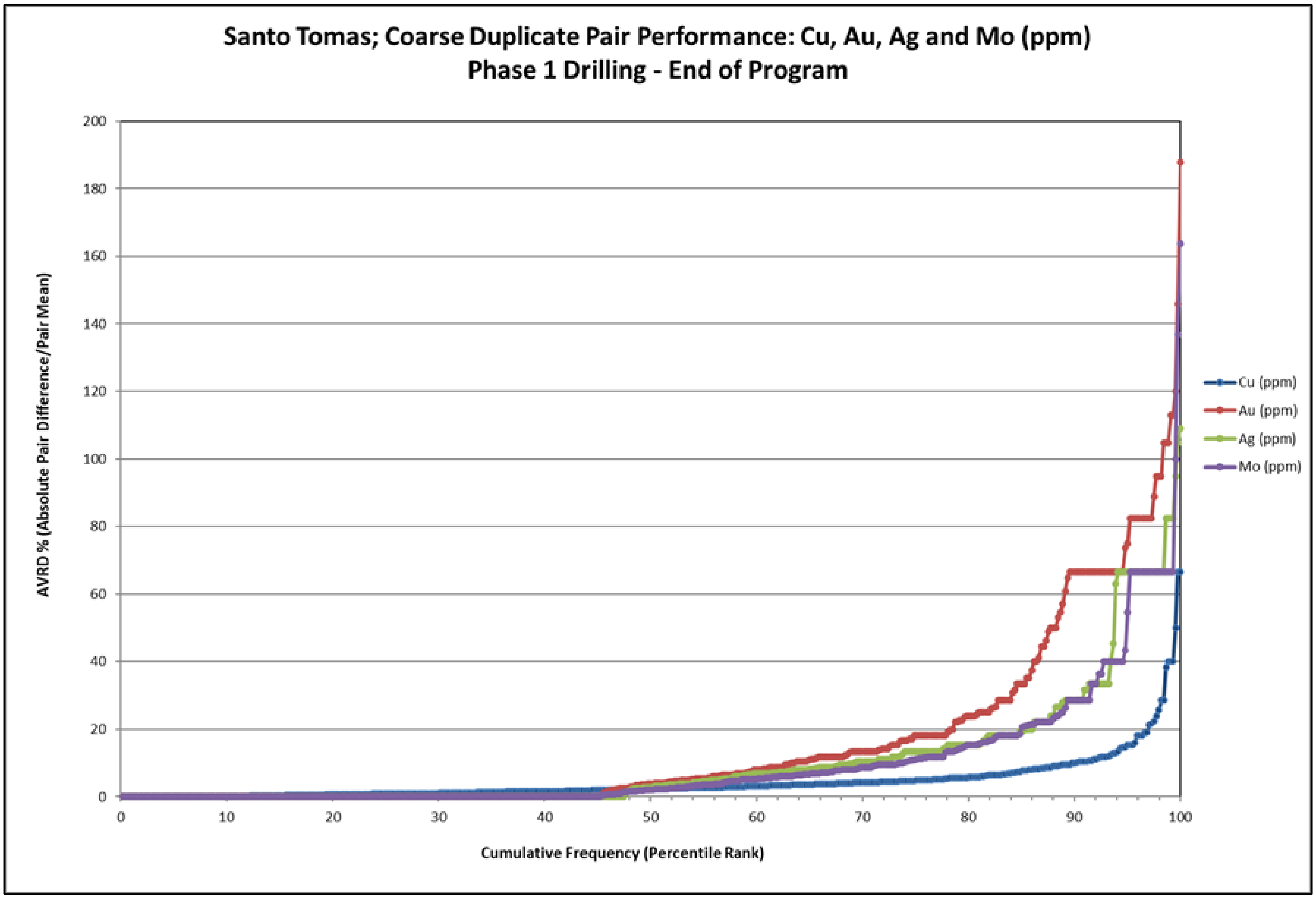
Source: Oroco, 2023.

Using the AVRD method, the CDUPs achieve the desired 90% passing for Cu (see Table 11-13) but fall ~10% short for Au and ~5% short for Ag and Mo. Visually, the AVRD plot in Figure 11-12 shows better shaped curves, although the inflection point occurs early for Au, Ag and Mo.

Table 11-13: Summary Table of AVRD Analysis for CDUP Pairs

Element	CDUP Pairs w AVRD<0.2
Cu	96.8
Au	78.3
Ag	85.1
Mo	84.8

Figure 11-12: CD Cumulative Frequency vs. AVRD Plot



Source: Oroco, 2023.

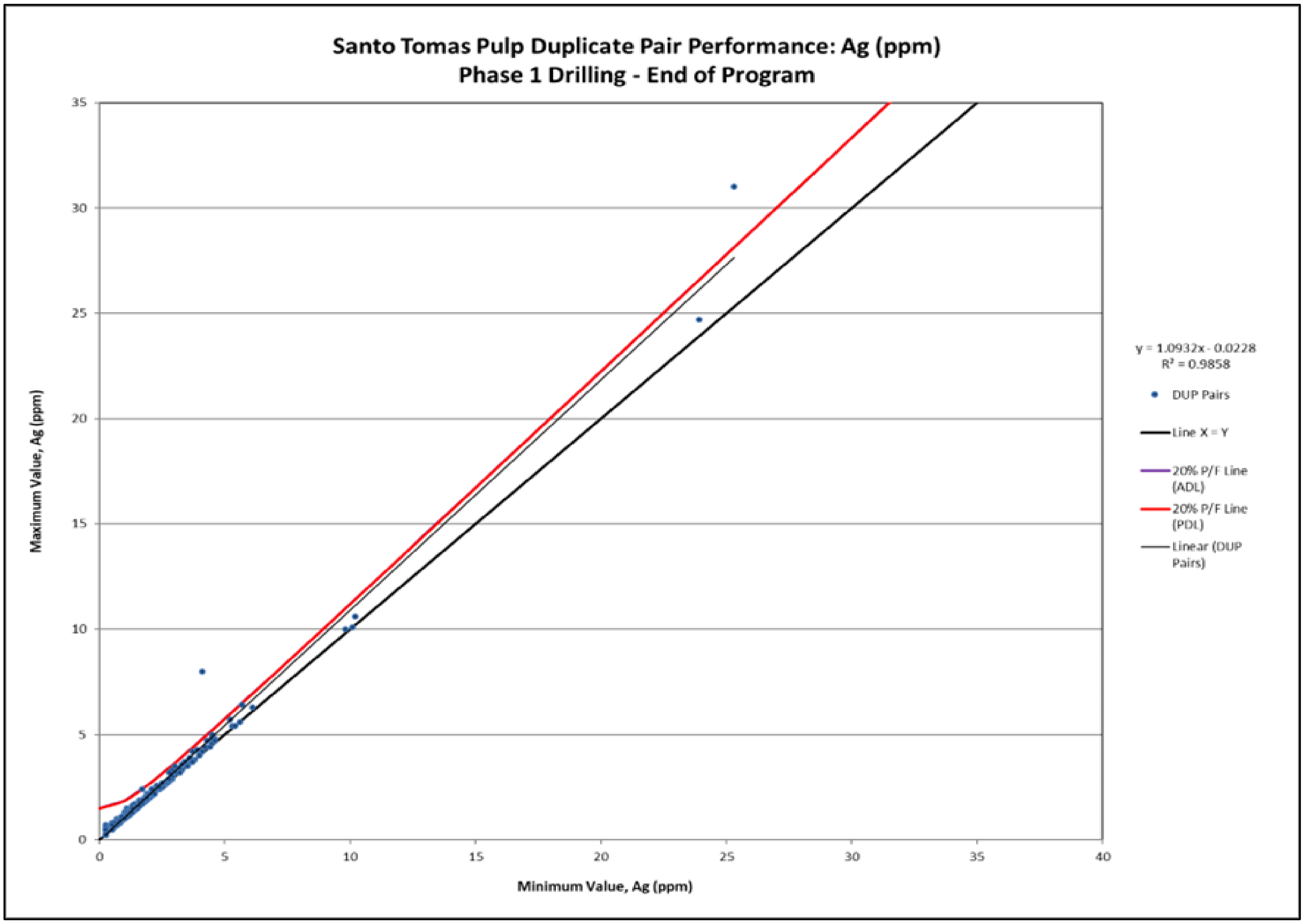
11.9.4.1 Pulp Duplicates

For the Max/Min analysis, Cu, Au, Ag and Mo pairs meet the above stated criteria of at least 90% passing. A summary is presented in Table 11-14 and an example Min/Max plot for PDUPs is shown in Figure 11-13.

Table 11-14: Summary of Min/Max Plot Analysis for PDUP Pairs

Duplicate Type	Element	Total Pairs	Analytical Detection Limit			Practical Detection Limit			R2	R
			Value	Failures	% Passing	Value	Failures	% Passing		
PDUP	Cu ppm	523	1	16	96.9	1.5	10	98.1	0.9997	0.9998
	Au ppm	523	0.005	12	97.7	0.005	12	97.7	0.9892	0.9946
	Ag ppm	523	0.5	2	99.6	0.5	2	99.6	0.9858	0.9929
	Mo ppm	523	1	21	96	1.5	21	96	0.9993	0.9996

Figure 11-13: Pulp Duplicate min Au vs. Max Au Plot



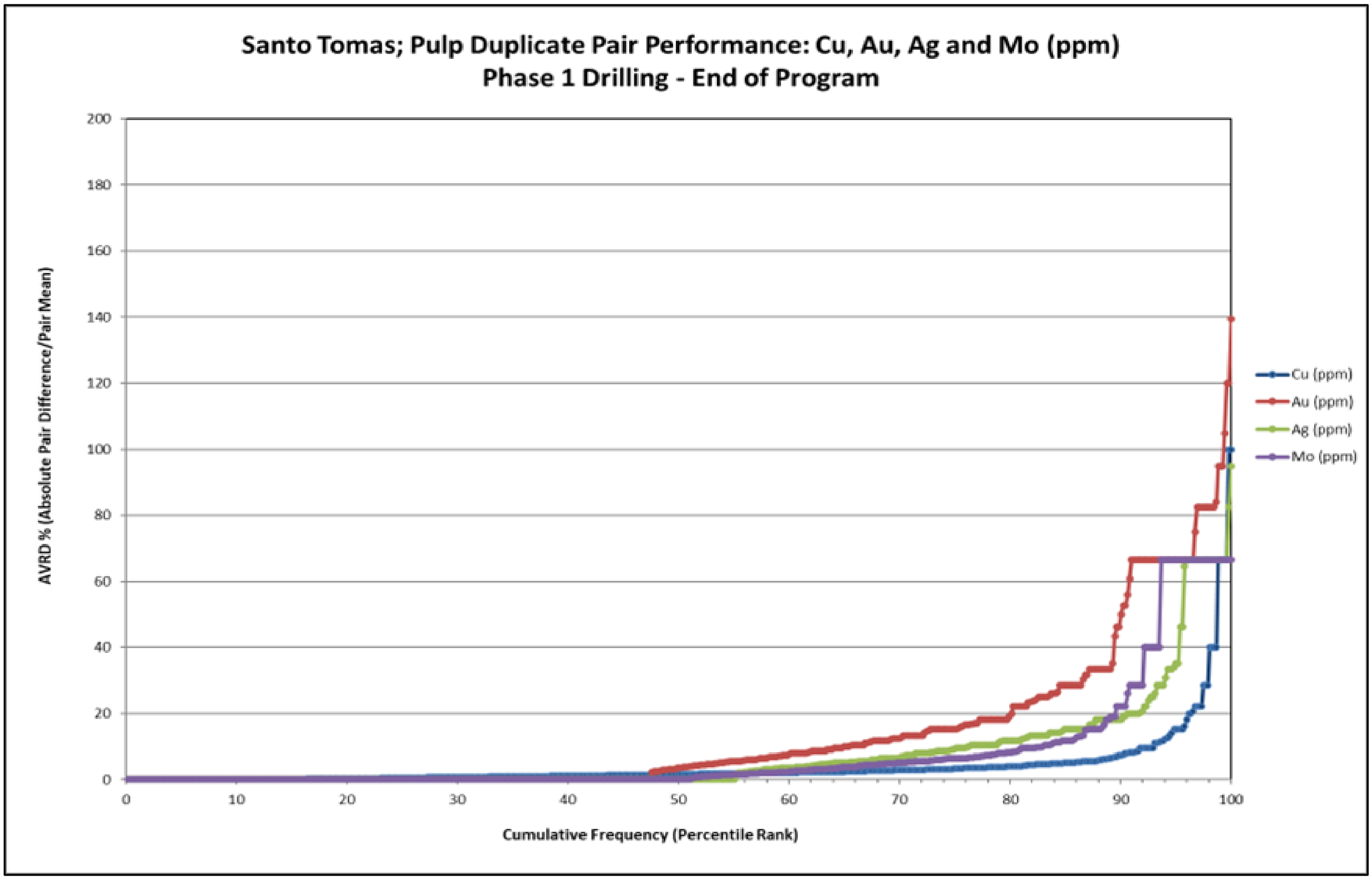
Source: Oroco, 2023.

Using the AVRD method, the CDUPs achieve the desired 90% passing for Cu (see Table 11-15) but fall ~25% short for Au and ~10% short for Ag and Mo. Visually, the AVRD plots in Figure 11-14 show better shaped curves, although the inflection point occurs earlier than desired for Au, Ag and Mo.

Table 11-15: Summary Table of AVRD Analysis for PDUP Pairs

Element	PDUP Pairs w AVRD<0.1
Cu	92.9
Au	64.8
Ag	76.1
Mo	83.0

Figure 11-14: CD Cumulative Frequency vs. AVRD Plot



Source: Oroco, 2023.

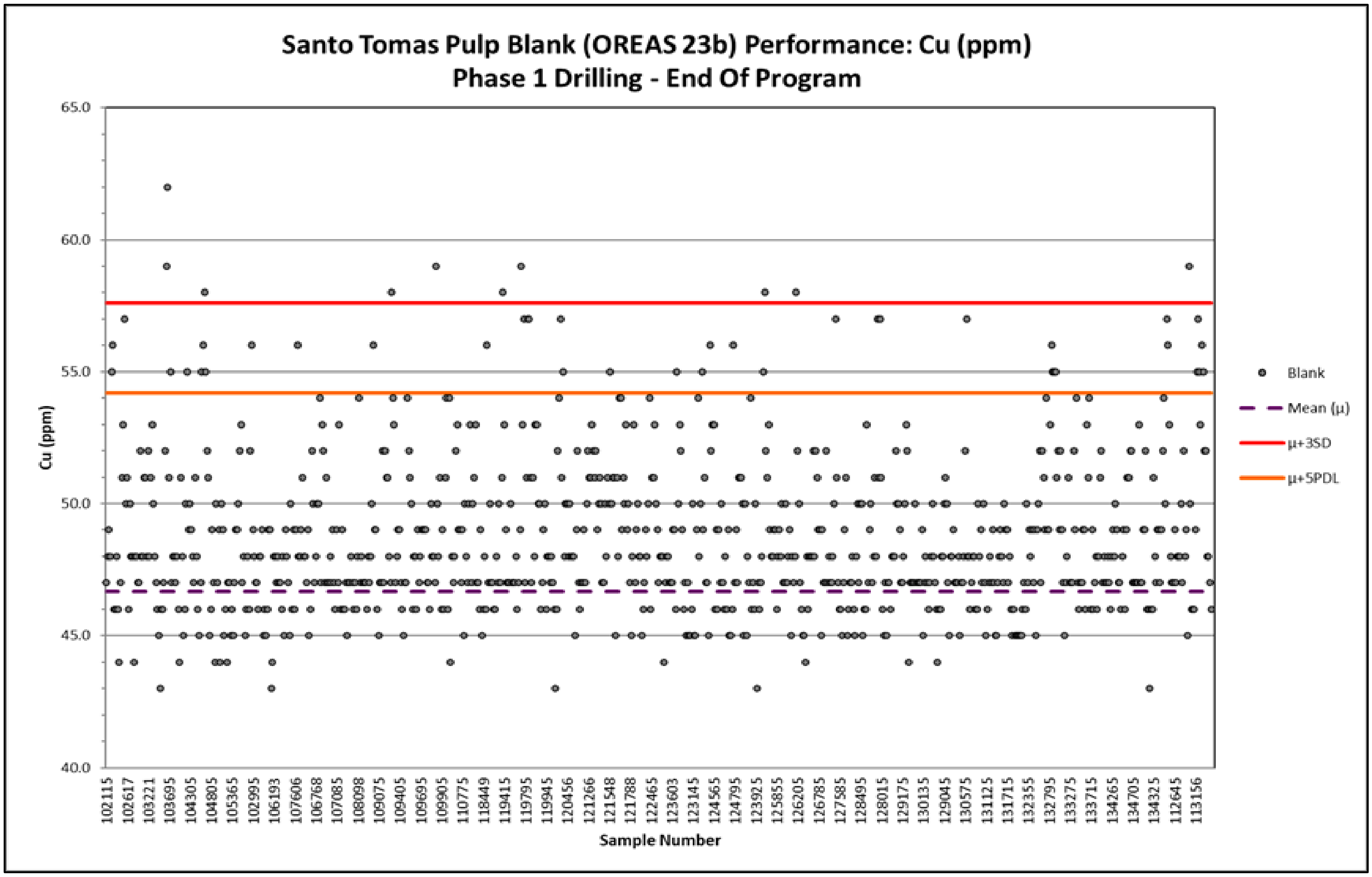
11.9.4.2 Blanks

Blanks were inserted to assess the laboratory sample preparation methods and determine if there was any cross-contamination between samples (mineralization that is smeared from one sample to the next). Two types of blanks were used at Santo Tomás: a certified pulp blank (OREAS 23b) and a site-generated coarse blank (CBLK2). At the beginning of the program, a landscaping rock (identified as CBLK1) was briefly used as the coarse blank material while CBLK2 was being prepared and analysed. Blank performance was evaluated using an upper threshold limit (fail line) generated from the CV or mean plus a multiple of the PDL of the element of interest, as well as the mean of the returned results + 3SD. Neither material was truly "blank", i.e., the expected value for the four elements of interest was not zero, which is why failure lines were generated from the mean/CV, rather than from the origin. A certain amount of apparent carry-over from the preceding sample was also required for the sample to be sent for re-assay.

11.9.4.3 Pulp Blanks

A pulp blank was considered to be failing if it exceeded the Certified Value + 5 x the PDL (CV + 5PDL), as well as the Mean of the Returned Results + 3 Standard Deviations (μ + 3SD). A failed pulp blank also had to exceed 0.2% apparent carry-over from the preceding sample to be sent for re-assay.

Figure 11-15: Pulp Blank Performance Chart Cu (ppm)



Source: Oroco, 2023.

Ideally, blank results should fall below the determined cut-off 90% of the time. This was achieved for all elements of interest, as the pulp blanks fell below the CV + 5PDL 94% of the time or greater (Table 11-16 and Figure 11-15).

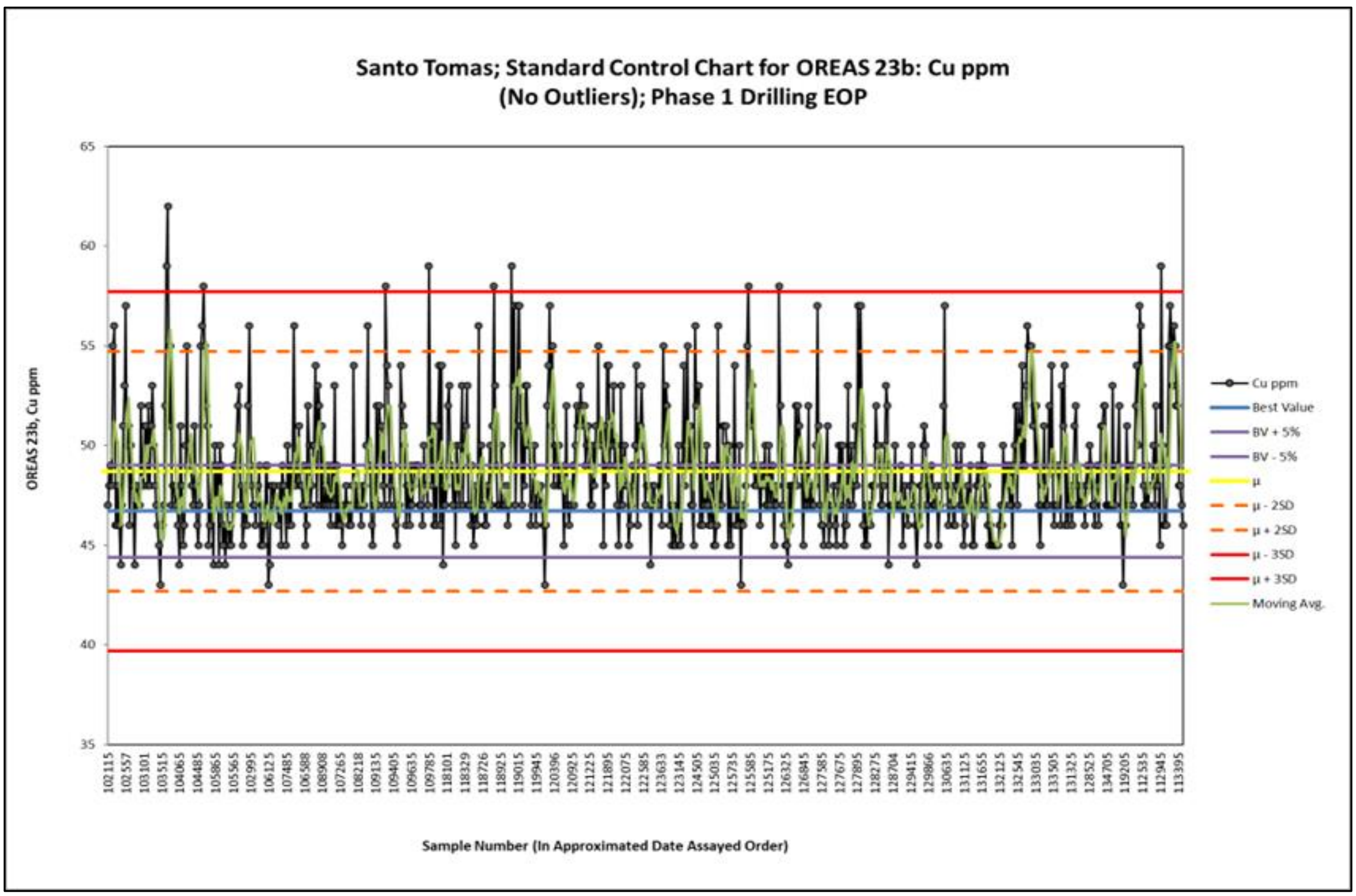
As OREAS 23b is a certified blank akin to a standard, a standard control chart can be used to evaluate the results in order to identify outliers that fall outside the μ ± 3SD (Figure 11-16). Using this method of analysis, two percent or less of samples were identified as outliers or failures, for all elements of interest.

Table 11-16: Summary Table of Pulp Blank Performance

Blank Type	Element	Total Pairs	CV + 5PDL			μ + 3SD		
			Value	Failures	% Failed	Value	Failures	% Failed
OREAS 23b (Pulp Blank)	Cu ppm	845	54.2	48	5.7	57.6	10	1.2
	Au ppm	845	0.028	2	0.24	0.013	16	1.9
	Ag ppm	845	2.565	0	0	0.324	6	0.71
	Mo ppm	845	10.7	0	0	4.6	5	0.6

Smear charts or Blank Value vs. Proceeding Sample plots were also used to determine the amount of carry-over (if any) between samples (Figure 11-15). The smear charts show a small positive linear relationship for Cu, Ag and Mo. For example, the Cu Smear Chart produces the linear equation y = 0.0009x + 47.27, and therefore a potential proceeding sample of 10000 ppm (or 1%) Cu, would induce a blank value of only 56 ppm Cu. Such a potential lift is inconsequential in terms of the average grade of this deposit.

Figure 11-16: Standard Performance Chart for OREAS 23b, Cu (ppm)

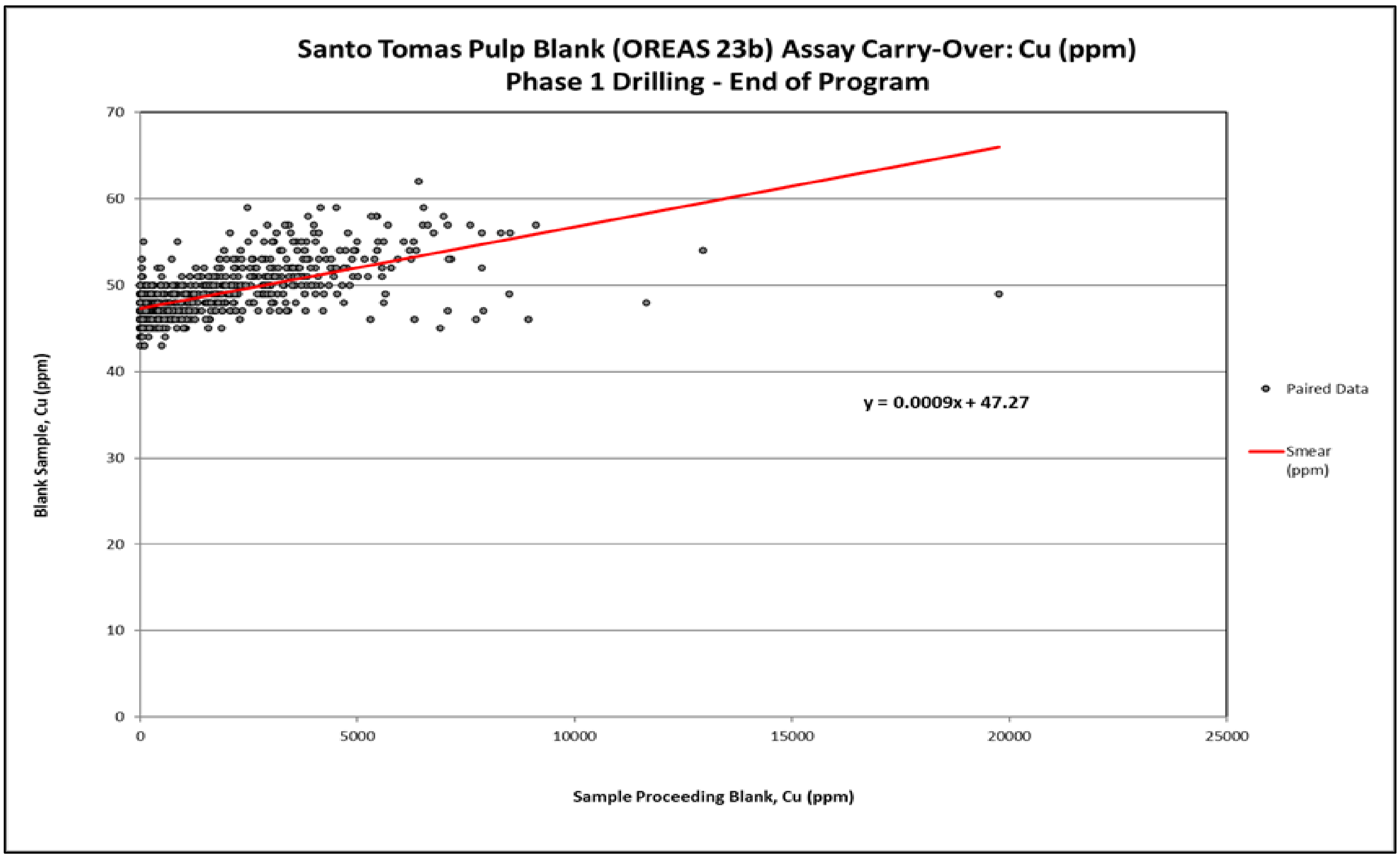


Source: Oroco, 2023.

Table 11-17: Pulp Blank Calculated Potential Carry-Over

Amount of Potential Carry-Over (Pulp Blanks)			
Element	Smear Chart Linear Equation	Proceeding Sample Value (x) in PPM	Potential Carry-Over (y)
Cu	y = 0.0009x + 47.27	10000	56.27
Au	y = 0.0002x + 0.0037	1	0.004
Ag	y = 0.0002x + 0.2517	1	0.25
Mo	y = 0.0016x + 3.1154	10	3.13

Figure 11-17: Pulp Blank Potential Carry-Over or Smear, Cu (ppm)



Source: Oroco, 2023.

11.9.4.4 Coarse Blanks

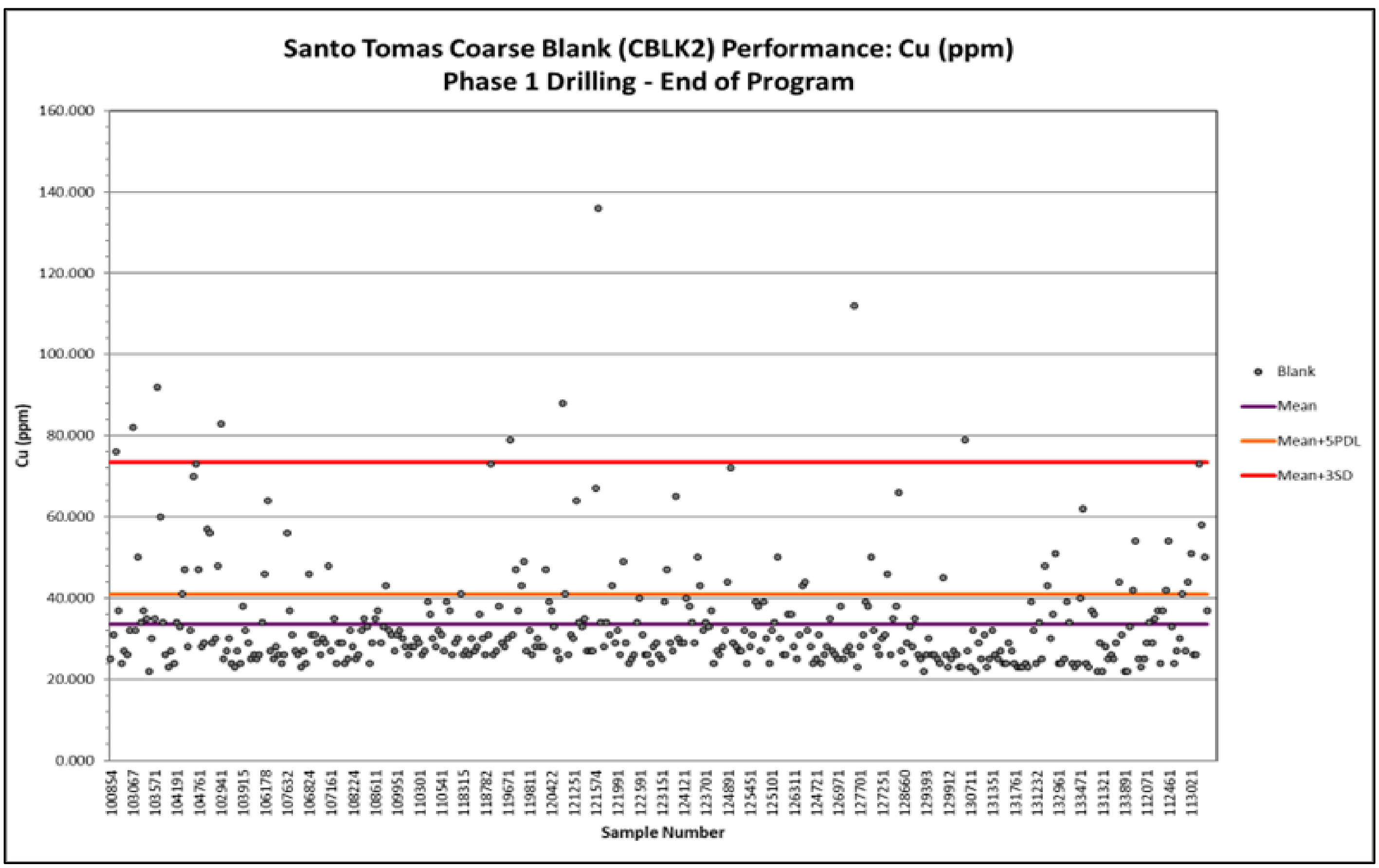
A coarse blank (CBLK1/CBLK2) failed if it exceeded the Mean + 5 x the PDL (µ + 5PDL), as well as the Mean of the Returned Results + 3 Standard Deviations (µ + 3SD) as summarized in Table 11-18 and plotted in Figure 11-18. A failed coarse blank had to also exceed 1% apparent carry-over from the preceding sample in order to be sent for re-assay.

Table 11-18: Summary Table of Coarse Blank Performance

Blank Type	Element	Total Pairs	µ + 5PDL			µ + 3SD		
			Value	Failures	% Failed	Value	Failures	% Failed
CBLK1 (Coarse Blank)	Cu ppm	103	19.6	25	24.3	50.8	1	1
	Au ppm	103	0.028	0	0	0.0051	2	1.9
	Ag ppm	103	2.758	0	0	0.436	2	1.9
	Mo ppm	103	8.3	0	0	2.1	0	0
CBLK2 (Coarse Blank)	Cu ppm	399	41	60	15	73.4	9	2.3
	Au ppm	399	0.028	0	0	0.0047	20	5
	Ag ppm	399	2.75	0	0	0.34	3	0.8
	Mo ppm	399	8.6	0	0	3.2	6	1.5

Ideally, blank results should fall below the determined cut-off 90% of the time. For both CBLK1 and CBLK2, Au, Ag and Mo passed 100% of the time. For Cu, the results fell below the CV + 5PDL only 75% of the time for CBLK1, and 85% of the time for CBLK2.

Figure 11-18: Coarse Blank Performance Chart for Cu



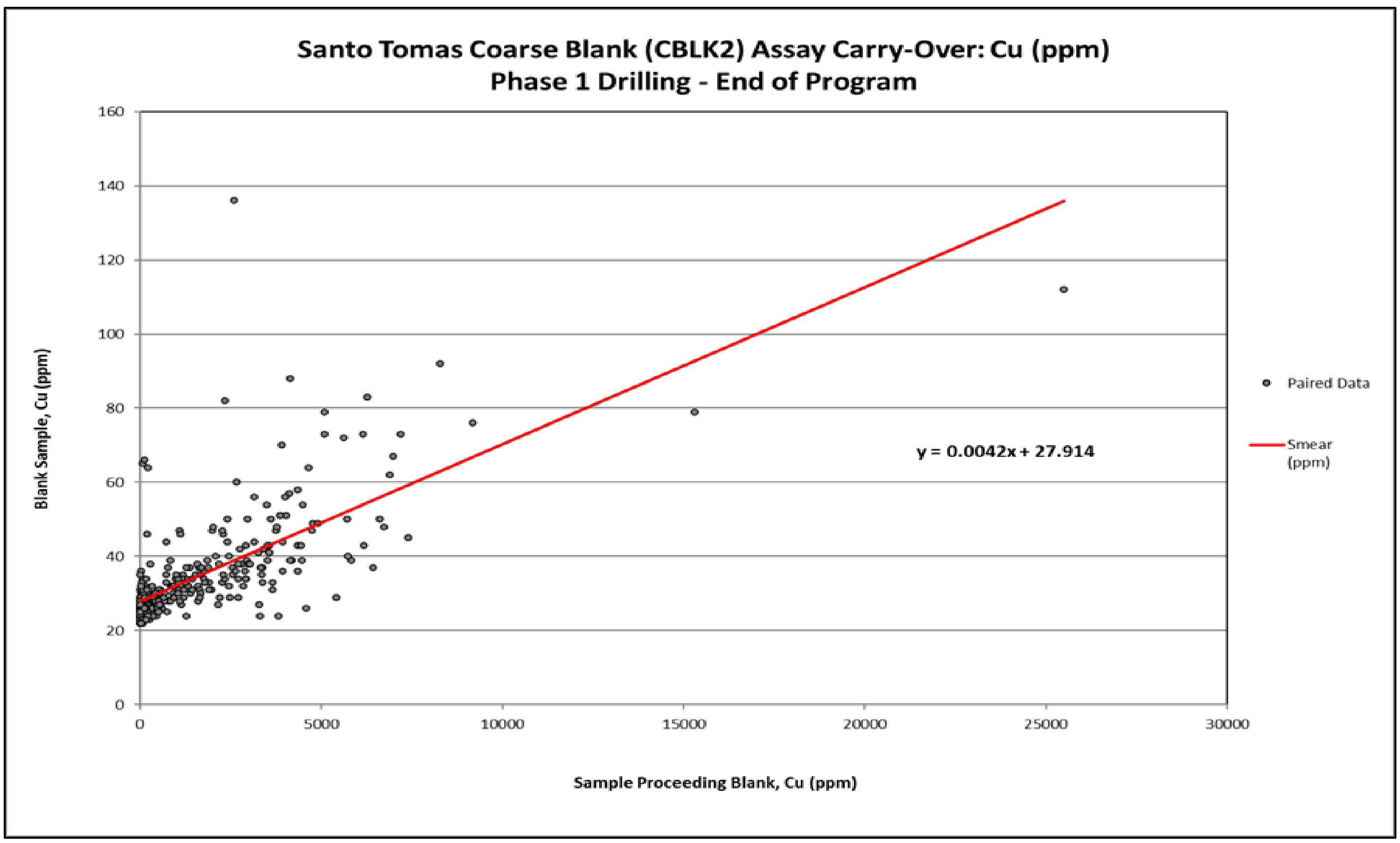
Source: Oroco, 2023.

Table 11-19: Pulp Blank Calculated Potential Carry-Over

Blank No.	Amount of Potential Carry-Over (Coarse Blanks)			
	Element	Smear Chart Linear Equation	Proceeding Sample Value (x) in PPM	Potential Carry-Over (y)
CBLK1	Cu	y = 0.0051x + 2.8155	10000	53.82
	Au	y = -0.00002x + 0.0027	1	0.003
	Ag	y = -0.0004x + 0.2586	1	0.26
	Mo	y = 0.0031x + 0.6618	10	0.69
CBLK2	Cu	y = 0.0042x + 27.914	10000	69.91
	Au	y = 0.0026x + 0.0026	1	0.005
	Ag	y = 0.0004x + 0.2503	1	0.25
	Mo	y = 0.0036x + 1.0339	10	1.07

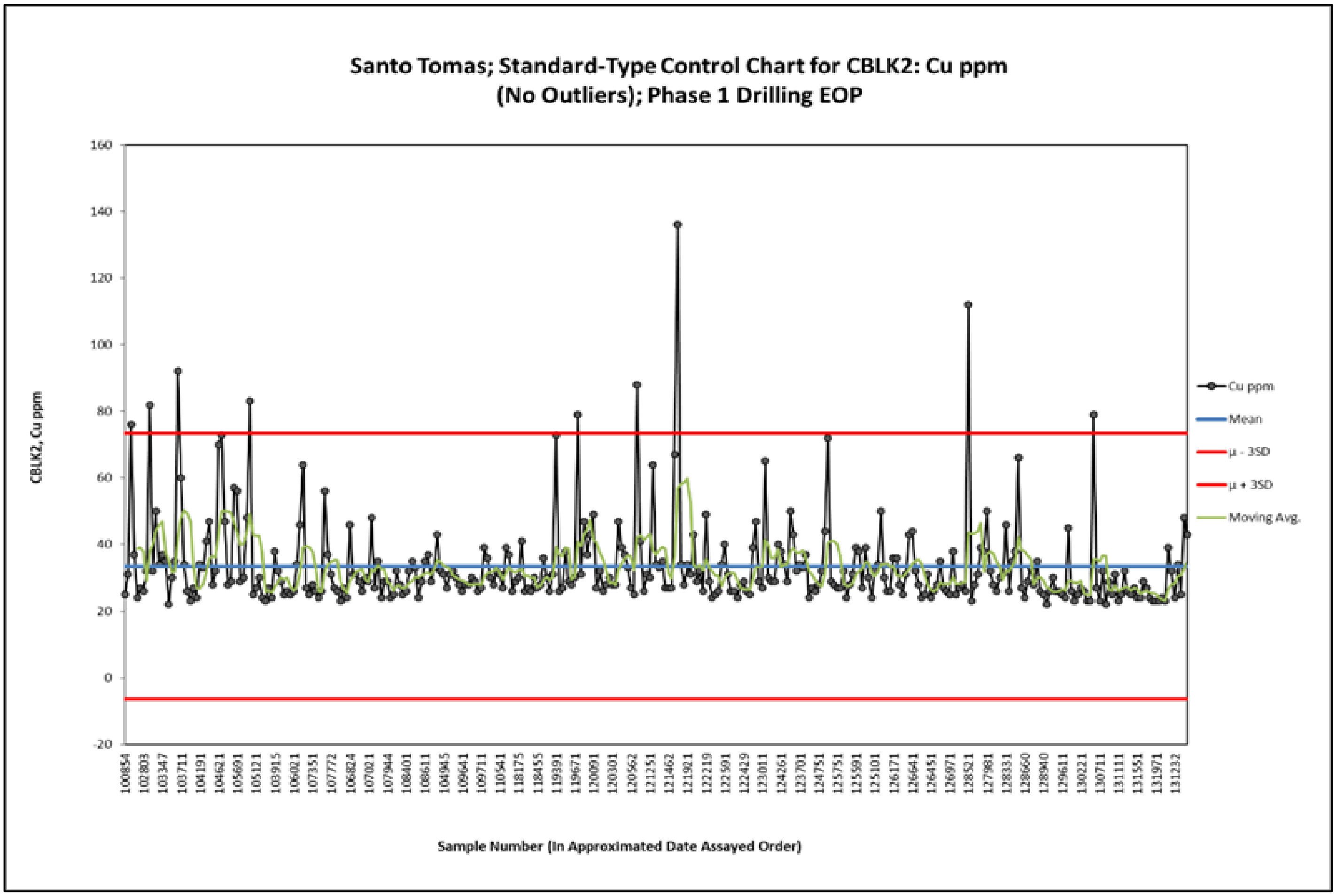
CBLK1 and CBLK2 are not certified blanks, but if a standard-type chart is used to evaluate the results based on the mean +/- 3SD to identify outliers, then >95% of coarse blanks pass for all elements of interest for both CBLK1 and CBLK2 (Figure 11-18).

Figure 11-19: Coarse Blank Performance Smear Chart for Cu



Source: Oroco, 2023.

Figure 11-20: Standard-Type Chart for CBLK2, Cu (ppm)



Source: Oroco, 2023.

Smear charts or Blank Value vs. Proceeding Sample plots were also used to determine the amount of carry-over (if any) between samples (Table 11-19). CBLK1 shows a small positive linear relationship for Cu and Mo. The Cu Smear Chart produces the linear equation y = 0.0051x + 2.8155, and therefore a potential preceding sample of 10000 ppm (or 1%) Cu, would induce a blank value of only 56 ppm Cu. For CBLK2, the smear chart in Figure 11-19 shows a small positive linear relationship for all elements of interest. The Cu smear chart equation, y = 0.0042x + 27.914, would induce a blank value of only 7 0ppm Cu, with a preceding sample of 10000 ppm or 1% Cu. In both cases, such a potential Cu lift is inconsequential in terms of the average grade of this deposit.

11.9.5 Pulp Check Assays

Pulp check assays are sample pulps that are submitted to a second independent laboratory. Oroco is currently compiling a selection of 5% of the total samples to send for check assay analysis. These samples will likely be sent to Bureau Veritas. Once complete, pulp check assays will be evaluated by plotting the primary lab against secondary lab results and calculating the average, standard deviation, regression slope and R2 of the samples. Bias will be determined using the Reduction to the Major Axis (RMA) method and ideally, bias should be less than 5%. A bias of 5-10% is questionable and >10% is unacceptable (Simon, A., AMEC International, 2007).

11.9.5.1 QA/QC Analysis Conclusions

Standard performance for OREAS 151a, 151b, 505, 506 and 701 is satisfactory. Moving averages generally remain within plus or minus 5% of the Best Value and 95% of the samples assayed fall within two standard deviations of the mean, with a few exceptions that have been discussed previously and deemed reasonable. Twelve samples exceed three times the standard deviation of the mean, post re-assay. The results of these samples have been reviewed and considered acceptable.

Coarse and Pulp Duplicate performance is acceptable with >90% pairs passing and reasonable AVRD curves for all elements of interest. Field duplicate performance is acceptable for Au and Ag with >90% pairs passing. Performance is slightly below target for Cu and Mo, with only ~80% pairs passing, but still meets expectations. The decreased precision is likely due to the difficulty in replicating results across twin samples due to veining or nugget effects.

Pulp blanks performed well with an overall failure rate of 2% or less for all elements of interest. Coarse blanks also performed well with an overall failure rate of 5% or less for all elements of interest. Smear charts do not indicate any significant trends.

Overall, the performance of all types of inserted QA/QC sample types meets or exceed expectations.

11.10 Comments on Sample Preparation, Analysis and Security

The Authors are of the opinion that the sample preparation, QA/QC program and sample security measures undertaken by Oroco are appropriate for a high degree of confidence to be placed in the sample assays that form the basis for this updated MRE.

12 DATA VERIFICATION

12.1 SRK Verification

The QP has completed a phased approach to the verification of the data as provided by Oroco. The program included site inspection, reviews of standard operating procedures, statistical reviews of the database, and verification of assay certificates. The QP has also independently reviewed Oroco's internal quality control program for analytical data and drilling survey confidence. It is the QP's opinion that the current procedures and protocols in place for data collection and validation are considered acceptable for use in mineral resource estimation.

The QP performed an independent review and validation of a select number of analytical samples to check for congruence and accuracy with the provided drilling database on the Santo Tomás Project. Five percent (5%) of assay intervals were manually checked with original digital assay certificates from the laboratory. All checked assays were deemed acceptable and align with laboratory reported values.

The QP performed statistical analyses on the drilling database to check for potential erroneous data in the collar, down-hole survey, geology/lithology, specific gravity, and assay tables. The review included calculation of descriptive statistics, multiple charts, and review of potential outlier and erroneous data. This validation check aimed to identify errors common among drilling databases including use of zero value, treatment of below detection limits, negative or non-numeric values, extreme outlier identification, and interpretation of the distribution of mineralization across the Property.

It is the QP's opinion that the statistical review did not identify material errors not already identified in associated validation steps.

12.1.1 QP Site Inspection

During March 2023, Scott Burkett, SME-RM (#4229765) of SRK conducted a site visit and tour of the Project site, core shed, drill pads, and ancillary facilities located on the Property. Mr. Burkett reviewed and discussed with site personnel the site geology, structure, mineralization, drilling, core logging and sampling, density measurements, site security, core and sample storage, and procedures involved with data management. The site visit was hosted by a combination of Oroco management and site-based staff. Mr. Burkett was provided unfettered access to all aspects of the Project and staff with all questions satisfactory addressed by the Company. Mr. Burkett coordinated and reviewed geologic mapping and structural interpretation data collected.

It is the QP's opinion that Oroco manages the site data acquisition, sample storage, and management of all items in a disciplined and organized fashion, consistent with accepted industry practices. The QP notes a knowledgeable and capable workforce with protocols in place consistent with best practices.

12.2 Review of Oroco Standard Operating Procedures/Verification

Oroco has a well-documented series of Standard Operating Procedures (SOP) covering core handling, sampling QA/QC submission and geological data collection efforts. These go through periodic updates on an as-required basis as equipment or other data collection protocols are changed.

Data verification occurs prior to incorporation of data into final data bases. Oroco SOPs for various activities are listed below with last update date in Table 12-1. SOPs have been reviewed and improved through the use of consulting third-party subject matter experts. Sections 12.2.1 through 12.2.5 are a summary of the Oroco SOPs that were reviewed by the QP during the site inspection.

Table 12-1: Oroco Core Facility Standard Operating Procedure List

SOP Protocol	SOP Updated Date
Point Load Testing	Mar-22
Sample Preparation of Core + QA/QC	Mar-23
Specific Gravity Measurements	Apr-22
Core Logging Manual	May-23
K-Staining Analysis	Jun-22
Niton Sampling and Manual	Apr-23
Core Handling Flowsheet	Feb-22
Rig Alignment TN14 Gyrocompass	Apr-22
Oriented Core ACT III	Apr-22
EZ-Gamma tool	Apr-22
EZ-Gyro Tool	Apr-22
IQ Logger - Geotechnical	Apr-22
TerraSpec Manual/Procedure	Apr-23
Field Procedure for Core Collection and Transport	Apr-22
Utilization of the Magnetic Susceptibility Meter	Aug-23
Structural Logging	Aug-23

SRK's QP reviewed the SOPs and found them to be meet CIM Mineral Exploration Best Practice Guidelines, and where processes were reviewed during the site inspection that the actions of the geological team were consistent with the SOPs. Oroco's technical staff will follow the procedures and document any changes in a systematic manner.

12.2.1 Assay Data and QA/QC Results Verification

Submission rates for commercial standards, blanks and duplicates are to industry standard, averaging one control sample submitted for every four core samples (20%). Laboratory assay failures are managed in a consistent manner. Pass/fail rates are detailed in Section 11 along with a more detailed review of QA/QC management. All Oroco assay work is performed at an independent third-party laboratory. Assay data are stored in DataShed™ which uses an SQL backend. In February 2023, Oroco sent assay certificates for all holes through to N047 to SRK. SRK's QP verified assay data as discussed in Section 12.7.

12.2.2 Down-hole Survey Data Verification

SRK's QP reviewed the down-hole survey files. Three survey tool types were used on the Property. An internal Oroco memo on down-hole survey data outlines the procedure for capturing and incorporating survey data into a final database. Documentation of the data collection, verification, and quality evaluation procedures were reviewed. The collection and management of down-hole survey data is considered to meet industry standards.

Hole orientation verification is managed through the use of the IMDEX TN-14 rig orientation tool. Gyro tool data from the down-hole survey is "adjusted" with the TN-14 tool collar reading to produce the actual collar dip and azimuth.

The TN-14 tool is a gyro-based system that is attached to the drill string at setup allowing the crew to correctly orientate the drilling rig.

12.2.3 Point Load Testing and Specific Gravity Data Verification

Data checks performed on the Specific Gravity (SG) measurements include an ongoing program of comparison of results for individual lithologies. In the event that an SG measurement was out of range, the SG measurement was repeated on the other half of the HQ core or in the case of NQ core the next 10-15 cm of core in the core box was repeated.

Obvious errors below 1 or values above 4 were repeated. Results that did not match the SG of a particular lithology were repeated.

For point load testing, there were no repeated tests as the process is destructive, point load verification is not possible.

12.2.4 Core Orientation Verification of Continuity

Validation of measured RQD data is done by comparing final data bases with the photos of the whole core. Low or high values are checked and rectified as necessary. This functions as a check against data entry errors. When new staff are introduced to the Project, the Lead Geotechnical logger logs in parallel with the new geologist for a week. In addition to the training period, every two weeks the geological crew will run a spot check by logging the same section of core to ensure repeatability of measurements between the different geologists.

SOPs on the core orientation procedures and rig orientation procedures and equipment is documented and geologists are trained by the Geotechnical lead in data collection methods and data capture.

12.2.4.1 Geological Data Verification

Similarly, geological logging procedures and observational data recording is managed by the geology lead and new employees are trained and supervised to ensure consistency in logging. At the end of the logging of a hole, the information is processed for each hole by the geologists using previously generated cross-sections.

When uncertainties in rock type and alteration assemblages arise, K-feldspar staining and TerraSpec data are used to resolve uncertainties. A systematic TerraSpec and Niton data collection program supports the interpretation of the geology. The use of lithogeochemistry data (by using ioGAS) aids in the classification of intrusives. KT-10 MagSus is used to correlate the amount of magnetite especially in the footwall in real-time. Cross-sections, updated daily, are used to correlate the lithology-alteration-mineralization along the strike of the deposit. Surface geological mapping is also used as a control to ensure geological continuity is maintained.

Evolution of the geological codes has resulted in the simplification of the geological codes at the end of 2022. A re-logging program was completed for all holes prior to November 2022. A third-party review (Cambria Geoscience Inc.) of all drill core logging, structural data and surface mapping is an ongoing program and functions as a check on data generated on-site at the El Ranchito core logging facility.

12.2.5 Field Surveying Data Verification

An internal Oroco memo on collar and point surveying was reviewed and found to meet industry standards. Processed field data using the control point has sub-decimeter accuracy in both the horizontal and vertical. A third-party surveying check on the Santo Tomás Control point is recommended to confirm the closest geodetic control points used and Oroco control points. A summary of data base statistics is shown in Table 12-2.

Table 12-2: Data Collection Summary on Oroco and Historical Drilling

Drill Hole Data Summary	Count Values	Meters
STD holes drilled / meters	50	16,004
STE holes drilled / meters	40	5,071
Oroco holes drilled Included in PEA	68	43,063
Oroco holes drilled Excluded in PEA	8	5,418
Re-logged Historic Meterage	20	14,872
Historical Core Recovered from El Bienestar Ranch	50	10,396
Assays STD drill holes	4,707	-
Assays STE drill holes	2,537	-
Assays Oroco Included	20,121	-
Assays Oroco North Zone	14,618	-
Assays Oroco South Zone	5,503	-
QA/QC Samples inserted	4,057	-
Intervals with RQD data calculated	15,385	-
Vein characterization Data	4,526	-
Faults characterization Data	8,187	-
Fractures characterization Data	13,534	-
Point Load Tests	3,692	-
Specific Gravity Data points	1,976	-
Niton XRF data points	30,652	-
TerraSpec Data points – Specific	8,081	-
TerraSpec Data Points – Systematic	21,524	-
Re surveyed Historical hole Collars	70	-

12.3 Limitations on Data Verification

The following item are identified as known limitations on data verification and accounted for in mineral resource classification by the QP of mineral resources:

- Use of historical drilling and analytical data in support of the mineral resources with limited documentation on collar, down-hole survey, and logging.
- Lack of documented quality assurance and quality control (QA/QC) protocols on drilling completed prior to 2021 performed by the previous owners.

- The QP did not directly supervise or oversee data acquisition of any drilling, logging, or analytical data used in the determination of mineral resources. Instead, the QP reviewed summary data, technical reporting, and supporting documentation that summarize procedures and protocols and performed independent verification. All descriptions of procedures and methods used in the collection of data supporting mineral resources were provided by Oroco when available. Based on these documents and communications, it is the QP's opinion that drilling and analytical data used in support of resources were collected in a manner aligned with best industry standards sufficient for resource classification.
- The QP has not conducted a visit or inspection to the analytical laboratories which provided the baseline analytical data supporting resources. The laboratories used are considered reputable and independent laboratories suitable for the analyses performed.
- No independent duplicate samples were collected nor analysed for verification purposes by the QP.
- The QP did not perform field verification of drill hole collar locations but relied on historical collar surveys as accurate in X, Y, and Z coordinates with data being validated against aerial imagery and high-resolution topographic data.
- 100% of the drilling data base was not subjected to detailed verification against original laboratory certificates. A representative sub-set of 5% of assay data was reviewed, with no errors found.

12.4 Opinion on Data Adequacy

It is the QP's opinion that the geological mapping, topographic, and drilling data utilized during geological interpretation and in the estimating mineral resources has been adequately reviewed and classified in line with CIM guidelines. Items identified as potential project risks, low confidence data, or lack of historical multi-element assay data are accounted for in the mineral resource classification.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Overview

The Santo Tomás Project hosts a porphyry copper deposit which would typically be processed using froth flotation techniques.

A very limited amount of metallurgical testing was conducted on samples from the Project in 1994, however this historical work is conceptual in nature and not suitable to support a modern technical study. Oroco engaged Ausenco to assist in the development of a suitable metallurgical test program to advance the Project. The test program was designed to provide a preliminary metallurgical assessment of the deposit and provide design data suitable for the current level of study.

13.2 Historical Testing

A number of historical test programs were completed on samples from the Project, however the physical test reports could not be located. The results were only referenced in past studies (Bateman 2003, Dane Bridge 2020). A summary of the stated programs is listed in Table 13-1. The results suggest that deposit was amenable to froth flotation, and acid leaching might be considered for oxide materials.

Table 13-1: Historical Testing Program

Test Program	Year	Sample Details	Description
Lakefeild Research	1975	Possibly North Zone	High grade feed sample, five flotation tests demonstrated acceptable performance
Comisión de Fomento Minero	1991	11 drill holes used to assemble high and low grade composites	Flotation testing, saleable concentrates produced from both samples
Consejo de Recursos Minerales	1993	North Zone samples	Acid leach bottle roll tests
American Assay Laboratories	1993	North Zone samples	Acid leach bottle roll tests, moderate Cu recovery
Consejo de Recursos Minerales	1993	North Zone samples	Rougher concentrate generation by flotation
Minetek	1993	Rougher concentrate	Bioleach tests
MSRDI	1994	Composite of 5 drill core samples	High grade rougher concentrates generated at 86-95% Cu recovery

13.3 Recent Metallurgical Test Work

13.3.1 Sample Selection and Preparation

A metallurgical sample selection process was initiated with Oroco's geological team to evaluate a suitable range of characteristics that could influence the process design. The metallurgical samples were selected to meet the following criteria:

- Spatial coverage across the deposit, and within the expected pit shell

- Contain similar levels of copper, sulphur, and molybdenum as the potential LOM grades.
- Include samples that would be expected to represent some variance in characteristics that would affect metallurgical performance.

The resulting nine samples selected based on these criteria are summarized in Table 13-2.

Table 13-2: Selected Metallurgical Variability Samples

Sample	Description
South Quartile	Spatially across deposit Average grades of approx. 0.3% Cu and 1.0% S
Mid-South Quartile	
Mid-North Quartile	
North Quartile	
High Cu	Target 0.40%
Low Cu	Target 0.18%
High S:Cu Ratio	Target 10:1 ratio
High Moly	Target 0.025% Mo
High Point Load	Harder material based on PL data

The selected drill core samples were shipped to ALS Metallurgy in Kamloops, BC for subsequent testing in October 2022 with a final laboratory report issued on May 3, 2023. After coarse crushing in preparation for comminution testing, a Master Composite was then assembled from portions of selected individual samples to reflect spatial coverage and a target feed grade.

13.3.2 Chemical and Mineralogical Characterization

Head assays on the composites are shown in Table 13-3 and mineral contents of significant abundance are summarized in Table 13-4.

Table 13-3: Head Assay Data

Sample ID	Assay – percent (%)							Assay – (g/t)	
	Cu	Zn	Mo	Fe	S(t)	S(s)	SO4	Au	Ag
South Quartile	0.29	0.01	0.004	3.39	0.77	0.71	0.04	0.02	1.7
Mid-South Quartile	0.23	0.01	0.007	2.78	0.77	0.73	0.02	0.02	1.6
Mid-North Quartile	0.30	0.03	0.004	2.66	1.16	0.99	0.03	0.02	1.9
North Quartile	0.26	0.03	0.006	2.71	1.18	1.09	0.07	0.03	1.5
High Point Load	0.36	0.01	0.024	3.09	0.51	0.45	0.04	0.02	2.1
Low Copper	0.20	0.01	0.014	2.01	1.09	0.82	0.08	0.03	1.6
High Copper	0.39	0.01	0.013	1.83	1.34	1.37	0.04	0.05	1.9
High Moly	0.31	0.01	0.018	4.40	0.92	0.88	0.02	0.01	1.8
High S:Cu Ratio	0.18	0.02	0.003	5.10	2.38	2.27	0.03	0.02	1.4
Master Composite	0.34	0.06	0.011	2.84	1.02	0.99	0.03	0.02	2.3

Table 13-4: Mineral Composition Data

Sample ID	Mineral Composition – percent (%)							
	Chalcopyrite	Pyrite	Quartz	Feldspars	Chlorite	Calcium Carbonates	Micas	Epidote
South Quartile	0.9	0.6	18.3	52.2	11.0	1.1	7.7	2.8
Mid South Quartile	0.8	1.3	28.7	42.2	7.9	1.3	12.5	1.5
Mid North Quartile	0.8	1.9	35.6	34.8	7.4	0.6	13.9	2.5
North Quartile	0.6	1.6	30.3	40.3	6.0	0.4	16.0	2.3
High Point Load	0.9	0.2	22.0	46.9	8.5	0.2	15.4	2.6
Low Copper	0.6	1.4	39.1	40.1	5.0	1.0	9.9	0.8
High Copper	1.0	1.6	43.9	34.8	3.6	0.8	9.8	2.4
High Moly	0.7	1.4	15.0	53.5	6.9	0.1	16.5	2.1
High S:Cu Ratio	0.4	4.1	13.6	55.9	9.0	0.1	10.8	1.7
Master Composite	0.9	1.3	27.4	41.4	8.1	0.8	14.3	2.3

In general, the ratio of sulphur to copper contents is moderate, averaging 4.4 across all 10 samples. This suggests that a moderate level of regrinding and lime addition would be required to depress pyrite in the cleaner circuit and produce a saleable copper concentrate. Molybdenum concentrations averaging 0.010% suggest that production of a molybdenum concentrate is likely viable. Precious metal contents are quite low but may provide payable credits in the copper concentrate.

Mineral composition was measured using QEMSCAN techniques. Chalcopyrite accounted for at least 98% of the copper observed in the samples. Molybdenite and sphalerite account for less than 0.1% of the mass and so are grouped within Other Sulphides in these analyses.

The host mineral assemblage varies across the samples somewhat, which will likely contribute to variances in grinding energy requirements.

The mineralogical analyses included an estimate of liberation on the variability samples. A detailed PMA was conducted on the Master Composite to measure liberation characteristics and mineral contents more accurately. Liberation values for copper sulphides and pyrite are presented in Table 13-5 along with details of the size distributions of the samples and required lab grinding times.

Table 13-5: Sulphide Mineral Liberation Data

Sample ID	Size (P_{80} µm)	Lab Mill Grind Time (min)	Liberation (%)	
			Chalcopyrite	Pyrite
South Quartile	152	16	37.3	53.5
Mid South Quartile	162	17	41.1	54.7
Mid North Quartile	145	19	38.2	63.7
North Quartile	155	18	40.5	54.3
High Point Load	140	21	34.1	64.6
Low Copper	158	19	43.6	55.4
High Copper	158	14	48.9	63.5
High Moly	140	22	39.9	72.9
High S:Cu Ratio	143	25	36.0	76.2
Master Composite	155	18	39.0	55.1

The chalcopyrite was 40% liberated at a primary grind sizing of 150 µm, which by itself suggests that this primary grind sizing is likely at the coarser limit of what would be required for effective rougher circuit flotation. However, pyrite showed increased liberation levels at this sizing, averaging 61%.

The detailed mineralogy assessment on the Master Composite suggested that non-liberated chalcopyrite was primarily in binary form with gangue. The average chalcopyrite content of these binaries was 26%, which is of sufficient quality for recovery by froth flotation. This mitigates the somewhat lower liberation value in terms of expected rougher recovery performance at this sizing.

Nine percent (9%) of the chalcopyrite in the ground Master Composite was present in the >150 µm fraction in grains that had less than 15% surface exposure of chalcopyrite. These grains are typically difficult to recovery by conventional flotation means, but a portion could likely be recovered by coarse particle flotation techniques.

Only 2.4% of the copper sulphides in the Master Composite were associated with pyrite in either binaries or in multiphase form. This suggests that regrinding requirements to depress pyrite would be moderate.

13.3.3 Leaching Studies

Recent metallurgical testing was conducted by SGS-Burnaby to evaluate leaching behaviour of copper oxide and sulphide minerals, on behalf of Jetti Services Canada Incorporated (Jetti) for Oroco. The test work was carried out using two different mineral samples; Andesite and Monzonite, received in August of 2023.

Sub-samples of each lithology were first characterized by sequential chemical leach protocols as a well as by SEM mineralogical assessment (QEMSCAN). The sequential leach analyses indicated that approximately 90% of the copper in the samples was in a primary sulphide form, and not amenable to leaching with sulphuric acid or sodium cyanide. This sequential leach can often underestimate the primary sulphide copper form, as a small amount will be leached due to the fine sizing of the pulverized sub-sample. The QEMSCAN analyses, conducted on -10 mesh material, indicated that 97% of the copper was in the form of chalcopyrite.

Bench scale leaching tests were conducted to investigate acid consumption and amenability to leaching with the Jetti proprietary catalyst. The acid consumption tests (Iso-pH) were conducted on feed material crushed to minus 10 mesh over 72 hours and at 3 different pH targets of 1.7, 2.0 and 2.3. The average sulphuric acid consumptions under these conditions were 33.1 and 42.8 kg/t for the Andesite and Monzonite materials, respectively. Copper extractions were also measured on these tests, which indicated that 1.3 and 1.8% of the feed copper was leached in 72 hours at pH 1.7 for the Andesite and Monzonite materials, respectively.

The amenability reactor tests were conducted over 70 days at a target pH of 2.1 and a finer crush size of 80% passing 106µm. The sulphuric acid lixiviant included an inoculum of bacteria. Duplicate tests were run for the control, while a third test evaluated the effect of the catalyst. Final acid consumptions averaged 25 kg/t on the Andesite material and 46 kg/t on the Monzonite material. The catalyst increased copper extractions on both materials by a factor of 2.1 to 2.6.

In April 2024, Jetti performed preliminary column leach studies with the same Andesite material used in the bench scale tests. The material was crushed to minus 1 inch and the mass was sufficient for 4 columns of 8" diameter. Unfortunately, despite curing the columns with sulphuric acid, column leachate pH measurements failed to meet consistent stabilization criteria (a pH between 2 and 1.8) after several weeks of operation. From this preliminary data, Jetti inferred that the acid consumption rates were approaching values that were nearly as high as the bench scale Iso-pH tests, despite the coarser crush size. At these higher-than-expected acid consumptions, project economics would not benefit by having a leaching operation given current market pricing for acid. The column tests were terminated prior to introducing and evaluating the effect of the Jetti catalyst.

13.3.4 Comminution

Each of the variability samples was individually tested for comminution properties, returning SMC Test® work indices (DWi, Mih, A x b), bond mill work indices, bond abrasion indices, and site point load indices shown in Table 13-6. Average Point Load Index values measured at the Santo Tomás site are shown for reference. In addition, a Rod Mill Work Index test was conducted on the Master Composite that returned a value of 18.4 kWh/t.

The 75th percentile values of the variability results were selected for design, an Axb value of 30 and ball mill work index of 18.3 kWh/t. HPGR crushing may be more favourable than SAG milling for this project since a significant portion of the samples were extremely competent with respect to impact breakage and the planned throughput for the operation is somewhat high.

Table 13-6: Comminution Test Data Summary

Sample	SMC Test® Results			Bond ball mill Wi (kWh/t)	Bond Abrasion Index (g)	Site Point Load Index (MPa)
	DWi (kWh/m^3)	Mih (kWh/t)	A x b			
South Quartile	7.7	17.2	33.8	17.8	0.09	12.9
Mid-South Quartile	5.7	12.5	46.6	16.4	0.11	7.6
Mid-North Quartile	7.2	15.6	37.3	17.6	0.13	2.1
North Quartile	8.9	19.5	29.9	17.8	0.16	6.3
High Point Load	9.6	20.8	27.7	18.3	0.16	23.8
Low Copper	4.4	9.7	59.6	18.1	0.19	8.8
High Copper	4.8	10.6	54.8	15.4	0.16	1.7
High Moly	10.4	22.4	26.0	19.4	0.13	16.9
High S:Cu Ratio	7.9	17.5	33.1	20.0	0.15	22.5
Master Composite	7.3	16.1	36.1	17.0	0.14	-

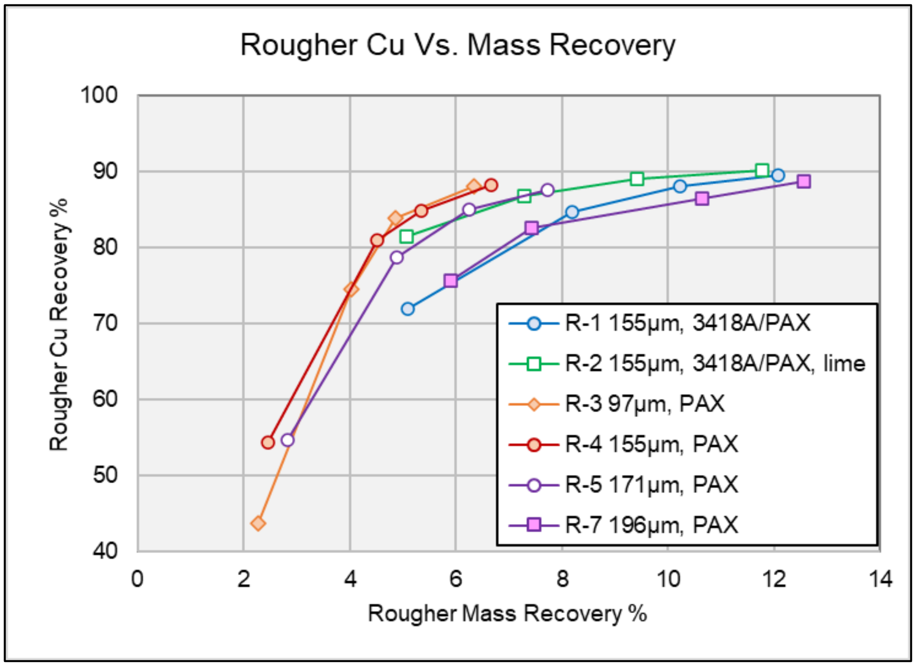
An Eliason regrinding test was conducted on a sample of rougher concentrate produced from the Master Composite at a primary grind size of 155 µm. This small-scale regrinding test can provide an estimate of the specific energy requirement for stirred milling of mineral concentrates. The test was conducted using 2.2 mm ceramic media. The size distribution of the rougher concentrate was measured to be 80% passing 125 µm. The Eliason stirred mil test measured a specific energy of 14.9 kWh/t to grind this concentrate to a product sizing of 25 µm P_{80}.

13.3.5 Flotation Test Work

The flotation test program included the evaluation of primary grinding, regrinding, and chemistry requirements on the Master Composite, followed by application of the developed flowsheet on variability samples.

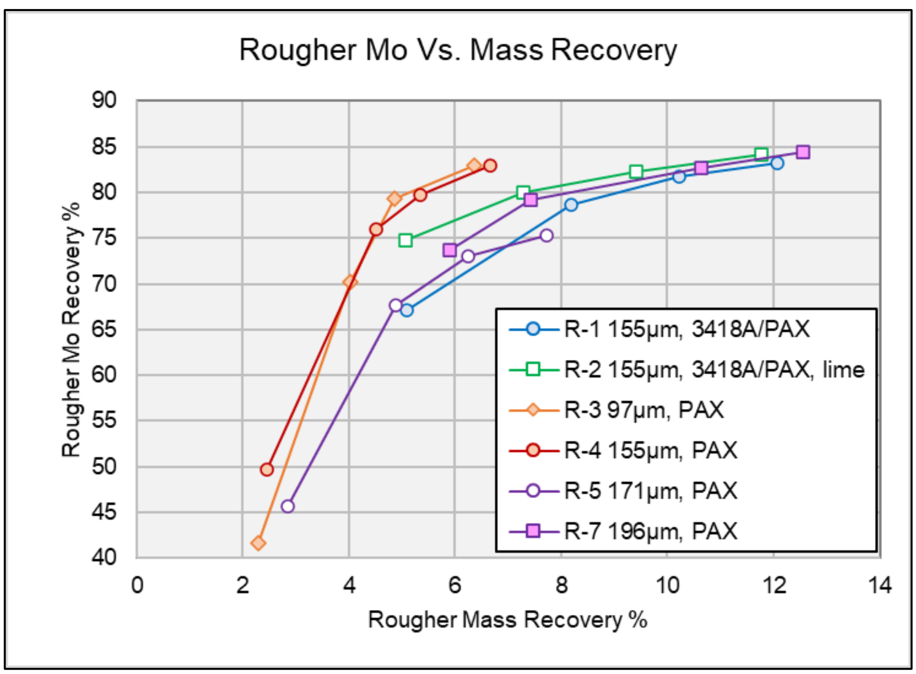
Rougher flotation performance on the Master Composite is summarized in Table 13-7. Kinetic results are displayed graphically in Figure 13-1 and Figure 13-2. Results suggest that a primary grind sizing of 155 µm P_{80} is suitable to achieve 90% recovery of copper in the rougher circuit. Copper rougher recoveries around 89% were achieved at primary grind sizes as coarse as 200 µm P_{80}, however less selective pulp chemistry was applied such as natural pH and PAX as a collector. Subsequent cleaner circuit testing indicated that less selective rougher chemistry compromised the ability to produce a concentrate of suitable copper grade.

Figure 13-1: Copper Rougher Kinetic Results – Master Composite



Source: Ausenco 2023.

Figure 13-2: Molybdenum Rougher Kinetic Results – Master Composite



Source: Ausenco 2023.

Table 13-7: Rougher Flotation Results – Effect of Grind and Chemistry – Master Composite

Test No.	Primary Grind		Lime	pH	Collector	Calculated Head			Rougher Tail			Recovery % to RoCon (%)			
	min	P_{80}				Cu (%)	Mo (%)	S (%)	Cu (%)	Mo (%)	S (%)	Mass	Cu	Mo	S
1 R	18	155	-	8.4	3418A/PAX	0.323	0.010	1.02	0.038	0.002	0.09	12.1	89.7	83.2	92.2
2 R	18	155	Y	9.2	3418A/PAX	0.336	0.011	1.04	0.037	0.002	0.08	11.8	90.3	84.1	93.2
3 R	22	97	-	8.5	PAX	0.306	0.011	1.05	0.039	0.002	0.09	6.4	88.1	82.9	92.0
4 R	18	155	-	8.4	PAX	0.326	0.011	1.02	0.041	0.002	0.09	6.7	88.3	82.9	91.8
5 R	16	171	-	8.4	PAX	0.337	0.011	1.05	0.045	0.003	0.09	7.7	87.7	75.3	92.1
7 R	16	196	-	8.5	PAX	0.325	0.011	1.09	0.042	0.002	0.10	12.6	88.7	84.4	92.0
8 Cl	18	155	-	8.7	3418A	0.325	0.011	1.05	0.040	0.002	0.11	11.4	89.1	84.1	90.7
9 Cl	18	155	Y	9.5	3418A	0.322	0.012	1.04	0.033	0.003	0.15	8.1	90.6	77.6	86.8
10 Cl	18	155	Y	9.5	3418A	0.334	0.011	1.05	0.034	0.002	0.13	8.3	90.7	83.6	88.6
11 Cl	15.5	222	Y	9.6	3418A	0.323	0.011	0.98	0.053	0.003	0.13	7.9	84.9	75.3	87.8
13 LC	18	155	Y	9.6	3418A	0.354	0.013	1.09	0.038	0.003	0.14	8.7	90.1	82.5	87.8

Table 13-8: Rougher Flotation Results – Variability Samples

Sample	Test No.	Primary Grind		Lime (g/t)	pH	3418A (g/t)	Calculated Head			Rougher Tail			Recovery % to RoCon (%)			
		min	P_{80}				Cu (%)	Mo (%)	S (%)	Cu (%)	Mo (%)	S (%)	Mass	Cu	Mo	S
South Quartile	21 Cl	16	152	300	9.8	8	0.283	0.004	0.79	0.032	0.001	0.11	8.1	89.6	76.3	87.3
Mid South Quartile	19 Cl	16	165	300	9.7	8	0.221	0.008	0.76	0.037	0.002	0.11	7.5	84.5	75.9	86.6
Mid North Quartile	18 Cl	19	145	300	9.6	8	0.303	0.005	1.24	0.042	0.001	0.17	12.3	87.8	82.1	88.0
North Quartile	20 Cl	18	155	300	9.8	8	0.245	0.005	1.13	0.024	0.001	0.14	9.7	91.1	82.9	88.8
High Point Load	16 Cl	20	181	300	9.8	8	0.370	0.029	0.55	0.045	0.006	0.09	8.5	88.9	81.0	85.2
Low Copper	17 Cl	19	158	300	9.6	8	0.194	0.016	1.14	0.026	0.003	0.14	7.1	87.6	82.7	88.6
High Copper	14 Cl	14	158	300	9.5	8	0.402	0.012	1.39	0.027	0.002	0.09	7.7	93.8	84.5	94.0
High Moly	24 Cl	21	174	300	10.1	8	0.297	0.018	0.91	0.036	0.005	0.09	7.9	88.8	74.2	90.9
High S:Cu Ratio	12 R	23	213	300	9.8	8	0.166	0.005	2.35	0.026	0.004	0.08	14.7	86.6	36.6	97.1
High S:Cu Ratio	22 R	23	213	500	10.5	6	0.163	0.003	2.42	0.019	0.001	0.44	7.4	89.2	67.7	83.2
High S:Cu Ratio	23 Cl	23	213	500	10.5	6	0.172	0.003	2.43	0.019	0.001	0.27	9.0	90.0	66.7	89.9

The more selective chemistry conditions selected included addition of 300 g/t lime to achieve a pulp pH of 9.5 and 8 g/t of a phosphine-based collector, 3418A.

Molybdenum rougher circuit recoveries averaging 82% were achieved at the selected rougher conditions. Fuel oil was added to the primary grind at a dosage of 10 g/t to promote molybdenite recovery. Similar to copper, molybdenum recovery was somewhat insensitive to the range of applied primary grind sizes.

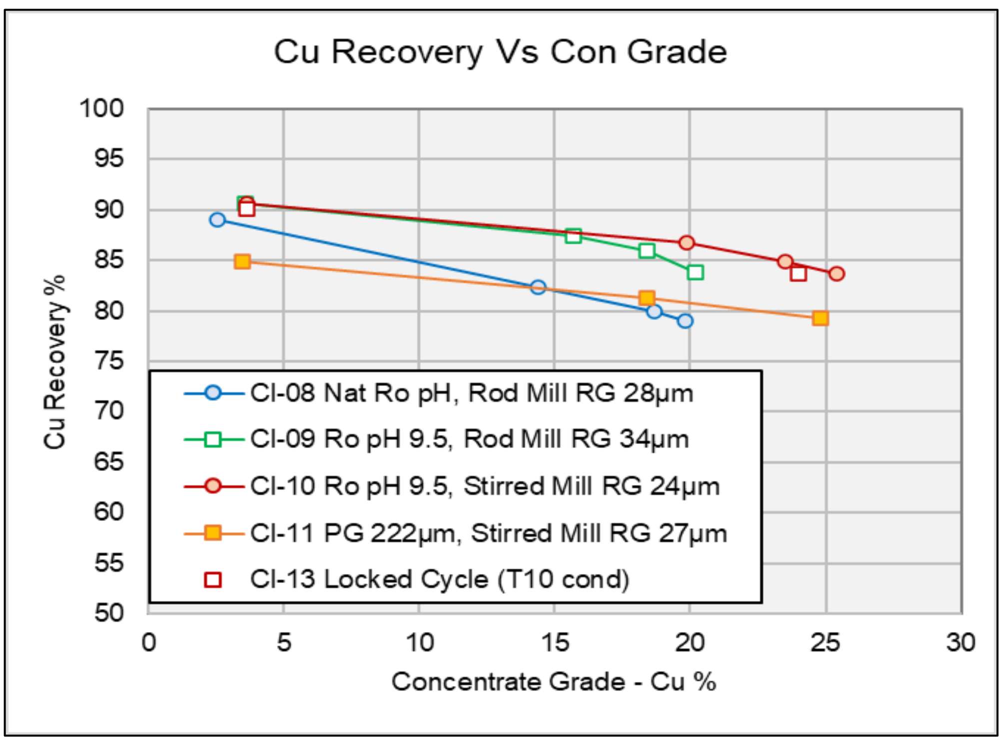
Rougher mass recoveries averaging 8.5% were required to achieve the target copper recoveries under the applied conditions.

The developed rougher conditions were applied to the variability samples. Separate rougher kinetic tests were first conducted on the High S:Cu Ratio sample, otherwise open circuit cleaner tests were conducted on all other samples. Variability rougher results are summarized in Table 13-8.

A primary grind size target of 150 µm P_{80} was selected for the variability samples, except in the case of three harder samples. For the High Point Load, High Moly and High S:Cu Ratio samples, the grinding times were limited to 20, 21 and 23 minutes respectively in order to minimize the variance from the expected average ball milling energy that would be applied in the process.

Variability rougher performance was generally in line with the Master Composite, however more selective conditions were required for the High S:Cu Ratio sample.

Figure 13-3: Copper Cleaner Performance – Master Composite



Source: Ausenco 2023.

A series of open circuit cleaner tests were conducted on the Master Composite, results are presented graphically in Figure 13-3. It was determined the following conditions were required to achieve suitable cleaner circuit performance with respect to copper concentrate quality and recovery:

- More selective rougher conditions – pH 9.5, 3418A collector.
- Regrinding to 23 µm P_{80}.
- pH 11.0 in the cleaner circuit, achieved by 200 g/t lime addition to the regrind mill.
- Three stages of dilution cleaning.

The developed conditions were applied to the Master Composite in a locked cycle test protocol to demonstrate closed circuit cleaner performance. The locked cycle test results indicate bulk concentrate recoveries of 82.6% and 61.8% for copper and molybdenum, respectively, to a concentrate grading 24.7% Cu and 0.68% Mo. The concentrate contained 1.1 g/t gold and 114 g/t silver. A simplified metallurgical balance is presented in Table 13-9.

Table 13-9: Metallurgical Balance – Master Composite Locked Cycle Test

Flotation Stream	Mass (%)	Assay (%)			Assay (g/t)		Distribution (%)				
		Cu	Mo	S	Au	Ag	Cu	Mo	S	Au	Ag
Rougher Feed	100	0.33	0.012	1.05	0.02	2.30	100	100	100	100	100
Rougher Tail	91.3	0.04	0.003	0.14	-	-	10.6	18.6	12.6	-	-
Rougher Con	8.7	3.46	0.116	10.7	-	-	89.4	81.4	87.4	-	-
1st Cleaner Tail	7.5	0.30	0.032	7.50	-	-	6.8	19.5	53.5	-	-
3rd Cleaner Con	1.23	24.7	0.680	32.1	1.08	114	82.6	61.8	34.0	60.2	55.2
Final Tail	98.8	0.06	0.005	0.70	-	-	17.4	38.2	66.0	39.8	44.8

The developed conditions were subsequently applied to the variability samples in open circuit cleaner tests. Results are summarized in Table 13-10.

Table 13-10: Variability Cleaner Flotation Test Results

Sample	Test No.	Calculated Feed			Head (g/t)		S:Cu Ratio	Concentrate Grade (%) or (g/t)				Recovery to Concentrate (%)			
		Cu (%)	Mo (%)	S (%)	Au	Ag		Cu	Mo	Au	Ag	Cu	Mo	Au	Ag
South Quartile	21 Cl	0.28	0.004	0.79	0.020	1.650	2.81	25.2	0.27	1.19	112	85.2	66.7	56.9	64.9
Mid South Quartile	19 Cl	0.22	0.008	0.76	0.020	1.600	3.45	24.6	0.70	1.41	120	77.0	63.0	48.8	51.9
Mid North Quartile	18 Cl	0.30	0.005	1.24	0.020	1.900	4.09	22.0	0.28	0.90	116	80.1	62.9	49.6	67.3
North Quartile	20 Cl	0.24	0.005	1.13	0.030	1.500	4.63	21.5	0.39	2.00	82	85.0	71.6	64.5	52.9
High Point Load	16 Cl	0.37	0.029	0.55	0.020	2.050	1.50	25.2	1.66	0.86	114	83.0	70.1	52.4	67.7
Low Copper	17 Cl	0.19	0.016	1.14	0.025	1.600	5.88	21.5	1.46	0.89	106	80.2	65.7	25.8	48.0
High Copper	14 Cl	0.40	0.012	1.39	0.050	1.900	3.47	25.6	0.57	2.45	72	86.7	65.3	66.7	51.6
High Moly	24 Cl	0.30	0.018	0.91	0.010	1.750	3.08	23.8	1.09	0.61	86	81.8	62.3	62.3	50.2
High S:Cu Ratio	23 Cl	0.17	0.003	2.43	0.020	1.400	14.1	21.0	0.17	0.56	102	74.3	38.0	17.1	44.4

The variability results suggest that the developed process is suitable for treating material represented by these samples. The data suggests that material with higher ratios of sulphur to copper present a greater challenge to upgrading in the cleaner circuit, which is typical of copper porphyry deposits.

The test program did not include Cu-Mo separation, however, there do not appear to be any issues identified in the lab testing that would suggest that typical Cu-Mo separation techniques using NaHS would not be effective. Generally, a molybdenum content in the bulk concentrate of at least 0.5% is sufficient to justify the inclusion of a Cu-Mo separation circuit. A more thorough review of copper and molybdenum levels across the resource would be required to estimate the viability of producing a molybdenum concentrate over the mine life.

13.3.6 Concentrate Quality

Final concentrate produced from the Master Composite locked cycle test was analysed for minor elements. Deleterious element levels measured in the concentrate are presented in Table 13-11, along with typical penalty limits. Most minor elements of specific interest were below levels that would be expected to trigger penalties from smelters. Mercury was slightly above a potential penalty limit at 7 ppm. Smelter penalty terms specific to this concentrate should be confirmed with a concentrate marketing specialist.

It is uncertain why the Master Composite contained a somewhat higher level of Zn than expected, resulting in a level in the concentrate that is near penalty limits. Based on Cu and Zn recoveries measured in the test program, a Cu:Zn ratio of 8:1 or lower in the feed would be required to approach Zn penalties levels in the concentrate. The drill hole assay data suggests that the average grades of intervals above 0.1% copper are 0.335% copper and 261 ppm Zn. This equates to an average Cu:Zn ratio of 13:1, suggesting that that Cu:Zn ratio in the Master Composite was not representative of the average resource.

Table 13-11: Master Composite Concentrate – Minor Elements

Element	Units	Assay	Typical Penalty Limit
Arsenic (As)	%	0.14	0.2
Antimony (Sb)	ppm	347	500
Bismuth (Bi)	ppm	46.4	200
Cadmium (Cd)	ppm	134	300
Cobalt (Co)	ppm	45	-
Fluorine (F)	ppm	230	300
Lead (Pb)	%	0.1755	1
Mercury (Hg)	ppm	7	5
Nickel (Ni)	ppm	42	-
Ni + Co	%	0.009	0.5
Selenium (Se)	ppm	130	300
Zinc (Zn)	%	2.51	3

13.3.7 Tailings Acid-Base Measurements

Sub-samples of the rougher flotation tails and total flotation tails (rougher plus cleaner tails) generated in the Master Composite locked cycle test were submitted for ABA analyses.

The results indicate that the Net Neutralization Potential (NNP) of the total flotation tails was -4 $tCaCO_3/kt$, which is considered potentially acid generating. The NNP of the rougher tails however measured 14 $tCaCO_3/kt$. This suggests that the pyrite rich cleaner tails have more acid generation potential than the neutralization potential of the total tails.

These results suggest that some additional level of tailings management might be required to ensure that the tailings impoundment does not generate acid, such as separate deposition of the cleaner tails in a specific sub-aqueous area of the impoundment.

13.4 Recovery Estimate

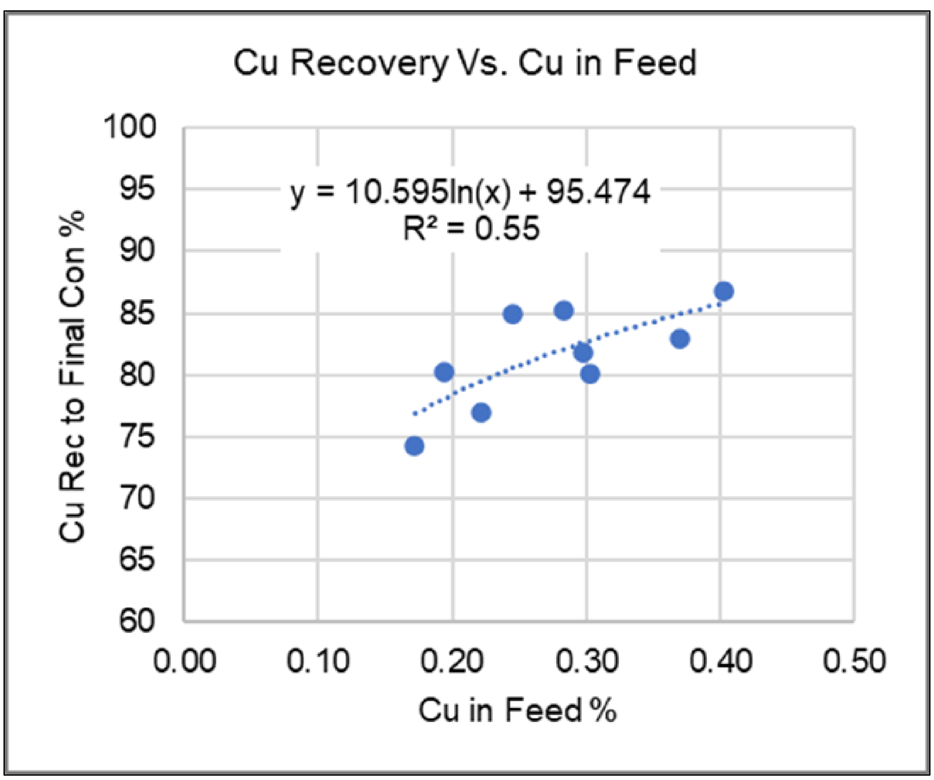
Ausenco proposes the following forecasts of copper, molybdenum, gold, and silver recoveries for the Santo Tomás Project as a function of head grade based on the recent metallurgical testing.

13.4.1 Copper (Cu)

Figure 13-4 shows the copper recovery versus copper feed grade based on the results presented in Table 13-10. As indicated, the proposed equation relating copper recovery to final copper concentrate to copper content in the feed is as follows:

*Cu Recovery to Cu Concentrate = 10.6 * ln (Cu % in feed) + 95.5; Maximum value estimated at 95%*

Figure 13-4: Copper Recovery vs. Head Grade



Source: Ausenco 2023.

13.4.2 Molybdenum (Mo)

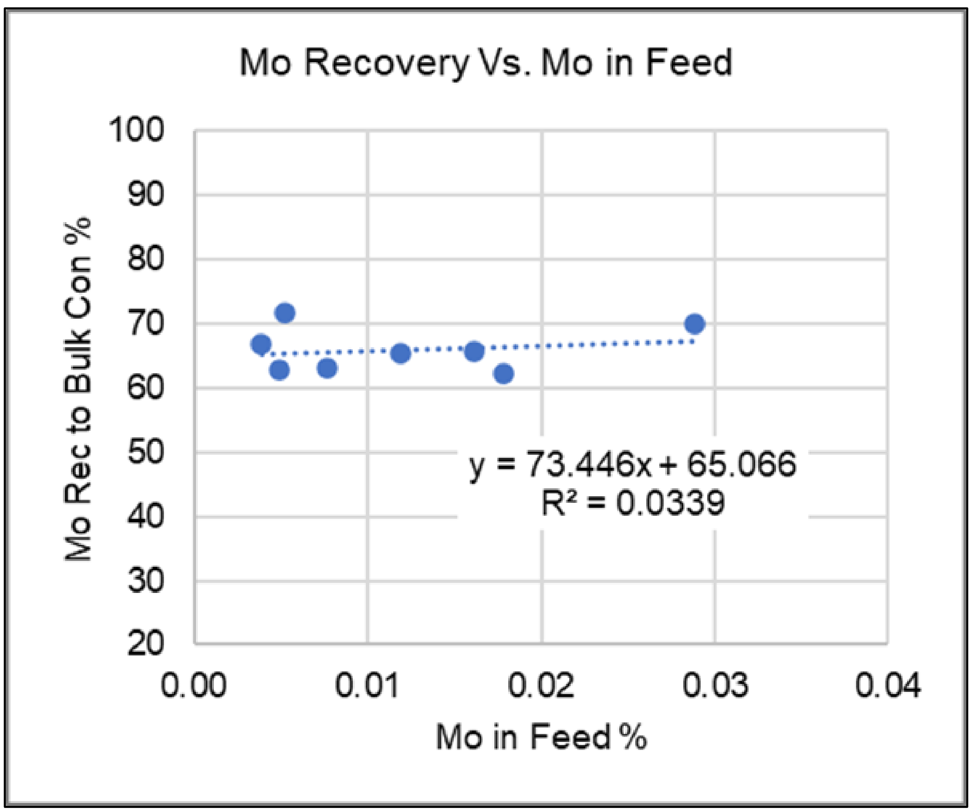
Figure 13-5 shows the molybdenum recovery to the bulk concentrate versus molybdenum feed grade based on the results presented in Table 13-10. The result on the High S:Cu Ratio sample is excluded, as the low copper and high sulphur contents of this sample may be compromising the molybdenum recovery, and it may not be representative of the performance of material with lower molybdenum feed grades.

There is not a clear relationship between molybdenum feed grade and recovery obtained from this data set, results suggest a relatively consistent recovery to bulk concentrate of 65%. Molybdenum recovery is likely more sensitive to primary grind size and levels of pyrite rejection in the cleaner circuit than copper recovery. Developing a more accurate prediction of molybdenum will require more variability testing that covers a wider range of feed sample characteristics.

The bulk cleaner concentrate must be processed through a Cu-Mo separation circuit to generate a final molybdenum concentrate. Demonstrating the efficiency of this separation was not considered to be a requirement for this level of study. A typical molybdenum recovery of 90% across this type of separation circuit is assumed by the QP based on their laboratory experience and has been applied to estimate the overall molybdenum recovery. Using this estimated Cu-Mo separation circuit recovery, the equation estimating molybdenum recovery the final molybdenum concentrate becomes:

*Mo Recovery to Mo Concentrate = 66.1 * (Mo % in feed) + 58.6; Maximum value estimated at 82%*

Figure 13-5: Molybdenum Recovery vs. Head Grade



Source: Ausenco 2023.

It is estimated that a molybdenum concentrate containing 50% Mo and 1% Cu could be produced in a Cu-Mo separation circuit.

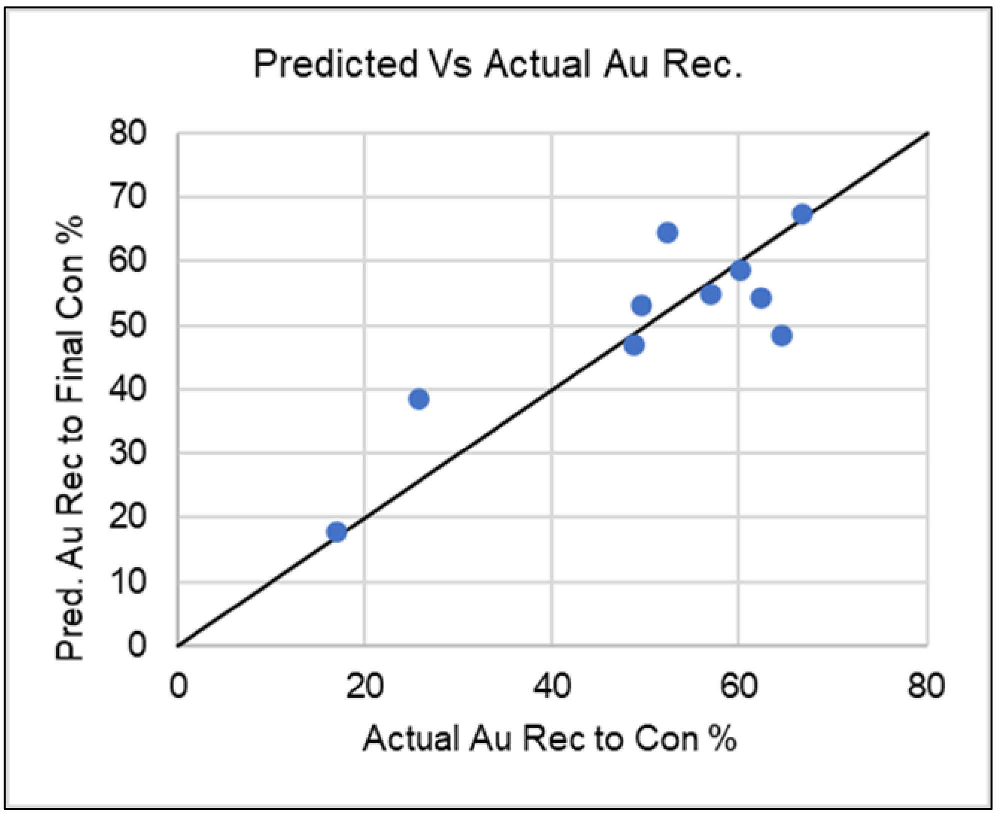
13.4.3 Gold (Au)

Gold recovery to the final bulk concentrate was estimated from variability results using a multi-variable relationship to gold, copper and sulphur contents in the feed as follows:

Au Recovery to Cu Concentrate = 28.42 + 104(Cu%) + 129*(Au g/t) – 2.42*(S/Cu); Maximum value estimated at 90%*

A comparison of predicted vs actual gold recoveries is presented in Figure 13-6. The R^2 value of this multi-variable relationship was 0.736.

Figure 13-6: Predicted vs Actual Gold Recoveries



Source: Ausenco 2023.

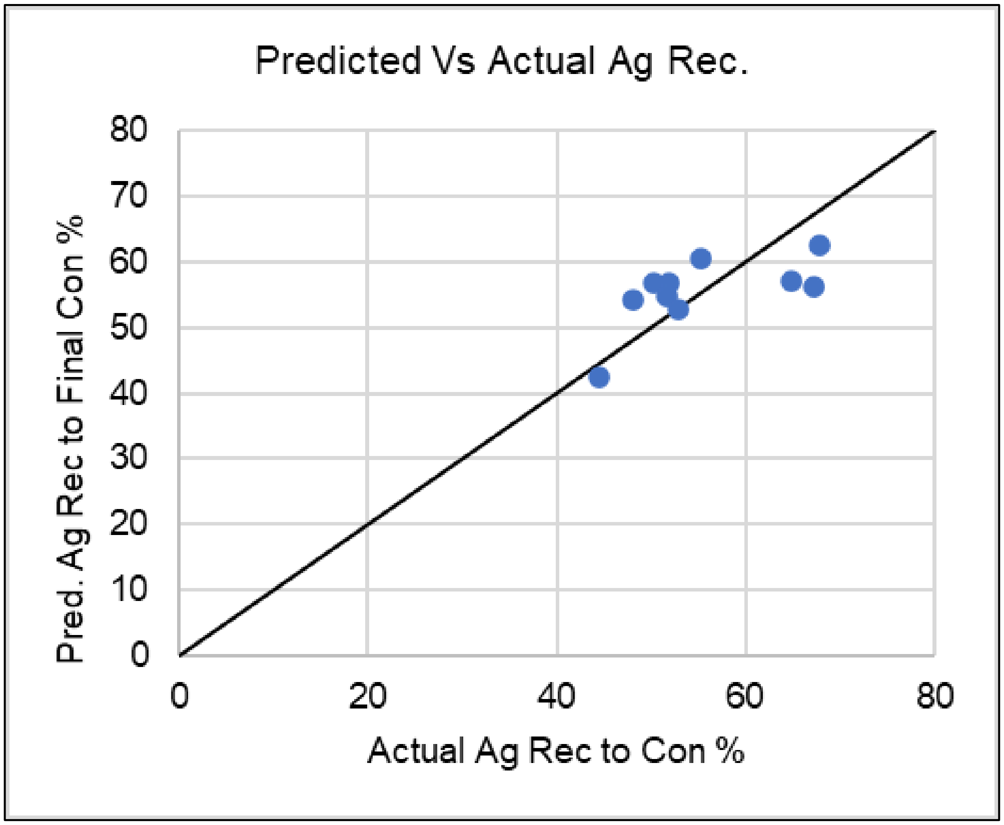
13.4.4 Silver (Ag)

Silver recovery to the final bulk concentrate was estimated from variability results using a multi-variable relationship to silver and sulphur contents in the feed as follows:

Ag Rec = 49.4 + 8.3(Ag g/t) – 7.77*(S %); Maximum value estimated at 90%*

A comparison of predicted vs actual silver recoveries is presented in Figure 13-7. The R^2 value of this multi-variable relationship was 0.42.

Figure 13-7: Predicted vs Actual Silver Recoveries



Source: Ausenco 2023.

13.5 Metallurgical Data Verification

The QP performed an independent review of Oroco's drilling assay database on the Santo Tomás Project to suggest criteria for sample selection for the metallurgical test program. Oroco's geological team selected samples to meet these criteria and the selection was reviewed by the QP. The QP reviewed all laboratory results and laboratory QA/QC programs in addition to visiting the ALS laboratory on a regular basis to witness the testing procedures and protocols employed. It is the QP's opinion that the results of the recent metallurgical testing are based on sound procedures. The QP did not identify any material errors with the work completed by the laboratories.

13.6 Conclusions

The metallurgical performance represented by these samples appears to be typical of copper porphyry deposits. The host rock is somewhat hard with respect to both impact breakage and ball mill grinding, therefore finding an economical balance between a coarse primary grind size and recovery will be a key focus of the Project. It appears that a primary grind size in the 150 to 175 µm range is suitable for effective rougher flotation.

The mineralization appears to be quite clean with respect to flotation processing, that is:

- Copper is primarily present in chalcopyrite, only trace levels of secondary copper sulphide forms were measured.
- The flotation kinetics are relatively fast and require low dosages of collector.
- Pyrite rejection can be achieved with moderate levels of lime and regrinding, along with the use of a selective copper collector.
- There does not appear to be any problematic gangue minerals reporting to the concentrate or interfering with the flotation process. No deleterious elements are present in the concentrate at levels that are likely to impact marketability and payability.

Molybdenite is reasonably well recovered through the flotation process, although cleaner circuit losses may be somewhat elevated due to the high pH in this circuit.

14 MINERAL RESOURCE ESTIMATE

14.1 Introduction

Mineral resource work was performed or supervised by Mr. Scott Burkett, SME-RM (#4229765), Principal Consultant with SRK acting as QP for the MRE.

All supporting drilling and geological data were provided by Oroco or their consultants and reviewed by the QP. SRK, in collaboration with Oroco staff, constructed the geological model, block model, performed geologically constrained grade shell modeling of mineralization, interpolation of quality variables (Cu, Mo, Au, Ag, S, As, Ca, K, Pb, Zn, and bulk density), assigning resource classification based on CIM guidelines, and calculating the Mineral Resource Statement as presented in this technical report.

No new drilling has been completed since the declaration of the previous Mineral Resource Estimate (as disclosure with an effective date of October 11, 2023). While no new exploration has been completed additional engineer work has been completed which has resulted in changes to the parameters including costs and recoveries used to define the reasonable prospects for eventual economic extraction. The current block model used to generate the current Mineral Resource Statement (MRS) remains unchanged from the PEA Technical Report effective July 23, 2024. No additional drilling has been added and the estimation methodology remains unchanged. Therefore, the only differences in the Mineral Resource Statement for the July 23, 2024, estimate are:

1) Inclusion of oxidized mineralization in the North Zone Pit and South Zone Pit.

2) Updated economic and pit slope assumptions based on the updated PEA study.

14.2 Drilling Database

14.2.1 Drill Hole Database

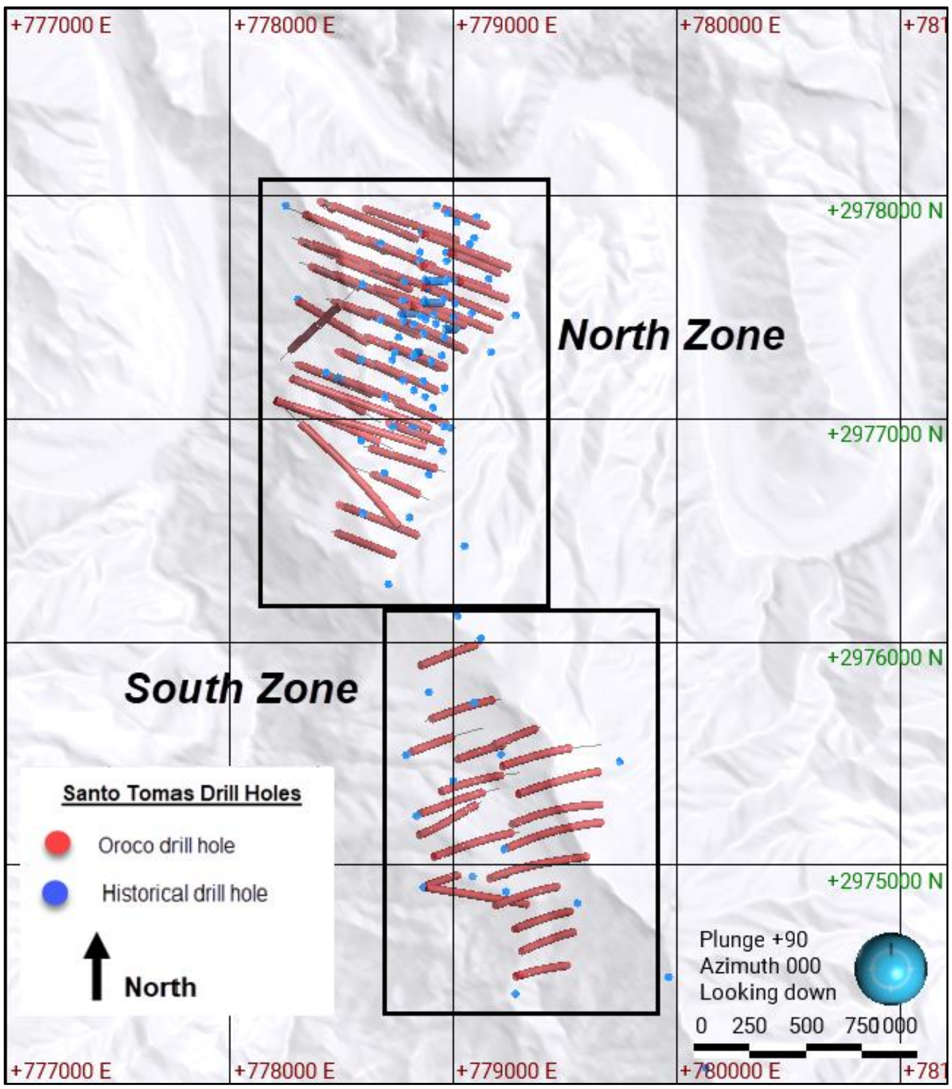
The drill hole database (DHDB) supporting the mineral resources contains 158 drill holes for 64,139 m on the Property between the North Zone Pit and South Zone Pit mineralized areas. Drilling on the Property is performed by diamond drill core (DDH) drill methods, with 67% of total meters drilled performed by Oroco since 2021. The remaining 33% of drilling meters on the Property were completed by previous owners and provide valuable information on continuity of Cu mineralization along with geological data, though contain limited data and documentation. The historical drilling data lack QA/QC documentation, have identified uncertainty associated with some collar elevations, and lack multi-element assay. The identified limitations of historical data risks are acknowledged and considered during mineral resource classification of the Project. The QP notes that historical drilling has been infilled and surrounded by more recent and higher confidence drilling performed by Oroco which corroborates historical information.

Property drilling is focused on evaluation of the two main mineralization zones and outlined in Figure 14-1. In addition to the North and South Zone Pits, drilling has provided broad geological and geotechnical information on the Property. A breakdown of drilling vintage, number of holes, and total meterage by zone is presented in Table 14-1.

Table 14-1: Drilling Summary on the Santo Tomás Property

Zone	Owner	Total m	%
North Zone Pit	Historical	17,044.3	27
	Oroco	30,908.9	48
North Zone Pit Total			75
South Zone Pit	Historical	4,030.8	6
	Oroco	12,154.1	19
South Zone Pit Total			25
Total Drilling		**64,138**	

Figure 14-1: Drill Hole Locations on the Santo Tomás Property (Scale in Meters)



Source: SRK, 2023.

14.2.2 Assay

The Property drilling database contains 29,910 sample intervals within the drilling database used in support of mineral resources. Sampling represents a combination of historical and Oroco-completed drill holes with sampling generally completed on the entire drill hole with limited exceptions in some historical holes. The QP notes that historical drilling performed prior to 2021 by previous owners focused on Cu assays while the more recent Oroco samples include multi-element analyses. This results in the following sample data counts for key economic elements:

- 29,910 samples analysed for copper (Cu).
- 23,138 samples analysed for molybdenum (Mo).
- 23,273 samples analysed for gold (Au).
- 23,278 samples analysed for silver (Ag) and for sulphur (S).

The mean sampling interval length is 2.13 m with interval lengths down to 0.1 m based on lithology and observed mineralization in the core.

The QP notes that all analyses were completed at independent laboratories using inductively coupled plasma (ICP) (as described in Section 11). These values represent a total digestion analytical value and does not differentiate oxide versus sulphide mineral species. The analyses and mineral resources at the Santo Tomás Property are focused on sulphide mineralization at this stage of the study with plans by Oroco to further investigate oxide metal potential with more advanced property studies.

During database validation and review exercises, several non-sampled intervals were identified along with the lack of multi-element data in historical drill holes. As such, the QP performed the modification of missing intervals for the purposes of exploratory data analyses (EDA) and handing for mineral resource estimation. For this special handling, all non-sampled intervals are assumed to be deliberately selected for no sampling based on decisions made by logging geologists due to an observed a lack of mineralization. In the case of historical intervals which only contain analyses for Cu but lack other elements, values for Mo, Au, Ag, and S are treated as untested, null values. Table 14-2 provides a summary of special handling and modification of missing intervals or elements.

Table 14-2: Modification of Missing Data

Element	Unit	Unsampled	Untested
		Missing interval	Missing value
Cu	ppm	0.01	omit
Ag	ppm	0.01	omit
As	ppm	0.01	omit
Au	ppm	0.001	omit
Ca	%	omit	omit
Fe	%	omit	omit
K	%	omit	omit
Mo	ppm	0.01	omit
Pb	ppm	0.01	omit
S	%	omit	omit
Zn	ppm	0.01	omit
SG	n/a	omit	omit

14.2.3 Survey

Collection of collar and down-hole survey data are described in Section 10. During DHDB validation, several historical drill hole collars were identified that were located above the current high-resolution topography. These holes were individually reviewed and confirmed based solely on aerial imagery of constructed drill pads. Once the X and Y coordinates were confirmed, the elevation (Z) value was modified to lie directly on the Oroco-provided LiDAR topography.

Historical drilling was completed vertically with a lack of down-hole survey documentation. This lack of down-hole survey control is considered a low risk due to the vertical nature of drilling and assumed immaterial deviation down-hole. This lack of down-hole survey has been accounted for in overall drilling data confidence and classification. Volumes in the mineral resources which are majority supported by the historical drilling have been identified and downgraded in confidence in the resource classification.

14.2.4 Specific Gravity

Specific gravity (SG) data from DDH was provided for incorporation into the resource block model. The Property contains 1,921 SG measurements from drill core. SG samples are collected and measured on-site with procedures described in Section 11. SG sample interval mean is 0.14 m. The SG varies slightly across the various lithologies with Tertiary volcanics showing the lowest density with a mean SG of 2.48 and the highest density materials being in the carbonate skarn with a mean at 3.04.

14.3 Geological Model

A 3D digital geologic model was constructed using Leapfrog Geo™ software (version 2023.1.1). A combination of geologic mapping, cross-sectional interpretations, and down-hole lithologic logging were used to model six primary structures and five primary lithologic units observed at the Project (Sierra Madre Tuff, Upper Andesite, Paleozoic Sediments, Lower Andesite, Granodiorite, and the Quartz-monzonite Porphyry.

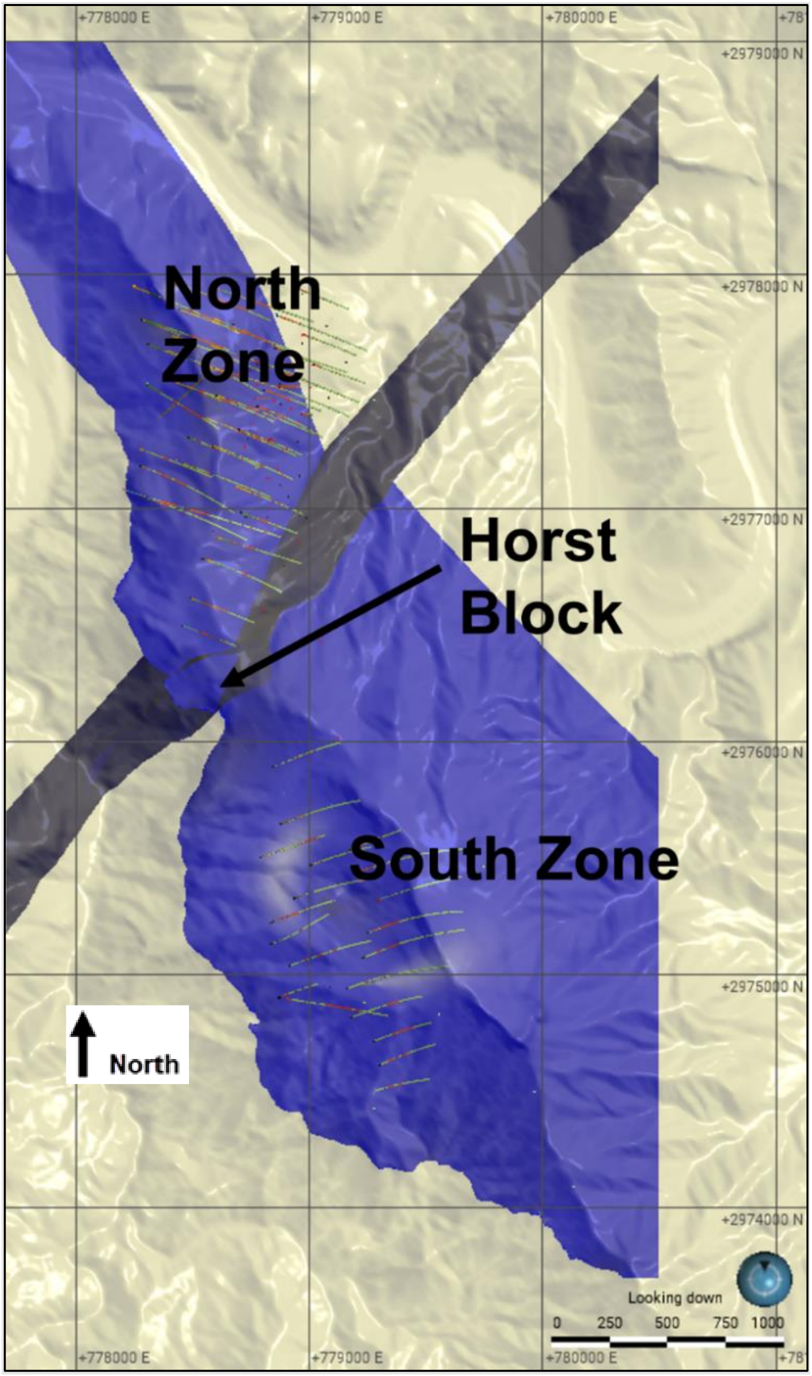
14.3.1 Structural Geologic Model

Six primary structures were modelled and activated in Leapfrog Geo to generate the structural model for the Project. Each structure has been observed in the drilling and field mapping. The Project is structurally complex and consist of hundreds of smaller structures however, only the dominant structures were interpreted and modelled. These primary features are important because they limit the extents of mineralization and are treated as hard boundaries. Most notably is a horst block that separated the deposit into two domains (North Zone Pit and the South Zone Pit). Figure 14-2 is a plan view of the horst block that divides the North and South Zone Pit.

14.3.1.1 Lithological Model

Lithologic modeling used a combination of surface mapping, down-hole logging, and manually drawn interpreted cross-sections by site geologists. Five primary lithologic units were modelled (Sierra Madre Tuff, Upper Andesite, Paleozoic Sediments, Lower Andesite, Granodiorite, and the Quartz-monzonite Porphyry (QMP)) and used to inform the resource domaining process. The model was created using control points digitized on the Project surface geology map and down-hole lithologic contacts. Stratigraphic relationships were established in Leapfrog Geo resulting in a dynamic data-driven model.

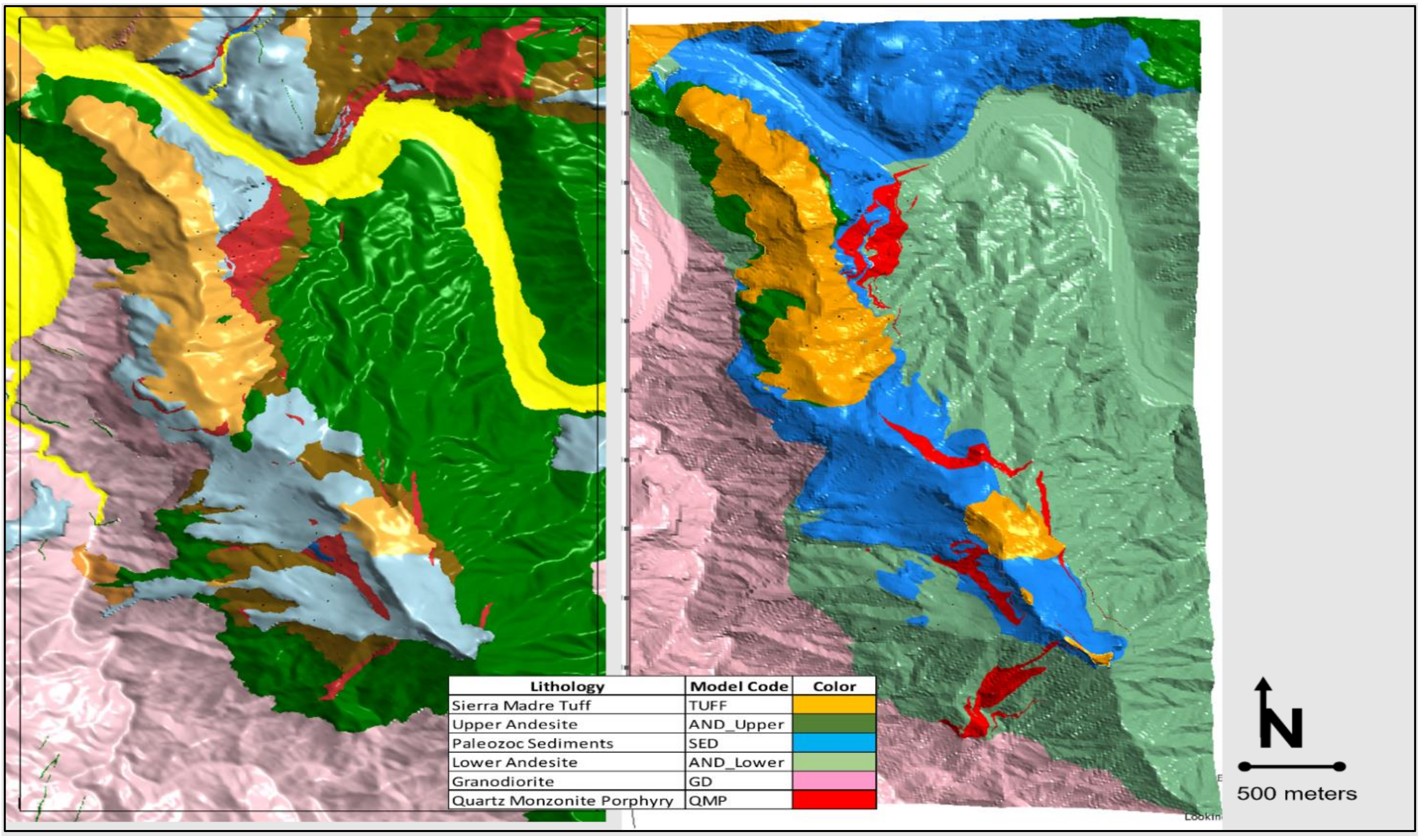
Figure 14-2: Plan View of the Modelled Horst Block



Source: SRK, 2023.

A more interpretive modeling approach was used to capture the QMP intrusive, which is interpreted to be emplaced as a series of sheeted sills. Lateral and down-dip continuity is observed in the field and in drill core and is best reflected in the model as a series of Leapfrog Geo modelled "veins". The interval selection and vein modeling tools were utilized to best reflect the QMP geometry and cross-cutting relationships observed.

Figure 14-3: Geologic Mapping (Left) and Geology Model (Right) Comparison



Source: SRK, 2023.

Three of the modelled lithologies are barren of mineralization (Sierra Madre Tuff, Upper Andesite and Granodiorite). These three units are treated as hard boundaries and limit the extents of the mineralization at the Project. Figure 14-3 a comparison of the surface geologic mapping (left) and geologic model (right). Figure 14-4 shows a comparison of the geologic model and cross-sectional interpretation which is representative of the North Zone Pit geology. Based on these comparisons, it is QP's opinion that the geological model represents an acceptable geological model for use in mineral resource determination.

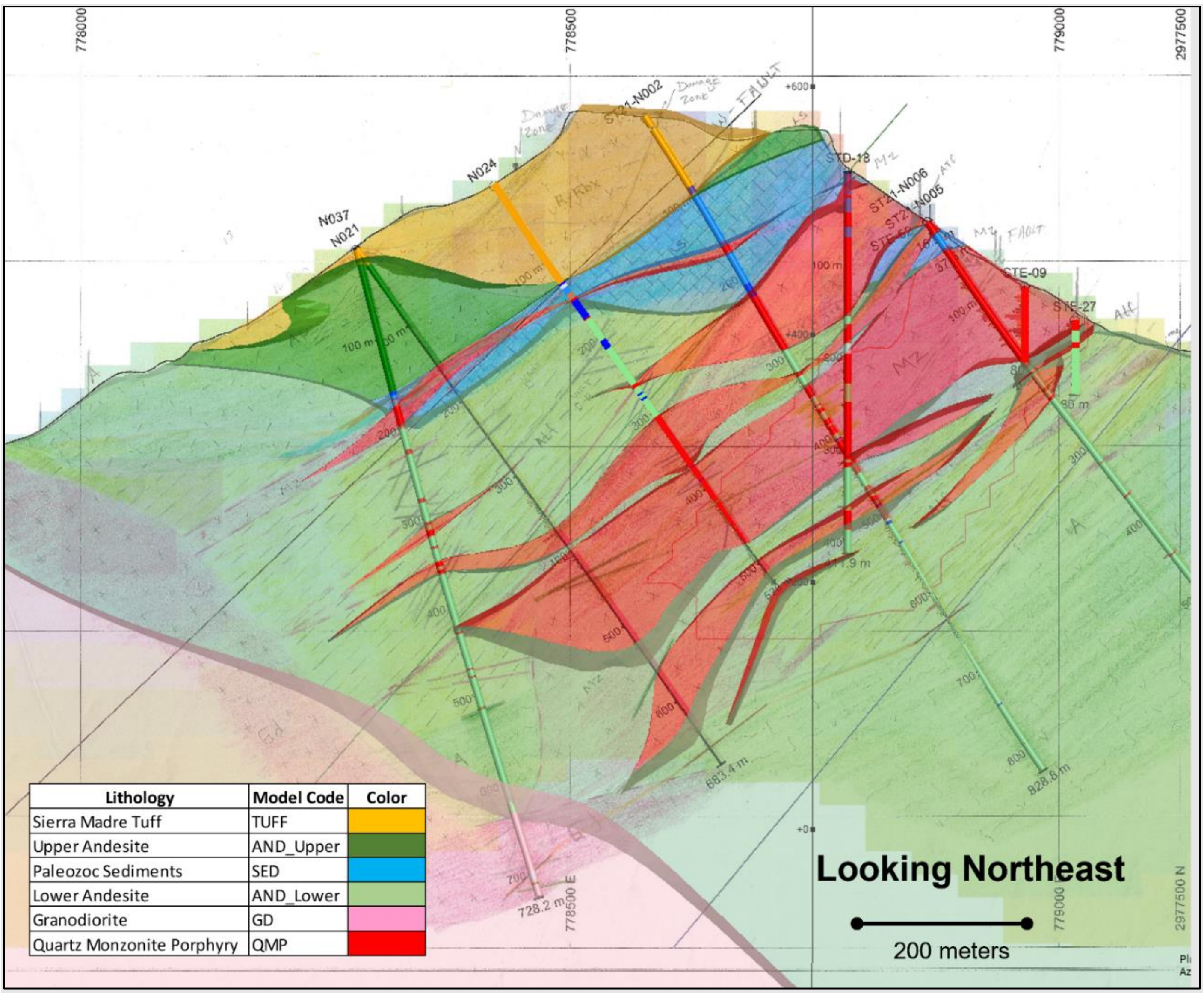
14.3.2 Oxidation Model

Oxidation is observed in the upper 80 m of material below the surface with an average depth of 30 m. In areas where mineralization is present, supergene enrichment is not observed, however Oroco has not collected any metallurgical samples in the oxidized horizon and metal recoveries are unknown at this level of study. Due to this uncertainty, an oxidation model was constructed to code the block model and delineate oxidized material in the resource block model.

An offset to the topographic surface was applied and utilized drill hole oxidation logging to create the oxide model. This resulted in a dynamic, data-driven oxidation model that covers the extents of the block model. Figure 14-5 is a cross-section showing the oxidized and reduced domains.

For the purposes of constraining oxide-dominant mineralization in each zone, SRK generated a NZ oxidation and a SZ oxidation volume. Each mineralized oxide domain is based on the intersection of the property-wide oxide model (Figure 14-5) and the Cu mineralization domain by zone. Both zones utilized the 750 ppm Cu threshold domain as described in the next section that is unique per zone.

Figure 14-4: Comparison of Cross-Sectional Interpretation and Geologic Model (Looking Northeast)

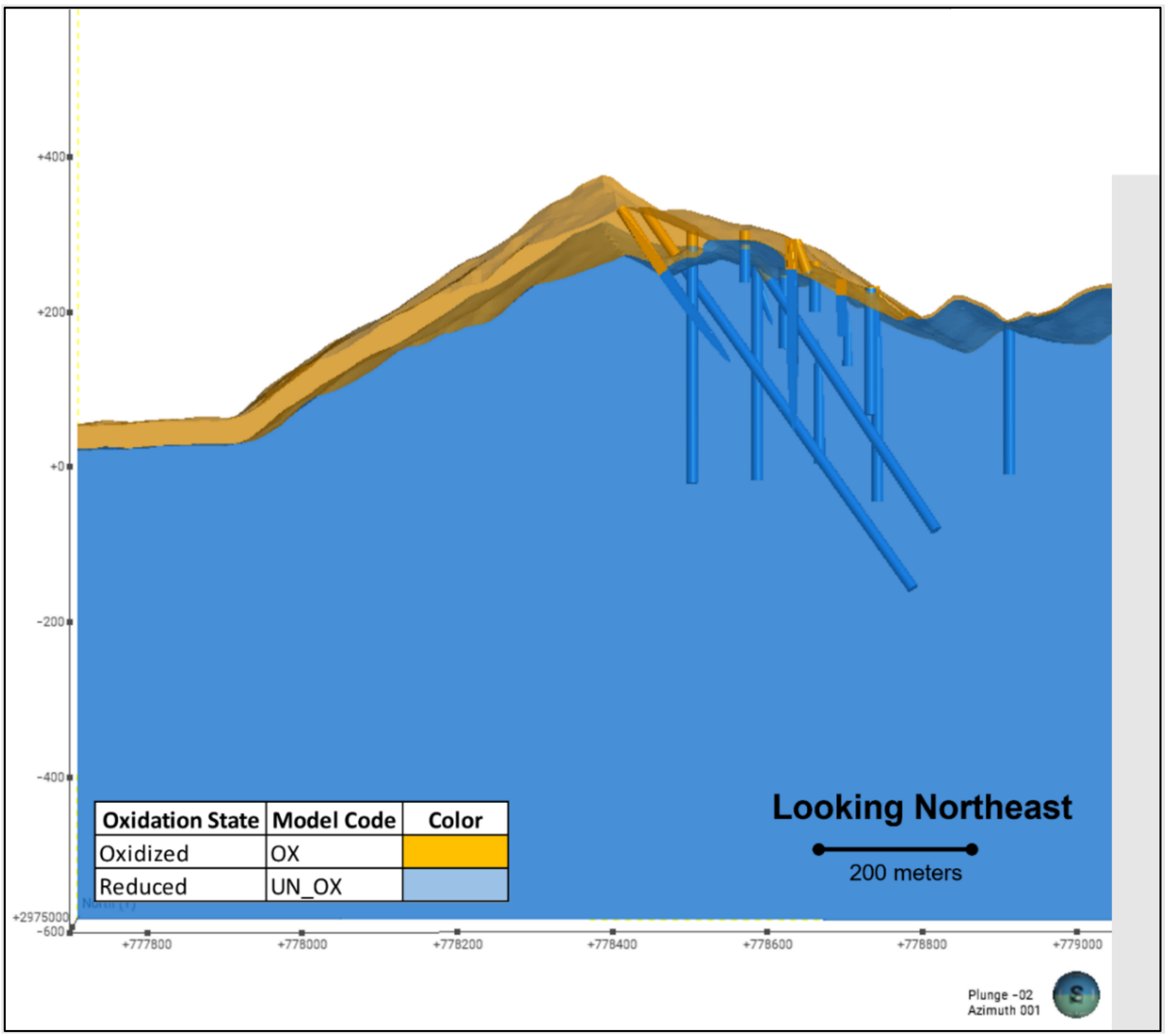


Source: SRK/Oroco, 2023.

14.3.3 Mineralization Domains

As the primary metal mineralization is not restricted to any one lithology and lithologic domain analyses demonstrate similar grade deportment in both the andesite and monzonite rock types, a modified numeric-geologic grade shell approach was selected for establishing mineralization domains for use in resource estimation. Indicator grade shells were constructed in Leapfrog Geo in both the North Zone Pit and South Zone Pit based on the general Cu mineralization trend and a minimum threshold of 750 ppm Cu. The 750 ppm Cu threshold was selected based on statistical analyses and communication with Oroco staff to generally align with site logging determination of mineralized versus unmineralized material. Using an ISO-value of 0.4 and 0.35 in the North and South Zone Pits respectively, grade shell volumes were calculated. These volumes were then truncated by bordering post-mineralization faults and confined to lithologic units with observable mineralization. The resultant volumes represent discrete mineralization volume by zone (Figure 14-6).

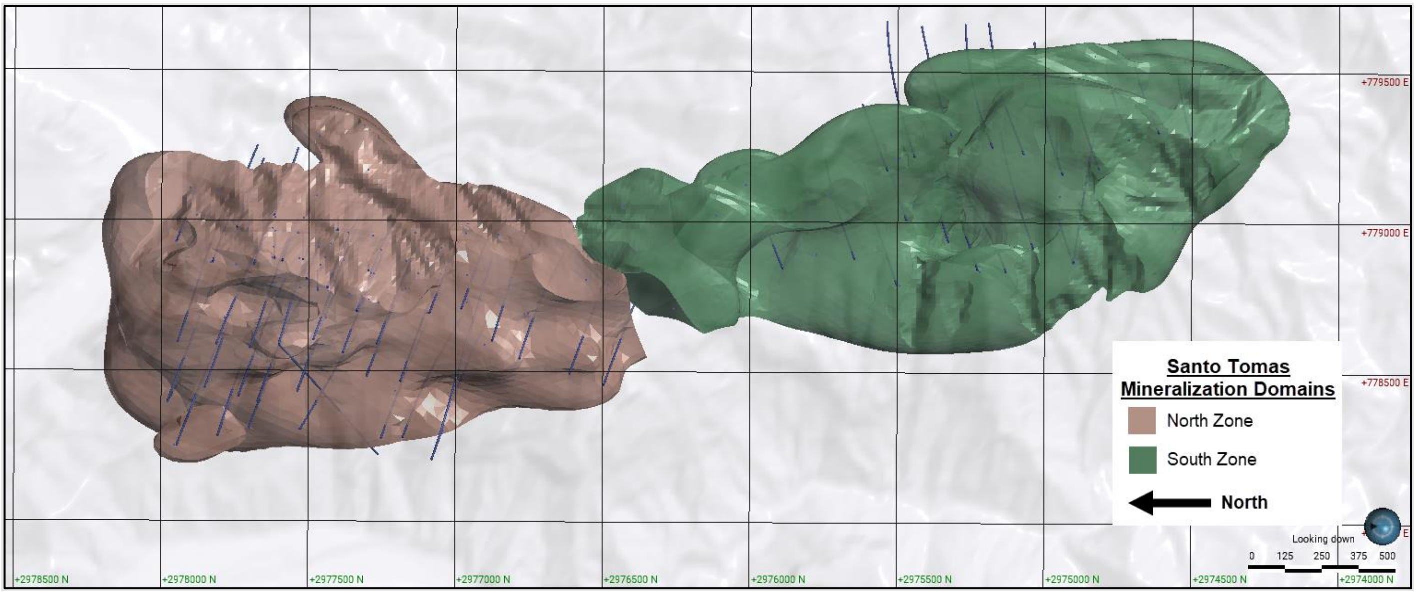
Figure 14-5: Cross-Section of Oxidation Model (Looking Northeast)



Source: SRK, 2023.

Similar lithostructural grade domains were constructed for Mo, Au, Ag, and S, noting the similar spatial continuity and volume for each element. Ultimately, it was decided to utilize the Cu mineralization domain to constrain the majority of metal estimation. Additional details on constraints used in grade estimation is presented in Section 14.14.

Figure 14-6: Plan View of Mineralized Domains



Source: SRK, 2023.

Summary statistical analyses for the North Zone Pit and South Zone Pit indicator shells are provided in Table 14-3 and Table 14-4, respectively.

Table 14-3: Indicator Grade Shell Summary - Cu in North Zone Pit

North Zone Pit - Cu @ 750 ppm Threshold		
Indicator statistics		
Total number of samples	17,833	-
Cut-off value	750	-
-	≥ cut-off	< cut-off
Number of points	11,501	6,332
Percentage	64.5%	35.5%
Mean value	3308.05	238.9
Minimum value	750	0.01
Maximum value	25,500	749
Standard deviation	2364	227.6
Coefficient of variance	0.7	0.95
Variance	5,588,380	51795
Output volume statistics		
Resolution	40	-
Iso-value	0.4	-

North Zone Pit - Cu @ 750 ppm Threshold		
-	Inside	Outside
≥ cut-off	-	-
Number of samples	11,027	474
Percentage	61.8%	2.7%
< cut-off		
Number of samples	1,257	5,075
Percentage	7.1%	28.5%
All points		
Mean value	3080.4	309.8
Minimum value	0.01	0.01
Maximum value	25,500	8,370
Standard deviation	2419.5	571.8
Coefficient of variance	0.7	1.8
Variance	5,853,940	326,941
Volume	397,990,102	903,650,078
Number of parts	2	4

Table 14-4: Indicator Grade Shell Summary - Cu in South Zone Pit

South Zone Pit - Cu @ 750 ppm Threshold		
Indicator statistics		
Total number of samples	7,697	-
Cut-off value	750	-
-	≥ cut-off	< cut-off
Number of points	3,412	4,285
Percentage	44.33	55.67
Mean value	2,766.15	166.29
Minimum value	750	0.01
Maximum value	11,100	749.5
Standard deviation	1,805.93	208.27
Coefficient of variance	0.652868	1.25245
Variance	3,261,390	43,376.5
Output volume statistics		
Resolution	40	-
Iso-value	0.35	-
-	Inside	Outside
≥ cut-off		
Number of samples	3,294	118
Percentage	42.80%	1.53%
< cut-off	-	-
Number of samples	530	3,755
Percentage	6.89	48.79
All points		
Mean value	2,491.21	161.187

South Zone Pit - Cu @ 750 ppm Threshold		
Minimum value	0.01	0.01
Maximum value	11,100	7,510
Standard deviation	1,868.16	305.201
Coefficient of variance	0.749901	1.89346
Variance	3,490,030	93,147.4
Volume	320,679,042	4,332,687,253
Number of parts	1	3

14.4 Exploratory Data Analysis

Exploratory data analysis (EDA) was performed on the key economic variables (KEV) of Cu, Mo, Au, Ag, S, and SG and secondary variables (As, Ca, Fe, K, Pb, and Zn) from the PEA drilling database as provided by Oroco. EDA included an assessment of raw and composited & capped data to assess the degree of modification and congruence to original sample analytical information, descriptive statistical analyses, a composite length analysis (CLA), high-end outlier analysis, and domain assessment within the mineralized North and South Zone Pits.

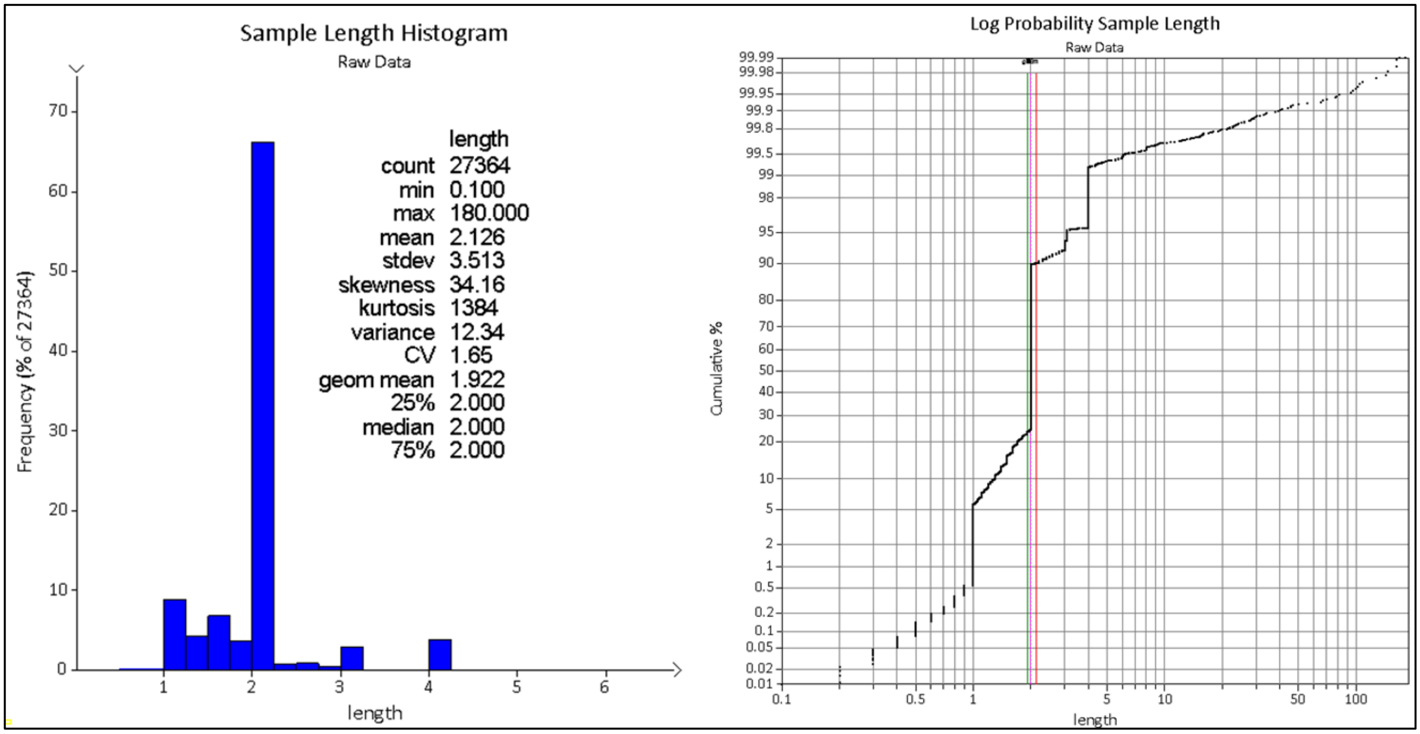
14.4.1 Composite Length Analysis

Prior to performing sample compositing, a CLA was performed to assess the effects of compositing on diluting or modifying the underlying raw sample statistics. For estimation to have equal weighting of analytical variables, the sample support (equal volume represented) should be consistent. Therefore, composites aid in establishing consistent sample support and diluting potentially biased small samples that are considered unrepresentative of the broader data population.

Raw sample lengths were investigated to determine descriptive statistics (Table 14-5 and population characteristics via histogram and log-probability charts (Figure 14-7). The majority of sample interval lengths are at 2 m across the Property with a majority of non-2 m intervals smaller than 2 m in length. Many of the larger intervals are represented in the statistics are non-sampled intervals outside mineralization domains. Final compositing methodology was selected as a full hole, run length 2 m composite. Small intervals of less than 0.5 m at the end of holes were merged with the previous interval.

Comparing KEV grade statistics and population distribution show minimal and acceptable modification between raw samples and 2 m composite grade statistics (Table 14-6). Figure 14-6 shows Cu grade distribution is nearly identical with minor dilution of extreme outlier data based on non-representative small intervals of extreme high grade. It was noted that the original sample interval mean length is slightly higher than the composite length, 2.13 m to 2.0 m. Based on review of the CLA, it was deemed acceptable to use the 2 m composite length as the raw sampling statistics and composited statistics show immaterial differences. The QP recognizes using a composite length less than mean sample size will result in artificial splitting of samples but as these are predominantly located in non-mineralized areas with larger sample lengths, QP’s review has shown this concern to be nonconsequential for data within the mineralized domains.

Figure 14-7: Raw Sample Interval Histogram (Left) and Log-Probability (Right)

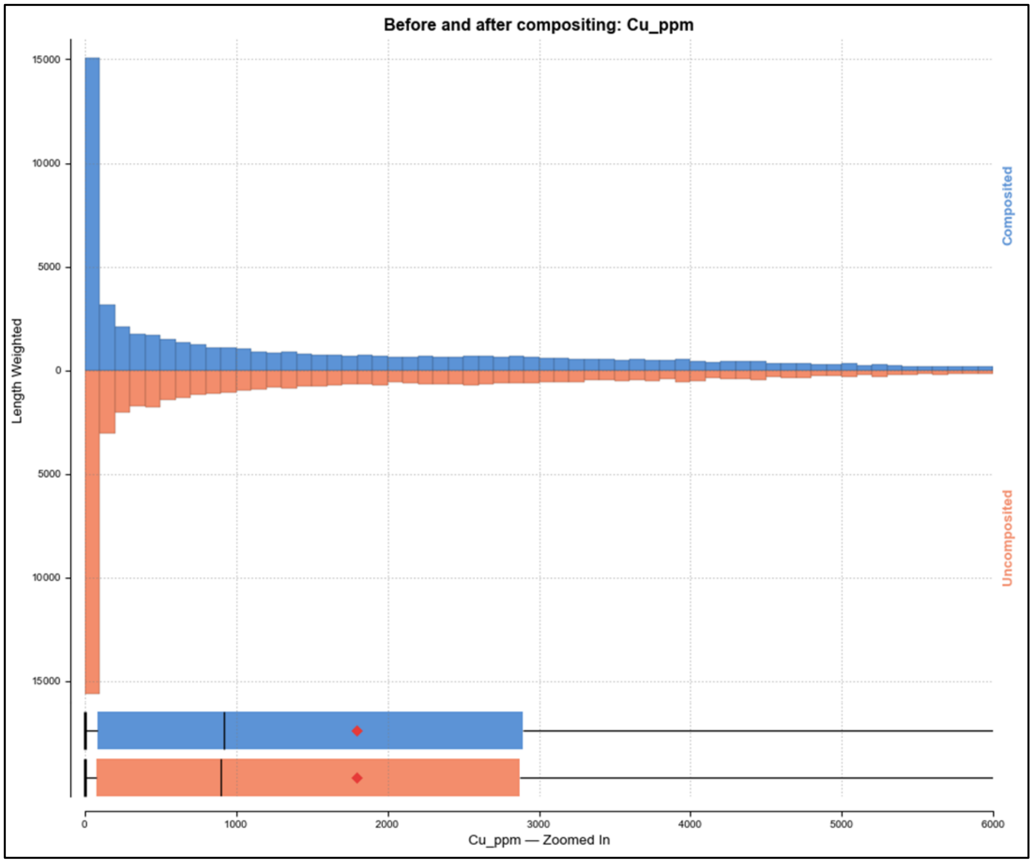


Source: SRK, 2023.

Table 14-5: Summary Descriptive Statistics for Raw Samples

Element	Domain	Count	Mean	Min	Max	Median	Variance	StDev	CV	IQR	Outlier
Cu_ppm	All	26,756	1959	0.01	77,000	1,110	6,217,373	2,493	1.27	2845	7297.5
Cu_ppm	NZ	18,866	2269	0.01	77,000	1,535	7,084,303	2,662	1.17	3082.5	8073.75
Cu_ppm	SZ	6,890	1363	0.01	45,000	580	3,632,476	1,906	1.4	2081	5271.5
Mo_ppm	All	20,600	39.76	0.01	2,570	8	8,055	89.75	2.26	39	99.5
Mo_ppm	NZ	13,988	43.63	0.01	2,570	10	8,982	94.78	2.17	47	119.5
Mo_ppm	SZ	5,659	35.22	0.01	1,015	5	6,424	80.15	2.28	31	78.5
Au_ppm	All	20,661	0.02	0.01	4.11	0.01	0	0.05	2.67	0.02	0.05
Au_ppm	NZ	14,058	0.02	0.01	4.11	0.01	0	0.05	2.65	0.02	0.05
Au_ppm	SZ	5,647	0.01	0.01	1.07	0.01	0	0.03	2.17	0.01	0.025
Ag_ppm	All	20,791	1.41	0.01	141	0.9	5.95	2.44	1.73	1.65	4.375
Ag_ppm	NZ	14,079	1.56	0.01	96.6	1.1	4.28	2.07	1.33	1.85	4.875
Ag_ppm	SZ	5,755	1.22	0.01	141	0.6	10.68	3.27	2.67	1.35	3.625

Figure 14-8: Distribution of Cu Grade in 2 m Composites (Top) and Raw Samples (Bottom)



Source: SRK, 2023.

For SG samples, the majority of data was collected on 0.17 m intervals. These data were utilized directly for estimation purposes as SG data do not represent continuous samples, but merely representative "point" samples collected with the various lithologies.

Table 14-6: Summary Descriptive Statistics for 2 m Composited Samples

Element	Domain	Count	Mean	Min	Max	Median	Variance	StDev	CV	IQR	Outlier
Cu_ppm	All	29,352	1793	0.01	77,000	916	5,426,522	2,329	1.3	2803.5	7095.25
Cu_ppm	NZ	18,806	2243	0.01	77,000	1567	6,305,175	2,511	1.12	3088.2	8092.3
Cu_ppm	SZ	7,697	1327	0.01	25,500	519.3	3,434,625	1,853	1.4	2055	5182.5
Mo_ppm	All	21,986	34.05	0.01	2,280	5	5,871	76.62	2.25	33	83.5
Mo_ppm	NZ	13,237	41.51	0.01	2,280	10	6,896	83.04	2	47	119.5
Mo_ppm	SZ	5,969	31.84	0.01	1,015	3.5	5,493	74.11	2.33	28.25	71.375
Au_ppm	All	22,046	0.01	0.01	2.72	0.01	0	0.04	2.6	0.02	0.05
Au_ppm	NZ	13,307	0.02	0.01	2.72	0.01	0	0.05	2.43	0.02	0.05
Au_ppm	SZ	5,957	0.01	0.01	1.07	0.01	0	0.03	2.22	0.01	0.025
Ag_ppm	All	22,176	1.21	0.01	141	0.7	4.66	2.16	1.79	1.45	3.875
Ag_ppm	NZ	13,328	1.47	0.01	96.6	1	3.32	1.82	1.24	1.69	4.585
Ag_ppm	SZ	6,065	1.11	0.01	141	0.5	8.99	3	2.7	1.25	3.375

14.4.2 Capping Analysis

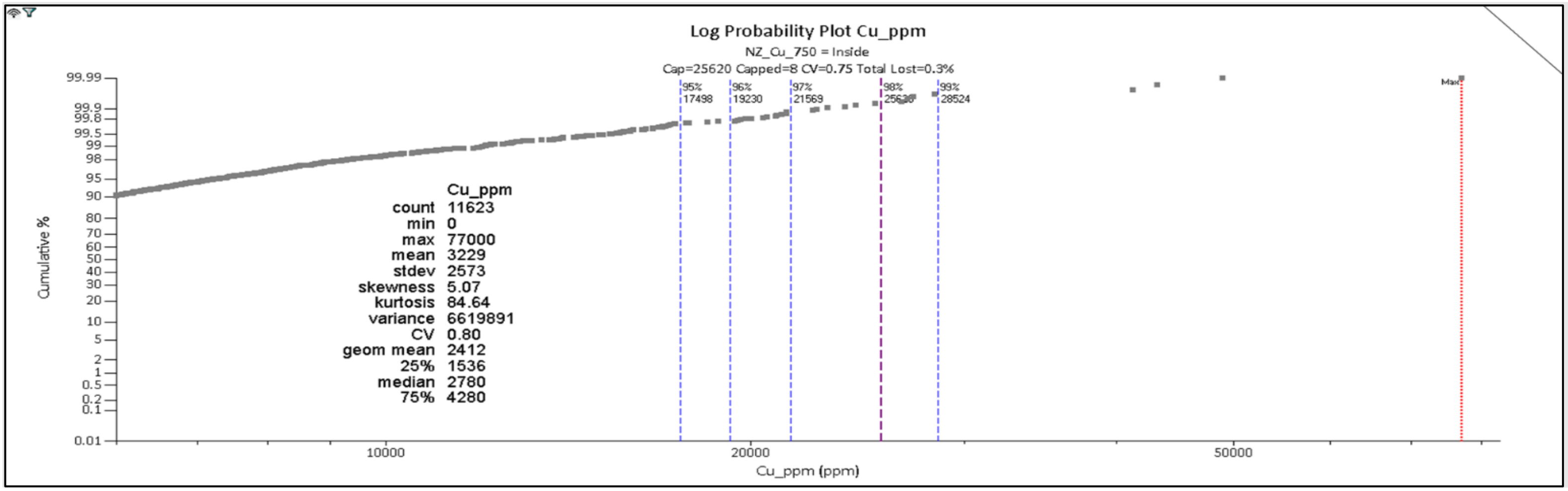
A comparative outlier analysis was performed to review the presence of upper outlier assay data and assess the potential estimation impact. All key and secondary variables were assessed. Upper outliers were identified within the composited data and subsequently capped by domain with limits shown in Table 14-7. The capping process does not eliminate the sample but re-assigned the upper cap limit to the outlier value. Figure through Figure 14-12 illustrate the log-probability charts and associated tabulated (Table 14-7 through Table 14-11) impact used to assess the upper capped and composited population statistics for all KEV. Upper capping was applied to secondary variables of As and Zn only.

Upper-end capping limits for Cu were selected based on the mineralized domain with Mo, Au, and Ag caps selected for the entire property. Capping limits remain unchanged for the KEV from the 2023 MRE.

Table 14-7: Summary Upper Capping Applied for Santo Tomás PEA

Element	Zone	Upper Cap	Unit
Cu	North Zone Pit	25,500	ppm
Cu	South Zone Pit	11,000	ppm
Mo	Both	1,500	ppm
Au	Both	0.33	ppm
Ag	Both	17.5	ppm
As (low grade)	As-LG	100	ppm
As (high grade)	As-HG	1,500	ppm
Zn	South Zone Pit	8,000	ppm

Figure 14-9: Log-Probability Chart on North Zone Pit Cu for Capping Analysis

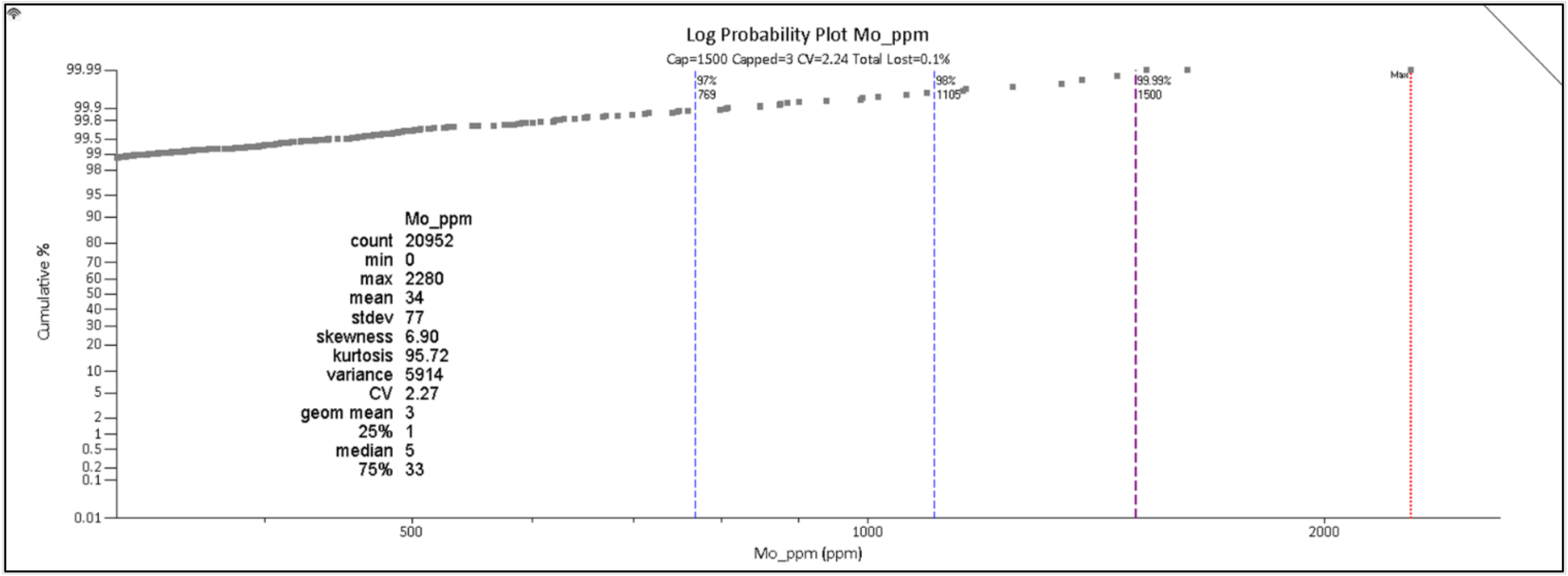


Source: SRK, 2023.

Table 14-8: Tabulated Capping Options for North Zone Pit Copper in PPM

Capping Option (Cu in ppm)	Capped ppm	Capped	Percentile (%)	Capped (%)	Lost Total (%)	Lost CV (%)	Count	Min	Max	Mean	Variance	CV
NZ_Cu_750 = Inside	-	-	-	-	-	-	11623	0	77000	3229	6619891	0.8
NZ_Cu_750 = Inside	28524	4	99	0.03	0.30	5.10	11623	0	28524	3221	5929766	0.76
NZ_Cu_750 = Inside	25500	8	98	0.10	0.30	5.70	11623	0	25500	3219	5852120	0.75
NZ_Cu_750 = Inside	21569	14	97	0.10	0.40	6.80	11623	0	21569	3215	5700085	0.74
NZ_Cu_750 = Inside - Cu_ppm > 25,500	-	-	-	-	-	-	8	26600	77000	39933	301762807	0.44
NZ_Cu_750 = Inside - Cu_ppm ≤ 25,500	-	-	-	-	-	-	11615	0	25320	3204	5513959	0.73

Figure 14-10: Log-Probability Chart on Mo (Both Zones) for Capping Analysis

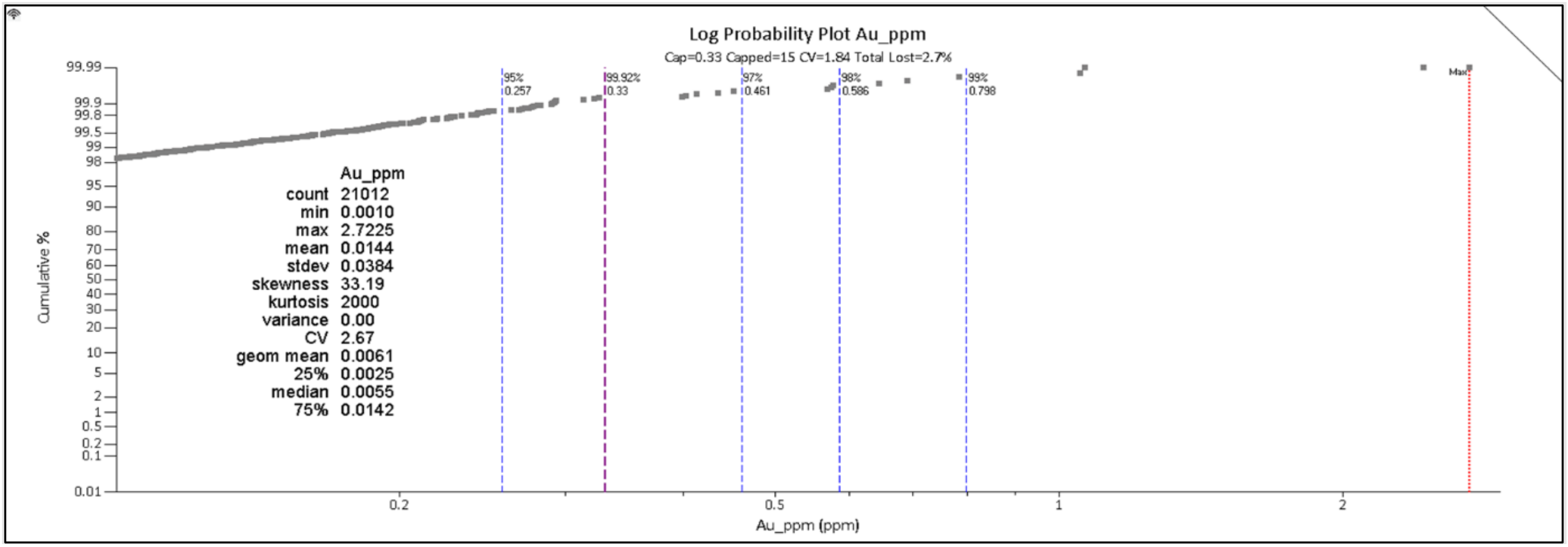


Source: SRK, 2023.

Table 14-9: Tabulated Capping Options for Molybdenum in PPM (Combined Zones)

Capping Option	Capped ppm	Capped	Percentile (%)	Capped (%)	Lost Total (%)	Lost CV%	Count	Min	Max	Mean	Total	Variance	CV
-	-	-	-	-	-	-	20952	0	2280	34	709034	5914	2.27
-	1500	3	99	0.01	0.10	1.20	20952	0	1500	34	708104	5754	2.24
-	1105	9	98	0.04	0.50	3.30	20952	0	1105	34	705803	5483	2.2
-	769	24	97	0.10	1.20	6.50	20952	0	769	33	700585	5047	2.12
Mo_ppm > 1500	-	-	-	-	-	-	3	1525	2280	1810	5430	168196	0.23
Mo_ppm ≤ 1500	-	-	-	-	-	-	20949	0	1460	34	703604	5447	2.2

Figure 14-11: Log-Probability Chart on Au (Both Zones) for Capping Analysis

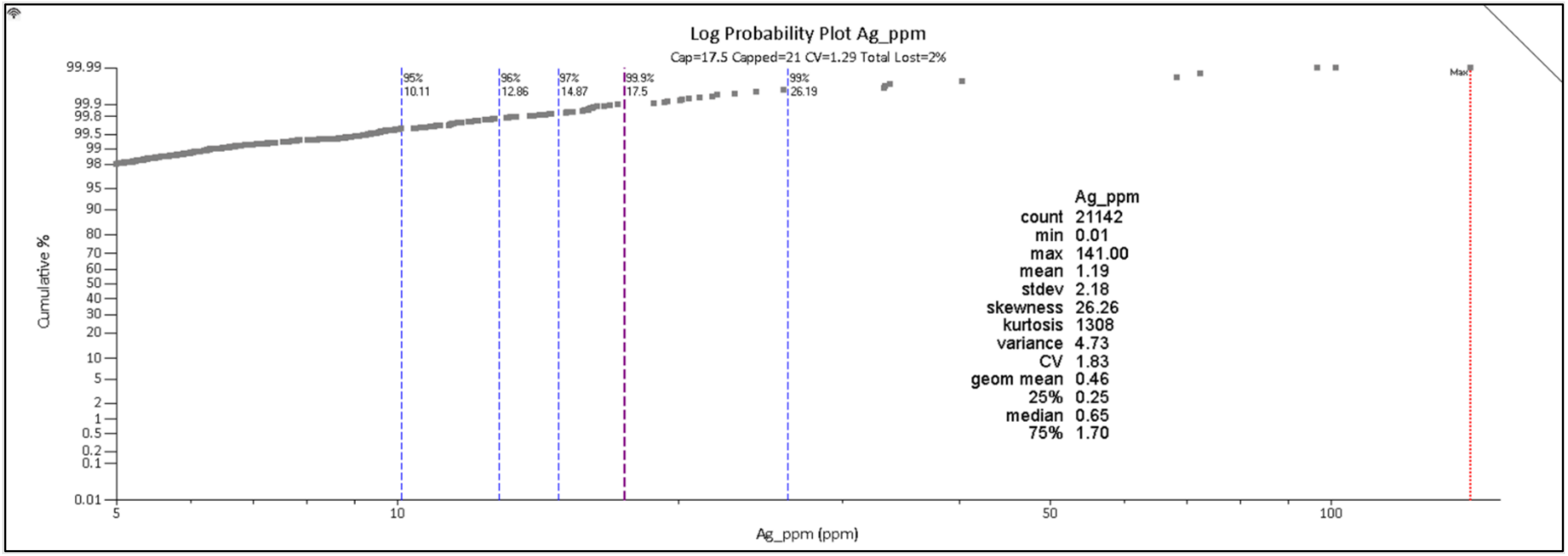


Source: SRK, 2023.

Table 14-10: Tabulated Capping Options for Gold in PPM (Combined Zones)

Capping Option	Capped ppm	Capped	Percentile (%)	Capped (%)	Lost Total (%)	Lost CV (%)	Count	Min	Max	Mean	Variance	CV
-	-	-	-	-	-	-	21012	0.001	2.723	0.0144	0	2.67
-	0.798	4	99	0.02	1.30	23	21012	0.001	0.798	0.0142	0	2.07
-	0.586	7	98	0.03	1.70	26	21012	0.001	0.586	0.0141	0	1.98
-	0.461	10	97	0.05	2.10	28	21012	0.001	0.461	0.0141	0	1.91
-	0.33	15	96	0.10	2.70	31	21012	0.001	0.33	0.014	0	1.84
-	0.257	32	95	0.20	3.30	33	21012	0.001	0.257	0.0139	0	1.79
Au_ppm > 0.33	-	-	-	-	-	-	15	0.398	2.723	0.881	0.52	0.82
Au_ppm ≤ 0.33	-	-	-	-	-	-	20997	0.001	0.326	0.0138	0	1.77

Figure 14-12: Log-Probability Chart on Ag (Combined Zones) for Capping Analysis



Source: SRK, 2023.

Table 14-11: Tabulated Capping Options for Silver in PPM (Combined Zones)

Capping Option	Capped ppm	Capped	Percentile (%)	Capped (%)	Lost Total (%)	Lost CV (%)	Count	Min	Max	Mean	Variance	CV
-	-	-	-	-	-	-	21142	0.01	141	1.19	4.73	1.83
-	26.19	9	99	0.04	1.50	26	21142	0.01	26.19	1.17	2.5	1.35
-	17.5	21	98	0.10	2	29	21142	0.01	17.5	1.16	2.26	1.29
-	14.87	36	97	0.20	2.30	31	21142	0.01	14.87	1.16	2.16	1.27
-	12.86	47	96	0.20	2.60	32	21142	0.01	12.86	1.15	2.06	1.24
-	10.11	80	95	0.40	3.30	35	21142	0.01	10.11	1.15	1.9	1.2
Ag_ppm > 17.5	-	-	-	-	-	-	21	18.8	141	41.71	1163	0.82
Ag_ppm ≤17.5	-	-	-	-	-	-	21121	0.01	17.2	1.15	2	1.23

14.4.3 Statistical Analysis

A statistical analysis of KEV and secondary variables was performed and based on the drilling database as provided by Oroco. Broadly defined North Zone Pit and South Zone Pit areas were used to investigate statistical differences in the spatially discrete zones of mineralization. The QP notes that EDA presented below represent a non-mineralized domained statistics as thresholds (grade shells) are not applied for this exercise. Only upon final EDA analyses and interpretation were the mineralized domains defined.

Key economic variables (KEV) were analysed which include Cu, Mo, Au, Ag and S. Additional variables were reviewed from a high level but not further investigated for the purposes of mineral resource estimation and reporting. Secondary variables are utilized in determining lithology, alteration, and recovery considerations and include As, Ca, K, Pb, and Zn. Analyses include calculation of descriptive statistics in Table 14-12. Histograms of raw data by domain per KEV in Figure 14-13 through Figure 14-15.

Table 14-12: Summary Descriptive Statistics for Capped and Composited Samples

Element	Domain	Count	Mean	Min	Max	Median	Variance	StDev	CV
Ag_ppm	All	22176	1.21	0.01	141	0.7	4.66	2.16	1.79
Ag_ppm	NZ	13328	1.47	0.01	96.6	1	3.32	1.82	1.24
Ag_ppm	SZ	6065	1.11	0.01	141	0.5	8.99	3	2.7
As_ppm	All	21646	14.65	0.01	6390	8	4955	70.39	4.8
As_ppm	NZ	13013	15.5	0.01	3905	9	4025	63.44	4.09
As_ppm	SZ	5853	14.2	0.01	336	10	242.6	15.58	1.1
Au_ppm	All	22046	0.01	0.001	2.72	0.01	0	0.04	2.6
Au_ppm	NZ	13307	0.02	0.001	2.72	0.01	0	0.05	2.43
Au_ppm	SZ	5957	0.01	0.001	1.07	0.01	0	0.03	2.22
Ca_pct	All	18646	3.771	0.02	38.6	2.35	32.69	5.718	1.52
Ca_pct	NZ	12500	4.005	0.02	38.6	2.28	41.55	6.446	1.61
Ca_pct	SZ	5287	3.257	0.055	35.85	2.51	14.71	3.835	1.18
Cu_ppm	All	29352	1793	0.01	77000	916	5426522	2329	1.3
Cu_ppm	NZ	18806	2243	0.01	77000	1567	6305175	2511	1.12
Cu_ppm	SZ	7697	1327	0.01	25500	519.3	3434625	1853	1.4
Fe_pct	All	21183	4.27	0.05	37.76	4.37	3.96	1.99	0.47
Fe_pct	NZ	14070	4.17	0.05	37.76	4.19	4.45	2.11	0.51
Fe_pct	SZ	6242	4.62	0.23	33.1	4.77	2.88	1.7	0.37
K_pct	All	18646	2.53	0.01	8.24	2.61	0.94	0.97	0.38
K_pct	NZ	12500	2.55	0.01	8.24	2.64	0.89	0.94	0.37
K_pct	SZ	5287	2.5	0.01	7.54	2.54	1.1	1.05	0.42
Mo_ppm	All	21986	34.05	0.01	2280	5	5871	76.62	2.25
Mo_ppm	NZ	13237	41.51	0.01	2280	10	6896	83.04	2
Mo_ppm	SZ	5969	31.84	0.01	1015	3.5	5493	74.11	2.33
Pb_ppm	All	21646	30.2	0.01	8063	11	21372	146.2	4.84
Pb_ppm	NZ	13013	36.19	0.01	8063	13.81	27834	166.8	4.61
Pb_ppm	SZ	5853	27.34	0.01	4866	9	15991	126.5	4.63
S_pct	All	18646	1.4	0.01	10	0.98	2.19	1.48	1.06
S_pct	NZ	12500	1.51	0.01	10	1.07	2.28	1.51	1
S_pct	SZ	5287	1.34	0.01	10	1.03	2.06	1.43	1.07
Zn_ppm	All	21646	164.4	0.01	60100	78	841467	917.3	5.58

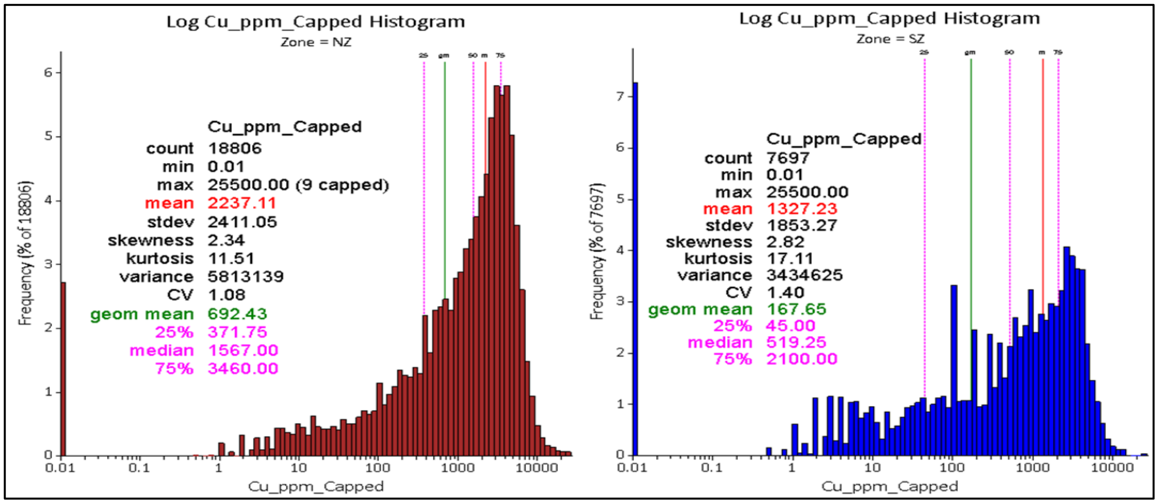
Element	Domain	Count	Mean	Min	Max	Median	Variance	StDev	CV
Zn_ppm	NZ	13013	201	0.01	60100	90.43	1326972	1152	5.73
Zn_ppm	SZ	5853	145.2	0.01	9460	72	144022	379.5	2.61
Cu_ppm_Capped	All	29352	1789	0.01	25500	916	5107676	2260	1.26
Cu_ppm_Capped	NZ	18806	2237	0.01	25500	1567	5813139	2411	1.08
Cu_ppm_Capped	SZ	7697	1327	0.01	25500	519.3	3434625	1853	1.4
Mo_ppm_Capped	All	21986	34	0.01	1500	5	5718	75.62	2.22
Mo_ppm_Capped	NZ	13237	41.44	0.01	1500	10	6644	81.51	1.97
Mo_ppm_Capped	SZ	5969	31.84	0.01	1015	3.5	5493	74.11	2.33
Au_ppm_Capped	All	22046	0.01	0.001	0.33	0.01	0	0.03	1.82
Au_ppm_Capped	NZ	13307	0.02	0.001	0.33	0.01	0	0.03	1.64
Au_ppm_Capped	SZ	5957	0.01	0.001	0.33	0.01	0	0.02	1.8
Ag_ppm_Capped	All	22176	1.18	0.01	17.5	0.7	2.3	1.52	1.28
Ag_ppm_Capped	NZ	13328	1.46	0.01	17.5	1	2.48	1.58	1.08
Ag_ppm_Capped	SZ	6065	1.05	0.01	17.5	0.5	2.19	1.48	1.41

Interpretations and conclusions of the statistical analyses show material differences in KEV between the North Zone Pit and the South Zone Pit which, in addition to differences in spatial trends of mineralization, warrants separation into unique estimation domains. Additionally, most assay elements demonstrate a variable log-normal distribution suggesting a mix of populations due to the complexity of mineralizing fluids' interaction with various lithologies and suggesting the potential for multiple mineralizing events on the Property.

SG data was flagged by lithology and summarized in Table 14-13. Only minor differences in measured SG values across the various lithologies with the exception of the Cenozoic (formerly Tertiary) volcanics, which display a materially lower mean SG value.

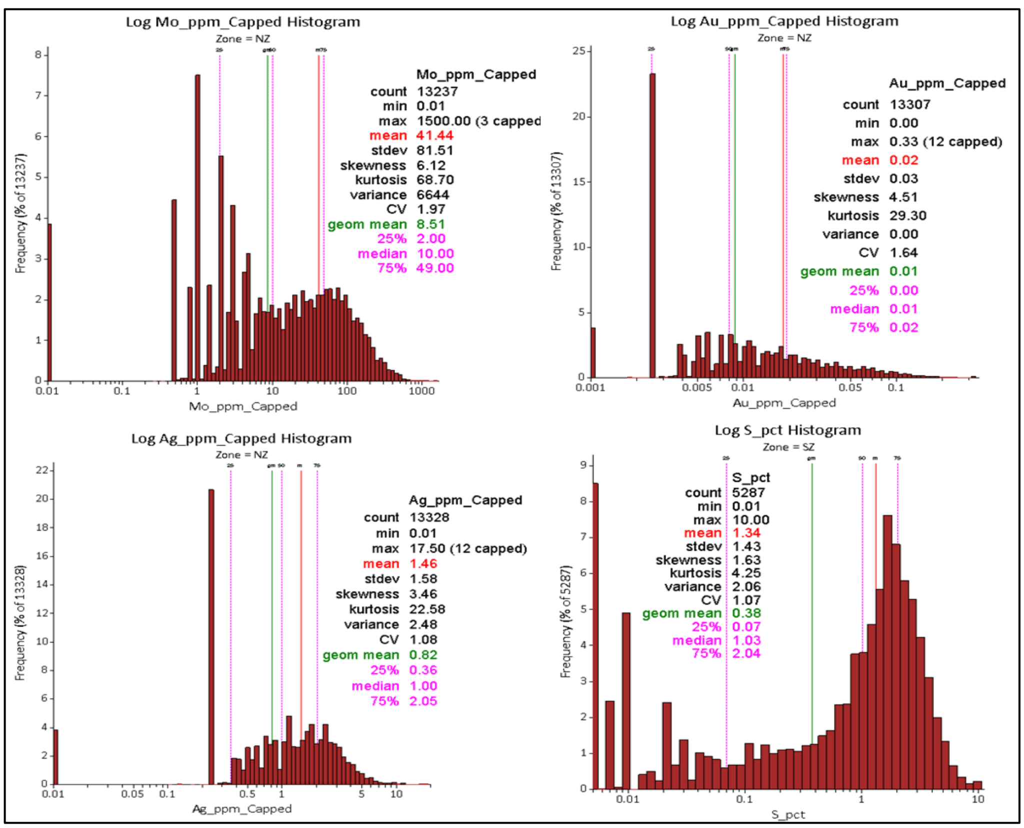
Bivariate statistics were calculated to investigate potential correlations between elements in the North Zone Pit and South Zone Pit areas. X-Y scatterplots and correlation coefficients as shown in Table 14-14 were generated for all major elements. The QP notes that there are no strong direct or indirect correlations in mineralization based on Pearson correlations, but a spatial review of concentrations shows a distinct and overlapping mineralization zone in both the North Zone Pit and South Zone Pit areas. The primary metals of Cu, Mo, Au, and Ag show moderate correlations which may be skewed due to a lack of historical drilling containing multi-element analyses. Additionally, there is a clear indirect relationship between K enrichment and Ca depletion which is common in porphyry deposits. The strongest correlations are Cu-Mo, Cu-Ag, Cu-Au, S-Fe, S-Cu, Ag-Au, and Ag-Pb-Zn.

Figure 14-13: Log Histograms of Final Composite Cu (ppm) Distribution in the North Zone Pit (Left) and South Zone Pit (Right)



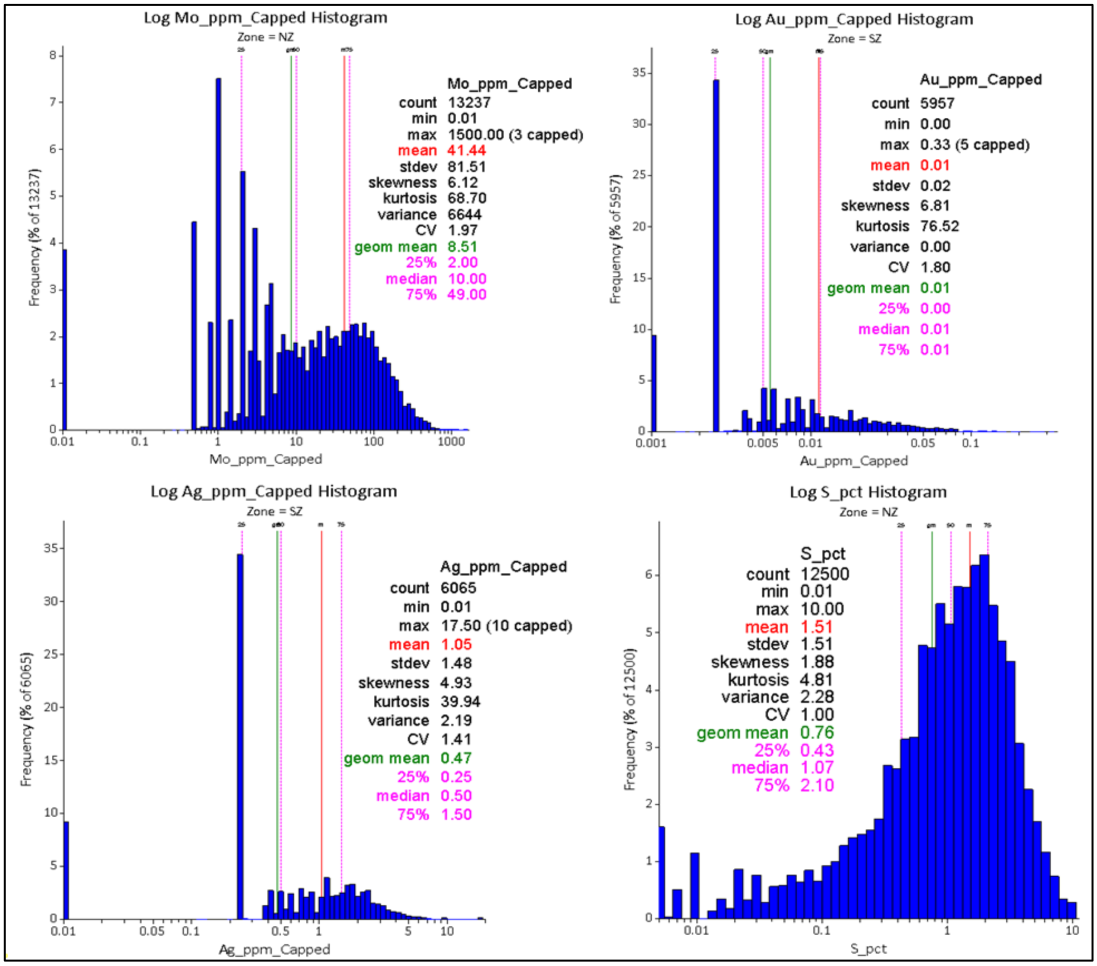
Source: SRK, 2023.

Figure 14-14: Log Histograms for Final Composite Mo, Ag, Au, and S in the North Zone Pit



Source: SRK, 2023.

Figure 14-15: Log Histograms for Final Composite Mo, Ag, Au, and S in the South Zone Pit



Source: SRK, 2023.

Table 14-13: Summary Descriptive Statistics for Specific Gravity (SG) Measurements by Lithology

Parameter	Lithology	Count	Mean	Min	Max	Median	Variance	StDev	CV
SG	ALL	1872	2.65	1.65	3.93	2.65	0.02	0.14	0.05
SG	AND_Lower	1033	2.69	2.18	3.48	2.69	0.01	0.1	0.04
SG	AND_Upper	35	2.69	2.56	2.84	2.68	0	0.07	0.03
SG	Felsic Dyke	12	2.36	2.16	2.63	2.31	0.02	0.15	0.06
SG	Granodiorite	53	2.63	2.43	2.78	2.63	0.01	0.07	0.03
SG	Inter. Dyke	16	2.57	2.26	2.76	2.59	0.01	0.11	0.04
SG	Monzonite	423	2.61	2.09	3.67	2.6	0.01	0.1	0.04
SG	Sediments	91	2.67	2.4	3.19	2.65	0.01	0.09	0.03
SG	Skarn	28	3.04	2.63	3.93	2.97	0.11	0.33	0.11
SG	Tertiary Volcanics	121	2.48	1.65	2.77	2.59	0.05	0.23	0.09

Table 14-14: Correlation Coefficients of Primary Elements – All Domains

Element	Cu_ppm_ Capped	Mo_ppm_ Capped	Au_ppm_ Capped	Ag_ppm_ Capped	As_ ppm	Ca_ pct	Fe_ pct	K_ pct	Pb_ ppm	S_ pct	Zn_ ppm	SG
Ag_ppm_Capped	0.70	0.29	0.52	1.00	0.04	0.01	0.00	0.08	0.34	0.22	0.24	0.64
As_ppm	-0.03	-0.02	0.04	0.04	1.00	0.13	-0.04	-0.06	0.08	-0.06	0.04	-0.46
Au_ppm_Capped	0.63	0.12	1.00	0.52	0.04	-0.06	-0.08	0.13	0.15	0.12	0.15	0.26
Ca_pct	-0.23	-0.14	-0.06	0.01	0.13	1.00	-0.21	-0.56	0.23	-0.20	0.17	-0.98
Cu_ppm_Capped	1.00	0.40	0.63	0.70	-0.03	-0.23	-0.13	0.25	0.04	0.23	0.04	0.79
Fe_pct	-0.13	-0.11	-0.08	0.00	-0.04	-0.21	1.00	-0.17	0.00	0.38	0.12	1.00
K_pct	0.25	0.20	0.13	0.08	-0.06	-0.56	-0.17	1.00	-0.11	0.17	-0.12	0.96
Mo_ppm_Capped	0.40	1.00	0.12	0.29	-0.02	-0.14	-0.11	0.20	-0.01	0.11	-0.01	0.81
Pb_ppm	0.04	-0.01	0.15	0.34	0.08	0.23	0.00	-0.11	1.00	0.05	0.45	0.68
S_pct	0.23	0.11	0.12	0.22	-0.06	-0.20	0.38	0.17	0.05	1.00	0.13	1.00
SG	0.79	0.81	0.26	0.64	-0.46	-0.98	1.00	0.96	0.68	1.00	0.89	1.00
Zn_ppm	0.04	-0.01	0.15	0.24	0.04	0.17	0.12	-0.12	0.45	0.13	1.00	0.89

14.5 Spatial Continuity

The spatial continuity of KEV grades by mineralization and oxide zone was assessed though variogram maps, experimental, and modelled semi-variograms calculated using Leapfrog Geo software. Composited and capped data was used to determine spatial continuity constrained by the North sulphide Zone (NZ), South sulphide Zone (SZ), North oxide zone (NZOx), and South oxide zone (SZOx) domains. Variogram maps and visualization of mineralization trends were analysed to determine dominant directionality with down-hole and directional experimental semi-variograms calculated and ultimately modelled. The nugget effect was determined based on the down-hole semi-variogram. Spatial continuity for the sulphide zones remains unchanged from the 2023 MRE as drilling data added as part of this PEA study was minimal and did not result in material differences in spatial continuity. For each the NZOx and SZOx, unique variography was calculated for Cu, Mo, Au, and Ag in each domain using normal score transforms.

Summary findings from the variography analyses includes:

- The North Zone Pit and South Zone Pit Cu sulphide mineralization domains were used to constrain all key economic variables for variography.
- The NZOx and SZOx boundaries were used to constrain variography of the KEV oxides (Cu, Mo, Au, Ag).
- Secondary variables are used in a variety of domains based on the nature of the variable and spatial distribution. These include:
    - Unique high-grade (> 1,500 ppm) and low-grade domain for As.
    - Unique S domain based on lithology and S grade shell threshold at 0.8% S.
    - K, Pb, and Zn utilized the main Cu mineralization domains in the SZ.
    - Unique Pb domain in the NZ based on lithology and Pb grade shell threshold at 8 ppm Pb.

- Unique Zn domain in the NZ based on lithology and Zn grade shell threshold at 50 ppm Zn.
- SG and Ca utilized lithology as estimation domains.

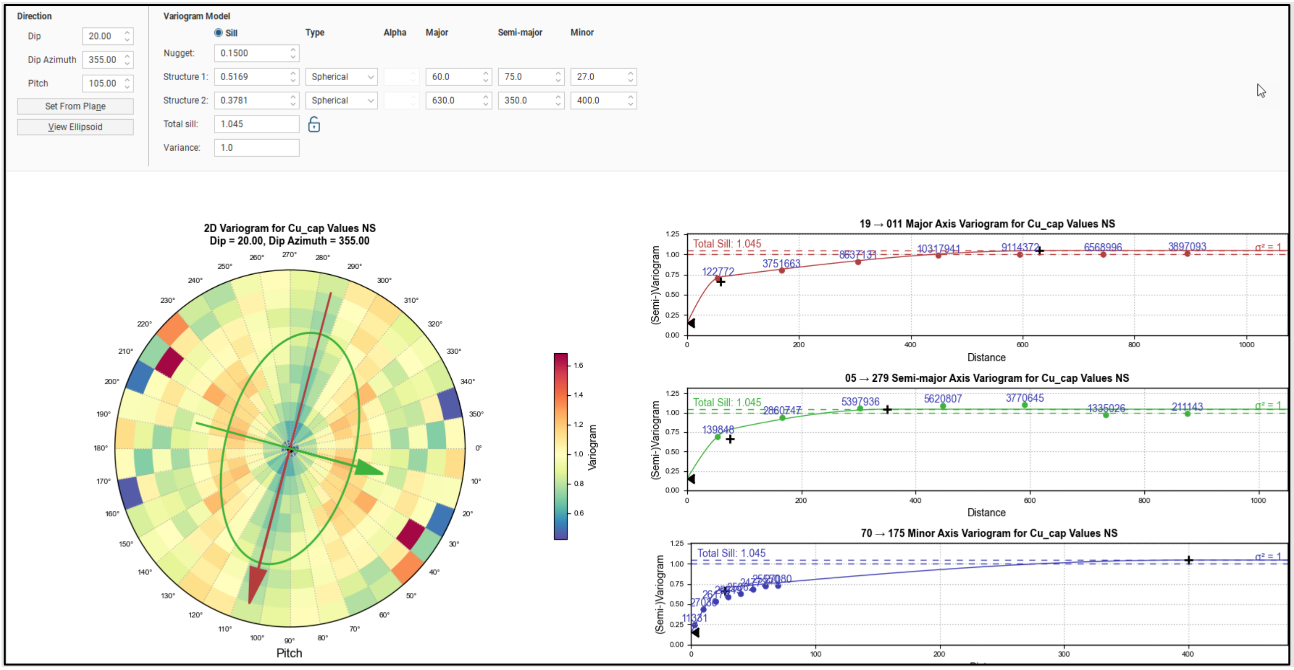
- Grade population distributions show log-normal characteristics; therefore, Cu, Mo, Au, and Ag were transformed to Gaussian space using normal score transforms for variography modeling.
- A well-structured experimental variogram could not be calculated for S in the South Zone Pit. S in the North Zone Pit did not require a normal score transform for modeling due to the composited data distribution being Gaussian.
- The majority of secondary variables did not show robust spatial continuity via variogram calculations. In these cases, an IDW to the power of 3 was utilized as the preferred estimation method. The search neighborhood was tailored based on the geological trends with input from variography when appropriate.
- Variogram major directions are aligned with the mineralization trends observed in drilling and grade shell modeling.
- In general, the nugget effect is considered low with values ranging between 15 and 30% of the sill.
- Most variable variogram models use nested nugget plus two spherical structures.
- Ranges are considered relatively long with ranges between 350 m and 500 m in the major direction (along trend). The minor direction typically shows ranges less than 200 m which is expected given the tabular geometry of identified mineralization in both the North Zone Pit and South Zone Pit.
- Spatial continuity for KEVs is considered robust with relatively low nugget effect, long ranges, and robust structure of variography. Given the deposit type and observed continuity of mineralization in drilling and mapping of this porphyry copper deposit, the final modelled variograms are considered applicable for use in estimation.

Modelled variograms are shown below for select elements. All variography parameters by domain and element are presented in Table 14-15. Variography was modelled with similar parameters in the major and semi-major direction with some variables showing isotropic continuity in X and Y directions. In general, the major directional anisotropy is aligned with the mineralized estimation domains. Overall, the KEV exhibits relatively low nugget values with long ranges in the major and semi-major direction. The QP notes that it was common to observe a reduced sill in the minor direction resulting in modeling requiring a long second structure to maintain “best fit” numeric model in this direction. The QP cautions not to interpret minor direction ranges based on final modelled semi-variograms distance parameters in the minor direction. Instead, it is recommended to interpret minor direction ranges from the graphic semi-variogram models as shown in Figure 14-16 through Figure 14-24.

Table 14-15: Variography Parameters for Key Economic Variables

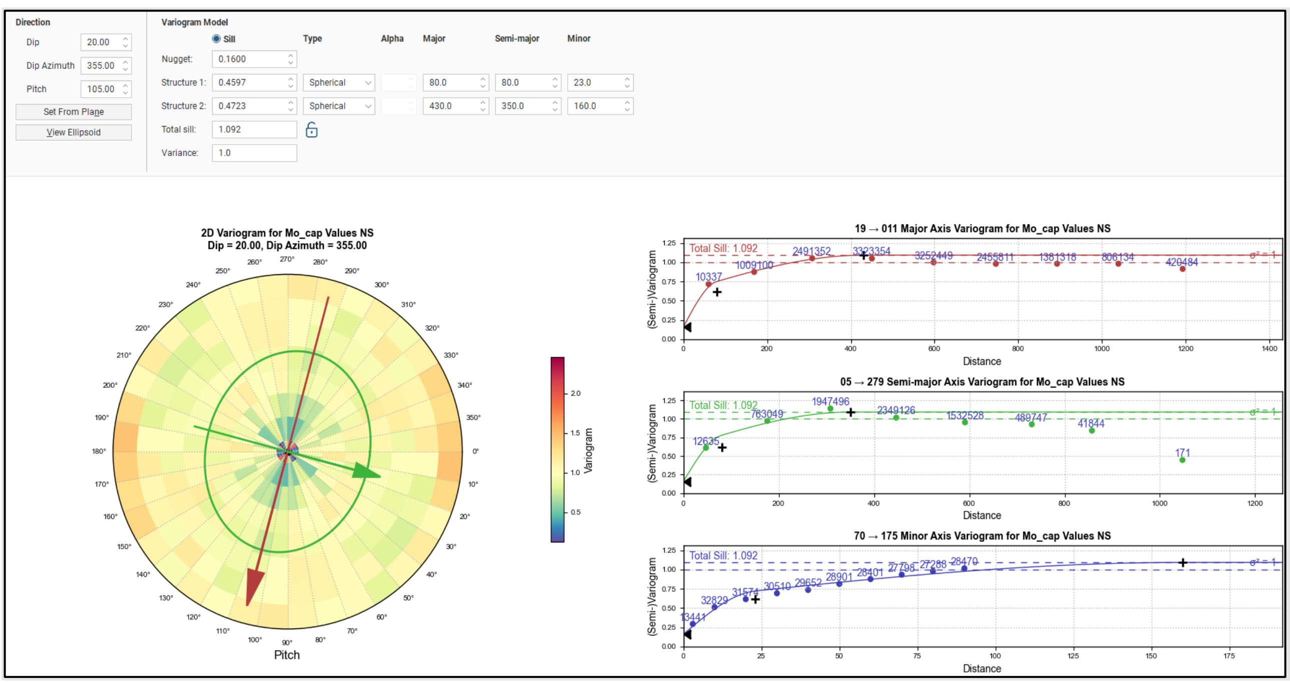
Zone	Variable	Model space	Direction						Structure 1						Structure 2					
			Dip	Dip Azimuth	Pitch	Variance	Nugget	Normalized Nugget	Sill	Normalized sill	Structure	Major	Semi-major	Minor	Sill	Normalized Nugget	Structure	Major	Semi-major	Minor
NZ	Ag	Normal score	20	355	105	1	0.21	-	0.44	-	Spherical	70	60	40	0.39	-	Spherical	420	230	130
NZ	Ag	Data	20	355	105	2.1	0.52	0.25	0.93	0.45	Spherical	70	60	40	0.67	0.32	Spherical	420	230	130
NZ	Au	Data	20	355	105	0.0007	0.0001	0.15	0.0002	0.39	Spherical	45	45	32	0.0005	0.47	Spherical	425	425	225
NZ	Au	Normal score	20	355	105	1	0.11	-	0.31	-	Spherical	45	45	32	0.6	-	Spherical	425	425	225
NZ	Cu	Normal score	20	355	105	1	0.15	-	0.52	-	Spherical	60	75	27	0.38	-	Spherical	630	350	400
NZ	Cu	Data	20	355	105	5,832,588	1,054,532	0.18	3,101,187	0.53	Spherical	60	75	27	1,891,508	0.32	Spherical	630	350	400
NZ	Mo	Data	20	355	105	9,356	2,173	0.23	4,784	0.51	Spherical	80	80	23	2,899	0.31	Spherical	430	350	160
NZ	Mo	Normal score	20	355	105	1	0.16	-	0.46	-	Spherical	80	80	23	0.47	-	Spherical	430	350	160
NZ	Mo	Normal score	30	260	155	1	0.16	-	0.33	-	Spherical	225	310	18	0.41	-	Spherical	590	310	150
NZ	Mo	Data	30	260	155	9,836	2,144	0.22	3,998	0.41	Spherical	225	310	18	3,050	0.31	Spherical	590	310	150
NZ	S	Data	20	355	80	2.3	0.7	0.3	1.02	0.44	Spherical	140	135	30	0.74	0.32	Spherical	600	540	80
SZ	Ag	Normal score	20	260	30.4	1	0.2	-	0.38	-	Spherical	100	250	20	0.45	-	Spherical	500	600	200
SZ	Ag	Data	20	260	30.4	2.7	0.76	0.28	1.1	0.41	Spherical	100	250	20	0.87	0.33	Spherical	500	600	200
SZ	Au	Normal score	23	260	170	1	0.15	-	0.57	-	Spherical	186	180	24	0.403	-	Spherical	525	472	400
SZ	Au	Data	23	260	170	0	0	0.23	0	0.61	Spherical	186	180	24	0	0.23	Spherical	525	472	400
SZ	Cu	Normal score	25	260	170	1	0.15	-	0.43	-	Spherical	60	62	20	0.38	-	Spherical	365	280	150
SZ	Cu	Data	25	260	170	3,395,385	563,294	0.17	1,509,249	0.44	Spherical	60	62	20	1,205,701	0.36	Spherical	365	280	150
SZ	Mo	Normal score	30	260	155	1	0.16	-	0	-	Spherical	225	310	17.66	0	-	Spherical	590	310	150
SZ	Mo	Data	30	260	155	9,836	2,144	0.22	3,998	0.41	Spherical	225	310	17.66	3,050	0.31	Spherical	590	310	150
NZOx	Ag	Normal score	20	355	105	1	0.2		0.729		Spherical	170	55	20	0.082	-	Spherical	330	230	25
NZOx	Ag	Data	20	355	105	2.146	0.485	0.226	1.53	0.71	Spherical	170	55	20	0.151071	0.07	Spherical	330	230	25
NZOx	Au	Normal score	20	355	105	1	0.11		0.705		Spherical	60	45	40	0.251	-	Spherical	400	425	90
NZOx	Au	Data	20	355	105	0.00127	0.000158	0.125	0.0009	0.71	Spherical	60	45	40	0.00028	0.22	Spherical	400	425	90
NZOx	Cu	Normal score	20	355	105	1	0.15		0.568		Spherical	130	75	45	0.315	-	Spherical	450	155	60
NZOx	Cu	Data	20	355	105	16018218	3178015	0.198	9399491	0.59	Spherical	130	75	45	3823549	0.239	Spherical	450	155	60
NZOx	Mo	Normal score	20	355	105	1	0.16		0.398		Spherical	80	80	20	0.437	-	Spherical	350	350	80
NZOx	Mo	Data	20	355	105	4169	1161	0.278	1877	0.45	Spherical	80	80	20	1120	0.269	Spherical	350	350	80
SZOx	Ag	Normal score	20	260	30	1	0.2		0.663		Spherical	165	265	12	0.144		Spherical	500	415	60
SZOx	Ag	Data	20	260	30	2.72	0.793	0.291	1.695	0.62	Spherical	165	265	12	0.244	0.090	Spherical	500	415	60
SZOx	Au	Normal score	23	260	170	1	0.15		0.475		Spherical	185	40	20	0.365		Spherical	525	430	65
SZOx	Au	Data	23	260	170	0.00097	0.00023	0.238	0.00053	0.55	Spherical	185	40	20	0.0002	0.21	Spherical	525	430	65
SZOx	Cu	Normal score	25	260	170	1	0.15		0.523		Spherical	150	25	11	0.339		Spherical	555	175	60
SZOx	Cu	Data	25	260	170	1365189	242321	0.178	741571	0.54	Spherical	150	25	11	394130	0.289	Spherical	555	175	60
SZOx	Mo	Normal score	30	260	155	1	0.16		0.427		Spherical	225	310	11	0.395		Spherical	610	310	80
SZOx	Mo	Data	30	260	155	3250	930	0.286	1531	0.471	Spherical	225	310	11	758	0.233	Spherical	610	310	80

Figure 14-16: Normal Score Transformed Modelled Semi-Variogram for Cu in North Zone Pit



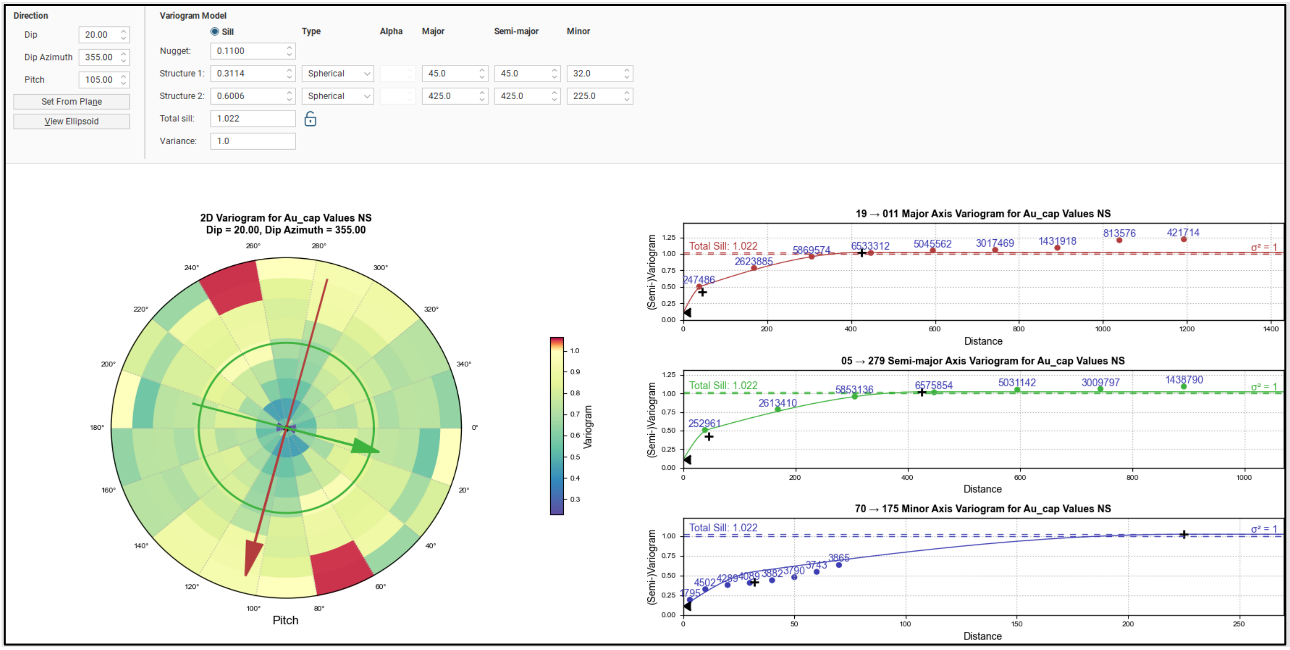
Source: SRK, 2023.

Figure 14-17: Normal Score Transformed Modelled Semi-Variogram for Mo in North Zone Pit



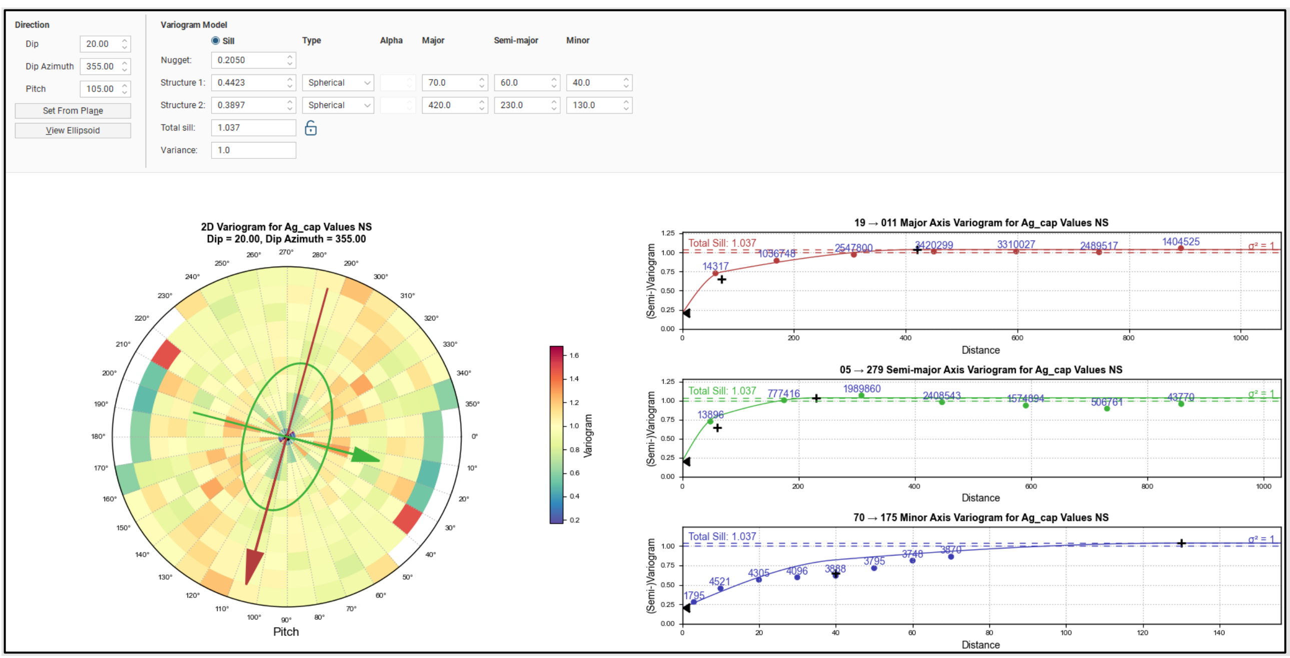
Source: SRK, 2023.

Figure 14-18: Normal Score Transformed Modelled Semi-Variogram for Au in North Zone Pit



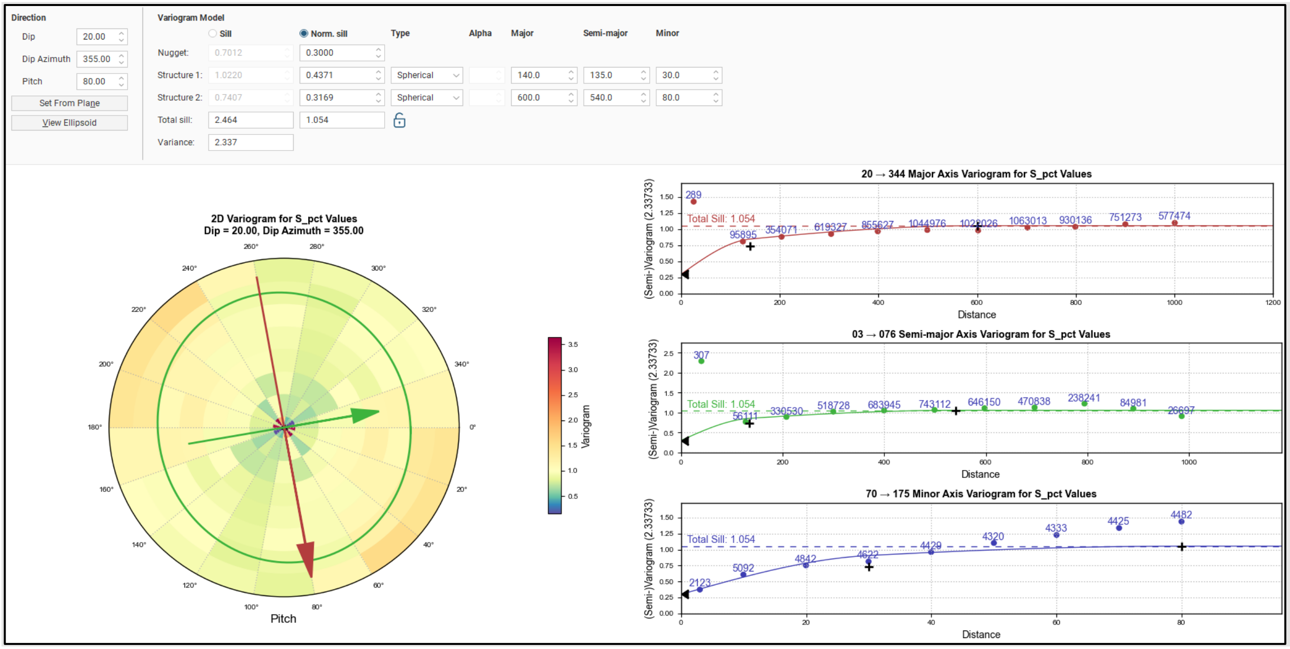
Source: SRK, 2023.

Figure 14-19: Normal Score Transformed Modelled Semi-Variogram for Ag in North Zone Pit



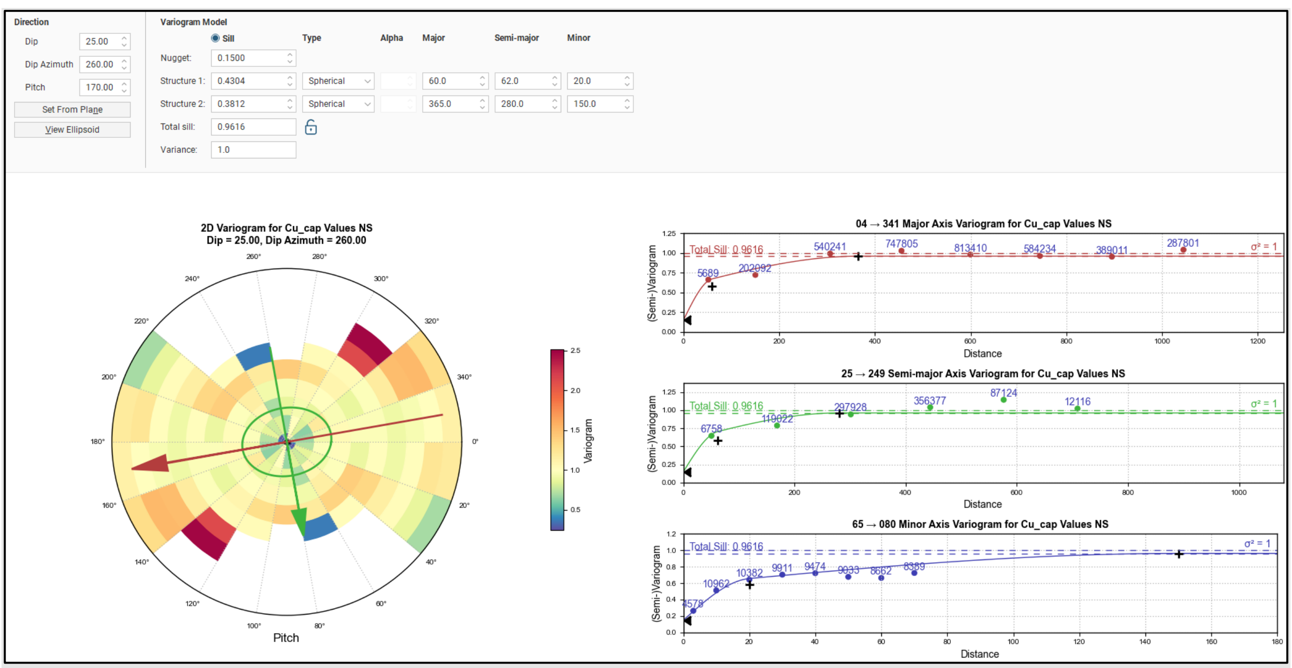
Source: SRK, 2023.

Figure 14-20: Modelled Semi-Variogram for S in North Zone Pit



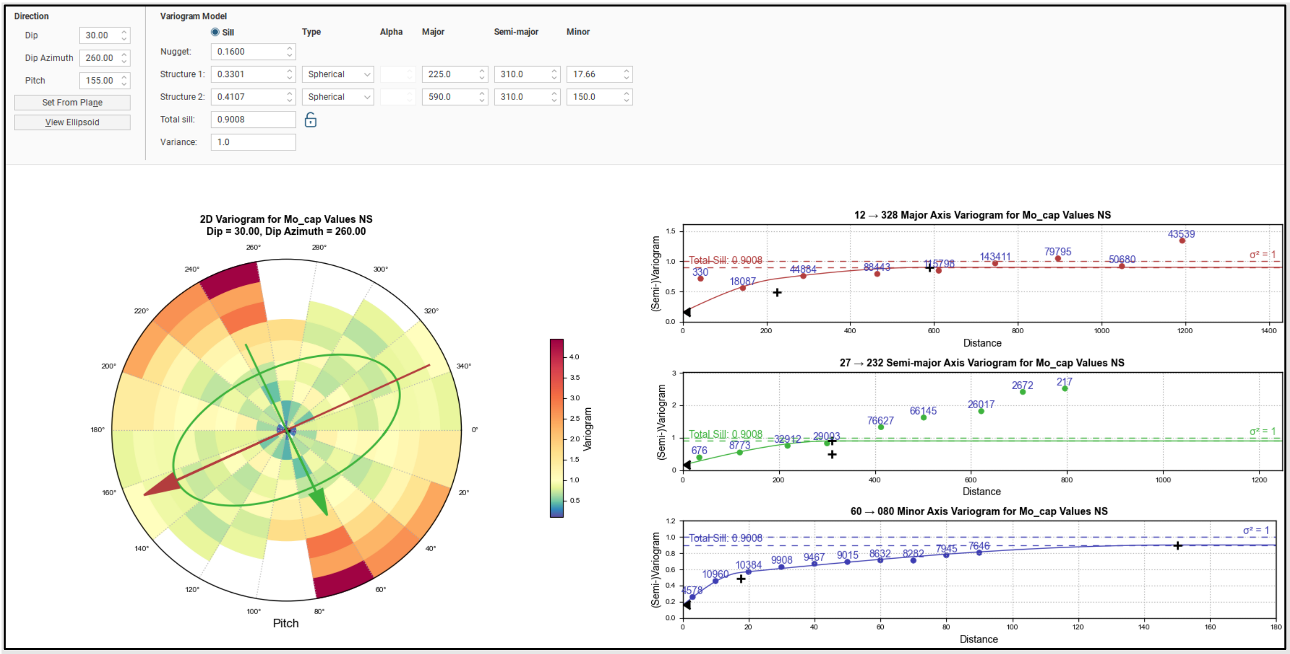
Source: SRK, 2023.

Figure 14-21: Normal Score Transformed Modelled Semi-Variogram for Cu in South Zone Pit



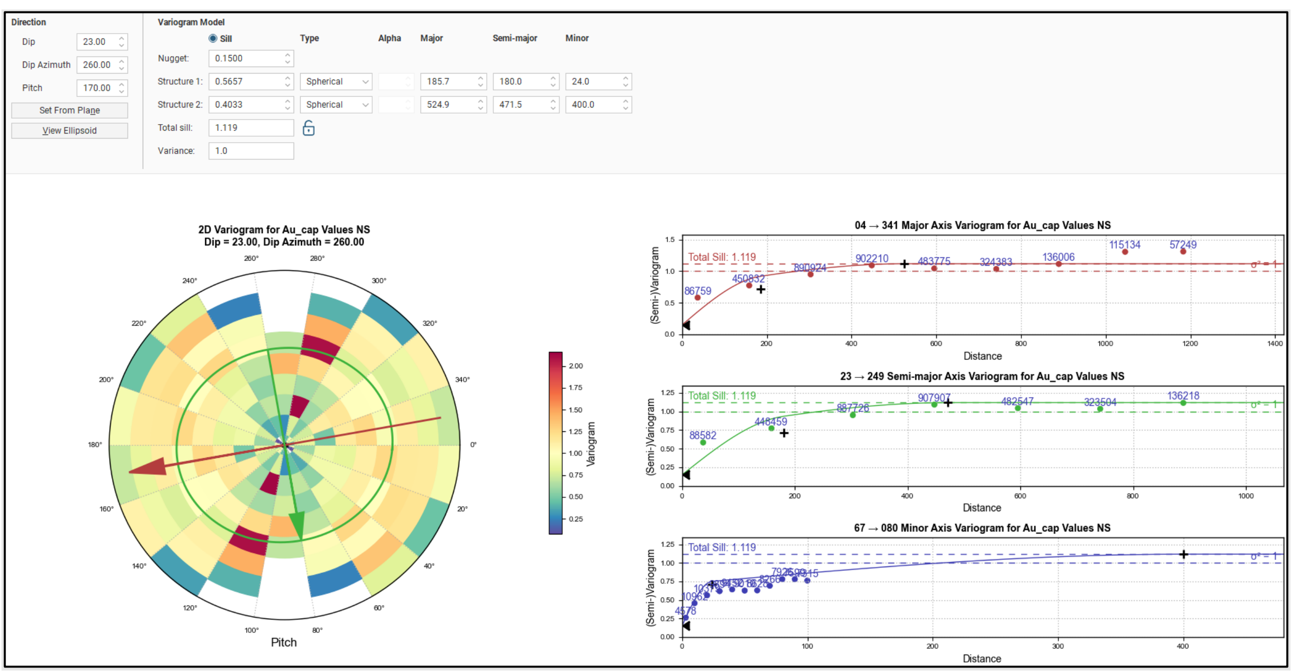
Source: SRK, 2023.

Figure 14-22: Normal Score Transformed Modelled Semi-Variogram for Mo in South Zone Pit



Source: SRK, 2023.

Figure 14-23: Normal Score Transformed Modelled Semi-Variogram for Au in South Zone Pit



Source: SRK, 2023.

Figure 14-24: Normal Score Transformed Modelled Semi-Variogram for Ag in South Zone Pit

Source: SRK, 2023.

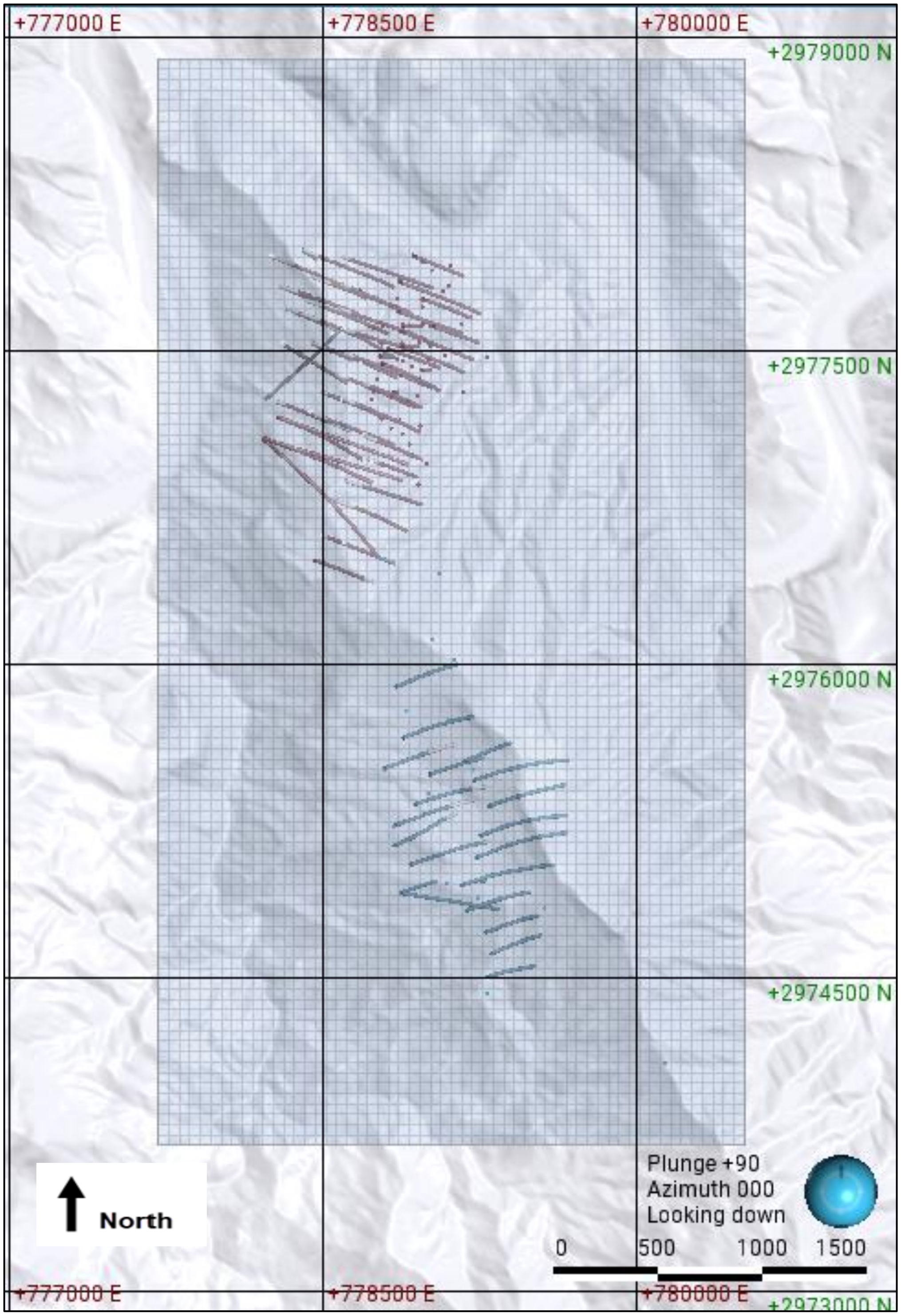
14.6 Block Model

A digital 3D resource block model was created using Leapfrog Geo software. The model extents and block size were influenced by the Property and drilling extents, geometry of mineralization, anticipated open pit mining method, expected selective mining unit (SMU), and mean data spacing across the deposit which is nominally 150 m. The 2023 PEA block model construction parameters and extents are shown in Table 14-6 with Figure 14-25 illustrating the plan view extents of the block model. The block model is a regularized model with no rotation and block size at 50 m (X) by 50 m (Y) by 10 m (Z). Block size remains consistent from the 2023 MRE.

Table 14-16: Santo Tomás 2023 PEA Block Model Parameters

Parameters (m)	X	Y	Z
Origin	777,710	2,973,695	1,400
Offset	2,800	5,200	2,000
Block Size	50	50	10
Rotation		None	

Figure 14-25: Aerial Extents of the Santo Tomás 2023 MRE Block Model



Source: SRK, 2023.

Variables in the current block model include:

- Mineralization zone based on a combination of 750 ppm Cu grade shell, lithology, and structure.
- Oxidation model domain: oxidized or reduced (sulphide) based on the oxidation model described in section 14.3.2.
- Primary lithology (protolith) based on the geological model.
- Estimated block grades for Cu (%), Mo (ppm), Au (ppm), Ag (ppm), S (%), As (ppm), Ca (%), K (%), Pb (ppm) and Zn (ppm).
- Calculated copper equivalent (CuEq) (%).
- Estimated block bulk density (g/cm^3) based on core SG measurements.
- Huites Reservoir high-water boundary.
- Mineral resource classification, constrained by the economic pit shell for resources.

The QP notes that the model may be improved and refined based on recommendations as summarized in Section 26.

14.7 Estimation Methodology and Search Neighborhoods

The current Santo Tomás block model was estimated using a variety of estimation methods tailored to each variable based on interpretations from the EDA and spatial continuity analyses. Composited and capped values were utilized for estimating block variables. For the key economic and secondary grade variables, a combination of Ordinary Kriging (OK) and inverse distance weighted cubed (IDW3) methodologies constrained within the mineralized domains for North Zone Pit and South Zone Pit with oxidation zones estimated independently for each zone. For block bulk density, a combination of Simple Kriging (SK) and inverse distance weighting squared (IDW2) methods domained by modelled lithology from the geological model described in Section 14.3. The estimation methodology for KEV remains unchanged from the 2023 MRE.

Search neighborhoods were designed per variable by domain and refined based on model validation techniques. Summary search parameters are presented in Table 14-17, Table 14-18, and Table 14-19. For all variables estimated via OK, a discretization scheme of 10 by 10 by 5 was utilized based on block size of 50 m by 50 m by 10 m.

Table 14-17: Summary Estimation Parameters for Grade Variables in Sulphide Domains

Zone	Element / Pass	Domain	Boundary Type (distance)	Numeric Values	Estimation Method	Ellipsoid Ranges			Ellipsoid Directions			Number of Samples		Drill hole Limit
						Maximum	Intermediate	Minimum	Dip	Dip Azimuth	Pitch	Minimum	Maximum	Max Samples per Hole
North Zone Pit	Cu Pass1	NZ_Cu_cap Ind 750.0 ISO_0.4: Inside	Hard	Cu_cap	OK	630	400	150	20	355	105	4	6	3
	Cu Pass2	NZ_Cu_cap Ind 750.0 ISO_0.4: Inside	Hard	Cu_cap	IDW3	800	600	250	20	355	105	3	6	2
	Mo Pass1	NZ_Cu_cap Ind 750.0 ISO_0.4: Inside	Hard	Mo_cap	OK	500	400	150	20	355	105	4	6	3
	Mo Pass2	NZ_Cu_cap Ind 750.0 ISO_0.4: Inside	Hard	Mo_cap	IDW3	700	500	200	20	355	105	3	5	2
	Au Pass1	NZ_Cu_cap Ind 750.0 ISO_0.4: Inside	Hard	Au_cap	OK	630	400	150	20	345	90	4	6	3
	Au Pass2	NZ_Cu_cap Ind 750.0 ISO_0.4: Inside	Hard	Au_cap	IDW3	750	600	200	20	345	90	3	6	n/a
	Ag Pass1	NZ_Cu_cap Ind 750.0 ISO_0.4: Inside	Hard	Ag_cap	OK	630	400	150	20	345	90	4	6	3
	Ag Pass2	NZ_Cu_cap Ind 750.0 ISO_0.4: Inside	Hard	Ag_cap	IDW3	800	600	200	20	345	90	3	6	n/a
	As-HG	NZ_As_HG_Ind 100 ISO 0.4: Inside	Soft - 5m	As_ppm	OK	500	300	150	15	355	105	4	10	3
	AS-LG	NZ_As_LG_Ind 5.0 ISO 0.4: Inside	Soft - 5m	As_ppm	IDW3	500	300	150	35	285	90	4	10	n/a
	K Pass1	NZ_Cu_cap Ind 750.0 ISO_0.4: Inside	Hard	K_pct	IDW3	630	400	150	20	345	90	4	8	3
	K Pass2	NZ_Cu_cap Ind 750.0 ISO_0.4: Inside	Hard	K_pct	IDW3	700	500	200	20	345	90	3	8	n/a
	Pb Pass1	NZ_Pb_ppm Ind 8 ISO 0.35: Inside	Hard	Pb_ppm	IDW3	400	250	150	20	350	120	3	6	2
	Pb Pass2	NZ_Pb_ppm Ind 8 ISO 0.35: Inside	Hard	Pb_ppm	IDW3	650	400	200	20	350	120	3	8	n/a
	S Pass1	NZ_S_pct Ind 0.8: Inside	Hard	S_pct	OK	350	350	80	20	355	105	4	6	3
	S Pass2	NZ_S_pct Ind 0.8: Inside	Hard	S_pct	IDW3	800	800	250	20	355	105	3	8	n/a
	Zn Pass1	NZ_Zn_ppm Ind 50.0 ISO 0.4: Inside	Hard	Zn_ppm	IDW3	400	300	100	20	345	90	4	6	3
	Zn Pass2	NZ_Zn_ppm Ind 50.0 ISO 0.4: Inside	Hard	Zn_ppm	IDW3	630	400	150	20	345	90	3	8	n/a
Zone	Element / Pass	Domain	Boundary Type (distance)	Numeric Values	Estimation Method	Ellipsoid Ranges			Ellipsoid Directions			Number of Samples		Drill hole Limit
						Maximum	Intermediate	Minimum	Dip	Dip Azimuth	Pitch	Minimum	Maximum	Max Samples per Hole
South Zone Pit	Cu Pass1	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	Cu_cap	OK	500	400	150	27	260	175	4	6	3
	Cu Pass2	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	Cu_cap	IDW3	1000	750	200	27	260	175	3	5	2
	Mo Pass1	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	Mo_cap	OK	375	250	100	28.5	260	170	4	6	3
	Mo Pass2	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	Mo_cap	IDW3	1000	750	200	25	260	175	3	6	2
	Au Pass1	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	Au_cap	OK	500	400	150	20	260	170	4	6	3
	Au Pass2	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	Au_cap	IDW3	750	600	200	25	260	170	3	5	2
	Ag Pass1	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	Ag_cap	OK	400	500	150	20	260	85	4	6	3
	Ag Pass2	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	Ag_cap	IDW3	600	750	250	20	260	85	3	7	2
	As-HG	SZ_As_HG Ind_40 ISO_0.4: SZ_As_HG	Soft - 5m	As_ppm	OK	250	250	100	24	260	85	3	6	2
	AS-LG	SZ_As_LG Ind_5 ISO_0.4: SZ_As_LG	Soft - 5m	As_ppm	IDW3	500	600	200	24	260	85	4	8	3
	K Pass1	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	K_pct	IDW3	630	400	150	20	345	90	4	8	3
	K Pass2	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	K_pct	IDW3	700	500	200	20	345	90	3	8	n/a
	Pb Pass1	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	Pb_ppm	IDW3	250	250	100	24	260	85	4	8	3
	Pb Pass2	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	Pb_ppm	IDW3	700	700	200	24	260	85	3	8	n/a
	S Pass1	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	S_pct	OK	400	400	200	27	260	175	4	8	3
	S Pass2	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	S_pct	IDW3	750	750	250	27	260	175	3	8	n/a
	Zn Pass1	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	Zn_ppm	OK	300	300	200	25	260	175	4	8	3
	Zn Pass2	SZ_Cu_cap Ind 750.0 ISO_0.35: Inside	Hard	Zn_ppm	IDW3	750	750	300	25	260	175	3	8	n/a

Table 14-18: Summary Estimation Parameters for Grade Variables in Oxide Domains

Zone	Element / Pass	Domain	Boundary Type (distance)	Numeric Values	Estimation Method	Ellipsoid Ranges			Ellipsoid Directions			Number of Samples		Drillhole Limit
						Maximum	Intermediate	Minimum	Dip	Dip Azimuth	Pitch	Minimum	Maximum	Max Samples per Hole
North Zone Pit Oxide	Cu Pass1	NorthZone_Oxide_Cu: Ox, PEA_NZ_Cu_min	Soft - 5m	Cu_cap	OK	630	400	150	20	355	105	4	6	3
North Zone Pit Oxide	Cu Pass2	NorthZone_Oxide_Cu: Ox, PEA_NZ_Cu_min	Soft - 5m	Cu_cap	IDW3	800	600	250	20	355	105	3	6	2
North Zone Pit Oxide	Mo Pass1	NorthZone_Oxide_Cu: Ox, PEA_NZ_Cu_min	Soft - 5m	Au_cap	OK	250	200	100	20	355	105	4	6	3
North Zone Pit Oxide	Mo Pass2	NorthZone_Oxide_Cu: Ox, PEA_NZ_Cu_min	Soft - 5m	Au_cap	IDW3	700	600	200	20	355	105	3	6	2
North Zone Pit Oxide	Au Pass1	NorthZone_Oxide_Cu: Ox, PEA_NZ_Cu_min	Soft - 5m	Ag_cap	OK	400	350	150	20	345	90	4	6	3
North Zone Pit Oxide	Au Pass2	NorthZone_Oxide_Cu: Ox, PEA_NZ_Cu_min	Soft - 5m	Ag_cap	IDW3	750	600	200	20	345	90	3	6	n/a
North Zone Pit Oxide	Ag Pass1	NorthZone_Oxide_Cu: Ox, PEA_NZ_Cu_min	Soft - 5m	Mo_cap	OK	200	200	75	20	345	90	3	6	2
North Zone Pit Oxide	Ag Pass2	NorthZone_Oxide_Cu: Ox, PEA_NZ_Cu_min	Soft - 5m	Mo_cap	IDW3	800	600	200	20	345	90	3	8	n/a
Zone	Element / Pass	Domain	Boundary Type (distance)	Numeric Values	Estimation Method	Ellipsoid Ranges			Ellipsoid Directions			Number of Samples		Drillhole Limit
						Maximum	Intermediate	Minimum	Dip	Dip Azimuth	Pitch	Minimum	Maximum	Max Samples per Hole
South Zone Pit Oxide	Cu Pass1	SouthZone_Oxide_Cu: Ox, PEA_SZ_Cu_minzone	Hard	Cu_cap	OK	200	175	100	27	260	175	4	6	3
South Zone Pit Oxide	Cu Pass2	SouthZone_Oxide_Cu: Ox, PEA_SZ_Cu_minzone	Hard	Cu_cap	IDW3	750	750	200	27	260	175	3	8	n/a
South Zone Pit Oxide	Mo Pass1	SouthZone_Oxide_Cu: Ox, PEA_SZ_Cu_minzone	Hard	Mo_cap	OK	350	200	100	25	260	175	4	6	3
South Zone Pit Oxide	Mo Pass2	SouthZone_Oxide_Cu: Ox, PEA_SZ_Cu_minzone	Hard	Mo_cap	IDW3	1000	750	200	25	260	175	3	8	n/a
South Zone Pit Oxide	Au Pass1	SouthZone_Oxide_Cu: Ox, PEA_SZ_Cu_minzone	Hard	Au_cap	OK	250	250	75	20	260	170	4	6	3
South Zone Pit Oxide	Au Pass2	SouthZone_Oxide_Cu: Ox, PEA_SZ_Cu_minzone	Hard	Au_cap	IDW3	750	600	250	20	260	170	3	8	n/a
South Zone Pit Oxide	Ag Pass1	SouthZone_Oxide_Cu: Ox, PEA_SZ_Cu_minzone	Hard	Ag_cap	OK	300	300	125	20	260	85	4	6	3
South Zone Pit Oxide	Ag Pass2	SouthZone_Oxide_Cu: Ox, PEA_SZ_Cu_minzone	Hard	Ag_cap	IDW3	600	700	250	20	260	85	3	8	n/a

Table 14-19: Summary Estimation Parameters for Geological Domains

Lithology	Domain	Numeric Values	Estimation Method	SK mean	Ellipsoid Ranges			Ellipsoid Directions			Number of Samples		Drill hole Limit
					Maximum	Intermediate	Minimum	Dip	Dip Azimuth	Pitch	Minimum	Maximum	Max Samples per Hole
Lower Andesite	01_SRK_GeologyModel_20230402: AND_Lower	SG	SK	2.61	300	250	100	10	355	30	4	10	n/a
Lower Andesite	01_SRK_GeologyModel_20230402: AND_Lower	Ca_pct	IDW3	n/a	400	400	400	0	0	90	4	10	3
Upper Andesite	01_SRK_GeologyModel_20230402: AND_Upper	SG	SK	2.68	600	600	200	10	355	30	3	7	n/a
Upper Andesite	01_SRK_GeologyModel_20230402: AND_Upper	Ca_pct	IDW3	n/a	500	500	500	0	0	90	4	10	2
Granodiorite	01_SRK_GeologyModel_20230402: GD	SG	SK	2.66	400	300	150	10	355	80	4	10	n/a
Granodiorite	01_SRK_GeologyModel_20230402: GD	Ca_pct	IDW3	n/a	500	500	500	0	0	90	4	10	3
Monzonite	01_SRK_GeologyModel_20230402: QMP	SG	SK	2.68	500	500	200	10	355	75	4	10	n/a
Monzonite	01_SRK_GeologyModel_20230402: QMP	Ca_pct	IDW3	n/a	500	500	500	0	0	90	4	10	3
Sediments and Skarn	01_SRK_GeologyModel_20230402: SED	SG	IDW2	n/a	400	300	150	10	355	80	4	10	n/a
Sediments and Skarn	01_SRK_GeologyModel_20230402: SED	Ca_pct	IDW3	n/a	500	500	500	0	0	90	4	10	3
Volcanics	01_SRK_GeologyModel_20230402: VOLC	SG	IDW2	n/a	400	300	150	10	355	80	4	10	n/a
Volcanics	01_SRK_GeologyModel_20230402: VOLC	Ca_pct	IDW3	n/a	500	500	500	0	0	90	4	10	3

14.8 Block Model Validation

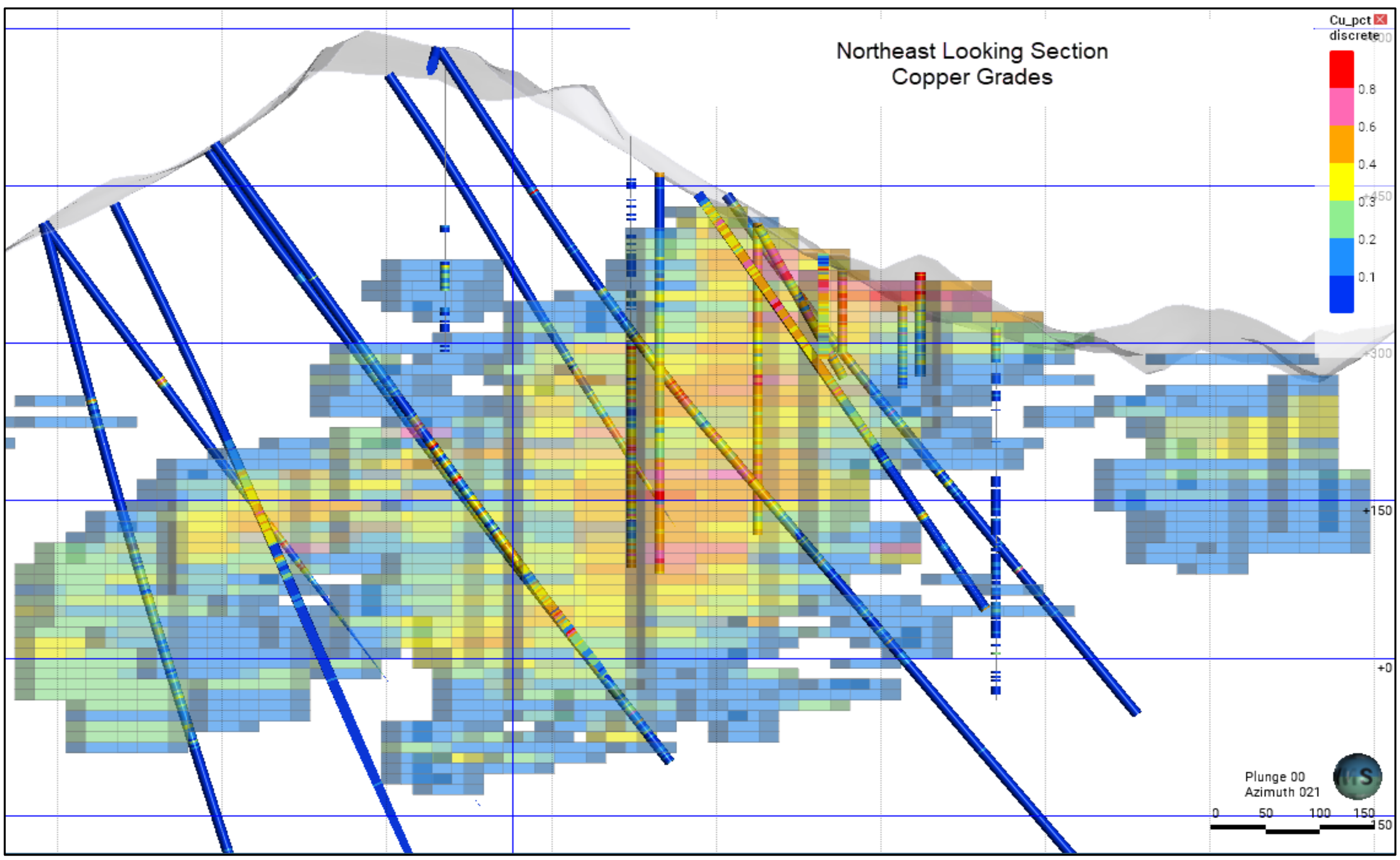
The current block model was validated using a combination of visual and statistical comparisons to original sampling, capped composites, block height capped composites (10 m composite) and alternative estimation methods. Validation was performed using a combination of Leapfrog Geo and X-10 Geo software.

14.8.1 Visual Comparison

The estimated block grades, capped composites, and original drilling intervals were compared visually along cross and long-sections on the Property.

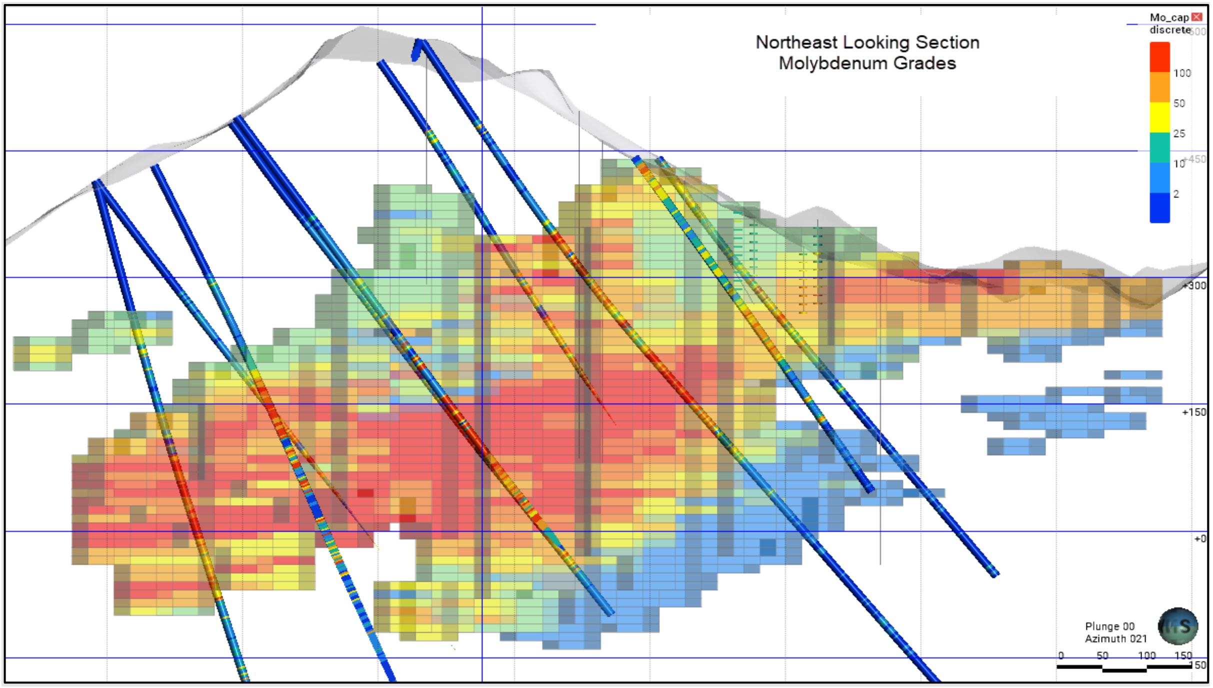
The QP notes that detailed visual inspection appears satisfactory for block volume estimates considering drill sample variance. Example sections used in the visual validation are presented in Figure 14-26 through Figure 14-33.

Figure 14-26: Cross-Section Used in Visual Comparison - North Zone Pit Cu Values



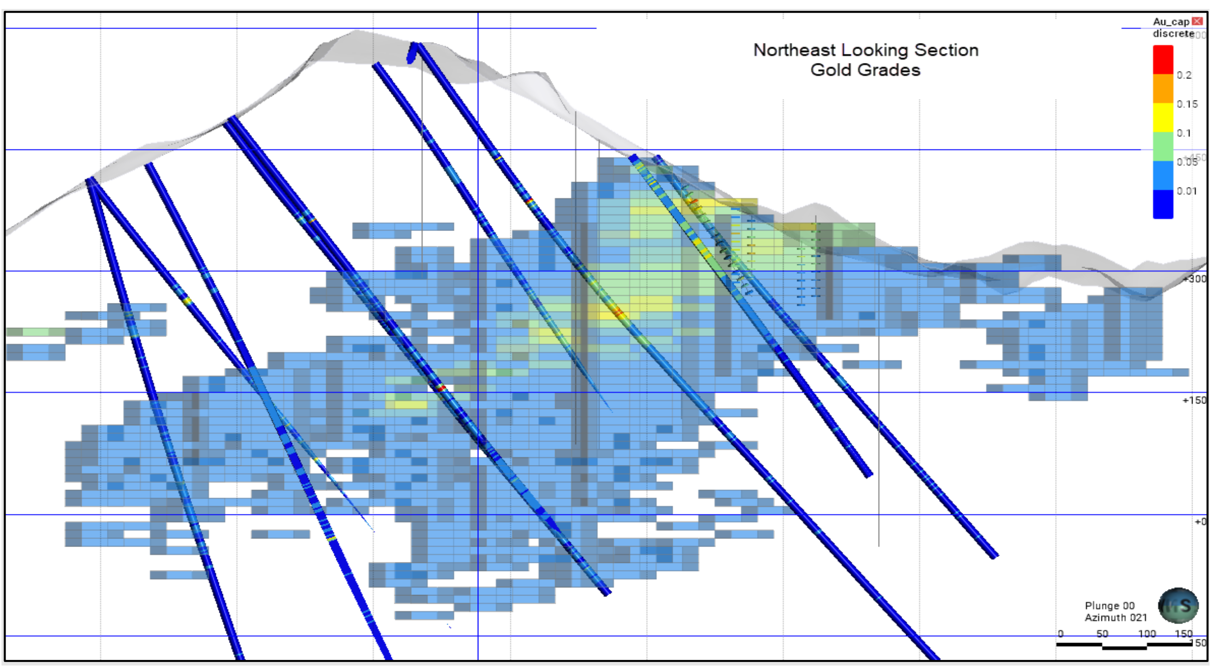
Source: SRK, 2023.

Figure 14-27: Cross-Section Used in Visual Comparison - North Zone Pit Mo Values



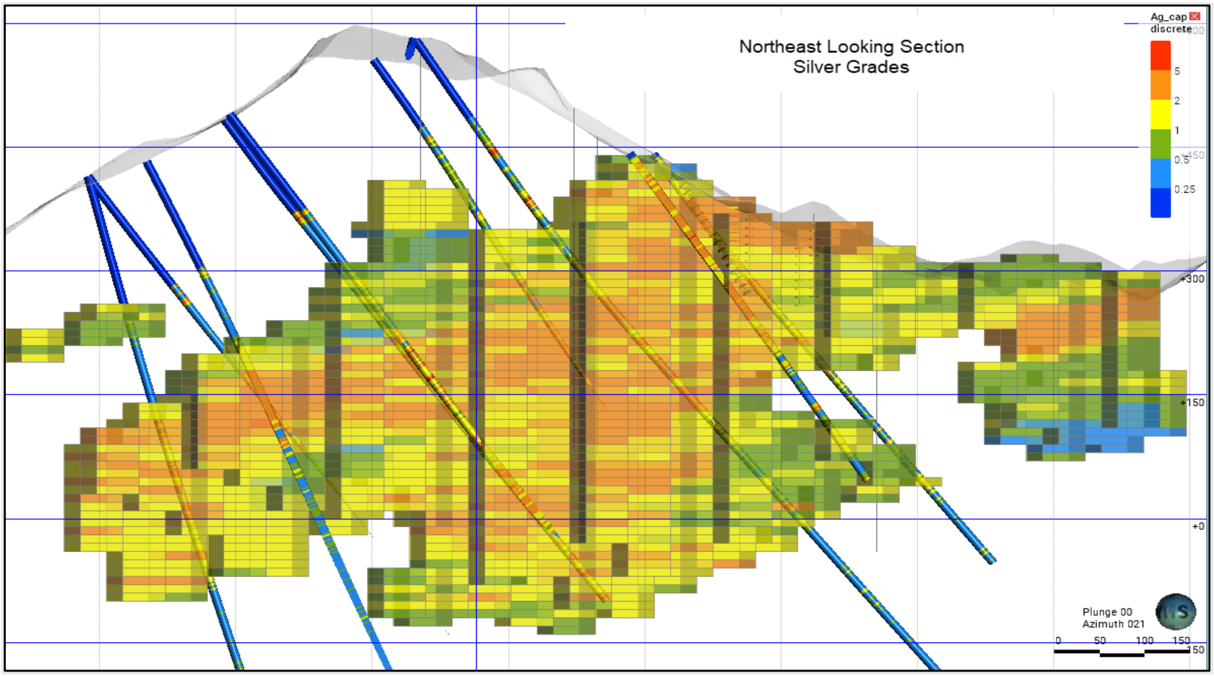
Source: SRK, 2023.

Figure 14-28: Cross-Section Used in Visual Comparison - North Zone Pit Au Values



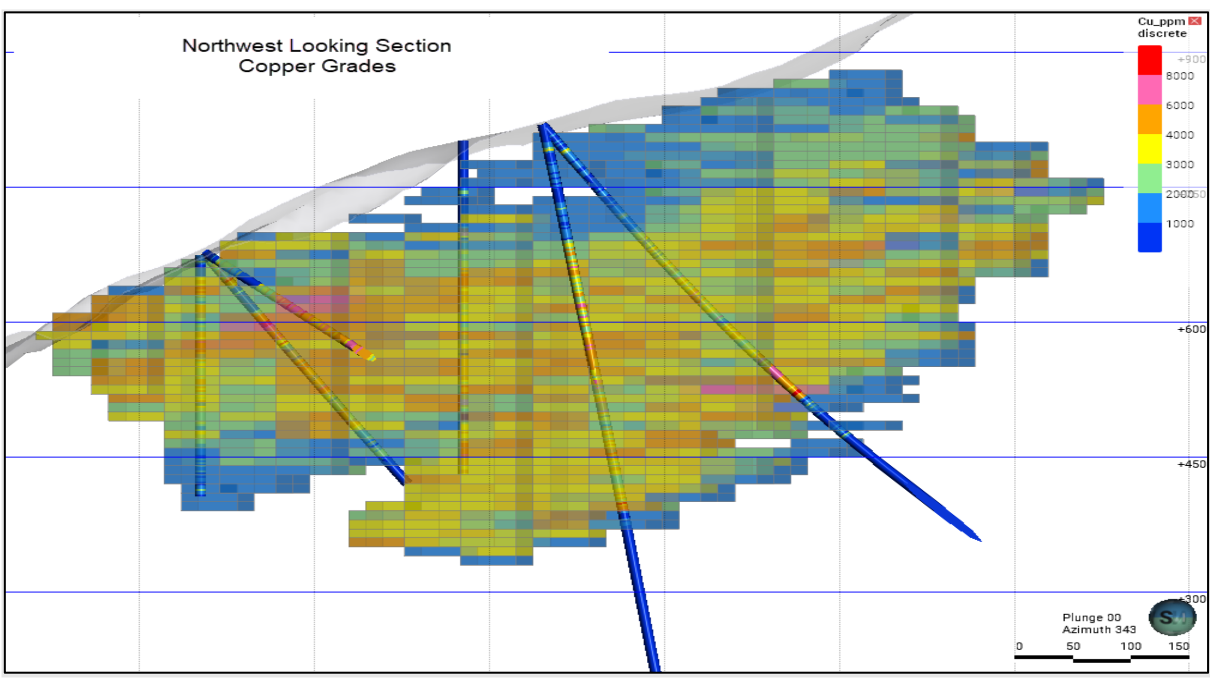
Source: SRK, 2023.

Figure 14-29: Cross-Section Used in Visual Comparison - North Zone Pit Ag Values



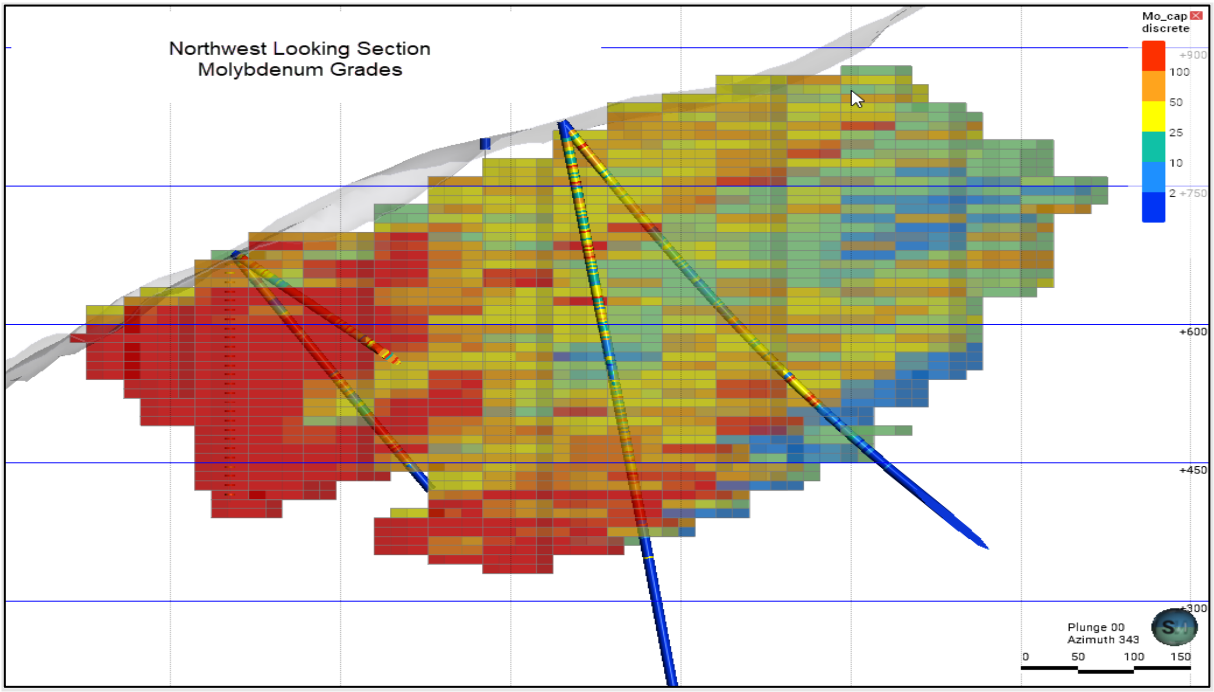
Source: SRK, 2023.

Figure 14-30: Cross-Section Used in Visual Comparison - South Zone Pit Cu Values



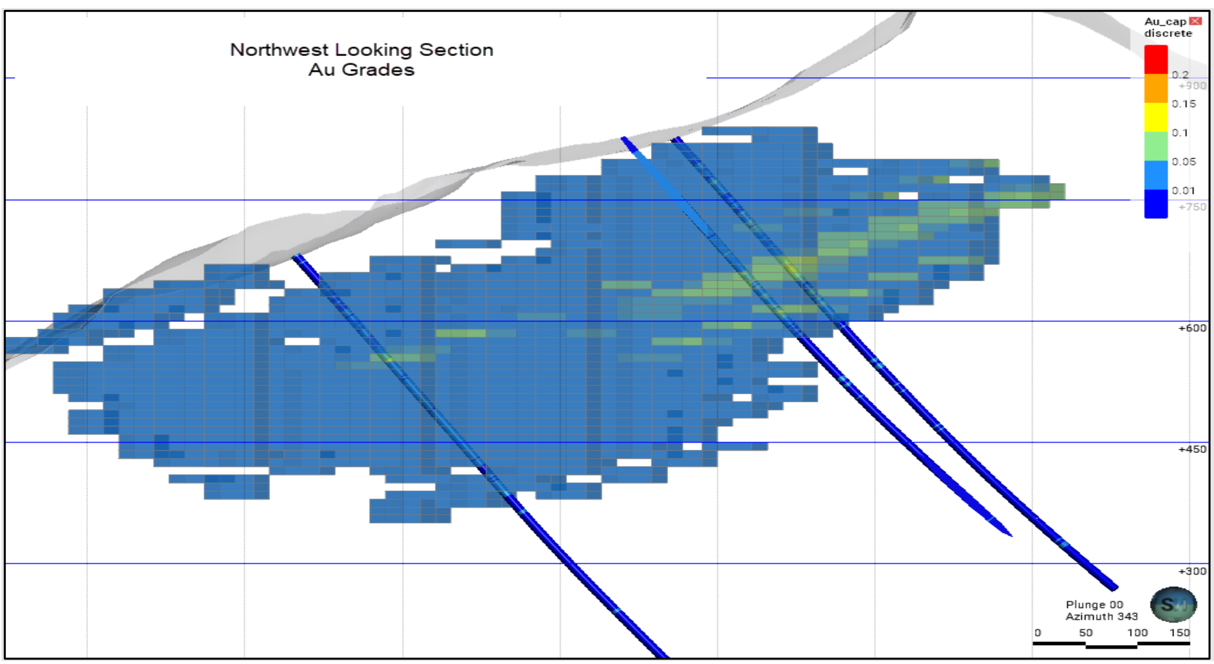
Source: SRK, 2023.

Figure 14-31: Cross-Section Used in Visual Comparison - South Zone Pit Mo Values



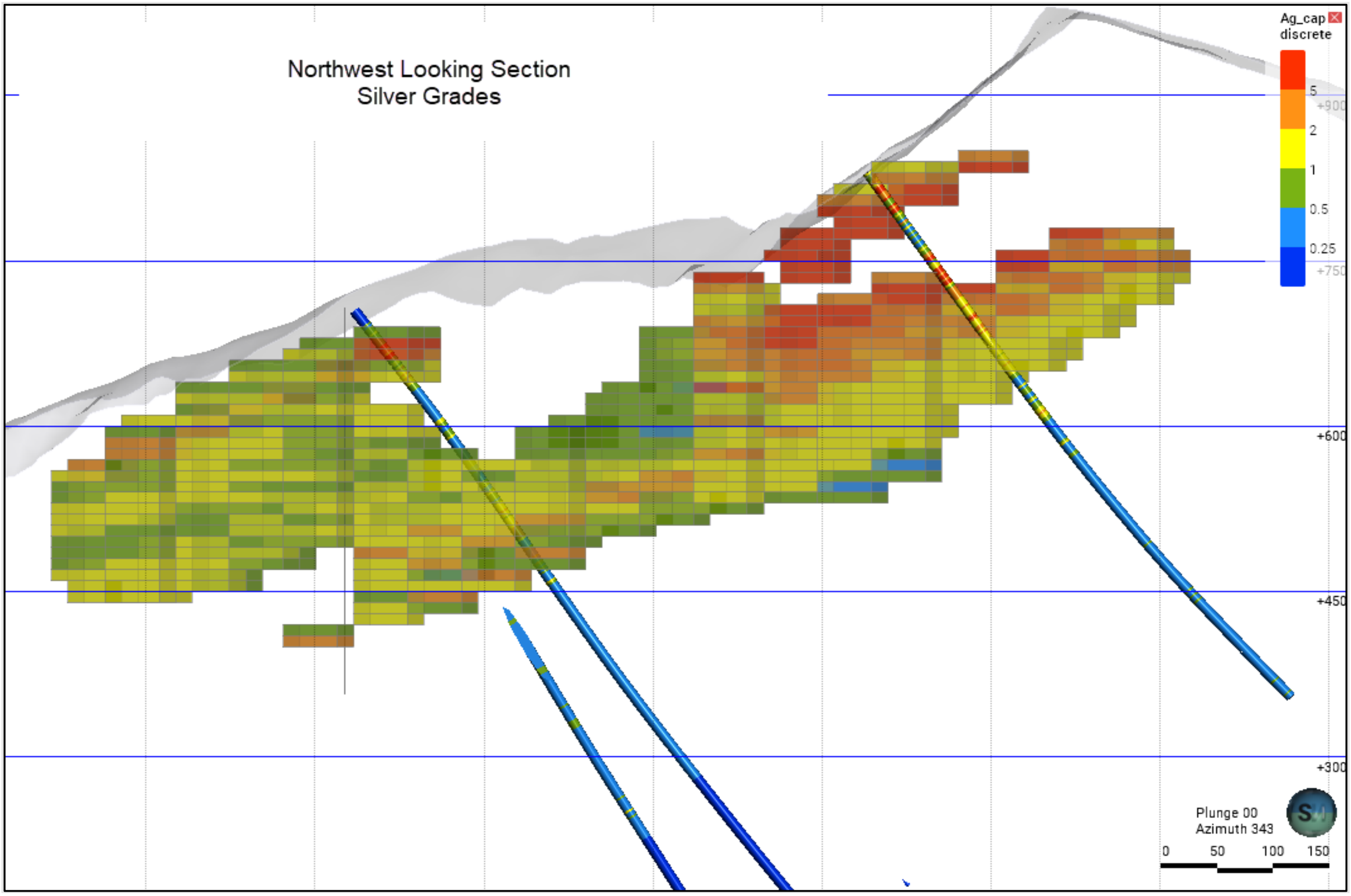
Source: SRK, 2023.

Figure 14-32: Cross-Section Used in Visual Comparison - South Zone Pit Au Values



Source: SRK, 2023.

Figure 14-33: Cross-Section Used in Visual Comparison - South Zone Pit Ag Values



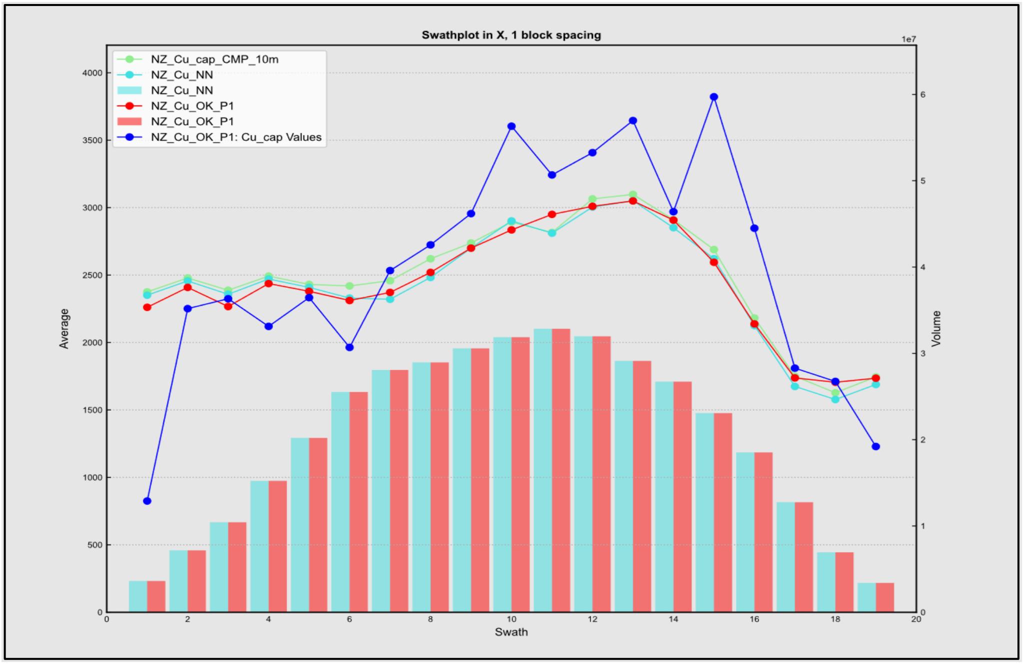
Source: SRK, 2023.

14.8.2 Comparative Statistics

The 2023 PEA block model was validated using a variety of statistical comparisons and analyses. These include general descriptive statistics comparing composite grades and estimated block grades along with swath plots for mean spatial comparisons of data. Differences in observed grades between raw, composited, spatially de-clustered composites (represented as the nearest neighbor [NN] estimate), and block grades are explained by a combination of volume-variance differences, locally clustered drilling data, and the orientation of swath plots compared to oblique drilling data.

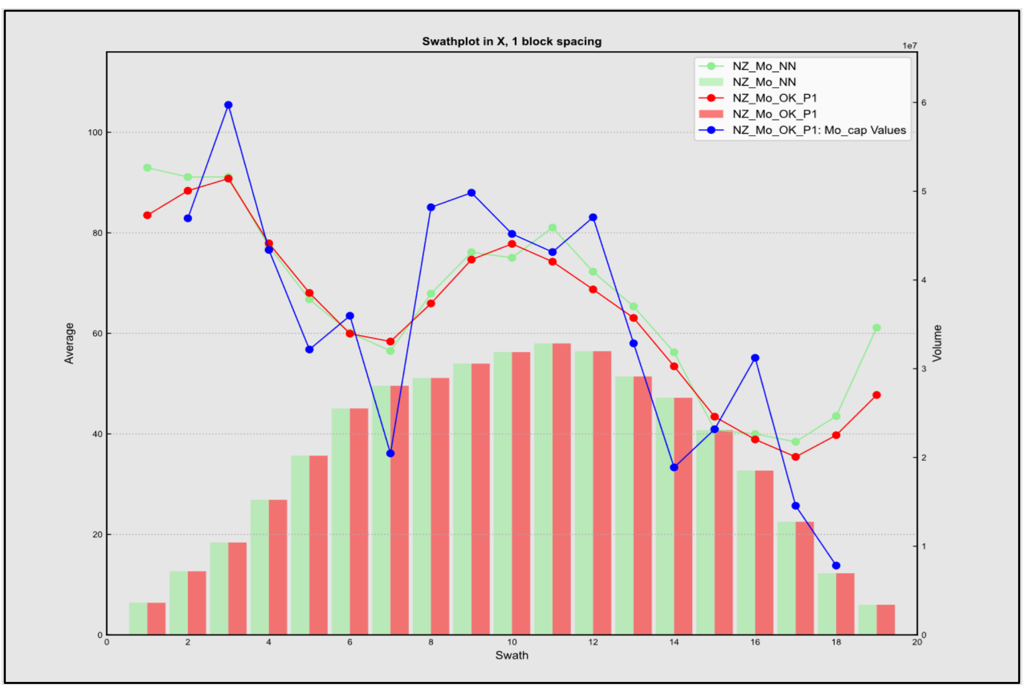
A swath plot analysis was performed to assess conditional bias or smoothing and demonstrates that when comparing the estimated block grades via OK to the NN estimate, the mean values show strong correlation (Figure 14-34 through Figure 14-41). Given that NN represents spatially de-clustered composites, this suggests only minor clustering of data, evident in the historical pit area.

Figure 14-34: Swath Plot in X Direction - North Zone Pit Cu



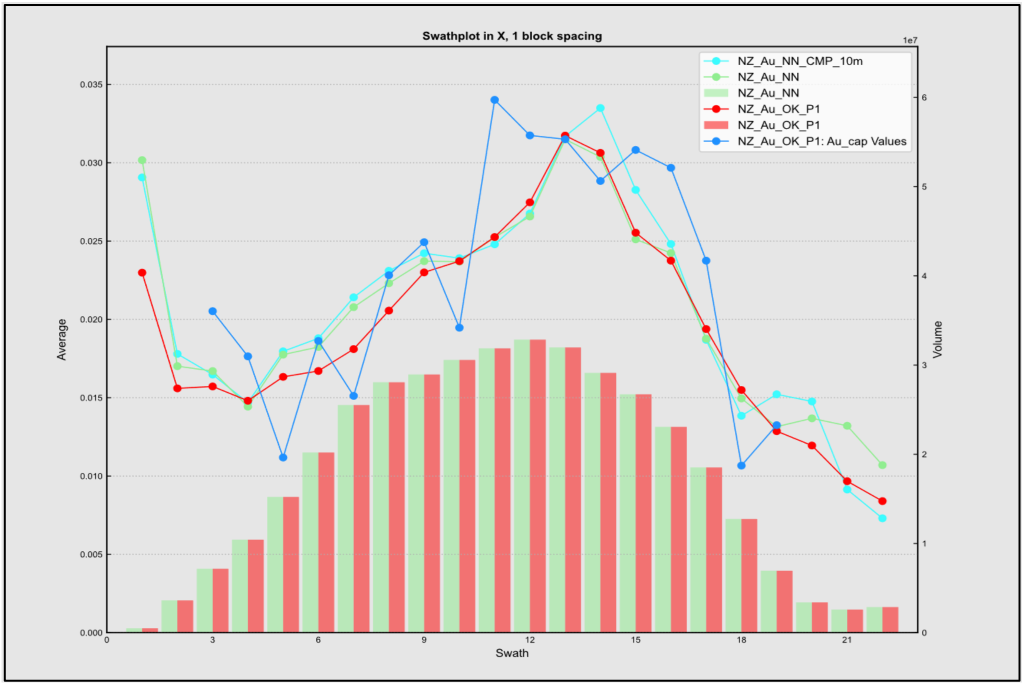
Source: SRK, 2023.

Figure 14-35: Swath Plot in X Direction - North Zone Pit Mo



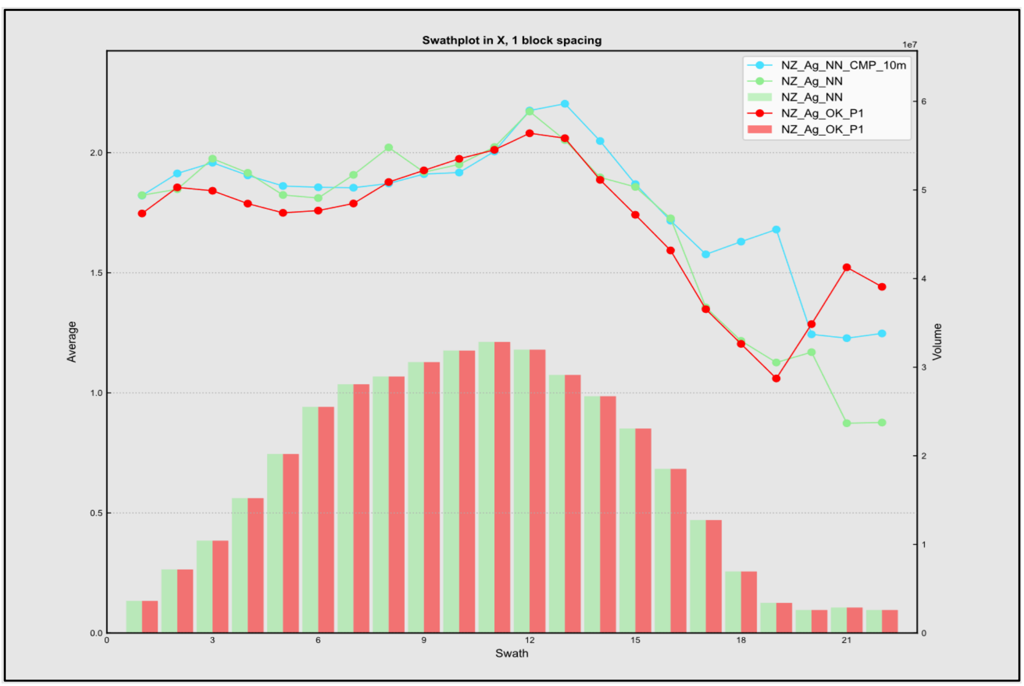
Source: SRK, 2023.

Figure 14-36: Swath Plot in X Direction - North Zone Pit Au



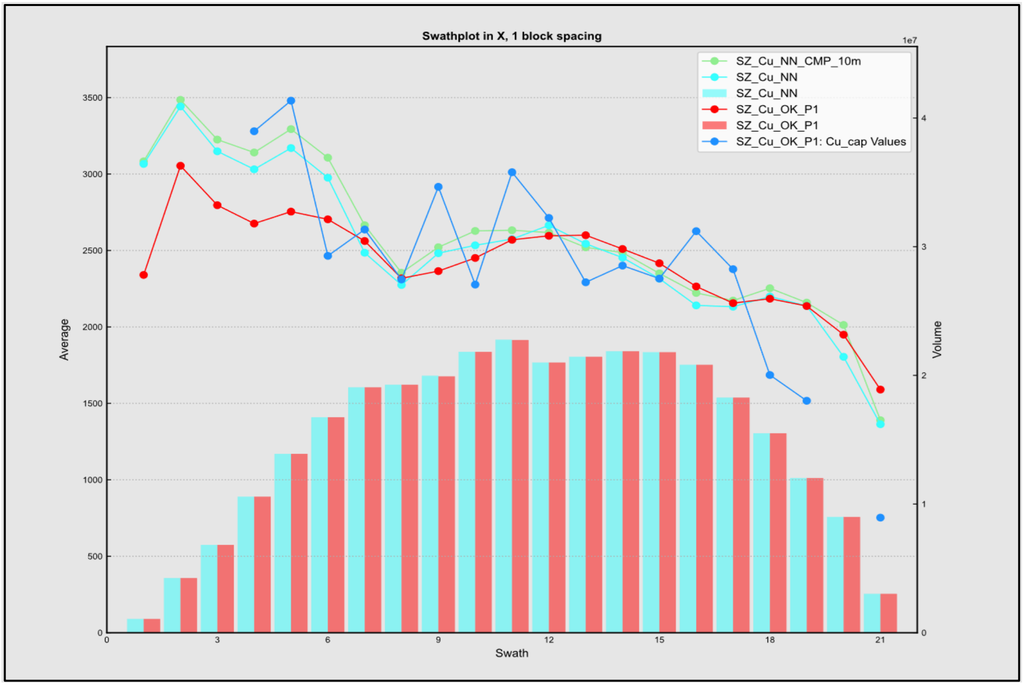
Source: SRK, 2023.

Figure 14-37: Swath Plot in X Direction - North Zone Pit Ag



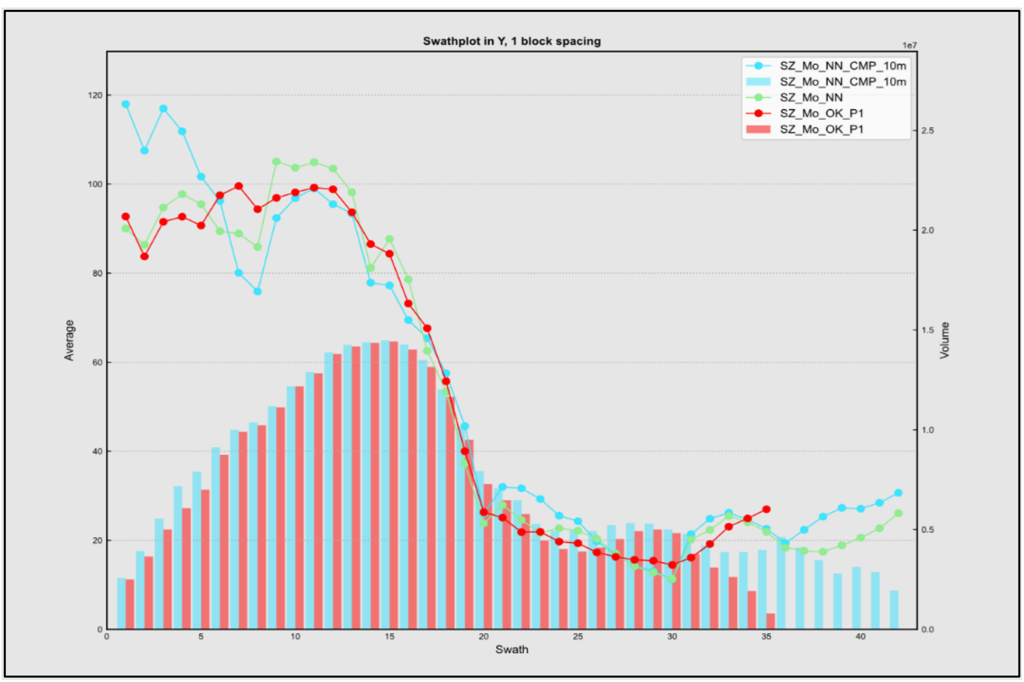
Source: SRK, 2023.

Figure 14-38: Swath Plot in X Direction - South Zone Pit Cu



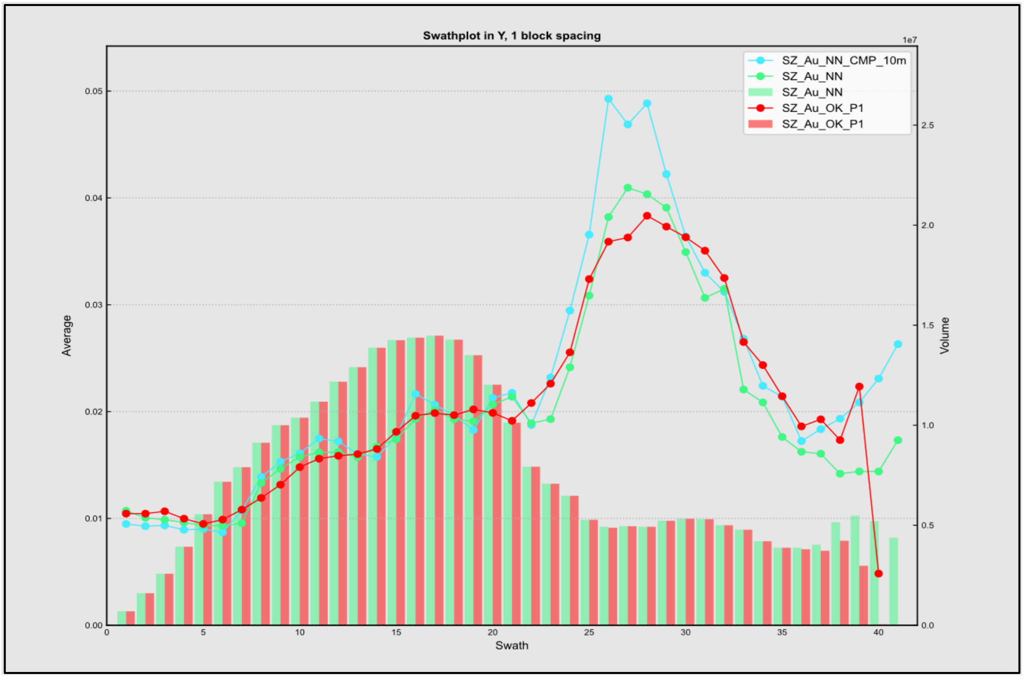
Source: SRK, 2023.

Figure 14-39: Swath Plot in Y Direction - South Zone Pit Mo



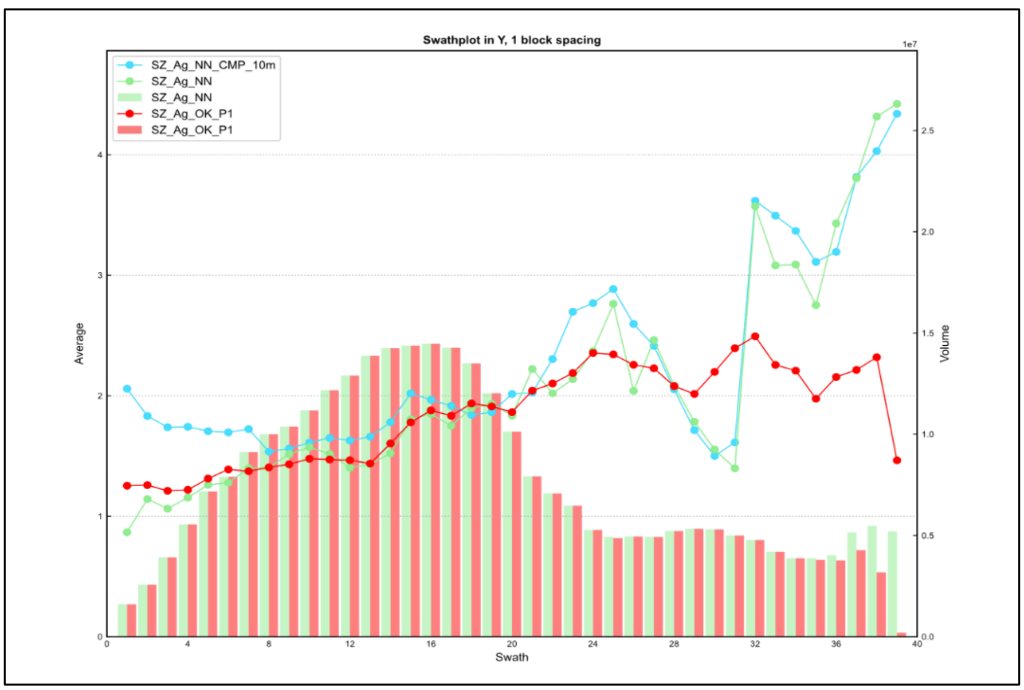
Source: SRK, 2023.

Figure 14-40: Swath Plot in Y Direction - South Zone Pit Au



Source: SRK, 2023.

Figure 14-41: Swath Plot in Y Direction - South Zone Pit Ag



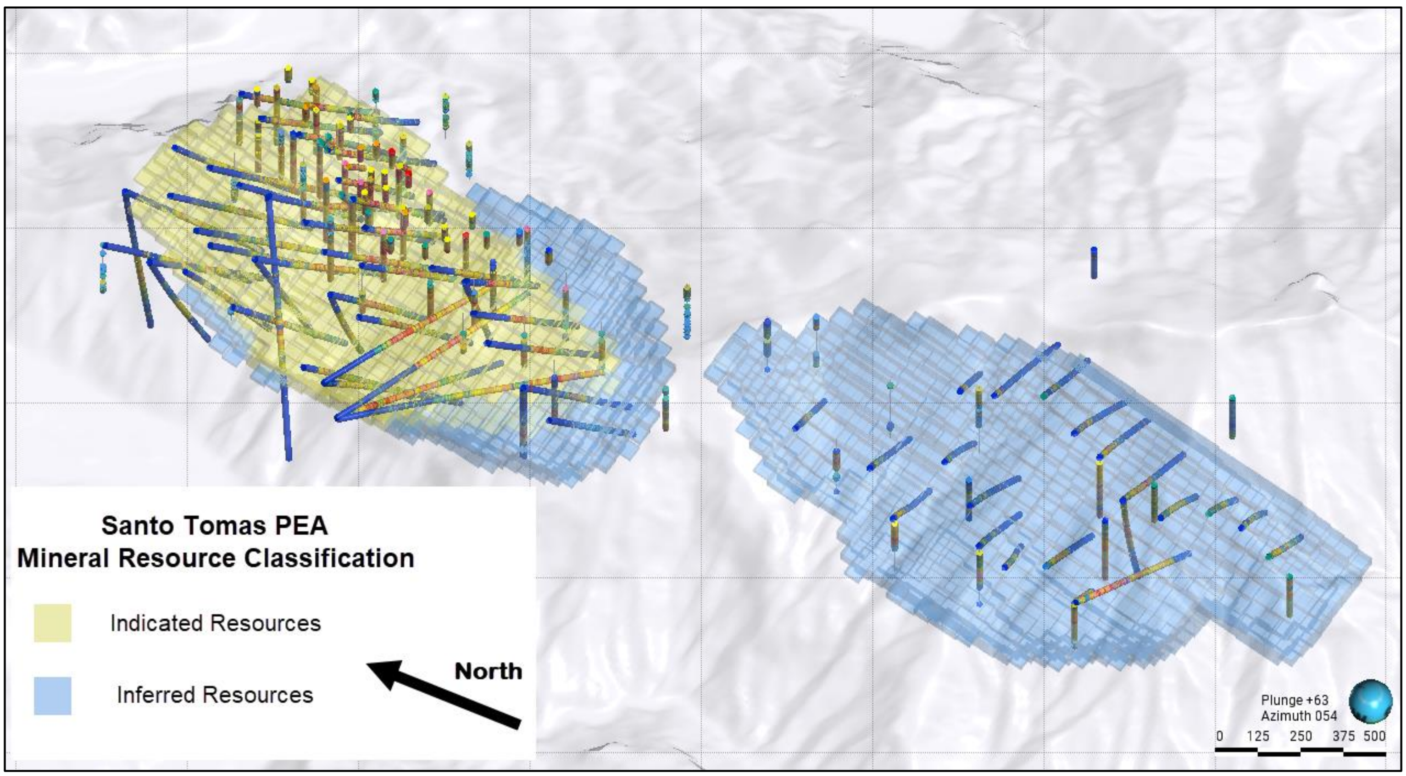
Source: SRK, 2023.

14.9 Resource Classification

Mineral resources are classified in accordance with NI 43-101 and CIM Standard Definitions (CIM, 2014) into Indicated and Inferred categories based on confidence in underlying data, current understanding of geological complexity and mineralization, and identified uncertainly related to data used to determine mineral resources. Resource classification is shown by blocks in Figure 14-42. Sulphide mineral resource classification remains unchanged from the 2023 PEA as no new data was added. All oxide mineralization above the applied cut-off grade has been classified as Inferred resources at this stage of the Project. Blocks are assigned a classification based on the following criteria:

Measured resources – The Santo Tomás Project currently does not contain measured mineral resources at this time due to uncertainties related to use of historical drilling to inform geology and Cu grades, lack of historical multi-element analyses to support Mo, Au, Ag, and S estimates to the same level of confidence as Cu and therefore the calculation of CuEq grades, preliminary metallurgical work establishing recoverability of all elements, and no geometallurgical characterization of mineral species (oxide v. sulphide) with associated deleterious materials.

Figure 14-42: Oblique View of Block Model Coloured by Resource Classification.



Source: SRK, 2023.

Indicated resources – The Santo Tomás Project contains indicated mineral resources based on the following criteria:

- Geological understanding based on surface mapping, structural modeling, geophysical surveys, and drilling across the mineralization zones.

- Review of QA/QC of drilling completed by Oroco (2021 to date).
- Robust estimation and established spatial continuity of key economic variable grades.
- Blocks contained within modelled sulphide mineralization domains.
- Mean drill spacing less than or equal to 150 m.
- SG measurements across multiple lithologies with robust spatial distribution on the Property.
- Blocks within the economic pit shell.

Indicated mineral resources are concentrated in the higher density drilling area of the North Zone Pit. This area shows robust spatial continuity of geology and grades with significant support from the combined recent and historical drilling data. Data spacing in this area of identified Indicated mineral resources is less than 150 m with historical holes highly focused on the high-grade zone with spacing commonly less than 100 m.

Inferred resources – The Santo Tomás Project contains inferred mineral resources based on the following criteria:

- Geological understanding based on surface mapping, structural modeling, geophysical surveys, and drilling across the mineralization zones.
- Review of QA/QC of drilling completed by Oroco (2021 to date) with consideration of areas primarily informed by historical data with established uncertainties.
- Mineralization within either sulphide or oxide domains.
- Mean drill spacing greater than 150 m.
- Quantity of SG measurements support volume.
- Blocks within the economic pit shell.

14.10 Reasonable Prospects for Eventual Economic Extraction

In order to establish reasonable prospects for eventual economic extraction (RPEEE) as per CIM Definitions and Standards (2014) of mineral resources, an effective Cu cut-off grade (CoG) was applied to blocks constrained within an economic pit shell on the Property. The economic assumptions utilized in determining the economic pit shell and effective CoG were provided by Oroco and their consultants and shown in Table 14-20. Cost and pricing assumptions are considered long-term in nature for establishing mineral resources at the PEA level of study for the Project. The QP has reviewed and accepted all assumptions used in establishing RPEEE for mineral resources at Santo Tomás (Table 14-20).

The economic CoG based on economic assumptions was provided by Oroco and their consultants (Table 14-19) resulting in a break-even average CoG equal to 0.114% Cu. The QP, in collaboration with Oroco, has elected to utilize a 0.15% Cu effective CoG for consistency with the MRE for the Project.

Table 14-20: Input Parameters for Economic Cut-Off Grade and Economic Pit Shell

Economic Shell Assumptions	Unit	Item	Source
Mining Cost	US$/t	2.40	SRK
Processing Cost	US$/t	4.79	Ausenco
G&A Costs	US$/t	0.67	Ausenco
Sales costs	US$/t	1.00	Oroco
Royalty	%	0.015	Oroco
Mine recovery	%	0.98	SRK
Mill Recovery - Cu*	%	0.837	Ausenco
Pit slope	degrees	variable	SRK
Incremental mining cost	$/10m bench	0.025	SRK
Reservoir boundary	n/a	ignored	Oroco
Metal Prices		**Source**	
Cu	US$/lb	4.00	SRK and Oroco
Mo	US$/lb	13.50	SRK and Oroco
Au	US$/oz	1,700.00	SRK and Oroco
Ag	US$/oz	22.50	SRK and Oroco

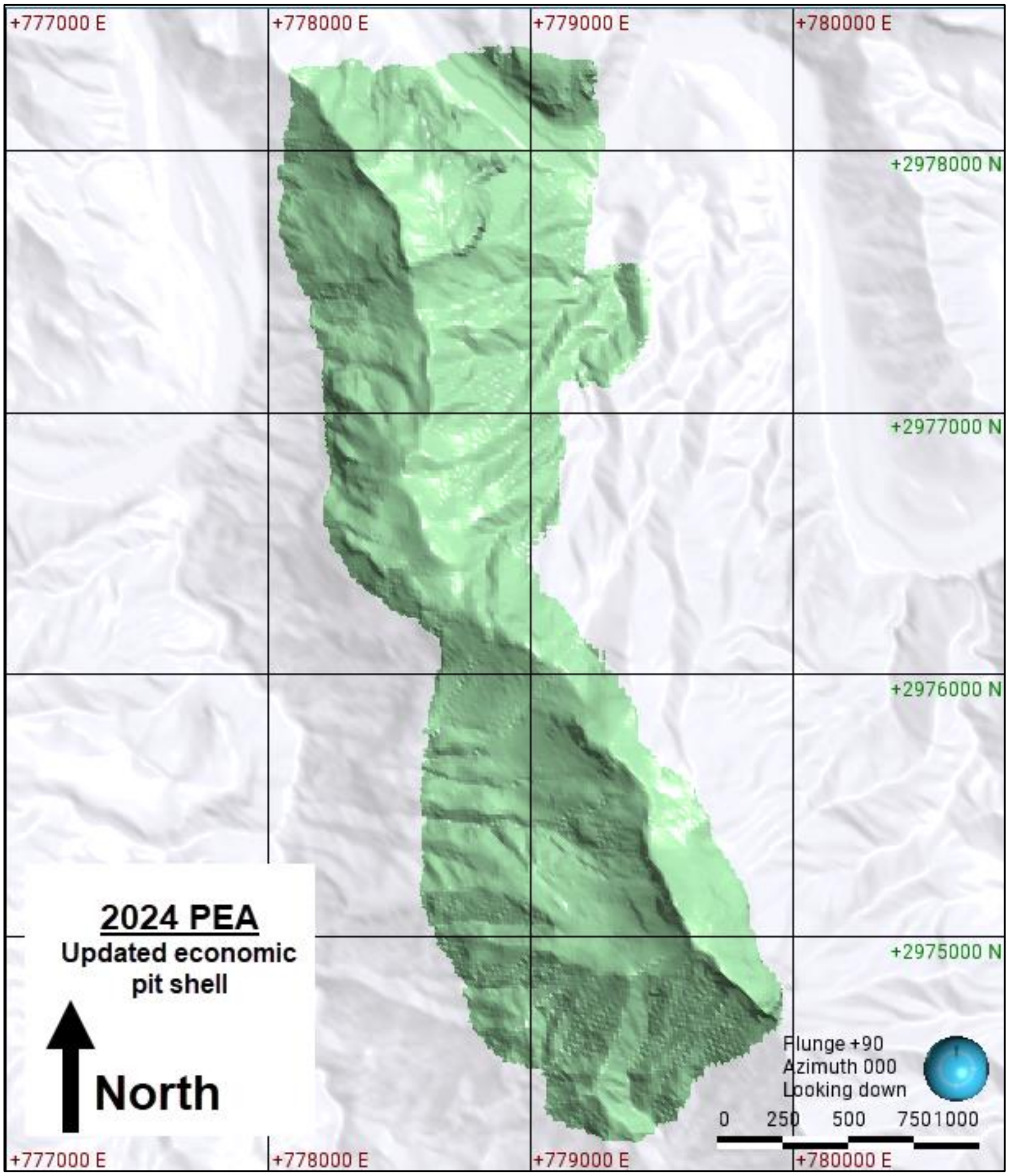
Based on the assumed mining method being open pit, the economic resource pit shells were calculated using Geovia's Whittle software. The economic inputs for the pit shell were held consistent with those presented in Table 14-20. The applied slope angles vary between 40 and 49 degrees, depending on geotechnical sectors. The high-water boundary on the Huites Reservoir was ignored as a mineral resource constraint for the purposes of the PEA, consistent with the MRE. The pit shell was utilized using a revenue factor (RF) of 1.0. The economic resource pit shell is shown in Figure 14-43 and Table 14-21 listing the revenue factors of whittle economic pit shell scenarios.

Table 14-21: Revenue Factors of Whittle Economic Pit Shell Scenarios

Pit	Revenue Factor	Cu Price ($)	Mo Price ($)	Au Price ($)	Ag Price ($)	Total Mineralized Materials	Waste
1	1.000	4.00	13.50	1,700.00	22.50	1,210,290,769	1,208,349,864
2	1.010	4.04	13.64	1,717.00	22.73	1,214,564,502	1,218,740,642
3	1.020	4.08	13.77	1,734.00	22.95	1,215,969,223	1,219,139,711
4	1.030	4.12	13.91	1,751.00	23.18	1,219,110,847	1,225,066,660
5	1.040	4.16	14.04	1,768.00	23.40	1,222,056,105	1,230,637,858
6	1.050	4.20	14.18	1,785.00	23.63	1,222,727,203	1,230,837,108
7	1.060	4.24	14.31	1,802.00	23.85	1,223,125,369	1,231,476,592
8	1.070	4.28	14.45	1,819.00	24.08	1,225,591,544	1,235,601,833
9	1.080	4.32	14.58	1,836.00	24.30	1,226,264,702	1,236,871,414
10	1.090	4.36	14.72	1,853.00	24.53	1,236,838,846	1,276,713,561
11	1.100	4.40	14.85	1,870.00	24.75	1,240,859,139	1,288,973,412
12	1.110	4.44	14.99	1,887.00	24.98	1,241,864,677	1,290,111,637
13	1.120	4.48	15.12	1,904.00	25.20	1,242,924,790	1,292,031,435
14	1.130	4.52	15.26	1,921.00	25.43	1,244,064,335	1,293,557,740

Pit	Revenue Factor	Cu Price ($)	Mo Price ($)	Au Price ($)	Ag Price ($)	Total Mineralized Materials	Waste
15	1.140	4.56	15.39	1,938.00	25.65	1,244,194,636	1,293,822,789
16	1.150	4.60	15.53	1,955.00	25.88	1,246,408,981	1,302,129,994

Figure 14-43: PEA Resource Economic Pit Shell Extents



Source: SRK, 2024.

14.11 Copper Equivalent Calculation

In order to provide a copper equivalent value which incorporates all credit metals, the following equation was applied on a block basis. Input block grades are used with all recovery and pricing assumptions set as constants for CuEq determination. Recoveries are based on mean feed grades derived from average Indicated mineral resources values applied through the PEA recovery equations. Further details on metallurgical recovery by metal is available in Section 13.

Equation 1: Copper Equivalent Calculation

$$CuEq = \frac{\left(\text{Cu grade x Cu recovery}^{(1)}\text{ x Cu price}^{(2)}\right) + \left(\text{Mo grade x Mo recovery}^{(3)}\text{ x Mo price}^{(4)}\right) + \left(\text{Au grade x Au recovery}^{(5)}\text{ x Au price}^{(6)}\right) + \left(\text{Ag grade x Ag recovery}^{(7)}\text{ x Ag price}^{(8)}\right)}{\left(\text{Cu recovery}^{(1)}\text{ x Cu price}^{(2)}\right)}$$

Notes:
1. Copper recovery is assumed to be a constant 83.7% based on PEA recovery test work and mean Indicated resource grade.
2. Long-term copper pricing used is US$4.00 per pound (lb).
3. Molybdenum recovery is assumed to have a constant recovery of 59.1% based on preliminary recovery test work and mean Indicated resource grade.
4. Long-term molybdenum pricing used is US$13.50/lb.
5. Gold recovery is assumed a constant recovery of 58.6.0% based on preliminary recovery test work and mean Indicated resource grade.
6. Long-term gold pricing used is US$1,700 per troy ounce (oz).
7. Silver recovery is assumed a constant recovery of 54.2% based on preliminary recovery test work and mean Indicated resource grade.
8. Long-term silver pricing used is US$22.50/lb.

14.12 Mineral Resource Statement

The mineral resource estimate and classification are presented in Table 14-22.

Mineral resources are not mineral reserves and do not have demonstrated economic viability.

Differences in the Mineral Resource Statement from the 2023 PEA Technical Report effective October 11, 2023, to the current Mineral Resource Statement with and effective date of July 23, 2024, are attributed to the following items:

- Inclusion of oxidized mineralization in the North Zone Pit and South Zone Pit.
- Updated economic and pit slope assumptions based on the updated PEA study.

Table 14-22: **Mineral Resource Statement for the Santo Tomás Porphyry Copper Project, Effective July 23, 2024**

Category	Zone	Tonnes Mt	Average Grade					In-situ Metal(3)				
			CuEq(10) (%)	Cu (%)	Mo (%)	Au (g/t)	Ag (g/t)	CuEq(10) (M lb)	Cu (11) (M lb)	Mo (11) (M lb)	Au(11) (koz)	Ag (11) (koz)
Indicated	North Zone Pit - sulphide	540.6	0.37	0.33	0.008	0.028	2.1	4,465	3,976	95.4	483.4	36,524
	Total Indicated	**540.6**	**0.37**	**0.33**	**0.008**	**0.028**	**2.1**	**4,465**	**3,976**	**95.4**	**483.4**	**36,524**
Inferred	North Zone Pit - sulphide	90.0	0.34	0.31	0.005	0.021	1.7	679	620	10.2	61.4	4,949
	North Zone Pit - oxide	4.4	0.31	0.31	0.002	0.053	1.6	29	29	0.2	7.4	228
	South Zone Pit - sulphide	399.2	0.36	0.32	0.008	0.023	2.0	3,132	2,789	71.2	294.4	26,200
	South Zone Pit - oxide	36.7	0.27	0.27	0.004	0.020	1.6	218	218	2.8	23.8	1,851
	Total Inferred	**530.3**	**0.35**	**0.31**	**0.007**	**0.023**	**1.9**	**4,058**	**3,657**	**84.4**	**387.1**	**33,229**

Notes:

1. Mineral resources are not mineral reserves and do not have demonstrated economic viability.
2. Abbreviations used in the table above include: Mt = million metric tonnes, % = percent, g/t = grams per metric tonne, M lb = million pound, and Koz = thousand troy ounces.
3. All figures are rounded to reflect the relative accuracy of the estimates. Totals in Table 14-22 may not sum or recalculate from related values in the table due to rounding of values in the table, reflecting fewer significant digits than were carried in the original calculations.
4. Metal assays are capped where appropriate. At this stage of the Project, it is the Company's opinion that all the elements included in the metal equivalents calculation have a reasonable potential to be recovered and sold.
5. All dollar amounts are presented in US dollars.
6. Bulk density is estimated on a block basis using specific gravity data collected on diamond drill core.
7. Economic pit constrained resource with reasonable prospects of eventual economic extraction ("RPEEE") were based on a copper price of $4.00/lb, molybdenum price of $13.50/lb, a gold price of $1,700/oz, and a silver price of $22.50/oz. Metal recovery factors of 83.7% for copper, 66% for molybdenum, 53% for gold and 53% for silver have been applied. Selling costs are $0.56/lb copper, $1.69/lb molybdenum, $191.71/oz gold and $2.94/oz silver. Slope angles varied by pit sector and range from 40 degrees to 49 degrees.
8. The in-situ economic copper (CoG) was calculated resulting in a 0.15% Cu CoG.
9. CoG assumptions include: a copper price of $4.00/lb, molybdenum price of $13.50/lb, gold price of $1,700/oz, and silver price of $22.50/oz. Suitable benchmarked technical and economic parameters for open pit mining, including a 98% mining recovery and costs of mining at $2.40/t, processing at $4.79/t, G&A at $0.67/t, with Private Royalties at 1.5% for molybdenum, gold, silver, and copper, have been applied in consideration of the RPEEE. Recoveries are applied as listed in Note 7.
10. Equivalent Copper (CuEq) percent is calculated with the formula CuEq% = ((Cu grade * Cu recovery [83.7% sulphide or 75.0% oxide] * Cu price) + (Mo grade * Mo recovery [59%] * Mo price) + (Au grade * Au recovery [53%] * Au price) + (Ag grade * Ag recovery [53%] * Ag price)) / (Cu price * Cu recovery [83.7% sulphide or 75.0% oxide]). It assumed that the Santo Tomás Project will produce a conventional (flotation) copper concentrate product based on metal recoveries at 83.7% Cu (sulphide) or 75% Cu (oxide), 59% Mo, 53% Au, and 53% Ag based on initial preliminary metallurgical test work.
11. Reported contained individual metals in Table 14-22, V represent in-situ metal, calculated on a 100% recovery basis, except for CuEq% (see Note 10).

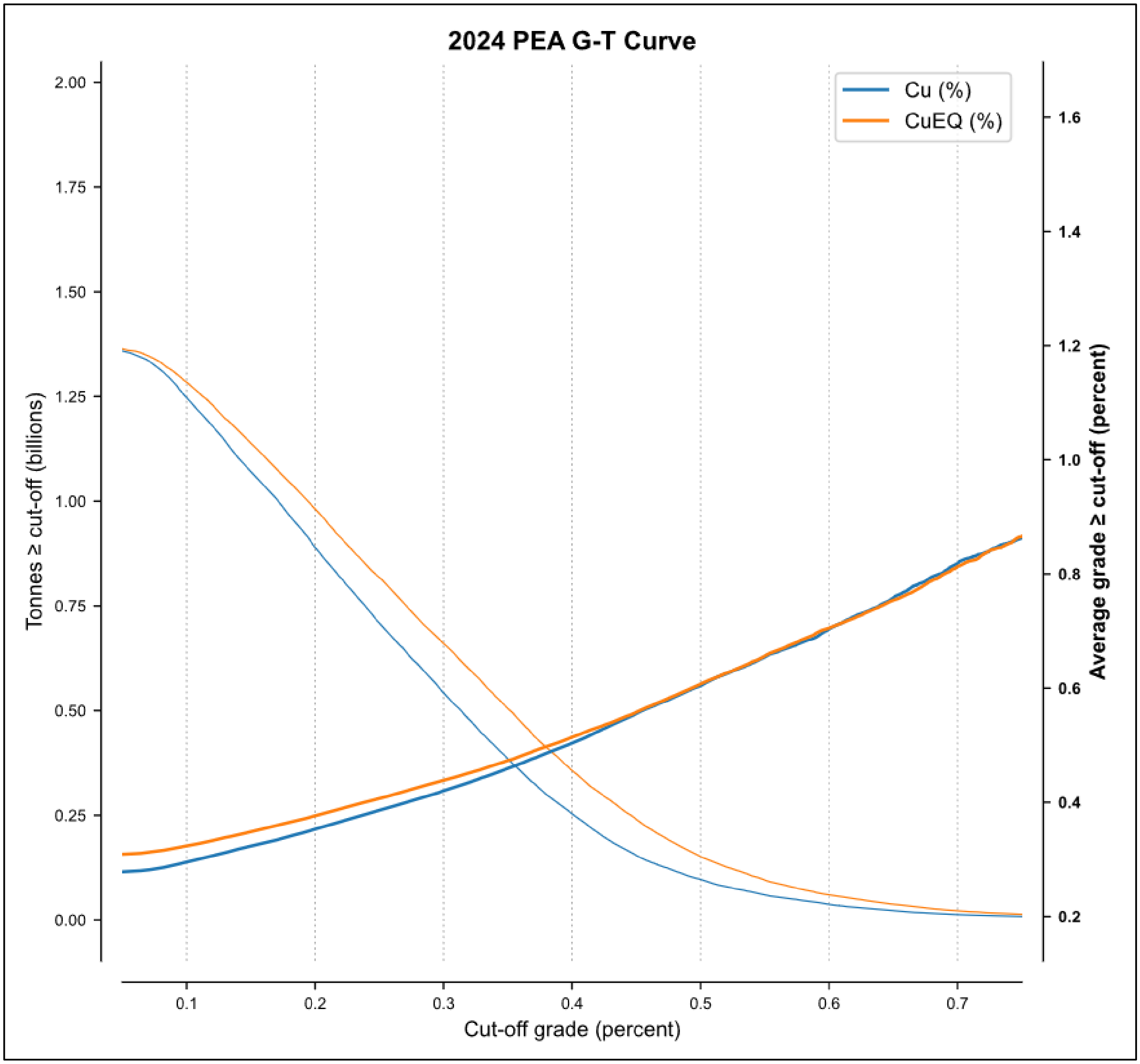
14.13 Mineral Resource Sensitivity

The sensitivity of mineral resources to changes in the CoG are presented through the grade tonnage in Table 14-23 and Figure 14-44. The QP notes that any material changes to project economic or technical assumptions may materially affect the mineral resource tonnage and average grades. The degree of change to tonnage and mean grades are presented below. All tonnages and mean grades presented below are constrained by the economic pit shell as discussed in Section 14.10.

Table 14-23: Grade Tonnage Sensitivity to Cut-Off Grade

Cu CoG (%)	Tonnes ≥ cut-off (Mt)	Average Cu grade ≥ cut-off (%)	Average CuEq grade ≥ cut-off (%)
0.11	1,212.7	0.30	0.33
0.12	1,179.3	0.31	0.33
0.13	1,142.8	0.31	0.34
0.14	1,103.2	0.32	0.34
0.15	1,070.9	0.32	0.35
0.16	1,038.2	0.33	0.35
0.17	1,004.6	0.33	0.36
0.18	965.5	0.34	0.36
0.19	929.9	0.35	0.37
0.20	889.3	0.35	0.38
0.21	853.0	0.36	0.38
0.22	816.3	0.37	0.39
0.23	781.1	0.37	0.39
0.24	745.7	0.38	0.40
0.25	708.9	0.39	0.41
0.26	675.7	0.39	0.41
0.27	642.2	0.40	0.42
0.28	610.5	0.41	0.43
0.29	577.7	0.41	0.43
0.30	542.0	0.42	0.44

Figure 14-44: Grade Tonnage Curve



Source: SRK, 2024.

14.14 Relevant Factors

Factors that may affect the Mineral Resource Statement on the Santo Tomás Property include:

- Ability to recover all stated metals at the assumed recovery factors.
- Changes to metal price assumptions in long-term outlook.

- Changes to the input economic assumptions on the economic CoG and pit shell including mining, process, and General and administrative (G&A) costs, recovery assumptions and mining dilution.
- Future identification and assessment of potentially deleterious materials or elements that may materially affect the ability to mine or recovery gold to the baseline assumptions.
- The ability to demonstrate a feasible path to mining in the Huites Reservoir area with appropriate offset or allotment that may be required based on further studies.
- Additional land or infrastructure constraints that may be identified during future studies on the Property.
- Changes in geotechnical, hydrogeological, and mining assumptions.
- Changes to assumptions or ability to continue with existing agreements, renew, or renegotiate those agreements.
- Changes to environmental, permitting, and social license assumptions.

14.15 Opinion on Mineral Resource Estimate

In the opinion of the QP, the Company has completed detailed and thorough geologic characterization programs to support a robust geological model and reporting of a mineral resource under NI 43-101 disclosure. The models adequately reflect the geologic setting that both controls and limits mineralization in the North and South Zone Pits. The oxidation model is rudimentary, however delineates oxidized material from reduced (sulphide) material that can be isolated in the block model. Mineralization domains are utilized to constrain the resource estimate and limiting geologic features are used when tabulating the Mineral Resource Statement. The Mineral Resource Statement for the Santo Tomás Project conforms to satisfactory industry practices and satisfies the requirements of the CIM Definition Standards required for disclosure under NI 43-101.

It is QP’s opinion that the current Santo Tomás PEA block model represents a satisfactory evaluation of the quantity and quality of material as it pertains to known mineralization style and deposit. The model is considered acceptable for use in the reporting of mineral resources under CIM Standards and Definitions (2014) and CIM Best Practice Guidelines for Mineral Resources and Mineral Reserves (2019). The fundamentals of the resource block model and classification have not been changed from the previously published Mineral Resource Statement and PEA except for inclusion of oxide mineralization and updated costs with associated pit shell modifications.

It is the QP’s opinion that the current block model is satisfactory for use in the prediction of quantity and quality of material for mine planning, economics, and associated studies as well as for the application of mineral resource classification and reporting. This updated PEA represents an improvement in the previously published PEA with updated costs, economic pit shell, geotechnical slope angle recommendations, and reporting of the oxide mineralization on the property.

15 MINERAL RESERVE ESTIMATE

This section is not relevant to this technical report.

16 MINING METHODS

16.1 Overview Process Design

In this study, the proposed mining method is the well-known open pit truck and shovel operation with 10-meter bench intervals. Haul trucks will be used for hauling mineralized material to the crushing plant and long-term stockpile facilities. Waste rock will be hauled to the waste rock storage facility (WRSF).

Mining operations will use two fleets, with a transition from predominantly small-scale equipment early in the mine life to predominantly large-scale mining equipment later in the mine life. The small-scale equipment fleet will include 200 mm diameter blast hole drills, 16.5 m^3 hydraulic shovels, 13 m^3 front-end loaders, and 72 t capacity haul trucks. The large-scale equipment fleet will include 250 mm diameter blast hole drills, 34 m^3 hydraulic shovels, 21.4 m^3 front-end loaders, and 240 t capacity dual fuel haul trucks. For the dual fuel haul trucks, which will have a lower operating cost than trucks that operate on diesel fuel only, it has been assumed that 50% of the consumed fuel will be diesel fuel and 50% will be LNG.

The rationale for deploying a predominantly small-scale equipment fleet in the early years of the Project is that the open pits have been designed to initially use multiple smaller pit phases to reduce waste stripping and allow for faster access to mill feed material. These smaller phases have narrower access roads that require the use of small-scale haul trucks (72 t capacity). Later in the mine life, the pit phases are typically larger and will allow for the use of large-scale haul trucks (240 t capacity). Over the life of the Project, including the pre-production waste mining year, it is expected that some 80% of the ex-pit tonnes will be mined with the large-scale equipment fleet.

The Santo Tomás deposit is divided into two pits. The North Zone Pit is approximately 1,800 m long (N-S) and 1,000 m wide (E-W) with a pit depth of 650 m and the South Zone Pit is 2,150 m long and 1,080 m wide with a pit depth of 660 m.

Other important facilities supporting the Project and the mining process are the mineral process plant, the tailings storage facility (TSF), the crusher pad located close to the pit exit and the north and south Waste Rock Storage Facilities (WRFS).

The mining sequence consists of 20 phases (10 in the North Zone Pit and 10 in the South Zone Pit), which vary in minimum mining width according to the type of equipment to be used. Early years focus on mining the North Zone Pit, while transitioning to larger equipment to be used once the South Zone Pit has opened up to wider benches. The use of smaller mining equipment will be key throughout the mine life to access the starting benches of new phases as they are required.

The Project has a mine life of 23 years, which includes 1 year of pre-stripping. The mine production plan contains 825.5M tonnes of mineralized sulphide material with an average grade of 0.37% CuEq which will be processed at the mill. An additional 73.4M tonnes of mineralized oxide material with an average grade of 0.19% Cu will be hauled to the south WRSF, where there is enough space to segregate it from waste rock and other sulphides. The current mine plan treats oxide material as waste. However, consolidating this material in a specific area of the WRSF will maintain the optionality to process this material in the future. The total amount of waste material (including mineralized oxide) is 1.1B tonnes, resulting in a strip ratio of 1.38 over the life of the mine.

Mining operations will be carried out by the owner on two 12-hour shifts, 24-hours per day, 365 days per year schedule. Total mined tonnes (mineralized material and waste) will start at 27.2M tonnes mined during the pre-stripping year and eventually ramp up to a maximum of 116 Mtpa.

16.2 Geotechnical Considerations

Oroco Resources Corp. (Oroco) engaged SRK Consulting (Canada) Inc. (SRK) to support pit geotechnical studies for the Santo Tomás Project Preliminary Economic Assessment (PEA). SRK assisted Oroco with designing the investigation program and establishing the geotechnical data collection practices. Following this, SRK conducted geotechnical characterization and assessments for PEA level ultimate pit overall slope design guidance.

In 2021, SRK assisted Oroco with designing a geotechnical and hydrogeological field program to investigate the North Zone Pit. The planned program was a combination of planned resource drill holes and dedicated geotechnical drill holes. It comprised twelve targeting the planned ultimate pit walls and provided coverage of the different wall azimuths as well as major modelled lithology units and structures. Oroco implemented a program comprising ten resource drill holes collared near the center of the planned North Zone Pit. These drill holes are identified by the series name, ST21-N001 through ST21-N010. Nine have an azimuth of 110º and dip of -55º. ST21-N004 is oriented toward the east with an azimuth of 220º and dip of -55º. ST21-N005 is a short hole that runs parallel and next to ST21-N006 providing limited additional information. The nine longer holes were between 621 m and 1,023 m long but are mostly around 800 m.

Oroco conducted detailed geotechnical logging of these diamond core drill holes in accordance with procedures developed in collaboration with SRK. SRK provided training to Oroco staff during site visits in October 2021 and May 2022, and guidance remotely as requested. Oroco also logged other resource drill holes for basic geotechnical parameters and all core was photographed after logging in dry and wet condition. 3,644-point load tests (PLT) were conducted at spacings ranging from 1 m to 50 m. No geomechanical laboratory testing was carried out.

SRK conducted quality checks on a sub-set of the data by reviewing parameter relationships and with data from core photo logging. Findings were presented to Oroco personnel as part of the continued training.

A regional three-dimensional lithostructural model was developed in Leapfrog Geo, as part of the resource estimation with the major faults represented. The 3D geology model provided by Oroco included six lithological units. Listed from the youngest to oldest are: QMP Member, Volcanic Formation, Sedimentary Formation, Andesite Formation (with Upper and Lower members), and Granodiorite. The QMP Member consists of monzonite and quartz vein stocks. The Volcanic Formation consists of rhyolite and lava flows while the Sedimentary Formation comprises limestones, skarns, and breccia. The Andesite Formation comprises massive andesite as well as fine-grained andesite tuff. The Granodiorite unit is part of an extensive batholith complex which parallels the pits to the west. Most of the available drill hole detailed geotechnical data is from the Andesite Formation Lower Member and QMP Member. Limited data is available for the Andesite Formation Upper Member (less than 20 m drilled) and the Granodiorite located beyond the mineralization.

To support the pit geotechnical work, a more detailed fault model was developed for both the North Zone Pit and South Zone Pit. The model was generated using inputs from surface structural mapping, surface lineament analysis, geophysics, structural and geotechnical logging, and ATV data. Orientation analysis indicated a dominant shallow dipping fault system which was prioritized in the modeling. A total of 60 faults were included in the combined North Zone Pit and South Zone Pit fault model with the major logged mylonitic faults represented by a westerly to WSW dipping fault system. These 60 faults were segregated into six fault families and some unsorted faults. Group A separates the North and South Zone Pits. Group B separates the Granodiorite unit from the rest of the lithologies. Group C is the dominant aforementioned fault system dipping west throughout the model and characterized by mylonite presence running parallel to the contact between the Lower Andesite contact and the QMP Member. Group D, E, and F are smaller fault systems localized to only one zone. There are six unsorted faults.

A literature review was conducted on the hydrogeological conditions which found limited information only pertaining to the regional setting. The Río Fuerte bounds the north end and northwest end of the pit. There are two dams downstream of the Project site creating the El Mahone reservoir at El Fuerte town and the Huites reservoir near the town of Choix. Reservoir levels were referenced as a basis of the hydrogeological scenarios considered in the slope stability analyses.

Estimated intact rock strength data was available from geotechnical drill holes and point load test data from all drill holes. Due to the absence of laboratory testing data, A 'universal' conversion factor of 24 (Broch and Franklin, 1972) was used to obtain UCS values from the point load test data. Most of the data for all units is in the category described as 'strong rock' (in accordance with ISRM, 1978) except for the Upper Andesite Member which is mostly categorized as 'weak rock' with a normal distribution spanning 'very weak' and 'medium strong rock'. Limited information was available for this unit as only 18.3 m was drilled.

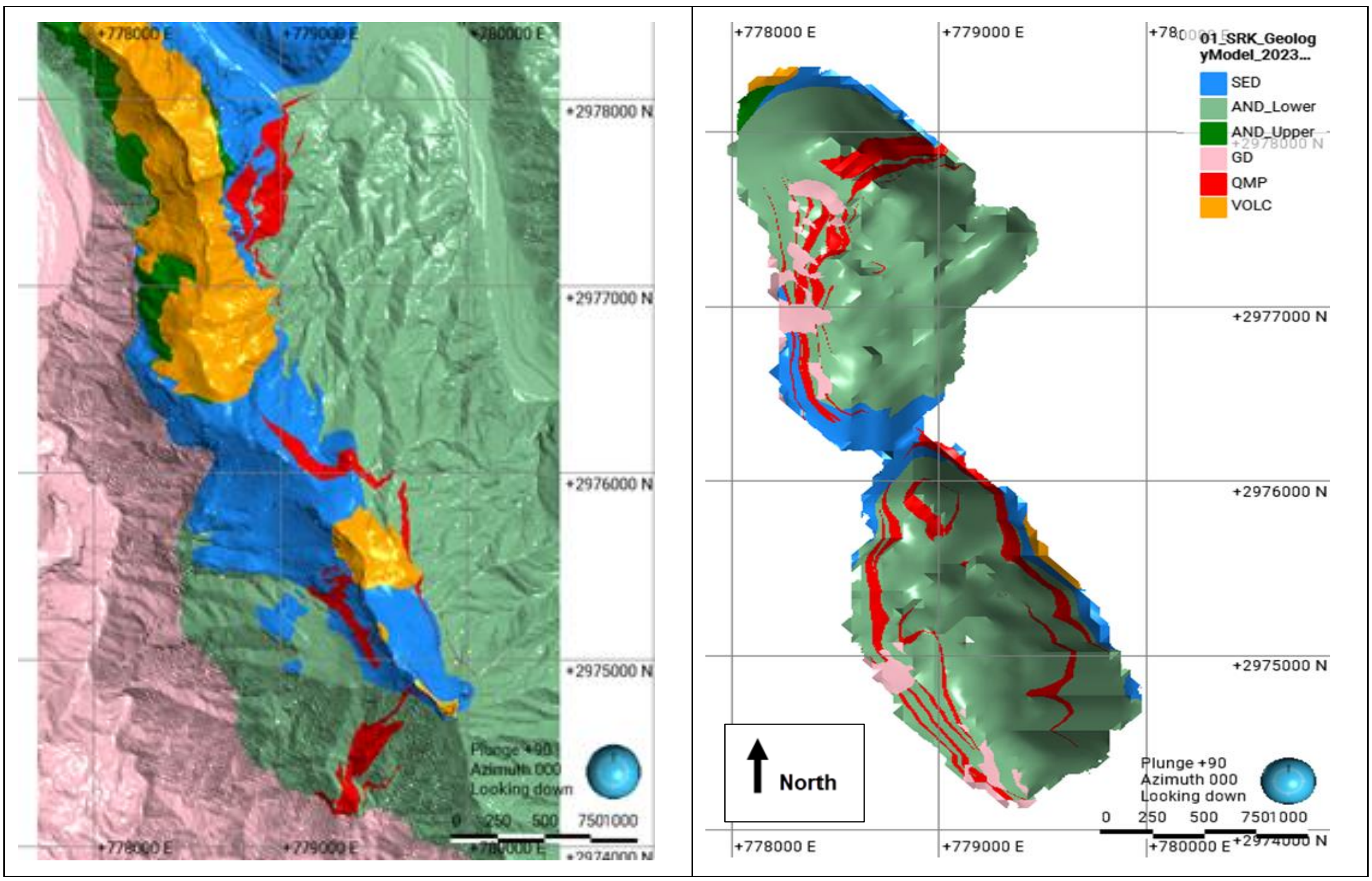
Oroco and SRK conducted quality control and processed the detailed geotechnical data to calculate rock mass ratings in accordance with Bieniawski (1989) system. For all units except the QMP Member and Sedimentary Formation, the RMR89 data is normally distributed and mostly in the category of 'good' rock quality (61 to 80 range). The data for the QMP Member is normally distributed and mostly in the categories of 'fair' (41 to 60 range) to 'good' rock quality. The data for the Sedimentary Formation is distributed over the categories of 'good' and 'very good' (81 to 100 range).

At this project stage, the data quantity and spatial distribution does not support the construction of a reliable three-dimensional geotechnical domain model. The geotechnical characterization was done using the three-dimensional lithology model and composite lithology units. Figure 16-1 shows the three-dimensional geology model intersected by the provided ultimate pit optimization shell. It shows that most of the exposure will be in Andesite Formation Lower member with exposures of QMP Member throughout and Granodiorite in the west walls. Sedimentary Formation and small zones of Andesite Formation upper member and Volcanic Formation are exposed in the upper walls of both pits.

High level slope stability assessments were conducted to inform ultimate pit wall geotechnical design guidance. The assessment types were macro-block kinematics and overall scale two-dimensional limit equilibrium (deterministic). The kinematics assessments considered rigid blocks formed by the modelled major structures and their interaction with the ultimate pit walls for potential release mechanisms i.e., planar, wedge, or toppling modes. The limit equilibrium assessments considered four sections through the planned ultimate pit walls which were selected primarily to capture locations of highest pit walls and faults potentially adverse to stability. Multiple cases were run with varying fault cohesion values and a range of different phreatic surface scenarios to evaluate their influence. Standard industry design criteria for overall slope stability from Read and Stacey (2009) were adopted to evaluate the results.

Based on the geotechnical characterization, three-dimensional models, and planned pit configurations, SRK's QP defined four pit design sectors and composite sub-sectors (Figure 16-2). With reference to standard industry empirical methods and findings of the high level geomechanical assessments, developed PEA level overall slope angle (OSA) guidance for each sector. SRK's QP found that stability in Sub-sector 1a was be influenced by the potential for high phreatic surface and rock mass strength, while in Sub-sector 1b rock mass strength was the dominant influence. In Sector 2 stability was influenced by both rock mass strength and fault interaction. In Sub-sector 3a stability was influenced by the potential for high phreatic surface and rock mass strength, while in Sub-sector 3b, rock mass strength was the dominant influence. Sector 4 is sub-sectored based on rock mass strength and fault interaction (Sub-sector 4a). As geotechnical knowledge evolves in future studies the controls on slope stability will need to be reviewed and continue to be refined.

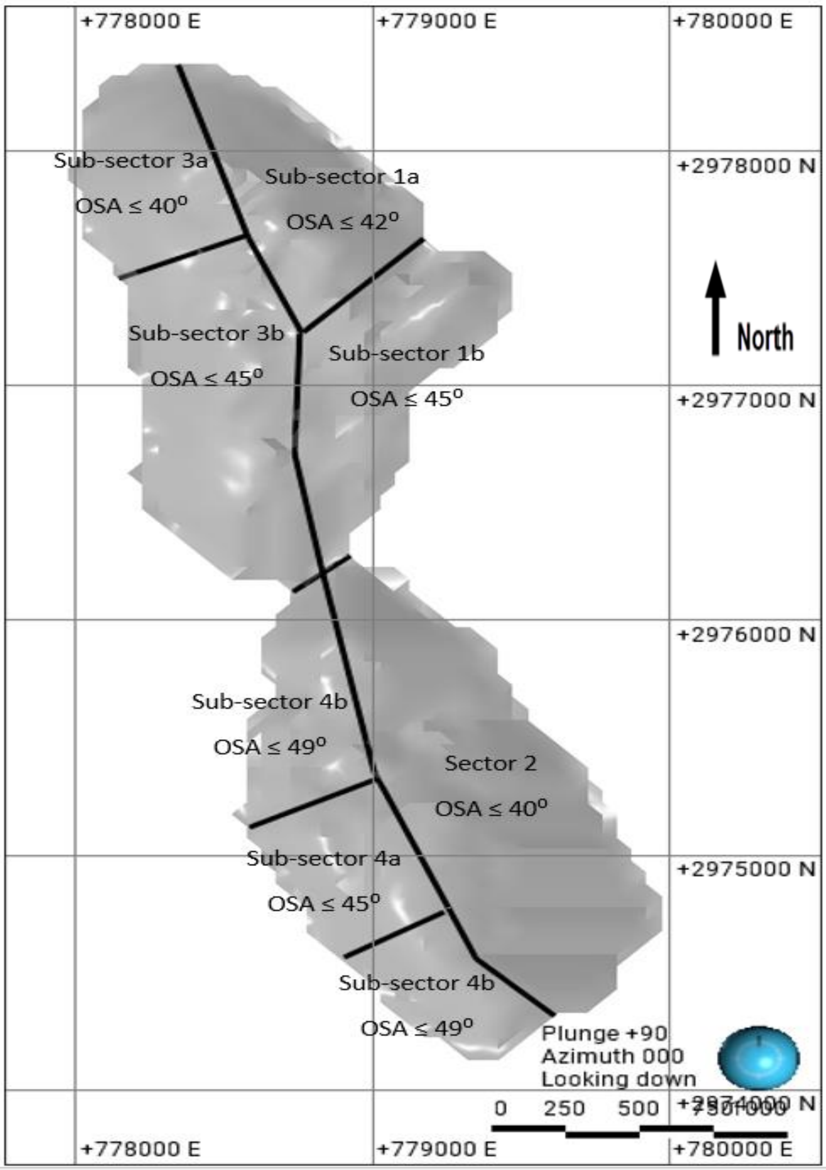
Figure 16-1: Geological Model of The Santo Tomás Area (Left). Plan View of The Ultimate Pit Optimization Shell Intersecting the Lithology Model



Source: Lithology model "01_SRK_GeologyModel_20230402", dated 2023/09/14. Pit shell "Constrained Pit rf1", dated 2023/09/14.

The next stages of study will require additional site investigations including geotechnical outcrop mapping and dedicated oriented diamond core geotechnical drill holes. Drill holes should target the planned ultimate pit wall rock and with representative spatial distribution and orientations to provide coverage of all pit wall azimuths, major units, and structures. Down-hole hydraulic testing should be conducted to characterize the groundwater regime and interaction with faults and select drill holes completed with groundwater monitoring instrumentation. Laboratory testing will be required for defining geomechanical property values to make better use of the point load test data, and for inputs to future slope stability analyses. Using the geotechnical data and three-dimensional models of relevance of lithology, alteration, structures, rock mass, hydrogeology, and mineralization, a three-dimensional geotechnical domain model should be constructed. The assessments in this study showed that in some pit sectors, major structures could be a dominant influence on pit wall stability and therefore detailed effort should be put to characterizing and modeling these features. Slope stability analyses including kinematics and limit equilibrium/finite element approaches, should be conducted for bench to overall pit wall scales using the updated understanding of the geotechnical and hydrogeological regimes.

Figure 16-2: Geotechnical Sectors on The Optimized Pit Shell



Source: Leapfrog (2023) Pit shell "Constrained Pit rf1" and "sector boundaries", dated 2023/09/14.

16.3 Hydrogeological Considerations

To date, very limited site-specific hydrogeologic data exist to inform a detailed slope stability analyses other than the consideration of levels of the El Mahone, Río Fuerte and Huites Reservoir downstream of the mine site.

SRK recommends the following technical studies be conducted for this purpose but also to inform assumptions made in the Site-wide Water Balance (Section 18.3.10.4) and Pit Dewatering Considerations:

- Conduct a regional groundwater survey to better understand the broader hydrological and hydrogeological interactions and regimes.
- Coupled with the geotechnical drilling investigations, conduct a program of downhole packer testing to measure hydrogeological parameters.
- Complete select drillholes with Vibrating Wire Piezometers (VWP) and standpipe piezometers for groundwater monitoring and possible groundwater chemistry testing.
- As part of future investigation programs, monitor the VWPs during drilling to detect cross hole pressure changes which can provide better insight to connectivity, and potential for both passive and active depressurization.
- Construct an initial 3D site-wide groundwater model.
- Using the boundary conditions, baseline water levels, infiltration, and hydraulic parameters from the hydraulic testing and site-wide groundwater model, carry out pore pressure modeling for predictive drawdown scenarios.
- Evaluate overall pit slope sensitivity to groundwater and whether passive drainage will be sufficient to achieve the required drawdown conditions.

16.4 Open Pit

16.4.1 Key Design Criteria

The following criteria was used to guide the mine design process for the Santo Tomás Project:

- The Huites Reservoir as described in Section 16.2 along the north end of the Property was used as a pit limit boundary. Mineralized material beneath the reservoir was not included in the pit optimization and resource estimates.
- Pit optimization, mine design and mine planning are based on the Santo Tomás PEA Resource block model (Resource Model), which consists of a block size of 50 m wide x 50 m long x 10 m high. The model contains mineralized copper, molybdenum, gold, and silver grades, as well as specific gravities, mineral resource classifications, and flags for blocks located beneath the reservoir.
- The Resource Model was re-blocked to 12.5 m wide x 12.5 m long x 10 m high blocks to create the Engineering Model for the purposes of pit optimization, mine design, and mine planning. Since the model was re-blocked to a smaller block size of a common denominator, there were no changes to the total tonnage and grades using the engineering block model.
- The Resource Model contained grade estimates for sulphide and oxide material, both of which were classified as Indicated or Inferred. For the purposes of this study, only sulphide blocks with a classification of Indicated or Inferred that are above cut-off grade have been considered as mill feed. Mineralized oxide material above cut-off grade with a category of Indicated or Inferred has been quantified in the schedule and scheduled to the South WRSF (where it is assumed to be segregated from other waste rock). All the material in the mine design resides outside of the reservoir constraint.

- Mill recovery formulas for each metal were incorporated as an attribute into the Engineering Model.

16.4.2 Net Smelter Return

The Net Smelter Return (NSR) was calculated for each block in the model to reflect the value of each block based on copper, molybdenum, gold, and silver grades. Inputs for the NSR calculations are shown in Table 16-1 below. Metal prices used for financial modeling (Section 22) are different from metal prices used for mine planning due to market consensus at the time of financial evaluation. In SRK's opinion, such differences would not materially change the outcome of the mine design and scheduling described herein.

Table 16-1: Off-Site Charges and Downstream Costs

Prices	Units	Value
Gold	US$/oz	1,650.0
Silver	US$/oz	22.00
Copper	US$/lb	3.80
Molybdenum	US$/lb	12.00
Payability	**Units**	**Value**
Gold =< 1g/t	%	90.0
Gold = 0 - 1 g/t	%	0.0
Silver =< 30g/t	%	90.0
Silver = 0 - 30 g/t	%	0.0
Copper	%	97.0
Molybdenum	%	98.5
Metallurgical Recoveries	**Units**	**Value**
Mill - Sulphides		
Gold	%	28.42 +104*([Grade_Cu]) + 129*([Grade_Au]) - 2.42*([S]/[Grade_Cu]); Max 90% Min 15%
Silver	%	49.4 + 8.3*([Grade_Ag]) – 7.77*([S]); Max 90% Min 15%
Copper	%	10.6*LN(Cu %) + 95.47; Max 95% Min 0%
Molybdenum	%	66.1*(Mo %) + 58.6; Max 82% Min 0%
Concentrate grades	**Units**	**Value**
Gold	g/t	Variable
Silver	g/t	Variable
Copper	%	25.0
Molybdenum	%	50.0
Concentrate Transportation	**Units**	**Value**
Copper	US$/wmt-Cu Conc.	79.00
Molybdenum	US$/wmt-Mo Conc.	79.00
Concentrate Moisture	**Units**	**Value**
Copper	%	9.0
Molybdenum	%	5.0
Refining	**Units**	**Value**
Copper	US$/payable Lb Cu	0.08
Silver	US$/payable Oz	2.65
Gold	US$/payable Oz	5.00
Molybdenum	US$/contained Lb of Mo	n/a
Royalties	**Units**	**Value**
Gold	%	1.50

Prices	Units	Value
Silver	%	1.50
Copper	%	1.50
Molybdenum	%	1.50

16.4.3 NSR Cut-Off Value

Due to the polymetallic characteristic of the deposit, the approach used to determine the marginal economic cut-off value was to calculate a NSR cut-off value. The calculated marginal NSR cut-off calculation results in a cut-off value of $6.96/t, which comprises the sum of processing costs, mill sustaining costs, rehandling costs and general and administrative (G&A) costs as presented in Table 16-2. The NSR cut-off value was applied to all blocks that are contained within the ultimate pit, the design of which was guided by economic pit optimization (as discussed in the next section).

The NSR cut-off value of $6.96/t corresponds to a copper equivalent grade of 0.14% CuEq. SRK selected 0.15% CuEq as the cut-off grade for classifying material as mill feed or waste.

Table 16-2: Marginal NSR Cut-Off Value and CuEq Cut-off Grade Parameters

Parameter	Value	Unit
Processing Cost	4.7	$/t
Mill Sustaining Capital	0.086	$/t
Materials Rehandling Cost	1.5	$/t
G&A	0.67	$/t
Marginal NSR Cut-Off	7.10	$/t
CuEq Cut-Off Grade	0.14	%

16.4.4 Pit Optimization

Pit optimization was conducted using Vulcan Pit Optimization (Maptek) software and using the Pseudoflow algorithm. This algorithm considers factors including resource grades, resource classification, and specific gravity for each block within the block model. It assesses costs and revenues for potential pit shells, expanding from the highest-grade blocks outward and downward until the last block breaks even economically.

Various pit shells are generated by incrementally changing metal prices while keeping metallurgical recoveries, costs, and pit slopes consistent. Each pit results in varying resource tonnes, grades, and waste tonnages. Economic margins for each pit were assessed, and the ultimate pit shell was chosen based on project objectives. In the case of the Santo Tomás Project, the primary goals were to optimize cashflow, minimize waste movement, and ensure a sustainable, long mine life for continued operations. This process maximizes value while minimizing risk.

At the pit optimization stage, the economic analysis was conducted solely for comparison purposes to select the optimal pit shell and does not represent the actual financial outcomes of the mine plan.

16.4.4.1 Key Assumptions/Basis of Estimate

For the PEA study, the pit optimization was constrained to blocks located outside the CONAGUA boundary on the Huites Reservoir along the northern perimeter of the mineralized deposit as shown in Figure 16-3. The extraction of all mineralized blocks in an unconstrained scenario would involve the prospect of diverting the reservoir, which is a consideration that could potentially be explored in future studies.

The pit optimization inputs used in this study are shown in Table 16-3. Geotechnical parameters were provided by SRK (Vancouver). Metallurgical recoveries, metal prices, process operating costs, process sustaining capital costs, G&A, and downstream concentrate transportation and treatment costs were provided by Ausenco. Mining dilution and mining recovery were incorporated by SRK during the mine design and scheduling process. Mine operating costs and mine sustaining capital costs were estimated and applied in the pit optimization.

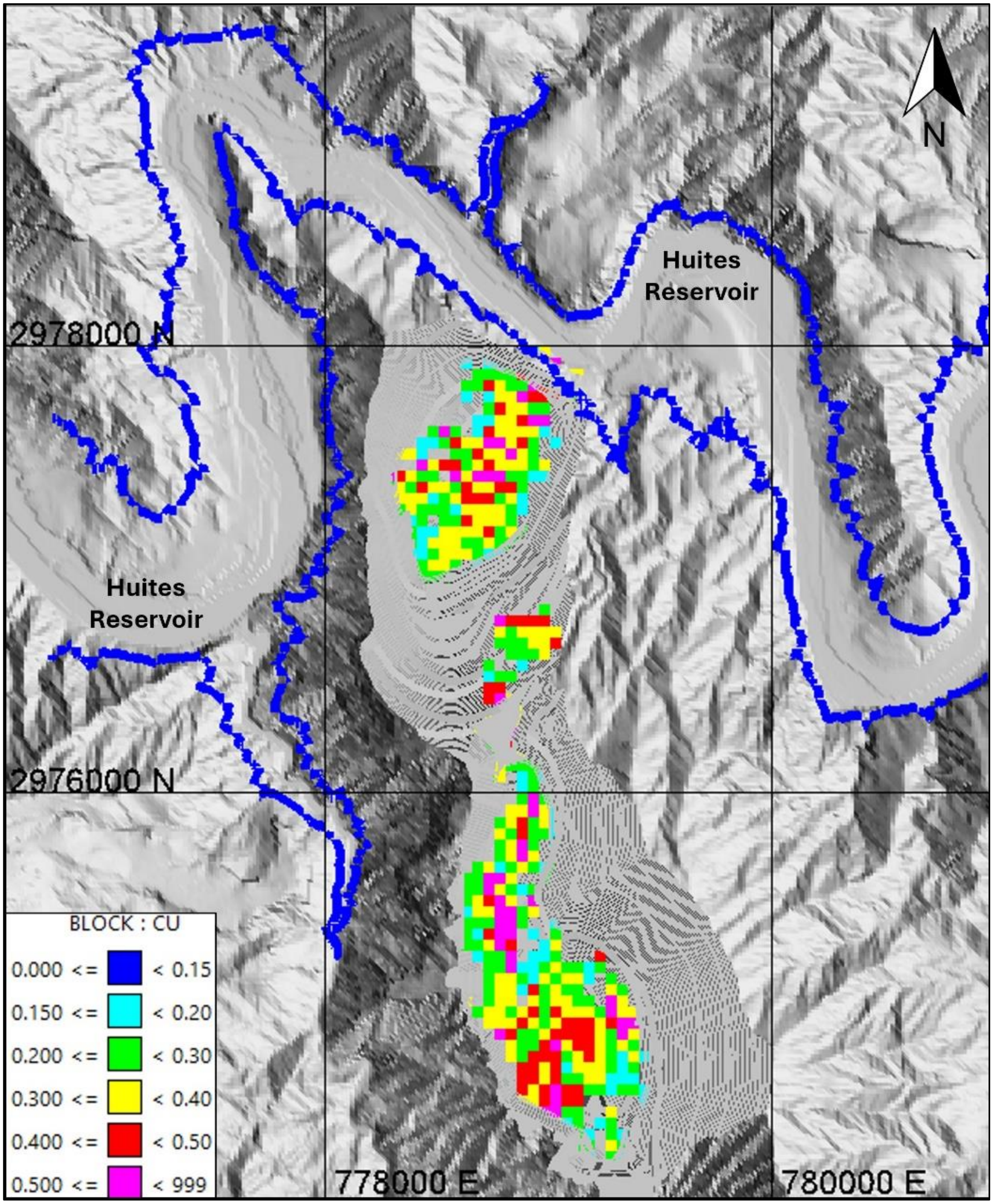
Preliminary pit optimizations revealed that processing mineralized oxide material did not have a significant impact on project economics. The construction of a separate processing facility for oxide resources would further complicate project development for no substantial economic gain at the nominated metal prices. Considering this, Oroco elected to focus only on the sulphide resources for the PEA. Accordingly, oxide resources were treated as waste in the pit optimization to avoid distorting the results of the optimized pit boundary.

16.4.4.2 Mineralized Material Loss and Dilution

A 2% operating dilution factor is applied to account for blended mineralized material and waste during the mining process. This value is representative of other copper operations of similar size.

A 98% mining recovery is also applied to account for inefficiencies and operating challenges such as blasting losses, mine operator skills, misdirected materials, and other unforeseen exceptions.

Figure 16-3: Huites Reservoir Exclusion Boundary



Source: SRK, 2024.

Table 16-3: Pit Optimization Input Parameters

Item	Value	Unit
Block Model	2023_ST_PEA_10X10X10	-
Mineral Classification	Indicated, Inferred	-
Mineralized Material Type	Sulphide	-
Overall Slope Angles by Sector		
1a	42°	degrees
1b	45°	degrees
2	40°	degrees
3a	40°	degrees
3b	45°	degrees
4a	45°	degrees
4b	49°	degrees
Mining Dilution	2	%
Mining Recovery	98	%
Metal Prices		
Cu	3.80	$/lb
Mo	12.00	$/lb
Au	1,650.00	$/oz
Ag	22.00	$/oz
Mining Cost	2.15	$/t mined
Suiting Cost for Mine Equipment	0.216	$/t mined
Incremental Mining Cost per 10m bench	0.025	$/10 m
Processing Cost	4.70	$/t
Mill Sustaining Cost	0.086	$/t
G&A	0.67	$/t
Metal Selling costs		
Cu	0.56	$/lb
Mo	1.69	$/lb
Au	191.71	$/oz
Ag	2.94	$/oz
Recovery formula		
Cu	10.6*ln([Grade_Cu]) + 95.47; Max 95%; Min 15%	%
Mo	66.1*([Grade_Mo]) + 58.6; Max 82%; Min 15%	%
Au	28.42 +104*([Grade_Cu]) + 129*([Grade_Au]) - 2.42*([S]/[Grade_Cu]); Min 0%	%
Ag	49.4 + 8.3*([Grade_Ag]) – 7.77*([S]) ; Min 0%	%
Concentrate Grades		
Au	Minimum 1 g/t payable	g/t
Ag	Minimum 30 g/t payable	g/t

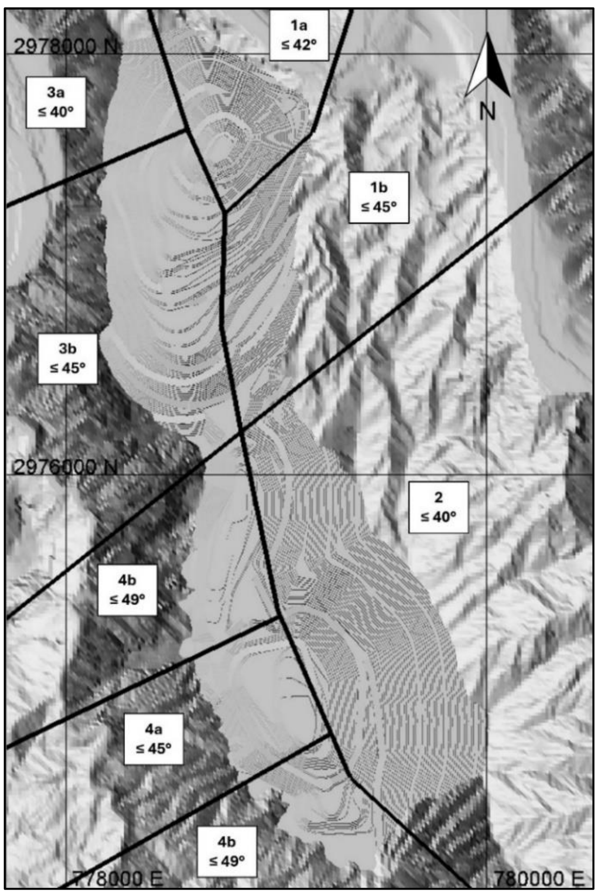
16.4.4.3 Pit Slopes

Table 16-4 lists the Overall Slope Angles (OSA) of the pit slopes and Figure 16-4 presents the geotechnical sectors. These OSA values match recommendations provided by SRK (Vancouver) and are discussed in section 16.2. Pit optimizations were constrained using the mentioned OSA values.

Table 16-4: Overall Slope Angles (OSA) Used for Pit Optimization

Sector	Overall Slope Angle (OSA)
1a	42°
1b	45°
2	40°
3a	40°
3b	45°
4a	45°
4b	49°

Figure 16-4: Overall Slope Angles and Geotechnical Sectors



Source: SRK, 2024.

16.4.5 Final Pit Selection

Figure 16-5 graphs mineralized material and waste tonnes for each resulting iteration of the optimized Pit constrained by the Huites Reservoir. Additionally, discounted cashflows (Pre-Tax and Pre-CAPEX) for Best and Worst mining sequences are also included in the same graph. The Best mining sequence assumes all nested pits could be mined in sequence one after another, this results in the theoretically best possible discounted cashflow. The Worst mining sequence assumes no phasing and results in delayed revenues, which calculate to the worst possible discounted cashflow.

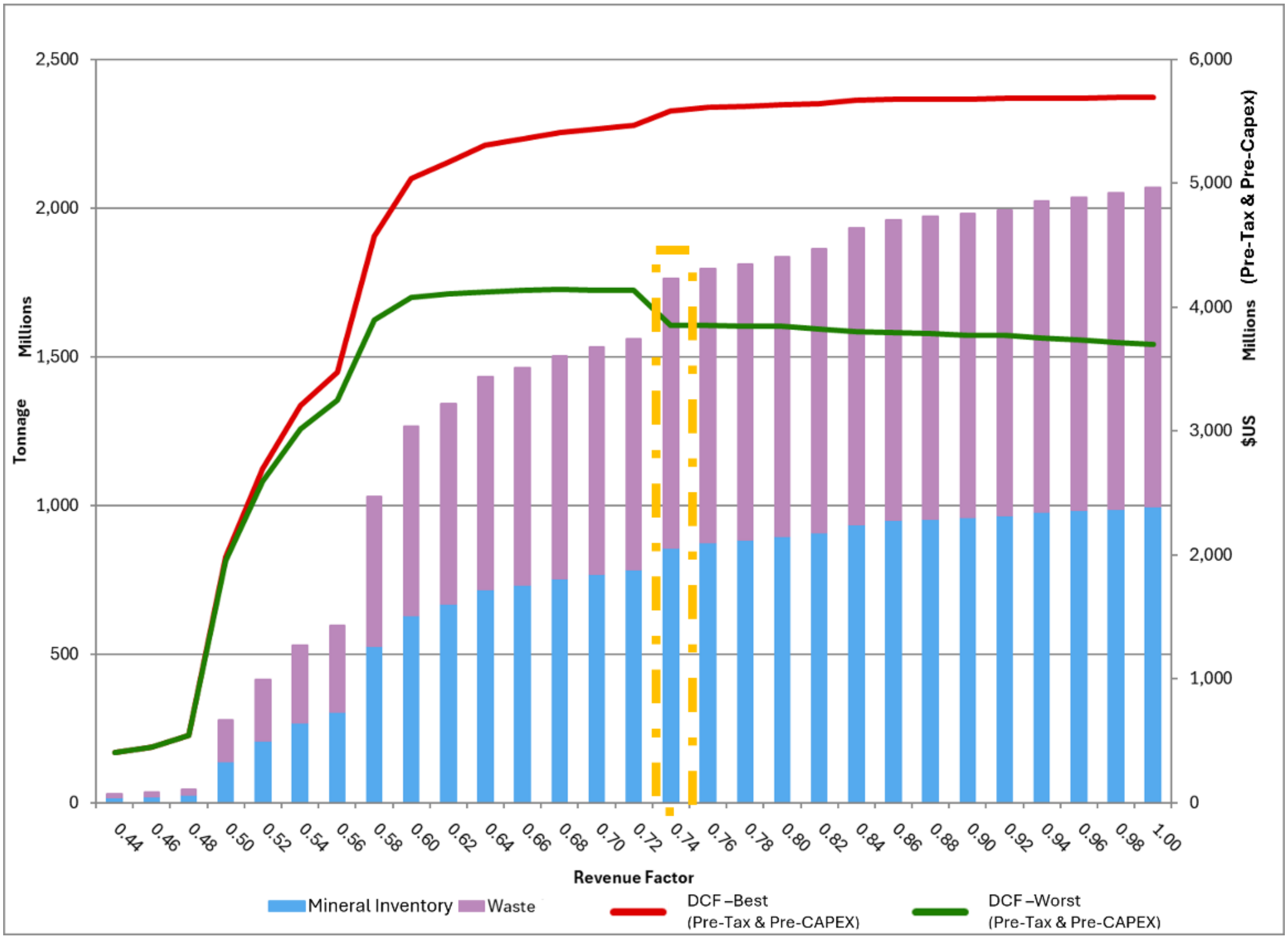
Pit 22 (revenue factor 0.74) was selected as the final ultimate pit shell for the Project and is shown in Figure 16-6. Selecting a larger pit shell closer to revenue factor 1 does not have a significant economic advantage. Table 16-5 highlights the changes in mill feed material and waste rock tonnages of the pits at different revenue factors.

Table 16-5: Pit Optimization Results and Cashflow by Revenue Factor

Revenue Factor	Pit Shell	Mill Feed (Mt)	Waste (Mt)	Strip Ratio
0.44	7	18	12	0.669
0.46	8	21	13	0.647
0.48	9	27	18	0.663
0.50	10	137	141	1.029
0.52	11	209	204	0.974
0.54	12	270	261	0.966
0.56	13	306	289	0.944
0.58	14	528	503	0.953
0.60	15	629	637	1.013
0.62	16	667	674	1.010
0.64	17	716	715	0.999
0.66	18	734	728	0.993
0.68	19	755	749	0.992
0.70	20	770	763	0.991
0.72	21	783	775	0.990
0.74	22	858	903	1.053
0.76	23	876	921	1.052
0.78	24	884	927	1.049
0.80	25	896	938	1.046
0.82	26	909	953	1.048
0.84	27	936	994	1.062
0.86	28	949	1,011	1.065
0.88	29	954	1,016	1.065
0.90	30	959	1,020	1.064
0.92	31	966	1,026	1.063
0.94	32	977	1,045	1.070
0.96	33	983	1,052	1.070
0.98	34	988	1,062	1.076
1.00	35	996	1,073	1.077

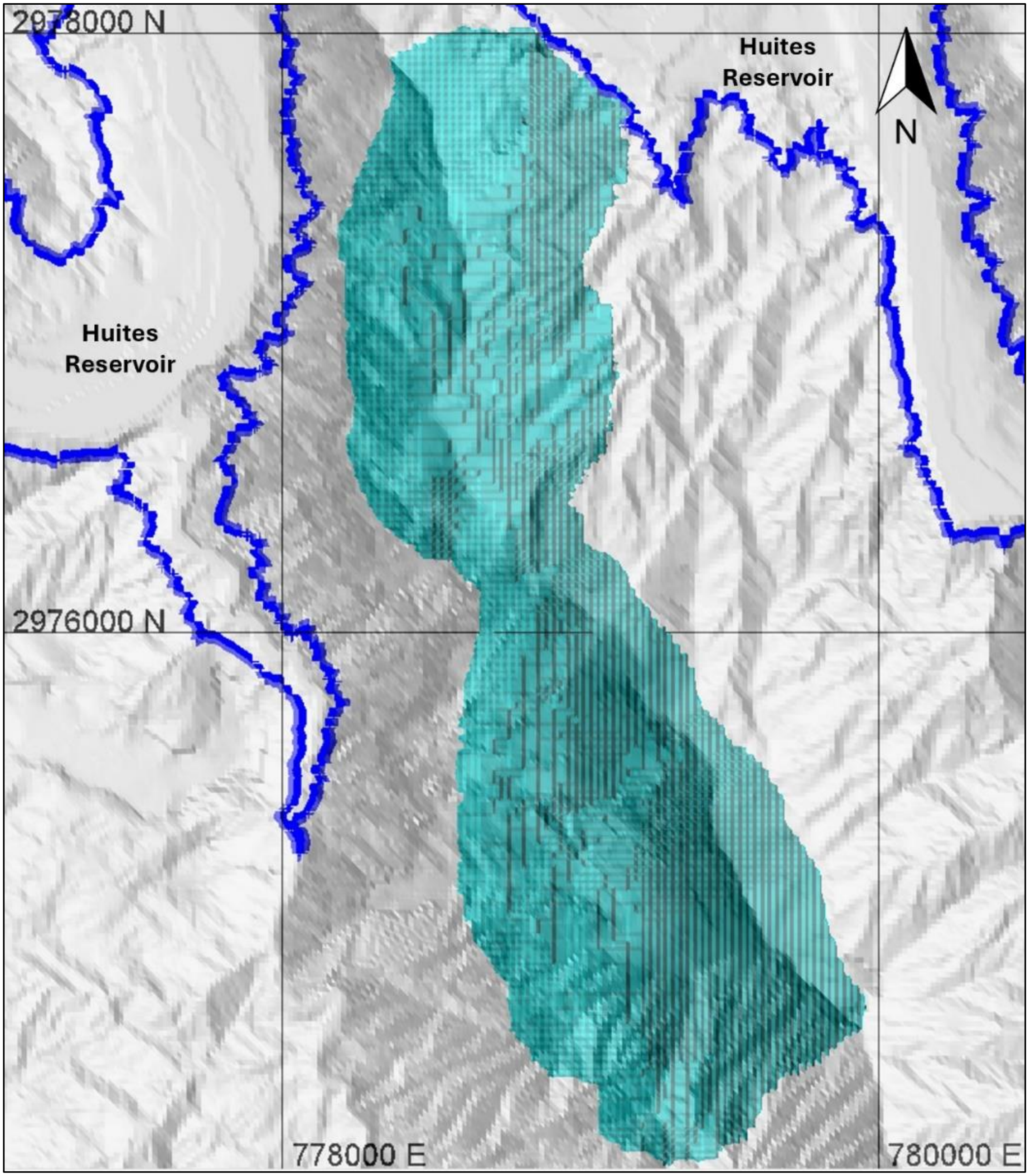
Pit shells 10, 13, 14,15 and 21 (revenue factors 0.5, 0.56, 0.58, 0.6 and 0.72, respectively) were considered for potential phases. Although the optimization results are reported for the entire deposit, phase design required evaluating results for each pit (north and south) separately.

Figure 16-5: Pit Optimization Results C



Source: SRK, 2024.
Note: 8% Discount rate used.

Figure 16-6: Santo Tomás Selected Phases - Plan View



Source: SRK, 2024.

16.4.6 Pit Design

16.4.6.1 Pit Design Parameters

The open pit was designed using Vulcan software by Maptek. The design uses a 10 m bench height to maintain the selected mining unit (SMU) in the vertical ("z") dimension used in the Engineering Model. The pit optimization results were used as a guide for the design, and the Huites Reservoir was used as a pit limit boundary to the North. The optimization results produced two distinct mining areas, which are easily distinguishable as a North and South Zone Pit.

Final pit haul roads were designed to have a total width of 35.0 m and a maximum gradient of 10%. These parameters are sufficient to facilitate two-way traffic for 240-tonne haul trucks while considering provisions for appropriate berms and drainage. The last 5 benches were designed with a reduced ramp width of 18m for single-lane traffic to maximize the extraction of mineralized material. Temporary ramps for early phases were designed for 72 tonne trucks. These smaller trucks are able to operate using 16m wide ramps and allow the reduction of the overall phase width, which reduces the amount of stripping required before reaching mill feed material. These smaller trucks will also play a key role in pioneering access and mining the starting benches of the wider phases.

The pit walls were designed using a bench face angle (BFA) of 75 degrees, 10.0 m bench heights, a 20m wide geotech safety berm every 120 vertical meters and calculated berm widths for each sector to meet the required OSA. Details of the design parameters are shown in Table 16-6.

Table 16-6: Pit Slopes and Bench Design Parameters

Sector	OSA	BFA	Bench Height	Max Stack Height	Geotech Safety Berm Width	Bench Width
1a	42	75°	10.0 m	120 m	20 m	7.4 m
1b	45	75°	10.0 m	120 m	20 m	6.2 m
2	40	75°	10.0 m	120 m	20 m	8.3 m
3a	40	75°	10.0 m	120 m	20 m	8.3 m
3b	45	75°	10.0 m	120 m	20 m	6.2 m
4a	45	75°	10.0 m	120 m	20 m	6.2 m
4b	49	75°	10.0 m	120 m	20 m	4.7 m

16.4.6.2 Results of Design

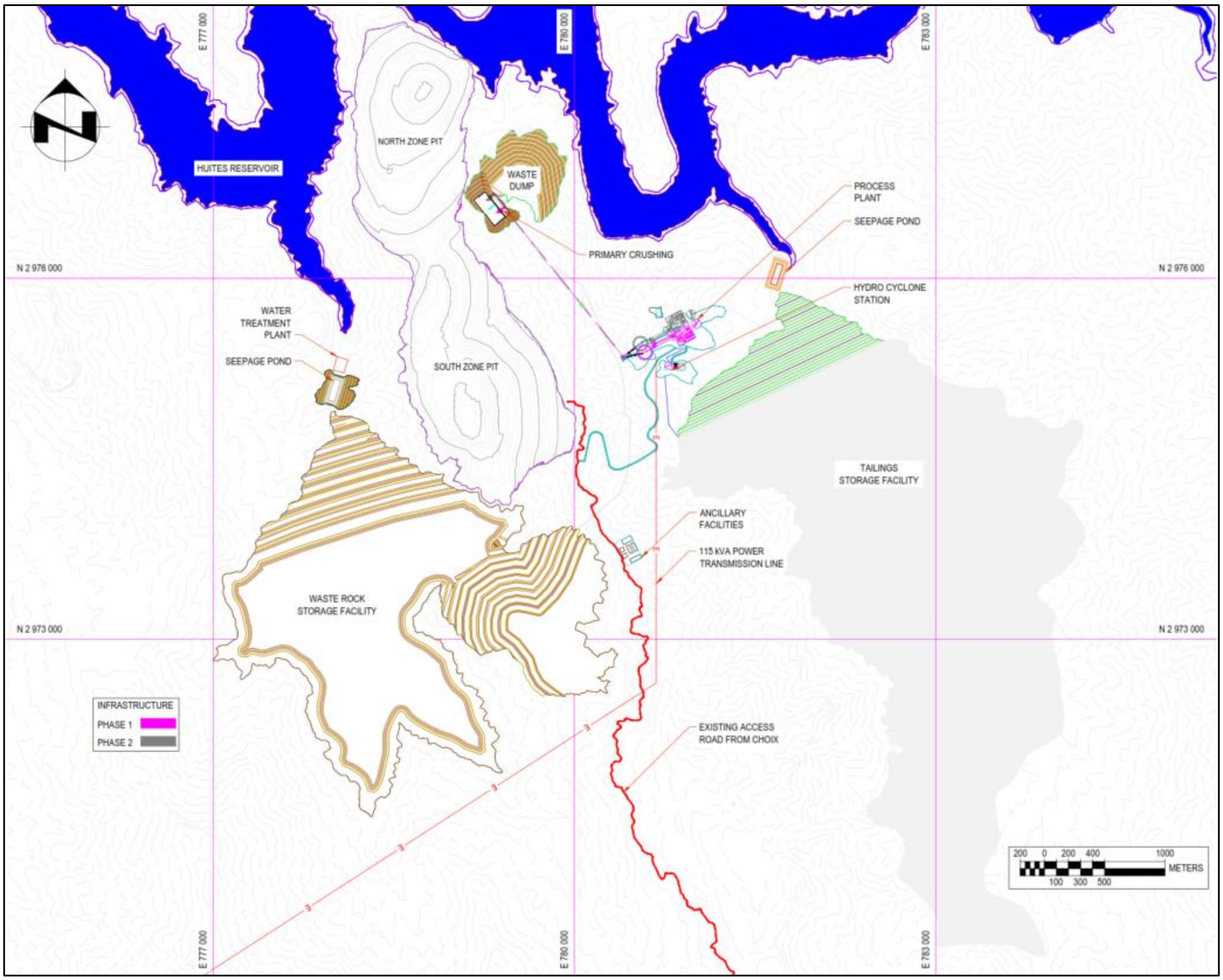
The material contained within the ultimate pit design is summarized in Table 16-7. By applying a 0.15% CuEq cut-off value detailed in Section 16.4.3, the destination of the material mined within the pit shell can be determined. Table 16-7 provides an overview of the tonnages of material transported to the mill, the average feed grades, total waste tonnage, strip ratio, and total material mined.

Table 16-7: Ultimate Pit Design Tonnage and Feed Grades

Mill Feed						Waste Material	Strip Ratio	Total Material
Tonnes (Mt)	Cu (%)	Mo (%)	Au (g/t)	Ag (g/t)	CuEq (%)	Tonnes (Mt)	Waste/Mill	Tonnes (Mt)
825.5	0.325	0.008	0.028	2.080	0.365	1,139.4	1.38	1,964.9

Figure 16-7 shows the layout of the open pit design and its location relative to the proposed crusher, mill, and waste rock facility locations.

Figure 16-7: Final Pit Design Layout



Source: Ausenco 2024, SRK Pit Shell and Mine Plan.

16.4.6.3 Comparison to Optimal Pit

The optimized pit shell (22) was used as a guide for designing the pit. Table 16-10 provides a comparison of material tonnages inside the pit shell and inside the resulting pit design using the same cut-off grade (0.15% CuEq).

The waste tonnes are higher than pit shell 22 due to the inclusion of geotechnical safety berms and small pods of mineralized material created by the pit optimization. Although these high-grade pods met all pit optimization criteria, creating a safe and operational pit design entailed increased stripping. Future iterations of the pit optimization and design should use the measured OSA angles from this PEA pit design to better match the optimization results to the outputs from design.

Table 16-8: Ultimate Pit Design Compared to Optimal Pit Shell

Pit	Mill (Mt)	Waste (Mt)	Strip Ratio	Total Material (Mt)
Optimal Pit (Pit 22)	799.4	961.7	1.203	1,761.1
Ultimate Pit Design	825.5	1139.4	1.380	1,964.9
Difference	3.3%	18.5%	14.7%	11.6%

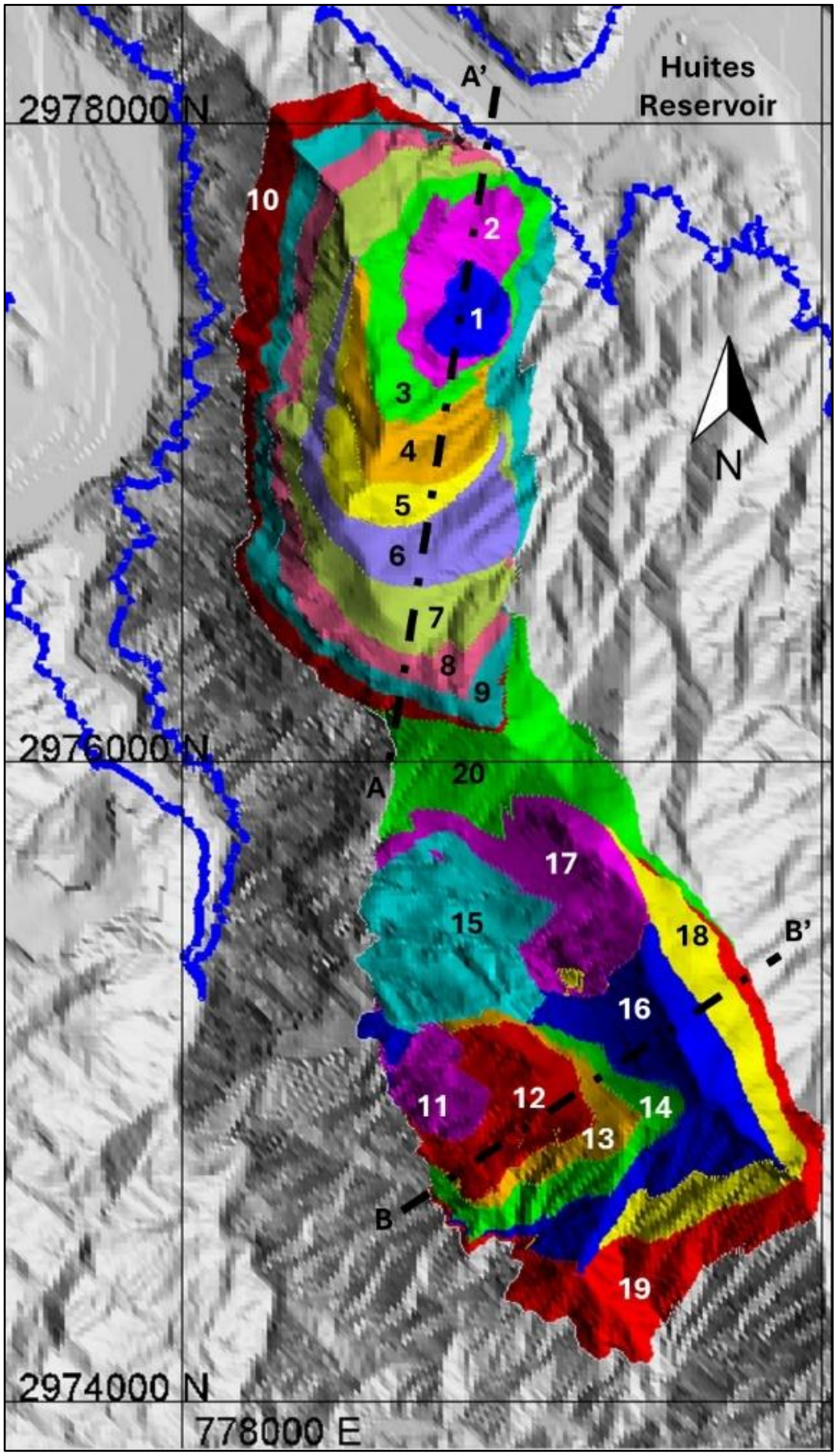
16.4.7 Phase Designs

SRK designed 20 mineable phases. The overall strategy for the phase design is to reduce the amount of pre-stripping required by starting mining of smaller pit phases with 72 tonne trucks. Figure 16-8 below, shows a plan view of the designed phases. Phases 1 through 7 and 11 through 16 were designed for a 72-tonne truck fleet, the ramp width is only 16 m wide for two-lane traffic. All other phases use 35 m wide ramps. Table 16-9 summarizes the material breakdown for each phase. Note that the phase names do not mean mining order, SRK's schedule prioritized low strip ratio and high-margin phases.

Figure 16-8 shows an overview of the phases in plan view, distinguishing the mining areas by North and South Zone Pits.

Figure 16-9 and Figure 16-10 show the section views of the North and South phases, respectively. The northern phases reach mineralized material sooner than the southern phases. In addition to having a lower strip ratio, the northern phases have a shorter haulage distance to the crushing pad, making them ideal to minimize pre-stripping in the schedule.

Figure 16-8: Phase Designs - Plan View

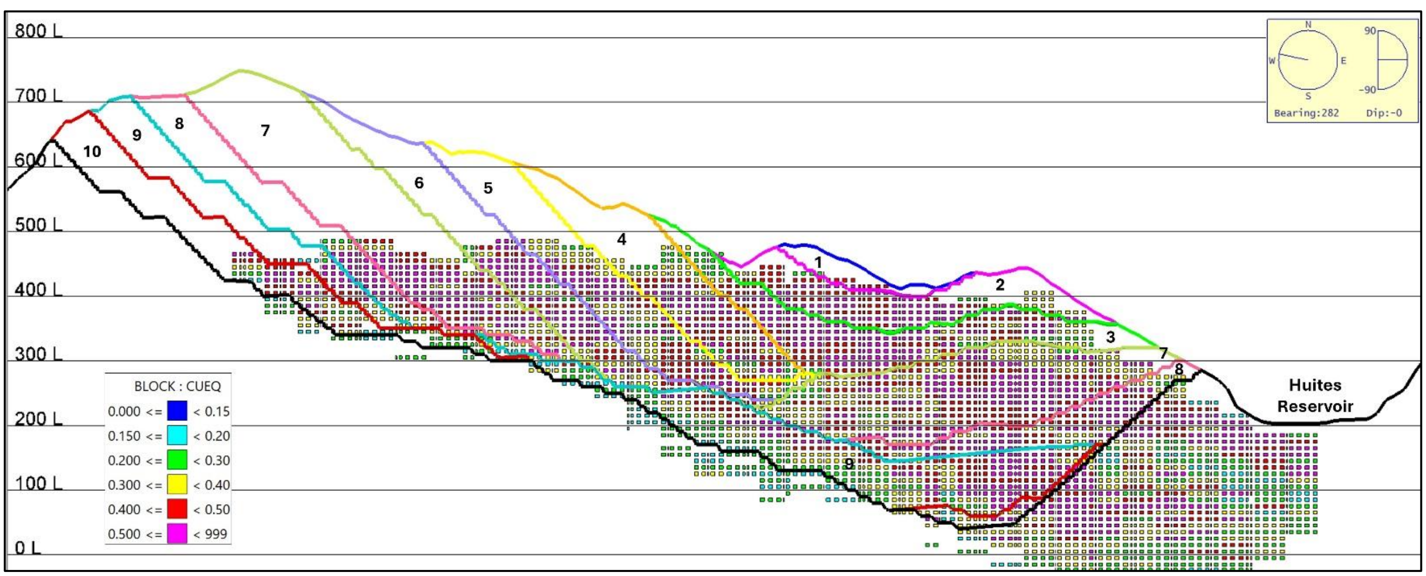


Source: SRK, 2024.

Table 16-9: Phase Design Tonnages and Grades

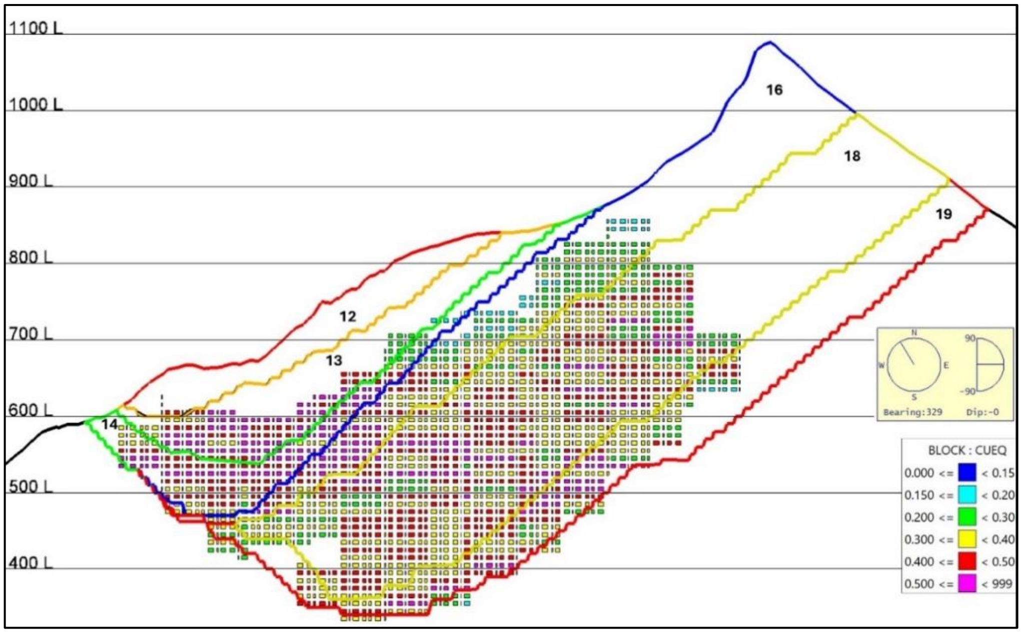
Phase	Mineralized Material (Mt)	Waste (Mt)	CuEq (%)	S/R
01	2.7	2.1	0.72	0.78
02	10.6	6.2	0.51	0.59
03	24.0	14.8	0.42	0.62
04	15.5	20.8	0.40	1.34
05	19.2	23.6	0.43	1.23
06	37.6	32.3	0.43	0.86
07	75.2	96.3	0.41	1.28
08	51.2	76.9	0.39	1.50
09	105.1	101.0	0.34	0.96
10	78.1	121.3	0.36	1.55
11	2.7	3.0	0.39	1.13
12	9.0	18.8	0.42	2.09
13	9.7	18.2	0.43	1.87
14	14.8	23.8	0.44	1.61
15	13.5	31.1	0.40	2.30
16	34.7	75.6	0.31	2.18
17	13.5	40.6	0.33	3.01
18	140.3	153.4	0.35	1.09
19	112.2	146.6	0.33	1.31
20	56.0	133.0	0.30	2.37
Ultimate Pit	**825.5**	**1,139.4**	**0.36**	**1.38**

Figure 16-9: North Zone Pit Phase Designs - Section A - A' View (Looking West)



Source: SRK, 2024.

Figure 16-10: South Zone Pit Phase Designs - Section B - B' View (Looking North)



Source: SRK, 2024.

16.4.8 Dump Designs

SRK designed waste rock storage facilities with the purpose of reducing haulage cycle times. Figure 16-11, shown below, illustrates the location of the designed WRSFs.

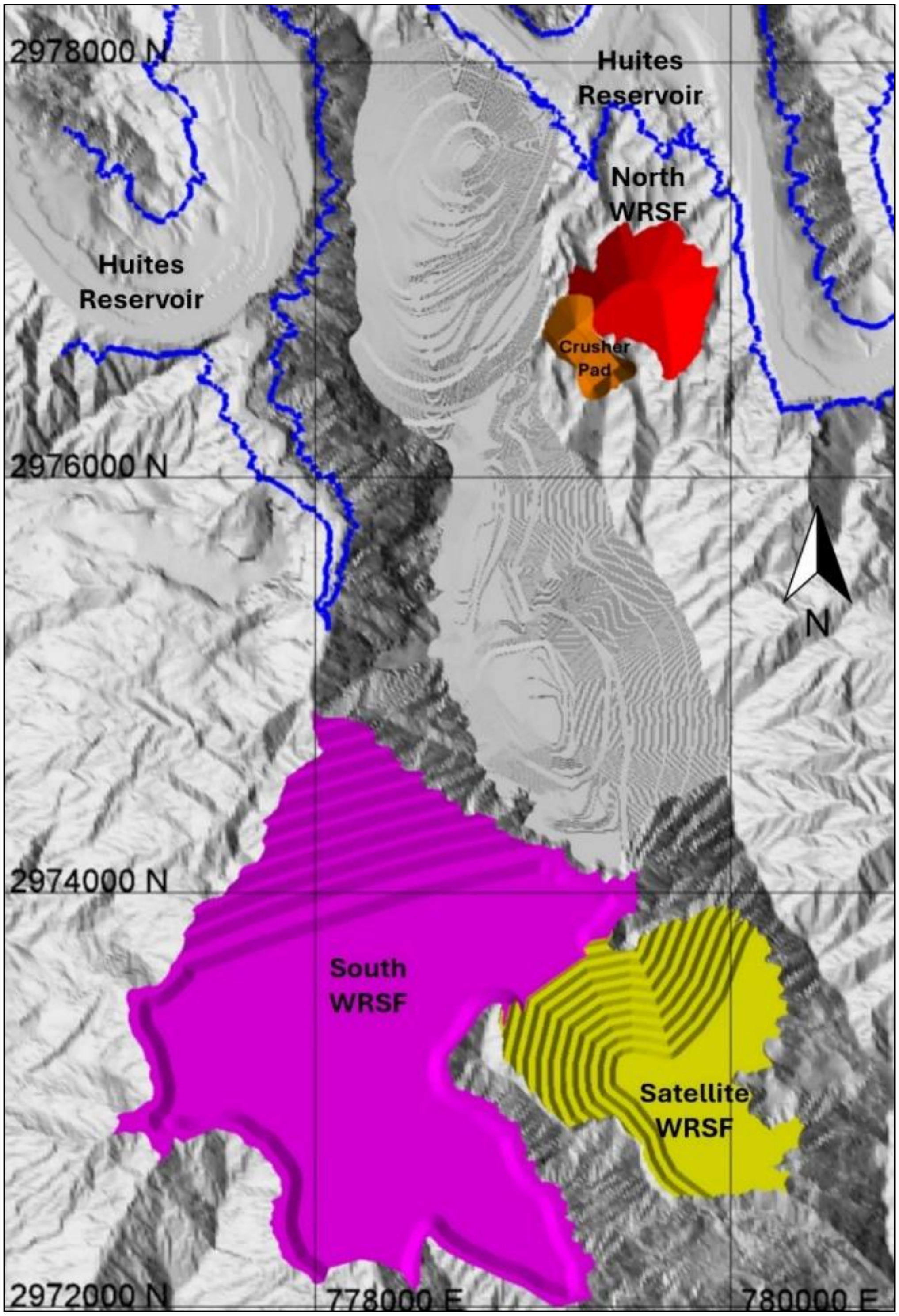
The North WRSF will be the main dump location early in the mine life, which significantly reduces truck cycle times for waste material. This dump will also be used as an expansion of the mill crusher pad, allowing more room for temporary stockpiling and blending.

The Satellite WRSF reduces the haulage distance for waste stripping in the most southern phases of the South Zone Pit. Phases 16, 18 and 19 benefit from not having to take material from the top of the mountain to the bottom of the valley (centroid for the South WRSF). Once these phases have progressed deep enough, haulage to the Satellite dump becomes longer than to the South WRSF, at this point the destination for all waste material is changed. Table 16-10 shows volume and tonnage capacity for all dumps. The current pit design requires 1,139M tonnes of waste storage capacity.

Table 16-10: WRSF Capacity

WRSF	Volume (M cu-m)	Tonnes (Mt)
South	504	958
Satellite	103	196
North	17	32
Total	**624**	**1,186**

Figure 16-11: WRSFs Locations



Source: SRK, 2024.

16.5 Mining Sequence/Mine Schedule

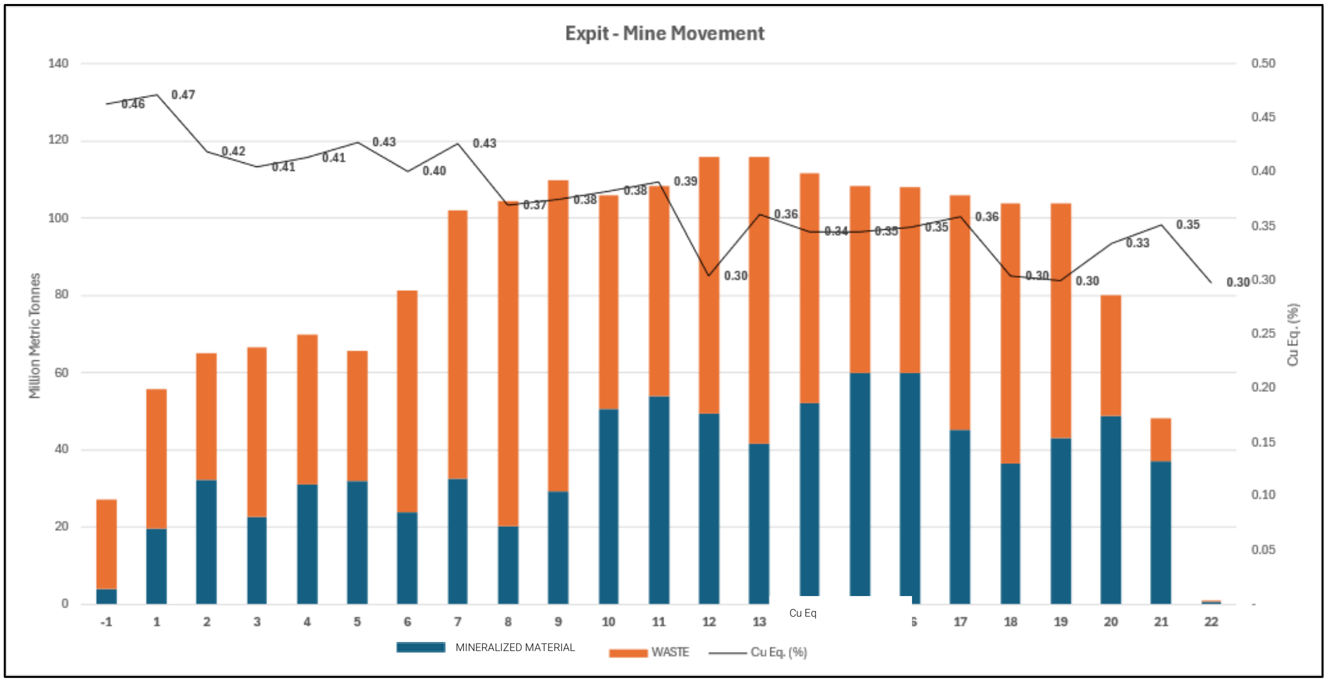
Open pit operations will take place with regular open pit truck and shovel mining. The schedule requires 1 year of pre-stripping, 22 years of regular mine operations and a final year of only stockpile rehandling. The production schedule is based on the following parameters:

- Operations are scheduled on quarterly periods.
- Maximum bench sinking rate is 10m benches per year.
- Mineralized and waste materials are classified using 0.15% CuEq cut-off value.
- Temporary stockpiles will be available in the crusher pad. Long term stockpile will be located on the southern dump.
- Within a given phase, each bench is fully mined prior to progressing to the next bench.
- Phases are mined simultaneously with sufficient lag between phases to advance the stripping of waste material and maintain throughput to the mill.
- Rehandling of material is only executed by front-end wheel loaders.
- To prioritize higher-grade material sent to the mill, lower-grade material is stockpiled and rehandled later during the mine operation.

Table 16-11, Figure 16-12 and Figure 16-13 detail the mine production schedule, the milling schedule and stockpile balance at the end of each period.

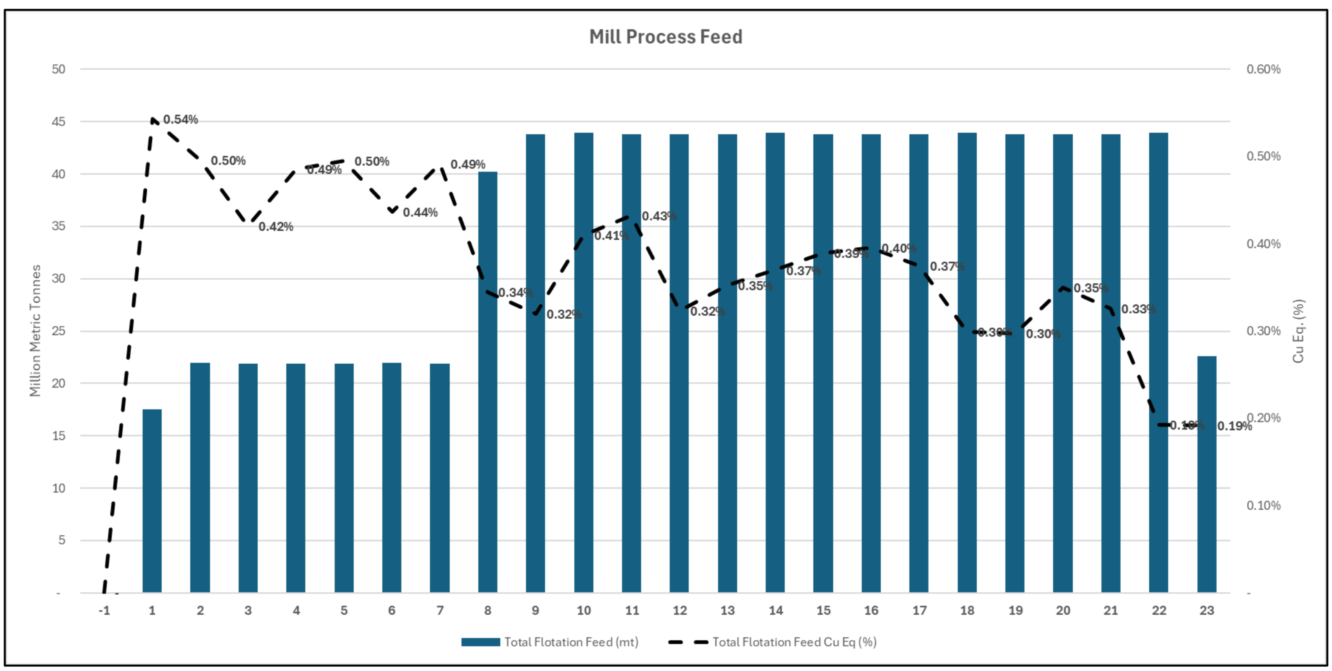
Year -1 represents the pre-production year required for pre-stripping before mining operations can keep up with mill processing rates. Only 27M tonnes will be mined during Year -1 (as pioneering work and temporary road construction will be required). All mill feed will be stockpiled until the construction of the Mill is completed. For the first 6 years (including one year of pre-strip), mining will focus on the North Zone Pit and the highest margin phases in the South Zone Pit (Phases 11,12 and 13). The mining rate is progressively increased each year until it reaches an average of 66.7 Mtpa Years 2 through 5.

Figure 16-12: Mine Production Schedule – Mineralized Material/Waste



Source: SRK, 2024.

Figure 16-13: Mill Production Schedule



Source: SRK, 2024.

Table 16-11: Mine Production Schedule – by Destination

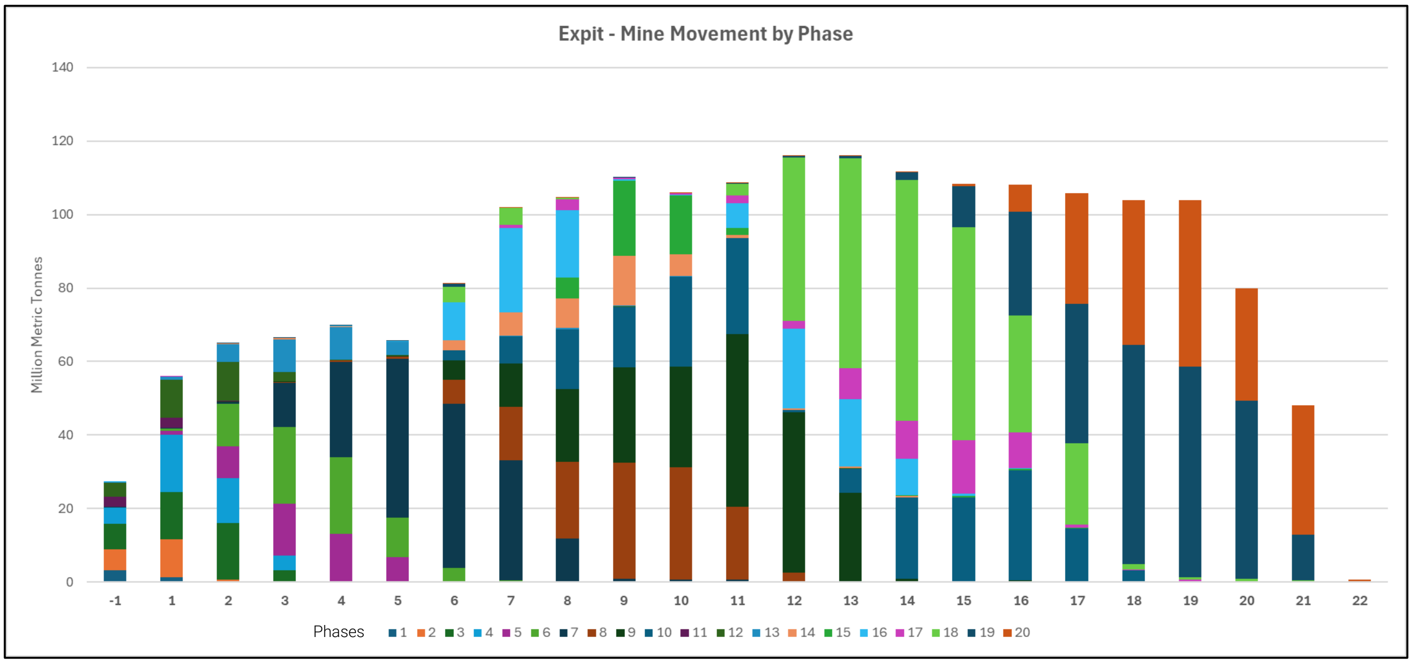
Year	Mined							Stockpile Balance						Mill Feed						Total Mined	Total Movement
	Waste (Mt)	Mineralized Material (Mt)	Cu (%)	Mo (%)	Au (g/t)	Ag (g/t)	CuEq (%)	Mt	Cu (%)	Mo (%)	Au (g/t)	Ag (g/t)	CuEq (%)	Mt	Cu (%)	Mo (%)	Au (g/t)	Ag (g/t)	CuEq (%)	Mt	Mt
Yr-1	23.3	3.9	0.42	0.005	0.053	1.99	0.46	3.9	0.42	0.005	0.053	1.99	0.46	-	-	-	-	-	-	27.2	27.2
Yr1	36.2	19.7	0.43	0.005	0.055	1.92	0.47	6.1	0.23	0.006	0.028	1.29	0.26	17.5	0.49	0.005	0.064	2.15	0.54	55.9	59.3
Yr2	32.8	32.2	0.37	0.008	0.044	1.90	0.42	16.4	0.22	0.007	0.028	1.36	0.26	22.0	0.45	0.008	0.051	2.13	0.50	65.0	65.0
Yr3	44.0	22.5	0.36	0.006	0.055	1.85	0.41	17.0	0.21	0.007	0.027	1.31	0.24	21.9	0.37	0.006	0.056	1.90	0.42	66.5	69.3
Yr4	38.7	31.0	0.37	0.005	0.046	2.16	0.41	26.1	0.21	0.006	0.025	1.34	0.24	21.9	0.44	0.005	0.056	2.48	0.49	69.8	69.8
Yr5	33.5	32.0	0.38	0.008	0.044	2.36	0.43	36.2	0.22	0.006	0.031	1.52	0.25	21.9	0.44	0.010	0.044	2.52	0.50	65.5	65.5
Yr6	57.4	23.8	0.36	0.007	0.037	2.29	0.40	38.0	0.21	0.005	0.029	1.50	0.24	22.0	0.39	0.008	0.041	2.39	0.44	81.2	85.1
Yr7	69.4	32.6	0.38	0.006	0.046	2.52	0.43	48.7	0.22	0.005	0.031	1.65	0.25	21.9	0.44	0.006	0.051	2.68	0.49	102.0	102.0
Yr8	84.5	20.1	0.33	0.009	0.021	2.29	0.37	28.6	0.17	0.005	0.023	1.41	0.20	40.2	0.30	0.008	0.032	2.15	0.34	104.6	129.5
Yr9	80.8	29.2	0.34	0.006	0.030	1.89	0.38	14.1	0.16	0.005	0.022	1.36	0.19	43.8	0.29	0.006	0.028	1.75	0.32	110.0	124.6
Yr10	55.3	50.6	0.35	0.006	0.031	1.86	0.38	20.7	0.17	0.005	0.021	1.29	0.19	43.9	0.37	0.007	0.033	1.96	0.41	105.9	105.9
Yr11	54.7	53.8	0.35	0.009	0.026	2.05	0.39	30.7	0.17	0.005	0.020	1.27	0.20	43.8	0.39	0.009	0.028	2.23	0.43	108.5	108.9
Yr12	66.7	49.3	0.27	0.008	0.018	1.88	0.30	36.3	0.17	0.005	0.018	1.25	0.19	43.8	0.29	0.008	0.019	1.98	0.32	116.0	118.4
Yr13	74.3	41.7	0.32	0.009	0.018	2.27	0.36	34.2	0.17	0.005	0.018	1.25	0.19	43.8	0.31	0.009	0.018	2.22	0.35	116.0	118.3
Yr14	59.7	52.0	0.31	0.006	0.027	2.50	0.34	42.3	0.17	0.005	0.018	1.36	0.19	43.9	0.33	0.006	0.029	2.63	0.37	111.7	112.4
Yr15	48.3	60.0	0.31	0.006	0.026	2.07	0.35	58.5	0.18	0.005	0.018	1.39	0.20	43.8	0.35	0.006	0.030	2.29	0.39	108.3	108.3
Yr16	48.2	59.9	0.31	0.009	0.020	1.93	0.35	74.6	0.18	0.006	0.017	1.45	0.21	43.8	0.35	0.009	0.021	2.02	0.40	108.1	108.1
Yr17	60.5	45.3	0.31	0.011	0.019	2.05	0.36	76.1	0.17	0.006	0.018	1.48	0.20	43.8	0.33	0.011	0.019	2.03	0.37	105.8	112.9
Yr18	67.7	36.3	0.26	0.009	0.017	2.34	0.30	68.5	0.16	0.005	0.018	1.49	0.19	43.9	0.26	0.009	0.018	2.17	0.30	104.0	114.4
Yr19	60.9	43.1	0.27	0.008	0.014	1.81	0.30	67.8	0.16	0.005	0.018	1.50	0.19	43.8	0.26	0.008	0.014	1.79	0.30	104.0	105.4
Yr20	31.2	48.8	0.29	0.011	0.018	1.77	0.33	72.7	0.16	0.005	0.017	1.52	0.19	43.8	0.31	0.011	0.018	1.77	0.35	80.0	80.0
Yr21	11.2	36.9	0.31	0.006	0.033	2.25	0.35	65.9	0.16	0.005	0.018	1.54	0.19	43.8	0.29	0.006	0.030	2.11	0.33	48.1	57.6
Yr22	0.0	0.6	0.27	0.002	0.024	2.20	0.30	22.6	0.16	0.005	0.018	1.54	0.19	43.9	0.17	0.005	0.018	1.54	0.19	0.7	44.0
Yr23	-	-	-	-	-	-	-	-	-	-	-	-	-	22.6	0.16	0.005	0.018	1.54	0.19	-	22.6
Total	**1,139.4**	**825.5**	**0.33**	**0.008**	**0.028**	**2.08**	**0.37**	**-**	**-**	**-**	**-**	**-**	**-**	**825.5**	**0.33**	**0.008**	**0.028**	**2.08**	**0.37**	**1,831.2**	**2,114.5**

Mining in the Southern phases starts in Year 7. The mining rate also increases in Year 7 to 81.2 Mtpa and reaches 116 Mtpa Year 13. An average mining rate of 108.5 Mtpa is maintained through the remaining of the mine life. Figure 16-14 shows the progression of the different mine phases (1 through 20).

Four grade bins have been used to rank mill feed based on grade. This allows the mine to always feed the highest grade to the mill, even if during certain periods the highest grade material is found in stockpiles. Figure 16-13 shows the resulting mill feed schedule based on this high grading strategy.

Given the nature of the topography of the deposit, the use of a smaller truck fleet is key for accessing the mill feed with smaller phases. This small truck fleet is maintained through out the mine life because they will be essential to mining the starting benches of the later phases, specially for the South Zone Pit.

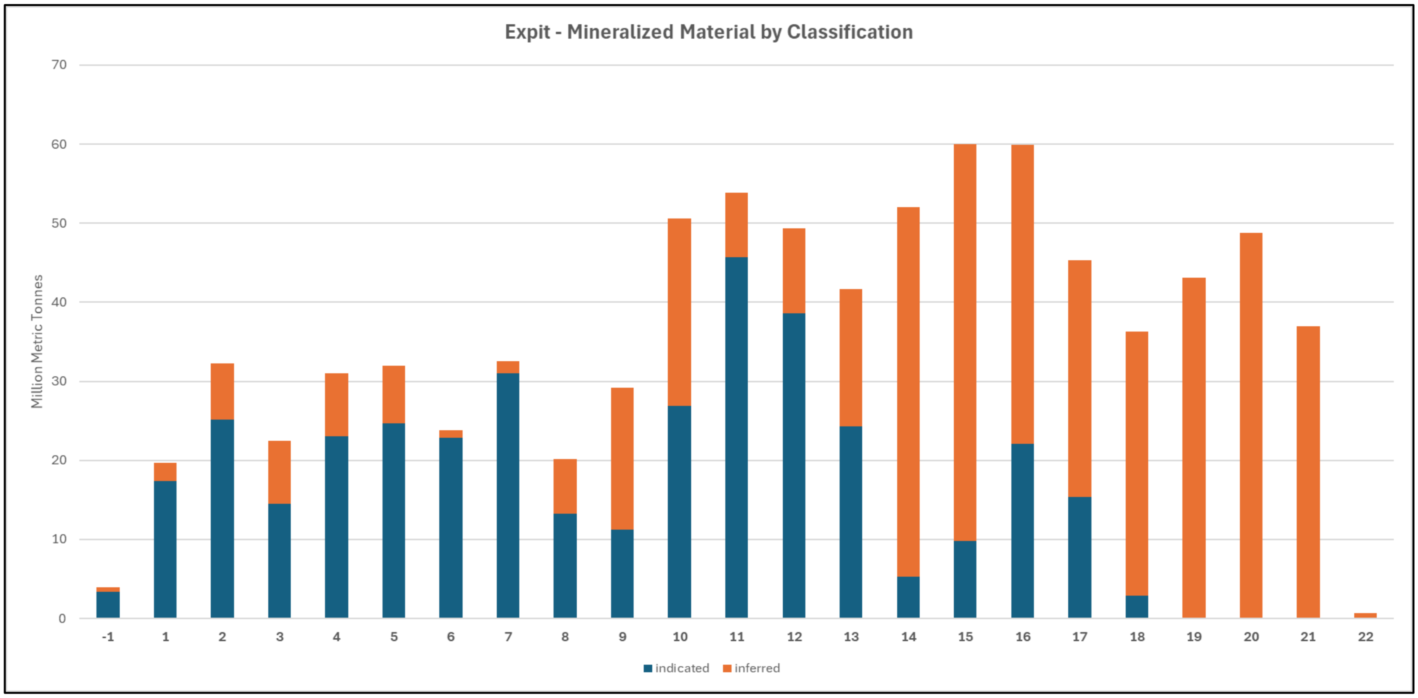
Figure 16-14: Mined Material by Phase



Source: SRK, 2024.

Figure 16-15 shows the classification of the mineralized material sent to the Mill throughput the LOM. The majority of the material sent to the Mill for the first 10 years of production is classified as Indicated, which is extracted from the high-grade North Zone Pit. Indicated material represents 46% (377 Mt) of the total mineralized material and the remaining 54% (448 Mt) of Inferred material is extracted from the South Zone Pit later in the LOM.

Figure 16-15: Mineralized Material by Mineral Classification



Source: SRK, 2024.

16.6 Blasting and Explosives

Production blasting will be carried out using electronic blasting systems. The quantity of explosives required was calculated based on the mine plan. Blast pattern designs for areas mined with the small-scale load and haul fleet will employ a drill hole diameter of 200 mm and a drilling pattern with a burden of 5.4 m and a spacing of 6.5 m. In areas mined with the large-scale load and haul fleet, the drill hole diameter will be 250 mm with a burden of 6.8 m and a spacing of 8.2 m. Over the life of the Project, 1.44 million production drill holes were estimated, requiring 241,000 t of emulsion, 342,000 t of ammonium nitrate, and 2.90 million boosters and electronic blasting caps.

Pre-split drilling will use a 127 mm diameter hole with a hole spacing of 1.5 m. Pre-split blasting will be accomplished with 38 mm diameter packaged explosives.

It has been assumed that a contractor will provide the necessary manpower and mobile equipment to perform the production and pre-split blasting program under Oroco's oversight and with support from Oroco's technical staff.

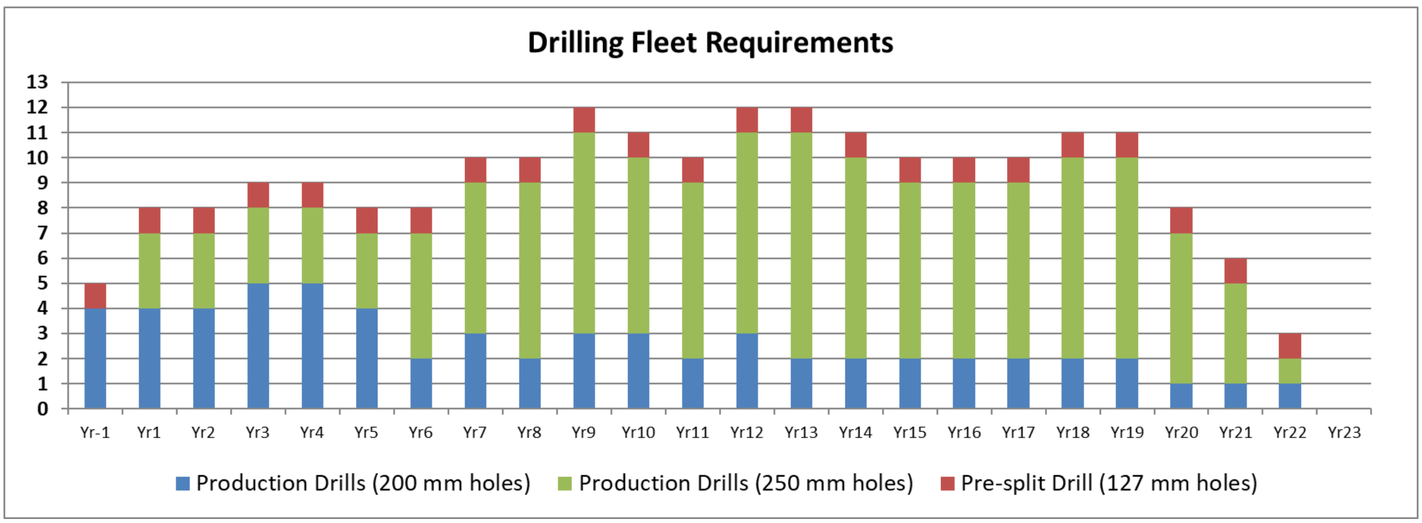
16.7 Mining Equipment

The mining equipment described below is based on standard surface mining equipment fleets typically utilized in open pit operations. The mine will utilize a traditional truck and shovel open pit mining method with the support of ancillary equipment. For the purposes of this PEA, it has been assumed that mining operations will use two fleets, with a transition from predominantly small-scale mining equipment early in the mine life to predominantly large-scale mining equipment later in the mine life. The small-scale equipment fleet will include 200 mm diameter blast hole drills, 16.5 m^3 hydraulic shovels, 13 m^3 front-end loaders, and 72 t capacity haul trucks. The large-scale equipment fleet will include 250 mm diameter blast hole drills, 34 m^3 hydraulic shovels, 21.4 m^3 front-end loaders, and 240 t capacity dual fuel haul trucks. For the dual fuel haul trucks, it has been assumed that 50% of the consumed fuel will be diesel fuel and 50% will be LNG.

The rationale for deploying a predominantly small-scale equipment fleet in the early years of the Project is that the open pits have been designed to initially use multiple smaller pit phases to reduce waste stripping and allow for faster access to mineralized materials. These smaller phases have narrower access roads that require the use of small-scale haul trucks (72 t capacity). Later in the mine life, the pit phases are typically larger and will allow for the use of large-scale haul trucks (240 t capacity). Over the life of the Project, including the pre-production waste mining year, 80% of the ex-pit tonnes is expected be mined with the large-scale equipment fleet.

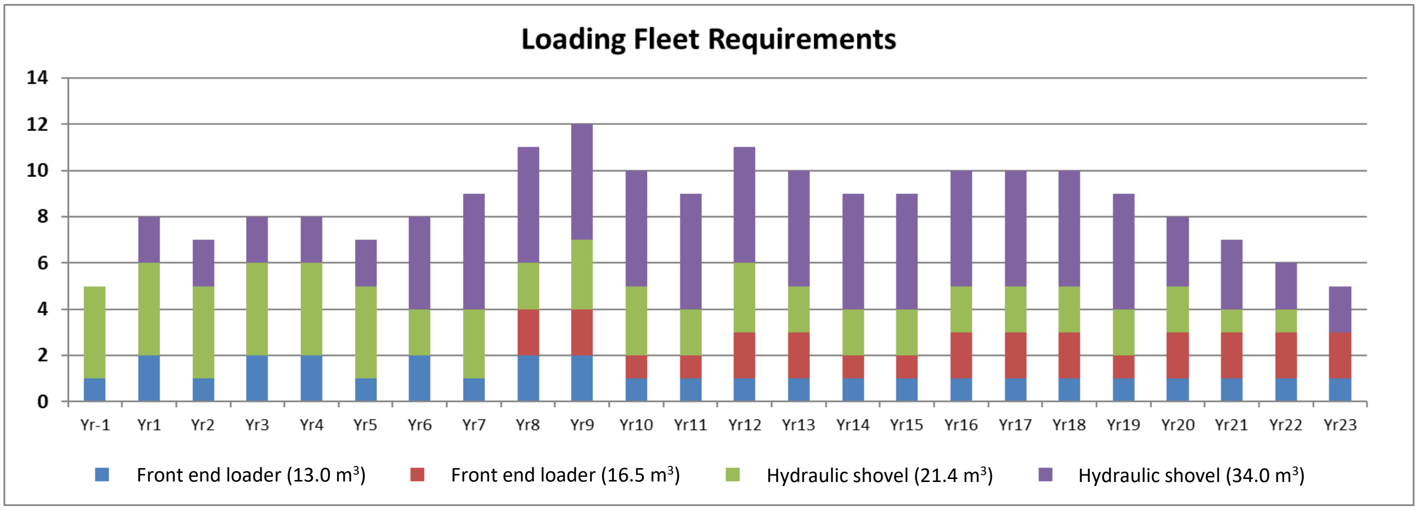
Figure 16-16 through Figure 16-18 display the drilling, loading and hauling unit requirements over the LOM, respectively.

Figure 16-16: LOM Drilling Equipment Requirements



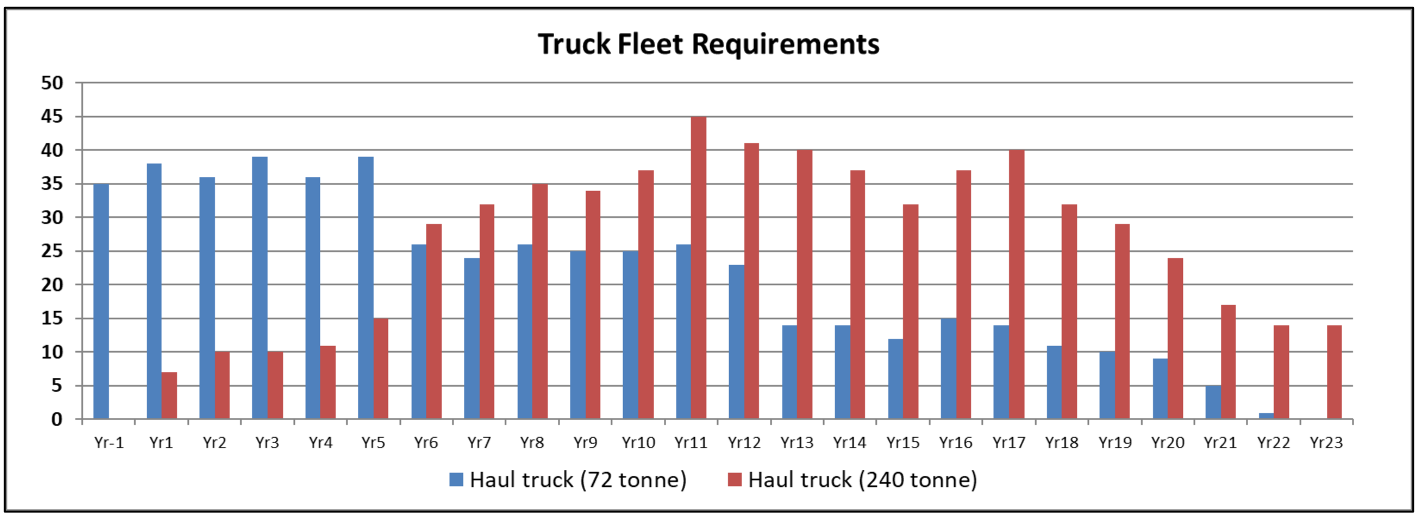
Source: SRK, 2024.

Figure 16-17: LOM Loading Equipment Requirements



Source: SRK, 2024.

Figure 16-18: LOM Hauling Equipment Requirements



Source: SRK, 2024.

Ancillary equipment such as motor graders, dozers, and water trucks have been selected based on experience and benchmarking to support smooth and safe operations. This equipment will be utilized for maintaining haul roads, loading areas, waste dumps, stockpiles, and other areas around the mine. Table 16-12 details the loading, hauling, drilling and ancillary equipment for the Santo Tomás Project. Table 16-13 details the service and support equipment necessary to support the open pit mining operation.

Table 16-12: Loading, Hauling, Drilling and Ancillary Equipment List

Equipment	Capacity	Peak No. of Units on Site
Drilling Equipment		
Production Drill	200 mm and 250 mm	11
Pre-Split Drill	127 mm	1
Loading Equipment		
Hydraulic Mining Shovel (Small)	21.4 m^3	4
Hydraulic Mining Shovel (Large)	34 m^3	5
Front-End Loader (Small)	13 m^3	2
Front-End Loader (Large)	16.5 m^3	2
Hauling Equipment		
Small Mining Truck	72 t	39
Large Mining Truck	240 t	45
Ancillary Equipment		
Track Dozer	4.9 m	5
Wheel Dozer	6.3 m	5
Small Motor Grader (narrow roads)	4.9 m	1
Large Motor Grader (wide roads)	7.3 m	2
Water Truck (narrow roads and drills)	34,000 L	2
Water Truck (wide roads and dumps)	121,000 L	2
Excavator	5.2 m^3	1
Wheel Loader (medium)	4.7 m^3	1

Table 16-13: Mine Service and Support Equipment List

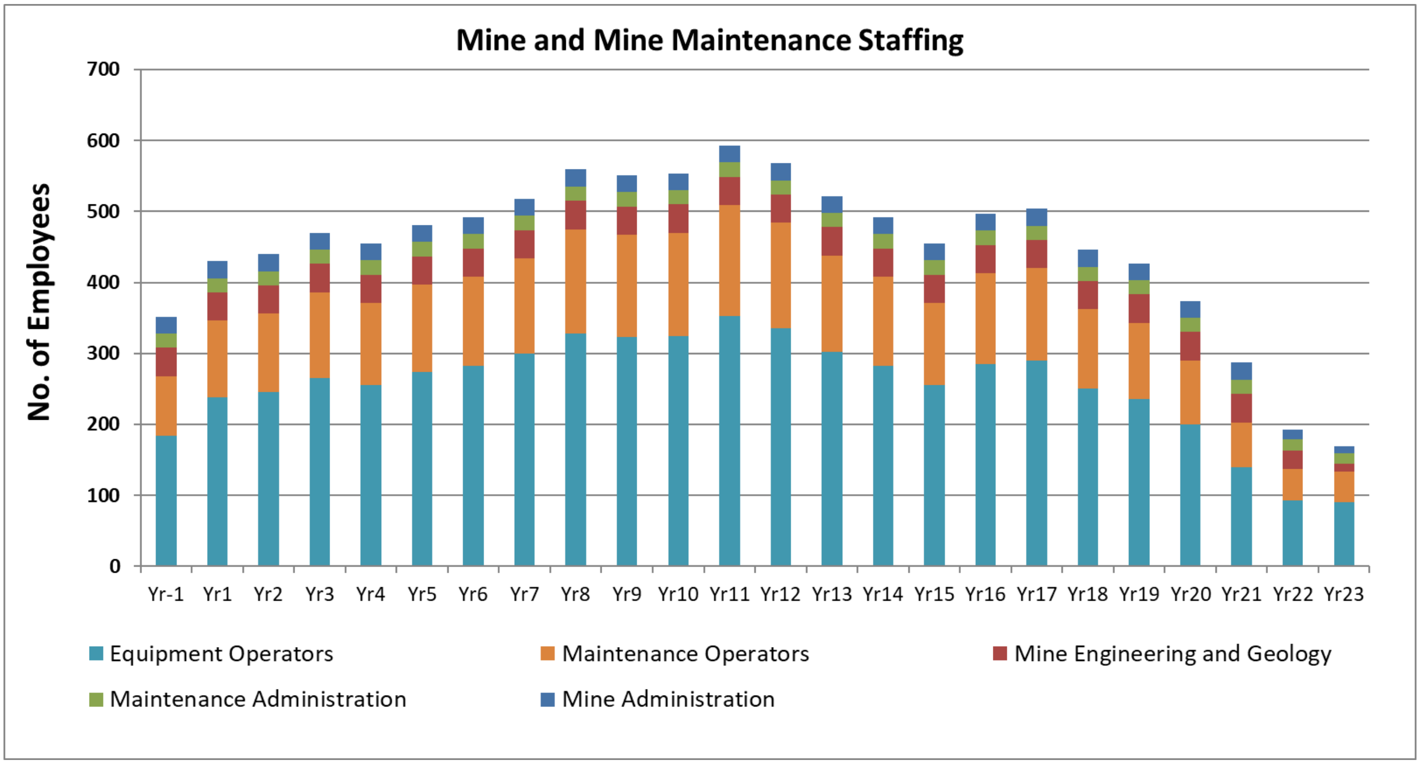
Equipment	Peak No. of Units on Site
Service Equipment	
Tire Handler	1
Fuel and Lube Truck	1
Rock Hammer Attachment	1
Maintenance Welding Truck	1
Maintenance Maintainer w/ Crane	1
Flatbed Truck	1
Man Basket Truck	1
Support Equipment	
Centre Pivot Backhoe Loader	1
Portable Pressure Washers	1
Mobile Generator	1
Portable Heaters	1
Portable Trash Pump	1
Portable Welders	1
Industrial Crane	1
Knuckle Boom Manlift	1
Portable Compressor	1
Semi-Truck and Lowboy Trailer	1
Forklift (large)	1
Forklift (small)	2
Barrel Handling Attachment	2
Telehandler Forklift	1
Scissors Lift	1
Telescopic Boom Lift	1
Shop Floor Sweeper	1
Portable Light Plants	8
Personnel Van/Bus	5
Pickups	20

In addition to the equipment detailed in Table 16-12 and Table 16-13, the mining operation will have a dispatch system, a communications network, mine radios, and geotechnical monitoring equipment. There will also be typical provisioning for computer hardware and software, survey equipment, office furniture, initial spare parts and maintenance shop tools.

16.8 Mine Staffing

The LOM mine technical, operations and maintenance staffing profile is presented in Figure 16-19. The peak staffing level occurs in Year 11 with 593 employees.

Figure 16-19: Mine and Maintenance Staffing Profile



Source: SRK, 2024.
Note: Excludes contractor employees associated with the contracted blasting services.

17 RECOVERY METHODS

17.1 Overview

Process flowsheet design is based on a review of all metallurgical testing data and reports, as discussed in Section 13 and Ausenco's design expertise.

The Process Plant is initially designed for a nominal throughput of 60,000 t/d for Phase I of the Project. Phase II will essentially be a duplicated processing line. This facility will operate 24 hours a day, 365 days a year.

Key process design criteria are listed below and in Table 17-1:

- Major equipment is designed for a nominal throughput of 60,000 t/d except the single 1.7 km conveyor, which will be shared for both Phase I and Phase II. The equipment was sized to accommodate feed grades and recoveries that are greater than the average phase period values.
- Process flowsheet includes a three-stage crushing circuit, grinding, bulk Cu-Mo rougher flotation, regrinding, Cu-Mo cleaner and scavenger flotation, Mo rougher flotation, Mo cleaner and scavenger flotation, Cu and Mo concentrate dewatering and tailings dewatering and storage.

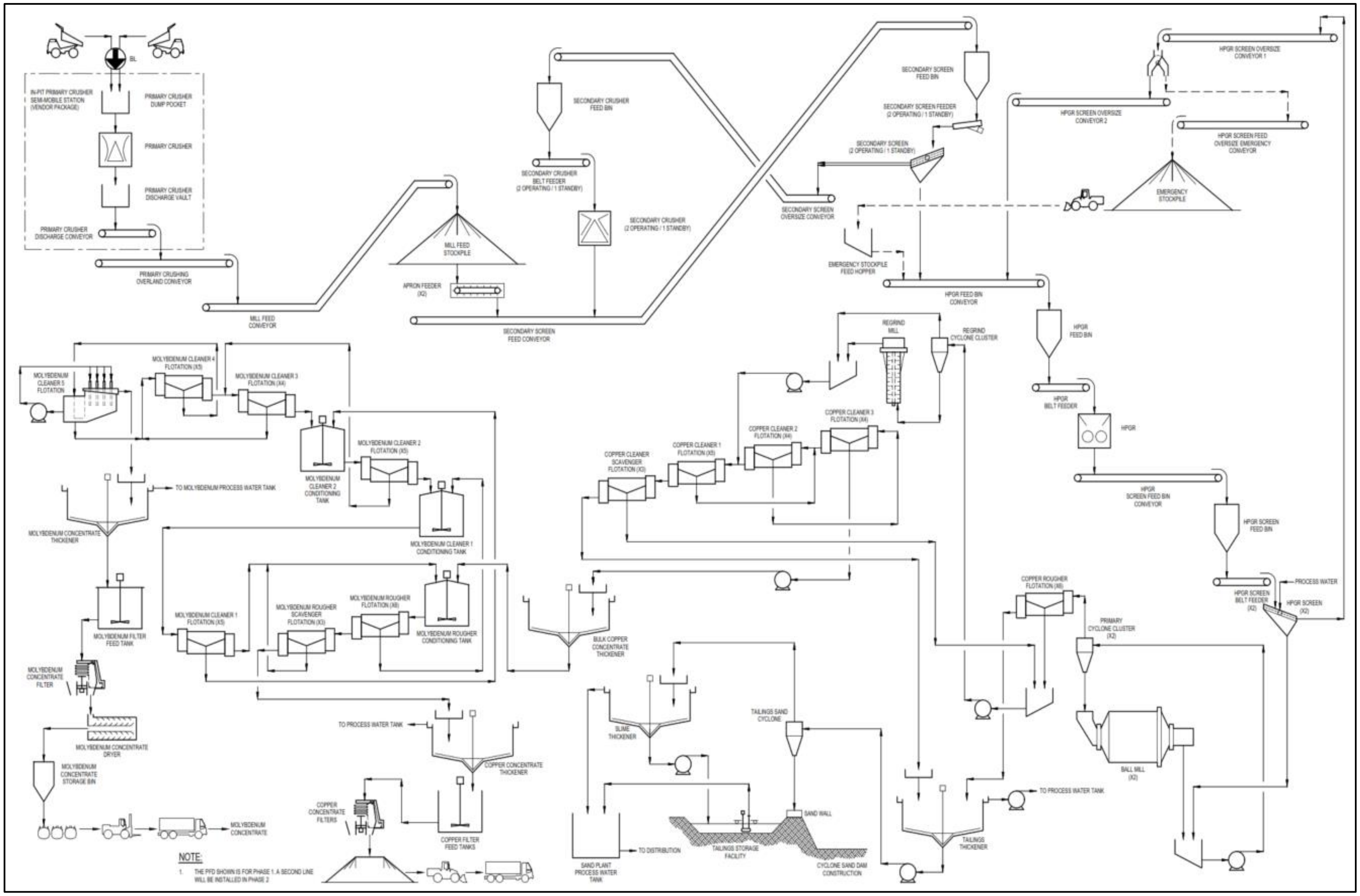
Table 17-1: Key Process Design Criteria for Phases I and II

Description	Units	Phase I Value	Phase II Value
Mineralized material throughput	t/d	60,000	120,000
Cu feed grade	%	0.45	0.45
Overall Cu recovery	%	88.0	88.0
Final Cu concentrate grade	%	26.6	26.6
Cu concentrate production, dry	t/d	900	1800
Mo feed grade	ppm	80	80
Overall Mo recovery	%	65	65
Final Mo concentrate grade	%	45	45
Mo Concentrate production, dry	t/d	7.0	14.0

17.2 Process Flow Diagram

Figure 17-1 presents an overall flow diagram depicting major unit operations.

Figure 17-1 Process Flow Diagram



Source: Ausenco, 2024.

17.3 Process Plant Design

A summary of key process design criteria is listed in Table 17-2, which is the basis of the process flowsheet design and selection of mechanical equipment for 60,000 t/d and 120,000 t/d. The following subsections describe the process plant design for Phase I.

Table 17-2: Phases I and II Process Design Criteria

Description	Units	Phase I Value	Phase II Value
Annual throughput	Mt/y	21.9	43.8
Plant throughput	t/d	60,000	120,000
Crushing and grinding circuit	-	3C (HPGR)-2B	2X Phase I arrangement
Primary crushing availability	%	75	75
Bond crushing work index	kWh/t	23.4	23.4
Secondary and HPGR crushing availability	%	92	92
Grinding and flotation availability	%	92	92
Concentrate filter (of flotation hours)	%	90	90
Tailings sand plant	%	92	92
ROM feed size, F_{80}	mm	635	635
Primary gyratory crusher product size, P_{80}	mm	143	143
Secondary cone crushing feed size, F_{80}	mm	138	138
Secondary screen undersize size, P_{80}	mm	42	42
HPGR circuit operating lines	-	1, closed	2, closed
Roll diameter and width	m X m	3 X 2	3 X 2
Screen undersize size, P_{80}	mm	5.6	5.6
Grinding circuit and type	-	2 ball mills, reversed and closed	4 ball mills, same configuration as Phase I
Grinding circuit capacity – design (dry)	t/h	2,989	5,978
JK Axb Parameter – design	kWh/t	30	30
Bond ball mill work index – design	kWh/t	18.3	18.3
Bond abrasion index – design	G	0.14	0.14
Circulating load, nominal	%	250	250
Ball Mill Specific Energy	kWh/t	12.8	12.8
Cyclone overflow size, P_{80}	µm	150	150
Bulk rougher configuration	-	1 operating line, 6 tank cells	2 operating lines, 12 tank cells

Description	Units	Phase I Value	Phase II Value
Bulk rougher residence time	min	20	20
Regrind mill feed rate, nominal (dry)	t/h	162	162
Regrind product size, P_{80}	µm	23	23
Bulk cleaner	# stages	3 stages, tank cells	2 operating lines, each 3 stages
Mo rougher configuration	-	1 operating line, 6 enclosed, self-aspirated cells	2 operating lines, each with 6 enclosed, self-aspirated cells
Mo rougher residence time	min	48	48
Mo rougher scavenger configuration	-	1 operating line, 3 enclosed, self-aspirated cells	2 operating lines, each with 3 enclosed, self-aspirated cells
Mo rougher scavenger residence time	min	24	24
Mo cleaner	# stages	4 stages tank cells & 1 stage high intensity cell	2 operating lines, each with 4 stages tank cells and 1 stage high intensity cell
Filter cake moisture	% liquids (w/w)	9	9
Mo filter cake moisture	% liquids (w/w)	<15	< 15

17.3.1 Primary Crushing

Primary crushing reduces the size of the ROM mineralized material from a top size F_{100} of 1,200 mm to a P_{80} of 143 mm.

The primary crushing circuit will be integrated by the following items (the first three items will be part of an in-pit semi-mobile crushing station). An identical crushing circuit is planned for Phase II, except for the single 1.7 km conveyor which is to be sized with capacity for both phases:

- Two 240 t haul truck dump stations with ramps.
- One 1,600 x 3,300 mm gyratory crusher.
- One discharge conveyor.
- One single 1.7 km conveyor.
- One stockpile feed conveyor.
- A crushed mineralized material stockpile.
- Two reclaim apron feeders.

ROM mineralized material will be delivered by haul trucks into two dump stations, which will dump the mineralized material into a 1,600 x 3,300 mm gyratory crusher that will reduce material size from a F_{80} of 635 mm to a P_{80} of 143 mm. Crushed material will be collected in the crusher discharge vault. Primary crushing operates as an open circuit (no recirculation). Crushed material will be reclaimed using a primary crusher discharge conveyor, which will dump onto the single 1.7 km conveyor installed within a 1.5 km long tunnel. This conveyor will transfer the crushed mineralized material onto the stockpile feed conveyor, which will dump the material into a stockpile with a 12-hour live capacity at the design reclaim rate, which is used as a buffer for maintenance work upstream. Below the stockpile, two apron reclaim feeders will be installed.

17.3.2 Secondary Crushing

The secondary crushing circuit consists of a set of secondary cone crushers and screens to reduce material size from a F_{80} of 143 mm to a P_{80} of 42 mm. The secondary crushing circuit operates as a closed circuit. The secondary double deck screens produce a product with a top size P_{100} of 60 mm. An identical secondary crushing circuit is planned for Phase II provided the hardness properties and bond indices of the mill feed are similar.

Secondary crushing circuit will include:

- One secondary screen feed conveyor and one secondary screen oversize conveyor.
- Three secondary cone crushers.
- Three secondary vibrating double deck screens (two operating, one standby), 8.5 m length x 3.6 m width.
- One secondary screen feed bin with three compartments and 5 minutes live capacity, with a vibrating feeder below each compartment.
- One secondary crusher feed bin with three compartments and 15 minutes live capacity, with a belt feeder below each compartment.

The reclaim apron feeders will transfer the mineralized material onto the secondary screen feed conveyor, which will dump the material into a screen feed bin with three compartments. Vibrating feeders located at the bottom of each compartment will distribute the mineralized material onto inclined vibrating double deck screens, with a top deck aperture of 90 mm and bottom deck aperture of 60 mm. Screen oversize will be recirculated using a screen oversize conveyor into a secondary cone crusher feed bin with three compartments, while the screen undersize will move onto the HPGR feed bin conveyor. The mineralized material will fall into secondary crushers using a belt feeder installed on each bin compartment of the secondary crusher feed bin. The crushed material will fall onto the secondary screen feed conveyor, closing the circuit.

17.3.3 Tertiary Crushing (HPGR)

The tertiary HPGR crushing circuit will reduce the material size for optimum ball mill feed. The HPGR crushing circuit will operate on a closed circuit using wet screens. A second HPGR circuit is planned for Phase II also. The P_{80} of the final product from the tertiary crushing circuit is 5.6 mm.

HPGR circuit will include:

- One HPGR feed bin with 15 minutes live capacity.
- One HPGR belt feeder.
- One HPGR crusher, 3.0 m diameter x 2.0 width rolls.

- One HPGR screen feed bin conveyor.
- One HPGR screen feed bin with two compartments and 2 hours live capacity, with a belt feeder below each compartment.
- Two HPGR vibrating double deck screens for wet screening, 8.5 m length x 4.2 m width.
- Two HPGR screen oversize conveyors.
- One emergency screen oversize conveyor, with a diverter gate chute. This conveyor dumps into an emergency stockpile.

Product from secondary crushing will be conveyed into the HPGR feed bin. A belt feeder installed below the bin will transfer the mineralized material into a single HPGR crusher, reducing material size from a F_{80} of 42 mm to a P_{80} of 15 mm. The HPGR crusher will dump the crushed material onto a screen bin feed conveyor. The screen bin feed conveyor will dump the material into a HPGR screen feed bin with two compartments. Belt feeders installed below each bin compartment will feed a HPGR screen each. The HPGR screens are double deck, with the top deck having an opening of 15 mm and the bottom deck having an opening of 10 mm. Process water will be added to the screening (wet screening) to break material clumps and wash out the fines. Oversize material from both decks will fall onto a screen oversize conveyor. A chute with a diverter gate will direct the screened material either to a second oversize conveyor or onto an emergency conveyor. The second oversize conveyor will close the circuit by transferring the material onto the HPGR feed bin conveyor. The emergency conveyor will dump the oversize material onto an emergency stockpile. A feed hopper will be installed on the HPGR feed bin conveyor. A front-end loader will transfer the mineralized material from the emergency stockpile into the emergency feed hopper.

17.3.4 Grinding

The grinding circuit will include:

- Two ball mills, operating in parallel, 8.23 m in diameter by 13.11 m in EGL, each powered by an 18,000-kW motor.
- Two slurry pumps (one operating and one in standby) to pump ball mill discharge to cyclones.
- Two cyclone clusters, one for each mill.
- Associated material handling and storage systems (sump pumps, pump boxes).

The undersize mineralized material from the HPGR wet screens will feed directly into the cyclone feed boxes (parallel grinding circuit). Two slurry pumps (one operating and one standby) will pump the slurry into a primary cyclone cluster (one cluster for each grinding line). The cyclone underflow will flow directly into the ball mill, which will be operating with a recirculation of 250%. Quicklime slurry is added at the mill to adjust pH to 9.5, and fuel oil acting as a flotation promoter is also added at this stage. The cyclone overflow will feed the rougher flotation tank cells. The grinding circuit will reduce the mineralized material from an F_{80} of 5,600 µm to a P_{80} of 150 µm. Two additional ball mills, slurry pumps and cyclones clusters are planned for Phase II.

17.3.5 Bulk Rougher Flotation

After liberating the chalcopyrite and other sulphides from the host rock though grinding, the mineralized material undergoes a rougher flotation stage. On a general basis, the objective of rougher flotation is to maximize copper sulphide recovery to an intermediate concentrate containing 10-15% of the feed mass.

Rougher flotation circuit will include:

- Six rougher flotation tank cells, 500 m^3 cell volume. Cell arrangement is 1-1-2-2.
- Associated material handling and storage systems (sump pumps, pump boxes).

The cyclone overflow will flow directly into the rougher flotation tank cell feed box at a pulp density of 35% solids. Methyl Isobuthyl Carbinol (MIBC) will be dosed as a frother, and Aerophine 3418A will be dosed as a collector into the cell feed box. Air will be injected into the flotation cell, the air bubbles moving upwards inside the flotation will cell collect the sulphides in the slurry. The froth will overflow into a collection weir inside each tank and will flow by gravity respective pump boxes, while the barren tailings will flow by gravity into the tailings thickener. The liquid level in the tank cells will be controlled by dart valves installed between each tank. The installation of a second identical bulk rougher flotation circuit is planned for Phase II.

17.3.6 Regrinding

The rougher concentrate requires regrinding to increase the liberation of copper sulphides and pyrite in advance of the cleaner circuit. A stirred mill in open circuit with a hydrocyclones cluster will reduce the particle size of the rougher concentrate from an F_{80} of 125 µm to a P_{80} of 23 µm.

The regrind circuit will include:

- Two cyclone feed pumps (one operating, one standby).
- One regrind cyclone cluster.
- One stirred media regrind mill, 5,500 kW.
- Associated material handling and storage systems (sump pumps, pump boxes).

The bulk rougher concentrate regrind cyclone will advance water and fine particles to the overflow, with the increased density cyclone underflow discharging to the HIG mill feed box.

Slurry from the regrind mill discharge, and the cyclone overflow will be combined in a pump box and pumped into the cleaner flotation circuit at a product sizing of 23 µm P_{80}. A second identical regrind circuit is planned for Phase II.

17.3.7 Bulk Cleaner and Scavenger Flotation

There will be three cleaning stages per phase to increase the grade of the copper concentrate up to 24%. A scavenger cleaning stage in included to recover middling that may require further regrinding.

Cleaner flotation circuit will include:

- Five first cleaner flotation tank cells, 70 m^3 cell volume. Cell arrangement is 1-2-2.
- Three first cleaner scavenger flotation tank cells, 70 m^3 cell volume. Cell arrangement is 1-1-1.
- Four second cleaner flotation tank cells, 70 m^3 cell volume. Cell arrangement is 1-1-2.
- Four third cleaner flotation tank cells, 70 m^3 cell volume. Cell arrangement is 1-1-2.
- One 16 m diameter bulk concentrate high-rate thickener.
- Associated material handling and storage systems (sump pumps, pump boxes).

Rougher concentrate will be pumped from the regrind mill pump box into the first cleaner flotation tank cell fed box. The first cleaner flotation concentrate will be pumped into the second cleaner flotation tank cell feed box, while the tailings flow by gravity into the first cleaner scavenger flotation cells.

The cleaner scavenger cells will recover copper sulphides likely associated with pyrite from the first cleaner circuit tailings. The cleaner scavenger flotation concentrate will flow by gravity into the rougher flotation concentrate pump box and will be recirculated back into the regrind circuit, while the cleaner scavenger tailings will flow by gravity into the tailing's thickener.

The concentrate from the first cleaner flotation cells will enter the second cleaner flotation cells. The second cleaner flotation concentrate will be pumped into the third cleaner flotation cells. Tailings from the second cleaner will flow by gravity into the first cleaner flotation cells.

The third cleaner concentrate will be pumped into the Cu-Mo bulk concentrate thickener. Tailings from the third cleaner will flow by gravity into the second cleaner flotation cells.

All cell tanks will have adjustable reagent dosing pumps at each feed box.

17.3.8 Molybdenum Flotation

The molybdenum flotation circuit will consist of three conditioning tanks, rougher flotation, scavenger flotation and five stages of cleaner flotation. A second identical molybdenum flotation circuit is planned for Phase II.

Underflow flow from the Cu-Mo concentrate thickener will be pumped to the molybdenum rougher conditioning tank. After conditioning, Cu-Mo concentrate will be pumped to molybdenum rougher flotation cells. The concentrate from rougher flotation will be delivered to the molybdenum first cleaner conditioning tank. The tailings from rougher flotation will report to scavenger flotation. Concentrate from scavenger flotation will report back to the molybdenum rougher conditioning tank. Tailings from scavenger flotation will report to the copper concentrate thickener.

Conditioned slurry from the molybdenum first cleaner conditioning tank will be pumped to molybdenum first cleaner flotation. Tailings from the first molybdenum cleaner cells will report back to the molybdenum rougher conditioning tank. Concentrate from the first cleaner flotation will be pumped to the molybdenum second cleaner conditioning tank.

Conditioned concentrate slurry from the molybdenum second cleaner conditioning tank will be pumped to the molybdenum second cleaner flotation cells. Tailings from the second cleaner flotation will report to the molybdenum first cleaner conditioning tank. Concentrate from the second cleaner flotation will flow by gravity to the third stage of molybdenum cleaning.

Tailings from the third stage of cleaning will be pumped to the molybdenum second cleaner conditioning tank. Concentrate from the third stage of cleaning will flow by gravity to the fourth stage of cleaning.

Tailings from the fourth stage of cleaning will be pumped to the third cleaner flotation cells. Concentrate from the fourth stage of cleaning will flow by gravity to the fifth stage of cleaning.

Tailings from the fifth stage of cleaning will be pumped to the fourth cleaner flotation cells. Concentrate from the fifth stage of cleaning will flow by gravity to the molybdenum concentrate thickener.

The Molybdenum flotation circuit will include:

- Molybdenum rougher conditioning tanks, 10 minutes residence time.
- Six molybdenum rougher flotation cells, 28.3 m^3 cell volume, enclosed (self-aspirated).
- Three molybdenum rougher scavenger flotation cells, 28.3 m^3 cell volume, enclosed (self-aspirated).
- Molybdenum first cleaner conditioning tanks, 12 minutes residence time.
- Five molybdenum first cleaner flotation cells, 4.2 m^3 cell volume, enclosed (self-aspirated).
- Molybdenum second cleaner conditioning tanks, 12 minutes residence time.
- Five molybdenum second cleaner flotation cells, 4.2 m^3 cell volume, enclosed (self-aspirated).
- Four molybdenum third cleaner flotation cells, 4.2 m^3 cell volume, enclosed (self-aspirated).
- Five molybdenum fourth cleaner flotation cells, 1.7 m^3 cell volume, enclosed (self-aspirated).
- A single molybdenum fifth cleaner high-intensity style flotation cell (50 m^3/h).
- Associated material handling and storage systems (sump pumps, pump boxes).

17.3.9 Copper Concentrate Dewatering

The copper concentrate is first thickened using a high-rate thickener to a solids density of 60% and then filtered using a vertical pressure filter to obtain a final concentrate with 9% moisture. Water recovered from the filter and from the thickener is used as process water.

Copper concentrate dewatering will include:

- A 16 m diameter high rate concentrate thickener.
- A static sieve bend trash screen.

- A copper concentrate filter feed tank with agitator, volume designed for a residence time of 12 h at nominal feed rate.
- A single vertical pressure filter with a 144 m^2 filter area.
- A filtered concentrate storage and handling facility, with a 5-day dry concentrate storage capacity.
- Associated material handling and storage systems (sump pumps, pump boxes, front-end loader).

Copper concentrate will be pumped onto a static sieve bend trash screen to remove any plastic or trash that may have remained from upstream operations. The copper concentrate will then enter the concentrate thickener feed well, where it will be mixed with flocculant. The copper concentrate slurry will flow radially to the edge of the thickener, with solids settling in the thickener cone and the liquid phase will decant over the thickener weirs. Recovered water from the thickener will overflow into a thickener overflow tank and will be pumped into the process water tank. The thickened copper concentrate in the thickener cone will be pumped into the copper concentrate filter feed tank.

Concentrate slurry from this agitated tank will be pumped into the copper concentrate filter. Filter cake will be discharged from the filter onto the concentrate storage and handling facility located right below the filter, while the filtrate solution will be recirculated as dilution water into the concentrate thickener.

Final concentrate will be moved into piles, sampled, and assayed and transferred to trucks using a front-end loader for final concentrate sale.

A duplicate copper concentrate dewatering circuit is planned for Phase II.

17.3.10 Molybdenum Concentrate Dewatering

The molybdenum concentrate is first thickened using a hi-rate thickener to a solids density of 60% and then filtered using a vertical pressure filter to obtain a concentrate with 15% moisture. Water recovered from the filter and from the thickener is used as process water. Molybdenum concentrate filter cake reports to the molybdenum concentrate dryer. Dried molybdenum concentrate, containing 5% moisture, reports to the molybdenum concentrate storage bin.

For each phase of the Project, the molybdenum concentrate dewatering circuit will include:

- A 3 m diameter high rate concentrate thickener.
- A static sieve bend trash screen.
- A molybdenum concentrate filter feed tank with agitator, volume designed for a residence time of 24 h at nominal feed rate.
- One vertical pressure filter.
- A concentrate dryer.
- A molybdenum product bin, with a 24-hour dry concentrate storage capacity.
- A molybdenum bagging system.

- Associated material handling and storage systems (sump pumps, pump boxes).

Molybdenum concentrate will be pumped onto a static sieve bend trash screen to remove any plastic or trash that may have remained from upstream operations. The molybdenum concentrate will then be thickened in the high-rate molybdenum concentrate thickener. Molybdenum concentrate thickener overflow will report to the molybdenum process water tank. Molybdenum thickener underflow will be pumped to the molybdenum filter feed tank. Molybdenum concentrate slurry will be pumped from the feed tank to the molybdenum concentrate filter. Filtrate from the molybdenum concentrate filter will be pumped back to the molybdenum concentrate thickener. Molybdenum concentrate filter cake will report to the molybdenum concentrate dryer. Dried molybdenum concentrate will report to the molybdenum concentrate storage bin. Molybdenum concentrate will be withdrawn from the storage bin into a packaging system. Molybdenum concentrate will be bagged for transport by truck.

17.3.11 Tailings Dewatering

Flotation tailings coming from the bulk rougher and bulk cleaner scavenger flotation cells will be thickened to recover process water and provide an optimum slurry density for the tailings sand cyclone downstream.

Tailings dewatering will include:

- One 74 m diameter high-rate tailings thickener.
- Two tailings thickener underflow pumps (one operating, one standby).
- Associated material handling and storage systems (sump pumps, pump boxes, front-end loader).

Flotation tailings will enter the thickener feed well, where it will be mixed with flocculant. Tailings slurry will flow radially to the edge of the thickener, with solids settling in the thickener cone while the liquid phase will decant over the thickener weirs. Recovered water from the thickener will overflow into a thickener overflow tank and will be pumped into the process water tank. The thickened tailings will be pumped to the tailings sand cyclone system. An identical tailing dewatering and cyclone system will be installed during Phase II.

17.3.12 Tailings Storage Facility

The construction of the tailings storage facility (TSF) is an ongoing process during the life of mine (LOM). A tailings sand cyclone underflow will be used for the tailings dam wall construction, while the cyclone overflow will be thickened and deposed in the TSF.

The Cyclone Sands Station will include:

- One sand cyclone feed slurry pump and pump box.
- One tailings sand cyclone cluster.
- One 57 m high-rate tailings slimes thickener.
- Two tailings thickener underflow pumps (one operating, one standby).

- One sand plant process water tank and distribution system.
- One process water barge pump located on the TSF pond.

Tailings will be pumped to the sand cyclone feed pump box where it will be diluted with process water to achieve a suitable cyclone feed density. The sand cyclones will be operated to recover 40% of the inflow mass to the underflow. Fines recovery to the underflow will be mitigated by using an apex wash arrangement. The coarse underflow will flow by gravity to the sand wall of the TSF for distribution and placement. Pumping of this stream may be required in later years as the sand wall elevation increases. The finer material will overflow into a slimes thickener feed well, where it will be mixed with flocculant. Slimes slurry will flow radially to the edge of the thickener, with solids settling in the thickener cone, while the liquid phase will decant over the thickener weirs. Recovered water from the slimes thickener will overflow to the sand plant process water tank. The thickened slimes will be pumped into the TSF. A barge pump located on the TSF pond will return process water back to the Cyclone Sands Station process water tank. Process water not required by the sand cyclone system will be pumped up to the concentrator process water tank.

17.3.13 Reagent Handling, Consumption and Storage

The mixing and storage area for each reagent will be located proximate to various addition points throughput the flotation plant. Reagents delivered in bulk bags will be moved from storage to the mixing area by forklift. Electric hoists servicing in the reagent area will lift the reagents to the respective reagent bag breaker that will be located above the reagent mixing area.

The reagent handling system will include unloading and storage facilities, mixing tanks, stock tanks, transfer pumps, and feeding equipment. Table 17-3 shows the reagents used and consumptive use in the processing plant. Shown in Table 17-4 are estimates of typical annual consumables required for the process.

Table 17-3: Flotation Reagents and Consumables

Reagent	Preparation Method	Phase I Usage (t/y)	Phase II Usage (t/y)
Quicklime	Delivered as powdered quicklime, stored in silo, slaked, and dosed as a slurry, dosed to primary cyclone feed, and regrind mill feed to control pH.	11,903	23,805
Fuel Oil (Diesel)	Delivered by truck and transferred into a storage tank for dosing into the mill prior to flotation to serve as a promoter.	443	974
Aerophine 3418A	Delivered in totes and dosed neat into bulk rougher flotation as a collector.	241	482
Methyl Isobutyl Carbinol	Delivered in drums and dosed neat into bulk rougher flotation as a frother.	2,411	4,823
Sodium Hydrosulphide	Delivered at a 40% concentration, diluted to 20% and dosed at various points in molybdenum flotation to depress Cu.	1,535	3,070
Flocculant	Delivered as dry powder in bulk bags, dissolved in a mixing tank, and dosed to thickeners to promote sedimentation.	1,201	2,402
Antiscalant	Delivered in totes and dosed to prevent scaling up of the process water circuit.	209	209

Table 17-4: Crushing and Grinding Consumables

Consumable	Purpose	Unit of Measure	Phase I Usage	Phase II Usage
Primary Crusher Liners	Replacement liners for wear protection	sets/y	3	6
Secondary Crusher Liners	Replacement liners for wear protection	sets/y	8	16
Secondary Screen Panels	Replacement screens for wear protection	sets/y	8	16
HPGR Rolls	Replacement rolls for wear protection	sets/y	1	2
HPGR Screen Panels	Replacement screens for wear protection	sets/y	8	16
Ball Mill Grinding Media	Replacement media consumed over time	t/y	11,370	22,739
Ball Mill Liners	Replacement liners for wear protection	sets/y	2	4
Regrind Mill Media	Replacement media consumed over time	t/y	394	788

18 PROJECT INFRASTRUCTURE

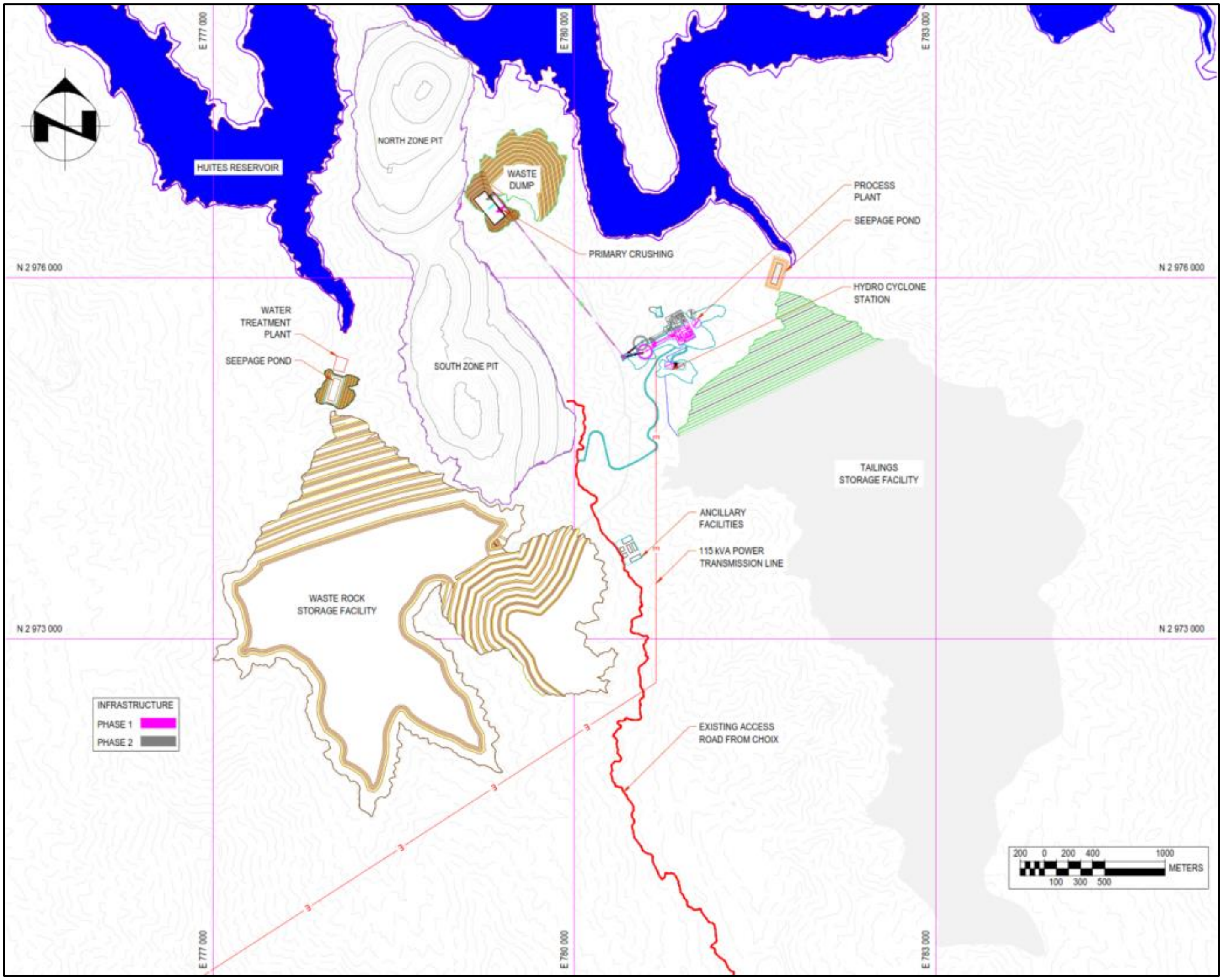
18.1 Overview

Infrastructure at Santo Tomás Project has been analysed both for Phase I (throughput of 60,000 t/d) and for Phase II (throughput of 120,000 t/d). For Phase I, the Project includes on-site infrastructure such as earthworks development, crushing and process plant facilities and ancillary buildings such as warehouses and workshops, on-site roads, water management systems, and site electrical power facilities. Off-site infrastructure for Phase I includes a site access road, plant roads, an LNG plant, freshwater supply, power supply (power transmission line), two waste rock storage facilities (WRSFs), and a tailings storage facility (TSF). For Phase II, on-site infrastructure will include earthworks development, a second crushing and processing line and associated facilities and buildings, water management systems, and site electrical power facilities; there are not upgrades contemplated for the off-site infrastructure.

The Project site infrastructure will include:

- Mine facilities, including mining administrative offices, a mine fleet truck shop and wash bays, and a mine workshop.
- Common facilities, including a security/medical office. Overall site administration building, potable water and fire water distribution systems, compressed air, main electrical substation and distribution facilities, diesel and natural gas reception and fueling stations, communications area, and sanitation systems.
- A near pit primary crushing facility (in-pit crushing semi-mobile station) with associated electrical infrastructure.
- Conveying through a tunnel for mill feed material coming from primary crushing, stockpiling, secondary crushing and tertiary crushing (HPGR).
- Process facilities housed in the process plant, including grinding and classification, flotation, regrinding, concentrate handling, thickening, dewatering and filtration, reagent mixing and distribution, assay laboratory, process plant workshop and warehouse.
- Other infrastructure includes on-site permanent camp, TSF and WRSFs.
- The overall site layout shown in Figure 18-1 was developed using the following criteria and factors:
    - The facilities described above must be located on the Santo Tomás Property to the greatest extent possible.
    - The primary crushing facilities contemplates two crushing stations, one for Phase I and one for Phase II. Such stations have been arranged in series in order to use a single 1.7 km conveyor to feed the crushed material to the mill feed stockpile for both bases, and thus reduce capital and operating costs. Under this premise, space has been allotted for a pad extension and the installation of a second primary crushing station for Phase II. Also, the primary crushing facility is now located closer to both pits and is situated immediately southeast of the North Zone Pit boundary with ramp access from both North Zone and South Zone Pits. This new location subtracts over a kilometer of hauling distance to the dump pocket and allows for a shorter haul to dispose waste rock (~ 30 MT) at the first WRSF planned. This facility will be built up over Phase I and is adjacent to the primary crushing pad.

Figure 18-1: Infrastructure Layout Plan



Source: Ausenco, 2024.

- The crushing stations contemplated for primary crushing facility are now in-pit crushing, semi-mobile stations, which come equipped with a feed hopper, a gyratory crusher, a discharge hopper, truck ramps, semi-mobile support structure for the gyratory crusher and direct drive, a bridge crane, rock breaker, and discharge conveyor. Mill feed discharged from the primary crusher will be conveyed through a 1.5 km tunnel which daylights close to the mill feed stockpile via the single 1.7 km conveyor mentioned above.
- The layout of the mill feed stockpile, secondary crushing and screening, HPGR and flotation circuit are designed in such a way that allows for a mirrored replica of these processing circuits to be constructed for Phase II.

- The location of the WRSFs must be close to the Santo Tomás deposits to reduce haul distance as much as possible.
- The TSF should be located at a site that takes advantage of sloped natural terrain to adequately drain entrained water and reduce earthworks, concrete, and structural development if possible.
- The process plant access road will be a derivation from an existing access road to the Project site.
- The arrangement of the administration buildings, mine workshops, process plant, and additional offices should be optimized for foot and vehicle traffic.

18.2 Off-Site Infrastructure

18.2.1 Site Access

For Phase I of the Project a new road that will be a derivation of the current access road that passes through Cajón de Cancio is envisioned to access to the Santo Tomás site. There is not any change contemplated for the new road in question during the Phase II of the Project.

18.2.2 Water Supply

In the 2023 PEA Technical Report, groundwater was to serve as the makeup water supply for the process plant with a pumping system sized for a maximum consumption rate estimated at 2,244 m^3/h. In this report, groundwater will be pumped from a well-field located within six (6) kilometers of the Project site with the well-field situated north of the anticipated North Zone Pit boundary. The redesigned system is sized to meet a water consumption rate of 1,122 m^3/h (sized for Phase I) and pressure ratings encountered along the pipeline route. The revised freshwater supply system will consist of twelve 115 m^3/h and 90 m deep wells, each fitted with a 45 kW submersible pump, three pump stations (each equipped with two 450 kW pumps) situated along a combination of 1 km of 600 mm diameter carbon steel pipe, 1.5 km of 400 mm diameter carbon steel pipe, and 4.5 km of 760 mm diameter of SDR 11 HDPE pipeline. For this report, it is proposed that the plant makeup water for the second phase be supplemented by groundwater pumping specifically aimed to mitigate seepage into the pits.

A recent overall site-wide water balance, as presented in Section 18.3.10.4, suggests groundwater pumping adjacent to the North Zone Pit as the pit advances shall be of sufficient quantity to meet the maximum consumption rate of 2,244 m^3/h. As such, a second set of deeper wells will be installed for this purpose. Under this arrangement, the installation of additional wells specifically for process plant freshwater demands during Phase II are not required. The proposed groundwater pumping system will supplement the balance of the process plant water requirements. This system is comprised of fifteen 200 kW, 300 m deep wells, strategically placed around the perimeter of the North Zone Pit adjacent to the river to hydraulically contain seepage ahead of pit advancement and is planned to be installed in Year 5. Makeup water will be pumped 6.5 km to the process water tank at the plant via the same combination of steel and HDPE pipe as was specified for Phase I, but with two large vertical turbine pumps (each 2500 kW). Surplus water pumped exceeding the plant requirement will be discharged back into the river pending water quality analysis, treatment and permitting.

Groundwater will be tested and treated with chlorine for potable water and the safety showers/eye washes.

18.2.3 High Voltage Power Supply

The power transmission line contemplated as part of the off-site infrastructure is a 115 kV line that is designed to supply power for both phases of the Project. It will be interconnected to a newly built-up self-generation power plant owned and operated by a third-party. The associated capital and operating expenses for the self-generation power plant are included in the power rate unit cost. Any upgrade requested for the self-generation plant during Phase II of the Project will be a direct responsibility of the third-party.

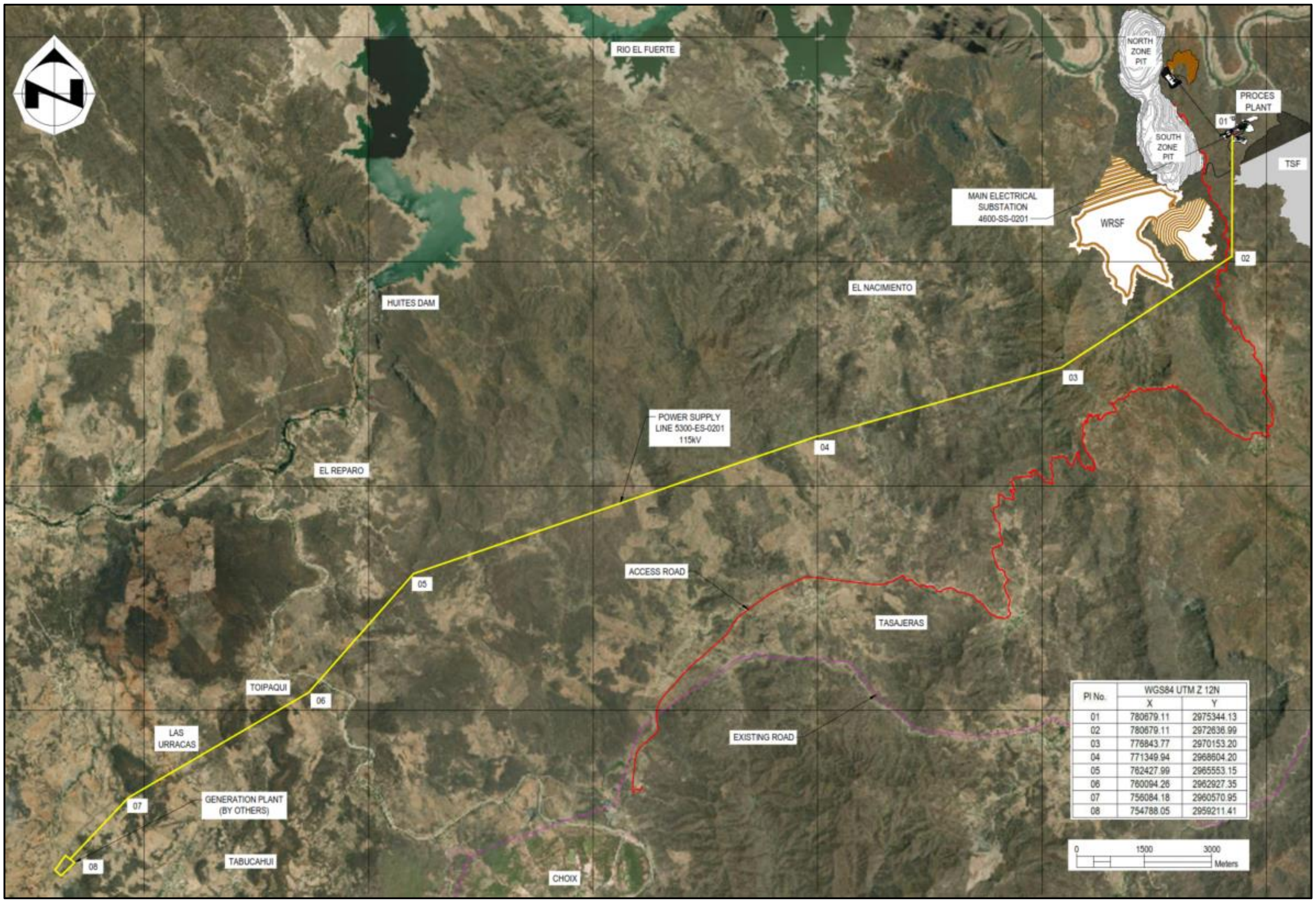
The power supply for the Project will be managed through a contract for electrical energy sale between Oroco and the third-party aforementioned, who provided a written budgetary proposal which described their proposed scope and is summarized below as follows:

The third-party will build a new self-generation power plant that will be fed with natural gas coming from an existing pipeline called “El Encino-Topolobampo”, which is nearby the location defined for the self-generation power plant with the purpose of facilitating the construction of the interconnection point for the 115 kV power transmission line contemplated for the Project. The new self-generation power plant will consist of integrated combustion motor-generators, which will generate electricity at a voltage of 13.8 kV. This electricity will be delivered through a triphasic bus to a two 50 MV transformers that will increase the voltage to 115 kV. Ancillary equipment for power measurement will be installed after the transformers to guarantee the energy supply at that voltage. Based on the preliminary information and estimated electrical loads, their proposal reflected a power supply integrated cost of US$0.0804/kWh which the investments made by the third party for equipment fully dedicated the Project.

For the preparation of the proposal described above, the third-party used a nominal cost of US$2.00/MMBtu for transportation of LNG through the duct. This cost is included in the power supply integrated cost offered. This transportation cost is an average value based on historical data. However, it is important to note that this transportation cost is variable and depends on several factors related with the duct lines operation, like the number of control stations, the control in compression stations, and regulation/measurement stations along the duct route. Oroco provided a gas daily Mexico prices report officially issued by S&P Global Platts in August 2023, where the cost of gas transportation through duct at the existing line “El Encino-Topolobampo” is estimated to be US$1.16/MMBtu. Based on this information, the power supply cost was recalculated at a rate of US$0.072/kWh, which is used to estimate the operating costs for the process plant.

The power transmission line has been preliminary projected as shown in Figure 18-2. The total estimated length for this line is of 35.7 km, which includes a 10% estimate to cover the surpluses due to catenary and unevenness. The power transmission line routing has been projected considering the absence of critical interferences with local communities and based on the location sited for the self-generation power plant, which was defined by the third-party mentioned above.

Figure 18-2: Power Transmission Line Routing



Source: Ausenco, 2024.

18.2.4 LNG Plant

Provisions have been made to supply LNG to the Project site. This will include siting a small-scale LNG plant off-site at the same natural gas tie-in point as the proposed power plant. The plant will consist of the following scope of supply:

- Gas pre-treatment.
- Reversed Brayton process to produce LNG.
- Cooling system (ambient air).
- Storage tanks.
- Electrical and control systems.

- Truck loading system.

LNG will be trucked to site for haul truck fueling to minimize diesel consumption, improve air quality and reduce mine operating costs. The construction of the LNG plant will be modular in nature to match the fleet requirements.

18.2.5 Logistics

Both the copper and molybdenum concentrates will be transported from the Project site to the Pacific Ocean Port of Topolobampo, where it will subsequently be transported by sea to clients. The transport option is envisioned to use containerized bulk handling (CBH), being that the most flexible solution considering any port with a crane and a yard can handle containers.

18.3 On-Site Infrastructure

18.3.1 Site Preparation and Buildings

The infrastructure will be cleared, and the topsoil will be removed before construction. Drains, safety bunds and backfilling with granular material and aggregates for road construction are all elements of the initial site development.

Site civil work includes design for the following infrastructure:

- Plant access road.
- Roads for light vehicles and heavy equipment.
- Platforms for all the facilities.
- TSF area.
- WRSF areas.
- Water management facilities, ditches, and drainage channels.

Table 18-1 shows the list of buildings required for the Project, including supporting infrastructure.

Table 18-1: Building List

Building Name	Building Type	L (m)	W (m)	H (m)	Area (m^2)
Primary crushing	Stick-built	18	6	40	108
Mill feed stockpile	No cover required, 126 m Ø	-	-	46	12,469
Secondary crushing	Pre-engineered	34	21	-	714
Secondary screening	Pre-engineered	28	20	-	560
HPGR	Pre-engineered	26	21	-	546
Grinding	Pre-engineered	81	64	-	5,184
Copper Flotation and regrind	Pre-engineered	78	40	-	3,120

Building Name	Building Type	L (m)	W (m)	H (m)	Area (m²)
Copper concentrate handling	Pre-engineered	60	35	-	2,100
Molybdenum flotation and concentrate handling	Pre-engineered	45	38	-	1,710
Process control room	Modular	20	10	-	200
Assay Laboratory	Modular	20	10	-	200
Administrative offices	Pre-engineered	50	20	-	1,000
Operations and engineering offices	Pre-engineered	50	20	-	1,000
Dining room	Pre-engineered	35	15	-	525
Security and Medical facilities	Pre-engineered	35	15	-	525
Process plant warehouse	Pre-engineered	60	40	-	2,400
Process plant maintenance workshop	Pre-engineered	15	10	-	150
Mine change house	Pre-engineered	40	20	-	800
Mine truck shop/wash	Pre-engineered	65	60	-	3,900
Mine maintenance workshop	Pre-engineered	35	30	-	1,050
Mine warehouse	Pre-engineered	35	22	-	770
Mine office	Pre-engineered	20	10	-	200
Permanent accommodation camp	Modular, multiple level	-	-	-	-

18.3.2 On-Site Roads

The Project site has unpaved roads connecting the access road to the gatehouse. In addition to the existing roads on site, new roads will be constructed linking the guard house, ancillary facilities, the process plant, the explosive storage buildings, the pits, the primary crusher, the WRSF, the hydrocyclones station and the TSF. All on-site roads are designed for two-way traffic allowing enough width for the largest equipment expected in the road. All roads have safety berms and a maximum grade of 10%.

18.3.3 Fuel

The diesel storage facility and fuel dock consist of five bulk storage tanks. Each tank will have a capacity of 100,000 L, for a total storage capacity of 500,000 L. Provisions will also be made to install an LNG off-loading and haul truck fueling station to support lower diesel fuel consumption and cleaner emissions while mining.

18.3.4 Mining Infrastructure

18.3.4.1 Mine Truck Shop/Wash

The mine truck shop/wash is a pre-engineered building with a concrete floor, overhead crane, and overhead doors with fire protection and alarm systems. For Phase I of the Project there will be a total of six maintenance bays. Three maintenance bays will be assigned to preventive maintenance, two will be for corrective maintenance, and the last bay will be for multipurpose. Additionally, a single welding bay and truck wash will be located at the front of the truck workshop building. This facility will be doubled for Phase II.

18.3.4.2 Mine Office

The mine office is a pre-engineered building for open pit operations and will be located at the south of the pits and process plant, with direct interconnection to the existing access road. The building is contemplated to service both phases of the Project and it will be equipped with fire protection and an alarm system.

18.3.4.3 Additional Mine Infrastructure

Other mine infrastructure includes a mine maintenance workshop, a mine warehouse, and a mine change house; all of which are pre-engineered buildings. These buildings will be located close to the mine office, including also direct interconnection to the existing access road. These buildings are also equipped with fire protection and an alarm system.

The mine maintenance workshop and mine warehouse will double in size during Phase II, while the mine change house will only expand by 50%.

18.3.5 Process Plant Infrastructure

18.3.5.1 Process Plant Warehouse

The process plant warehouse is a pre-engineered building with concrete floor and overhead doors. This building will be used for general storage, as well as to store equipment spares for the process plant as necessary. Fire protection and an alarm system will be also integrated in this building, which will be designed for both project's phases.

18.3.5.2 Process Plant Maintenance Workshop

The process plant workshop is a pre-engineered building with concrete floor and overhead doors. This building will be used for maintenance works and store light vehicles assigned to the plant, as well as to repair and maintain process equipment as necessary. Fire protection and an alarm system will be also integrated in this building, which will be designed for both project's phases.

18.3.5.3 Process Plant Control Room

The process plant control room is a modular building, which is attached to the process plant and contains dual operator stations. This building is also equipped with fire protection and an alarm system and will be designed for both project's phases.

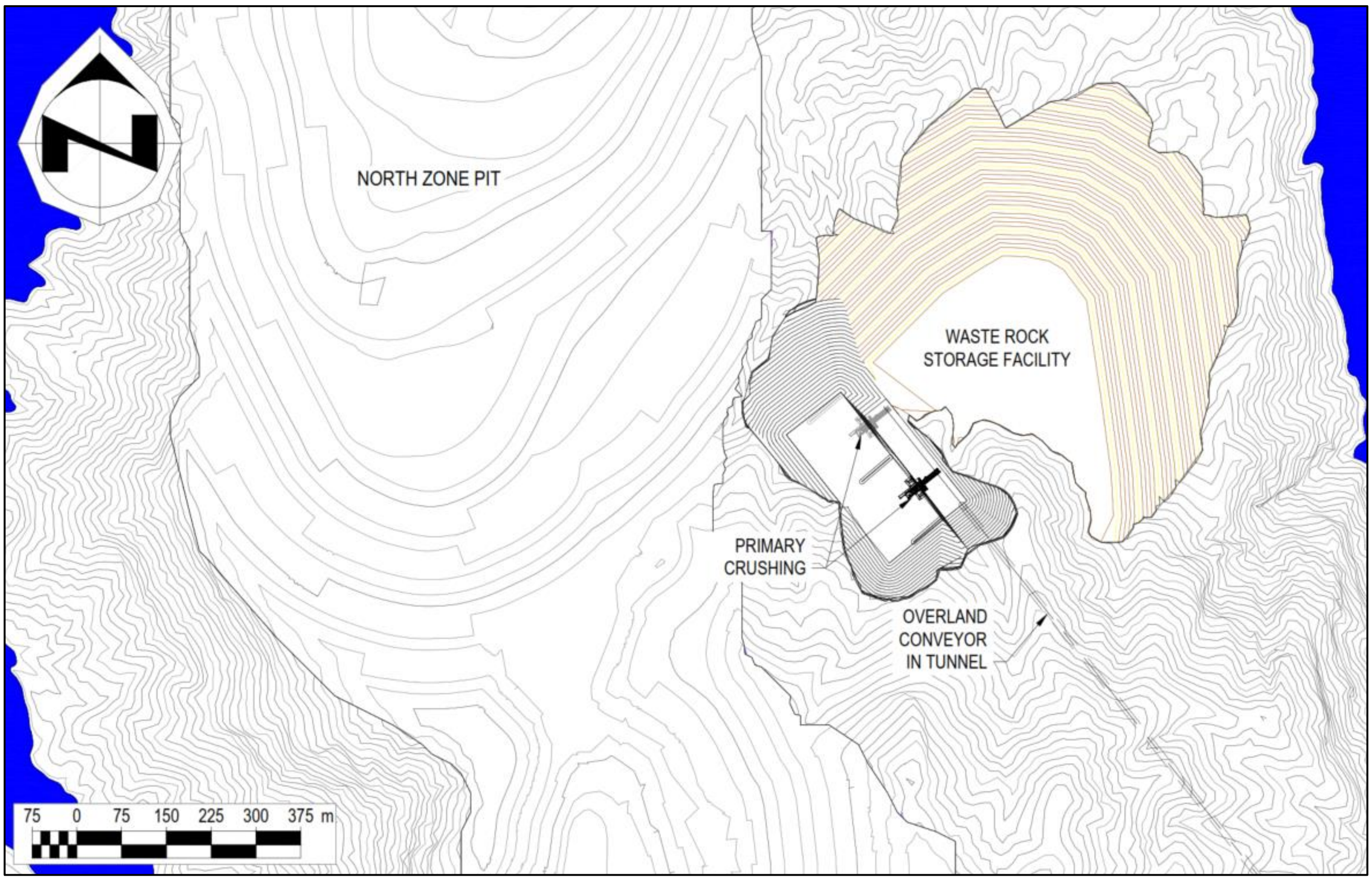
18.3.5.4 Assay Laboratory

The assay laboratory is a single-story modular building sized to accommodate both phases of the Project. It will be comprised of a storage area, office, and laboratory. The laboratory will have separate facilities including a scale room, AA room, wet laboratory, and metallurgical laboratories which will be provided by a subcontractor. This building will be equipped with fire protection and an alarm system, and it requires bottled nitrogen and hoods with ventilation.

18.3.5.5 Material Handling and Process Plant Facilities

Mineralized material from the pits will be hauled to a newly located primary crushing facility where it will be crushed to a P_{80} of 143 mm and then conveyed to the mill feed stockpile via a single 1.7 km conveyor situated in a 6 m tall by 7 m wide tunnel 1.5 km in length. Figure 18-3 illustrates the revised location proposed for the primary crushing facility which is much closer to the North Zone Pit than the location proposed in the 2023 PEA Technical Report thereby minimizing the haulage cycle time and fuel consumption.

Figure 18-3: Revised Location Proposed for the Primary Crushing Stations and North WRSF.



Source: Ausenco, 2024.

Under this arrangement, the single 1.7 km conveyor (sized to meet the Phase II mill feed throughput) will be installed running the length of the tunnel and will interconnect with the mill feed conveyor near the mill feed stockpile. Also contemplated in this design is a smaller satellite 30 Mt WRSF adjacent to the crusher pad.

For this study, the use of dual fuel (diesel and natural gas) fitted haul trucks has been considered. Combined, these considerations will improve the operating costs associated with hauling materials to the primary crushing dump pockets.

The revised primary crushing station is a pre-engineered structure (in-pit, semi-mobile station) equipped with a feed hopper, a discharge hopper, gyratory crusher, truck ramps, a bridge crane, rock breaker, discharge conveyor along with a structural steel support structure for the gyratory crusher, drives, maintenance platforms and stairwells. For Phase II, a second identical primary crushing station will be installed at the same location and tied into the existing single 1.7 km conveyor by extending the tail section.

The crushed mineralized material will be reclaimed/collected through two apron feeders, and then transferred to a collector belt conveyor that will convey it to the secondary crushing circuit, where it will be crushed to a P_{80} of 42 mm. Crushed material will be conveyed through a closed circuit, whose interconnection point with the rest of process plant infrastructure is via a secondary screening circuit where it will be classified by two secondary screens. Crushed material particles under 60 mm will be collected by a belt conveyor that will take the material to the tertiary crushing stage thru the HPGR circuit, while crushed material particles above 60 mm will be returned back to the secondary crushing closed circuit. The secondary crushing, secondary screening and HPGR are to be set on concrete pads with structural steel components limited to providing support and maintenance access to the equipment.

All process circuits at the main processing facility including the crushed material stockpile, apron feeders, secondary crushing and screening circuits, HPGR, flotation, concentrate thickening and filtering, tailings thickening, and cyclone sands station will be duplicated during Phase II.

18.3.6 Power and Electrical

The 115 kV power transmission line will be interconnected to a new 115 kV/34.5 kV main electrical substation located at the Project site. This new main electrical substation will distribute power to the different areas of the Project including the process plant, administrative offices, and mining areas. New distribution lines will be constructed to provide stepped-down power to the site administration and process facilities. The new main electrical substation will be expanded for Phase II in accordance with the energy demand from the new equipment and facilities.

The maximum demand for Santo Tomás Project is estimated at MV. The power demand for each phase is summarized in Table 18-2.

Table 18-2: Santo Tomás Project Electrical Demand

Project Phase	Maximum Demand (kW)	Average Demand (kW)	Additional Average Demand from Previous Phase (kW)
Phase I	75,276	54,997	Not applicable
Phase II	149,438	109,398	+54,401

18.3.7 Supporting Infrastructure

18.3.7.1 Truck Scales

The Project has inlet and outlet site truck scales, both of 60-tonne capacity. These scales are located adjacent to the main access road by the guard house.

18.3.7.2 Security and Medical Facilities

The security and medical facilities are located within a pre-engineered building. The security facilities include rooms for personnel screening during shift rotations. The medical facilities consist of first aid emergency response rooms for on-site treatment and headquarters for the mine rescue team. These facilities are equipped with fire protection and an alarm system designed for both project phases.

18.3.7.3 Administrative Office Building

The administrative offices are housed in a pre-engineered, multiple-level building comprised of a change room, lunchroom, offices, meeting rooms, washrooms, desks, fire protection, and an alarm system. The offices will have space for relevant employees and will be designed for both project phases.

18.3.7.4 Operations and Engineering Offices Building

The operations and engineering offices are housed in a pre-engineered, multiple-level building comprised of a change room, lunch facility, offices, meeting rooms, washrooms, desks, fire protection, and an alarm system. The offices will have space for relevant employees and will be designed for both project phases.

18.3.7.5 Permanent Camp Accommodations

Permanent accommodations on site will be in a camp of 160 individual dormitories. The camp will be a modular building with multiple levels and will include a kitchen and dining area, as well as a recreation room. There will be a boot and jacket room for the personnel entering and leaving the accommodations. The camp will be built exclusively for accommodation of operational workers, including office personnel. These facilities are equipped with fire protection and an alarm system, and during the Phase II of the Project, the building will be expanded to have a permanent camp capable of housing a total of 220 individual dormitories.

18.3.7.6 Dining Room

The dining room is a pre-engineered building comprised of an industrial kitchen, bathrooms, a change facility, and dining area with tables and chairs. This building will have fire protection and an alarm system that will be doubled in size for Phase II of the Project.

18.3.7.7 Sewage Treatment

Sewage and non-processed waste generated at the site will be treated by a conventional wastewater treatment plant sized for the water consumption expected for the maximum personnel anticipated over the life of the Project.

18.3.8 Tailings Storage Facility (TSF)

A preliminary siting and deposition technology study was performed based on throughput and construction material constraints, and tailings particle size distribution where hydrocyclones was the preferred option to develop a sand dam to contain the balance of the tailings. Previous Santo Tomás studies also identified hydrocyclones disposal technology as a viable option. In addition, the TSF provides secure confinement of tailings and the protection of the regional groundwater and surface water during mine operations and closure. The design of the TSF was in accordance with Global Industry Standard on Tailings Management (2020). The facility will be constructed in stages over the life of mine to optimize the economics of the facility. The design of the TSF considered the following:

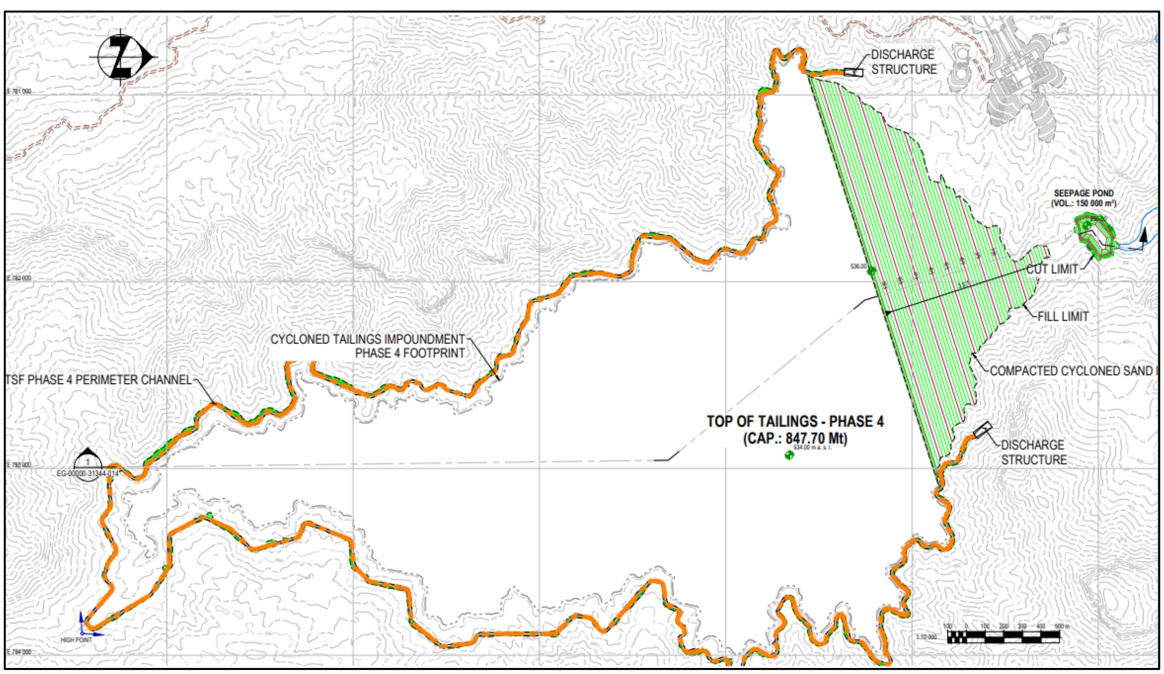
- Staged development of the facility over the LOM.
- Unlined foundation with a seepage collection system to limit possible constituents of concern migrating outside the facility.
- Control, collection, and removal of water from the facility during operations as process water to the maximum practical extent.
- Store 850 Mt of tailings at a dry density of 1.45 t/m^2 will be produced though the LOM. Construction of the TSF has been divided in four phases with the ultimate footprint occupying 657 ha.

The general arrangement of the TSF is shown in Figure 18-4.

18.3.8.1 Topography and Drainage

The proposed TSF site is located in a natural drainage east of the process plant. The Huites Reservoir is located north of the TSF. In general, the site and surrounding area is mountainous terrain with some bedrock exposed and/or near the ground surface in upland and hill areas, and alluvial soils are found in lowlands and valleys. It is assumed that surface soil conditions throughput the site consists primarily of alluvial material (clayey sands with some gravels and cobbles).

Figure 18-4: Ultimate Tailings Storage Facility Arrangement



Source: Ausenco, 2024.

At the time of the writing of the NI 43-101, near surface groundwater has not been thoroughly investigated. The TSF is located in a closed valley with no major tributaries reporting to it after the construction of the TSF. Surface runoff will be managed though a system of diversion channels.

18.3.8.2 Hazard Classification

The design standards for the TSF are based on the relevant federal and international guidelines for construction of tailings facilities. The following regulations and guidelines were used to determine the hazard classification and suggested minimum target levels for some design criteria, such as the inflow design flood (IDF) and seismic criteria:

- International Council on Mining and Metals' 2020 Global Industry Standard on Tailings Management (GISTM, 2020).
- Canadian Dam Association – Dame Safety Guidelines, Application of Dam Safety to Mining Dams (CDA, 2019).
- Norma Oficial Mexicana NOM-141-SEMARNAT-2003. Mexican regulation that establishes the procedure to characterize the tailings, as well as the specifications and criteria for the characterization and preparation of the site, project, construction, operation, and post-operation of tailings dams.

The TSF has been classified as extreme under the GISTM and CDA guidelines. The recommended IDF during operations is defined as the 1/10,000-year return period flood or Probable Maximum Precipitation (PMP) for an extreme consequence classification. Seismic parameters have been determined for the TSF from previous studies on nearby properties. The design earthquake is characterized as the one in 10,000-year return period or Maximum Credible Earthquake (MCE) seismic events for an extreme consequence classification facility.

18.3.8.3 Facility Design

The TSF design was developed by Ausenco using designs and methods that will protect against impacts to groundwater in accordance with state and federal environmental regulations. The design as presented also meets geotechnical and hydrologic design criteria of GISTM (2020) for an "Extreme" Consequence Classification. A stationary hydro cyclone plant will be built on the side of the hill at an elevation near the TSF ultimate embankment height. Slurry tailings will be pumped from the process plant to the cyclone plant where the fractions will be separated though a single stage cyclone pack. The two streams will be conveyed by gravity to the embankment (underflow) and into the impoundment (overflow) for the first three stages and pumped for the ultimate stage.

During deposition, the coarse fraction (underflow) will be used to raise the embankment in a centerline methodology above the starter embankment crest. Sands will be deposited downstream of the centerline line, spread with dozers, and compacted with a vibratory roller to control the growth of the embankment and increase the overall stability. The downstream slope of the embankment is 3.5H:1.0V. Tailings slimes will be deposited in the impoundment though perimeter spigots pushing the decant pond to the back of the facility.

An earth and rockfill starter embankment will be the main structure that impounds tailings during the first year of operation to provide time for the development of the cyclone sand dam. The starter embankment will be constructed using waste rock generated from open pit mining operations. During construction, rock will be transported by the contractor from the staging area to the embankment location(s) and placed as engineered, fill in, controlled, and compacted lifts. The starter embankment slopes for both upstream and downstream slopes will be 2.0H:1V and 2.5H:1V, respectively. Potential seepage though the embankment will be controlled with a vertical 10 m clay core and 2 m filter layer in the starter embankment. The clay core and filter layer will be continued vertically in parallel with the growth of the compacted sand embankment.

A seepage collection system consisting of perforated double wall ADS pipes will be placed over the below the centerline raises of the embankment to capture any potential seepage and limit the outflow of potential constituents. Seepage will be conveyed to a seepage collection pond downstream of the facility.

The TSF footprint will be cleared and grubbed for foundation preparation and starter embankment construction. Impoundment preparation will include clear, grub and topsoil removal. Overburden materials or unsuitable soils will be removed beneath the starter embankment foundation prior to fill placement. It is assumed that an average 2 m of overburden removal will be required over the footprint of the embankment.

Phasing of the TSF is summarized in Table 18-3 and shown in Figure 18-6 through Figure 18-9. Starter embankment of the TSF is shown in Figure 18-5.

Table 18-3: Tailings Storage Facility Phasing

Phase	Capacity (tonnes)	Area (ha)	Elevation (m.a.s.l.)
Phase 1	87,000,000	215	425
Phase 2	253,000,000	376	465
Phase 3	472,000,000	493	494
Phase 4	847,000,000	657	534

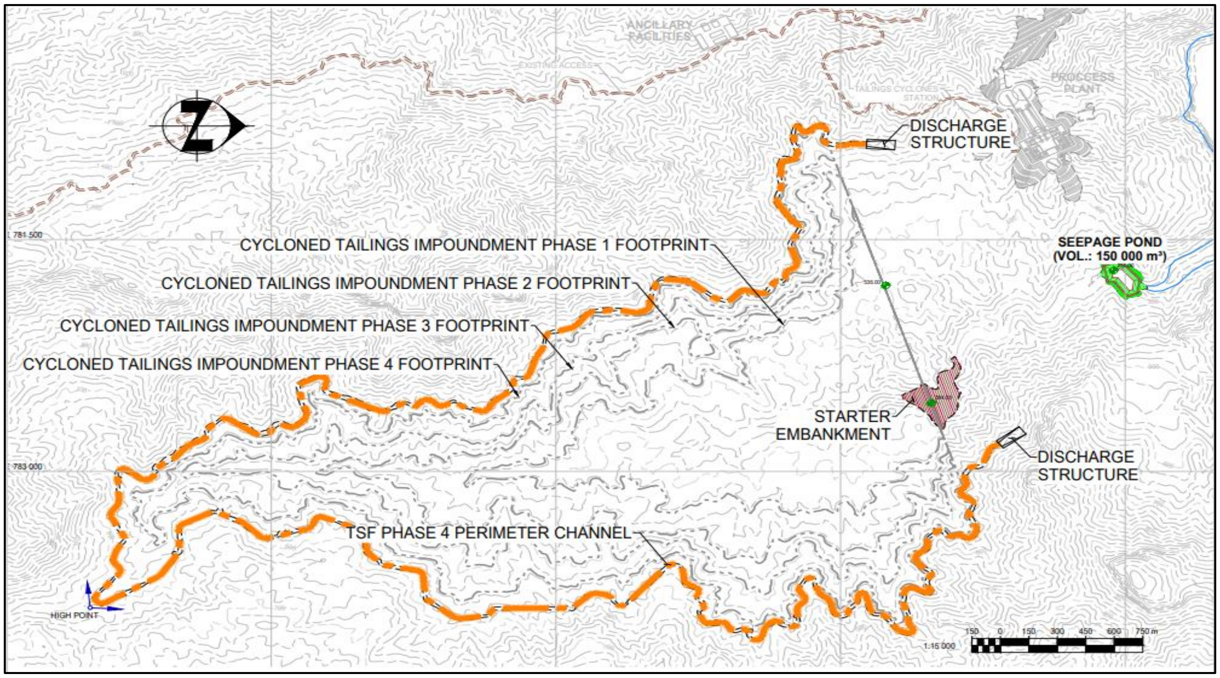
18.3.8.4 Stability Analysis

One section though the highest portion of the TSF was selected as the critical section for slope stability analysis. Analyses were undertaken for both static, pseudo-static (earthquake loading), and post-earthquake conditions. Material properties and foundation conditions were based on similar facilities and nearby projects. The calculated factors of safety (FOS) were higher than the minimum required values of 1.5 FOS for static, 1.0 FOS for pseudo-static, and 1.2 FOS for post-earthquake. Based on the stability analyses, the TSF geometric design provides safe storage for the tailings.

18.3.8.5 Reclaim Water

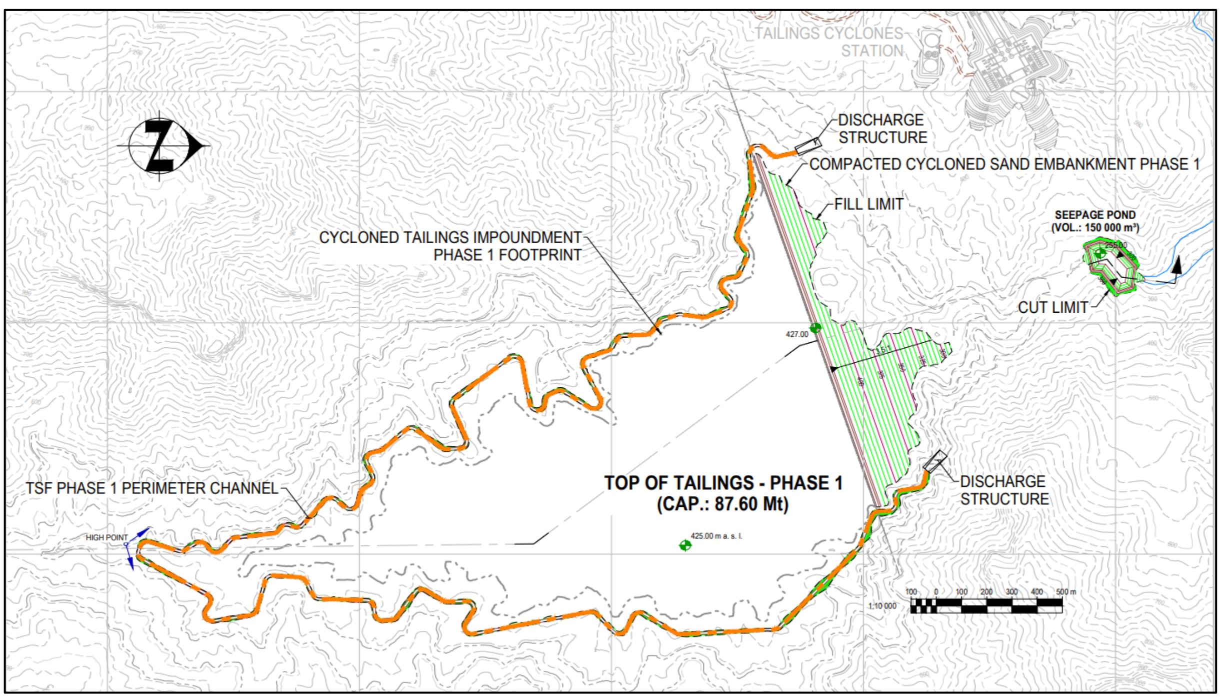
A supernatant pond is expected to form in the impoundment on top of the slimed tailings at the south end of the facility. Water from the impoundment will be pumped back to the process plant or hydrocyclones station for reuse. Any potential seepage collected in the seepage collection pond will be pumped or trucked back to the process plant for reuse.

Figure 18-5: Tailings Storage Facility Arrangement Year 1 (Starter Embankment)



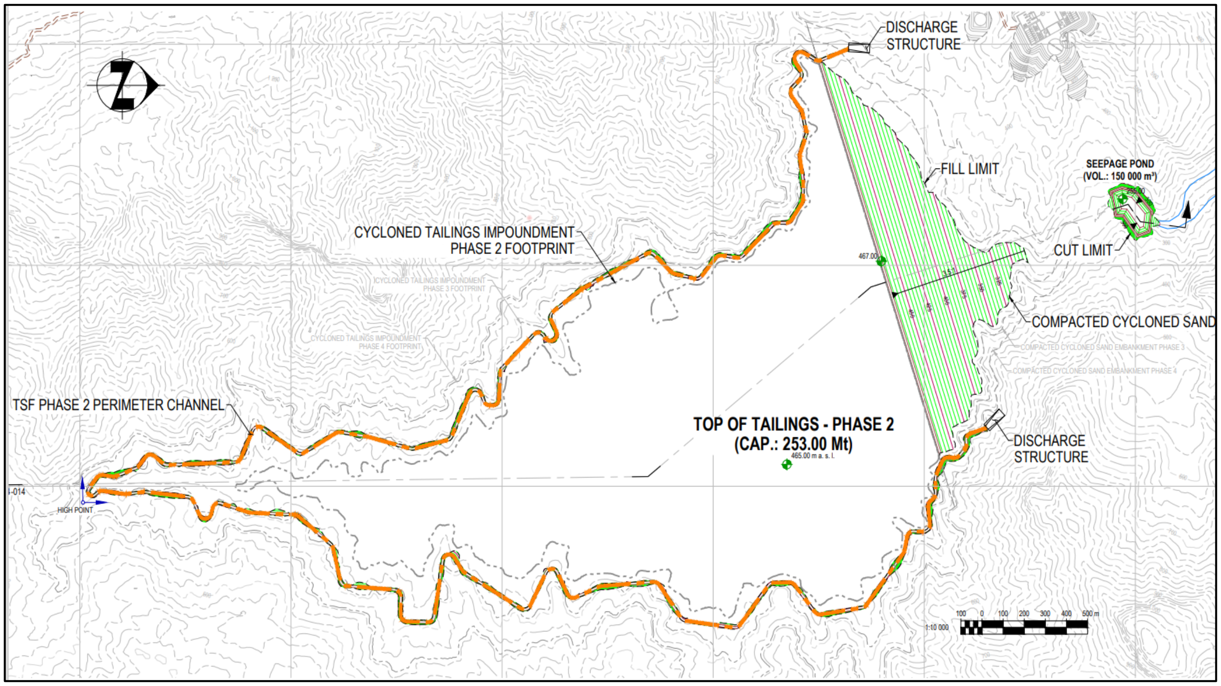
Source: Ausenco, 2024.

Figure 18-6: Tailings Storage Facility Arrangement Year 4



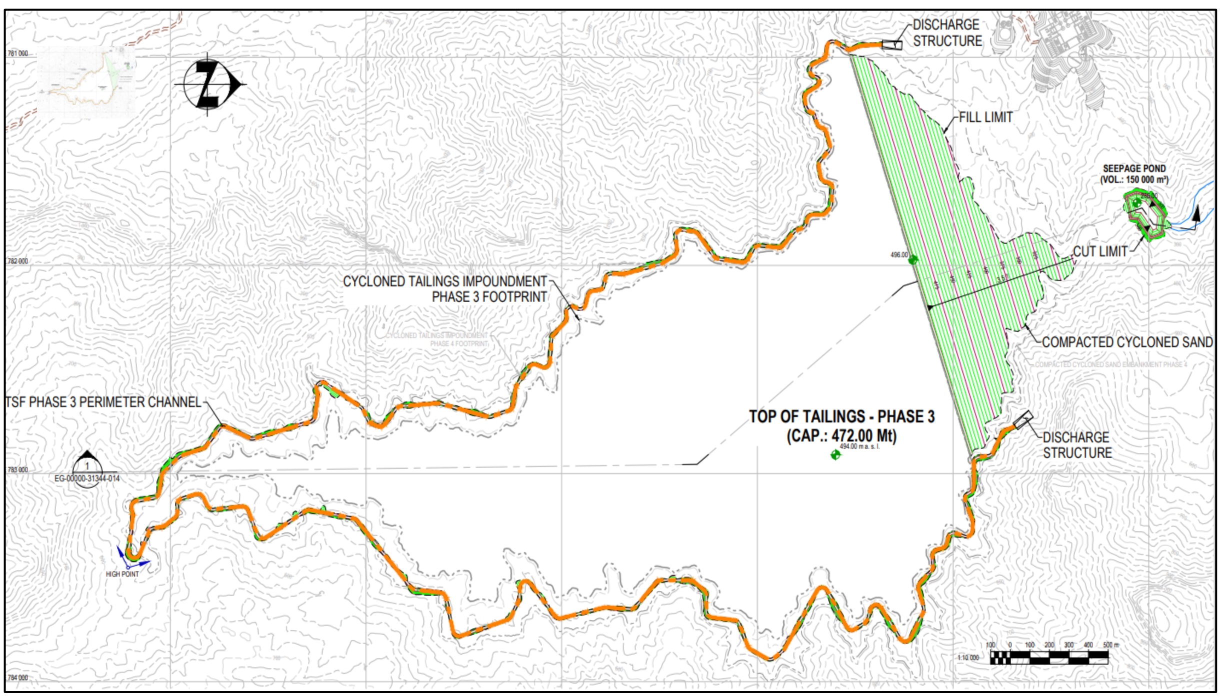
Source: Ausenco, 2024.

Figure 18-7: Tailings Storage Facility Arrangement Year 10



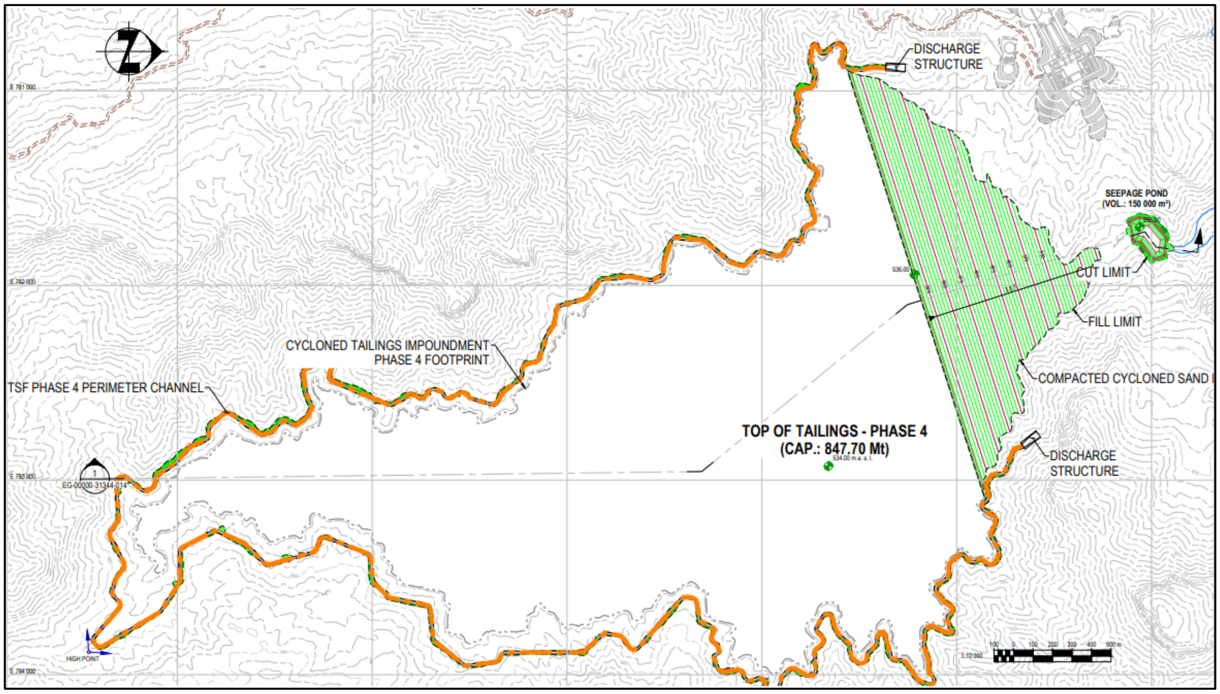
Source: Ausenco, 2024.

Figure 18-8: Tailings Storage Facility Arrangement Year 15



Source: Ausenco, 2024.

Figure 18-9: Tailings Storage Facility Arrangement Year 24



Source: Ausenco, 2024.

18.3.8.6 Surface Water Management

During operations, temporary storm water diversion channels will be constructed along the perimeter of the TSF facility to convey runoff around the TSF. New temporary diversion channels will be constructed during each phase of the development of the facility and overlay the previous diversion channels. Surface water management structures (diversion channels) and temporary water storage within the TSF were designed using a 1 in 10,000-year 24-h storm event. Permanent stormwater diversion channels constructed for Phase IV of the TSF will remain in place during the life of the phase and into long-term closure. Stormwater diversion channels will be constructed at a minimum 1% grade and will be lined with 20 cm of riprap. Any precipitation that runs off downslope of the diversion channels within the slopes of the TSF will report to the impoundment area. Diversion channels will discharge non-contact water into natural drainages. Diversion channels not within the TSF are not designed for a 1 in 10,000 year 24-h storm event.

18.3.8.7 Monitoring

To support construction-level design and permitting, a detailed geotechnical monitoring plan will be prepared that defines the roles and responsibilities of key stakeholders (Owner, operator, engineer) for safe and stable TSF construction and operation. Monitoring will be accomplished though both measurements of monitoring systems installed in the embankment (e.g., survey monuments, inclinometers, and piezometers), and visual observations of surface conditions.

18.3.8.8 Closure

The general closure design strategy includes placing a 1 m waste rock cover to stabilize tailings surface. Growth medium stripped during TSF construction will be stockpiled for future placement over the embankment and impoundment surface during reclamation. The downstream embankment that forms the TSF have been designed with a 3.5H:1V slopes that are sufficiently flat for effective closure revegetation. For this PEA Study, Ausenco selected a 30 cm-thick topsoil cover or growth medium layer above the covered tailings and downstream embankment slopes. The closure cover will be graded with drainage swales to convey surface runoff to the closure spillway. Surface water will be conveyed and discharged into natural drainages. Maintenance may be required to provide repairs for any damage created by larger intense storm events.

18.3.9 Waste Rock Storage Facilities (WRSFs)

For this report, the waste rock facility originally situated in the natural valley west of the South Zone Pit has expanded into the rolling hills to the east immediately south of the open pit. Additionally, another smaller (30 Mt) WRSF is proposed adjacent to revised primary crusher location (Figure 18-3). Having multiple facilities minimizes the hauling distance for the disposal of waste material thereby minimizing operating costs over the life of mine.

The WRSFs are to be constructed from the bottom-up method in 10 m lifts, dumped at angle of repose (37°), with 11.7 m benches resulting in a minimum 2.5 H:1V facility slope. Access from the pits will be though a series of haul roads with a maximum grade of 10%. Combined, the WRSFs are designed to store 1,139 Mt of waste rock.

Permanent storm water diversion channels will be constructed along the perimeter of the WRSFs to reduce the amount of storm water runoff from encountering the waste rock. Stormwater diversion channels will be constructed at a minimum 1% grade and will be lined with 20 cm of riprap. Any precipitation that runs off downslope of the diversion channels and within the slopes of the WRSF will be collected in sedimentation ponds prior reuse as process water. All surface water management structures are designed for a 100-year 24-h storm event. Permanent stormwater diversion channels will remain in place over the life of the WRSFs and into long-term closure. Diversion channels will discharge non-contact water into natural drainages.

18.3.9.1 Acid-Base Accounting on Waste Rock Lithologies

Oroco worked with Geological Professional Services LLC to undertake an initial assessment of potential acidity and neutralization potential on drill core samples for project lithologies that represented materials with potential to be mined as waste rock (Smith and Quintana, 2023). The work did not specifically target materials classified as waste from a mine plan but sought to characterize materials on the basis of representative lithology and grade.

Sixty-four (64) samples were selected from core laboratory coarse rejects and freshly cut core for acid-base accounting analytical testing. A static test package offered by ALS Minerals was selected (ABA-PKG01) and the analyses performed. The selected test determines Neutralization Potential (NP), pH, Net Neutralization Potential (NNP), Maximum Potential Acidity (MPA), Total Sulphur and a ‘Fizz Rating’ (Table 18-4).

Table 18-4: ALS Minerals Package ABA-PKG01

Procedure	WEI-21	OA-VOL08	OA-ELE7	OA-VOL08	OA-VOL08	OA-VOL08	S-IR08	OA-VOL08
Sample	Rec'd Wt.	NP	pH	NNP	MPA	NP:MPA	S	Fizz Rating
Description	kg	$tCaCO_3/kt$	Unity	$tCaCO_3/kt$	$tCaCO_3/kt$	Unity	%	Unity
Lower	0.02	1	0.1	1	0.3	0.01	0.01	1
Upper	1,000	1,000	14	1,000	2,000	6,400	50	4

Samples were selected to represent 16 lithologies from drill hole intervals with <0.1 % Cu. The samples were selected from drill holes ST21-N001 though N028 (the completed drilling at the time the ABA program was initiated) and were selected to represent samples of each lithology separated spatially in each North Zone Pit volume 'quartile'.

Monzonite, Limestone, Skarn, Rhyolite, Andesite Porphyry and other minor lithologies comprise a significant proportion of the waste rock that could likely be mined; they all have NP:MPA ratios above 1.0, rendering them very unlikely to be acid generating (NP:MPA ratios between 1.0 and 2.0) or non-acid generating (NP:MPA ratios above 2.0). The Andesite in the mineralized zone and Andesite in the "footwall" comprise waste rock that will be mined and report to the WRP. They both have NP:MPA ratios below 1.0, rendering them potentially acid generating. Table 18-5 shows the measured acid-base accounting values for the above referenced lithologies; these lithologies comprise the dominant lithologies at the Project by volume that might be anticipated to be mined as waste rock.

The Limestone and Skarn have very high NP values and could be used, with strategic placement in waste dumps, as a buffer to potential acid generation.

Table 18-5: Acid-Base Accounting Results for Major Representative Lithologies Containing < 0.1% Cu, Santo Tomás North Zone Pit

Lithology	Average Ratio NP:MPA	Average NNP $tCaCO_3/kt$	Average NP $tCaCO_3/kt$	Average MPA $tCaCO_3/kt$	Average S%
Monzonite	2.3	10.2	28.1	18.1	0.6
Andesite in Mineralized Zone	0.6	-29.3	39.5	68.7	2.2
Andesite in Footwall Zone	0.5	-18.0	19.8	37.7	1.2
Limestone	116.4	835.8	843.4	7.7	0.2
Skarn	717.0	290.6	292.8	2.7	0.1
Rhyolite	45.9	7.2	7.2	<0.3	<0.01
Andesite Porphyry	8.1	32.0	40.5	8.7	0.3

Further work is recommended to extend the static characterization to include South Zone Pit , and to extend work to include Sobeck method determination of NP in the Limestone units that contain gypsum. Further kinetic humidity cell testing should be started on representative samples of bulk materials that will report to the WRSF to quantify the kinetics and to constrain the rates of acid generation and neutralization that will permit WRSF design and planning to preclude acid release into the environment and to ensure that full acid neutralization occurs. Having multiple WRSFs will aid in the development of an appropriate disposal strategy along this line and minimize rehandling.

18.3.10 Site Water Management

This section discusses site-wide water management, the design of water management structures, hydrology, and the overall site water balance developed for the Project.

18.3.10.1 Climate and Hydrology

Climate data used was obtained from the daily maximum rainfall records of the meteorological on the website https://power.larc.nasa.gov/data-access-viewer/. The data corresponds to the period from January-1981 through March-2021. The rainfall averages are presented in Table 18-6 and the storm events of the various return periods are presented in Table 18-6.

Table 18-6: Santo Tomás Precipitation Data

Parameter	Precipitation (mm)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max	63.4	34.8	43.7	19.4	15.2	29.4	58.6	57.8	110.8	51.5	51.4	63.3
Min	0.0	0.0	0.0	0.0	0.0	0.7	10.1	11.2	8.7	0.1	0.0	0.0
Average	11.6	9.0	5.0	2.6	2.1	12.8	27.0	23.6	32.3	15.4	12.8	14.0

Table 18-7: Santo Tomás Design 24-Hour Storm Events Depth

Return Period	Precipitation (mm)
2 years	39.9
5 years	58.4
10 years	71.4
25 years	87.8
50 years	99.8
100 years	111.8
200 years	123.5
500 years	138.9

18.3.10.2 Water Management Structures

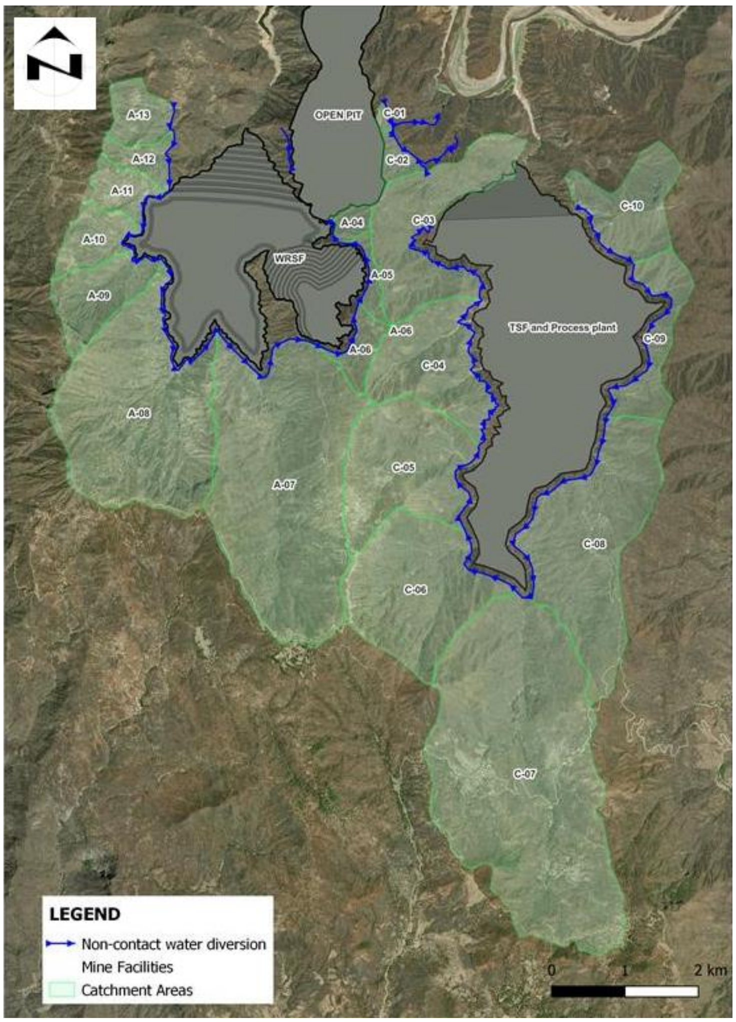
The following water management structures are anticipated to be used at Santo Tomás:

- Diversion Channels – Diversion channels are required to divert clean runoff away from the facilities and to minimize the amount of runoff to be collected and managed. The design criterion for the diversion ditches was the conveyance of 1:100-year peak flow without overflow.
- Collection Ditches – Collection ditches collect runoff that is not diverted by the diversion ditches. The design criterion for collection ditches was the conveyance of 1:100-year peak flow without overflow.

- Collection Ponds – Collection ponds are accumulation points for stormwater runoff from the collection ditches. The collection ponds' design criteria were to store 1:100-year 24 h flood with a minimum freeboard of 0.5 m. The ponds will provide a point for stormwater reuse for processing purposes or sedimentation points prior to discharge.

Figure 18-10 shows the non-contact diversion ditches around major mine facilities.

Figure 18-10: Diversion Structures Location and Flow Direction



Source: Ausenco, 2024.

18.3.10.3 Rainfall – Runoff Modeling

The flood simulation models were implemented with the HEC-HMS v4.3.0 software (USACE, 2017) using the design storms as input. The model depends on some key conditions: the distribution of the storm, the previous state of wetting of the basin surface, the type of soil in relation to the potential for hydrological losses and the speed of response from the production of excess rainfall to the event of the peak flow characterized by the time of concentration.

18.3.10.4 Site-wide Water Balance

A preliminary surface hydrology analysis was completed to estimate the size of the proposed diversion channels and ponds for stormwater management. For this work, Ausenco developed a preliminary overall site water balance using high-level assumptions. The objective behind developing a site-wide water balance was to estimate contact water flows, in and around the mining units, with the premise of using contact water to replenish process water flows rather than relying solely on freshwater for that purpose.

The current water balance was assessed using the GoldSim® computer program utilizing the design criteria presented in Table 18-8 and base assumptions gleamed from the limited information available for the Project as no site-specific hydrogeological studies have been performed to date (Q2 2024). Given the uncertainties present at this stage of the Project to estimate the contribution of underground flows and the proximity of the river and the Los Huites Reservoir to the pits, Ausenco estimates the hydrological contribution in-flux flow to the pit at a rate of 1,150 L/s based on experience for similar projects. Run-off coefficients are non-dimensional.

Table 18-8: Select Water Balance Design Criteria

Item	Criteria	Unit	Value	Source
1	**Hydrology**			
1.01	Annual precipitation Tr 100 (Wet)	mm/y	1,280	Ausenco
1.02	Mean annual precipitation	mm/y	743	Ausenco
1.03	Annual precipitation Tr 100 (dry)	mm/y	743	Ausenco
1.04	Mean annual evaporation	mm/y	1,574	Ausenco
1.05	Natural land runoff coefficient	non-dimensional	0.24	Ausenco
1.06	Tailings runoff coefficient (dry beach)	non-dimensional	0.40	Ausenco
1.07	Tailings runoff coefficient (wet beach)	non-dimensional	1.00	Ausenco
1.08	Process plant runoff coefficient	non-dimensional	0.30	Ausenco
1.09	Waste rock runoff coefficient	non-dimensional	0.05	Ausenco
1.10	Waste rock infiltration coefficient	non-dimensional	0.20	Ausenco
1.10.1	Year 1 Waste rock infiltration rate	m^3/h	1,204	Ausenco
1.10.2	Year 4 Waste rock infiltration rate	m^3/h	3,387	Ausenco
1.10.3	Year 8 Waste rock infiltration rate	m^3/h	4,140	Ausenco
1.10.4	Year 20 Waste rock infiltration rate	m^3/h	3,764	Ausenco
2	**Process flows**			
2.02	Demand of freshwater to Process Water Make-up	m^3/h	995.2	Ausenco
2.03	Gland Water and Reagent Make-up (freshwater or treated)	m^3/h	127.1	Ausenco
2.04	Water on sands to TSF Wall	m^3/h	466.8	Ausenco
2.05	Water on Slimes to TSF	m^3/h	1,619	Ausenco
2.06	Percent of recovery of inflow to the wall	%	85%	Ausenco
2.07	Percent of water released by tailings to TSF Pond	m^3/h	30%	Ausenco
3	**Components**			
3.01	TSF area	ha	708.2	Ausenco
3.02	Waste rock area	ha	429.0	Ausenco
3.03	Process plant area (and others)	ha	46.1	Ausenco

Item	Criteria	Unit	Value	Source
3.04	North Zone open pit area			
	Year 1	ha	11.7	Ausenco
	Year 4	ha	74.1	Ausenco
	Year 8	ha	157.8	Ausenco
	Year 20	ha	157.8	Ausenco
3.05	South Zone open pit area			
	Year 1	ha	14.6	Ausenco
	Year 4	ha	92.3	Ausenco
	Year 8	ha	196.3	Ausenco
	Year 20	ha	196.3	Ausenco

The water balance results shown in Table 18-9 indicate a surplus of contact water is available if seepage is not mitigated and water is allowed to accumulate in the pits. Shown are water accumulation rates for select years of pit development and surplus water that may require mitigation. The net makeup water requirement is the combination of the process plant demand and the clean water requirement. The clean water requirement is water required to meet gland, reagent makeup & potable water specifications whereas the specifications for the process plant water demand are not as rigorous. The plan is to source the clean water requirement solely from groundwater. The process plant makeup water may be a combination of available contact and groundwater. The bulk of the surplus water is calculated from seepage flows.

Table 18-9: Overall Site Water Balance for Select Years

Year	Available Contact Water (m^3/h)	Process Plant Makeup Water Demand (1) (m^3/h)	Clean Water Requirement (2) (m^3/h)	Net Water Requirement (2) (m^3/h)	Surplus Water (2) (m^3/h)
1	1,330	995	127	1,122	208
4	3,524	995	127	1,122	2,401
8 (3)	4,308	1,990	254	2,244	2,064
20 (4)	3,930	1,990	254	2,244	1,686

Notes:

1. May require treatment sufficient to meet process water demand.
2. Likely to require treatment to meet gland/reagent and discharge limits.
3. In Year 8 of operations, the capacity of the process plant doubles to 120,000 t/d.
4. Last year of mine life.

18.3.10.5 Pit Dewatering Considerations

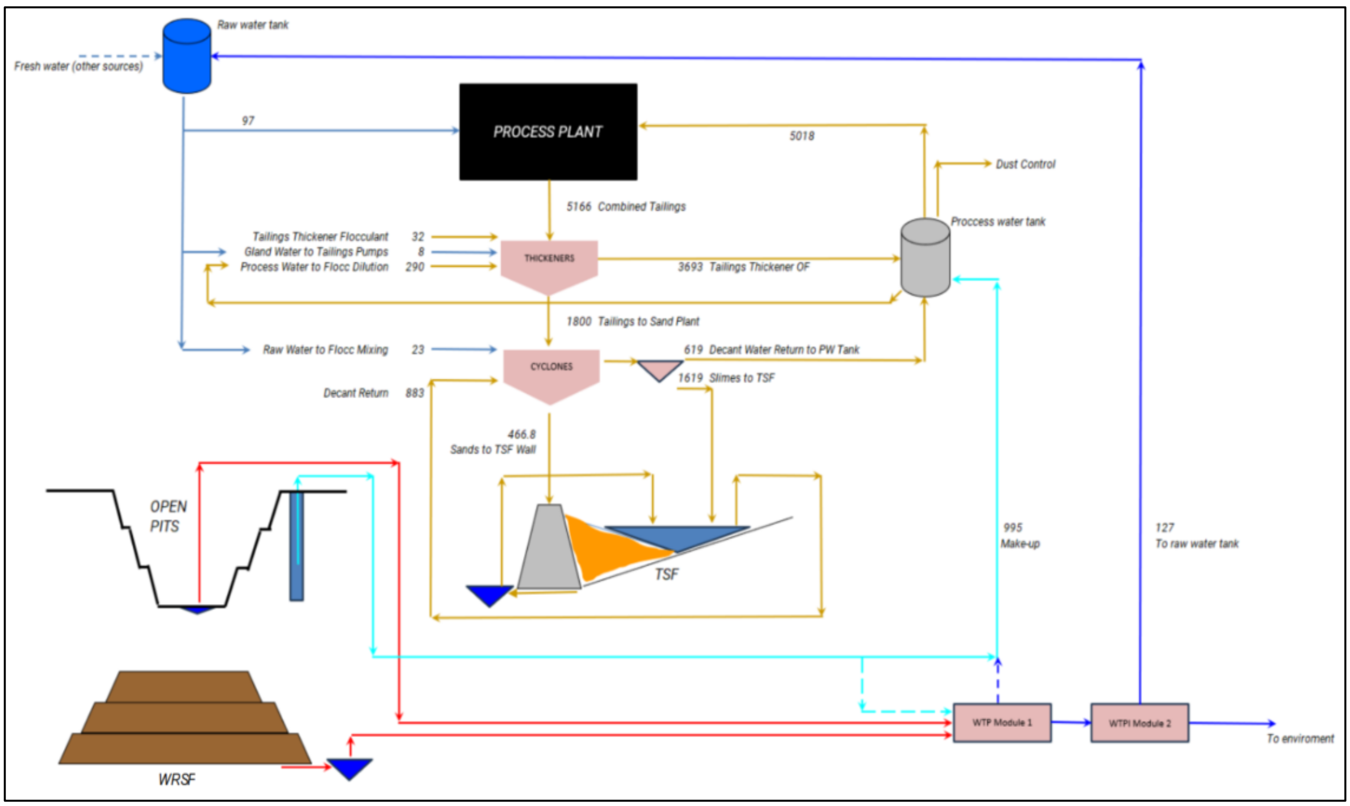
A hypothetical simplified diagram of a water flow scheme developed from the preliminary water balance is presented in Figure 18-11. Shown in Figure 18-11 is a scenario whereby contact water (shown in red) at the pits and WRSFs is treated prior to returning to the process water tank or as surplus water being released to back into the environment. Given the lack of hydrogeological data for the site, the estimates for in-flux flows into the pit(s) are rough and based on assumptions and data taken from other studies. They need to be verified as these are large volumes of water potentially requiring treatment prior to reuse or discharge to the environment.

For planning purposes, the QP is recommending the following approach to mitigating water from seeping into the pit: 1) Groundwater will be extracted from vertical wells installed external to the pit to create a cone of depression in the water table minimizing water infiltration into the pit, and 2) Low permeability grout curtains will be installed along the north-eastern and west walls of the North Zone Pit to further reduce lateral flow into the pit from the river. The groundwater pumping system will consist of strategically installing a series of bored vertical wells outside and inside the crest of the pit extending to a significant depth below the base of the pit into the water table. Advantages of installing these deep (300 m) vertical groundwater wells between the pit and the river are as follows:

- Intercepted groundwater pumped from these wells will serve as makeup water for the plant.
- Wells could be designed to intercept lateral groundwater flow into the pit.
- Pumping depth can be adjusted over time.
- Groundwater levels can be lowered in advance of mining, improving operational conditions.

Intercepted groundwater may not require treatment prior to discharge back into the reservoir/river.

Figure 18-11: Hypothetical Water Flow Scheme for Phase I



Source: Ausenco, 2024.
Note: Numerical values are in m^3/h.

19 MARKET STUDIES AND CONTRACTS

19.1 Market Studies

No market studies or product valuations were completed as part of the 2024 PEA Update. Market price assumptions were based on a review of public information, industry consensus, standard practices, and specific information from comparable operations in the region.

Copper concentrates are widely traded and can be marketed domestically or internationally with significant optionality regarding the ultimate customer base. It is assumed that the concentrate produced is of sufficient quality to be marketable to smelters globally.

Oroco were not provided with indicative smelter terms, assumptions for treatment charges (TC), refining charges (RC) and payability terms were estimated based on a review of information from comparable recent studies. The assumed payability terms for the metals contained in both concentrates are represented in Table 19-1 below.

Table 19-1: Summary of Assumed Metal Payability Terms

Metal	Base Payability (%)	Minimum Grade Deduction(%)	Minimum Grade (g/t)	Net Payability Average LOM (%)
Copper (Cu Concentrate)	96.5	1	-	96.2
Molybdenum (Mo Concentrate)	98.5	-	-	98.5
Gold (Credit in Cu Concentrate)	90	-	1	70.2
Silver (Credit in Cu Concentrate)	90	-	30	90.0

The treatment charges and refining charges shown in Table 19-2 were deducted from the payable value of the concentrates to account for the costs of smelting and refining. The TC/RCs are influenced by global supply and demand and governed by mine and smelter economics based on metal prices and operating costs. TC/RCs may be based on variable annual negotiations, fixed rates and/or market benchmarks.

Table 19-2: Summary of Assumed TC/RC Terms

Metal	Treatment Charge	Refining Charge
Copper (Cu Concentrate)	75.00 $/dmt	0.075 $/ lb Cu
Molybdenum (Mo Concentrate)	-	1.30 $/ lb Mo
Gold (Credit)	-	5.00 $/ t.oz Au
Silver (Credit)	-	0.50 $/ t.oz Ag

19.2 Commodity Price Projections

Project economics were estimated based on long-term flat metal prices of US$4.00/lb Cu, US$15.00/lb Mo, US$1,900.00/oz Au, and US$24.00/oz Ag. These prices are in accordance with consensus market forecasts from various financial institutions and are consistent with historic prices, as shown in Table 19-3, for Cu, Au, and Ag, sourced from Capital IQ on June 5, 2024. The QP also considers the prices used in this study to be consistent with the range of prices being used for other project studies.

Table 19-3: Summary of Historic Commodity Pricing (Source: Capital IQ, June 5, 2024)

Metal	1-Year Average	2-Year Average
Copper (US$/lb)	3.90	3.84
Gold (US$/t. oz)	2,053	1,938
Silver (US$/t. oz)	24.33	22.99

19.3 Freight Costs

Ausenco conducted a preliminary logistics study to transport concentrate from site to the Port of Topolobampo. The costs to truck concentrate in sealed containers 170 km to a concentrate storage facility at the port is estimated at US$79.00 per wet metric tonne.

19.4 Contracts

Currently, there are no contracts for transportation or off-take of the concentrates in place, but when they are negotiated, they are expected to be within industry norms. Similarly, there are no contracts currently in place for the supply of reagents, utilities, or other bulk commodities required to construct and operate the Project.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL IMPACT

20.1 Introduction

This section provides an overview of the environmental setting of the Santo Tomás Project. It outlines existing biological and physical baseline conditions, proposed baseline studies to support future permitting applications, existing permits, and future regulatory and permitting requirements including required management plans for water, site environmental monitoring, and waste disposal. In addition, this section also discusses socio-economic baseline conditions, the current status of community consultation and engagement, and conceptual mine closure and reclamation planning for the Project.

Exploration environmental impacts, primarily related to drilling activities and supporting access roads and camps have been mitigated by compliance with the Official Mexican Standard (NOM120) which prescribes activities in the climatic-vegetation region the Project occupies. As part of the mining operations potential environmental impacts to surface soils, water, ecology, and air quality will be mitigated though development designed to comply with the Mexican environmental regulations and applicable international standards (e.g., International Finance Corporations Performance Standards).

In the absence of comprehensive baseline environmental studies for the Project area, an Environmental Impact Statement (EIS) prepared in 2019 for a highway bridge project located 10 km west of the Project, which presents information relevant to the Project given its proximity and location in the same municipality. This EIS was prepared by the third party Consultoría Constructiva y de Kontrol S.C. (CCK) on behalf of Mexico's Communications and Transportation Secretariat for the construction of a highway bridge that allows for crossing the Rio Fuerte at the reservoir impounded above the Huites (also known as Luis Donaldo Colosio) Dam. It is anticipated that many of the environmental conditions reported in the Río Fuerte Bridge EIS will be applicable to the Santo Tomás Project. However, it is acknowledged that additional field and desktop studies will be required to characterize the baseline conditions more fully for the Project.

Localized exploration-level baseline data have been collected by third-party consultants to Oroco at the Brasiles and Santo Tomás Project locations.

20.2 Environmental Baseline Data

Environmental baseline data is presently available from three main sources:

1. An exploration-level survey undertaken by Consultoría Ambiental Vugalit (VUGALIT) S.C. in support of the "informe preventivo" application lodged with SEMARNAT in Chihuahua City, 2021 and relevant to exploration drilling and the construction of a 28-person exploration camp at Brasiles,
2. An exploration-level survey undertaken by Consultoría Ambiental VUGALIT S.C. in support of the "informe preventivo" application lodged with SEMARNAT in Culiacán, 2022; and also used in support of a Documento Técnico Unificado (DTU) application lodged with SEMARNAT in Mexico City in 2022. These studies were relevant to exploration drilling and the construction of a 52-person exploration camp at Santo Tomás North and South Zones; and

3. The 2019 Huites Bridge EIS filed on behalf of the SCT's (Mexico's Communications and Transportation Secretary) General Direction of Highways for the construction of a Bridge located at km 217+400 (Huites Dam), in the Choix-Bahuichivo section of the Topolobampo-Chihuahua Axis highway in the state of Sinaloa, as cited above and detailed below.

Baseline data sources 1 and 2, above, were compiled by Consultoría Ambiental VUGALIT S.C. (RFC -SARC710220AQ9, CURP - SARC710220MDFNDL00) directed by M.I. Claudia Angelica Santos Rodríguez of Zona Centro; Victoria de Durango, Dgo., Professional License # 3433976, and filed for the proponent (Xochipala Gold S.A. de C.V.) by legal representative Lic. Gabriela Zavala Quintero (RFC - ZAQG6903248P7, CURP ZAQG690324MSLVNB00) of Centro Los Mochis.

For the purposes of this report, quoted information is sourced from an Executive Summary Report submitted in support of the "informe preventivo" and DTU applications' detailed technical reports entitled "Resumen Ejecutivo del Documento Técnico Unificado Modalidad B Particular."

VUGALIT (2022) delimitated an area of influence for the exploration impacts at Santo Tomás based on the hydrological-forest basin where the Property is located. Owing to the very extensive nature of that area, a sub-set 'micro-basin' with an area of 18,901,644 m^2 (1,890.16 ha) was selected to represent the conditions existing in the area, which includes five rural localities within the Choix municipality. VUGALIT classified the Project zones mainly on the basis of geomorphological, hydrographic, meteorological features and types of vegetation. The Project is proposed to be located in an area with steep slopes ranging from 13% to 38%, with cliffs of meta-limestone or rhyolitic ignimbrite locally developed.

Baseline data source 3, above, comprises the EIS conducted and prepared by CCK on the Direction of the Communications and Transportation Secretary specifically prepared for the impacts particular to (Modalidad Particular) the construction of a bridge of specified design located at km 217+400 (Huites Dam), in the Choix-Bahuichivo district that was expected to affect an area of up to 5,207 ha.

In accordance with the Law of Roads, Bridges and Federal transportation, bridges that are built by the Federation (National government) with federal funds or though federal concession or permission by individuals, states or municipalities on federal roads or general communication routes are considered "National Bridges". Therefore, the construction of a bridge of this type constitutes a General Communication Route, which based on Art. 28 Fraction I of the LGEEPA, such General Communication Routes are works or activities that require authorization as Environmental Impact Matters prior to their execution. The Regulation of this Law determines in Article 5, subsection B) and R) that any type of civil works that involves rivers or federal zones must present an EIS "Modalidad Particular".

The Santo Tomás Project has yet to conduct a mine development baseline study or submit a project EIA (Environmental Impact Assessment) as potential mine designs and potential impacts have not been developed and identified by the Company prior to this technical report. Information from data sources 2 and 3 are summarized in the sections below. Targeted baseline field studies to support mine developmental design should be conducted within the Project area and areas of influence as the Project advances though future stages and permitting (refer to Section 26.10).

20.2.1 Climate

Historical and logistical reports and websites reporting the climate conditions of the greater Project area were reviewed. The most important aspects of the local climate are summarized below. The baseline data sources referenced above further describe the climate as follows.

The climate zones in the Project area are classified using the Köppen system (as modified by Enriqueta García for adaption to the particular conditions of the Mexican Republic) and are graded by elevation to include:

- BS1(h)hw, warm semi-arid, average annual temperature greater than 22 °C, temperature of the coldest month greater than 18 °C; and
- (A)C(w0), temperate subhumid climate, with an average annual temperature between 12°C and 18°C, presenting a low humidity and a percent probability of less than 5% for winter rains at higher elevations.

The site is characterized by deeply incised, steep-walled valleys that rise in elevation from the Río Fuerte valley, at 275 m elevation, to 1,340 m at the El Bienestar Ranch. The climate varies from subtropical at the northern end of the Property where, deep in the river valley, it is hot and humid (BS1(h)hw). The climate changes gradually to the south toward higher elevations though brush-scrub covered woodlands, to a more temperate climate at 1,100 through almost 1,400 m ((A)C(w0)). Pine and oak forest characterize the temperate climatic zone.

The nearest Climatological Station (# 25-044) is located some 15 km west of the Project on the Huites Reservoir at the low elevation end of the Project area elevation range.

The climate of the Project area is moderated by its proximity to the Pacific Ocean and location in the southwest reaches of the Sierra Madre Occidental which commonly provides some protection from the full force impacts of natural Pacific Ocean systems such as hurricanes, tropical depressions, and tropical storms. The rainfall at the site is typical of the front ranges of the Sierra Madre Occidental with dry, arid conditions for most of the year and heavy, monsoon rains during the months of July to September, with rainfall records at Choix presented in Figure 20-1.

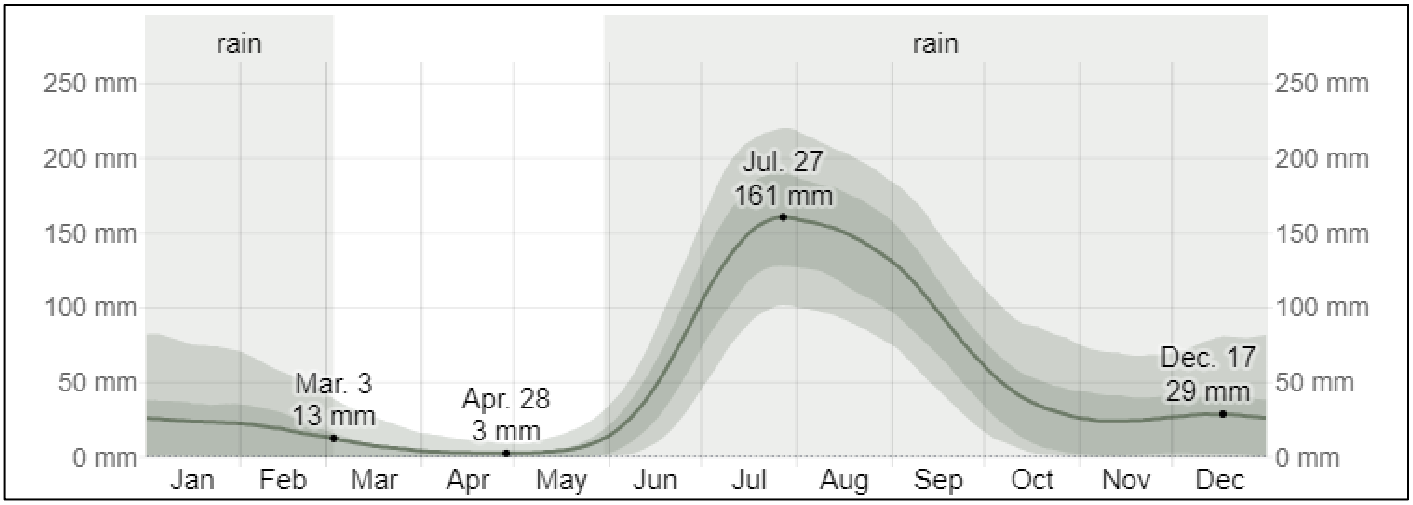
During monsoon rains, the levels of the Río Fuerte are highly variable. Localized flooding is likely to occur requiring engineering of access and roadways to mitigate erosion and landslides in areas of steep terrain.

Dias Geophysical conducted a survey that spanned over two full seasons from Fall 2020 to Winter 2021. Over the course of survey, they reported that the weather remained mostly sunny with sparse clouds and mild temperatures varying between 29°C to 42°C during the Fall and 12°C to 33°C during the Winter (Dias Geophysical, 2021).

The climate within the area of influence of the Project has been stable in part because there are no timber species of interest for extraction and commercial harvesting. As a result, the ecosystem has maintained its uniformity and the vegetation cover within the Project area has also remained relatively uniform (VUGALIT, 2022).

Site-specific meteorological data for the Project will be required in the future. On the basis of the positive potential economics presented in this technical report, the Company is sourcing equipment required to establish weather monitoring, air quality data collection, and the establishment of weather stations proximal to the Santo Tomás and Brasiles Projects camp sites. These site-specific meteorological and air quality data will be incorporated into baseline environmental studies.

Figure 20-1: Average Monthly Rainfall in Choix



Source: Weather Spark website, 2023.

20.2.2 Air Quality and Noise

VUGALIT (2022) reports that the main factors adversely impacting air quality in the area are: particulate carried by winds, livestock overexploitation (localised) that generate soil erosion, vehicular traffic with its corresponding emissions of combustion gases, and noise and dust derived from vehicular traffic on dirt roads. Only minor relevant stationary sources generating emissions to the atmosphere (exploration camp diesel electricity generators) are located within the Project area and mobile sources are scarce, since these roads are little travelled; emissions to the air by combustion and dust are not considered as an aspect of the exploration program that will lead to adverse impacts.

The proponent used water spray trucks to wet the main road access to the Project in the areas of the Project that occur close to communities and the main exploration camp. The Company has not yet implemented road wetting at Brasiles.

A baseline air quality study has not been completed for the Project site nor has a noise assessment been completed to date.

20.2.3 Surficial Geology

The bedrock geology of the Project region and local geology mapping is thoroughly detailed in Section 7.

20.2.4 Soils, Vegetation and Wildlife

20.2.4.1 Soils and Vegetation

VUGALIT (2022) identified certain soils from regional sources and from selected localised field work to survey vegetation at representative proposed road and drill sites. Soil types identified included:

- Epileptic skeletal regosols, in association with coarse skeletal eutric leptosols.

- Epileptic eutric regosol, in association with medium-textured epileptic luvisols.
- Skeletal eutric leptosol, in association with medium grained and stony epileptic skeletal regosols.
- Skeletal eutric leptosol, in association with epileptic skeletal luvisols.

VUGALIT (2022) provided coded soil classifications and reported that the Project area experiences relatively low levels of soil erosion by water (a preliminary estimate of 0.85 t/ha/year) and light levels of wind erosion (preliminary estimate of 50.7 t/ha/year) owing in part to the low occurrence of human settlement in addition to low levels of disturbance to original vegetation cover.

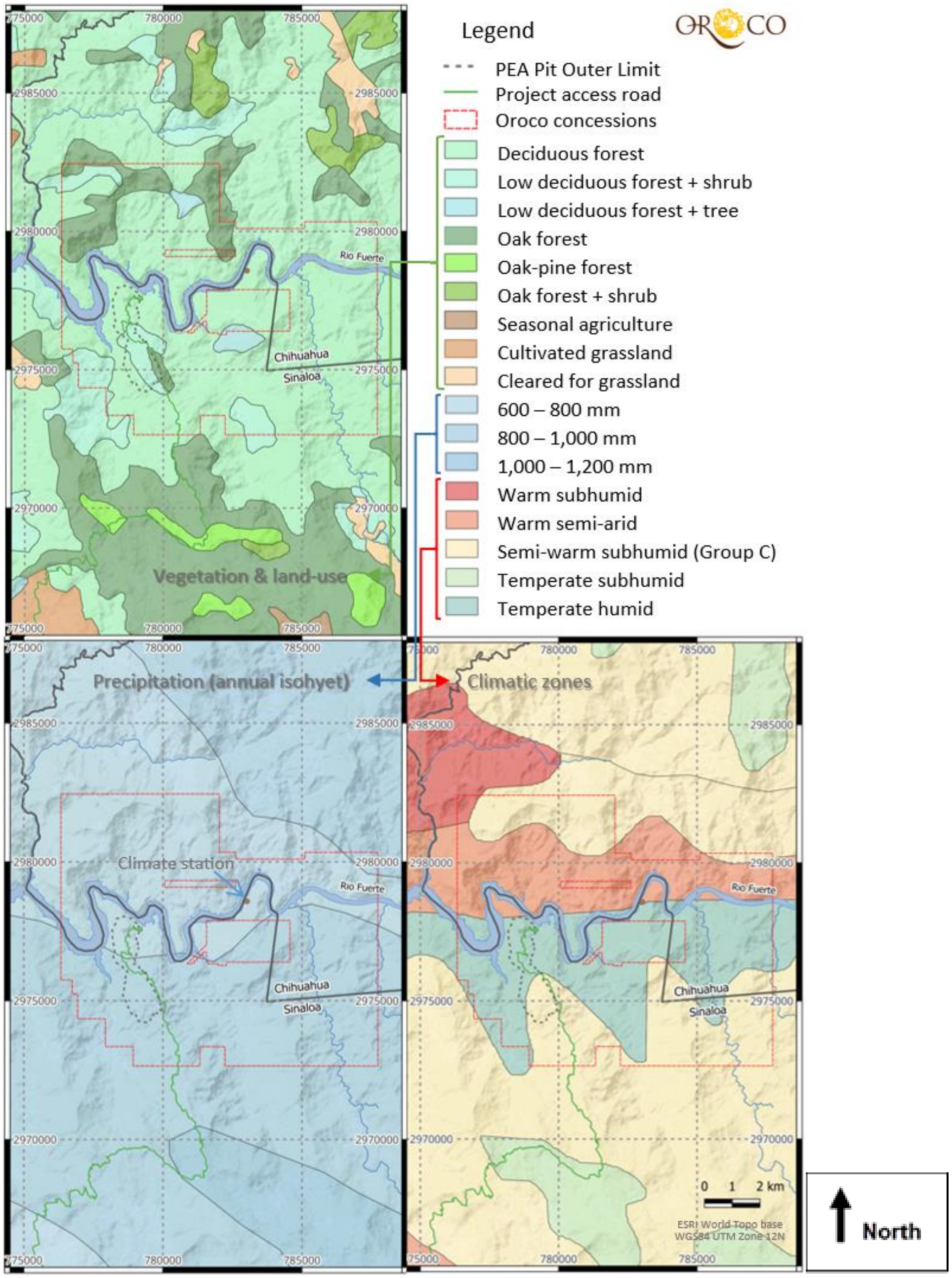
Although the area receives the effects of tropical depressions and hurricanes in the Pacific, these do not generally result in increased water erosion since the area is protected by the Sierra Madre Occidental and by the vegetation characteristics of the area. However, a highly localised cloudburst in 2022 did mobilise some large boulders and slurry wash in an arroyo near the South Zone. Wind erosion is also low, because large human settlements are not located near the Project, the road infrastructure is of low density, there are no important plains in the area, and the present climate contributes to maintaining robust vegetation cover.

VUGALIT (2022) confirmed that the vegetation is comprised mainly of oak forest, low deciduous forest, and secondary shrub vegetation of low deciduous forest association. Among the species that are located in the exploration Project area are *Ipomea arborescens, Haematoxylum brasiletto, Acacia cymbispina, Coutarea pterosperma, Cochlospermum vitifolium, Ceiba acuminata, Bursera graveolens, Caesalpinia platyloba, Bursera simaruba, Olneya tesota, Bursera simaruba, Crotón alamosanus, Bursera hindsiana and Opuntia ficus-indica*. Most commonly. the area of exploration drilling comprises low deciduous forest and secondary shrub vegetation of low deciduous forest association (Figure 20-2).

Within the area of exploration, the threatened, rare, or endangered species are reported according to the Official Mexican Standard NOM-059-SEMARNAT-2010, which establishes the Environmental Protection of native species of wild flora and fauna of Mexico including their risk categories and specifications for their inclusion or exclusion in the National list of species at risk. These are the tempisque tree (*Sideroxylon capiri*), which is in the Threatened category (A); the ironwood tree (*Olneya tesota*), which is categorized as Subject to Special Protection (Pr); and the pink amapa tree (*Tabebuia palmeri rose*), which is in the Threatened category (A).

VUGALIT (2022) reports that the flora present in the Project area are primary species commonly showing slight degradation processes in the oak forest and low deciduous forest plant communities, resulting from generally light local cattle grazing, minor sporadic corn farming and other low-impact human impacts. Areas of secondary shrub vegetation of low deciduous forest association also show only slight degradation.

Figure 20-2: National Vegetation and Climatic Land Zone Classifications in The Santo Tomás Project Area



Source: Oroco and http://www.conabio.gob.mx/informacion/gis/

Notes:

1. Warm subhumid (av. annual T > 22°C; coldest month > 18°C).
2. Warm semi-arid (av. annual T > 22°C; coldest month > 18°C).
3. Semi-warm subhumid (Group C, av. annual T > 18°C; coldest month < 18°C, hottest month > 22°C).
4. Temperate subhumid (av. annual T > 12°C and < 18°C; coldest month > -3°C and < 18°C, hottest month < 22°C).
5. Temperate humid (av. annual T > 12°C and < 18°C; coldest month > -3°C and < 18°C, hottest month < 22°C).

The EIS of the Huites bridge presents information relevant to the Project area at low elevation. The vegetation reported in the MIA is classified as tropical deciduous forest with areas of no vegetation along the riverside. Among the tropical deciduous forest species, *Bursera laxiflora, Bursera sp. Caesalpinia platyloba, Chloroleucon mangense, Cylindropuntia thurberi, Fouquieria macdougalii, Haematoxylum brasiletto, Lysilomadivaricatum Pachycereus pecten-aboriginum, Piscidia mollis, Senna atomaria, Stenocereus thurberi, Stenocereus montanus, and Tabebuia rose* were found. The lack of vegetation along the riverbank is attributed to continuous flooding of the area which causes soil erosion and prevents revegetation. In the transition zone, between the riverbank zone and the tropical deciduous forest, the presence of species such as, *Chloracantha spinosa, Dantura lanosa and Physalis pubescens* are reported. Only the Tabebuia referenced above is listed in the protected category in NOM-059-SEMARNAT-2010.

20.2.4.2 Terrestrial and Aquatic Wildlife

VUGALIT (2022) lists a large variety of species due to the remoteness of the area low density human settlement. Threatened, rare or endangered species reported according to NOM-059-SEMARNAT-2010 are listed in Table 20-1.

Table 20-1: Threatened and Endangered Species per NOM-059-SEMARNAT-2010

Common Name	Scientific Name	Status in NOM-059-SEMARNAT-2010
	POULTRY	
Orange-fronted Parakeet	*Aratinga canicularis*	Special protection (Pr), non-endemic
Parakeet	*Parakeet holochlora*	Threatened (A), non-endemic
Macaw	*Ara militaris*	Danger of extinction (P), non-endemic
	MAMMALS	
Cacomixtle	*Bassariscus astutus*	Threatened (A), endemic
	REPTILES	
Green iguana	*Iguana iguana*	Special protection (Pr), non-endemic
Coral snake	*Micrurus elegans*	Special protection (Pr), non-endemic
Limacoa	*Boa constrictor*	Threatened (A), non-endemic
Solocuate	*Lichanura trivirgata*	Threatened (A), non-endemic
Rattlesnake	*Crotalus molossus*	Special protection (Pr), non-endemic
Squeaky viper	*Masticophis flagellum*	Threatened (A), non-endemic

For the Project area VUGALIT (2022) asserts a medium-high diversity with respect to fauna as determined by field sampling and analysis. The medium-high diversity is ascribed mainly to its proximity to the Huites dam, which ensures a source of food and water for the fauna as the dam has a tendency to replenish cyclically in each rainy season.

Based upon the Huites Bridge MIA and the VUGALIT (2022) surveys, the following paragraphs describe the likely aquatic and terrestrial fauna to be found in the Santo Tomás Project area.

The Huites Bridge MIA lists the presence of species of tilapia (*Oreochomis sp*.), bass (*Micropterus salmoides*), and catfish (*Ictarus punctatus*) in the Río Fuerte surveyed by the Instituto Nacional de Pesca during an investigation for the construction of the Huites Dam conducted by the Centro Regional de Investigación Pesquera. Those species were introduced as fingerlings from the Fish Farming Centers “El Barejonal” to thrive as aquatic communities to be used as recreational and food resources for the surrounding community. The endemic species identified in the area of influence of the dam include the river prawn "chacal" (*Macrobrachium americanus*) and mojarra (*Cichlasoma beani*).

VUGALIT (2022) notes that the acceptable physicochemical characteristics of the water of the Huites dam promotes the development of fish and amphibians in support of recreational and a small commercial fishery. Leopard frog, giant toad, bass, tilapia, catfish, mojarra, and black bass are regarded as the species present. Tilapia and bass are actively stocked. Seasonal lows in dam level require dam restocking to maintain the commercial fishery.

VUGALIT (2022) lists the following terrestrial faunal species as reported for the Santo Tomás Exploration projects area: white-tailed deer, wild boar, rattlesnake, black-tailed rattlesnake, False Coralillo, western Mexican coralillo, tlacuache, armadillo, rabbit, grey fox, cacomixtle, raccoon, skunk, puma, hare, scrub rabbit, field rat, coyote, chachalaca, quail, vulture, huilota pigeon, long-tailed turtledove, orange-fronted parakeet, Mexican parakeet, Green Macaw, Horned Owl, Mexican Woodpecker, American Kestrel, Crow, White-winged Dove, Red Turtledove, Common Cenzontle, Cardinal, Mexican Sparrow, Roadrunner, Hummingbird, Zanate, Sparrowhawk, Magpie, Sinaloan Chara, White-naped Swift, Mexican Tiger Heron, Screaming Tyrant, Vulture, Eagle Aura, Bearded Vulture Caracara, Red-tailed Eagle, Cardinal Flycatcher, Fleeing Flycatcher, Osprey, Green Iguana, Spiny Lizard, Mazacuata (Boa), Alicante, chirrionera viper, cachora, with other species likely.

During the Huites MIA field work, 28 species of vertebrates were detected with birds being the predominant group with the greatest number of sightings, followed by reptiles with four specimens collected and, only one individual accounted for in the amphibian, and mammalian groups, respectively. The bird species identified were *Amazilia violiceps, Amazilia beryllina, Ardea alba, Ardea herodias, Calocitta colliei, Caracara cheriway, Cathartes aura, Columbina inca, Coragyps atratus, Corvus corax, Cynanthus latirostris, Geothlypis tolmiei, Haemorhous mexicanus, Myiarchus tyrannulus, Polioptila caerulea, Pyrocephalus rubinus, Sayornis nigricans, Tyrannus vociferans, Buteo plagiatus, Cardinalis cardinalis*, and *Zenaida asiatica*. Among the reptiles, *Urosaurus bicarinatus, Urosaurus ornatus, Ctenosaura macrolopha*, and *Sceloporus albiventris* were detected. *Rhinella horribilis* was the only amphibian specimen found and *Nasua narica* (white-nose coati) was the only mammal observed. The MIA lists *Geothlypis tolmiei* as the only endangered species out of all the registered individuals detected during the field work, yet the NOM-059-SEMARNAT-2010 lists two other Geothlypis species (e.g., *Geothlypis beldingi, Geothlypis flavovelata*) as endangered. In the event that the latter species are found in the Santo Tomás area, provisions must be made and detailed in the mine plan of operations and engineering designs to protect their habitat.

Additional surveys will need to be completed related to the areas of terrain/soils, vegetation, and wildlife for the mine infrastructure presented in Section 16 and 18 and aquatic/fish habitat for mine infrastructure area and downstream.

20.2.5 Surface Hydrology

The Santo Tomás Project is sited in the vicinity of the Río Fuerte, which is one of the longest rivers in Mexico. The river basin drains part of the states of Chihuahua (Sierra Tarahumara) and Sinaloa (Altos del Fuerte and Choix, and the Valle del Fuerte). It is formed by the confluence of the Verde and Urique rivers. It flows from the Sierra Madre Occidental to the Pacific Ocean in the Gulf of California.

The area of influence of the Project is located on Hydrological Region No. 10 (Sinaloa) RH10, within Basin G (Río Fuerte), Subbasin d (R. Reforma). The Project is located is within Priority Hydrological Region No. 18 (RHP No. 18), called "Cuenca Alta del Río Fuerte".

Water for mining operations may be available from Río Fuerte and Huites reservoir if a suitable allotment is arranged by permit. However, if that permitted allotment is not available, drilling of local aquifers for well-water will be required. The large Huites Dam was constructed for flood surge protection, irrigation, and power generation. There is also an important hydro agricultural irrigation network (channels) in the 075 Río Fuerte Irrigation District (CONAGUA, 2020).

20.2.6 Groundwater

The Santo Tomás site resides over the Río Fuerte aquifer, which is located in the northwest part of Sinaloa State between parallels 25° 25’ N and 28° 15’ N and meridians 106° 20’ W and 109° 25’ W, covering a surface of 3,494,600 ha (CONAGUA, 2020).

The geological, geophysical, and hydrogeological evidence defines the presence of an aquifer of free, heterogeneous, and anisotropic type that it is constituted in its upper portion, by the alluvial and fluvial sediments of varied granulometry, as well as by the sandstones, polymictic conglomerates and lacustrine sediments, which thickness can reach several hundred meters in the coastal plain. The lower portion of the aquifer consists of a sequence of extrusive (volcanic) and intrusive (plutonic) rocks, which present secondary permeability by fracturing and alteration.

The hydrology of the area is heavily influenced by storm runoff originating in the Sierra Madre Occidental which forms the Río Fuerte. The aquifer is recharged by the river in the stretch of Río Fuerte between El Fuerte and San Blas characterized as the superior part of the river. The aquifer is drained at the same time in other stretches of the river by strong superficial currents. There is also a major discharge of the underground and superficial flow caused by the Sibajahui and Baroten creeks. In the medium/lower part, comprising the stretch of the river between San Blas and Higueras de Zaragoza, the existence of recharge from the river to the aquifer is also observed. There are two minor dams along the Río Fuerte which overlie the Río Fuerte aquifer: the Miguel Hidalgo and the Josefa Ortiz de Dominguez Dams (CONAGUA, 2020).

Up-river of the Huites dam and the impounded reservoir, and to the east and north of the Project Area, the incised valleys of the Urique River and the La Reforma tributary river valley have provided water for historical mining operations at the El Suazal (Goldcorp, open pit cyanide leach gold mine) and La Reforma (Peñoles, underground base metal (Zn) and precious (Ag) metal) mines respectively. The El Sauzal mine pumped mine and process water from the Urique river valley gravels from two wells installed in the valley gravels that were located along the northern margin of the Urique river and separated by approximately 2 km. The La Reforma mine pumped process and mine community water from a well sunk mid-river into the La Reforma gravels: the well was inundated seasonally by the river. Water was also pumped from the underground workings during mining. The proponent sourced water from the La Reforma well for its Brasiles drilling campaign (seven holes); that well continues to provide seasonal water to the hamlet of La Reforma. Southward from the Urique valley and west of the segment that provided water for El Sauzal, the El Fuerte valley continues as an extensive deeply incised and wide gravel-filled valley eastward though southern Chihuahua and into Durango.

20.2.7 Geochemistry Studies

Oroco worked with Geological Professional Services LLC to undertake an initial assessment of potential acidity and neutralization potential of drill core samples for Project lithologies that represented materials with potential to be mined as waste rock (Smith and Quintana, 2023).

A program of Acid-Base Accounting on the dominant lithologies at the Project by volume that are anticipated to be mined as waste rock was undertaken using from laboratory coarse rejects and freshly cut drill core encountered during Phase 1 drilling. Sixty-four (64) samples were analysed to characterize Neutralization Potential (NP), pH, Net Neutralization Potential (NNP), Maximum Potential Acidity (MPA), Total Sulphur and a ‘Fizz Rating’ for each lithology (Table 18-3). Samples representing 16 lithologies from low-grade (<0.1 % Cu) intervals, over a wide spatial distribution in the North Zone, showed that several lithologies comprising a significant volume of the waste rock that would likely be mined have NP:MPA ratios between 1.0 and 2.0 (uncertain acid generating potential) or above 2.0 (non-acid generating). The Andesite in the mineralized zone and Andesite in the “footwall” comprise the waste rock that will be mined and report to the WRSF and that have NP:MPA ratios below 1.0, rendering them potentially acid generating. Table 18-4 shows the measured acid-base accounting values for the characterized lithologies. The Limestone and Skarn have very high NP values and could be used, with strategic placement in waste dumps, as a buffer to potential acid generation.

A geological-geochemical conceptual model will inform the ongoing development and refinement of geochemical and mine rock management plan for the site. The predicted occurrence of large volumes of net neutralizing mine waste materials to be mined in early years will be confirmed, as the buffering characteristics of these waste materials may be effectively utilized as part of the overall waste rock management strategy. Additional geochemical assessment of the acid rock drainage / metal leaching risk for the Project should be implemented to provide additional test work and sampling coverage, and to confirm preliminary study findings. Further work including kinetic humidity cell testing is recommended and should be expanded to consider South Zone lithologies as well. Additional test work will include mineralized material up to the cut off grade assumed in this study.

20.2.8 Socio-Economic, Cultural Baseline Studies and Community Engagement

Baseline socio-economic and cultural studies have not yet been completed for the Santo Tomás Project. No Archaeological Assessment has been completed for the site. National Institute of Anthropology and History (INAH) personnel will be required to survey the area to document and register any important archaeological sites.

Oroco maintains an ESG manual (Revision C, undated) for the Project which provides a framework for its community outreach efforts which according to the manual are focused on education, ongoing employment, Indigenous engagement, and community mapping. The company has provided information in the form of videos that demonstrates ongoing efforts by the Company to engage with the local communities near the Project including supporting and funding community improvements and providing educational resources to support local school improvements.

The ESG manual states that Oroco employs around 12 people full-time in Mexico and that contractors and their employees increase this number to around 110 people in total, principally during multi-rig drilling programs. Specific records that document community engagement activities outlined in the ESG manual were not provided for review at the time of this technical report. The Company has undertaken a detailed community mapping project for the communities surrounding the Project area, excluding Choix and its immediate neighbouring communities. Refer to Section 20.2.9.

20.2.9 Local Population and Indigenous Settlements.

The road route to the Santo Tomás Project passes though 14 communities after departing Choix. Out of these, seven are considered as abandoned. At the time of the study, the remaining communities have a total population of 1,038 people, consisting of 501 males and 537 females, and a total of 449 houses. The route also includes 12 educational institutions, including five preschools, five elementary schools, and two middle schools. In addition, there is one medium-sized hospital and one church located within the communities (see Table 20-2).

Oroco has undertaken an initial census of population centers within the “Study Area” which includes in and around the area of the Santo Tomás concessions (refer to Figure 20-3). The census was undertaken by means of consulting and analyzing official Mexican government sources, including the Population and Housing Census conducted by the National Institute for Statistics and Geography (INEGI), the Catalog of Locations published by what was formerly the Commission for Indigenous Peoples (CDI), today the National Institute for Indigenous Peoples (INPI), and the National Institute for Indigenous Languages (INALI). The latter two organizations were consulted in order to identify the presence of indigenous populations in the area. Based on these sources and the use of LiDAR and other mapping platform data the Company has identified 19 settlements within the Study Area with a total population of 819 people, of which 103 are considered Indigenous. Only one of these settlements, with no Indigenous members, is found within the area of the North and South Zones Santo Tomás concessions and is presently only sporadically occupied. Seven settlements within the larger Study Area are identified in a 2020 census as containing Indigenous populations, with another five settlements, with no identified Indigenous members, identified in other government registries within the Study Area of 303 square kilometers. Refer to Table 20-2 for the results of this survey.

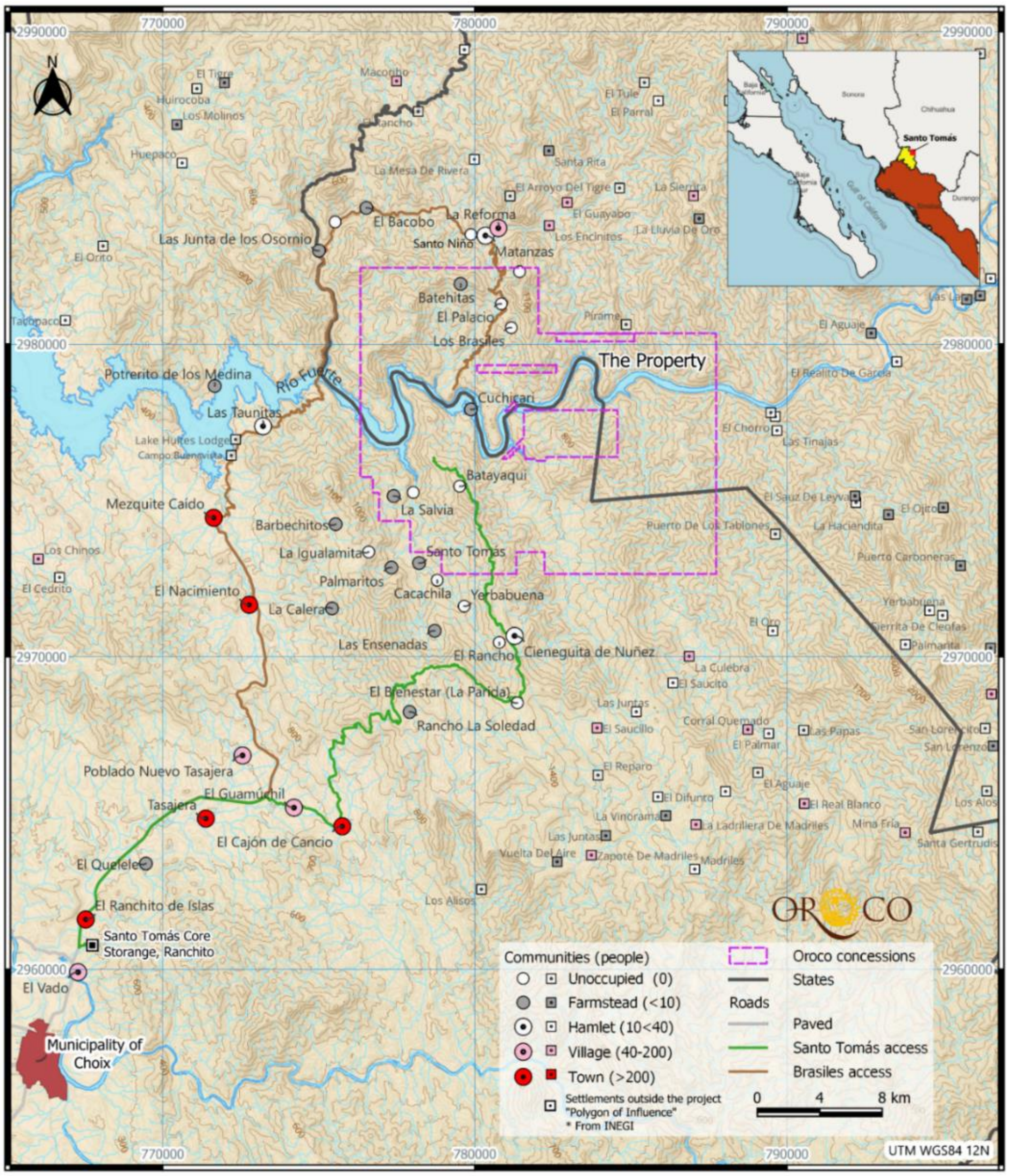
Table 20-2: Communities on Roads to Santo Tomás; Abandoned Communities in Italics

Community	Population			Houses	Educational institutions					Hosp	Church
	Male	Female	Total		Presch.	Elem.	Middle	High	University		
Batayaqui, Sin.	-	-	-	-	-	-	-	-	-	-	-
Boca de Arroyo, Sin.	-	-	-	-	-	-	-	-	-	-	-
Cacachila, Sin.	-	-	-	-	-	-	-	-	-	-	-
Cajón de Cancio, Sin.	129	146	275	140	1	1	1	-	-	-	-
Cieneguita de Núñez, Sin.	17	20	37	25	1	1	-	-	-	-	-
El Guamúchil, Sin.	29	21	50	21	1	1	-	-	-	-	-
El Ranchito de Islas, Sin.	140	146	286	77	1	1	-	-	-	-	-
El Rancho, Sin.	-	-	-	3	-	-	-	-	-	-	-
La Parida, Sin.	-	-	-	3	-	-	-	-	-	-	-
Las Ensenadas, Sin.	-	1	1	1	-	-	-	-	-	-	-
Rancho La Soledad, Sin.	-	5	5	5	-	-	-	-	-	-	-
Santo Tomás, Sin.	5	3	8	2	-	-	-	-	-	-	-
Tasajera, Sin.	186	198	384	174	1	1	1	-	-	1	1
Yerbabuena, Sin.	-	-	-	-	-	-	-	-	-	-	-
Total	**506**	**540**	**1,046**	**451**	**5**	**5**	**2**	**-**	**-**	**1**	**1**

Based on these sources and the integration of LiDAR and other mapping platform data to confirm structures, the Company proposed that the likely area of influence of the Project includes some 33 communities, 28 of which are located in the municipality of Choix, Sinaloa, and five of which are in the municipal district of Urique, Chihuahua. These communities have a total population of 12,281 people (6,321 male and 6,050 female) and a total of 837 houses: these numbers specifically exclude the area within the Choix city limits.

There are also 40 educational institutions in the area, including 16 preschools, 14 elementary schools, five middle schools, four high schools, and one university. In addition, there are nine small to medium-sized hospitals and eight churches.

Figure 20-3: Community Locations and Mapping



Source: Oroco, unpublished map, 2023.

Table 20-3: Communities with Services and Power/Centralised Water Utilities Within the Project Area

Community	Population				Homes	Services			
	Perm.	Occ.	M	F		Hosp.	Church	Water	Power
Barbechitos, Sin.	1	-	-	1	2	-	-	no	no
Batayaqui, Sin.	-	-	-	-	-	-	-	no	no
Batehitas, Chih.	-	1	-	1	1	-	-	no	no
Boca de Arroyo, Sin.	-	-	-	-	-	-	-	no	no
Cacachila, Sin.	-	-	-	-	-	-	-	no	no
El Cajón de Cancio, Sin.	275	-	129	146	140	-	-	yes	yes
Choix Municipality, Sin.	10,328	-	5,288	5,040	-	5	6	yes	yes
Cieneguita de Núñez, Sin.	37	-	17	20	25	-	-	no	yes
Cuchicari, Sin.	4	-	1	3	3	-	-	no	no
El Bacobo, Chih.	7	-	3	4	5	-	-	no	yes
El Guamúchil, Sin.	50	-	29	21	21	-	-	yes	yes
El Nacimiento, Sin.	290	-	145	145	129	1	-	yes	yes
El Ranchito de Islas, Sin.	286	-	140	146	77	-	-	yes	yes
El Rancho, Sin.	-	-	-	-	3	-	-	no	no
El Vado, Sin.	192	-	93	99	41	-	-	yes	yes
Las Juntas de los Osornio, Sin.	9	-	4	5	5	-	-	no	yes
La Calera, Sin.	-	1	-	1	1	-	-	no	no
La Igualamita, Sin.	-	-	-	-	3	-	-	no	no
Matanzas, Chih.	34	-	20	14	31	-	-	yes	yes
La Parida, Sin.	-	-	-	-	3	-	-	no	no
La Salvia, Sin.	5	3	1	7	2	-	-	no	no
Las Ensenadas, Sin.	-	1	-	1	1	-	-	no	no
Mezquite Caído, Sin.	203	-	96	107	87	1	-	yes	yes
Poblado Nuevo Tasajera, Sin.	82	-	43	39	28	-	-	yes	yes
Palmaritos, Sin.	5	-	1	4	4	-	-	no	no
Potrerito de los Medina, Sin.	2	-	1	1	1	-	-	no	no
Rancho La Soledad, Sin.	-	5	-	5	5	-	-	no	no
La Reforma, Chih.	69	-	31	38	22	1	1	yes	yes
San Juditas, Chih.	-	-	-	-	1	-	-	no	no
Santo Tomás, Sin.	8	-	3	5	2	-	-	no	no
Tasajera, Sin.	384	-	186	198	174	1	1	yes	yes
Las Taunitas, Sin.	12	-	4	8	22	-	-	yes	yes
Santo Niño, Chih.	-	-	-	-	1	-	-	no	no
Yerbabuena, Sin.	-	-	-	-	-	-	-	no	no

Note: The houses or occasional residents of Choix are not included in the data provided above. The Choix municipality is relevant as it is the largest nearby town to the Project site.

20.3 Water Management and Waste Disposal Facilities

On-site and off-site infrastructure for the Santo Tomás Project are described in Section 18, and the Project layout is shown in Figure 18-1.

Groundwater is the proposed option to supplement the process makeup water for the first five years of the Project and for other freshwater uses at the plant such as fire water, utility water, gland water and tepid, potable water for safety showers/eyewashes for the LOM. For this report, contact water and deep-well groundwater pumping will be used to supply the balance of the process water requirement after Year 5. The well-field where groundwater will be sourced is located within a 5 km radius of the plant. The well field is proposed to consist of 12 pumping wells for Phase I and 15 deep-water pumping wells for Phase II, each tied into three pump stations to deliver makeup water to the plant site. It will be necessary to ensure that the yields from these wells will be sustainable over the life of mine and that any potential drawdown of the water table will not adversely impact the adjacent ecosystems or agricultural/potable water supplies currently utilized by local communities.

The design of the TSF was developed in accordance with Global Industry Standard on Tailings Management (2020). A preliminary siting and deposition technology study was performed and based on the throughput and construction material constraints, and tailings particle size distribution; the use of hydrocyclones was the preferred option. Waste rock from the open pit will be stored in multiple external WRSFs, whose locations are shown in Figure 18-1 with the largest facility situated in the natural valley west of the South Zone Pit. Permanent diversion ditches, collection ditches, and collection ponds will be integrated into the design of mine infrastructure to divert freshwater and control and collect mine contact water for use as makeup process water or prior to treatment, if required, and eventual release to the receiving environment. Tailings supernatant and contact water from other mine facilities will be recycled back to the process plant or for other appropriate purposes whenever practicable.

The diesel storage facility and fuel dock consist of five bulk storage tanks. Each tank will have a capacity of 100,000 L, for a total storage capacity of 500,000 L and will be constructed with spill containment in accordance with applicable regulations and/or standards. The storage, handling, and disposal of hazardous materials and sewage will be in accordance with applicable regulations and/or standards.

Permanent electrical power is to be provided by a new 115 kV HV power transmission line that is connected to a self-generation plant as explained in section 18.2.3.

20.4 Mexican Legal Framework

20.4.1 General Information Concerning the Regulatory Framework

Environmental permitting for the mining industry in Mexico is mainly administered by the federal government body known as the *Secretaría de Medio Ambiente y Recursos Naturales*, "*SEMARNAT*" (Secretariat of Environment and Natural Resources). This federal regulatory agency establishes the minimum standards for environmental compliance. Guidance for the federal environmental requirements is mainly derived from the *Ley General del Equilibrio Ecológico y la Protección al Ambiente*, "*LGEEPA*" (General Law of Ecological Equilibrium and Environmental Protection,). Article 28 of the LGEEPA specifies that SEMARNAT requires prior approval to parties intending minerals exploration, exploitation, and processing reserved to the Federation under the terms of the *Ley de Minería Reglamentaria del Artículo 27* (Mining and Regulatory Laws of Article 27). An EIS (by Mexican regulations called a *Manifestación de Impacto Ambiental*, *"MIA"*) is the document that must be filed with SEMARNAT for its evaluation and, further approval through the issuance of an Environmental Impact Authorization, whereby approval conditions are specified in cases where works or activities have the potential to cause ecological imbalance or have adverse effects on the environment. The need for the mining industry to comply with Mexican environmental laws and regulations is supported by Article 27 Section IV of the *Ley Minera* and Articles 23 and 57 of the *Reglamento de la Ley Minera*.

In addition, the recent reform of the mining law establishes that In the case of lots located in the territories of Indigenous or Afro-Mexican peoples or communities, the Secretariat, for the granting of a mining concession or assignment, will request the competent authority carry out prior, free, informed, culturally appropriate and good faith consultation to obtain the consent of said peoples and communities, under the terms of the applicable regulations, and will participate in said process within the scope of its powers. The consultation will be carried out prior to the granting of the concession title and simultaneously with that required for the manifestation of environmental impact, a consultation in which information from the social impact study will be provided. In accordance with this law, Santo Tomás may be required to conduct a social impact study along with the MIA. The social impact study must consider social phenomena such as decreased or increased income, possible displacement, infrastructure, services, conflicts that arise and any other economic, cultural, and organizational impact, prior or cumulative that modifies the exercise of the rights of people living in community. Article 5 Section X of the LGEEPA authorizes SEMARNAT to provide approvals for the works specified in Article 28. The LGEEPA also contains articles that speak directly to soil protection, water quality, flora and fauna, noise emissions, air quality, and hazardous waste management. The Ley de Aguas Nacionales provides authority to the *Comisión Nacional del Agua, "CONAGUA"* (National Water Commission,), an agency within SEMARNAT, to issue water extraction concessions, and specifies certain requirements that are to be met by all applicants. CONAGUA has broad regulatory oversight of relevant surface waters and has direct oversight of a defined zone surrounding and enclosing the Luis Donaldo Colosio Dam high-water mark (refer to Figure 18-1). Additional information on the recent Mining Law reform is provided in Section 20.4.2.

Another important piece of environmental legislation in Mexico is the *Ley de Desarrollo Forestal Sustentable, (LGDFS)* (General Law of Sustainable Forest Development). Article 117 of the LGDFS indicates that authorizations must be granted by SEMARNAT for land use changes from natural vegetation for industrial purposes. Santo Tomás must submit an application for a change in forestry land use or *Cambio de Uso de Suelo Forestal*, *"CUSF"* accompanied by a technical study that supports the *Estudio Técnico Justificativo,* "*ETJ*" (Technical Justification Study). In cases requiring a CUSF, a MIA for the change of forestry land use is also required.

Mining projects must include Risk Analysis and Accident Prevention Programs (AR and PPA). The Risk Analysis determines the types and likelihood of potential accidents and the consequences of the adverse effects in a potentially affected area. The PPA establishes the preventive, corrective, control, mitigation, and corrective measures in the event of an accident at facilities that carry out high risk activities. The *Ley General para la Prevención y Gestión Integral de Residuos, LGPGIR* (General Law for the Prevention and Comprehensive Management of Waste) also regulates the generation and handling of hazardous waste coming from the mining industry.

Guidance for the environmental legislation is provided in a series of 'Norma Oficial Mexicana' (Official Mexican Standards) commonly referred to as the NOMs. These regulations provide specific procedures, limits and guidelines and carry the force of law.

Table 20-4 includes a list of the major Mexican Regulations (NOMs) applicable or potentially applicable to the Santo Tomás Project.

Table 20-4: Regulations Applicable or Potentially Applicable to the Santo Tomás Project

Permit Regulation / Authorization	Regulation Information
Exploration (Environmental Impact)	
NOM-120-SEMARNAT-2020	Environmental protection for mineral exploration activities. Specifications for environmental protection allowing specified activities (with maximum dimension/impacts) in farming or natural forest areas specifically in dry and temperate climate zones where xerophilous scrub, tropical deciduous forest, conifer, and oak forests grow. Prescriptive for common exploration activities such as drilling, trenching, road opening and camp construction.
Exploitation and beneficiation of minerals	
NOM-141-SEMARNAT-2003	Procedures for characterizing tailings and tailings site preparation, including site characterization, preparation including vegetation removal, development, construction, operation, and post-operation (incl. monitoring) of each tailings site. Potential toxicity of tailings resulting from their composition, oxidation state and handling may impact ecological equilibrium and vegetation, faunal and human health. Post- operation measures to ensure impoundments do not release particulates to the atmosphere and that discharges do not impact surface water or groundwater; and that the impoundments do not fail.
NOM-155-SEMARNAT-2007	Environmental protection requirements for precious mineral leaching systems.
NOM-159-SEMARNAT-2011	Environmental protection of copper leaching systems.
Mining waste and general waste	
NOM-157-SEMARNAT-2009	Elements, requirements, and procedures to implement management plans for mine residues and waste.
NOM-083-SEMARNAT-2003.	Specifies site selection criteria, construction design, monitoring, closure, and complimentary works for an urban solid or special handling wastes final disposal site.
Water	
NOM-001-SEMARNAT-2021	Establishes the maximum permissible limits for pollutants in wastewater discharge into national water bodies.
NOM-127-SSA1-1994	Environmental Health; water for human consumption – specifications and treatment.
Transfer of titles and their registration "Comisión Nacional del Agua" CONAGUA (National Water Commission)	Authorization that CONAGUA grants to natural or legal persons to transmit the rights derived from the concessions for the exploitation, use or exploitation of national surface waters within the same basin, or subsoil waters within of the same aquifer, when they are valid and registered in the Public Registry of Water Rights (REPDA).
Technical modifications of concession titles and/or wastewater discharge permits, CONAGUA	It is the authorization that CONAGUA grants when the characteristics of the concession titles to exploit or use national waters (surface or underground) and/or wastewater discharge permits, such as: replacement, deepening, relocation, change of the particular conditions of the discharge, redistribution of discharge volume, change of discharge volume, change of discharge form, change of sampling frequency, among others.
Air	
NOM-035-SEMARNAT-1993	Establishes the measurement methods for determining the concentration of PST in ambient air, and the procedures for calibrating the measurement equipment.
NOM-025-SSA1-2014	Establishes the permissible limit values for the concentration of suspended particles PM10 in ambient air and criteria for their evaluation.
Fixed source emissions	
NOM-043-SEMARNAT-1993	Establishes the maximum permissible levels of emission into the atmosphere of solid particles from fixed sources.
Closure and remediation	
NOM-133-SEMARNAT-2000	Polychlorinated Biphenyls (PCB's) Handling Specifications for Environmental Protection.

Permit Regulation / Authorization	Regulation Information
NOM-138-SEMARNAT/SSA1-2012	Maximum permissible limits of hydrocarbons in soils and guidelines for sampling in characterization and specifications for remediation.
NOM-147-SEMARNAT/SSA1-2004	Criteria to determine the remediation concentrations of contaminated soils, specifically with respect to arsenic, barium, beryllium, cadmium, hexavalent chromium, mercury, nickel, silver, lead, selenium, thallium and/or vanadium.
Flora and fauna	
NOM-059-SEMARNAT-2010	Criteria of environmental protection for species and subspecies of wild terrestrial and aquatic flora and fauna in danger of extinction, threatened, rare and subject to special protection, and establishes specifications for their protection.
Noise	
NOM-081-SEMARNAT-1994	Establishes the maximum permissible noise emission limits from fixed sources and their measurement method.
NOM-080-SEMARNAT-1994	Establishes the maximum permissible noise emission limits from the exhaust of motor vehicles, motorcycles, motorized tricycles.
Others	
NOM-041-SEMARNAT-2015	Establishes the maximum permissible emission limits for polluting gases from the exhaust of motor vehicles in circulation that use gasoline as fuel.
NOM-047-SEMARNAT-1999	Establishes the characteristics of the equipment and the measurement procedure for the verification of the emission limits of pollutants from motor vehicles in circulation that use gasoline, liquefied petroleum gas, natural gas, or other alternative fuels.
NOM-052-SEMARNAT-2005	Establishes the characteristics, the procedure for identification, classification and lists of hazardous waste.
Articles 42, 43 and 44 of the Federal Law on Monuments and Archaeological, Artistic and Historical Zones.	Approval of work in areas of archaeological monuments or where their existence is presumed - National Institute of Anthropology and History (INAH, Instituto Nacional de Antropología e Historia).

20.4.2 Amendments to Mexican Mining Regulations

The Mexican Congress has passed certain amendments to the Mining Law (the “Amendments”) which came into force in May 2023. The Amendments, which focus principally but not exclusively, on the process of granting new concessions, are generally applicable to new concessions only. The Amendments are not seen as materially affecting the advancement of the Project given that the Project is comprised entirely of existing concessions. However, there does remain some minor uncertainty as to how the Amendments may be applied by Mexican regulators in the future, and the situation should be monitored closely.

Concurrent amendments to the National Water Law (Ley de Aguas Nacionales), the General Law of Ecological Balance and Environmental Protection (Ley General de Equilibrio Ecológico y Protección al Ambiente, or LGEEPA) and the General Law for the Prevention and Integral Management of Waste (Ley General para la Prevención y Gestión Integral de Residuos, or LGPGIR) (the “Other Amendments”) were also passed. While these Other Amendments impose tighter regulation on mining operations in general, they are also not seen as impacting the Project in a material way.

Various challenges to the legal validity of the Amendments and the Other Amendments have commenced in the Supreme Court of Mexico, seeking to have them declared invalid on, amongst other reasons, constitutional and procedural grounds. Based on Mexican Supreme Court precedent, these challenges are generally considered to have a very strong likelihood of success. In March 2024, the Supreme Court published a binding ruling in which it questioned many aspects of the Amendments and the Other Amendments and granted a temporary injunction suspending the application of the Amendments and the Other Amendments against existing concessions in 24 states, including Sinaloa.

20.5 Environmental Permits, Licenses and Authorizations

Santo Tomás is located in a dry, temperate climate zone where xerophilous scrub, tropical deciduous forest, conifer, and oak forests grow. Each of these forest types is represented in the Project area or close to the Project, with the closest conifer forest occurring at Bienestar some 4 km south of the South Zone above 1,300 m in elevation. Locally low intensity ranching of cattle is carried out, and sporadic very small areas of corn are irregularly planted.

Given the climatic and vegetation zones classification of the Project location, exploration may be undertaken subject to NOM-120-SEMARNAT-2020 conditions and restrictions.

For mining Project development, the three main SEMARNAT permits required prior to construction include the previously mentioned MIA, CUSF and the accompanying ETJ. The Santo Tomás location will render applicable the corresponding forestry land use MIA and AR.

20.5.1 Exploration Permits

The Project is currently in the exploration stage, for which the proponent (Xochipala Gold S.A. de C.V.) has the necessary authorizations. Work is carried out subject to NOM-120-SEMARNAT-2020.

At Santo Tomás North and South, exploration work was initially campaigned subject to notices of work (AVISOs) submitted to SEMARNAT in Culiacan ahead of work commencing; work was undertaken in the absence of SEMARNAT objecting to specific sites proposed for the planned drilling work. During the AVISO process only a small number of proposed locations were rejected by the regulator, and ready alternative sites proximal to the original sites were invariably located and used. Sites not rejected are deemed approved. While the program was in progress the proponent filed an application for an “informe preventivo” permit for the entire drill program in North Zone and South Zone which has been deemed approved pursuant to the “positive ficta” provisions of the LGEEPA.

The Company has obtained an “informe preventivo” environmental permit from the SEMARNAT office in Chihuahua City with regard to its activities on the Brasiles property, which permit includes permission for drilling, limited road development, graded laydown and agricultural 10,000 l water tanks pads and the location of the Brasiles Camp.

Drilling is conducted from municipal roads approved by the municipal district in Choix for use and maintenance by the Company: The Municipality relies upon the agreement of local land users in support of the Company’s maintenance and stabilization of the municipal roads as the basis for permitting the Company to undertake the work.

On-site work done to date has been at the North and South Zones in Sinaloa State and the Brasiles property across the river in Chihuahua State. The work includes an extensive 3D Induced Polarization survey, helicopter-borne magnetic survey, surface mapping, drilling (totaling 76 holes, refer to Section 10) and the construction of two exploration camps (one on the Santo Tomás Property and one on the Brasiles property). Airborne LiDAR and satellite remote sensing surveys have also been undertaken by the proponent covering the Project region (refer to Section 9).

NOM-120-SEMARNAT-2020 also states that "When the direct mining exploration project is completed and the area in which the work is carried out is prepared for abandonment, (the proponent) must carry out the restoration program that includes actions such as stabilization of slopes, the filling of exploration wells, the filling of ditches, the scarification of soils, the disabling and closing of new roads, the sealing of drill holes and revegetation and forest restoration." There has been no extensive new road development as the Project uses municipal and old exploration roads, with minor spur roads to drill holes compliant with NOM-120 having been developed locally. The Company has plugged and weld-capped drill holes upon their completion, and hole locations have been marked with a cement plinth and engraved metal plate (See photo example in Figure 20-4). Once the Exploration program is complete, the company will remediate sites and spur roads, and following re-seeding revegetation is expected to proceed rapidly. To date, there have been no threatened plant species at the sites impacted that require special protection or replanting (refer 20.2.4).

Figure 20-4: Cement Plinth and Metal Label at Drill hole S018, South Zone, Santo Tomás Project

Source: from unpublished Oroco photo, 2023.

20.5.2 Anticipated Development Permits

A construction permit is required from the local municipality (and such local business authorisations as are required municipally) and an archaeological release letter is required from the Insitituto Nacional de Antropología e Historia (INAH). An explosives permit is required from National Defence Secretariat (Secretaría de la Defensa Nacional (SEDENA)) before construction begins. Water discharge and usage approvals must be granted by CONAGUA. A project environmental license (Licencia Ambiental Única, “LAU”), which states the operational conditions to be met, is issued by SEMARNAT when the agency has approved the Project operations. The key permits and the stages at which they are required are summarised in Table 20-5.

Table 20-5: Permitting Requirements

Permit	Mining Project Stage	Agency
Environmental Impact Assessment – MIA	Construction/Operation/Post-operation	SEMARNAT
Land Use Change – ETJ & Forestry Land Use MIA	Construction/Operation	SEMARNAT
Risk Analysis – AR	Construction/Operation	SEMARNAT
Construction Permit	Construction	Municipality
Explosive & Storage Permits	Construction/Operation	SEDENA
Archaeological Release	Construction	INAH
Water Use Concession	Construction/Operation	CONAGUA
Water Discharge Permit	Operation	CONAGUA
Project-specific License (LAU)	Operation	SEMARNAT
Accident Prevention Plan	Operation	SEMARNAT

The Company will also be required to register with the Joint Commission for Training (STPS) and the Ministry of Health (SS) and update certain Registers related to personnel and training.

Currently, there is no documentation of the approval or EIA/Permit Number and Change of Land Use for the Santo Tomás Project.

20.6 Environmental Management and Monitoring System

As the Project progresses though future and EIS/permitting stages, environmental management and monitoring plans will be required to guide the development and operation of the Project to mitigate and limit environmental impacts. These plans will be complementary to the engineered designs that will be required for the storage of tailings, waste rock, mineralized material, and conveyance/storage (refer to Section 18). Environmental management and monitoring at Santo Tomás will be directed by environmental professionals empowered to ensure that plans and monitoring protocols and practice are in full compliance with Mexican environmental regulations and international governance norms and best practices. Environment and Social governance will collaborate to ensure business compliance meets the regulatory and social norms for stable business operations.

A preliminary list of the plans that should be considered are provided below:

- Explosives Management Plan.
- Hazardous Materials Management Plan.
- Waste Management Plan.
- Emergency Response Plan.
- Fire Prevention and Response Plan.
- Wildlife Management and Monitoring Plan.
- Greenhouse Gas Inventory Management Plan.

- Public Access Control Plan.
- Air Quality Management and Monitoring Plan.
- Waste Rock Management Plan.
- Geochemical Characterization and Monitoring Plan.
- Spill Prevention and Response Plan.
- Mine Site Traffic Management Plan.
- Fugitive Dust Control and Monitoring Plan.
- Terrestrial and Aquatic Habitat Management and Monitoring Plan.
- Surface and Groundwater Management and Monitoring Plan.
- Reclamation and Closure Plan.
- Revegetation Plan.

20.7 Environmental Monitoring Program

Mexican environmental regulations require that monitoring programs be conducted and that results be reported to SEMARNAT.

The monitoring programs' objective is to document planned preventive, mitigation, and compensation measures for potential impacts to the environment, to document their implementation and to review their efficiency in order to make improvements. The monitoring programs should also indicate when required measures are to be applied to site preparation, construction, or operation.

Expected monitoring programs for pre-operations and their frequency are shown in Table 20-6.

Table 20-6: Monitoring Plan

Action	Criteria/Considerations	Applicable Regulations	Monitoring Points	Frequency
Air quality monitoring.	PM_{10}, Total Suspended Particulates, permit points based on meteorological baseline data.	NOM-043.	Perimeter.	Semi-annual inspections, annual sampling.
Noise monitoring	Decibels	NOM-041.	Perimeter.	Annual.
Surface water quality monitoring.	Zero discharge from site.	NOM-001 (based on use of the receiving body of water and baseline results).	Río Fuerte, Boca de Arroyo.	Bi-annual inspection and sampling.
Groundwater quality monitoring.	Parameters to be determined based on results of baseline monitoring.	NOM-127.	Monitoring wells being installed.	Quarterly.

Action	Criteria/Considerations	Applicable Regulations	Monitoring Points	Frequency
Fauna registry.	Based on species and numbers of fauna; protected status species to be removed if encountered.	Compensation commitment.	Operation areas for removal; registry in entire project area.	Quarterly inspections during site preparation and bi-annual during construction with summary report.
Flora registry	Monitor survival rates, remove protected species when in areas of disturbance.	Compensation commitment.	Removal in operation areas, replanting protection in entire project areas.	Quarterly inspections during site preparation and bi-annual during construction with summary report, compensation bi-annual.
Plant nursery.	Document number and type of plants produced and planted.	Restoration commitment.	Replanting during reclamation.	During reforestation activities.
Soil.	Collect and save organic material; remediate contaminated soils install and maintain erosion controls.	Compensation commitment.	Organic soil stockpile; soil remediation area; erosion control areas.	Annual inspection.
Areas of disturbance.	Registry for reclaimed areas (hectares).	Compensation/restoratio n commitment.	As needed.	Bi-annual inspection and report with documentation and recommendations.
Socioeconomics.	Training programs, development of non-mining activities, social programs, reclamation of land, greenhouse production.	Social commitment.	Nearby communities.	Annual survey and report.

20.8 Potential Impacts and Mitigation Measures

20.8.1 Potential Impacts

The evaluation of the potential environmental impacts of a project must be evaluated in different phases; the first qualitative phase involves the identification and interaction between the environmental and social systems in the site in every stage of the Project. This evaluation must specify the potential impacts to the environment and the social environment for each, and every activity involved during construction, operation, and closure of the site.

The Santo Tomás Project is located 20 km from the large Huites Dam which was constructed for irrigation, flood surge control and power generation and is located on the Río Fuerte.

Due to the Project's proximity and similarity of the environmental and social environment of the Huites Bridge Project, it is expected that the potential impacts caused by the Santo Tomás Project are similar in some regards to those reported for the construction and operation of the Huites Bridge; however, it is crucial to conduct an equivalent evaluation for the Santo Tomás Project.

Table 20-7 though Table 20-9 describe the impacts to the environment identified for the Huites Bridge and potentially for the Santo Tomás Project vicinity, during construction and operations, respectively. The information reported in this section was obtained from the EIS presented to SEMARNAT to obtain the permit for the construction of the Huites Bridge over the Río Fuerte in the Huites Dam area.

Table 20-7: Factors Identified Affecting the Environment for the Huites Bridge Project and Vicinity

System	Subsystem	Component	Factor
Physical environment	Abiotic environment	Water	Water Quality
			Riverbed dynamics
			Surface drainage
		Soil	Erosion
			Relief and Topography
			Soil quality
			Agrological capacity
		Atmosphere	Air quality
			Noise
			Microclimate
	Biological environment	Vegetation	Tropical Deciduous Forest
		Fauna	Species in NOM-059-SEMARNAT2010
			Reptiles
			Amphibians
			Mammals
			Birds
			Fishes
	Perception	Landscape	Landscape quality
			Fragility
Socio-economic environment		Economics in the region	Tourism
			Commerce
		Social environment	Utilities services
			Health
			Education
			Accidents
			Urban infrastructure
			Quality of life

Table 20-8: Potential Impacts to Water, Soil, Vegetation, and Landscape Caused During Construction of the Project

Factor	Impact
Water	
Water Quality	Pollution of water with mining solid residues (contact water).
	Water pollution by vegetation clearing.
	Water pollution by rocks and dust.
	Water pollution by hazardous waste or special handling products.
Riverbed dynamics	Sediment, silt, and clay runoff.
	Water extraction from unauthorized water sources.
	Water extraction from ground water pumping.
Surface drainage	Modification of the soil runoff surface.
Soil Quality	
Erosion	Removal of vegetation that stabilizes slopes and prevents erosion.
	Exposure of the sub-soil to the environment.
Relief and topography	Topographic modification.
Soil	Contamination with mining wastes.
	Contamination with silt runoff and rocks.
	Contamination with hazardous wastes.
Agricultural soil	Removal of the topsoil.
Atmosphere	
Air Quality	Increase of combustion gas emissions.
	Dust generation.
Noise	Noise generation.
Microclimate	Increase of non-vegetation areas.
Vegetation	
Tropical Deciduous Forest	Decrease in vegetation coverage.
	Habitat loss.
	Habitat contamination with mining solid residues.
	Habitat pollution with solid mining residues.
Birds	Loss of individuals during construction work and equipment operation.
	Important reduction of perching sites.
	Noise induced effects.
Fish	Loss of individuals during construction work and equipment operation.
	Habitat Alteration.
Landscape	
Landscape quality	Increase in mining solid waste.
	Expansion in landscape modification.
Fragility	Deterioration of the aesthetic components of the landscape (flora, fauna).
	Pollution of water bodies.
Economic Factors	
Commerce	Buying local produce.
Social Environment	
Accidents	Accidents.

Factor	Impact
Fauna	
Species in NOM-059-SEMARNAT-2010	Loss of individual animals during construction work and equipment operation.
	Hunting.
	Extraction of individuals.
	Habitat fragmentation.
	Habitat pollution with mining solid residues.
Reptiles	Loss of individuals during construction work and equipment operation.
	Hunting.
	Extraction of individuals.
	Habitat fragmentation.
	Habitat pollution with solid mining residues.
Amphibians	Loss of individuals during construction work and equipment operation.
	Hunting.
	Habitat pollution with solid mining residues.
Mammals	Noise induced stress.
	Loss of individuals during construction work and equipment operation.
	Hunting.
	Habitat pollution with solid mining residues.
Birds	Loss of individuals during construction work and equipment operation.
	Important reduction of perching and nesting sites.
	Noise induced effects.
Fish	Loss of individuals during construction work and equipment operation.
	Habitat Alteration.

Table 20-9: Likely Impacts to Identified Factors During Project Operations

Factor	Impact
Water	
Water Quality	Pollution of water with contact water from mining waste.
	Water pollution by rocks and dust.
	Water pollution by hazardous waste or special handling products.
Riverbed dynamics	Sediment, silt, and clay runoff.
	Water extraction from unauthorized water sources.
Surface drainage	Solid mining residue runoff.
	Silt, clay, and rocks runoff.
SOIL	
Erosion	Loose rockfall due to erosion.
Soil	Contamination with mining wastes.
	Contamination with slit runoff and rocks.
	Contamination With Hazardous Wastes.

Factor	Impact
Atmosphere	
Air Quality	Increase of combustion gas emissions.
Noise	Increase in noise generation.
Microclimate	Increase of non-vegetation areas.
Vegetation	
Tropical Deciduous Forest	Habitat contamination with solid waste.
	Introduction of exotic species.
Fauna	
Species in NOM-059-SEMARNAT-2010	Hunting.
	Extraction of individuals.
	Habitat contamination with solid residues.
	Roadkill.
Reptiles	Hunting.
	Extraction of individuals.
	Habitat contamination with solid residues.
	Roadkill.
Amphibians	Habitat pollution with solid residues.
Mammals	Noise induced stress.
	Extraction of individuals.
	Hunting.
	Roadkill.
	Habitat pollution with solid residues.
Birds	Habitat pollution with solid residues.
	Noise induced effects.
	Roadkill.
Fish	Habitat pollution with solid residues.
Landscape	
Landscape quality	Change in the landscape.
Fragility	Pollution of water bodies.
Economic Factors	
Tourism	Access to tourist sites.
Economy	Increase in property value of local land.
Social Environment	
Education	Access to schools.
Health	Access to health centers and hospitals.
Urban Infrastructure	Reduction in commuting time.
Quality of life	Creation of infrastructure to improve urban areas.

Mitigation measures are a group of actions that must be carried out by the Project owner to attenuate the impacts and to re-establish or compensate for the environmental conditions which existed prior to starting the construction of the Project. These measures are mandatory and enforced by PROFEPA. Based on the impacts described in the previous tables, a brief description of the objectives of the mitigation measures is presented in the following subsections.

20.8.1.1 Landscape

The mitigation measures should be designed or selected to prevent, control, and mitigate any damage or alteration of the soil quality during the construction, operation, and closure of the Project. These activities are part of the closure plan that Santo Tomás Project is required to develop as part of the MIA.

20.8.1.2 Air Quality and Noise

The objective of the air quality and noise selection mitigation measures will be to control and decrease noise levels, vibrations and to ensure to control of the air quality to comply with the highest environmental quality standards, like those established in the following norms:

- NOM-081-SEMARNAAT-1994. Maximum limit of noise emission for stationary sources as well as, the noise measurement methodologies.
- NOM-043-SEMARNAT-1999. Maximum solid particles emission levels from stationary sources.

20.8.1.3 Water Resources

To establish measurements for the responsible use of surface water bodies during construction, operation, and closure of the Project to prevent pollution and any other negative impacts to the surface water imposed by the Project.

Mitigation measures will also need to be developed to prevent impacts to the level and quality variations in groundwater in and around the Santo Tomás Project due to construction, operation, and closure.

20.8.1.4 Biotic Media

Avoid, reduce, mitigate, and correct potential impacts to any population of species or areas of biological importance, as well as to ecosystems due to the development and operation of the Project.

20.8.1.5 Waste Management

To mitigate the impact of the large quantities of waste generated during construction and operation of a mine, the design of a near-zero discharges process is highly recommended. The objective is to reuse wastewater to the extent possible in all processes of the Project and to minimize generating contact water which would require additional treatment. A Generator of Hazardous Waste Registry should be obtained from SEMARNAT before starting operations.

20.9 Closure and Reclamation

Detailed closure plans have yet to be developed for the Santo Tomás Project. This document will be developed as the Project advances, according to Mexican regulations, though subsequent project stages. Mine reclamation is addressed in Article 27 of the Mexican Constitution and multiple Mexican regulations apply to closure conditions, including NOM-138- SEMARNAT/SS-2003, NOM-141-SEMARNAT-2003, NOM-147-SEMARNAT/SSA1-2004, and NOM-157-SEMARNAT-2009, a brief description of the applicable norms is outlined in Section 20.2.1.

A conceptual closure and reclamation plan was developed to estimate the financial requirements for closure of the Project and is presented in Section 21.2.3.6.2. This plan includes the cost to regrade and revegetate all areas of the site that will be disturbed. Also proposed, is a plan to salvage and resale process equipment. Costs to remove or relocate existing infrastructure and conduct long-term monitoring of the terrestrial environment and groundwater/surface water are also included in the closure and reclamation estimate.

20.10 Permitting and Cost Estimations

Table 20-10 presents estimated administrative costs for Mexico's required permits.

Table 20-10: Permitting Costs in Mexico

Permit	Agency	Mining Stage	Approx Cost (MXN$)	Notes
Environmental Impact Assessment – MIA Regional MIA authorization without highly risky activity	SEMARNAT	Construction / Operation / Closure	155,541	-
Land Use Change – ETJ & Forestry Land Use MIA	SEMARNAT	Construction / Operation	17,740	-
Risk Analysis – AR	SEMARNAT	Construction / Operation	2,863	It refers to risk studies of new projects in terms of environmental impact submitted for approval by the National Agency for Industrial Safety and Environmental Protection of the Hydrocarbons Sector in (ASEA).
Construction Permit	Municipality	Construction	-	-
Explosive & Storage Permits	SEDENA	Construction / Operation	14,982	-
Archaeological Release	INAH	Construction	-	-
Water Use Concession	CONAGUA	Construction / Operation	4,294	For each assignment or concession titles to exploit or use national waters and discharge permits
	-	Construction / Operation	4,320	For each concession title for the use of land with riverbeds, basins, lakes, or lagoons, as well as estuaries, federal zones and other national assets regulated by the National Water Law
Water Discharge Permit	CONAGUA	Operation	7,353	-
Project-specific License (LAU)	SEMARNAT	Operation	1,587	-
Accident Prevention Plan	SEMARNAT	Operation	3,135	-

21 CAPITAL AND OPERATING COSTS

21.1 Introduction

The capital and operating cost estimates presented in this PEA provide substantiated costs that have been used to assess the preliminary economics of the Santo Tomás Project. The estimates are based on an open pit mining operation as well as the construction of a process plant, tailings storage facility, water management, associated infrastructure, owner's costs, and provisions. The initial nameplate capacity of the processing facilities is 60,000 t/d or 21.9 Mtpa. The final nameplate capacity of the Santo Tomás processing facilities is 120,000 t/d or 43.8 Mtpa, with a LOM of 23 years. Construction activities planned for the expansion according to SRK's revised mine plan reported in Section 16 are to be completed by the end of Year 7 after operations has commenced.

21.2 Capital Cost Estimate

21.2.1 Capital Cost Summary

The capital cost estimate shown in Table 21-1 conforms to Class 5 guidelines of the Association for the Advancement of Cost Engineering International (AACE International), with an estimated accuracy of -30%/+50%. The estimate was developed in the 2nd Quarter 2024 U.S. dollars based on Ausenco's and SRK's in-house databases of projects and advanced studies as well as experience from similar operations.

Table 21-1: Capital Cost Summary

Capital Category	Initial Capital (US$M)	Expansion Capital (US$M)	LOM Sustaining Capital (US$M)	Total Capital (US$M)
Mining Equipment (Net of Leasing)(1)	81.0	-	952.4	1,033.4
Water Management	8.3	-	14.1	22.4
Crushing Facility & Process Plant	427.8	380.3	10.4	818.4
Infrastructure	124.7	47.8	-	172.5
Tailings Storage Facility	25.9	0.1	51.2	77.2
Closure Costs	-	-	174.3	174.3
Total Directs	**667.5**	**428.1**	**1,202.4**	**2,298.2**
Project Indirect	141.1	105.8	-	246.9
Owner's Cost	23.5	17.1	-	40.6
Process/Closure Contingency	187.7	135.9	53.8	377.4
Capitalized Mine Development OPEX	75.5	-	-	75.5
Capitalized Interest & Fees(2)	8.3	-	-	8.3
Total with Mining Equipment Lease Applied	**1,103.5**	**687.2**	**1,256.0**	**3,046.7**

Notes:

1. Includes supplier-sourced 5-year lease term with 10.3% interest, 0.5% upfront fee, and no residual payment (October 2023) applied to preproduction mining capital cost with deferral of capital attributable to leasing from initial capital to sustaining capital.
2. Leasing costs incurred prior to production.
3. Values shown are rounded and may not match those presented in the press release. Totals may not sum due to rounding.

The total initial capital cost estimate for the Project is US$1,103.5M after a lease option is applied to the purchase of the initial mining equipment (Year -1 and 1). Expansion capital is the cost to double the process throughput of the plant (Phase II). The total LOM sustaining capital covers the cost of mining, the expansion of the TSF over the LOM, the costs of groundwater pumping and the installation of a grout wall to manage seepage into the pits and covers the costs to refurbish or replace expired equipment in Year 10. The LOM sustaining capital also includes the sum of the lease payments made on the initial mining equipment. Combined, the sustaining capital totals US$1,256M. Closure capital covers the costs to reclaim the Project at the end of the mine life.

21.2.2 Mine Capital Costs

The capital cost of mining the Santo Tomás Project considers that the mine will be owner-operated and is based on the requirements of the mining plan. The mining capital costs were estimated from first principles by SRK Consulting (U.S.) Inc.

The overall LOM mining capital cost estimate, including initial and sustaining equipment costs and pre-production mining, is US$1,108.9M. The LOM mining equipment capital cost is estimated at US$1,033.4M, including 15% contingency. Of this amount, US$81.0M (8%) corresponds to the initial mining equipment capital cost and US$952.4M (92%) corresponds to the sustaining capital, which includes principal payments for leased equipment, the costs of purchasing additional equipment units, renewing equipment, and performing major equipment maintenance to sustain mining operations, see Table 21-2. Additionally, the initial mining capital cost estimate includes pre-production mining costs in Year -1 of US$75.5M (including 5% contingency).

Table 21-2 summarizes the estimated capital cost over the life of the mine. The cost of pre-production mining, which represents 48% of the initial (i.e., Year -2 and Year -1) capital costs, involves the works related to the removal of the waste material required to access the mineralized material. The acquisition cost of major operating equipment such as drills, excavators, front-end loaders, and trucks was estimated at US$42.3M and represents 27% of the initial capital. The acquisition of ancillary equipment to support the drilling, loading and hauling equipment represents 9% of the initial capital. The acquisition of pit service and support equipment represents 6% of the initial capital. Equipment and technology support, along with initial maintenance tools and spare parts represents 10% of the initial capital cost.

Table 21-2: Summary of Mining Capital Cost

Description	Initial Mining Capital (US$M) Year -2 and Year -1	Sustaining Mining Capital (US$M) Year 1 through LOM
Pre-stripping	75.5	-
Drilling, Loading and Hauling Equipment	42.3	801.5
Ancillary Equipment	13.4	129.6
Pit Service and Support Equipment	8.9	21.4
Other Equipment, Tools and Supplies	16.4	-
Total Mining Capital Cost	**156.5**	**952.4**

Note: The mining capital cost estimate assumes that drilling, loading, hauling and ancillary equipment units required in Year -1 and Year 1 of the Project will be financed with 5-year leases. Interest payments associated with the leases are not included in the mining capital costs estimated by SRK; however, the interest payments have been included in the Ausenco project financial model (refer to Section 22 herein).

The contingencies applied by SRK are 15% for capitalized equipment purchases and rebuilds, and 5% for capitalized pre-production mining costs (i.e., pre-stripping costs that are capitalized for Year -1). The purpose of the contingency provisions is to allow for uncertain cost elements which are predicted to occur but are not included in the cost estimate. These cost elements include uncertainties concerning completeness and accuracy of the production schedule, accuracy of labour and material rates, accuracy of labour productivity expectations, and accuracy of equipment pricing.

Items not included in the mining capital estimate:

- Foreign currency exchange rate fluctuations.
- Interest payments associated with equipment leases.
- General sales and withholding taxes.
- Working capital.

Risks due to political upheaval, government policy changes, labour disputes, permitting delays, and access denial related to weather are also excluded.

21.2.3 Process and Infrastructure Capital Cost Summary

The total capital cost estimated for the Santo Tomás Project, not including mining cost is summarized in Table 21-3.

Table 21-3: Process Plant and Supporting Infrastructure Capital Cost Summary

Capital Category	Initial Capital (US$M)	Expansion Capital (US$M)	Sustaining & Closure Capital (US$M)	Project Total Capital (US$M)
Water Management	8.3	-	14.1	22.4
Crushing Facility	220.0	181.8	-	401.8
Process Plant	207.8	198.5	10.4	416.7
Infrastructure	124.7	47.8	-	172.5
Tailings Storage Facility	25.9	0.1	51.2	77.2
Closure Costs	-	-	174.3	174.3
Subtotal Direct Costs	**586.7**	**428.2**	**250.0**	**1,264.9**
Project Indirect	141.1	105.8	-	246.9
Owner’s Costs	23.5	17.1	-	40.6
Contingency	187.7	135.9	53.8	377.4
Subtotal Indirect Costs	**352.3**	**258.8**	**53.8**	**664.9**
Total	**939.0**	**687.0**	**303.8**	**1,929.8**

Note: Totals may not sum due to rounding.

The summary is broken out into direct costs, indirect costs, initial capital costs, the expansion capital to add a second process line doubling the plant throughput and the LOM sustaining capital which includes water management costs related to the mining facilities (pits & WRSFs), closure costs and process replacement equipment costs at Year 10. The initial capital is any project development cost incurred during the pre-production years (Years -2 and -1). Expansion capital is the cost required to expand the processing facility from 60,000 t/d to 120,000 t/d which includes installing a second primary crushing circuit, a second mill feed stockpile, a second secondary and tertiary crushing circuit, a duplicate flotation circuit, a second tailings thickener, and a duplicate cyclone sands station. The two process lines will share the same single 1.7 km conveyor, freshwater supply pipeline, overhead powerline as well as all ancillary infrastructure. The cost for the shared items, is reflected in the initial capital cost estimate. Sustaining capital is the sum of the capital required to add a deep-well groundwater pumping system in Year 5 to supplement the makeup water requirement and mitigate groundwater seepage into the North Zone Pit, replace worn processing equipment in Year 10, build up the TSF over the LOM, install grout curtains, and the closure costs. Indirect costs include the costs for construction and field services, engineering procurement and construction management (EPCM), commissioning, Owner's costs and contingency.

21.2.3.1 Basis of Capital Cost Estimate - Process

The data for the estimate has been derived from a variety of sources, including the following:

- Conceptual engineering design at a PEA level by Ausenco.
- Major mechanical processing equipment compiled into a priced, comprehensive mechanical equipment list (MEL). Equipment pricing is based on vendor quotations from recent projects of similar size and scope, first principles, and Ausenco's database of historical projects. For this report, Ausenco acquired a recent budgetary quote for the in-pit semi-mobile primary crushing station.
- Material take-offs (MTOs) for concrete, structural steel, off-plot piping, and civil earthworks were developed from the updated preliminary layout drawings and design engineering developed during this work.
- Power requirements for the Project were based off the MEL and associated electrical loads. From this information, a priced electrical equipment list (EEL) of all electrical equipment required for the process plant and ancillary facilities was prepared. The EEL also contained the costs for the supply and installation of these equipment including lighting systems, lightning protection systems, grounding systems, cable trays and conduits, and power cabling. For this report, the EEL was revised to reflect the new electrical equipment and materials required for both Project phases to support self-generated power, including the size of the new power transmission line, and the required main electrical substation in the process plant area.
- The costs to install the 35.6 km, 115 kV overhead power transmission line to site is estimated at US$202,712.47/km in accordance with CFE prices as of June 2024, and includes civil construction, electromechanical construction, material and equipment installation, supervision, and testing.
- Instrumentation, in-plant piping and platework were factored by benchmarking against similar projects with equivalent technologies and unit operation.
- The estimate includes costs for off-plot piping as follows:
    - A groundwater pumping system designed to meet the initial makeup water requirements calculated for the Phase I of the Project, see Section 18.2.2 for system details.
    - A 2 km long 800-mm diameter HDPE pipeline for reclaim water.

- A 2.5 km long 400-mm diameter pipeline for tailings discharge at the cyclone station.
- All necessary pumps, fittings, valves, and electrical components.

- All buildings were sized and priced based on benchmark projects located in central America and the desert southwest of the United States of America.
- Topographical information was considered for the earthwork and civil MTOs.
- Cost escalation to Q2 2024 when historical pricing is considered.
- Growth and contingency allowances appropriate for a PEA level study were included.

All capital and operational cost estimates are presented in United States dollars (US$), with exchange rate variations factored for equipment quoted in a currency other than US$. The exchange rates, shown in Table 21-4 were used to convert process equipment quotes from their native currency to US$, when applicable.

Table 21-4: Project Exchange Rates

Exchange Rate Code	Currency Code Description	US$
AUD	1 Australian Dollar =	0.642
EUR	1 Euro =	1.059
CAD	1 Canadian Dollar =	0.742
MXN	1 Mexican Peso =	0.050
BRL	1 Brazilian Real =	0.201

21.2.3.2 Water Management Costs

The direct capital cost estimate developed to control surface water runoff through the WRSF and from seeping into the pits totals US$22.4M. This estimate includes initial costs to construct perimeter diversion channels around the WRSFs and install a lined seepage pond. Pit water management costs are considered sustaining costs as they will not be incurred until Year 5 when deep-water well pumps, a water distribution pipeline and associated pump stations will be installed as the pit depth will have exceeded the Huites reservoir elevation of 264 masl. A grout curtain to further mitigate seepage of water into the pits will be installed in Year 10.

21.2.3.3 Crushing Facility and Process Plant Direct Costs

Process plant costs associated with the crushing, comminution and beneficiation circuit are summarized in Table 21-5. Direct costs include all contractors' direct and indirect labor, permanent equipment, materials, freight, and mobile equipment associated with the physical construction of the areas.

Table 21-5: Process Plant Direct Capital Cost

Capital Category	Initial Capital (US$M)	Expansion Capital (US$M)	LOM Sustaining Capital (US$M)	Project Total (US$M)
Crushing				
Primary Crushing & Conveying	89.5	53.2	-	142.7
Mill Feed Stockpile & Reclaim	18.9	19.0	-	37.9
Secondary Crushing, Screen & Conveying	54.8	53.4	-	108.2
HPGR	56.8	56.2	-	113.0
Subtotal	**220.0**	**181.8**	-	**401.8**
Comminution & Beneficiation				
Grinding	84.1	82.4	-	166.5
Copper Flotation & Regrind	45.0	44.5	-	89.5
Copper Concentrate Handling	26.2	21.1	-	47.3
Tailings Thickening	9.5	7.7	-	17.2
Reagents	7.0	7.0	-	14.0
Cyclone Sands Station	14.6	15.3	-	30.0
Moly Flotation & Concentrate Handling	18.9	19.0	-	37.9
Process Controls	2.4	1.5	-	3.9
Subtotal	**207.7**	**198.5**	**-**	**406.2**
Replacement Equipment	-	-	10.4	10.4
Total Direct Costs	**427.7**	**380.3**	**10.4**	**818.4**

Note: Totals may not sum due to rounding.

21.2.3.4 Processing Infrastructure Capital Costs

A breakdown of the infrastructure capital costs is shown in Table 21-6.

Table 21-6: On and Off-Site Infrastructure Capital Costs

Capital Category	Initial Capital (US$M)	Expansion Capital (US$M)	LOM Sustaining Capital (US$M)	Project Total (US$M)
On-Site Infrastructure				
Process & Freshwater Distribution	5.5	2.8	-	8.3
Plant Air	6.2	5.5	-	11.7
Molybdenum Gas Services	0.9	0.9	-	1.8
Plant Bulk Earthworks	8.3	4.6	-	12.9
Site Roads and Drainage	0.6	-	-	0.6
HV Power Switchyard / Power Distribution	8.3	8.3	-	16.6
Mobile Equipment	4.3	-	-	4.3
Sewage and Fuel Storage	2.4	-	-	2.4
Infrastructure Buildings	28.6	16.3	-	44.9
Subtotal	**65.1**	**38.5**		**103.5**

Capital Category	Initial Capital (US$M)	Expansion Capital (US$M)	LOM Sustaining Capital (US$M)	Project Total (US$M)
Off-Site Infrastructure				
Main Access Road	4.9	-	-	4.9
Water Supply	12.2	-	-	12.2
Power Supply & Main Power Station	8.0	-	-	8.0
Natural Gas Supply	7.5	7.5	-	15.0
Permanent Camp	9.9	1.9	-	11.8
Port & Logistics Costs	17.1	-	-	17.1
Subtotal	**59.6**	**9.4**	**-**	**69.0**
Total Direct On and Off-Site Infrastructure	**124.7**	**47.8**	**-**	**172.5**
Tailings Storage Facility (TSF)				
Total Direct TSF Costs	**25.9**	**0.1**	**51.2**	**77.2**
Closure and Reclamation				
Total Direct Closure Costs	**-**	**-**	**174.3**	**174.3**

Note: Totals may not sum due to rounding.

The infrastructure estimate also includes costs for an LNG plant, fuel storage (diesel & natural gas), sewage, and a permanent camp. Additionally, a port logistics study was completed, and an estimate was prepared for the installation of concentrate handling infrastructure at the Port of Topolobampo as this port has limited resources for the storage and handling of concentrates. The mobile equipment cost shown is an allowance for a light vehicle fleet benchmarked from other projects of similar size and scope and costs are included to widen the main access road.

21.2.3.5 Tailings Storage Facility

Total cost for the TSF is US$77.2M, with US$25.9M in initial capital to prepare the site prior to tailings deposition. Expansion costs are minimal at US$0.1M. Sustaining capital to build up the TSF over the LOM totals US$51.2M.

21.2.3.6 Closure and Reclamation Planning

The closure cost for the Project is estimated at US$174.3M without contingency applied, US$209.2 with contingency and includes regrading and revegetating all disturbed surfaces, as well as decommissioning, monitoring and maintenance allowances.

21.2.3.7 Indirect Capital Costs

Indirect capital costs are calculated as a percentage of the direct costs. The indirect capital costs are summarized in Table 21-7 and include the following:

- Temporary construction facilities and services.
- Messing and catering during construction.
- Vendor reps and assistance.

- Equipment spares.
- First fills and initial charges.
- Project delivery as EPCM.

Table 21-7: Indirect Capital Costs Summary

Capital Category	Initial Capital (US$M)	Expansion Capital (US$M)	Sustaining & Closure Capital (US$M)	Project Total (US$M)
Field Indirect Cost	28.4	21.0	-	49.4
Project Delivery	95.5	71.5	-	167.0
Commissioning Operations Readiness	2.3	1.3	-	3.6
Vendor Representatives	3.0	2.5	-	5.5
Spares	8.2	6.3	-	14.5
First Fills	3.7	3.2	-	6.9
EPCM Services Subtotal	**141.1**	**105.8**	**-**	**246.9**
Owner's Costs	23.5	17.1	-	40.6
Closure Contingency	-	-	34.9	34.9
Process and Infrastructure Contingency	187.7	135.9	18.9	342.5
Total Indirect Cost	**352.3**	**258.8**	**53.8**	**664.9**

Note: Totals may not sum due to rounding.

21.2.3.7.1 Owner (Corporate) Capital Costs

The Owner's costs are estimated as 4% of the total direct costs and are calculated to be US$40.6M over the LOM. Owner's costs include, but are not limited to, project staffing and miscellaneous expenses, pre-production labor, home office project management, home office finance, legal costs, insurance and bonds, licenses, and fees.

21.2.3.7.2 Closure and Reclamation Contingency

The closure cost for the Project is estimated at US$209.2 with 20% contingency.

21.2.3.7.3 Contingency

Contingency applied toward the process plant including total direct and indirect costs is 25%.

21.2.3.8 Sustaining Capital

The LOM sustaining capital for the process is estimated at US$303.8M (Table 21-3) which includes equipment replacement costs estimated at 5% installed mechanical equipment costs at Year 10, costs to build up the TSF over the LOM, costs to pump groundwater, install grout curtains to mitigate water seepage into the pits and closure costs.

21.3 Operating Cost Estimate

21.3.1 Average LOM Operating Cost Summary

A summary of the average operating costs for the Project are presented in Table 21-8. The unit operating cost, on average is US$9.57/t combined for mining and processing, including an average annual G&A cost of US$24M. The following subsections describe the basis of the operating costs estimate and a detailed build up of the both the mining and process components of the operating costs presented here. The total LOM mining cost includes US$46M in interest and fees not included in the mine operating cost presented in Section 21.3.2.

Table 21-8: Average LOM Operating Costs

Category	Total LOM (US$M)	Annual Cost (US$M/y)	US$/t milled
Mining	3,995	177	4.78
Process	3,363	149	4.04
G&A	539	24	0.65
Total Operating Cost	**7,897**	**350**	**9.57**

Note: Mining cost include cost for leasing interest and fees.

21.3.2 Mine Operating Costs

The mine operating costs were estimated from first principles by SRK Consulting (U.S.) Inc. based on the requirements of the mine plan.

The estimate is based on the operating hours of the equipment and includes ownership cost and operational cost such equipment repairs, drilling consumables, fuel consumption, manpower, explosives consumption, contractor blasting services, tire consumption etc. The assumed diesel fuel price is US$1.033/litre and the assumed liquefied natural gas (LNG) cost is US$0.238/litre. Both the diesel and LNG prices included estimated charges for delivery to site.

The cost of equipment operators and the mechanical maintenance workforce was included as part of the operating costs of the equipment. The costs were distributed among the direct mining functions such as drilling, loading, hauling, etc.

The support cost includes miscellaneous tools to support mining activities such as software, maintenance equipment, personnel transport equipment, communication systems, and dispatch systems.

Mining administrative and technical expenses encompass administrative and technical personnel from the mining area, the mining geology area, and the mechanical maintenance area.

It is estimated that the total mine operating cost (including 5% contingency) from the first year of processing plant operation to the end of the Project life (i.e., Year 1 through Year 23) will be US$3,948.2M to extract 825.5 Mt of mineralized material and move 2,095.5 Mt of total material (including handling of ex-pit mineralized material, ex-pit waste and rehandle). The total unit mining cost of the Project is US$2.04 per ex-pit tonne mined (US$1.88 per tonne moved including rehandle).

The total operating cost for all activities is US$4.78/t processed material during the operations period.

Table 21-9 shows the summary of total LOM operating costs and costs per tonne mined per activity. Haulage costs represent 45% of mine costs, followed by loading and blasting costs, which together represent 36% of costs.

Table 21-9: Summary of Mining Operating Cost (Year 1 through Year 23)

Mining Cost	US$M	US$/t mined	US$/t processed material
Drilling	218.2	0.11	0.26
Blasting	773.2	0.40	0.94
Loading	633.0	0.33	0.77
Hauling	1,771.9	0.91	2.15
Ancillary Equipment	243.3	0.13	0.29
Support and Miscellaneous	115.0	0.06	0.14
Administration and Technical	101.4	0.05	0.12
Freight	92.2	0.05	0.11
Total Mining Cost	**3,948.2**	**2.04**	**4.78**

Note: Includes 5% contingency. Excludes mining costs incurred in Year -1 (the pre-production mining costs were transferred to the capital cost estimate). Costs are less leasing interest and fees.

21.3.3 Groundwater Pumping Costs

The annual cost estimate to pump groundwater to mitigate seepage into the pits is US$2.1M and is based on an annual power consumption 28,985 MWh at 100% availability. Groundwater pumping from the deep-water wells is forecast to operate for a period of 11 years and cost US$23.5M in total.

21.3.4 Process Operating Cost Estimate

Key assumptions were made to estimate the operating costs for the Project:

- Cost estimates are based on Q2 2024.
- Costs are expressed in United States Dollars (US$)
- Where applicable, exchange rates of CAD$1.3471 per US$1.00 and MXN$19.86 per US$1.00 were applied.
- Natural gas transportation cost was calculated in US$1.16/MMBtu, based on the Platts Gas Daily Mexico Prices (August 1, 2023) through the gas pipeline El Encino-Topolobampo.
- A revised cost of US$0.072/kWh was estimated for self-generated power.
- The diesel reagent cost of US$0.99/L based on recent pricing for the Gulf Coast region (USDOE, 2024).
- Cost to pump ground water is MXN$3.96 per m^3, in accordance with the Ley Federal de Derechos 2024 (officially issued by CONAGUA), articles 223 and 231.

- Plant crusher availability is assumed to be 75%, while the availability for the rest of the process plant is assumed to be 92%.
- ROM concentrate grades, and recoveries are based on metallurgical test work results described in Section 13.
- Material and equipment are purchased as new.
- Reagent consumption rates are based on metallurgical test work results and in-house benchmarks.
- Grinding media consumption rates are based on mineral material characteristics as described in Section 13.

The process operating cost estimate is based on a 60,000 t/d milled for Phase I and 120,000 t/d milled for Phase II of the Project, which includes the following operations: crushing, grinding, bulk rougher flotation, regrind, bulk cleaner flotation, Cu-Mo separation, copper concentrate dewatering, molybdenum concentrate handling, and tailings handling.

The process operating costs are estimated to be US$4.12/t and US$4.03/t for Phase I and Phase II, respectively, averaging to US$4.04/t over LOM. Table 21-10 summarize the expected operating costs per phase for the process area which includes an additional US$0.12/t to recover molybdenum concentrate.

Table 21-10: Summary of Process Plant Operating Costs

Cost Center	Phase I		Phase II	
	Annual Cost (US$M/y)	Unit Cost (US$/t)	Annual Cost (US$M/y)	Unit Cost (US$/t)
Reagents	20.4	0.93	40.2	0.92
Consumables	25.1	1.15	50.3	1.15
Plant Maintenance	7.6	0.35	14.6	0.33
Power	31.6	1.44	62.9	1.44
Labour	3.6	0.16	4.9	0.11
Water	1.8	0.08	3.6	0.08
Total	**90.1**	**4.12**	**176.4**	**4.03**

Note: Totals may not sum due to rounding.

21.3.4.1 Reagents and Consumables

Reagents, grinding media and various consumables are required for processing the Santo Tomás mineralized materials. The consumption rates of each of the consumable item are based on the metallurgical test work outlined in Section 13 and are dependent on the planned process plant throughput per phase. A detailed breakdown of the reagents (including molybdenum) and consumable costs for processing sulphide materials is presented in Table 21-11 by major process area. Reagent costs were updated to reflect Q2 2024 pricing and consumable quantities were reviewed and adjusted to reflect typical usage rates per operating plants.

Table 21-11: Processing Reagent & Consumables Operating Cost Summary

Cost Area	Phase I		Phase II	
	Annual Costs (US$M)	US$/t Milled	Annual Costs (US$M)	US$/t Milled
Crushing	4.56	0.21	9.13	0.21
Grinding	19.6	0.89	39.2	0.89
Bulk & Cu Flotation	14.3	0.65	28.7	0.65
Mo Flotation	1.95	0.09	3.69	0.09
Tailings	4.56	0.21	9.13	0.21
Process Control	0.57	0.01	0.57	0.01
Total	**45.6**	**2.07**	**90.4**	**2.07**

Note: Totals may not sum due to rounding.

21.3.4.2 Labour Costs

Labour costs for the process plant were established by referencing benchmarks from similar projects, incorporating salaries and hourly wages based on comparable projects in Mexico, and accounting for anticipated local industry rates. It is projected that 130 operators will be employed during Phase I and 186 operators are required for operation of the process plant during Phase II. The annual labour costs are estimated at US$3.6M, with a unit cost of US$0.16/t processed for Phase I, and US$4.9M, with a unit cost of US$0.11/t processed for Phase II.

21.3.4.3 Power Costs

Power operating costs are determined by estimating the annual power consumption using the new unit cost of US$0.072/kWh. The projected annual power consumption for the process plant is derived from the average rather than design utilization of each motor as listed in the electrical load list developed for the Project. Table 21-12 presents a summary of the installed electrical power, usage, and associated costs for both Phase I and Phase II of the Project.

Table 21-12: Power Operating Cost Summary

Phase	Installed (kW)	Operating (kW)	Consumption (MWh/y)	Annual Cost (US$M/y)	Unit Cost (US$/t)
Phase I	75,276	54,997	438,947	31.6	1.44
Phase II	149,438	109,398	873,542	62.9	1.44

21.3.4.4 Plant Maintenance

An allowance was made to cover the cost of maintenance of the equipment and the cost of maintenance of the facilities. The allowance was calculated for each project area as a percentage of the installed equipment cost. The cost for maintenance supplies was estimated at US$0.35/t processed for Phase I and US$0.33/t processed for Phase II, respectively.

21.3.4.5 Water Consumption Costs

The water consumption costs for the Project considers the makeup water demand per phase (1,122 m^3/h and 2,244 m^3/h estimated from the process water balance developed for Phase I and Phase II, respectively). Clean water sourced from groundwater and the appropriate concession tariff are established in article 223 of the Mexican law titled Ley Federal de Derechos (officially issued by CONAGUA), published on April 23, 2024, in the Diario Oficial de la Federación. An availability index (Idas) was calculated as stated in article 231 of the law. This index is required to determine the corresponding availability zone number applicable to the Project, which, in the case of the Santo Tomás Project, has been identified as zone 3. Per article 223 of the law, MXN$3.9579 is the cost per cubic meter of groundwater consumption by the plant for zone 3.

21.3.5 General and Administrative Costs

Revised annual estimates for general and administrative (G&A) costs are US$21.8 M and US$25.3 M for Phase I and Phase II, respectively averaging US$24M over LOM or US$0.65 per tonne milled. These costs were benchmarked against Ausenco's in-house data from existing operations which were reviewed and supplemented by Oroco and include the following items:

- Human resources (including recruiting, training, and community relations).
- Light vehicle fleet (including gas and maintenance).
- Infrastructure power (HVAC and administrative buildings).
- Site administration, maintenance, and security (including office equipment, garbage disposal).
- Assets operation (including non-operation-related light vehicles).
- Health and safety (including personal protective equipment, hospital service cost).
- Environmental (including sampling).
- IT and telecommunications (including hardware and support services).
- Contract services (including insurance, sanitation, license fees, legal fees and lab assays).
- Regional administrative staffing salaries.

22 ECONOMIC ANALYSIS

22.1 Forward-Looking Information Cautionary Statements

The results of the economic analyses discussed in this section represent forward-looking information as defined under Canadian securities law. The results depend on inputs that are subject to known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here. Information that is forward-looking includes the following:

- Mineral Resource Estimate.
- Assumed commodity prices and exchange rates.
- The proposed mine production plan.
- Projected mining and process recovery rates.
- Assumptions as to mining dilution and ability to mine in areas previously exploited using mining methods as envisaged the timing and amount of estimated future production.
- Sustaining costs and proposed operating costs.
- Assumptions as to closure costs and closure requirements.
- Assumptions as to environmental, permitting, and social risks.

Additional risks to the forward-looking information include:

- Changes to costs of production from what is assumed.
- Unrecognized environmental risks.
- Unanticipated reclamation expenses.
- Unexpected variations in quantity of mineralized material, grade, or recovery rates.
- Accidents, labour disputes and other risks of the mining industry.
- Geotechnical or hydrogeological considerations during mining being different from what was assumed.
- Failure of mining methods to operate as anticipated.
- Failure of plant, equipment, or processes to operate as anticipated.
- Changes to assumptions as to the availability of electrical power, the power rates, natural gas, diesel and the water rates used in the operating cost estimates and financial analysis.
- Ability to maintain the social license to operate.

- Changes to interest rates.
- Changes to tax rates.

22.2 Methodologies Used

The Project has been evaluated using a discounted cash flow (DCF) analysis based on an 8% discount rate. Cash inflows consist of annual revenue projections. Cash outflows consist of capital expenditures, including pre-production costs; operating costs; taxes; and royalties. These are subtracted from the inflows to arrive at the annual cash flow projections. Cash flows are taken to occur at the mid-point of each period. It must be noted that tax calculations involve complex variables that can only be accurately determined during operations and, as such, the actual post-tax results may differ from those estimated. A sensitivity analysis was performed to assess the impact of variations in metals price, discount rate, head grade, recovery, total operating cost, and total capital costs.

The capital and operating cost estimates developed specifically for this project are presented in Section 21 in Q2 2024 American dollars. The economic analysis has been run on a constant dollar basis with no inflation.

22.3 Financial Model Parameters

22.3.1 Assumptions

The economic analysis was performed assuming the copper price of US$4.00/lb, molybdenum price of US$15.00/lb, gold price of US$1,900/oz and silver price of US$24.00/oz; these metal prices were based on consensus analyst estimates and recently published economic studies. The forecasts used are meant to reflect the average metals price expectation over the life of the Project. No price inflation or escalation factors were taken into account. Commodity prices can be volatile, and there is the potential for deviation from the forecast.

The economic analysis also used the following assumptions:

- Construction period of two years.
- Total mine life of 22.6 years.
- Cost estimates in constant Q2 2024 American dollars with no inflation or escalation factors considered.
- Results based on 100% ownership with a 1.5% net smelter return (NSR) royalty.
- Capital cost funded with 100% equity (no financing cost assumed).
- All cash flows discounted to start of construction period using mid-period discounting convention.
- All metal products are sold in the same year they are produced.
- Project revenue is derived from the sale of copper concentrate and molybdenum concentrate with gold and silver credits payable in the copper concentrate.
- No contractual arrangements for refining currently exist.

22.3.2 Taxes

The Project has been evaluated on a post-tax basis to provide an approximate value of the potential economics. The tax model was compiled by Ausenco and reviewed by EY. All tax calculations are based on the tax regime as of the date of this technical report. At the effective date of this report, the Project is assumed to be subject to:

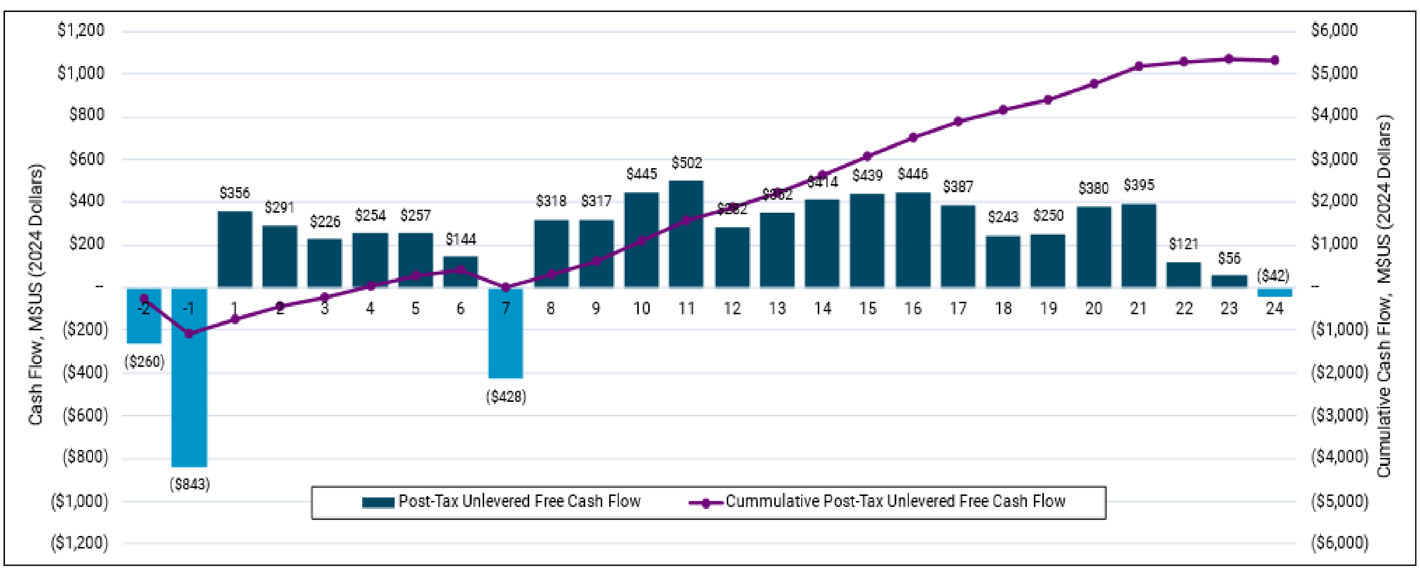
- The Mexican federal corporate income tax of 30.0%.
- The 7.5% federal special mining duty (SMD) levied on the sale of all metals net of operating costs, sale costs, and depreciation.
- The 0.5% federal extraordinary mining duty (EMD) levied on the sale of all precious metals.
- The government regulated employee profit sharing agreement calculated as the lesser of 10% of taxable profit or 25% of salaries paid.

The culmination of these taxes results in an estimated total tax, government duty, and profit-sharing payment of US$3,202.1M over the life of mine.

22.4 Economic Analysis

The economic analysis was performed assuming an 8% discount rate. The pre-tax $NPV_{8\%}$ is US$2,640.5M; the internal rate of return (IRR) is 30.3%, and payback period is 2.9 years. On a post-tax basis, the $NPV_{8\%}$ is US$1,475.4M; the IRR is 22.2%, and the payback period is 3.8 years. A summary of project economics is tabulated in Table 22-1. The analysis was done on an annual cashflow basis; the cashflow output is shown in Table 22-2 and cashflow is represented graphically in Figure 22-1 on a post-tax basis.

Figure 22-1: Undiscounted, Unlevered, Free Cash Flow – Post-Tax



Source: Ausenco, 2024.

Table 22-1: Economic Analysis Summary

General	Units	LOM Total / Avg.
Copper Price	US$/lb	4.00
Molybdenum Price	US$/lb	15.00
Gold Price	US$/oz	1,900
Silver Price	US$/oz	24.00
Mine Life	Years	22.6
Total Mill Feed	kt	825,475
Production	**Units**	**LOM Total / Avg.**
Mill Feed Grade – Cu	%	0.33
Mill Feed Grade – Mo	%	0.008
Mill Feed Grade – Au	g/t	0.028
Mill Feed Grade – Ag	g/t	2.08
Total Metal Content – Cu	M lb	5,916
Total Metal Content – Mo	M lb	138.7
Total Metal Content – Au	koz	753.4
Total Metal Content – Ag	koz	55,200
Recovery Rate – Cu	%	83.8%
Recovery Rate – Mo	%	59.1%
Recovery Rate – Au	%	56.8%
Recovery Rate – Ag	%	53.7%
Total Production – Cu	M lb	4,960
Total Production – Mo	M lb	82.0
Total Production – Au	koz	427.9
Total Production – Ag	koz	29,636
Annual Production – Cu	M lb/y	219.2
Average Annual Production – Mo	M lb/y	3.6
Average Annual Production – Au	koz/y	18.9
Average Annual Production – Ag	koz/y	1,309.6
Operating Costs	**Units**	**LOM Total / Avg.**
Mining Cost (1)	US$/t mined	2.04
Mining Cost (1)	US$/t milled	4.78
Mining Leasing Cost	US$/t milled	0.06
Processing Cost	US$/t milled	4.04
G&A Cost	US$/t milled	0.65
Total Operating Costs(1)	US$/t milled	9.57
C1 Cash Costs(2)	US$/lb Cu	1.54
C3 Cash Costs (AISC)(3)	US$/lb Cu	2.00
Capital Costs	**Units**	**LOM Total / Avg.**
Initial Capital(4)	US$M	1,103.5
Expansion Capital	US$M	687.2
Sustaining Capital(4)	US$M	1,047.0
Closure Costs	US$M	209.2

Financials	Units	Pre-Tax	Post-Tax
$NPV_{8\%}$	US$M	2,640.5	1,475.4
IRR	%	30.3	22.2
Payback	Years	2.9	3.8

Notes:

1. Excluding leasing costs.
2. C1 Cash costs consist of mining costs, processing costs, mine-level G&A and refining charges and royalties on a by-product basis.
3. C3 Cash costs (AISC) include cash costs plus sustaining capital, expansion capital, and closure costs on a by-product basis.
4. Net of leasing costs, deposits, and capital deferment.

Table 22-2: Project Cash Flow

Macro Assumptions	Units	Total / Avg.	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Copper Price	US/lb	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Molybdenum Price	US/lb	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Gold Price	US/oz	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900	1,900
Silver Price	US/oz	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00
Revenue	**US$M**	**21,517**	**--**	**--**	**727**	**819**	**676**	**798**	**814**	**706**	**811**	**987**	**982**	**1,311**	**1,390**	**974**	**1,079**	**1,164**	**1,227**	**1,222**	**1,155**	**898**	**892**	**1,069**	**1,004**	**538**	**274**	**--**
Off-Site Costs	US$M	(1,853)	--	--	(60)	(69)	(56)	(67)	(69)	(60)	(68)	(84)	(84)	(112)	(120)	(86)	(95)	(99.)	(105)	(109)	(102)	(79)	(79)	(95)	(85)	(47)	(24)	--
Royalties	US$M	(295)	--	--	(10.0)	(11.2)	(9.3)	(11.0)	(11.2)	(9.7)	(11.1)	(13.5)	(13.5)	(18.0)	(19.1)	(13.3)	(14.8)	(16.0)	(16.8)	(16.7)	(15.8)	(12.3)	(12.2)	(14.6)	(13.8)	(7.4)	(3.8)	--
Operating Cost	US$M	(7,897)	--	--	(224)	(256)	(260)	(257)	(261)	(293)	(315)	(406)	(423)	(420)	(440)	(438)	(431)	(415)	(395)	(410)	(418)	(398)	(386)	(350)	(305)	(263)	(134)	--
EBITDA	**US$M**	**11,472**	**--**	**--**	**433**	**483**	**350**	**464**	**473**	**344**	**417**	**483**	**461**	**760**	**811**	**437**	**538**	**635**	**710**	**687**	**619**	**409**	**415**	**610**	**600**	**221**	**112**	**--**
Initial Capex	US$M	(1,104)	(260)	(843)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Expansion Capex	US$M	(687)	--	--	--	--	--	--	--	--	(687)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sustaining Capex	US$M	(1,047)	--	--	(36.9)	(59.9)	(41.2)	(88.6)	(96.0)	(132.4)	(60.8)	(50.9)	(26.6)	(88.9)	(66.2)	(42.9)	(37.2)	(36.1)	(56.7)	(17.6)	(23.0)	(32.0)	(28.5)	(23.3)	(1.0)	--	--	--
Closure Capex	US$M	(209)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	(41.8)	(41.8)	(41.8)
Change in Working Capital	US$M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pre-Tax Unlevered Free Cash Flow	**US$M**	**8,425**	**(260)**	**(844)**	**396**	**423**	**309**	**375**	**377**	**212**	**(331)**	**432**	**434**	**672**	**745**	**395**	**501**	**599**	**654**	**670**	**596**	**377**	**386**	**586**	**599**	**179**	**70**	**(42)**
Income Tax, SMD, EMD and PTU	US$M	(3,202)	--	--	(36)	(107)	(88)	(126)	(124)	(73)	(42)	(119)	(121)	(231)	(247)	(117)	(153)	(189)	(232)	(232)	(209)	(135)	(137)	(207)	(204)	(58)	(15)	--
Post-Tax Unlevered Free Cash Flow	**US$M**	**5,223**	**(260)**	**(843)**	**360**	**315**	**221**	**249**	**252**	**139**	**(373)**	**313**	**313**	**441**	**498**	**278**	**348**	**409**	**422**	**438**	**387**	**242**	**249**	**380**	**395**	**121**	**55**	**(42)**
Production Summary																												
Waste Mined Total	Mt	1,139.3	--	23.3	36.2	32.8	44.0	38.7	33.5	57.4	69.4	84.5	80.8	55.3	54.7	66.7	74.3	59.7	48.3	48.2	60.5	67.7	60.9	31.2	11.2	0.04	--	--
Mineralized Material Mined Total	Mt	825.5	--	3.9	19.7	32.2	22.5	31.0	32.0	23.8	32.6	20.1	29.2	50.6	53.8	49.3	41.7	52.0	60.0	60.0	45.3	36.3	43.1	48.8	36.9	0.6	--	--
Mineralized Material Mined to Mill	Mt	675.9	--	--	14.1	22.0	19.1	21.9	21.9	18.1	21.9	15.3	29.2	43.9	43.4	41.4	41.5	43.2	43.8	43.8	36.8	33.5	42.4	43.8	34.3	0.6	--	--
Mineralized Material Mined to Stockpile	Mt	149.6	--	3.9	5.6	10.3	3.4	9.1	10.1	5.7	10.7	4.8	0.0	6.7	10.4	7.9	0.2	8.8	16.2	16.1	8.6	2.8	0.7	5.0	2.6	--	--	--
Stockpile to Mill	Mt	149.6	--	--	3.4	--	2.8	--	--	3.9	--	24.9	14.6	--	0.4	2.4	2.3	0.7	--	--	7.0	10.4	1.4	--	9.5	43.3	22.6	--
Total Mill Feed	Mt	825.5	--	--	17.5	22.0	21.9	21.9	21.9	22.0	21.9	40.2	43.8	43.9	43.8	43.8	43.8	43.9	43.8	43.8	43.8	43.9	43.8	43.8	43.8	43.9	22.6	--
Project Life	y	22.6	--	--	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	--
Processing Summary																												
Mill Feed - Cu Grade	%	0.33%	--	--	0.49%	0.45%	0.37%	0.44%	0.44%	0.39%	0.44%	0.30%	0.29%	0.37%	0.39%	0.29%	0.31%	0.33%	0.35%	0.35%	0.33%	0.26%	0.26%	0.31%	0.29%	0.17%	0.16%	--
Mill Feed - Mo Grade	%	0.01%	--	--	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	--
Mill Feed - Au Grade	g/t	0.0	--	--	0.06	0.05	0.06	0.06	0.04	0.04	0.05	0.03	0.03	0.03	0.03	0.02	0.02	0.03	0.03	0.02	0.02	0.02	0.01	0.02	0.03	0.02	0.02	--
Mill Feed - Ag Grade	g/t	2.08	--	--	2.15	2.13	1.90	2.48	2.52	2.39	2.68	2.15	1.75	1.96	2.23	1.98	2.22	2.63	2.29	2.02	2.03	2.17	1.79	1.77	2.11	1.54	1.54	--
Total Cu Content	**M lb**	**5,916**	**--**	**--**	**191**	**216**	**180**	**212**	**213**	**189**	**213**	**269**	**276**	**360**	**374**	**275**	**302**	**321**	**340**	**343**	**318**	**251**	**255**	**297**	**279**	**160**	**82**	**--**
Total Mo Content	**M lb**	**138.7**	**--**	**--**	**1.9**	**3.7**	**3.1**	**2.6**	**4.7**	**3.7**	**3.1**	**6.7**	**5.6**	**6.5**	**9.0**	**8.2**	**8.8**	**5.4**	**5.7**	**8.8**	**11.1**	**8.9**	**7.5**	**10.7**	**5.5**	**5.0**	**2.6**	**--**
Total Au Content	**koz**	**753.4**	**--**	**--**	**36.1**	**36.3**	**39.6**	**39.3**	**30.8**	**28.7**	**36.0**	**40.9**	**39.8**	**46.0**	**39.2**	**26.3**	**25.0**	**40.5**	**41.5**	**29.4**	**26.7**	**24.7**	**20.1**	**25.4**	**42.7**	**25.30**	**12.94**	**--**
Total Ag Content	**koz**	**55,200**	**--**	**--**	**1,211**	**1,504**	**1,339**	**1,748**	**1,777**	**1,691**	**1,886**	**2,776**	**2,458**	**2,775**	**3,142**	**2,786**	**3,121**	**3,717**	**3,228**	**2,843**	**2,858**	**3,062**	**2,527**	**2,487**	**2,968**	**2,181**	**1,115**	**--**
Average Concentrator Recovery - Copper	%	83.8%	--	--	88.0%	86.9%	85.0%	86.7%	86.8%	85.5%	86.8%	82.8%	82.2%	85.0%	85.4%	82.2%	83.1%	83.8%	84.4%	84.5%	83.7%	81.2%	81.4%	83.0%	82.3%	76.4%	76.3%	--
Average Concentrator Recovery - Molybdenum	%	59.1%	--	--	58.9%	59.1%	59.0%	59.0%	59.2%	59.1%	59.0%	59.1%	59.0%	59.0%	59.2%	59.2%	59.2%	59.0%	59.0%	59.2%	59.4%	59.2%	59.1%	59.3%	59.0%	58.9%	58.9%	--
Average Concentrator Recovery - Gold	%	56.8%	--	--	80.5%	72.5%	65.1%	71.6%	71.6%	64.4%	73.8%	53.1%	47.6%	59.9%	62.8%	45.5%	49.7%	52.4%	53.3%	53.5%	53.4%	41.6%	42.2%	49.4%	49.1%	22.7%	22.1%	--
Average Concentrator Recovery - Silver	%	53.7%	--	--	55.1%	54.1%	53.9%	56.6%	58.4%	57.1%	61.4%	56.5%	50.8%	52.2%	56.0%	52.1%	54.2%	56.0%	50.8%	49.7%	53.9%	54.1%	51.1%	50.9%	54.6%	48.8%	48.6%	--
Total Copper Produced	**M lb**	**4,960**	**--**	**--**	**168**	**188**	**153**	**183**	**185**	**161**	**185**	**223**	**227**	**305**	**320**	**226**	**251**	**269**	**287**	**289**	**266**	**204**	**207**	**246**	**230**	**122**	**62**	**--**
Total Molybdenum Produced	**M lb**	**82.0**	**--**	**--**	**1.11**	**2.17**	**1.84**	**1.54**	**2.78**	**2.21**	**1.82**	**3.93**	**3.31**	**3.82**	**5.36**	**4.85**	**5.19**	**3.16**	**3.34**	**5.24**	**6.57**	**5.28**	**4.43**	**6.33**	**3.26**	**2.96**	**1.53**	**--**
Total Gold Produced	**koz**	**427.9**	**--**	**--**	**29.0**	**26.3**	**25.7**	**28.2**	**22.0**	**18.5**	**26.6**	**21.7**	**19.0**	**27.6**	**24.6**	**12.0**	**12.4**	**21.2**	**22.1**	**15.7**	**14.3**	**10.3**	**8.5**	**12.5**	**21.0**	**5.8**	**2.9**	**--**
Total Silver Produced	**koz**	**29,636**	**--**	**--**	**667**	**814**	**722**	**988**	**1,038**	**965**	**1,159**	**1,569**	**1,250**	**1,447**	**1,760**	**1,451**	**1,693**	**2,083**	**1,642**	**1,412**	**1,539**	**1,655**	**1,292**	**1,265**	**1,619**	**1,065**	**542**	**--**
Cu Concentrate Produced - Dry	kt	8,458	--	--	286	321	261	313	316	275	316	380	387	521	545	386	428	459	489	494	454	347	354	420	392	209	106	--
Cu Concentrate Produced - Wet	kt	9,295	--	--	315	352	287	344	347	302	347	417	425	572	599	424	470	504	538	542	499	382	389	462	431	229	117	--
Mo Concentrate Produced - Dry	kt	82.7	--	--	1.1	2.2	1.8	1.5	2.8	2.2	1.8	4.0	3.3	3.9	5.4	4.9	5.2	3.2	3.4	5.3	6.6	5.3	4.5	6.4	3.3	3.0	1.5	--
Mo Concentrate Produced - Wet	kt	87.0	--	--	1.2	2.3	1.9	1.6	2.9	2.3	1.9	4.2	3.5	4.1	5.7	5.1	5.5	3.4	3.5	5.6	7.0	5.6	4.7	6.7	3.5	3.1	1.6	--
Total Payable Copper	**M lb**	**4,774**	**--**	**--**	**162**	**181**	**147**	**177**	**178**	**155**	**178**	**214**	**218**	**294**	**308**	**218**	**241**	**259**	**276**	**279**	**256**	**196**	**200**	**237**	**221**	**118**	**60**	**--**
Total Payable Molybdenum	**M lb**	**80.8**	**--**	**--**	**1.09**	**2.13**	**1.81**	**1.51**	**2.73**	**2.18**	**1.80**	**3.87**	**3.26**	**3.77**	**5.28**	**4.78**	**5.11**	**3.12**	**3.29**	**5.16**	**6.47**	**5.20**	**4.37**	**6.24**	**3.21**	**2.91**	**1.51**	**--**
Total Payable Gold	**koz**	**300.2**	**--**	**--**	**26.1**	**23.7**	**23.2**	**25.3**	**19.8**	**16.7**	**23.9**	**19.5**	**17.1**	**24.8**	**22.2**	**--**	**--**	**19.1**	**19.9**	**--**	**--**	**--**	**--**	**--**	**18.9**	**--**	**--**	**--**
Total Payable Silver	**koz**	**26,673**	**--**	**--**	**600**	**733**	**650**	**890**	**934**	**868**	**1,043**	**1,412**	**1,125**	**1,302**	**1,584**	**1,306**	**1,523**	**1,875**	**1,477**	**1,270**	**1,385**	**1,490**	**1,163**	**1,139**	**1,457**	**958**	**488**	**--**
Total Payable Copper Equivalent[1]	**M lb CuEq**	**5,324**	**--**	**--**	**180**	**202**	**167**	**197**	**201**	**175**	**200**	**244**	**243**	**325**	**344**	**241**	**267**	**288**	**304**	**303**	**286**	**222**	**221**	**265**	**248**	**133**	**68**	**--**
Total Operating Costs	**US$M**	**(7,897)**	**--**	**--**	**(224)**	**(256)**	**(260)**	**(257)**	**(261)**	**(293)**	**(315)**	**(406)**	**(423)**	**(420)**	**(440)**	**(438)**	**(431)**	**(415)**	**(395)**	**(410)**	**(418)**	**(398)**	**(386)**	**(350)**	**(305)**	**(263)**	**(134)**	**--**
Mine Operating Costs	US$M	(3,995)	--	--	(134)	(144)	(148)	(145)	(147)	(178)	(201)	(219)	(222)	(218)	(237)	(234)	(227)	(210)	(191)	(206)	(214)	(193)	(184)	(148)	(103)	(61)	(30)	--
Mill Processing Costs (Excluding Molybdenum)	US$M	(3,338)	--	--	(72)	(90)	(90)	(90)	(90)	(90)	(90)	(162)	(176)	(177)	(176)	(176)	(176)	(177)	(176)	(176)	(176)	(177)	(176)	(176)	(176)	(177)	(91)	--
G&A Costs Total	US$M	(539)	--	--	(17.4)	(21.9)	(21.8)	(21.8)	(21.8)	(21.9)	(21.8)	(23.2)	(25.3)	(25.4)	(25.3)	(25.3)	(25.3)	(25.4)	(25.3)	(25.3)	(25.3)	(25.4)	(25.3)	(25.3)	(25.3)	(25.4)	(13.0)	--
Total Unit Operating Costs	US$/t milled	(9.6)	--	--	(12.8)	(11.6)	(11.9)	(11.8)	(11.9)	(13.3)	(14.4)	(10.1)	(9.7)	(9.6)	(10.1)	(10.0)	(9.8)	(9.4)	(9.0)	(9.4)	(9.5)	(9.1)	(8.8)	(8.0)	(7.0)	(6.0)	(6.0)	--
Total Offsite Charges	**US$M**	**(1,853)**	**--**	**--**	**(60)**	**(69)**	**(56)**	**(67)**	**(69)**	**(60)**	**(68)**	**(84)**	**(84)**	**(112)**	**(120)**	**(86)**	**(95)**	**(99)**	**(105)**	**(109)**	**(102)**	**(79)**	**(79)**	**(95)**	**(85)**	**(47)**	**(24)**	**--**
Cu Concentrate Transport Cost	US$M	(734)	--	--	(24.9)	(27.8)	(22.7)	(27.2)	(27.4)	(23.9)	(27.4)	(33.0)	(33.6)	(45.2)	(47.3)	(33.5)	(37.1)	(39.8)	(42.5)	(42.8)	(39.4)	(30.2)	(30.7)	(36.5)	(34.0)	(18.1)	(9.2)	--
Mo Concentrate Transport Cost	US$M	(6.9)	--	--	(0.1)	(0.2)	(0.2)	(0.1)	(0.2)	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)	(0.4)	(0.4)	(0.4)	(0.3)	(0.3)	(0.4)	(0.6)	(0.4)	(0.4)	(0.5)	(0.3)	(0.2)	(0.1)	--
Cu Concentrate Treatment Charges	US$M	(634)	--	--	(21.5)	(24.1)	(19.6)	(23.5)	(23.7)	(20.6)	(23.7)	(28.5)	(29.0)	(39.1)	(40.9)	(28.9)	(32.1)	(34.4)	(36.7)	(37.0)	(34.0)	(26.1)	(26.5)	(31.5)	(29.4)	(15.7)	(8.0)	--

Macro Assumptions	Units	Total / Avg.	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mo Concentrate Treatment Charges	US$M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cu Refining Charges	US$M	(358)	--	--	(12.1)	(13.6)	(11.1)	(13.2)	(13.4)	(11.6)	(13.4)	(16.1)	(16.4)	(22.0)	(23.1)	(16.3)	(18.1)	(19.4)	(20.7)	(20.9)	(19.2)	(14.7)	(15.0)	(17.8)	(16.6)	(8.8)	(4.5)	--
Mo Refining Charges	US$M	(105)	--	--	(1.4)	(2.8)	(2.4)	(2.0)	(3.6)	(2.8)	(2.3)	(5.0)	(4.2)	(4.9)	(6.9)	(6.2)	(6.6)	(4.1)	(4.3)	(6.7)	(8.4)	(6.8)	(5.7)	(8.1)	(4.2)	(3.8)	(2.0)	--
Au Refining Charges	US$M	(1.5)	--	--	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	--	--	(0.1)	(0.1)	--	--	--	--	--	(0.1)	--	--	--
Ag Refining Charges	US$M	(13.3)	--	--	(0.3)	(0.4)	(0.3)	(0.4)	(0.5)	(0.4)	(0.5)	(0.7)	(0.6)	(0.7)	(0.8)	(0.7)	(0.8)	(0.9)	(0.7)	(0.6)	(0.7)	(0.7)	(0.6)	(0.6)	(0.7)	(0.5)	(0.2)	--
NSR Royalties	**US$M**	**(295)**	**--**	**--**	**(10.0)**	**(11.2)**	**(9.3)**	**(11.0)**	**(11.2)**	**(9.7)**	**(11.1)**	**(13.5)**	**(13.5)**	**(18.0)**	**(19.1)**	**(13.3)**	**(14.8)**	**(16.0)**	**(16.8)**	**(16.7)**	**(15.8)**	**(12.3)**	**(12.2)**	**(14.6)**	**(13.8)**	**(7.4)**	**(3.8)**	**--**
Cash Costs (By-Product Basis)																												
C1 Cash Cost(2)	US$/ lb Cu	1.54	--	--	1.26	1.27	1.56	1.31	1.28	1.72	1.60	1.68	1.83	1.35	1.30	1.93	1.71	1.49	1.37	1.47	1.52	1.85	1.86	1.37	1.23	2.07	2.07	--
C3 Cash Cost(3)	US$/ lb Cu	2.00	--	--	1.55	1.66	1.90	1.88	1.89	2.64	5.86	1.99	2.01	1.72	1.58	2.19	1.92	1.69	1.63	1.60	1.67	2.08	2.06	1.53	1.29	2.48	2.83	--
Total Initial Capital	**US$M**	**(1,104)**	**(260)**	**(844)**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Open Pit Mine Pre-Strip and Pre-Production Mining	US$M	(76)	--	(75)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mine Capital Cost & Contingency	US$M	(81)	(26)	(55)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mine Lease Capitalized Interest	US$M	(8)	--	(8)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Process Plant Direct Costs	US$M	(586)	(147)	(440)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Process Plant Indirect Costs	US$M	(141)	(35)	(106)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Owners Costs	US$M	(23)	(6)	(18)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Processing Contingency Costs	US$M	(188)	(47)	(141)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Expansion Capital	**US$M**	**(687)**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**(687)**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
Process Plant Direct Costs	US$M	(428)	--	--	--	--	--	--	--	--	(428)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Process Plant Indirect Costs	US$M	(106)	--	--	--	--	--	--	--	--	(106)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Owners Costs	US$M	(17)	--	--	--	--	--	--	--	--	(17)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Processing Contingency Costs	US$M	(136)	--	--	--	--	--	--	--	--	(136)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Sustaining Capital	**US$M**	**(1,047)**	**--**	**--**	**(37)**	**(60)**	**(41)**	**(89)**	**(96)**	**(132)**	**(61)**	**(51)**	**(27)**	**(89)**	**(66)**	**(43)**	**(37)**	**(36)**	**(57)**	**(18)**	**(23)**	**(32)**	**(29)**	**(23)**	**(1)**	**--**	**--**	**--**
Mine Capital Cost & Contingency	US$M	(952)	--	--	(37)	(60)	(41)	(68)	(82)	(132)	(61)	(51)	(27)	(57)	(66)	(43)	(37)	(36)	(29)	(18)	(23)	(32)	(29)	(23)	(1)	--	--	--
DSTF	US$M	(95)	--	--	--	--	--	(21)	(14)	--	--	--	--	(32)	--	--	--	--	(28)	--	--	--	--	--	--	--	--	--
Closure Cost	US$M	(209)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	(42)	(42)	(42)
Total Capital Expenditures Including Salvage Value	**US$M**	**(3,047)**	**(260)**	**(844)**	**(37)**	**(60)**	**(41)**	**(89)**	**(96)**	**(132)**	**(748)**	**(51)**	**(27)**	**(89)**	**(66)**	**(43)**	**(37)**	**(36)**	**(57)**	**(18)**	**(23)**	**(32)**	**(29)**	**(23)**	**(1)**	**(42)**	**(42)**	**(42)**

Notes:

1. CuEq is calculated based on the following metal pricing assumptions in line with the prior 2023 PEA study: US$4.00/lb Cu, US$13.50/lb Mo, US$1,700/oz Au, and US$22.50/oz Ag.
2. C1 Cash costs consist of mining costs, processing costs, mine-level G&A and transportation costs.
3. C3 Cash costs includes C1 cash costs plus sustaining capital, expansion capital, royalties, and closure costs.
4. Dollar figures in Real 2024 US$M unless otherwise noted.

Readers are cautioned that the PEA is preliminary in nature. It includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the PEA will be realized.

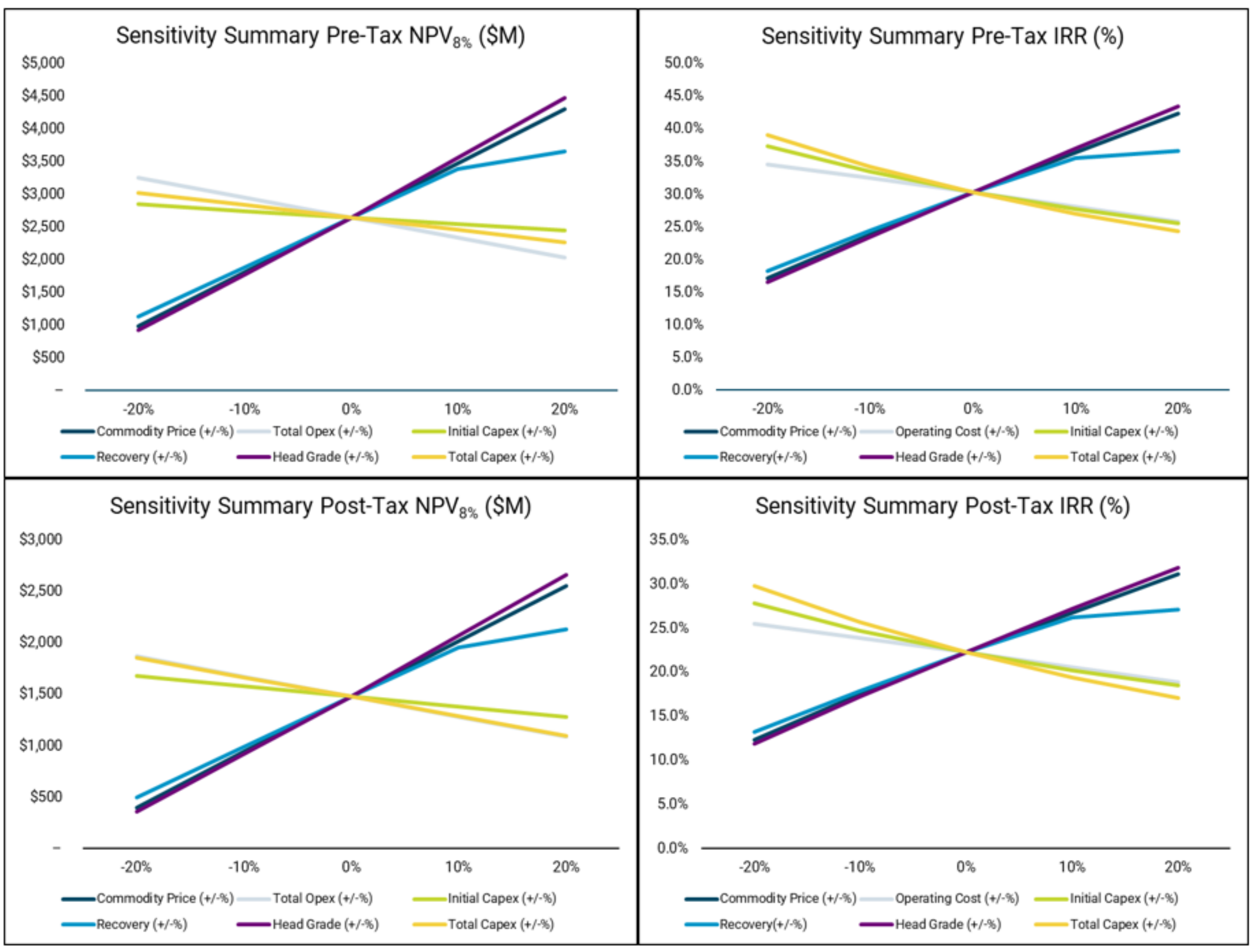
22.5 Sensitivity Analysis

A sensitivity analysis was conducted on the base case pre-tax and post-tax NPV and IRR of the Project, using the following variables: metal prices, discount rate, total operating cost, initial capital cost, recovery, head grade, and total capital cost.

Table 22-3 shows the post-tax sensitivity analysis results; pre-tax sensitivity results are shown in Table 22-4.

As shown in Figure 22-2, the sensitivity analysis revealed that the Project is most sensitive to changes in commodity price, recovery, and head grade, and less sensitive to total operating cost, initial capital cost, and total capital cost.

Figure 22-2: Pre- and Post-Tax NPV and IRR Sensitivity Results



Source: Ausenco, 2024.

Table 22-3: Post-Tax Sensitivity Summary

Post-Tax Sensitivity to Metal Price

Post-Tax NPV$_{8\%}$ (USM)Sensitivity to Discount Rate

Discount Rate	Commodity Price				
	(20.0%)	(10.0%)	--	10.0%	20.0%
3.0%	$1,367	$2,303	$3,235	$4,168	$5,100
5.0%	$885	$1,626	$2,364	$3,102	$3,840
7.0%	$537	$1,134	$1,728	$2,323	$2,917
8.0%	$400	$939	**$1,475**	$2,013	$2,549
10.0%	$182	$627	$1,069	$1,512	$1,954

Post-Tax IRR (%) Sensitivity to Discount Rate

Discount Rate	Commodity Price				
	(20.0%)	(10.0%)	--	10.0%	20.0%
3.0%	12.3%	17.5%	22.2%	26.7%	31.1%
5.0%	12.3%	17.5%	22.2%	26.7%	31.1%
7.0%	12.3%	17.5%	22.2%	26.7%	31.1%
8.0%	12.3%	17.5%	**22.2%**	26.7%	31.1%
10.0%	12.3%	17.5%	22.2%	26.7%	31.1%

Post-Tax NPV$_{8\%}$ (USM) Sensitivity to OPEX

Total OPEX	Commodity Price				
	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	$796	$1,332	$1,869	$2,406	$2,942
(10.0%)	$598	$1,136	$1,672	$2,209	$2,746
--	$400	$939	**$1,475**	$2,013	$2,549
10.0%	$200	$742	$1,279	$1,816	$2,352
20.0%	($1)	$544	$1,083	$1,619	$2,156

Post-Tax IRR (%) Sensitivity to OPEX

Total OPEX	Commodity Price				
	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	16.1%	20.9%	25.4%	29.8%	34.0%
(10.0%)	14.2%	19.2%	23.8%	28.3%	32.6%
--	12.3%	17.5%	**22.2%**	26.7%	31.1%
10.0%	10.2%	15.7%	20.6%	25.2%	29.6%
20.0%	8.0%	13.8%	18.9%	23.6%	28.1%

Post-Tax NPV$_{8\%}$ (USM) Sensitivity to Initial CAPEX

Initial CAPEX	Commodity Price				
	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	$600	$1,140	$1,676	$2,213	$2,749
(10.0%)	$500	$1,039	$1,576	$2,113	$2,649
--	$400	$939	**$1,475**	$2,013	$2,549
10.0%	$300	$839	$1,375	$1,912	$2,449
20.0%	$200	$739	$1,275	$1,812	$2,349

Post-Tax IRR (%) Sensitivity to Initial CAPEX

Initial CAPEX	Commodity Price				
	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	15.8%	22.0%	27.8%	33.4%	38.7%
(10.0%)	13.9%	19.5%	24.7%	29.7%	34.5%
--	12.3%	17.5%	**22.2%**	26.7%	31.1%
10.0%	11.0%	15.8%	20.2%	24.4%	28.3%
20.0%	9.8%	14.4%	18.5%	22.4%	26.0%

Post-Tax NPV$_{8\%}$ (USM) Sensitivity to Mill Recovery

Mill Recovery	Commodity Price				
	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	($406)	$56	$492	$924	$1,352
(10.0%)	$9	$500	$985	$1,468	$1,951
--	$400	$939	**$1,475**	$2,013	$2,549
10.0%	$776	$1,364	$1,954	$2,543	$3,131
20.0%	$915	$1,523	$2,131	$2,739	$3,347

Post-Tax IRR (%) Sensitivity to Mill Recovery

Mill Recovery	Commodity Price				
	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	3.1%	8.6%	13.2%	17.3%	21.1%
(10.0%)	8.1%	13.3%	17.9%	22.1%	26.2%
--	12.3%	17.5%	**22.2%**	26.7%	31.1%
10.0%	15.9%	21.2%	26.1%	30.9%	35.4%
20.0%	16.9%	22.1%	27.0%	31.8%	36.3%

Post-Tax NPV$_{8\%}$ (USM) Sensitivity to Head Grade

Head Grade	Commodity Price				
	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	($527)	($65)	$359	$776	$1,192
(10.0%)	($48)	$436	$914	$1,389	$1,864
--	$400	$939	**$1,475**	$2,013	$2,549
10.0%	$867	$1,468	$2,070	$2,671	$3,271
20.0%	$1,328	$1,994	$2,659	$3,324	$3,988

Post-Tax IRR (%) Sensitivity to Head Grade

Head Grade	Commodity Price				
	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	1.6%	7.3%	11.8%	15.9%	19.7%
(10.0%)	7.4%	12.6%	17.2%	21.4%	25.5%
--	12.3%	17.5%	**22.2%**	26.7%	31.1%
10.0%	16.7%	22.1%	27.1%	31.9%	36.6%
20.0%	20.9%	26.5%	31.8%	36.9%	41.9%

Post-Tax NPV$_{8\%}$ (USM) Sensitivity to Total CAPEX

Total CAPEX	Commodity Price				
	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	$779	$1,318	$1,854	$2,391	$2,927
(10.0%)	$589	$1,128	$1,665	$2,202	$2,738
--	$400	$939	**$1,475**	$2,013	$2,549
10.0%	$211	$750	$1,286	$1,823	$2,360
20.0%	$21	$561	$1,097	$1,634	$2,171

Post-Tax IRR (%) Sensitivity to Total CAPEX

Total CAPEX	Commodity Price				
	(20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	18.1%	24.1%	29.8%	35.2%	40.5%
(10.0%)	14.9%	20.5%	25.6%	30.6%	35.3%
--	12.3%	17.5%	**22.2%**	26.7%	31.1%
10.0%	10.1%	15.0%	19.4%	23.6%	27.6%
20.0%	8.2%	12.8%	17.0%	21.0%	24.7%

Table 22-4: Pre-Tax Sensitivity Analysis

Pre-Tax Sensitivity to Metal Price

Pre-Tax NPV$_{8\%}$ (US$M) Sensitivity to Discount Rate

Discount Rate	Commodity Price (20.0%)	(10.0%)	--	10.0%	20.0%
3.0%	$2,475	$3,916	$5,356	$6,797	$8,238
5.0%	$1,733	$2,872	$4,012	$5,152	$6,292
7.0%	$1,196	$2,113	$3,031	$3,948	$4,865
8.0%	$985	$1,813	**$2,640**	$3,468	$4,296
10.0%	$647	$1,329	$2,012	$2,694	$3,376

Pre-Tax IRR (%) Sensitivity to Discount Rate

Discount Rate	Commodity Price (20.0%)	(10.0%)	--	10.0%	20.0%
3.0%	17.1%	23.9%	30.3%	36.4%	42.4%
5.0%	17.1%	23.9%	30.3%	36.4%	42.4%
7.0%	17.1%	23.9%	30.3%	36.4%	42.4%
8.0%	17.1%	23.9%	**30.3%**	36.4%	42.4%
10.0%	17.1%	23.9%	30.3%	36.4%	42.4%

Pre-Tax NPV$_{8\%}$ (US$M) Sensitivity to OPEX

Total OPEX	Commodity Price (20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	$1,592	$2,420	$3,248	$4,076	$4,904
(10.0%)	$1,288	$2,116	$2,944	$3,772	$4,600
--	$985	$1,813	**$2,640**	$3,468	$4,296
10.0%	$681	$1,509	$2,337	$3,165	$3,993
20.0%	$377	$1,205	$2,033	$2,861	$3,689

Pre-Tax IRR (%) Sensitivity to OPEX

Total OPEX	Commodity Price (20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	22.0%	28.4%	34.6%	40.5%	46.3%
(10.0%)	19.6%	26.2%	32.4%	38.5%	44.4%
--	17.1%	23.9%	**30.3%**	36.4%	42.4%
10.0%	14.5%	21.5%	28.0%	34.3%	40.3%
20.0%	11.7%	19.1%	25.8%	32.2%	38.3%

Pre-Tax NPV$_{8\%}$ (US$M) Sensitivity to Initial CAPEX

Initial CAPEX	Commodity Price (20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	$1,185	$2,013	$2,841	$3,669	$4,497
(10.0%)	$1,085	$1,913	$2,741	$3,569	$4,397
--	$985	$1,813	**$2,640**	$3,468	$4,296
10.0%	$884	$1,712	$2,540	$3,368	$4,196
20.0%	$784	$1,612	$2,440	$3,268	$4,096

Pre-Tax IRR (%) Sensitivity to Initial CAPEX

Initial CAPEX	Commodity Price (20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	21.2%	29.4%	37.3%	44.8%	52.0%
(10.0%)	18.9%	26.3%	33.4%	40.2%	46.7%
--	17.1%	23.9%	**30.3%**	36.4%	42.4%
10.0%	15.6%	21.8%	27.7%	33.3%	38.8%
20.0%	14.3%	20.1%	25.6%	30.8%	35.8%

Pre-Tax NPV$_{8\%}$ (US$M) Sensitivity to Mill Recovery

Mill Recovery	Commodity Price (20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	($199)	$464	$1,126	$1,788	$2,451
(10.0%)	$393	$1,138	$1,883	$2,628	$3,374
--	$985	$1,813	**$2,640**	$3,468	$4,296
10.0%	$1,561	$2,470	$3,378	$4,287	$5,196
20.0%	$1,777	$2,715	$3,653	$4,591	$5,529

Pre-Tax IRR (%) Sensitivity to Mill Recovery

Mill Recovery	Commodity Price (20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	5.9%	12.5%	18.3%	23.7%	28.8%
(10.0%)	11.8%	18.4%	24.4%	30.2%	35.7%
--	17.1%	23.9%	**30.3%**	36.4%	42.4%
10.0%	21.8%	28.8%	35.5%	42.0%	48.3%
20.0%	22.9%	29.9%	36.6%	43.0%	49.3%

Pre-Tax NPV$_{8\%}$ (US$M) Sensitivity to Head Grade

Head Grade	Commodity Price (20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	($359)	$281	$921	$1,562	$2,202
(10.0%)	$307	$1,040	$1,773	$2,507	$3,240
--	$985	$1,813	**$2,640**	$3,468	$4,296
10.0%	$1,702	$2,630	$3,557	$4,485	$5,412
20.0%	$2,414	$3,441	$4,467	$5,494	$6,521

Pre-Tax IRR (%) Sensitivity to Head Grade

Head Grade	Commodity Price (20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	4.0%	10.8%	16.5%	21.8%	26.8%
(10.0%)	11.0%	17.5%	23.5%	29.2%	34.7%
--	17.1%	23.9%	**30.3%**	36.4%	42.4%
10.0%	22.9%	30.1%	36.9%	43.5%	49.9%
20.0%	28.4%	36.0%	43.4%	50.4%	57.3%

Pre-Tax NPV$_{8\%}$ (US$M) Sensitivity to Total CAPEX

Total CAPEX	Commodity Price (20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	$1,364	$2,192	$3,020	$3,848	$4,676
(10.0%)	$1,174	$2,002	$2,830	$3,658	$4,486
--	$985	$1,813	**$2,640**	$3,468	$4,296
10.0%	$795	$1,623	$2,451	$3,279	$4,107
20.0%	$605	$1,433	$2,261	$3,089	$3,917

Pre-Tax IRR (%) Sensitivity to Total CAPEX

Total CAPEX	Commodity Price (20.0%)	(10.0%)	--	10.0%	20.0%
(20.0%)	23.2%	31.3%	39.0%	46.4%	53.4%
(10.0%)	19.8%	27.2%	34.2%	40.9%	47.3%
--	17.1%	23.9%	**30.3%**	36.4%	42.4%
10.0%	14.8%	21.1%	27.0%	32.7%	38.2%
20.0%	12.8%	18.7%	24.3%	29.6%	34.7%

An additional sensitivity analysis was conducted to identify the post-tax sensitivity to changes in individual metal prices as summarized in Figure 22-3. From this analysis, copper price has the greatest impact on project economics as all other metal prices follow a similar trend of marginal changes to NPV and IRR.

Finally, the sensitivity of the Project economics to incremental changes in power cost, compared to the assumed rate of US$0.072/kWh, was assessed and summarized in Table 22-5.

Figure 22-3: Post-tax NPV8% and IRR Sensitivity to Individual Metal Prices

Source: Ausenco, 2024.

Table 22-5: Post-tax Sensitivity to Power Cost

Post-Tax Sensitivity to Metal Price													
	Post-Tax $NPV_{8\%}$ (US$M) Sensitivity to Power Cost							Post-Tax IRR (%) Sensitivity to Power Cost					
Power Cost	Commodity Price						Power Cost	Commodity Price					
		(20.0%)	(10.0%)	--	10.0%	20.0%			(20.0%)	(10.0%)	--	10.0%	20.0%
	0.052	$479	$1,018	$1,554	$2,091	$2,627		0.052	13.0%	18.1%	22.8%	27.3%	31.6%
	0.062	$439	$979	$1,515	$2,052	$2,588		0.062	12.7%	17.8%	22.5%	27.0%	31.4%
	0.072	$400	$939	**$1,475**	$2,013	$2,549		0.072	12.3%	17.5%	**22.2%**	26.7%	31.1%
	0.082	$361	$901	$1,437	$1,974	$2,510		0.082	11.9%	17.1%	21.9%	26.5%	30.8%
	0.092	$322	$861	$1,398	$1,935	$2,471		0.092	11.5%	16.8%	21.6%	26.2%	30.6%

23 ADJACENT PROPERTIES

Several mineral deposits are documented adjacent to the Santo Tomás Property. The qualified person has been unable to verify the following information and that the information is not necessarily indicative of the mineralization on the Property that is the subject of this technical report.

23.1 La Reforma Mine

La Reforma mine, located 7.5 km north of Santo Tomás, was operated by Compañía Minera la Campaña S.A., a former subsidiary of Industria Peñoles S.A. de C.V. from 1968 to 1980.

The La Reforma deposit contains Zn-Pb-Cu-Ag mineralization in replacement zones in Cretaceous limestones, intruded by a Laramide-age granodiorite and a granite porphyry with biotite K-Ar ages of 59.9 ± 1.3 and 59.2 ± 1.3 Ma, respectively (Damon et al., 1983; Clark et al., 1978).

23.2 El Tempisque Deposit

El Tempisque (formerly El Creston), an iron skarn deposit, is located 4.5 km west of the Santo Tomás mineralization. The host to the mineralization is an altered and metamorphosed sequence of interbedded sediments and limestone contained in what appears to be a roof pendant in granodiorite. Skarn development occurs near the contact with the surrounding granodiorite and is accompanied by selective metasomatic replacement by magnetite of limestone and calcareous units in the metasedimentary rocks. The magnetite-rich units are massive and generally occur as discrete tabular bodies or as discontinuous pods and lenses. They are characteristically hard, massive, and generally homogenous with thicknesses ranging from 5 to 15 m (Verzosa, 2011).

23.3 Bahuerachi

The Bahuerachi Project, explored by Tyler Resources Inc., is located 2 km northeast of the boundary of the Santo Tomás Property. The main porphyry complex at Bahuerachi is exposed over 4 km of strike length. Intrusive lenses vary in thickness from tens of meters to an interpreted true thickness of 400 m (Independent Mining Consultants, 2007).

23.4 El Sauzal Mine

The reclaimed El Sauzal Mine is located 31 km to the northeast from the Santo Tomás Project. El Sauzal operated for 12 years, between 2004 and 2012, producing 1.8 Moz of gold from a high-sulphidation epithermal mineralization within a thick succession of the Late Cretaceous to Eocene volcanic of the Sierra Madre Occidental. Gold is found in steeply to moderately dipping, E-W trending tabular to irregular zones of vuggy, residual quartz, mantled by extensive quartz-alunite-kaolinite alteration (Weiss et al., 2010). Mining operations ceased in August 2014, but the mill continued to operate up to year-end.

24 OTHER RELEVANT DATA AND INFORMATION

This section is not relevant to this technical report.

25 INTERPRETATION AND CONCLUSIONS

The QP's note the following interpretations and conclusions in their respective areas of expertise, based on their review of data available for this technical report.

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

Oroco controls sufficient mineral rights and additional agreements to obtain additional fractional ownership in mineral rights over the resource as currently defined. Oroco has in place surface access and agreements to acquire surface rights to support an open pit operation with ancillary infrastructure in the immediate area of the mineral resource as currently defined.

25.2 Geology and Mineralization

The geology of the deposit is well understood and the controls on mineralization are defined by the Phase 1 drilling program and detailed lithological and structural logging. The understanding of structural controls and structure bounding limits on mineralization have been captured in the updated 3D geology, alteration and structural models presented in this technical report.

25.3 Exploration, Drilling and Analytical Data Collection in Support of Mineral Resource Estimation

Additional surface mapping and exploration is incorporated into the drilling-supported 3D models. Surface mapping and exploration should be continued to more precisely define the western footwall fault and internal faulting to add higher confidence to resource though drilling. Analytical data collection in support of the Mineral Resource Estimation should continue with focus on historical drill re-logging and check sampling for comparison of historical results. This will confirm some of the historical reporting on the repeatability of target economic elements. Additional drilling in resource defined as Inferred will increase confidence in the resource estimate, especially in the South Zone Pit that is currently all classified as Inferred.

Additional drilling between the North Zone and South Zone has the potential to define additional resource tonnages. As a result, the waste pillar partially eliminated thereby reducing haulage costs from the South Zone Pit to the coarse crusher as currently located.

Additional drilling will be required in the southwest sector of the South Zone to better understand the limits on the mineralization and alteration observed and mapped at surface.

An ongoing review of the sulphide bearing veins, classifications and their orientations will be used to refine the next drilling program design in regard to the dips and azimuths of drill holes.

25.4 Metallurgical Test Work

Ausenco coordinated and reviewed the results from the recent metallurgical test work program completed in 2023 by ALS. Drop weight index values measured for some of the samples are characterized as extremely competent (Axb values of 28-30) suggesting HPGR crushing should be considered over SAG milling for this project. Results from the mineralogical studies indicated that copper sulphide minerals (primarily chalcopyrite) were sufficiently liberated for recovery by froth flotation at a grind size of 150 µm P_{80}. Elevated Zn & Hg levels were measured in a master composite concentrate produced during flotation testing. Both elements have been identified as being associated with the skarn materials which have been flagged for exclusion from the mine plan moving forward. As such, no deleterious elements are anticipated in the concentrate at levels that are likely to impact marketability and payability.

A master composite was assembled that contained 0.33% Cu and 0.011% Mo and was used in the flotation program which culminated in locked cycle cleaner tests. A locked cycle test completed on this composite achieved a bulk concentrate grade of 24.7% Cu at a copper recovery of 82.6%. Molybdenum recovery to the bulk concentrate measured 61.8%. The bulk concentrate from the locked cycle test contained 1.1 ppm gold and 114 ppm silver. Cu-Mo separation test work was not conducted.

Ausenco developed recovery curves from the variability test results, for Cu, Mo, Au, and Ag that relate recovery to feed grades. Recoveries appear to be typical of copper porphyry deposits with these feed grades.

Further metallurgical studies with a greater number of samples spatially distributed throughout the mineral resource are required to assess the variances with respect to rock hardness and metallurgical performance.

25.5 Mineral Resource Estimate

In the opinion of the QP, the Company has completed detailed and thorough geologic work programs to support the construction of a robust geologic model and fundamentally sound structural domain model. The models adequately reflect the geologic setting that both controls and limits mineralization in the North and South Zone Pits. The oxidation model is rudimentary; however, it delineates oxidized material from reduced material that is isolated in the block model properly. A better constrained oxide resource may represent an opportunity in future resource estimates. Mineralization domains are utilized to constrain the PEA resource estimate and limiting geologic features are used when tabulating the Mineral Resource Statement. The Mineral Resource Statement presented herein for the Santo Tomás Project includes two additional holes since the publication of the previous MRE (April 21, 2023) and conforms to industry practices and satisfies the requirements of the CIM Definition Standards required for disclosure under NI 43-101 for a PEA Technical Report.

25.6 Mining Methods

The selected optimal pit shell that formed the basis for mine planning represents a revenue factor (RF) of 0.74 (US$2.81/lb Cu). Four geotechnical zones were considered with OSA angles between 40° and 49°. The estimated LOM for the open pit is 23 years including 1 year of pre-production stripping.

The total mineralized material is estimated to be 825.5 Mt at an average grade of 0.365% CuEq. This includes 377.2 Mt of Indicated material and 448.3 Mt of Inferred material. The LOM strip ratio is 1.38. Total waste is estimated at 1,139.4 Mt.

Mining operations will use two fleets, with a transition from predominantly small-scale equipment early in the mine life to predominantly large-scale mining equipment later in the mine life. The small-scale equipment fleet will include 200 mm diameter blast hole drills, 16.5 m^3 hydraulic shovels, 13 m^3 front-end loaders, and 72 t capacity haul trucks. The large-scale equipment fleet will include 250 mm diameter blast hole drills, 34 m^3 hydraulic shovels, 21.4 m^3 front-end loaders, and 240 t capacity haul trucks.

Ancillary equipment such as motor graders, dozers and water trucks will be utilized to support the mining operations. This equipment will be required throughout the life of mine for maintaining roads, loading areas, waste dumps and stockpiles.

25.7 Recovery Methods

The process plant design is typical for a porphyry copper deposit and uses processing techniques that are well established in the industry. The ROM material will undergo two stages of conventional crushing prior to tertiary crushing with HPGR. In this report, the primary crushing circuit is much closer to the pits reducing the hauling distance by over a kilometer. Crushed materials will be conveyed to the mill feed stockpile through a tunnel rather than over land minimizing the volume of earthwork required to install this equipment. HPGR was selected over SAG milling due to the extremely competent breakage results measured on the samples, high mill feed throughput, and the improved energy efficiency of this technology. The material is then ground in ball mills to a flotation feed sizing of 80% passing 150 µm. Conventional flotation and regrinding are applied to generate a bulk concentrate, and a Cu-Mo separation is proposed to recover a separate molybdenum concentrate. Concentrates are dewatered and shipped off-site to suitable smelter markets. Tailings will be dewatered and deposited in a tailings impoundment that is at a lower elevation than the process plant. Sand obtained from a tailings classification process through hydrocyclones will be used for dam construction.

25.8 Infrastructure

In general, the same site layout configuration developed for the PEA Report has been kept to optimize materials handling, minimize environmental footprint, prioritize the utilization of land to ensure operational scalability upon resource expansion. The Project plans will leverage existing infrastructure such site access road, nearby major highway(s) for concentrate haulage and the possibility of rail access with loadout facilities. The Project is currently contemplating acquiring electricity to power from a self-generation power plant owned & operated by a third-party rather than the CFE. The power transmission line proposed from this self-generation power plant is a 115 kV power line that will be interconnected to a new 115 kV/34.5 kV main electrical substation located close to the process plant area. This substation will distribute power to the different areas of the Project including the process plant, administrative offices, and mining areas. New distribution lines will be constructed at the Project site to provide stepped-down power to the site administration and process facilities. The new main electrical substation will be expanded for Phase II in accordance with the energy demand from the new equipment and facilities.

Infrastructure planned for the mine facilities include a truck shop and wash bay, mine office, explosive storage facilities, a diesel fuel island, an operations building with change room, two WRSFs, a ROM pad, and two open pits. All associated crushing and electrical infrastructure will be located near these processing facilities.

The freshwater supply proposed for the Project will be sourced from groundwater. However, the location of the freshwater supply well-field is now 20 km closer to the Project site and there are two groundwater pumping systems. The first is a shallow well field to supply the makeup water demand for Phase I of the Project and the second is a deeper well field designed to supply the additional makeup water requirements for Phase II. Both well-fields are located near the northern boundary of the North Zone Pit and the CONAGUA boundary. Pumping of groundwater from this location serves multiple purposes:

- A source of makeup water for the process plant.
- A source of clean water for gland water, potable water and reagent makeup water.
- It creates a zone of depression between the North Zone Pit and river to mitigate seepage into the pit.
- It reduces the volume of surplus contact water that will require further expensive treatment prior to discharge back into the environment.

Makeup water will also be sourced from the other surface water catchments located closer to the site (i.e. the Contact Water Pond, the WRSF Seepage and TSF Seepage Ponds).

The infrastructure associated with the materials processing facilities include the following: Mill feed storage, grinding and classification, copper flotation, product regrind, copper concentrate thickening, filtering, storing, and handling, tailings thickening and classification through hydrocyclones. Processed tailings will be stored in the TSF. The TSF has been designed in accordance with state, national and international standards.

Common facilities include including an entrance/exit guard shack which will house site security and medical/health and safety personnel, an overall site administration building, fire and freshwater distribution systems, compressed air, a main substation and associated on-site power generation and distribution facilities, communications area, and sanitation systems.

25.9 Environmental, Permitting and Social Considerations

The Project is sited in the vicinity of the Río Fuerte, one of the longest rivers in Mexico. The river basin drains part of the states of Chihuahua (Sierra Tarahumara) and Sinaloa (Altos del Fuerte and Choix, and the Valle del Fuerte) and it flows from the Sierra Madre Occidental to the Pacific Ocean in the Gulf of California and located is within Priority Hydrological Region No. 18 (RHP No. 18), called "Cuenca Alta del Río Fuerte". The Project is also located near the Huites Dam and reservoir complex which provides flood surge protection, water for community use and supports a hydro agricultural irrigation network (channels) in the 075 Río Fuerte Irrigation District.

25.9.1 Environmental Considerations

Three main sources of environmental baseline data were reviewed and included two site-based studies of very general exploration level surveys of limited scopes in support of applications for exploration drilling and a small exploration camps located at Brasiles and at the Santo Tomás North and South Zones during 2021 and 2022. The third source of baseline data originates from a 2019 EIS filed on behalf of the Mexico Communications and Transportation Secretary related to the construction of a bridge located relatively near the Project site at km 217+400 (Huites Dam) located in the Choix-Bahuichivo district. Some of the baseline data collected as part of the 2019 EIS are relevant to environmental conditions of the Santo Tomás Project.

There are environmentally sensitive areas located adjacent to the Project area such as the Huites Dam and reservoir complex which is important for sustaining the local population and ecosystem health. Future environmental and socio-economic and cultural baseline studies will better characterize these aspects. Based on available government databases, there may be risks to threatened and endangered wildlife species in the Project area which require assessment by means of seasonal site-based field surveys.

As the Project advances through feasibility and Environmental Impact Statement / permitting stages, site-focused baseline studies that document existing conditions will be required to supplicant current understanding. Recommended baseline studies to support the Project are outlined in Section 26 and include: water resources studies; geochemistry: aquatics, terrestrial and wildlife; air quality and noise; soil; and socio-economic, cultural baseline studies and community engagement; and environmental constraints mapping.

25.9.2 Permitting Considerations

The Project is currently in the exploration stage, for which the company has the necessary authorizations obtained by means of submitted notices of work; work is carried out subject to federal government body, Secretariat of Environment and Natural Resources (SEMARNAT) regulations. Exploration activities including drilling, surface mapping, limited road development, camp construction and support, geophysics at three main locations (Brasiles property and the Santo Tomás Project, North and South Zones).

Development of the mine will be subject to a number of permits from the federal SEMARNAT. Anticipated permits to support mine development and operations include an Environmental Impact Assessment (MIA), Land Use Change, Risk Analysis, and a number of other permits related to mining waste, general waste, water, air, fixed source emissions, closure, protection of flora and fauna, and noise. Issuance of permits related to surface and groundwater (extraction of freshwater or discharge of effluent) are subject to authorization by the National Water Commission (CONAUGA).

Reforms to the Mining Law introduced in May 2023 may present potential challenges and risks to exploration and future mining operations in Mexico. However, the Mexican Supreme Court recently (March 2024) published a binding ruling in which it questioned many aspects of the reforms and granted a temporary injunction suspending their application against existing concessions in 24 states, including Sinaloa, where the Project resides. The QP is recommending the Company monitors this evolving situation going forward and undertakes a comprehensive Socio-Economic Impact Study. In addition, ongoing community and regulatory/government agency engagement efforts are necessary to maintain support for the Project, as this will likely be a key to successfully navigate through the reformed Mining Law, should it be fully implemented in the future.

25.9.3 Closure and Reclamation Considerations

The permits require that land disturbance caused by exploration activities is reclaimed in accordance with applicable requirements. Reclamation activities including the stabilization of slopes, filling of exploration wells, scarification of soils, grouting drill holes, revegetation, and forest restoration.

Detailed closure plans have yet to be developed for the Santo Tomás Project, but a generic closure and reclamation plan at a conceptual level was developed to provide a preliminary financial estimate of the closure costs which is provided in Section 21.3. Closure and reclamation plans will need to be further developed through subsequent project feasibility stages in accordance with Mexican regulations and applicable international standards. Mine reclamation is addressed in Article 27 of the Mexican Constitution and multiple Mexican regulations apply to closure conditions.

25.9.4 Social Considerations

Baseline socio-economic and cultural studies have not yet been completed for the Santo Tomás Project. These studies will be required at the appropriate time as the Project advances into the feasibility and permitting phases and the full extent of the disturbed footprint of the Project is known. In addition, the recent reform of the Mining Law establishes that in the case of lots located in the territories of Indigenous or Afro-Mexican peoples or communities, the Secretariat, for the granting of a mining concession or assignment, will require consultation to obtain the consent of the subject communities. This consultation along with a social impact study may need to be carried out along with the MIA.

Oroco maintains an ESG manual (Revision C, undated) for the Project which provides a framework for its community outreach efforts which according to the manual are focused on education, ongoing employment, Indigenous engagement, and community mapping. The company has provided information in the form of videos that demonstrates ongoing efforts by the Company to engage with the local communities near the Project including supporting and funding community improvements and providing educational resources to support local school improvements. No Archaeological Assessment has been completed for the site. INAH (National Institute of Anthropology and History) personnel will be required to survey the area to document and register any important archaeological features.

The ESG manual states that Oroco employs at least 110 people in total, principally during multi-rig drilling programs. Specific records that document community engagement activities outlined in the ESG manual were not provided for review at the time of this technical report. The Company has, undertaken a detailed community mapping project for the communities surrounding the Project area, excluding Choix and its immediate neighbouring communities.

25.10 Capital Cost and Financial Analysis

25.10.1 Mining Capital and Operating Cost Estimate

The initial total LOM mining equipment capital costs (including 15% contingency) is estimated at US$156.5M which is US$355M less than the initial mining capital reported in 2023 PEA Technical Report. The overall LOM mining capital cost estimate, including initial and sustaining equipment costs and pre-production mining, is US$1,108.9M.

Mining operating costs (Year 1 through Year 23) are estimated to be US$2.04 per ex-pit tonne mined, or US$4.78 per tonne milled. On a per tonne moved basis, which includes all rehandled material, the estimated mining operating cost is US$1.88 per tonne moved. Mining operating costs include 5% contingency.

25.10.2 Processing Capital and Operating Costs

The total capital cost estimate for the process plant and supporting infrastructure is US$1,930M, US$938M of which is the initial capital expenditure for the 60,000 t/d nameplate capacity processing facility for a savings of US$40M in initial capital from the 2023 PEA Technical Report estimate. The average LOM process operating cost calculated for Phase I is US$4.12/t and US$4.03/t for Phase II of the Project and includes molybdenum recovery, water consumption, power, labor, consumables and maintenance costs.

25.10.3 Economic Analysis

Based on the assumptions and parameters, the PEA shows positive economics of $1,475.4M post-tax $NPV_{8\%}$ and 22.2% post-tax IRR.

The PEA is preliminary in nature and includes Inferred mineral resources that are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the Preliminary Economic Assessment results will be realized.

25.11 Risks

25.11.1 Geology and Mineral Resources

The following factors have been identified that may materially impact the understanding, interpretations, and current assumptions for geology and mineral resources at the Santo Tomás property.

- Ability to recover all stated metals at the assumed recovery factors.
- Changes to metal price assumptions in long-term outlook.
- Changes to the input economic assumptions on the economic CoG and pit shell including mining, process, and G&A costs, recovery assumptions and mining dilution.
- Future identification and assessment of potentially deleterious materials or elements that may materially affect the ability to mine or recovery gold to the baseline assumptions.
- The ability to demonstrate a feasible path to mining in the Huites Reservoir area with appropriate offset or allotment that may be required based on further studies.
- Additional land or infrastructure constraints that may be identified during future studies on the property.
- Changes in geotechnical, hydrogeological, and mining assumptions used in the determination of CoG and economic pit shell.

- Changes to assumptions or ability to continue with existing agreements, renew, or renegotiate those agreements.
- Changes to environmental, permitting, and social license assumptions which may materially alter the area of assumed mining and mineral resource.

25.11.2 Metallurgical Test Work

There was some variability in comminution properties across the tested samples. Recent analysis of point load testing (PLT) data by the field geologists also suggests differences in rock hardness and competency between the two pits. Hence, the quantity and spatial distribution of samples taken and tested during the initial test work program is not likely to be sufficient to confirm an appropriate crushing and grinding circuit design for each phase of the Project. Additionally, the metallurgical performance of a Cu-Mo separation circuit has not yet been demonstrated in test work.

25.11.3 Mining Methods

The following risks were identified during the development of Santo Tomás mine design:

- Eliminating the small-scale equipment fleet (i.e., using only a large-scale equipment) could lead to an increase in waste mined due to requirements for increased ramp width and increased minimum operating widths.
- Starting new phases will require constructing of steep roads and mining narrow widths. This will require the smaller fleet to be maintained for the duration of the mine life.
- Due to the steep topography, changes to the overall slope angles used in the different geotechnical zones could alter the mill feed and waste content in future designs.

25.11.4 Recovery Methods

The study was performed using a preliminary metallurgical assessment as the basis for design. As such, the following risks may be present in the design:

- Grinding equipment was selected based on a limited number of comminution tested samples and may be undersized if the average hardness across the deposit is greater than the design values.
- Process conditions, flotation residence times and reagent dosages may change with further testing.
- The Cu-Mo separation circuit is designed based on the Constancia flowsheet arrangements in the absence of any test data. Testing may show that circuit modifications are required to achieve target metallurgical performance.

25.11.5 Conveyance

Should a risk assessment of the proposed tunnel conveyor arrangement deem this option unsuitable, further studies can be completed to compare the economics as well as constructability/operability of alternative options, such as a flying belt conveyor design to the mill feed stockpile to mitigate any potential risk associated with tunnel operations.

25.11.6 Process Water Source

For this report, the water supply well-field is now situated 5.5 km from the Project site between the CONAGUA boundary and the North Zone Pit's northern most boundary. The pipeline route and total consumptive use and head requirements to deliver makeup water to site are preliminary. A thorough hydrological study is required to assess the appropriateness of this design and to understand the need for treatment of pumped groundwater prior to use. Other risks include an inability to acquire permits for this design and the possible high costs associated with treatment, if applicable.

25.11.7 Geotechnical

The ground conditions and stability of the proposed process plant area, TSF, WRSF, and other infrastructure areas are unknown as a geotechnical program has not been completed. The slopes and heights of the stockpiles, WRSF, and TSF may change as future site geotechnical programs are completed.

There is a possibility for cost increase if the geotechnical, hydrogeological or tailings sand separation considerations for the TSF are different than the criteria considered in this study impacting the capital, sustaining capital and operating costs of the Project.

25.11.8 Site Water Management

Hydrogeology data on the Property is limited and/or does not reflect a continuous period of collection, and therefore cannot currently confirm the quantity of groundwater in the pits. A recent preliminary water balance developed for the site suggests excessive seepage into the pits due to its proximity to the Río Fuerte which will require mitigation. This finding poses several risks to the Project:

- All process plant makeup water may be sourced from this location as proposed but groundwater quality test work is needed to assess its suitability to serve as a potable water source and whether additional treatment is required.
- Seepage rates were benchmarked against similar situations from other projects and will need to be verified. Pumping costs may increase if the hydrological and hydrogeological assumptions taken during this exercise were inaccurate and the rock is more fractured than presumed.
- Surplus water (contact or groundwater) may require treatment prior to discharge back into the environment. Hydrological, hydrogeological and geochemical studies are paramount to understanding the extent of groundwater pumping, treatment options needed for discharge and use at the process plant and associated costs.

A surface hydrology analysis was also completed to estimate the size of the proposed diversion channels and ponds (stormwater management). Both the TSF and the larger WRSF current design utilize a seepage collection ponds to control seepage water from reaching the river. Additional surface water modeling and pipe design should be completed to support the current design or to define an alternate water management strategy.

Acid-base accounting (ABA) tests are also required on tailings, waste rock and stockpiles to determine the risk of materials potentially generating acid and/or metals leaching.

25.11.9 Environmental, Permitting, Community Relations and Security

The main risks associated with the permitting schedule for the Project include:

- Potential lack of support from community and Indigenous population in consideration of recently reformed mining laws.
- Potential impacts to potable water supplies or ecosystems from groundwater extraction (potential drawdown of groundwater table) and effluent discharge of mine contact water to surface waters.
- Potential impacts to listed / threatened species due to surface land disturbance/footprint in relation to protection and mitigation/compensation requirements as outlined by Mexican federal regulations and guidelines.

Recent changes to Mexico's Mining Regulations imposing tighter regulations on the mining industry though amendments to the Mining Law (Ley Minera), the National Water Law (Ley de Aguas Nacionales), the LGEEPA, and the LGPGIR with a principal, but not exclusive, focus on restricting the right of exploration and granting new concessions and their associated rights and obligations to the Geological Service of Mexico may pose additional challenges. The Amendments are not seen as materially affecting the advancement of the Project given that the Project is comprised entirely of existing concessions. However, there does remain some minor uncertainty as to how the Amendments may be applied by Mexican regulators in the future, and the situation should be monitored closely. As the Project advances an increase in social and community relation efforts will be required. Currently the Project appears to be is well received by the local communities and there have been significant community improvements funded by the company focusing on school improvements and employment opportunities for Indigenous communities.

25.11.10 Initial and Sustaining CAPEX

Continued inflation driven CAPEX increases without commensurate increases in copper pricing has the potential to negatively impact the Project financials.

25.11.11 Operating Costs

The costs of reagents and consumables fluctuate widely and have the potential to negatively impact the Project operating costs and financials.

A comprehensive site wide water balance and hydrogeological study is required to ascertain the appropriate concessions tariffs as issued by CONAGUA for makeup water.

A single US$0.01 change in the unit power rate shows a $39M impact to NPV and 0.3% impact to IRR (in Table 22-5).

25.12 Opportunities

25.12.1 Exploration Upside

Drilling is required to upgrade mineral resource classifications. Currently, the South Zone Pit is classified as inferred resources but with additional drilling there is potential to upgrade this classification and delineate additional mineralized materials.

Additional drilling between the North and South Zones has the potential to define additional resource tonnages. As a result, the waste pillar was partially eliminated thereby reducing haulage costs from the South Zone Pit to the coarse crusher as currently located.

Further logging and (re)sampling of historical drill cores are underway and will increase confidence in the geologic interpretation and resource estimation.

25.12.2 Metallurgical Test Work

Conducting comminution testing on a greater number of variability samples across the resource and relating these results to point load index test data, may indicate that the average hardness of the material is lower than currently estimated.

Additional metallurgical testing may identify strategies to improve the metallurgical performance through the flotation circuit. There may be opportunities to improve both copper and molybdenum recoveries across the cleaner circuit with further evaluation of regrinding, pulp chemistry and the inclusion of a cleaner scavenger.

Evaluating coarse particle flotation in a rougher scavenging application may allow for a reduction in the primary grinding energy while maintaining suitable copper and molybdenum recoveries.

25.12.3 Mining Methods

The QP has identified the following mining and mining method opportunities:

- A detailed pioneering road design to the starting benches of every phase will better determine the number of tonnes required to be moved using a small fleet. Oroco can then evaluate purchasing the pioneering fleet or using a contractor for all pioneering work.
- One more iteration of pit design and scheduling could minimize LOM stripping while still focusing on reducing pre-stripping required.

The mining cost for the open pit operation largely relates to the haulage distance. Any relocation of the current infrastructure (such as the waste dump, crusher, or stockpiles) will require that the fleet be reassessed and balanced.

25.12.4 Recovery Methods

Coarse particle flotation (CPF) may be applied in a scavenging manner on the rougher tails, allowing for comparable copper and molybdenum recoveries at a coarser primary grind size. This would reduce the ball milling energy requirements and provide a coarser tailings size distribution. The feed classification requirements of the CPF circuit would likely integrate well with the sand cyclone system.

There may be an opportunity to eliminate the tailings slimes thickener once a more detailed analysis of the TSF progression is completed. This evaluation would consider the change in barge pumping costs as the pond elevation varies and modeling of the sand cyclone performance.

Future opportunities may exist to process materials characterized as oxides and below the CoG (primarily chalcopyrite) to maximize revenue from the “waste stream” once additional test work has been performed and the cost to secure a source of sulphuric acid is lower.

25.12.5 Tailings Storage Facility

An opportunity exists to investigate the placement of waste rock at the foot of the dam. This would minimize the footprint of the TSF and improve dam stability over time especially since pre-stripping materials will be available early on.

25.12.6 Power

An opportunity still exists to consider acquiring power from another alternate power source provider, a third-party supplier of CCGT (Combined Cycle Gas Turbine) power generation located at or near the Huites Hydroelectric Plant. Detailed analysis of the complexity of the technology involved with CCGT power generation including budgetary information is required to make a direct comparison with the current scenario of a third-party supplier self-generation power plant, which is the selected option over power supplied either by CFE or by MEM at the current market rates.

25.12.7 Environmental, Permitting and Social Impact

Opportunities as listed below should be considered as the Project continues along the development path.

- The timely initiation of community, Indigenous, and regulatory engagement regarding proposed Project, anticipated impacts, and proposed impact mitigation, including discussions with communities on potential benefits of the Project.
- The timely initiation of targeted environmental and socio-economic baseline studies that will inform impact mitigation and risk reduction measures associated with infrastructure footprint, design and use of appropriate low impact and sustainable technologies.
- Regarding hydrological, hydrogeological, and geochemical studies, there are opportunities to work closely and collaborate with the geotechnical, water resources, and processing engineering teams and hence, reduce effort and costs.

- With regard to the recent reforms to the Mining Law, ongoing engagement with the regulatory bodies should be initiated and sustained to mitigate any potential risks imposed by this new legislation.

25.12.8 Capital Cost and Financial Analysis

The following opportunities to improve the Project economics (CAPEX & OPEX) for the Santo Tomás Project include:

- Acquiring competitive budgetary quotes for the major processing equipment and sourcing local installation contractor rates.
- Acquiring competitive bids, insurance rates and lease terms for the major mining equipment.
- Comparing electric- versus diesel-powered shovels.
- Considering other alternative electrical power resources.
- Based on the assumptions and parameters presented in this report, the Project shows positive economics including a post-tax $NPV_{8\%}$ of US$1,475.4M and a 22.2%, post-tax IRR. The updated results continue to support a decision to carry out additional studies to progress the Project further into detailed assessment.

26 RECOMMENDATIONS

26.1 Overall Recommendations

The Santo Tomás Project demonstrates positive economics, as shown by the results presented in this technical report. The following subsections list recommendations developed by the QPs to further improve project economics and mitigate project risks.

Table 26-1 summarizes the estimated cost for the future work on the Santo Tomás Project.

Table 26-1: Cost Summary for the Recommended Future Work

Item	Budget (US$M)
Additional Drilling (Resource Upgrade, Exploration, Geology and Mineral Resource Expansion	5.5
Metallurgical test work	0.5
Mining Methods	1.7
Process and Infrastructure Engineering (including trade off studies)	0.9
Hydrogeological Studies	0.5
Geotechnical Studies	0.8
Environmental Studies	0.8
Total	**10.7**

Note: Totals may not sum due to rounding.

26.2 Additional Drilling

It is recommended to drill 8,500 m at the Santo Tomás deposit to address geotechnical studies, metallurgical sampling as well as exploration and infill drilling to upgrade the resource from Inferred to Indicated within the current resource pit.

The Santo Tomás Property contains multiple other exploration targets with porphyry copper deposit characteristics that have potential to provide additional mill feed to a future mining operation, including but not limited to the South Zone, NS Pillar, and Brasiles prospects as detailed in Section 9. Additional study and exploration work is warranted across the highly prospective claim block to fully evaluate the potential for additional mill feed.

The estimated cost for resource definition drilling is US$2.7M and exploration is US$2.8M.

26.3 Metallurgical Test Work

Additional metallurgical test work required to advance the Project is recommended to include:

- Testing run-of-mine (ROM) particle size distribution and develop ROM curve over the LOM.

- Comminution testing on variability samples that provide spatial coverage of the deposit and sufficiently represent the quantities of various lithologies to understand the variability in material hardness over the life of mine (LOM). This testing should be completed on ½ HQ drill core so that additional SMC Tests® can be conducted. Bond ball mill Wi tests would also be conducted on all samples.
- Bench scale flotation testing on master composites and variability samples of hypogene and supergene materials. The variability samples should also provide sufficient spatial coverage of the deposit as well as representative ranges of Cu:S ratios. The master composite testing should investigate the potential to apply a coarser primary grind sizing and alternate pulp chemistries. It is recommended that Coarse Particle Flotation be evaluated as a means to minimize primary grinding energy.
- Copper-molybdenum separation testing should be conducted using bulk concentrate generated though well controlled batch test protocols. The testing should include a locked cycle test once suitable open circuit conditions are determined.
- Regrind energy tests are recommended to confirm the regrind mill sizing for this circuit.

The total cost of this testing is estimated at US$0.50M. The described testing may require 3,400 kg of sample.

26.4 Mining Methods

26.4.1 Mining Engineering

- A detailed pioneering road design to the starting benches of every phase is recommended to better determine the number of tonnes required to be moved using a small fleet. Oroco can then evaluate purchasing the pioneering fleet or using a contractor for all pioneering work.
- One or more iterations of pit design are recommended to minimize overall LOM stripping while still focusing on reducing the quantity of pre-stripping required.
- One or more iterations of mine and mill scheduling are recommended to smooth out the material movement profile and, by extension, smooth out annual haul truck requirements.
- It is recommended to evaluate the trade-off between the cost to operate electric powered drills and shovels to the cost to operate diesel powered units.
- It is recommended to evaluate the trade-off between buying and maintaining a fleet of smaller pioneering equipment and contracting all pioneering work to a third-party.
- One or more iterations of mine cost modeling are recommended to evaluate the impact of the aforementioned design iterations, scheduling iterations and trade-off evaluations.
- It is recommended to seek further input from equipment and explosives suppliers to refine assumptions regarding pre-split and production blasting requirements and to improve confidence in assumptions related to equipment productivity, mechanical availability, useful life, hourly repair and maintenance costs, and hourly fuel consumption rates.

The listed mining related work is recommended by the QP at a combined estimated cost of US$0.2M.

26.4.2 Mining Trade off Studies

Complete a trade-off study to compare the operating costs associated with electric drills and shovels to the costs to operate diesel-powered units. Include the impact to power supply infrastructure for the former.

Conduct a high intensity blasting evaluation to optimize ROM fragmentation profile.

26.4.3 Pit Geotechnical Program

- The next stages of study will require additional site investigations including geotechnical outcrop mapping and dedicated oriented diamond core drill holes. Drill holes should target the planned ultimate pit wall rock and with representative spatial distribution and orientations to provide coverage of pit wall azimuths, major units, and structures. Down-hole hydraulic testing should be conducted to characterize the groundwater regime and interaction with faults, and drill holes completed with groundwater monitoring instrumentation.
- Laboratory testing will be required for defining geomechanical property values to make better use of the point load test data, and for inputs to future slope stability analyses. Using the geotechnical data and three-dimensional models of relevance of lithology, alteration, structures, rock mass, hydrogeology, and mineralization, a three-dimensional geotechnical domain model should be constructed.
- The assessments in this study showed that in some pit sectors, major structures could be a dominant influence on pit wall stability and therefore detailed effort should be put to characterizing and modeling these features. Slope stability analyses including kinematics and limit equilibrium/finite element approaches, should be conducted for bench to overall pit wall scales using the updated understanding of the geotechnical and hydrogeological regimes.

The estimated cost for the future studies is US$1.5M. This includes the geotechnical field campaign including 3,000m of drilling with in-house geotechnical logging. This includes laboratory testing and engineering analysis.

26.5 Process and Infrastructure Engineering

26.5.1 Future Study

The QP is recommending the project be further developed into a PFS which includes the following:

- Flow diagrams (comminution, recovery processes, tailings),
- Detailed equipment list,
- Power listing and consumption estimate,
- Architectural (building sizes) to estimate steel and concrete quantities,
- Detailed material and water balance,
- Detailed process design criteria,

- General arrangements (GA) and elevation drawings (for crushing/overland conveying, comminution, flotation, tailings),
- Electrical single line drawing,
- Equipment and supply quotations and sources determined,
- Estimate of equipment and materials freight quantities,
- Capital cost estimate,
- Operating cost estimate,
- Major equipment spares and warehouse inventory cost estimate,
- Construction workhours estimate; and
- Construction schedule

The estimated cost for the future PFS study is US$0.7M.

26.5.2 Process Trade off Studies

26.5.2.1 Process Design Studies

- Coarser primary grinds could be employed and trade-off studies reviewing the associated reduction in applied grinding energy and capital expenses against copper and molybdenum recoveries should be evaluated.
  - Inclusion of coarse particle flotation should also be investigated.
- Copper-molybdenum separation optimization studies.

26.5.2.2 Conveyor to Mill Feed Stockpile Studies

- Compare the cost of installing the single 1.7 km conveyor in the tunnel as proposed in this report with installing a flying belt conveyor with horizontal curvature to better meet the topographical challenges at the site.
- Compare cost savings to install a single, larger mill feed stockpile with capacity for both Phase I and II. This would study would also consider removal of the stacking conveyors and only consider a single conveyor from primary crushing directly to the single mill feed stockpile.

The trade-off studies are recommended by the QP at a combined estimated costs of US$0.175M.

26.6 Hydrogeological Studies

26.6.1 Hydrogeology

- Develop and implement multi-year baseline groundwater monitoring plan (quality and quantity) for the following:

- Install wells/piezometers to develop a conceptual groundwater model to assess pit dewatering strategies.
- Develop a conceptual groundwater model and assess the potential need for groundwater treatment over the LOM and closure.

26.6.2 Surface Hydrology and Water Quality

- Develop and implement multi-year baseline hydrological monitoring plan for key areas.
- Verify the preliminary water balance model developed for this study and assess the need for water treatment.
- Further develop plans to eliminate or mitigate environmental risk associated with poor water quality as a result of the mining/processing operations.
- Develop and implement multi-year baseline surface water quality monitoring plan that includes physical and chemical parameters, aquatic sediments, tissue residues, and aquatic life (invertebrates, algae, macrophytes) for key areas within the Project site particularly along the CONAGUA boundary.
- Locate historical mining activities and evaluate their impact on current water quality.

26.6.3 Water Management

- A detailed site-wide water balance model based on site-specific hydrogeological and hydrological data should be completed for the next phase of the study. This should include inflows and outflows of all mine facilities. This will inform of potential needs for additional water supply or water treatment.
- Further site hydrogeological and hydrological characterization though drilling and testing to develop a detailed groundwater model. A hydrogeological model is not only essential for future permitting pursuits which are time consuming, but also allows for the de-risking of the mine plan and associated infrastructure.

The cost estimate to perform the desired hydrogeological studies is US$0.5M.

26.7 Geotechnical Study (Infrastructures and TSF)

Due to the conceptual nature of this study and the limited information available at the time of writing, assumptions have been made regarding the layout, MTOs, and construction of the proposed TSF. Construction material geotechnical properties are required to perform slope stability analyses and other geotechnical assessments to confirm that the TSF can be built as designed. A tailings deposition plan will be required which may lead to the conceptual staging requiring adjustment to contain the given capacities.

Additional studies and data collection will be required to advance project development beyond the conceptual level. Some, but not necessarily all, of the current data gaps that need to be addressed in future studies include the followings:

- Geological and geotechnical site investigations and laboratory program should be carried out for all infrastructure proposed: the process plant, WRSF and TSF. This needs to include drilling and in-situ and laboratory testing, to understand subsurface soil and rock characteristics, construction material properties, and existing groundwater levels and quality.

- Seepage analysis for the TSF needs to be investigated.
- Additional geotechnical testing of the anticipated tailings, waste rock, and other associated construction materials, (e.g., horizontal drain gravel and sand and candidate geomembranes) should be carried out.
- Hydrological information should be gathered from site-specific climate studies to detail ponds and diversion channels.
- Hydrogeological information from desktop studies and site investigations should be gathered to better understand subsurface flow regimes.

As additional information is obtained, assumptions made in this study can be verified or updated to advance the Project to the next level of design. The cost of implementing the above recommendations is estimated at US$0.8M.

26.8 Environmental Studies, Permitting and Community Recommendations

The following recommendations are made with regard to the design and implementation of environmental and socio-economic baseline studies. Qualified professionals should be retained to design and oversee the implementation of each of these studies. These studies and activities will be necessary to support the Project to the future PFS stage and provide a strong basis for future EIS preparation and permitting. Some of these studies overlap with other recommendations outlined in Section 26.8, and cost savings can be realized by integrating this work with those studies.

26.8.1 Air Quality and Noise

- Baseline conditions for air quality and noise should be established for near field and further afield operations.

The estimated cost for the above is US$0.02M.

26.8.2 Environmental Constraints Mapping

- To assist in the development of the Project at the future stages, environmental constraints mapping should be developed and continuously updated, based on the results of historical and future baseline environmental and land use studies. This mapping should be utilized to limit risks at the design stages of the Project.

The estimated costs for the above task are US$0.01M.

26.8.3 Near Surface Soil Characteristics

- Near surface soil textures and chemistry should be established for the Project area as part of the baseline program.

The estimated cost of the above is US$0.01M.

26.8.4 Terrestrial, Aquatic and Wildlife Monitoring

- Develop and implement a seasonal baseline vegetation/ecosystem and wildlife/wildlife habitat survey plan for key areas within the Project area with special emphasis on listed and threatened species under federal protection.

- Indigenous tribal and other land users should be offered the opportunity to become closely involved in the development and execution of wildlife baseline studies, especially in relation to traditional and current use of the land for harvesting.

The estimated costs for the above are US$0.1M.

26.8.5 Water Resources

- Complete a multi-year seasonal hydrological and meteorological monitoring plan for key areas within the study area to further characterize the hydrological conditions and to develop a future preliminary water balance model. The water balance model will be used as a predictive tool regarding the quality and quality of water available to support mineral processing as well as prediction of effluent quality and quantity. Consideration should be given to establishing a site-specific meteorological station, based on the adequacy of continuing to use data from regional stations.
- Development and implementation of a surface water and groundwater monitoring, sampling, and testing plan focusing on areas that will be potentially affected by mine infrastructure based on current infrastructure plans (refer to Section 18). This would include groundwater impacts from the newly proposed well-field that will provide Project makeup water.
- A conceptual hydrogeological model should be developed for the site and for the modified well-field area proposed in this report based on monitoring and testing results and should provide the basis for the future development of a three-dimensional numerical groundwater model that will support advanced feasibility design phases and EIS. The model should provide emphasis on seasonal recharge of the freshwater aquifer beneath the river adjacent to the pit and the pits and the potential drawdown required for pit development and dewatering activities.

Estimated costs for the above recommendations are US$0.2M. This estimate assumes cost savings from coordinating and integrating the surface water and hydrogeological characterization work with geotechnical and exploration drilling programs (Sections 26.2 and 26.7), as well as the hydrological and hydrogeological studies recommended in Section 26.8.

26.8.6 Geochemistry

- A preliminary geochemical assessment of the ARD/ML risk for the Project should be implemented utilizing the existing geological model for the site and sampling of fresh drill core sampled intervals, if available. A geological-geochemical conceptual model will inform the ongoing development and refinement of geochemical and mine rock management plan for the site. The predicted occurrence of large volumes of net neutralizing mine waste materials to be mined in early years will be confirmed, as the buffering characteristics of these waste materials can be effectively utilized as part of the overall waste rock management strategy. Additional geochemical assessment of the acid rock drainage / metal leaching risk for the Project will be implemented to provide additional test work and sampling coverage, and to confirm preliminary study findings. Generally, the program should consist of the collection of the following samples:
  - Collection of around 200 to 300 waste rock samples based on the site geological and structural model.
  - Three to six tailings samples, collected during future mineralogical test work.

- Three to six mineralogical rock samples.
- Several overburden samples.
- Range of analytical tests to include elemental analysis, acid-base accounting, shake flask extraction (short term leach), NAG pH, minerology, and humidity cell testing (minimum 40 weeks).

- Development of preliminary source terms for the weathering of waste rock, mineralized materials, tailings, and pit walls for use in water balance modeling.
- Preliminary interpretation of results and assessment of requirement for site-specific mine rock management practices and water treatment.

The estimated costs for the above are US$0.4M.

26.8.7 Socio-Economic, Cultural Baseline Studies and Community Engagement

- Develop and implement socio-economic cultural baseline studies.
- Continue with ongoing community and Indigenous engagement efforts to understand current community needs and how the Project can continue to provide local benefits through employment, training, education, and business opportunities.
- These efforts will also provide a baseline regarding past and present land and resource use by communities at or near the Project area and potential impacts (positive and negative) to same due to Project development.
- Work closely with the INAH personnel to develop a baseline archaeological study that will survey the area, document, and register any important archaeological sites.
- Ongoing engagement with the government regarding the recent Mining Law reform and efforts to mitigate the impact of this legislation on Project outcomes.

The estimated costs for the socio-economic studies above are US$0.1M.

Combined, the recommendations for environmental, permitting and community relations studies total US$0.84M.

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