Project # 18220-01

NI 43-101 TECHNICAL REPORT AND PRELIMINARY ECONOMIC ASSESSMENT, SAN MATÍAS COPPER-GOLD-SILVER PROJECT, COLOMBIA

REPORT TO:

Cordoba Minerals Corp.

EFFECTIVE DATE:

July 29, 2019

NORDMIN
RESOURCE & INDUSTRIAL
ENGINEERING

NI 43-101 TECHNICAL REPORT AND PRELIMINARY ECONOMIC ASSESSMENT

SAN MATÍAS COPPER-GOLD-SILVER PROJECT COLOMBIA

Prepared for:

Cordoba Minerals Corp.

Project # 18220-01

Issue Date: September 10, 2019

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REVISION HISTORY

REV. NO	ISSUE DATE	PREPARED BY	REVIEWED BY	APPROVED BY	DESCRIPTION OF REVISION
2.0	August 22, 2019	Nordmin	Cordoba		Progress update. Initial draft for review.
3.4	September 4, 2019	Nordmin	Cordoba		Progress update. Draft for review.
4.0	September 10, 2019	Nordmin	Cordoba & QP's	QP's	FINAL

FORWARD-LOOKING STATEMENT

This document includes certain "forward-looking statements," which are not comprised of historical facts. Forward-looking statements include estimates and statements that describe the Company’s future plans, objectives or goals, including words to the effect that the Company or management expects a stated condition or result to occur. Forward-looking statements may be identified by such terms as “believes”, “anticipates”, “expects”, “estimates”, “may”, “could”, “would”, “if”, “yet”, “potential”, “undetermined”, “objective”, or “plan”. Since forward-looking statements are based on assumptions and address future events and conditions, by their very nature they involve inherent risks and uncertainties. Although these statements are based on information currently available to the Company, the Company provides no assurance that actual results will meet management’s expectations. Risks, uncertainties and other factors involved with forward-looking information could cause actual events, results, performance, prospects and opportunities to differ materially from those expressed or implied by such forward-looking information. Forward looking information in this technical report includes, but is not limited to, the Company’s objectives, goals or future plans, statements, exploration results, potential mineralization, the estimation of mineral resources, exploration and mine development plans, the timing of the commencement of operations and estimates of market conditions. Factors that could cause actual results to differ materially from such forward-looking information include, but are not limited to the failure to identify mineral resources, failure to convert estimated mineral resources to reserves, the inability to complete a feasibility study which recommends a production decision, the preliminary nature of metallurgical test results, delays in obtaining or failures to obtain required governmental, environmental or other project approvals, political risks, inability to fulfill the duty to accommodate First Nations and other indigenous peoples, uncertainties relating to the availability and costs of financing needed in the future, changes in equity markets, inflation, changes in exchange rates, fluctuations in commodity prices, delays in the development of projects, capital and operating costs varying significantly from estimates and the other risks involved in the mineral exploration and development industry, and those risks set out in the Company’s public documents filed on SEDAR. Although the Company believes that the assumptions and factors used in preparing the forward-looking information in this news release are reasonable, undue reliance should not be placed on such information, which only applies as of the date of this news release, and no assurance can be given that such events will occur in the disclosed time frames or at all. The Company disclaims any intention or obligation to update or revise any forward-looking information, whether as a result of new information, future events or otherwise, other than as required by law.

CAUTIONARY NOTE TO U.S. READERS REGARDING ESTIMATES OF MEASURED, INDICATED AND INFERRED RESOURCES

This Technical Report uses the terms “Measured” and “Indicated” mineral resources and “Inferred” mineral resources. The Company advises U.S. investors that while these terms are recognized and required by Canadian securities administrators, they are not recognized by the SEC.

The estimation of “Measured” and “Indicated” mineral resources involves greater uncertainty as to their existence and economic feasibility than the estimation of proven and probable reserves. The estimation of “Inferred” resources involves far greater uncertainty as to their existence and economic viability than the estimation of other categories of resources. It cannot be assumed that all or any part of a “Measured,” “Inferred,” or “Indicated” mineral resource will ever be upgraded to a higher category.

Under Canadian rules, estimates of “Inferred mineral resources” may not form the basis of feasibility studies, pre-feasibility studies or other economic studies, except in prescribed cases, such as in a preliminary economic assessment under certain circumstances. The SEC normally only permits issuers to report mineralization that does not constitute “reserves” as in-place tonnage and grade without reference to unit measures. Under U.S. standards, mineralization may not be classified as a “reserve” unless the determination has been made that the mineralization could be economically and legally produced or extracted at the time the reserve determination is made. U.S. investors are cautioned not to assume that any part or all of a “Measured,” “Indicated,” or “Inferred” mineral resource exists or is economically or legally mineable. Information concerning descriptions of mineralization and resources contained herein may not be comparable to information made public by U.S. companies subject to the reporting and disclosure requirements of the SEC.

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1. SUMMARY

Nordmin Engineering Ltd. (“Nordmin”), Environmental Applications Group Inc. (“EAG”) and Knight Piésold Consulting (“Knight Piésold”) were retained by Cordoba Minerals Corp. (“Cordoba” or “the Company”) to prepare a Canadian National Instrument 43-101 (“NI 43-101”) Technical Report (“Technical Report”) for the Preliminary Economic Assessment (“PEA”) on the San Matías Copper-Gold-Silver Project (“the Project”) located within Cordoba’s San Matías exploration area in Colombia, South America.

1.1 Terms of Reference

This Technical Report supports the disclosure of Mineral Resources for the Project in the Cordoba news release of July 29, 2019, entitled “Cordoba Announces Positive Preliminary Economic Assessment for the San Matías Copper-Gold-Silver Project.” All measurement units used in this Technical Report are metric unless otherwise noted. Currency is expressed in United States (“US”) dollars (“$”). The Technical Report uses Canadian English.

Mineral Resources are reported in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) Definition Standards for Mineral Resources and Mineral Reserves (May 2014; the 2014 CIM Definition Standards) and the CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (November 2003; 2003 CIM Best Practice Guidelines).

1.2 Principal Outcomes

This Technical Report is based on an assumption of processing 119.1 million tonnes of economic material over a 23-year life of mine (LoM) to produce 417,300 tonnes of Copper (“Cu”), 724,500 ounces of Gold (“Au”) and 5,930,000 ounces of Silver (“Ag’). The estimated annual Cu production is 15,400 tonnes in concentrate in Years 1 to 5; increasing to 20,700 tonnes in Years 6 to 16; and averaging 18,100 tonnes per year. The assumed mill feeds grades are 0.45% Cu, 0.26 g/t Au and 2.42 g/t Ag. During the first five years, the Cu, Au and Ag grades average 0.67%, 0.30 g/t and 3.74 g/t respectively.

The conceptual 8,000 t/d uses conventional open pit mining operations and increases to 16,000 t/d after the process plant expansion is completed in Year 6. Average LoM C1 cash costs of $1.32/lb of Cu net of precious metals by-product credits.

Initial capital costs are estimated at $161.4 million, expansion capital expenditures are estimated at $120.6 million and total PEA LoM capital expenditures, including sustaining capital expenditures, Waste Management Facility (“WMF”, referred to as the Tailings Management Facility (“TMF”) in the July 29, 2019 Press Release) and reclamation costs are estimated at $527.5 million.

The Project PEA estimates a pre-tax net present value (“NPV”) of $347.0 million applying an 8% discount rate and a pre-tax internal rate of return (“IRR”) of 26.8%, using metal price assumptions of $3.25/lb of Cu, $1,400/oz of Au and $17.74/oz of Ag. A US $/Colombian Pesos (”COP”) foreign exchange ratio of 3,125:1 has been applied. Pre-tax values include Columbian mining royalties of 4% of total precious metals revenue and 5% of total Cu revenue. The after-tax NPV at an 8% discount rate is $210.7 million and the after-tax IRR is 20.3%, representing a 5.3 year payback using the same metal price assumptions.

The Mineral Resources were classified using the 2014 CIM Definition Standards and have an effective date of July 24, 2019. The San Matías Copper-Gold-Silver Project hosts 114.3 million tonnes of Indicated Resources grading 0.45% Cu, 0.26 g/t Au and 2.42 g/t Ag (0.64% CuEq), and 4.8 million tonnes of Inferred Resources grading 0.26% Cu, 0.20 g/t Au and 1.21 g/t Ag (0.39% CuEq) at a Net Smelter Return (“NSR”) cut-off of $13.75/tonne. Total Indicated Resources contain 518,300 tonnes of Cu, 942,900 ounces of Au and 8,887,200 ounces of Ag. Total Inferred Resources contain 12,300 tonnes of Cu, 29,900 ounces of Au and 185,300 ounces of Ag (Table 14-33).

Table 1-1: San Matías Copper-Gold-Silver Project 2019 Mineral Resource Estimate

Classification	Tonnage (Mt)	CuEq Grade (%)	Copper Grade (%)	Gold Grade (g/t)	Silver Grade (g/t)	Contained Copper (tonnes)	Contained Copper (Mlb)	Contained Gold (oz)	Contained Silver (oz)
Indicated Resource									
Alacran, Phase 1	16.7	0.85	0.64	0.30	3.59	106,700	235.2	158,800	1,935,200
Alacran, Phase 2	81.2	0.61	0.44	0.24	2.45	360,200	794.2	613,500	6,389,200
Montiel East	4.3	0.70	0.46	0.35	1.53	19,800	43.7	48,800	211,200
Montiel West	4.6	0.52	0.24	0.49	1.32	11,200	24.8	72,600	195,800
Costa Azul	7.4	0.40	0.24	0.21	0.65	20,300	44.8	49,200	155,800
Total Indicated	**114.3**	**0.64**	**0.45**	**0.26**	**2.42**	**518,300**	**1,142.7**	**942,900**	**8,887,200**
Inferred Resources									
Alacran, Phase 1	0.6	0.42	0.33	0.14	1.65	1,900	4.2	2,600	30,500
Alacran, Phase 2	1.6	0.40	0.32	0.13	1.57	5,200	11.5	7,000	83,100
Montiel East	1.8	0.34	0.25	0.15	0.88	4,400	9.6	8,500	50,300
Montiel West	0.6	0.39	0.07	0.54	0.96	400	1.0	11,100	19,000
Costa Azul	0.1	0.39	0.29	0.16	0.60	400	0.8	600	2,400
Total Inferred	**4.8**	**0.39**	**0.26**	**0.20**	**1.21**	**12,300**	**27.2**	**29,900**	**185,300**

Source: Nordmin, 2019

Notes on Mineral Resources

1. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability; the estimate of Mineral Resources in the updated Mineral Resource statement may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. There is no certainty that the Indicated Mineral Resources will be converted to the Probable Mineral Reserve category, and there is no certainty that the updated Mineral Resource statement will be realized. It is reasonable to expect that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
2. The Mineral Resources in this estimate were independently prepared by Glen Kuntz, P.Geo., of Nordmin Engineering Ltd., following the Definition Standards for Mineral Resources and Mineral Reserves Prepared by the CIM Standing Committee on Reserve Definitions, adopted by CIM Council on May 10, 2014. Verification included a site visit to inspect drilling, logging, density measurement procedures and sampling procedures, and a review of the control sample results used to assess laboratory assay quality. In addition, a random selection of the drill hole database results was compared with original records.
3. The Mineral Resources in this estimate used Datamine Studio 3 Software to create the block models and used Datamine NPV Scheduler^{TM} to constrain the resources and create conceptual open pit shells for the deposits. Assumptions used to prepare the conceptual pits include:
   - Metal prices of $3.25/lb copper, $1,400/oz gold and $17.75/oz silver;
   - Operating cost inputs include:
     a. Mining cost of $2.43/t mined for the first 5 years and $1.69/t thereafter,
     b. Processing cost of $8.63/t milled for the first 5 years and $7.50/t thereafter,
     c. G&A costs of $2.56/t milled for the first 5 years and $1.32/t thereafter;
   - 97.0% mining recovery, 4.0% dilution and 45° pit slope in fresh and transitional rock and 32.5°in weathered saprolite;
   - Variable process recoveries of 50.0% to 90.0% for copper, 72.0% to 77.5% for gold and 40.0% to 70.0% for silver depending on the domain (saprolite, transition or fresh sulphide) and copper grade.
   - Freight costs of $100.00/t concentrate, and treatment costs of $90.00/t dry concentrate, payable metal factors of 95.5% for copper and 96.5% for gold and 90.0% for silver. Refining charges of $0.090/lb copper, $5.00/oz gold and $0.30/oz silver.
4. Copper equivalent has been calculated using: CuEq % = Cu % + (Au Factor x Au Grade g/t + Ag Factor x Ag Grade g/t) x 100.
   - Au Factor = (Au Recovery % x Au Price $/oz / 31.1035 g/oz) / (Cu Recovery % x Cu Price $/lb x 2204.62 lb/t).
   - Ag Factor = (Ag Recovery % x Ag Price $/oz / 31.1035 g/oz) / (Cu Recovery % x Cu Price $/lb x 2204.62 lb/t).
   - Variable process recoveries of 50.0% to 90.0% for copper, 72.0% to 77.5% for gold and 40.0% to 70.0% for silver depending on the domain (saprolite, transition or fresh sulphide) and copper grade.
5. An NSR cut-off of $13.75/t has been applied.
6. The cut-off date of the drill hole information was November 24, 2017.
7. All references to the 2019 Mineral Resource estimate are reported in the Technical Report titled "NI 43-101 Technical Report and Resource Estimate, San Matías Copper-Gold-Silver Project, Colombia" with an effective date of July 3, 2019. The 2019 estimate is no longer considered to be current and is not to be relied upon.
8. Due to rounding, totals may not sum.

1.3 Property Description and Ownership

The Project is located in the jurisdiction of the Municipality of Puerto Libertador, Department of Córdoba, 390 km northwest of Bogotá, the capital of Colombia, 160 km north of Medellín, the capital of the Department of Antioquia and the second largest city in Colombia, and 112 km south of Montería, the capital of the Department of Córdoba. The Project hosts the Alacran, Montiel East, Montiel West and Costa Azul deposits on various mining titles.

The Alacran deposit is centred at approximately 7°44’16” N, 75°44’02” W.

The Montiel East deposit is centred at approximately 7°45’03” N, 75°42’49” W.

The Montiel West deposit is centred at approximately 7°45’04” N, 75°43’16” W.

The Costa Azul deposit is centred at approximately 7°43’38” N, 75°43’10” W.

1.4 Accessibility, Climate, Local Resources, Infrastructure and Physiography

The Project is assessable via a 70 km paved road from the city of Caucasia to Puerto Libertador and then via a 21 km partially unsurfaced road to the exploration camp. Caucasia is easily accessible by road or by regularly scheduled flights from Medellín.

The Project is in the northern foothills of the Western Cordillera and the southern side of the Caribbean lowlands. Altitudes in the property area are between about 100 m and 350 m above mean sea level. The climate allows for mineral exploration and drilling year-round. The physiography of the project area is favourable for open pit mining with sufficient room for a processing plant, waste rock dumps, tailings storage, and other mine infrastructure. The district is expected to be able to supply the basic workforce for any future mining operation. Cordoba will need to acquire additional surface rights to support a mining operation.

1.5 History

Initial exploration on the property was carried out by Dual Resources Inc. (“Dual Resources”). between 1987-1989 and included pits, trenches, rock sampling, underground sampling, geological mapping and a ground magnetic survey, followed by 15 diamond drill holes totalling 2,584.2 m. A concession agreement was granted in 2009 to Sociedad Ordinaria de Minas Omni S.O.M. (“Omni”) and was subsequently optioned to Ashmont Resources Corp. (“Ashmont”) in 2010. Ashmont carried out geological mapping, underground mapping and sampling, a ground magnetic survey, and 52 diamond drill holes totalling 13,429.45 m. Cordoba acquired the property and completed three diamond drill holes in 2015, 41 diamond drill holes in 2016, and 40 diamond drill holes in 2017.

Gold is mined artisanally at the Project by the Asociacion de Mineros de Alacran (Alacran Miners Association), but there has been no industrial-scale mining production within the property.

1.6 Geological Setting, Mineralization, and Deposit Types

The Project is located in an accreted oceanic terrane of the Western Cordillera, described as the Calima Terrane by Restrepo & Toussaint (1988). The host rocks likely belong to the Upper Cretaceous Cañasgordas Group, which is subdivided into the Barroso Formation of basalts, and the Penderisco Formation of turbidites, chert and limestone. The Project area comprises three primary lithological domains: intrusive rocks (including porphyries) in the Alacran, Montiel East and Costa Azul deposits; volcanic rocks in the Montiel West deposit; and volcaniclastic rocks in the Alacran deposit.

Volcaniclastic rocks are also present in the Alacran Norte and Willian prospect areas. The volcanics and volcaniclastics likely belong to the early Cretaceous-age Barroso formation.

The Alacran deposit Cu-Au-Ag mineralization is hosted by a west-dipping Cretaceous succession comprising mafic volcanic rocks overlain by a calcareous volcaniclastic sequence and capped by pre- to syn-mineral, sill-like diorite and felsic sub-volcanic bodies. The sequence is approximately 550 m thick, and the diorites are about 200 m thick. Cu-Au-Ag mineralization occurs throughout the volcaniclastic package at Alacran, except within the lower mafic units. It is most strongly developed in the calcareous volcaniclastic sequence. Several different deposit models have been proposed for the Alacran deposit, including Volcanogenic Massive Sulphide ("VMS"), Skarn, Carbonate Replacement Deposit ("CRD"), and Iron Oxide Copper-Gold ("IOCG"). To better understand the Alacran deposit formation, thesis-based research was initiated with the Mineral Deposit Research Unit ("MDRU") at the University of British Columbia ("UBC"), in partnership with the Company. The goal of this active research is to develop the deposit model through a combination of alteration-mineralization and host rock geochronology, Pb and S isotope and Electron Microprobe Analysis ("EMPA") in magnetite.

The Montiel East Porphyry is located near the San Matías Village 2.5 km northeast Alacran deposit in the eastern side of the San Pedro River Lineament. The shallow parts of the Montiel East Deposit display surface dimensions of approximately 100 m x 70 m and a vertical extent of 100 m. The deposit is porphyry Cu-Au-Ag mineralization associated with a series of tonalite porphyry stocks and sills that intrude basaltic andesitic volcanic rocks and host a strong stockwork of quartz-magnetite-chalcopyrite-bornite veins. Based on cross-cutting relationships, alteration assemblages and compositions, four different phases have been identified within the Montiel East porphyry suite, three of which are hornblende porphyries and one of which is a quartz feldspar porphyry.

The Montiel West deposit is located approximately 2 km northeast of the Alacran deposit in the eastern margin of the San Pedro River Lineament, and less than 1 km west of the Montiel East deposit. Diamond drill holes intersected high-density zones of both sheeted and multi-directional quartz-magnetite-chalcopyrite-bornite veining that are hosted in mafic and intermediate volcanic rocks, but no intrusive rocks. This style of wall rock Cu-Au-Ag mineralization is interpreted to be porphyry-related, as seen at both the Montiel East and Costa Azul prospects. The veinlets are generally narrower than those observed at Montiel East, possibly suggesting that there is no direct relationship between the two prospects. Alteration appears to be sodic-calcic, defined by albite, actinolite and possible diopside.

The Costa Azul porphyry deposit is located approximately 2 km southeast of the Alacran deposit in the eastern side of the San Pedro River Lineament. The Costa Azul porphyry is a shallow dipping, holocrystalline, Cretaceous porphyry diorite intrusion dominated by phenocrysts, euhedral plagioclase and anhedral to subhedral hornblende, intergrown with primary magnetite and biotite.

Porphyry-style Cu-Au-Ag mineralization is associated with sheeted quartz-magnetite-chalcopyrite-pyrite-bornite veinlets within an altered diorite porphyry. This porphyry has not been described in the same detail as Montiel East porphyry; however, the intrusive phases are equivalent to the Montiel East (i.e. Hornblende Porphyry, Hornblende Porphyry Late) and the veining paragenesis is similar to the veins observed at Montiel East.

The Montiel East, Montiel West and Costa Azul deposits can all be broadly classified as Cu-Au porphyry systems as defined by Sillitoe (2000). Cu-Au porphyries are typically associated with I-type magnetite-series intrusive rocks and typically contain significant hydrothermal magnetite, indicating the host intrusions are highly oxidized and sulphur-poor members of this series of magmas. The porphyry stocks in these types of rocks span a range of compositions from diorites, quartz diorite and tonalite through to quartz monzonite, monzonite and syenite. The porphyry deposits of the Project area are of low-potassium, calc-alkaline dioritic and tonalitic composition.

1.7 Exploration and Drilling

Cordoba completed 1:2,000 scale geological mapping, rock channel sampling, a 74-line km 100.0 m spaced ground magnetic survey, and a 50.0 m x 100.0 m spaced soil survey that identified a 1,300.0 m by 800.0 m wide Cu and Au soil anomaly within the Project area.

Cordoba carried out a 5,700-line km helicopter-borne magnetic and radiometric survey and a 1,293-line km induced polarization survey over the Project area.

Diamond drilling at the Alacran deposit consists of 39,086.4 m in 178 HQ and NQ-diameter holes completed between 1987 and 2017. Cordoba drilled 84 HQ/NQ diameter diamond drill holes between 2015 and 2017. Dual Resources drilled 15 NQ diameter diamond drill holes in 1987, and 52 HQ diameter diamond drill holes were drilled by Ashmont in 2011-2012. The drill hole database used for this Resource Estimate has increased by 14 drill holes (+8%) and 3,086 samples (+11%) as compared to the Resource Estimate completed by AMEC April 10, 2018. This is a result of the inclusion of historic drill holes completed by previous operator Dual Resources ("SJ" drill holes) that were later twinned by Ashmont and Cordoba. A twin hole analysis completed by Nordmin of the historical Dual Resources/Ashmont diamond drilling versus the more recent Cordoba drilling was completed. This exercise compared the drill hole collar locations, downhole surveys, logging (lithology, alteration and mineralization), sampling and assaying between the two groups to determine if the historical holes had valid information and would not be introducing a bias within the geological model or Resource Estimate. Nordmin determined that no bias would be introduced by including the SJ holes and therefore, the sampling and analytical results of these holes are considered reliable and suitable to be included in the Mineral Resource Estimation.

At the Costa Azul deposit, Cordoba completed a total of 4,995.9 m of drilling in 118 holes, including 3,305.0 m of small diameter reverse circulation ("RC") drilling in 112 holes and 1,690.9 m of diamond drilling in six holes between 2014 and 2017. At the Montiel East deposit, Cordoba completed 11,056.7 m of drilling in 78 holes, including 1,681.0 m in 48 RC holes and 9,375.7 m in 30 diamond drill holes between 2013 and 2017. At the Montiel West deposit, Cordoba completed 4,055.9 m in 93 holes including 2,032.0 m in 85 RC holes and 2,023.9 m in eight diamond drill holes between 2013 and 2017.

Unless specifically stated, >97% of the RC and diamond drill holes completed within these four deposits have been used to support the current Mineral Resource Estimate.

There are several areas that provide opportunities for potential resource expansion within each of the current Resource deposits along with the Alacran Norte and Willian prospects.

1.8 Sample Preparation, Analyses and Security

Ashmont and Cordoba drill core samples were prepared by ALS Minerals in Medellín, Colombia and analyzed for Au by fire assay and for Cu and 32 other elements by four-acid digestion Inductively Coupled Plasma Atomic Emission Spectrometry ("ICP-AES") methods at ALS Minerals labs in Chile, Peru and Canada. The assaying was monitored using standards, blanks, duplicates, and check samples inserted into the sample stream by Ashmont and Cordoba personnel. The sample preparation routine of Dual Resources is unknown; however, they did collect field and laboratory duplicates for their "SJ" holes, which were later twinned by Ashmont and Cordoba and fully support the mineralization geometry and associated Cu, Au and Ag grades as determined by the estimation process.

1.9 Mineral Processing and Metallurgical Testing

Two metallurgical test work programs have been completed to date on the Alacran deposit. In 2012, Ashmont had Minpro Ltda. of Santiago, Chile ("Minpro") complete preliminary flotation test work on two Alacran composites that focused on the fresh sulphide zones. In 2019, Cordoba had SGS Canada Inc. ("SGS") complete comminution testing on the fresh sulphide zones along with head characterization/flotation testing for the saprolite and transition layers for the Alacran, Montiel East, Montiel West and Costa Azul deposits. SGS also conducted initial test work on the vertical high-grade structures, which has indicated up to 50% of the Au and Ag may be recoverable by a gravity circuit.

Initial metallurgical responses are reasonably consistent with similar Cu, Au Ag replacement and porphyry hosted operations in the industry.

Based upon these preliminary metallurgical test programs for saprolite and fresh rock, variable process recoveries were applied for Cu (50.0% to 90.0%), Au (72.0% to 77.5%) and Ag (40.0% to 70.0%) depending on the host domain (saprolite, transition or fresh sulphide) and Cu grade.

Further metallurgical test work has been recommended to identify the preferred baseline concentrator flowsheet configuration and design parameters for the project, assess mineralization and geometallurgical variability between the saprolite, transition and fresh rock and to assess concentrate marketing and or secondary processing.

The Cordoba concentrator has been designed to process 8,000 t/d for the initial five years of operation and increasing to 16,000 t/d for the next 18 years. The conceptual processing flowsheet includes a primary crushing stage prior to a conventional Semi Autogenous Ball Crusher ("SABC") circuit, rougher flotation, two stages of cleaners and scavenger circuit as well as a pyrite flotation circuit fed from rougher and scavenger flotation tailings. The final concentrate reports to a thickener prior to dewatering via pressure filtration. Process water will be recycled as much as possible to minimize water usage.

1.10 Mineral Resources

The 2019 Mineral Resource Estimate involved a detailed geological re-examination of the lithological and structural controls of the various types of mineralization within the various deposits, which included the high-grade Au/Ag veins for the Alacran deposit. The estimate also includes the introduction of three porphyry Cu-Au-Ag satellite deposits (Montiel East, Montiel West and Costa Azul). As such, various upfront test modelling was completed to define a modelling and estimation methodology to meet the following criteria:

- Representative of the deposit geology and structural model;
- Accounts for the variability of grade, orientation, and continuity of mineralization;
- Control the smoothing (grade spreading) of grades and influence of outliers between high-grade and low-grade areas within the deposit;
- Accounts for most of the mineralization for the deposit;
- Robust and repeatable within the mineral domains; and
- Support multiple high-grade and low-grade domains.

Multiple test scenarios were evaluated for each deposit to determine the optimum processes and parameters to use to achieve the stated criteria. Each scenario was based on nearest neighbour ("NN"), Inverse Distance Squared ("ID2"), and Ordinary Kriging ("OK") interpolation methods.

For each of the deposits, a saprolite (i.e. oxide) and fresh (i.e. sulphide) layer were created. For the Alacran deposit, a transitional layer was created which extended approximately 15 m to 20 m below the saprolite layer.

An updated structural model for the Alacran deposit was created, which demonstrates significant improvements to both the geological and grade continuity within each of the mineralized domains. The mineralized domains have been explicitly modelled to constrain the higher grades within each deposit using hard boundaries to separate the different styles of mineralization/domains (vertical, sub-vertical and low-grade). These hard boundary “wireframes” minimize the mixing of sample data across the separate blocks and more accurately reflect the observations made in the field. This approach minimizes risks compared to using implicit modelling for resource estimation. Further, these structural/mineralized domains have allowed for a more robust geostatistical model to support the inclusion of higher Au grades into the resource model.

The domains are as follows for each deposit:

- **Alacran** – The models (wireframes) include five high-grade vertical structures, five sub-vertical, stratabound bodies of replacement mineralization, and an encompassing low-grade shell;
- **Costa Azul** – The models include two high-grade wireframes and an encompassing low-grade shell;
- **Montiel East** – The models include two high-grade wireframes and an encompassing low-grade shell; and
- **Montiel West** – The models include one high-grade wireframe and an encompassing low-grade shell.

Grade outliers are assay values that are much higher than the general population of samples and that have the potential to bias (inflate) the quantity of metal estimated in a block model. Geostatistical analysis using XY scatter plots, cumulative probability plots and decile analysis was used to analyze the raw drill hole assay data for each domain and sample type (diamond versus RC) to determine appropriate grade capping for each of the deposits. Diamond drill core and RC chips were analyzed as separate populations for the three satellite deposits.

Capped samples were captured within all zones and were composited to 2.5 m regular intervals based on the observed modal distribution of sample lengths, which supports both 5.0 m x 5.0 m x 5.0 m and 5.0 m x 10.0 m x 5.0 m block models. An option to use a variable composite length was chosen to allow for backstitching shorter composites that are located along the edges of a wireframe and or domain. All composite samples were generated within each mineral zone with no overlaps along boundaries. The composite samples were validated statistically to ensure there was no loss of data or change to the mean grade of each sample population.

Datamine™ and Sage™ software were used to create experimental pairwise-relative correlograms for all composite data for each domain (Cu, Au, and Ag in saprolite and fresh portions of high-grade vertical mineralization, sub-vertical replacement mineralization, and low-grade mineralization) using 2.5m capped composites in domains with sufficient data to produce reasonable correlograms.

A 5.0 m x 5.0 m x 5.0 m block size was chosen for the Alacran deposit resource block model to reflect mining selectivity up to a potential 16,000 tonne per day (“t/d”) mining scenario. The resource block model was sub-blocked to 2.5 m x 2.5 m x 2.5 m blocks to maintain geological resolution. The satellite deposits used a 5.0 m x 10.0 m x 5.0 m block size. The block grade model was flagged for lithological and structural domains with wireframes from the geological model.

The block models for all deposits were generated using NN, ID2, and OK interpolation methods to complete global comparisons and validation purposes. The OK method was used for the Mineral Resource Estimate, which is a spatial estimation method where the error in variance is minimized through the kriging variance. This method was chosen over ID2 and NN to control the smoothing of grades better and attribute more weight to samples located in the main orientation of the low-grade and high-grade domains.

A total of 14,304 specific gravity ("SG") measurements for all four deposits were analyzed across the various lithologies throughout each deposit. A total of nine lithology datasets were developed from drill logging, and a weighted average SG was applied to each lithological domain.

Parameters estimated included Cu, Au, Ag, aluminum ("Al"), antimony ("Sb"), arsenic ("As"), cadmium ("Cd"), chromium ("Cr"), iron ("Fe"), lead ("Pb"), nickel ("Ni"), sulphur ("S"), thorium ("Th"), titanium ("Ti"), tungsten ("W"), uranium ("U"), and zinc ("Zn"). Elements other than Cu, Au and Ag were estimated for potential future use in exploration, metallurgical and environmental studies, but are not included in the Resource Estimate.

Zonal controls were used to constrain the grade estimates to within each low and high-grade wireframe. These controls prevented the samples from individual domain wireframes from influencing the block grades of one another, acting as a "hard boundary" between the zones. For instance, the composites identified within high-grade vertical mineralization Zone 1 were used to estimate Zone 1 only, and all other composites were ignored during the estimation of Zone 1.

Search orientations were estimated into the block model based on the shape of the modelled mineral domains. A total of three nested searches were performed on all zones. The search distances were based upon the variogram ranges outlined in Section 14.5.2. The search radius of the first search for the low-grade and high-grade Cu, Au and Ag was based upon the first structure of the variogram, the second search being two times the first structure and the third search on the maximum of the second structure within the variogram. Search strategies for each domain used an elliptical search with a minimum of three samples and a maximum of twelve samples from a minimum of two holes in the first, second, and third passes. Un-estimated blocks were left as absent and not reported in the Mineral Resource Estimate. Overall, this estimation approach resulted in a grade interpolation that honours the composite grades, both locally and globally.

Model validation included:

- Visual inspection: locally, the estimated grades of the blocks show reasonable agreement with the supporting grades;
- Global bias checks using a NN, ID2, and OK methods;
- The absolute differences for Indicated CuEq cut-offs of 0.20%, 0.30%, 0.40%, and 0.50% are Au: 1.34%, Cu: 0.77%, and Ag: 0.30%;
- The absolute average differences for inferred CuEq cut-offs 0.20%, 0.30%, 0.40%, and 0.50% are Au: 1.98%, Cu: 0.95%, and Ag: 2.21%;
- Local bias checks using swath plots. The swath plots do not show areas of significant local bias in areas that are supported by a large number of blocks; and
- Metal removed as a result of capping to control the over-projection of high-grades was evaluated by comparing the capped composites versus the uncapped composites for each domain. Overall, Cu removed by capping was 0.88%, Au was 19.32%, and Ag was 2.30%.

The Mineral Resource Estimate was classified in accordance with CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014). Mineral Resource classifications were assigned to broad regions of the block model based on the Qualified Person's confidence and judgement related to geological understanding, continuity of mineralization in conjunction with data quality, spatial continuity based on variography, estimation pass, data density, and block model representativeness.

Classification (Indicated and Inferred) was applied to all four block models based on a drill spacing review for each deposit in vertical and plan section view.

Alacran

The significant increase in Indicated Resources is primarily attributed to increased confidence in the understanding of the structural controls on mineralization, re-mapping of the artisanal workings, re-logging of both historical and Cordoba drill core and the inclusion of some historical drilling. The historical drilling included drill holes completed by previous operator Dual Resources ("SJ" drill holes) that were later twinned by Ashmont and Cordoba. Results of a detailed QA/QC analysis and comparison between the SJ holes and twin holes warranted their inclusion. Collectively, this work recognized the key structural controls on mineralization and improved the overall data density for the deposit, resulting in a substantial improvement in the geological and grade continuity required to support high conversion rates of Inferred to Indicated Resources.

Nordmin determined that the appropriate drill spacing for the purpose of the Indicated category was approximately 50.0 m and between 50.0 m and 150.0 m for the Inferred category.

Satellite Deposits

Drill spacing for each satellite deposit was analyzed, and it was determined that all three were similar in nature. Nordmin determined that the appropriate drill spacing for the purpose of the Indicated category was 50 m and between 50 m and 150 m for the Inferred category.

Reasonable Prospects of Eventual Economic Extraction

To demonstrate reasonable prospects for eventual economic extraction, Nordmin created the Mineral Resource using Datamine Studio 3 software to create the block models and used Datamine NPV Scheduler^{TM} to constrain the resources and create conceptual open pit shells for the deposits using Indicated and Inferred mineralized material. Both oxide and sulphide material were considered as mineralization. The deposits were assumed to be developed as a long-life operation consisting of a conventional truck, and shovel open pit operation initially feeding an 8,000 t/d concentrator for the first five years of operation and then expanding to 16,000 t/d to produce a Cu-Au concentrate. The assumed processing costs are based on a sulphide concentrate being produced using flotation methods to recover Cu, Au, and Ag.

The input parameter assumptions are provided in Table 1-2.

Table 1-2: Input Parameter Assumptions

Parameter	Value	Units
Copper Price	3.25	$/lb
Gold Price	1,400.00	$/oz
Silver Price	17.75	$/oz
Mining Cost, First 5 Years	2.43	$/t Mined
Mining Cost, After First 5 Years	1.69	$/t Mined
Processing Cost, First 5 Years	8.63	$/t Milled
Processing Cost, After First 5 Years	7.50	$/t Milled
General and Administrative Cost, First 5 Years	2.56	$/t Milled
General and Administrative Cost, After First 5	1.32	$/t Milled
Mining Recovery, Saprolite	97.0	%
Mining Dilution, Saprolite	4.0	%
Max Pit Slope, Saprolite	32.50	degree
Max Pit Slope, Fresh	45.00	degree
Variable Process Recoveries Copper	50.0-90.0	%
Variable Process Recoveries Gold	72.0-77.5	%
Variable Process Recoveries Silver	40.0-70.0	%
Freight Costs Concentrate	100.00	$/t
Treatment Costs, Concentrate	90.00	$/t
Payable Metal Factors Copper	95.5	%
Payable Metal Factors Gold	96.5	%
Payable Metal Factors Silver	90.0	%
Refining Charges Copper	0.09	$/lb
Refining Charges Gold	5.00	$/oz
Refining Charges Silver	0.30	$/oz

Source: Nordmin, 2019

The input parameters were based on:

- Metal prices net selling cost including concentrate refining;
- Bench-marked mining, process and general and administrative ("G&A") costs based on estimates and current costs for similar sized and similar types of operations;
- Metallurgical recoveries are based upon initial preliminary metallurgical studies for saprolite and fresh rock. Variable process recoveries of 50.0% to 90.0% for Cu, 72.0% to 77.5% for Au and 40.0% to 70.0% for Ag were used depending on the domain (saprolite, transition or fresh sulphide);
- Copper equivalent has been calculated using: CuEq % = Cu % + (Au Factor x Au Grade g/t + Ag Factor x Ag Grade g/t) x 100;
- Au Factor = (Au Recovery % x Au Price $/oz / 31.1035 g/oz) / (Cu Recovery % x Cu Price $/lb x 2204.62 lb/t);

- Ag Factor = (Ag Recovery % x Ag Price \$/oz / 31.1035 g/oz) / (Cu Recovery % x Cu Price \$/lb x 2204.62 lb/t); and
- A cut-off grade of 0.22% CuEq has been applied.

The average ratio of waste to total in-pit mineralization at a cut-off of 0.22% CuEq for all four pits is approximately 0.81:1. Although the conceptual pit shells capture much of the material classified with an Inferred or Indicated level of confidence, there is mineralized material that falls outside of the conceptual pit shells. Additional core drilling will be required to support the potential estimation of Mineral Resources from this material.

1.11 Mine Plan

The PEA mine plan is based on the Mineral Resource Estimate outlined in Section 14.9. The mine plan was based upon four deposits (Alacran, Montiel East, Montiel West and Costa Azul). Collectively these four deposits were designed to be mined using a conventional drill, blast and shovel/truck open pit mining methods, and processed at the mill on-site. Mining activities will be performed by a contractor-owned mining fleet for Years 1 – 5 of operation (Phase 1) and switch to an owner-operated fleet in Year 6 and onward (Phase 2). The initial mining will be from the Alacran conceptual open pit and is planned to target the high-grade, low-waste strip blocks located in the centre of the deposit. Three small pushbacks are planned within the first five years of the operation to ensure consistent high-grade resources are being fed to the mill maximizing NPV.

The Alacran conceptual open pit will be approximately 1.5 km long in a north-south direction, and a maximum of 630 m wide. The satellite conceptual open pits are considerably smaller, at between 500 m and 600 m long each, and about half as wide. The depths of the conceptual open pits from the road pit access elevations are 195 m for the Alacran pit, 60 m for the Costa Azul pit, 75 m for the Montiel East pit, and 45 m for the Montiel West pit.

The stripping ratio for the selected Alacran pit is 0.92:1 and is approximately 0.2:1 for the satellite pits. The production rates scheduled are 8,000 t/d of mill feed for the first five years, and 16,000 t/d of mill feed thereafter. All mill feed is expected from the Alacran pit for the first 17 years. During years 17 to 23, 8,000 t/d of mill feed is expected from the Alacran pit complemented by 8,000 t/d from the satellite pits. The satellite pits begin production simultaneously in order to provide a sustainable supply of mill feed and increase operational flexibility. During Years 17 to 23, 8,000 t/d of mill feed is expected from the Alacran pit complemented by 8,000 t/d from the satellite pits. Mineralized saprolite will be mined and a portion of this material to be stockpiled in order to maintain a set rate of blending with fresh rock prior to being processed through the mill.

Limited geotechnical and hydrogeological information is currently available. Using the limited rock-quality designation (“RQD”) data available, a maximum overall pit slope angle of 45° was chosen for the fresh rock and transition material in all four pits, and a maximum pit slope angle of 32° was chosen for the saprolite material. The overall configuration of the mineralization is shallower than the 45° pit slopes.

Due to the preliminary nature of the PEA, it must be noted that the material considered in it are Mineral Resources, and as such are too geologically speculative to be categorized as Mineral Reserves, and there is no certainty that the PEA will result in an operating mine. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

1.12 Infrastructure

The main project infrastructure components include mine and process plant supporting infrastructure, site accommodation facilities, WMF, external and internal access roads, power supply and distribution, freshwater supply and distribution and water treatment plant.

The Project is accessible by travelling on a paved two-lane highway to Puerto Libertador and then by driving approximately 21 km from Puerto Libertador on a hard-packed, gravel road. The main access road between La Rica and the planned security gate of the project site is of a lower quality, being only wide enough for one vehicle and with sharp turns and abrupt grade changes. This road is 6 km long and is the intended haul road for concentrate. For cost estimation purposes it has been assumed that approximately 6 km of road will need to be upgraded and widened to allow two-way traffic and transport trucks.

The road network, which is maintained by the local governments and would be used to transport personnel, materials, consumables and concentrate to the port to export. A local airstrip is present just south of Puerto Libertador, 18 km from the project site. Airports also exist in Montelibano and Caucasia, which are a respective 64 km and 109 km from the project site entrance to the airport terminal. Ports are located at Tolú and Cartagena: Tolú is 273 km away from the project site by road, and Cartagena is 418 km away.

Limited accommodations will need to be provided for employees who cannot be hired from local communities.

Power to the Project is expected to be supplied via a 15 km, 230 kilovolt (“kV”) powerline connecting to the Sator SAS 300 MW thermal power plant. The Sator SAS plant is part of a permitted regional electric grid expansion that includes the currently operating ISA and Gecelca 300 MW thermal power plants. The Sator SAS plant is expected to be operational within the next three to five years.

In time, power will be generated from the Sator SAS plant for regular operations; however, the existing thermal power plants can supply power to the project in the interim. Further, these plants will provide a reliable and strong backup supply should the Sator SAS plant be shut down for maintenance or repair once it is in operation.

The project site primary power distribution will operate nominally at 4.16 kV which is provided by two 30 mega volt amp (“MVA”) 230 kV/4.16 kV step down transformers connected to a “main-tie-main” switchgear lineup. The switchgear lineup and two transformers give redundancy to the primary power distribution in case some distribution equipment requires to be put offline for maintenance or repair for any extended length of time.

1.12.1 Waste Management Facility

Tailings and potentially acid generating (“PAG”) waste rock will be stored in the WMF located in the Concepcion Creek valley, approximately 1.5 km west of the Alacran conceptual open pit. The construction of the WMF has been divided into two main phases. The Interim Dam will be constructed using non-PAG waste rock from open pit mining operations and lined with a geosynthetic lining system on the upstream dam face to provide approximately four years of storage. The Final Dam will be constructed approximately 1 km downstream of the Interim Dam. The Final Dam will also be constructed using non-PAG waste rock from open pit mining operations and will also be lined with a geosynthetic lining system on the upstream dam face. The Final Dam will be raised in several stages using the downstream construction method to provide approximately 14 years of storage. The Interim Dam will be inundated with tailings during filling of the final WMF basin.

1.13 Market Studies and Contracts

Based upon preliminary assay data the Project's concentrate can be regarded as a clean, high Cu, with significant Au-Ag credits. Such material is likely to be in demand from smelters in Japan, China, elsewhere in Asia and Europe. The Au and Ag content are also likely to make the Project's concentrate attractive to traders for blending purposes. The clean quality combined with the combination of freight, Au and Ag payable makes Japanese smelters likely to achieve the best netback.

1.14 Capital Cost Estimate

The capital cost estimate has an expected accuracy range of +50%/-35% weighted average accuracy of actual costs. Base pricing is in the second quarter of 2019 US dollars, with no allowances for inflation or escalation beyond that time.

The estimate includes direct and indirect costs, (such as engineering, procurement, construction and start-up of facilities) as well as Owners costs and contingency associated with mine and process facilities and on-site and off-site infrastructure.

The capital costs are broken down into the following two timeframes:

- Initial capital costs: Include the design, procurement, construction and management for the Project start-up production rate of 8,000 t/d (2.92 Mtpa), which will be maintained throughout the first five years of operation.
- Expansion capital costs: include the expansion of the production rate from 8,000 t/d (2.92 Mtpa to 16,000 t/d (5.84 Mtpa) beginning in Year 6.

The initial capital costs are estimated at $161.4M and LoM capital costs are estimated at $527.5 M. The sustaining capital costs are estimated at $175.9M.

1.15 Operating Cost Estimate

The operating cost estimate has an expected accuracy range of +50%/-35% weighted average accuracy of actual costs. Base pricing is in the second quarter of 2019 US dollars, with no allowances for inflation or escalation beyond that time. LoM Cu C1 cash costs are expected to an average of $2.51/lb including royalties but before precious metals credits and to an average of $1.32/lb net of credits. Total on-site operating costs, including royalties, are expected to an average of $15.78/t processed. Mining costs are expected to an average of $1.85/t of material mined at the Alacran and satellite pits based on a total of 215.3 million tonnes of total material moved. Cost contingencies of up to 25% have been applied as an additional buffer in the cost estimates. The LoM operating cost estimate is $1,161.2 million.

1.16 Economic Analysis

The economic analysis contained in this report is based, in part, on Inferred Mineral Resources, and is preliminary in nature. Inferred Mineral Resources are considered too geologically speculative to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that economic forecasts on which this PEA is based will be realized.

The financial analysis was carried out using a discounted cash flow ("DCF") methodology. Net annual cash flows were estimated projecting yearly cash inflows (or revenues) and subtracting projected yearly cash outflows (such as capital and operating costs, royalties and taxes). These annual cash flows were discounted back to the date of the beginning of capital expenditure and totalled to determine the NPV of the project at selected discount rates. A discount rate of 8% was used as the base discounting rate.

In addition, the IRR expressed as the discount rate that yields an NPV of zero, and the payback period, expressed as the estimated time from the start of production until all initial capital expenditures have been recovered, were also estimated.

To assess the Project value drivers, sensitivity analyses were performed for the NPV and IRR considering variations in metal prices, recoveries, initial capital and operating costs on the pre and after tax NPV 8% and on IRR. The Project proved to be most sensitive to fluctuations in the Cu metal price and Cu recoveries and less sensitive to changes in operating costs and initial capital costs.

All monetary amounts are presented in constant second quarter of 2019 US dollars. For discounting purposes, cash flows are assumed to occur at the end of each period. Revenue is recognized at the time of production.

The project shows positive economics and is estimated to produce 417,300 tonnes of Cu, 724,500 ounces of Au and 5,930,000 ounces of Ag. Using an 8% discount rate, the project has an after-tax NPV of $210.7 million, an IRR of 20.3% and a payback period of 5.3 years. The pre-tax and after-tax values include the Colombian mining royalties of 4% of total precious metals revenue and 5% of total Cu revenue. Over the PEA LoM, the Project is expected to generate $180.7 million in royalty revenue plus $331.2 million in income tax revenue to the government.

There is potential for the Project if the metal price assumptions increase from the assumptions used in the Technical Report or the contained Mineral Resources increase within the Project.

1.17 Interpretations and Conclusions

Under the assumptions presented in this Report, and based on the available data, the PEA shows positive economics. Exploration activities have shown the Project to retain significant potential, and additional exploration is warranted. Various concentrate marketing and/or secondary processing options should be evaluated once the recommended metallurgical test work is available to assess mineralization and geometallurgical variability.

1.18 Recommendations

The Company requested a suspension of obligations on the Alacran title due to force majeure on May 24, 2019 and were notified in writing by the National Mining Agency (“ANM”) of the suspension on July 31, 2019. The suspension is effective from May 24, 2019, until May 23, 2020. Importantly, if the Company deems it safe/appropriate to lift the force majeure and return to work, the Company may request to the ANM that the suspension be lifted at any time before May 23, 2020. When the force majeure is lifted, the following recommendations can proceed and are divided into two phases.

The Phase 1 recommendations are focused on exploration and drilling activities, environmental baseline programs and metallurgical test work. Contingent upon completion of the recommended Phase 1 program and budget and receipt of positive economic results from that work, which is not guaranteed, a Phase 2 program and budget would be warranted. The recommendations proposed in Phase 2 are related to the further advancement of ongoing technical programs. Phase 1 recommendations are estimated to require a budget of $2.7 million; Phase 2 recommendations are estimated to require a budget of $4.2 million.

1.18.1 Phase 1 Recommendations

A drill program of approximately 5,000 m of infill and expansion drilling is recommended to support and test the known mineralization extents and the ongoing metallurgical and geotechnical related programs.

The main objectives of metallurgical testing are:

- to further define preliminary flowsheet requirements;
- to further define saprolite, transitional and fresh rock recoveries, and associated costs;
- sample preparation and characterization using core samples;
- metallurgical flotation flowsheet development batch testing;
- metallurgical testing:
  - batch testing, mineralization and product characterization;
  - locked cycle tests and product characterization; and
  - metallurgical comminution testing, consisting of bond work, bond rod, crushing and abrasion index tests, semi-autogenous grind mill comminution tests.
- continuation of environmental baseline studies focusing on hydrogeology, hydrology and water balance to support the WMF; and
- technical studies which include trade-off studies and pre-feasibility study related work.

1.18.2 Phase 2 Recommendations

The Phase 2 recommendations are contingent upon completion of the Phase 1 recommendations and the receipt of positive economic results from the Phase 1 program. The Phase 2 program is designed for the further advancement of the ongoing drilling and technical programs.

2. INTRODUCTION

2.1 Terms of Reference

This Technical Report was prepared as a Canadian National Instrument 43-101 (“NI 43-101”) Technical Report (“Technical Report”) for Cordoba Minerals Corp. (“Cordoba” or “the Company”) by Nordmin Engineering Ltd. (“Nordmin”), Environmental Applications Group Inc. (“EAG”) and Knight Piésold Ltd. (“Knight Piésold”) (collectively referred to as “the Consultants”) on the San Matías Copper-Gold-Silver Project (“the Project”) located within Cordoba’s San Matías exploration area in Colombia, South America.

The quality of information, conclusions, and estimates contained herein are consistent with the level of effort involved in Nordmin's services, based on i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications outlined in this Technical Report.

This Technical Report is intended for use by Cordoba subject to the terms and conditions of its contract with Nordmin and relevant securities legislation. The contract permits Cordoba to file this Technical Report as a Technical Report with Canadian securities regulatory authorities pursuant to NI 43-101, Standards of Disclosure for Mineral Projects. Except for the purposes legislated under provincial securities law, any other uses of this Technical Report by any third party is at that party's sole risk. The responsibility for this disclosure remains with Cordoba. The user of this document should ensure that this is the most recent Technical Report for the property as it is not valid if a new Technical Report has been issued.

This Technical Report provides a Mineral Resource, and a classification of the resource prepared in accordance with the Canadian Institute of Mining (“CIM”), Metallurgy and Petroleum Standards on Mineral Resources and Reserves: Definitions and Guidelines, May 10, 2014 (CIM, 2014).

2.2 Qualified Persons

The Consultants preparing this Technical Report are specialists in the fields of geology, exploration, Mineral Resource and Mineral Reserve estimation and classification, classification, underground mining, mining backfill, geotechnical, environmental, permitting, metallurgical testing, mineral processing, processing design, pipeline design, capital and operating cost estimation, and mineral economics.

The Consultants, nor any associates employed in the preparation of this Technical Report, are insiders, associates, affiliates or has any beneficial interest in Cordoba. The results of this Technical Report are not dependent upon any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings between Cordoba and the Consultants. The Consultants are being paid a fee for the work in accordance with reasonable professional consulting practices.

The following individuals, by virtue of their education, experience and professional association, are considered Qualified Persons (“QP”) as defined in the NI 43-101 standard, for this Technical Report, and are members in good standing of a relevant professional institution. QP Certificates of the Author are provided in Appendix A. The QP’s are responsible for specific sections of this Technical Report, as follows:

- Glen Kuntz, P. Geo. (Nordmin Engineering Ltd., Consulting Specialist - Geology/Mining) is the QP responsible for environmental, permitting, geology, resources, capital and operating cost estimation, and mineral economics, Sections 4 through 12, 14, 19 through 24 (except 21.5.4) and portions of Sections 1, 25 and 26 summarized within this Technical Report.

- Agnes Krawczyk, P.Eng. (Nordmin Engineering Ltd., Senior Mining Engineer) is the QP responsible for mining methods and infrastructure Sections 16 and 18 (except Section 18.12) and portions of Sections 1, 25 and 26 summarized within this Technical Report.
- Kurt Boyko, P.Eng. (Nordmin Engineering Ltd., Principal, Consulting Specialist and Mechanical Engineer) is the QP responsible for mineral processing, metallurgical testing and recoveries Sections 13 and 17 and portions of Sections 1, 25 and 26 summarized within this Technical Report.
- Wilson Muir, P.Eng., Knight Piésold Ltd., Senior Engineer is the QP responsible for project infrastructure Section 18.12 and Section 21.5.4, as well as portions of Sections 1 and 25 summarized within this Technical Report.

2.3 Effective Dates

The effective date of the July 2019 PEA Mineral Resource Estimate is July 24, 2019. The effective date of the Report is July 29, 2019.

2.4 Information Sources and References

This Technical Report has been prepared in accordance with NI 43-101, Form 43-101F1 and Companion Policy 43-101CP.

The sources of information utilized in the preparation of the Technical Report, in addition to Nordmin's contributions, were provided by Cordoba staff including geologists and General Counsel; Julian Manco, a former Cordoba geologist now completing an M.Sc. at the University of British Columbia on the Alacran deposit; and Federico Chalela, Partner of Chalela I Abogados for independent comment on Mineral Tenure and Royalties.

Historical work conducted in the region has been compiled by Cordoba.

Reports and documents listed in Section 2.7, Section 3, and Section 19 of this Report were used to support the preparation of the Report.

2.5 Previous Reporting

2.5.1 Previous Technical Reports

Previous publicly disclosed technical reports prepared for the San Matías Copper-Gold-Silver Project, with Mineral Resource Estimates for the Alacran deposit include the following published for Cordoba:

- Kuntz, G. of Nordmin Engineering Ltd., 2019: NI 43-101 Technical Report and Resource Estimate, San Matías Copper-Gold-Silver Project, Colombia, effective date 3 July 2019;
- Kulla, G., and Oshust, P. of AMEC Foster Wheeler, 2018: NI 43-101 Technical Report on the Alacran Project Department of Córdoba, Colombia: a technical report prepared for Cordoba Minerals, effective date 10 April 2018; and
- Taylor, I., Redwood, S. of Mining Associates Pty Ltd., 2017: Independent Technical Report and Resource Estimate on the Alacran Copper Gold Deposit: a technical report prepared for Cordoba Minerals, effective date 27 October 2017.

2.5.2 Previous Mineral Resource Estimates

The following Mineral Resource Estimates were produced prior to Cordoba acquiring the Project, none of which were publicly disclosed by the prior operators:

- Mosher, G., 2011: Technical Report on the El Alacrán Copper-Gold Property, Colombia: a technical report prepared for Ashmont Resources Corp, 20 February 2011 (not published); and
- Vargas, H., 2014 Sociedad Minera El Alacrán Colombia, El Alacrán Copper and Gold Project Executive Summary, 16 September 2014.

Previous technical reports published for Cordoba on the San Matías project that do not include Mineral Resource Estimates include:

- Redwood, S.D., 2014. NI 43-101 Technical Report for the San Matías Porphyry Copper-Gold project, Department of Cordoba, Republic of Colombia, effective date 30 November 2013.

All previous Mineral Resource Estimates for the Project disclosed estimates for the Alacran deposit only. This report is the first to include satellite deposits at the Project in a Resource Estimate.

2.6 Acknowledgements

Nordmin and Cordoba would like to thank and acknowledge the following people who have contributed to the preparation of this Technical Report under the supervision of the QP, including Mr. Eric Finlayson, President and Chief Executive Officer, Mr. Mark Gibson, Chief Operating Officer, Mr. Charles Forster, Vice-President Exploration, Mr. Graham Boyd, Principal Geologist, Ms. Cathy Fitzgerald, Senior Resource Development Geologist, Ms. Sarah Armstrong-Montoya, Vice-President and General Counsel, Mr. Greg Shenton, Chief Financial Officer, Mr. Oscar Pinilla, Project Manager and Geologist, Mr. Evan Young, Director, Investor Relations and Mr. Mario Stifano, former President and Chief Executive Officer of Cordoba.

2.7 Units of Measure

Unless otherwise noted, the following measurement units, formats and systems are used throughout this Technical Report.

- Measurement Units: all references to measurement units use the System International (SI, or metric) for measurement. The primary linear distance unit, unless otherwise noted, are metres (m).
- General Orientation: all references to orientation and coordinates in this report are presented as Universal Transverse Mercator ("UTM") in metres.
- Currencies outlined in the Technical Report are stated in $ unless otherwise noted.

The symbols and abbreviations used in this Technical Report are outlined in Section 28.4.

3. RELIANCE ON OTHER EXPERTS

The Consultants' opinions contained herein are based on information provided to the Consultants by Cordoba throughout the course of the investigations. The Consultants have relied upon the work of other consultants in the Project area in support of this Technical Report.

In each case, the QP hereby disclaims responsibility for such information to the extent of their reliance on such reports, opinions, or statements.

The Consultants 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, which 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 Consultants do not consider them to be material.

These items have not been independently reviewed by the Consultants, and the Consultants did not seek an independent legal opinion of these items.

Nordmin

Nordmin and Mr. Glen Kuntz, P.Geo. and QP relied on the following experts to complete his sections of this Technical Report. Mr. Kuntz has reviewed the data supplied by other experts and in his professional judgement, has taken appropriate steps to ensure that the work, information, and advice from the noted experts below are sound for the purpose of this Technical Report.

Mineral Tenure, Surface Rights, Property Agreements and Royalties

The QP has fully relied upon, and disclaims responsibility for, information derived from Cordoba and legal experts retained by Cordoba for this information through the following document:

- Letter from Federico Chalela, Partner of Chalela I Abogados, dated 30 June 2019.

Information from this letter has been used in Section 4 of this Technical Report.

Nordmin is not qualified to provide extensive comment on legal issues, including the status of tenure associated with the Property referred to in this report. A description of the Property and ownership is provided for general information purpose only.

Environmental, Permitting, and Liability Issues

The QP has fully relied upon, and disclaims responsibility for, the information supplied by Cordoba staff and experts retained by Cordoba for information related to environmental permitting and social and community impacts as follows:

- Letter from Federico Chalela, Partner of Chalela I Abogados, dated 30 June 2019; and

Information from this letter has been used in Section 4 of this Technical Report.

"Chalela I Abogados is a law firm specialized in providing legal services and support for corporate matters, projects and resolution of controversies. Our team of lawyers has a track record and particular recognition for their professional and personal qualities. The team is composed by partner and associate lawyers' experts in the energy sector, in its oil & gas, mining, non-conventional sources and services inherent to these industries, among others.

Federico Chalela, Partner of Chalela I Abogados has more than 15 years of experience and has focused his practice on business and business matters for different segments of the energy sector.

He has precise experience dealing with day-to-day issues structuring and implementing special corporate transactions or projects and resolving legal or contractual differences. He holds a degree in Administrative Law and an LL.M in Corporate Law from the New York University School of Law in 2008."

Sample Preparation, Analysis and Security and Data Verification

- Francine Long, P.Geo., employed by Nordmin during the period of review of the Project, has over 11 years of experience in the global mining industry and mineral sector projects. She has been a part of the geological technical team on over 75 projects focused on advancing greenfield and brownfield mineral exploration projects and works in both underground and open pit production environments.
- Christian Ballard, P.Geo., of Nordmin has over 13 years of experience as a Mine Geologist and several years of geological exploration experience. He is a specialist in mine geology, resource modelling and evaluation. Christian has vast experience in creating and maintaining geological models. He has practical experience in the progression of underground development and calculation of long and short-range ore resources, geostatistics and block modelling and interpretation for the purpose of ongoing official resource refinement. Experience includes wireframe modelling, block modelling estimation methods, and variography.

Information provided has been used in Section 11 of this Technical Report.

Mineral Resource Estimate

- Christian Ballard, P.Geo., of Nordmin has over 13 years of experience as a Mine Geologist and several years of geological exploration experience. He is a specialist in mine geology, resource modelling and evaluation. Christian has vast experience in creating and maintaining geological models. He has practical experience in the progression of underground development and calculation of long and short-range ore resources, geostatistics and block modelling and interpretation for the purpose of ongoing official resource refinement. Experience includes wireframe modelling, block modelling estimation methods, and variography.
- Stan Emms, of Nordmin, has over 40 years of experience promoting safety, efficiency and cost control to a wide variety of mining activities both in underground and open pit operations, as well as managing mine related construction projects. He has vast experience with establishing a correct and practical approach towards mine design that benefits the feasibility, construction, operation and closure phases related to an ore deposit.
- Agnes Krawczyk, P.Eng., of Nordmin has over 14 years of experience in a variety of underground and open pit mining environments. She has led activities in all aspects of mine planning, scheduling, surveying, rock mechanics, ventilation, capital and operating budgets.
- Brett Stewart, of Nordmin, has been a design technician working in Mining Design for 16 years. He has a solid understanding of mining methods and is an expert in several software suites including 3D Mine Planning and Design, Datamine Block Model Import and Evaluation, Mine 2-4D EPS, and AutoCAD as well as the Microsoft Office Programs. Brett brings practical design experience allowing for the establishment of a workable mine design for the lifecycle of the ore body from feasibility through, operation and closure.

Information provided has been used in Section 14 of this Technical Report.

Environmental Studies, Permitting and Social or Community Impact

- Darryl Boyd, of Environmental Applications Group Inc., has over 23 years of experience in the mining sector. Darryl has completed the permitting for 17 project start-ups ranging from advanced exploration to commercial production. Additionally, Darryl has managed multi-disciplinary baseline studies, engineering designs, permitting, Indigenous & public consultation and engagement and selected long-lead procurement programs.

Information provided has been used in Section 5 and Section 20 of this Technical Report.

Market Studies and Contracts

- Paul Benjamin and Brent Omland of Ocean Partners UK Limited ("OPUK") provided information on market studies. OPUK provides a complete range of non-ferrous base and precious metal concentrate trading services for miners, smelters, refiners and metal consumers around the world. Paul Benjamin, BSC Mineral Processing Technology has over 30 years experience including notably 12 years as a mining research analyst specialized in copper metal and concentrates for Wood Mackenzie a prominent metal and concentrate market research firm. Brent Omland, CPA, CA has over 15 years experience in metals and mining marketing, operations and trading.

Information provided has been used in Section 19 of this Technical Report.

Capital, Operating Costs and Economic Analysis

- Christian Ballard, P.Geo., of Nordmin has over 13 years of experience as a Mine Geologist and several years of geological exploration experience. He is a specialist in mine geology, resource modelling and evaluation. Christian has vast experience in creating and maintaining geological models. He has practical experience in the progression of underground development and calculation of long and short-range ore resources, geostatistics and block modelling and interpretation for the purpose of ongoing official resource refinement. Experience includes wireframe modelling, block modelling estimation methods, and variography.
- Stan Emms, of Nordmin, has over 40 years of experience promoting safety, efficiency and cost control to a wide variety of mining activities both in underground and open pit operations, as well as managing mine related construction projects. He has vast experience with establishing a correct and practical approach towards mine design that benefits the feasibility, construction, operation and closure phases related to an ore deposit.
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- Brett Stewart, of Nordmin, has been a design technician working in Mining Design for 16 years. He has a solid understanding of mining methods and is an expert in several software suites including 3D Mine Planning and Design, Datamine Block Model Import and Evaluation, Mine 2-4D EPS, and AutoCAD as well as the Microsoft Office Programs. Brett brings practical design experience allowing for the establishment of a workable mine design for the lifecycle of the ore body from feasibility through, operation and closure.
- Tim Ricard, P.Eng., of Nordmin, has over 10 years of experience in power systems engineering and support services, primarily in industrial, mining and manufacturing environments. He

specializes in power systems analysis and protection and control. He has extensive experience in protective device coordination, arc flash analysis and device protection settings.

- Gregory Menard, P.Eng., of Nordmin, has over 25 years experience in mechanical design, contract management, cost control, and project management. He has extensive experience in ventilation, pumping, air, and shaft layouts and hoisting.
- Kurt Boyko, P.Eng., of Nordmin, has over three decades of experience in processing, plant process, machine design, design and commissioning of materials handling, pumping, and ventilation systems.

Information provided has been used in Section 21 and 22 of this Technical Report.

Nordmin and Ms. Agnes Krawczyk, P.Eng. and QP relied on the following experts to complete her sections of this Technical Report. Ms. Krawczyk has reviewed the data supplied by other experts and in her professional judgement, has taken appropriate steps to ensure that the work, information, and advice from the noted experts below are sound for the purpose of this Technical Report.

Mining Methods

- Stan Emms, of Nordmin, has over 40 years of experience promoting safety, efficiency and cost control to a wide variety of mining activities both in underground and open pit operations, as well as managing mine related construction projects. He has vast experience with establishing a correct and practical approach towards mine design that benefits the feasibility, construction, operation and closure phases related to an ore deposit.
- Brett Stewart, of Nordmin, has been a design technician working in Mining Design for 16 years. He has a solid understanding of mining methods and is an expert in several software suites including 3D Mine Planning and Design, Datamine Block Model Import and Evaluation, Mine 2-4D EPS, and AutoCAD as well as the Microsoft Office Programs. Brett brings practical design experience allowing for the establishment of a workable mine design for the lifecycle of the ore body from feasibility through, operation and closure.

Information provided has been used in Section 16 of this Technical Report.

Project Infrastructure

- Stan Emms, of Nordmin, has over 40 years of experience promoting safety, efficiency and cost control to a wide variety of mining activities both in underground and open pit operations, as well as managing mine related construction projects. He has vast experience with establishing a correct and practical approach towards mine design that benefits the feasibility, construction, operation and closure phases related to an ore deposit.
- Brett Stewart, of Nordmin, has been a design technician working in mining design for 16 years. He has a solid understanding of mining methods and is an expert in several software suites including 3D Mine Planning and Design, Datamine Block Model Import and Evaluation, Mine 2-4D EPS, and AutoCAD as well as the Microsoft Office Programs. Brett brings practical design experience allowing for the establishment of a workable mine design for the lifecycle of the ore body from feasibility through, operation and closure.
- Tim Ricard, P.Eng., of Nordmin, has over 10 years of experience in power systems engineering and support services, primarily in industrial, mining and manufacturing environments. He

specializes in power systems analysis and protection and control. He has extensive experience in protective device coordination, arc flash analysis and device protection settings.

- Gregory Menard, P.Eng., of Nordmin, has over 25 years experience in mechanical design, contract management, cost control, and project management. He has extensive experience in ventilation, pumping, air, and shaft layouts and hoisting.

Information provided has been used in Section 18 (excluding 18.12) of this Technical Report.

Nordmin and Mr. Kurt Boyko, P.Eng. and QP relied on the following experts to complete his sections of this Technical Report. Mr. Boyko has reviewed the data supplied by other experts and in his professional judgement, has taken appropriate steps to ensure that the work, information, and advice from the noted experts below are sound for the purpose of this Technical Report.

Mineral Processing, Metallurgical Testing and Recoveries

- SGS Canada Minerals Lakefield which is accredited by the Standards Council of Canada and conforms to the requirements of ISO/IEC 17025.

Information provided has been used in Section 13 and 17 of this Technical Report.

Knight Piésold Ltd.

Knight Piésold and Mr. Wilson Muir, P.Eng. and QP relied on the following expert to complete his sections of this Technical Report. Mr. Muir has reviewed the data supplied by the other expert and in his professional judgement, has taken appropriate steps to ensure that the work, information, and advice from the noted expert below are sound for the purpose of this Technical Report.

Project Infrastructure

- Craig Hall a Specialist Geotechnical Engineer at Knight Piésold. He is a graduate of the University of Waterloo in Geological Engineering with over 16 years of geotechnical experience related to mining projects. Areas of specialty include planning, design, permitting, construction, operation, and closure of mine waste and water management facilities and other mining related infrastructure. Other areas of expertise include the evaluation of best available technologies and management practices for tailings storage facilities, geosynthetics lining systems, geomembrane, site investigations, technical specifications and quality assurance/quality control programs.

Information provided has been used in Section 18 of this Technical Report

4. PROPERTY DESCRIPTION AND LOCATION

4.1 Location

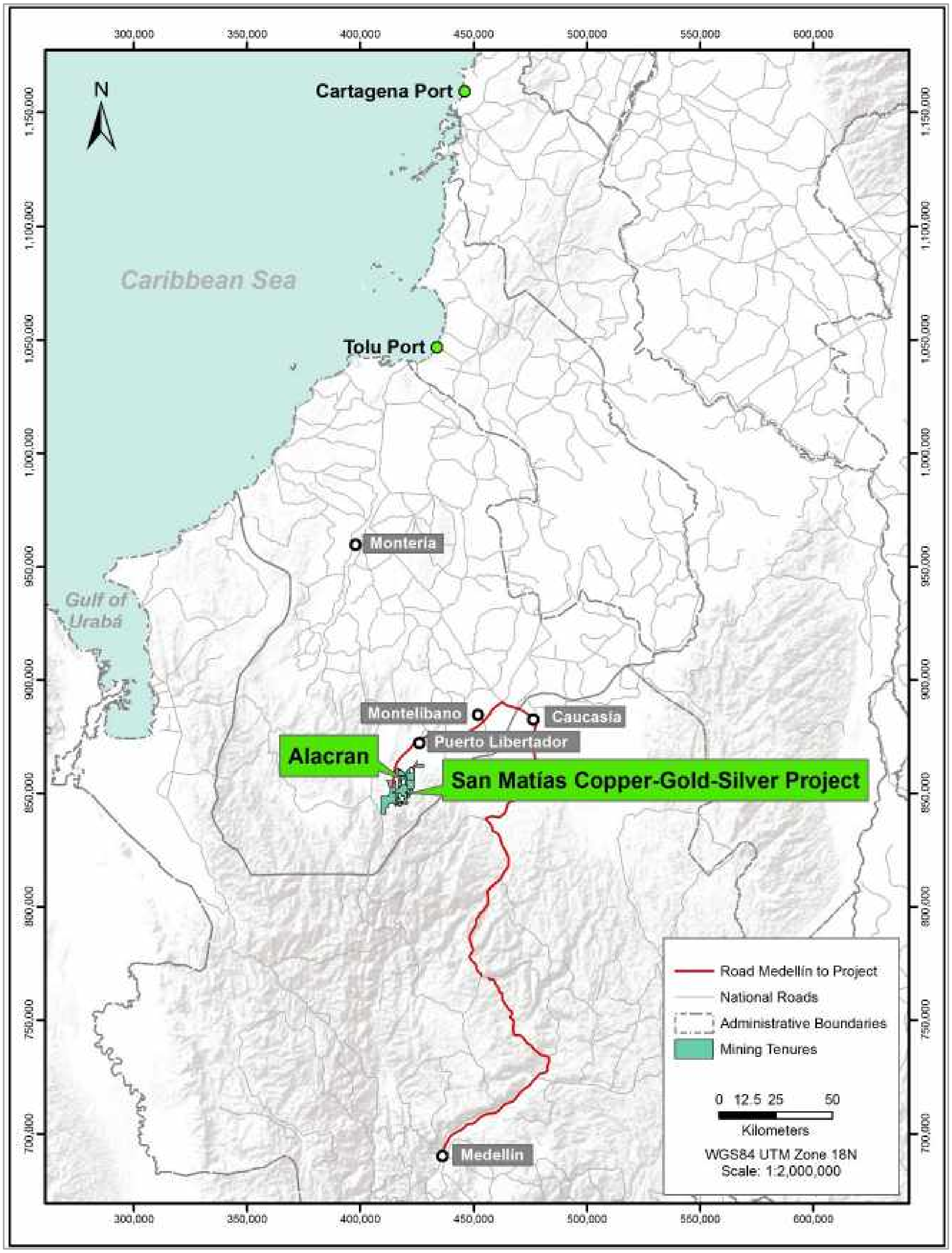
The San-Matías Copper-Gold-Silver Project hosts the Alacran, Montiel East, Montiel West and Costa Azul deposits across various mining titles. The Project is located in the jurisdiction of the Municipality of Puerto Libertador, Department of Córdoba, 390 km northwest of Bogotá, the capital of Colombia, 160 km north of Medellín, the capital of the Department of Antioquia and the second largest city in Colombia, and 112 km south of Montería, the capital of the Department of Córdoba (Figure 4-1).

The Alacran deposit is centred at approximately 7°44’16” N, 75°44’02” W.

The Montiel East deposit is centred at approximately 7°45’03” N, 75°42’49” W.

The Montiel West deposit is centred at approximately 7°45’04” N, 75°43’16” W.

The Costa Azul deposit is centred at approximately 7°43’38” N, 75°43’10” W.



Source: Cordoba, 2018

Figure 4-1: Location of San Matías Copper-Gold-Silver Project, Department of Córdoba, Colombia, in relation to infrastructure in the region.

4.2 Mineral Rights in Colombia

4.2.1 Mineral Title

The Colombian Constitution provides that the sole owner of the subsurface and all non-renewable natural resources in the territory is the Republic of Colombia[1]. The exploitation of any non-renewable natural resource present in the subsurface originates the payment of a royalty to the Republic of Colombia, together with any other considerations that may be agreed upon for each title, concession or license.

The concession or licensing of any rights to undertake the exploration and exploitation of non-renewable resources are determined by statutes enacted by the Congress of the Republic Colombian Congress. With respect to any mineral interest, the Colombian Code of Mines sets out the terms subject to which the Sovereign concedes or licenses the investing party the undertaking of mining activities.

The Colombian State may confer ‘mining titles’ which are concession agreements that grant an exclusive and temporary right to explore and exploit minerals in a specific area set out by the agreement. Concession agreements are awarded by the ANM on a ‘first come, first served’ basis, and shall be duly registered in the National Mining Registry (“RNM”) to become fully enforceable.

Holders of mining titles are not vested with property of the minerals ‘in situ,’ but with the ability to i) explore and determine the presence, quantity and quality of minerals within the contracted area; ii) extract and become the rightful owner of the minerals therein; and iii) obtain mining easements over the land of third parties to efficiently undertake the mining activity.

Mining titles are granted for periods of up to 30 years and are divided into three different phases:

i. Exploration

- The licensee shall undertake a technical exploration in order to determine the existence, location, quality and quantity of minerals in the contracted area, and the feasibility of exploiting and extracting the resources.
- Exploration shall be conducted within three years as from the registration of the concession agreement in the ANM. The licensee is entitled to request up to four extensions of two years each.
- Throughout this phase the licensee shall annually i) pay a surface fee in consideration for the contracted area[2], and ii) obtain an environmental mining insurance policy to cover any breach to the mining or environmental obligations or the mandatory early termination of the concession by the ANM[3].

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[1] Without prejudice to the rights and entitlements acquired under prior statutes.

[2] Surface payment fees depend on the extension of the contracted area and the year the concession is at. The longest a licensee has had the mining title and the larger the contracted area is, the higher the annual surface payment will be.

[3] The value of the environmental mining policy shall be equivalent to 5% of the foreseen investment for said year of exploration.

- Before the end of the exploration period, the licensee shall present, for the approval of the corresponding authority, i) the exploitation working plan ("PTO"), and ii) the Environmental Impact Assessment ("EIA") that demonstrates the environmental feasibility of the PTO.

ii. Construction and mining assembly

- The licensee shall prepare and build all facilities and infrastructure necessary for the exploitation of the title in accordance with the PTO previously approved.
- Construction and mining assembly shall be conducted within three years as of the termination of the exploration phase. The licensee is entitled to request a one-year extension.
- To initiate this phase, the titleholder shall have an environmental license which is granted by the environmental authority based on the EIA presented by the licensee.
- Throughout this phase the licensee shall annually i) pay a surface fee[4], and ii) obtain an environmental mining insurance policy to cover any breach to the mining or environmental obligations or the mandatory early termination of the concession by the ANM[5].

iii. Exploitation

- The licensee shall undertake the activities for the extraction and collection of the minerals in the surface or subsurface of the contracted area.
- The exploitation of the mining title shall be conducted within the term of the concession agreement (up to 30 years) deducted by the time spent on the exploration and construction phases. Before the exploitation term ends, the licensee is entitled to request the renewal of the concession agreement for up to 30 years more.
- Throughout this phase the licensee shall i) obtain an environmental mining insurance policy to cover any breach to the mining or environmental obligations or the mandatory early termination of the concession by the ANM,[6] ; and ii) pay a royalty to the Colombian Government over the main or secondary resources extracted from the area licensed for the exploitation under the concession agreement.

The obligations under the concession agreement may be temporarily suspended at the request of the licensee, whenever there is a situation of force majeure. The mining authority shall approve the suspension and may request at any time that the licensee demonstrates the continuity of the force majeure situation. Obligations regarding the payment of the surface fee are waived during the suspension, but not the obligation to obtain and pay the environmental mining insurance policy. At any time the Company deems that a force majeure situation had ended, the suspension may be lifted, and obligations reinstated.

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[4] The amount of the surface payment fees will that of the last fee paid in the exploration phase.

[5] The value of the environmental mining policy shall be equivalent to 5% of the foreseen investment for said year of construction and assembly.

[6] The value of the environmental mining policy shall be equivalent to 10% of the result obtained from multiplying the estimated annual production volume for the price annually fixed by the National Government for the corresponding mineral at the pit.

4.2.2 Environmental Regulations in Colombia

The Colombian Constitution considers the environment a collective right and sets out the main features for its preservation, protection and treatment by the Colombian citizens and authorities.

Projects that might have an impact on the environment, as determined by the statutes, require the prior authorization from the maximum environmental authority. Pursuant to the Colombian Mining Code, a mining project is divided into three phases, each of which shall meet different requirements.

The most important environmental requirement regarding the construction, and mining assembly and the exploitation of a mining title is an environmental license. This license shall be granted by the environmental license agency or by the local or regional authority, based on the EIA that is prepared and filed by the titleholder.

As part of the protection of the environment, Colombian laws have identified areas subject to special protection -such as forests, natural parks or areas occupied by minority groups, among others- in which it is not allowed to undertake any mining activity, or there are special requirements to do so.

4.2.3 Legal Access and Surface Rights in Colombia

The award of a concession agreement does not grant the licensee property rights on the surface of the area of the title either.

Mining is deemed, by law, as a public interest activity and, therefore, mining titleholders have the ability to request the expropriation of land and the imposition of easements on land owned by third parties to the extent such area is required to undertake mining activities over the mining title efficiently.

The perfection of mining easements over third-party lands shall be preceded by a judicial proceeding and shall be made by public deed. Recent opinions have held that such judicial proceeding is governed by act 1274 of 2009, which contemplates the petroleum industry easement judicial proceeding and appraisal.

4.2.4 Water Rights in Colombia

The holder of a mining title shall obtain, before initiating exploration activities, a i) superficial water concession permit when the exploration of the mining title is expected to require the usage of public water resources or its channels, and ii) an underground water concession permit when the exploration of the mining title is expected to require the usage of public underground water resources.

4.3 Cordoba Mineral Rights

4.3.1 San Matías Copper-Gold-Silver Project Mineral Title

The subsidiaries of Cordoba[7], MCSAS (a Colombian subsidiary of Cordoba), RCSAS (a Colombian subsidiary of Cordoba) and ECSAS (the operator of the mining title), are simplified stock corporations formed in accordance with the laws of the Republic of Colombia. ECSAS has the corporate power to conduct and undertake advisory, consultancy and work supervision in the mining and energy

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[7] Approximately 70.0% of Cordoba issued and outstanding shares are owned by High Power Exploration Inc. (“HPX”).

industries; while MCSAS has the corporate power to own and hold mining titles, and conduct the exploration, development and exploitation of mines in the Republic of Colombia.

As of the date of this Technical Report, MCSAS is the sole owner of record of twenty-six mining titles located in the departments of Córdoba and Caldas in the Republic of Colombia, including those for the Montiel East, Montiel West and the Costa Azul deposits.

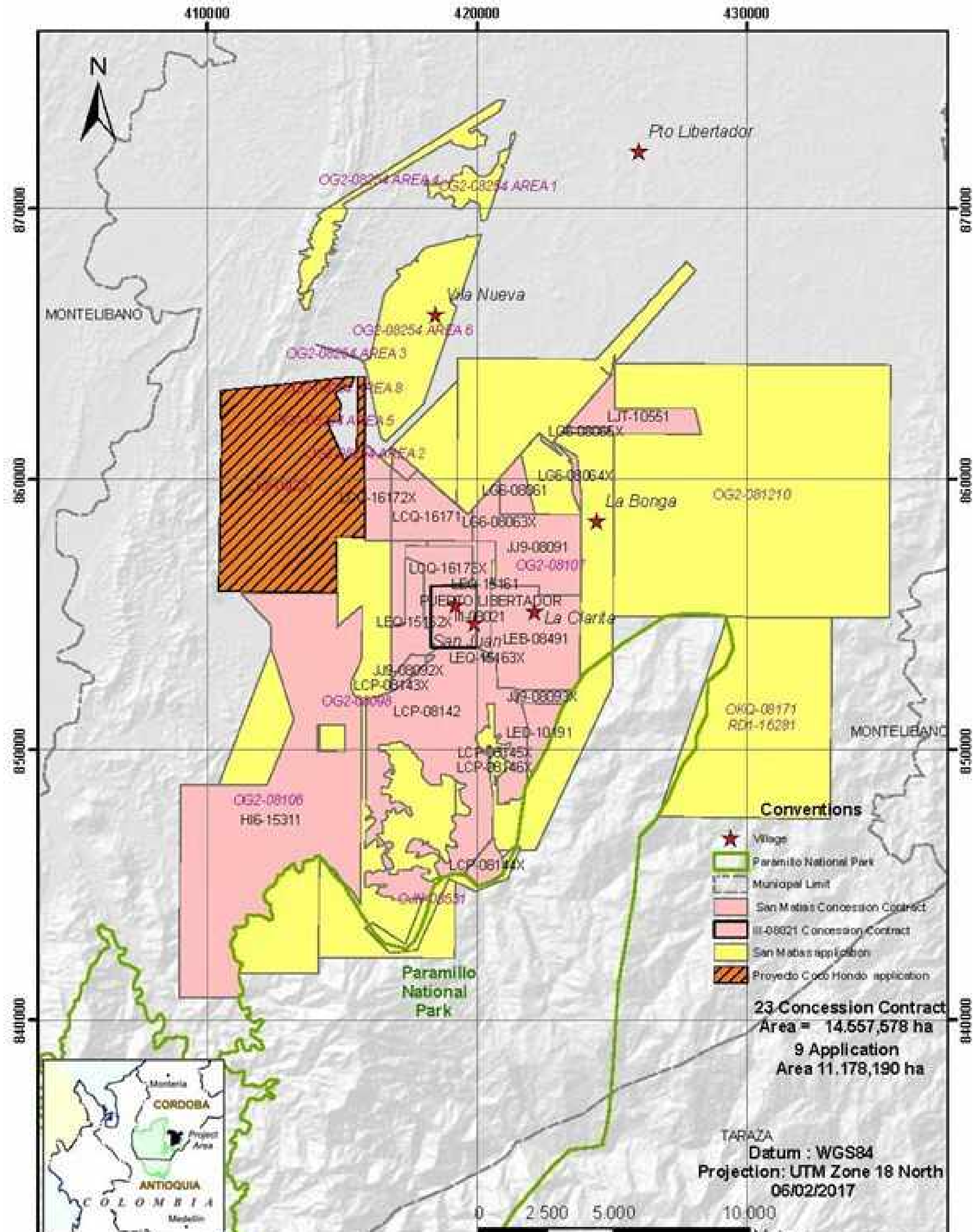
Cobre Minerals S.A.S. ("CM Company") is the sole holder of record of mining title for the Alacran deposit (mining title III-08021) located in the municipality of Puerto Libertador, Córdoba. ECSAS is the operator of the Alacran Project.

The Alacran deposit is located within the Project area in the mining concession described in Table 4-1 and shown in Figure 4-2 and Figure 4-3.

Table 4-1: Alacran Mineral Title Concession

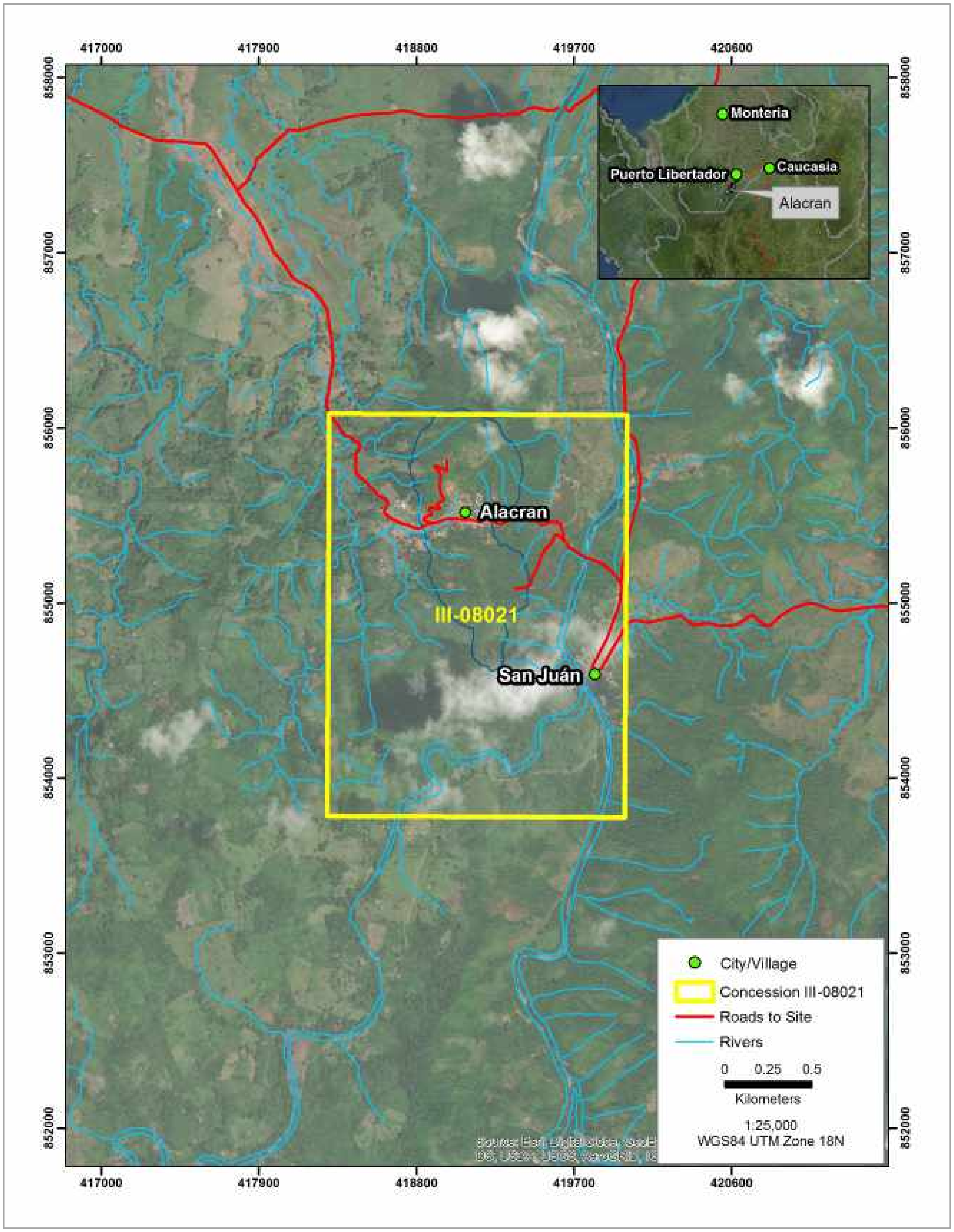
RMN Number	Holder of Record	Date of Registration	Term	Area (Ha.)	2018 Fees		Suspension of Obligations
					(Surface Fee + Insurance Policy)	Payment Up to Date	
III-08021	Cobre Minerals S.A.S. (ECSAS is the operator of the mining title)	July 1, 2009	June 30, 2039	391 Ha. 207 m^2.	$22,182,727	Yes	Pending. (Requested on May 24, 2019)

Source: Cordoba, 2019



Source: Cordoba, 2018

Figure 4-2: Map of the Cordoba's San Matías Copper-Gold-Silver Project concession agreements



Source: Cordoba, 2018

Figure 4-3: Map of the Alacran concession agreement, on which the Alacran deposit is located, within the San Matías Copper-Gold-Silver Project area. The towns of Alacran and San Juán are also shown.

4.3.2 Mining Title Agreements

There are two agreements related to mining titles:

i. the option agreement executed on February 27, 2016, entered into by Cordoba; MCSAS; ECSAS (together with Cordoba and MCSAS (the "Cordoba Parties"); Sociedad Ordinaria de Minas Omni ("OMNI"); Compañía Minera Alacran S.A.S. ("CMA")[8] ; CMH Colombia S.A.S. ("CMH"); and CM Company,(together with OMNI, CMA and CMH [the "OMNI Parties"]) in connection with the San Matías Property (as partially amended and restated in writing by the '*Otrosí Nº 1*' dated October 10, 2016, the '*Otrosí Nº 2*' dated August 11, 2017, the '*Otrosí Nº 3*' dated January 23, 2018, the '*Otrosí Nº 4*' dated February 21, 2019, and the '*Otrosí Nº 5*' dated May 20, 2019, the "Option Agreement").

ii. the future transfer promise agreement executed on May 19, 2016, entered into by Activos Mineros de Colombia S.A.S. ("Activos Mineros") and MCSAS in connection with Mining Title PCB-08021 (the "Future Transfer Promise Agreement").

4.3.2.1 The Option Agreement

On October 20, 2015, the Cordoba Parties submitted a letter of intent to CMA and OMNI regarding the execution of the Option Agreement with respect to the Property, which CMA and OMNI accepted.

On February 27, 2016, the Cordoba Parties and the OMNI Parties executed the Option Agreement. The Option Agreement has been subject to five amendments. Pursuant the Option Agreement (as it has been modified from time to time), the OMNI Parties have granted the Cordoba Parties the exclusive and irrevocable first option to acquire 100% of the issued and outstanding shares of CM Company. CM Company is the current titleholder of Mining Title III-08021, which hosts the Alacran deposit. For the execution of the Option by one or all of the Cordoba Parties, the sixteen conditions in Table 4-2 must be satisfied.

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[8] 50.1% of OMNI issued, and outstanding shares are owned by HPX. 50.1% of CMH issued and outstanding shares are owned by HPX.

Table 4-2: Conditions of the San Matías Property February 27, 2016 Option Agreement

Condition	Status
First Option Advance Payment disbursement ($250,000).	Completed
Commencement by the Operator of a drilling program of minimum 3,000.0 m.	Completed
Second Option Advance Payment disbursement ($250,000).	Completed
Third Option Advance Payment disbursement ($250,000).	Completed
Filing of an extension request for the exploration stage with the ANM by MCSAS.	Completed
Fourth Option Advance Payment disbursement ($1,000,000).	Completed
Issuance of the Cordoba Option Warrant Certificate.	Completed
Completion by the Operator of minimum 8,000.0 m of drilling in the Mining Title.	Completed
Good standing of the Mining Title.	Ongoing
$10,000 monthly payments by the Cordoba Parties to the OMNI Parties for their corporate expenses.	Completed
Delivery of Technical Report NI 43-101 by the Cordoba Parties to the OMNI Parties (the "Technical Report Delivery").	Pending
Completion by the Operator of the additional minimum drilling programs established in the extension requests for the exploration stage.	Pending
Written notice by the Cordoba Parties containing their decision whether or not to exercise the Option in June 2020 on the earlier of (i) 5 business days following receipt of the final Preliminary Economic Assessment Report by Nordmin; or (ii) 30 August 2019. (Written notice deemed as a letter of intent on the obligation of the Fifth Option Advance Payment disbursement which shall be guaranteed by the constitution of corporate guaranties by the Cordoba Parties on or before the date of the written notice).	Completed
Filing by MCSAS of the PTO (works plan) for the Mining Title with the ANM.	Pending
Filing by MCSAS of the EIA for the Mining Title with the ANM.	Pending
Fifth Option Advance Payment disbursement ($13,000,000).	Pending

Source: Cordoba, 2019

Under the Option Agreement, the Cordoba Parties shall conduct, on their account and at their sole risk, the mining activities for the Project.

Schedule C of the Option Agreement contains the royalty agreement dated as of April 5, 2016, entered into by the Cordoba Parties and CMH, pursuant to which the Cordoba Parties have granted CMH a 2% net smelter return royalty.

4.3.2.2 The Future Transfer Promise Agreement

Activos Mineros is the applicant of the proposal for Concession Agreement PCB-08021 before the ANM, for the technical exploration and economic exploitation of 'precious metals and their concentrates,' in the municipality of Puerto Libertador, Córdoba.

On May 19, 2016, Activos Mineros and MCSAS executed the Future Transfer Promise Agreement. Pursuant to this agreement, once Activos Mineros becomes the holder of record of the mining title PCB-08021, it shall transfer all rights and obligations resulting from the PCB-08021 mining title to MCSAS[9].

4.3.3 Environmental Permitting Considerations

For the current exploration phase of the Mining Titles, environmental licenses are not required. The environmental license is necessary for the titleholder to initiate the construction and assembly phase and is granted by the environmental authority upon the review and assessment of the EIA filed by the titleholder.

MCSAS is currently preparing the EIA for the Project. Table 4-3 outlines the environmental permits in force for the Mining Titles.

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[9] MCSAS filed an administrative request in connection to the areas covered by concession agreement proposals PCB-08021; OG2- 08107 and NGN-10251 on March 18, 2015. Decision from the ANM is still pending.

Table 4-3: Environmental Permits by Mining Title

Title	Permit	Current Status
Alacran	Gathering Permit for Environmental Impact Study-EIA	Requested no granted yet.
Costa Azul	Forest Use/Cutting down Wood.	Desisting Request submitted on Dec. 21/18 and was approved on July 2/19).
	Mining -Environmental Guidelines for exploration	Under requisition
	Waste Management Plan	Under requisition
	Hazardous Waste Management Plan	Under requisition
Montiel West	Waste Management Plan	Under requisition
	Hazardous Waste Management Plan	Under requisition
	Mining -Environmental Guidelines for exploration	Under requisition
Montiel East	Waste Permit.	In Extension Request for5 years more as of March 28-/18 but extensions were forbidden by CVS on Feb./19.
	Hazardous Waste Management Plan.	Under requisition

Source: Cordoba, 2019

4.3.4 Legal Access and Surface Rights Considerations

Between 2016 and 2017 MCSAS entered into five agreements regarding the purchase of properties located within the municipalities of Buenavista and Puerto Libertador in Córdoba. Furthermore, MCSAS has subscribed 53 easement agreements regarding properties in the municipality of Puerto Libertador, Córdoba.

Part of the land in the area in which the Mining Titles are located is either owned by the Republic of Colombia and qualified as a vacant or '*baldío*' property or not recorded in the land ownership registry and therefore deemed as '*baldío*' property.

Properties deemed as '*baldíos*' are not subject to be acquired by MCSAS or any other person by direct purchase to the occupants of the land. The ownership of '*baldío*' properties may only be transferred by the direct and official allocation by the Republic of Colombia, subject to legal regulations and restrictions.

4.3.5 Water Rights Considerations

For the exploration phase, in which all of the Mining Titles are, the concession permits related to water are only required if the titleholder expects to use water resources. The vestment permit is required for the proper disposal of liquid resources during the exploration phase.

The permits held by the Mining Titles are outlined in Table 4-4.

Table 4-4: Water Resource Permits by Mining Title

Title	Permit	Current Status
Alacran	Surface Water Concession.	In force.
	Vestments Permit.	In force for 5 years: up to September 2021.
Costa Azul	Surface Water Concession.	In extension request for 5 years more as of March 26, 2018.
	Vestment Permit.	In extension request for 5 years more as of March 26, 2018.
Montiel West	Surface Water Concession.	In extension request for 5 years more as of November 21, 2017.
	Vestment Permit.	In extension request for 5 years more as of November 21, 2017.
Montiel East	Surface Water Concession.	In extension request for 5 years more as of March 28, 2018.
	Surface Water Concession + Vestment Permit.	In Extension Request for 5 years more as of March 28, 2018.

Source: Cordoba, 2019

4.3.6 Social License Considerations

The Colombian Ministry of Internal Affairs certified the presence of the indigenous group '*Cabildo Indígena San Pedro*' within the contracted area of the Project. Under Colombian regulations, minority groups such as the '*Cabildo Indígena San Pedro*,' shall be consulted in connection with mining activities that might affect them prior to the perfection of the environmental license.

There is a decision pending regarding the appeal filed by CM Company on April 5, 2018, in connection with the ongoing process in which the 'Asociación de Mineros Alacran del municipio de Puerto Libertador' has requested the annulment of the concession of the Project. Cordoba believes the request for annulment has absolutely no legal basis.

4.3.7 Royalties

Once the concession entered into the exploitation phase, the San Matías Project will be subject to Colombian corporate taxes and mining royalties on metals production. The corporate income tax rate in Colombia is 30% from 2022 onwards. Colombian mining royalties are 4% of all revenues received from Au and Ag exploitation and 5% of all revenue from Cu exploitation. The mining royalties are deductible for income tax purposes. A 2% royalty on the Net Income for production is payable to Sociedad Ordinaria de Minas Omni.

4.4 Comments on Section 4

- The Company requested a suspension of obligations on the Alacran title due to force majeure on May 24, 2019 and were notified in writing by the ANM of the suspension on July 31, 2019. The suspension is effective from May 24, 2019, until May 23, 2020. Importantly, if the Company deems it safe/appropriate to lift the force majeure and return to work, the Company may request to the ANM that the suspension be lifted at any time before May 23, 2020.
- MCSAS, RCSAS and ECSAS have the corporate power to carry out exploration and exploitation activities in Colombia.
- MCSAS is the holder of record of twenty-six mining titles located in the territory of Colombia pursuant to mining concession agreements executed with the ANM (the “Minerales Mining Titles”).
- CM Company is the sole holder of record of Alacran Mining Title III-08021. Pursuant to the Option Agreement, the Cordoba Parties are entitled to the exclusive and irrevocable first option to acquire 100% of the issued and outstanding shares of CM Company and thus, become indirect sole beneficiaries of Mining Title III-08021 , subject to the satisfaction of the conditions set forth in the Option Agreement (described in section 4.3.2.1 herein).
- Each of the Minerales Mining Titles held by MCSAS, as of the date of the legal opinion:
    - vests in its holder of record a right to explore, and, subject to the satisfaction of its terms and conditions, exploit the permitted mines according to each mining title;
    - is currently in force;
    - is registered in the national mining registry of the ANM;
    - has no registration of breach, termination, mandatory early termination or any other record that would deem the mining titles unenforceable; and
    - has no security interest recorded in the Colombian ‘security interests’ registration system.

5. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

The Project is accessible via a 70 km paved road from the city of Caucasia to Puerto Libertador and then via a 21 km partially unsurfaced road to the exploration camp.

There are daily scheduled flights from Medellín to the city of Caucasia. There are also more frequent scheduled flights from Medellín and Bogota to the city of Montería. Montería is 170 km by road from Puerto Libertador.

5.2 Climate

5.2.1 Planeta Rica Station

Planeta Rica Station is located at the coordinates noted in Table 5-1 and has been used to collect climate data since 1959.

Table 5-1: Planeta Rica Station Information

Department	X-coordinate	Y-coordinate	Altitude (metres above sea level)	Installation date
Cordoba	834097.16	1420902.85	90	15/05/1959

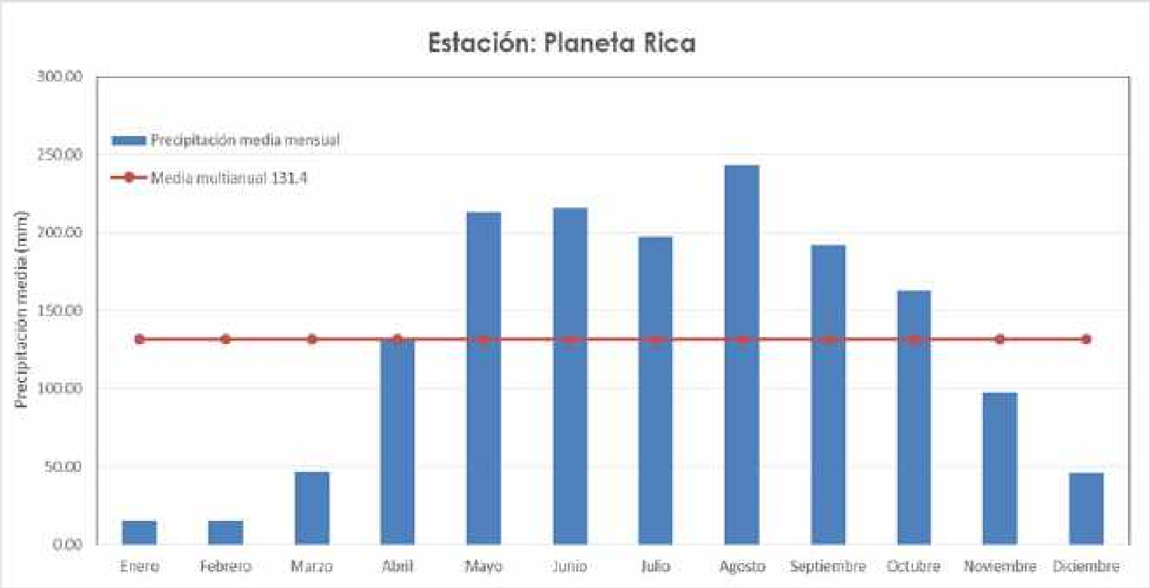
Source: EAG, 2019

The month of August has the most rainfall and February has the least amount of rainfall. The rainfall distribution is characterized in two periods. A period with relatively low rainfall between the months of November and March; from April there is an increase in rainfall until October. This information is evidenced in Table 5-2 and Figure 5-1.

Table 5-2: Average Monthly Precipitation at Planeta Rica Station

Month	Precipitation (mm)
Jan	15.46
Feb	15.41
Mar	46.53
Apr	131.45
May	213.12
Jun	216.12
Jul	197.31
Aug	242.97
Sep	191.80
Oct	163.01
Nov	97.06
Dec	46.20
Total	**1,576.42**

Source: EAG, 2019



Source: EAG, 2019

Figure 5-1: Average monthly precipitation at Planeta Rica Station

The maximum average temperatures are evident in the period from March to April, while the minimum averages are presented in the period of September to November. This information is shown in Table 5-3 and Figure 5-2.

Table 5-3: Monthly Average Temperature at Planeta Rica Station

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temp (°C)	27.8	28.1	28.4	28.2	27.8	27.8	27.7	27.5	27.3	27.1	27.2	27.4

Source: EAG, 2019

Source: EAG, 2019

Figure 5-2: Monthly average temperature values at Planeta Rica Station

The average relative humidity is 80%, while the maximum is presented in the months of September and October with 83%; the lowest value is presented in the month of March with 76%. This data is shown in Table 5-4 and Figure 5-3.

Table 5-4: Monthly Average Relative Humidity at Planeta Rica Station

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Relative Humidity (%)	78	77	76	77	81	82	82	82	83	83	82	81

Source: EAG, 2019

Source: EAG, 2019

Figure 5-3: Monthly average relative humidity values at Planeta Rica Station

The average solar brightness at Planeta Rica Station is 151 hours, Table 5-5 and Figure 5-4 summarize the data.

Table 5-5: Monthly Solar Brightness Values at Planeta Rica Station

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Solar Brightness (hours)	190	162	146	122	124	144	165	167	133	140	145	168

Source: EAG, 2019

Source: EAG, 2019

Figure 5-4: Monthly solar brightness values at Planeta Rica Station

5.2.2 Hacienda Cuba Station

Hacienda Cuba Station is located at the coordinates noted in Table 5-6 and has been used to collect climate data since 1973. A summary of the data is described in Table 5-7, Table 5-8, Figure 5-5 and Figure 5-6.

Table 5-6: Hacienda Cuba Station Information

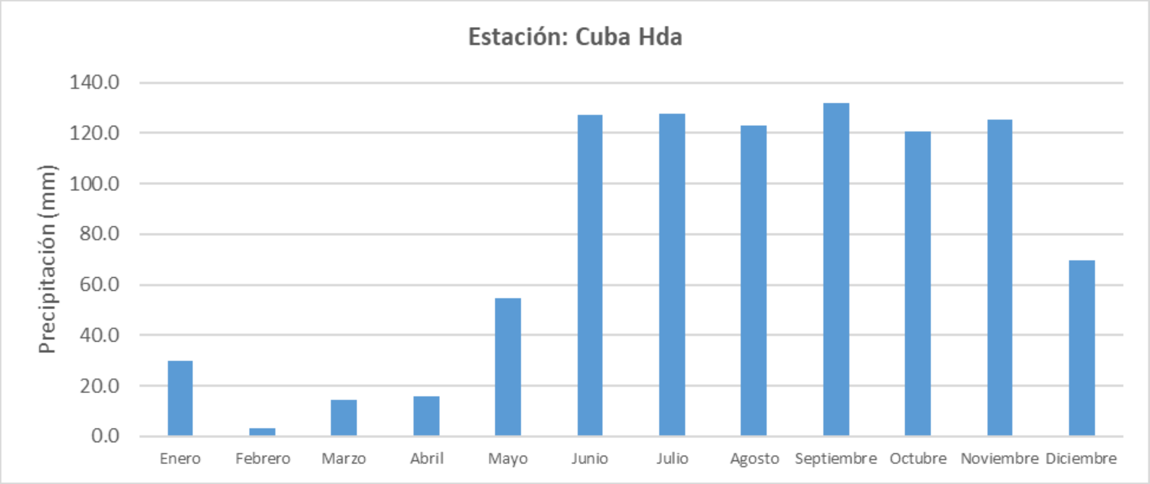
Latitude	Longitude	Altitude (metres above sea level)	Installation date
8.0039	-75.4028	50	15/04/1973

Source: EAG, 2019

Table 5-7: Average Monthly Precipitation at Hacienda Cuba Station

Month	Precipitation (mm)
Jan	29.6
Feb	3.0
Mar	14.5
Apr	15.7
May	54.6
Jun	127.3
Jul	127.8
Aug	122.8
Sep	131.8
Oct	120.5
Nov	125.4
Dec	69.8
TOTAL	**942.9**

Source: EAG, 2019



Source: EAG, 2019

Figure 5-5: Average monthly precipitation at Hacienda Cuba Station

Table 5-8: Monthly Average Temperature Values at Hacienda Cuba Station

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temp (°C)	16.4	20.7	20.9	21.2	22.7	22.8	23.5	22.6	22.6	22.2	22.2	20.0

Source: EAG, 2019

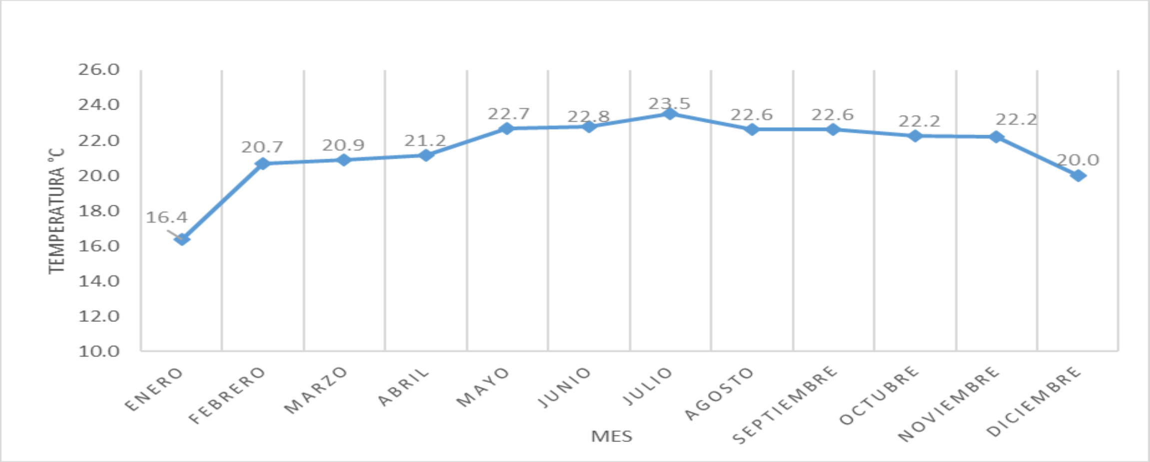


Figure 5-6: Monthly average temperature values at Hacienda Cuba Station

Source: EAG, 2019

5.3 Physiography

The property is in the northern foothills of the Western Cordillera and the southern side of the Caribbean lowlands where the north-south trending mountains die out and pass under extensive plains with altitudes of less than 100 m. Altitudes in the Project area are between about 100 m and 350 m above mean sea level. The Project is mostly within the tropical, premontane wet forest ecological zone.

Most of the original forest cover has been cleared. Land use is mainly for agriculture, cattle grazing and mining.

The Project is situated in the Upper San Jorge River basin and lies between the north-flowing San Pedro River to the east and the north-flowing San Jorge River to the west. These are part of the Magdalena River system, which drains into the Atlantic Ocean.

The Paramillo National Park is situated in the forested mountains to the southeast of the Project.

5.4 Local Resources and Infrastructure

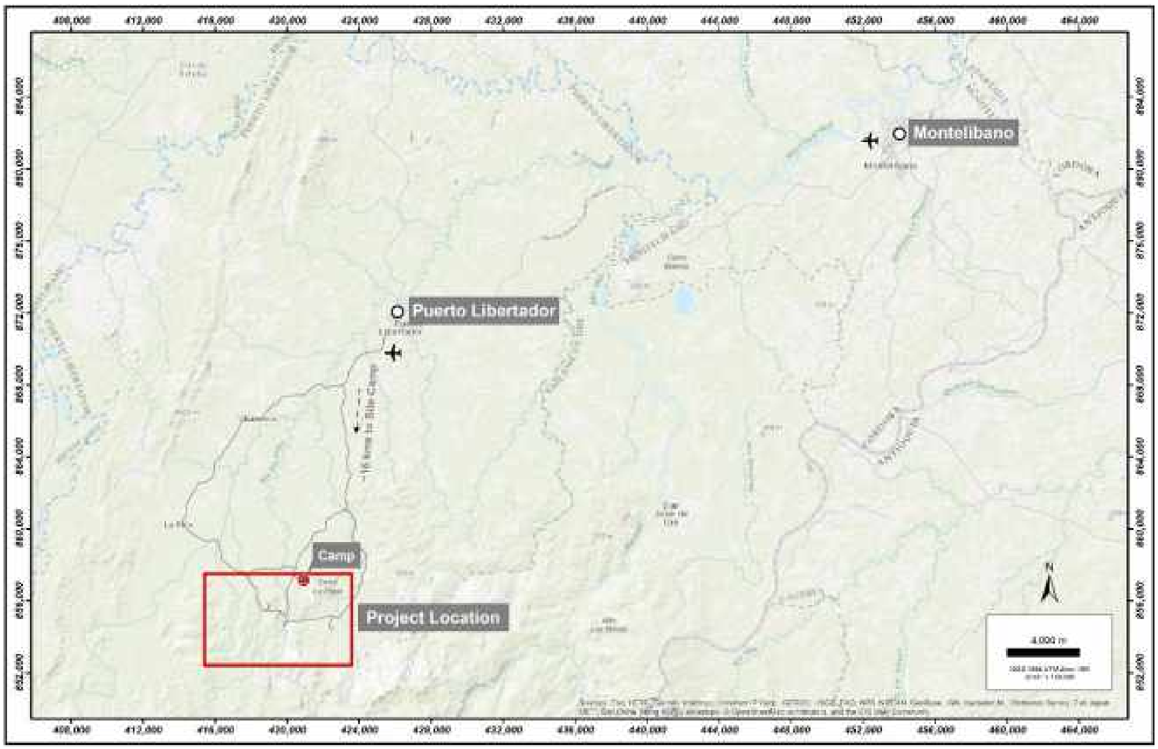
There is a small field camp, including core shack, near the village of San Juan. San Juan and El Alacrán provide general labour to support the Project's exploration activities. Hotel accommodation and field supplies are available in the towns of Puerto Libertador and Montelíbano.

There is an airstrip at Puerto Libertador that can be used by helicopters, and an airstrip at Montelíbano, which can be used by both light aircraft and helicopters.

The Project is about 220 km due east of the Pacific Ocean and 115 km due east of the Gulf of Uraba on the Caribbean Sea. The nearest ports are at Tolú (22 km by road) and Cartagena (360 km by road) on the Atlantic Ocean. The city of Caucasia is situated on the navigable Cauca River, part of the Magdalena River system which enters the Atlantic Ocean at Barranquilla. The nearest railway is at Medellín, 170 km to the south.

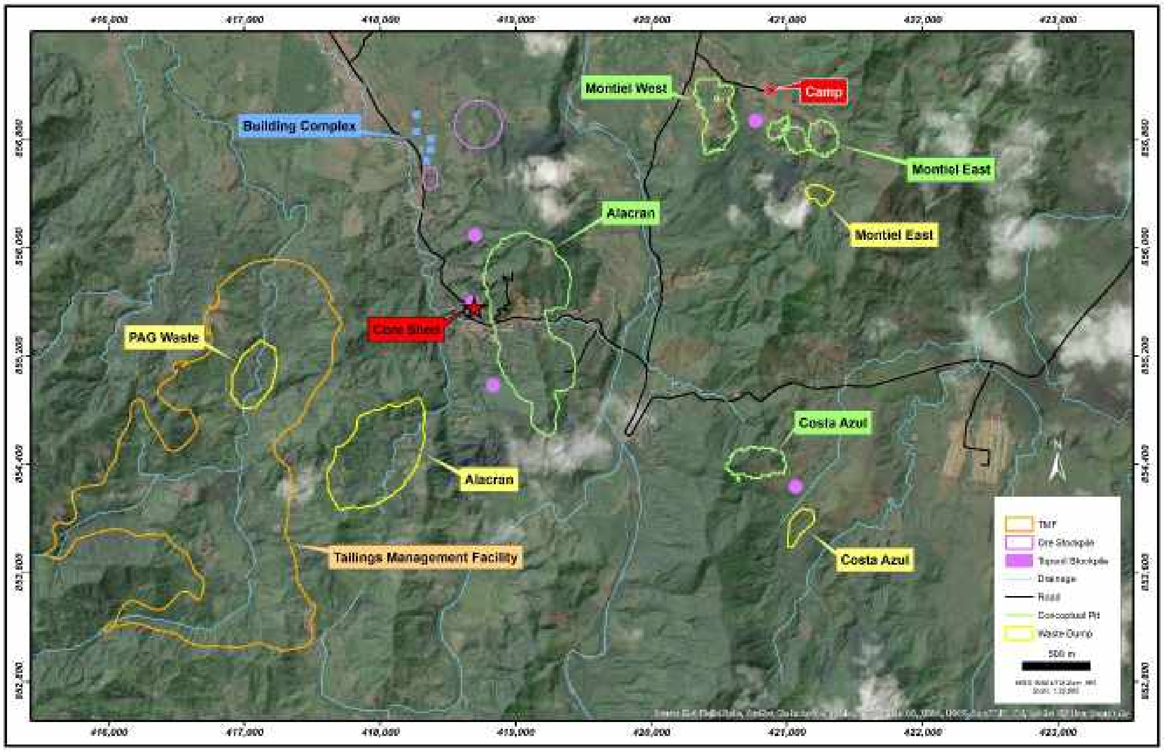
The national electricity grid supplies the towns of Puerto Libertador and Montelíbano and the Cerro Matoso open pit nickel mine owned by South 32. The national gas grid also supplies the Cerro Matoso mine. A major thermal power station was recently completed near Puerto Libertador and uses locally mined sub-bituminous coal.

Figure 5-7 and Figure 5-8 display the Project location and conceptual infrastructure.



Source: Cordoba, 2019

Figure 5-7: Project location and area infrastructure



Source: Cordoba, 2019

Figure 5-8: San Matías Copper-Gold-Silver Project conceptual infrastructure, including plans from this study.

5.5 Comments on Section 5

The climate at the Project allows for mineral exploration and drilling year-round. The regional district is expected to be able to supply a basic workforce for any future mining operation. The physiography of the project area is favourable for open pit mining with sufficient room for a processing plant, waste rock dumps, tailings storage, and other mine infrastructure. Cordoba would need to acquire additional surface rights to support a mining operation if one were to proceed.

6. HISTORY

Exploration was carried out on the San Matías Project at the Alacran deposit by Dual Resources, a Canadian junior mineral exploration company, in 1987-1989 in conjunction with the Colombian consulting company Geotec Ltd. Exploration is described in reports by Vargas (1998, 2001, 2002, 2014) and Shaw (2002). The Dual Resources exploration programs included pits, trenches, rock sampling, underground sampling, geological mapping and a ground magnetic survey, followed by 15 diamond drill holes totalling 2,584.0 m in length (holes SJ 1 to SJ 19). Dual Resources held the mineral title until 1994. The Alacran area was staked in 1995 by Sociedad Ordinaria de Minas Santa Gertdis and Sociedad Minera Alacran S.O.M., both private Colombian companies. No significant exploration work was carried out between 1995 and 2009. A Concession Agreement was granted in 2009 to Sociedad Ordinaria de Minas Omni S.O.M. ("Omni") and was optioned in 2010 to Ashmont, a private mineral exploration company based in Vancouver. Ashmont carried out geological mapping at 1:2,000 scale, underground mapping and sampling, a ground magnetic survey, and two programs of diamond drilling. Ashmont earned a 90% interest in the Concession Agreement which it held through Ashmont Omni S.A.S., ownership of which reverted to Omni on termination of the option and it was renamed Compañía Minera Alacran S.A.S. in 2014.

6.1 Historical Mineral Resource Estimates

Two Mineral Resource Estimates were prepared for the Alacran deposit before Cordoba acquired the Project. Tetra Tech Wardrop prepared a resource estimate in 2012 based on the Dual Resources data and the first phase of 2011-12 drilling by Ashmont (Mosher, 2011); another estimate was completed for Ashmont in 2014 (Vargas, 2014). Neither of these was publicly disclosed by the previous operators.

Mining Associates Pty Ltd. prepared the first publicly disclosed Resource Estimate for the project, for the Alacran deposit, following the NI 43-101 Technical Report format, for Cordoba in 2017, titled *Independent Technical Report and Resource Estimate on the Alacran Copper Gold Deposit*, with an effective date of October 27, 2017.

AMEC Foster Wheeler (now Wood Plc) prepared a NI 43-101 Technical Report titled NI 43-101 Technical Report on the Alacran Project, providing a Mineral Resource update for the Alacrán deposit for Cordoba, effective April 10, 2018.

Nordmin Engineering Ltd. prepared the first publicly disclosed Resource Estimate for the project to include satellite deposits, following the NI 43-101 Technical Report format, for Cordoba in 2019, titled *NI 43-101 Technical Report and Resource Estimate, San Matías Copper-Gold-Silver Project, Colombia*, with an effective date of July 3, 2019.

6.2 Production

There has been no industrial-scale mining production within the Project area. Gold is mined artisanally near the Alacran deposit by the Asociacion de Mineros de Alacran (Alacran Miners Association). Approximately 80 miners work in 30 shallow pits and adits and process material in numerous small stamp mills and small ball mills. In addition, at Montiel East, approximately 10 miners work in a few shallow pits and adits and process material in a stamp mill. Although the artisanal miners have no legal mining rights, Cordoba has a good relationship with the miners and has made an agreement such that they are allowed to keep mining until such time that construction of a mine begins.

7. GEOLOGICAL SETTING AND MINERALIZATION

7.1 Regional Geology

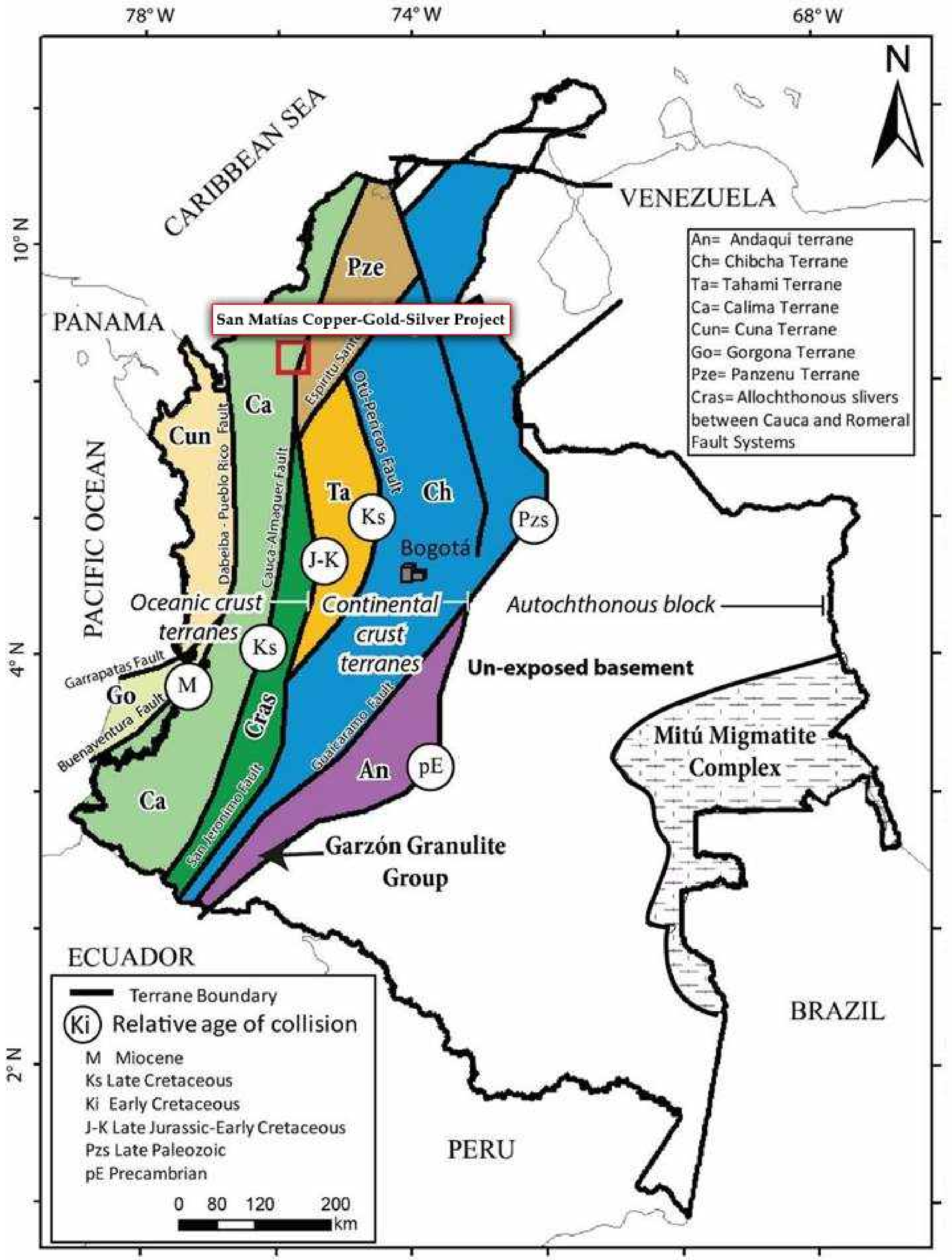
The Project is located in an accreted oceanic terrane of the Western Cordillera, described as the Calima Terrane by Restrepo & Toussaint (1988) (Figure 7-1). The host rocks likely belong to the Upper Cretaceous Cañasgordas Group, which is subdivided into the Barroso Formation of basalts, and the Penderisco Formation of turbidites, chert and limestone. The Barroso Formation has been dated using fossil records from the interbedded sedimentary rocks, where the youngest records have been established between the Campanian and Maastrichtian (Moreno and Pardo, 2003).

The basalts and pelagic sediments formed on the ocean floor and are interpreted to be fragments of an oceanic plateau called the Caribbean Large Igneous Province, which were transported from the west (Kennan & Pindell, 2009). The age of the plateau basalts is approximately 90 Ma (Turonian; Kennan & Pindell, 2009). On the eastern side, the oceanic terranes are separated from Paleozoic Cajamarca Group schists in the Central Cordillera or Tahami Terrane (Restrepo et al., 1988). This fault has large-scale right-lateral movement, and its trace is marked by isolated outcrops of peridotite interpreted to be ophiolites, such as that which hosts the Cerro Matoso nickel laterite deposit, 25 km northeast of the Project (Gleeson et al., 2004). The age of the accretion is suggested to be between 75-73 Ma (Villagómez, 2010; Spikings et al., 2015), and Paleocene-Lower Eocene, Cediel et al., 2003; Cardona et al., 2012).

The Cajamarca and Cañasgordas Groups are overlain unconformably by Cenozoic age sediments in the northern part of the Project area. The sediments are accretionary prisms of Paleocene to Oligocene age forming the San Jacinto Fold Belt, and accretionary prisms of Oligocene to Pliocene age forming the Sinú Fold Belt to the west, as well as extensive Quaternary sediments (Cediel & Cáceres, 2000).

Recent Re-Os dating obtained for the porphyry intrusion at Montiel East and molybdenite in the mineralization at Alacran yielded Laramide Age: 76.8 ± 0.3 Ma and 73.3 ± 1.5 Ma, respectively (Manco et al., 2019). This suggests late Cretaceous magmatism associated with the district mineralizing events. These mineralizing ages are the first record of its type along the Western Cordillera of Colombia, being markedly younger to the Cretaceous magmatism developed along the Calima Terrane, i.e. the Buga Batholith (92-90 Ma) and Jejenes Stock (ca. 85 Ma) (Leal-Mejía, 2011; Leal-Mejía, 2019).

These new ages would suggest the existence of a metal-endowed, late Cretaceous metallogenic belt in this part of Colombia. The mineralization events developed along the Calima Terrane may have occurred pre- or syn-accretion of the oceanic terrane to the NW continental margin (Manco et al., 2018a).



Source: Cordoba, 2019

Figure 7-1: Regional tectonic setting of the San Matías Copper-Gold-Silver Project

7.2 Local Geology

The Project area comprises three primary lithological domains: intrusive rocks (including porphyries) in the Alacran, Montiel East and Costa Azul deposits, volcanic rocks in the Montiel West deposit, and volcaniclastic rocks in the Alacran deposit. Volcaniclastic rocks are also present in the Alacran Norte and Willian prospect areas. The volcanics and volcaniclastics likely belong to the early Cretaceous-age Barroso formation (Figure 7-2).

7.2.1 Intrusive Rocks

Magmatism in the San Matías district is interpreted to be part of the pre-accretionary magmatic arc development in the Calima Terrane (Manco et al., 2018a). The majority of the mapped intrusive rocks outcrop along the eastern side of the San Pedro River Lineament. Mineralogically, the intrusive and porphyry rocks can be divided into three groups: 1) Tonalite-Granodiorite, 2) Tonalite-Quartz Diorite, and 3) Diorite-Quartz Diorite.

7.2.1.1 Tonalites-Granodiorites

This group includes the Montiel East porphyry, the Costa Azul porphyry and the La Jagua Tonalite (Figure 7-2) which are comprised of holocrystalline and porphyritic rocks dominated by medium-grained euhedral plagioclase and anhedral to subhedral hornblende that is intergrown with primary biotite and magnetite. Quartz occurs either as fine-grained, anhedral phenocrysts or as very fine-grained granoblastic aggregates in the porphyry groundmass. Major oxide geochemistry indicates a high degree of fractionation in these intrusions (Manco et al., 2019). A U-Pb age of 74.4 ± 1.2 Ma was obtained for the La Jagua Tonalite (Manco et al., 2019), which is slightly older than the Montiel East Porphyry ages of 72.3 ± 1.8 Ma to 70.0 ± 2.0 Ma (Leal-Mejía and Hart, 2017) and 73.4 ± 1.9 Ma to 72.4 ± 4.3 Ma (Manco et al., 2019).

7.2.1.2 Quartz Diorite-Tonalites

These include the San Jorge, Costa Rica, Betesta, Bucaramanga and the Mina Escondida intrusions (Figure 7-2) and comprises holocrystalline, sub-hypidiomorphic rocks composed of medium-grained euhedral, plagioclase, subhedral, fine-grained, anhedral quartz, and anhedral biotite. Primary magnetite occurs as very fine-grained, subhedral, disseminated aggregates. Major oxide geochemistry indicates low fractionation conditions of the magma relative to the Tonalite-Granodiorite group (Manco et al., 2018a). The San Jorge Intrusion yielded a U-Pb age of 74.47 ± 0.74 Ma, whereas the Betesta Intrusion was 72.9 ± 1.2 Ma (Manco et al., 2019). These ages are consistent and within the error of the ages obtained for the Tonalite-Granodiorite group.

7.2.1.3 Diorite-Quartz Diorite

This group includes the Alto San Pedro Diorite and the small units that outcrop along the western margin of the Betesta Quartz Diorite (Figure 7-2). Petrographically, the Alto San Pedro Diorite comprises holocrystalline, hypidiomorphic rocks, composed of medium-grained euhedral plagioclase and two stages of clinopyroxene. Primary quartz occurs as fine-grained, anhedral intergrowth with plagioclase. Primary magnetite occurs as fine-grained, subhedral disseminations and plagioclase inclusions. This unit has not been dated using U-Pb in zircon due to its mafic composition with an inherent low abundance of zircons.

7.2.2 Volcanic Rocks

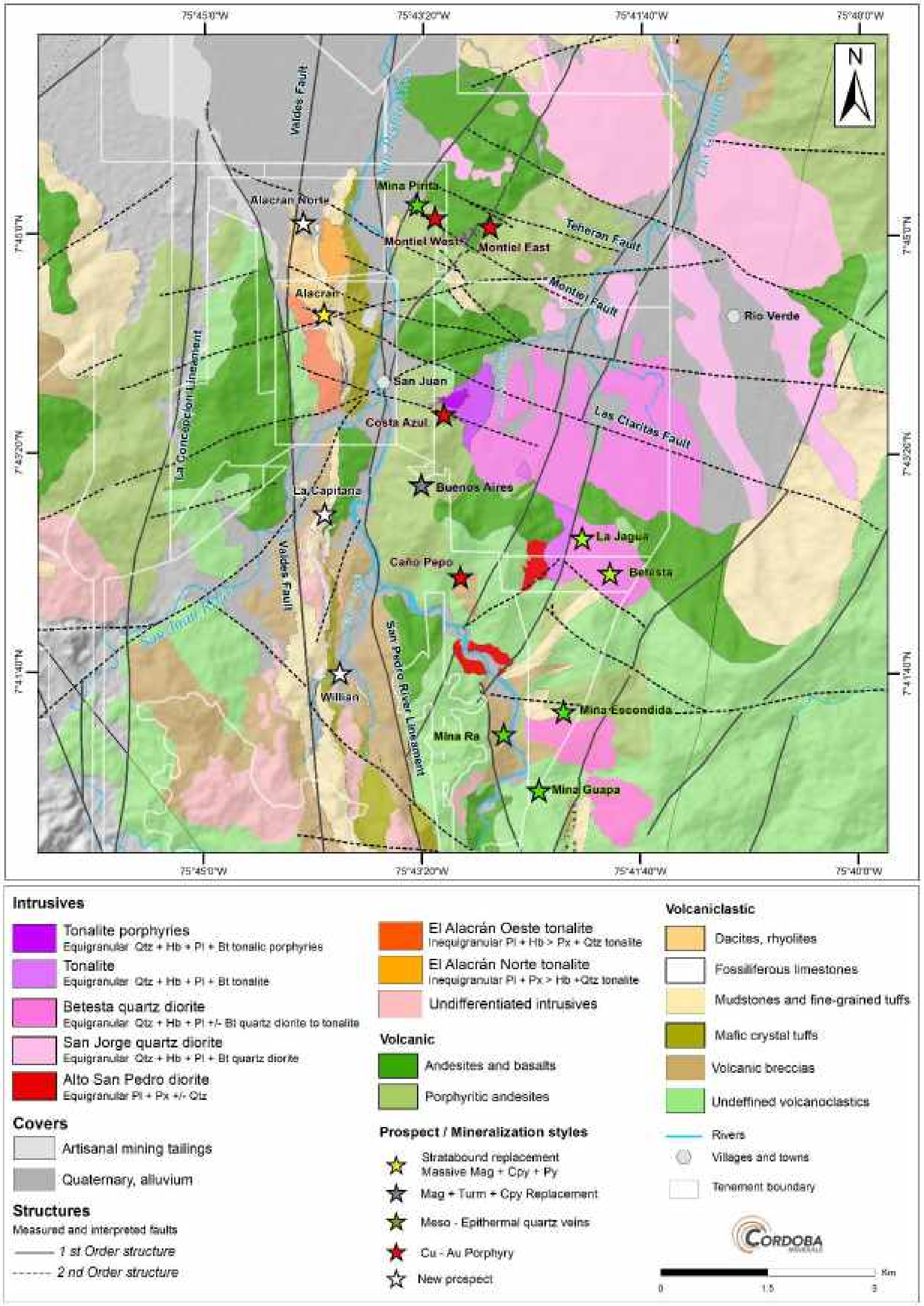
The volcanic rocks correspond to aphyric andesite and basalt with variations to andesite porphyry, composed mostly of phenocrysts of plagioclase and augite.

7.2.3 Volcanoclastic Rocks

The volcaniclastic sequence present within the Project can be divided into four groups:

1. Coarse-grained member: volcanic agglomerate and volcanic breccia and lithic tuff with size fragments than can surpass 5.0 mm in length.
2. Medium-grained member: (>1.0 mm) volcaniclastics dominated by crystal tuffs.
3. Fine-grained sedimentary member: coarse to fine laminated siltstone and mudstone with interlayering of fine tuff and fine lithic tuff. The rocks in this member are interlayered with fossiliferous marlstone and muddy limestone.
4. Acid volcanic rocks: rhyolite and dacite volcanic breccia that varies to medium and fine dacite tuff. This member possesses visible quartz and potassic feldspar groundmass.

Detailed geology of the four mineralized areas that are the subject of the Resource Estimate for the Project is described in Sections 7.3 through to Section 7.6. The geology of other exploration prospects in the region is described in Section 7.7.



Source: Cordoba, 2019

Figure 7-2: Geology of the San Matías Copper-Gold-Silver Project and surrounding district, with the Alacran and satellite deposits highlighted. These are shown within the context of the suspect terranes of Colombia model (Modified from Restrepo and Toussaint, 1988; Ordóñez-Carmona and Pimentel 2002). Figure by Manco et al., 2019.

7.3 Alacran Deposit Geology

The Alacran deposit Cu-Au-Ag mineralization is hosted by a west-dipping Cretaceous succession comprising mafic volcanic rocks overlain by a calcareous volcaniclastic sequence and capped by pre- to syn-mineral, sill-like diorite and felsic sub-volcanic bodies. The sequence is approximately 550 m thick, and the diorites are about 200 m thick. The Alacran surface geology, as shown in Figure 7-3, was interpreted by Cordoba geologists based on core logging, lithogeochemistry, soil geochemistry and outcrop mapping. Faults have been surface-mapped as well as inferred from ground magnetics and apparent displacements in the three dimensional (3D) geological model constructed using Leapfrog® software.

Cu-Au-Ag mineralization occurs throughout the volcaniclastic package at Alacran, except within the lower mafic units. It is most strongly developed in the calcareous volcaniclastic sequence (referred to as Unit 2).

7.3.1 Lithostratigraphy

Lithological units in the Alacran deposit area can be broadly divided into three main stratigraphic units, from bottom to top: Unit 3 (Mafic Volcaniclastics), Unit 2 (Calcareous Volcaniclastics), and Unit 1 (Felsic Volcaniclastics). A schematic cross section A-A' as shown in Figure 7-4 (A) illustrates the distribution of these lithofacies recognized in the Alacran deposit and shows the stratigraphic column Figure 7-4 (B). Lithology codes are included in parenthesis.

Unit 3: Mafic Volcaniclastic Rock Sequence

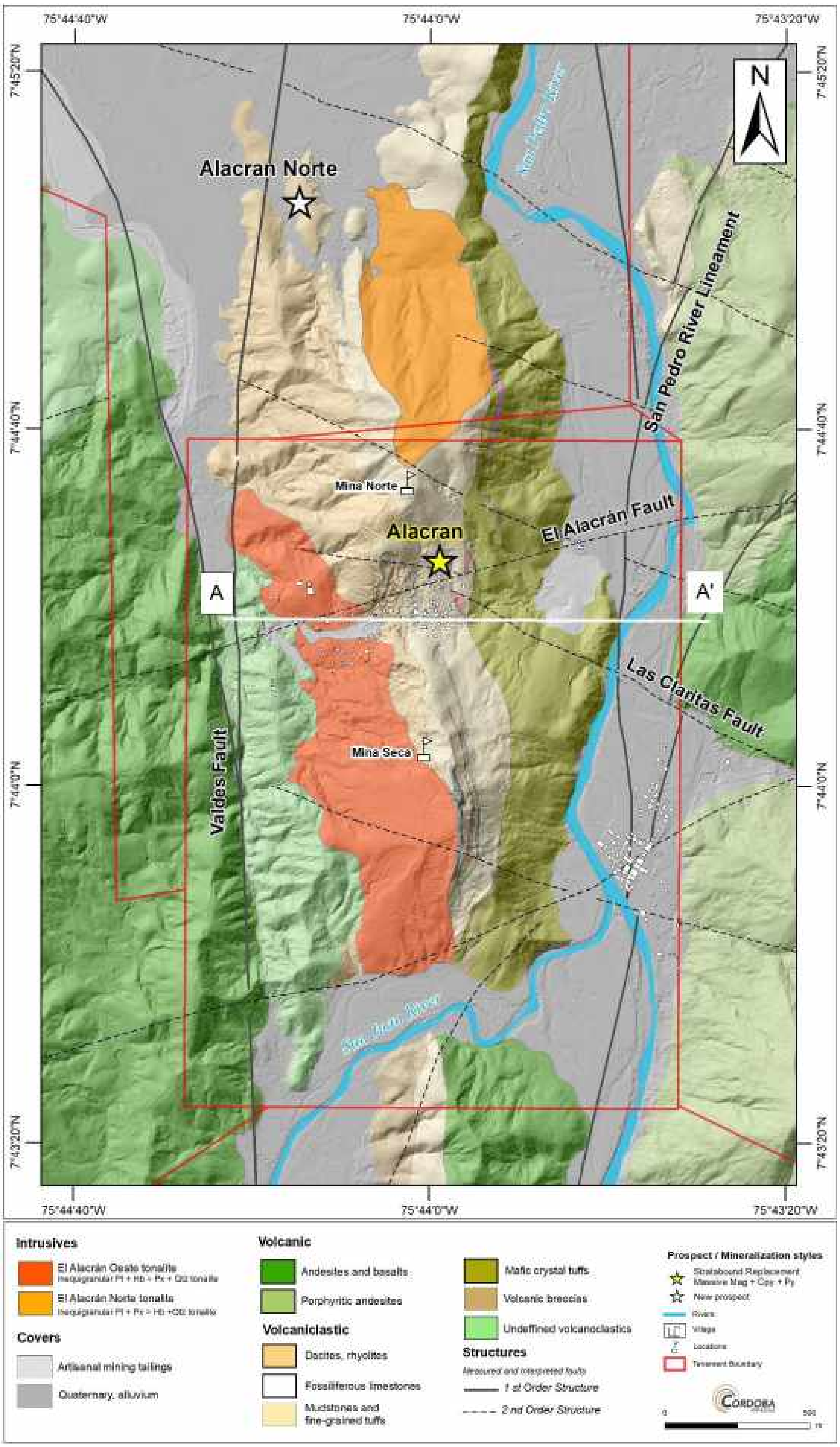
This unit comprises coherent mafic lavas interlayered with mafic to intermediate volcaniclastic rocks. Locally, remnants of vitroclastic and lesser epiclastic silty tuffaceous material are observed. This unit exceeds 300 m in thickness and is the oldest part of the Alacran stratigraphy that has been delineated by drilling (Figure 7-4). Unit 3 outcrops along the San Pedro River margins and typically displays gradational depositional contacts with Unit 2. Based on textural, composition, geometry and volcanic structure criteria (McPhie et al., 1993), three major lithofacies can be delineated within this unit: mafic tuffs; amygdaloidal tuff, and interbedded lithic and fine-grained tuffs (refer to Table 7-1 for detailed descriptions of each lithofacies).

Unit 2: Calcareous Volcanoclastic Rock Sequence

This unit outcrops >800.0 m N-S along the strike extent of the Alacran deposit sequence and ranges from 160 to 208 m in thickness (Figure 7-4). This unit exhibits gradational contacts to Unit 3 and is overlain and locally intruded by rocks of Unit 1. Unit 2 hosts the bulk of the mineralization at the Alacran deposit. Based on texture, composition, geometry and volcanic structure (McPhie et al., 1993), at least five different volcanic lithofacies are defined in this unit: laminated limestone lithofacies, massive fossiliferous limestone lithofacies; lithic tuff lithofacies; fiamme tuff lithofacies; and fine to coarse crystal tuff lithofacies (refer to Table 7-1 for detailed descriptions of each lithofacies).

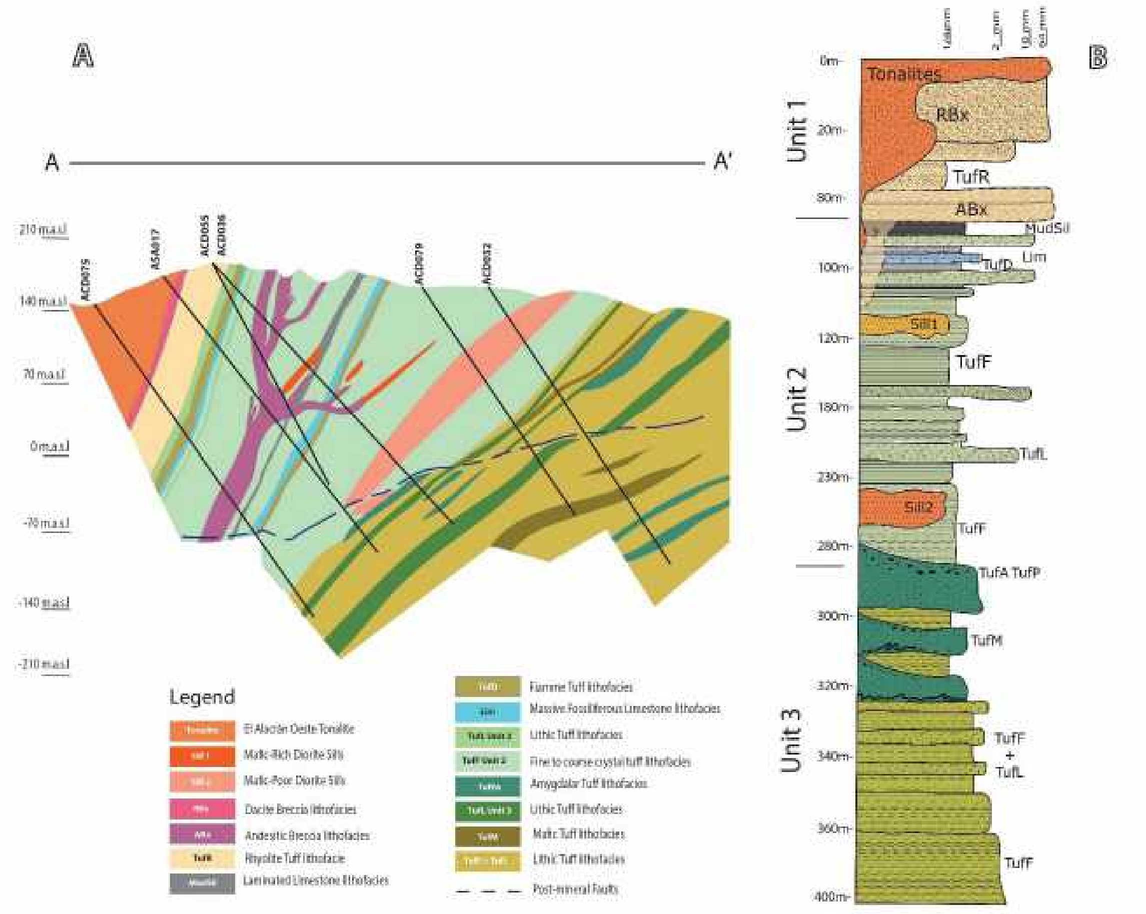
Unit 1: Felsic Volcaniclastic Rock Sequence

Unit 1 extends >1500 m N-S along strike in the Alacran deposit sequence and ranges from 120 m thick in the north to few metres in the south where it is completely obliterated by the Alacran Oeste Tonalite (Figure 7-3). Unit 1 comprises andesitic to rhyolitic breccia tuffs grouped into three dominant lithofacies: an andesitic breccia; a rhyolite tuff and a dacite breccia. Detailed descriptions of each lithofacies are contained in Table 7-1.



Source: Cordoba, 2019

Figure 7-3: Alacran deposit geology map



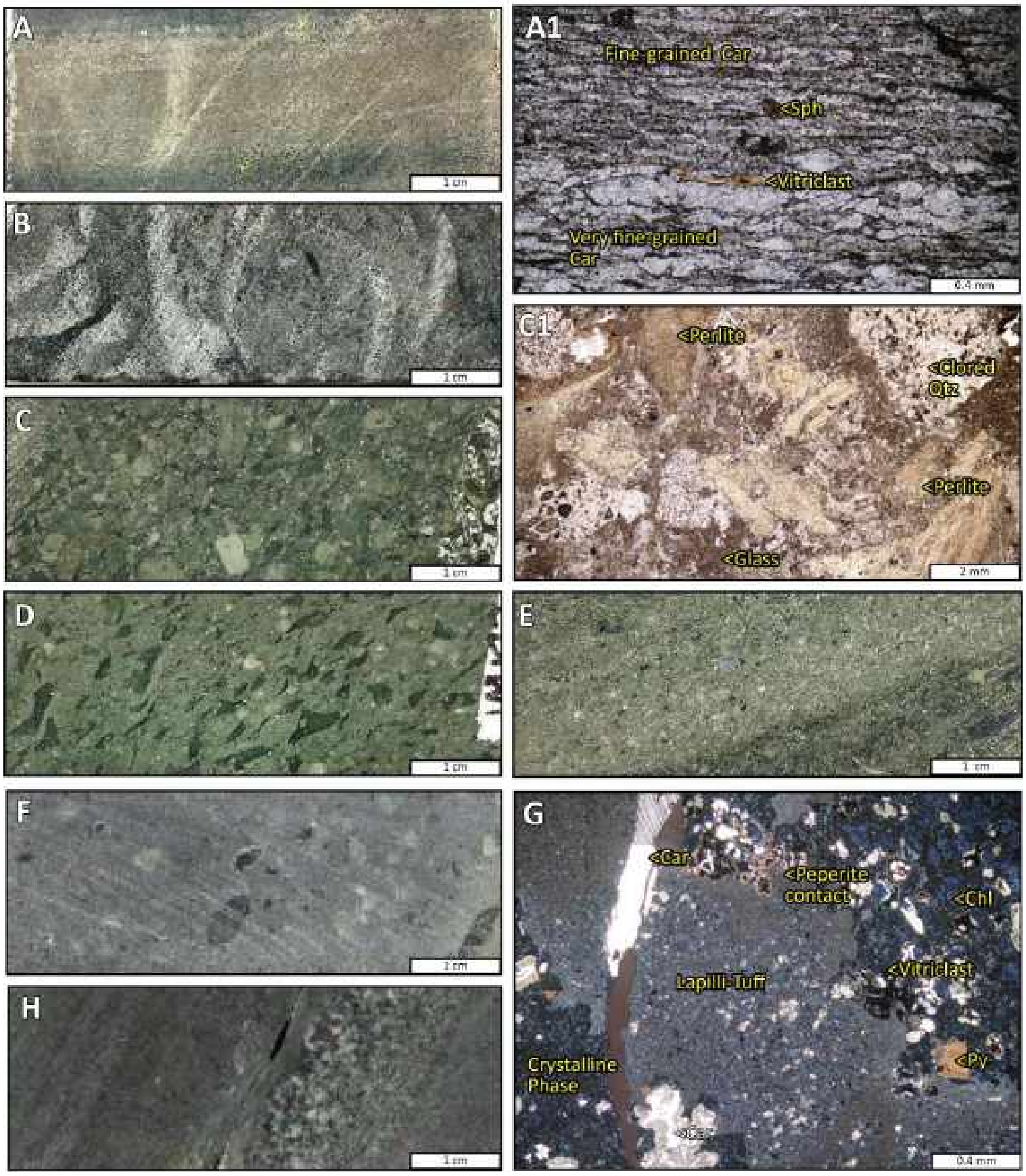
Source: Cordoba, 2019

Figure 7-4: Alacran lithostratigraphic column and cross section (Manco et al. (2018b). The location of the east-west section A-A1 is denoted on Figure 7-3.

Table 7-1: Detailed Descriptions of Alacran Deposit Lithofacies

Sequence	Sequence Thickness (m)	Lithofacies	Code	Lithofacies Thickness (m)	Description	Occurrence	Comment
Felsic Volcaniclastic (Unit 1)	**>1500 m**	Dacite Breccia	RBx	12 - 28m	Dacitic to rhyolitic intrusion breccia with aplite and stockwork porphyritic clasts set in a rhyodacite groundmass.	This lithofacies extends up to 450 m N-S and occurs in the northwestern part of the deposit.	A possible volcanic depositional settings that include a lava dome or cryptodome (Manco et al., 2018b).
		Rhyolite Tuff	TufR	13 - 38m	Flow-banded monomictic rhyolite to andesite breccias with a matrix composed of plagioclase, K-feldspar and quartz.	This lithofacies extends from near surface to greater than 200 m depth downhole.	Constitutes the bulk of the Unit 1 rocks and shows evidence of an intrusion/emplacement in the volcanoclastic Unit 2.
		Andesitic Breccia	ABx	3 - 40 m	Clast-supported intrusive breccia bimodal groundmass from glassy to crystalline and plagioclase, potassium feldspar and quartz phenocrysts	This lithofacies outcrops in a 350 m N-S, preferentially in the central part of the deposit.	This breccia displays near-vertical, locally discordant contacts producing pipe-like shaped bodies.
Calcareous Volcaniclastic (Unit 2)	**>800 m**	Laminated Limestone	Mudsil	10 - 35m	Well-sorted chemical limestone with laminations of euhedral carbonate with primary granoblastic textures. interlayers within the carbonate sequence	This lithofacies is continue along the sequence and reach 35 m in the southern margin of the deposit.	This lithofacies is preferentially replaced by magnetite stage of the deposit
		Massive Fossiliferous Limestone	Lim	5 - 8m	This lithofacies comprises a series of discontinuous, non-graded, bioclasts-bearing limy mudstones packages (Marlstones)	Located approximately 80 - 100 m below the contact between Unit 1 and Unit 2 and are relatively continuous in the sequence.	The easy recognition and continuity of this lithofacies is used as a stratigraphic marker of Unit 2.
		Fiamme Tuff	TufD	5 - 20m	Partailly welded tuff with a matrix composed of recrystallized glass and juvenile volcanic clasts.	This lithofacies occur and discontinues packages in the upper and middle Unit 2	The easy recognition and restricted stratigraphic location allow using this lithofacies as a Unit 2 marker
		Lithic Tuff	TufL	5 - 16m	Poorly sorted, monomictic breccias composed of quartz and plagioclase groundmass with glassy shards with incipient welding evidence.	This unit occurs preferentially in the upper Unit 2	This lithofacie is interbedded with fossiliferous mudstones
		Fine to Coarse Crystal Tuff	TufF+TufC	1 - 50m	Coarse- to fine-laminated tuff packages composed of coherent volcanic material	This lithofacies lower contact conformably overlies Unit 3 and corresponds to the largest lithofacies in Unit 2.	The lack of relictic pyroxenes in this lithofacies is a mapping criterion used by the geologist to differentiate it form Unit 3 tuffs
Mafic Volcaniclastic (Unit 3)	**>300 m**	Amygdaloidal Tuff	TufA + TufP	8 - 25m	Coherent amygdaloidal andesitic lavas with fine-grained, phaneritic plagioclase-rich groundmass that created some peperite textures in contact with ash tuffs (TufP)	Occurs as Interbedded with fine-grained volcaniclastics in the top of Unit 3	This lithofacies is considered a distinctive geological marker in Unit 3.
		Mafic Tuff	TufM	8 - 16m	Coherent plagioclase-rich, porphyritic andesitic to basaltic lavas plagioclase and hornblende phenocrysts set within a groundmass (80%)	Occur preferentially in the lower part of Unit 3.	This lithofacies is considered a distinctive geological marker in Unit 3.
		Interbedded Lithic Tuff	TufL+TufF	40 - 60m	Interbedded succession of poorly sorted lithic tuffs and fine-grained laminated tuffs with banded hypocrystalline layers of plagioclase and augite	This lithofacies is the deepest units delineated by drilling	This lithofacies is the bulk rocks in Unit 3

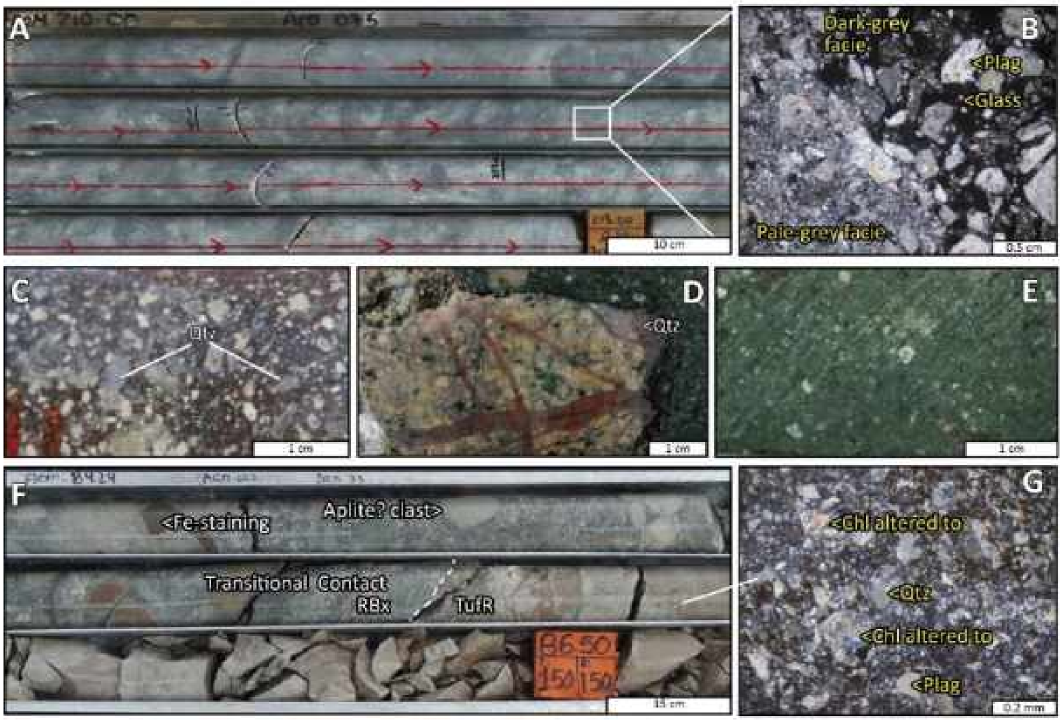
Source: Cordoba, 201



Source: Manco et al., 2018b

Figure 7-5: Alacran deposit Unit 3 and Unit 2 highlights

Alacran deposit volcaniclastic lithofacies from Unit 2 and Unit 3 (Manco et al., 2019). **A.** Core-scale sample of laminated limestone lithofacies. **A1.** Microphotograph 10X under crossed Nicolls of A. **B.** Core-scale sample of the marlstone lithofacies with carbonate-replaced bivalves. **C.** Core-scale sample of the lithic tuff lithofacies. **C1**. Microphotograph 2X of A, showing breccia texture. Note composition of clasts is dominated by vitroclasts and recrystallized quartz. **D.** Core-scale sample of fiamme tuff lithofacies. **E.** Core-scale sample of the fine-grained to coarse-grained tuff lithofacies **F.** Core-scale sample of coherent lavas with amygdaloidal facies. **G.** Microphotograph 10X with crossed Nicolls of peperites in the contact of the amygdaloidal facies. **H.** Banded interbedding of fine-grained tuff and lithic tuffs. *Abbreviations:* Sph: Sphalerite, Qtz: Quartz, Car: Carbonate, Py: Pyrite, Chl: Chlorite.



Source: Manco et al., 2019

Figure 7-6: Alacran deposit Unit 1 highlights

Alacran deposit volcaniclastic lithofacies from Unit 1 (Manco et al., 2019). **A.** Photo of drill core of andesite breccia (drill hole ACD075 @ 210 – 213 m). **B.** Detail of A. Microphotograph 10X with crossed Nicolls, showing coherent facies composition of andesite breccia. Note the glassy groundmass in the dark-grey facies. **C.** Drill core sample of quartz-rich porphyritic facies associated with the dacite intrusive breccia lithofacies. **D.** Quartz stockwork in porphyry clast embedded in a quartz-rich groundmass volcanic/magmatic? breccia from the rhyolite tuff lithofacies. **E.** Detail of the rhyolite tuff lithofacies. **F.** Photo of drill core from the dacite breccia in transitional contact with rhyolite tuff (drill hole ACD003 @ 84.2 – 86.5 m). **G.** Microphotograph 10X with crossed Nicolls of photo F, showing a fine-grained breccia texture composed of quartz, plagioclase and K-feldspar. *Abbreviations:* Plag: Plagioclase, Qtz: Quartz, Car: Carbonate, Py: Pyrite, Chl: Chlorite.

7.3.2 Intrusions

Intrusions are recognized at Alacran by their hypabyssal igneous textures in core and surface mapping, and chemically by their high Al/Ti (>25), low Nb/Al (< 4), low Zr/Al & Cr/Al ratios, and they display other geochemical features consistent with intermediate igneous rocks. Petrographic and modal analysis, along with the geochemical characterization of the intrusions show two different end-member magmatic sources:

Alacran Oeste Tonalite

This tonalite occurs in the western portion of the Alacran deposit where it intrudes the metasedimentary-volcaniclastic succession in a broadly north-south zone up to 2 km long (Figure 7-3). The eastern contacts of these diorites generally dip moderately to steeply west, broadly concordant with the stratigraphy, but locally discordant (Figure 7-4 (A)). The rock displays a weak to medium-intensity hydrothermal alteration that includes silicification (11%), chloritization (15%) after mafic minerals, and sericite-carbonate (~2%) after plagioclase. This unit is non-mineralized but displays very fine-grained (< 0.04 mm) disseminated pyrite (Figure 7-7).

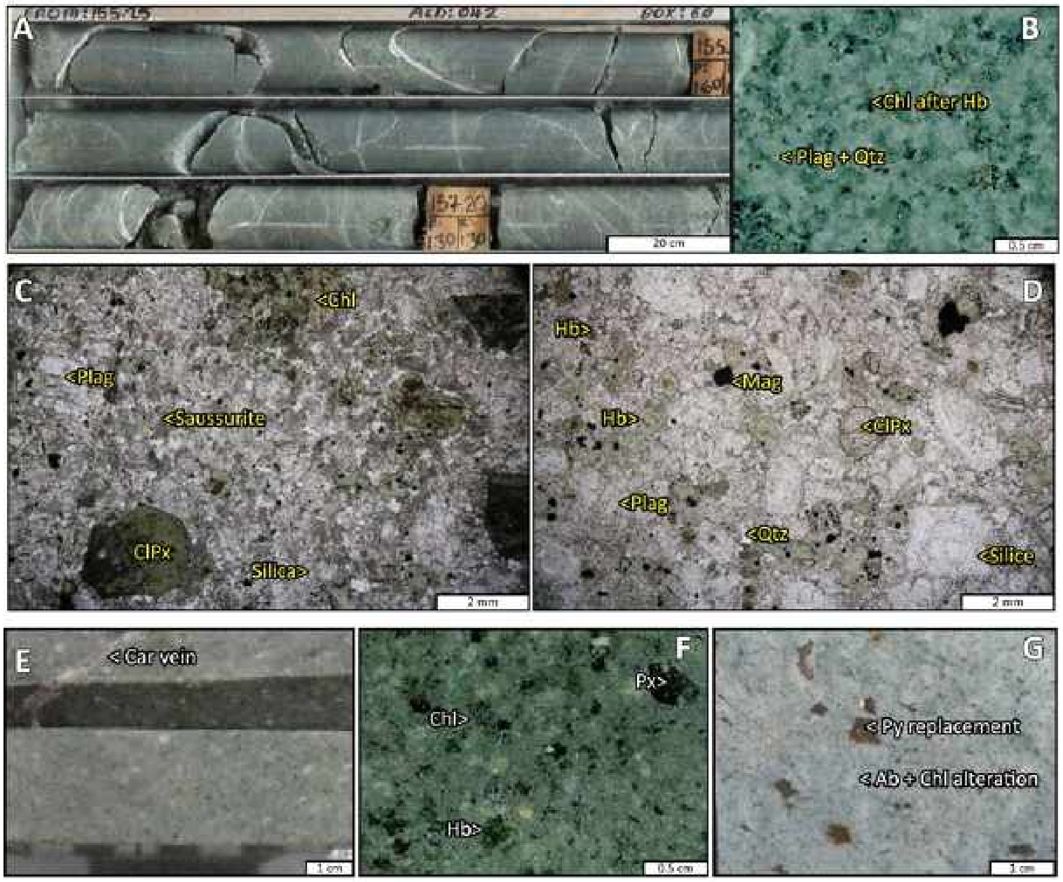
Alacran Norte Tonalite

The Alacran Norte Tonalite occurs in the northernmost part of the Alacran deposit, where it intrudes and is possibly faulted against, the volcaniclastic sequence (Figure 7-3). This unit constitutes the topographic high observed in the northern Alacran deposit (Mina Norte Hill). Field relationships suggest this unit is post-mineral to the Alacran mineralization. It is generally fresh, locally silicified (18%) and its mafic minerals are altered to fine-to very fine-grained (~0.12 mm) chlorite (4%). This unit is non-mineralized and contains traces of pyrite (~0.5%) after the mafic mineralogy (Figure 7-7).

7.3.3 Sills

The Alacran deposit succession is intruded by up to five andesitic sills that can be grouped according to alteration and mineralogy into Sill 1 and Sill 2. Sill 1 comprises mafic-rich diorite sills that concordantly intrude the Unit 2 volcaniclastic sequence along a >1 km N-S contact, and occurs within the first 10 m-depth below the contact between Unit 1 and 2 (Figure 7-4 (A)). Sill 1 ranges from 5 m to 10 m in thickness and are fine-to medium-grained holocrystalline rocks with porphyritic texture, and rock groundmass that is dominated by plagioclase and mafic minerals. Phenocrysts comprise medium-grained plagioclase, pyroxene and hornblende (Figure 7-7). Sill 1 displays variable hydrothermal alteration intensity from weak to pervasive. When pervasively altered, this unit presents a calc-sodic assemblage (albite + chlorite + epidote + carbonate ± actinolite) that selectively replaces the mafic mineralogy.

Sill 2 comprises a discontinuous N-S oriented intrusion that is divided into two segments: a northern segment that extends 380 m northwards; and a southern segment that extends 300 m southwards until it merges with a Sill within the Sill 1 rock type: denoted as Sill1b. These segments are separated by ~ 300 m. Sill 2 is 10 m to 33 m wide and intrudes concordantly and locally discordantly the lower stratigraphy of Unit 2 (Figure 7-4). Sill 2 is a fine-grained, holocrystalline, strongly altered, mafic-poor, porphyritic diorite rock (Figure 7-7) with ~70 % groundmass. Relict phenocrysts are fine-grained euhedral to subhedral plagioclase. Intense sodic-calcic alteration is a distinct feature of this unit and comprises fine-grained albite chlorite and quartz with traces of titanite and anhedral apatite. Mineralization occurs as fine-grained (<0.1 mm) traces of anhedral pyrite accompanying chlorite (Figure 7-7).



Source: Manco et al., 2018b

Figure 7-7: Alacran deposit intrusions

Alacran deposit intrusions. **A.** Photo of drill core from the Alacran Oeste Tonalite (drill hole ACD042 @ 152.2–157.7 m). **B.** Detailed of photo A. **C.** Photo of drill core from the Alacran Norte Tonalite (drill hole ACD039 @ 58.2–60.7 m). **D.** Detailed of photo C. **E.** Microphotograph 4X with parallel Nicolls of the Alacran Oeste Tonalite. **F.** Microphotograph 4X, with parallel Nicolls of the Alacran Norte Tonalite. G. Drill core photo of the Sill 1a unit. **I.** Drill core photo of the Sill 2 unit with pervasive albite + chlorite alteration. **H.** Drill core photo of the Sill 1b unit. *Abbreviation:* Pl: Plagioclase, Chl: Chlorite, Qtz: Quartz, ClPx: Clinopyroxene, Px:Pyroxene, Hb: Hornblende, Car: Carbonate, Ab:Albite, Py:Pyrite. Figure by Manco et al. (2018b).

7.3.4 Alacran Deposit Mineral Paragenesis

Petrographic work and core logging have led to the categorization of five alteration assemblages within the Alacran deposit: Group I) Calc-Silicate Magnetite, Group II) V-Mica-Carbonate Base Metal (“CBM”); Group III) Illite-CBM, Group IV) Barren Calc-Silicate Group V) Calcite-Zeolite (Figure 7-8).

The Group I through Group III stages represent the most significant stages of hydrothermal alteration and mineralization. Mineralization is distinguished on the basis of structural and textural overprinting relations, from oldest to youngest:

i. Magnetite Stage: Group I: Early Calc-Silicate;

ii. Sulphide Stage: Group II: V-Mica - CBM; and Group III: Illite – CBM; and

iii. Late epithermal overprint: CBM style auriferous veining.

7.3.4.1 Magnetite Stage

Group I: Calc-Silicate

Group I alteration is characterized by a magnetite - quartz - apatite ± Fe-rich chlorite ± carbonate (± pyrite) ± epidote assemblage that is primarily replacement and breccia infill. As replacement, this assemblage extends almost 1 km on/along the contact between the andesite breccia and the laminated limestone lithofacies; which represents the boundary between Units 1 and 2 of Alacran stratigraphy. It preferentially replaces the laminate limestones, with replacement zones range from 20 m to 30 m thick and are only present in the southern part of the deposit.

As breccia infill, this assemblage is dominated by mushketovite (bladed magnetite) with pyrite/chalcopyrite present and occurs dominantly along the andesite breccia footwall contact at the base of Unit 1, and within the laminated limestone lithofacies of Unit 2.

The largest magnetite-quartz rich zones (where not overprinted by iron-rich sulphides) occur in the western portion of the Alacran deposit in the south-central area. These zones strike approximately N-S and dip moderately-to steeply west and are broadly concordant with the layered volcaniclastic succession and external contacts of the Alacran Oeste Tonalite intrusion around which the main magnetite-rich bodies are clustered. Individual magnetite-rich bodies may persist along several hundred metres of strike length and the western magnetite-rich zones over strike lengths of around 700 m (between 854900N and 855600N) over a depth range in excess of 200 m. Except where veined and partially replaced by sulphides, the magnetite-rich bodies are Cu and S poor.

The mineralogy of the Group I assemblage is consistent with formation from relatively high temperature (probably magmatic) fluids in intrusion-proximal situations. To the north and the southeast of the deposit, iron-enrichment (>10% Fe) is evident in the volcaniclastic package but rarely in the underlying mafic rocks and also locally overprints intrusions. Zones of iron-enrichment are broadly concordant with layering but locally broaden over strike and dip extents of 50 m to 100 m.

7.3.4.2 Sulphide Stage

Hypogene Cu-Au mineralization takes the form of lenticular zones with broadly north-south strikes that dip moderately to the west, broadly concordant with host stratigraphy and intrusive contacts. The Cu-Au zones, however, locally broaden in vertical and horizontal around steep N-S surfaces and these, along with high-grade sub-zones, plunge at a relatively shallowly orientation. Cu-Au zones are largely restricted to the main volcaniclastic package, although drilling has intersected mineralization in the upper part of the mafic package in northern and central Alacran.

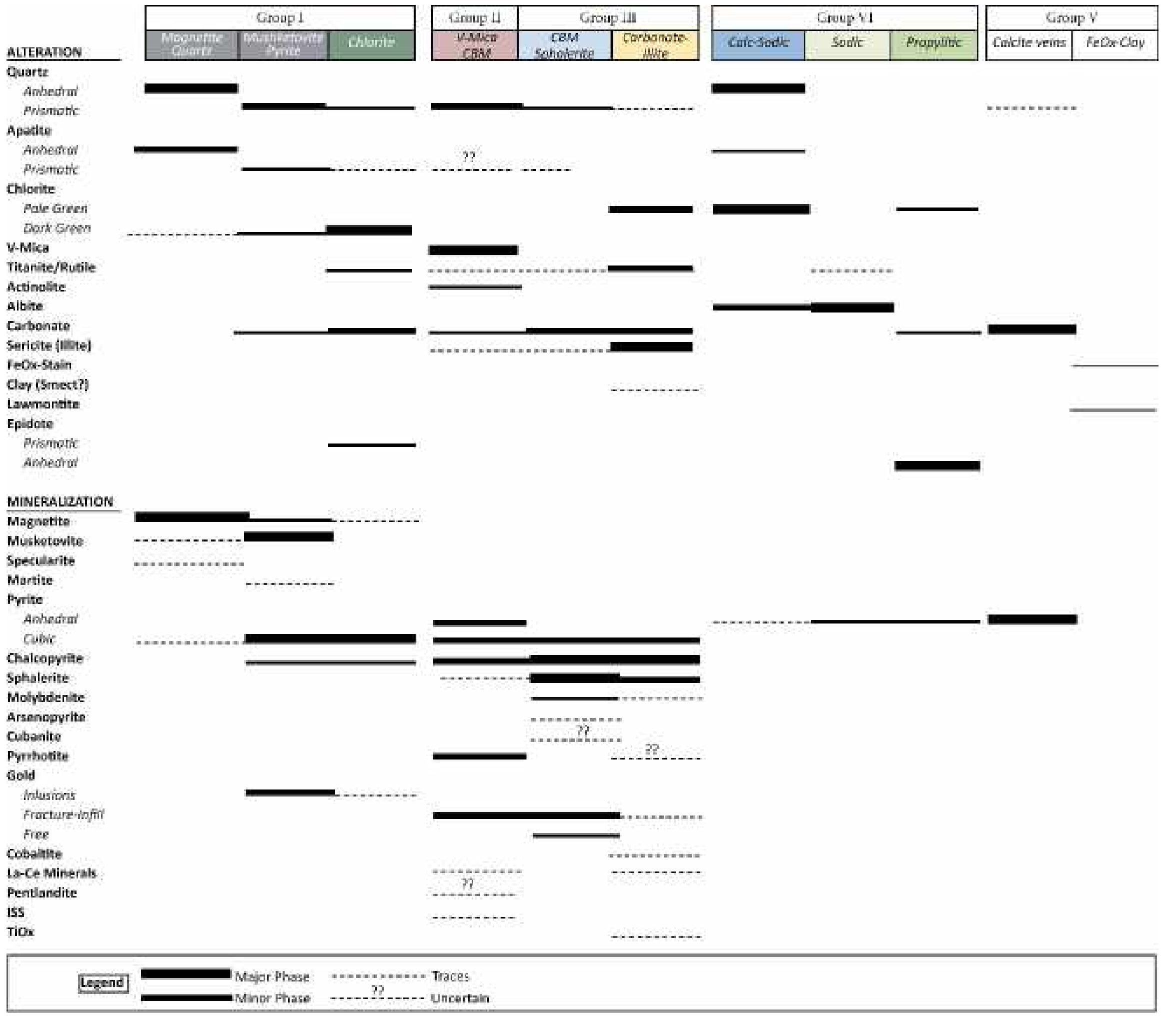
Sulphide precipitation in the Alacran deposit is associated with discrete alteration assemblages from Group II: V-Mica - CBM and Group III: Illite – CBM Stage.

Group II: V-Mica –CBM

The V-Mica assemblage is restricted to the central and northern part of the deposit and occurs in the andesite breccia footwall. This alteration assemblage exhibits transitional mineralogy from high temperature (apatite + actinolite + quartz + pyrrhotite) to lower temperature (sphalerite ± sericite) and may represent a significant change in the redox conditions during the incursion of a different mineralizing fluid (Manco et al., 2019).

Group III: Illite – CBM

The Illite – CBM assemblage dominates the northern and central part of the Alacran deposit and preferentially occurs in the felsic to intermediate lithofacies associated with Unit 1 (i.e. rhyolite tuff, dacite intrusive breccia and andesite tuff). Alteration intensity varies from pervasive in the shallowest part of the andesite breccias and decreases to trace amounts at deeper levels (>150 m-depth) of the breccia. The alteration assemblage comprises medium-grained (< 1.5 mm), anhedral carbonate (< 35%) accompanied by very-fine grained (< 0.1 mm) sericite (< 25%) and anhedral, Mg-rich chlorite. SWIR analysis on sericite of this assemblage displays a marked absorbance feature at 1900 nm indicating a low crystallinity phase consistent with an illite composition with variations to paragonitic and lesser to phengite (Manco et al., 2018c).



Source: Manco et al., 2018b

Figure 7-8: Mineral paragenesis table for the Alacran deposit

Note: The Mineral Paragenesis table includes 11 mineral paragenetic associations grouped into five major groups. The bars indicate the proportion of the observed mineralogy varying from major, minor, trace and uncertain distribution.

Cu-Au mineralization comprises veins and dissemination of chalcopyrite-pyrite ± pyrrhotite with quartz and carbonate and locally forms massive sulphides, and apatite is common. Au correlates with Cu and molybdenum ("Mo"). Ni, cobalt ("Co"), Cr, phosphorous ("P") and the light rare earth elements are typically enriched in the sulphide-mineralized zones.

Macroscopic and petrographic observations show that Cu-Au sulphide mineralization partially to completely replaces magnetite-stage alteration. Pyrrhotite dominates early Cu-Au mineralization and may be intergrown with or partially replace actinolite. The pyritic assemblage commonly overprints pyrrhotite, and much of the chalcopyrite apparently formed at this stage, associated with chlorite-carbonate ± sericite alteration. This alteration is magnesian and sodic-calcic, apparently phyllic (sericitic) alteration in its later stages.

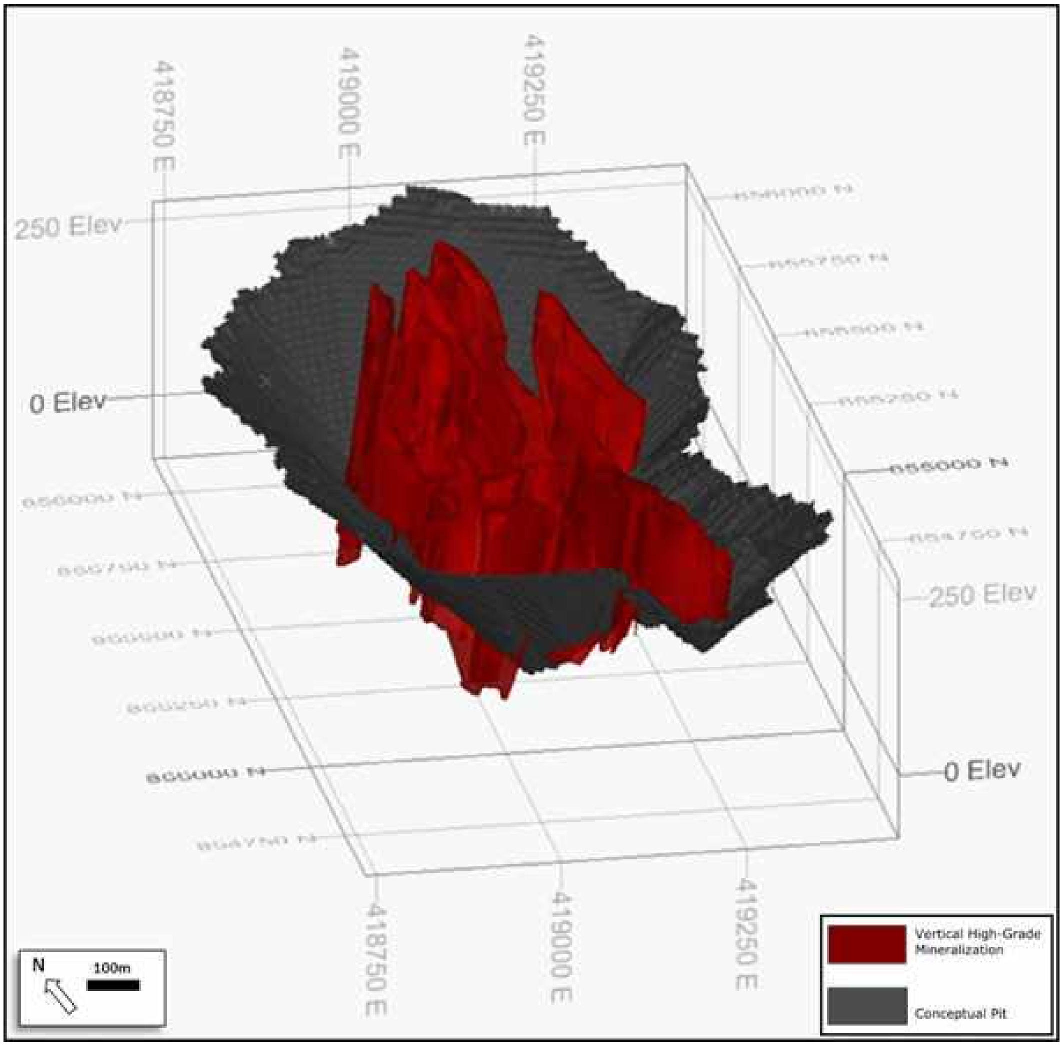
In the south-west of the deposit, Cu-Au mineralization generally exhibits high Au/Cu ratios and high-grade Au (>5 g/t Au) intercepts. These Au-rich zones commonly occur in and around the magnetite-rich bodies, and the main sulphide is pyrrhotite, partially overprinted by pyrite.

Re-Os age dating of molybdenite yielded a model age of 75.8 ± 0.4 and 73.3 ± 1.5 Ma (Leal-Mejía and Hart, 2017; Manco et al., 2018d).

7.3.4.3 Late Epithermal Overprint: CBM-style Auriferous Veining

The CBM mineral assemblage (Calcite + Sphalerite + Chalcopyrite) represents a long-lived formation either as replacement, associated with the Group III alteration assemblage or as late-veins that overprint the Cu-Au mineralization. In the northern half of the deposit sphalerite-rich, pyrite-carbonate-quartz veins are more widely distributed than in the southern half. These veins are generally auriferous and may carry high-grade Au, i.e. 14 g/t Au over 3.0 m (ACD-009) and 4,440 g/t Au over 0.9 m (ACD-036) that is sometimes visible at the macroscopic scale. The CBM veins may be somewhat discordant to this mineralization, and their orientation pattern is not yet confidently established. These veins are cut by later Ni-Co-Sb-rich arsenopyrite-carbonate-Au veins.

This late-stage CBM assemblage has been explicitly modelled into wireframes, referred to as vertical mineralization, as seen in Figure 7-9 and incorporated into the Resource modelling.



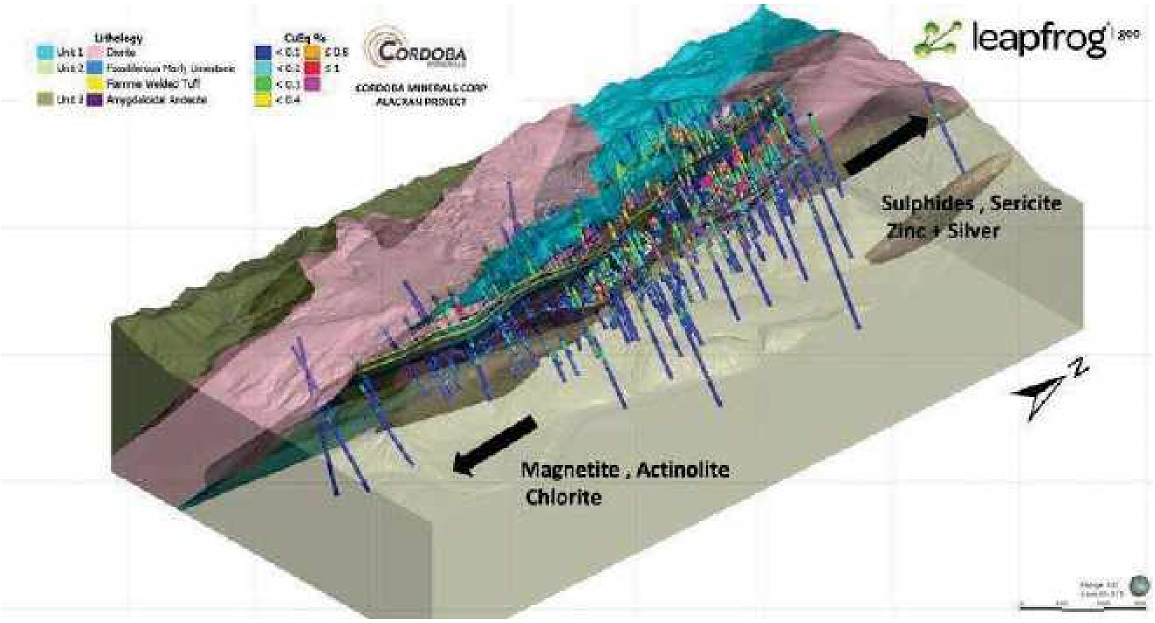
Source: Nordmin, 2019

Figure 7-9: Alacran deposit high-grade Au carbonate base metal mineralization within the conceptual open pit

7.3.5 Alacran Deposit Geological Model

A geological model was developed for the Alacran deposit in Leapfrog® 3D by Cordoba geologists (Figure 7-10). With successive drill campaigns and core re-logging exercises, the geological model has been further refined.

The geological model illustrates the three volcano-sedimentary packages (from hanging wall to footwall): Unit 1, Unit 2, and Unit 3, and the late diorite intrusions. In addition, several marker units identified during core re-logging exercises were modelled: the massive fossiliferous limestone and fiamme tuffs of Unit 2, and the amygdaloidal tuffs of Unit 3.

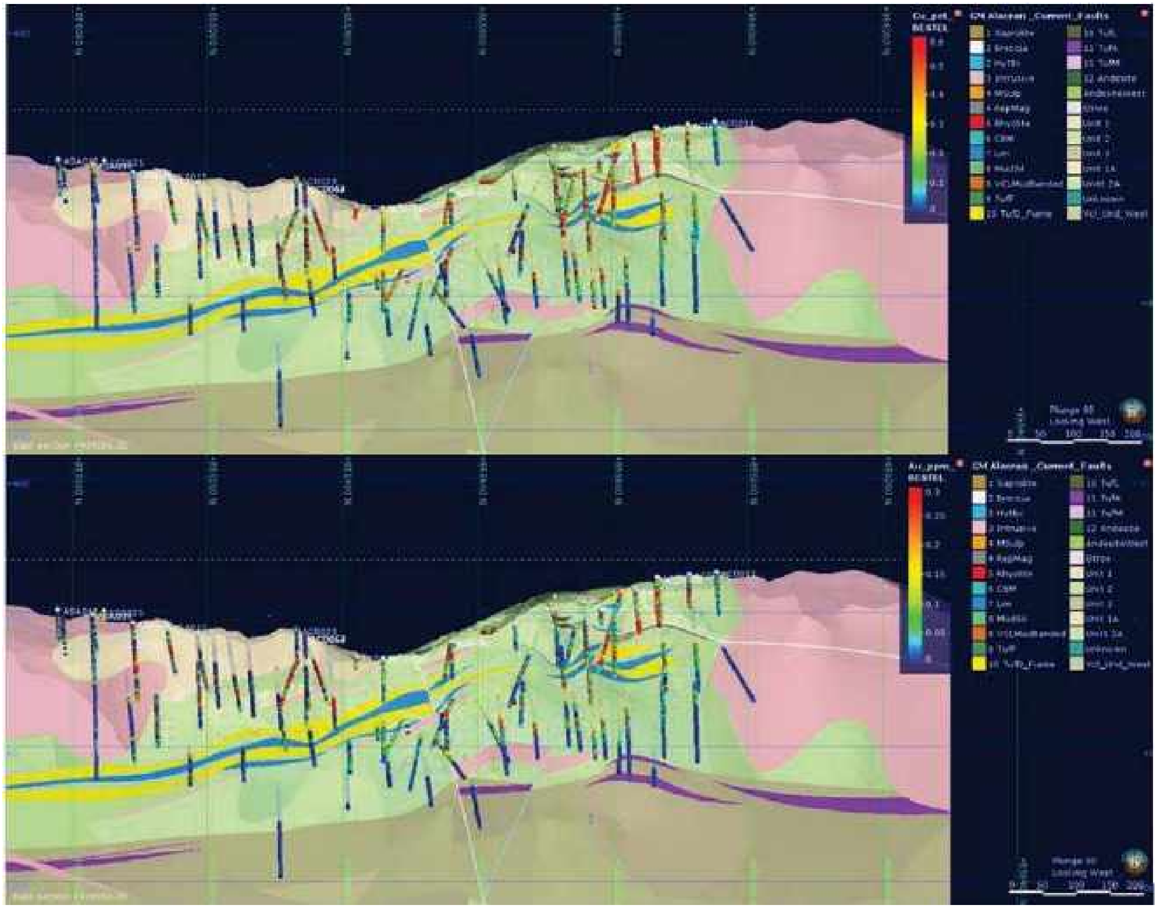


Source: Cordoba, 2018

Figure 7-10: Alacran 3D geological and grade model

There is evidence of many structural offsets of marker horizons, that range from minor to significant on a deposit scale and three major faults (discussed further in Section 7.3.6) were modelled. The cross section in Figure 7-11 shows the Unit 2 marker horizons and the offsets observed.

The CBM veins intersected by drilling and associated with high-grade Au mineralization have been added to the geological model and Resource Estimate, based on structural analysis work completed by Nordmin. The structural analysis is described in detail in Section 7.3.6.



Source: Cordoba, 2018 Leapfrog® Model. Cu in %, Au in ppb

Figure 7-11: Alacran long section 419,050 looking East showing modelled geological units, observed structural offsets along with Cu and Au values in drill core.

7.3.6 Alacran Deposit Structures and Structural Model

The Cretaceous succession of the Alacran deposit is situated on the moderately dipping western limb of a faulted, regional anticlinal zone with N-S to NNW strike trending axial surfaces. Mesoscopic folds, observed in outcrop and drill core, are responsible for local changes in dip, are shallowly plunging and are interpreted to represent parasitic folds syn-kinematic with the regional post-Cretaceous deformation. This deformation was of relatively low strain and produced a steep, weak cleavage in the Cretaceous sediments. As noted above, intrusive activity is inferred to postdate this regional deformation.

Cenozoic successions to the north and west of Alacran generally dip shallowly and are folded along N-S to NNE axes. These successions are faulted against, or unconformably overly, the Cretaceous succession and are believed to have been eroded from the Alacran area.

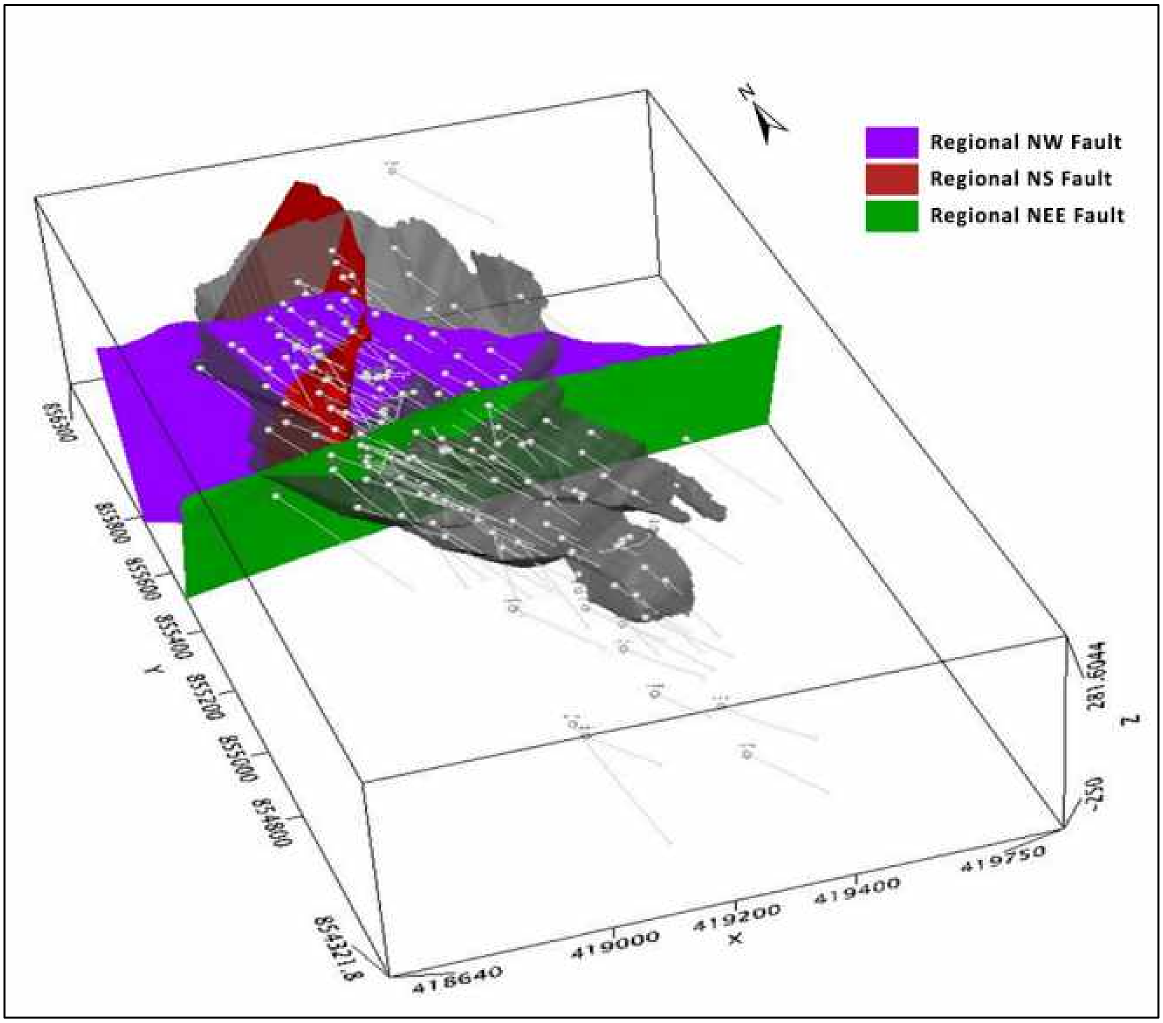
The Alacran deposit displays three dominant structure sets that have been identified by Cordoba geologists from mapping their topographic expressions, interpreting both ground magnetics and aeromagnetic data, mapping visually in drill core and by a detailed structural analysis of core data. These three main dominant structures (Figure 7-12) are:

1. NW fault set: dipping approximately 50°-75° W and striking NNW, parallel to the host rock bedding (which includes a subordinated antithetic system (striking NW, dipping 10°-30° northeast). This set may be linked with the N-S to NNE striking faults of the Valdés and Rio San Pedro System (Figure 7-2) and has been interpreted as the oldest set, which does not have significant control on local mineralization.
2. NEE fault set: striking at 060°and dipping 50°-60° SE, this set is possibly related to the EW system of faults. The El Alacrán Fault is the most prominent fault in the NEE set (Figure 7-13) and shows a listric geometry with a dip decreasing from 60° to < 10° with depth. This fault did not produce a significate offset of the Alacran deposit sequence; however, small (< 50.0 m) dextral offsets have been mapped along some artisanal tunnels (Mosher, 2011).
3. N-S Fault set: Striking N-S and sub-vertically dipping, and these structures are the primary control for the high-grade Au carbonate base mineralization

In drill core, the NW and NEE set of structures show evidence of post-mineral deformation indicated by extensive (<30 m-thick) attrition breccias that include intensely fractured and gridding rocks lacking syn-tectonic alteration or mineralization. However, at a deposit scale, the andesite breccias appear to be preferentially developed when the NW structures intercept the NEE structures.

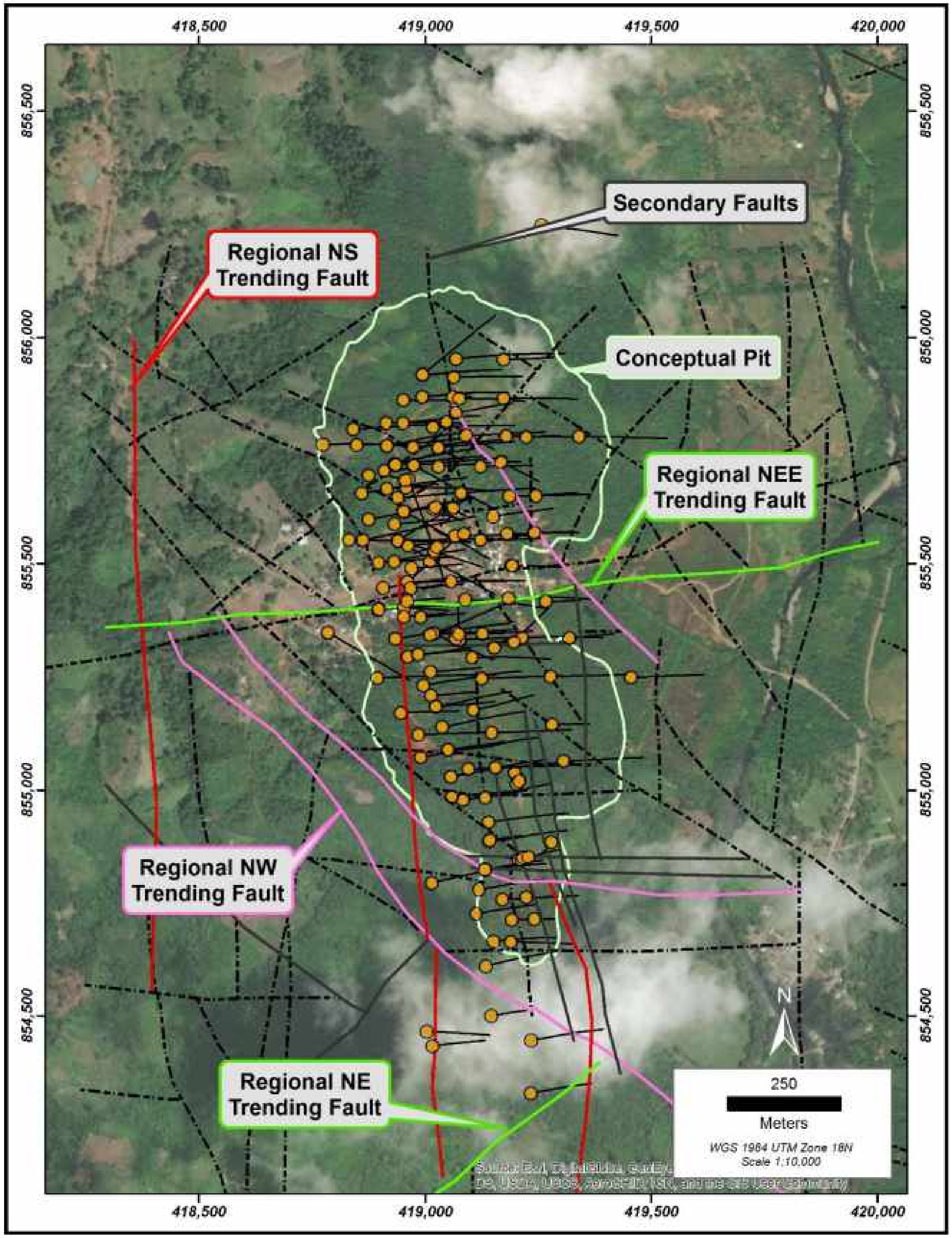
The most prominent structure at Alacran is the NEE fault, which traverses across the middle of the deposit.

In order to further refine the Alacran structural interpretation and build a structural model, Nordmin examined the data associated with the structural features previously identified by Cordoba, including geographic information system ("GIS") data, surface fault mapping, downhole structural core measurements, and 3D modelled three fault planes created previously by Cordoba. Nordmin confirmed the presence and orientations of the three major fault sets (the NW, NEE and NS sets) (Figure 7-13) and identified multiple N-S structures that control the high-grade Au mineralization within the Alacran deposit.



Source: Nordmin, 2019

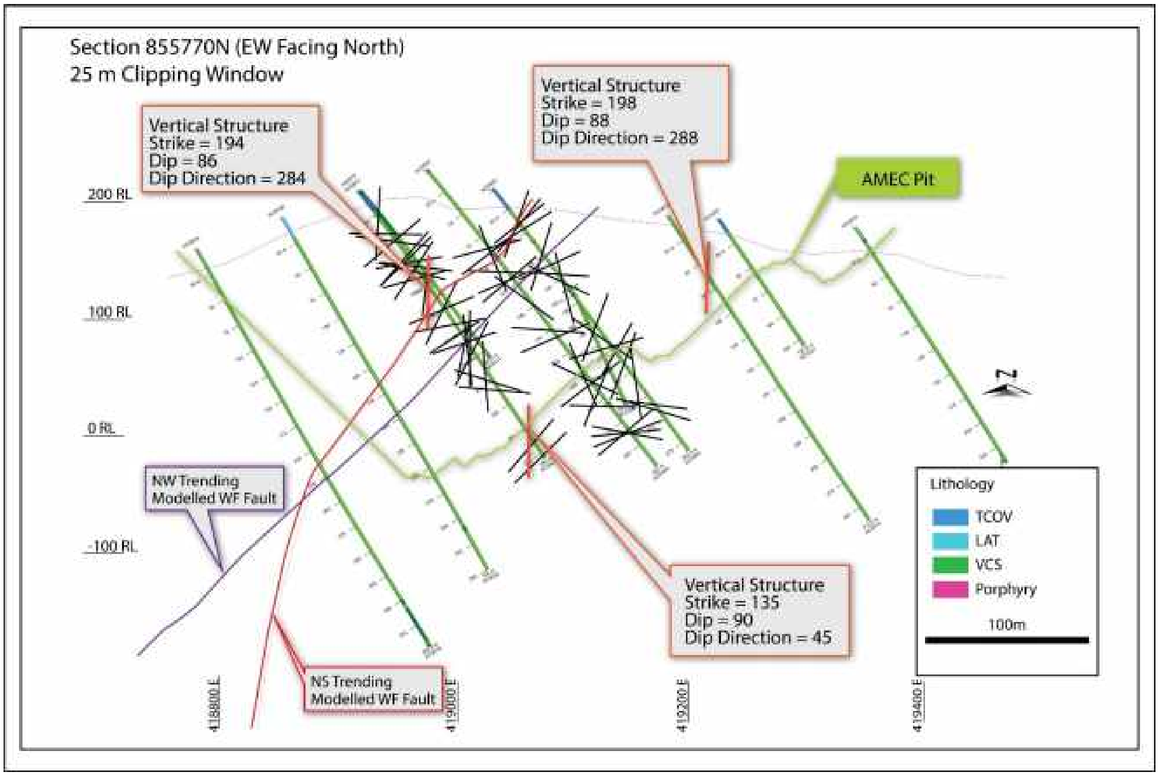
Figure 7-12: Plan map with previously developed faults



Source: Nordmin, 2019

Figure 7-13: Plan map with surface structural GIS data as interpreted by Cordoba and Nordmin.

Nordmin analyzed oriented core structural data (and collection procedures) and validated this data by examining core in conjunction with drill logs. The downhole strike and dip measurements were analyzed for the three main structural orientations in a plan view and a cross-sectional view (Figure 7-14) in order to confirm previously identified structures and identify new ones of significance.

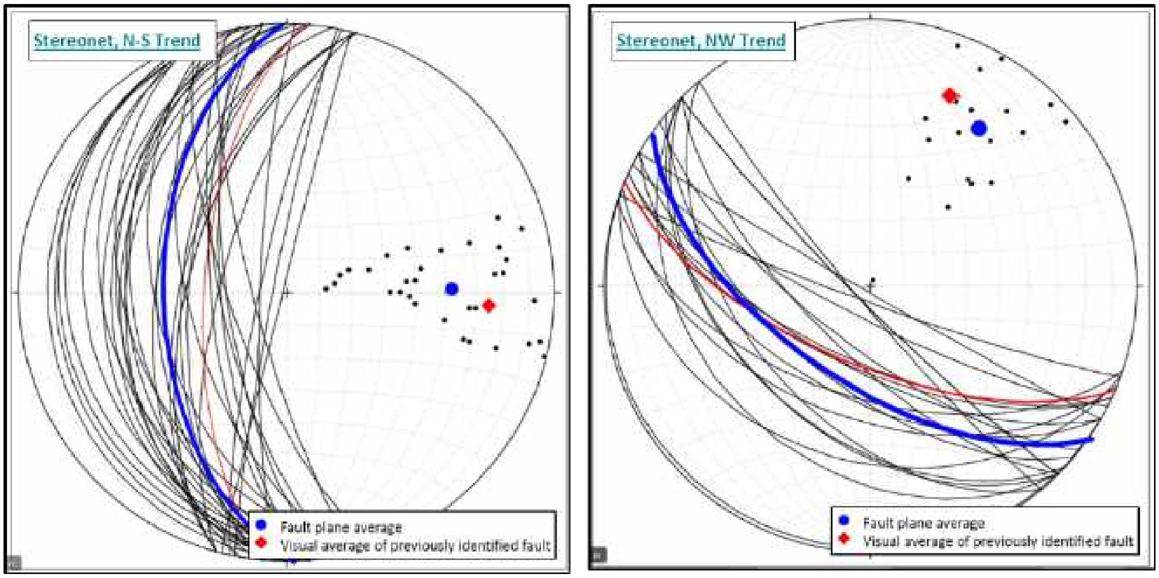


Source: Nordmin, 2019

Figure 7-14: Alacran cross-section displaying drill holes and structural measurements

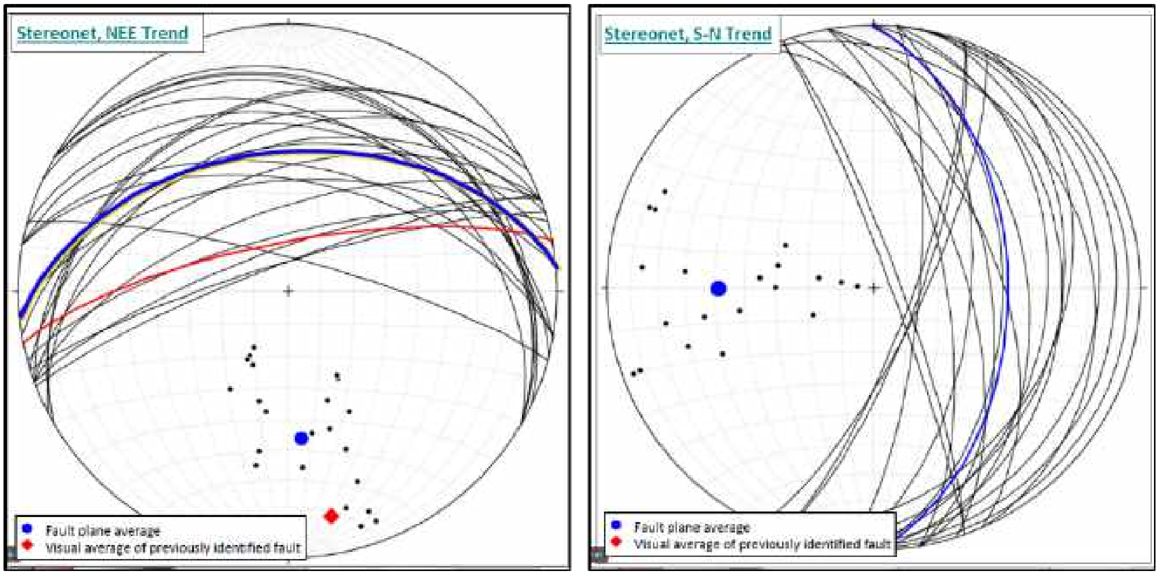
Trends in the data were identified, and a stereonet analysis was undertaken, which illustrated four main structural cluster subsets. Three subsets matched the previously identified trends (NW, NEE and NS) and a new trend, referred to as the S-N trend, was identified (Figure 7-15 and Figure 7-16).

Three-dimensional structures were then developed explicitly along sections using all available data. When mineralization was examined alongside the structural data, the S-N and NW structures were interpreted as the oldest structures and did not have a significant impact on mineralization, and the N-S and NEE trending structures did appear to control mineralization. The S-N trend proved difficult to discern from the NW trend, and it was determined that more data was required for further analysis.



Source: Nordmin, 2019

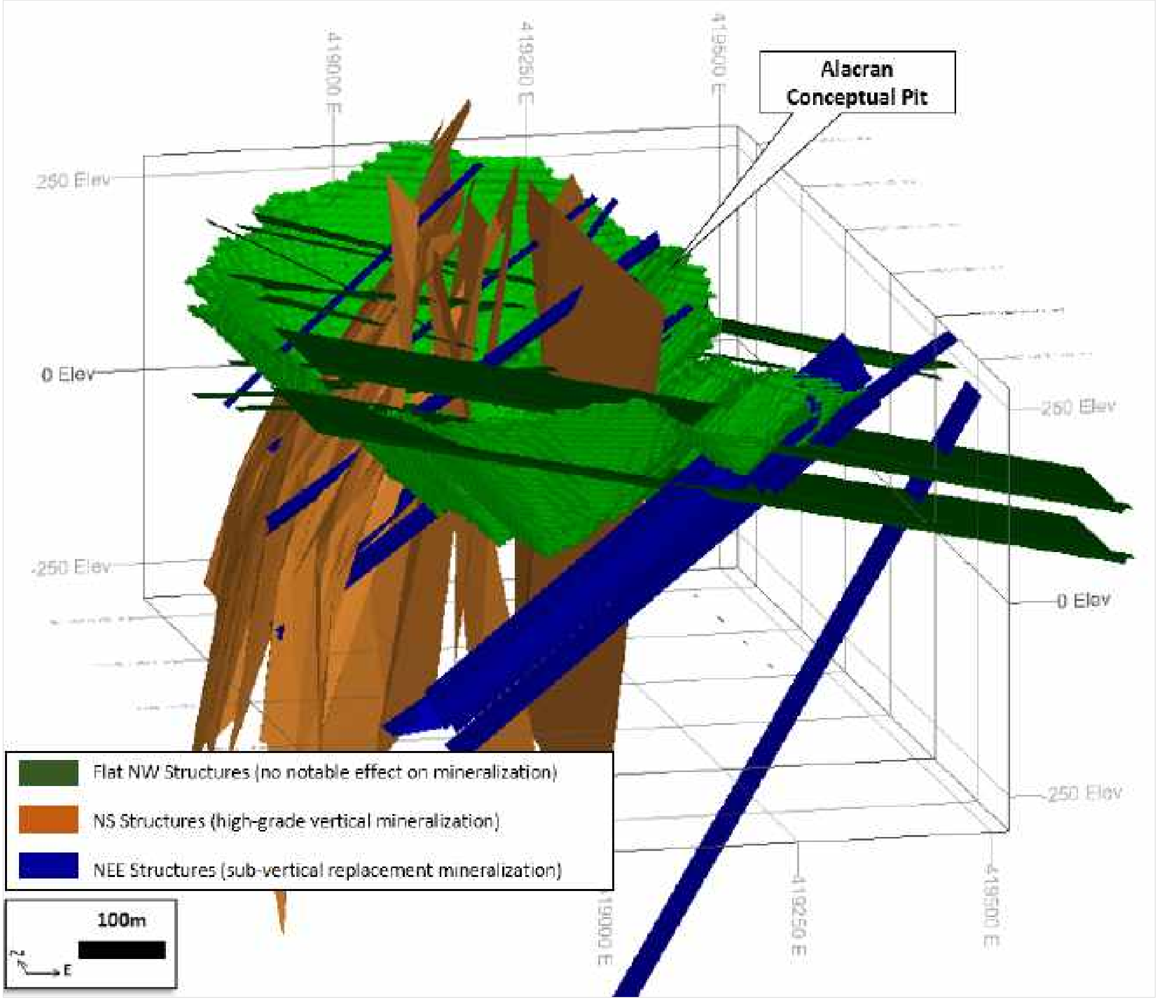
Figure 7-15: Stereonets showing the N-S and NW fault trend clusters



Source: Nordmin, 2019

Figure 7-16: Stereonets showing the NEE and S-N fault trend clusters

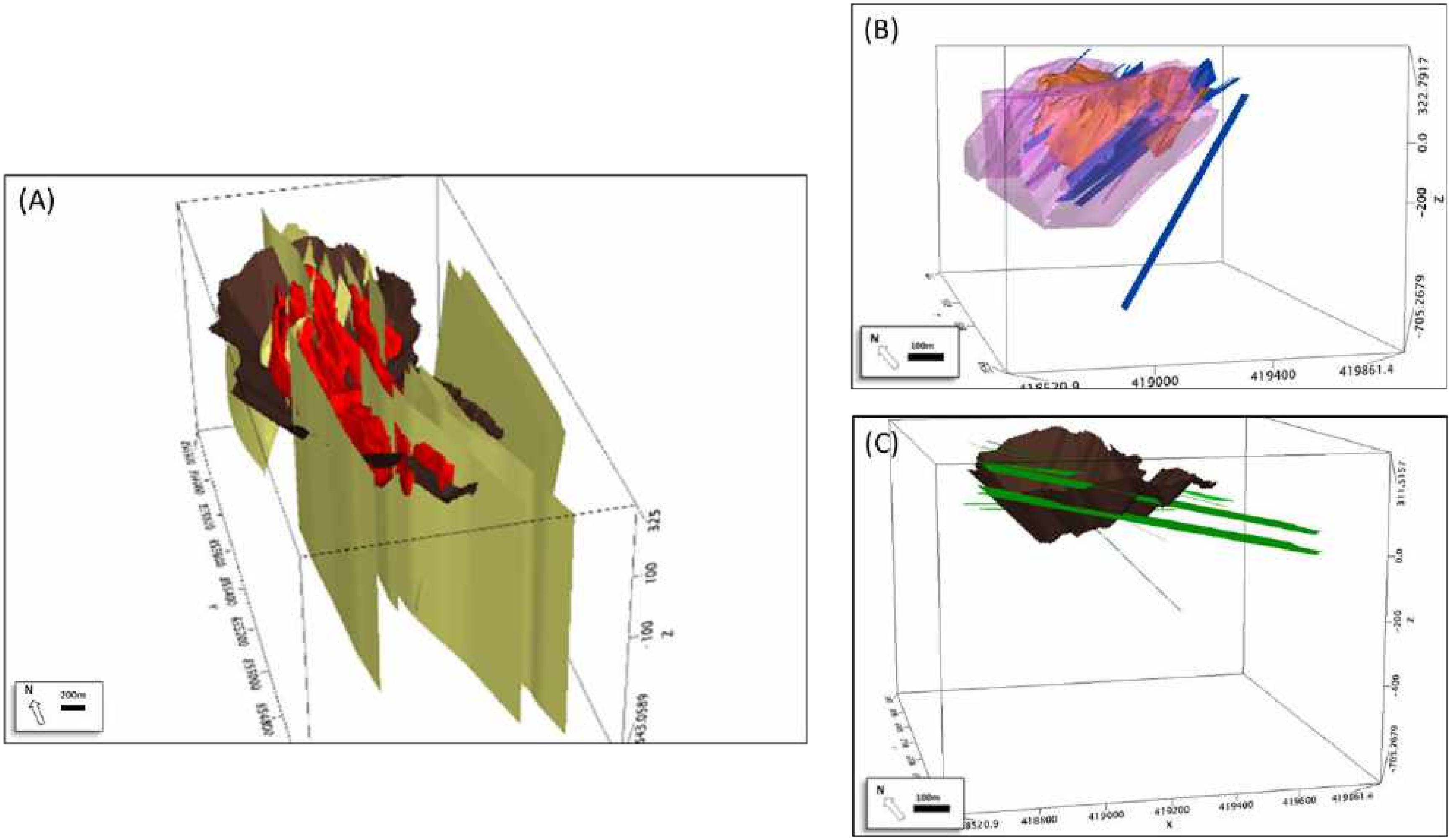
Figure 7-17 and Figure 7-18 illustrate the validated three main Alacran fault trends N-S, NEE, and NW faults, in relation to the conceptual open pit.



Source: Nordmin, 2019

Figure 7-17: Alacran conceptual open pit with N-S, NEE, and NW structure trend

Yellow = N-S structures, high-grade vertical mineralization structures
Blue = NEE structures, sub-vertical replacement mineralization
Green = Flat NW structures. No notable effect on mineralization



Source: Nordmin, 2019

Figure 7-18: (A) Alacran N-S vertical structures in yellow, high-grade mineralization structures in red. (B) Alacran NEE sub-vertical structures in blue, sub-vertical replacement mineralization structures in orange (C) Alacran NW flat structures in blue

7.4 Montiel East Deposit

The Montiel East Porphyry is located near the San Matías Village 2.5 km northeast of the Alacran deposit in the eastern side of the San Pedro River Lineament (Figure 7-2). The shallow parts of the Montiel East deposit display surface dimensions of approximately 100 m x 70 m and a vertical extent of 100 m. The deposit is porphyry Cu-Au mineralization associated with a series of tonalite porphyry stocks and sills that intrude basaltic andesitic volcanic rocks and host a strong stockwork of quartz-magnetite-chalcopyrite-bornite veins. Based on cross-cutting relationships, alteration assemblages and compositions, four different phases have been identified within the Montiel East porphyry suite, three of which are hornblende porphyries and one of which is a quartz feldspar porphyry (Figure 7-17).

Major oxide geochemistry from samples of Montiel East phases show SiO_2 = 61.8 - 73.8%, Al_2O_3 = 13.6 - 16.6%, CaO = 2.06 - 6.83%, MgO = 0.8 - 3.04%, and TiO_2 = 0.1 - 0.32%, Indicating the higher fractionation degree observed in the SMP intrusions (Manco et al., 2018a).

Hornblende Porphyry: There are three phases of hornblende porphyry at Montiel East: an early, inter-mineral and a late phase. Alteration and mineralization vary within each phase. In general, the hornblende porphyritic rocks are characterized by a groundmass formed by very fine-grained (< 0.05 mm) quartz (30%) with phenocrysts of fine to medium-grained (< 2.0 mm) plagioclase (40%), hornblende (5%), and fine-grained (< 0.1 mm) biotite (2.5%). Individual LA-ICP-MS analyses yielded Pb/U ages between 68.5 ± 7.5 and 78.0 ± 10.0 Ma with a weighted average yielded a U-Pb age of 72.4 ± 4.3 Ma (Manco et al., 2019).

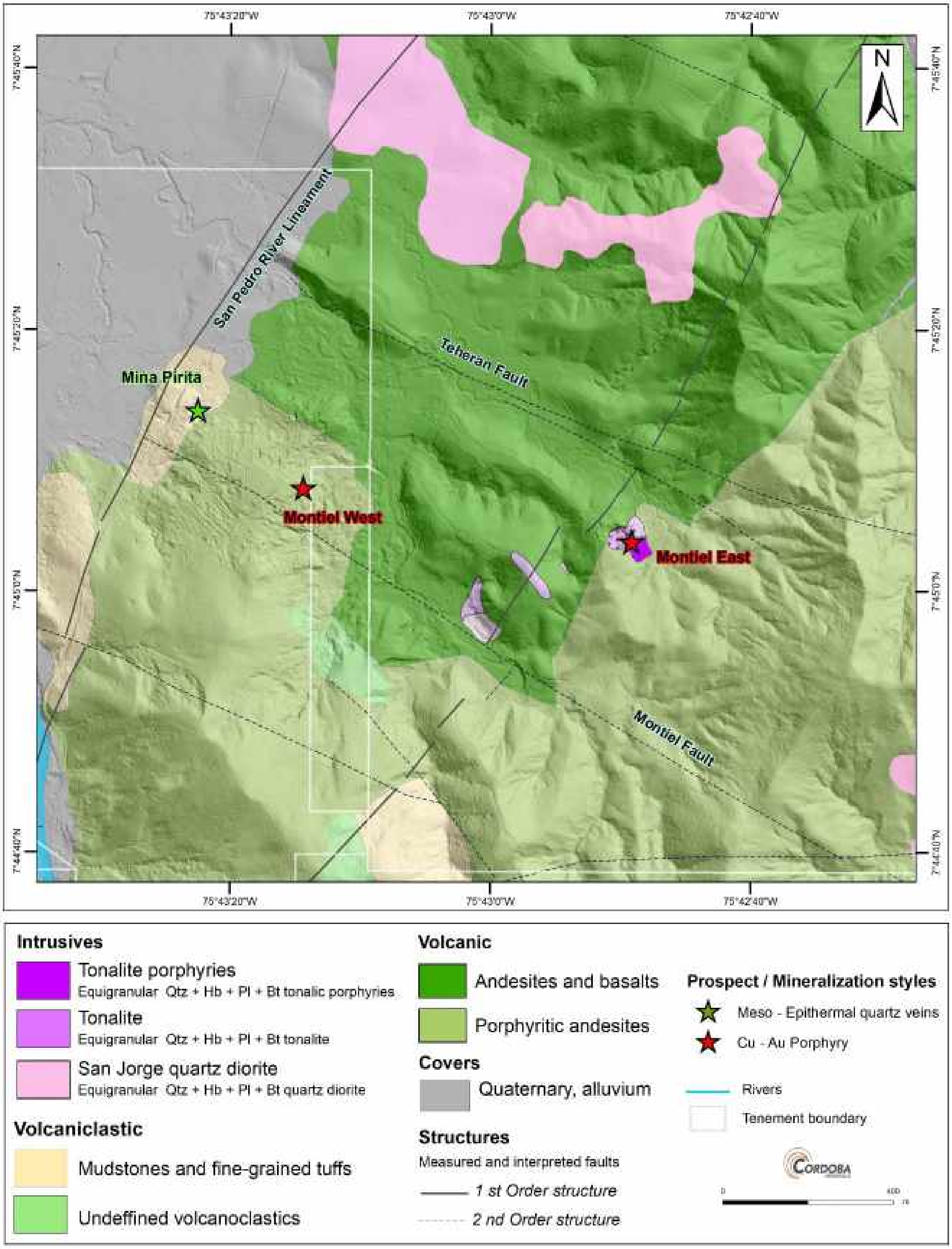
In the early phases, alteration manifests as fine-grained (0.2 mm to 0.4 mm) hydrothermal biotite in selective replacements and veinlets, and traces of fine-grained actinolite occur as alteration after hornblende (Manco et al., 2018b). Three major vein sets have been identified: Late-magmatic quartz veins (A-type veins); magnetite + chalcopyrite + bornite quartz veins (B-type veins), and chalcopyrite-only veinlets (C-type veins). The porphyry, as well as the volcanic rock within ~10.0 m of the contact, is characterized by an intense A-type quartz vein stockwork (Figure 7-20), with >40% of the rock comprising vein quartz and individual veins locally exceeding 1 m wide.

In the inter-mineral phase is a low-grade phase with variable amounts of fine-grained (< 1.0 mm) chalcopyrite, pyrite and pyrrhotite. This phase is recognized by a marked secondary biotite alteration with retrograde chlorite and pyrrhotite disseminations.

The late phase, which is low-grade to barren, is a tonalitic phase with propylitic alteration and pyrite. Alteration is dominated by the occurrence of very fine-grained (<0.1 mm) sericite (15%), chlorite (4%) and traces of actinolite. Mineralization occurs mostly as 2.0 mm-width veinlets of pyrite, chlorite, epidote, sericite and carbonate.

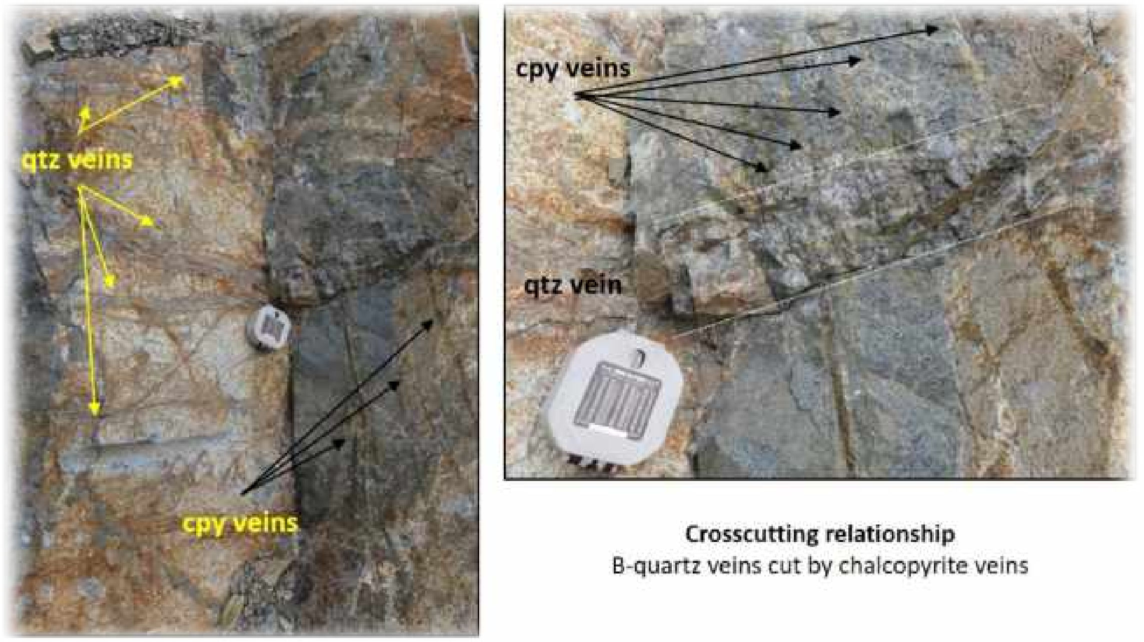
Quartz Feldspar Porphyry: This phase occurs as an intermineral-late phase as evidenced by the low-grade mineralization and clear cross-cutting relationships observed in relation to the early hornblende porphyry phase. The Quartz Feldspar porphyry is an inequigranular medium-grained (0.5 mm to 2.0 mm) leucocratic rock composed of anhedral K-feldspar (14%), euhedral plagioclase (10%), and fine-grained (< 1.0 mm) quartz (40%) (Manco et al., 2018a). Alteration intensity is relatively low to moderate and is characterized by the occurrence of silicification (16%), chlorite (3%) and sericite + clay and carbonate (3%). Mineralization is dominated by chalcopyrite and pyrite that occurs in interstices infill accompanied by actinolite and chlorite, respectively.

LA-ICP-MS analyses yielded Pb/U ages between 66.0 ± 13 and 79.3 ± 7.3 Ma with an obtained weighted average of 73.4 ± 1.9 Ma (Manco et al., 2019).



Source: Cordoba, 2019

Figure 7-19: Montiel East and Montiel West geology map



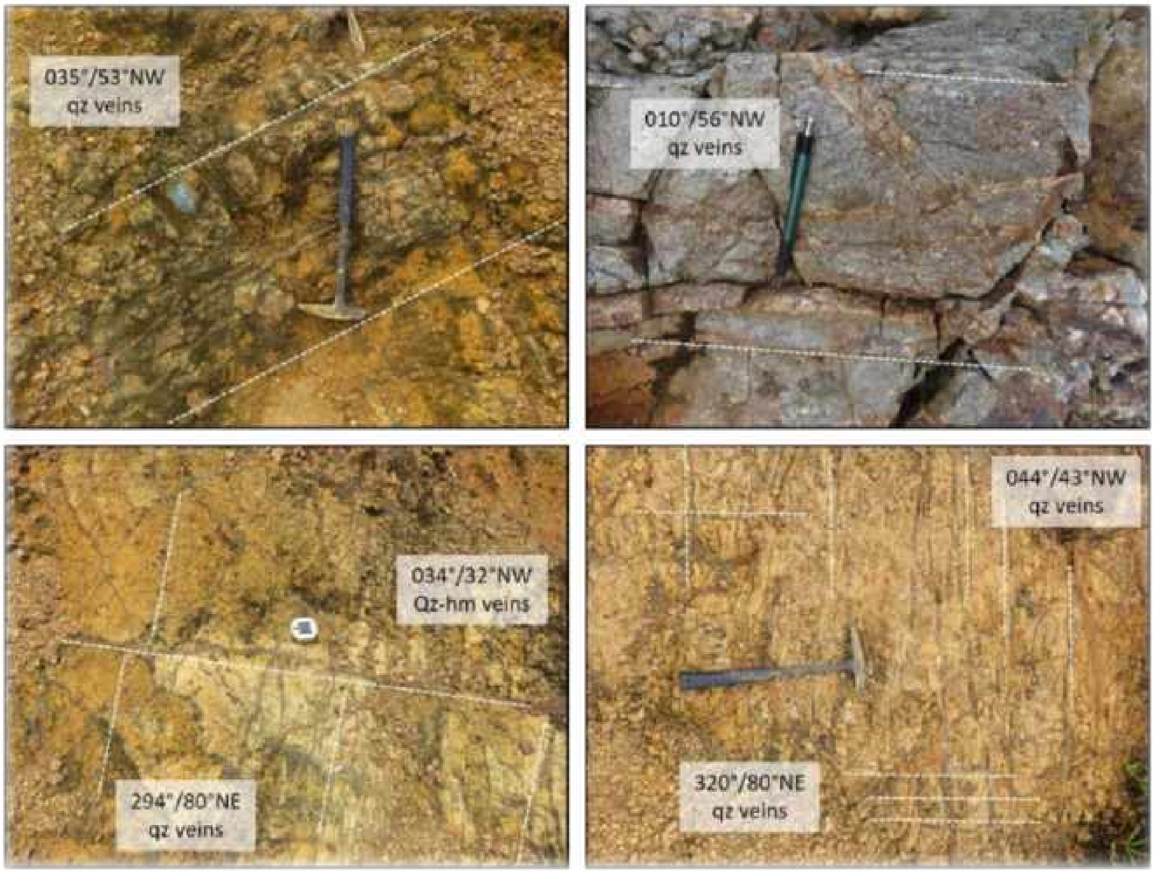
Source: Cordoba, 2019

Figure 7-20: Vein density and crosscutting relationships in the Montiel East deposit

7.5 Montiel West Deposit

The Montiel West deposit is located approximately 2 km northeast of the Alacran deposit in the eastern margin of the San Pedro River Lineament, and less than 1 km west of the Montiel East deposit (Figure 7-2). Diamond drill holes intersected high-density zones of both sheeted and multi-directional quartz-magnetite-chalcopyrite-bornite veining that are hosted in mafic and intermediate volcanic rocks, but no intrusive rocks. This style of wall rock Cu-Au mineralization is interpreted to be porphyry-related, as seen at both the Montiel East and Costa Azul prospects. The veinlets are generally narrower than those observed at Montiel East, possibly suggesting that there is no direct relationship between the two prospects. Alteration appears to be sodic-calcic, defined by albite, actinolite and possible diopside.

Three sets of quartz veins have been identified (Figure 7-21): a NS-striking, W-dipping set, which is the most prominent set and shows the highest vein density for a width of 100 metres; a NE-striking, NW-dipping sheeted set that occurs in the western area of the deposit; and a NW-striking, NE-dipping set that sometimes contains hematite.



Source: Cordoba, 2019

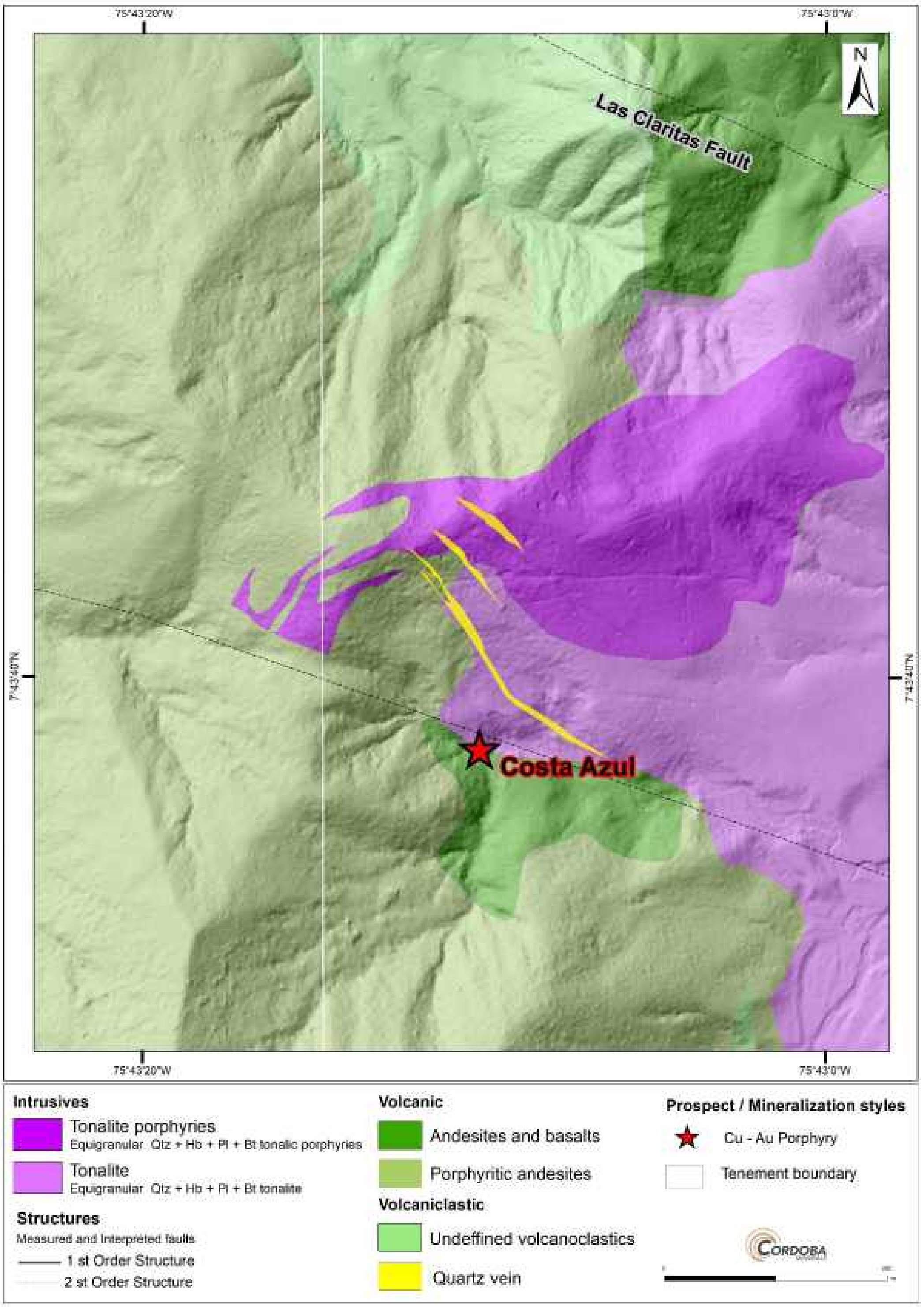
Figure 7-21: Variability in intensity and orientation of quartz veins sets identified at the Montiel West deposit.

7.6 Costa Azul Deposit

The Costa Azul porphyry deposit is located approximately 2 km southeast of the Alacran deposit in the eastern side of the San Pedro River Lineament (Figure 7-2). The Costa Azul porphyry is a shallow dipping, holocrystalline, Cretaceous porphyry diorite intrusion dominated by phenocrysts (~70%) comprising medium-grained (< 2.0 mm), euhedral plagioclase (21%) and anhedral to subhedral hornblende (6%), intergrown with primary magnetite and biotite. Quartz (27%) occurs either as fine-grained (< .5 mm), anhedral phenocrysts or as very fine-grained (< 0.05 mm) groundmass.

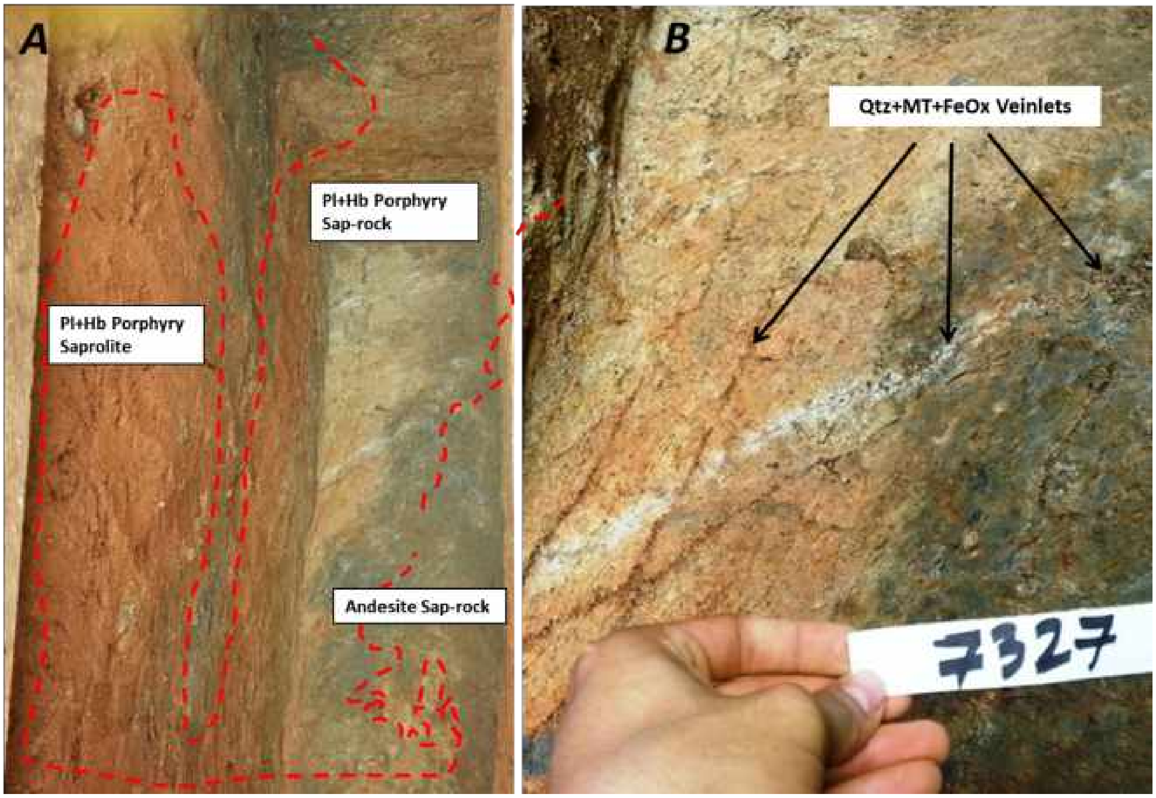
Hydrothermal alteration intensity is low to moderate and consists of silicification (29%), chlorite (3%), and traces of actinolite. Mineralization here is porphyry-style Cu-Au associated with sheeted quartz-magnetite-chalcopyrite-pyrite-bornite veinlets within altered diorite porphyry and unmineralized, mafic volcanic footwall rocks (Figure 7-22). This porphyry has not been described in the same detail as Montiel East porphyry. However, it shows intrusive phases equivalent to the ones described at Montiel East (i.e. Hornblende Porphyry, Hornblende Porphyry Late). Veining paragenesis is similar to the veins observed at Montiel East. Chalcopyrite is the dominant sulphide and occurs in two different stages. 1) Very fine- to fine-grained (< 0.3 mm) anhedral aggregates intergrown with bornite ± pyrite in quartz-rich B-type veins; and 2) as 0.2 mm-wide chalcopyrite-rich veinlets that crosscut the B-type veins (Figure 7-23).

Re-Os age dating of molybdenite yielded a model age of 76.6 ± 0.3 Ma, which is interpreted as the age of mineralization for the porphyry system and suggests a clear temporal, and likely genetic relationship with the Montiel East deposit.



Source: Cordoba, 2019

Figure 7-22: Costa Azul geology map



Source: Cordoba, 2019

Figure 7-23: Samples of rock from the Costa Azul deposit showing A. Plagioclase-hornblende porphyry saprolite and andesitic saprolite rock in drill core; and B. outcrop with quartz + magnetite + iron oxide veinlets.

7.7 Geological Satellite Deposit Models

Preliminary geological models were constructed for each of the Costa Azul, Montiel East, and Montiel West deposits in order to constrain grade for the Resource Estimate by lithology. Lithologies were based primarily on surface mapping and lithology from drilling. Lithologies in the models are based on ten rock groups, including:

- Andesite Porphyry
- Andesite Basalt
- Hornblende Porphyry
- Hornblende Porphyry (Late)
- Porphyritic Andesite
- Quartz-Feldspar Porphyry
- Quartz Veining
- Volcaniclastics (Undifferentiated)
- Volcanic Sediments (Mud)

Costa Azul

The Costa Azul deposit is predominantly located within the porphyritic andesite and hornblende porphyry lithological units, and lesser within the hornblende porphyry (late) and quartz veining lithological units.

Montiel East

The Montiel East deposits are located predominantly within the andesite basalt and porphyritic andesite lithological units, and lesser within the alluvium, hornblende porphyry, hornblende porphyry (late), quartz-feldspar porphyry, and volcaniclastics (undifferentiated) lithological units.

Montiel West

The Montiel West deposits are located predominantly within the andesite porphyry and porphyritic andesite lithological units, and lesser within the andesite basalt, volcaniclastic sediments (mud) units.

8. DEPOSIT TYPES

8.1 Alacran Deposit Genetic Model

Several different deposit models have been proposed for the Alacran deposit, including VMS, Skarn, CRD, and IOCG. To understand the Alacran deposit formation, thesis-based research was initiated with the MDRU at the UBC, in partnership with the Company. This goal of this active research is to develop the deposit model through a combination of alteration-mineralization and host rock geochronology, Pb and S isotope and EMPA in magnetite.

The IOCG model is supported by Sillitoe (2018) who suggested that the abundance of hydrothermal apatite, the distinctive Cu-Au-Mo geochemical signature, the abundance of mushketovite (magnetite pseudomorphs after specular hematite) found in the Alacran deposit are common features associated with IOCGs, especially to deposits in the Chilean Belt (i.e. Candelaria). In addition, the lack of abundant quartz and the presence of coarsely crystalline calcite in the late Zn-Cu veins is a characteristic texture in late and/or distal parts of IOCG deposits.

Evidence that argues against the IOCG model, among others, is the presence of sericite and pyrite that is quite uncommon in IOCG systems. When reported, these alteration minerals are formed in the Cu-poor hydrolytic stage (Hitzman et al., 1992). In the Alacran deposit, the main Cu deposition occurs within the sulphide stage that is associated with the sericite + chlorite + carbonate from the Group II and Group III alteration assemblages (see Section 7.3.4).

Similarly, when revising the tectonic setting of the area (Manco et al., 2019) the most accepted tectonic environment for the Project area consists of a pre-accretional, intra-oceanic island-arc setting. This tectonic setting is not favourable for the formation of IOCGs deposits, which is interpreted to be formed in intra-continental to cratonic settings (Haywood, 2008; Groves et al., 2010).

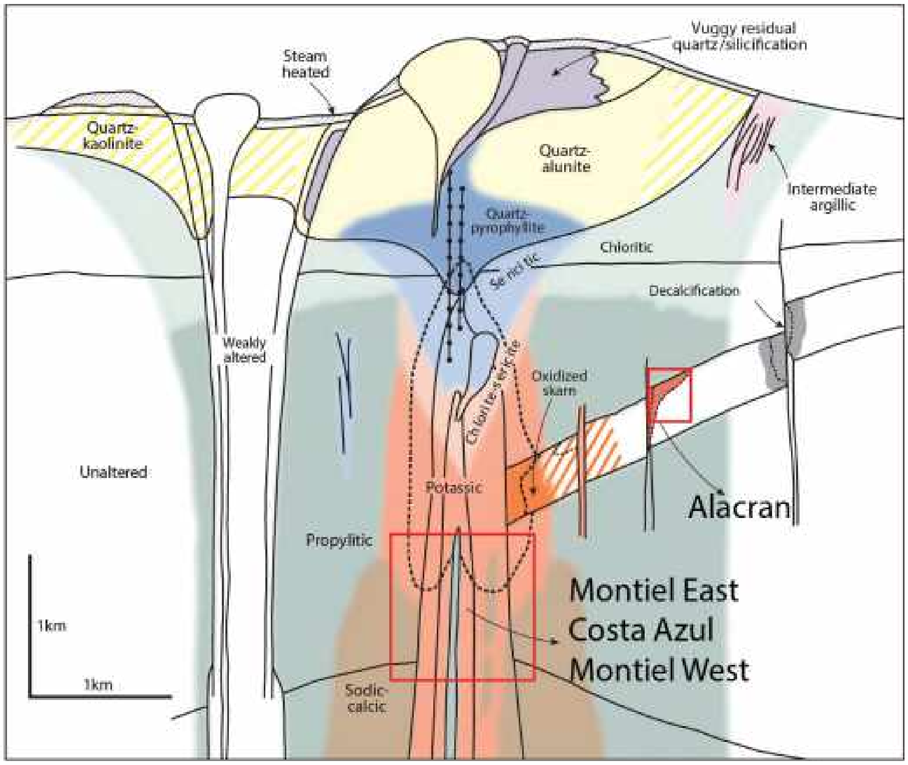
Finally, the Cu deposition in the Alacran deposit indicates that there is a temporal relationship (~ 73 Ma) with the magmatism and Cu-Au porphyry occurrences of the Project (i.e. Montiel East porphyry). Additionally, the recent delineation of the dacite intrusive breccia, which bears stockwork-porphyry clasts (Figure 7-6 (D)) in the Alacran deposit (Unit 1), suggests a spatial and possibly genetic relationship with the tonalitic porphyry intrusions of the district. This type of relationship is uncommon in IOCG systems where the magmatic occurrences relate to highly fractionated, mantle-derived intrusions ranging from gabbronorite to granodiorite with alkaline to sub-alkaline affinity (Pollard, 2006). In this sense, the Alacran ores display more porphyry-related features than features associated with VMS, or IOCG deposits.

8.2 Satellite Deposits Genetic Models

The Montiel East, Montiel West and Costa Azul deposits can all be broadly classified as Cu-Au porphyry systems as defined by Sillitoe (2000). Cu-Au porphyries are typically associated with I-type magnetite-series intrusive rocks and typically contain significant hydrothermal magnetite, indicating the host intrusions are highly oxidized and sulphur-poor members of this series of magmas. The porphyry stocks in these types of rocks span a range of compositions from diorites, quartz diorite and tonalite through to quartz monzonite, monzonite and syenite. The porphyry deposits of the Project area are of low-potassium, calc-alkaline dioritic and tonalitic composition.

Mineralization in the San Matías porphyry deposits is associated with a quartz-sulphide (chalcopyrite+pyrite±bornite) stockwork typically within hydrothermal biotite (potassic) altered rocks. The occasional presence of albite-actinolite (sodic-calcic) alteration assemblages, as well as the relative lack of sericitic alteration assemblages, has led some workers to interpret that the Montiel porphyries are eroded to deep levels. Counter to this argument, however, are observations by Lowder and Dow (1978) and Carlile and Kirkegaard (1985) who note that some Indonesian Au-rich porphyry deposits are characterized by hybrid sodic-calcic and potassic assemblages. At the Costa Azul porphyry, no such sodic-calcic assemblages have been observed.

There is little debate as to whether the Montiel and Costa Azul deposits are indeed Cu-Au porphyries; however, the debate continues about the erosional level of these systems, as well as the degree and attitude of post-mineral faulting and tilting (Figure 8-1).



Source: Cordoba, 2019

Figure 8-1: Generalized alteration-mineralization zoning pattern for telescoped porphyry Cu deposits (modified from Sillitoe, 2010). Red boxes highlight the position of the San Matías Porphyry occurrences (Montiel East, Montiel West and Costa Azul deposits) relative to the carbonate replacement deposit (Alacran deposit).

9. EXPLORATION

Cordoba has historically had three exploration objectives:

1. Discovery of additional porphyry deposits in addition to those seen at Montiel and Costa Azul;
2. Discovery of additional replacement style deposits in the receptive stratigraphy that hosts the Alacran deposit; and
3. Discovery of additional high-grade carbonate-base metal veins similar to those seen at Alacran.

The potential of each of these is discussed in Section 9.5.

To support these objectives, the Company conducted several exploration programs between 2012 and 2019, consisting of geological mapping, geochemical sampling, geophysical surveys, and drilling.

9.1 Topography

Cordoba acquired high resolution ALOS PALSAR satellite radar imagery for the Project area and carried out a LIDAR survey of the Alacran deposit area to generate a high-resolution digital elevation model and topographic contour map.

9.2 Geological Mapping

Geological mapping in the Project area has been undertaken on all the deposits that are the subject of the Mineral Resource Estimate (i.e. Alacran, Montiel East, Montiel West and Costa Azul) and the prospects (i.e. Willian and Alacran Norte) at a scale of 1: 2,000. Geological interpretation of the mapped outcrops was supported by soil geochemistry, ground and airborne magnetic survey information and diamond drill core.

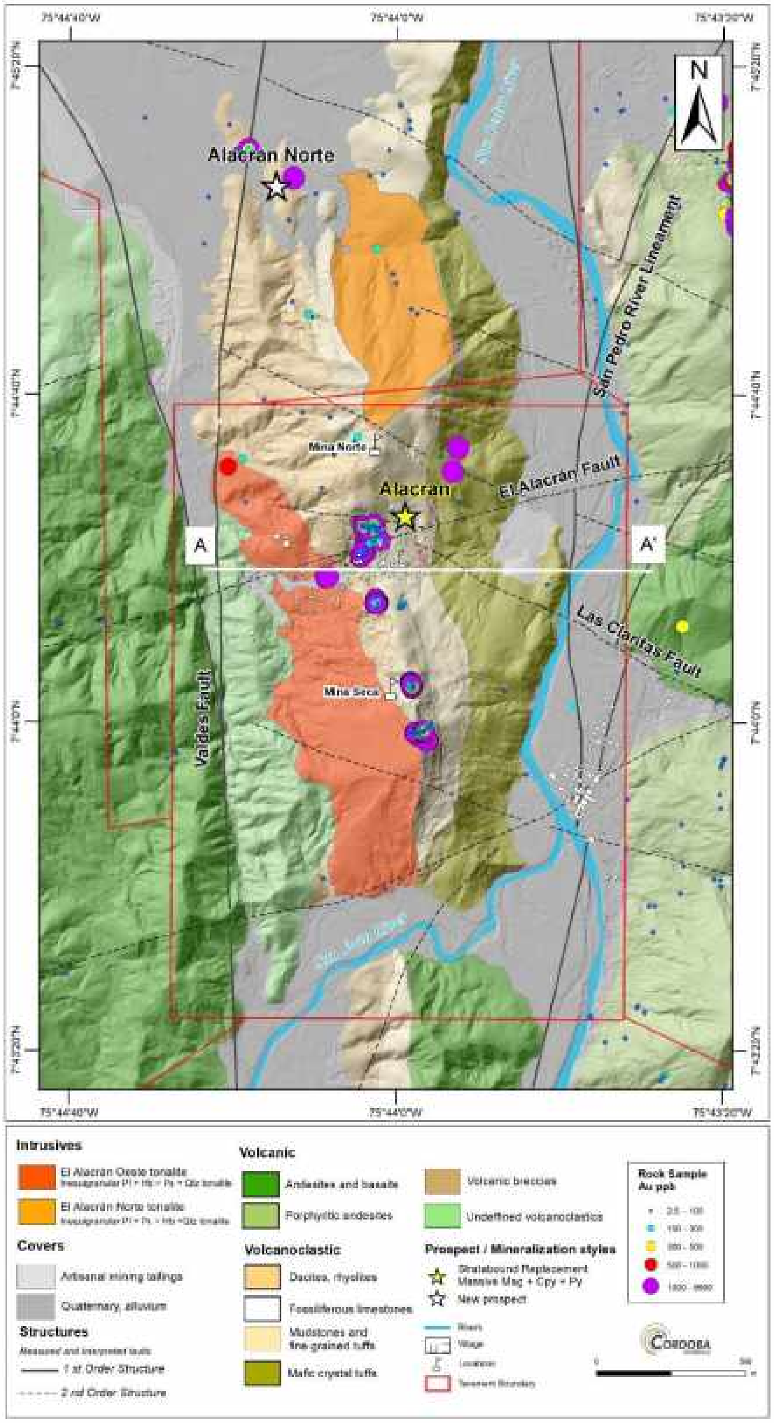
9.3 Geochemical Sampling

9.3.1 Rock Geochemistry

Several rock samplings campaigns have been carried out by Cordoba over many regions within the Project area, focusing on sampling subcrop, outcrop and channel sampling in areas such as artisanal mines and workings, in order to characterize the chemistry of known mineralization and alteration. Once profiles for known mineralization and alteration were established, the information could then be used to link anomalous areas identified by soil samples to possible sources within the Project area. A total of 4,661 trench samples and 9,627 rock samples on outcrops and tunnels have been collected and assayed by Cordoba.

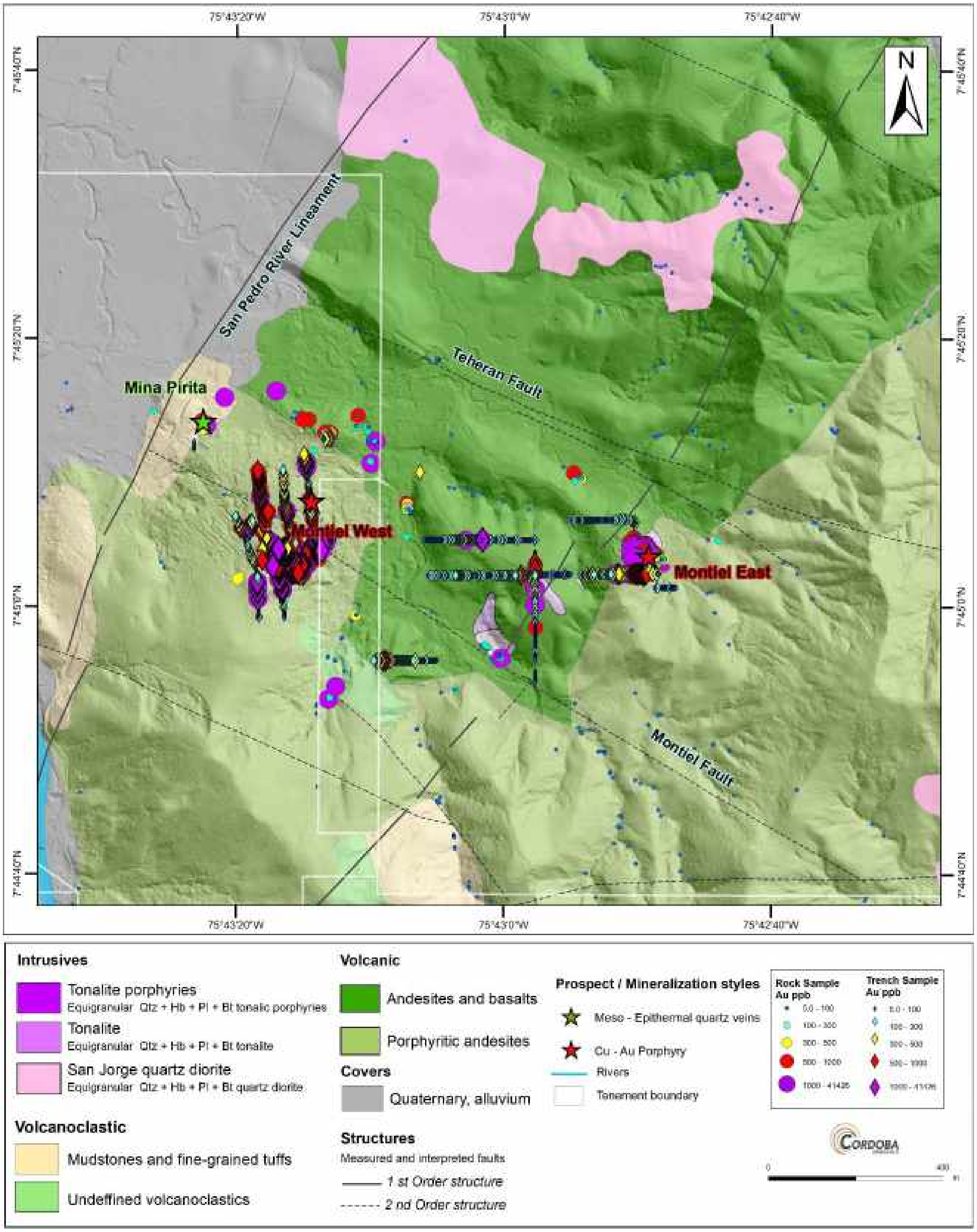
As part of Cordoba’s QA/QC protocol for rock sampling, samples collected were put into plastic bags, labelled, sealed, and stored securely on-site at Alacran prior to shipment to a laboratory. Upon arrival at the laboratory, samples were prepared by weighing, oven drying and then crushing to 70% to less than 2 mm and sieved to 75 microns. Certified Reference Materials (“CRM”) from ORE Analytical Solutions Ltd. were inserted at regular intervals in the analytical routine. Standards (Minerals 501-501b, Oreas 502-502b, 503b) and blanks (Oreas 22c, 23a, 25c and raw samples of the company) were also inserted in the routine. Samples were analyzed at one of three laboratories over the years: ACME in Medellín, SGS Colombia S.A. ("SGS") and ALS Global ("ALS").

Multiple element analysis was performed primarily by Inductively Coupled Plasma-Mass Spectrometry (“ICP-MS”); Samples were analyzed for the complete package of elements that includes Au-AA24 (fire assay), ME-MS41 (Aqua Regia with ICP-MS finish), ME-MS61 (four acid digestion with ICP-MS Finish), ICP-MS on limits (as needed). Depending on how high element values are in the sample, specific analyses are requested for minerals such as Au-OG62 (total Au) and Cu-OG62 (total Cu). Figure 9-1, Figure 9-2 and Figure 9-3 illustrate Au results in the four main deposits.



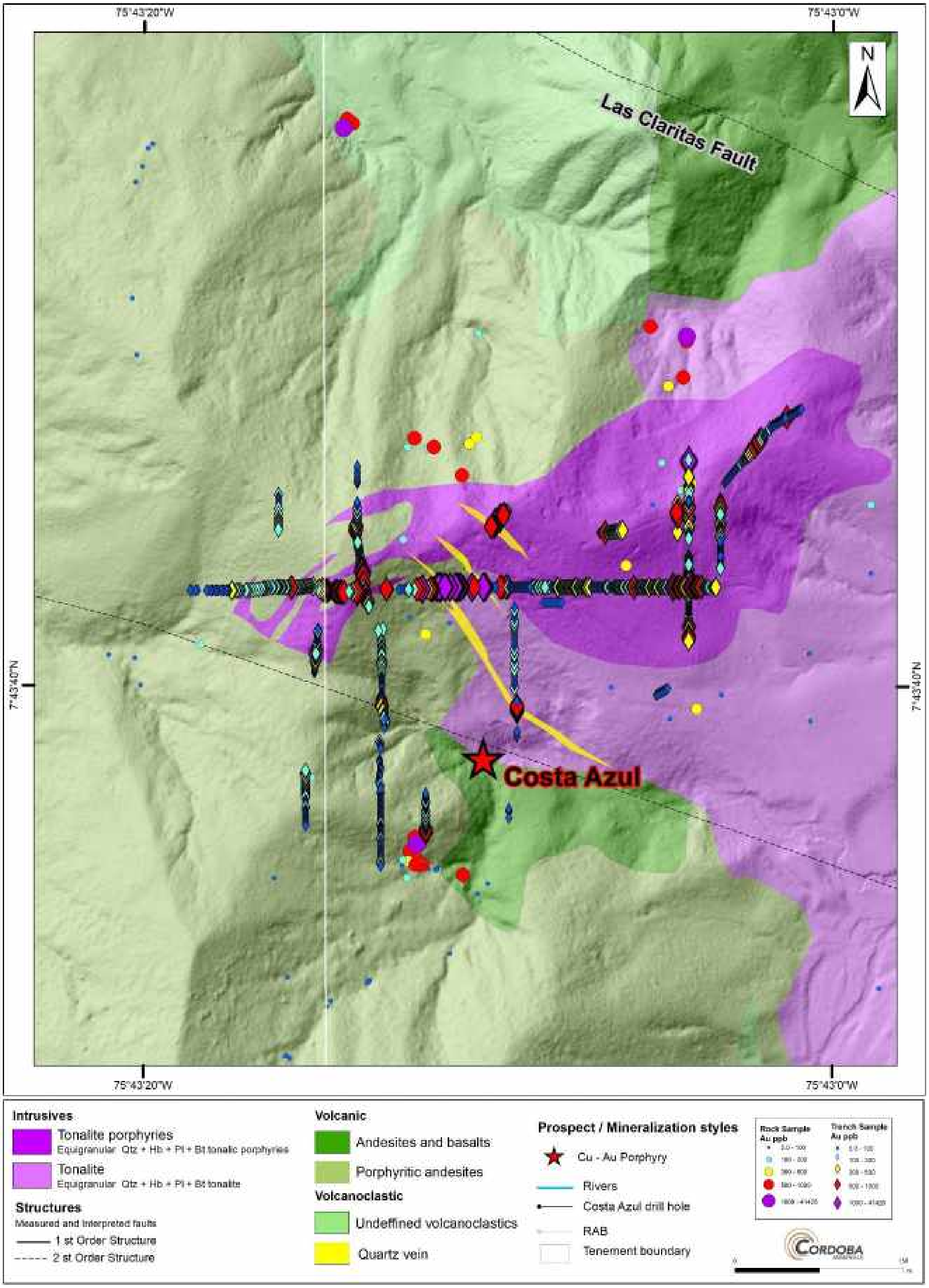
Source: Cordoba, 2019

Figure 9-1: Au results in surface rock samples at Alacran, with surface geology



Source: Cordoba, 2019

Figure 9-2: Au results in surface rock samples at Montiel West and Montiel East, with surface geology



Source: Cordoba, 2019

Figure 9-3: Au results in surface rock samples at Costa Azul, with surface geology

9.3.2 Soil Geochemistry

Cordoba carried out a number of stream and soil sampling programs between 2013 and 2019 over many areas of the Project, covering approximately 60 km^2 along a 14 km long N-S trend and up to 6 km in width in an E-W direction. Sampling density varied from reconnaissance-level spacing of 500 m x 100 m to follow-up detailed sampling with 25 m x 25 m spacing. Follow-up sampling programs sampled a range of materials including the "B" horizon (1.0 m to 1.5 m depth below the surface, the soil "C" horizon and near-surface saprolite.

At Alacran, the majority of sampling was completed on 100 m x 50 m centres with lines oriented N-S and E-W. At the Montiel East, Montiel West and Costa Azul deposits, samples were collected every 50 m in E-W lines, with a later infill survey performed along the mountain ridges at 2.05 m spacing. Samples were taken of the soil "B" horizon with an auger at an average depth of 1.0 m to 1.5 m. A total of 7425 stream and soil samples have been collected throughout the Project area to date. The most recent sampling campaign was in the Willian area in March 2019.

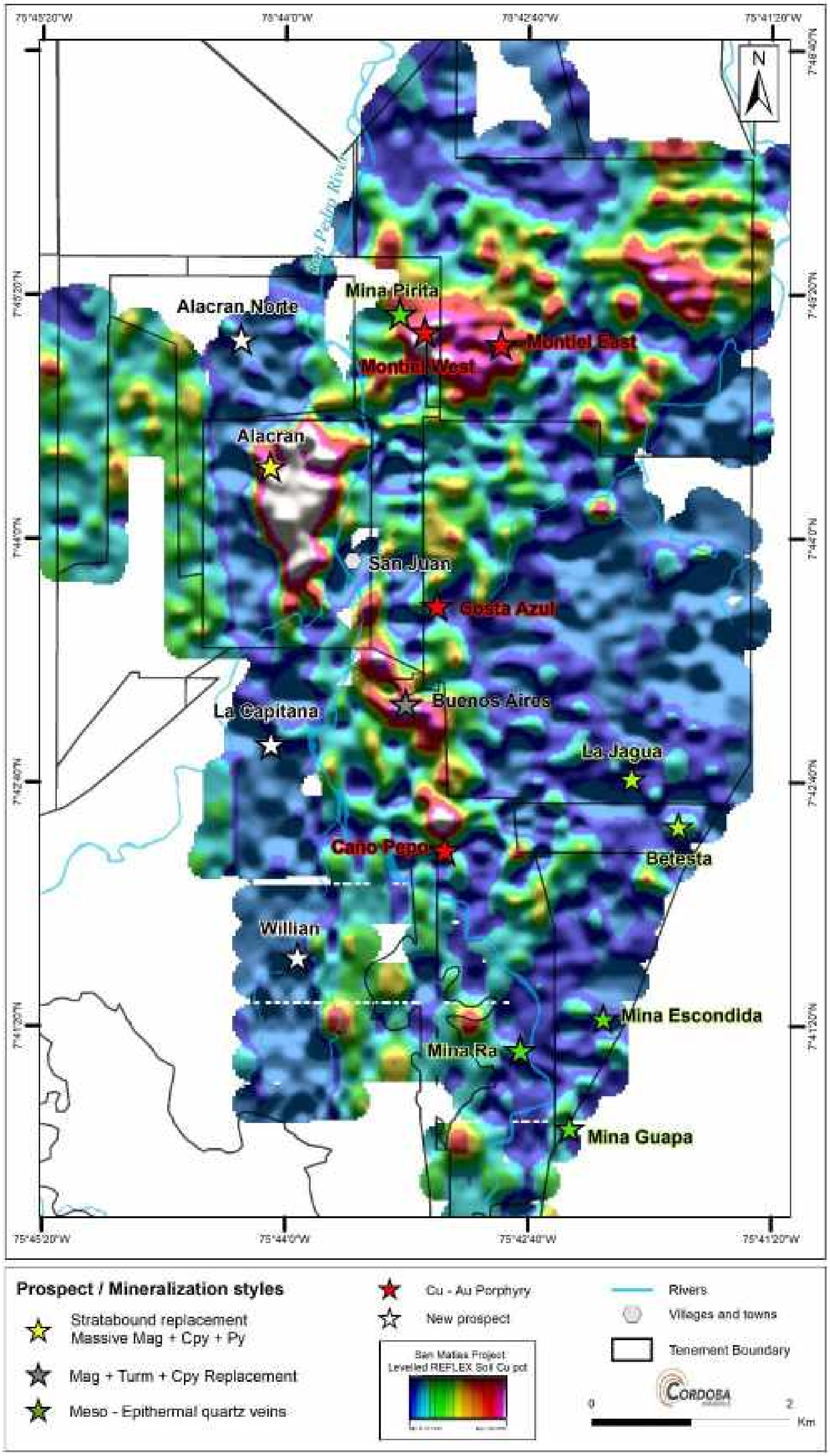
Soil samples were collected in plastic bags, labelled and sealed (samples were not sieved). CRMs (Ores 501 - 501b, Oreas 502 - 502b and 503b) from ORE Analytical Solutions Ltd., blank (Oreas 22c, 23a and 25c) and Company-provided blanks (quartz, feldspar, hornblende and chlorite) were inserted at regular intervals in the analytical routine, following Cordoba's QA/QC protocol. Samples were stored in a secured area at the site before being shipped to one of three laboratories: ACME Medellín, SGS Colombia S.A., or ALS Global. Upon receipt at the laboratory, samples are catalogued, weighed, oven-dried at < 60°C/140°F, and subsequently crushed and sieved to less than 180 micron (-80 mesh).

For chemical analysis, the complete package of elements is analyzed including method Au-AA24 (atomic absorption spectrometry with fire assay), ME-MS41 (Aqua Regia with ICP-MS Finish), ME-MS61 (Four-Acid Digestion with ICP-MS Finish), and ICP-MS over limits (as required). If samples were highly anomalous for Au or Cu, then they were analyzed by Au-OG62 (total Au using ore grade elements and four-acid digestion) and Cu-OG62 (total Cu) methods. Unfortunately, both aqua regia and four-acid were used for digestion, resulting in "unleveled" data due to partial or total digestion of the various elements.

In 2016, the Company had Reflex North America Ltd., of Vancouver, British Columbia, Canada, undertake a detailed analysis of the soil geochemical data. Soil data was levelled in order to remove the bias resulting from the aqua regia versus four-acid digestion and element plots of the levelled data were created in order to characterize the chemistry of known mineralized areas and to identify new anomalous areas. Ratios for immobile elements were also analyzed in order to show the effect of lithology on Cu, Mo and Zn and alteration trends. Results show highly anomalous areas around the Project for Cu (Figure 9-4) and Au (Figure 9-5) including for the four Resource deposits in Cu (Figure 9-6) and Au (Figure 9-7).

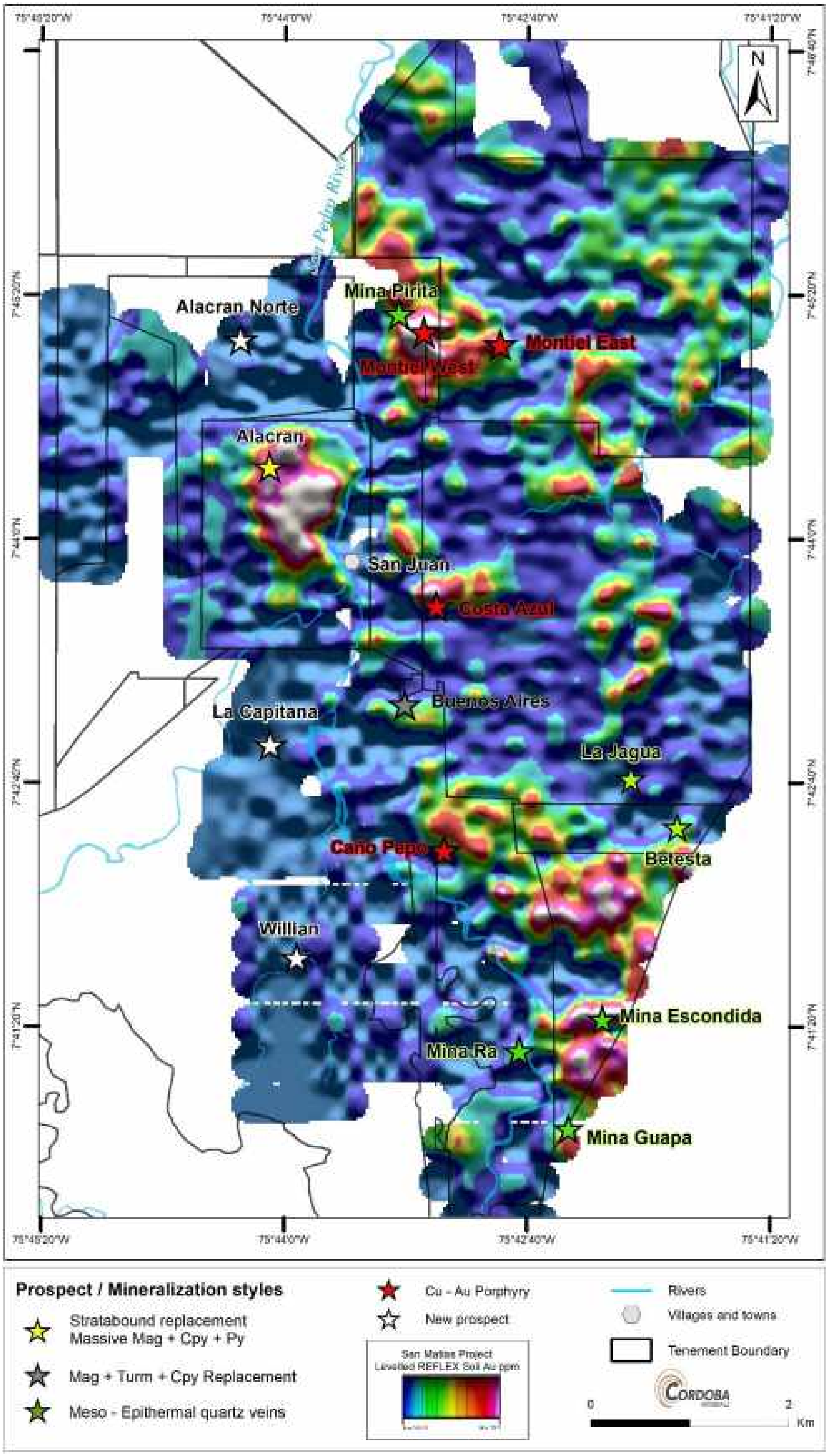
Surface geological mapping, combined with soil and rock geochemical results, characterize known mineralization at the four Resource deposits.

Both the Alacran and the Montiel deposits show consistent, broad highly anomalous soil geochemistry for Cu and Au, while Costal Azul is characterized by a small highly anomalous Au, and broad weak Cu anomaly. Work in 2018 and 2019 showed anomalous areas and favourable lithology for mineralization for at least 2 km north and 7 km south of the Alacran deposit. Soil geochemical results also highlighted a 1,300 m by 800 metre, N-S elongated Cu soil anomaly and Au anomaly on the eastern side of the Alacran deposit at a depth of 1.0 m to 1.5 m below surface.



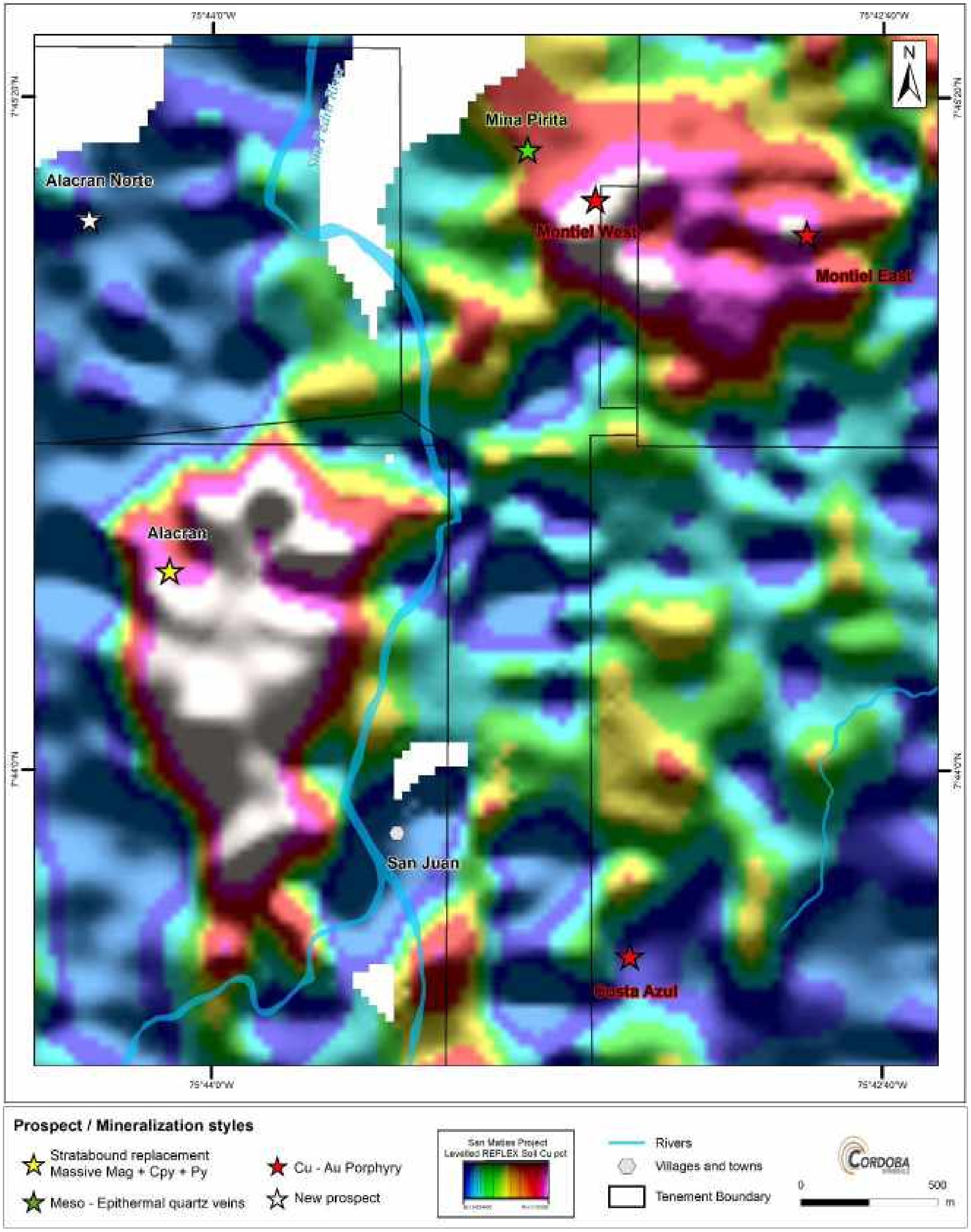
Source: Cordoba, 2019

Figure 9-4: San-Matías Copper-Gold-Silver Project Cu in soils.



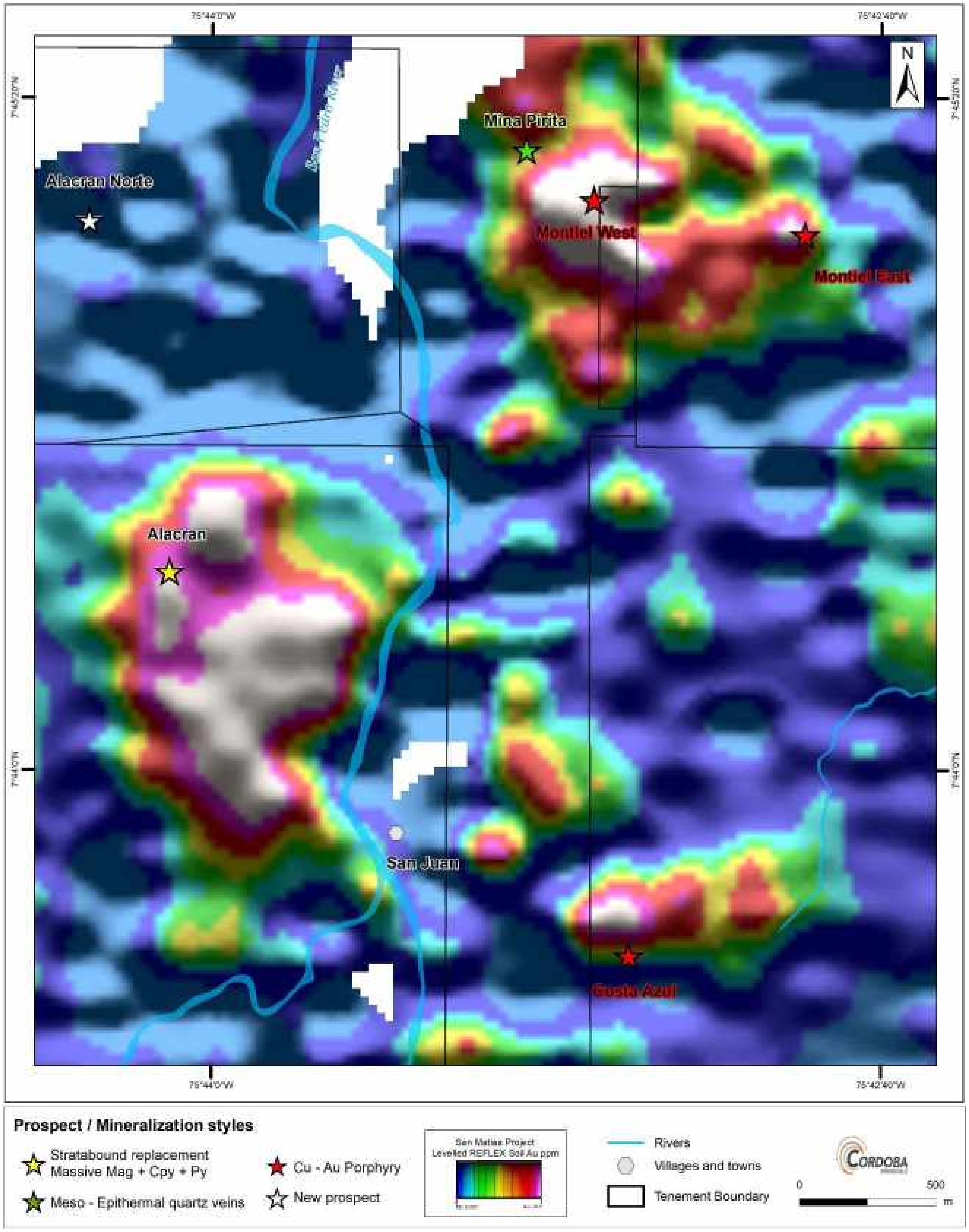
Source: Cordoba, 2019

Figure 9-5: San-Matías Copper-Gold-Silver Project Au in soils



Source: Cordoba, 2019

Figure 9-6: Cu in soils at the Alacran, Montiel East, Montiel West, and Costa Azul deposits



Source: Cordoba, 2019

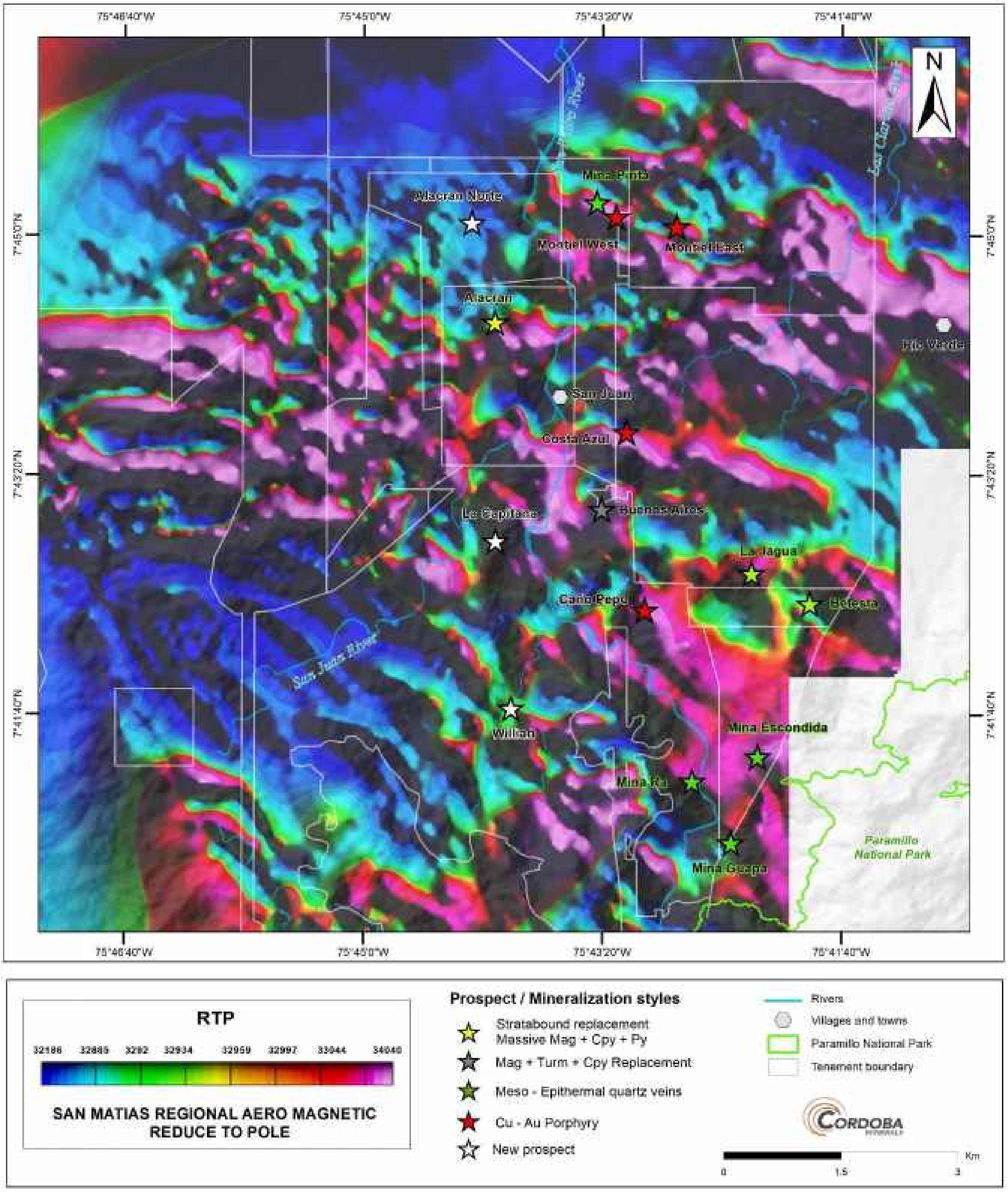
Figure 9-7: Au in soils at the Alacran, Montiel East, Montiel West, and Costa Azul deposits

9.4 Geophysics

9.4.1 Helicopter Magnetic and Radiometric Surveys

Helicopter-borne magnetic and radiometric surveys were carried out over the Project area in 2011 and 2012. Both surveys were performed by MPX Geophysics Ltd., Canada ("MPX") and are described in internal reports (MPX 2011 and 2012). The 2011 survey was 1,310 line km survey over 216 km^2 with a terrain clearance of 70 m. Flight lines were oriented E-W at 200 m-spaced intervals with N-S tie lines every 2,000 m. The 2012 survey was 4,408.6 line km survey over an area of 785 km^2 with a terrain clearance of 30 m. Flight lines were oriented E-W and spaced 200 m apart, with N-S tie lines every 2,000 m.

Along the Montiel East, Montiel West and East Alacran deposit areas, the magnetic data was acquired on 100 m-spaced lines with tie lines spaced at 1,000 m. Figure 9-8 illustrates the reduced to pole ("RTP") merged data for the complete survey area. The regional survey shows regional magnetic domains and larger crustal structures.



Source: Cordoba, 2019. Map datum is WGS84.

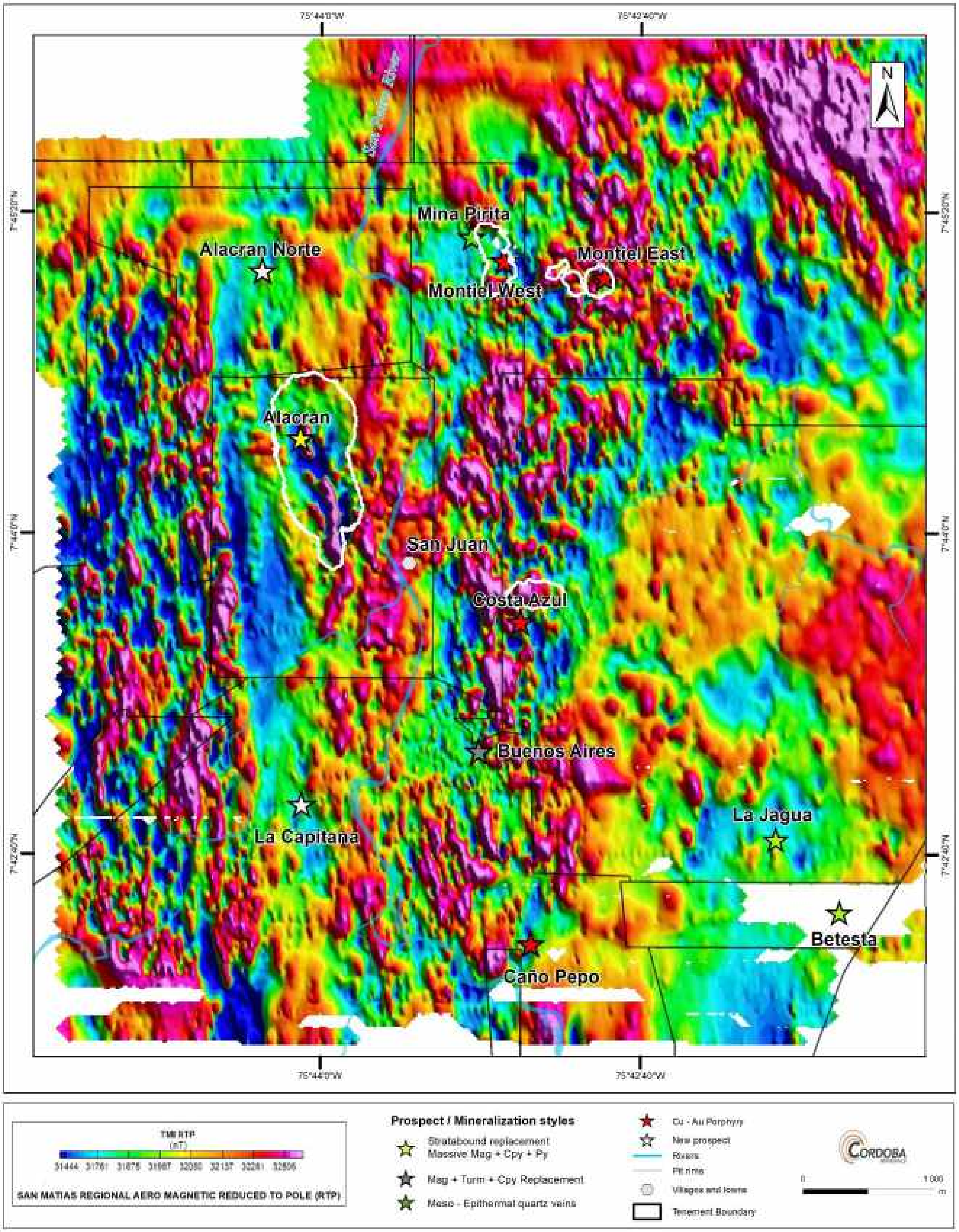
Figure 9-8: San Matías Reduced to Pole ("RTP") aeromagnetic data for the San Matías Copper-Gold-Silver Project district

9.4.2 Ground Magnetic Surveys

Ground magnetic surveys were carried out over the Project area in 2011 and 2016. The 2011 survey was performed by Mibex SAS Colombia and was carried out on 100.0 m E-W lines with readings taken on 10.0 m intervals.

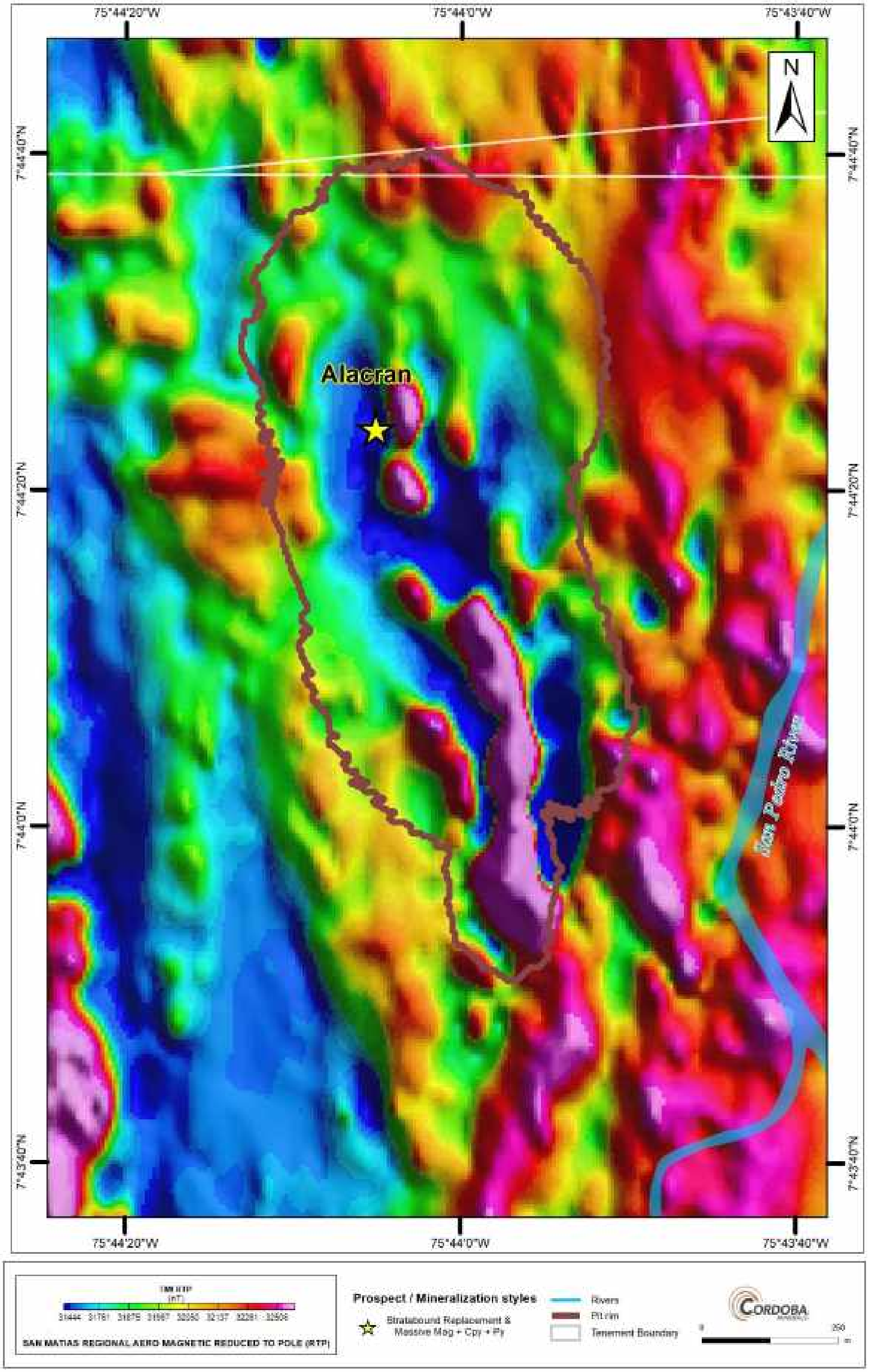
The 2016 survey was carried out by Cordoba field personnel. This survey was completed on 47 E-W lines of 1,680.0 m length spaced at 50.0 m, with readings every five seconds. Completed merged data for the two surveys is shown as RTP data for the entire Project (Figure 9-9), the Alacran deposit (Figure 9-10), the Montiel East and Montiel West deposits (Figure 9-11) and the Costa Azul deposit (Figure 9-12).

In the ground magnetic data, the Alacran body is shown as a strong remnantly magnetized anomaly, and its signature is distinctive within the area covered by the survey. The ground magnetic data has assisted in further defining prominent structural features identified in the aeromagnetic survey data. The satellite deposits Costa Azul, Montiel East and Montiel West do not have a significant magnetic signature; however, they are associated with broader zones of elevated magnetic response.



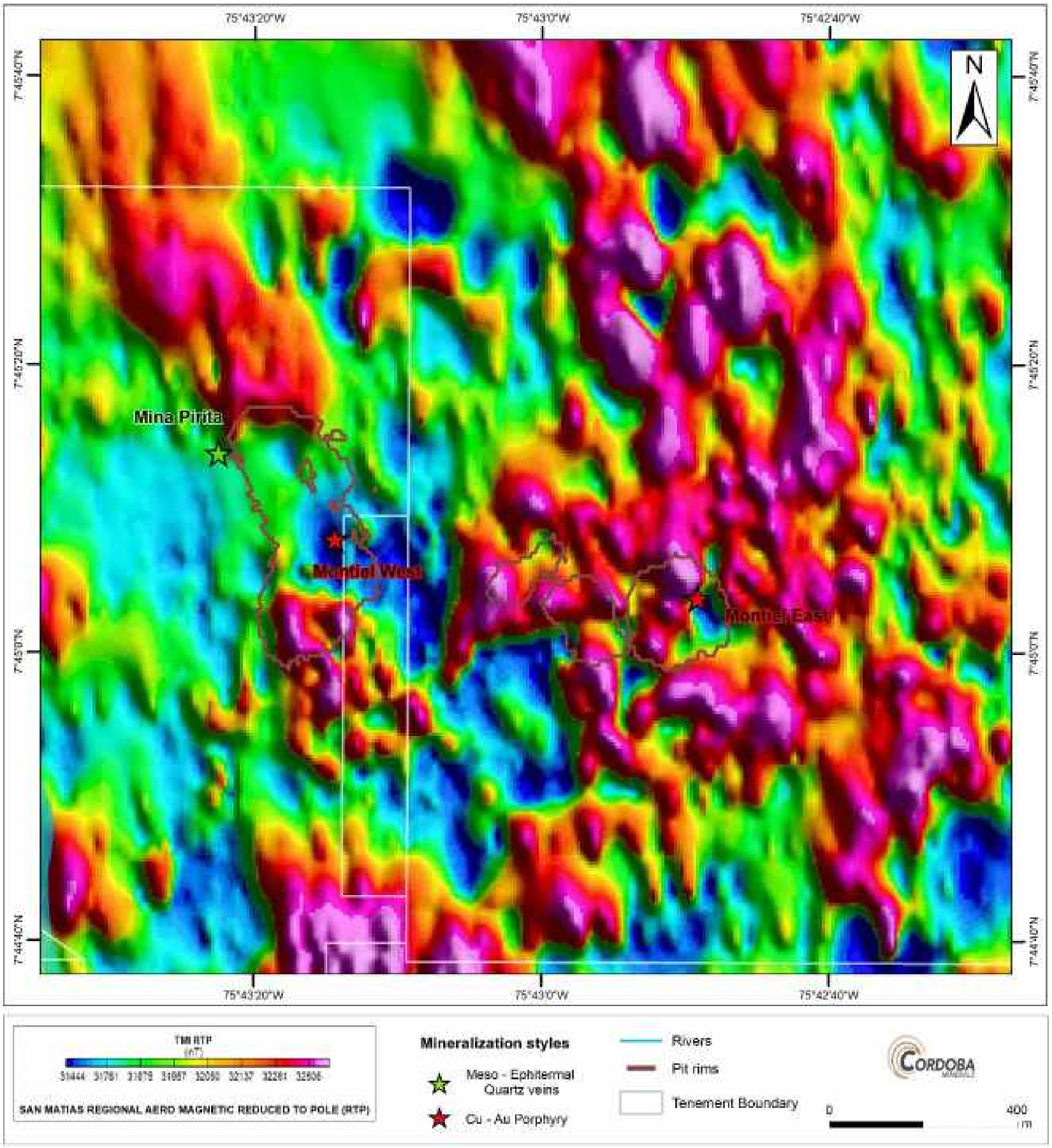
Source: Cordoba, 2019

Figure 9-9: San Matías Copper-Gold-Silver Project total magnetic intensity-reduced to pole ground magnetic data



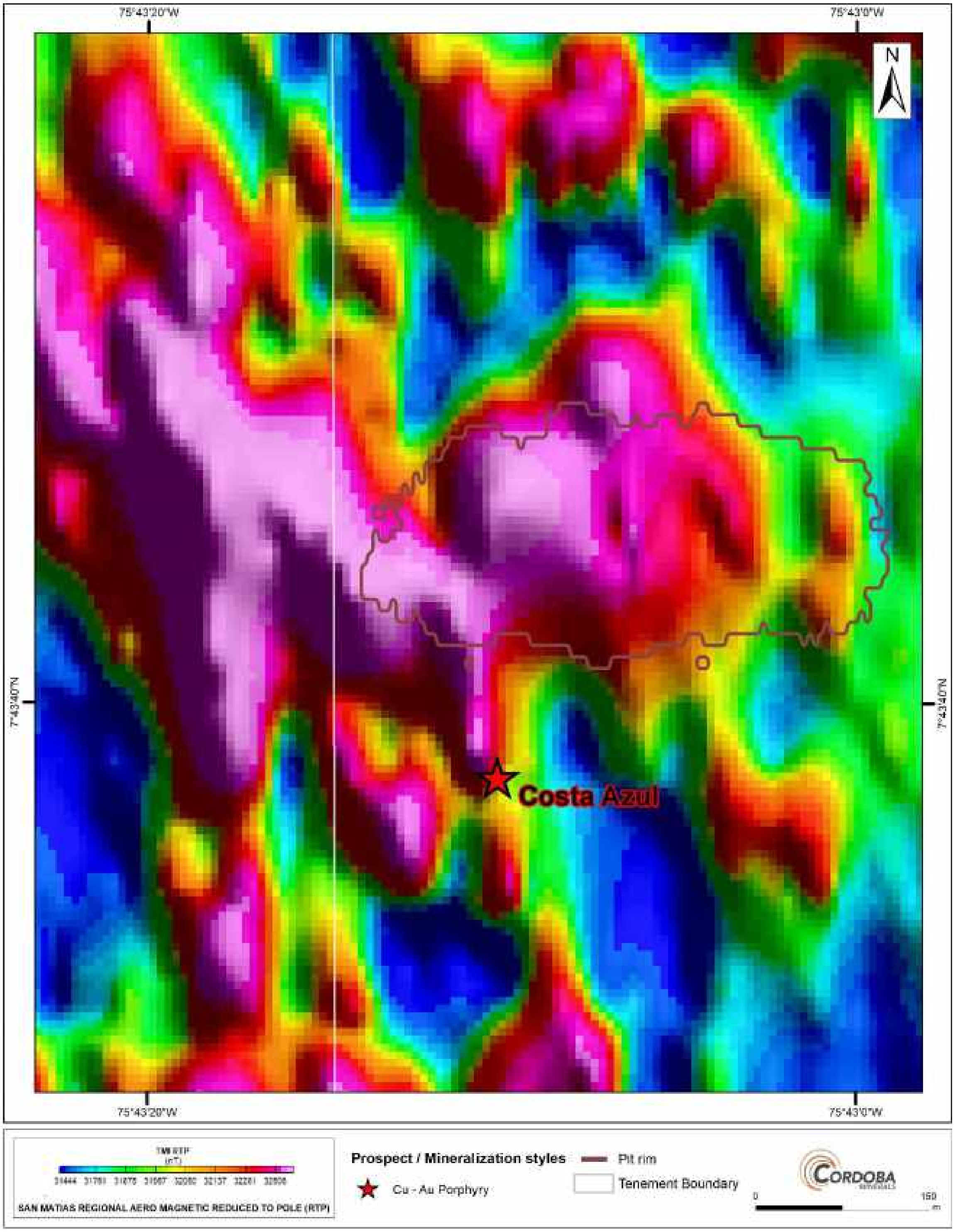
Source: Cordoba, 2019

Figure 9-10: Alacran deposit total magnetic intensity-reduced to pole ground magnetic data ground magnetic survey data.



Source: Cordoba, 2019

Figure 9-11: Montiel West and Montiel East total magnetic intensity-reduced to pole ground magnetic data



Source: Nordmin, 2019

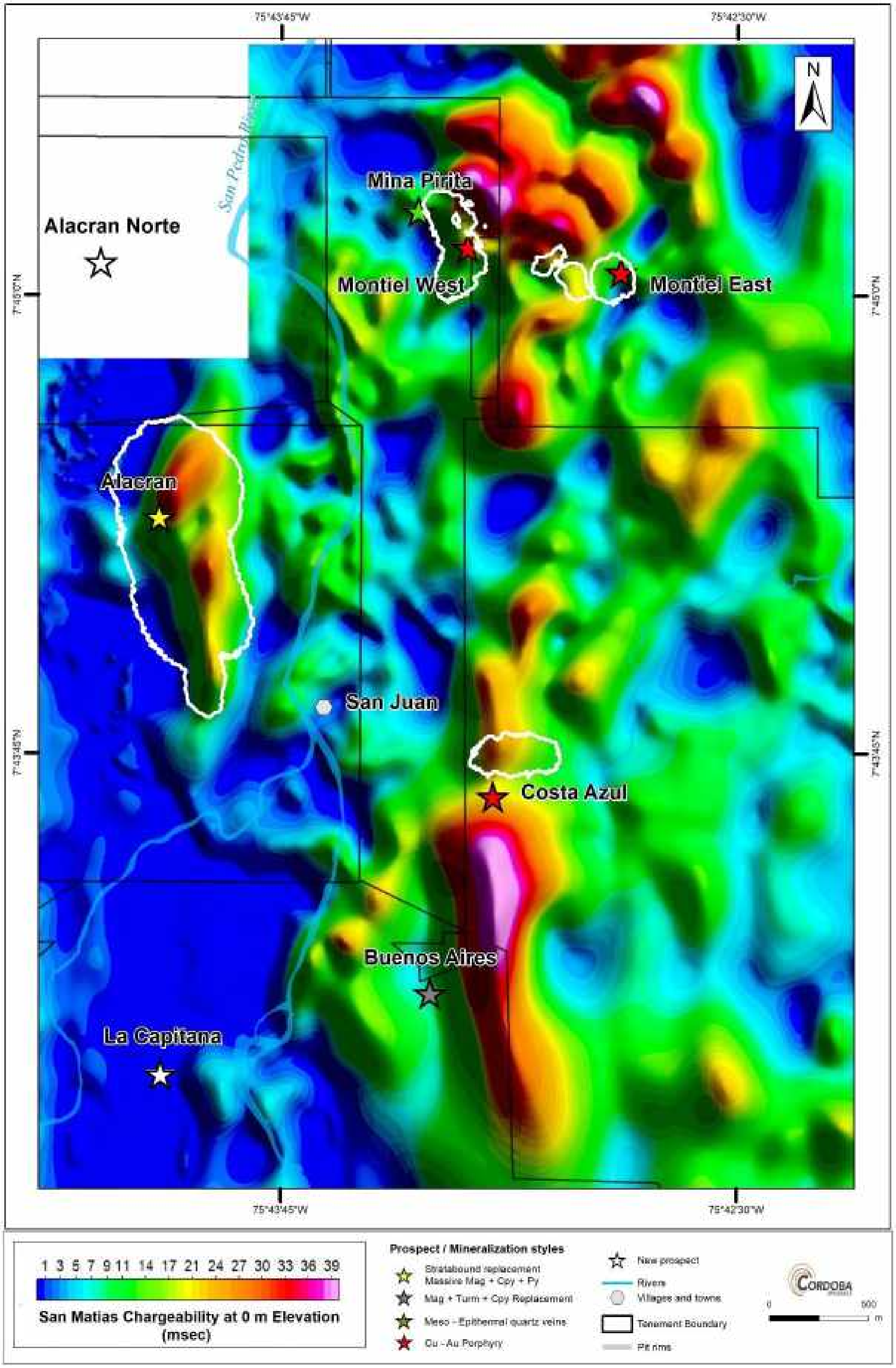
Figure 9-12: Costa Azul total magnetic intensity-reduced to pole ground magnetic data

9.4.3 Typhoon™ Induced Polarization and Electromagnetic Survey

Two phases of Induced polarization ("IP") and a trial time domain electromagnetic ("TDEM") survey were carried out over the Project in 2016 using the Typhoon™ system, owned and operated by Cordoba's major-shareholder High Power Exploration ("HPX"). Phase 1 of the survey covered an area of approximately 7.5 km^2 (370.4-line km), and Phase 2 covered an area of 16.4 km^2 (923.0-line km). A perpendicular pole-dipole ("PPD") survey design was deployed, with long transmitter wires, widely spaced transmitter electrode poles, and overlapping arrays of receiver electrodes. Receiver lines were separated by 100.0 m with receiver stations at 100.0 m intervals. S.J. Geophysics Ltd., from Vancouver, B.C., Canada, was responsible for data acquisition using their Volterra data acquisition system. Final data was inverted with 3D code to create 3D conductivity and chargeability models, generated by Computational Geosciences Inc. of Vancouver, B.C., Canada, using the University of British Columbia's Inversion software.

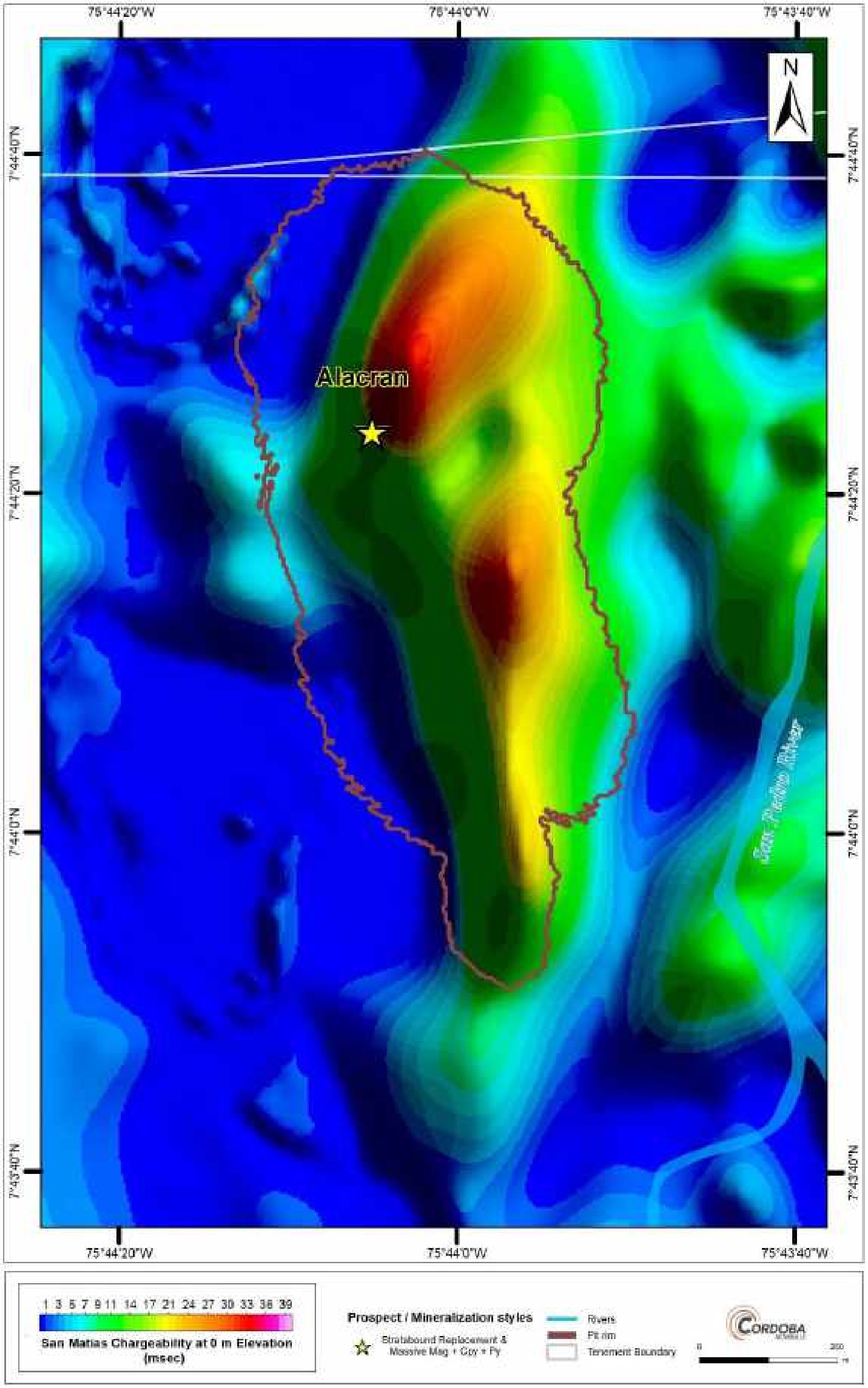
The survey successfully highlighted numerous zones of high chargeability and led to an expanded drilling campaign. In particular, a chargeability high and resistivity low was observed over the Alacran deposit, coincident with mineralized zones. Figure 9-13 shows the chargeability results for the entire region over which the Typhoon surveys were completed. Figure 9-14, Figure 9-15 and Figure 9-16 illustrate chargeability results for the individual deposits.

At the end of Phase 1, a small, 8.05-line km, TDEM test survey was carried out over the Alacran deposit to determine if TDEM was a suitable exploration tool to detect the sulphide mineralization. Results indicated that the sulphides at Alacran are not connected enough to be a good EM target for the system used. However, there may be other electromagnetic receivers that would be sensitive enough to detect it.



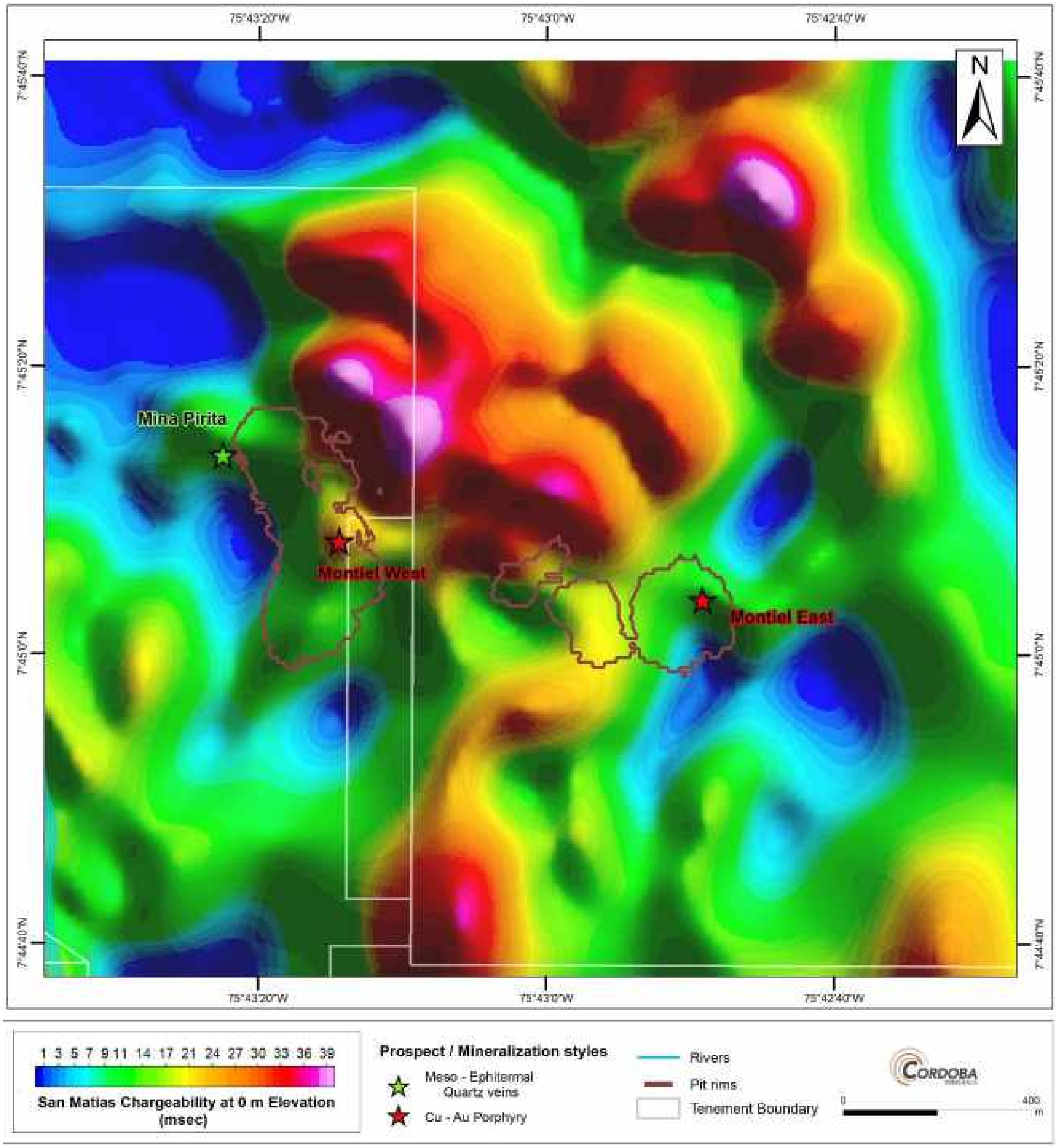
Source: Cordoba, 2019. Map datum is WGS84.

Figure 9-13: Merged chargeability results for the two Typhoon surveys at the San-Matías Copper-Gold-Silver Project, shown at 0 m elevation (approximately 200.0 m depth)



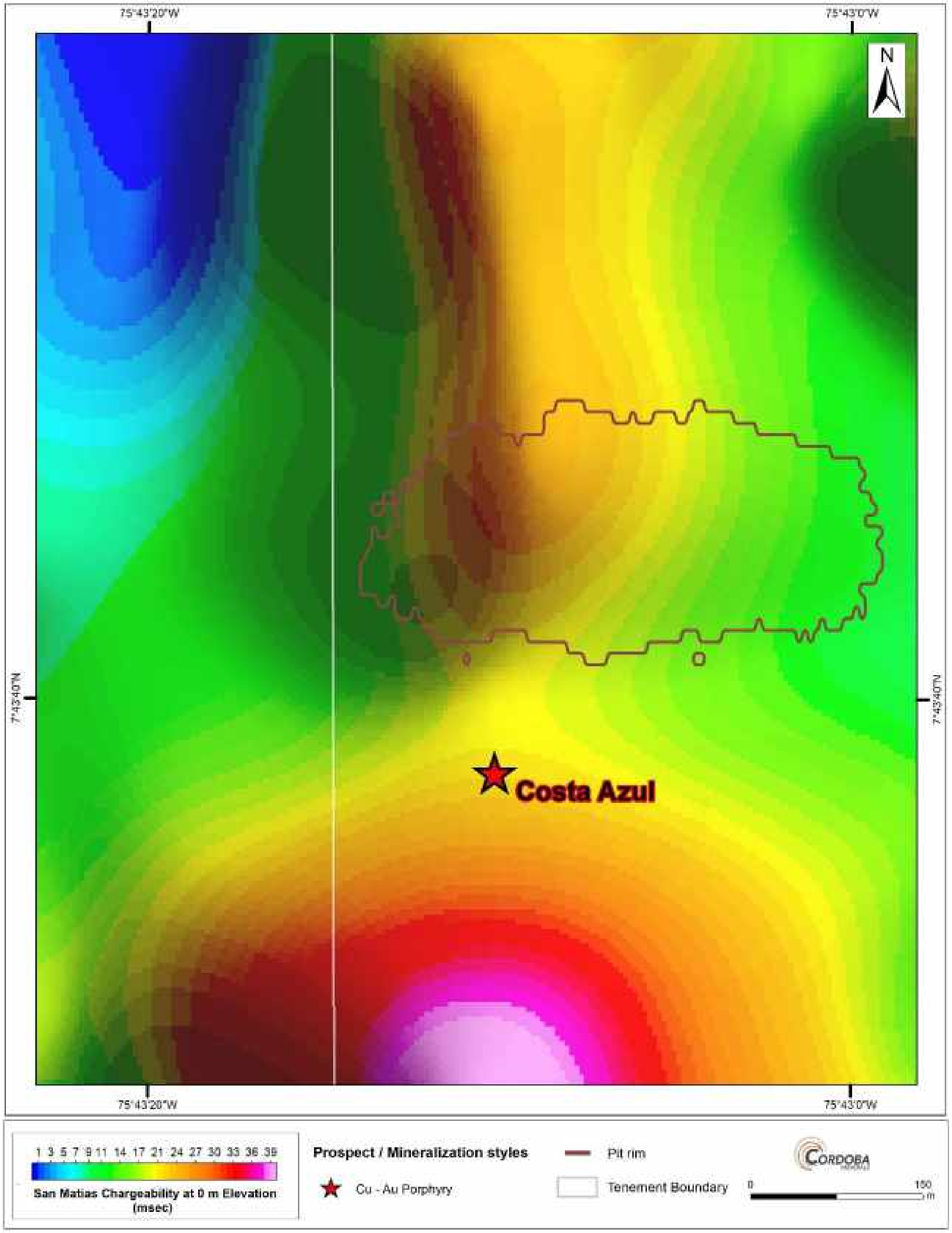
Source: Cordoba, 2019

Figure 9-14: Chargeability results for the Alacran deposit shown at 0 m elevation (approximately 200.0 m depth)



Source: Cordoba, 2019

Figure 9-15: Chargeability results for the Montiel area at 0 m elevation (approximately 200.0 m depth)



Source: Cordoba. 2019

Figure 9-16: Chargeability results for the Costa Azul area shown at 0 m elevation (approximately 200.0 m depth)

9.5 Exploration Potential

9.5.1 Resource Deposits

There are several areas across the Project that provide opportunities for further discoveries, and within the Resource deposits, expansion of mineralization is possible. These are detailed in the following subsections.

9.5.1.1 Alacran Deposit

i. Identification of a porphyry source: mineralized stockwork and potassically-altered porphyry fragments within breccias (Figure 9-17) have been observed in Unit 1 and are a clear indication of a porphyry source. This source is thought to be genetically related and be the source of the replacement-style Cu and high-grade Au mineralization. This porphyry source may lie at depth or more likely at depth along strike either to the north or south of the Alacran deposit. The N-S striking Valdes Fault and the San Pedro Lineament bounding the west and east sides of Alacran respectively, probably rule out a porphyry source west or east of the Alacran deposit.

Source: Cordoba, 2019

Figure 9-17: Porphyry clast with A-type veins in dacite breccia in Alacran deposit drill core hole ASA-046

ii. Potential for extensions of the Alacran deposit:

- Down dip to the west: in the hanging wall diorite sill, small patches of weakly disseminated bornite and native Cu associated with chlorite alteration have been observed in drill core. This may –indicate that this sill is late mineral, rather than post-mineral and may be genetically related to the mineralizing porphyry system; however, the Valdes Fault would be the ultimate limit of the down-dip potential.

- To the east: the potential for down-dropped blocks containing receptive stratigraphy and possibly additional high-grade vertical domains has not been well constrained between the eastern limit of known drilling and the San Pedro River Lineament.
- To the south: there is limited potential to identify blind mineralized horizons below post-mineral faulting, but these horizons are generally waning in thickness and grade to the south, so the potential is limited. The La Capitana target, an area with a large Zn-Mo-Pb soil anomaly in a region with similar stratigraphy as Alacran, may represent potential in the southern area of the Project.
- To the north: the mineralized body abuts the northern diorite sill: there is some possibility that the mineralization could continue farther north either in the hanging wall or footwall of the sill. Any northward extension would be subsurface and, hence, difficult to detect without additional step-out drilling.

iii. Potential to better constrain and high-grade domains:

- Extremely high-grade Au (>4,000 g/t Au) in CBM veins has been observed in drill samples; however, the control of these extremely high-grade pods within the vertical high-grade domains is unclear.
- A detailed structural review of the presumably brittle structures that control the location of these extremely high-grade “pods” may result in a model, which can predictably locate and drill these pods. If successful, a statistically significant high-grade coarse Au domain may result with tight spaced infill drilling.

9.5.1.2 Montiel East

i. Potential fault offset mineralization from the main body is possible. The Tehran fault is a clear late mineral fault that has active fault scarps and surface deformation observed in the topography. This fault may well have offset mineralization, the quantity and location of this is unclear and was the subject of several drill hole tests.

ii. The most successful test of this theory was SMDDH032 which was collared W of the pit and drilled to the NNE, cutting the fault at 357 m which graded over 2% CuEq over 4 m before entering a broad domain of weakly mineralized material running approximately 0.15% CuEq in excess of 100 m. The material on the north side of this fault was better mineralized than the rocks on the south side of this fault, as seen along the drill trace: the background Cu, Au and Mo values are more than double in the former than in the latter. This intersection and observation were not followed up with additional drilling, and it may be marginal to a porphyry center or indeed another portion of the Montiel East body.

9.5.1.3 Montiel West

i. Montiel West was long thought to be a sub-horizontal slice of mineralized stockwork in host andesites and basalts. This theory was based on the shape of the mineralized body and the sharp boundary seen in outcrop between mineralized stockwork and unmineralized andesite. In actual fact, while the thrust theory is still possible, it has not been completely confirmed in outcrop that the mineralization terminates at a thrust fault boundary.

ii. The intrusion which created these porphyry stock-work causing fluids has not yet been located. A careful review of drill core, geophysics and geochemistry is needed in this area to vector toward the source porphyry.

iii. The Mina Pirita vein is very close to the Montiel West stockwork, and although their relationship is unclear, it is thought that they are related to the same mineralizing source. MWDDH008 drilled in (2017) may have intersected this vein and modelling the geometry and mineralogy of these veins may provide a vector towards the mineralizing source.

9.5.1.4 Costa Azul

i. This body is broadly conformable to the dip slope to the east, and all deeper drill holes through this roughly planar body terminate in weakly to unmineralized intrusive and “tight” basaltic volcanics.

ii. The potential for the Costa Azul porphyry to be a tilted body with a source stock downslope to the east remains untested.

iii. Soil geochemical evidence suggests an alignment of Cu and Au geochemistry along the ridge running NE away from the western margins of Costa Azul, indicating that there may be other untested bodies along this lineament.

iv. The western-most drill holes were collared adjacent to a steep slope that marks the western edge of the deposit. All these holes were mineralized, and the mineralization appears open save for topography “daylighting.” There is potential for more mineralization downslope to the west, or at the base of the hill to the west, which is untested by drilling.

9.5.2 Regional Prospects

9.5.2.1 Alacran Norte Prospect

The Alacran Norte prospect is located 500 m north of the Alacran deposit (Figure 7-2). Surface features noted here provide evidence of a possible northerly extension of Alacran deposit-like lithology and mineralization. These features include the occurrence of hydrothermal breccias with strong oxidation (Figure 9-18), the intrusive rocks, sericite and malachite (Cu-carbonate) occurrence. The observation of visible Au in pan concentrates provides further encouragement for a northerly extension of the Alacran deposit ores.

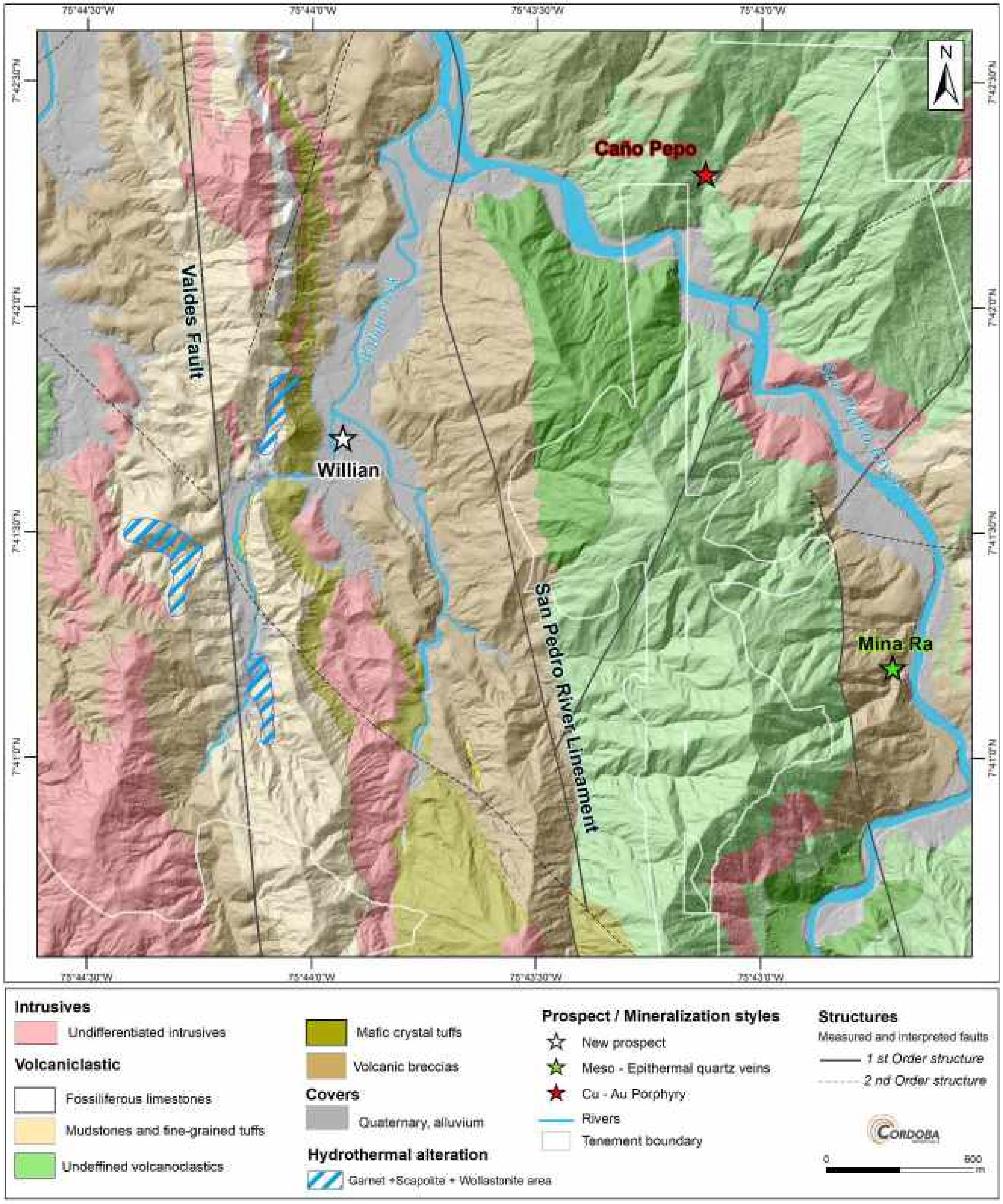
Source: Cordoba, 2019

Figure 9-18: Hydrothermal breccias with strong oxidation at El Alacrán Norte

9.5.2.2 Willian Prospect

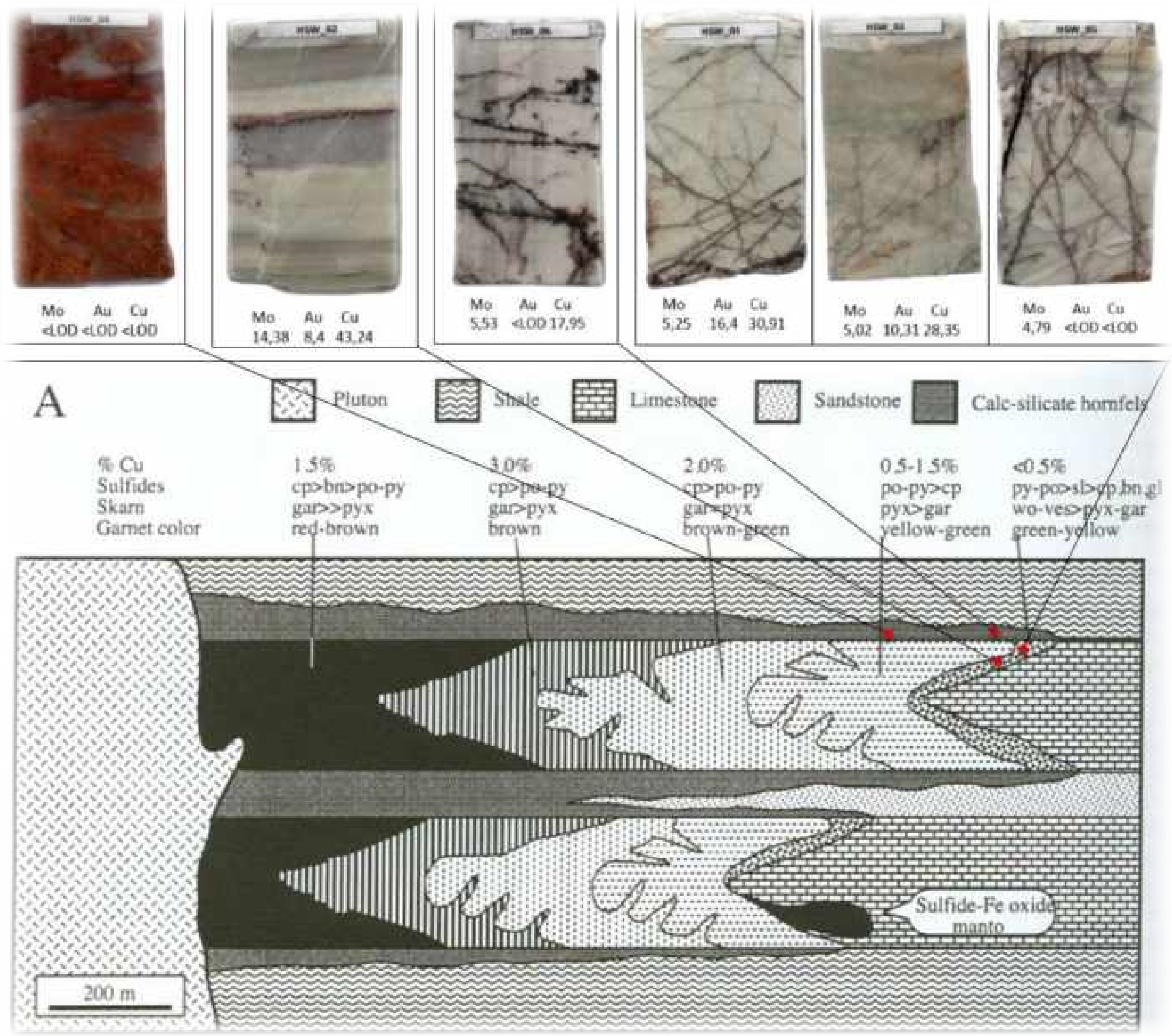
The Willian Prospect is located 4 km south of the Alacran deposit and has recently been recognized as a prospective area for polymetallic mineralization (Figure 9-19). Mapping and petrographic analysis of rocks in the area have confirmed the presence of garnet, wollastonite and scapolite alteration, which are recognized as distal metasomatic alteration products associated with skarn deposits (Meinert et al., 2005). These alteration products provide a good vector to explore for skarn-hosted mineralization. Recognition of alteration mineralogy such as this are associated with Cu grades up to 2.00 % in outcrop and 8.95 % in float and indicate the potential for a Cu-rich skarn system developed in the carbonate-rich sediments and volcaniclastic units hosted in the same stratigraphy that which hosts the Alacran deposit (Figure 9-20). The presence of metasomatic alteration would also suggest proximity to an intrusive body that might host porphyry Cu-Au mineralization, which has not yet been recognized here.

Further work in this region would include further soil sampling, ground magnetics, a Typhoon^{TM} IP survey, and trenching and or scout drilling (i.e. RAB drilling).



Source: Cordoba, 2019

Figure 9-19: Willian geology map



Source: MINERLAB, 2018

Figure 9-20: Schematic diagram with the zonation of Cu skarn and the hypothetical location of samples with the Willian prospect (Modified from Meinert et al. 2005).

10. DRILLING

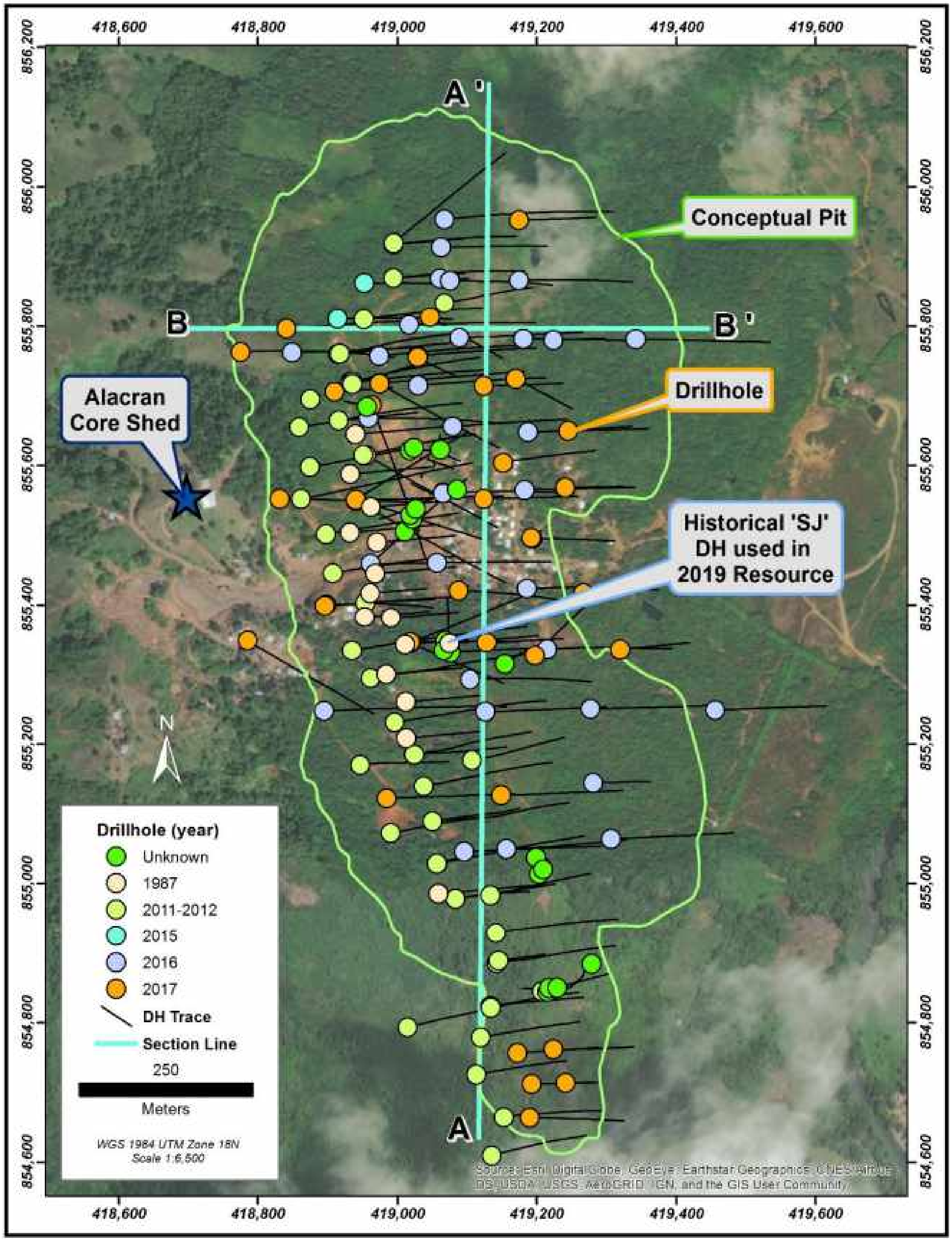
10.1 Alacran Deposit

Diamond drilling at the Alacran deposit consists of 39,086.0 m of core from 178 HQ and NQ-diameter drill holes completed between 1987 and 2017. Table 10-1 provides a summary of the drill campaigns by year and operator. Figure 10-1 shows drill collar locations by drill campaign for each deposit.

Table 10-1: Alacran Drill Hole Summary

Year	Operator	Hole Prefix	Number of Holes	Hole Diameter	Total Length (m)
Unknown	Alluvial miners	Multiple	27	Unknown	624.3
1987	Dual Resources	SJ	15	NQ	2,584.2
2011-2012	Ashmont	ASA	52	HQ	13,459.7
2015	Cordoba	ACD	3	HQ	877.9
2016	Cordoba	ACD	41	HQ/NQ	11,804.8
2017	Cordoba	ACD	40	HQ/NQ	9,737.5
	Total		178		39,086.4

Source: Cordoba, 2019



Source: Nordmin, 2019

Figure 10-1: Plan view of Alacran deposit diamond drill holes with hole collar coloured by drill campaign

10.1.1 Dual Resources Drilling

Holes completed by Dual Resources were drilled on 20 m to 45 m centres generally at an azimuth of 085° and a dip of -50°. The collar locations were originally reported in Bogota West Prime Geodetic System coordinates and later translated or resurveyed in WGS 84 UTM Zone 18N coordinates. The documentation describing Dual's collar survey method is not available.

Dual Resources holes were not surveyed downhole, and archived drill core is not available.

10.1.2 Ashmont Drilling

Holes completed by Ashmont were generally drilled on 50 m centres at azimuths ranging from 050° to 085°, and dips ranging from -45° to -80°. Most holes were drilled at an azimuth of 080° and a dip of 50°. The collar locations were originally reported in Bogota West Prime Geodetic System coordinates and later resurveyed in WGS 84 UTM Zone 18N coordinates using differential Global Positioning System ("GPS") methods.

The downhole survey method used is unknown, but the data suggests that a single shot magnetic tool was used. The Ashmont holes have from one to eight downhole survey points per hole, spaced at approximately 50 m intervals.

Drill core was photographed prior to sampling, then was logged geologically and geotechnically. The core was measured for recovery and Rock Quality Designation ("RQD") and marked for sampling on 1.0 m intervals. The lithological and mineralization contacts were ignored when marking up samples. The data collection was recorded on paper forms and observations were subsequently transferred to a Microsoft Excel™ database.

10.1.3 Cordoba Drilling

Cordoba generally performed infill drilling on 50.0 m centres at azimuths ranging from 045° to 245° and dips ranging from -45° to -85°. Most of the holes were drilled at an azimuth of 080° and dip of -50° to -60°. The collar locations were surveyed in WGS 84 UTM Zone 18N coordinates using differential GPS methods.

A north-seeking gyroscopic tool was used for most downhole surveys. A Reflex EZ-Trac multi-shot magnetic tool was used for four holes. The Cordoba holes have between 24 and 147 downhole survey measurements per hole, depending on hole depth, typically spaced at 3.0 m intervals.

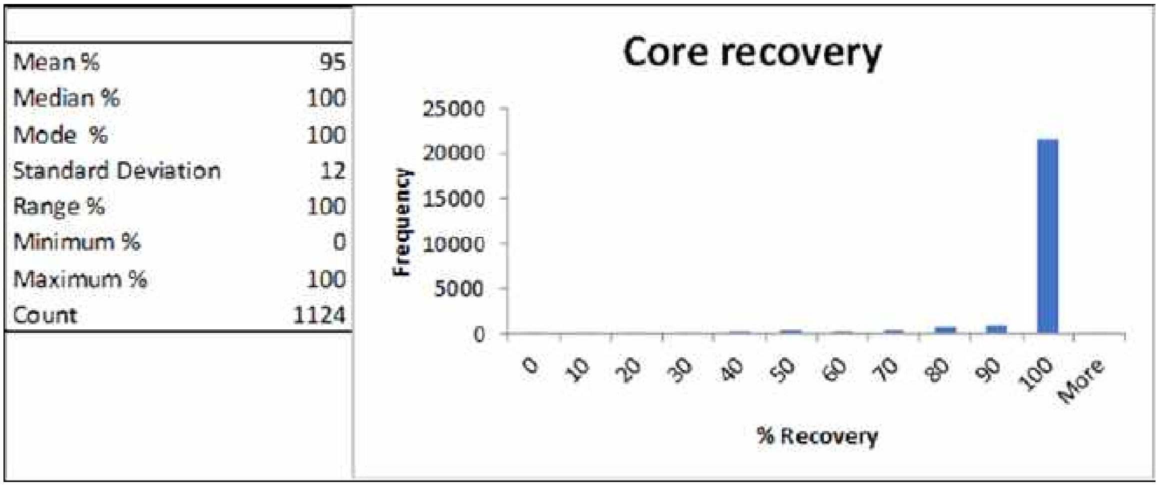
Once the core arrived at the core handling facility, the core boxes were cleaned, fully labelled, photographed, and logged for geotechnical and geological data. Logs were completed initially on paper and later directly into an on-line acQuire™ database. Sample intervals were marked with a nominal length of 1.0 m, ignoring lithological or mineralization contacts.

10.1.4 Core Recovery

The current Alacran database has core recovery measurements for 81 Cordoba holes and two Ashmont holes. Core recovery is generally high at 95%. Similar high core recovery was observed for Ashmont drill holes inspected during the QP site visit. Core recovery is summarized in Figure 10-2 and Figure 10-3.

Source: Nordmin, 2019

Figure 10-2: Drill hole ACD081, displaying core recovery



Mean %	95
Median %	100
Mode %	100
Standard Deviation	12
Range %	100
Minimum %	0
Maximum %	100
Count	1124

Source: Nordmin, 2019

Figure 10-3: Alacran drill core recovery

10.2 Satellite Deposits

The drilling located within the Montiel East, Montiel West and Costa Azul deposits consisted of both diamond drill and RC drilling completed by Cordoba between August 2013 and May 2017.

10.2.1 Montiel East

Between 2013 and 2017, Cordoba completed 11,056.7 m of drilling in 78 holes, including 1,681 m in 48 RC holes and 9,376 m in 30 diamond drill holes with dips ranging from -42° to -90 (Table 10-2). Azimuths were highly variable, and most of the dips were at -90°. The collar locations were surveyed in WGS 84 UTM Zone 18N coordinates using differential GPS methods.

Table 10-2: Montiel East Drill Hole Summary

Year	Operator	Hole Prefix	Number of Holes	Hole Diameter	Total Length (m)
2013	Cordoba	SMDDH	4	HQ	575.4
2014	Cordoba	SMDDH	10	HQ	2,971.8
		MERAB	48	RC	1,681.0
2016	Cordoba	SMDDH	15	HQ/NQ	5,243.0
2017	Cordoba	SMDDH	1	PQ/HQ/NQ	585.5
	Total		78		11,056.7

Source: Cordoba, 2019

10.2.2 Montiel West

Between 2013 and 2017, Cordoba completed 4,055.9 m in 93 holes including 2,032 m in 85 RC holes and 2,024 m in eight diamond drill holes with dips ranging from -40° to -90 (Table 10-3). Most of the azimuths were at 000° and 180°, and many of the dips were at -50° and -90°. The collar locations were surveyed in WGS 84 UTM Zone 18N coordinates using differential GPS methods.

Table 10-3: Montiel West Drill Hole Summary

Year	Operator	Hole Prefix	Number of Holes	Hole Diameter	Total Length (m)
2014	Cordoba	MWDDH	6	HQ	1,706.4
		MWRAB	86	RC	2,032.0
2017	Cordoba	MWDDH	1	HQ	317.5
	Total		93		4,055.9

Source: Nordmin, 2019

10.2.3 Costa Azul

Between 2014 and 2017, Cordoba completed a total of 4,995.9 m of drilling in 118 holes, including 3,305 m of RC drilling in 112 holes and 1,691 m of diamond drilling in six holes with dips ranging from -45° to -90 (Table 10-4). Most of the azimuths were at 000°, 180°, and 270°, with many dips at -50°. The collar locations were surveyed in WGS 84 UTM Zone 18N coordinates using differential GPS methods.

Table 10-4: Costa Azul Drill Hole Summary

Year	Operator	Hole Prefix	Number of Holes	Hole Diameter	Total Length (m)
2014	Cordoba	CARAB, CADDH	116	RC	4,186.7
2017	Cordoba	CADDH	2	HQ/NQ	809.2
	Total		118		4,995.9

Source: Cordoba, 2019

10.3 Core Logging

The Cordoba geological logging included recording lithology, alteration, mineralization, oxidation, structure, and magnetic susceptibility. In 2017, most of the Ashmont holes were relogged by Cordoba geologists to align with Cordoba logging methodology and terminology. The current Alacran database has 35 unique lithology types in eight lithological units. The alteration database has 18 unique alteration codes. Chlorite, biotite, albite, silica, and sericite are the most common logged alteration types. There are 18 unique minerals recorded in the current database, pyrite and chalcopyrite being the most common.

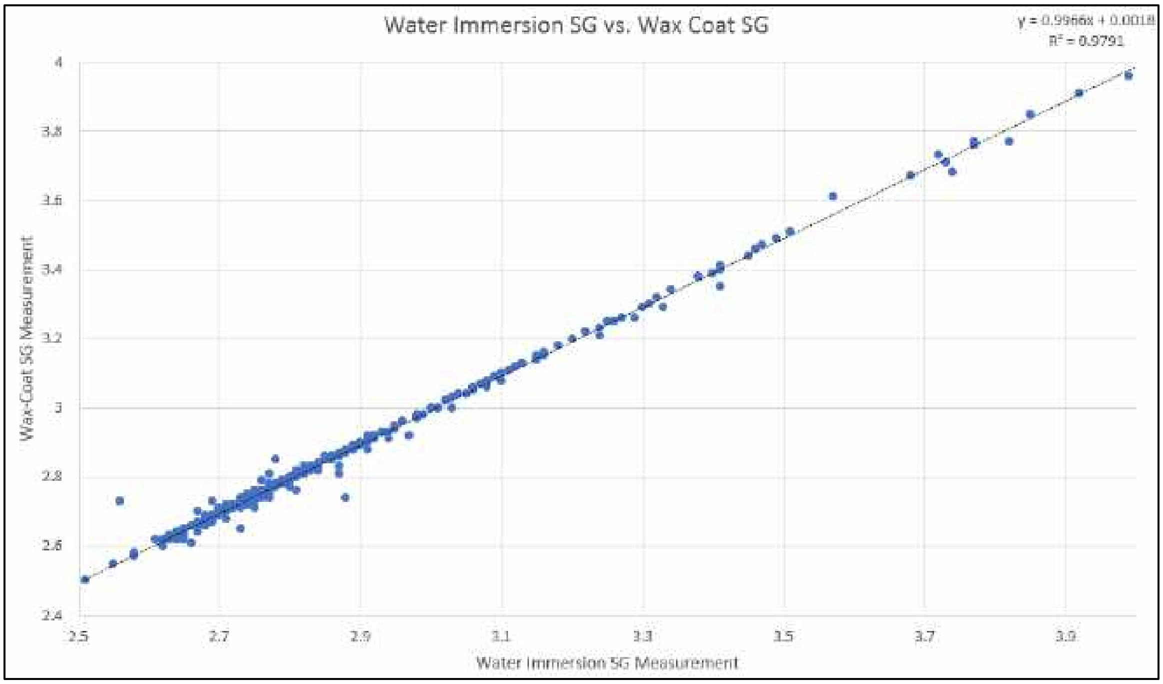
10.4 Specific Gravity

Cordoba has collected 13,424 water immersion specific gravity ("SG") measurements from 95 drill holes within the Alacran and satellite deposits including 87 Ashmont (ASA prefix) and Cordoba (ACD prefix) drill holes. In addition, Cordoba analyzed 497 SG check samples by wax-coat water immersion methods and 229 SG check samples by pycnometer method. The water immersion measurements were made by Cordoba personnel at the site. The wax-coat water immersion and pycnometer measurements were made at commercial laboratories. The measurements were made using 10.0 cm to 15.0 cm lengths of half-diameter NQ and HQ-sized core.

The measurements were taken from NQ, and HQ sized using the weight in air versus the weight in water method (Archimedes), by applying the following formula:

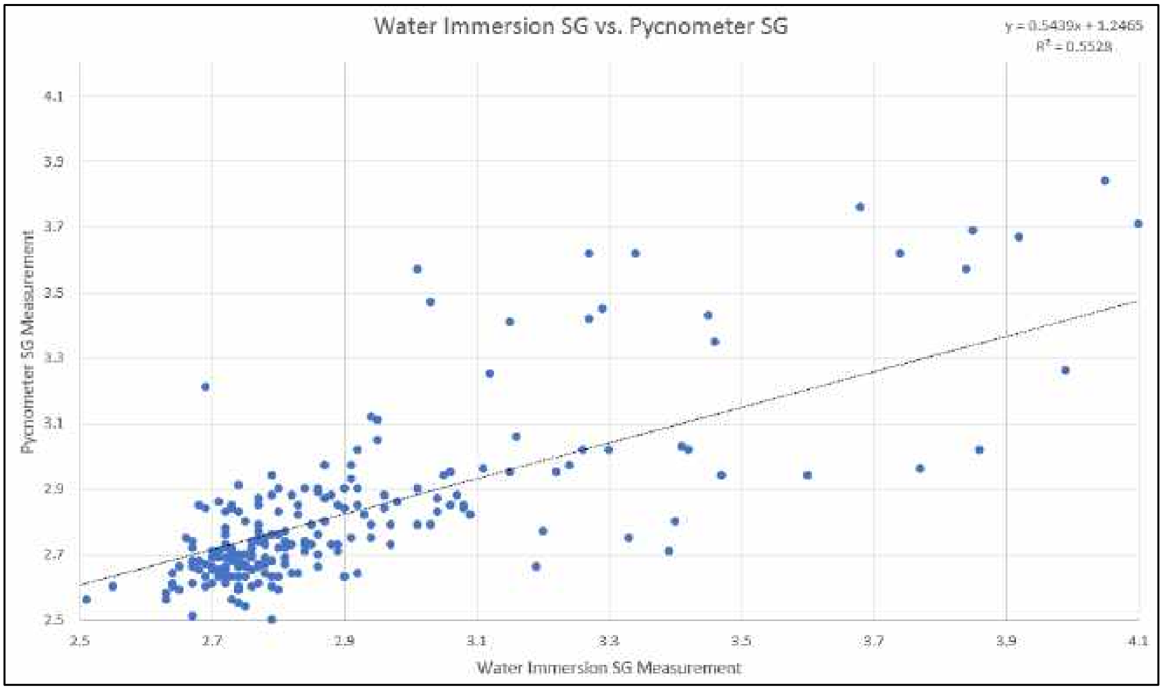
$$\text{Specific Gravity} = \frac{\text{Weight in Air}}{(\text{Weight in Air} - \text{Weight in Water})}$$

The wax-coat water immersion measurements average 0.32% higher than the water immersion measurements, while the pycnometer measurements average 3.39% below the water immersion measurements. A large scatter is evident between water immersion and pycnometer measurements. Overall minimal bias is thus demonstrated in the uncoated water immersion measurements. This, in addition to a large number of water immersion SG measurements, leads to a high degree of confidence in the SG measurements. The accuracy analyses of the wax-coat versus water immersion and pycnometer versus water immersion SG methods can be found in Figure 10-4 and Figure 10-5.



Source: Nordmin, 2019

Figure 10-4: Wax Coat SG measurement accuracy analysis



Source: Nordmin, 2019

Figure 10-5: Pycnometer SG measurement accuracy analysis

10.4.1 Alacran SG Data

In 2012 and between December 2015 and November 2017, there were 12,780 total SG measurements taken from 87 Ashmont and Cordoba-drilled holes, including 12,064 water immersion, 492 wax-coat, and 224 pycnometer (Table 10-5).

Nordmin determined that lithology was the appropriate indicator of SG, and nine lithology sets were developed from drill logging, each with a weighted average SG assigned.

For block modelling purposes, a set of nine lithological groups was created, each with a set weighted average SG, found in Table 10-5. Further information regarding block modelling SG can be found in Section 14.4.

Table 10-5: Alacran Lithological Specific Gravity Groups

Unit	SG	Lithologies
All units not otherwise listed below	2.806	All not listed below
Unit 1	2.750	Dio, RBx, TufR
INT	2.720	Intrusive
TUFA	2.757	Tuff A
Unit 3	2.800	TufA, TufM, TufP, TufL, TufF
TUFD	2.803	Tuff D
Unit 2, 2A	2.830	TufL, TufD, MudSil, Sill_1/2, VBx, TufL, TufF
LIM	2.910	Limestone
HG Vertical Mineralization	2.926	All blocks within the high-grade vertical mineralization wireframes

Source: Nordmin, 2019. Refer to Table 7-1 for lithological code descriptions

10.4.2 Costa Azul SG Data

In the drilling database for Costa Azul, a total of 394 water immersion SG samples exist from three drill holes (Table 10-6).

Table 10-6: Costa Azul Weighted Average

Unit	SG
Weighted Average of all rock types	2.788

Source: Nordmin, 2019

10.4.3 Montiel East SG Data

In the drilling database for Montiel East, a total of 812 water immersion SG samples exist from four drill holes Table 10-7.

Table 10-7: Montiel East Weighted Average

Unit	SG
Quartz-Feldspar Porphyry	2.746
Weighted Average of all other rock types	2.782

Source: Nordmin, 2019

10.4.4 Montiel West SG Data

In the drilling database for Montiel West, a total of 154 water immersion SG samples exist from 1 drill hole, as well as five wax-coat water immersion and five pycnometer SG measurements (Table 10-8).

Table 10-8: Montiel West Weighted Average

Unit	SG
Andesite Porphyry	2.883
Weighted Average of all other rock types	2.732

Source: Nordmin, 2019

10.5 Comments on Section 10

In the opinion of the QP, the quantity and quality of the lithological, collar, downhole survey and specific gravity data collected in the exploration programs are sufficient to support the Mineral Resource estimate.

- Core and RC logging completed by Cordoba and previous operators meet industry standards for exploration on replacement and porphyry deposits;
- Collar surveys and downhole surveys were performed using industry-standard instrumentation;
- Recovery data from core drilling programs was of good quantity and acceptable;
- Drill hole orientations are appropriate for the mineralized style. Drill trace orientations are shown in example cross sections in Section 14.6; and
- Drill hole intercepts demonstrate that sampling is representative for the various mineralized low and high-grade domains.

No other factors were identified with the data collected from the drill programs that could significantly affect the Mineral Resource Estimate.

11. SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Assay Sample Preparation and Analysis

11.1.1 Dual Resources Drilling

No formal documented processes were found with respect to sample preparation and analysis for work completed by Dual Resources.

11.1.2 Ashmont Drilling

Drill core, as sampled by Ashmont under the supervision of Luis Oviedo, P. Geo., of South American Management SA of Santiago Chile ("SAMSA"), was split with a mechanical splitter, with one half of the core placed in a pre-marked plastic sample bag, and the other half returned to the core box. Core pieces were weighed prior to sampling, and the bagged samples were weighed after splitting to ensure that the splits approximated half the core. Sample bags were sealed to ensure sample integrity.

All samples were prepared by ALS Minerals in Medellín, Colombia. ALS Minerals is a laboratory certified to International Standards ISO/IEC 17025:2005 and ISO 9001:2015. The samples were dried, crushed to 70% passing 2.0 mm, riffle split and a 250 g split pulverized to 85% passing 75 microns.

Samples were analyzed at ALS Minerals laboratories in Chile, Peru and Canada. Au was analyzed by fire assay on a 50 g aliquot with an Atomic Absorption Spectroscopy ("AAS") finish (method Au-AA24). Samples above the upper limit of detection of 10.0 ppm were reanalyzed by fire assay on a 50 g aliquot with a gravimetric finish (method ME-GRA22). Multi-elements were analyzed by four-acid digestion of a 0.25 g sample with ICP-AES finish for 33 elements (method ME-ICP61). Samples above the upper detection limit of 10,000 ppm Cu were reanalyzed by four-acid digestion with ICP-AES finish (method Cu-OG62).

11.1.3 Cordoba Drilling

Drill core sampled by Cordoba was numbered using consecutive sample numbers, with a sample label stuck to the core box labelled with hole number and the sample interval. The core was cut lengthwise by a diamond saw along a cut line marked by a geologist (Figure 11-1). One half of the sample was placed in a plastic sample bag, double-bagged, labelled and sealed with a cable tie, and the other half returned to the core box for reference. Fabric bags, also sealed by cable tie, were used to hold about four samples each for transportation (Figure 11-1).

Source: Nordmin, 2019

Figure 11-1: Left: Core sample cut shack at the Alacran deposit. Right: Sample selection.

All samples were prepared by ALS Minerals in Medellín, Colombia. The samples were dried, crushed to 70% passing 2.0 mm riffle split, and a 1 kg split pulverized to 85% passing 75 microns.

Samples were analyzed at the ALS laboratory in El Callao, Lima, Peru. Au was analyzed by fire assay on a 50 g aliquot with an AAS finish (method Au-AA24). Samples above the upper limit of detection of 10.0 ppm were reanalyzed by fire assay on a 50 g aliquot with a gravimetric finish (method Au-GRA22). Multi-elements were analyzed by four-acid digestion of a 0.25 g sample with ICP (AES) finish for 48 elements (method ME-MS61). Samples with grades above the 2,000 ppm Cu were reanalyzed by four-acid digestion with ICP-AES finish (method Cu-OG62). Samples above the upper limit of detection for Ag (100 ppm), Zn (10,000 ppm) and S (10.0%) were reanalyzed by four-acid digestion with ICP-AES finish (methods Ag-OG62, Zn-OG62, S-OG62).

11.2 Quality Assurance/Quality Control Programs

Quality control ("QC") measures were set in place to ensure the reliability and trustworthiness of exploration data. These measures include written field procedures and independent verifications of aspects such as drilling, surveying, sampling and assaying, data management and database integrity. Appropriate documentation of quality control measures and regular analysis of QC data are essential as a safeguard for project data and form the basis for the quality assurance ("QA") program implemented during exploration.

Analytical QC measures involve internal and external laboratory procedures implemented to monitor the precision and accuracy of the sample preparation and assay data. They are also important to identify potential sample sequencing errors and to monitor for contamination of samples.

Sampling and analytical QA/QC protocols typically involve taking duplicate samples and inserting quality control samples (CRM and blanks) to monitor the reliability of the assay results throughout the drill program. Umpire check assays are typically performed to evaluate the primary lab for bias and involve re-assaying a set proportion of sample rejects and pulps at a secondary umpire laboratory.

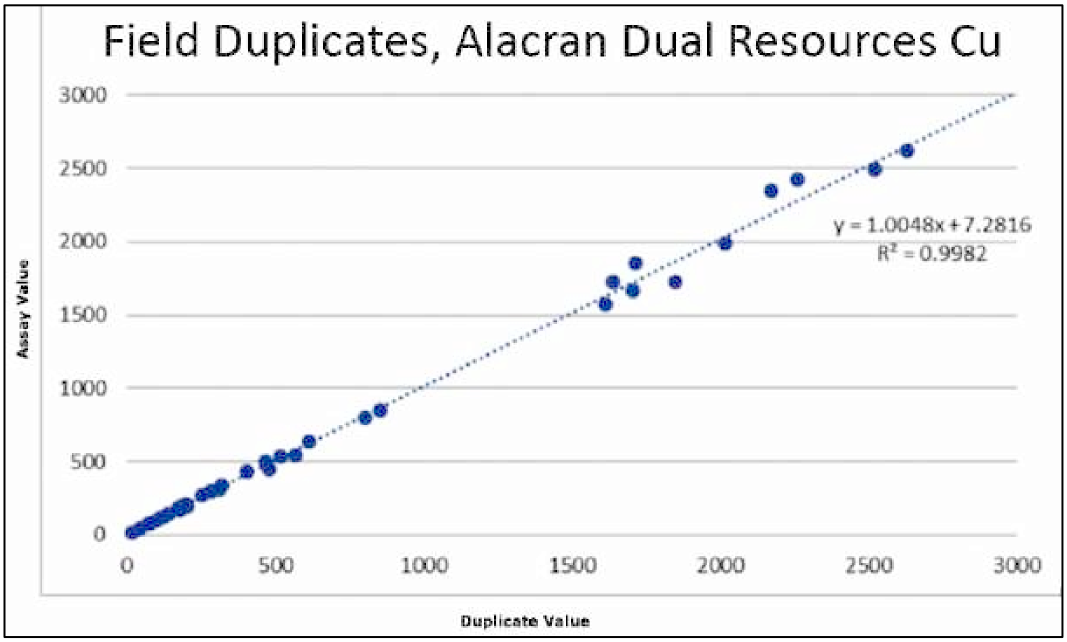
11.2.1 Dual Resources

Dual Resources used field and laboratory duplicates as the basis of their QA/QC program. The SJ drill holes that this QA/QC program accompanies were later twinned by Ashmont and Cordoba. Further detailed analysis of twin hole assay data between the SJ holes and the twin holes was undertaken by Nordmin and is described in Section 12.1.4.

Data collected by Dual Resources has been deemed reliable and of high quality and can be included in the Mineral Resource Estimate.

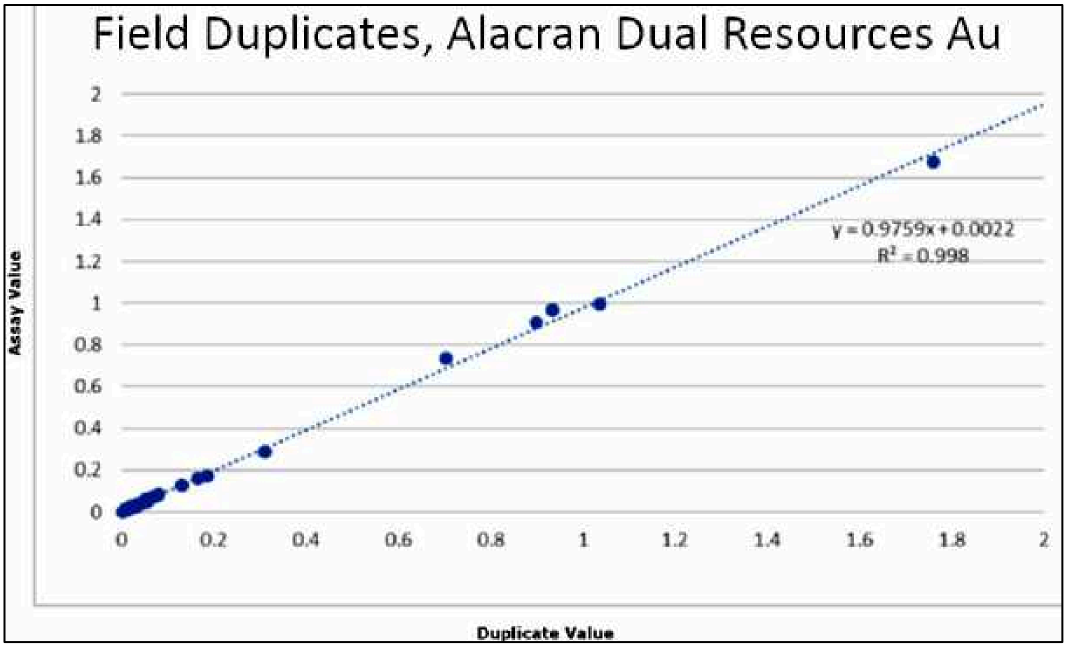
Field and Laboratory Duplicates

Dual Resources submitted 37 core and pulp duplicates and 11 laboratory Au duplicates and six laboratory Cu duplicates as part of their QA/QC process. The Cu and Au field duplicates demonstrate good agreement (Figure 11-2 and Figure 11-3).



Source: Nordmin, 2019

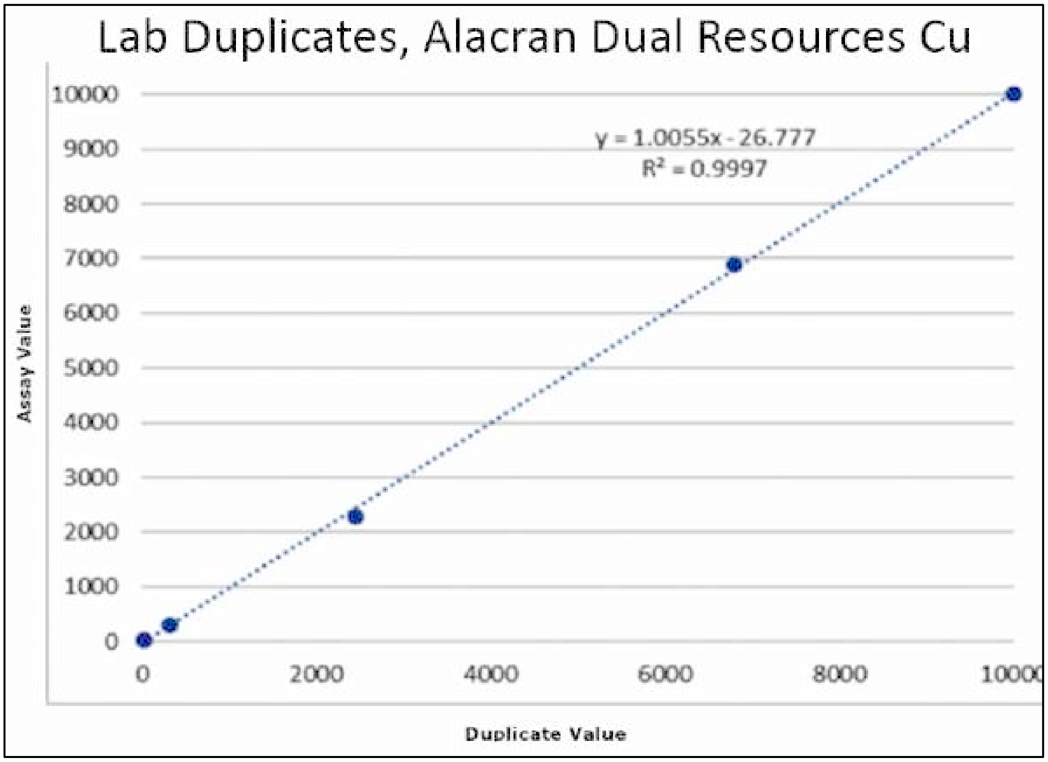
Figure 11-2: Field duplicates for Cu (ppm) by Dual Resources for the Alacran deposit



Source: Nordmin, 2019

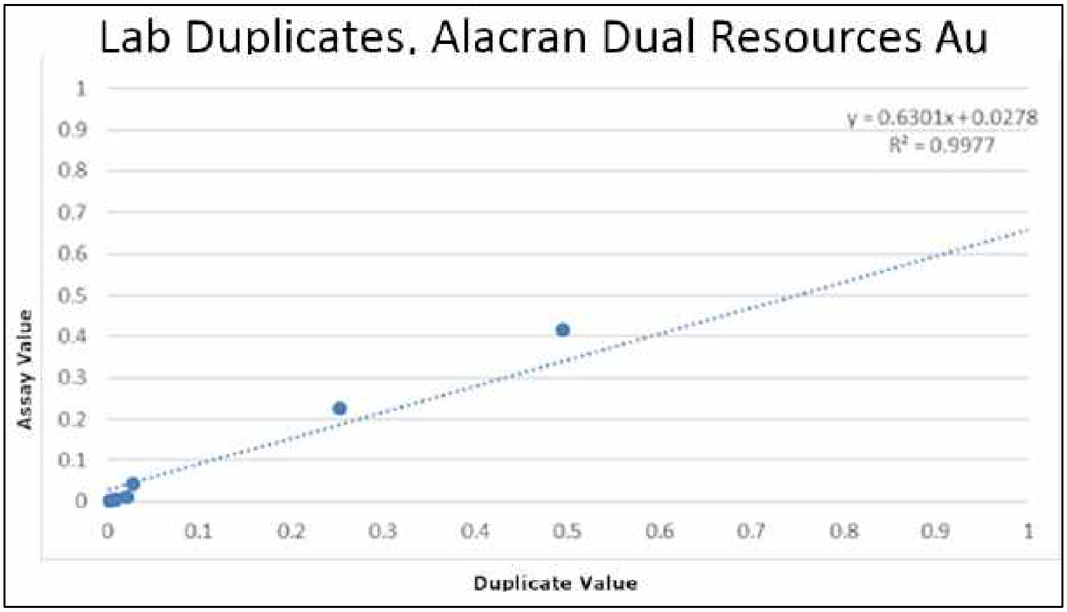
Figure 11-3: Field duplicates for Au (g/t) by Dual Resources for the Alacran deposit

Coarse Reject and Pulp duplicate pair for both Au and Cu results show good agreement (Figure 11-4 and Figure 11-5).



Source: Nordmin, 2019

Figure 11-4: Lab duplicates (coarse reject and pulp) for Cu (ppm) by Dual Resources for the Alacran deposit



Source: Nordmin, 2019

Figure 11-5: Lab duplicates (coarse reject and pulp) for Au (g/t) by Dual Resources for the Alacran deposit

11.2.2 Ashmont

Ashmont used blanks and duplicates as the basis of their QA/QC program. Three standards, approximating the low, medium, and high-grade portions of the anticipated grade spectrum were used. Ashmont inserted one of three certified standard reference materials for every 13 samples, one coarse blank or fine blank every 50 samples, one half-core duplicate for every 40 samples, one coarse reject duplicate or pulp duplicate every 20 samples. The Company also analyzed duplicates at a second laboratory, Acme Analytical Laboratories Colombia S.A.S ("Acme"). Documentation summarizing the Ashmont QA/QC monitoring procedures and responses to failures has not been located. Data collected by Ashmont has been deemed reliable and of high quality and can be included in the Mineral Resource Estimate.

Standards

Ashmont submitted 799 CRMs with an insertion rate of 6% as part of its QA/QC process. The review of CRM results identified 19 sample swaps or laboratory failures for Au results and two failures for Cu results that have been incorrectly identified as members of a different population. It is unknown how Ashmont resolved the observed failures. An apparent low Au bias indicated for Oreas 66a (Figure 11-6). Oreas 502 largely fell within the range of mean +/- two standard deviations, although the Au analyses appear to have a slightly low bias (Figure 11-7). This bias has not been confirmed but may result in a slight underprediction of Au grades in grade estimation. CRM results are summarized in Table 11-1.

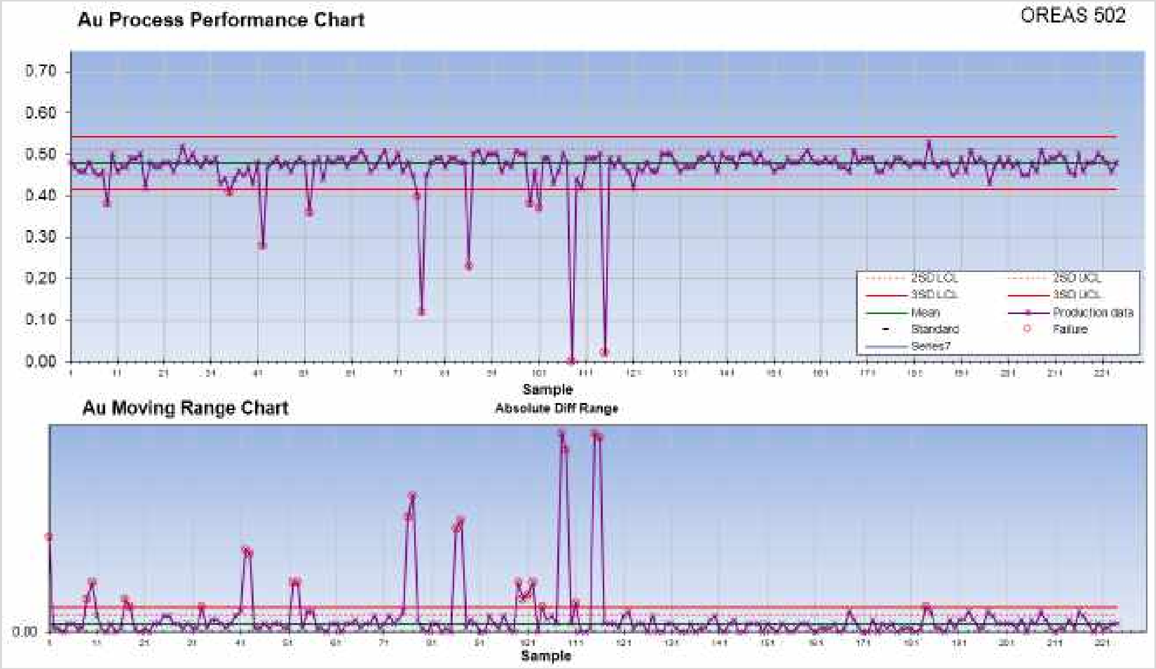
Table 11-1: Alacran Ashmont CRM Result Summary

Standard	Count	Best Value Au (g/t)	Mean AuAA24 (g/t)	Mean AuGRA22 (g/t)	Bias (%)	Best Value Cu (ppm)	Mean Cu MEMS61 (ppm)	Bias (%)
Oreas 502	267	0.491	0.479		-2.5	7,550	7,535	-0.2
Oreas 66a	266	1.237	1.152		-6.8	120	125	4.2
Oreas 12a	266	11.79		11.877	0.7			

Source: Cordoba, 2019

Source: Nordmin, 2019

Figure 11-6: Alacran deposit Ashmont standard OREAS 66A Au (g/t)



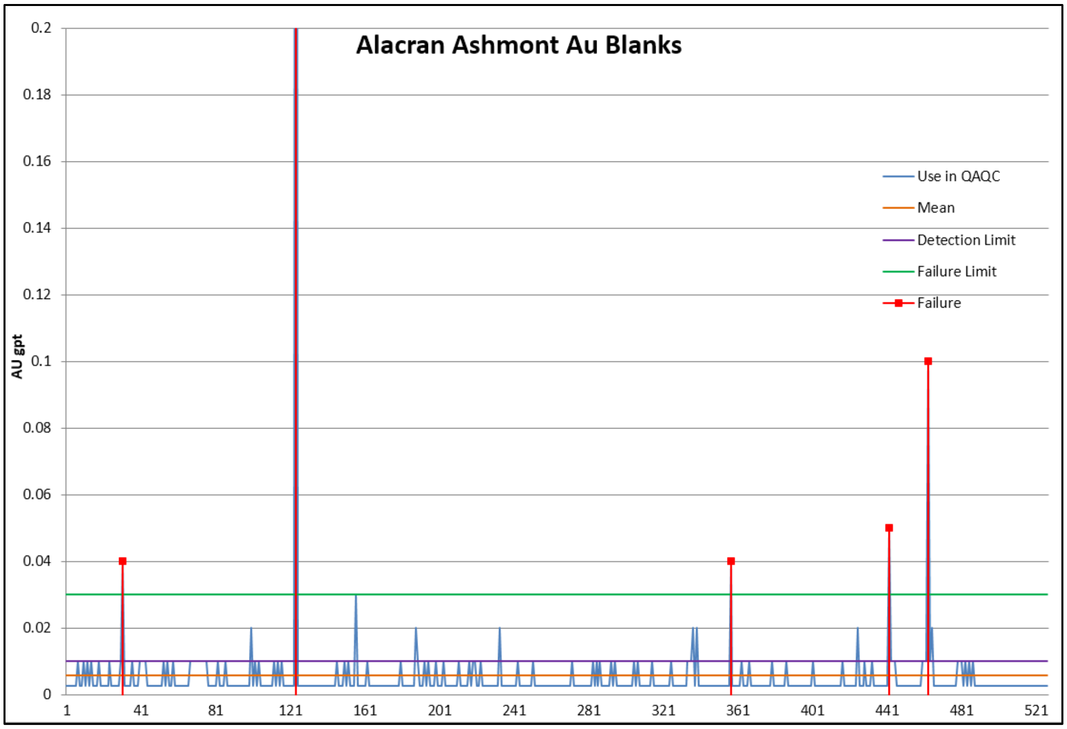
Source: Nordmin, 2019

Figure 11-7: Alacran deposit Ashmont standard OREAS 502 Au (g/t)

Blanks

Ashmont submitted 529 coarse blanks at an insertion rate of 4% as part of its program QA/QC process. Blanks, obtained from cement construction blocks, were submitted with the samples to monitor cross-sample contamination.

Although the blanks contain measurable quantities of Au and Cu, there was no obvious correlation between the blank values and those of the immediately preceding samples. An overall 5% failure rate was observed (Figure 11-8).

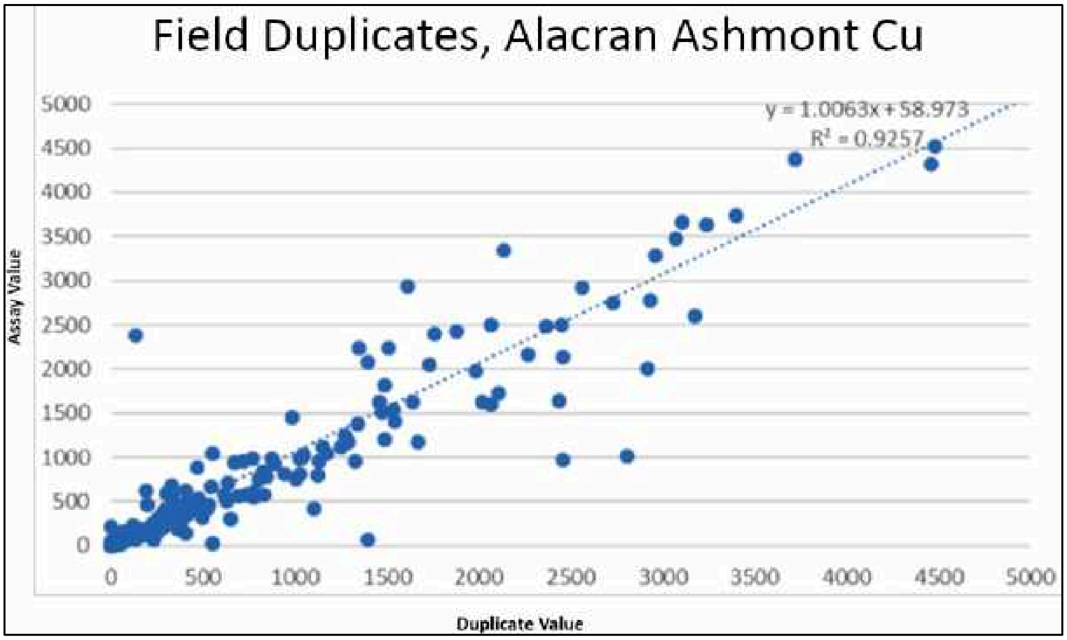


Source: Nordmin, 2019

Figure 11-8: Ashmont coarse blanks, Au (g/t) results for the Alacran deposit

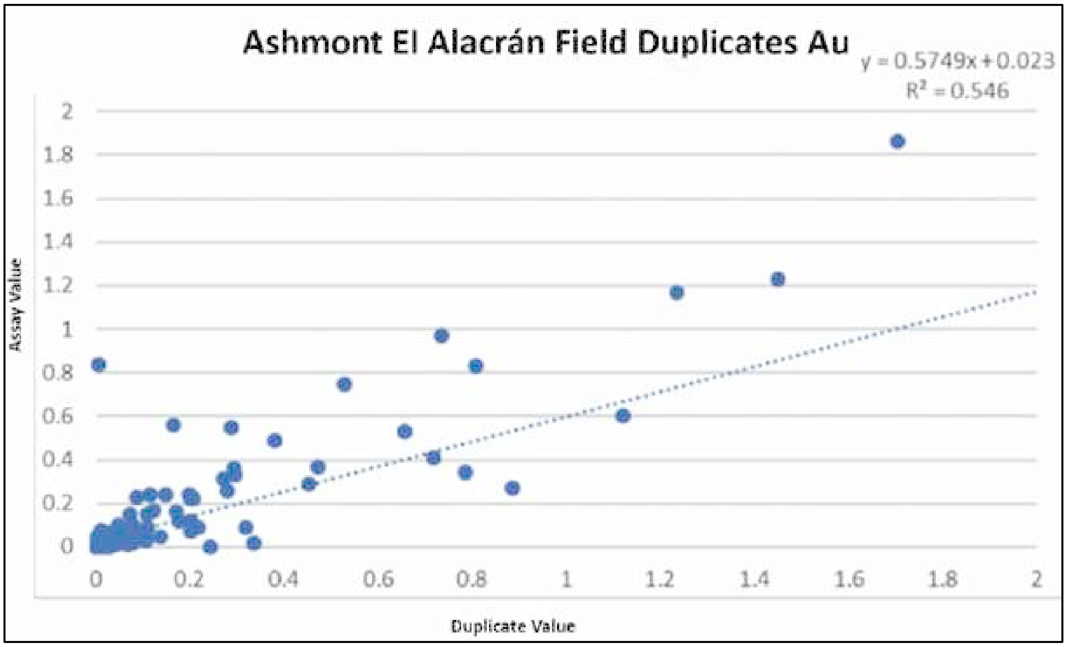
Field and Laboratory Duplicates

Ashmont submitted 265 core and pulp duplicates and 568 laboratory Au duplicates and 750 laboratory Cu duplicates as part of their QA/QC process. The Cu field duplicates demonstrate good agreement while the Au results show high variability for Au results (Figure 11-9 and Figure 11-10). Coarse Reject and Pulp duplicate pair for both Au and Cu results show good agreement (Figure 11-11 and Figure 11-12).



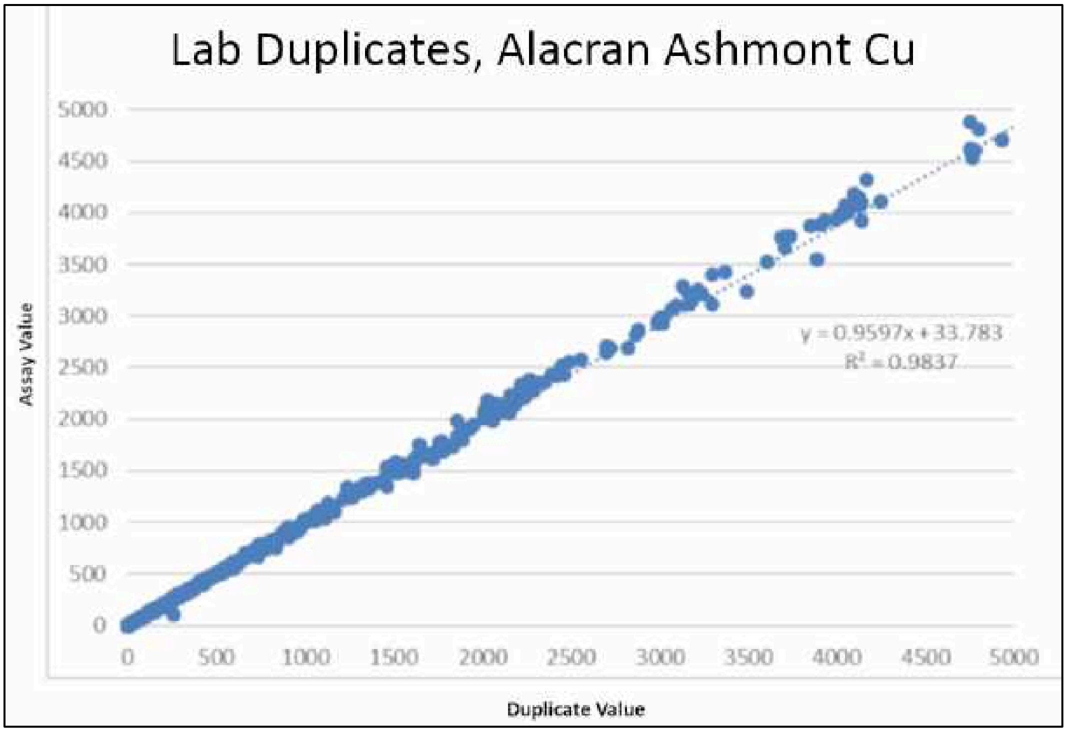
Source: Nordmin, 2019

Figure 11-9: Field duplicates for Cu (ppm) by Ashmont for the Alacran deposit



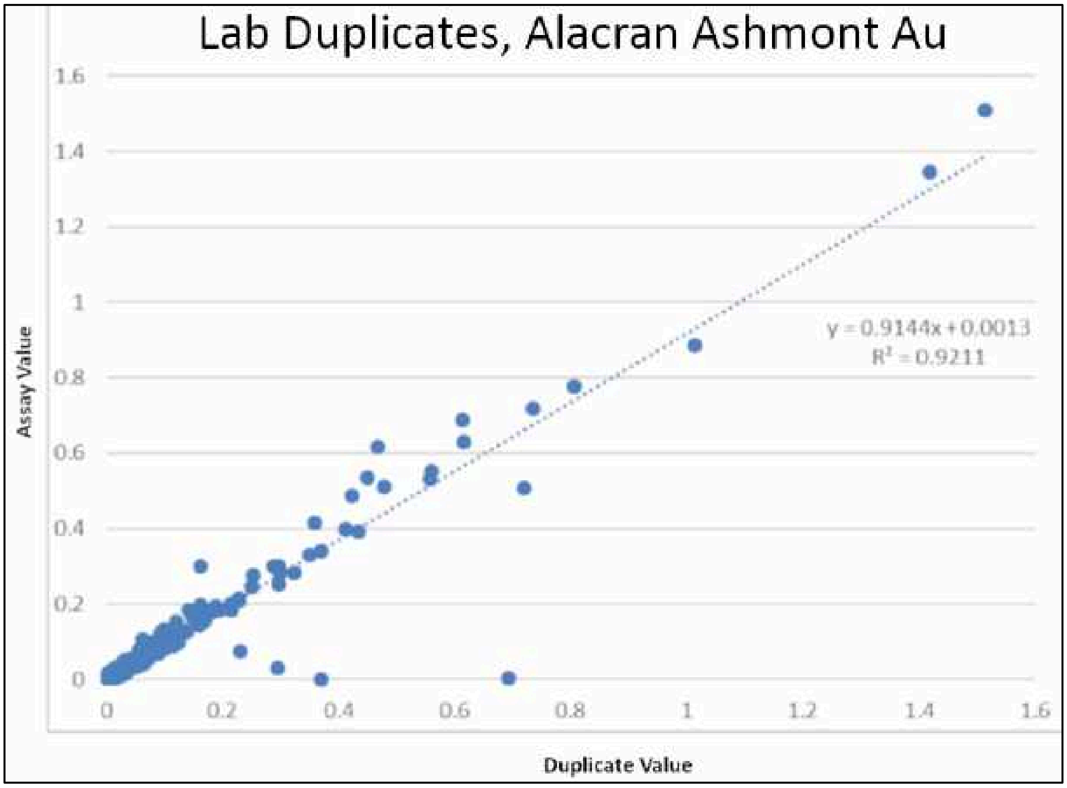
Source: Nordmin, 2019

Figure 11-10: Field duplicates for Au (g/t) by Ashmont for the Alacran deposit



Source: Nordmin, 2019

Figure 11-11: Lab duplicates (coarse reject and pulp) for Cu (ppm) by Ashmont for the Alacran deposit

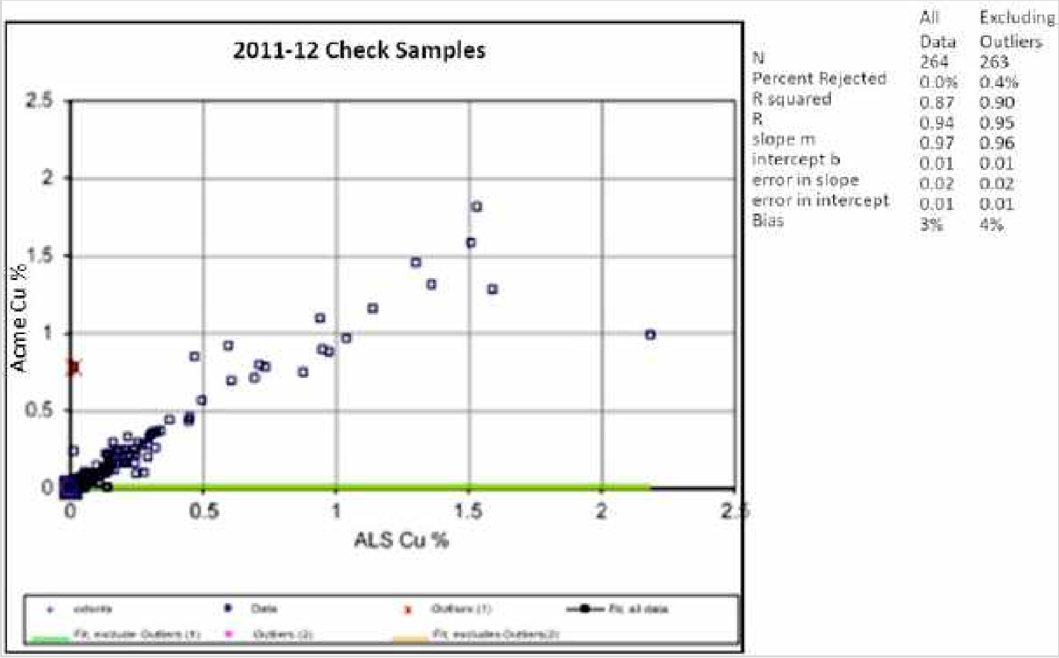


Source: Nordmin, 2019

Figure 11-12: Lab duplicates (coarse reject and pulp) for Au (g/t) by Ashmont for the Alacran deposit

Checks

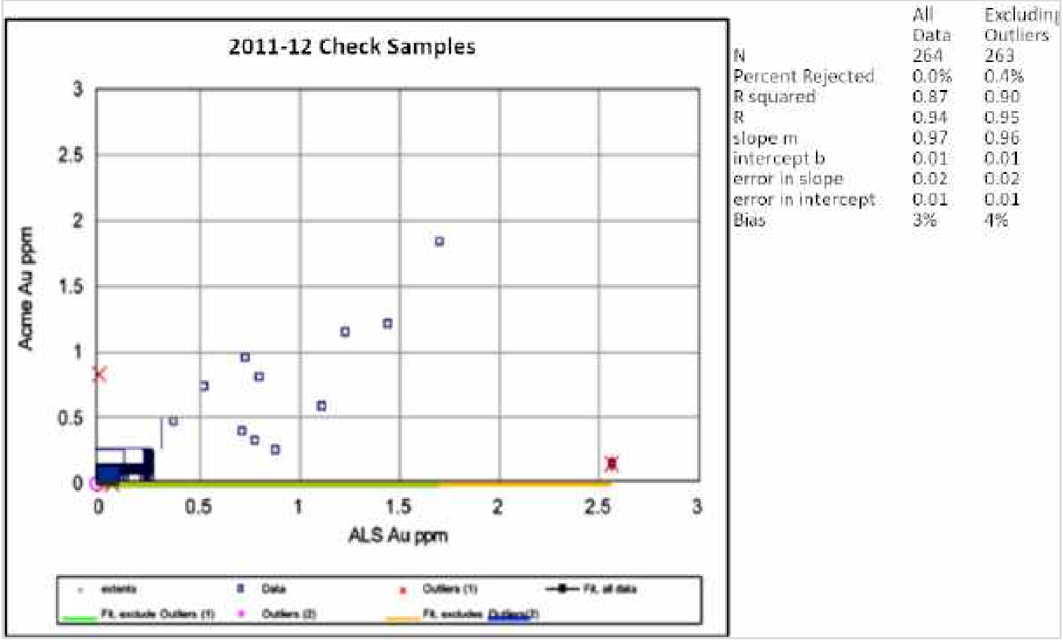
Ashmont submitted 264 pulp samples to Acme Laboratories for secondary analysis. The Au and Cu results show good correlation and no significant bias after excluding a few outliers (Figure 11-13 and Figure 11-14.



	All Data	Excluding Outliers
N	264	263
Percent Rejected	0.0%	0.4%
R squared	0.87	0.90
R	0.94	0.95
slope m	0.97	0.96
intercept b	0.01	0.01
error in slope	0.02	0.02
error in intercept	0.01	0.01
Bias	3%	4%

Source: Nordmin, 2019

Figure 11-13: Check samples for Cu (%) for the Alacran deposit by Ashmont



	All Data	Excludin Outliers
N	264	263
Percent Rejected	0.0%	0.4%
R squared	0.87	0.90
R	0.94	0.95
slope m	0.97	0.96
intercept b	0.01	0.01
error in slope	0.02	0.02
error in intercept	0.01	0.01
Bias	3%	4%

Source: Nordmin, 2019

Figure 11-14: Check samples for Au (ppm) for the Alacran deposit by Ashmont

There is no QA/QC information for drill holes ASA042 to ASA051. There is no record of any re-assaying related to identified failures or any CRM checks for Cu-OG62 results. Cu-OG62 results are generally greater than 1% Cu and represent approximately 3% of Ashmont assay results.

11.2.3 Cordoba

Cordoba inserted one of five CRMs, one coarse blank and one field duplicate in every batch of 25 samples. The Company had a dedicated QA/QC geologist, trained and monitored by Dale Sketchley, P.Geo., of Acuity Geoscience Ltd., who monitored the analytical results on receipt and produced written and graphic monthly reports.

11.2.3.1 Alacran Deposit

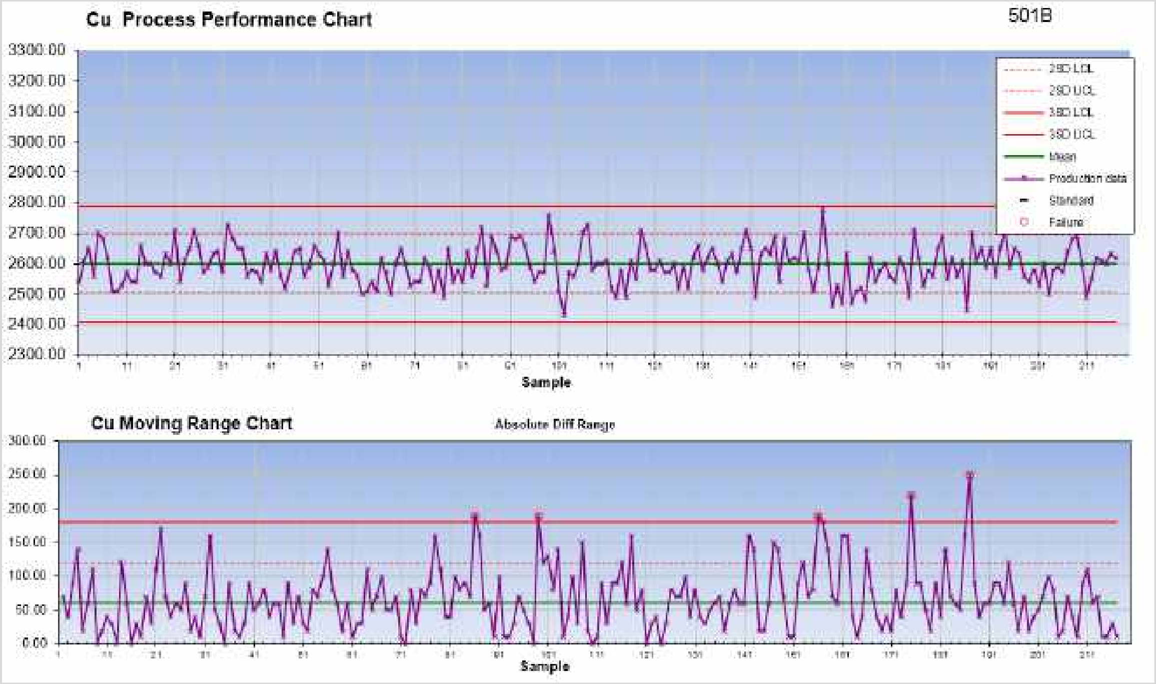
Standards

Cordoba submitted 641 CRMs between 2016 and 2018 as part of their QA/QC process. The CRM results are summarized in Table 11-2, Figure 11-15, Figure 11-16, Figure 11-17 and Figure 11-18. No significant biases were evident.

Table 11-2: Cordoba Alacran CRM Result Summary

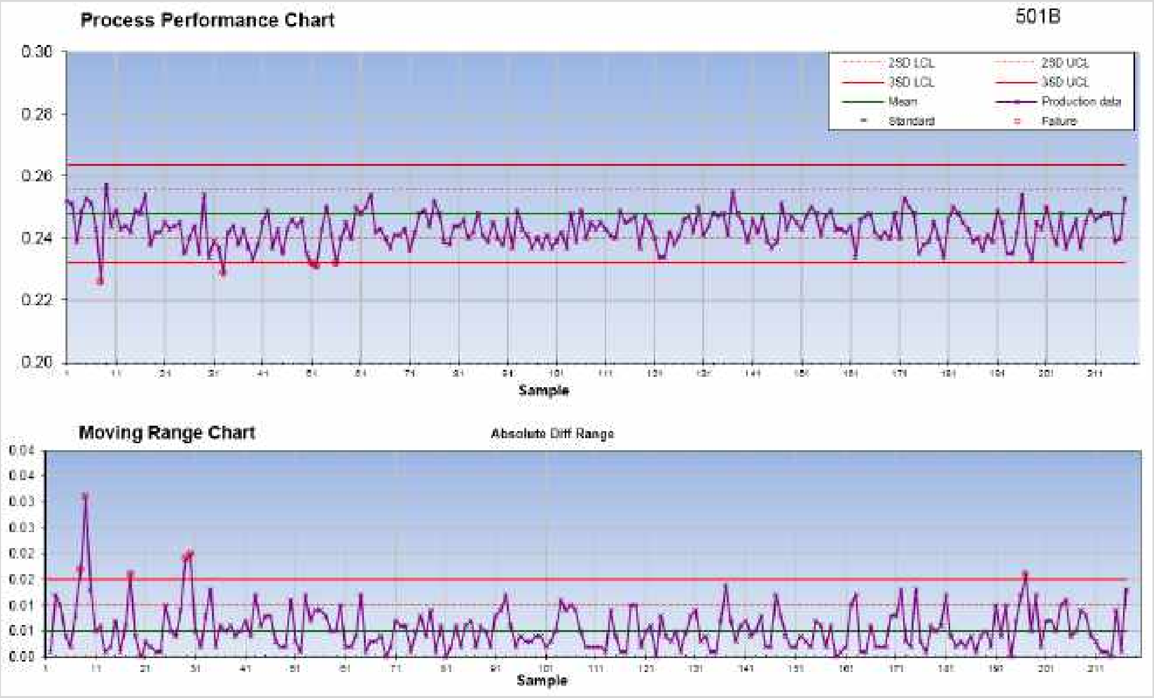
Standard	Count	Best Value Au (g/t)	Mean Au (g/t)	Bias (%)	Certified Value Au (%)	Standard Deviation Moving Average (%)	Best Value Cu (ppm)	Mean Cu (ppm)	Bias (%)	Certified Value Cu (%)	Standard Deviation Moving Average (%)
501b	217	0.248	0.243	-2.0	2.2	2.1	2,600	2,596	-0.1	2.4	2.3
502b	127	0.494	0.480	-2.9	2.5	2.3	7,730	7,632	-1.3	2.6	2.1
503b	151	0.695	0.682	-1.8	2.4	2.6	5,310	5,251	-1.1	2.4	2.5
504b	61	1.610	1.580	-1.9	2.2	2.4	11,100	10,000	-9.9	0.0	0.0
CDN-CM-35	85	0.320	0.319	-0.3	4.1	4.9	2,430	2,452	0.9	2.8	3.0

Source: Cordoba, 2019. The -9.9% bias for 504b Cu-MEMS is superseded by Cu-OG62 results.



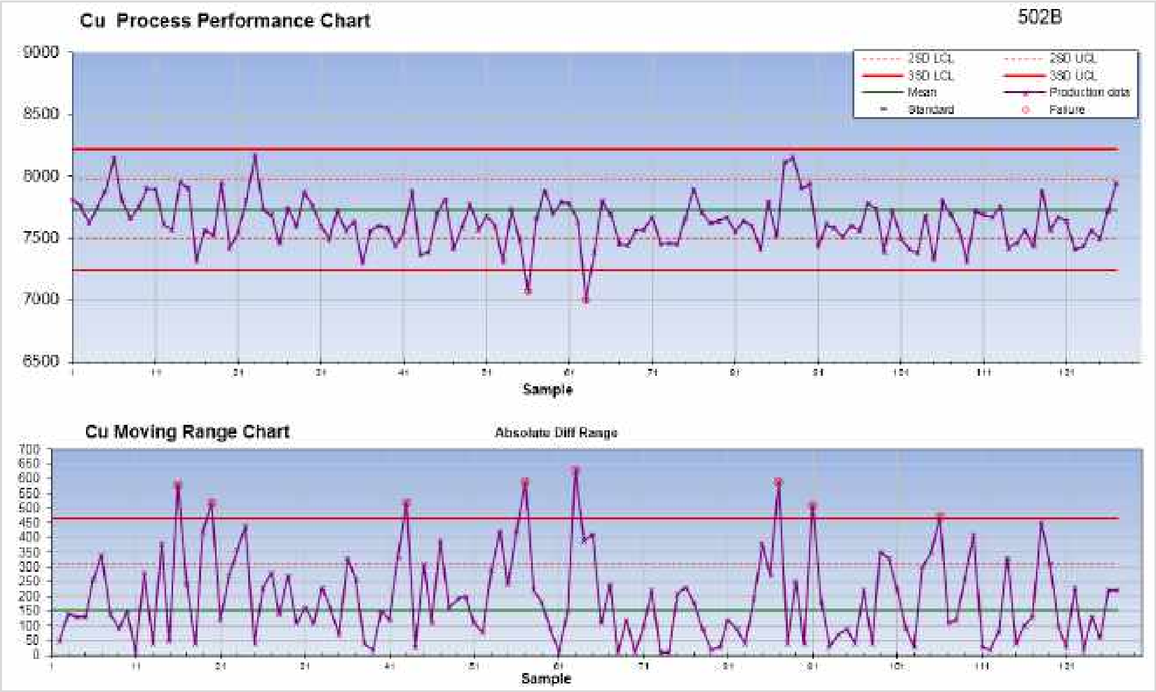
Source: Nordmin, 2019

Figure 11-15: Alacran deposit Cordoba standard 501B Cu (ppm)



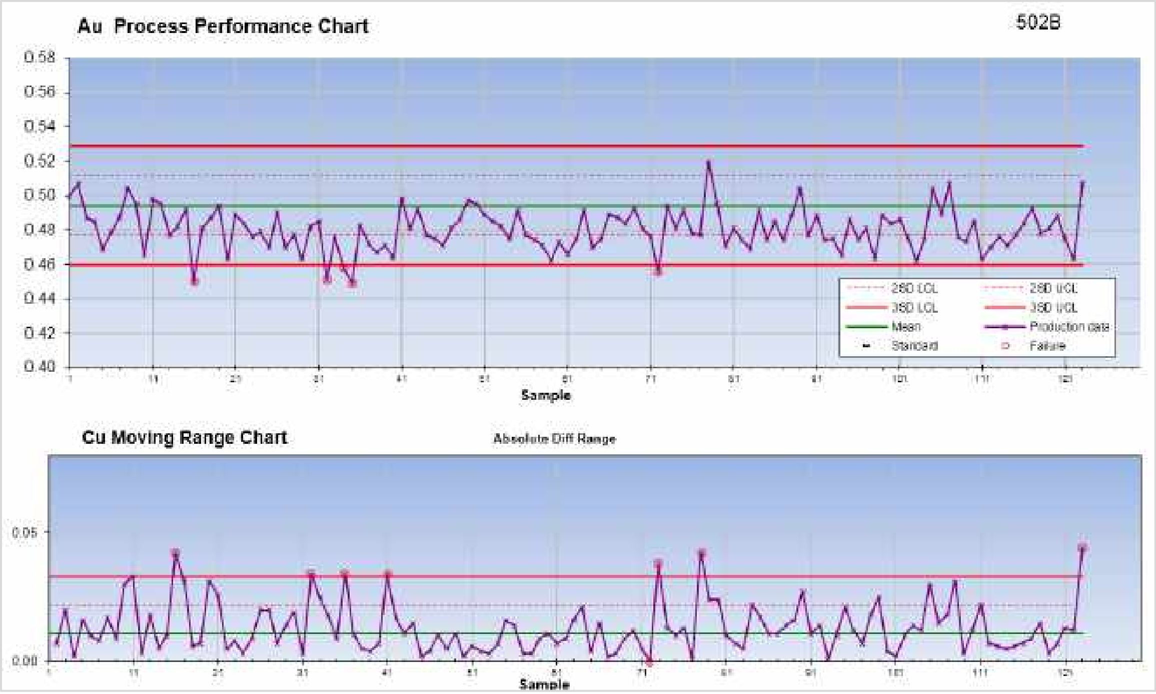
Source: Nordmin, 2019

Figure 11-16: Alacran deposit Cordoba standard 501B Au (g/t)



Source: Nordmin, 2019

Figure 11-17: Alacran deposit Cordoba standard 502B Cu (ppm)

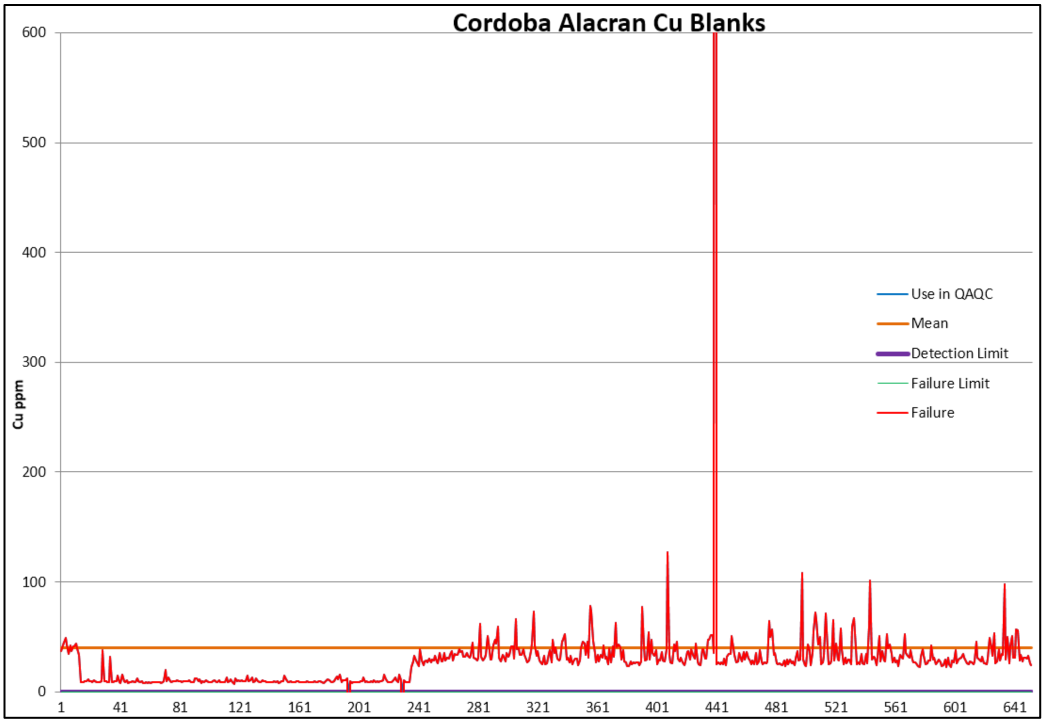


Source: Nordmin, 2019

Figure 11-18: Alacran deposit Cordoba standard 502B Au (g/t)

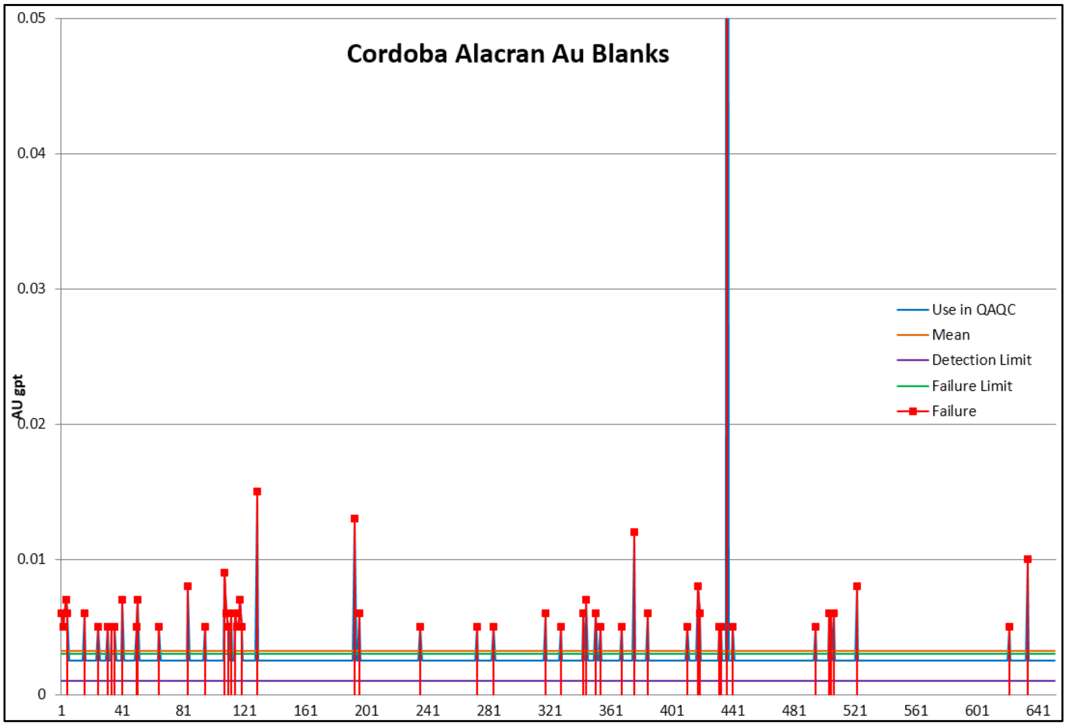
Blanks

Cordoba submitted 652 coarse blanks between 2016 and 2018 as part of its QA/QC process. No significant carryover is evident (Figure 11-20 and Figure 11-19); however, they do demonstrate the coarse blank is not sufficiently devoid of Cu relative to the MEMS 61 lower detection limit. This does not impact the current assessment.



Source: Nordmin, 2019

Figure 11-19: Cordoba coarse blanks, Cu (ppm) results for the Alacran deposit



Source: Nordmin, 2019

Figure 11-20: Cordoba coarse blanks, Au (g/t) results for the Alacran deposit

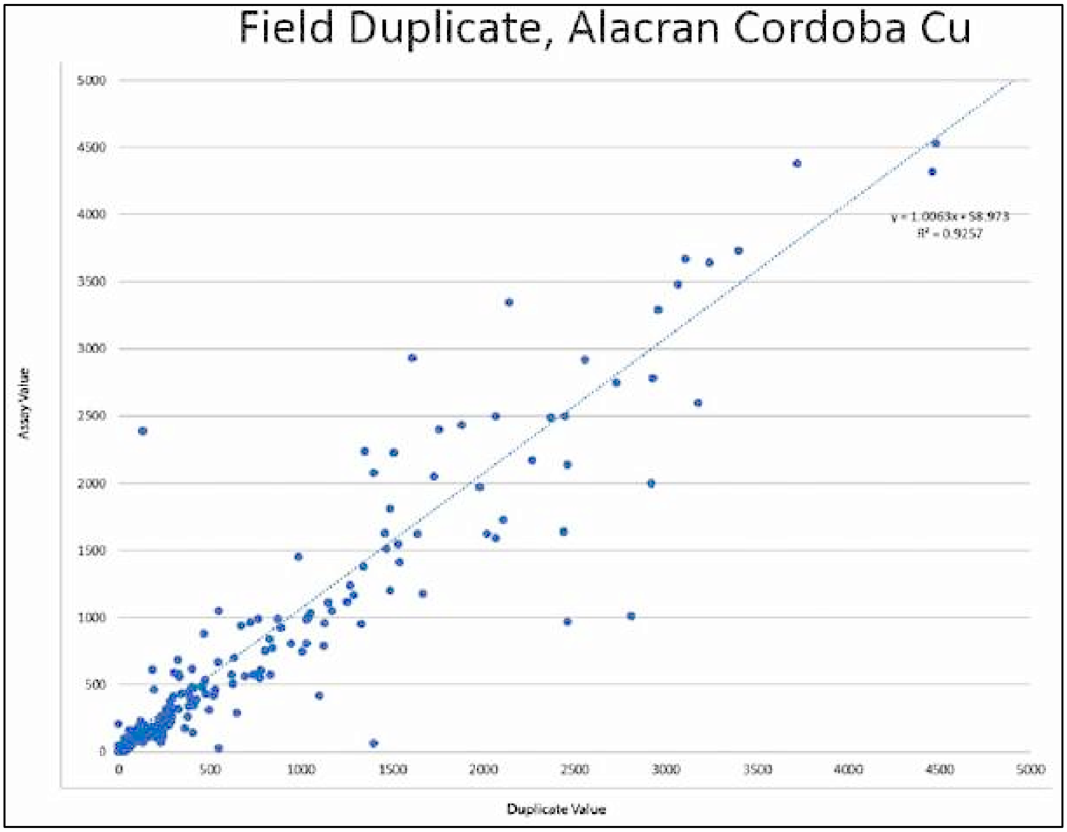
Field and Laboratory Duplicates

Cordoba submitted 317 Au and 265 Cu core and pulp duplicates, along with 296 laboratory Au duplicates and 156 laboratory Cu duplicates as part of their QA/QC process. Field duplicate pair results show high variability for Cu and much less for Au (Figure 11-21 and Figure 11-22). Coarse reject and pulp duplicate pairs for both Au and Cu results show low variability for Cu and higher variability for Au (Figure 11-23 and Figure 11-24).

The variability in the field duplicates may be attributable to the natural variability of mineralization but can also be a result of poor sampling practice. In a review in 2016, Mr. Sketchley observed a serious water shortage issue that resulted in a thick muddy coating on some cut core and a potential for significant contamination. The importance of adequate flushing was pointed out to the operator, and the issue was rectified.

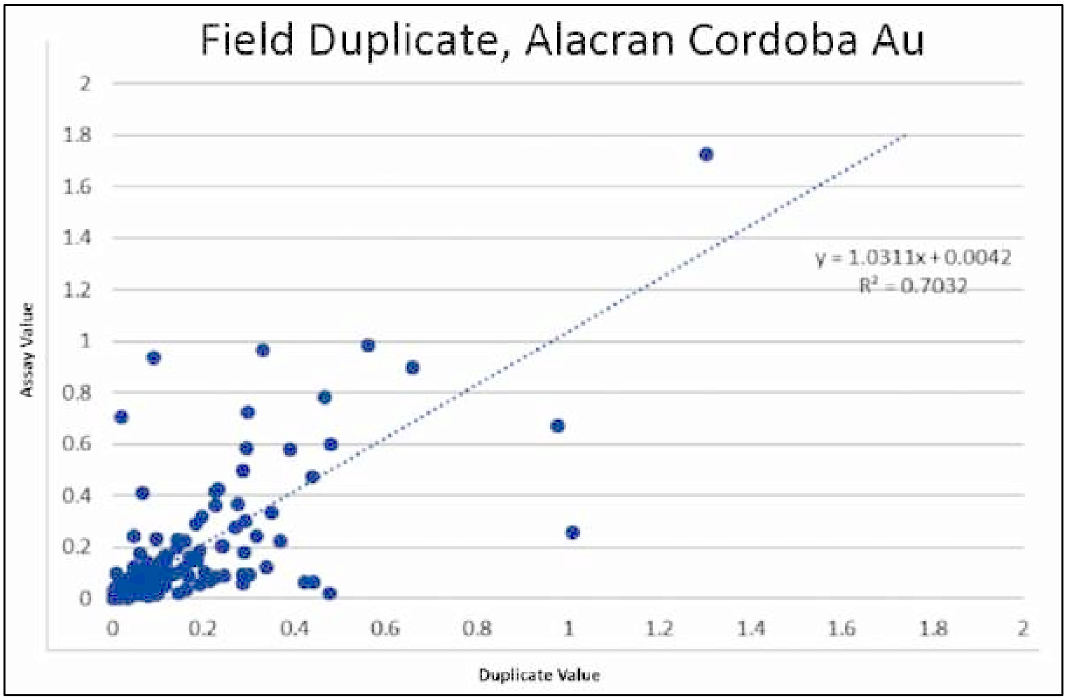
Mr. Sketchley (2016) examined the precision issue by comparing fire assay methods and initiating screen metallic assays and concluded that the significant amount of scatter present above 0.2 g/t Au indicates the presence of coarse Au. The scatter is more pronounced for 30 g fire assay compared to 50 g. When values above 1 g/t are excluded, a reverse effect tends to be exhibited. In a follow-up investigation by Mr. Sketchley in 2018, the heterogeneity of Au was evaluated by conducting Au grain size fraction analyses on a material known to exhibit coarse Au heterogeneity issues. He concluded two groups of Au grain sizes are present in the test samples: finer than about 105 microns (140 mesh), and coarser than 105 microns (140 mesh). They roughly correspond to non-liberation and liberation of Au during the routine pulverizing procedure in a laboratory. Mr. Sketchley recommended that in order to maintain the desired level of reproducibility the grade and size of analytical samples containing coarse Au must be greater than specified thresholds to ensure at least 20 Au particles per analytical sample. Samples with coarse Au lower than specified thresholds would be expected to exhibit a nugget effect, which could be overcome by doing pre-concentration such as screen metallic assays.

Cordoba reviewed core for 15 field duplicate pairs in an effort to determine a source of variability and conclude the variations in the results of duplicates are due mostly to the heterogeneity of the deposit. Second and infrequent is a matter of bad sampling such as ignoring geological contacts in areas of high fracturing. Only one case does not seem to have a geological explanation for the disparate results.



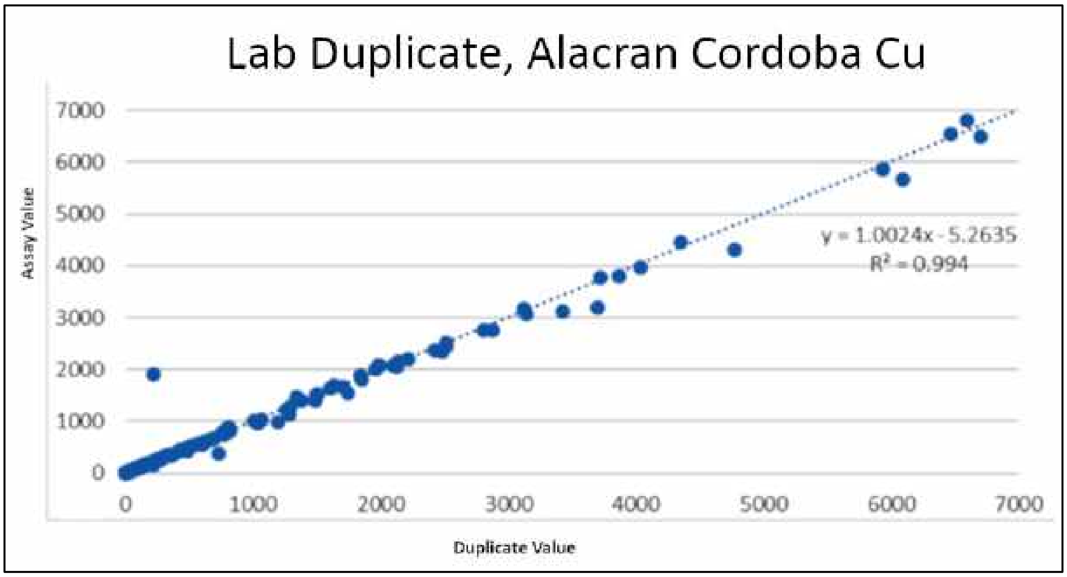
Source: Nordmin, 2019

Figure 11-21: Field duplicates for Cu (ppm) by Cordoba for the Alacran deposit



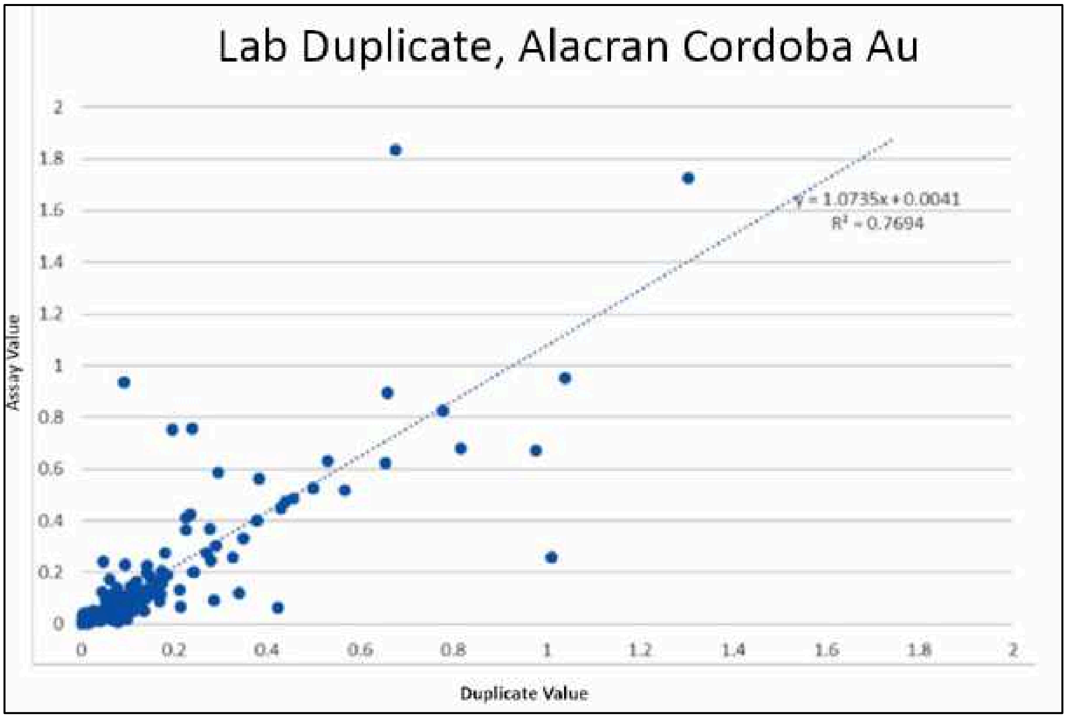
Source: Nordmin, 2019

Figure 11-22: Field duplicates for Au (g/t) by Cordoba for the Alacran deposit



Source: Nordmin, 2019

Figure 11-23: Lab duplicates (coarse reject and pulp) for Cu (ppm) by Cordoba for the Alacran deposit



Source: Nordmin, 2019

Figure 11-24: Lab duplicates (coarse reject and pulp) for Au (g/t) by Cordoba for the Alacran deposit

Checks

Check samples have been submitted for the 2017 drill program; however, the results were not available at the time of writing. Based on the CRM results, no significant between-laboratory bias is expected.

11.2.3.2 Satellite Deposits

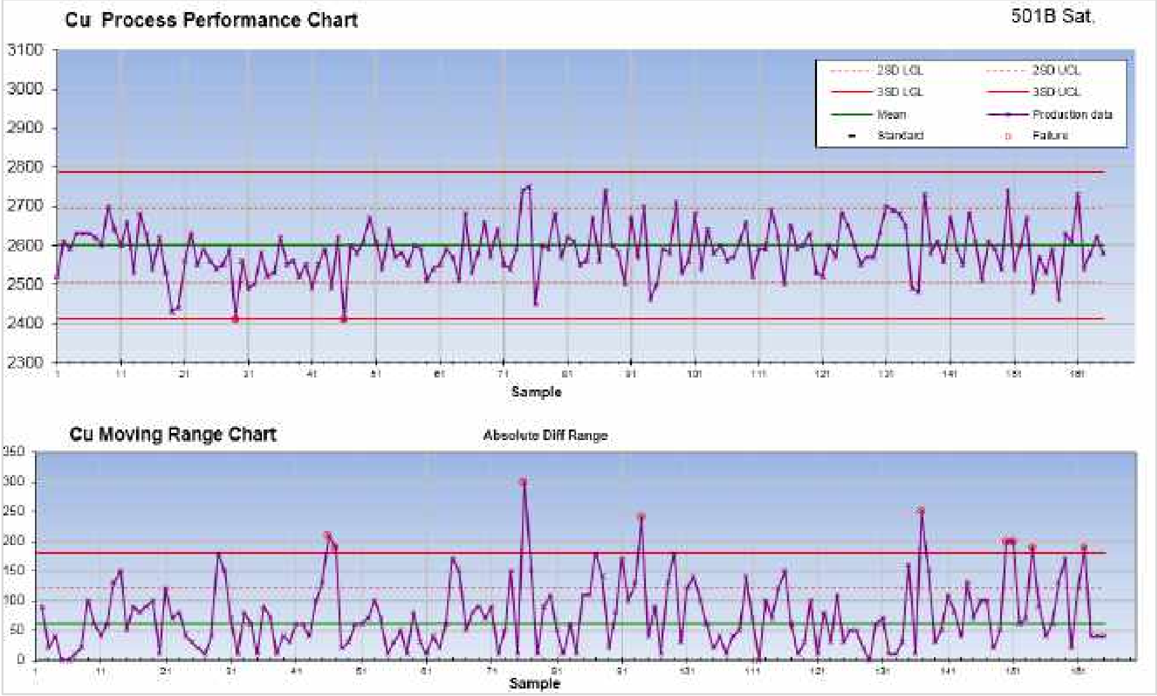
Standards

Cordoba submitted 641 standards between 2016 and 2018 as part of their QA/QC process for the three satellite deposits (Costa Azul, Montiel East, and Montiel West). The combined CRM results are summarized in Table 11-3, Figure 11-25, Figure 11-26, Figure 11-27 and Figure 11-28. No significant biases are evident.

Table 11-3: Cordoba Satellite Deposits CRM Result Summary

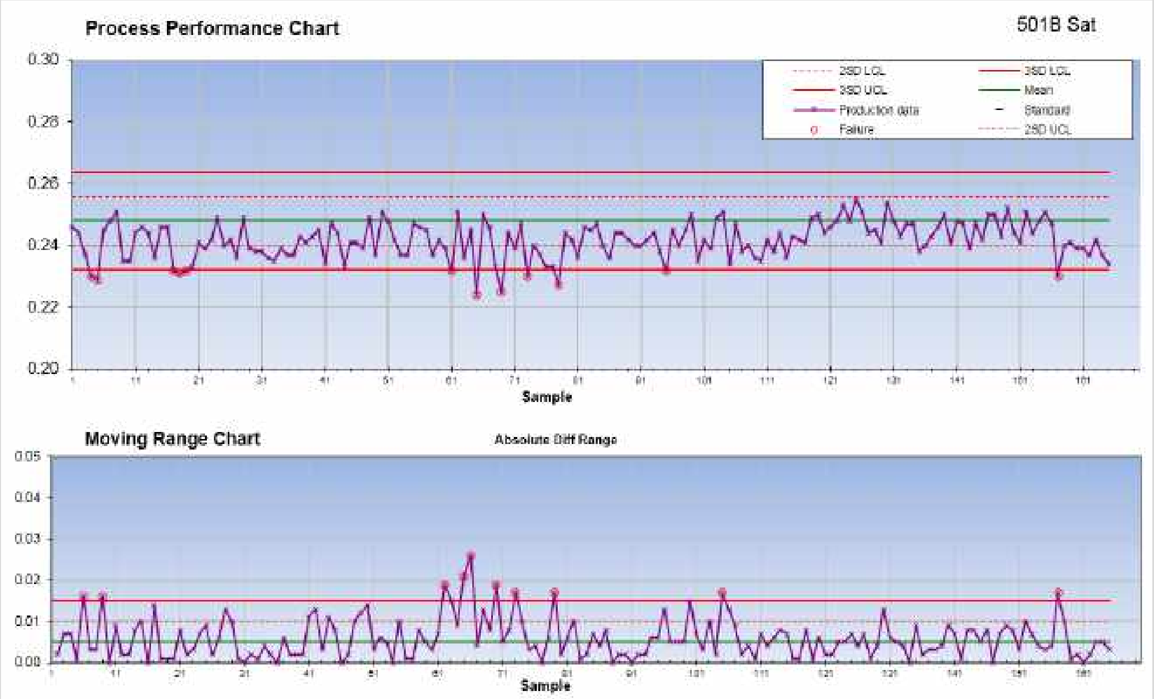
Standard	Count	Best Value Au (g/t)	Mean Au (g/t)	Bias (%)	Certified Value Au (%)	Standard Deviation Moving Average (%)	Best Value Cu (ppm)	Mean Cu (ppm)	Bias (%)	Certified Value Cu (%)	Standard Deviation Moving Average (%)
501b	165	0.248	0.242	-2.4	2.5	2.1	2,600	2,586	-0.1	2.6	2.4
502b	28	0.494	0.470	-4.8	3.1	2.1	7,730	7,794	-0.1	3.1	3.4
503b	34	0.695	0.670	-3.6	2.4	1.8	-	-	-	-	-
504b	41	1.61	1.520	5.5	3.8	2.2	11,100	11,098	-0.1	1.6	0.9
CDN-CM-35	118	0.320	0.319	-0.3	6.4	5.9	2,430	2,452	-1.0	2.8	3.0

Source: Cordoba, 2019. No data was available for 503B Cu.



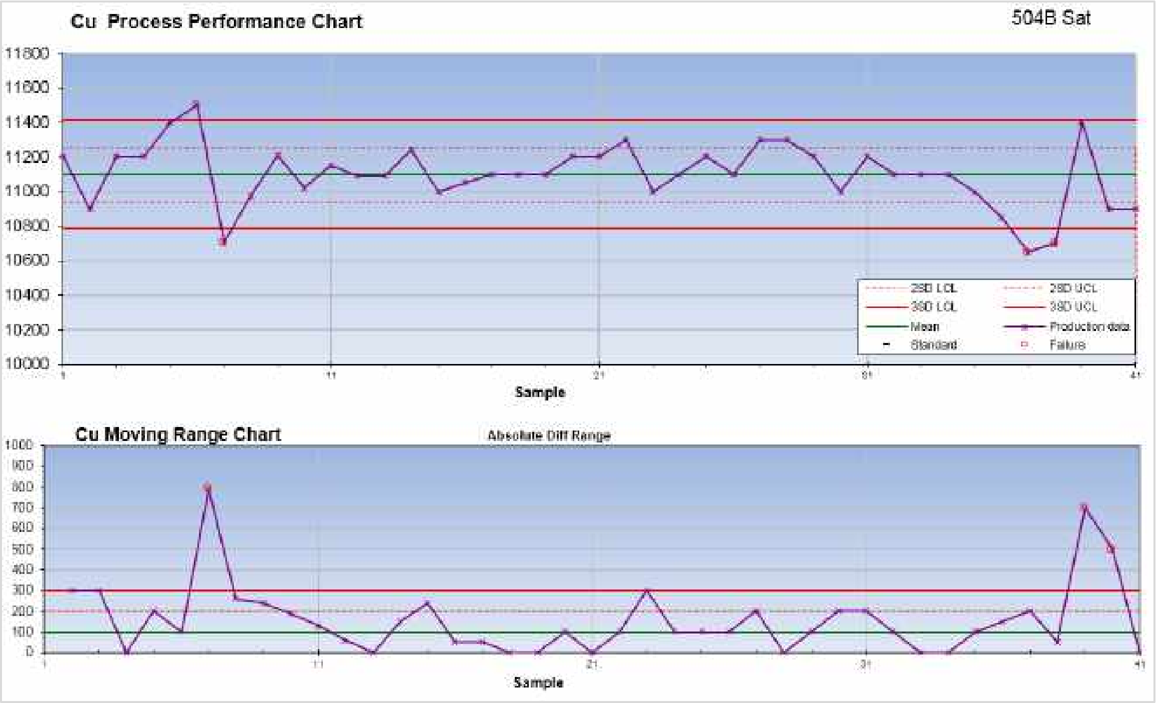
Source: Nordmin, 2019

Figure 11-25: Satellite deposits, Cordoba standard 501B Cu (ppm)



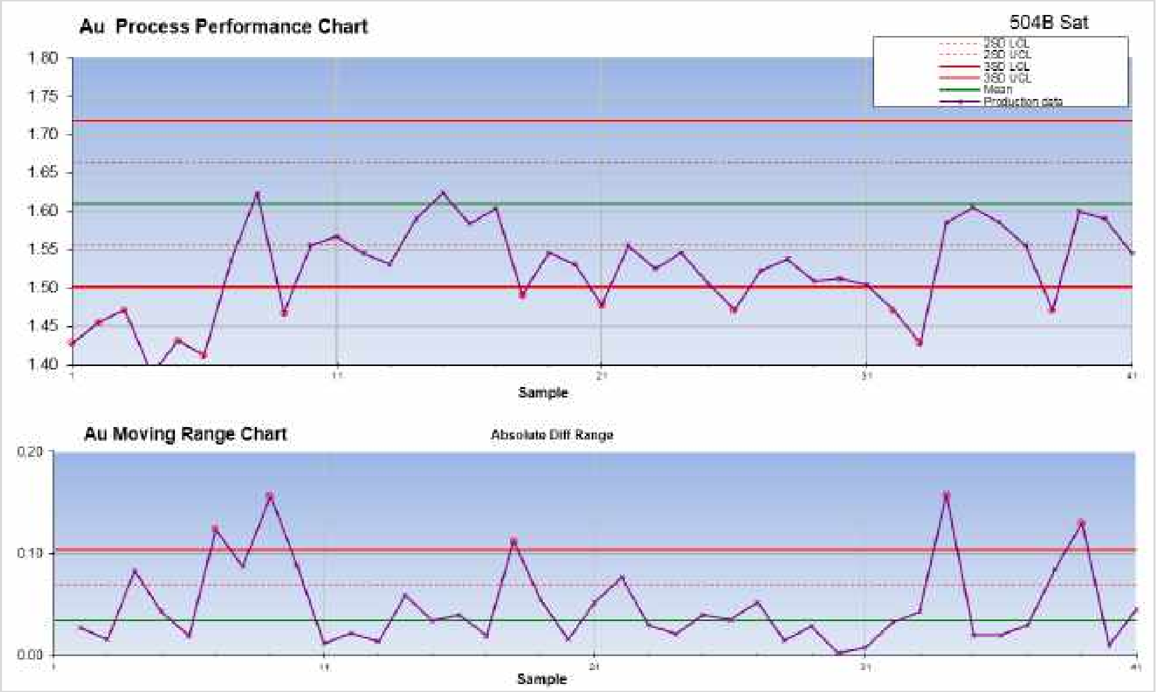
Source: Nordmin, 2019

Figure 11-26: Satellite deposits, Cordoba standard 501B Au (g/t)



Source: Nordmin, 2019

Figure 11-27: Satellite deposits, Cordoba standard 504B Cu (ppm)

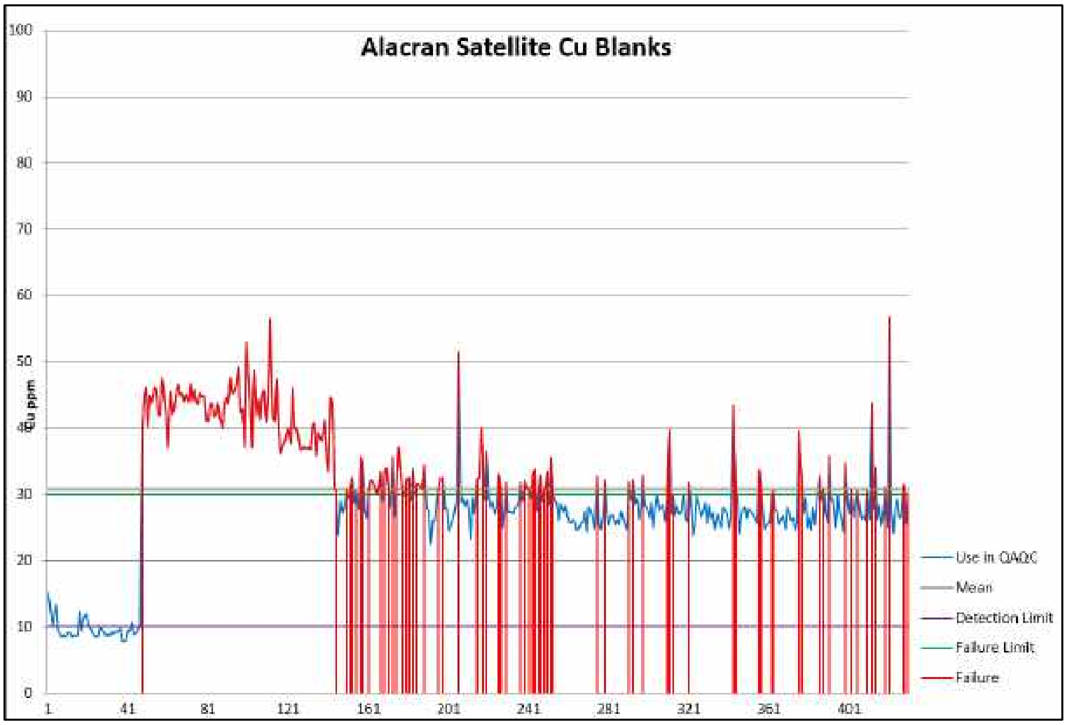


Source: Nordmin, 2019

Figure 11-28: Satellite deposits, Cordoba standard 504B Au (g/t)

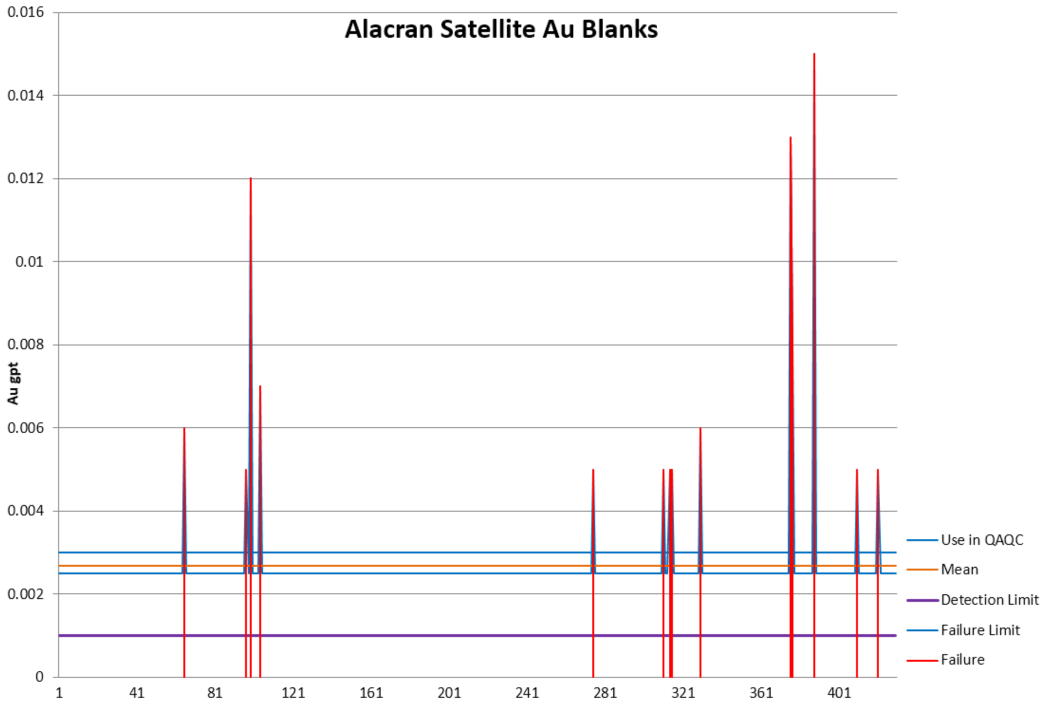
Blanks

Cordoba submitted 443 coarse blanks between 2014 and 2017 as part of its QA/QC process for its three satellite deposits (Costa Azul, Montiel East, and Montiel West). No significant carryover is evident (Figure 11-30 and Figure 11-29); however, they do demonstrate the coarse blank is not sufficiently devoid of Cu relative to the MEMS 61 lower detection limit. This does not impact the current assessment.



Source: Nordmin, 2019

Figure 11-29: Cordoba coarse blanks, Cu (ppm) results for the satellite deposits

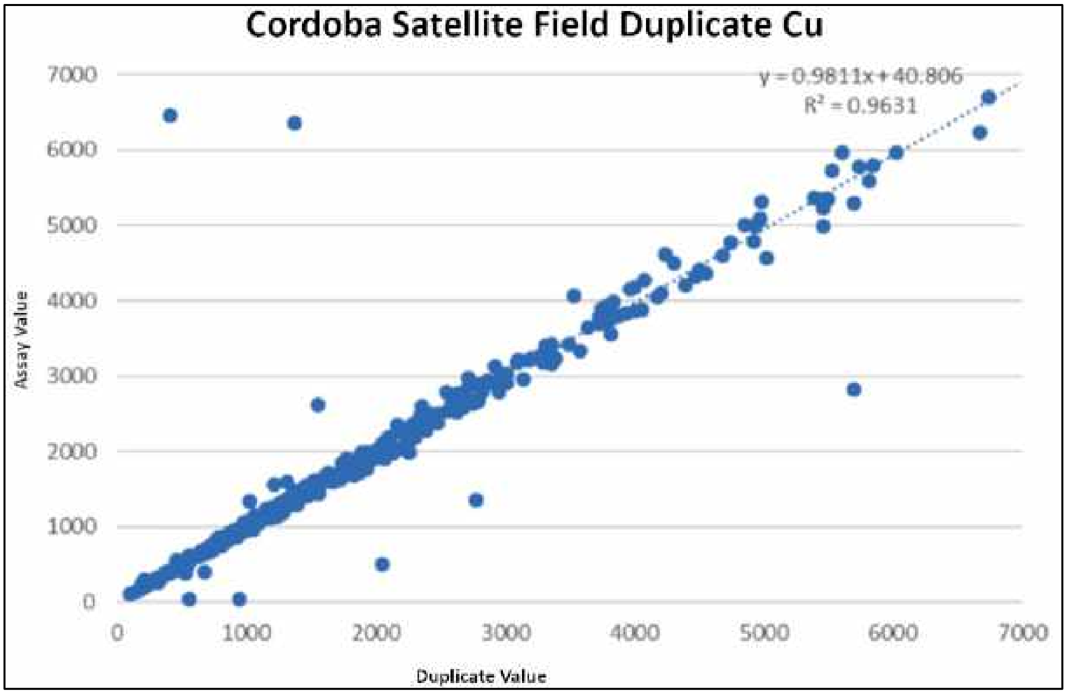


Source: Nordmin, 2019

Figure 11-30: Cordoba coarse blanks, Au (g/t) results for the satellite deposits

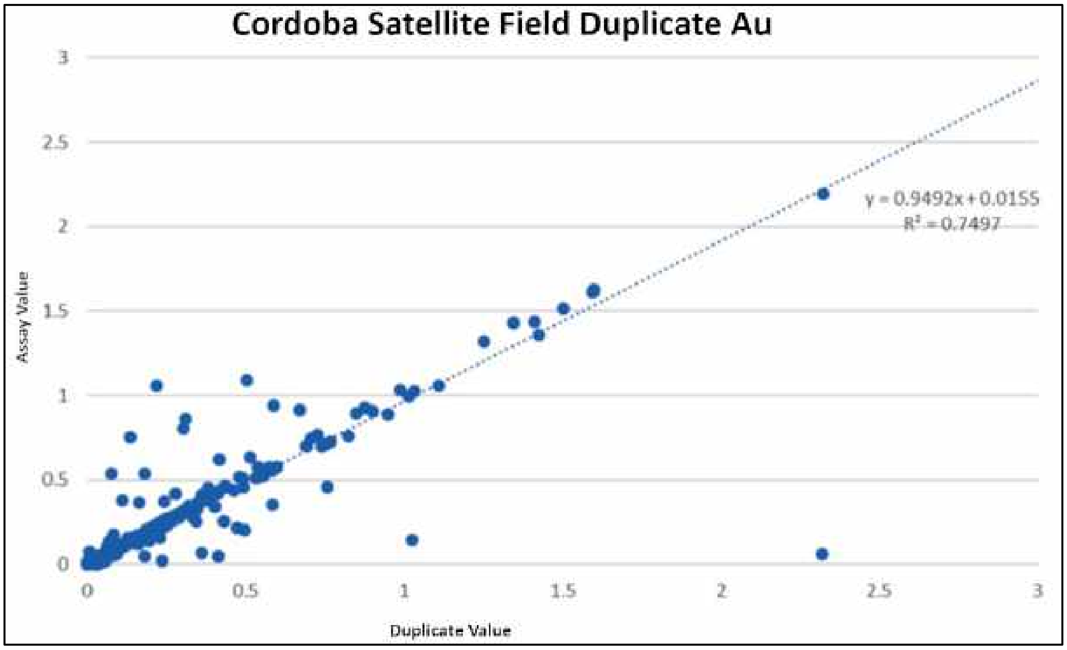
Field and Laboratory Duplicates

Cordoba submitted 719 Au/Cu core and pulp duplicates, along with 167 laboratory Au duplicates and 232 laboratory Cu duplicates as part of their QA/QC process for its three satellite deposits (Costa Azul, Montiel East, and Montiel West). Field duplicate pair results show low variability for Cu and higher for Au (Figure 11-31 and Figure 11-32), while coarse reject and pulp duplicate pair for both Au and Cu results show low variability for Cu and Au (Figure 11-33 and Figure 11-34).



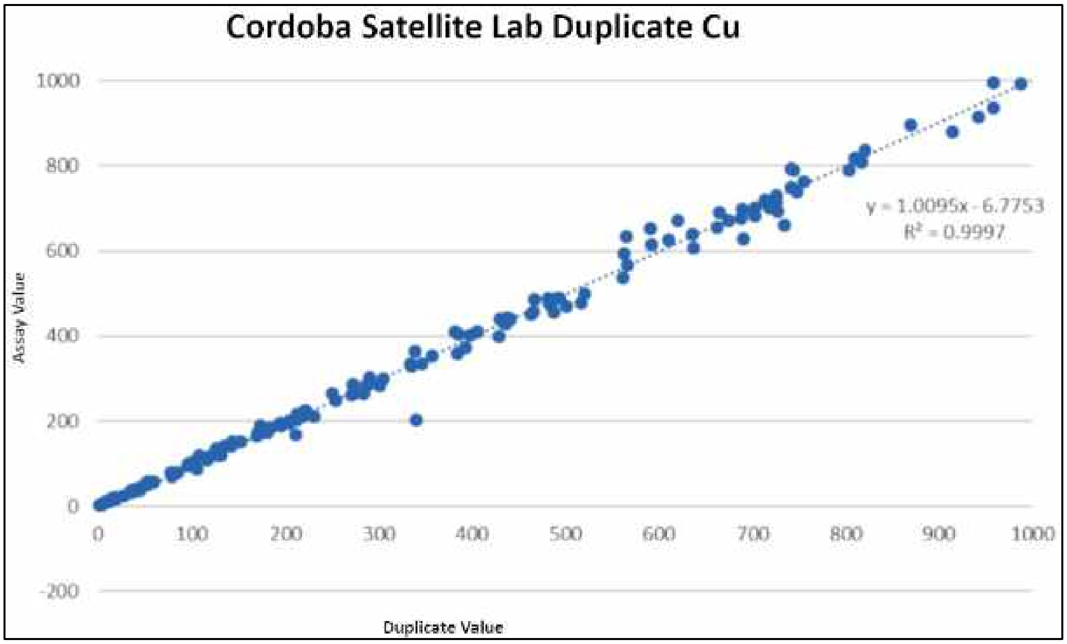
Source: Nordmin, 2019

Figure 11-31: Field duplicates, for Cu (ppm) by Cordoba for the satellite deposits



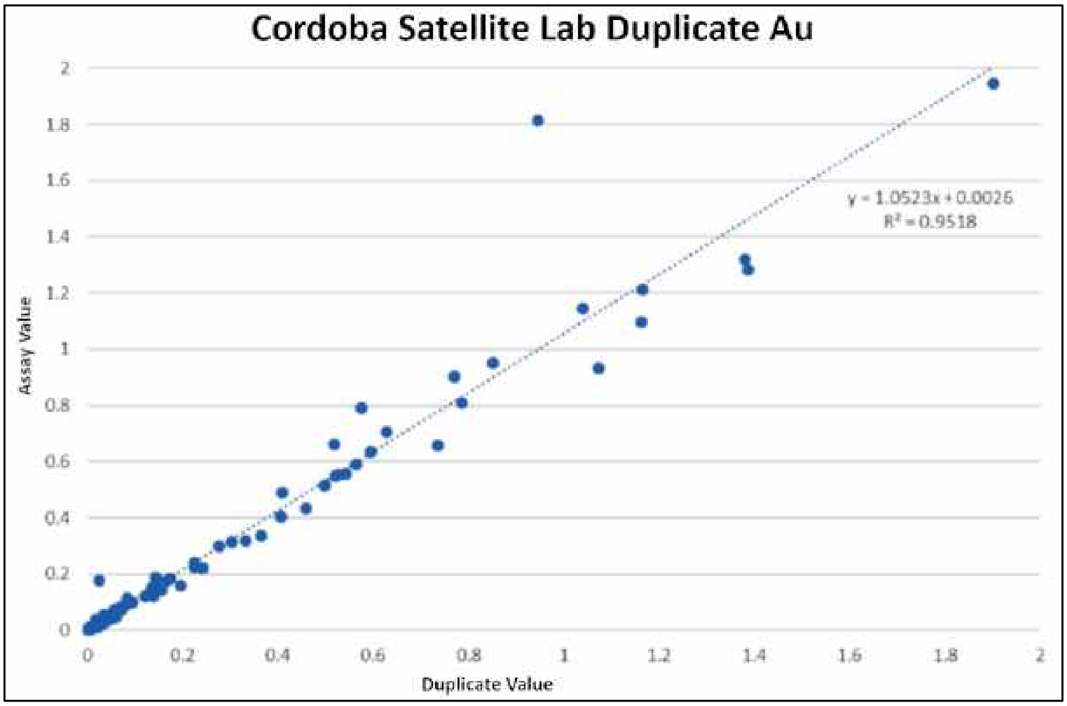
Source: Nordmin, 2019

Figure 11-32: Field duplicates, for Au (g/t) by Cordoba for the satellite deposits



Source: Nordmin, 2019

Figure 11-33: Lab duplicates (coarse reject and pulp), for Cu (ppm) by Cordoba for the satellite deposits



Source: Nordmin, 2019

Figure 11-34: Lab duplicates (coarse reject and pulp), for Au (g/t) by Cordoba for the satellite deposits

11.3 Sample Security

11.3.1 Dual Resource

No formal documented processes were found with respect to sample security.

11.3.2 Ashmont

The Ashmont drill core was stored in metal core boxes by Ashmont in a store in Monteria and was transported to Cordoba' secure core store and core logging shack at Alacran when it acquired the project. The sample rejects and pulps were stored by Ashmont in a store in Puerto Libertador and were likewise transferred to the Alacran core store by Cordoba.

11.3.3 Cordoba

Drill core from each run was placed in metal core boxes by the drillers. Core boxes were taken from the rig to the core shack by company vehicle. Samples were securely stored in the core shack at Alacran were then transported by courier to the laboratory in Medellín . All remaining core is stored at Cordoba's secure core logging facility.

11.4 Qualified Person's Opinion on the Adequacy of Sample Preparation, Security and Analytical Procedures.

Nordmin has been supplied with all raw QA/QC data and has reviewed and completed an independent check of the results for all Cordoba, Ashmon and Dual Resources sampling programs. It is Nordmin's opinion that the sample preparation, security and analytical procedures used by all parties are consistent with standard industry practices and that the data is suitable for the 2019 Mineral Resource Estimate. Nordmin identified several further recommendations to Cordoba to ensure the continuation of a robust QA/QC program but has noted that there are no material concerns with the geological or analytical procedures used or the quality of the resulting data.

12. DATA VERIFICATION

Nordmin completed several data validation checks throughout the duration of the 2019 Mineral Resource Estimate. The verification process included a three-day site visit to the Project in Colombia by the Nordmin QP to review surface geology, artisanal miner workings, drill core geology, geological procedures, chain of custody of drill core, sample pulps and for the collection of independent samples for metal verification. Data verification included a survey spot check of drill collars, a spot check comparison of Cu, Au and Ag assays from the drill hole database against original assay records (lab certificates), spot check of drill core lithologies recorded in the database versus the core located in the core storage shed and a review of QA/QC performance of the drill programs. Nordmin has also completed additional data analysis and validation, as outlined in Section 11.

12.1 Nordmin Site Visit 2019

A site visit to the Project was carried out April 8 to 10, 2019 by Glen Kuntz, P.Geo., QP for Mineral Resources, Francine Long, P.Geo. and Agnes Krawczyk, P.Eng. Activities during the site visit included:

- Review of the geological and geographical setting of the Project;
- Review and inspection of the site geology, mineralization and structural controls on mineralization;
- Review of the drilling, logging, sampling, analytical and QA/QC procedures;
- Review of the chain of custody of samples from the field to assay lab;
- Review of the drill logs, drill core, storage facilities and independent assay verification on selected core samples;
- Confirmation of some drill hole collar locations;
- Review of the artisanal operations that are dedicated to the recovery of Au;
- Assessment of logistical aspects, potential open pit locations, potential waste dumps and other surface infrastructure practicalities relating to the property;
- Review of the structural measurements recorded within the drill logs and how these measurements are utilized within the 3D structural model; and
- Validation of a portion of the drill hole database.

The Cordoba geologists completed the geological mapping, core logging and sampling associated with the 2015 to 2019 drill programs. Therefore, Nordmin relied on Cordoba's database to review the core logging procedures, collection of samples, chain of custody associated with the drilling programs. Cordoba provided Nordmin with excerpts from the drill database (acQuire^{TM}) for the Project and electronic copies of the original logging and assay reports.

Cordoba employs a rigorous QA/QC protocol including the routine insertion of field duplicates, laboratory pulp duplicates, blanks and certified reference standards. Nordmin was provided with an excerpt from the database for review.

The collection and use of the structural information were reliable, and representative of the structure features being drilled. This was found to be consistent with industry standards and in accordance with Cordoba's internal procedural documentation.

No significant issues were identified during the site visit. Nordmin was accompanied by Cordoba geologists who have been involved with the Project since 2011

- The geological data collection procedures and the chain of custody were found to be consistent with industry standards and in accordance with Cordoba's internal procedural documentation; and
- Nordmin was able to verify the quality of geological and sampling information and develop an interpretation of Cu, Au and Ag grade distributions appropriate to use in the Mineral Resource model.

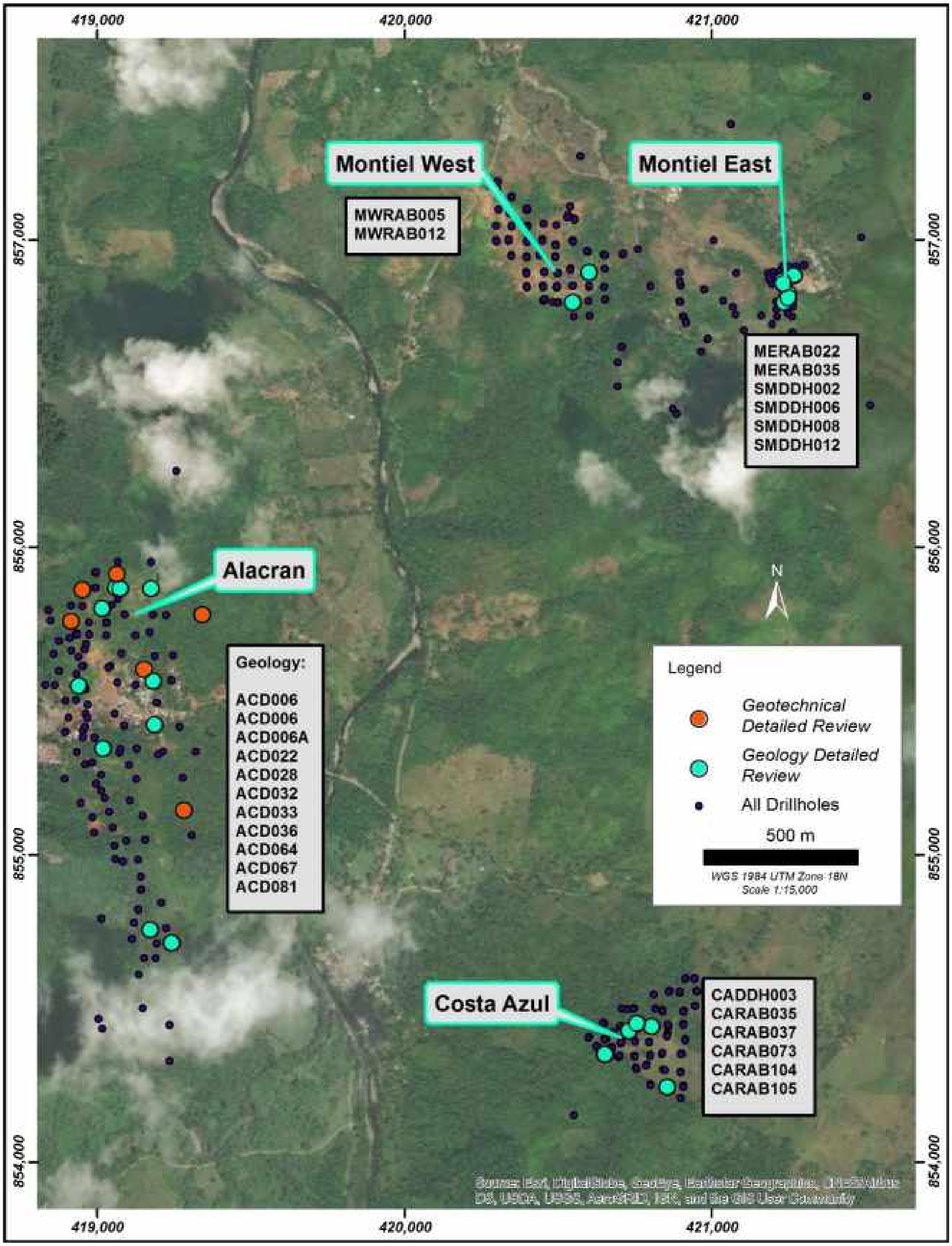
12.1.1 Field Collar Validation

The QP confirmed the collar locations of 20 Alacran, 10 Costa Azul and 8 Montiel East and Montiel West drill holes used within the Resource Estimate. The QP collected the collar locations using a Garmin GPSMAP 62 handheld GPS unit versus the differential GPS (sub-centimetre accuracy) used in the Cordoba database. Approximately 13% of the collar locations were checked in Alacran, approximately 7% in Costa Azul and approximately 5% in Montiel East/ Montiel West. The RC collar locations within the satellite deposits had a fair number of the collars removed. However, the drill pad was still visible for many of these collars. All of the collar locations except for two RC holes within the Costa Azul deposit are within the acceptable error limit of the GPS unit (Table 12-1, Figure 12-1 and Figure 12-2).

Table 12-1: Field Check Comparing DDH Collar Coordinates Using a Handheld GPS Versus Database Coordinates

DATABASE				ORIGINAL COLLAR				VERIFICATION		
PROJECT	BHID	EASTING	NORTHING	PROJECT	BHID	EASTING	NORTHING	BHID	XCOLLAR	YCOLLAR
Alacran North	ACD001	418914	855760	Alacran North	ACD001	418913	855764	ACD001	-1	4
Alacran North	ACD004	418973	855757	Alacran North	ACD004	418975	855763	ACD004	2	6
Alacran North	ACD007	418974	855718	Alacran North	ACD007	418976	855722	ACD007	2	4
Alacran North	ACD022	419017	855802	Alacran North	ACD022	419019	855804	ACD022	2	2
Alacran South	ACD025	419095	855046	Alacran South	ACD025	419092	855049	ACD025	-3	3
Alacran North	ACD047	419046	855813	Alacran North	ACD047	419049	855816	ACD047	3	3
Alacran North	ACD058	418963	855686	Alacran North	ACD058	418964	855689	ACD058	1	3
Alacran South	ACD066	419224	854762	Alacran South	ACD066	419224	854767	ACD066	0	5
Alacran South	ACD067	419242	854714	Alacran South	ACD067	419241	854719	ACD067	-1	5
Alacran South	ACD073	418984	855122	Alacran South	ACD073	418985	855127	ACD073	1	5
Alacran South	ACD081	419172	854756	Alacran South	ACD081	419168	854761	ACD081	-4	5
Alacran South	ASA011	419037	855139	Alacran South	ASA011	419034	855144	ASA011	-3	5
Alacran South	ASA014	418916	855760	Alacran South	ASA14	418916	855764	ASA14	0	4
Alacran South	ASA016	418951	855810	Alacran South	ASA16	418952	855814	ASA16	1	4
Alacran South	ASA019	418994	855869	Alacran South	ASA19	418993	855870	ASA19	-1	1
Alacran South	ASA021	418993	855869	Alacran South	ASA21	418993	855870	ASA21	0	1
Alacran North	ASA022	419141	854929	Alacran North	ASA022	419141	854928	ASA022	0	-1
Alacran North	ASA028	419113	854725	Alacran North	ASA028	419112	854729	ASA028	-1	4
Alacran North	ASA045	419133	854983	Alacran North	ASA045	419131	854986	ASA045	-2	3
Alacran North	ASA027	419120	854779	Alacran North	ASA027	419128	854782	ASA027	9	3
Costa Azul	CADDH001	420707	854442	Costa Azul	CADDH001	420704	854442	CADDH001	-3	0
Costa Azul	CADDH002	420705	854440	Costa Azul	CADDH002	420704	854442	CADDH002	-1	2
Costa Azul	CADDH003	420730	854428	Costa Azul	CADDH003	420730	854428	CADDH003	0	0
Costa Azul	CADDH005	420856	854420	Costa Azul	CADDH005	420857	854425	CADDH005	1	5
Costa Azul	CARAB021	420838	854355	Costa Azul	CARAB021	420822	854334	CARB021	-16	-21
Costa Azul	CARAB022	420838	854352	Costa Azul	CARAB022	420822	854334	CARB022	-16	-18
Costa Azul	CARAB039	420908	854493	Costa Azul	CARAB039	420901	854486	CARB039	-7	-7
Costa Azul	CARAB040	420908	854490	Costa Azul	CARAB040	420901	854486	CARB040	-7	-4
Costa Azul	CARAB048	420946	854510	Costa Azul	CARAB048	420945	854486	CARB048	-1	-24
Costa Azul	CARAB049	420946	854507	Costa Azul	CARAB049	420945	854486	CARB049	-1	-21
Montiel East	MWRAB007	420547	856852	Montiel East	MWRAB007	420547	856847	MWDDH007	0	-5
Montiel East	MWRAB008	420547	856852	Montiel East	MWRAB008	420547	856847	MWDDH008	0	-5
Montiel West	SMDDH011	420800	856850	Montiel West	SMDDH011	420810	856845	SMDDH011	10	-5
Montiel West	SMDDH015	420915	856731	Montiel West	SMDDH015	420916	856733	SMDDH015	1	2
Montiel West	SMDDH016	420915	856736	Montiel West	SMDDH016	420917	856739	SMDDH016	2	3
Montiel West	SMDDH016-W	420916	856731	Montiel West	SMDDH016W	420917	856739	SMDDH016W	1	8
Montiel West	SMDDH025	421006	856999	Montiel West	SMDDH025	421006	857001	SMDDH025	0	2
Montiel West	SMDDH032	421080	856892	Montiel West	SMDDH032	421081	856896	SMDDH032	1	4

Source: Nordmin, 2019



Source: Nordmin, 2019

Figure 12-1: Map of Alacran deposit and the three satellite deposits with validated drill hole collars

Source: Nordmin, 2019

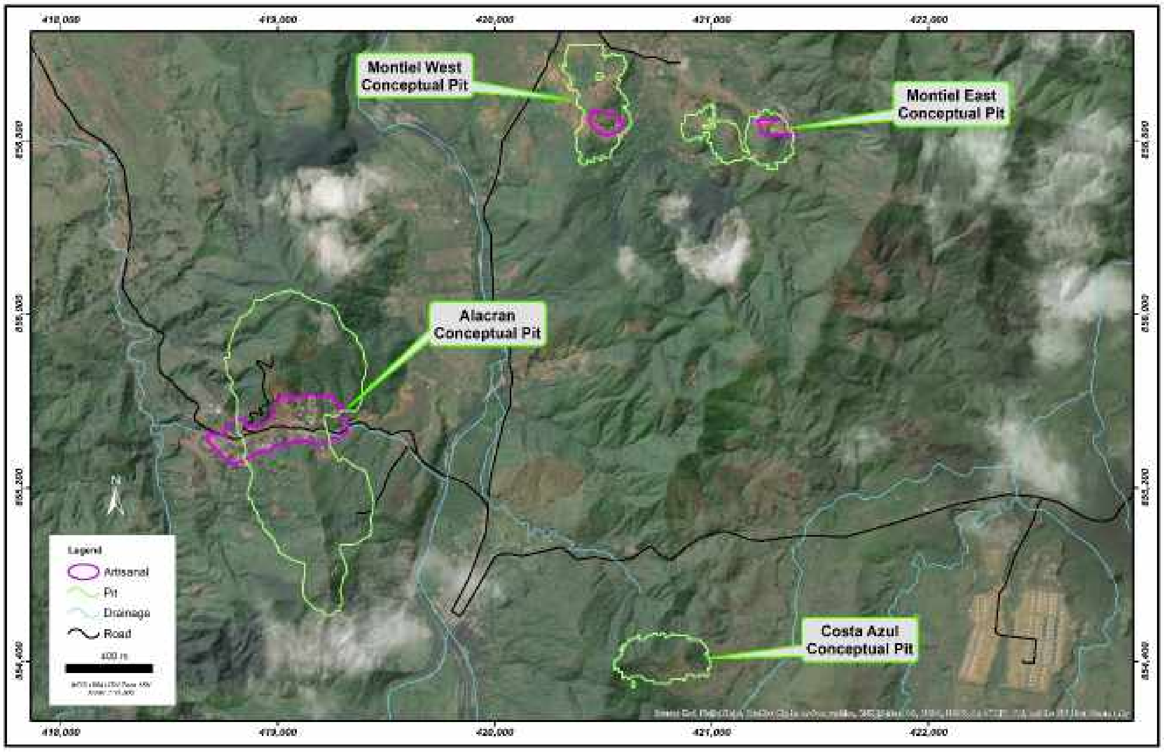
Figure 12-2: Examples of core hole validation for diamond drill core and RC drilling

12.1.2 Review of Local Artisanal Operations

Nordmin reviewed six artisanal operations while on site (Figure 12-3). Most were dedicated to the recovery of Au, and Nordmin observed one operation that had Cu-rich mineralization been set aside for the recovery of Cu but, unlike the Au-only recovery operations, the Au recovery plant was not in operation.

Figure 12-3: (A) Artisanal mining operations and (B) Artisanal mining portal

Nordmin observed the local artisanal operations focused on mining the high-grade Au structures in the Project area (Figure 12-4 and Figure 12-5).



Source: Nordmin, 2019

Figure 12-4: Overview of the Project area artisanal mining operations

Source: Nordmin, 2019

Figure 12-5: Plan view of Alacran deposit artisanal mining operations

12.1.3 Core Logging, Sampling and Storage Facilities

Cordoba drill holes were logged, photographed and sampled on-site at the core logging facility. Most of the core is stored on-site, and the samples pulps and coarse rejects are archived in secure storage facilities off-site (Figure 12-6).

Source: Nordmin, 2019

Figure 12-6: (A) Core logging and sampling facility at the Alacran camp, and (B) Core storage facility at the Alacran camp

12.1.4 Independent Sampling

The Nordmin QP selected intervals from 24 Alacran holes (both Cordoba and Ashmont drilled holes), four Costa Azul and 10 holes from Montiel East and Montiel West. A total of 38 sample pulps plus six control samples (two CRM standards and four blanks) were collected. Nordmin elected to choose a variety of grade ranges from various drill holes between the deposits (Table 12-2).

Table 12-2: Drill Program Intervals Selected for Verification Sampling

Hole ID	Sample From	Sample To	Old Sample	New Sample
ACCD027	180.00	182.00	ALA03745	ALA12201
ACD002	245.18	246.00	41319	ALA12206
ACD004	21.00	22.00	41712	ALA12208
ACD006A	223.00	224.00	42599	ALA12204
ACD008	119.00	120.00	43131	ALA12203
ACD015	131.00	132.00	ALA00155	ALA12205
ACD023	302.00	303.00	ALA03077	ALA12207
ACD027	8.00	10.00	ALA03643	ALA12202
ACD030	192.00	194.00	ALA04320	ALA12210
ACD032	54.00	56.00	ALA04614	ALA12222
ACD034	214.00	216.00	ALA5050	ALA12225
ACD044	120.00	122.00	ALA06584	ALA12209
ACD052	118.00	118.50	ALA07762	ALA12220
ACD055	188.00	190.00	ALA07672	ALA12223
ACD062	146.00	148.00	ALA9197	ALA12221
ACD070	197.85	199.40	ALA10340	ALA12211
ACD070	253.00	255.00	ALA10718	ALA12212
ASA019	67.00	68.00	31352	ALA12241
ASA019	71.00	72.00	31356	ALA12242
ASA022	204.00	205.00	32496	ALA12250
ASA024	148.00	149.00	33103	ALA12251
ASA024	231.00	232.00	33202	ALA12253
ASA026	136.00	137.00	33723	ALA12244
ASA026	141.00	142.00	33729	ALA12247
ASA027	125.00	126.00	33948	ALA12239
ASA027	102.00	103.00	33919	ALA12240
ASA034	80.00	81.00	35635	ALA12243
ASA038	138.00	139.00	36974	ALA12238
ASA038	140.00	141.00	36976	ALA12245
ASA038	162.00	163.00	37004	ALA12246
ASA041	78.00	79.00	37813	ALA12249
ASA041	88.00	89.00	37826	ALA12252
CADDH001	37.00	38.00	101184	ALA12231
CADDH002	81.50	82.50	101393	ALA12237
CADDH004	22.50	24.20	101839	ALA12234
CADDH006	15.00	17.00	SMA05707	ALA12233
MWDDH001	22.40	23.20	102002	ALA12227
MWDDH001	6.00	7.10	101985	ALA12226
MWDDH005	86.00	88.00	SMA05480	ALA12232
MWDDH008	24.00	26.00	SMA06416	ALA12218
SMDDH001	52.00	52.40	100070	ALA12235
SMDDH002	28.80	29.55	100123	ALA12213
SMDDH002	81.20	81.95	100193	ALA12214
SMDDH003	136.00	137.20	100666	ALA12215
SMDDH008	58.00	59.10	102717	ALA12216
SMDDH008	80.60	81.50	102741	ALA12217
SMDDH008	331.80	333.00	103002	ALA12219
SMDDH015	89.00	90.00	SMA00105	ALA12229
SMDDH018	64.00	66.00	SMA00768	ALA12230
SMDDH019	66.00	68.00	SMA01557	ALA12228

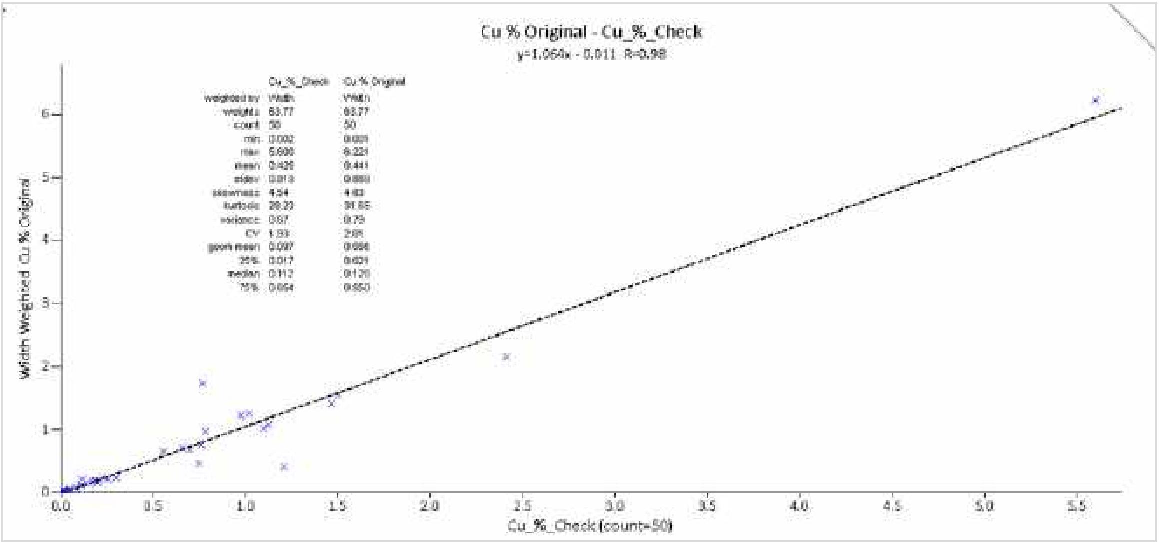
Source: Nordmin, 2019

Pulp samples selected by Nordmin for verification analysis were individually placed into plastic sample bags which were then packaged together and shipped to the ALS Laboratory in Colombia for analysis using Cordoba's analytical procedures (Figure 12-7).

Source: Nordmin, 2019

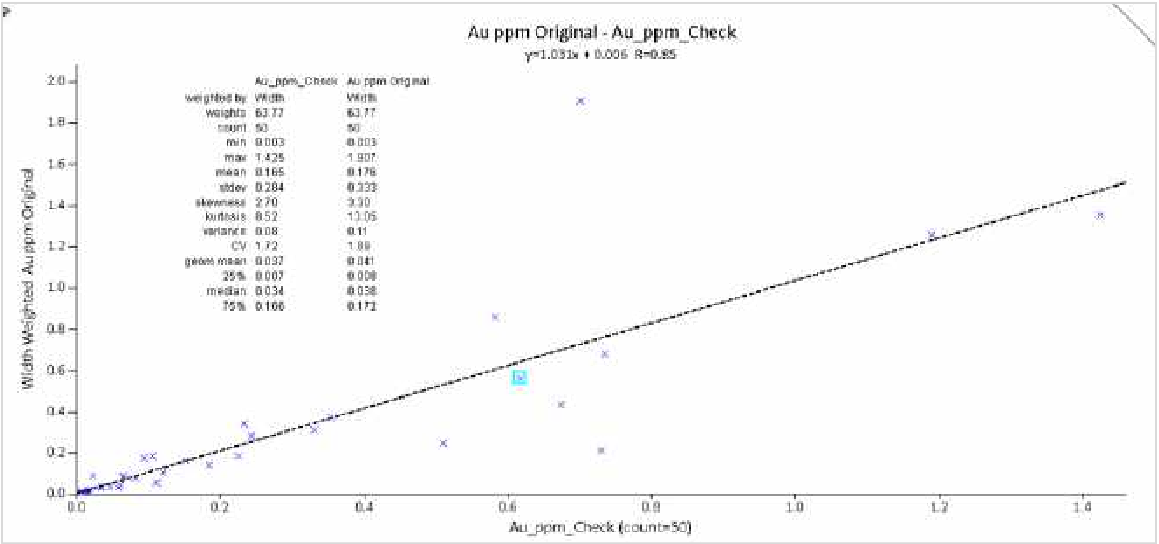
Figure 12-7: Nordmin verification samples

The Nordmin assay results were compared to the Cordoba database and summarized in the scatter plots for Cu and Au (Figure 12-8 and Figure 12-9). Despite some sample variance, most assays compared within reasonable tolerances for the deposit type and no material bias was evident.



Source: Nordmin, 2019

Figure 12-8: Scatter plot comparison of Cu (%) verification samples



Source: Nordmin, 2019

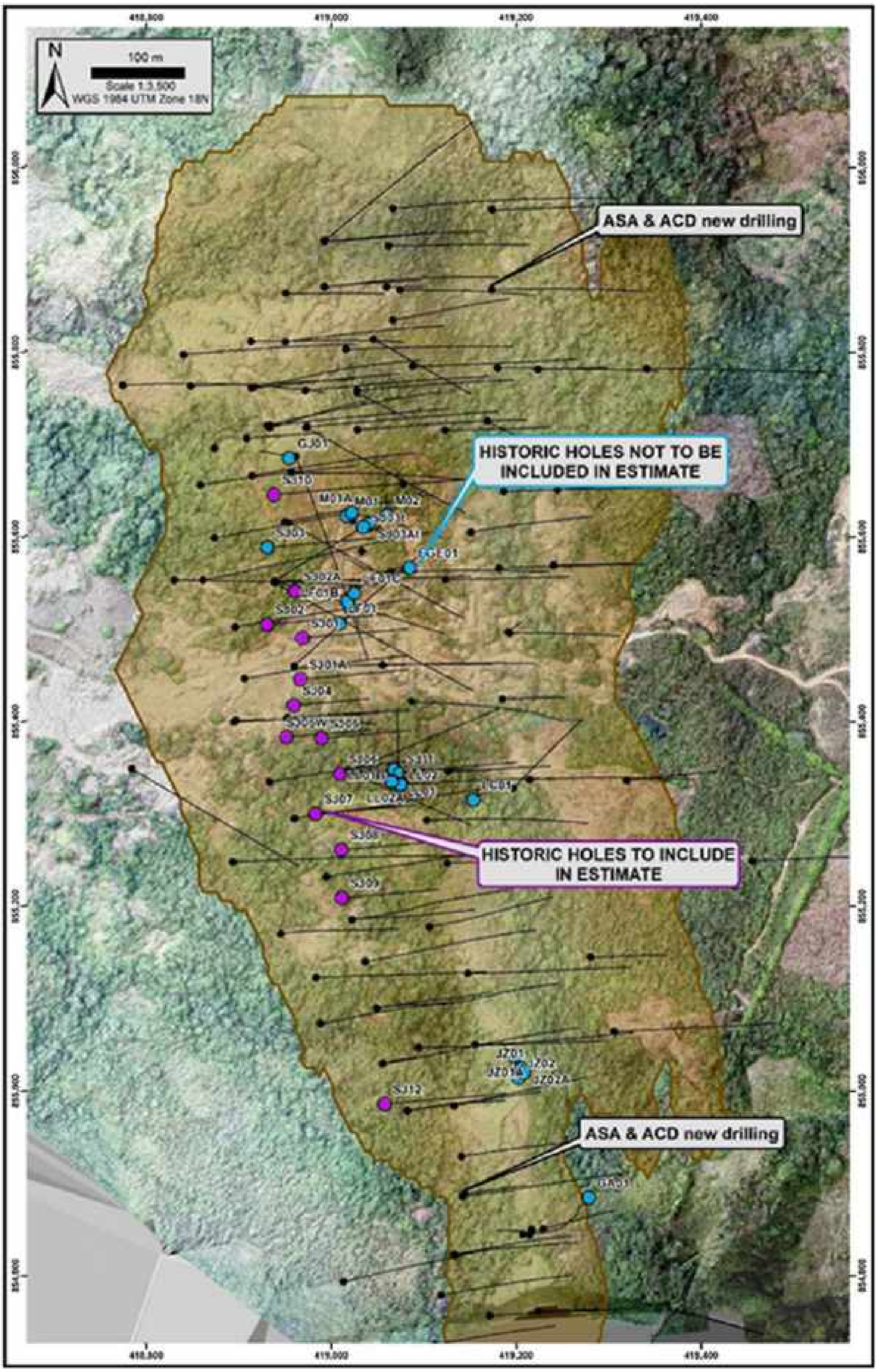
Figure 12-9: Scatter plot comparison of Au (ppm) *verification samples*

12.2 Alacran Deposit Twin Hole Analysis

Nordmin completed a twin hole analysis between the historical Dual Resources/Ashmont diamond drilling versus the more recent Cordoba drilling to determine if the historical information could be used in the geological model and Resource Estimate. The analysis compared the collar locations, downhole surveys, logging (lithology, alteration and mineralization), sampling and assaying between the two groups to determine if the historical holes had valid information and would not be introducing a bias within the geological model or Resource Estimate. The comparison included a QA/QC analysis of the historical drill holes, which is discussed in detail in Section 11.

A total of 37 historical holes were reviewed with the following outcomes (Figure 12-10):

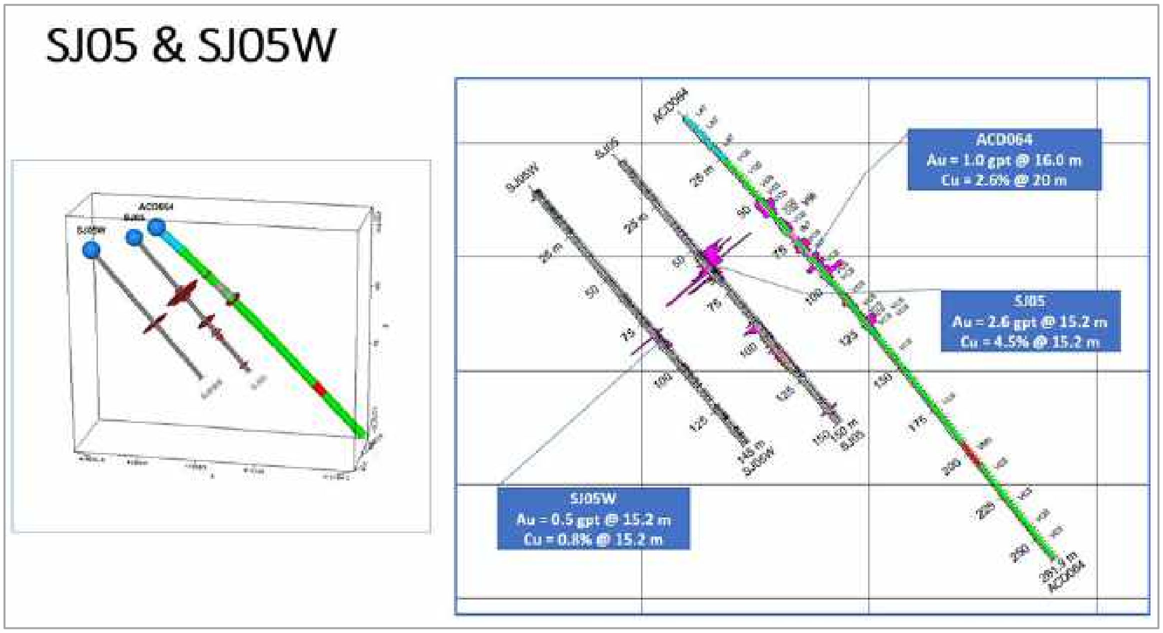
- 14 historical holes drilled by Dual Resources were used in the geological model and resource estimation:
    - SJ01, SJ01A, SJ02, SJ02A, SJ04, SJ05, SJ05W, SJ06, SJ07, SJ08, SJ09, SJ10, SJ11 and SJ12.
- 23 historical holes completed by alluvial miners and Dual Resources were used in the geological model but not in the resource estimation:
    - EGE01, GA01, GJ01, JZ01, JZ01A, JZ02, JZ02A, LC01, LF01, LF01A, LF01B, LF01C, LL01, LLO1A, LL01B, LL02, LL02A, M01, M01A, M02, SJ03, SJ03AT, SJ03T



Source: Nordmin, 2019

Figure 12-10: Plan view outlining the locations of the holes used in geological modelling and Resource Estimation

Figure 12-11 demonstrates that grade variability and location downhole were insignificant between historical holes SJ05 and SJ05W versus ACD064 and demonstrated good overall grade continuity between the intercepts. A similar pattern was observed in all 14 of the historical drill holes used within the Resource Estimate, which included reliable QA/QC data.



Source: Nordmin, 2019

Figure 12-11: A 3D isometric view and cross section of drill holes SJ05/SJ05W versus drill hole ACD 064

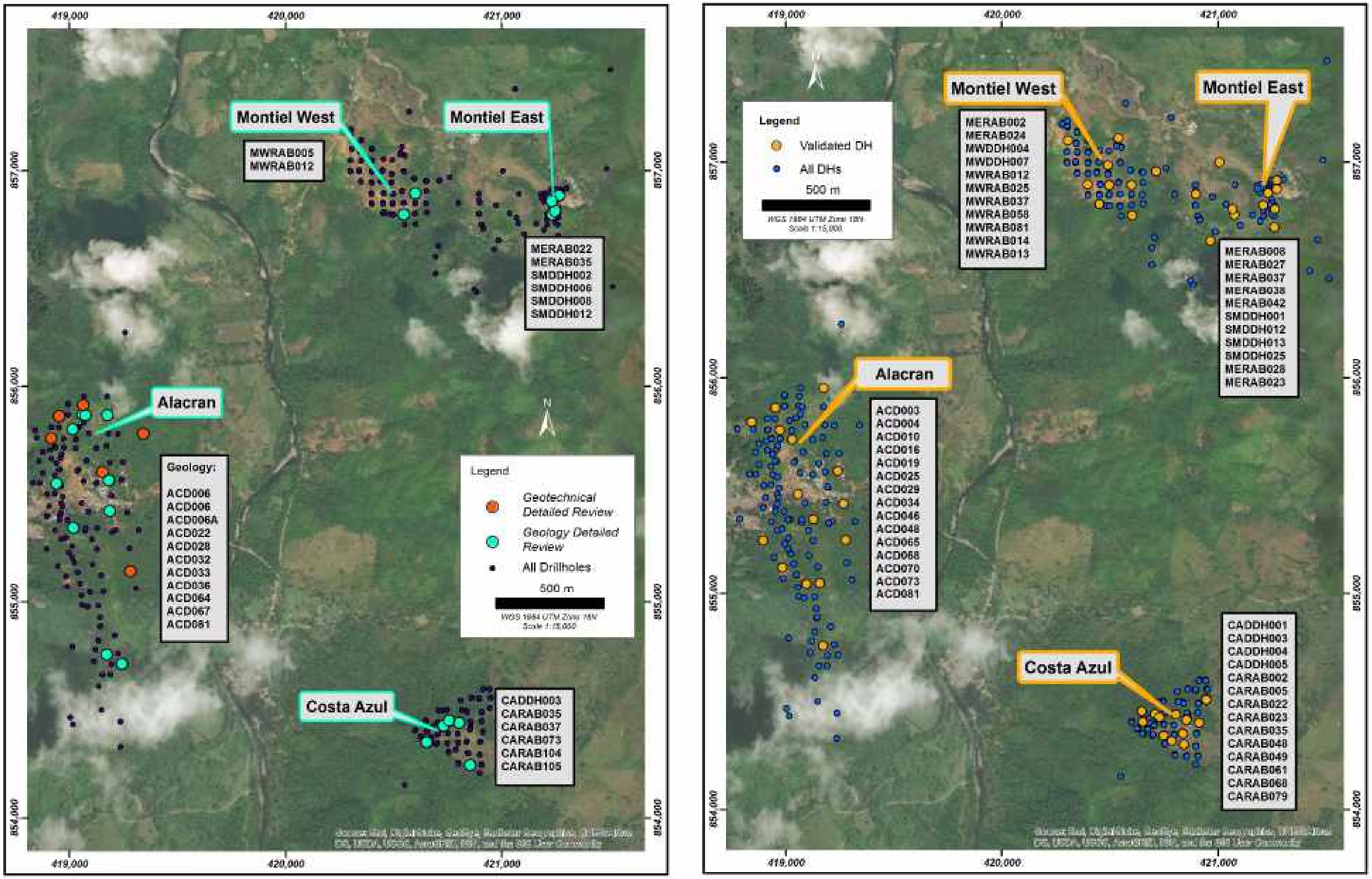
Several holes have been twinned over the course of the exploration work conducted on the Project. Nordmin was able to match most of the intervals for each of the pairs and plotted the grades for Cu, Au, and Ag. In Nordmin's opinion, for most of the pairs, the assay results compared reasonably well; the high-grade and low-grade zones matched, and the grades tended to cluster in the same ranges. In Nordmin's opinion, the twinning has provided a reasonably consistent verification of the earlier Dual Resources (SJ holes) drill results particularly considering the differences in the assay and survey methods, and QA/QC protocols.

12.3 Database Validation

The Nordmin QP completed a spot-check verification on the following deposits:

- Alacran deposit - 11 (6%) of the lithologies, 6 (4%) of the geotechnical measurements, 2,699 (9%) of the assays.
- Satellite deposits - 14 (5%) of the lithologies, 2,458 (20%) of the assays.

A summary of the data validation is outlined in Figure 12-12. The geology was validated for lithological units from Cordoba's Leapfrog® lithological model. The geological contacts aligned with the core contacts and are acceptable for use.



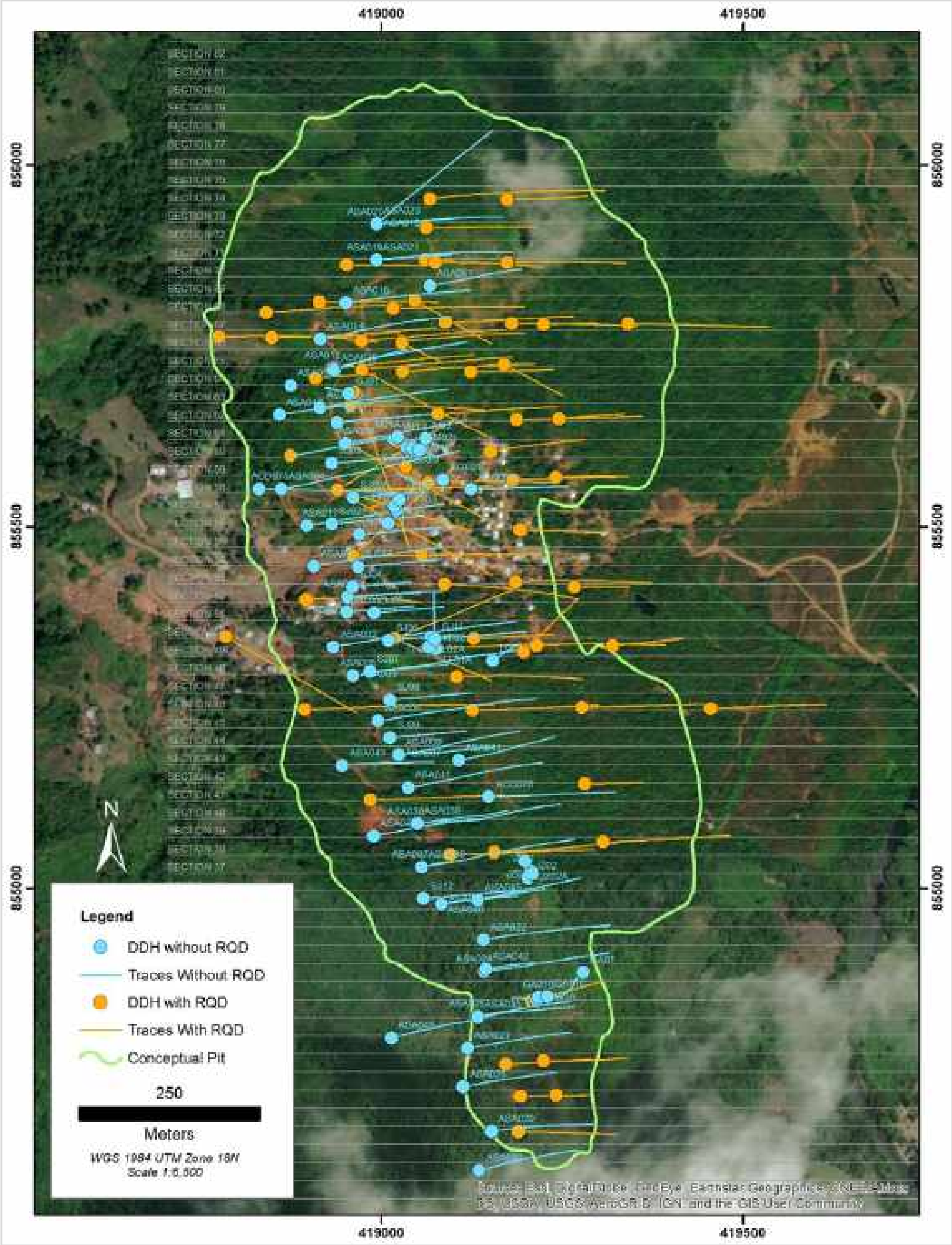
Source: Nordmin, 2019

Figure 12-12: Geology, geotechnical and assay certificate validation

12.4 Geotechnical Review

In conjunction with the structural model, Nordmin completed a geotechnical review of the Alacran and satellite deposits. The review involved validating the geotechnical RQD data, reviewing core photos and re-logging specific sections of drill core. Nordmin used this information to determine if the structural information can be used to support various potential pit slopes angles.

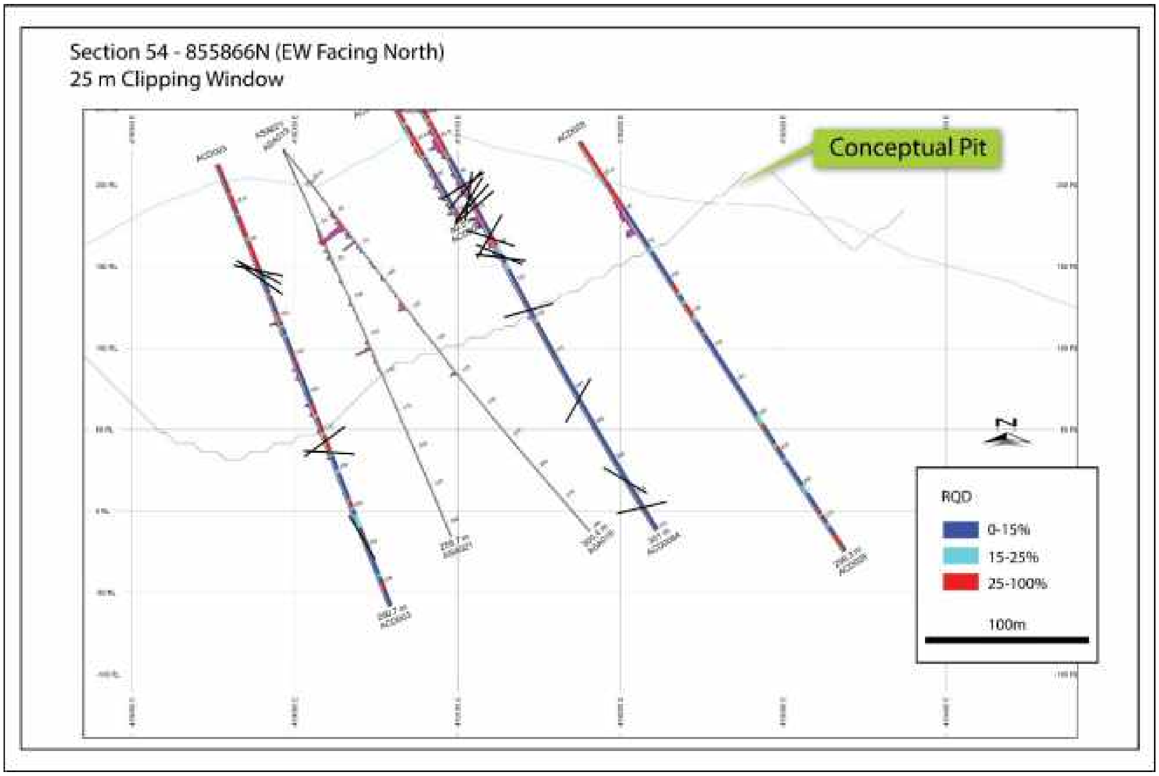
The Cordoba geological team collected various geotechnical RQD information across the majority of the Alacran deposit (Figure 12-13); however, less data was captured for the satellite deposits.



Source: Nordmin, 2019

Figure 12-13: Plan map of Alacran deposit drill holes with recorded RQD data

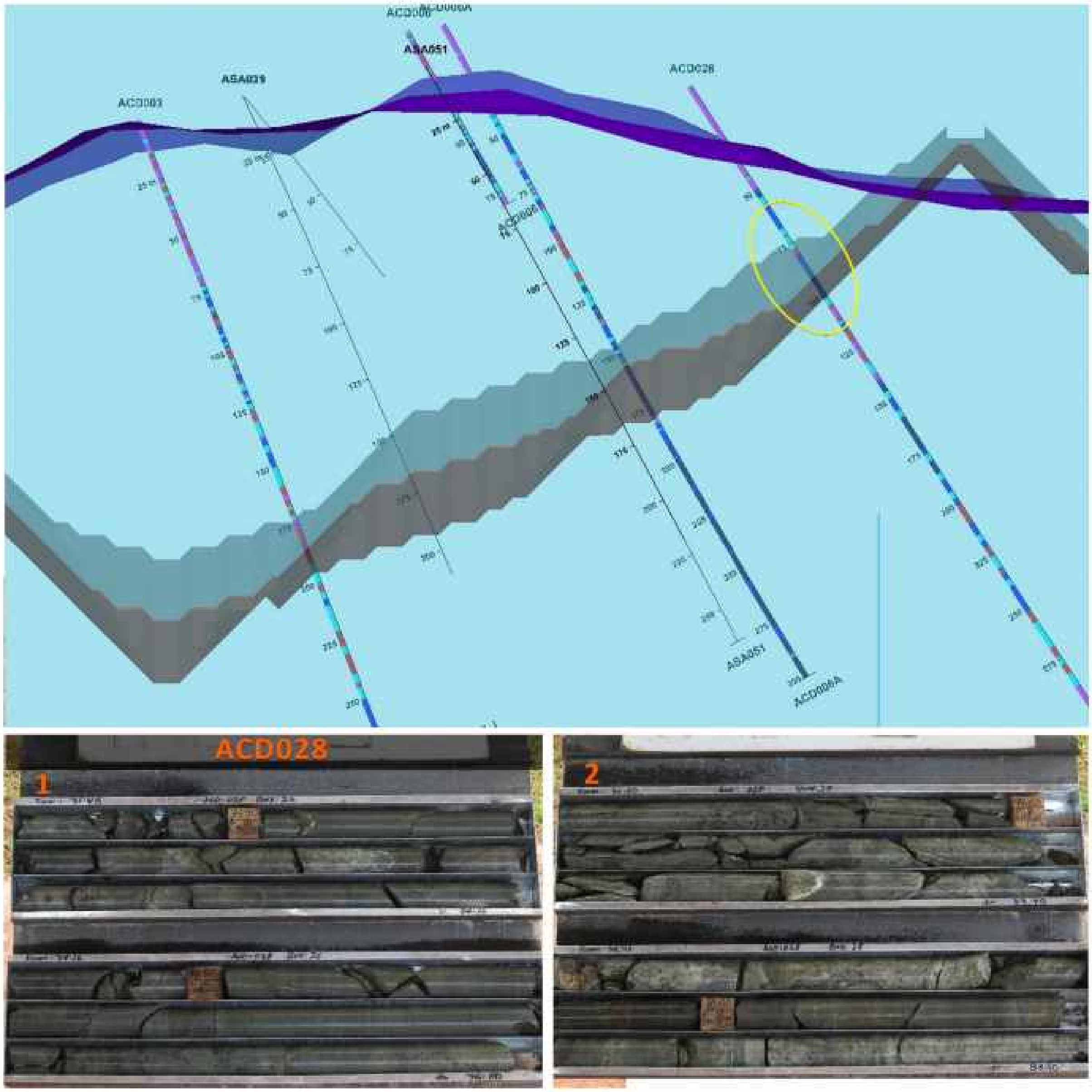
Figure 12-14 is a section outlining the typical level of geotechnical data that was collected for each drill hole. The cross section demonstrates the different strength of the rock depending on whether it occurs in the saprolite or fresh rock and the orientation of the corresponding fault(s) that are intersected by the drilling. The Alacran deposit hosts shallow, moderate and vertical structures throughout. The colour red indicated that the rock has a low rock strength, whereas the light blue indicates that the rock is of medium strength and the dark blue that the rock is relatively strong. The saprolite layer that is within the top 10.0 m to 15.0 m of the deposit has a relatively poor rock strength. The rock strength tends to improve with depth below the surface of the deposit.



Source: Nordmin, 2019

Figure 12-14: Cross section within the Alacran deposit conceptual open pit outlining typical RQD and fault measurements downhole

Figure 12-15 is an example from drill hole ACD028 of the RQD measurements that are in proximal distance to the conceptual open pit wall.



Source: Nordmin, 2019

Figure 12-15: Cross section E=855,865 m with hole ACD028 RQD measurements and associated core photos

12.5 Review of Cordoba QA/QC

Cordoba has a robust QA/QC process in place, as previously described in Section 11. The Cordoba geologists actively monitor the assay results throughout the drill programs and summarize the QA/QC results in weekly/monthly reports. A number of failures for standard and blank reference materials were documented, resulting in re-assay of entire sample batches. Most of the CRMs performed as expected within tolerances of two to three standard deviations of the mean grade. Nordmin is satisfied that the QA/QC process is performing as designed to ensure the quality of the assay data.

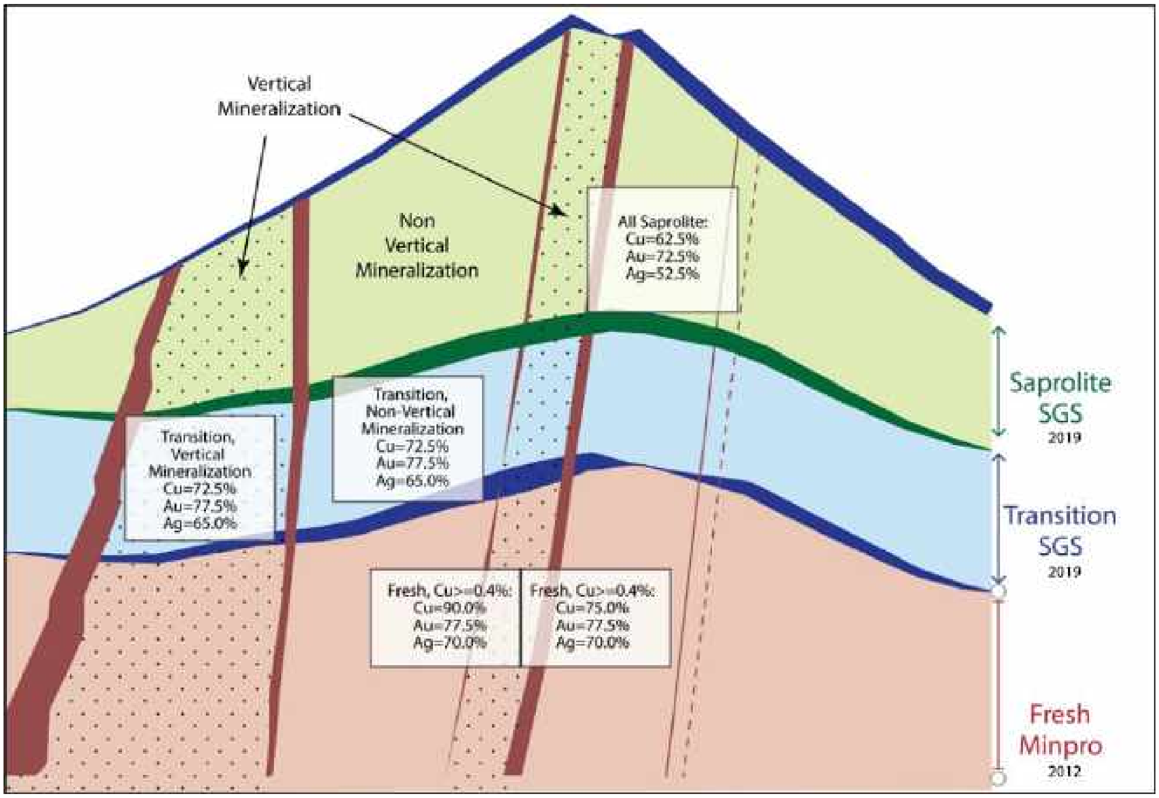
12.6 QP’s Opinion

Upon completion of the data verification process, it is the Nordmin QP’s opinion that the geological data collection and QA/QC procedures used by Cordoba and Ashmont are consistent with standard industry practices and that the geological database is of suitable quality to support the Mineral Resource.

13. MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Introduction and Summary

Two metallurgical test work programs have been completed to date on the Alacran deposit. In 2012 Ashmont had Minpro Ltda of Santiago, Chile ("Minpro") complete preliminary flotation test work on two Alacran composites that focused on the fresh sulphide zones. In 2019, Cordoba had SGS complete comminution testing on the fresh sulphide zones along with head characterization/flotation testing for the saprolite and transition layers for the Alacran, Montiel East, Montiel West and Costa Azul deposits. SGS also conducted initial test work on the vertical high-grade structures that indicated up to 50% of the Au and Ag may be recoverable by a gravity circuit. Figure 13-1 illustrates a cross section of the summary recoveries for the saprolite, transition and fresh sulphide mineralization within the Alacran deposit.



Source: Nordmin, 2019

Figure 13-1: Alacran recovery specifications

The test work has determined the recoveries in Table 13-1 to be applied to the various deposits.

Table 13-1: Recoveries for Alacran and the Satellites

				Recovery		
Domain			**Qualifier**	**Au**	**Cu**	**Ag**
Alacran						
Saprolite				72.5%	62.5%	52.5%
Transition	High Grade	Vertical Structures	-	77.5%	72.5%	65.0%
		Outside Vertical Structures	-	77.5%	80.0%	70.0%
Fresh	High Grade		Cu ≥0.4%	77.5%	90.0%	70.0%
			Cu <0.4%	77.5%	75.0%	70.0%
Costa Azul						
Saprolite	High-grade and Low-grade		-	76.0%	55.0%	45.0%
Fresh	High-grade and Low-grade		Cu ≥0.4%	77.5%	90.0%	70.0%
			Cu <0.4%	77.5%	75.0%	70.0%
Montiel East						
Saprolite	High-grade and Low-grade			72.0%	50.0%	40.0%
Fresh	High-grade and Low-grade		Cu ≥0.4%	77.5%	90.0%	70.0%
			Cu <0.4%	77.5%	75.0%	70.0%
Montiel West						
Saprolite	High-grade and Low-grade			72.0%	50.0%	40.0%
Fresh	High-grade and Low-grade		Cu ≥0.4%	77.5%	90.0%	70.0%
			Cu <0.4%	77.5%	75.0%	70.0%

Source: Nordmin, 2019

Based upon this test work, Nordmin has completed a conceptual 8,000/16,000 t/d conventional Semi-Autogenous Grinding (“SAG”) and ball mill grinding circuit, followed by conventional sulphide flotation producing a Cu-Au-Ag concentrate along with the introduction of an Au/Ag gravity circuit to allow the production of doré bars on-site is proposed for the Alacran deposit.

13.2 Minpro Ltda, Santiago, Chile

13.2.1 Sample Collection

Ashmont collected 84 1.0 m long quarter-core samples from 23 core drill holes distributed across the length of the Alacran deposit. Of these, 40.2 kg were collected from the northern area of the deposit, and 40.0 kg were collected from the southern area. These samples were used to prepare Composite 1 (North area) and Composite 2 (South area). The North area composite had an average grade of 0.50 g/t Au and 1.30 % Cu. The South area composite had an average grade of 1.33 g/t Au and 1.25 % Cu (Table 13-2).

Table 13-2: Composite Summary

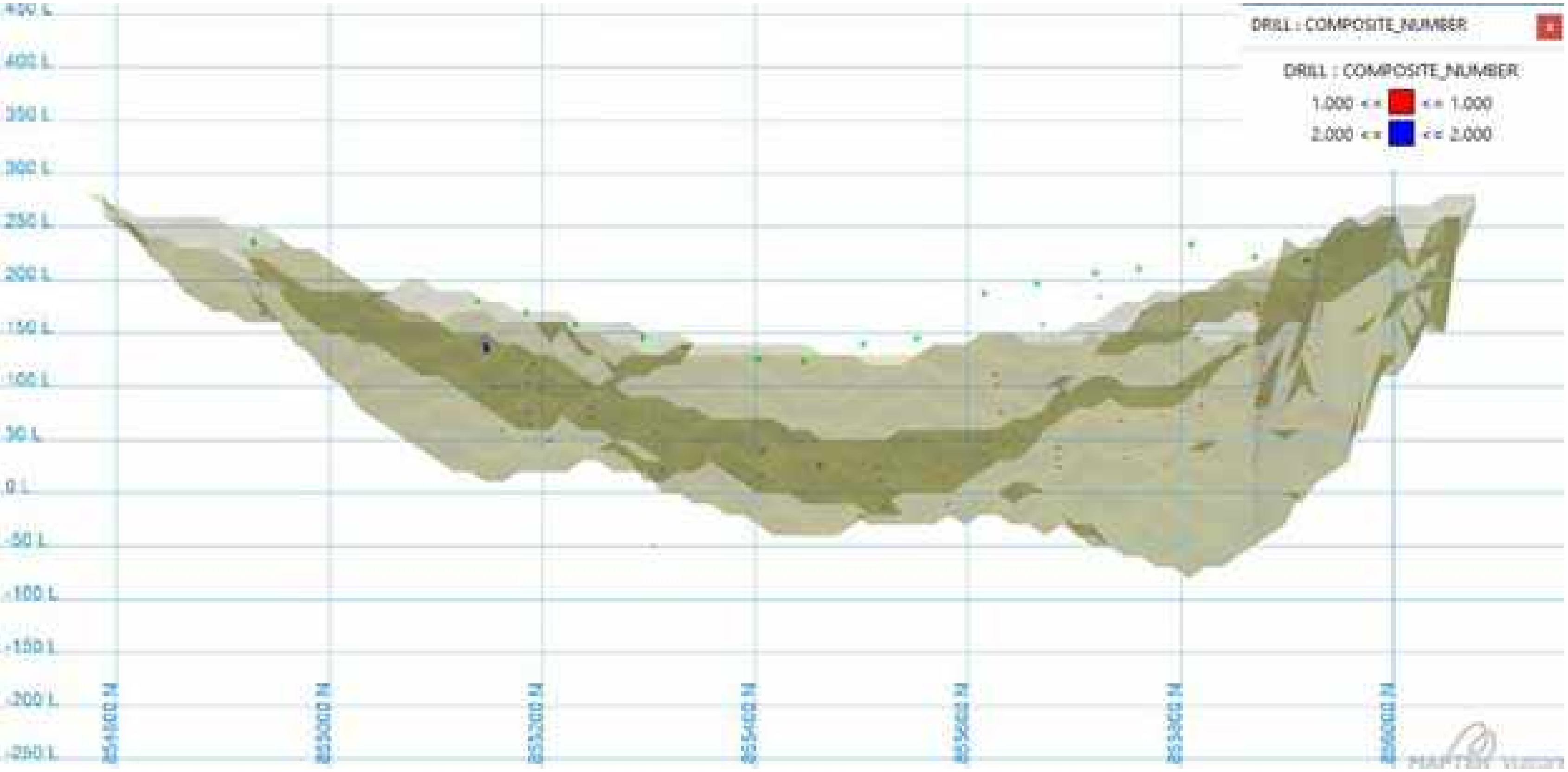
	Wt. (kg)	Cu %	Au g/t
Composite 1	40.18	1.30	0.50
Composite 2	40.00	1.25	1.33

Source: Minpro

The location of individual samples comprising the two composites is shown in Figure 13-2 and Figure 13-3.

Source: Minpro

Figure 13-2: Composite sample location plan view. The light brown area represents the conceptual open pit used to constrain the Mineral Resources.



Source: Minpro

Figure 13-3: Composite sample location long section. The light brown area represents the conceptual open pit used to constrain the Mineral Resources.

13.2.2 Sample Preparation

Before compositing, Minpro dried the samples at 50 °C and crushed them to 80% passing 3.35 mm (6 mesh). Equal-weight samples were then composited and homogenized by a minimum of three successive passes through a splitter. After homogenization, 1 kg sub-sample packages were prepared for the flotation test work. Test work included time determinations of grinding, fixed-time flotation tests for the rougher stage and open cycle flotation tests for the cleaner stage.

The sub-samples were pulverized to 80% passing 0.15mm (100 mesh) before undergoing 2-stage rougher and five-stage cleaner testing. Rougher and cleaner Cu and Au recoveries are summarised in Table 13-2 and Table 13-3. Zn, Pb and Hg recoveries were also assessed and showed low recoveries.

Table 13-3: Composite 1 Test Work Summary

Composite 1	Cu %	Au g/t	Cumulative Time (min)	Recovery (% Cu)	Cumulative Recovery (% Cu)	Recovery (% Au)	Cumulative Recovery (% Au)
Assayed head grade	1.24	0.75					
Calculated head grade	1.22	0.53					
Ro Stage 1			2	30.35	30.40	20.63	20.60
Ro Stage 2			20	64.34	94.70	51.78	72.40
Cleaner Stage 1			1	9.63	9.60		
Cleaner Stage 2			2	7.48	17.10		
Cleaner Stage 3			4	16.26	33.40		
Cleaner Stage 4			8	24.51	57.90		
Cleaner Stage 5			16	32.86	90.70		

Source: Minpro

Table 13-4: Composite 2 Test Work Summary

Composite 2	Cu %	Au g/t	Cumulative Time (min)	Recovery (% Cu)	Cumulative Recovery (% Cu)	Recovery (% Au)	Cumulative Recovery (% Au)
Assayed head grade	1.24	1.72					
Calculated head grade	1.18	1.90					
Ro Stage 1			2	53.63	53.60	32.57	32.60
Ro Stage 2			20	43.79	97.40	64.88	97.50
Cleaner Stage 1			1	10.76	10.80		
Cleaner Stage 2			2	7.19	18.00		
Cleaner Stage 3			4	12.92	30.90		
Cleaner Stage 4			8	19.87	50.70		
Cleaner Stage 5			16	34.94	85.70		

Source: Minpro

13.2.3 Conclusions

The Cu and Au rougher recoveries of Composites 1 and 2 are good and do not differ significantly. The rougher and cleaner recoveries indicate a flotation concentration operation is achievable with standard milling. The preliminary test work did not identify any processing factors or deleterious elements that could have a significant effect on potential economic extraction of Cu and Au. However, the Cu and Au head grades of Composite 1 and 2 are high compared to the average grade of the deposit, and therefore, the results may not be representative of the entire deposit. The two-stage rougher tests do not provide enough information to produce a reliable recovery curve.

13.3 SGS Canada Inc.

The SGS test work program investigated the metallurgical performance of primary transition and oxidized vertical and sub-vertical mineralized zones at the San Matías Copper-Gold-Silver Project. The SGS team focused on the following programs:

- Head characterization;
- Comminution test work;
- Davis tube testing;
- Flotation test work;
- Cyanide leaching test work; and
- Heap leaching test work.

13.3.1 Sample Collection

Cordoba collected the following for metallurgical testing:

- Saprolite/transition flotation testing: 46.8 kg of coarse rejects drill core from all four deposits (Alacran, Montiel East, Montiel West and Costa Azul);
- Saprolite heap leach testing: 17.7 kg of coarse reject drill core from all four deposits (Alacran, Montiel East, Montiel West and Costa Azul);
- Gravity testing: 11.2 kg of coarse reject drill core from the high-grade vertical mineralization structures within Alacran; and
- Comminution testing: 25.3 kg of coarse rejects drill core from all four deposits (Alacran, Montiel East, Montiel West and Costa Azul).

Table 13-5 through Table 13-7 provide the composite summaries for each test program.

Table 13-5: Saprolite and Transition Flotation Testing

Deposit	Sample Location	Wt. (kg)	Cu %	Au g/t	Ag g/t
Alacran	Saprolite - North Low-grade	5.0	0.39	0.22	4.60
Alacran	Saprolite - South Low-grade	5.9	0.36	0.10	1.20
Alacran	Transition – North High-grade	5.2	1.22	0.42	7.30
Alacran	Transition – South High-grade	6.5	1.28	0.30	5.50
Montiel East/Montiel West	Saprolite/Transition Low-grade	6.3	0.39	0.19	0.70
Montiel East/Montiel West	Saprolite/Transition High-grade	5.9	1.04	1.29	2.80
Costa Azul	Saprolite/Transition Low-grade	6.4	0.32	0.58	0.60
Costa Azul	Saprolite/Transition High-grade	5.6	0.70	0.38	4.51

Source: SGS, 2019

Table 13-6: Saprolite Heap Leach Testing

Deposit	Sample Location	Wt. (kg)	Au g/t
Alacran	Saprolite - North Low-grade	3.2	0.05
Alacran	Saprolite - North High-grade	3.2	0.23
Alacran	Saprolite - South Low-grade	3.2	0.06
Alacran	Saprolite - South High-grade	3.2	0.14
Montiel East/Montiel West	Saprolite Medium-grade	2.5	0.40
Costa Azul	Saprolite Medium-grade	2.4	0.18

Source: SGS, 2019

Table 13-7: Gravity Testing

Deposit	Sample Location	Wt. (kg)	Cu %	Au g/t	Ag g/t
Alacran	Transition - Vertical High-grade	11.2	4.13	7.5	13.4

Source: SGS, 2019

13.3.2 Sample Preparation

The fresh ore sample was prepared for the comminution and metallurgical test work programs as required.

The oxidized ore sample was prepared for bottle roll testing, which included crushing to 100% passing 10 mesh (1.7 mm) and splitting into test charges for coarse ore bottle roll tests.

A subsample was extracted for the head assay of the fresh ore including Cu, S, whole-rock analysis (a suite of oxide elements), carbon speciation, inductively coupled plasma-optical emission spectrometry scan (“ICP-OES”). Au was assayed using a screened-metallics protocol, where a 1 kg charge was stage-pulverized to pass 150 mesh until the screen oversize was less than 30 g. The screen oversize was assayed to extinction for Au, while the screen undersize was assayed in duplicate for Au. The Au head assay was determined by mass balancing the screen fractions and Au assays.

13.3.3 QEM-RMS Results

The QEM-RMS (Quantitative Evaluation of Minerals by Scanning Electron Microscopy), or automated Rapid Mineral Scan by QEMSCAN, is a method designed to provide bulk mineralogy as well as basic liberation analysis of one or two minerals of interest by using QEMSCAN with supporting X-Ray diffraction (“XRD”). The samples from each of the deposits were pulverized to 80% passing 150 µm and examined as a single size fraction. The results of the QEMSCAN-RMS are displayed in Table 13-8.

Table 13-8: QEMSCAN-RMS Results

Name	Alacran Saprolite North Low-grade	Alacran Saprolite South Low-grade	Alacran North High-grade	Alacran South High-grade	Costa Azul Saprolite/Transition Low-grade	Costa Azul Saprolite/Transition High-grade	Montiel Saprolite/Transition Low-grade	Montiel Saprolite/Transition High-grade
ID	1	2	3	4	5	6	7	8
Pyrite	7.2	5.3	6.2	10.1	0.0	8.3	0.0	0.3
Pyrrhotite	3.2	0.0	0.1	0.4	0.0	0.1	0.0	0.0
Chalcopyrite	1.1	3.9	0.6	3.1	0.7	0.4	0.5	2.2
Other Cu-Sulphides	0.1	0.0	0.0	0.0	0.1	0.8	0.0	0.1
Other Sulphides	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Quartz	21.0	21.6	28.1	35.0	36.2	24.9	11.9	38.5
K-Feldspar	0.2	0.1	0.1	0.0	0.7	0.0	1.0	1.5
Plagioclase-Ca	0.3	0.4	0.2	0.0	22.1	0.0	10.1	13.5
Plagioclase-Na	14.4	23.3	8.4	0.0	17.4	1.2	21.2	14.6
Actinolite/Tremolit	0.5	0.4	0.5	0.1	7.2	0.0	32.7	11.9
Cummingtonite	0.0	0.0	0.0	0.0	1.0	0.0	0.2	0.2
Muscovite/Illite	5.4	3.6	3.4	0.0	1.5	21.8	3.0	2.7
Biotite	0.1	0.1	0.3	0.0	0.0	0.4	0.1	0.1
Chlorite	35.7	26.6	30.4	6.6	4.1	23.0	10.5	7.3
Kaolinite	2.5	2.5	1.0	0.0	2.9	14.1	1.7	1.0
Other Micas/Clays	1.0	0.7	0.5	0.0	0.2	0.7	0.2	0.3
Chrysocolla?	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Other Silicates	0.4	0.5	1.3	0.1	0.5	0.0	0.9	0.8
Fe-Oxides	0.6	0.7	11.3	38.1	4.1	2.1	3.2	3.8
Rutile	1.3	0.6	0.8	0.0	0.2	1.7	0.2	0.1
Ilmenite	0.1	0.0	0.2	0.0	0.4	0.1	0.9	0.5
Other Oxides	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Calcite	4.4	9.2	4.7	3.9	0.4	0.0	1.2	0.3
Ankerite/Dolomite	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Siderite	0.2	0.0	0.9	1.5	0.2	0.4	0.1	0.1
Apatite	0.3	0.3	0.9	0.8	0.2	0.0	0.4	0.2
Other	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0

Source: SGS Canada, 2019

The SMC test (laboratory comminution test) is an abbreviated drop-weight test ("DWT"), which can be performed at lower costs on small rocks or drill cores. SMC data for one sample from the Alacran deposit was analyzed to determine the JKSimMet (comminution simulation) and SMC Test® comminution parameters. The SMC Test® results for the sample from the Alacran deposit are provided in Table 13-9, including the average rock density and the Drop-Weight index ("DWi") that is the direct result of the test procedure.

Table 13-9: SMC Test Results

Sample Designation	*DWi* (kWh/m³)	*DWi* (%)	*Mi* Parameters (kWh/t)			SG
			Mia	Mih	Mic	
Alacran	9.75	85	24.7	19.7	10.2	2.87

Source: SGS, 2019

The values determined for the Mia, Mih and Mic parameters developed by SMC test are presented in Table 13-10.

Table 13-10: Parameters Derived from the SMC Test Results

Sample Designation	A	b	t_a	SCSE (kWh/t)
Alacran	73.5	0.40	0.27	11.96

Source: SGS, 2019

The Mia parameter represents the coarse particle component (down to 750 µm) of the overall comminution energy and can be used together with the Mib (fine particle component) to estimate the total energy requirements of a conventional comminution circuit. Included in the derived results, are the SAG Circuit Specific Energy ("SCSE") values. The SCSE value is derived from simulations of a "standard" circuit comprising a SAG mill in closed circuit with a pebble crusher. This allows A*b values to be described in a more meaningful form.

In the case of the sample from the Alacran Deposit, the A and b estimates are based on a correlation using the database of all results so far accumulated by SMC test.

The value of A*b, which is also a measure of resistance to impact breakage, is calculated and presented in Table 13-11, which also gives a comparison to the population of samples in the JKTech database, with the percent of samples present in the JKTech database that are softer. Note that in contrast to the DWi, a high value of A*b means that ore is soft whilst a low value means that it is hard.

Table 13-11: Derived Values for A*b, t_a and SCSE SMC Test Results

Sample Designation	A*b		t_a		SCSE (kWh/t)	
	Value	%	Value	%	Value	%
Alacran	29.4	85.4	0.27	83.0	11.96	88.3

Source: SGS, 2019

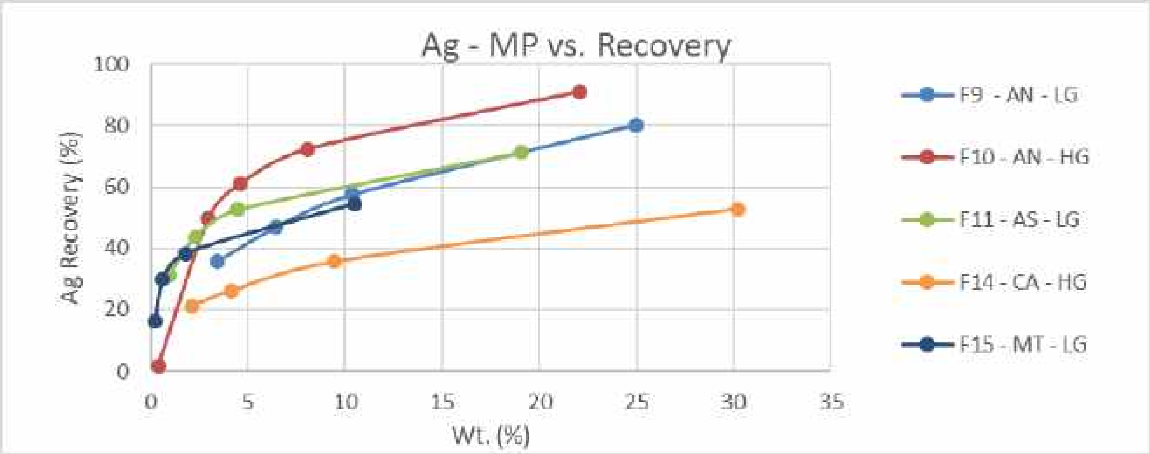
13.3.4 Flotation Results

Nine flotation tests were conducted (Table 13-12). Two grind calibration tests have been completed to determine the grind time required to attain the targeted grind size. Rougher kinetics flotation tests investigated the recovery of Cu, Au and Ag to examine the effect of grind size. A bulk flotation flowsheet was assumed and would involve flotation of Cu sulphide minerals and pyrite. The open-circuit cleaning tests attempt to clean the rougher concentrate to a saleable Cu concentrate with the majority of the pyrite reporting to the cleaner tailings. The results of the flotation tests are demonstrated in Figure 13-4 through Figure 13-7.

Table 13-12: Flotation Test Results

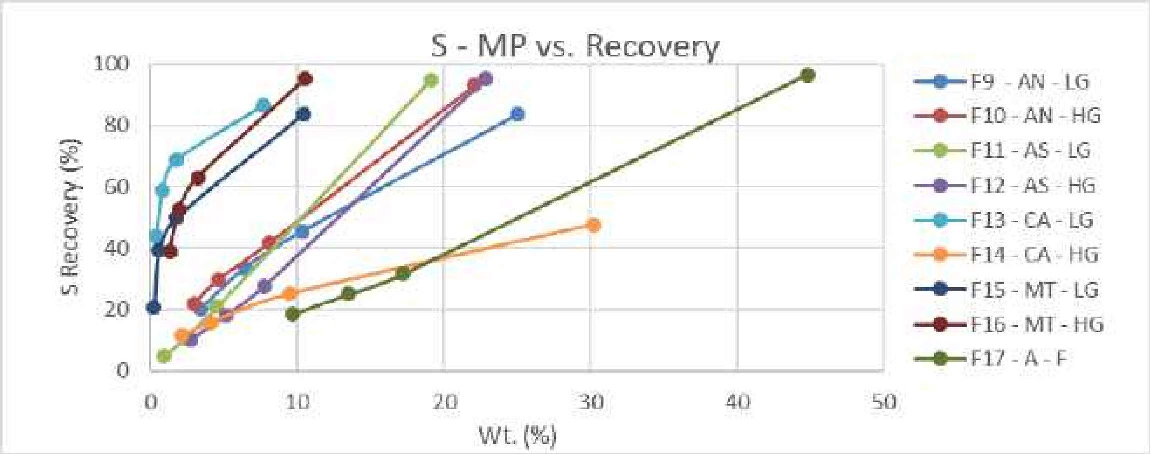
Alacran North - Low-grade (Saprolite)							
F9R	Wt. %	Assay, %, g/t			Recovery, %		
		Cu	Au	Ag	Cu	Au	Ag
Cu Conc	7.9	5.5	4.23	44	58.7	68.3	55.0
Alacran North - High-grade (Transition)							
F10R	Wt. %	Assay, %, g/t			Recovery, %		
		Cu	Au	Ag	Cu	Au	Ag
Cu Conc	6.7	24.0	9.44	116	73.0	78.8	69.0
Alacran North - Vertical Structures (Transition)							
F17	Wt. %	Assay, %, g/t			Recovery, %		
		Cu	Au	Ag	Cu	Au	Ag
Cu Conc	14.6	25.9	44.8	81.4	78.8	75.1	69.1
Alacran South - Low-grade (Saprolite)							
F11R	Wt. %	Assay, %, g/t			Recovery, %		
		Cu	Au	Ag	Cu	Au	Ag
Cu Conc	3.1	17.2	10.70	47.0	65.2	73.1	47.6
Alacran South - High-grade (Transition)							
F12R	Wt. %	Assay, %, g/t			Recovery, %		
		Cu	Au	Ag	Cu	Au	Ag
Cu Conc	5.8	24.7	7.60	66.3	71.1	74.1	56.4
Costa Azul - Low-grade (saprolite/transition)							
F13	Wt. %	Assay, %, g/t			Recovery, %		
		Cu	Au	Ag	Cu	Au	Ag
Cu Conc	1.5	21.0	55.6	28.1	58.5	80.3	46.7
Costa Azul - High-grade (transition)							
F14	Wt. %	Assay, %, g/t			Recovery, %		
		Cu	Au	Ag	Cu	Au	Ag
Cu Conc	6.9	11.1	2.92	16.4	49.2	71.7	38.2
Montiel East/Montiel West - Low-grade (saprolite/Transition)							
F15	Wt. %	Assay, %, g/t			Recovery, %		
		Cu	Au	Ag	Cu	Au	Ag
Cu Conc	1.3	28.0	27.8	73.0	27.6	47.2	32.6
Montiel - East/Montiel West High-grade Fresh							
F16	Wt. %	Assay, %, g/t			Recovery, %		
		Cu	Au	Ag	Cu	Au	Ag
Cu Conc	2.5	35.1	47.4	83.5	64.1	76.2	62.0

Source: SGS, 2019



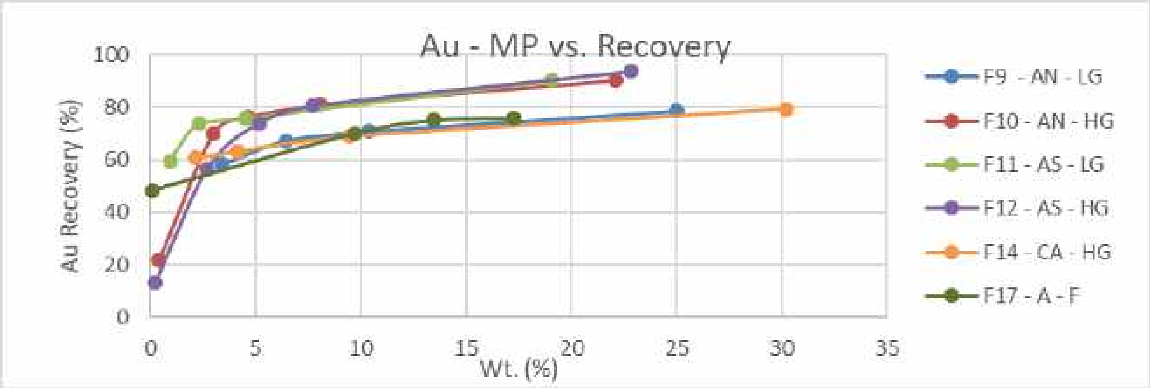
Source: SGS, 2019

Figure 13-4: Ag – Mass pull versus recovery



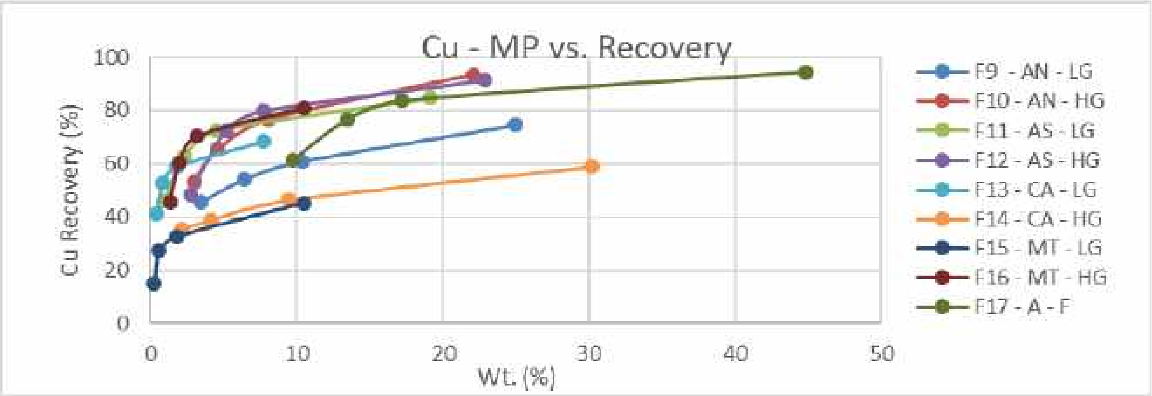
Source: SGS, 2019

Figure 13-5: S – Mass pull versus recovery



Source: SGS, 2019

Figure 13-6: Au – Mass pull versus recovery



Source: SGS, 2019

Figure 13-7: Cu – Mass pull versus recovery

13.3.5 Conclusions

The SGS initial test work has indicated that saprolite and transition portions of the deposits can be blended with the fresh mineralized rock to produce a saleable concentrate using a conventional flotation circuit including rougher, scavenger and cleaner stages. It is expected with future metallurgical test work programs that problems encountered with non-sulphide gangue, and pyrite depression can be minimized through additional trials, and ratios/sensitivity of blending the transition and upper saprolite zones can be further optimized. Fresh core drawn from these upper zones is recommended to develop a composite sample that would be subjected to locked-cycle flotation test work.

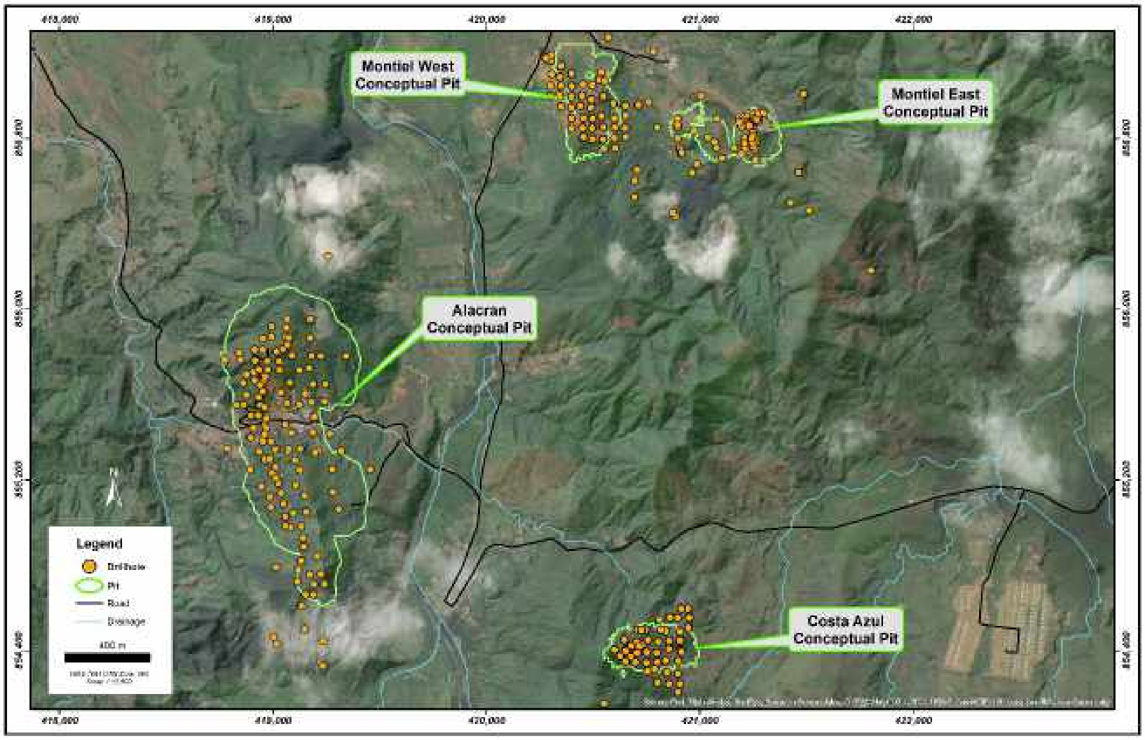
Nordmin recommends furthering metallurgical test work at the pre-feasibility - feasibility Level including:

- Future metallurgical test-work should focus on the sensitivity relationship between Cu grade and recovery in the flotation circuit;
- Au deportment study;
- Gravity-recoverable Au and or Ag testing;
- Locked cycle flotation testing; and
- Slurry rheology and thickening sample characterization & particle size analysis, including flocculent screening, static and dynamic thickening tests.

14. MINERAL RESOURCE ESTIMATES

14.1 Drill Hole Database

The work on the Mineral Resource Estimate for the PEA included a detailed geological re-examination of the structural controls to high-grade Au veins within the Alacran deposit. It also includes the three porphyry Cu-Au-Ag satellite deposits at Montiel East, Montiel West and Costa Azul (Figure 14-1).



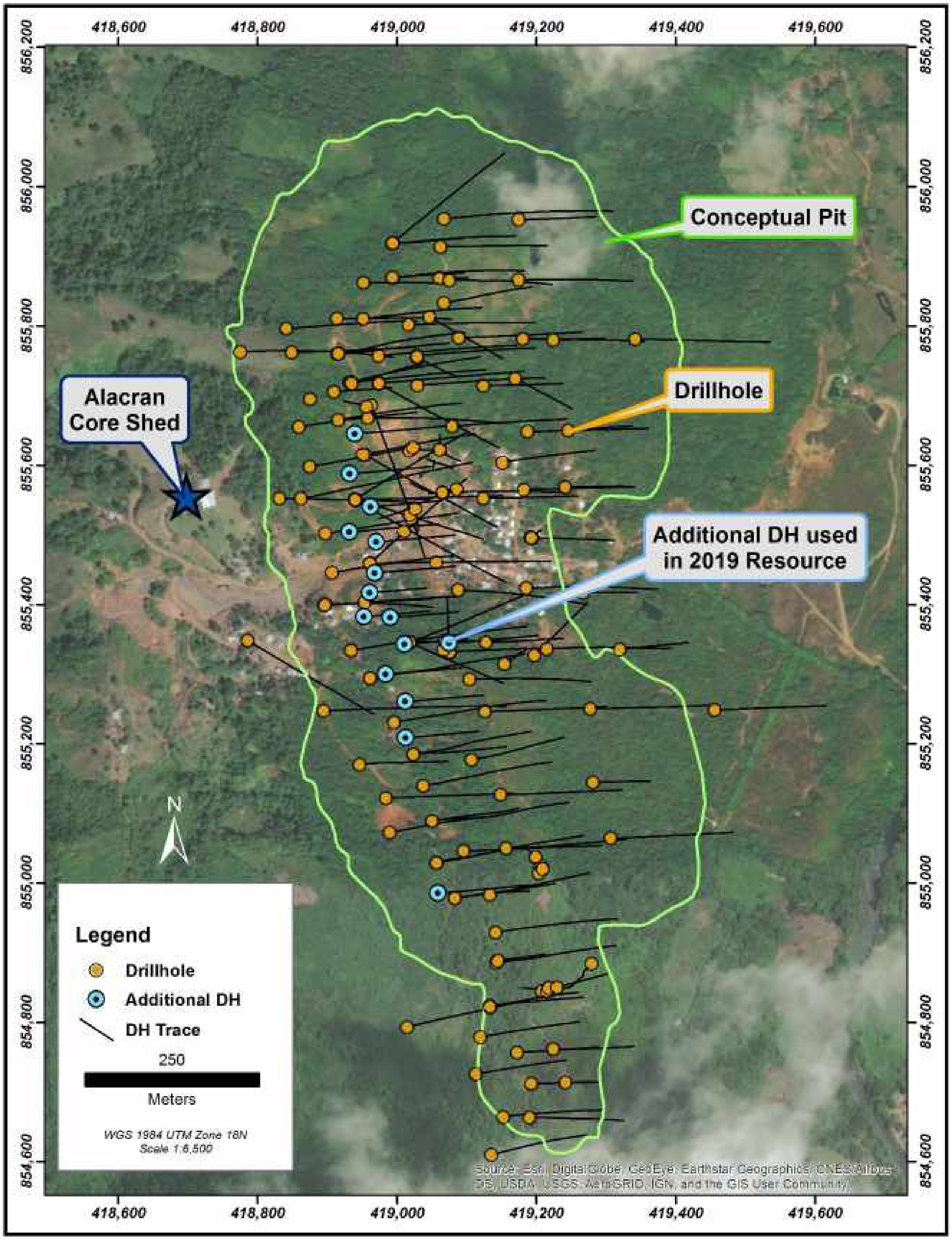
Source: Nordmin, 2019

Figure 14-1: San Matías Copper-Gold-Silver Project area showing the location of the Alacran deposit and the satellite deposits (Montiel East, Montiel West and Costa Azul)

Alacran

The July 2019 PEA Mineral Resource Estimate for Alacran is based on the geological and structural data from 178 diamond drill holes totalling 39,086.0 metres and 30,086 samples completed by Cordoba and the previous operators between 2012 and 2018. Assay data is available for 167 of the completed holes.

The drill hole database for this Resource Estimate has increased by 14 drill holes (+8%) and 3,086 samples (+11%) as compared to the April 10, 2018, Resource Estimate. This is a result of the inclusion of historic drill holes completed by previous operator Dual Resources Inc. ("SJ" drill holes) that were later twinned by Ashmont and Cordoba (Figure 14-2). A detailed QA/QC analysis and comparison between the SJ holes and twin holes warranted their inclusion. There was no change in the drill hole database between the June 2019 and July 2019 Mineral Resource Estimates.



Source: Nordmin, 2019

Figure 14-2: Plan map of the Alacran deposit with the drill holes plotted. Note that historical drill holes (blue) were added into the updated Mineral Resource Estimate after completing twin drill hole analysis and QA/QC.

Costa Azul

The Mineral Resource Estimate is based on geology and assay data from 118 holes consisting of 4,996 metres completed between April 2014 and March 2017. These 118 holes were comprised of six diamond core and 112 RC holes. A total of 2,275 assays were used, comprised of 1,193 diamond core assays and 1,082 RC drill hole assays.

Montiel East

The drill hole database for this Mineral Resource Estimate is based on geology and assay data from 78 holes consisting of 11,056.0 metres completed between August 2013 and March 2017. These 78 holes were comprised of 30 diamond core and 48 RC holes. A total of 6,946 assays were used, comprised of 6,406 diamond core assays and 540 RC drill hole assays.

Montiel West

The drill hole database for this Mineral Resource Estimate is based on geology and assay data from 93 holes consisting of 4,056.0 metres completed between February 2014 and May 2017. These 93 holes were comprised of 8 diamond core and 85 RC holes. A total of 1,746 assays were used, comprised of 1,104 diamond core assays and 639 RC assays.

14.2 Geological Domaining

Nordmin examined and modelled the lithological and geochemical correlations between rock types, geochemistry, and mineralization, and included a detailed geological examination of the structural controls to high-grade Au veins within the Alacran deposit.

For all deposits, a saprolite layer was created based on drill hole logs which extends up to 35 m below surface. For Alacran, a transitional layer was also created, extending approximately 15 m to 20 m below the saprolite layer.

Nordmin, applying the approach of a large mineable area, created high-grade and low-grade domains and associated zones (wireframes) within each domain based on drill hole intersection and grade, including relevant geological data and structure. In areas of less defined or scattered mineralization, areas were combined to avoid irregular wireframes. Where wireframes merge or diverge, multiple sections along strike were reviewed to determine if the breaks in mineralization were consistent or just localized patches of low-grade mineralization. If a break in the mineralization occurred only over a small strike length or vertically, the break would be consolidated within the surrounding mineralization. In areas where breaks in mineralization are consistent over multiple sections, wireframes merged or diverged accordingly. To avoid overly complex wireframes that merge and frequently diverge with irregular local deviations, as well as areas that could not be extended or replicated, some mineralization was disregarded.

Wireframes were initially created on 25 m sections and then adjusted on plan views to edit and smooth each wireframe where required. When not cut off by drilling, the wireframes terminate at plunge and depth due to lack of drilling. No wireframe overlapping exists within a given domain, but wireframes of different high-grade domains do locally overlap. Due to contrasts in the physical characteristics between the different mineral phases, Nordmin elected to create hard boundaries to separate the high-grade mineralization from the low-grade mineralization for each zone within each domain. This approach mineralization from the low-grade mineralization for each zone within each domain. This approach has the advantage of being able to interpret the mineralization in context with the deposit geology and associated geochemistry using explicit modelling. It is Nordmin's opinion that the explicit modelling approach minimizes risks compared to using implicit modelling for resource estimation within this deposit.

All wireframes were clipped to topography. Wireframes were then further divided into saprolite, transition, and fresh. Assays within each zone wireframe were identified, coded, and isolated (Figure 14-5).

Alacran

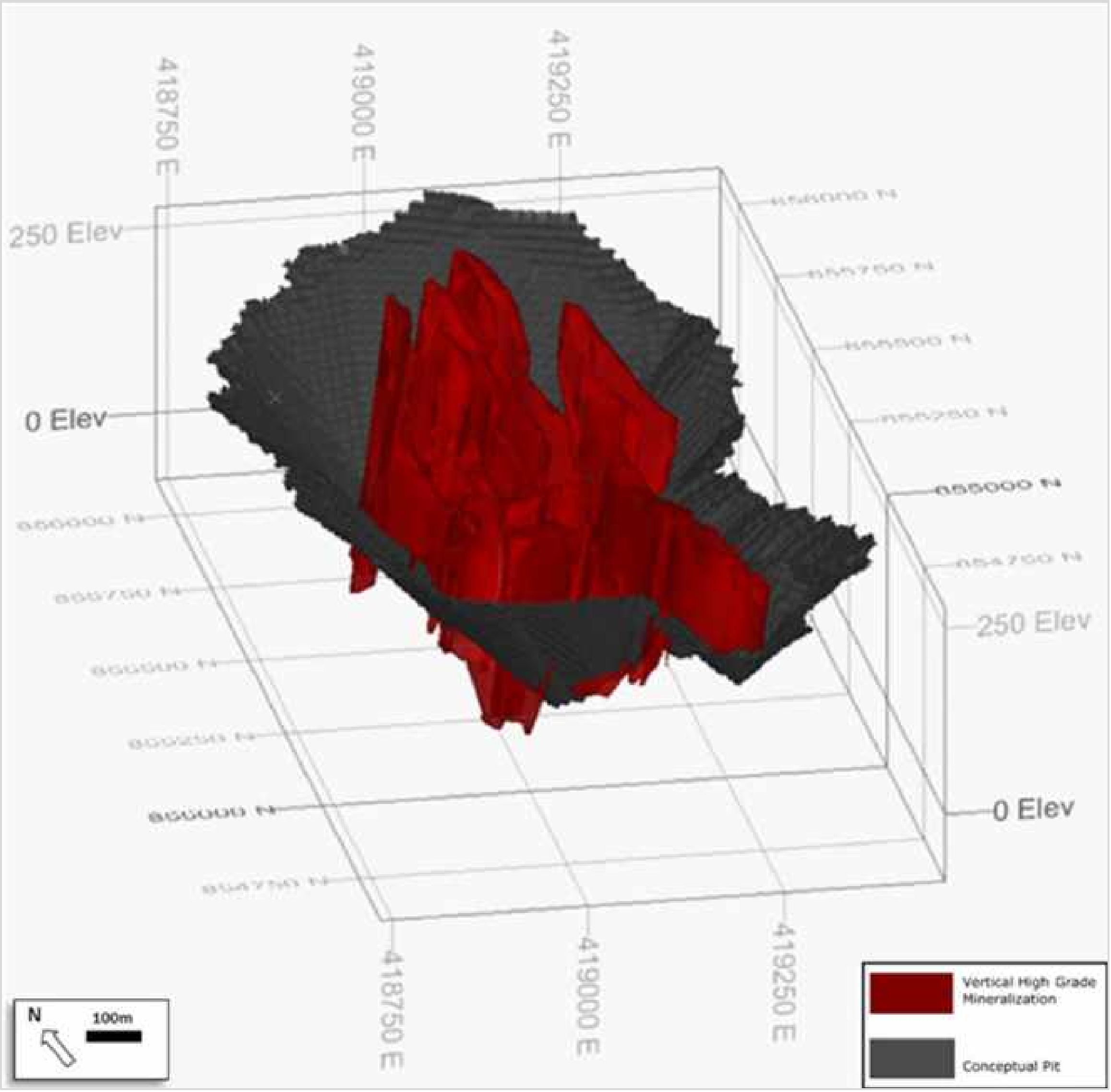
Two major mineralization domains and one encompassing low-grade domain were identified and explicitly modelled.

1. Vertical Mineralization

   Wireframes were modelled using the following:

   - A cut-off grade of 1 ppm Au;
   - Structural model: Structural trends were observed while developing the model; the wireframes tightly followed the structural trends where measurements were available; and
   - Geology model and lithological boundaries: wireframes were permitted to follow lithological boundaries and trends where appropriate.

   Vertical mineralization wireframes as modelled is shown in Figure 14-3.



Source: Nordmin, 2019

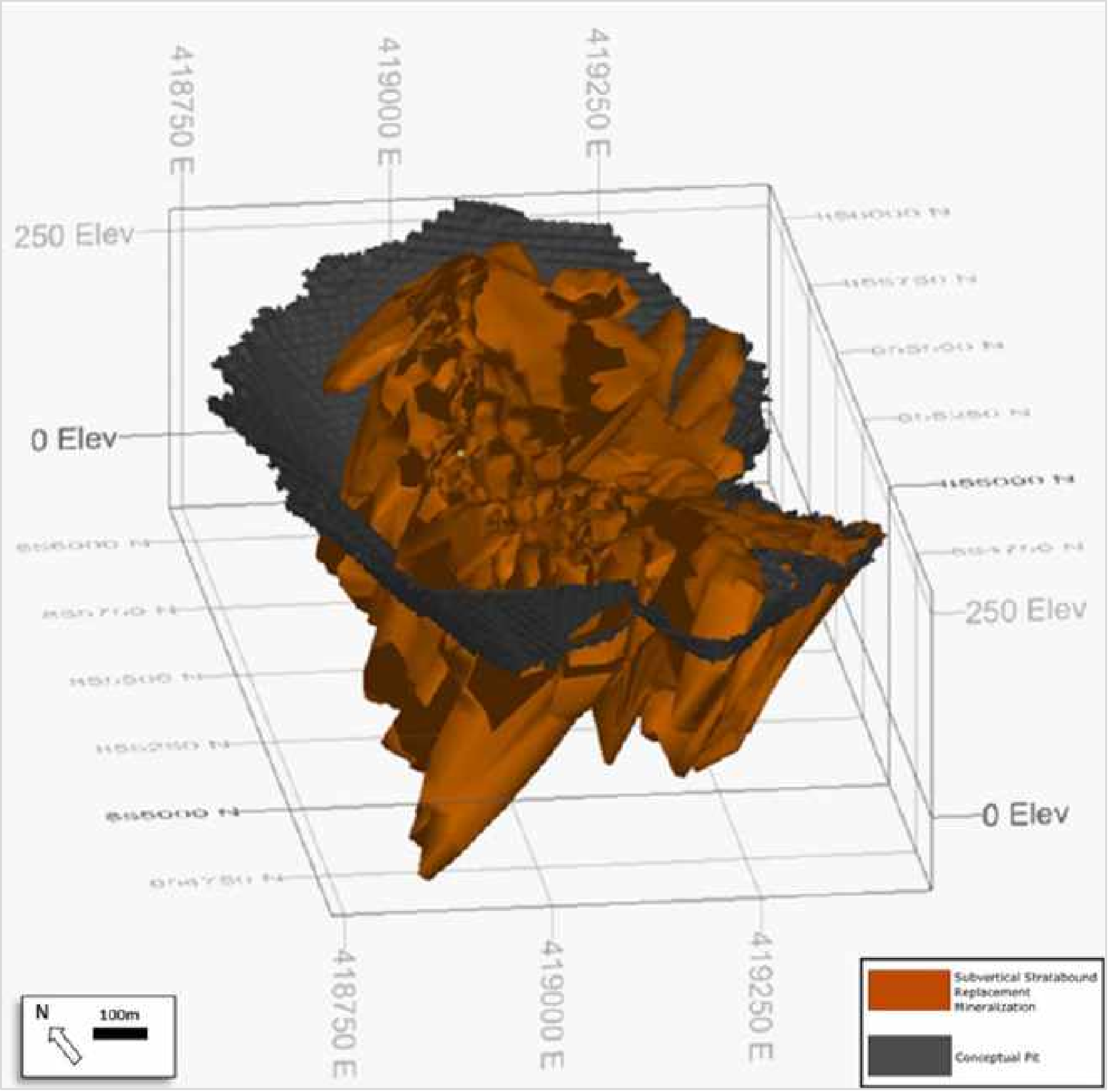
Figure 14-3: Vertical high-grade mineralization wireframes with conceptual open pit

2. Sub-vertical Stratabound Mineralization

   Wireframes were modelled using the following:

   - A cut-off grade of 0.25% Cu;
   - Structural model: structural trends were observed while developing the model; the wireframes tightly followed the structural trends where measurements were available; and
   - Geology Model and lithological boundaries: wireframes were permitted to follow lithological boundaries and trends where appropriate.

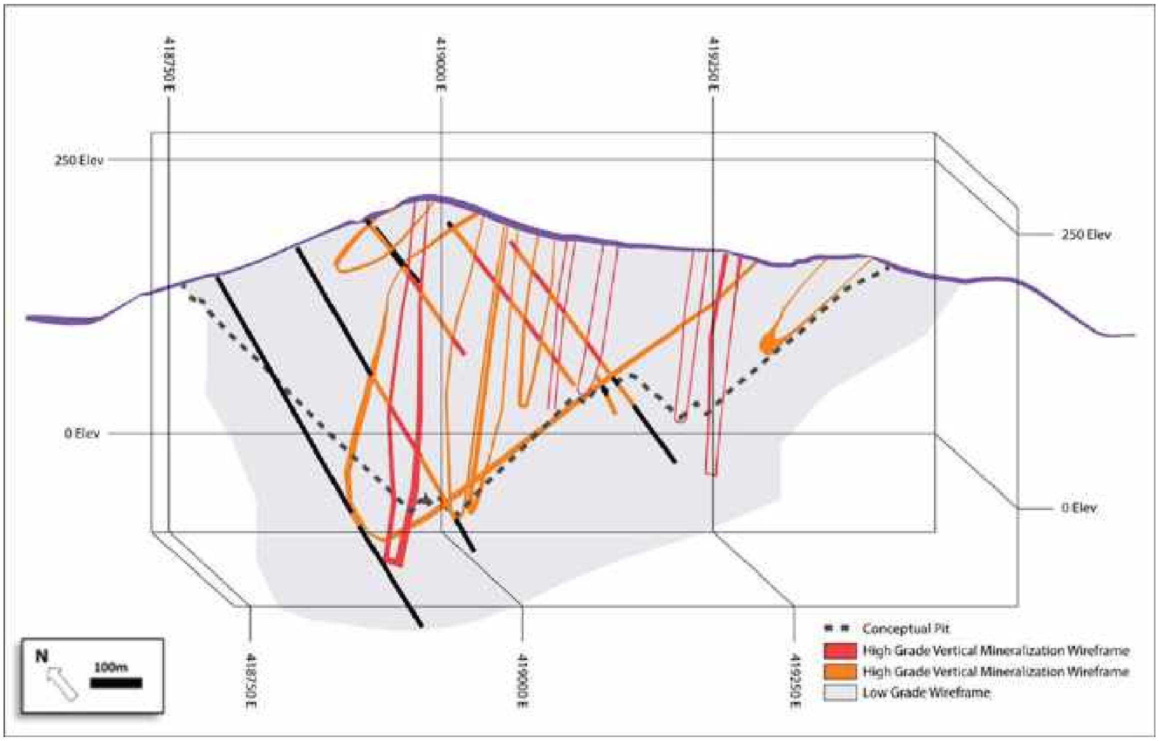
   Sub-vertical stratabound mineralization wireframes as modelled is shown in Figure 14-4.



Source: Nordmin, 2019

Figure 14-4: Sub-vertical stratabound mineralization wireframes with conceptual open pit

Figure 14-5 provides a sample section showing the vertical mineralization and sub-vertical stratabound mineralization wireframes, along with the drill holes used to model them.



Source: Nordmin, 2019

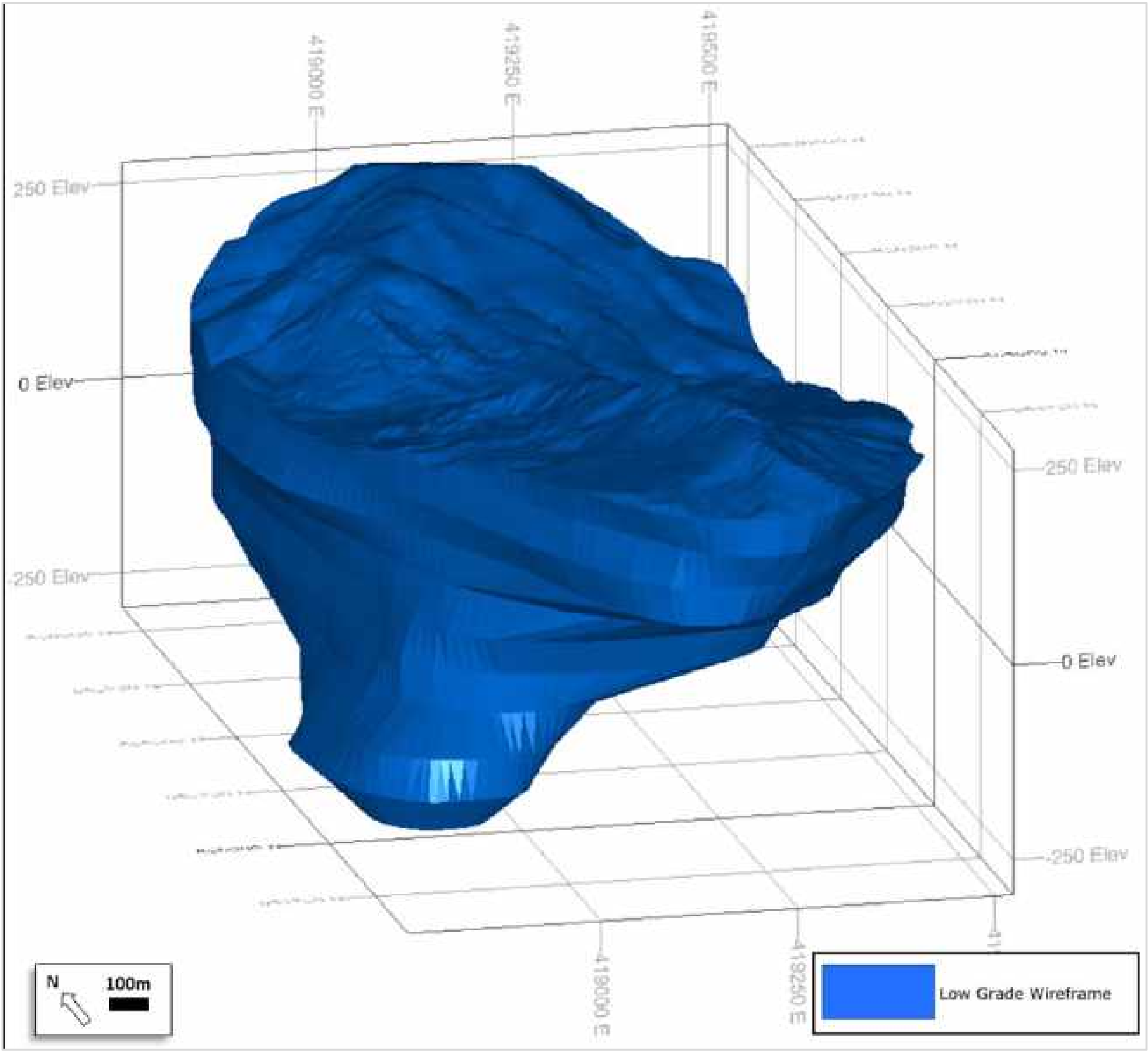
Figure 14-5: Wireframes for high-grade vertical mineralization at the Alacran deposit in red, sub-vertical stratabound mineralization in orange, low-grade mineralization in black with flagged drill holes displaying the same colours

3. Low-grade Mineralization

An encompassing low-grade mineralization wireframe was modelled using the following:

- Structural model: structural trends were observed while developing the model; the vertical mineralization wireframes tightly followed the structural trends where measurements were available; and
- Geology model and lithological boundaries: vertical mineralization wireframes were permitted to follow lithological boundaries and trends where appropriate.

Low-grade wireframes as modelled are demonstrated Figure 14-6.

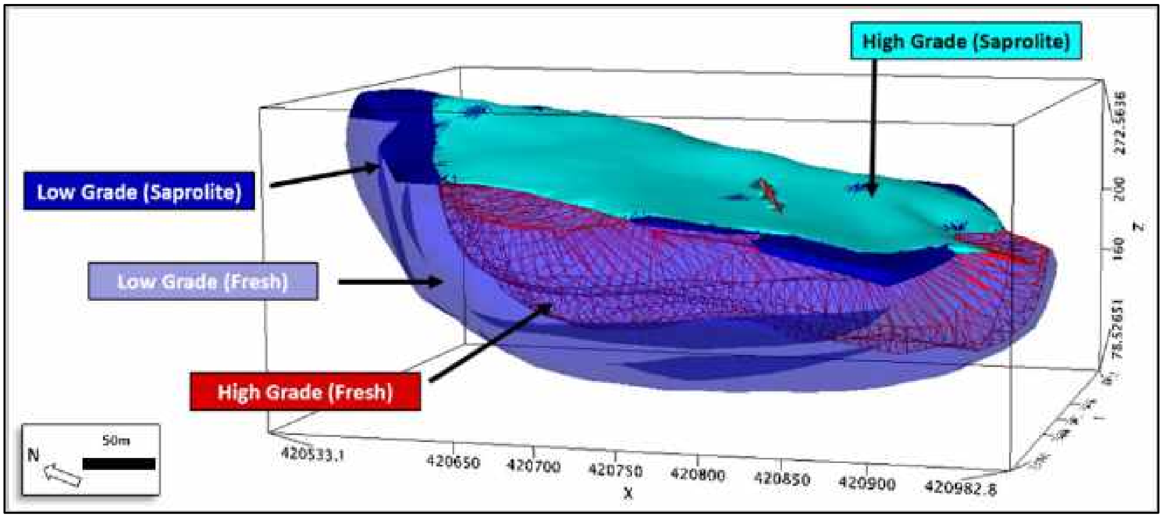


Source: Nordmin, 2019

Figure 14-6: Alacran deposit low-grade wireframe

Costa Azul

Two high-grade wireframes and an encompassing low-grade shell were explicitly modelled, as shown in Figure 14-7.

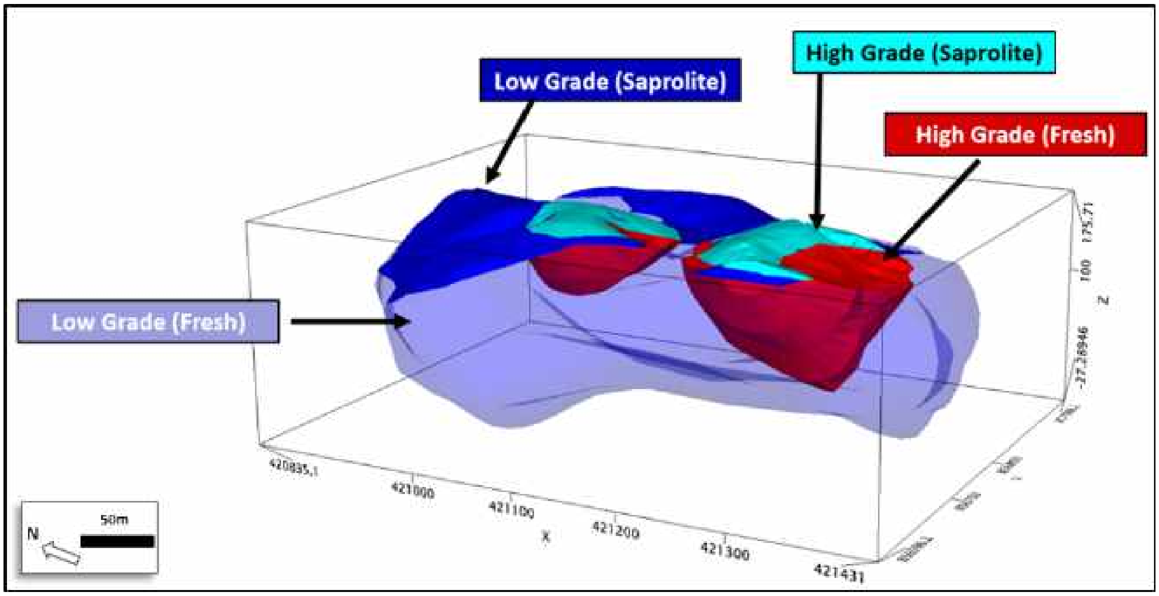


Source: Nordmin, 2019

Figure 14-7: Costa Azul domain model

Montiel East

The models include two high-grade wireframes and an encompassing low-grade shell, as shown in Figure 14-8.

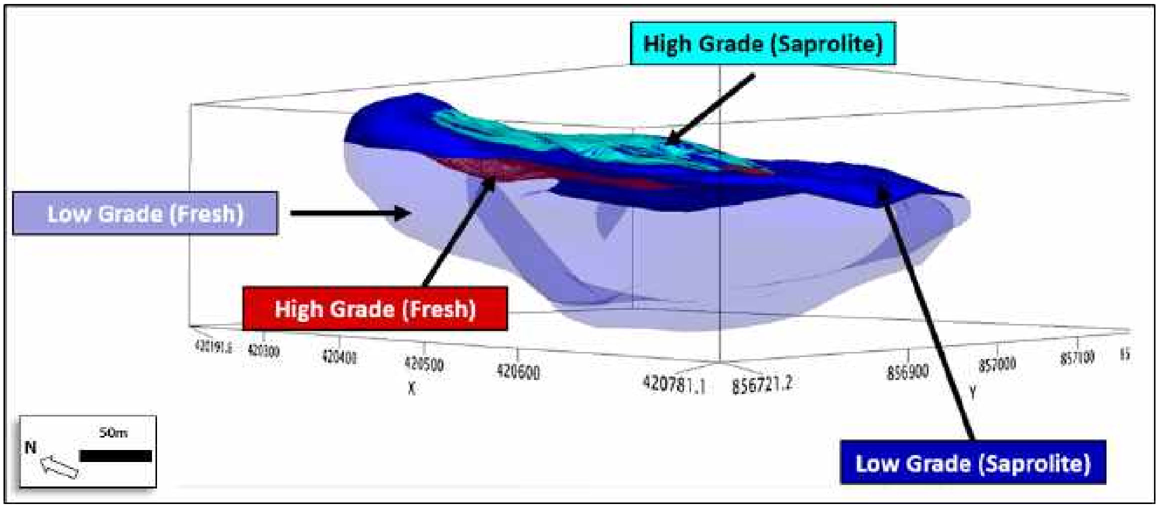


Source: Nordmin, 2019

Figure 14-8: Montiel East domain model

Montiel West

The models include one high-grade wireframe and an encompassing low-grade shell, as seen in Figure 14-9.



Source: Nordmin, 2019

Figure 14-9: Montiel West domain model

14.3 Exploratory Data Analysis

The exploratory data analysis was conducted on raw drill hole data to determine the nature of the Cu, Au, and Ag distribution, correlation of grades within individual rock units, and the identification of high-grade outlier samples. Nordmin used a combination of descriptive statistics, histograms, probability plots, and XY scatter plots to analyze the grade population data. The findings of the exploratory data analysis were used to help define modelling procedures and parameters used in the Mineral Resource Estimate.

Descriptive statistics were used to analyze the grade distribution of each sample population, determine the presence of outliers, and identify correlations between grade and rock types for each mineral zone. Diamond drill core and RC chips were analyzed as separate populations for the three satellite deposits (Costa Azul, Montiel East, and Montiel West).

Table 14-1 provides a summary of the descriptive statistics for the raw sample populations captured from within each mineral zone.

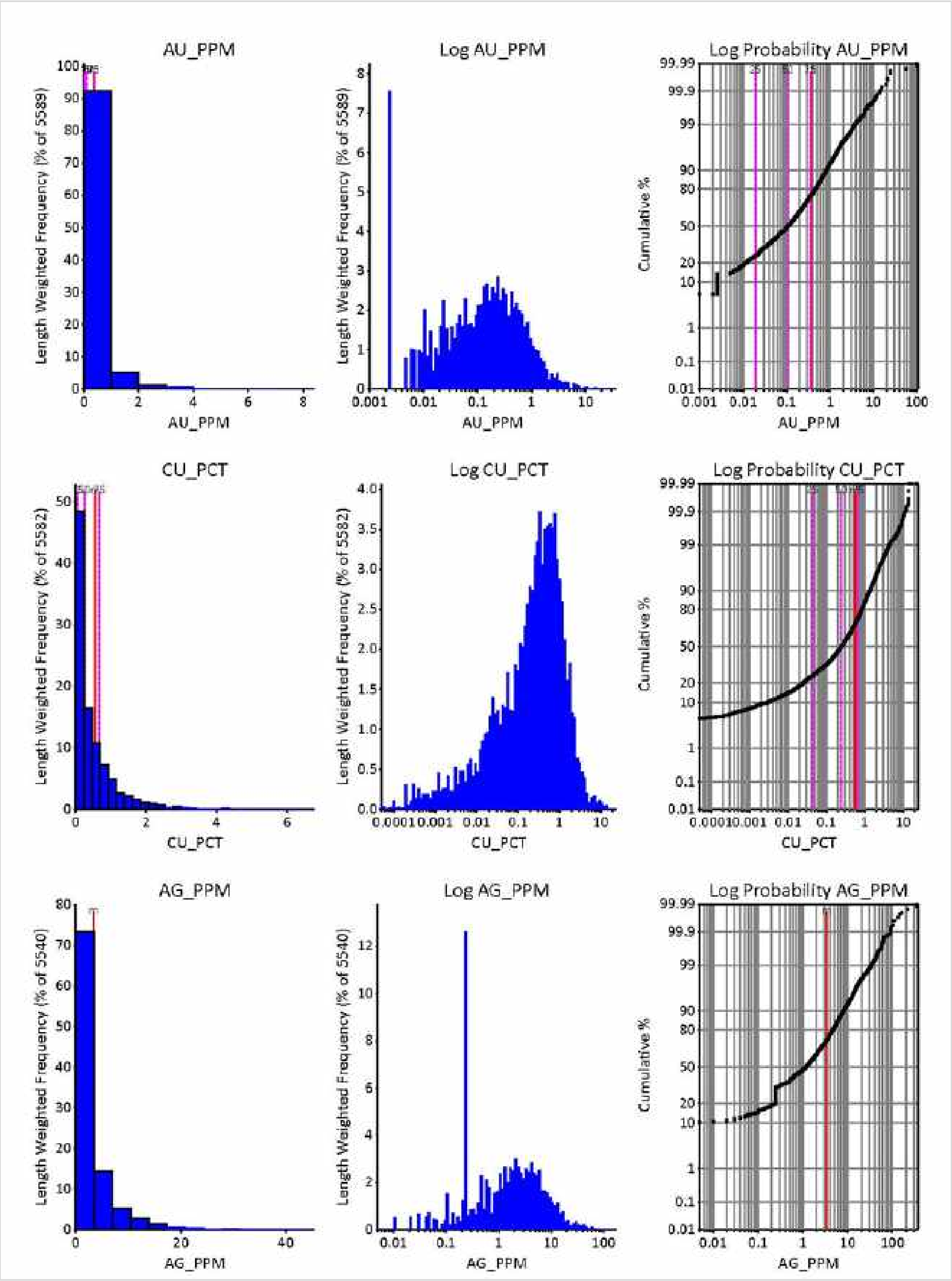
Table 14-1: Summary of Data Available by Zone

Deposit	Domain	Zone	Number of Drill Holes	Number of Samples
Alacran	High-grade Vertical Mineralization	1	39	727
		2	34	262
		5	93	4,652
		6	25	541
		9	6	45
		Total		6,227
	Sub-vertical Stratabound Replacement Mineralization	1	142	8,823
		3	36	174
		5	8	105
		6	12	185
		7	16	201
		Total		9,488
	Low-grade Mineralization		140	23,259
Costa Azul	High-grade Mineralization		92	2,940
	Low-grade Mineralization		13	386
Montiel East	High-grade Mineralization	1	3	102
		2	32	1,744
	Low-grade Mineralization		64	2,736
Montiel West	High-grade Mineralization		44	944
	Low-grade Mineralization		68	1,646

Source: Nordmin, 2019

Alacran

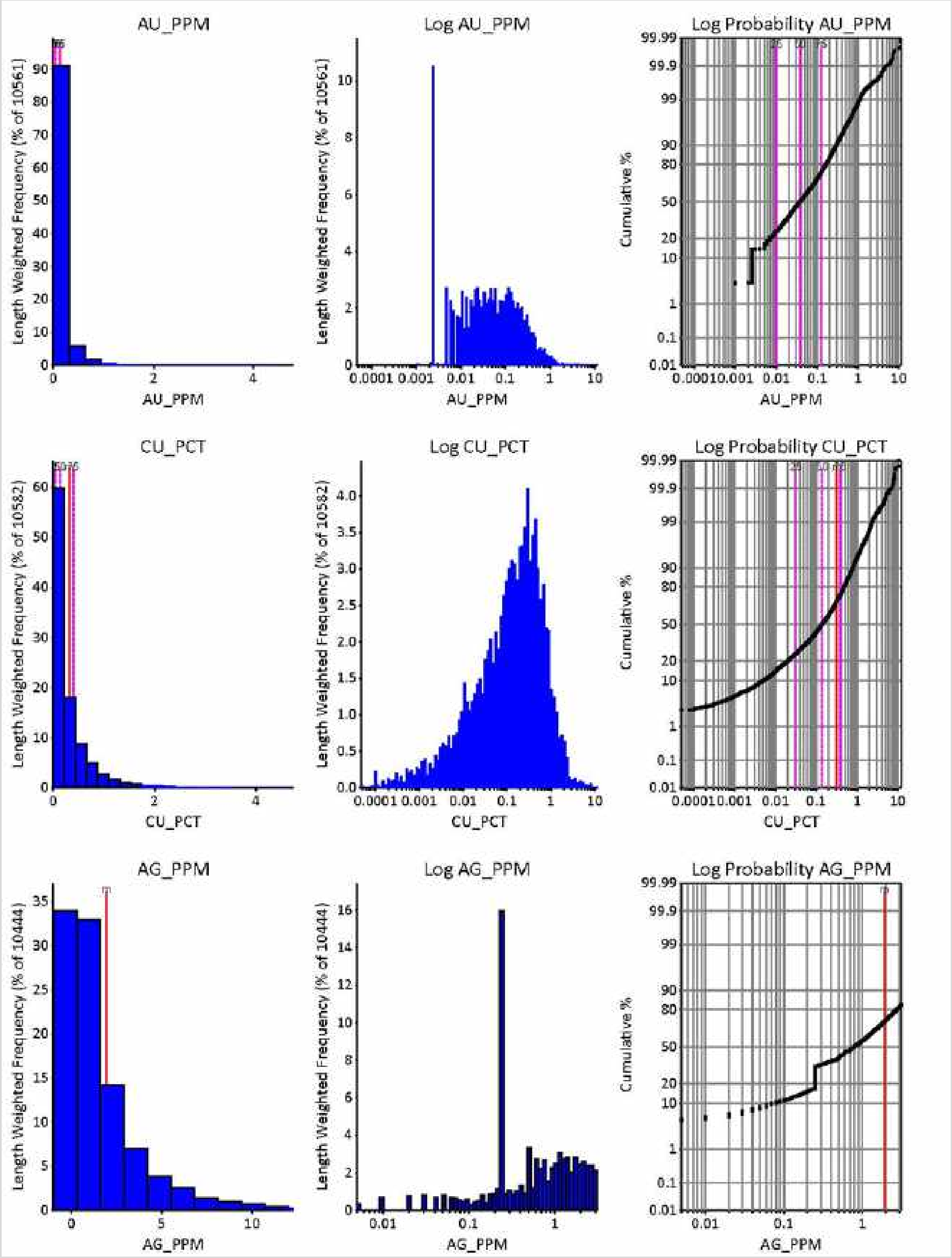
Figure 14-10 provides the Cu, Au, and Ag data analysis for the Alacran high-grade vertical mineralization domain. One population exists for all sample types.



Source: Nordmin, 2019

Figure 14-10: Alacran deposit high-grade vertical mineralization domain data analysis for Cu, Au, and Ag

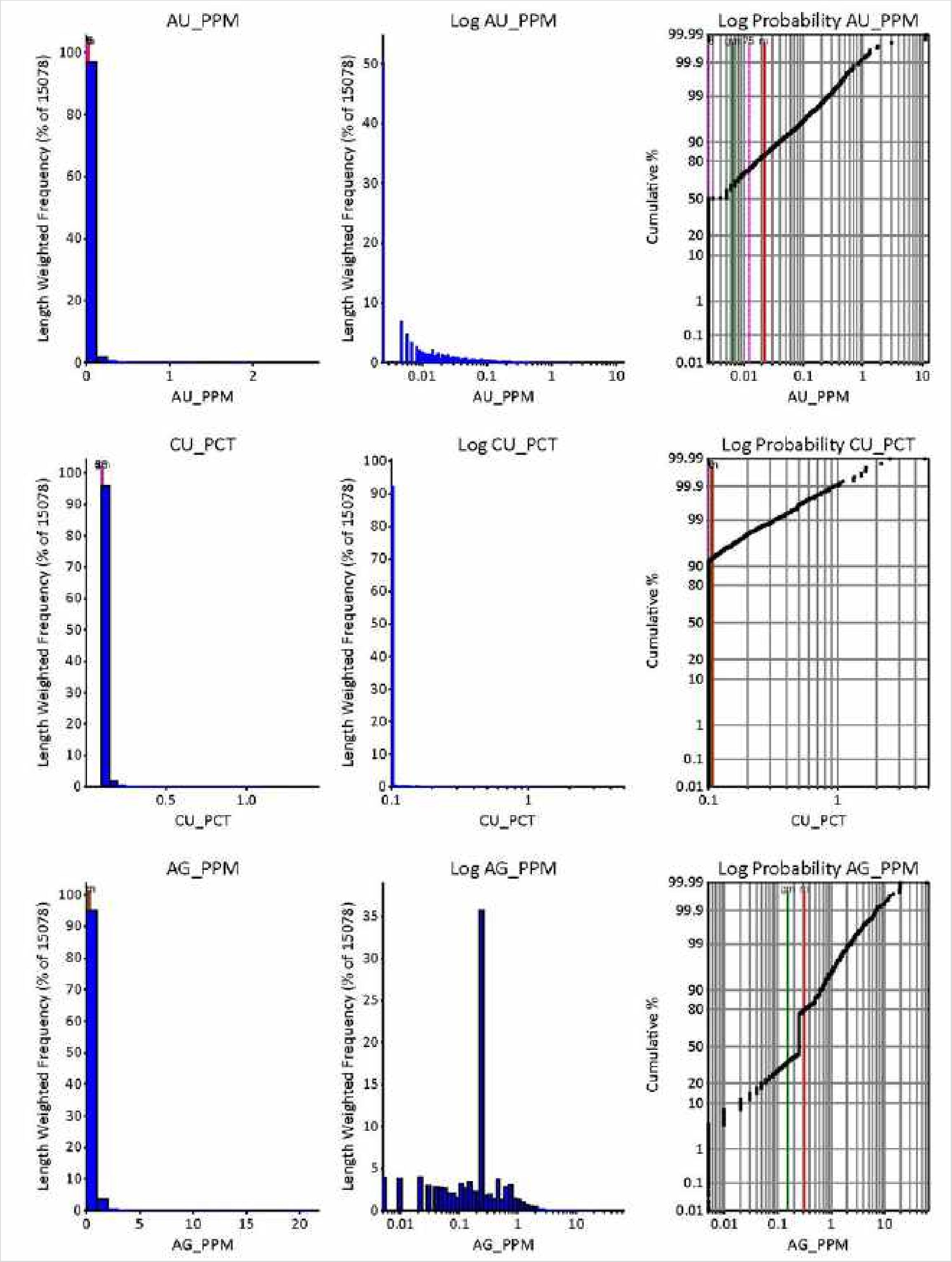
Figure 14-11 provides the Cu, Au, and Ag data analysis for the Alacran deposit sub-vertical stratabound replacement mineralization domain. One population exists for all sample types.



Source: Nordmin, 2019

Figure 14-11: Alacran deposit sub-vertical stratabound replacement domain data analysis for Cu, Au, and Ag

Figure 14-12 provides the Cu, Au, and Ag data analysis for the Alacran low-grade mineralization domain. One population exists for all sample types.

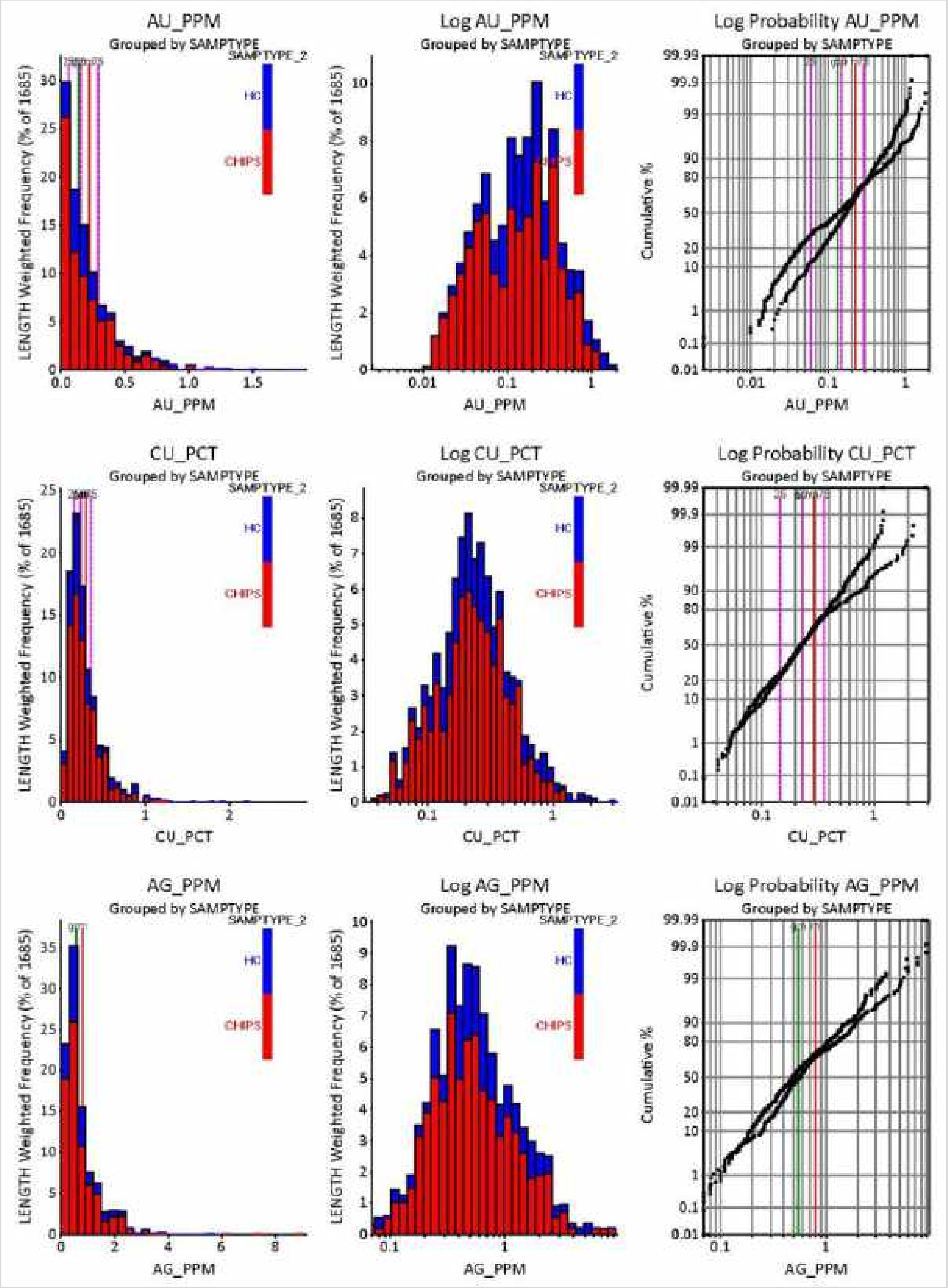


Source: Nordmin, 2019

Figure 14-12: Alacran deposit low-grade mineralization domain analysis for Cu, Au, and Ag

Costa Azul

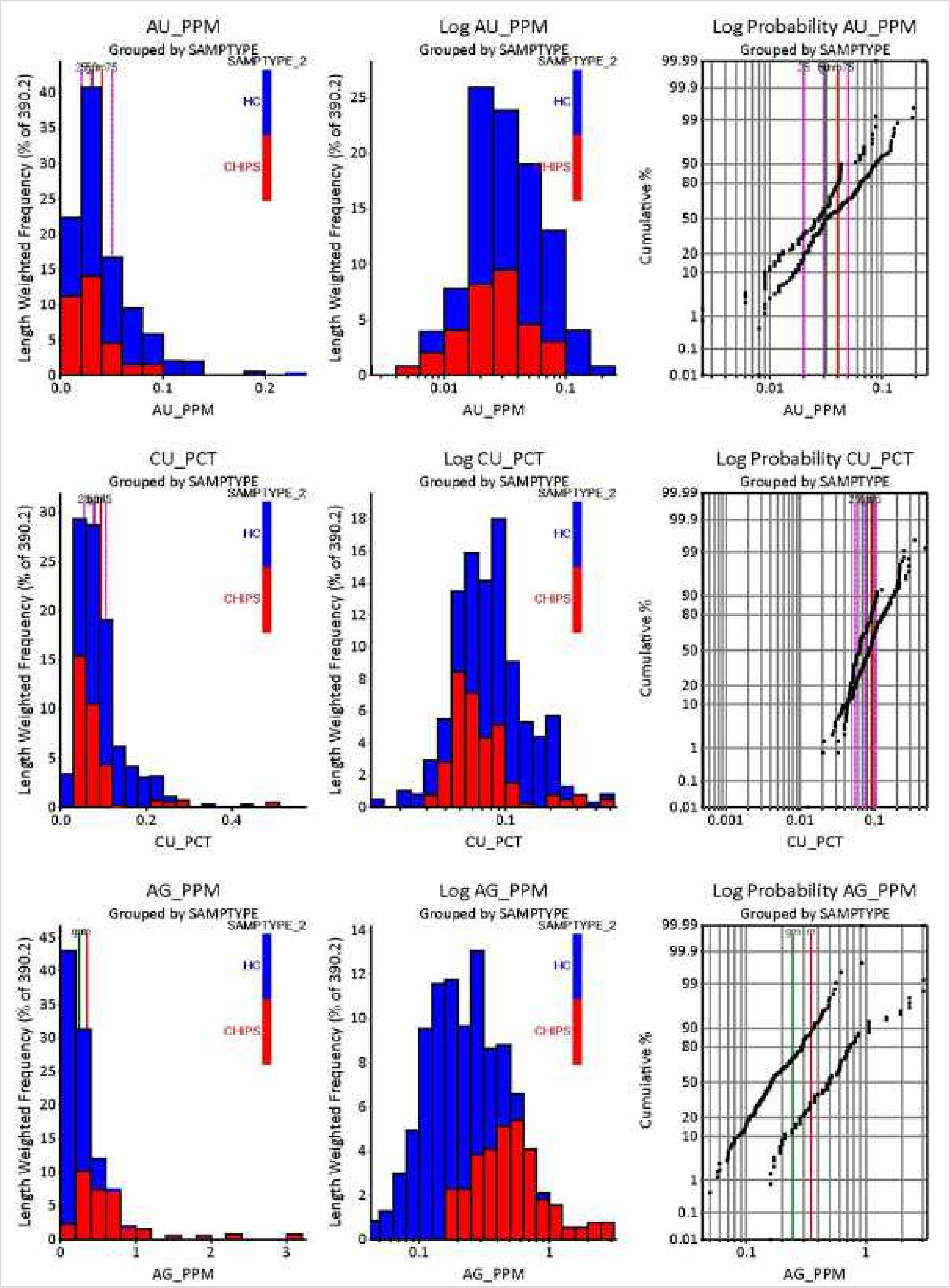
Figure 14-13 provides the Cu, Au, and Ag data analysis for the Costa Azul high-grade mineralization domain. Two sample types were analyzed separately in individual populations, including diamond drill core and RC.



Source: Nordmin, 2019

Figure 14-13: Costa Azul high-grade mineralization domain analysis for Cu, Au, and Ag

Figure 14-4 provides the Cu, Au, and Ag data analysis for the Costa Azul low-grade mineralization domain. Two sample types were analyzed separately in individual populations, including diamond drill core and RC.

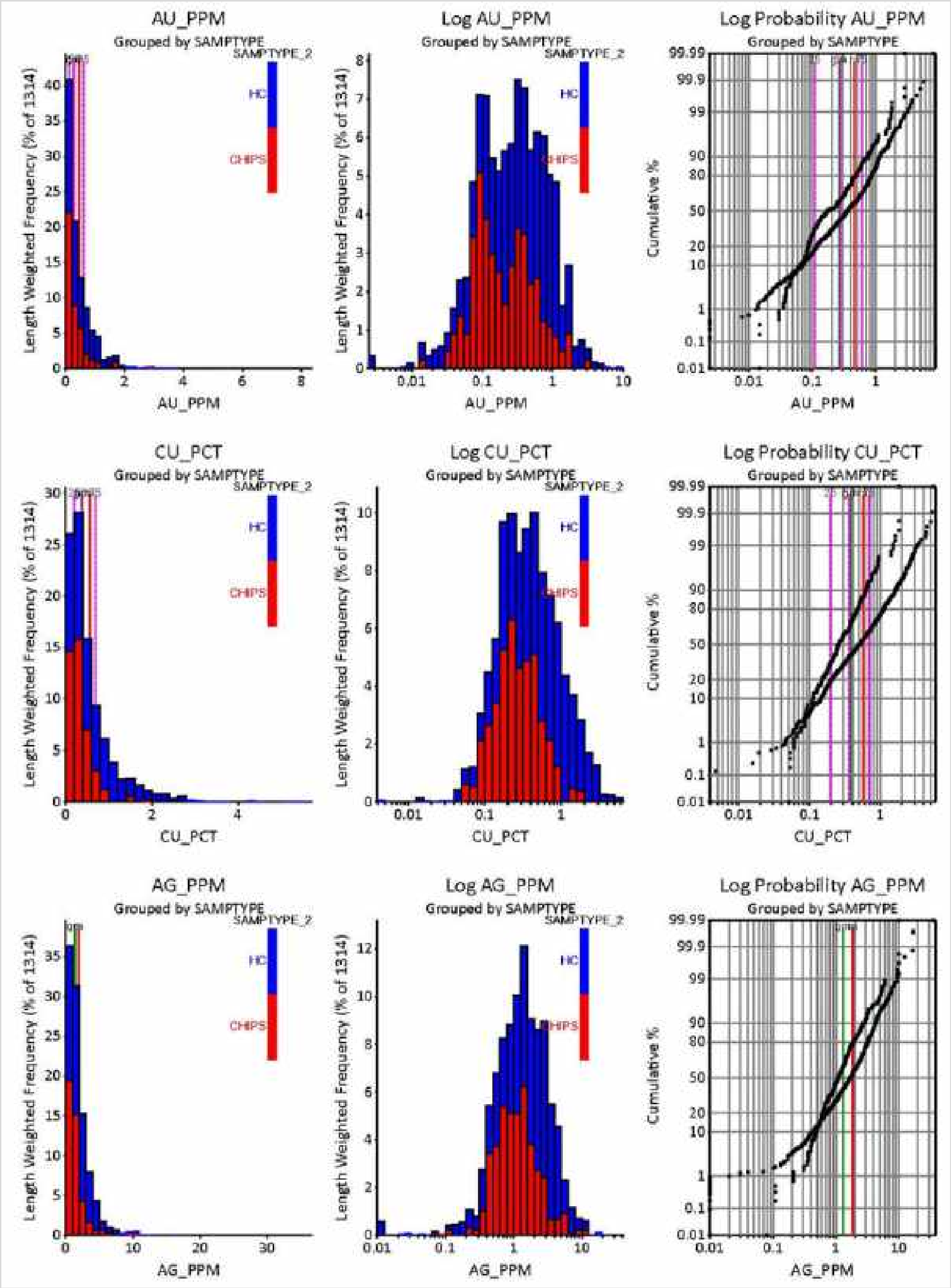


Source: Nordmin, 2019

Figure 14-14: Costa Azul low-grade mineralization domain analysis for Cu, Au, and Ag

Montiel East

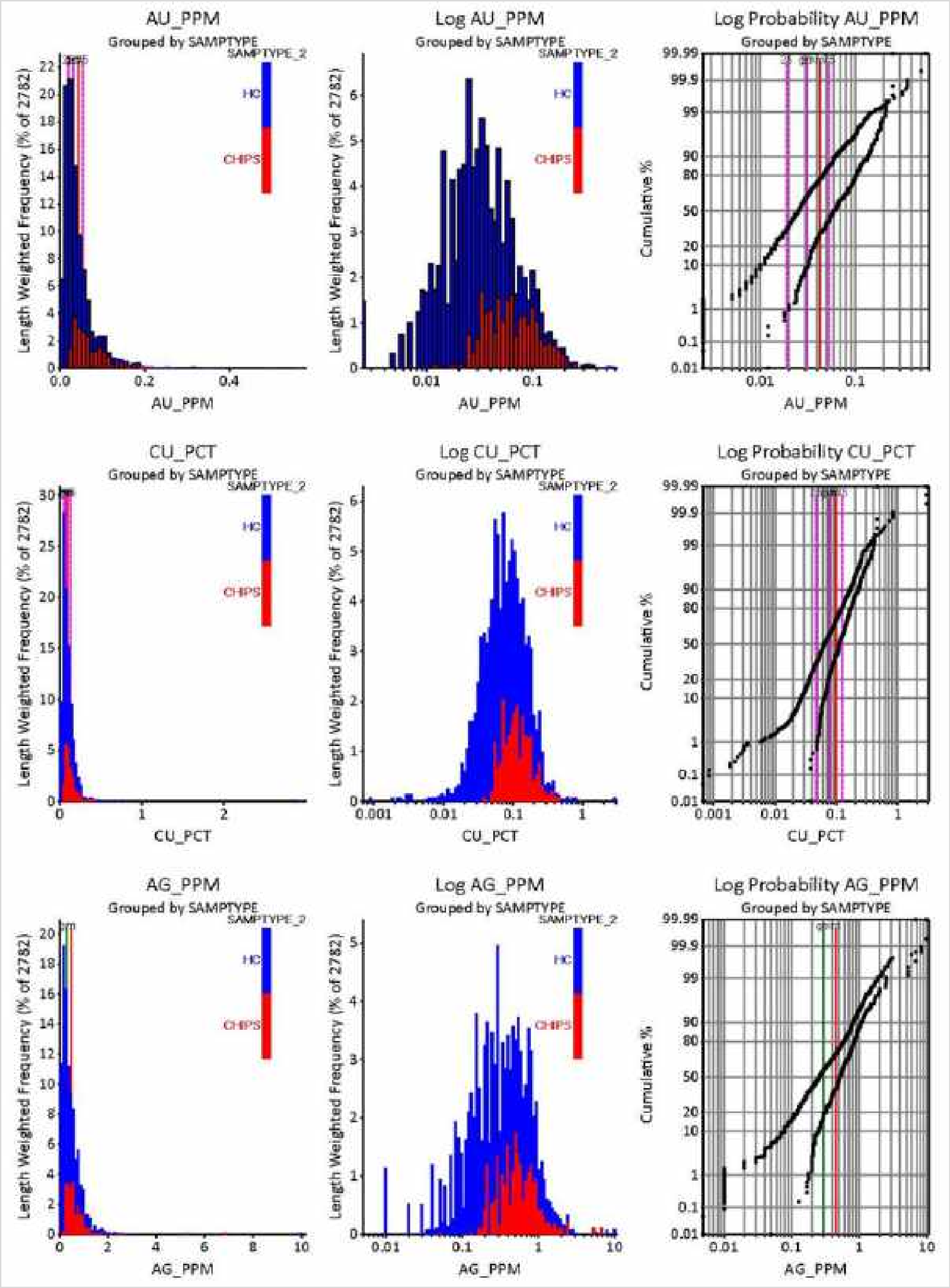
Figure 14-15 provides the Cu, Au, and Ag data analysis for the Montiel East high-grade mineralization domain. Two sample types were analyzed separately in individual populations, including diamond drill core and RC.



Source: Nordmin, 2019

Figure 14-15: Montiel East high-grade mineralization domain analysis for Cu, Au, and Ag

Figure 14-16 provides the Cu, Au, and Ag data analysis for the Montiel East low-grade mineralization domain. Two sample types were analyzed separately in individual populations, including diamond drill core and RC.

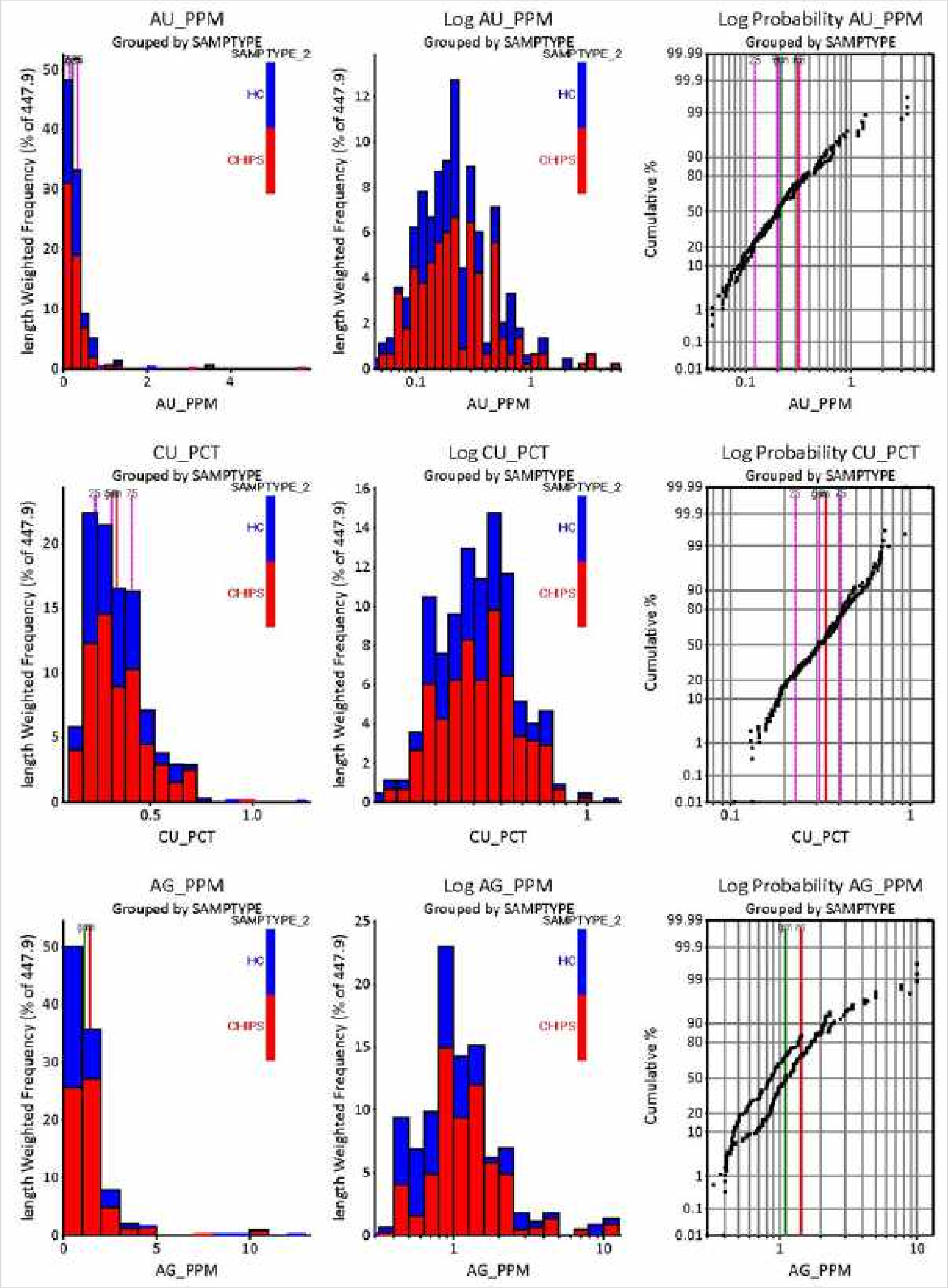


Source: Nordmin, 2019

Figure 14-16: Montiel East low-grade mineralization domain analysis for Cu, Au, and Ag

Montiel West

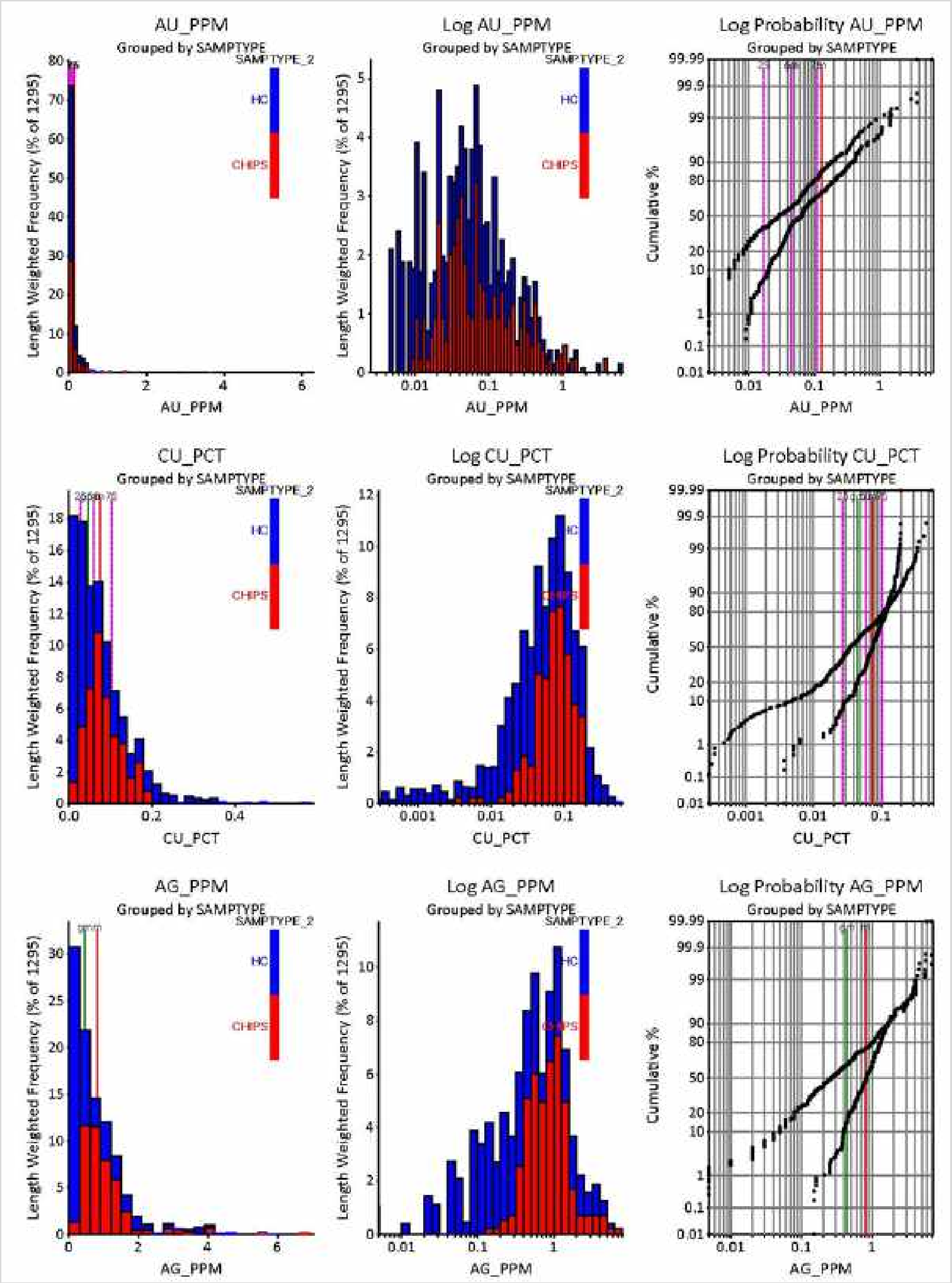
Figure 14-17 provides the Cu, Au, and Ag data analysis for the Montiel West high-grade mineralization domain. Two sample types were analyzed separately in individual populations, including diamond drill core and RC.



Source: Nordmin, 2019

Figure 14-17: Montiel West high-grade mineralization domain analysis for Cu, Au, and Ag

Figure 14-18 provides the Cu, Au, and Ag data analysis for the Montiel West low-grade mineralization domain. Two sample types were analyzed separately in individual populations, including diamond drill core and RC.



Source: Nordmin, 2019

Figure 14-18: Montiel West low-grade mineralization domain analysis for Cu, Au, and Ag

14.4 Data Preparation

Prior to grade estimation, the data was prepared in the following matter:

- All drill hole samples that intersected a wireframe within each domain were assigned a set of integer codes representative of the domain and wireframe number
- High-grade outlier samples in each domain were top-cut to a maximum value

14.4.1 Non-Assayed Sample Intervals

Table 14-2, Table 14-3, Table 14-4, and Table 14-5 summarize the drill holes used in the resource models for all four deposits. Where non-assayed intervals exist for non-payable fields, minimum detection values were substituted to remove bias from the block model.

Alacran

Table 14-2: Summary of Alacran Drilling Database

Number of Drill Holes	178
Number of Survey Records	7,785
Number of Lithology Records	4,684

Field	Count	Count at Minimum Detection	Total Assay Count	% of Minimum Detection
Au (ppm)	30,865	10,645	30,971	34.49%
Cu (%)	30,868	1,499	30,971	4.86%
Ag (ppm)	30,623	2,698	30,971	8.81%

Source: Nordmin, 2019

Costa Azul

Table 14-3: Summary of Costa Azul Drilling Database

Number of Drill Holes	118
Number of Survey Records	676
Number of Lithology Records	3,427

Field	Count	Count at Minimum Detection	Total Assay Count	% Minimum Detection
Au (ppm)	2,276	125	2,276	5.49%
Cu (%)	2,276	0	2,276	0.00%
Ag (ppm)	2,276	6	2,276	0.26%

Source: Nordmin, 2019

Montiel East

Table 14-4: Summary of Montiel East Drilling Database

Number of Drill Holes	78
Number of Survey Records	2,535
Number of Lithology Records	2,328

Field	Count	Count at Minimum Detection	Total Assay Count	% Minimum Detection
Au (ppm)	6,946	734	6,946	10.57%
Cu (%)	6,946	0	6,946	0.00%
Ag (ppm)	6,946	29	6,946	0.42%

Source: Nordmin, 2019

Montiel West

Table 14-5: Summary of Montiel West Drilling Database

Number of Drill Holes	93
Number of Survey Records	622
Number of Lithology Records	2,192

Field	Count	Count at Minimum Detection	Total Assay Count	% Minimum Detection
Au (ppm)	1,743	121	1,743	6.94%
Cu (%)	1,743	0	1,743	0.00%
Ag (ppm)	1,743	12	1,743	0.69%

Source: Nordmin, 2019

14.4.2 Outlier Analysis and Capping

Grade outliers are high-grade assay values that are much higher than the general population of samples and have the potential to bias (inflate) the quantity of metal estimated in a block model. Geostatistical analysis using XY scatter plots, cumulative probability plots, and decile analysis was used by Nordmin to analyze the raw drill hole assay data for each domain to determine appropriate grade capping. Statistical analysis was performed by the X10 Geo software package.

Alacran

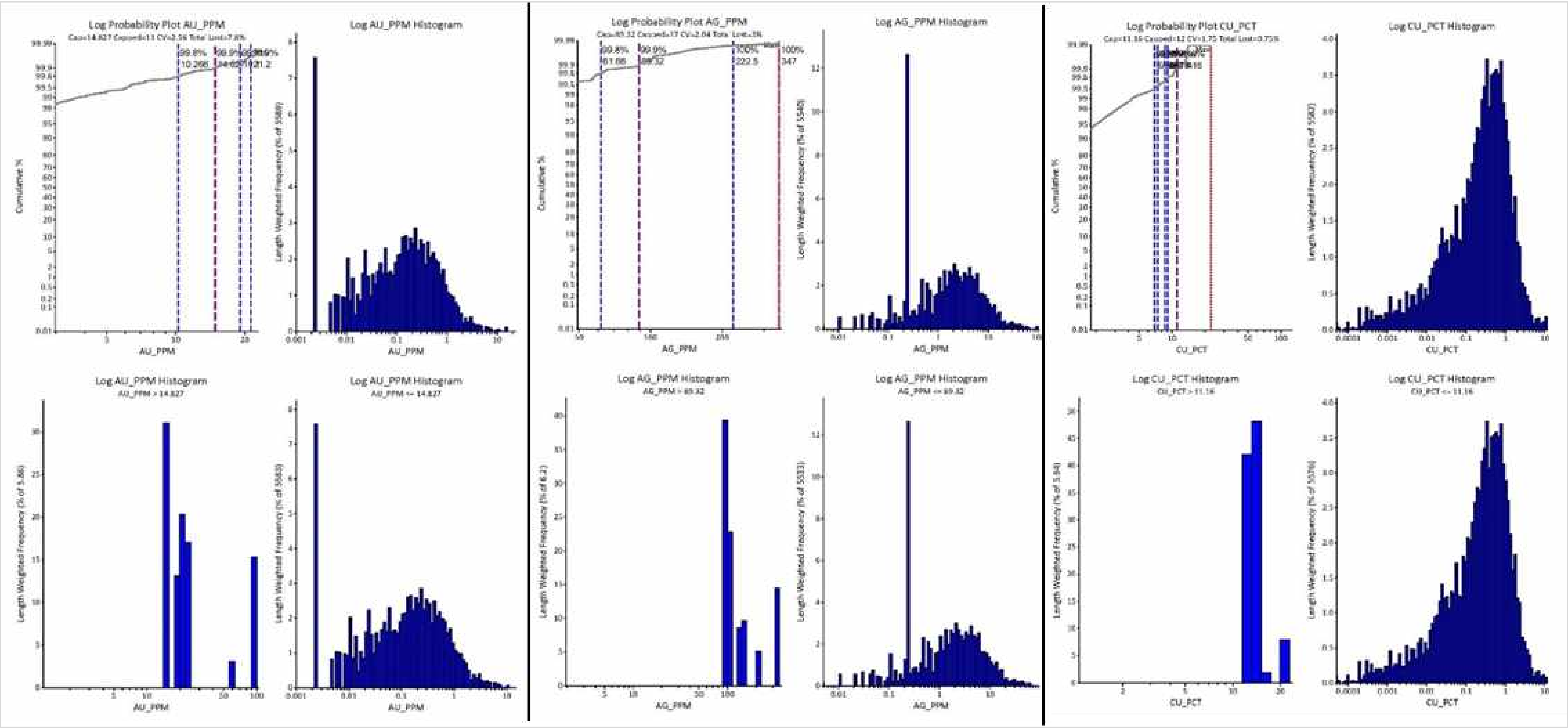
The samples were analyzed separately depending on whether they occurred in saprolite, transition, or fresh rock (Table 14-6).

Table 14-6: Alacran Deposit Grade Capping Values

Domain	Sample Type	Sap/Fresh	Au (ppm)	Cu (%)	Ag (ppm)
Vertical Mineralization	Core	Saprolite	5.50	2.50	45
Vertical Mineralization	Core	Fresh	15.00	11.00	100
Sub-vertical Replacement Mineralization	Core	Saprolite	3.20	2.90	25
Sub-vertical Replacement Mineralization	Core	Fresh	5.10	7.00	40
Low-grade	Core	Saprolite	0.85	1.00	7
Low-grade	Core	Fresh	1.00	1.00	7

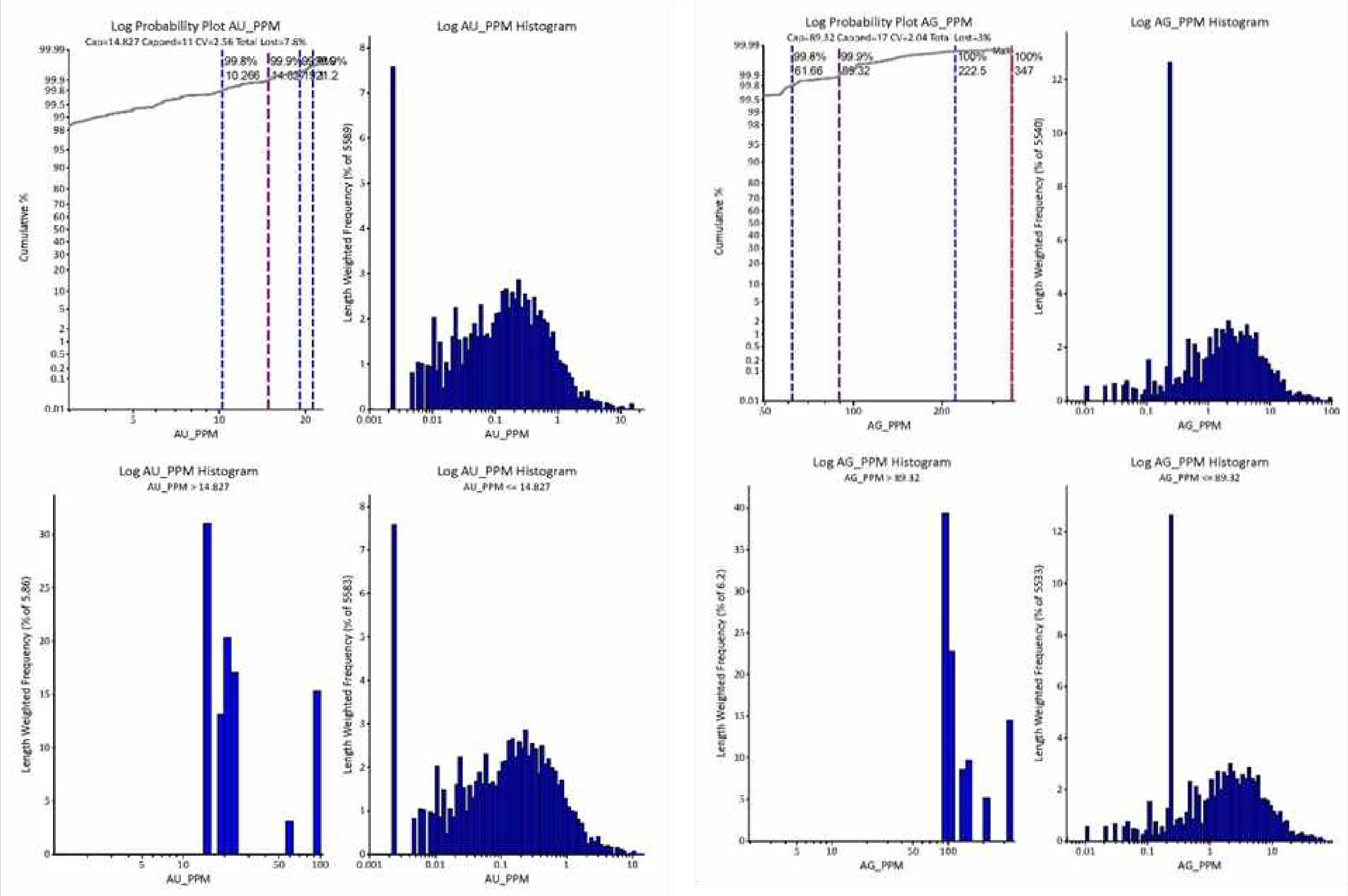
Source: Nordmin, 2019

Figure 14-19 and Figure 14-20 provide the decile capping analysis for the Alacran deposit high-grade vertical mineralization, fresh domain for Cu, Au, and Ag.



Source: Nordmin, 2019

Figure 14-19: Decile capping analysis for Alacran high-grade vertical mineralization, fresh domain for Cu, Au, and Ag (1)



Source: Nordmin, 2019

Figure 14-20: Decile capping analysis for Alacran high-grade vertical mineralization, fresh domain for Cu, Au, and Ag (2)

Costa Azul

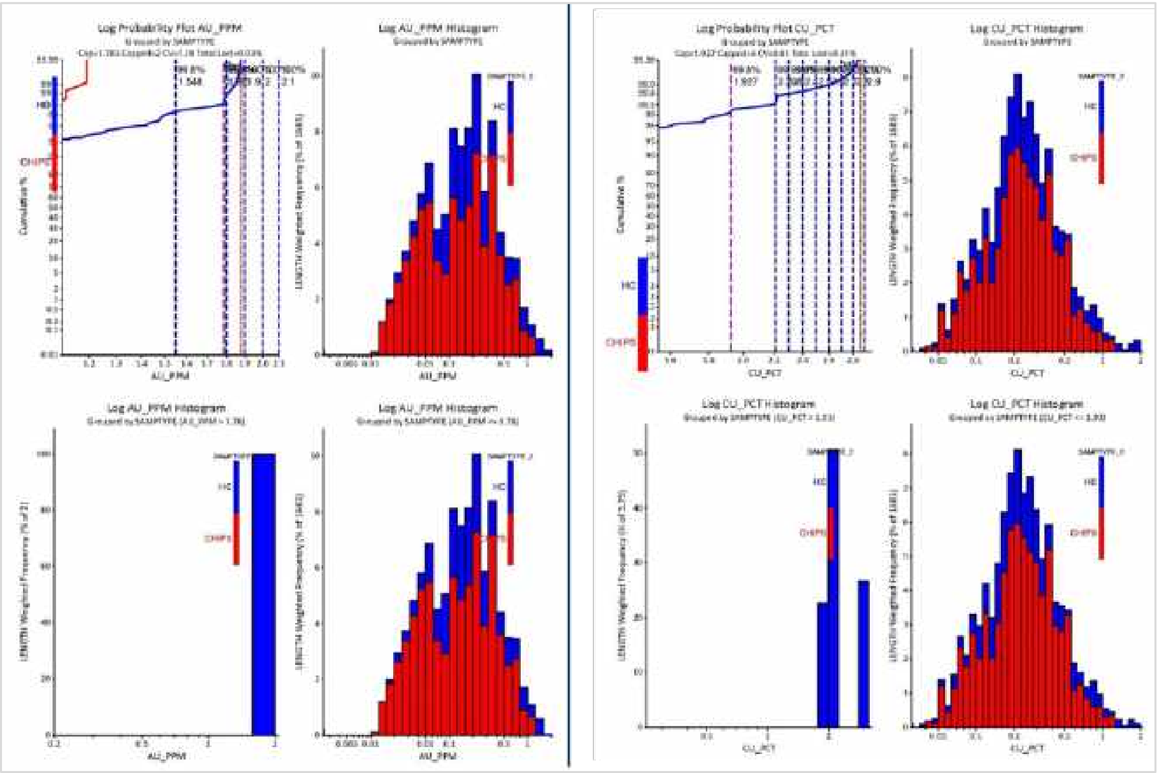
Four sample populations were created for independent analysis; diamond drill core and RC sample types were each divided for saprolite or fresh rock (Table 14-7).

Table 14-7: Costa Azul Grade Capping Values

Domain	Sample Type	Sap/Fresh	Au (ppm)	Cu (%)	Ag (ppm)
High-grade	Core	Saprolite	0.91	0.63	7
High-grade	RC	Saprolite	1.02	0.78	7
High-grade	Core	Fresh	1.78	1.90	5
High-grade	RC	Fresh	1.00	1.00	5
Low-grade	Core	Saprolite	0.39	0.23	No Cap
Low-grade	RC	Saprolite	0.95	0.47	No Cap
Low-grade	Core	Fresh	0.42	0.42	No Cap
Low-grade	RC	Fresh	0.47	0.42	No Cap

Source: Nordmin, 2019

Figure 14-21 provides the decile capping analysis for the Costa Azul high-grade mineralization, fresh domain for Cu and Au.



Source: Nordmin, 2019

Figure 14-21: Decile capping analysis for Costa Azul high-grade mineralization, fresh for Cu and Au

Montiel East

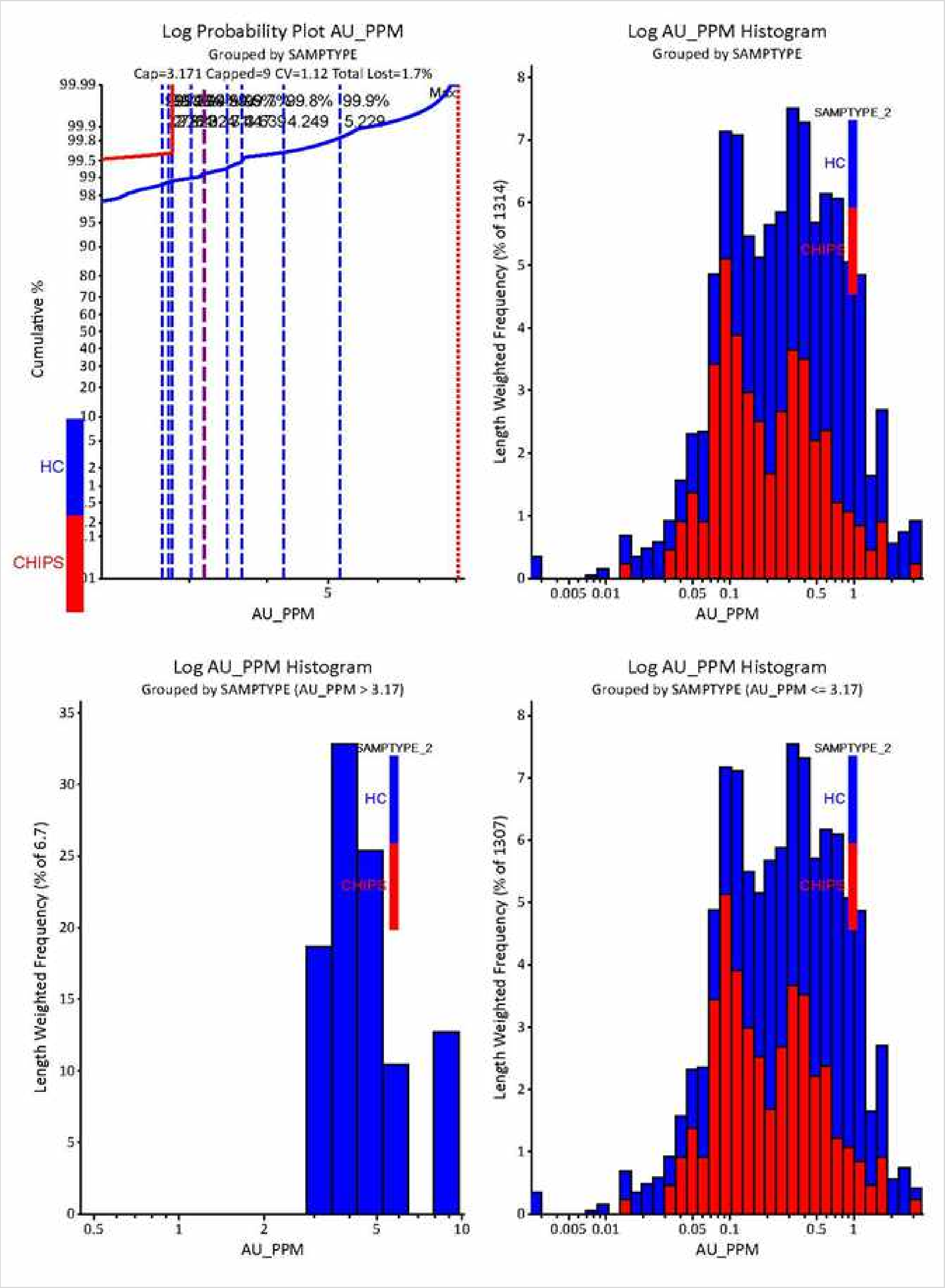
Four sample populations were created for independent analysis; diamond drill core and RC sample types were each divided for saprolite or fresh rock (Table 14-8).

Table 14-8: Montiel East Grade Capping Values

Domain	Sample Type	Sap/Fresh	Au (ppm)	Cu (%)	Ag (ppm)
High-grade	Core	Saprolite	0.35	1.50	20
High-grade	RC	Saprolite	0.22	1.00	20
High-grade	Core	Fresh	3.18	3.40	10
High-grade	RC	Fresh	1.75	1.55	10
Low-grade	Core	Saprolite	0.50	0.60	15
Low-grade	RC	Saprolite	0.22	0.50	15
Low-grade	Core	Fresh	0.35	2.00	4
Low-grade	RC	Fresh	0.22	0.50	4

Source: Nordmin, 2019

Figure 14-22 provides the decile capping analysis for the Montiel East high-grade mineralization, fresh domain for Au.



Source: Nordmin, 2019

Figure 14-22: Decile capping analysis for Montiel East high-grade mineralization, fresh domain for Au

Montiel West

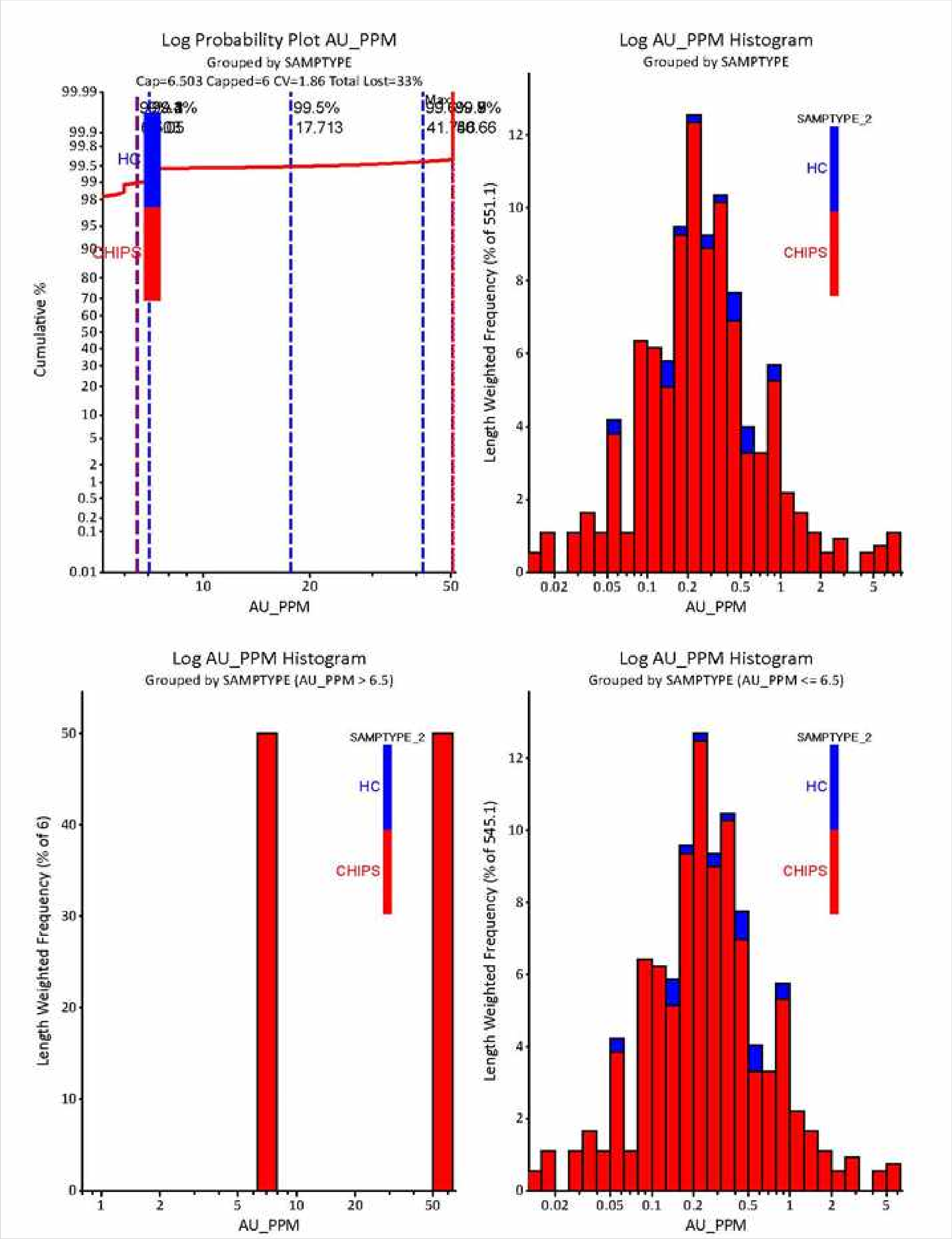
Four sample populations were created for independent analysis; diamond drill core and RC drill hole sample types were each divided for saprolite or fresh rock (Table 14-9).

Table 14-9: Montiel West Grade Capping Values

Domain	Sample Type	Sap/Fresh	Au (ppm)	Cu (%)	Ag (ppm)
High-grade	Core	Saprolite	0.98	1.19	No Cap
High-grade	RC	Saprolite	6.12	1.12	No Cap
High-grade	Core	Fresh	1.17	1.10	10
High-grade	RC	Fresh	3.26	0.71	10
Low-grade	Core	Saprolite	0.34	0.103	10
Low-grade	RC	Saprolite	1.78	0.39	10
Low-grade	Core	Fresh	1.40	0.80	6
Low-grade	RC	Fresh	3.58	0.68	6

Source: Nordmin, 2019

Figure 14-23 provides the decile capping analysis for the Montiel West high-grade mineralization, fresh domain for Cu and Au, for individual diamond drill core and RC sample types.



Source: Nordmin, 2019

Figure 14-23: Montiel West decile capping analysis for high-grade mineralization, saprolite for Au

Due to the nature of the mineralization, it was prudent to apply capping to Au, Ag, and Cu for each subset of the data.

After capping, the resulting change to the overall mean grades is insignificant in each of the Alacran, Costa Azul, Montiel East, and Montiel West deposits. Cap values were applied as per Table 14-10, Table 14-11, Table 14-12 and Table 14-13.

Table 14-10: Alacran Theoretical Metal Loss

Domain	Saprolite/ Fresh	Field	Number of Samples	Number of Uncapped Samples	Number of Capped Samples	Uncapped Average	Capped Average	Capped Value	Capped Certified Value	Theoretical Metal Loss (%)
High-grade Vertical Mineralization	Saprolite	Au (ppm)	742	740	2	0.27	0.26	2.06	0.68	6.70
		Cu (%)	722	720	2	0.24	0.23	1.21	0.39	3.20
		Ag (ppm)	722	719	3	2.23	2.23	2.08	7.40	9.40
	Fresh	Au (ppm)	10,002	9,987	15	1.07	0.36	2.57	0.92	77.00
		Cu (%)	9,995	9,983	12	0.55	0.55	1.74	0.98	0.78
		Ag (ppm)	9,953	9,943	10	3.37	3.31	2.07	8.29	2.70
Sub-vertical Stratabound Replacement Mineralization	Saprolite	Au (ppm)	1,218	1,214	4	0.13	0.12	2.38	0.48	10.00
		Cu (%)	1,218	1,216	2	0.27	0.26	1.18	0.53	3.20
		Ag (ppm)	1,212	1,211	1	1.38	1.38	1.45	2.00	0.02
	Fresh	Au (ppm)	17,456	17,436	20	0.13	0.12	2.45	0.48	3.80
		Cu (%)	17,477	17,447	30	0.32	0.32	1.70	1.84	0.97
		Ag (ppm)	17,339	17,311	28	1.95	1.93	1.77	3.77	1.20
Low-grade	Saprolite	Au (ppm)	1,013	1,011	2	0.05	0.05	1.81	0.09	0.97
		Cu (%)	1,013	1,013	0	0.12	0.12	0.490	0.06	0.00
		Ag (ppm)	1,013	1,006	7	0.77	0.50	1.59	2.63	10.00
	Fresh	Au (ppm)	23,966	23,943	23	0.02	0.02	3.02	0.17	17.00
		Cu (%)	23,966	23,940	26	0.11	0.11	0.48	0.07	0.79
		Ag (ppm)	23,966	23,940	26	0.32	0..31	1.59	2.45	2.50

Source: Nordmin, 2019

Table 14-11: Costa Azul Theoretical Metal Loss

Domain	Saprolite/ Fresh	Field	Type	Number of Samples	Number of Uncapped Samples	Number of Capped Samples	Uncapped Average	Capped Average	Capped Value	Capped Certified Value	Theoretical Metal Loss (%)
High-grade	Saprolite	Cu (%)	Core	58	57	1	0.28	0.28	0.63	0.47	0.12
			RC	439	434	5	0.29	0.29	0.78	0.53	0.40
		Au (ppm)	Core	58	57	1	0.35	0.35	0.91	0.64	0.12
			RC	439	436	3	0.26	0.26	1.02	0.85	0.43
	Fresh	Cu (%)	Core	178	174	4	0.53	0.52	1.90	0.87	1.60
			RC	198	194	4	0.41	0.41	1.00	0.48	0.54
		Au (ppm)	Core	178	176	2	0.44	0.44	1.78	0.91	0.14
			RC	198	196	2	0.34	0.33	1.00	0.68	0.14
Low-grade	Saprolite	Cu (%)	Core	18	17	1	0.19	0.19	0.23	0.13	0.02
			RC	713	707	6	0.18	0.18	0.47	0.48	1.20
		Au (ppm)	Core	18	17	1	0.12	0.11	0.39	0.67	2.40
			RC	713	707	6	0.14	0.14	0.95	1.13	0.24
	Fresh	Cu (%)	Core	213	210	3	0.17	0.17	0.42	0.47	0.21
			RC	809	801	8	0.17	0.17	0.42	0.54	0.18
		Au (ppm)	Core	213	210	3	0.17	0.17	0.42	0.46	0.21
			RC	809	807	2	0.23	0.17	0.47	0.52	0.01

Source: Nordmin, 2019

Table 14-12: Montiel East Theoretical Metal Loss

Domain	Saprolite/ Fresh	Field	Type	Number of Samples	Number of Uncapped Samples	Number of Capped Samples	Uncapped Average	Capped Average	Capped Value	Capped Certified Value	Theoretical Metal Loss (%)
High-grade	Saprolite	Au (ppm)	Core	153	151	2	0.37	0.37	0.50	1.46	3.40
			RC	59	58	1	0.30	0.30	0.22	0.85	0.26
		Cu (%)	Core	153	151	2	0.42	0.42	0.60	0.74	2.00
			RC	59	58	1	0.32	0.30	0.50	0.85	0.11
	Fresh	Au (ppm)	Core	791	782	9	0.61	0.61	0.35	1.10	2.30
			RC	153	152	1	0.37	0.37	0.22	1.11	2.00
		Cu (%)	Core	791	782	9	0.80	0.80	2.00	0.93	1.50
			RC	153	151	2	0.38	0.38	0.50	0.74	0.52
Low-grade	Saprolite	Au (ppm)	Core	1,374	1,371	3	0.04	0.04	1.00	1.31	0.48
			RC	436	436	0	0.08	0.08	2.70	0.58	0.00
		Cu (%)	Core	1,374	1,369	5	0.09	0.09	1.50	0.04	0.29
			RC	436	433	3	0.13	0.13	1.00	0.08	0.64
	Fresh	Au (ppm)	Core	297	297	0	0.03	0.36	3.18	1.08	0.00
			RC	137	137	0	0.10	0.10	1.75	0.50	0.00
		Cu (%)	Core	297	295	2	0.12	0.12	3.40	0.36	3.50
			RC	137	137	0	0.19	0.19	1.55	0.10	0.00

Source: Nordmin, 2019

Table 14-13: Montiel West Theoretical Metal Loss

Domain	Saprolite/ Fresh	Field	Type	Number of Samples	Number of Uncapped Samples	Number of Capped Samples	Uncapped Average	Capped Average	Capped Value	Capped Certified Value	Theoretical Metal Loss (%)
High-grade	Saprolite	Au (ppm)	Core	9	8	1	0.53	0.53	0.98	0.52	0.02
			RC	191	189	2	0.76	0.76	6.12	4.94	0.31
		Cu (%)	Core	9	8	1	0.53	0.53	1.19	0.64	0.88
			RC	191	189	2	0.39	0.39	1.12	0.64	0.16
	Fresh	Au (ppm)	Core	41	40	1	0.31	0.31	1.17	0.83	1.50
			RC	94	92	2	0.36	0.36	3.26	1.66	6.60
		Cu (%)	Core	41	40	1	0.44	0.44	1.10	0.41	0.87
			RC	94	92	2	0.36	0.36	0.71	0.39	0.69
Low-grade	Saprolite	Au (ppm)	Core	14	13	1	0.10	0.10	0.34	1.12	1.80
			RC	522	521	1	0.18	0.18	1.78	3.25	0.20
		Cu (%)	Core	14	14	0	0.07	0.10	0.103	0.36	0.00
			RC	522	519	3	0.11	0.11	0.39	0.65	0.18
	Fresh	Au (ppm)	Core	487	484	3	0.12	0.12	1.40	1.89	2.80
			RC	839	835	4	0.22	0.22	3.58	1.95	1.30
		Cu (%)	Core	487	485	2	0.13	0.13	0.80	1.15	0.88
			RC	839	835	4	0.17	0.17	0.68	0.90	0.25

Source: Nordmin, 2019

14.4.3 Compositing

Compositing of samples is a technique used to give each sample a relatively equal length to reduce the potential for bias due to uneven sample lengths; it prevents the potential loss of sample data and reduces the potential for grade bias due to the possible creation of short and potentially high-grade composites that are generally formed along the zone contacts when using a fixed length.

The raw sample data was found to have a relatively narrow range of sample lengths. Samples captured within all zones were composited to 2.5 m regular intervals based on the observed modal distribution of sample lengths, which supports both 5.0 m x 5.0 m x 5.0 m and 5.0 m x 10.0 m x 5.0 m block models. An option to use a variable composite length was chosen to allow for backstitching shorter composites that are located along the edges of the deposit. All composite samples were generated within each mineral zone with no overlaps along boundaries. The composite samples were validated statistically to ensure there was no loss of data or change to the mean grade of each sample population (Table 14-14).

Table 14-14: Composite Analysis

Deposit	Domain	Type	Zone	Class	Number of Composites	Cu	Au	Ag
Alacran	High-grade	Vertical Mineralization	1	Saprolite	62	62	62	62
				Fresh	162	162	162	162
			2	Saprolite	36	36	36	36
				Fresh	392	392	392	392
			5	Saprolite	163	163	163	163
				Fresh	1,697	1,697	1,697	1,697
			6	Saprolite	13	13	13	13
				Fresh	249	249	249	249
			9	Saprolite	6	6	6	6
				Fresh	19	19	19	19
	High-grade	Sub-vertical Stratabound Mineralization	1	Saprolite	395	395	395	395
				Fresh	3,627	3,627	3,627	3,627
			3	Saprolite	17	17	17	17
				Fresh	41	41	41	41
			5	Saprolite	15	15	15	15
				Fresh	3	3	3	3
			6	Saprolite	42	42	42	42
				Fresh	24	24	24	24
			7	Saprolite	11	11	11	11
				Fresh	79	79	79	79
	Low-grade			Saprolite	445	445	445	445
				Fresh	6,117	6,117	6,117	6,117
Costa Azul	High-grade			Saprolite	517	517	517	517
				Fresh	674	674	674	674
	Low-grade			Saprolite	17	17	17	17
				Fresh	155	155	155	155
Montiel East	High-grade			Saprolite	150	150	150	150
				Fresh	528	528	528	528
	Low-grade			Saprolite	111	111	111	111
				Fresh	1,161	1,161	1,161	1,161
Montiel West	High-grade			Saprolite	223	223	223	223
				Fresh	182	182	182	182
	Low-grade			Saprolite	226	226	226	226
				Fresh	551	551	551	551

Source: Nordmin, 2019

14.4.4 Specific Gravity

A total of 13,424 specific gravity (SG) measurements for all four deposits were provided from on-site drill measurements. Measurements were taken from NQ, and HQ sized using the weight in air versus the weight in water method (Archimedes), by applying the following formula:

$$Specific\ Gravity = \frac{Weight\ in\ Air}{(Weight\ in\ Air - Weight\ in\ Water)}$$

Nordmin determined that the required amount and distribution of SG measurements did not exist for direct estimation of the entire block model. Lithology was determined to be the appropriate indicator of SG, and nine lithology sets were developed from drill logging, each with a weighted average SG assigned.

Alacran

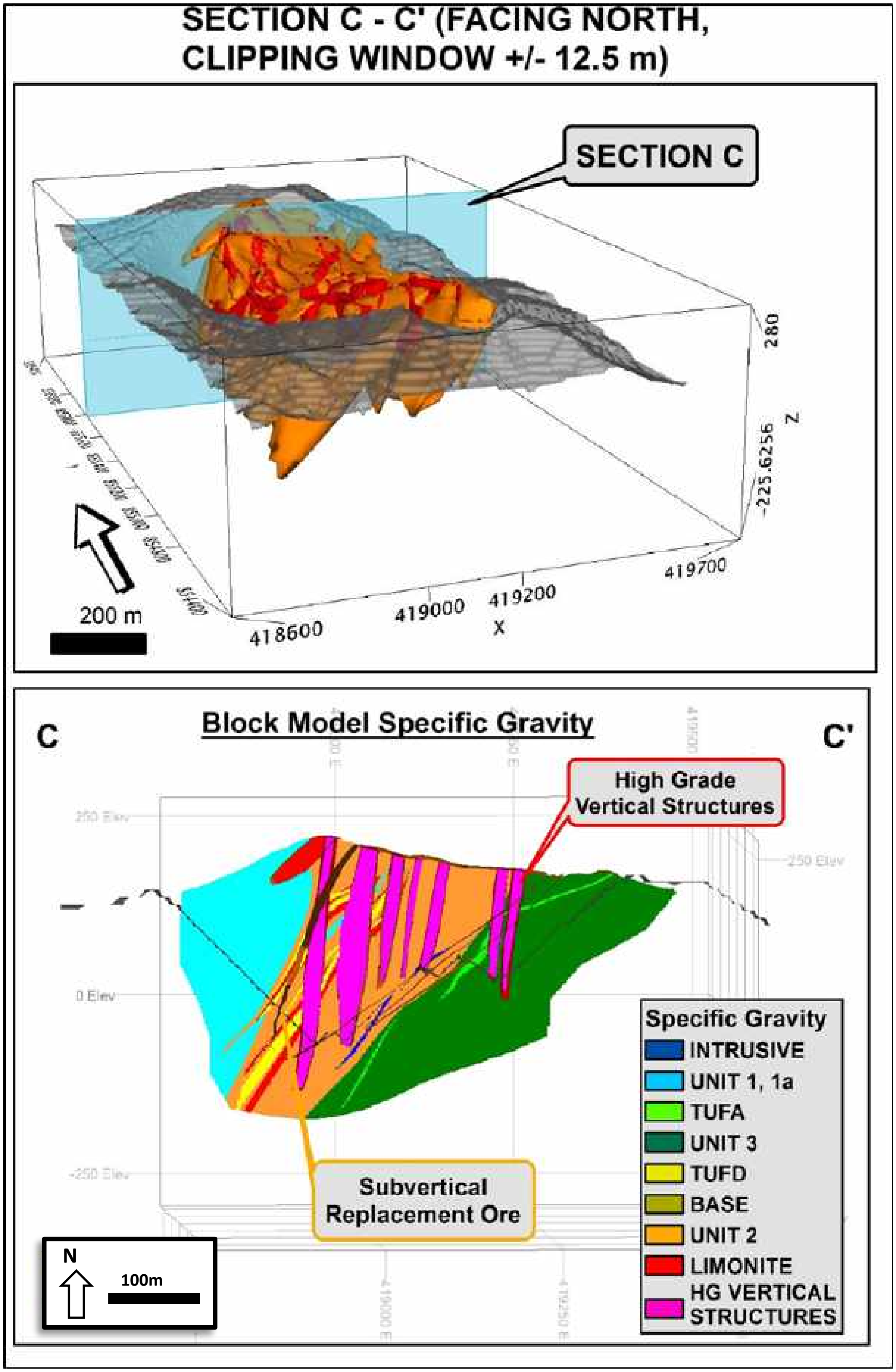
In 2012 and between December 2015 and November 2017, there were 12,780 measurements taken from 87 Ashmont and Cordoba drilled holes. A set of nine lithological groups was created, each with a set weighted average SG. Wireframes for each of the SG groups were successively applied to the block model in a specific order provided in Table 14-15.

Table 14-15: Alacran Lithological Group SG, from First Applied to Last Applied

Unit	SG	Lithologies
All units not otherwise listed below	2.806	All not listed below
Unit 1	2.750	Dio, RBx, TufR
INT	2.720	Intrusive
TUFA	2.757	Tuff A
Unit 3	2.800	TufA, TufM, TufP, TufL, TufF
TUFD	2.803	Tuff D
Unit 2, 2A	2.830	TufL, TufD, MudSil, Sill_1/2, VBx, TufL, TufF
LIM	2.910	Limestone
HG Vertical Mineralization	2.926	All blocks within the high-grade vertical mineralization wireframes

Source: Nordmin, 2019. See Table 7-1 for lithological codes.

Figure 14-24 demonstrates the SG distribution for Alacran across a vertical section.



Source: Nordmin, 2019

Figure 14-24: Alacran, Section C demonstrating specific gravity distribution across a vertical section

Costa Azul

An SG analysis determined that SG measurements were sparse and relatively consistent throughout, and a weighted average SG=2.788 was applied to all blocks.

Table 14-16: Costa Azul Weighted Average

Unit	SG
Weighted Average of all rock types	2.788

Source: Nordmin, 2019

Montiel East

During analysis, one lithological unit was outside the deviation of the weighted average; two SG groups were applied to the block model.

Table 14-17: Montiel East Weighted Average

Unit	SG
Quartz-Feldspar Porphyry	2.746
Weighted Average of all other rock types	2.782

Source: Nordmin, 2019

Montiel West

Measurements for Montiel West were only taken from one drill hole. During analysis, one lithological unit was significantly outside the deviation of the weighted average; two SG groups were applied to the block model.

Table 14-18: Montiel West Weighted Average

Unit	SG
Andesite Porphyry	2.883
Weighted Average of all other rock types	2.732

Source: Nordmin, 2019

14.5 Block Model Resource Estimation

14.5.1 Block Model Strategy and Analysis

A series of upfront test modelling was completed to define an estimation methodology to meet the following criteria:

- Representative of the deposit geology and structural model;
- Accounts for the variability of grade, orientation, and continuity of mineralization;
- Controls the smoothing (grade spreading) of grades and influence of outliers between high-grade and low-grade areas within the deposit;
- Accounts for most of the mineralization for the deposit; and

- Robust and repeatable within the mineral domains.

Multiple test scenarios were evaluated for each deposit to determine the optimum processes and parameters to use to achieve the stated criteria. Each scenario was based on NN, ID2, and OK interpolation methods.

Alacran

Nine test runs and one final run was completed, and then two more additional runs were completed only to update the CuEq formula.

Costa Azul

Nine test runs and one final run was completed, and then one more additional run was completed only to update the CuEq formula.

Montiel East

Two test runs and one final run was completed, and then one more additional run was completed only to update the CuEq formula.

Montiel West

Two test runs and one final run was completed, and then one more additional run was completed only to update the CuEq formula.

All test scenarios were evaluated based on global statistical comparisons, visual comparisons of composite samples versus block grades, and the assessment of overall smoothing. Based on results of the testing, it was determined that that the final resource estimation methodology would constrain the mineralization by using hard wireframe boundaries to control the spread of high-grade and low-grade mineralization and would use OK interpolation method to achieve the criteria listed in Section 14.4.1.

14.5.2 Assessment of Spatial Grade Continuity

Datamine and SAGE 2001 were used to determine the geostatistical relationship of the deposits. Independent variography was performed on the composite data for each zone (Cu, Au, and Ag in saprolite and fresh portions of high-grade vertical mineralization, sub-vertical replacement mineralization, and low-grade mineralization). Experimental grade variograms were calculated from the capped/composited sample Cu, Au, and Ag data to determine the approximate search ellipse dimensions and orientations.

The analyses considered the following:

- Downhole variograms were created and modelled to define the nugget effect;
- Experimental pairwise-relative correlogram variograms were calculated to determine directional variograms for the strike and down dip orientations;
- Variograms were modelled using an exponential with practical range;
- Directional variograms were modelled using the nugget defined in the downhole variography, and the ranges for the along strike, perpendicular to strike and down-dip directions; and
- Variograms outputs were re-oriented to reflect the orientation of the mineralization.

Pairwise correlograms for all domains were generated.

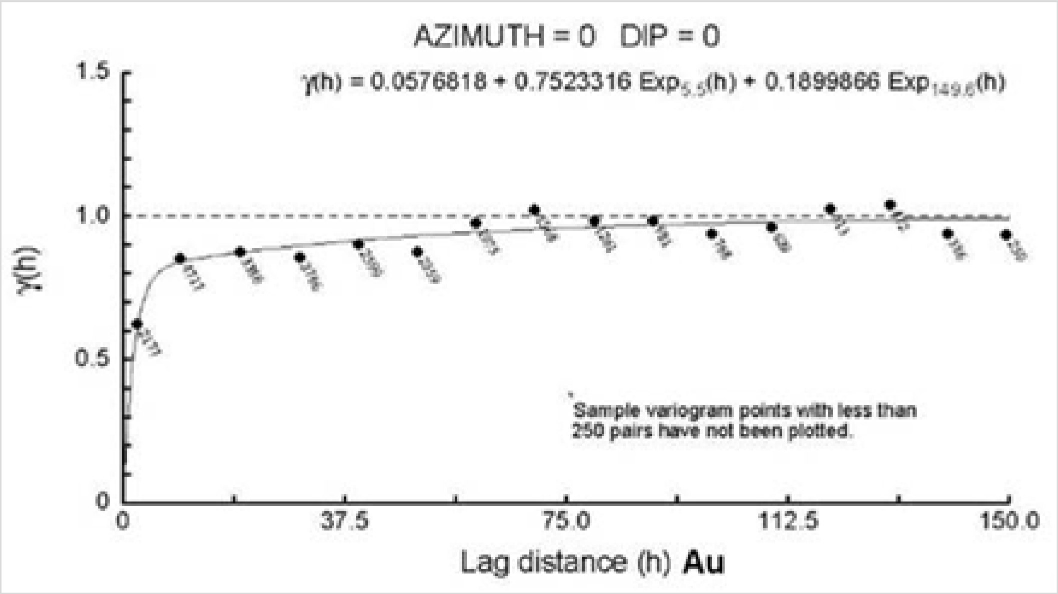
Alacran

A set of structure variogram models were fitted to the experimental variogram data for blocks within the vertical mineralization wireframes, sub-vertical mineralization wireframes, and low-grade wireframes for Cu, Au, and Ag. The Alacran variography parameters are provided in Table 14-19 and Figure 14-25 through Figure 14-29 display the pairwise correlogram variography models for Alacran.

Table 14-19: Alacran Search Variography Parameters

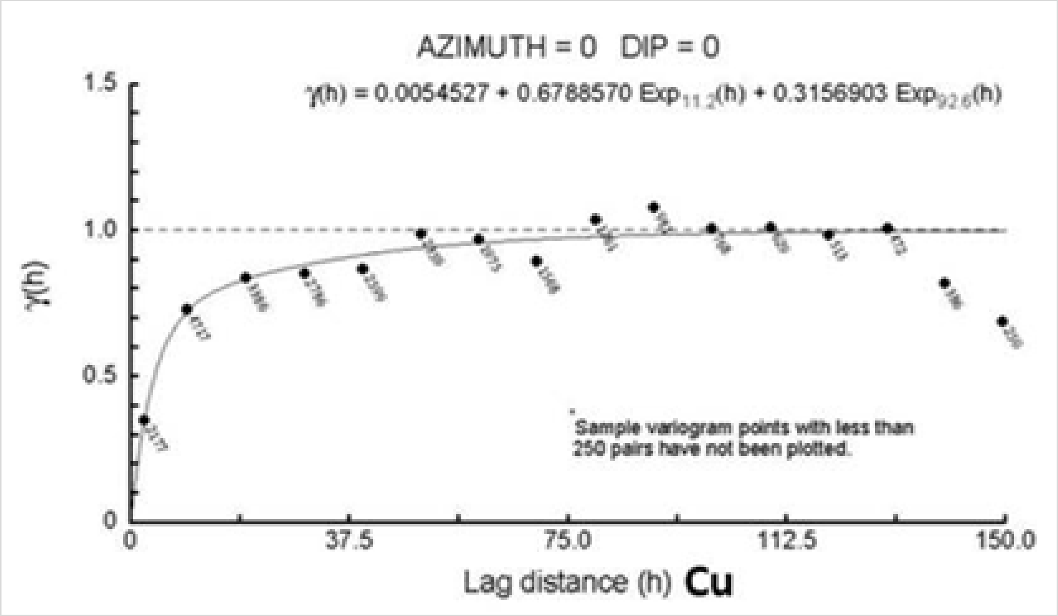
			Rotation Angles				Structure 1			Structure 2		
Domain	**Type**	**Field**	**1**	**2**	**3**	**Axes**	**Range 1**	**Range 2**	**Range 3**	**Range 1**	**Range 2**	**Range 3**
High-grade	Vertical Mineralization	Au	-47	-9	30	Z-Y-Z	4.5	28	46	39	92	23.6
High-grade	Vertical Mineralization	Cu	13	53	-11	Z-Y-Z	7.5	5.3	16	77	211	119
High-grade	Vertical Mineralization	Ag	12	52	-14	Z-Y-Z	7.5	6.1	21.8	78	684	115
High-grade	Sub-vertical Mineralization	Au	-20	-90	-38	Z-Y-Z	2.2	8	18.9	35	66	23
High-grade	Sub-vertical Mineralization	Cu	-55	-70	-2	Z-Y-Z	6	9.9	38.6	86	185	28
High-grade	Sub-vertical Mineralization	Ag	-28	30	14	Z-Y-Z	12.4	7.2	15.4	323	143	91
Low-grade	-	Au	-20	-90	-38	Z-Y-Z	2.2	8	18.9	35	66	23
Low-grade	-	Cu	-55	-70	-2	Z-Y-Z	6	9.9	38.6	86	185	28
Low-grade	-	Ag	-28	30	14	Z-Y-Z	12.4	7.2	15.4	323	143	91

Source: Nordmin, 2019



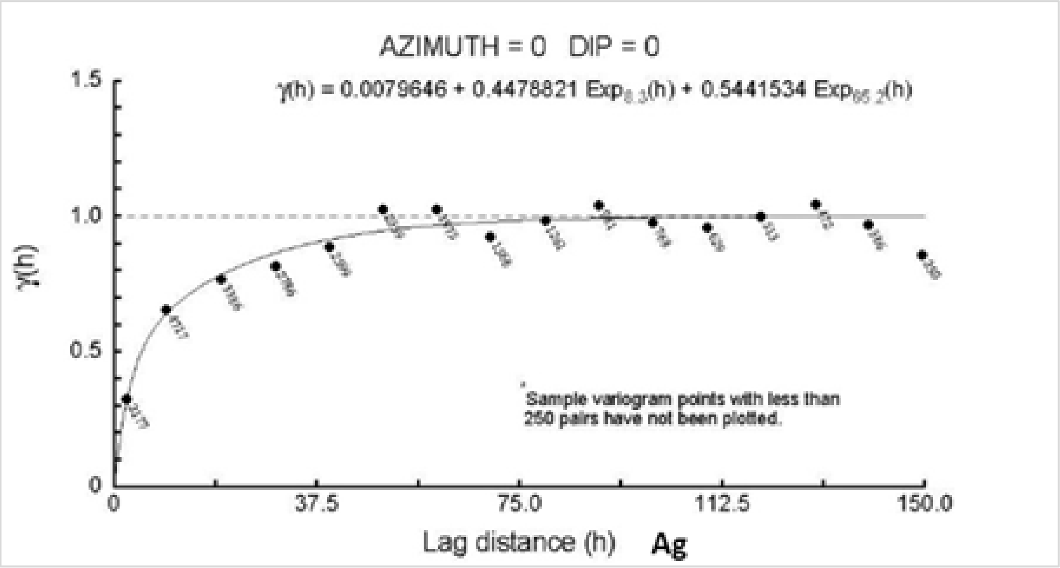
Source: Nordmin, 2019

Figure 14-25: Downhole variogram for Au for Alacran high-grade vertical mineralization



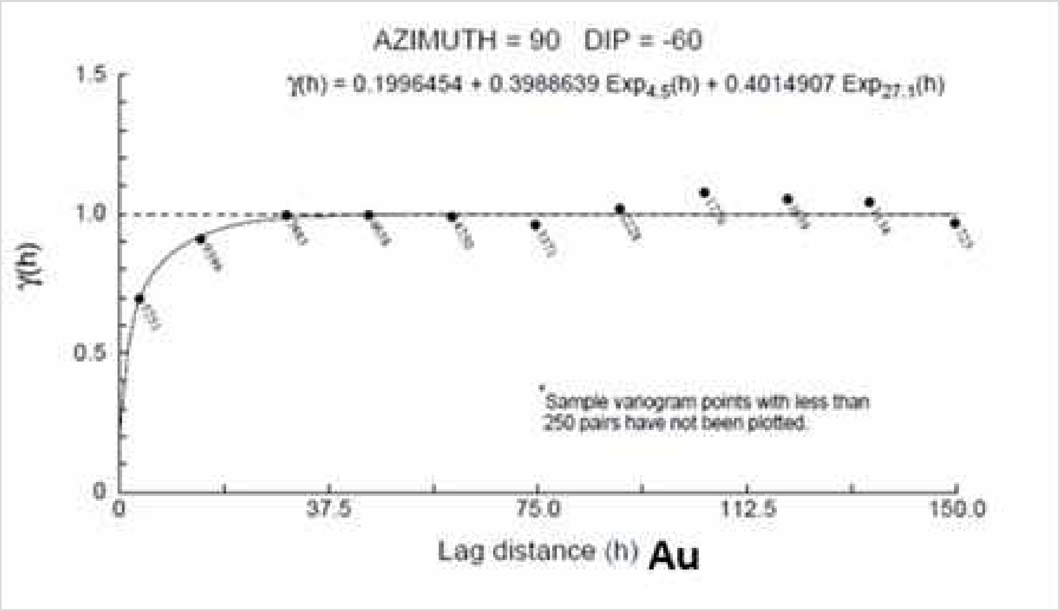
Source: Nordmin, 2019

Figure 14-26: Downhole variogram for Cu for Alacran high-grade vertical mineralization



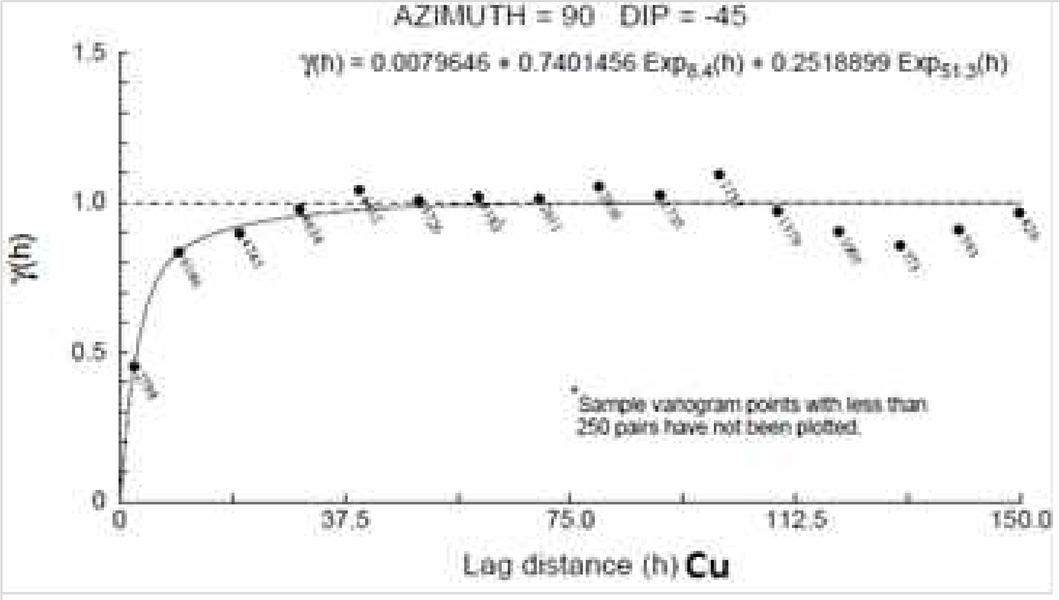
Source: Nordmin, 2019

Figure 14-27: Downhole variogram for Ag for Alacran high-grade vertical mineralization



Source: Nordmin, 2019

Figure 14-28: Downhole variogram for Au for Alacran sub-vertical mineralization



Source: Nordmin, 2019

Figure 14-29: Downhole variogram for Cu for Alacran sub-vertical mineralization

Costa Azul

A set of structure variogram models were fitted to the experimental variogram data for blocks within the high-grade and low-grade wireframes for Cu, Au, and Ag. Table 14-20 provides the Costa Azul variography parameters.

Table 14-20: Costa Azul Search Parameters and Rotation Angles

		Rotation Angle				Structure 1			Structure 2		
Domain	**Field**	**1**	**2**	**3**	**Axes**	**Range 1**	**Range 2**	**Range 3**	**Range 1**	**Range 2**	**Range 3**
High-grade and Low-grade	Au	48	-39	-41	Z-Y-Z	31	74	150	80	34	160
	Cu	-12	54	81	Z-Y-Z	63.9	22.1	246.9	26.3	44.4	379
	Ag	48	-39	-41	Z-Y-Z	31	74	150	80	34	160

Source: Nordmin, 2019

Montiel East

A set of structure variogram models were fitted to the experimental variogram data for blocks within the high-grade and low-grade wireframes for Cu, Au, and Ag. Table 14-21 provides the Montiel East variography parameters.

Table 14-21: Montiel East Search Parameters and Rotation Angles

		Rotation Angles				Structure 1			Structure 2		
Type	**Field**	**1**	**2**	**3**	**Axes**	**Range 1**	**Range 2**	**Range 3**	**Range 1**	**Range 2**	**Range 3**
High-grade and Low-grade	Au	-53	-49	31	Z-Y-Z	7.5	7.3	15.8	104	52	113
	Cu	-47	-51	22	Z-Y-Z	22.1	42.4	87.7	22.4	198	26.6
	Ag	-53	-49	31	Z-Y-Z	7.5	7.3	15.8	112.3	52	68.4

Source: Nordmin, 2019

Montiel West

A set of structure variogram models were fitted to the experimental variogram data for blocks within the high-grade and low-grade wireframes for Cu, Au, and Ag. Table 14-22 provides the Montiel West variography parameters.

Table 14-22: Montiel West Search Parameters and Rotation Angles

		Rotation Angles				Structure 1			Structure 2		
Type	**Field**	**1**	**2**	**3**	**Axes**	**Range 1**	**Range 2**	**Range 3**	**Range 1**	**Range 2**	**Range 3**
High-grade and Low-grade	Au	-56	-13	36	Z-Y-Z	3.7	13.7	30.7	104.6	548	58.7
	Cu	48	-38	-42	Z-Y-Z	18.2	49.7	40.9	19.9	314.3	55.3
	Ag	-56	-13	36	Z-Y-Z	3.7	13.7	30.7	104.6	548	58.7

Source: Nordmin, 2019

14.5.3 Block Model Definition

Block model shape and size is typically a function of the geometry of the deposit, the density of sample data, drill hole spacing, and the selected mining unit (SMU). On this basis, the following parent block sizes were selected:

- Alacran: 5.0 m x 5.0 m x 5.0 m (N-S x E-W x Elevation)
- Satellite deposits: 5.0 m x 10.0 m x 5.0 m (N-S x E-W x Elevation)

All mineral zone volumes were filled with blocks using the parameters described in Table 14-23. Block volumes were compared to the mineral zone volumes to confirm there were no errors during the process. Block volumes for all zones were found to be within reasonable tolerance limits for all mineral zone volumes. Sub-blocking was allowed to maintain the geological interpretation and accommodate the high-grade and low-grade zones (wireframes), the lithological specific gravity, and the category application. Sub-blocking has been allowed to the following minimums:

- Alacran: 5.0 m x 5.0 m x 5.0 m sub-blocked threefold to 0.625 m x 0.625 m in the N-S and E-W directions with a variable elevation.
- Costa Azul: 5.0 m x 10.0 m x 5.0 m sub-blocked threefold to 0.625 m x 1.25 m in the N-S and E-W directions with a variable elevation.
- Montiel East: 5.0 m x 10.0 m x 5.0 m sub-blocked threefold to 0.625 m x 1.25 m in the N-S and E-W directions with a variable elevation.
- Montiel West: 5.0 m x 10.0 m x 5.0 m sub-blocked threefold to 0.625 m x 1.25 m in the N-S and E-W directions with a variable elevation.

The block models were not rotated but were clipped to topography. The Resource Estimation was conducted using Datamine Studio RM^{TM} version 1.5.47.0 within the UTM grid (NAD83 Zone 18N).

Table 14-23: Block Model Origin Summary

Deposit	Item	Origin (m)	Block Dimension (m)	Number of Blocks	Minimum Sub-block (m)
Alacran	Easting	418,600	5.0	220	0.625
	Northing	854,400	5.0	400	0.625
	Elevation	-400	5.0	160	Variable
Costa Azul	Easting	420,400	5.0	140	0.625
	Northing	854,050	10.0	110	1.25
	Elevation	0	5.0	80	Variable
Montiel East	Easting	420,100	5.0	300	0.625
	Northing	856,500	10.0	160	1.25
	Elevation	-400	5.0	140	Variable
Montiel West	Easting	420,100	5.0	300	0.625
	Northing	856,500	10.0	160	1.25
	Elevation	-400	5.0	140	Variable

Source: Nordmin, 2019

14.5.4 Interpolation Method

The block models for all deposits were generated using NN, ID2, and OK interpolation methods to complete global comparisons and validation purposes. The OK method was used for the Mineral Resource Estimate. This method is a spatial estimation method where the error in variance is minimized through the kriging variance, and it was selected over ID2 and NN to control the smoothing of grades better and attribute more weight to samples located in the main orientation of the low-grade and high-grade domains.

14.5.5 Search Strategy

Zonal controls were used to constrain the grade estimates to within each low and high-grade wireframe. These controls prevented the samples from individual domain wireframes from influencing the block grades of one another, acting as a "hard boundary" between the zones. For instance, the composites identified within high-grade vertical mineralization Zone 1 were used to estimate Zone 1 only, and all other composites were ignored during the estimation of Zone 1.

Search orientations were estimated into the block model based on the shape of the modelled mineral domains. A total of three nested searches were performed on all zones. The search distances were based upon the variogram ranges outlined in Section 14.5.2. The search radius of the first search for the low-grade and high-grade Cu, Au, and Ag was based upon the first structure of the variogram, the second search being two times the first structure and the third search on the maximum of the second structure within the variogram. Search strategies for each domain used an elliptical search with a minimum of three samples and a maximum of twelve samples from a minimum of two holes in the first, second, and third passes. Un-estimated blocks were left as absent and not reported in the Mineral Resource Estimate.

Alacran

Composite controls for Alacran are summarized in Table 14-24.

Table 14-24: Alacran Search Parameters

			Search Rotation (°)				Search Distances (m)					First Pass		2nd, 3rd Pass	
Mineralization Domain	Field	Material	1	2	3	Axes	1	2	3	2nd Factor	3rd Factor	Min Cmp	Max Cmp	Min Cmp	Max Cmp
High-grade Vertical Mineralization	Au	Saprolite & Fresh	354	83	0	Z-Y-Z	25	50	25	25	12	3	6	3	8
	Cu	Saprolite & Fresh	354	83	0	Z-Y-Z	40	100	50	50	12	3	6	3	8
	Ag	HG Vertical	354	83	0	Z-Y-Z	50	75	50	50	12	3	6	3	8
Sub-vertical Replacement Mineralization	Au	Saprolite & Fresh	349	63	0	Z-Y-Z	20	35	15	15	12	3	8	3	8
	Cu	Saprolite & Fresh	349	63	0	Z-Y-Z	45	90	15	15	12	3	8	3	8
	Ag	Saprolite & Fresh	349	63	0	Z-Y-Z	100	70	45	45	12	3	8	3	8
Low-grade	Au	HG Vertical	259	63	0	Z-Y-Z	90	200	30	30	10	3	8	3	8
	Cu	HG Vertical	259	63	0	Z-Y-Z	90	200	30	30	10	3	8	3	8
	Ag	HG Vertical	259	63	0	Z-Y-Z	90	200	30	30	10	3	8	3	8

Source: Nordmin, 2019

Costa Azul

Composite controls for Costa Azul are summarized in Table 14-25.

Table 14-25: Costa Azul Search Parameters

			Search Rotation (°)				**Search Distances (m)**					**1st, 2nd Pass**		**3rd Pass**	
Domain	**Material**	**Field**	**1**	**2**	**3**	**Axes**	**1**	**2**	**3**	**2nd Factor**	**3rd Factor**	**Min Cmp**	**Max Cmp**	**Min Cmp**	**Max Cmp**
High-grade	Saprolite	Au	-12	54	81	Z-Y-Z	15	35	50	2	15	3	8	2	8
		Cu	-12	54	81	Z-Y-Z	30	10	50	2	15	3	8	2	8
		Ag	-12	54	81	Z-Y-Z	15	35	50	2	15	3	8	2	8
	Fresh	Au	-12	54	81	Z-Y-Z	15	35	50	2	8	3	8	2	8
		Cu	-12	54	81	Z-Y-Z	30	10	30	2	8	3	8	2	8
		Ag	-12	54	81	Z-Y-Z	15	35	50	2	8	3	8	2	8
Low-grade	Saprolite	Au	-12	54	81	Z-Y-Z	15	35	50	2	15	3	8	2	8
		Cu	-12	54	81	Z-Y-Z	30	10	50	2	15	3	8	2	8
		Ag	-12	54	81	Z-Y-Z	15	35	50	2	15	3	8	2	8
	Fresh	Au	-12	54	81	Z-Y-Z	15	35	50	2	8	3	8	2	8
		Cu	-12	54	81	Z-Y-Z	30	10	30	2	8	3	8	2	8
		Ag	-12	54	81	Z-Y-Z	15	35	50	2	8	3	8	2	8

Source: Nordmin, 2019

Montiel East

Composite controls for Montiel East are summarized in Table 14-26.

Table 14-26: Montiel East Search Parameters

			Search Rotation (°)				Search Distances (m)					1st, 2nd, 3rd Pass	
Domain	**Material**	**Field**	**1**	**2**	**3**	**Axes**	**1**	**2**	**3**	**2nd Factor**	**3rd Factor**	**Min Cmp**	**Max Cmp**
High-grade	Saprolite	Au	-53	-49	31	Z-Y-Z	15	15	30	20	18	3	8
		Cu	5	69	24	Z-Y-Z	10	25	25	20	18	3	8
		Ag	-53	-49	31	Z-Y-Z	15	15	30	20	18	3	8
	Fresh	Au	-53	-49	31	Z-Y-Z	15	15	30	20	18	3	8
		Cu	-47	-51	22	Z-Y-Z	30	10	20	20	18	3	8
		Ag	-53	-49	31	Z-Y-Z	15	15	30	20	18	3	8
Low-grade	Saprolite	Au	-47	-51	22	Z-Y-Z	15	5	10	20	20	3	8
		Cu	-47	-51	22	Z-Y-Z	15	5	10	20	20	3	8
		Ag	-47	-51	22	Z-Y-Z	15	5	10	20	20	3	8

Source: Nordmin, 2019

Montiel West

Composite controls for Montiel West are summarized in Table 14-27.

Table 14-27: Montiel West Search Parameters

			Search Rotation (°)				Search Distances (m)					1st, 2nd, 3rd Pass	
Domain	**Material**	**Field**	**1**	**2**	**3**	**Axes**	**1**	**2**	**3**	**2nd Factor**	**3rd Factor**	**Min Cmp**	**Max Cmp**
High-grade	Saprolite	Au	-29	-32	5	Z-Y-Z	20	10	10	2	20	3	8
		Cu	48	-38	-42	Z-Y-Z	20	10	10	2	20	3	8
		Ag	-29	-32	5	Z-Y-Z	10	15	10	2	20	3	8
	Fresh	Au	-29	-32	5	Z-Y-Z	20	10	10	2	15	3	8
		Cu	48	-38	-42	Z-Y-Z	20	10	10	2	15	3	8
		Ag	-29	-32	5	Z-Y-Z	10	15	10	2	15	3	8
Low-grade	All	Au	-29	-32	5	Z-Y-Z	10	15	10	2	15	3	8
		Cu	48	-38	-42	Z-Y-Z	10	15	10	2	15	3	8
		Ag	-29	-32	5	Z-Y-Z	10	15	10	2	15	3	8

Source: Nordmin, 2019

14.5.6 Equivalency

Copper equivalency ("CuEq") was calculated for each block using the appropriate Cu, Au, and Ag recovery values. The following formula was applied for each block in each block model:

$$\text{CuEq \%} = [\text{Cu grade} + (\text{Au factor} \times \text{Au grade}) + (\text{Ag factor} \times \text{Ag grade})] \times 100$$

Where:

$$\text{Au Factor} = \frac{(\text{Au Recovery \%} \times \text{Au price per oz} \div 31.1035)}{(\text{Cu Recovery \%} \times \text{Cu price per lb} \times 2204.62)}$$

$$\text{Ag Factor} = \frac{(\text{Ag Recovery \%} \times \text{Ag price per oz} \div 31.1035)}{(\text{Cu Recovery \%} \times \text{Cu price per lb} \times 2204.62)}$$

And:

Au Price = $1,400/oz
Cu Price = $3.25/lb
Ag Price = $17.75/oz

14.5.7 Recovery Approach

Metallurgical testing was performed by Minpro in 2012, where preliminary flotation test work was completed on 84 one-metre long quarter core samples from 23 holes distributed across the length of Alacran.

In 2019, Cordoba completed metallurgical testing on the following (further details in Section 12.1.4):

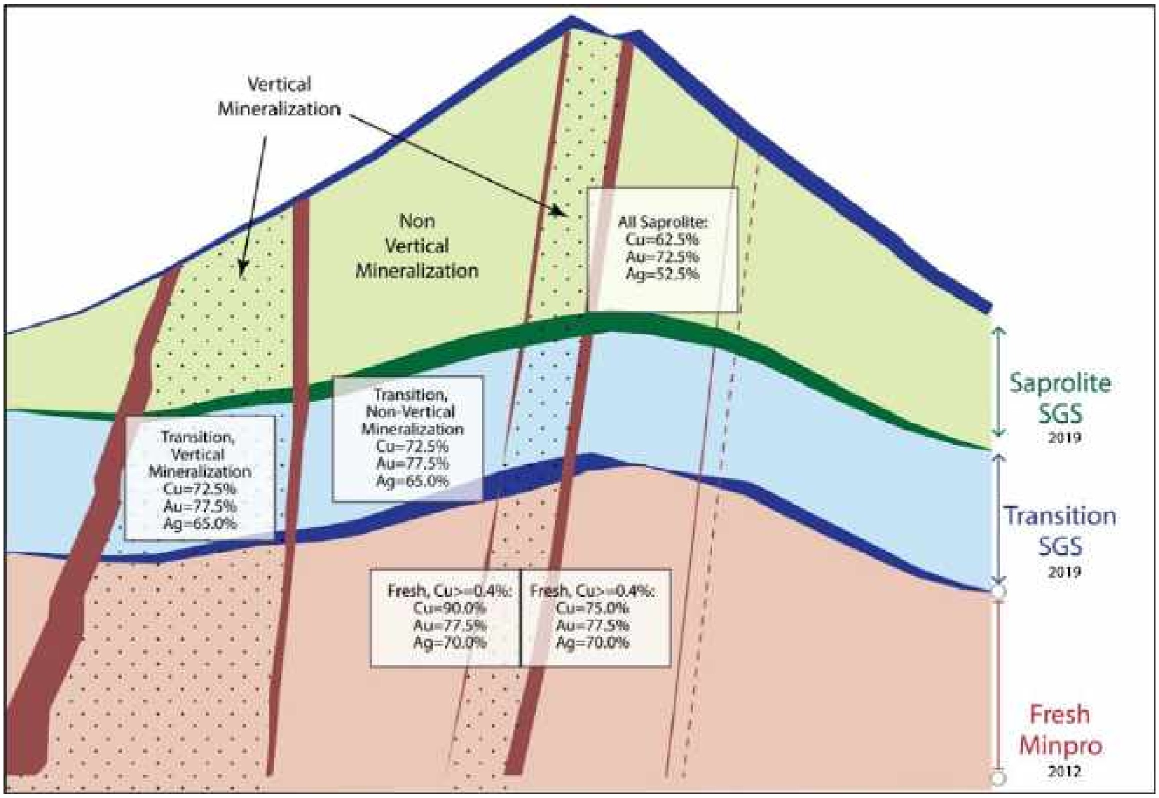
- Comminution Testing: 25.3 kg of coarse rejects for Alacran
- Saprolite/Transition Flotation Testing: 46.8 kg of coarse rejects for all four deposits
- Saprolite Heap Leach Testing: 17.7 kg of coarse rejects for all four deposits
- Gravity Testing: 11.2 kg of high-grade samples from within the high-grade vertical mineralization wireframes for Alacran

The 2012 metallurgical testing was almost exclusively in fresh rock, and the 2019 metallurgical testing was mainly in saprolite and transitional rock. Subsequently, Cu, Au, and Ag recoveries were calculated for each block in each block model. For Alacran and the satellites, separate recoveries were considered for each of the three elements in saprolite, transition, and fresh (Table 14-28 and Figure 14-30.

Table 14-28: Recoveries for Alacran and the Satellites

				Recovery		
Domain			**Qualifier**	**Au**	**Cu**	**Ag**
Alacran						
Saprolite				72.5%	62.5%	52.5%
Transition	High-grade	Vertical Structures	-	77.5%	72.5%	65.0%
		Outside Vertical Structures	-	77.5%	80.0%	70.0%
Fresh	High-grade		Cu ≥0.4%	77.5%	90.0%	70.0%
			Cu <0.4%	77.5%	75.0%	70.0%
Costa Azul						
Saprolite	High-grade and Low-grade		-	76.0%	55.0%	45.0%
Fresh	High-grade and Low-grade		Cu ≥0.4%	77.5%	90.0%	70.0%
			Cu <0.4%	77.5%	75.0%	70.0%
Montiel East						
Saprolite	High-grade and Low-grade			72.0%	50.0%	40.0%
Fresh	High-grade and Low-grade		Cu ≥0.4%	77.5%	90.0%	70.0%
			Cu <0.4%	77.5%	75.0%	70.0%
Montiel West						
Saprolite	High-grade and Low-grade			72.0%	50.0%	40.0%
Fresh	High-grade and Low-grade		Cu ≥0.4%	77.5%	90.0%	70.0%
			Cu <0.4%	77.5%	75.0%	70.0%

Source: Nordmin, 2019



Source: Nordmin, 2019

Figure 14-30: Alacran recovery specifications

14.5.8 Estimation Parameters for Non-Payables

Non-payable elements were estimated using the inverse distance squared interpolation method and included Al, Sb, As, Cd, Cr, Fe, Pb, Ni, S, Th, Ti, W, U, Zn.

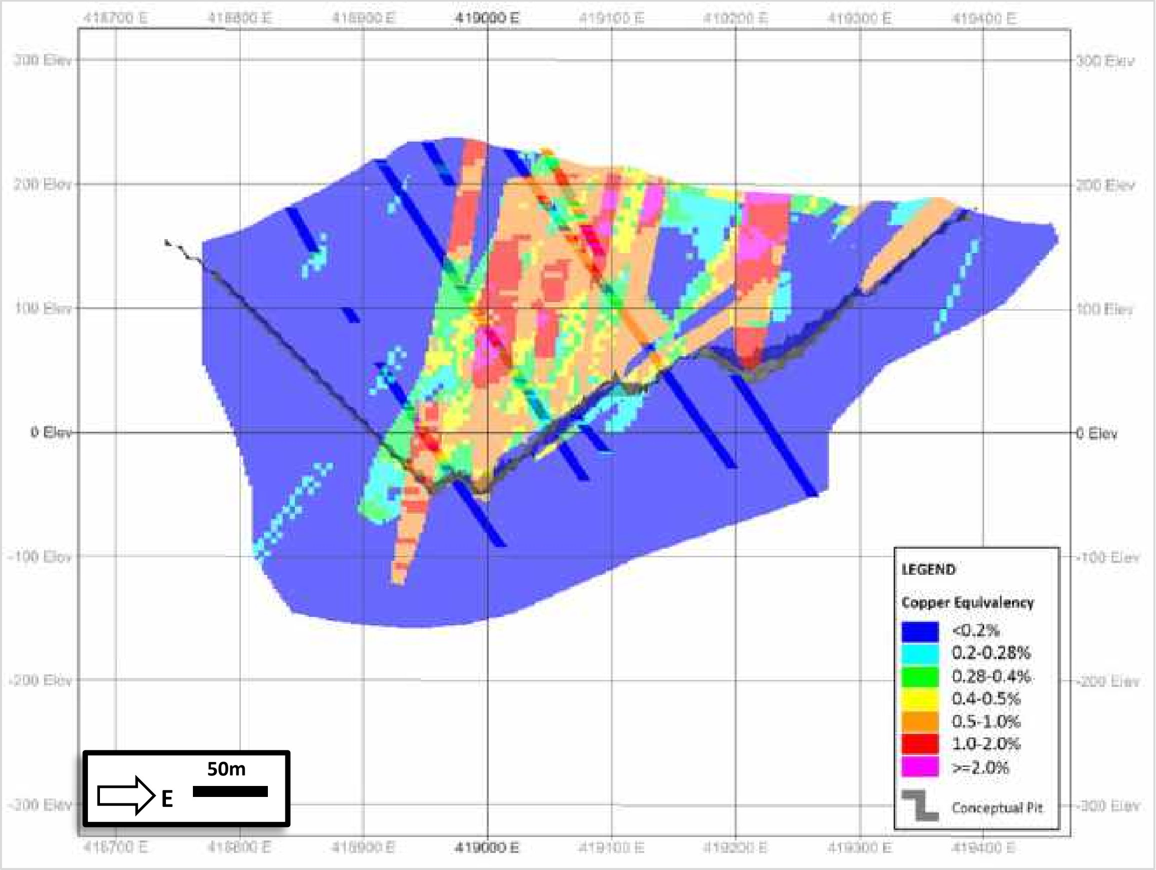
14.6 Block Model Validation

The block model validation process included visual comparisons between block estimates and composite grades in plan and section, local versus global estimations (NN, ID2, OK) and swath plots. Block estimates were visually compared to the drill hole composite data in all domains and corresponding zones to ensure agreement. No material grade bias issues were identified, the block grades were identified, and the block grades compared well to the composite data.

14.6.1 Visual Comparison

The validation of the interpolated block model was assessed by using visual assessments and validation plots of block grades versus capped assay grades and composites. The review demonstrated a good comparison between local block estimates and nearby samples, without excessive smoothing in the block model (Figure 14-31, Figure 14-32 and Figure 14-33).

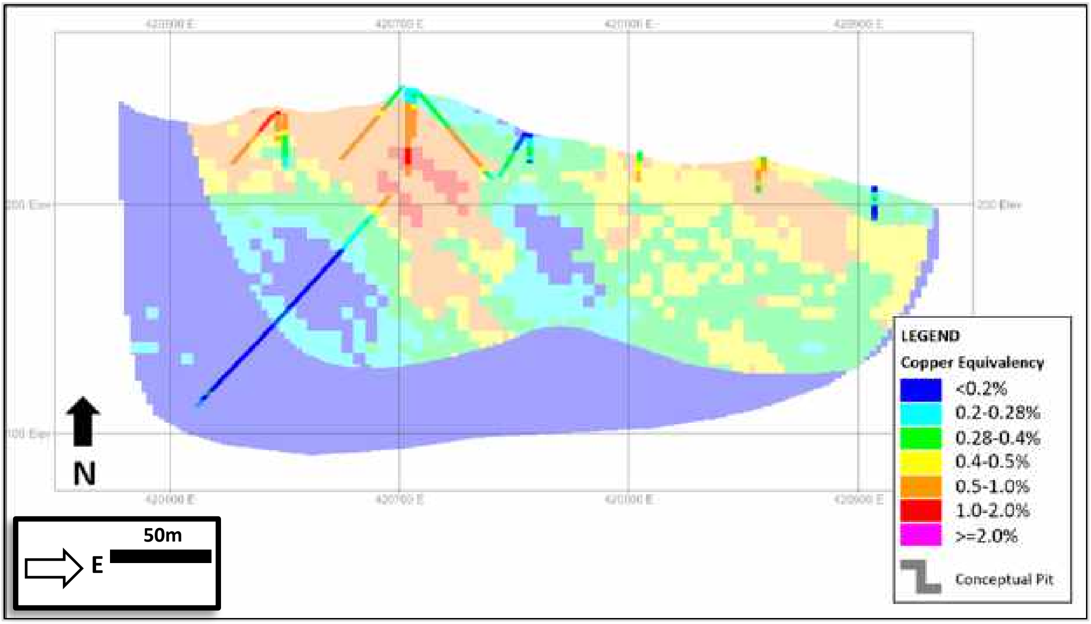
Alacran



Source: Nordmin, 2019

Figure 14-31: Alacran horizontal section, Northing = 855,800 m with block model and composite drill holes displaying CuEq %

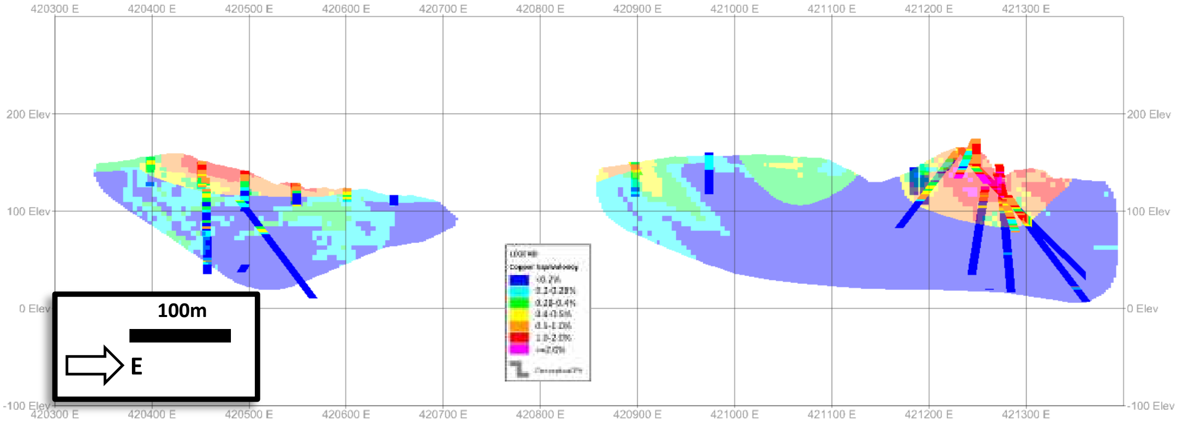
Costa Azul



Source: Nordmin, 2019

Figure 14-32: Costa Azul horizontal section, Northing = 854,350 m with block model and composite drill holes displaying CuEq %

Montiel East and Montiel West



Source: Nordmin, 2019

Figure 14-33: Montiel East and Montiel West horizontal section, Northing = 856,850 m with block model and composite drill holes displaying CuEq %

Global statistical comparisons between the composite samples, NN estimates, ID2 estimates, and OK for various cut-off grades were compared to assess global bias, where the NN model estimates represent de-clustered composite data. Clustering of the drill hole data can result in differences between the global means of the composites and NN estimates. Similar global means of the NN, ID2 and OK estimates indicate there is no apparent global grade bias in the model. The results summarized in Table 14-29 indicate that no material grade bias was found in the block model.

Table 14-29: Comparison Mean Estimated Grade Versus Cut-off Grade

Category	Cut-off	Au (ppm)			Cu (%)			Ag (ppm)		
	CuEq %	NN	ID	OK	NN	ID	OK	NN	ID	OK
Alacran										
Indicated	0.2	0.229	0.213	0.218	0.425	0.419	0.424	2.384	2.302	2.335
	0.3	0.286	0.265	0.273	0.524	0.512	0.521	2.903	2.800	2.813
	0.4	0.344	0.316	0.326	0.611	0.595	0.607	3.368	3.250	3.246
Inferred	0.2	0.118	0.089	0.105	0.242	0.194	0.225	1.524	1.328	1.347
	0.3	0.155	0.115	0.121	0.390	0.284	0.328	1.944	1.514	1.676
	0.4	0.207	0.143	0.143	0.482	0.373	0.421	2.318	2.017	2.022
Costa Azul										
Indicated	0.2	0.162	0.168	0.169	0.241	0.242	0.244	0.600	0.602	0.616
	0.3	0.209	0.211	0.216	0.280	0.277	0.285	0.660	0.646	0.667
	0.4	0.261	0.256	0.268	0.337	0.333	0.350	0.802	0.776	0.798
Inferred	0.2	0.110	0.127	0.128	0.252	0.230	0.229	0.587	0.549	0.501
	0.3	0.131	0.152	0.159	0.282	0.253	0.262	0.617	0.593	0.551
	0.4	0.127	0.159	0.173	0.356	0.310	0.332	0.614	0.677	0.616
Montiel East										
Indicated	0.2	0.271	0.282	0.287	0.371	0.374	0.387	1.253	1.298	1.319
	0.3	0.344	0.353	0.368	0.455	0.457	0.482	1.482	1.504	1.567
	0.4	0.433	0.438	0.462	0.549	0.548	0.590	1.752	1.762	1.840
Inferred	0.2	0.090	0.095	0.108	0.179	0.176	0.195	0.664	0.720	0.766
	0.3	0.122	0.128	0.154	0.234	0.227	0.250	0.832	0.827	0.929
	0.4	0.148	0.148	0.205	0.328	0.263	0.305	1.123	0.942	1.121
Montiel West										
Indicated	0.2	0.296	0.278	0.302	0.147	0.141	0.146	1.224	1.159	1.148
	0.3	0.440	0.404	0.467	0.220	0.209	0.216	1.321	1.201	1.255
	0.4	0.545	0.523	0.601	0.293	0.280	0.287	1.486	1.320	1.381
Inferred	0.2	0.405	0.370	0.359	0.052	0.059	0.065	0.748	0.798	0.850
	0.3	0.490	0.412	0.497	0.052	0.059	0.067	0.807	0.801	0.932
	0.4	0.536	0.456	0.668	0.056	0.062	0.070	0.963	0.781	1.048

14.6.1 Interpolation Comparison

The OK method was used as the reporting estimation interpolation method, while NN and ID2 were also calculated for validation purposes, as described in Section 14.5.4.

Table 14-30 and Table 14-31 compare Alacran ID2 versus OK estimated grades for the conceptual pit-contained Cu, Au, and Ag. The absolute average differences for Indicated CuEq Resource for various cut-offs of 0.20%, 0.30%, 0.40%, and 0.50% are Au: 1.34%, Cu: 0.77%, and Ag: 0.30%. The absolute average differences for Inferred CuEq Resource for various cut-offs of 0.20%, 0.30%, 0.40%, and 0.50% are Au: 1.98%, Cu: 0.95%, and Ag: 2.21%.

Table 14-30: Alacran ID and OK Estimation Details for Conceptual Pit-Contained Metals

Category	CuEq (%) Cut-off	Au ID2 ppm	Au OK ppm	Cu ID2 %	Cu OK %	Ag ID2 ppm	Ag OK ppm
INDICATED	**0.2**	0.228	0.233	0.449	0.453	2.499	2.531
	0.3	0.276	0.283	0.534	0.541	2.941	2.953
	0.4	0.321	0.330	0.610	0.621	3.346	3.339
	0.5	0.372	0.385	0.695	0.712	3.793	3.774
INFERRED	**0.2**	0.120	0.125	0.262	0.265	1.818	1.603
	0.3	0.130	0.129	0.384	0.386	1.637	1.674
	0.4	0.155	0.149	0.500	0.491	2.114	2.103
	0.5	0.181	0.169	0.607	0.580	2.339	2.284

Source: Nordmin, 2019

Table 14-31: Alacran ID Versus OK Differences for CuEq Cut-offs

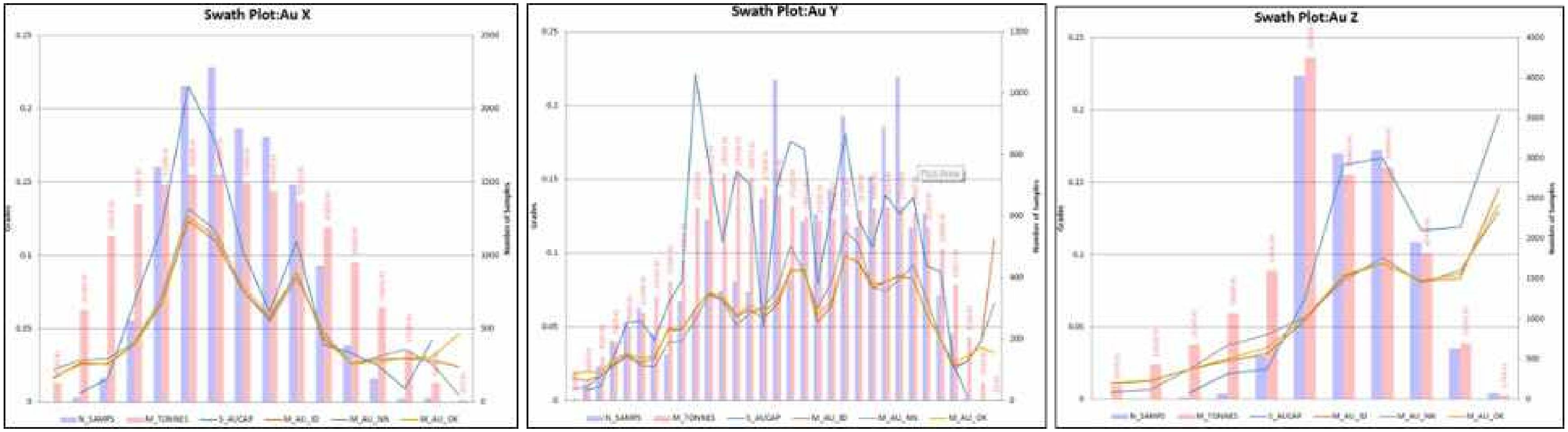
Category	CuEq (%) Cut-off	Au Chg OK vs ID2	Cu Chg OK vs ID2	Ag Chg OK vs ID2	Ag Chg OK vs ID2
INDICATED	**0.2**	1.03%	0.39%	0.63%	0.63%
	0.3	1.21%	0.66%	0.21%	0.21%
	0.4	1.39%	0.89%	-0.10%	-0.10%
	0.5	1.72%	1.15%	-0.25%	-0.25%
INFERRED	**0.2**	2.05%	0.42%	-6.28%	-6.28%
	0.3	-0.55%	0.30%	1.10%	1.10%
	0.4	-2.01%	-0.86%	-0.27%	-0.27%
	0.5	-3.32%	-2.23%	-1.19%	-1.19%

Source: Nordmin, 2019

14.6.2 Swath Plots

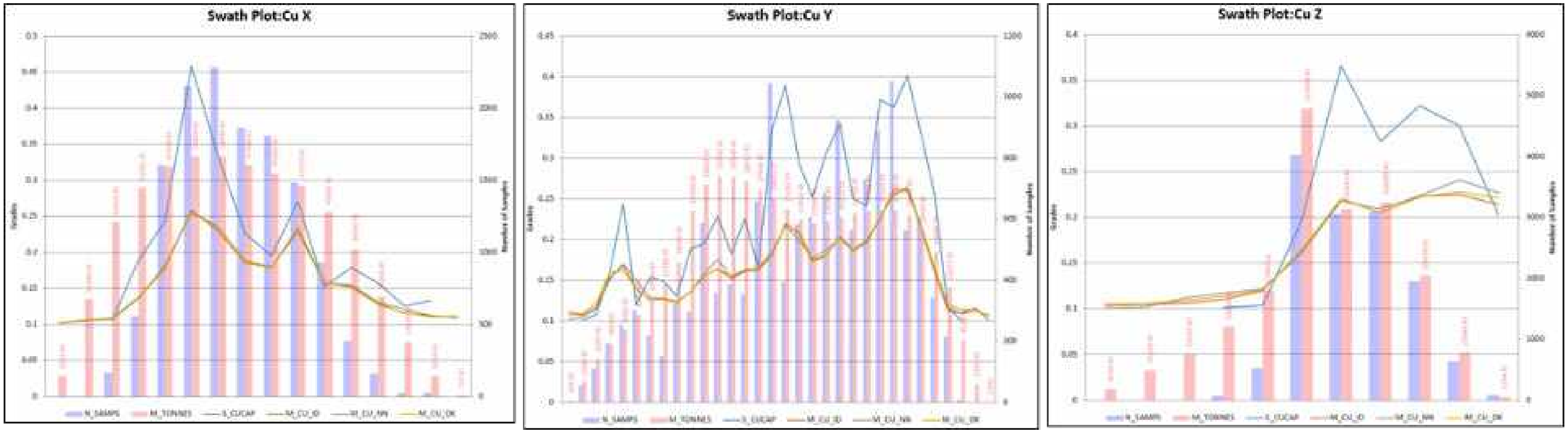
A series of swath plots were generated for Cu, Au, and Ag from slices throughout each domain. They compare the block model grades for NN, ID2, and OK to the drill hole composite grades to evaluate any potential local grade bias. Review of the swath plots did not identify bias in the model that is material to the 2019 Mineral Resource Estimate, as there was a strong overall correlation between the block model grade and the capped composites used in the 2019 Mineral Resource Estimate (Figure 14-34, Figure 14-35, to Figure 14-36).

Alacran



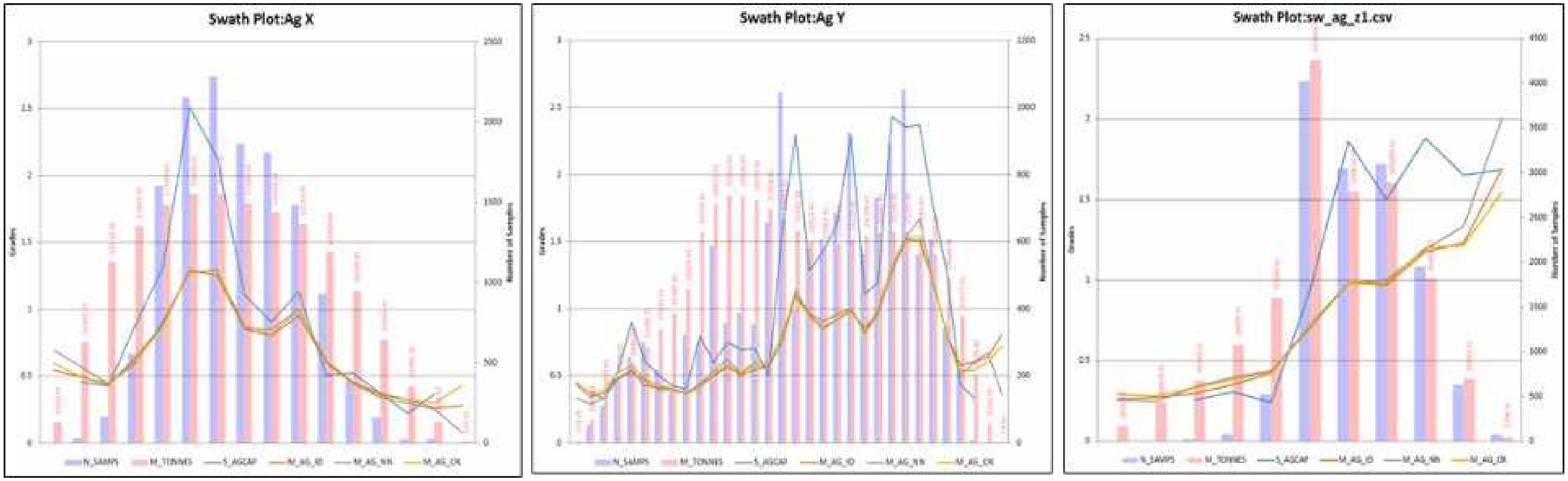
Source: Nordmin, 2019

Figure 14-34: Alacran swath plots for Au with composite grades



Source: Nordmin, 2019

Figure 14-35: Alacran swath plots for Cu with composite grades



Source: Nordmin, 2019

Figure 14-36: Alacran swath plots for Ag with composite grades

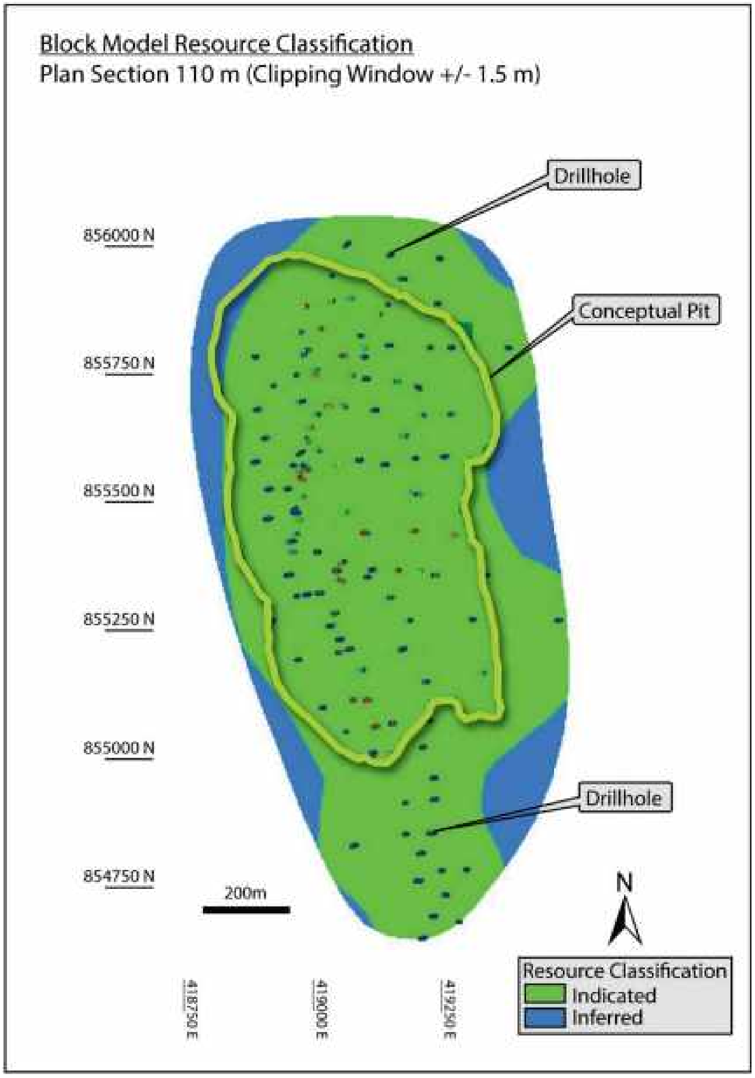
14.7 Mineral Resource Classification

The Mineral Resource Estimate was classified in accordance with CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014). Mineral Resource classifications were assigned to broad regions of the block model based on the Qualified Person's confidence and judgement related to geological understanding, continuity of mineralization in conjunction with data quality, spatial continuity based on variography, estimation pass, data density, and block model representativeness.

Classification (Indicated and Inferred) was applied to all four block models based on a drill spacing review for each deposit in vertical and plan section view.

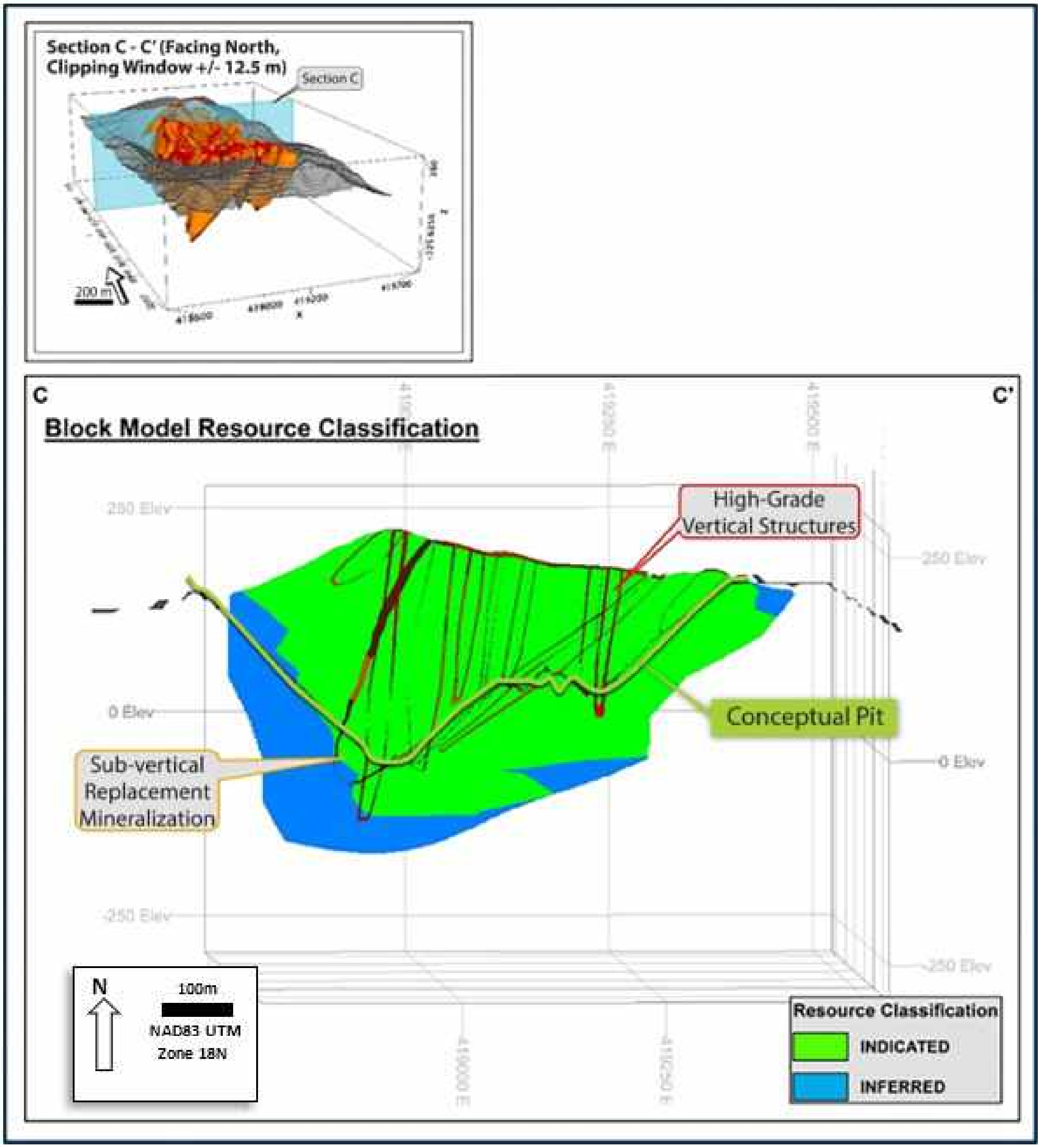
Alacran

Nordmin determined that the appropriate drill spacing for the purpose of the Indicated category was approximately 50 m and between 50 m and 150 m for the Inferred category (Figure 14-37 and Figure 14-38).



Source: Nordmin, 2019

Figure 14-37: Alacran plan view showing drill holes and classification

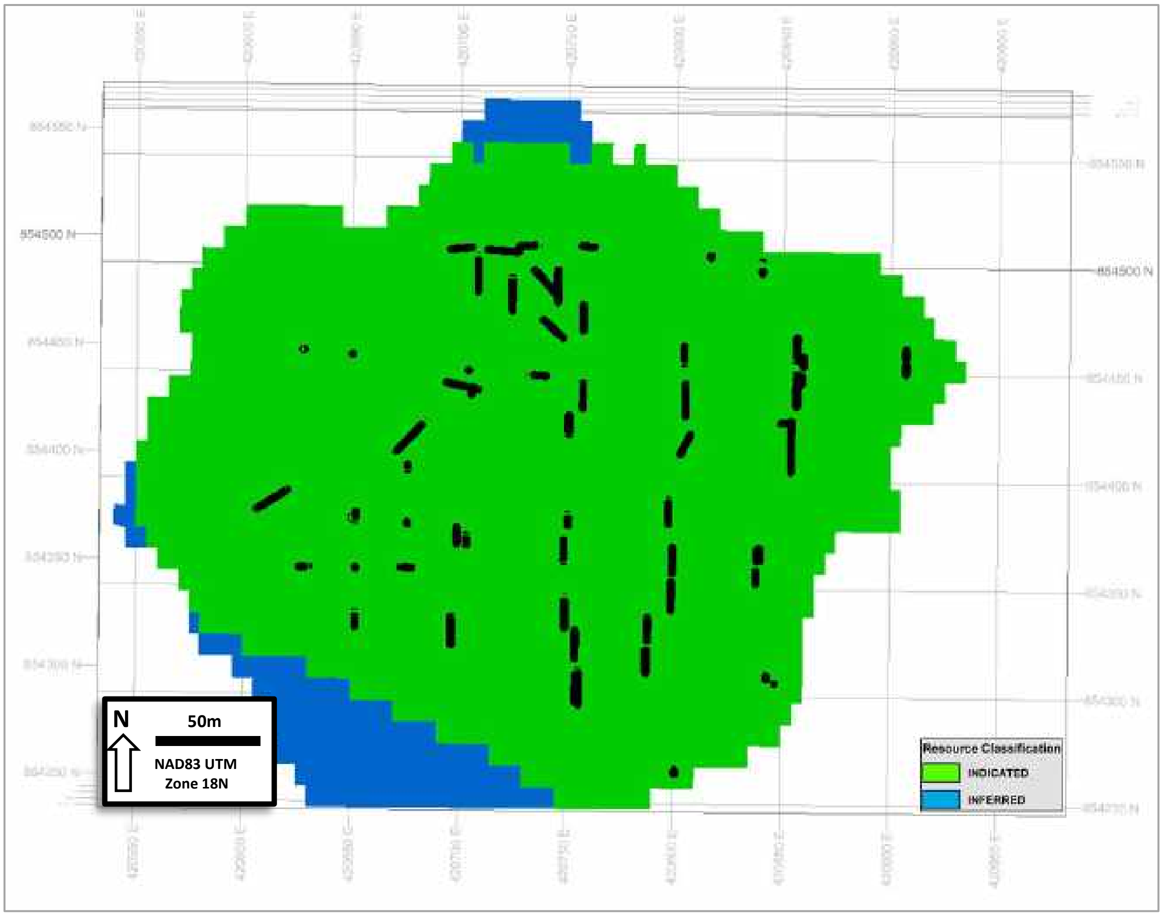


Source: Nordmin, 2019

Figure 14-38: Alacran cross section showing drill holes, high-grade vertical mineralization wireframes, and classification

Costa Azul

Drill spacing for each satellite deposit was analyzed, and it was determined that all three were similar in nature. Nordmin determined that the appropriate drill spacing for the purpose of the Indicated category was 50 m and between 50 m and 150 m for the Inferred category (Figure 14-39).

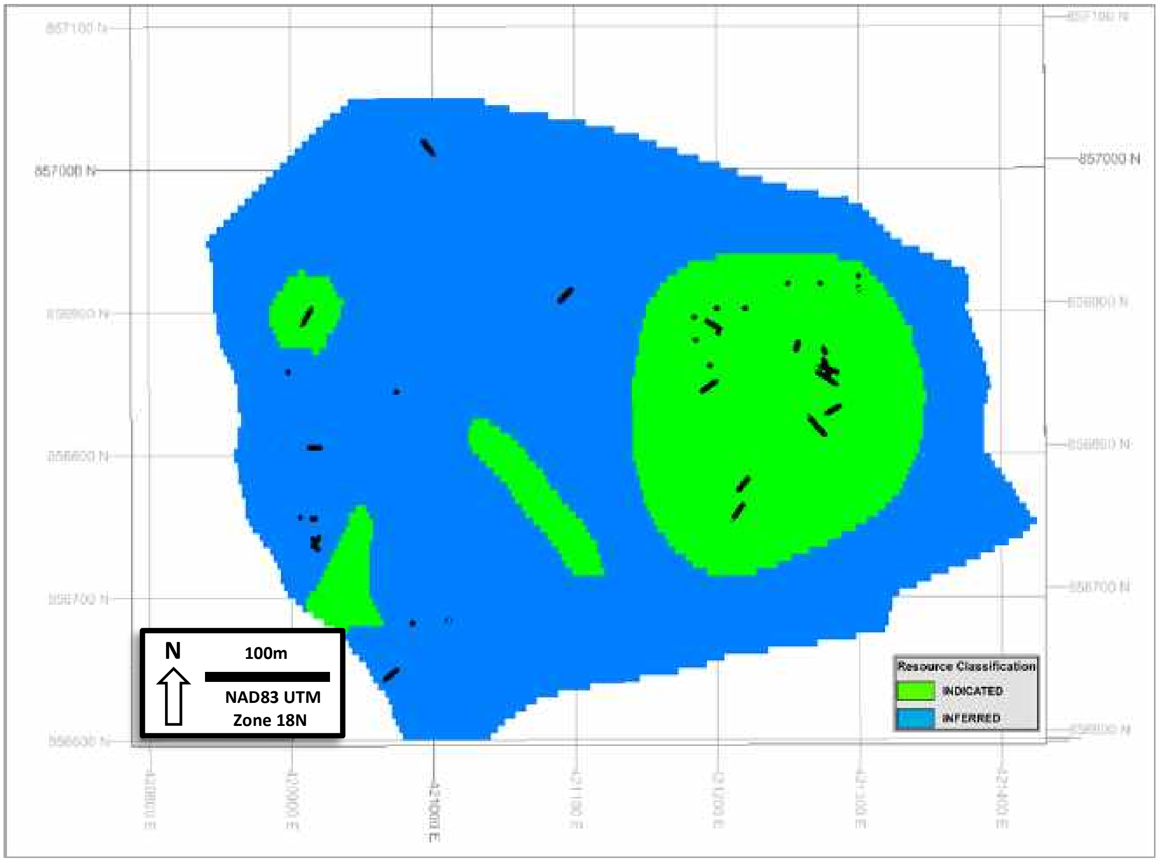


Source: Nordmin, 2019

Figure 14-39: Costa Azul plan view showing composites and classification

Montiel East

Drill spacing for each satellite deposit was analyzed, and it was determined that all three were similar in nature. Nordmin determined that the appropriate drill spacing for the purpose of the indicated category was 50 m and between 50 m and 150 m for the inferred category (Figure 14-40).

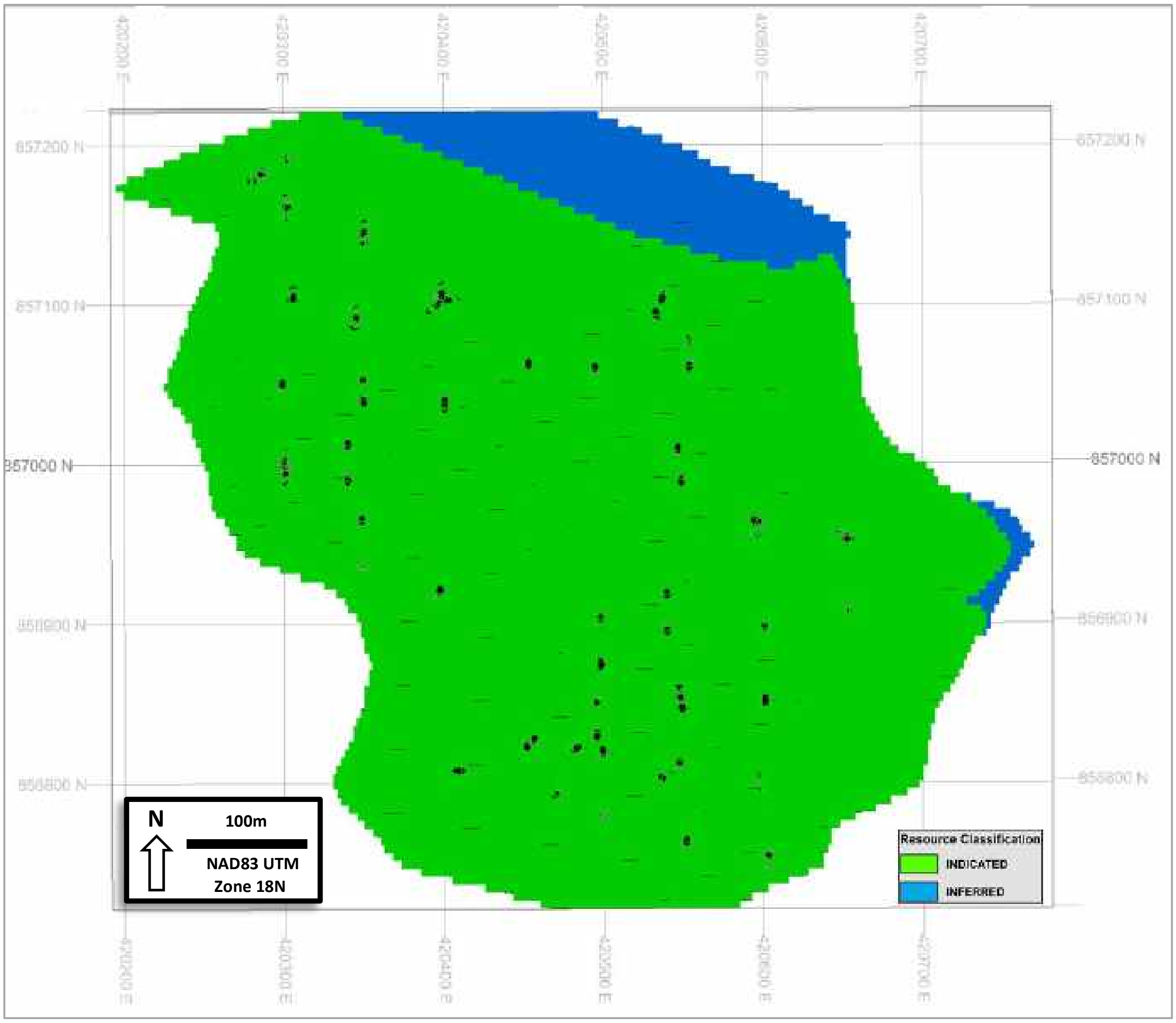


Source: Nordmin, 2019

Figure 14-40: Montiel East plan view showing composites and classification

Montiel West

Drill spacing for each satellite deposit was analyzed, and it was determined that all three were similar in nature. Nordmin determined that the appropriate drill spacing for the purpose of the indicated category was 50.0 m and between 50.0 m and 150.0 m for the inferred category (Figure 14-41).



Source: Nordmin, 2019

Figure 14-41: Montiel West plan view showing composites and classification

14.8 Reasonable Prospects of Eventual Economic Extraction

To demonstrate reasonable prospects for eventual economic extraction, Nordmin created the Mineral Resource using:

- Datamine Studio 3^{TM} software to create the block models; and
- Datamine NPV Scheduler^{TM} to constrain the resources and create conceptual open pit shells for the deposits using Indicated and Inferred mineralized material (oxide and sulphide).

The deposits were assumed to be developed as a long-life operation consisting of a conventional truck and shovel open pit operation initially feeding an 8,000 t/d concentrator for the first five years of operation and then expanding to 16,000 t/d to produce a Cu-Au concentrate. The assumed processing costs are based on a sulphide concentrate being produced using flotation methods to recover Cu, Au, and Ag.

The input parameter assumptions are provided in Table 14-32.

Table 14-32: Input Parameter Assumptions

Parameter	Value	Units
Copper Price	3.25	$/lb
Gold Price	1,400.00	$/oz
Silver Price	17.75	$/oz
Mining Cost, First 5 Years	2.43	$/t Mined
Mining Cost, After First 5 Years	1.69	$/t Mined
Processing Cost, First 5 Years	8.63	$/t Milled
Processing Cost, After First 5 Years	7.50	$/t Milled
General and Administrative Cost, First 5 Years	2.56	$/t Milled
General and Administrative Cost, After First 5 Years	1.32	$/t Milled
Mining Recovery, Saprolite	97.0	%
Mining Dilution, Saprolite	4.0	%
Max Pit Slope, Saprolite	32.50	degree
Max Pit Slope, Fresh	45.00	degree
Variable Process Recoveries Copper	50.0-90.0	%
Variable Process Recoveries Gold	72.0-77.5	%
Variable Process Recoveries Silver	40.0-70.0	%
Freight Costs Concentrate	100.00	$/t
Treatment Costs, Concentrate	90.00	$/t
Payable Metal Factors Copper	95.5	%
Payable Metal Factors Gold	96.5	%
Payable Metal Factors Silver	90.0	%
Refining Charges Copper	0.09	$/lb
Refining Charges Gold	5.00	$/oz
Refining Charges Silver	0.30	$/oz

Source: Nordmin, 2019

The input parameters were based on:

- Metal prices net selling cost, including concentrate refining.
- Bench-marked mining, process and G&A cost based on estimates and current costs for similar sized and similar types of operations.
- Metallurgical recoveries are based upon initial preliminary metallurgical studies for saprolite and fresh rock. Variable process recoveries of 50.0% to 90.0% for Cu, 72.0% to 77.5% for Au and 40.0% to 70.0% for Ag were used depending on the domain (saprolite, transition or fresh sulphide).
- CuEq has been calculated using: CuEq % = Cu % + (Au Factor x Au Grade g/t + Ag Factor x Ag Grade g/t) x 100.
    - Au Factor = (Au Recovery % x Au Price $/oz / 31.1035 g/oz) / (Cu Recovery % x Cu Price $/lb x 2204.62 lb/t).
    - Ag Factor = (Ag Recovery % x Ag Price $/oz / 31.1035 g/oz) / (Cu Recovery % x Cu Price $/lb x 2204.62 lb/t).
- An NSR cut-off of $13.75/t has been applied.

The average ratio of waste to total in-pit mineralization at a cut-off of 0.22% CuEq for all four pits is approximately 0.81:1. Although the conceptual pit shells capture much of the material classified with an Inferred or Indicated level of confidence, there is mineralized material that falls outside of the conceptual pit shells. Additional core drilling will be required to support the potential estimation of Mineral Resources from this material.

14.9 Mineral Resource Estimate

The Mineral Resources were classified using the 2014 CIM Definition Standards and have an effective date of July 24, 2019. The San Matías Copper-Gold-Silver Project hosts 114.3 million tonnes of Indicated Resources grading 0.45% Cu, 0.26 g/t Au and 2.42 g/t Ag (0.64% CuEq), and 4.8 million tonnes of Inferred Resources grading 0.26% Cu, 0.20 g/t Au and 1.21 g/t Ag (0.39% CuEq) at an NSR cut-off of $13.75/tonne. Total Indicated Resources contain 518,300 tonnes of Cu, 942,900 ounces of Au and 8,887,200 ounces of Ag. Total Inferred Resources contain 12,300 tonnes of Cu, 29,900 ounces of Au and 185,300 ounces of Ag (Table 14-33).

Table 14-33: San Matías Copper-Gold-Silver Project 2019 Mineral Resource Estimate

Classification	Tonnage (Mt)	CuEq Grade (%)	Copper Grade (%)	Gold Grade (g/t)	Silver Grade (g/t)	Contained Copper (tonnes)	Contained Copper (Mlb)	Contained Gold (oz)	Contained Silver (oz)
Indicated Resource									
Alacran, Phase 1	16.7	0.85	0.64	0.30	3.59	106,700	235.2	158,800	1,935,200
Alacran, Phase 2	81.2	0.61	0.44	0.24	2.45	360,200	794.2	613,500	6,389,200
Montiel East	4.3	0.70	0.46	0.35	1.53	19,800	43.7	48,800	211,200
Montiel West	4.6	0.52	0.24	0.49	1.32	11,200	24.8	72,600	195,800
Costa Azul	7.4	0.40	0.24	0.21	0.65	20,300	44.8	49,200	155,800
Total Indicated	**114.3**	**0.64**	**0.45**	**0.26**	**2.42**	**518,300**	**1,142.7**	**942,900**	**8,887,200**
Inferred Resources									
Alacran, Phase 1	0.6	0.42	0.33	0.14	1.65	1,900	4.2	2,600	30,500
Alacran, Phase 2	1.6	0.40	0.32	0.13	1.57	5,200	11.5	7,000	83,100
Montiel East	1.8	0.34	0.25	0.15	0.88	4,400	9.6	8,500	50,300
Montiel West	0.6	0.39	0.07	0.54	0.96	400	1.0	11,100	19,000
Costa Azul	0.1	0.39	0.29	0.16	0.60	400	0.8	600	2,400
Total Inferred	**4.8**	**0.39**	**0.26**	**0.20**	**1.21**	**12,300**	**27.2**	**29,900**	**185,300**

Source: Nordmin, 2019

Notes on Mineral Resources

1. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability; the estimate of Mineral Resources in the updated Mineral Resource statement may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. There is no certainty that the Indicated Mineral Resources will be converted to the Probable Mineral Reserve category, and there is no certainty that the updated Mineral Resource statement will be realized. It is reasonable to expect that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.
2. The Mineral Resources in this estimate were independently prepared by Glen Kuntz, P.Geo. of Nordmin Engineering Ltd., following the Definition Standards for Mineral Resources and Mineral Reserves Prepared by the CIM Standing Committee on Reserve Definitions, adopted by CIM Council on May 10, 2014. Verification included a site visit to inspect drilling, logging, density measurement procedures and sampling procedures, and a review of the control sample results used to assess laboratory assay quality. In addition, a random selection of the drill hole database results was compared with original records.
3. The Mineral Resources in this estimate used Datamine Studio 3 Software to create the block models and used Datamine NPV Scheduler^{TM} to constrain the resources and create conceptual open pit shells for the deposits. Assumptions used to prepare the conceptual pits include:
    - Metal prices of $3.25/lb copper, $1,400/oz gold and $17.75/oz silver;
    - Operating cost inputs include:
        d. Mining cost of $2.43/t mined for the first 5 years and $1.69/t thereafter,
        e. Processing cost of $8.63/t milled for the first 5 years and $7.50/t thereafter,
        f. G&A costs of $2.56/t milled for the first 5 years and $1.32/t thereafter;
    - 97.0% mining recovery, 4.0% dilution and 45° pit slope in fresh and transitional rock and 32.5°in weathered saprolite;
    - Variable process recoveries of 50.0% to 90.0% for copper, 72.0% to 77.5% for gold and 40.0% to 70.0% for silver depending on the domain (saprolite, transition or fresh sulphide) and copper grade.
    - Freight costs of $100.00/t concentrate, and treatment costs of $90.00/t dry concentrate, payable metal factors of 95.5% for copper and 96.5% for gold and 90.0% for silver. Refining charges of $0.090/lb copper, $5.00/oz gold and $0.30/oz silver.
4. Copper equivalent has been calculated using: CuEq % = Cu % + (Au Factor x Au Grade g/t + Ag Factor x Ag Grade g/t) x 100.
    - Au Factor = (Au Recovery % x Au Price $/oz / 31.1035 g/oz) / (Cu Recovery % x Cu Price $/lb x 2204.62 lb/t).
    - Ag Factor = (Ag Recovery % x Ag Price $/oz / 31.1035 g/oz) / (Cu Recovery % x Cu Price $/lb x 2204.62 lb/t).
    - Variable process recoveries of 50.0% to 90.0% for copper, 72.0% to 77.5% for gold and 40.0% to 70.0% for silver depending on the domain (saprolite, transition or fresh sulphide) and copper grade.
5. An NSR cut-off of $13.75/t has been applied.
6. The cut-off date of the drill hole information was November 24, 2017.
7. All references to the 2019 Mineral Resource estimate are reported in the Technical Report titled “NI 43-101 Technical Report and Resource Estimate, San Matías Copper-Gold-Silver Project, Colombia”. The Technical Report has an effective date of July 3, 2019. The 2019 Mineral Resource Estimate is no longer considered to be current and is not to be relied upon.
8. Due to rounding, totals may not sum.

14.10 Mineral Resource Sensitivity to Reporting Cut-off

The sensitivity of the updated Alacran Mineral Resource estimate to a CuEq cut-off grade is summarized in Table 14-34. Indicated and Inferred Mineral Resources have been calculated at various CuEq cut-off grades to demonstrate the variability of tonnage and grades. The CuEq cut-off of 0.22% is representative of the 2019 PEA Mineral Resource (Section 14.9), and the CuEq cut-off of 0.30 % is an approximation of the 2019 Mineral Resource announced July 3, 2019.

Table 14-34: Alacran Sensitivities, 0.02% CuEq Cut-off at 0.10-0.40%, Revenue Factor = 75%

			Grades				**Contained Metal**		
Classification	**CuEq Cut-off (%)**	**Tonnage (t)**	**CuEq (%)**	**Cu (%)**	**Au (g/t)**	**Ag (g/t)**	**Cu (t)**	**Au (oz)**	**Ag (oz)**
Indicated	0.10	179,734,006	0.416	0.313	0.150	1.70	563,089	865,366	9,821,798
	0.12	152,832,179	0.470	0.351	0.174	1.95	535,798	856,511	9,585,962
	0.14	135,582,265	0.514	0.382	0.193	2.14	517,252	840,865	9,321,158
	0.16	122,238,087	0.554	0.411	0.209	2.31	501,870	821,627	9,066,607
	0.18	113,007,367	0.585	0.434	0.222	2.44	490,184	805,020	8,847,272
	0.20	104,608,468	0.617	0.458	0.234	2.56	478,632	786,739	8,595,651
	0.22	**98,509,898**	**0.642**	**0.476**	**0.244**	**2.65**	**469,224**	**772,842**	**8,392,104**
	0.24	93,291,636	0.665	0.493	0.253	2.73	460,361	760,026	8,193,775
	0.26	88,456,941	0.688	0.510	0.263	2.81	451,445	747,039	7,989,282
	0.28	83,687,513	0.711	0.528	0.273	2.89	441,890	733,311	7,784,885
	0.30	**79,293,322**	**0.735**	**0.545**	**0.283**	**2.98**	**432,251**	**720,441**	**7,587,795**
	0.32	75,079,258	0.759	0.563	0.293	3.06	422,430	706,986	7,390,248
	0.34	71,471,891	0.780	0.579	0.302	3.14	413,596	694,190	7,210,962
	0.36	68,111,438	0.801	0.594	0.311	3.21	404,821	681,658	7,037,932
	0.38	64,889,756	0.823	0.610	0.321	3.29	395,987	668,674	6,867,495
	0.40	61,966,066	0.843	0.625	0.329	3.36	387,490	656,404	6,702,655
Inferred	0.10	12,263,130	0.199	0.152	0.058	0.88	18,653	22,704	347,073
	0.12	8,171,683	0.244	0.178	0.082	1.16	14,536	21,487	303,490
	0.14	6,948,619	0.264	0.190	0.092	1.22	13,187	20,638	271,597
	0.16	5,760,568	0.288	0.204	0.105	1.30	11,730	19,406	240,315
	0.18	4,977,239	0.306	0.215	0.114	1.38	10,706	18,194	221,598
	0.20	3,224,274	0.368	0.267	0.126	1.59	8,600	13,100	164,306
	0.22	**2,896,007**	**0.386**	**0.282**	**0.130**	**1.61**	**8,159**	**12,102**	**149,670**
	0.24	2,448,911	0.415	0.308	0.134	1.60	7,553	10,516	126,294
	0.26	2,191,054	0.434	0.329	0.133	1.57	7,201	9,358	110,719
	0.28	1,883,779	0.461	0.356	0.132	1.61	6,703	8,002	97,353
	0.30	**1,610,573**	**0.490**	**0.386**	**0.131**	**1.61**	**6,218**	**6,788**	**83,128**
	0.32	1,402,695	0.517	0.408	0.137	1.69	5,723	6,183	76,022
	0.34	1,148,855	0.558	0.446	0.140	1.82	5,127	5,186	67,319
	0.36	1,062,825	0.574	0.460	0.144	1.88	4,891	4,913	64,310
	0.38	949,622	0.599	0.481	0.148	1.98	4,567	4,534	60,539
	0.40	872,260	0.617	0.496	0.153	2.06	4,325	4,289	57,802

Source: Nordmin, 2019.

The sensitivity of the Costa Azul Resource estimate to a CuEq cut-off grade is summarized in Table 14-35. Indicated and Inferred Mineral Resources have been calculated at various CuEq cut-off grades to demonstrate the variability of tonnage and grades. The CuEq cut-off of 0.22% is representative of the 2019 PEA Mineral Resource (Section 14.9), and the CuEq cut-off of 0.30 % is an approximation of the 2019 Mineral Resource announced July 3, 2019.

Table 14-35: Costa Azul Sensitivities, 0.02% CuEq Cut-off at 0.10-0.40%, Revenue Factor = 80%

			Grades				Contained Metal		
Classification	**CuEq Cut-off (%)**	**Tonnage (t)**	**CuEq (%)**	**Cu (%)**	**Au (g/t)**	**Ag (g/t)**	**Cu (t)**	**Au (oz)**	**Ag (oz)**
Indicated	0.10	8,429,377	0.389	0.256	0.189	0.62	21,568	51,265	169,365
	0.12	8,343,294	0.392	0.258	0.191	0.63	21,499	51,146	168,534
	0.14	8,239,073	0.395	0.260	0.192	0.63	21,403	50,972	167,170
	0.16	8,125,865	0.399	0.262	0.194	0.63	21,284	50,757	165,601
	0.18	7,952,270	0.404	0.265	0.197	0.64	21,081	50,385	162,924
	0.20	7,775,706	0.408	0.268	0.200	0.64	20,848	49,945	160,252
	0.22	**7,510,878**	**0.415**	**0.272**	**0.204**	**0.65**	**20,463**	**49,212**	**156,241**
	0.24	7,219,967	0.423	0.277	0.208	0.65	19,999	48,344	151,509
	0.26	6,887,567	0.431	0.282	0.213	0.66	19,433	47,205	145,974
	0.28	6,553,928	0.439	0.287	0.218	0.67	18,824	45,928	140,370
	0.30	**6,118,872**	**0.450**	**0.294**	**0.224**	**0.67**	**17,991**	**44,038**	**132,729**
	0.32	5,632,663	0.462	0.302	0.230	0.69	16,998	41,728	124,544
	0.34	5,026,831	0.478	0.312	0.239	0.71	15,690	38,583	114,476
	0.36	4,392,504	0.497	0.324	0.248	0.73	14,251	35,054	103,552
	0.38	3,803,358	0.516	0.338	0.258	0.77	12,837	31,590	93,704
	0.40	3,230,688	0.539	0.353	0.269	0.80	11,398	27,971	83,070
Inferred	0.10	118,497	0.397	0.290	0.157	0.60	344	598	2,296
	0.12	118,459	0.397	0.290	0.157	0.60	344	597	2,296
	0.14	118,459	0.397	0.290	0.157	0.60	344	597	2,296
	0.16	118,454	0.397	0.290	0.157	0.60	344	597	2,296
	0.18	116,840	0.400	0.293	0.158	0.60	342	594	2,269
	0.20	115,646	0.402	0.294	0.159	0.60	340	592	2,226
	0.22	**115,646**	**0.402**	**0.294**	**0.159**	**0.60**	**340**	**592**	**2,226**
	0.24	114,842	0.404	0.295	0.160	0.60	339	591	2,213
	0.26	113,875	0.405	0.296	0.160	0.60	338	586	2,199
	0.28	113,139	0.406	0.297	0.160	0.60	336	583	2,188
	0.30	**110,573**	**0.409**	**0.300**	**0.160**	**0.60**	**331**	**570**	**2,131**
	0.32	102,882	0.416	0.307	0.160	0.60	316	529	1,973
	0.34	95,138	0.423	0.316	0.159	0.58	300	485	1,779
	0.36	85,519	0.431	0.324	0.158	0.57	277	434	1,577
	0.38	67,355	0.448	0.341	0.158	0.56	230	342	1,206
	0.40	61,512	0.453	0.347	0.158	0.56	213	312	1,110

Source: Nordmin, 2019

The sensitivity of the Montiel East Resource estimate to a CuEq cut-off grade is summarized in Table 14-36. Indicated and Inferred Mineral Resources have been calculated at various CuEq cut-off grades to demonstrate the variability of tonnage and grades. The CuEq cut-off of 0.22% is representative of the 2019 PEA Mineral Resource (Section 14.9), and the CuEq cut-off of 0.30 % is an approximation of the 2019 Mineral Resource announced July 3, 2019.

Table 14-36: Montiel East Sensitivities, 0.02% CuEq Cut-off at 0.10-0.40%, Revenue Factor = 80%

			Grades				Contained Metal		
Classification	**CuEq Cut-off (%)**	**Tonnage (t)**	**CuEq (%)**	**Cu (%)**	**Au (g/t)**	**Ag (g/t)**	**Cu (t)**	**Au (oz)**	**Ag (oz)**
Indicated	0.10	4,986,744	0.615	0.413	0.315	1.39	20,609	50,563	223,020
	0.12	4,916,514	0.622	0.418	0.319	1.41	20,556	50,450	222,204
	0.14	4,810,414	0.633	0.425	0.325	1.43	20,463	50,244	220,661
	0.16	4,680,912	0.646	0.434	0.332	1.45	20,333	49,963	218,587
	0.18	4,529,829	0.662	0.445	0.341	1.48	20,160	49,598	215,743
	0.20	4,419,047	0.674	0.453	0.347	1.50	20,025	49,281	213,249
	0.22	**4,328,176**	**0.684**	**0.460**	**0.352**	**1.52**	**19,899**	**49,015**	**211,396**
	0.24	4,181,309	0.699	0.470	0.361	1.55	19,666	48,571	208,151
	0.26	4,017,373	0.718	0.483	0.372	1.58	19,384	48,019	204,217
	0.28	3,853,888	0.737	0.495	0.383	1.61	19,082	47,413	199,811
	0.30	**3,661,883**	**0.760**	**0.511**	**0.396**	**1.65**	**18,700**	**46,626**	**194,195**
	0.32	3,479,206	0.784	0.526	0.410	1.69	18,308	45,863	189,022
	0.34	3,273,689	0.812	0.545	0.426	1.73	17,849	44,884	182,440
	0.36	3,066,909	0.843	0.566	0.444	1.78	17,362	43,816	175,941
	0.38	2,922,578	0.867	0.582	0.458	1.83	17,002	43,034	171,584
	0.40	2,766,343	0.894	0.600	0.473	1.87	16,606	42,077	166,488
Inferred	0.10	2,222,368	0.326	0.221	0.138	0.79	4,902	9,857	56,384
	0.12	2,216,026	0.326	0.221	0.138	0.79	4,897	9,848	56,280
	0.14	2,205,827	0.327	0.222	0.139	0.79	4,888	9,831	56,109
	0.16	2,165,255	0.331	0.224	0.140	0.80	4,846	9,745	55,399
	0.18	2,089,215	0.336	0.228	0.142	0.81	4,761	9,567	54,175
	0.20	2,002,312	0.343	0.232	0.145	0.82	4,652	9,346	52,887
	0.22	**1,906,130**	**0.349**	**0.237**	**0.148**	**0.84**	**4,525**	**9,066**	**51,458**
	0.24	1,813,121	0.356	0.242	0.150	0.86	4,389	8,768	50,040
	0.26	1,714,147	0.362	0.246	0.153	0.88	4,223	8,447	48,544
	0.28	1,588,805	0.369	0.251	0.157	0.90	3,989	8,027	46,222
	0.30	**1,421,690**	**0.378**	**0.258**	**0.162**	**0.94**	**3,661**	**7,393**	**42,933**
	0.32	1,231,764	0.389	0.266	0.167	0.97	3,271	6,597	38,575
	0.34	1,047,238	0.399	0.273	0.171	1.00	2,857	5,772	33,632
	0.36	784,018	0.416	0.284	0.178	1.04	2,230	4,483	26,231
	0.38	567,129	0.433	0.296	0.186	1.08	1,680	3,387	19,710
	0.40	324,458	0.466	0.317	0.199	1.13	1,027	2,074	11,792

Source: Nordmin, 2019

The sensitivity of the Montiel West Resource estimate to a CuEq cut-off grade is summarized in Table 14-37. Indicated and Inferred Mineral Resources have been calculated at various CuEq cut-off grades to demonstrate the variability of tonnage and grades. The CuEq cut-off of 0.22% is representative of the 2019 PEA Mineral Resource (Section 14.9), and the CuEq cut-off of 0.30 % is an approximation of the 2019 Mineral Resource announced July 3, 2019.

Table 14-37: Montiel West Sensitivities, 0.02% CuEq Cut-off at 0.10-0.40%, Revenue Factor = 80%"

			Grades				Contained Metal		
Classification	CuEq Cut-off (%)	Tonnage (t)	CuEq (%)	Cu (%)	Au (g/t)	Ag (g/t)	Cu (t)	Au (oz)	Ag (oz)
Indicated	0.10	5,498,044	0.554	0.220	0.429	1.25	12,091	75,852	220,783
	0.12	5,425,664	0.560	0.222	0.434	1.25	12,043	75,717	218,817
	0.14	5,348,295	0.566	0.224	0.439	1.26	11,989	75,524	216,601
	0.16	5,207,307	0.577	0.228	0.449	1.27	11,878	75,111	212,313
	0.18	5,078,990	0.588	0.232	0.457	1.27	11,768	74,673	208,033
	0.20	4,917,963	0.601	0.236	0.468	1.28	11,624	74,025	202,760
	0.22	**4,738,484**	**0.615**	**0.242**	**0.481**	**1.29**	**11,452**	**73,233**	**197,022**
	0.24	4,535,700	0.633	0.248	0.495	1.30	11,237	72,234	189,369
	0.26	4,357,491	0.648	0.253	0.508	1.30	11,042	71,207	182,532
	0.28	4,202,102	0.662	0.259	0.519	1.31	10,879	70,159	177,167
	0.30	**4,039,220**	**0.677**	**0.265**	**0.531**	**1.32**	**10,699**	**68,993**	**171,508**
	0.32	3,818,992	0.698	0.273	0.549	1.33	10,425	67,385	163,599
	0.34	3,574,435	0.724	0.283	0.570	1.35	10,100	65,469	154,632
	0.36	3,385,218	0.745	0.291	0.586	1.37	9,852	63,746	148,582
	0.38	3,211,119	0.765	0.298	0.602	1.38	9,582	62,179	142,815
	0.40	3,057,773	0.784	0.305	0.617	1.40	9,340	60,673	137,477
Inferred	0.10	632,732	0.447	0.071	0.542	0.93	446	11,016	18,868
	0.12	632,665	0.447	0.071	0.542	0.93	446	11,016	18,867
	0.14	632,522	0.447	0.071	0.542	0.93	446	11,015	18,864
	0.16	631,743	0.448	0.071	0.542	0.93	446	11,011	18,850
	0.18	629,723	0.448	0.071	0.543	0.93	445	10,999	18,812
	0.20	627,605	0.449	0.071	0.544	0.93	444	10,983	18,777
	0.22	**624,532**	**0.450**	**0.071**	**0.546**	**0.93**	**443**	**10,958**	**18,718**
	0.24	616,978	0.453	0.071	0.549	0.94	439	10,891	18,574
	0.26	608,708	0.456	0.071	0.553	0.94	435	10,813	18,404
	0.28	595,408	0.460	0.072	0.558	0.95	427	10,679	18,118
	0.30	**574,596**	**0.466**	**0.072**	**0.566**	**0.96**	**414**	**10,448**	**17,657**
	0.32	531,519	0.479	0.073	0.581	0.97	386	9,936	16,567
	0.34	477,971	0.495	0.073	0.602	0.99	351	9,253	15,143
	0.36	397,117	0.525	0.074	0.639	1.02	296	8,156	12,980
	0.38	342,391	0.549	0.074	0.676	1.05	253	7,444	11,556
	0.40	279,395	0.585	0.072	0.736	1.10	201	6,609	9,906

Source: Nordmin, 2019

14.11 Comparison with the Previous Resource Estimate

The July 2019 PEA Mineral Resource Estimate for the San Matias Project (refer to Cordoba's news release dated July 29, 2019) included 94.9 million tonnes of Indicated Resources grading 0.51% Cu, 0.29 g/t Au and 2.70 g/t Ag (0.64% CuEq) and 3.4 million tonnes of Inferred Resources grading 0.30% Cu, 0.20 g/t Au and 1.30 g/t Ag (0.45% CuEq) at a 0.22% CuEq cut-off.

When the June 2019 Mineral Resource Estimate (refer to Cordoba's news release dated July 3, 2019) at the reporting cut-off grade of 0.30% CuEq is compared to the July 2019 PEA Mineral Resource Estimate at a cut-off grade of 0.22% (NSR cut-off of $13.75/tonne), the July 2019 PEA Mineral Resource Estimate Indicated tonnage increased by 19.7% at the Alacran deposit, 27.6% at the Costa Azul deposit, 26.5% at the Montiel East deposit and 18.0% at the Montiel West deposit. The decrease in the cut-off grade was a result of changes to some of the economic input parameters (mining, process and G&A costs); which resulted in the increase in resource ounces when compared to the July 2019 PEA Mineral Resource Estimate parameters.

At the Alacran deposit, contained Cu increased by 5.6%, contained Au increased by 3.8% and contained Ag increased by 7.2%. At the Montiel East deposit, contained Cu increased by 9.4%, contained Au increased by 7.7% and contained Ag increased by 13.4%. At the Montiel West deposit, contained Cu increased by 46.7%, contained Au increased by 37.1% and contained Ag increased by 46.2%, reflecting the low inferred tonnage (Figure 14-42).

Keeping in mind the low inferred tonnages, through the same comparison, the July 2019 PEA Mineral Resource Estimate Inferred Mineral Resource tonnage increased by 29.4% at the Alacran deposit, remained consistent at the Costa Azul deposit, 50.0% at the Montiel East deposit and 50.0% at the Montiel West deposit.

At the Alacran deposit, the contained Cu increased by 7.6%, contained Au increased by 35.2% and Ag increased by 22.6% (Table 14-38). At the Costa Azul deposit, contained Cu remained consistent, contained Au increased by 33.3% and Ag increased by 4.2% (Table 14-39). At the Montiel East deposit, contained Cu increased by 46.7%, contained Au increased by 37.1% and Ag increased by 46.2% (Table 14-40). At the Montiel West deposit, contained Cu increased by 33.3%, contained Au increased by 31.0% and Ag increased by 43.9% (Table 14-41).

Table 14-38: Alacran June 2019 Mineral Resource Estimate (CuEq cut-off 0.30%) and July 2019 PEA Mineral Resource Estimate (NSR cut-off $13.75/tonne or CuEq cut-off 0.22%)

				Grades				Contained Metal		
Classification	CuEq Cut-off (%)	NSR Cut-off ($/t)	Tonnage (Mt)	CuEq %	Cu %	Au g/t	Ag g/t	Cu (t)	Au (oz)	Ag (oz)
June 2019 Alacran Mineral Resource Indicated	0.30	n/a	81.8	0.73	0.54	0.28	2.95	442,100	742,800	7,763,100
July 2019 Alacran PEA Mineral Resource Indicated	0.22	13.75	97.9	0.65	0.47	0.25	2.64	466,900	772,300	8,324,400
June 2019 Alacran Mineral Resource Inferred	0.30	n/a	1.7	0.49	0.39	0.13	1.67	6,600	7,100	92,700
July 2019 Alacran PEA Mineral Resource Inferred	0.22	13.75	2.2	0.41	0.32	0.13	1.59	7,100	9,600	113,600

Source: Nordmin, 2019

Table 14-39: Costa Azul June 2019 Mineral Resource Estimate (CuEq cut-off 0.30%) and July 2019 PEA Mineral Resource Estimate (NSR cut-off $13.75/tonne or CuEq cut-off 0.22%)

Classification	CuEq Cut-off (%)	NSR Cut-off ($/t)	Tonnage (Mt)	Grades CuEq %	Cu %	Au g/t	Ag g/t	Contained Metal Cu (t)	Au (oz)	Ag (oz)
June 2019 Costa Azul Mineral Resource Indicated	0.30	n/a	5.8	0.46	0.30	0.23	0.68	17,200	42,100	126,400
July 2019 Costa Azul PEA Mineral Resource Indicated	n/a	13.75	7.4	0.40	0.27	0.21	0.65	20,300	49,200	155,800
June 2019 Costa Azul Mineral Resource Inferred	0.30	n/a	0.1	0.41	0.30	0.17	0.56	400	800	2,500
July 2019 Costa Azul PEA Mineral Resource Inferred	n/a	13.75	0.1	0.39	0.29	0.16	0.6	400	600	2,400

Source: Nordmin, 2019

Table 14-40: Montiel East June 2019 Mineral Resource Estimate (CuEq cut-off 0.30%) and July 2019 PEA Mineral Resource Estimate (NSR cut-off $13.75/tonne or CuEq cut-off 0.22%)

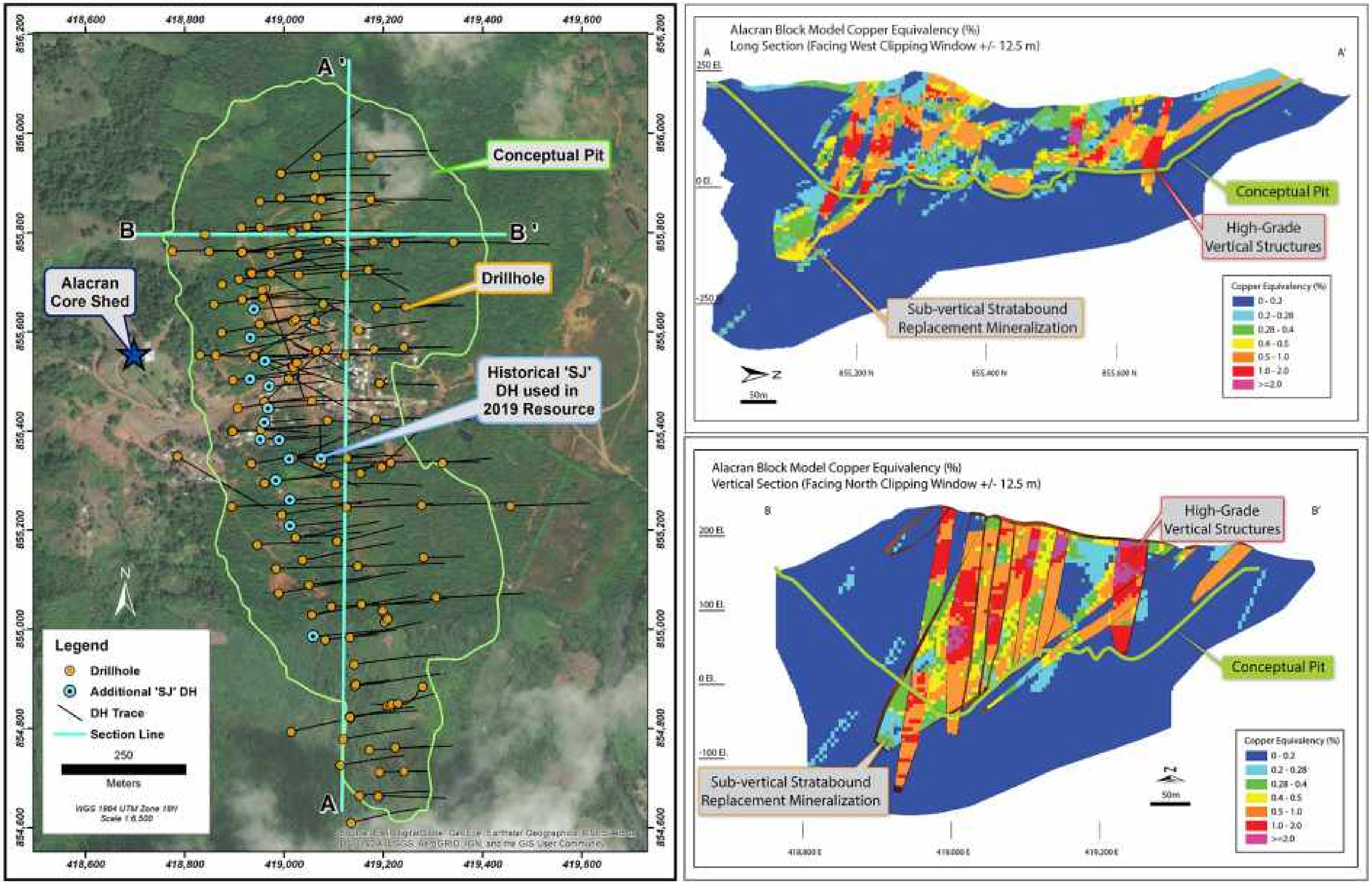
				Grades				Contained Metal		
Classification	CuEq Cut-off (%)	NSR Cut-off ($/t)	Tonnage (Mt)	CuEq %	Cu %	Au g/t	Ag g/t	Cu (t)	Au (oz)	Ag (oz)
June 2019 Montiel East Mineral Resource Indicated	0.30	n/a	3.4	0.79	0.53	0.41	1.69	18,100	45,300	186,200
July 2019 Montiel East PEA Mineral Resource Indicated	n/a	13.75	4.3	0.70	0.46	0.35	1.53	19,800	48,800	211,200
June 2019 Montiel East Mineral Resource Inferred	0.30	n/a	1.2	0.38	0.26	0.17	0.92	3,000	6,200	34,400
July 2019 Montiel East PEA Mineral Resource Inferred	n/a	13.75	1.8	0.34	0.25	0.15	0.88	4,400	8,500	50,300

Source: Nordmin, 2019

Table 14-41: Montiel West June 2019 Mineral Resource Estimate (CuEq cut-off 0.30%) and July 2019 PEA Mineral Resource Estimate (NSR cut-off $13.75/tonne or CuEq cut-off 0.22%)

				Grades				Contained Metal		
Classification	CuEq Cut-off (%)	NSR Cut-off ($/t)	Tonnage (Mt)	CuEq %	Cu %	Au g/t	Ag g/t	Cu (t)	Au (oz)	Ag (oz)
June 2019 Montiel West Mineral Resource Indicated	0.30	n/a	3.9	0.69	0.27	0.54	1.34	10,700	67,600	169,800
July 2019 Montiel West PEA Mineral Resource Indicated	n/a	13.75	4.6	0.52	0.24	0.49	1.32	11,200	72,600	195,800
June 2019 Montiel West Mineral Resource Inferred	0.30	n/a	0.4	0.51	0.07	0.65	1.03	300	8,400	13,200
July 2019 Montiel West PEA Mineral Resource Inferred	n/a	13.75	0.6	0.39	0.07	0.54	0.93	400	11,100	19,000

Source: Nordmin, 2019



Source: Nordmin, 2019

Figure 14-42: July 2019 PEA Alacran conceptual open pit

14.12 Factors That May Affect the Mineral Resources

Areas of uncertainty that may materially impact the Mineral Resource estimates include:

- changes to long-term metal price assumptions;
- changes to the input values for mining, processing, and G&A costs to constrain the estimate;
- changes to local interpretations of mineralization geometry and continuity of mineralized zones;
- changes to the density values applied to the mineralized zones;
- changes to metallurgical recovery assumptions;
- changes in assumptions of marketability of the final product;
- variations in geotechnical, hydrogeological and mining assumptions;
- changes to assumptions with an existing agreement or new agreements; and
- changes to environmental, permitting and social license assumptions.

14.13 Comments on Section 14

The QP is not aware of any environmental, legal, title, taxation, socio-economic, marketing, political or other relevant factors that would materially affect the estimation of Mineral Resources that are not discussed in this Report.

The QP is of the opinion that Mineral Resources were estimated using industry-accepted practices and conform to the 2014 CIM Definition Standards. Technical and economic parameters and assumptions applied to the Mineral Resource estimates are based on an open pit mining method and milling and flotation concentration processing method.

As noted in Section 13, further metallurgical testing is required with respect to the blending of the saprolite/fresh rock, final concentrate makeup, final doré production and any corresponding processing requirements. There is limited information from the current test work with respect to metallurgical variability within each of the deposits. As such, various concentrate marketing and/or secondary processing options should be evaluated once the recommended metallurgical test work is available to assess metallurgical characteristics.

15. MINERAL RESERVE ESTIMATES

This section is not relevant to this Report.

16. MINING METHODS

16.1 Introduction

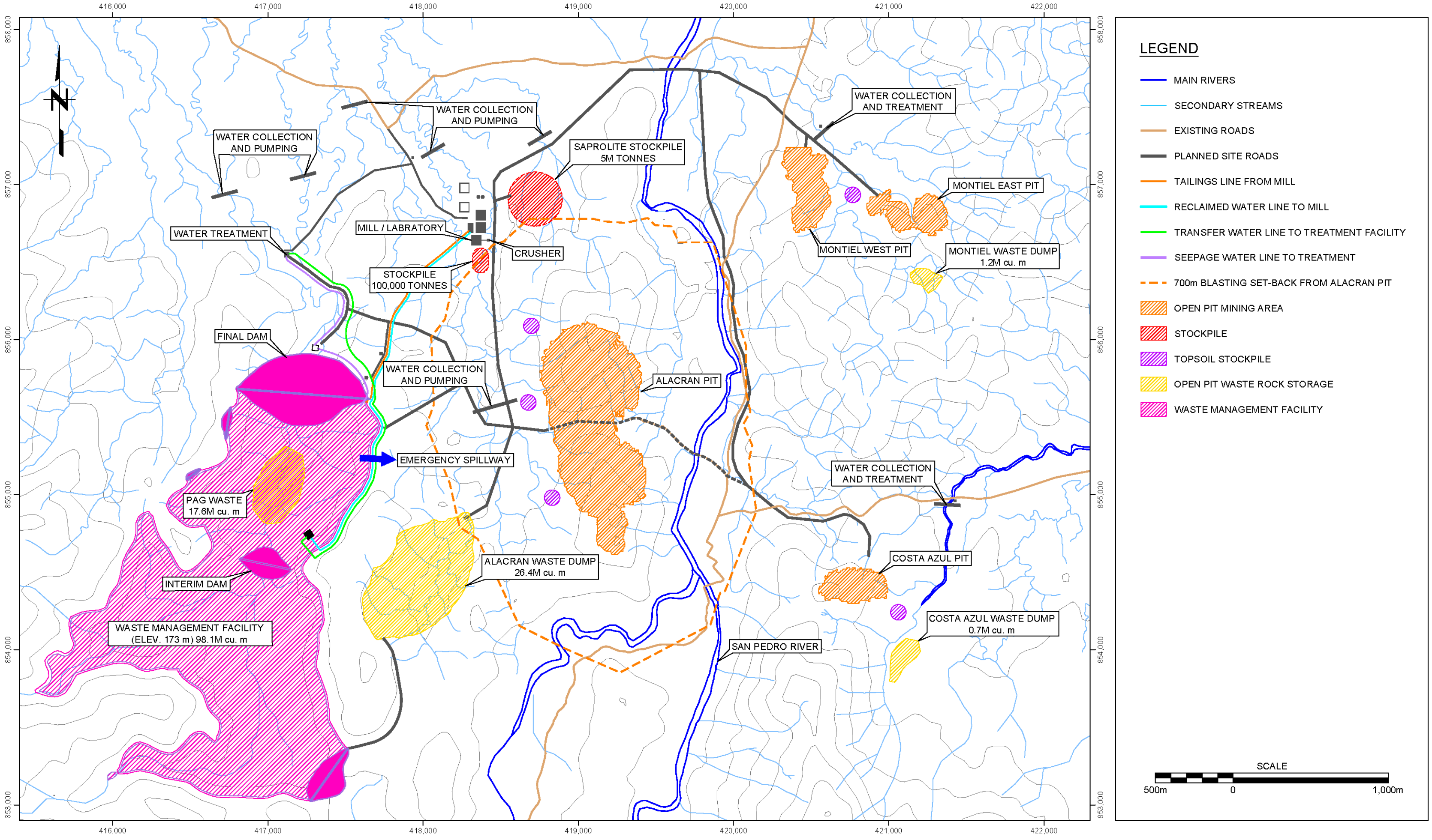
The Project is in a light agricultural area abutting the Paramillo mountain range to the south, with the nearest larger municipality being Puerto Libertador to the north. The main deposit, Alacran, straddles two large hills to the west of the San Pedro River. On the opposite side of the river, the Montiel East and Montiel West deposits are to the northeast of the Alacran deposit, and Costa Azul is to the southeast (Figure 16-1).

These four deposits were designed to be mined using a conventional drill, blast and shovel/truck open pit mining methods, and processed at the mill on-site. Mining activities will be performed by a contractor-owned mining fleet for Years 1 – 5 of operation (Phase 1) and switch to an owner-operated fleet in Year 6 and onward (Phase 2). The initial mining will be from the Alacran conceptual open pit and is planned to target the high-grade, low-waste strip blocks located in the centre of the deposit. Three small pushbacks are planned within the first five years of the operation to ensure consistent high-grade resources are being fed to the mill maximizing NPV.

The Alacran conceptual open pit will be approximately 1.5 km long in a north-south direction, and a maximum of 630 m wide. The satellite conceptual open pits are considerably smaller, at between 500 m and 600 m long each, and about half as wide. The depths of the conceptual open pits from the road pit access elevations are 195 m for the Alacran pit, 60 m for the Costa Azul pit, 75 m for the Montiel East pit, and 45 m for the Montiel West pit.

The stripping ratio for the selected Alacran pit is 0.92:1 and is approximately 0.2:1 for the satellite pits. The production rates scheduled are 8,000 t/d of mill feed for the first five years, and 16,000 t/d of mill feed thereafter. All mill feed is expected from the Alacran pit for the first 17 years. During years 17 to 23, 8,000 t/d of mill feed is expected from the Alacran complemented by 8,000 t/d from the satellite pits. The satellite pits begin production simultaneously in order to provide a sustainable supply of mill feed and increase operational flexibility. During Years 17 to 23, 8,000 t/d of mill feed is expected from the Alacran pit complemented by 8,000 t/d from the satellite pits. Mineralized saprolite will be mined and a portion of this material to be stockpiled in order to maintain a set rate of blending with fresh rock prior to being processed through the mill.

The PEA is preliminary in nature and includes an economic analysis that is based, in part, on Inferred Mineral Resources. Inferred Mineral Resources are considered too speculative geologically for the application of economic considerations that would enable them to be categorized as Mineral Reserves. There is no certainty that the PEA will result in an operating mine. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.



Source: Nordmin, 2019

Figure 16-1: San Matías Copper-Gold-Silver Project conceptual mine site plan

16.2 Block Model

The Nordmin Resource block model is the basis of the PEA mine plan and pit optimization. The block model variables are summarized in Table 16-1. The fields that were used in the pit optimization are:

- all spatial (x, y, z, size) variables;
- OK grade estimation;
- CuEq calculation;
- SG;
- Resource classification;
- degree of weathering (fresh, transition, or saprolite); and
- metallurgical recoveries.

Table 16-1: Block Model Fields

Type	Deposit	Kind	Fields	Description
3DBM	All	Value	X/Y/ZC	Block center coordinates, real world
3DBM	All	Value	X/Y/ZINC	Block size, relative
3DBM	All	Value	X/Y/ZMORIG	Block model origin coordinates
3DBM	All	Value	NX/Y/Z	Block coordinates, relative
3DBM	All	Grade	AUPPMNN	Gold grade (PPM), NN
3DBM	All	Grade	AUPPMID	Gold grade (PPM), ID2
3DBM	All	Grade	AUPPMOK	Gold grade (PPM), OK
3DBM	All	Grade	CUPCTNN	Copper grade (%), NN
3DBM	All	Grade	CUPCTID	Copper grade (%), ID2
3DBM	All	Grade	CUPCTOK	Copper grade (%), OK
3DBM	All	Grade	CUEQOK	Copper Equivalency, OK
3DBM	All	Value	SG	Specific Gravity
3DBM	All	Value	RESCAT	Resource Category
3DBM	All	Flag	BMLGHG	block in low-grade or high-grade lenses
3DBM	All	Flag	BMPROSP	Block Prospect/Deposit
3DBM	All	Flag	BMSAPFR	Block in saprolite 1, fresh 2, or Transition 4
3DBM	All	Value	RECOV_AU	Recovery % to be used for Au per block
3DBM	All	Value	RECOV_CU	Recovery % to be used for Cu per block
3DBM	All	Value	RECOV_AG	Recovery % to be used for Ag per block
3DBM	Satellite	Value	MDSbbcdd	Transform distance to the closest composite
3DBM	Satellite	Value	NSMbbcdd	Number of composites in calculation
3DBM	Satellite	Value	SVLbbcdd	Pass where block was populated
3DBM	Alacran	Value	MDabbcdd	Transform distance to the closest composite
3DBM	Alacran	Value	Nsabbcdd	Number of composites in calculation
3DBM	Alacran	Value	Svabbcdd	Pass where block was populated

Source: Nordmin, 2019

16.3 Geotechnical Considerations

Limited geotechnical information is currently available; however, based on the existing geological information and RQD measurements on drill core, Nordmin completed a preliminary geotechnical review of the Alacran and satellite deposits. The review involved validating the geotechnical RQD data, reviewing core photos and re-logging specific sections of drill core. Nordmin used this information to determine whether the structural information can be used to support various potential pit slopes angles. The quality of the Alacran and three satellite deposits rock mass has been assumed to be reasonably favourable below the saprolite and transition material to support open pit mining methods (see Section 12.4 for the results).

Using the limited RQD data available, a maximum overall pit slope angle of 45° was chosen for the fresh rock and transition material in all four pits, and a maximum pit slope angle of 32° was chosen for the saprolite material. The overall configuration of the mineralization is shallower than the 45° pit slopes.

16.4 Hydrogeological Considerations

The hydrogeological information related to groundwater levels and pressures that is currently available is limited and is not conclusive. There is a high probability of acid rock drainage ("ARD") as the mineralization is primarily in the form of sulphides. A water treatment plant is planned to treat any WMF discharge and drainage from the mine before such waters can be discharged to the environment.

16.5 Selection of Throughput Rate

The first step in determining the throughput rate was to apply Taylor's Rule to the tonnes of mineralized material in the deposit that fit within certain economic criteria. The version of Taylor's Rule most applicable to this deposit was determined to be based on K.R. Long's formula:

$$\textit{Production Rate (tonnes/day)} = 0.123 \times \textit{Total Tonnage}^{0.649}$$

(Source: https://minewiki.engineering.queensu.ca/mediawiki/index.php/Estimation_ of_the_potential_production_rate)

This formula was applied to the tonnes as a first step and an economic model for mine production and for mineral processing was developed using this rate. As the operating cost per tonne changes, so do the tonnes that are considered economical. Economies of scale result in lowering of unit cost with the raising of throughput. A number of iterations of this nature, as well as one added constraint, resulted in the determination of a practical, executable production rate, which is 8,000 t/d in the first five years, then 16,000 t/d for the remainder of mine life.

The need for a smaller initial capital cost led to investigating the use of a lower rate for the first five years, such that would require significantly less equipment, but not raise the operating cost by a great deal. Additionally, such a rate should ideally scale by a whole number, for full production to start in the sixth year. As such, the rates of 8,000 t/d and 16,000 t/d are reasonable rates by Taylor's Rule, and are practical rates by way of scalability of mining and milling equipment and have been selected for PEA purposes.

16.6 Pit Optimization

For pit optimization, Datamine NPV Scheduler^{TM} software was used to generate a series of nested revenue factor pit shells using the Lerchs-Grossman algorithm (Lerchs H, et al., 1965). The revenues from the metals in each block were weighed against the following operating costs: processing, mining, G&A, off-site, and removing the required waste blocks. The algorithm repeats this process for all metal-containing blocks working from the top down and generates a series of nested pits based on revenue factors. The parameters used in the optimization are outlined in Table 16-2.

Table 16-2: Pit Optimization Parameters

Alacran Pit - Phase 2

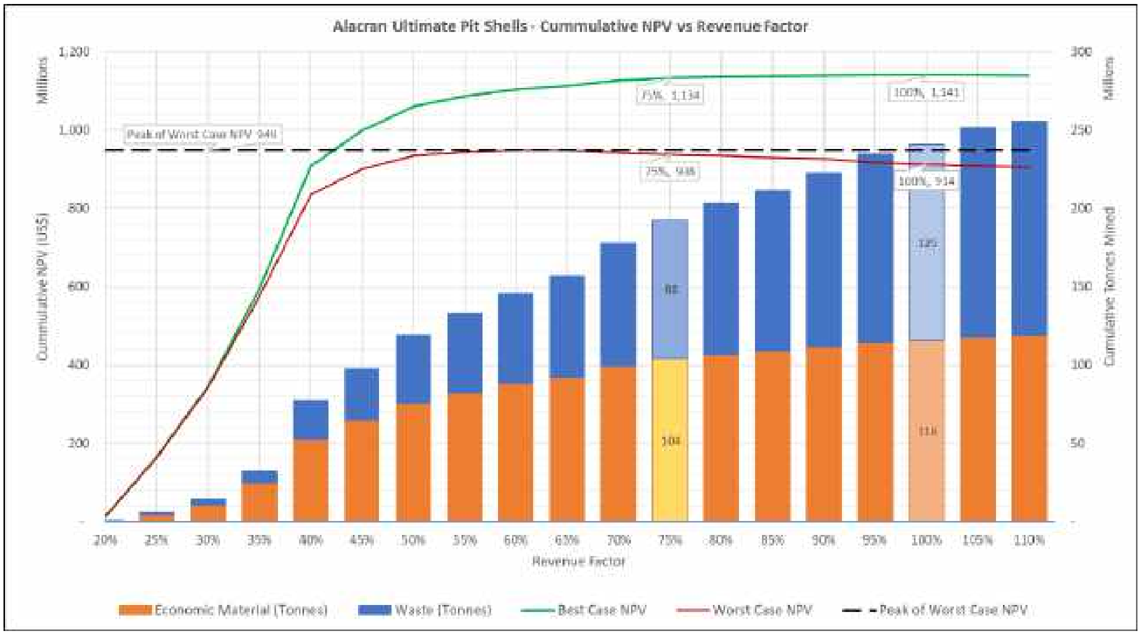
	Units	Values
Metal Prices		
Copper	$/lb	3.25
Gold	$/oz	1,400
Silver	$/oz	17.75
Mining Dilution	%	4%
Mining Recovery	%	97%
Waste Density	t/m^3	2.7
Resource Categories		Ind.&Infer.
Block Size		
North South	m	5.0
East West	m	5.0
Vertical	m	15.0
Pit Slopes		
Saprolite Slope	Degrees	32.5
Transition Material Slope	Degrees	45.0
Fresh Rock Slope	Degrees	45.0
Mining Costs		
Base	$/t	1.69
Incremental	$/t/Bench	-
Process Recovery		
Copper	%	62.5%-90.0%
Gold	%	72.5%-77.5%
Silver	%	52.5%-70.0%
Processing Costs		
Processing Operating Costs	$/t Milled	7.50
Mining G&A	$/t Milled	0.93
Processing G&A	$/t Milled	0.39
Sustaining Capital	$/t Milled	0
Closure Capital	$/t Milled	0
Copper Concentrate Grade	%	25%
Wet Concentrate Water	%	8%
Freight Charges		
Mine to Port	$/t Conc.	30.00
Port to Smelter	$/t Conc.	70.00
Treatment Charge	$/t Conc.	90.00
Refining Charges		
Copper	$/lb	0.09
Gold	$/oz	5.00
Silver	$/oz	0.30
Payable		
Copper	%	95.5%
Gold	%	96.5%
Silver	%	90.0%
Discount Rate	%	8.0%
Production Rate	Mtpa	5.84

Satellite Pits

	Units	Values
Metal Prices		
Copper	$/lb	3.25
Gold	$/oz	1,400
Silver	$/oz	17.75
Mining Dilution	%	4%
Mining Recovery	%	97%
Waste Density	t/m^3	2.7
Resource Categories		Ind.&Infer.
Block Size		
North South	m	10.0
East West	m	5.0
Vertical	m	15.0
Pit Slopes		
Saprolite Slope	Degrees	32.5
Transition Material Slope	Degrees	45.0
Fresh Rock Slope	Degrees	45.0
Mining Costs		
Base	$/t	1.69
Incremental	$/t/Bench	-
Process Recovery		
Copper	%	50.0%-90.0%
Gold	%	72.0%-77.5%
Silver	%	40.0%-70.0%
Processing Costs		
Processing Operating Costs	$/t Milled	7.50
Mining G&A	$/t Milled	0.93
Processing G&A	$/t Milled	0.39
Sustaining Capital	$/t Milled	0
Closure Capital	$/t Milled	0
Copper Concentrate Grade	%	25%
Wet Concentrate Water	%	8%
Freight Charges		
Mine to Port	$/t Conc.	30.00
Port to Smelter	$/t Conc.	70.00
Treatment Charge	$/t Conc.	90.00
Refining Charges		
Copper	$/lb	0.09
Gold	$/oz	5.00
Silver	$/oz	0.30
Payable		
Copper	%	95.5%
Gold	%	96.5%
Silver	%	90.0%
Discount Rate	%	8.0%
Production Rate	Mtpa	1.00

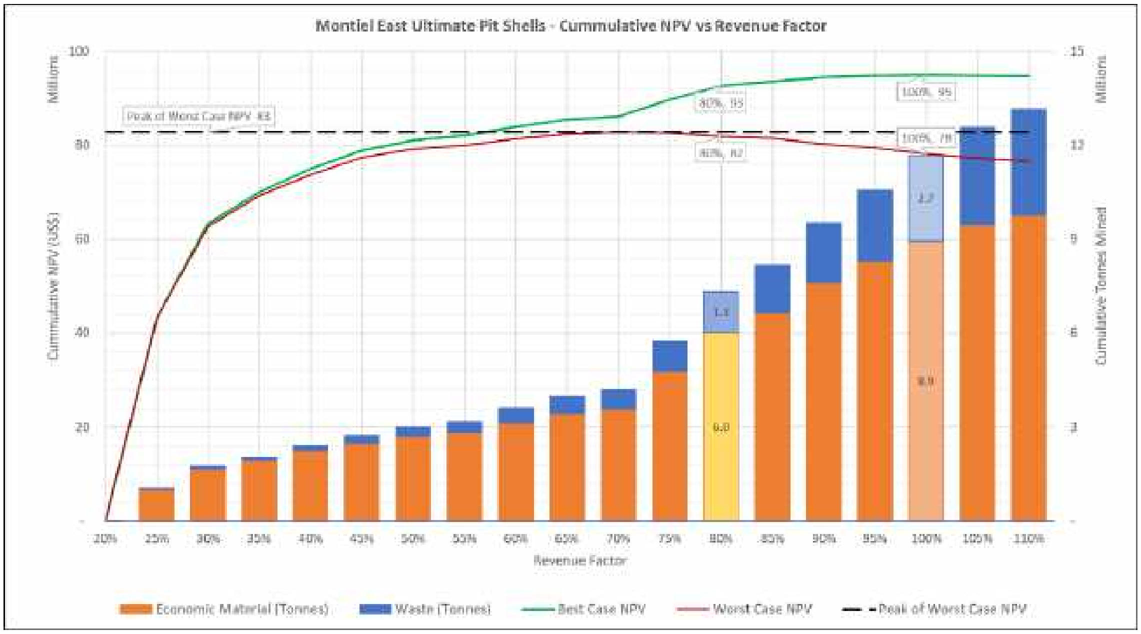
Source: Nordmin, 2019

Figure 16-2 through Figure 16-5 demonstrate the pit-by-pit analysis graphs for the final optimization of all four deposits. These graphs enable for the selection of a final pit shell, based on balancing the best case and worst case NPV potential. In the worst case mining is conducted on a bench-by-bench basis until the final bench is reached. In the best case the excavation is performed in a series of nested pits. The actual method for mining the pit is somewhere between these, mining in a number of pushbacks. Seldom will the 100% revenue factor pit shell be selected, as the incremental revenue from mining that extra material is minuscule, even in the best case. The final conceptual open pit shell for the Alacran deposit was selected at a revenue factor of 75%, and 80% for the Montiel East, Montiel West and Costa Azul deposits. Long sections of the selected pit shells along with other examples are found in Figure 16-6 through Figure 16-9.



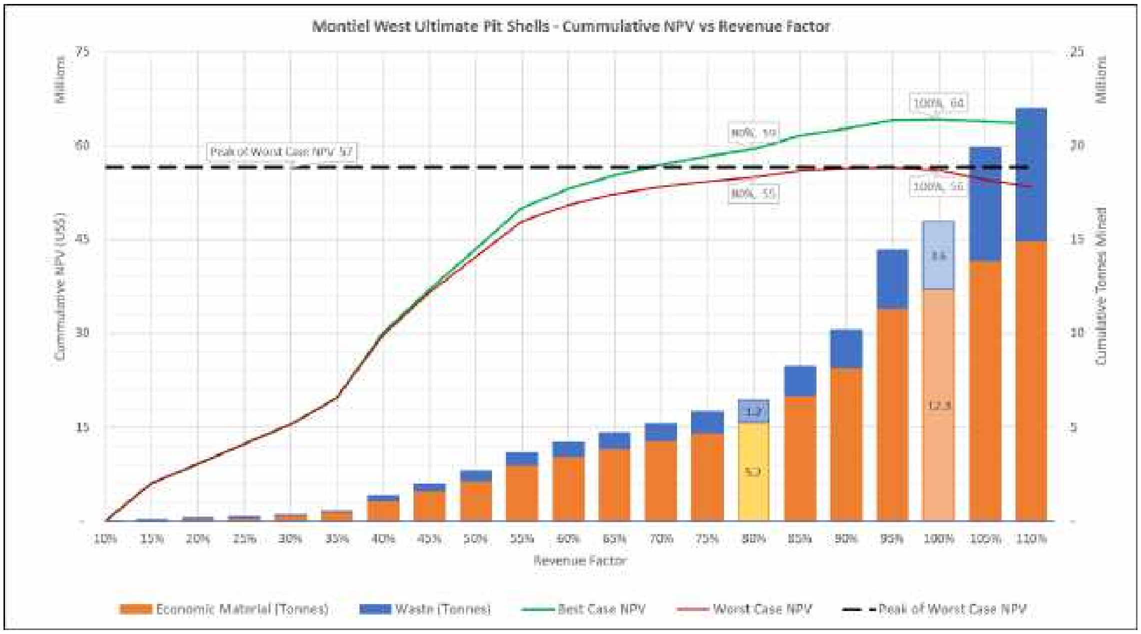
Source: Nordmin, 2019

Figure 16-2: Alacran pit-by-pit analysis



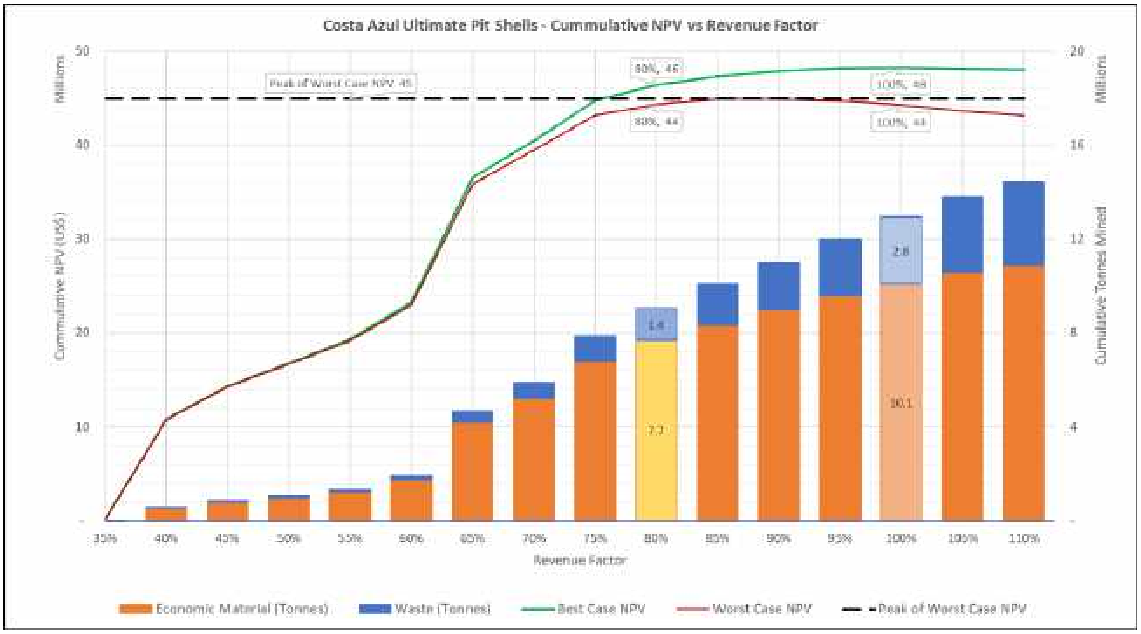
Source: Nordmin, 2019

Figure 16-3: Montiel East pit-by-pit analysis



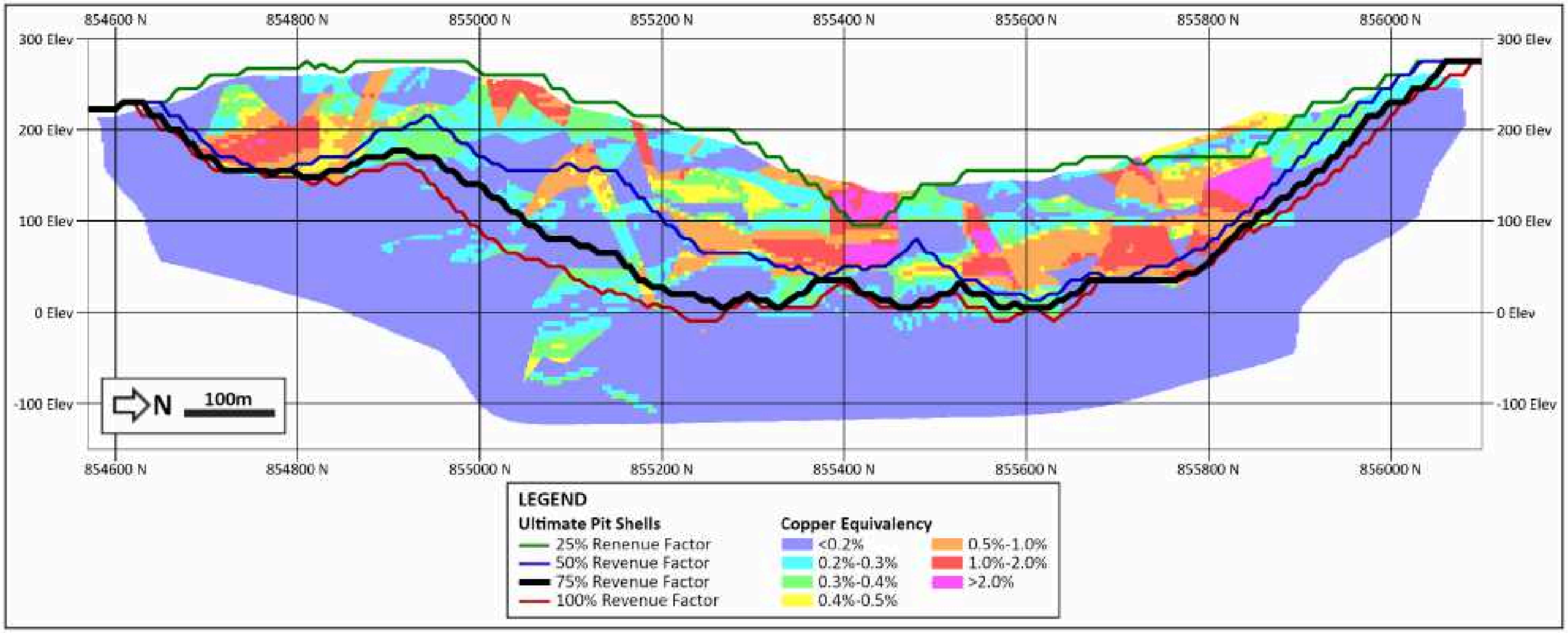
Source: Nordmin, 2019

Figure 16-4: Montiel West pit-by-pit analysis



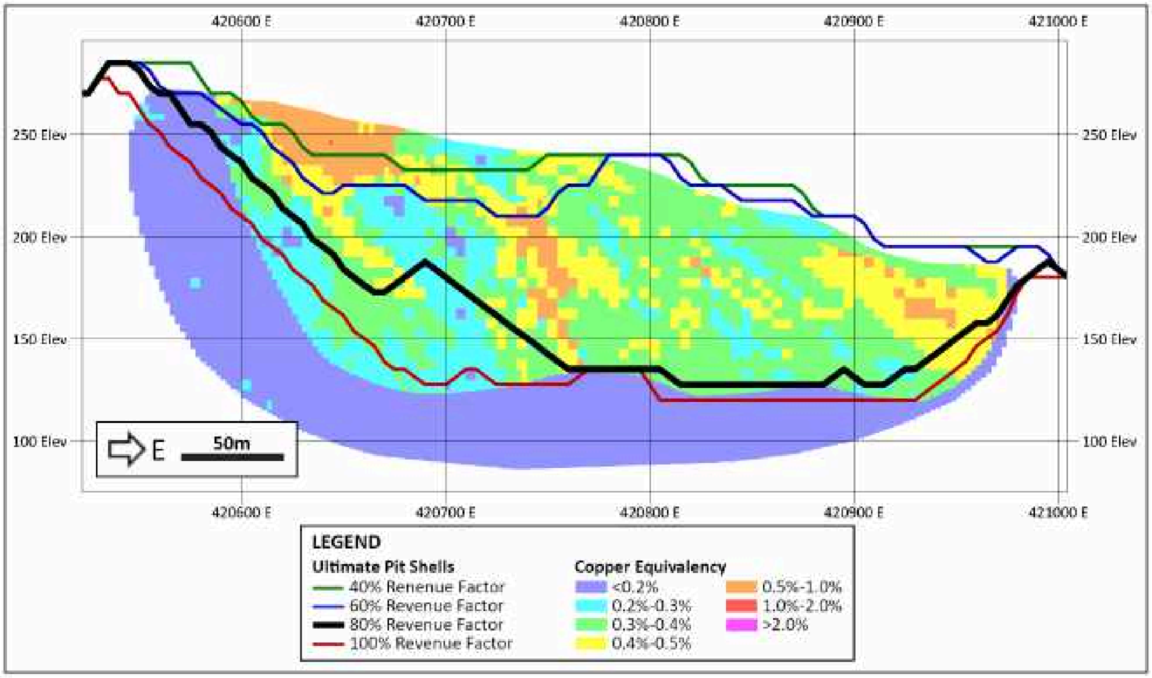
Source: Nordmin, 2019

Figure 16-5: Costa Azul pit-by-pit analysis



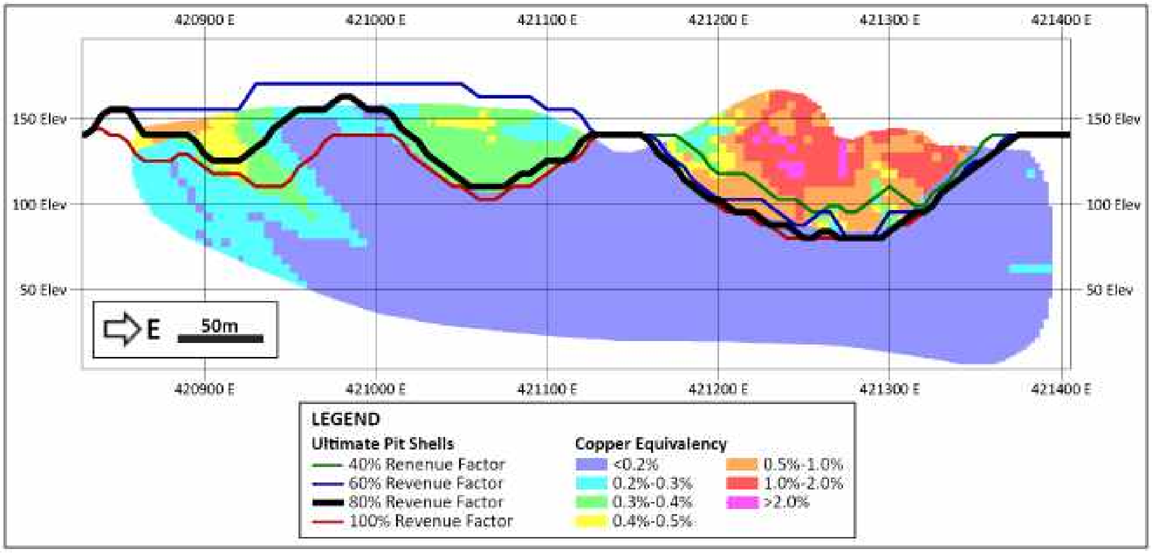
Source: Nordmin, 2019

Figure 16-6: Alacran ultimate pit shells long section at 419,200E looking west



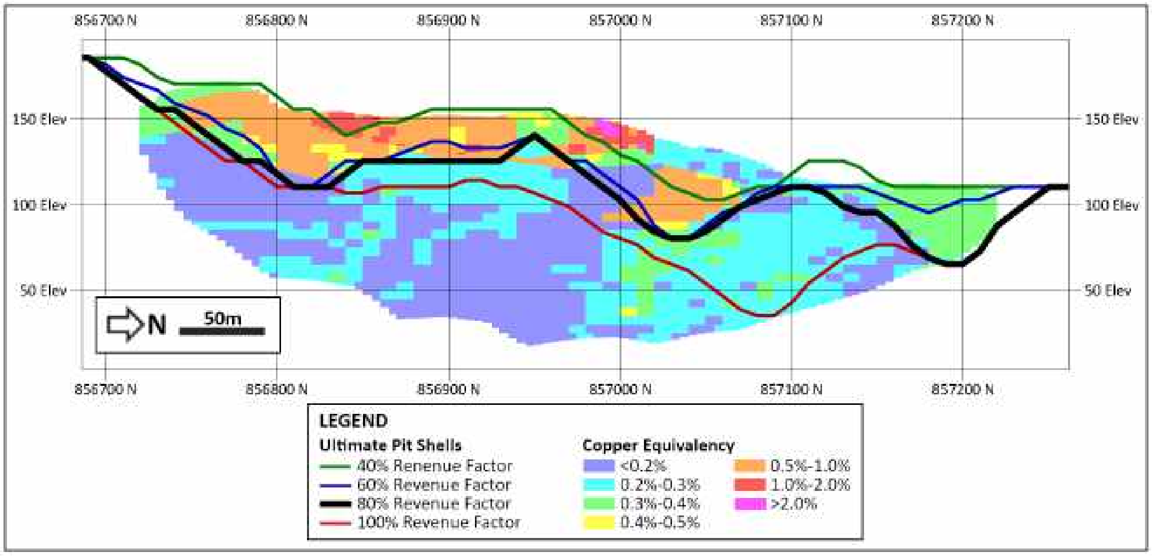
Source: Nordmin, 2019

Figure 16-7: Costa Azul ultimate pit shells long section at 854,400N looking north



Source: Nordmin, 2019

Figure 16-8: Montiel East ultimate pit shells long section at 856,850N looking north



Source: Nordmin, 2019

Figure 16-9: Montiel West ultimate pit shells long section at 420,450E looking west

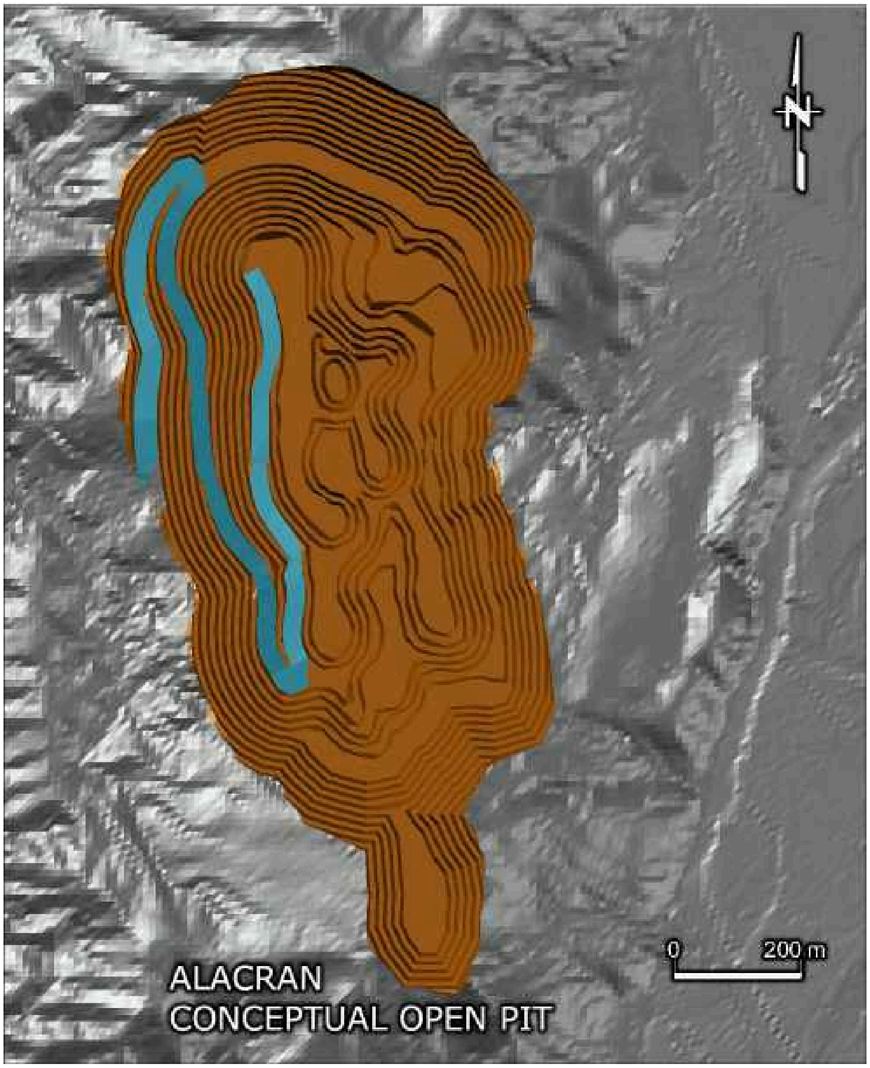
16.7 Pit Design

The pit design dimensions were selected based on the geotechnical parameters described in Section 16.3. A bench face angle of 70° is used in the fresh and transition rock on all faces and in all pits. The bench width is planned to be 7.5 m to stop any localized minor failures from causing material to fall more than the height of one bench, which is 15 m, with no double benching or other geometric modifications planned. The resulting inter-ramp angle is 49°.

The pit road for Alacran was designed at 29.13 m wide to accommodate two-way traffic involving 90-tonne haulage trucks and sloped at a 10% grade. The running surface for trucks consists of 23.45 m of the ramp width. The remainder is space for a drainage ditch (1 m) and a safety berm (4.68 m). The road travels down the western wall of the pit, with three switchbacks before it terminates at the bottom of the pit. A catch bench is planned midway between the top and bottom elevations of the planned final pit, which will be the same width as the ramp; 29.13 m. Figure 16-10 shows the Alacran conceptual open pit design with ramp and catch bench looking west.

Since the satellite conceptual open pits are much smaller and shallower than the Alacran conceptual open pit, a two-lane ramp was considered both unnecessary and harmful to NPV. The ramps at the satellite pits are planned at 19.08 m for single-lane traffic with no switchbacks. The ramps go around the pits and make one to one and a half revolution about each pit altogether (Figure 16-11 and Figure 16-12).

The depths and lengths of the pits are illustrated in Figure 16-13. Depths are shown both from the high walls to the bottom, as well as the total height of the ramps.

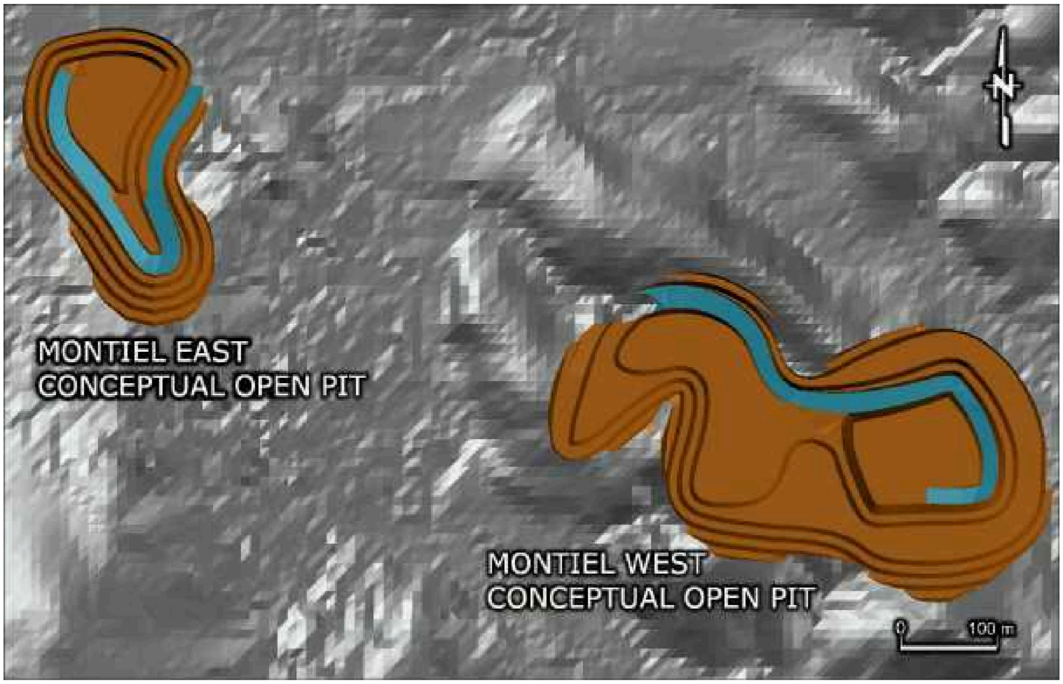


Source: Nordmin, 2019

Figure 16-10: Alacran conceptual open pit design with ramp (blue) and catch bench looking west

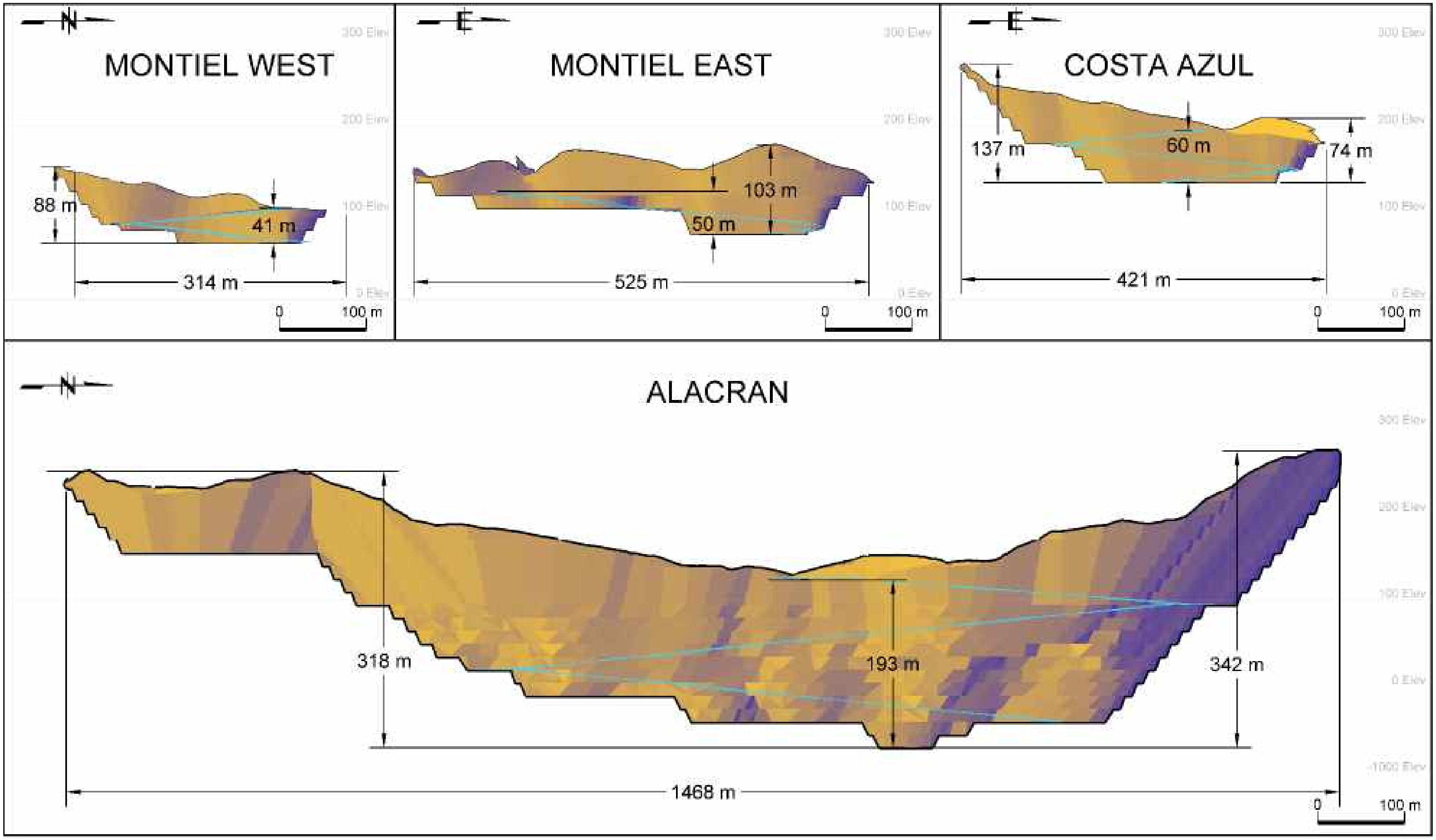
Source: Nordmin, 2019

Figure 16-11: Costa Azul conceptual open pit design with ramp (blue)



Source: Nordmin, 2019

Figure 16-12: Montiel East and Montiel West conceptual open pit designs with ramps (blue)

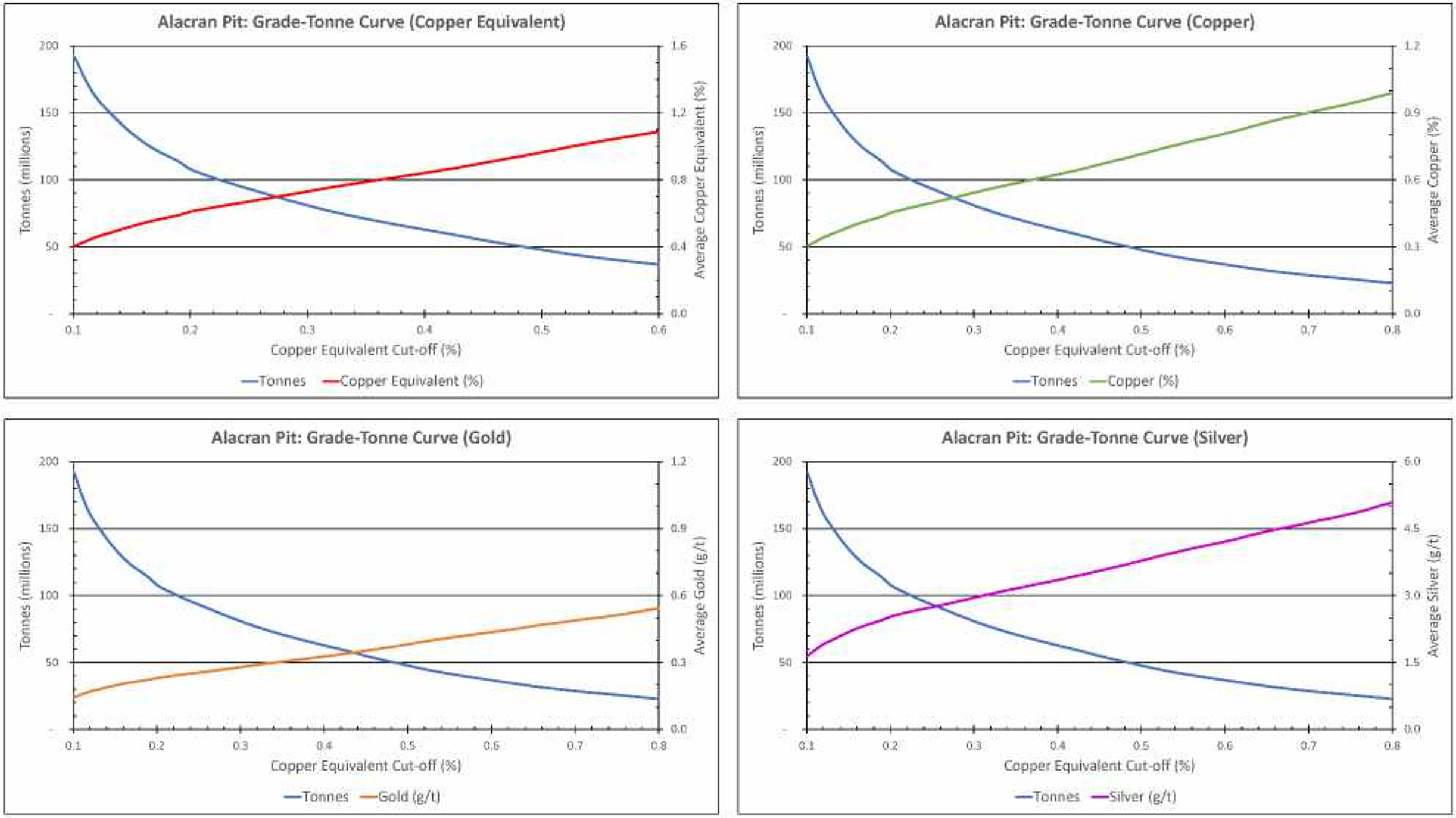


Source: Nordmin, 2019

Figure 16-13: Conceptual pit long sections

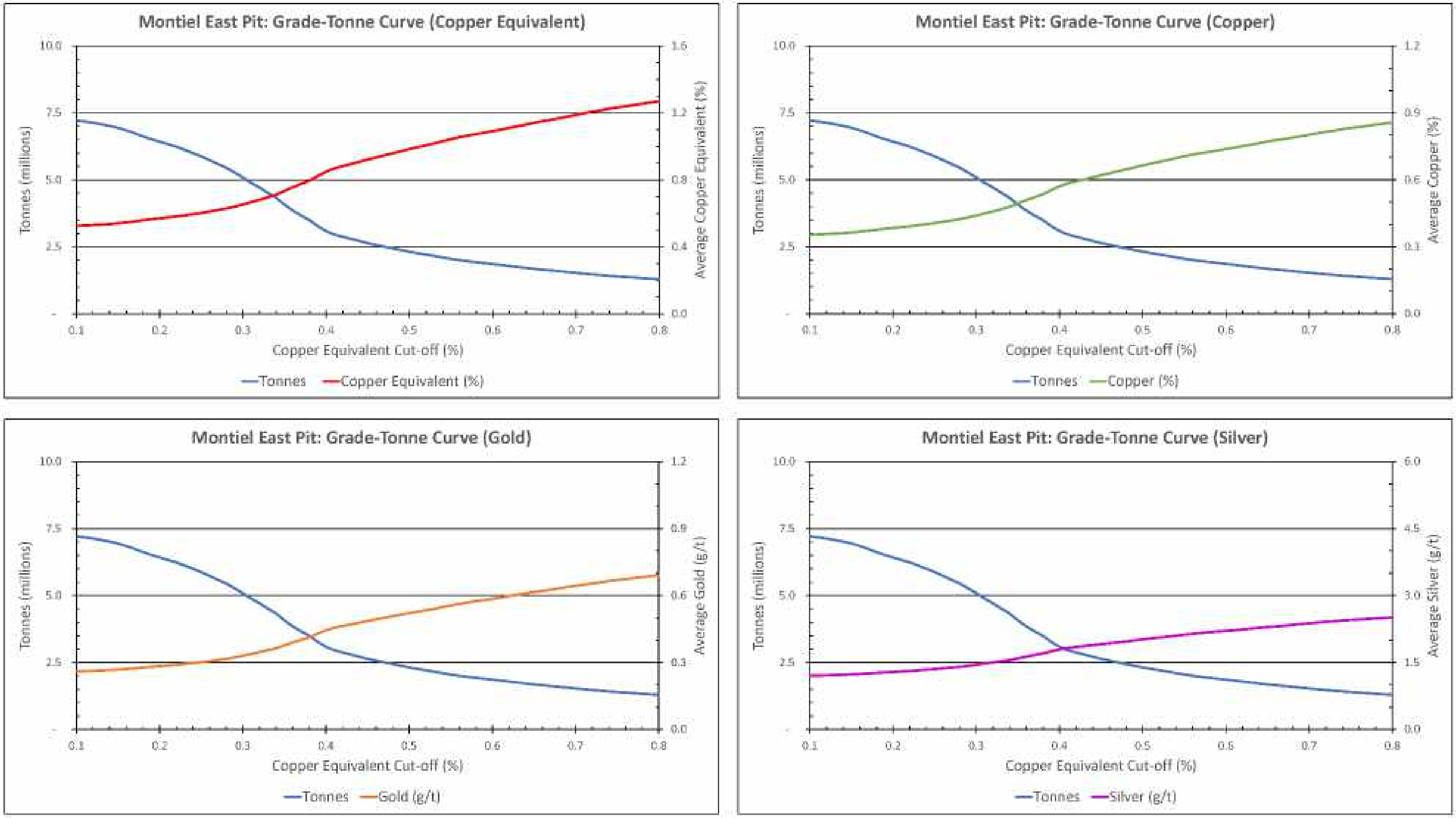
16.8 Grade Tonnage

Grade-tonnage curves are a visual representation of the impact of cut-off grades on Mineral Resources and Mineral Reserves and display the tonnage above the cut-off grade and average grade of a deposit relative to cut-off grade. As the criteria for ore classification becomes more selective, the tonnage above the cut-off grade of the deposit decreases. Conversely, as the cut-off grade is lowered, the tonnage of the deposit increases. As the cut-off grade increases, so too does the average grade of the ore mined. The curves ultimately show how the average grade and tonnage of a material delivered to a certain process are dependent on the cut-off grade selected. The conceptual open pit constrained grade/tonnage curves for each conceptual open pit are shown in Figure 16-14 through Figure 16-17.



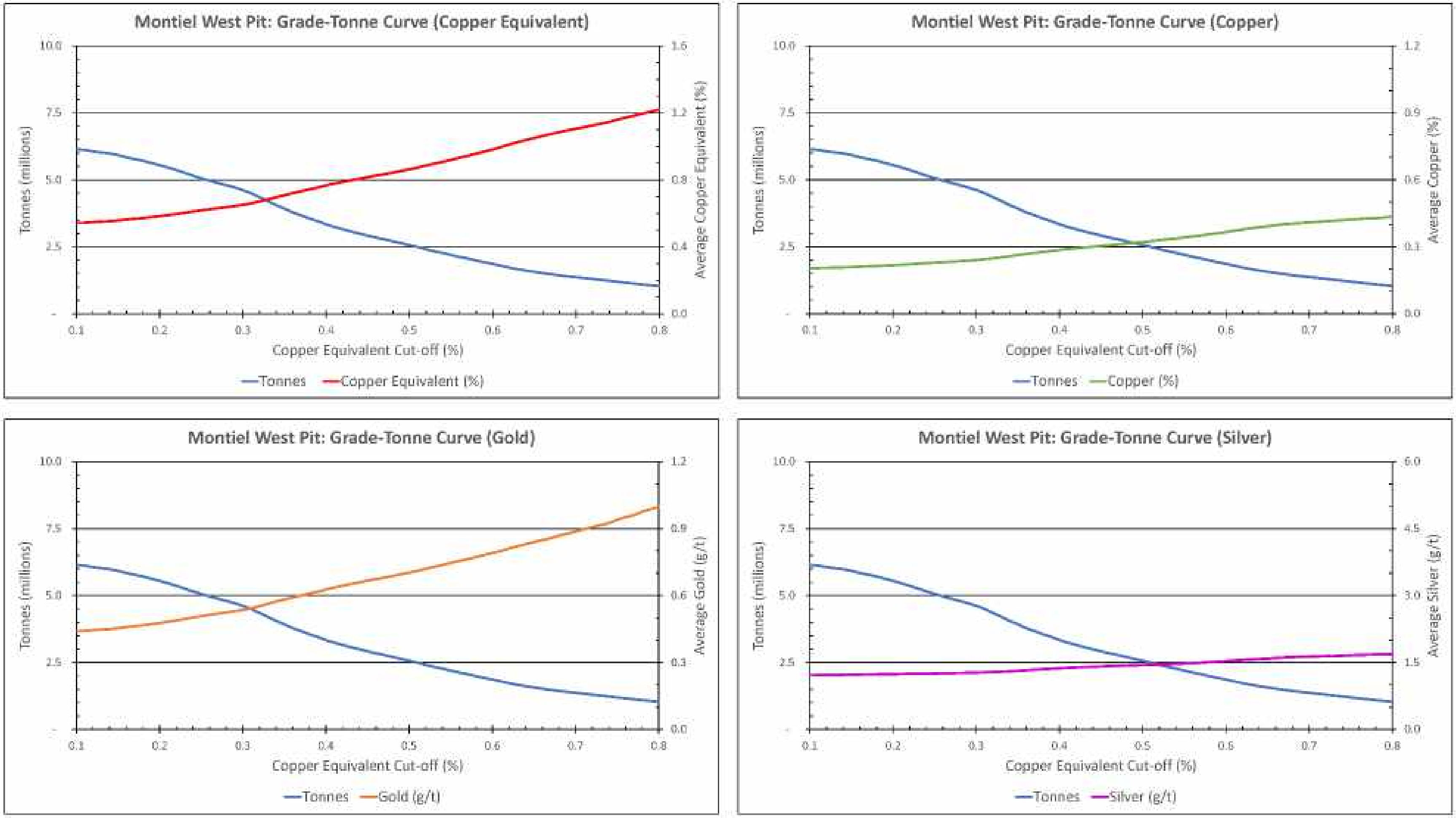
Source: Nordmin, 2019

Figure 16-14: Grade tonnage curves for Alacran conceptual open pit



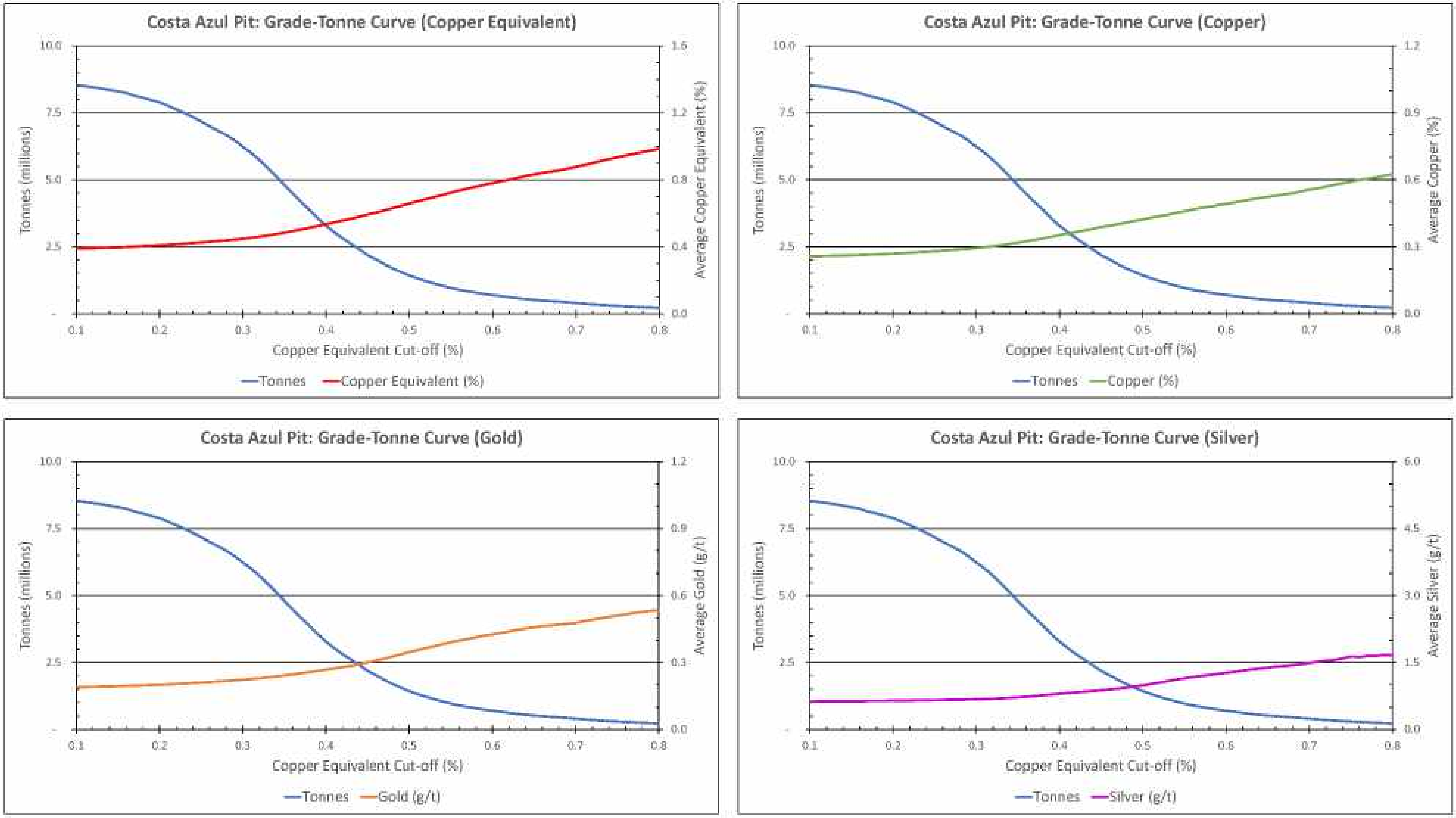
Source: Nordmin, 2019

Figure 16-15: Grade tonnage curves for Montiel East conceptual open pit



Source: Nordmin, 2019

Figure 16-16: Grade tonnage curves for Montiel West conceptual open pit



Source: Nordmin, 2019

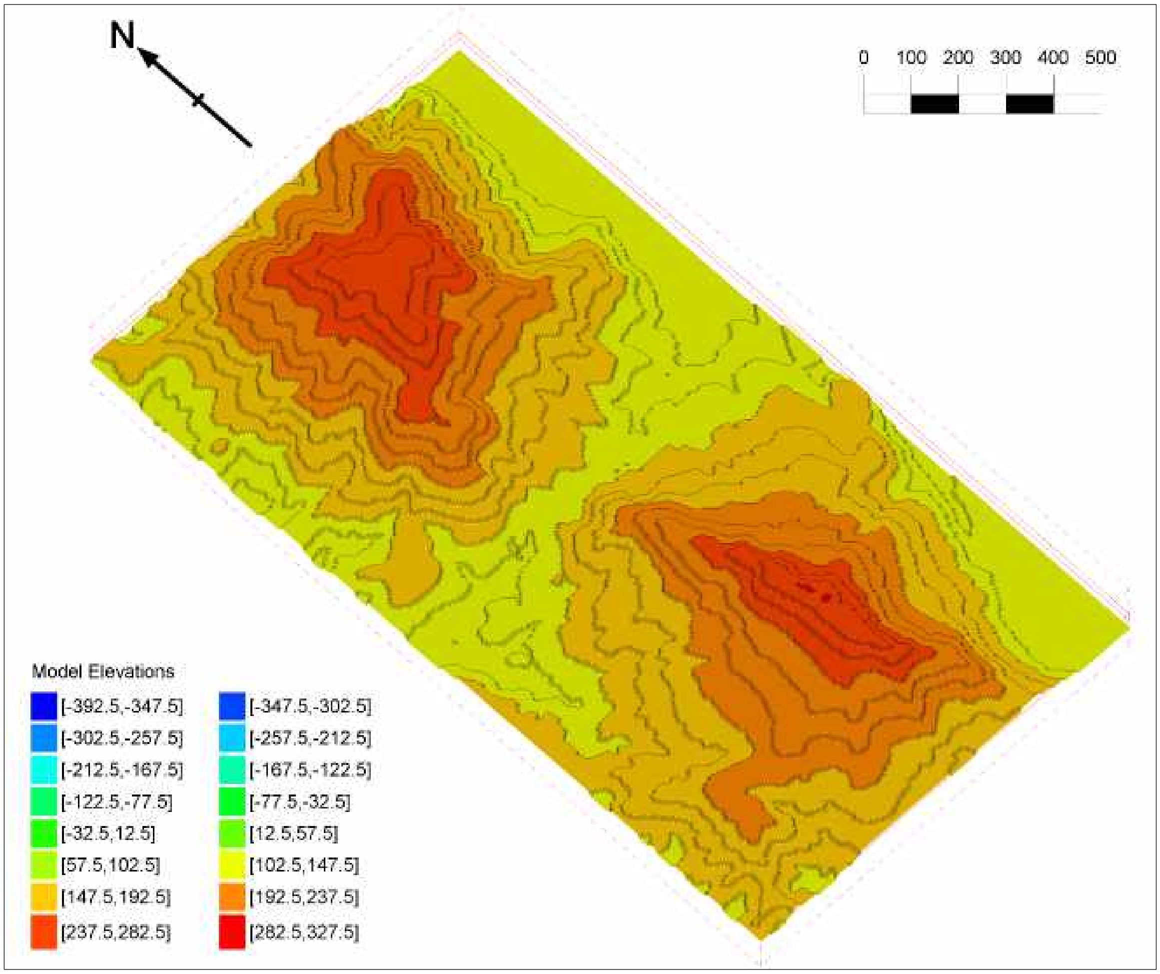
Figure 16-17: Grade tonnage curves for Costa Azul conceptual open pit

16.9 Pushback Design

The Alacran conceptual open pit was designed in six pushbacks; the first three small pushbacks cover the first five years of operation and the other three cover the remainder of the operation.

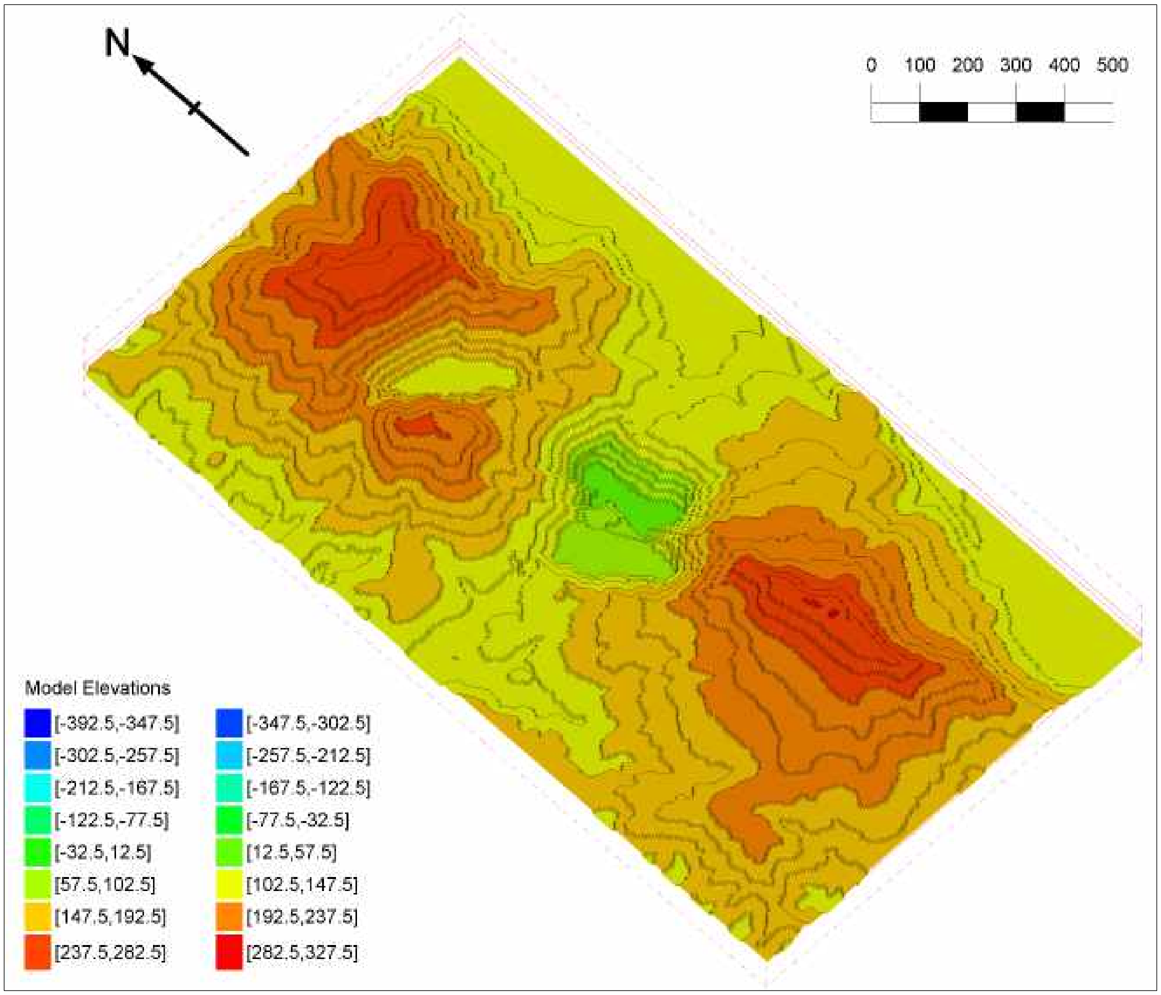
The satellite pits (Montiel East, Montiel West and Costa Azul) will be mined in one pushback, due to their small size and the flat dip of the mineralization.

The key pushbacks of the Alacran conceptual open pit are shown in Figure 16-18 to Figure 16-21.



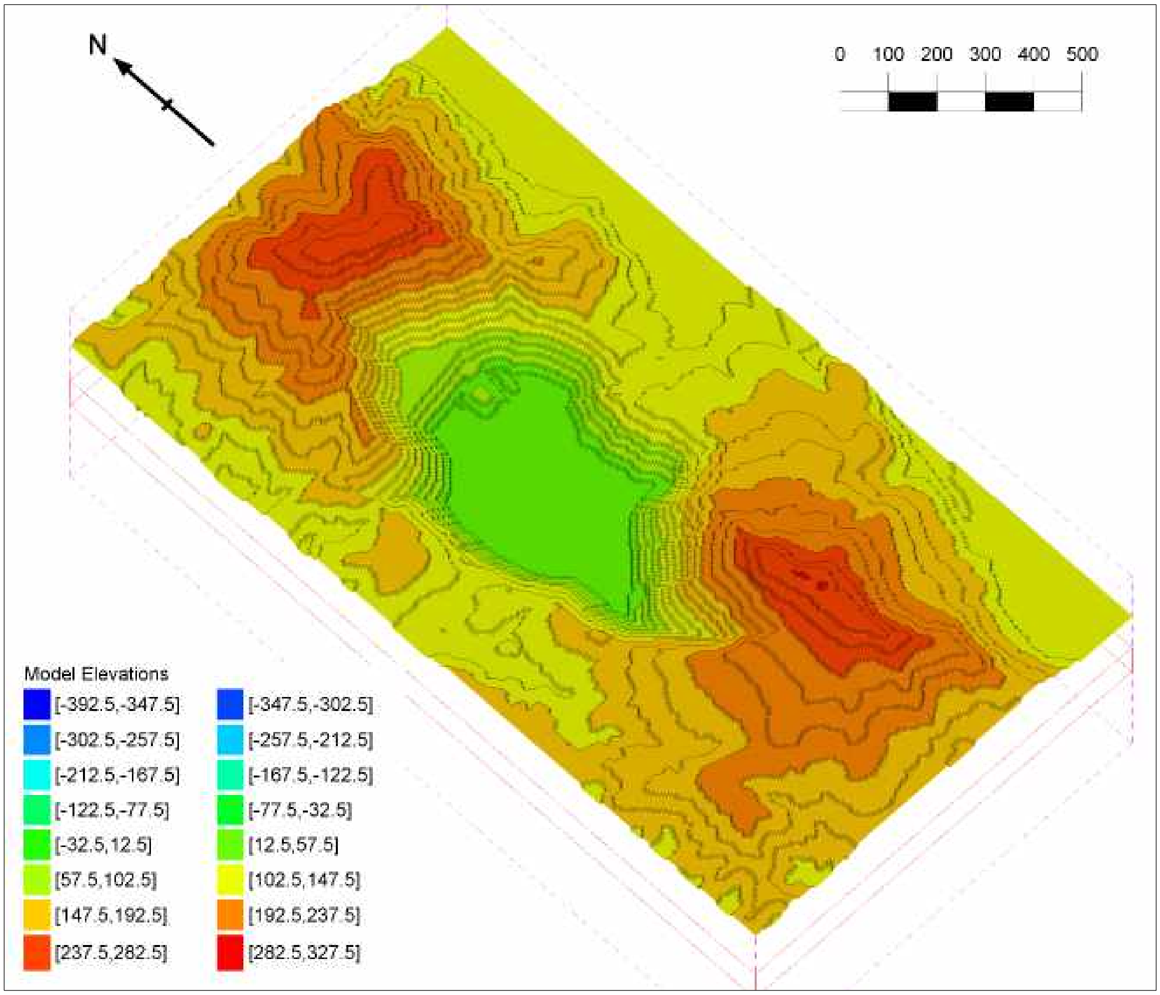
Source: Nordmin, 2019

Figure 16-18: Alacran conceptual open pit initial topography



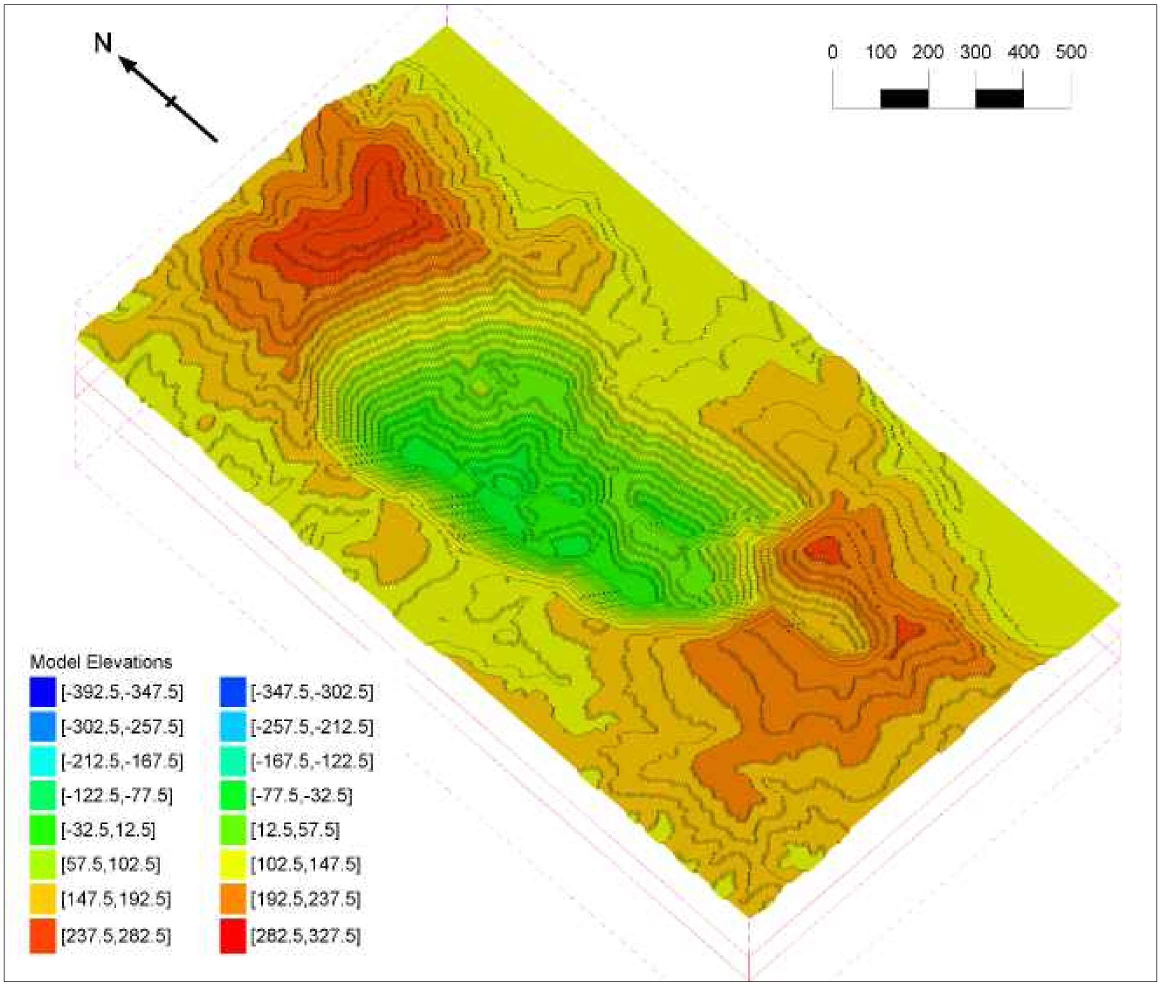
Source: Nordmin, 2019

Figure 16-19: Alacran conceptual open pit pushback 3



Source: Nordmin, 2019

Figure 16-20: Alacran conceptual open pit pushback 5



Source: Nordmin, 2019

Figure 16-21: Alacran conceptual open pit pushback 6

16.10 Production Schedule

The production schedule was produced using Datamine NPV Scheduler^{TM} software. For the first five years, 8,000 t/d of mill feed was the targeted mining rate and Years 6 to 23 were scheduled targeting 16,000 t/d. The three satellite pits start to be mined around the same time, in Year 17. At this time, the production rate in the Alacran conceptual open pit reduces back to 8,000 t/d, and the combined satellite pits are also scheduled at a rate of 8,000 t/d.

Table 16-3 and Table 16-4 show the annual production schedule for the Alacran pit and the satellite pits. Table 16-5 shows the mineralized saprolite stockpile that is utilized to blend a consistent 20% mix of saprolite with fresh material, which results in the mill feed shown in Table 16-6. The overall mining of all materials is collectively represented in Figure 16-22.

Table 16-3: Alacran Production Schedule

Year	Total Rock (tonnes)	Waste					Economic Material				Strip Ratio	Production Rate (tonnes/d)	Grade			Contained			
		Saprolite (tonnes)	Transition (tonnes)	Fresh (tonnes)	Unclassified (tonnes)	Total (tonnes)	Saprolite (tonnes)	Transition (tonnes)	Fresh (tonnes)	Total (tonnes)			Cu (%)	Au (g/t)	Ag (g/t)	Cu (tonnes)	Cu (Klb)	Au (oz)	Ag (oz)
1	8,335,300	2,248,774	881,601	454,765	30,136	3,615,275	2,384,024	1,308,786	1,027,214	4,720,024	0.77	22,836	0.465	0.288	2.168	21,951	48,392	43,725	329,003
2	7,936,612	1,919,153	1,203,559	611,228	35,823	3,769,763	1,830,849	1,208,002	1,127,998	4,166,849	0.90	21,744	0.714	0.328	4.646	29,771	65,633	43,916	622,417
3	4,562,169	83,660	571,602	1,176,993	3,255	1,835,512	390,657	656,468	1,679,532	2,726,657	0.67	12,499	0.792	0.298	5.209	21,582	47,580	26,133	456,668
4	6,547,837	1,610,204	1,123,415	670,158	10,961	3,414,738	797,099	1,213,481	1,122,519	3,133,099	1.09	17,939	0.415	0.208	2.024	12,994	28,648	20,966	203,878
5	3,633,618	-	49,369	1,248,247	-	1,297,617	-	94,987	2,241,013	2,336,001	0.56	9,955	0.885	0.331	4.360	20,676	45,582	24,838	327,419
6	14,132,423	2,592,829	2,009,338	2,733,547	123,572	7,459,285	2,001,138	1,850,669	2,821,331	6,673,138	1.12	38,719	0.543	0.184	4.013	36,240	79,894	39,577	861,034
7	12,203,488	2,083,510	1,994,961	1,534,464	43,126	5,656,062	1,875,427	1,016,947	3,655,053	6,547,427	0.86	33,434	0.436	0.197	2.682	28,567	62,979	41,482	564,524
8	11,393,452	2,142,460	1,810,422	1,675,760	15,642	5,644,284	1,077,169	990,828	3,681,172	5,749,168	0.98	31,215	0.444	0.217	2.724	25,519	56,259	40,092	503,440
9	11,945,587	678,456	1,985,689	3,967,510	1,085	6,632,741	640,848	988,390	3,683,610	5,312,847	1.25	32,728	0.427	0.276	2.268	22,674	49,987	47,110	387,447
10	10,909,161	874,899	873,902	3,807,054	15,940	5,571,796	665,365	567,059	4,104,941	5,337,365	1.04	29,888	0.533	0.280	2.867	28,457	62,737	48,031	492,018
11	10,432,251	2,013,915	830,066	2,063,761	16,970	4,924,712	835,539	927,404	3,744,596	5,507,539	0.89	28,582	0.484	0.229	2.327	26,637	58,724	40,531	412,121
12	10,536,159	1,599,231	1,687,327	1,910,285	32,660	5,229,503	634,656	859,431	3,812,569	5,306,656	0.99	28,866	0.449	0.213	2.088	23,842	52,561	36,281	356,237
13	10,544,992	806,243	1,168,503	3,674,575	27,529	5,676,850	196,142	512,526	4,159,474	4,868,142	1.17	28,890	0.438	0.218	2.121	21,322	47,007	34,194	331,917
14	10,336,843	350,789	806,337	4,398,167	6,464	5,561,757	65,488	401,873	4,307,725	4,775,086	1.16	28,320	0.421	0.251	1.833	20,088	44,287	38,572	281,358
15	12,941,109	204,376	769,208	6,127,045	479	7,101,108	18,626	192,090	5,629,284	5,840,001	1.22	35,455	0.408	0.297	1.813	23,849	52,577	55,754	340,392
16	11,785,487	-	20,336	5,925,151	-	5,945,487	-	16,790	5,823,210	5,840,000	1.02	32,289	0.384	0.271	1.688	22,443	49,479	50,913	317,012
17	8,175,869	-	-	3,795,869	-	3,795,869	-	-	4,380,000	4,380,000	0.87	22,400	0.422	0.233	2.376	18,480	40,741	32,846	334,575
18	4,857,223	-	-	1,937,223	-	1,937,223	-	-	2,920,000	2,920,000	0.66	13,307	0.412	0.205	2.390	12,043	26,549	19,267	224,350
19	4,598,232	-	-	1,678,232	-	1,678,232	-	-	2,920,000	2,920,000	0.57	12,598	0.414	0.210	2.352	12,095	26,665	19,722	220,827
20	4,293,940	-	-	1,373,940	-	1,373,940	-	-	2,920,000	2,920,000	0.47	11,764	0.417	0.217	2.649	12,189	26,872	20,343	248,729
21	4,189,275	-	-	1,269,275	-	1,269,275	-	-	2,920,000	2,920,000	0.43	11,477	0.410	0.207	2.596	11,964	26,376	19,477	243,705
22	4,317,274	-	-	1,397,274	-	1,397,274	-	-	2,920,000	2,920,000	0.48	11,828	0.397	0.205	2.297	11,578	25,526	19,229	215,624
23	3,949,102	-	-	1,557,586	-	1,557,586	-	-	2,391,516	2,391,516	0.65	10,819	0.380	0.245	2.124	9,090	20,040	18,868	163,341
Total	**192,557,404**	**19,208,499**	**17,785,636**	**54,988,111**	**363,641**	**92,345,889**	**13,413,028**	**12,805,732**	**73,992,756**	**100,211,515**	**0.92**		**0.473**	**0.243**	**2.619**	**474,052**	**1,045,094**	**781,866**	**8,438,035**

Source: Nordmin, 2019

Table 16-4: Satellite Pits Production Schedule

Year	Total	Waste					Economic Material				Strip	Production	Grade			Contained			
	Rock (tonnes)	Saprolite (tonnes)	Transition (tonnes)	Fresh (tonnes)	Unclassified (tonnes)	Total (tonnes)	Saprolite (tonnes)	Transition (tonnes)	Fresh (tonnes)	Total (tonnes)	Ratio	Rate (tonnes/d)	Cu (%)	Au (g/t)	Ag (g/t)	Cu (tonnes)	Cu (Klb)	Au (oz)	Ag (oz)
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	2,463,611	353,395	-	120,250	33,253	506,898	1,080,713	-	876,000	1,956,713	0.26	6,750	0.337	0.311	1.238	6,599	14,549	19,538	77,885
18	4,548,776	614,161	-	233,416	59,312	906,889	1,889,887	-	1,752,000	3,641,886	0.25	12,462	0.337	0.310	1.217	12,256	27,019	36,352	142,480
19	2,642,081	147,481	-	197,725	23,061	368,268	521,813	-	1,752,000	2,273,813	0.16	7,239	0.330	0.310	1.033	7,506	16,549	22,633	75,527
20	3,082,931	240,908	-	422,307	72,129	735,344	487,196	-	1,860,391	2,347,588	0.31	8,446	0.287	0.294	1.006	6,743	14,866	22,202	75,953
21	3,544,618	163,284	-	365,408	95,923	624,617	353,601	-	2,566,399	2,920,001	0.21	9,711	0.275	0.338	1.018	8,019	17,680	31,698	95,539
22	3,364,277	72,125	-	248,908	123,246	444,279	54,555	-	2,865,444	2,919,999	0.15	9,217	0.273	0.320	0.923	7,982	17,598	30,042	86,614
23	3,100,402	245	-	225,928	41,141	267,315	32	-	2,833,054	2,833,086	0.09	8,494	0.263	0.313	0.884	7,461	16,448	28,482	80,518
Total	**22,746,696**	**1,591,600**	**-**	**1,813,941**	**448,065**	**3,853,610**	**4,387,798**	**-**	**14,505,288**	**18,893,087**	**0.20**		**0.299**	**0.314**	**1.045**	**56,567**	**124,707**	**190,947**	**634,517**

Source: Nordmin, 2019

Table 16-5: Stockpile Inventory

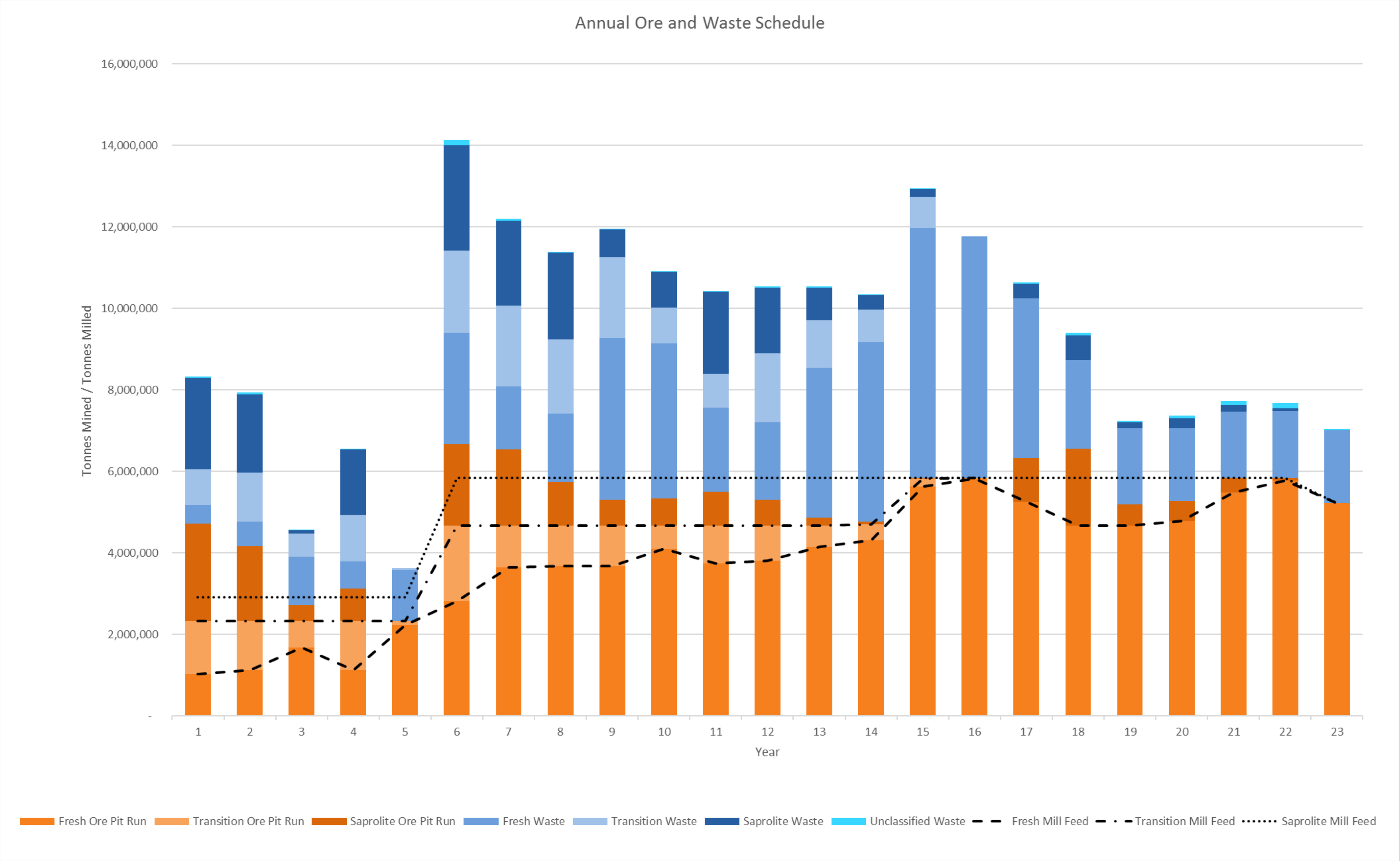
Year	Economic Material				Grade			Contained			
	Saprolite (tonnes)	Transition (tonnes)	Fresh (tonnes)	Total (tonnes)	Cu (%)	Au (g/t)	Ag (g/t)	Cu (tonnes)	Cu (Klb)	Au (oz)	Ag (oz)
1	1,800,024	-	-	1,800,024	0.354	0.251	2.132	6,367	14,036	14,504	123,409
2	3,046,873	-	-	3,046,873	0.384	0.239	2.325	11,704	25,803	23,443	227,717
3	2,853,530	-	-	2,853,530	0.384	0.239	2.325	10,961	24,165	21,955	213,267
4	3,066,629	-	-	3,066,629	0.378	0.239	2.291	11,607	25,589	23,544	225,887
5	2,482,629	-	-	2,482,629	0.378	0.239	2.291	9,397	20,716	19,060	182,869
6	3,315,767	-	-	3,315,767	0.394	0.237	2.584	13,058	28,789	25,256	275,467
7	4,023,194	-	-	4,023,194	0.383	0.225	2.475	15,414	33,981	29,083	320,196
8	3,932,364	-	-	3,932,364	0.383	0.225	2.475	15,066	33,214	28,426	312,967
9	3,405,211	-	-	3,405,211	0.383	0.225	2.475	13,046	28,761	24,616	271,013
10	2,902,576	-	-	2,902,576	0.383	0.225	2.475	11,120	24,516	20,982	231,009
11	2,570,115	-	-	2,570,115	0.383	0.225	2.475	9,847	21,708	18,579	204,549
12	2,036,772	-	-	2,036,772	0.383	0.225	2.475	7,803	17,203	14,724	162,102
13	1,064,914	-	-	1,064,914	0.383	0.225	2.475	4,080	8,995	7,698	84,754
14	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-
17	496,713	-	-	496,713	-	-	-	1,568	3,456	5,477	19,956
18	1,218,600	-	-	1,218,600	-	-	-	3,841	8,468	13,486	48,450
19	572,413	-	-	572,413	-	-	-	1,804	3,977	6,335	22,758
20	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-

Source: Nordmin, 2019

Table 16-6: Total Mill Feed

Year	Mill Feed				Production	Grade				Contained				Recovered			
	Saprolite (tonnes)	Transition (tonnes)	Fresh (tonnes)	Total (tonnes)	Rate (tonnes/d)	Cu (%)	Au (g/t)	Ag (g/t)	CuEq (%)	Cu (tonnes)	Cu (Klb)	Au (oz)	Ag (oz)	Cu (tonnes)	Cu (Klb)	Au (oz)	Ag (oz)
1	584,000	1,308,786	1,027,214	2,920,000	8,000	0.534	0.311	2.190	0.738	15,584	34,357	29,220	205,595	11,945	26,335	21,738	131,890
2	584,000	1,208,002	1,127,998	2,920,000	8,000	0.837	0.373	5.519	1.099	24,433	53,865	34,978	518,109	18,950	41,777	26,091	339,978
3	584,000	656,468	1,679,532	2,920,000	8,000	0.765	0.294	5.018	0.970	22,325	49,217	27,621	471,119	17,756	39,145	20,499	305,446
4	584,000	1,213,481	1,122,519	2,920,000	8,000	0.423	0.206	2.037	0.565	12,349	27,224	19,377	191,259	9,249	20,390	14,355	121,242
5	584,000	94,987	2,241,013	2,920,000	8,000	0.784	0.312	3.946	0.985	22,886	50,455	29,322	370,436	19,005	41,899	21,825	243,957
6	1,168,000	1,850,669	2,821,331	5,840,000	16,000	0.558	0.178	4.093	0.692	32,578	71,821	33,381	768,437	25,141	55,427	24,673	494,498
7	1,168,000	1,016,947	3,655,053	5,840,000	16,000	0.449	0.201	2.768	0.587	26,212	57,787	37,655	519,794	20,536	45,273	28,001	339,026
8	1,168,000	990,828	3,681,172	5,840,000	16,000	0.443	0.217	2.720	0.590	25,867	57,026	40,748	510,669	20,181	44,491	30,129	333,834
9	1,168,000	988,390	3,683,610	5,840,000	16,000	0.423	0.271	2.287	0.600	24,693	54,439	50,920	429,402	19,326	42,606	37,873	278,421
10	1,168,000	567,059	4,104,941	5,840,000	16,000	0.520	0.275	2.834	0.700	30,383	66,982	51,664	532,021	24,185	53,318	38,465	346,904
11	1,168,000	927,404	3,744,596	5,840,000	16,000	0.478	0.229	2.336	0.628	27,911	61,532	42,934	438,580	22,094	48,709	31,934	284,804
12	1,168,000	859,431	3,812,569	5,840,000	16,000	0.443	0.214	2.123	0.583	25,885	57,066	40,137	398,684	20,584	45,379	29,860	257,438
13	1,168,000	512,526	4,159,474	5,840,000	16,000	0.429	0.220	2.180	0.574	25,046	55,216	41,220	409,265	19,665	43,354	30,609	262,901
14	1,130,402	401,873	4,307,725	5,840,000	16,000	0.414	0.246	1.950	0.575	24,168	53,281	46,270	366,112	18,773	41,388	34,397	233,120
15	18,626	192,090	5,629,284	5,840,000	16,000	0.408	0.297	1.813	0.593	23,849	52,577	55,754	340,392	19,426	42,828	41,909	230,361
16	-	16,790	5,823,210	5,840,000	16,000	0.384	0.271	1.688	0.553	22,443	49,479	50,913	317,012	18,222	40,172	38,274	215,167
17	584,000	-	5,256,000	5,840,000	16,000	0.403	0.250	2.090	0.565	23,512	51,834	46,907	392,504	18,569	40,936	34,964	259,857
18	1,168,000	-	4,672,000	5,840,000	16,000	0.377	0.254	1.802	0.545	22,025	48,557	47,610	338,336	16,632	36,668	35,190	216,655
19	1,168,000	-	4,672,000	5,840,000	16,000	0.371	0.264	1.715	0.544	21,638	47,703	49,505	322,046	16,400	36,155	36,579	207,692
20	1,059,609	-	4,780,391	5,840,000	16,000	0.355	0.260	1.850	0.525	20,736	45,715	48,881	347,440	15,979	35,228	36,214	226,170
21	353,601	-	5,486,399	5,840,000	16,000	0.342	0.273	1.807	0.516	19,984	44,056	51,174	339,244	15,883	35,016	38,308	227,761
22	54,556	-	5,785,444	5,840,000	16,000	0.335	0.262	1.610	0.501	19,561	43,124	49,271	302,238	15,594	34,379	37,013	204,778
23	33	-	5,224,570	5,224,603	14,314	0.317	0.282	1.452	0.494	16,551	36,487	47,350	243,860	13,202	29,104	35,595	165,580
Total	**17,800,827**	**12,805,732**	**88,498,044**	**119,104,603**		**0.446**	**0.254**	**2.369**	**0.612**	**530,619**	**1,169,802**	**972,813**	**9,072,552**	**417,299**	**919,977**	**724,495**	**5,927,480**

Source: Nordmin, 2019



Source: Nordmin, 2019

Figure 16-22: Production schedule by rock type for the San Matías Copper-Gold-Silver Project

16.11 Topsoil Storage

Most of the topsoil consists of clay and organic materials. The saprolite is semi-consolidated material and has not been considered as part of the topsoil for open pit optimization. Storage piles are situated near the pit, where it can possibly be used later in reclamation (further studies are required).

16.12 Haulage Profile

The distance for hauling material out of the pits varies based on the depth of the block of material mined and its destination. Based on the production schedule a ramp distance was estimated for each year using the weighted average depth. The lateral (0% grade) distance is the weighted average distance from the conceptual open pits being mined each year to the destination: either mill or waste dump. These distances are detailed in Table 16-7, for both economic mineralization and waste.

The haulage time per year is based on the distance, grade, and whether the truck is loaded or empty. These factors were all included in the calculation of haulage time as shown in Table 16-7.

Table 16-7: Haulage Times and Distances by Year

Economic Material	YEAR																						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**
CYCLE TIME (Minutes)																							
Load Cycle	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Haul Cycle	9.2	12.1	12.1	12.1	13.6	12.1	10.7	10.6	12.0	13.5	13.6	13.6	14.8	15.0	15.0	15.0	17.2	19.3	19.6	20.1	21.3	22.9	25.2
Total Load/Haul Cycle	**11.8**	**14.7**	**14.7**	**14.7**	**16.2**	**14.7**	**13.3**	**13.2**	**14.6**	**16.1**	**16.2**	**16.2**	**17.4**	**17.6**	**17.6**	**17.6**	**19.8**	**21.9**	**22.2**	**22.7**	**23.9**	**25.5**	**27.8**
Distance - 0% Grade (m)	1,550	1,550	1,550	1,550	1,550	1,550	1,550	1,550	1,550	1,550	1,550	1,550	1,550	1,550	1,550	1,550	2,359	3,019	2,803	2,822	2,985	3,006	3,137
Distance - 10% Grade (m)	150	449	450	451	600	455	305	300	445	593	600	600	727	750	750	750	646	590	700	752	801	962	1,144
HAUL CYCLE TIME (Minutes)																							
Dumping	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Loaded Haul - Flat	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.7	6.0	5.6	5.6	6.0	6.0	6.3
Loaded Haul - Ramp Incline	0.9	2.6	2.6	2.6	3.5	2.6	1.8	1.7	2.6	3.4	3.5	3.5	4.2	4.3	4.3	4.3	3.7	3.4	4.0	4.3	4.6	5.5	6.6
Empty Return - Decline	0.6	1.8	1.8	1.8	2.4	1.8	1.2	1.2	1.8	2.4	2.4	2.4	2.9	3.0	3.0	3.0	2.6	2.4	2.8	3.0	3.2	3.8	4.6
Empty Return - Flat	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	4.7	6.0	5.6	5.6	6.0	6.0	6.3
Total Haul Cyle (Minutes)	**9.2**	**12.1**	**12.1**	**12.1**	**13.6**	**12.1**	**10.7**	**10.6**	**12.0**	**13.5**	**13.6**	**13.6**	**14.8**	**15.0**	**15.0**	**15.0**	**17.2**	**19.3**	**19.6**	**20.1**	**21.3**	**22.9**	**25.2**

Waste	YEAR																						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**			**21**
CYCLE TIME (Minutes)																							
Load Cycle	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Haul Cycle	10.1	13.0	13.0	13.0	14.5	13.1	11.6	11.6	13.0	14.4	14.5	14.5	15.7	16.0	16.0	16.0	14.6	13.5	14.9	15.1	15.5	17.4	19.4
Total Load/Haul Cycle	**12.7**	**15.6**	**15.6**	**15.6**	**17.1**	**15.7**	**14.2**	**14.2**	**15.6**	**17.0**	**17.1**	**17.1**	**18.3**	**18.6**	**18.6**	**18.6**	**17.2**	**16.1**	**17.5**	**17.7**	**18.1**	**20.0**	**22.0**
Distance - 0% Grade (m)	1,783	1,783	1,783	1,783	1,783	1,783	1,783	1,783	1,783	1,783	1,783	1,783	1,783	1,783	1,783	1,783	1,701	1,562	1,652	1,563	1,554	1,626	1,689
Distance - 10% Grade (m)	150	449	450	451	600	455	305	300	445	593	600	600	727	750	750	750	646	590	700	752	801	962	1,144
HAUL CYCLE TIME (Minutes)																							
Dumping	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Loaded Haul - Flat	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.4	3.1	3.3	3.1	3.1	3.3	3.4
Loaded Haul - Ramp Incline	0.9	2.6	2.6	2.6	3.5	2.6	1.8	1.7	2.6	3.4	3.5	3.5	4.2	4.3	4.3	4.3	3.7	3.4	4.0	4.3	4.6	5.5	6.6
Empty Return - Decline	0.6	1.8	1.8	1.8	2.4	1.8	1.2	1.2	1.8	2.4	2.4	2.4	2.9	3.0	3.0	3.0	2.6	2.4	2.8	3.0	3.2	3.8	4.6
Empty Return - Flat	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.4	3.1	3.3	3.1	3.1	3.3	3.4
Total Haul Cyle (Minutes)	**10.1**	**13.0**	**13.0**	**13.0**	**14.5**	**13.1**	**11.6**	**11.6**	**13.0**	**14.4**	**14.5**	**14.5**	**15.7**	**16.0**	**16.0**	**16.0**	**14.6**	**13.5**	**14.9**	**15.1**	**15.5**	**17.4**	**19.4**

Source: Nordmin, 2019

16.13 Fleet Estimate

The equipment sizes were determined based on the bench height selected, the intended production rate, and capital considerations. Specific brands and models of equipment were not chosen at this level of study and instead were obtained from the *Mine and Mill Equipment Costs an Estimators Guide* (InfoMine, 2015). An escalation percentage of 8 % was applied to bring costs to present value.

Fleet requirements are approximately the same through Years 1 – Year 5, increase in Year 6, then remain approximately the same for Year 6 – Year 23.

The total number of equipment required was estimated year by year, based on production quantities. Table 16-8 outlines the fleet requirements by category.

Table 16-8: Fleet Requirements

Equipment Quantities	**Year**	
	1-5	**6-23**
Loading Unit Requirements		
Shovels	1	2
Hauling Unit Requirements		
Trucks	4	8
Drilling Unit Requirements		
Drills Required	1	2
Mine Support Equipment		
4.4 - 10.2 cm Air Percussion Drill	1	1
750 cfm Wheel Mounted Compressor	1	1
13 m^3 Loader	2	2
Track Dozer 5.3 m	2	3
1.76-2.75 m^3 Backhoe	1	1
22,712 L Water Tanker	1	1
40-tonne Hydraulic Crane	1	1
Mobile Field Fuel/Lube Truck	1	1
Tire Handler Truck	1	1
7.3 m Grader	1	2
Mechanic Field Service Truck	2	2
Personnel Carrier	1	1
3/4 Ton Pickup Truck	7	7
Crusher - Roadbed	1	1
Conveyor - Short	4	4
Main Dewatering Pumps	2	3
Satellite Dewatering Pumps	0	4

Source: Nordmin, 2019

16.13.1 Drilling and Blasting

The selected type of drill is a rotary crawler capable of drilling a 125 mm to 251 mm hole. For the 15 m bench height, a hole diameter of 225 mm is reasonable and gives a powder factor of 0.17 kg/t at a burden of 6.7 m and a spacing of 7.7 m.

The saprolite portion of the open pits may not need to be blasted. It is recommended that a study be performed on the thickness of the saprolite and whether or not it can be ripped in order to remove it. The design criteria for blast holes are shown in Table 16-9.

Table 16-9: Blast Design Parameters

Blast Design Parameters		
Rock Density (wet)	2.7	g/cc
Bench Height	15	m
Explosive Diameter	225	mm
Explosive Density	0.85	g/cc
Burden (B)	6.7	m
Burden Stiffness (2.0<BS<3.5)	2.2	
Spacing (S) (=1.15*B)	7.705	m
Stemming Length (=0.7B)	4.69	m
Energy Distribution	69%	%
Sub-Drill (bench height x .1)	1.5	m
Length of Holes	16.5	m
Explosive Length	10.31	m
Explosive Loading Density	33.78	kg/m
Explosive Weight	348.3	kg/hole
Volume Shot	774	m^3/hole
Mass Shot	2,090	t/hole
Powder Factor	0.450	kg/m^3
Powder Factor	0.17	kg/t

Source: Nordmin, 2019

16.13.2 Load and Haul

For loading, a 14.3 m^3 hydraulic shovel capacity was chosen, which is complemented with a backup 13 m^3 loader. The loading units will be working in conjunction with 90-tonne haul trucks for all material. For the first five years, a single shovel and two loaders are required with a second shovel added in Year 6. One loader is stationed primarily at the saprolite stockpile for blending of fresh and saprolite feed to the mill. The number of trucks required to operate fluctuates between four and eight units, with four required during the first five years, and eight for Years 6 – 23.

In order to maintain an optimal recovery of the saprolite at the mill it is necessary to blend saprolite with fresh feed. The present mine plan has no more than 20% of the blend comprised of saprolite in order for a saprolite stockpile to be maintained. Approximately 28% of mill feed is assumed to be re-handled and the extra 8% is to account for extra re-handling of fresh material during the rainy season and other times that the supply of material from the pits may be decreased.

An additional 13 m^3 loader is used for the re-handling which is operated by the truck drivers who load their own truck between a set number of trips to the crusher with fresh material from the pit.

16.13.3 Road and Dump Maintenance

The roads and dumps are maintained by a number of mine support equipment. Included are two or three 5.3 m track dozers, a water tanker truck and one or two graders. The additional equipment is purchased in the sixth year to support the doubled production rate.

16.13.4 Pit Dewatering

Based on meteorological data from the nearby vicinity excess rainwater is abundant during the wet season, which is normally from May to November. Groundwater inflows have not been measured but are estimated at 63 L/s. In the first five years, the inflow into the Alacran pit from rainwater is expected to be approximately 512 L/s during the rainy season. In the final years, when the surface area of the Alacran pit has increased, that rainwater is closer to 910 L/s. For the first five years, the maximum head in the Alacran pit is 90 m, and that increases gradually to 155 m by the end of the LoM.

For moving water out of the Alacran pit and to the nearest transfer station, 1000-hp horizontal centrifugal dewatering pump assemblies are used. In the first five years, two pumps are used, and these are increased to three in the sixth year, and four in the sixteenth year, to accommodate the satellite pits. Smaller pump units are also used to help feed the 1000-hp horizontal centrifugal dewatering pump assemblies in both the Alacran pit and satellite pits.

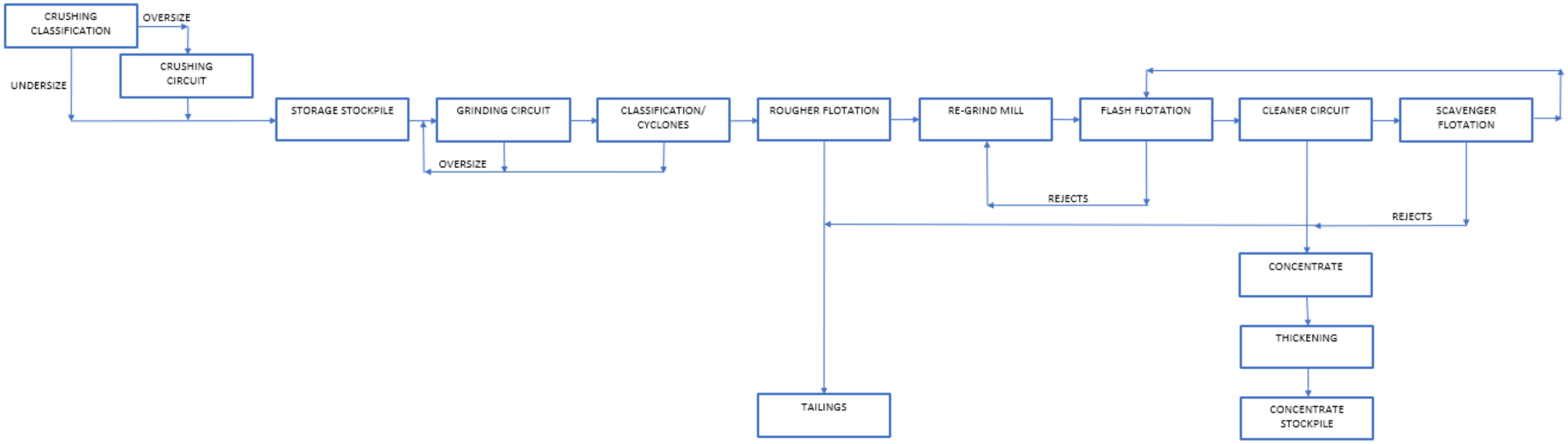
It is recommended that a pumping study be performed to define the water content and true rate of water inflow from the planned pit walls.

17. RECOVERY METHODS

17.1 Process Flowsheet

The Cordoba concentrator has been designed to process 8,000 t/d for the initial five years of operation and increasing to 16,000 t/d for the next 18 years. The conceptual processing flowsheet is based on metallurgical test work results described in Section 13. The process flowsheet includes a primary crushing stage prior to a conventional SABC circuit, rougher flotation, two stages of cleaners and scavenger circuit as well as a pyrite flotation circuit fed from rougher and scavenger flotation tailings. The final concentrate reports to a thickener prior to dewatering via pressure filtration. Process water will be recycled as much as possible to minimize water usage.

Figure 17-1 shows the general process block diagram.



Source: Nordmin, 2019

Figure 17-1: General process block diagram

17.2 Process Design Criteria

An initial 8,000 t/d throughput rate, expanding to 16,000 t/d was selected as the basis for the PEA (refer to Section 16.5). Key process design criteria used for plant design are summarized in Table 17-1. The plant process is a conventional design. Analog installations producing a marketable Cu-Au-Ag concentrate were referenced to produce the process flow sheet for this study. The plant design is based on a project life of about 23 years, and materials and equipment standards to support typical availabilities and maintenance requirements, frequencies and costs. The design will accommodate nominal operational throughput requirements, with an allowance for capacity increases to respond to upsets and variability.

Table 17-1: Key Process Design Criteria Used for Plant Design

Parameter	Nominal	Unit	Source
Initial Plant Capacity	8,000	t/d	Process Calculation
Final Plant Capacity	16,000	t/d	Process Calculation
Specific Gravity	2.7	-	Metallurgical Test Work
Moisture	2	%	Assumption
ROM Granulometry F80	302	mm	Assumption
Crushing Work Index	13.6	kWh/ton	Assumption
Ball Mill Work Index	16.8	kWh/ton	Assumption
Primary Crushing Operating Hours	16	h/d	Recommended by Nordmin
Grinding Operating Hours	24	h/d	Recommended by Nordmin
Concentrate			
Copper Grade	20-25	%	Metallurgical Test Work and Assumptions
Gold Grade	20-30	g/t	Metallurgical Test Work and Assumptions
Silver Grade	30-40	g/t	Metallurgical Test Work and Assumptions
Process Recoveries			
Variable Copper Process Recoveries	50-90	%	Metallurgical Test Work and Assumptions
Variable Gold Process Recoveries	72-77.5	%	Metallurgical Test Work and Assumptions
Variable Silver Process Recoveries	40-70	%	Metallurgical Test Work and Assumptions

Source: Nordmin, 2019

The selection of a conventional Cu flotation-based processing circuit for Cordoba and associated flowsheet is based on preliminary metallurgical test work results (refer to section 13) and Nordmin's experience with process plants of similar mineralization and of similar scale as proposed for Cordoba.

The metallurgical test work has shown that the Alacran and the satellite mineralization material is amenable to sulphide flotation at a P80 grind size of 134 µm, achieving commercial Cu-Au-Ag concentrate grades. Initial test work indicated the mill feed would have a medium energy competency for comminution, and a conventional primary crushing, SAG grinding, ball milling circuit was selected for this duty.

Processing of the Cu-Au-Ag mineralization considers conventional primary crushing, SAG, secondary ball mill grinding in closed circuit, sulphide flotation, concentrate thickening and filtration. The concentrator plant will produce a Cu-Au-Ag concentrate.

No major deleterious element issues were noted in the concentrates produced from the metallurgical test work completed. As such, the concentrates are considered to be marketable without incurring penalties related to deleterious elements.

17.3 Process Description

The processing plant will consist of the following unit operations:

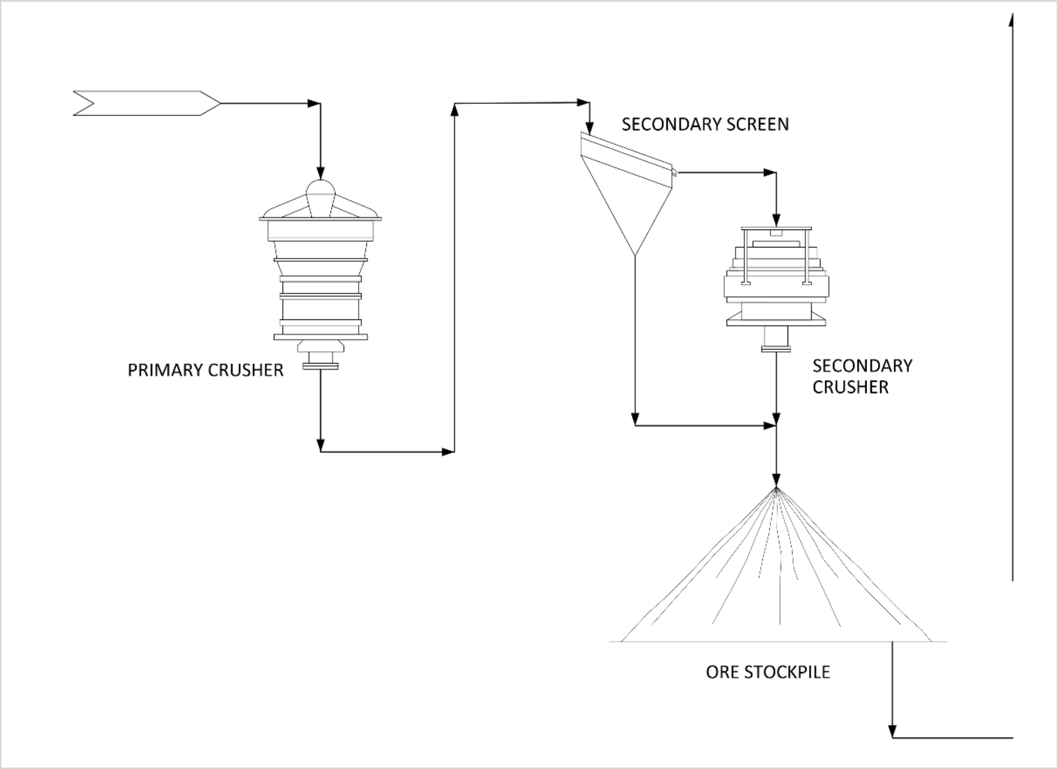
- primary jaw crushing;
- crushed ore handling;
- SAG milling;
- ball mill secondary grinding in a closed circuit;
- rougher flotation unit cells fed from ball mill hydrocyclone overflow with subsequent cleaning and scavenger stages;
- concentrate thickening and dewatering (Cu-Au-Ag concentrates);
- final tailings thickening and disposal into a WMF;
- fresh and reclaim water supply; and
- reagent preparation and distribution.

Not included in the PEA processing plant, but for consideration in future technical studies, is the addition of a gravity circuit for the recovery of up to 50% of the Au and Ag and the onsite production of doré bars.

17.4 Primary Crushing

Run-of-mine ("RoM") material will be trucked from the mine to the crushing area on the surface where the mill feed material will be discharged into a RoM hopper. The hopper will be installed with a static grizzly and a hydraulic rock breaker to classify/fracture muck exceeding the specified top size for the crusher.

An apron feeder will motivate the hopper discharge, feeding mineralized material to the vibrating grizzly where first coarse classification occurs. The oversize mill feed material will be sent to a primary jaw crusher, while both the crushed and undersize passing material will be transported by conveyor belts to the coarse stockpile. Tramp metal will be removed at the belt conveyor transfer points via electromagnet to protect the equipment downstream and minimize material flow issues. Figure 17-2 shows the proposed crushing circuit.



Source: Nordmin, 2019

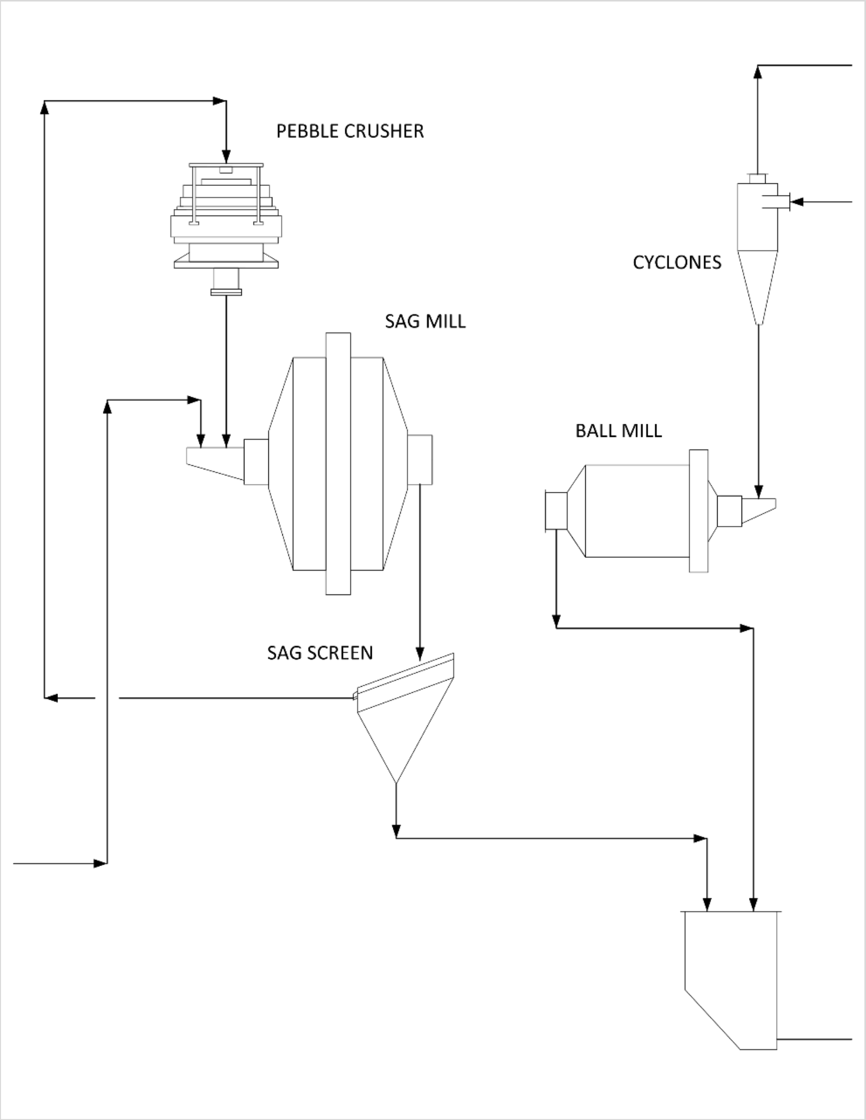
Figure 17-2: Proposed crushing circuit

17.5 Grinding Circuit

The SAG mill discharge will be screened by a trommel. The trommel oversize will report to a pebble crusher prior to returning to the SAG feed, with the trommel undersize reporting to a pump box along with the ball mill discharge. At the pump box, a centrifugal pump will feed a hydrocyclone cluster prior to the ball mill feed. Overflow from the hydrocyclone cluster at 134 µm will report to the rougher feed circuit, and underflow will be further processed through the ball mill. A bond ball mill work index (Wi) of 16.8 kWh/t has been used for design and sizing of the grinding circuit (information from SGS on recent metallurgical test work).

The material at the correct size fraction (hydrocyclone overflow) will be transported to a rougher conditioner stage prior to being sent to the Cu flotation circuit. This will provide adequate time and area to introduce and blend the required reagents prior to flotation.

The secondary grinding discharge will feed the Cu flotation unit cells. This circuit will comprise of rougher and cleaner flotation stages. Figure 17-3 shows the flow diagram for the SABC circuit and subsequent flotation unit cells for concentrate production.



Source: Nordmin, 2019

Figure 17-3: Flow diagram for the SABC circuit and subsequent flotation unit cells for concentrate production

17.6 Flotation Process

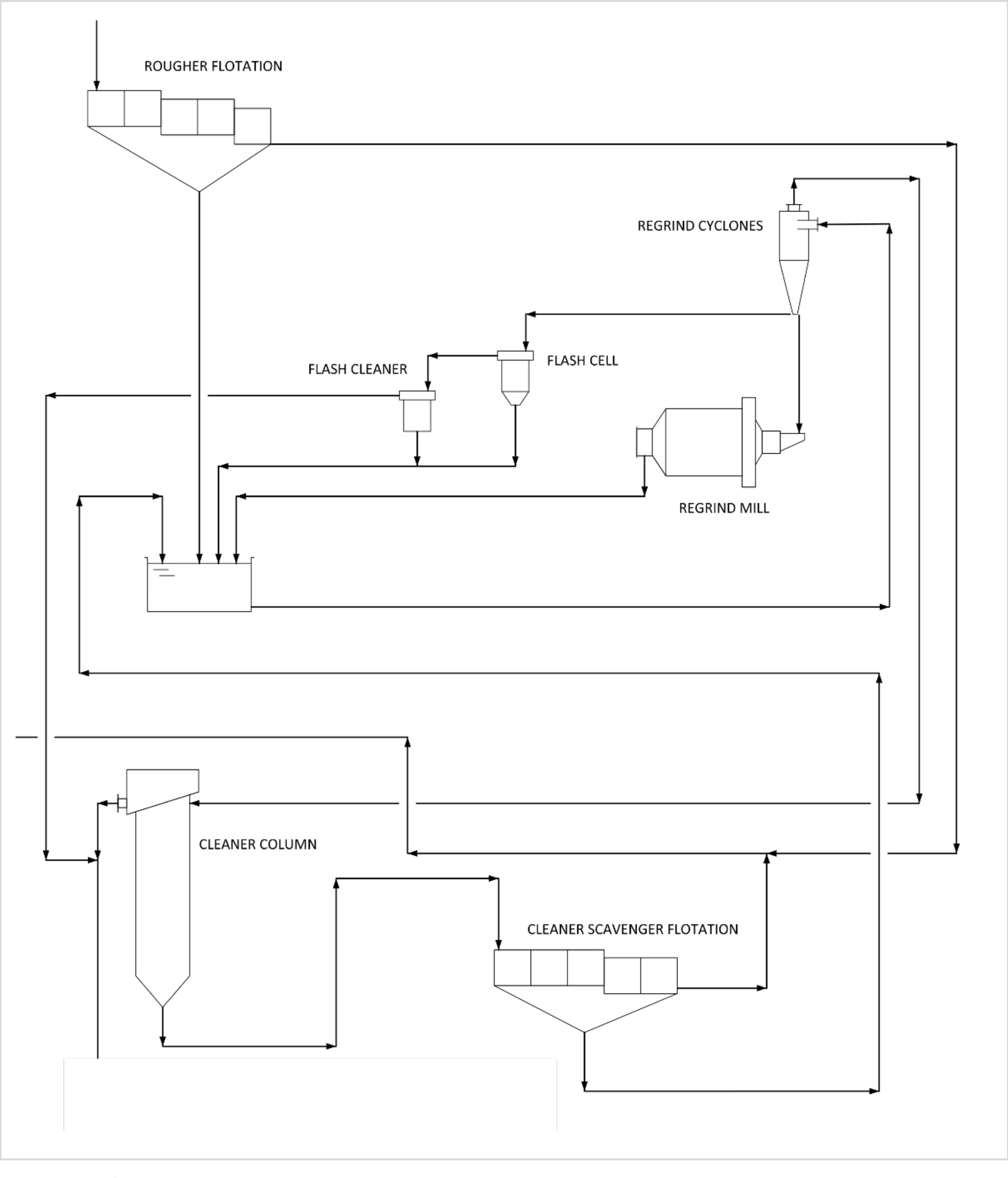
The flotation circuit will consist of a rougher, cleaner and cleaner-scavenger stages. Flotation tanks cells and cleaner cell units will be used in the Cu flotation circuit to produce a Cu-Au-Ag concentrate. The final concentrate grade is expected to be approximately 20% to 25% Cu, 20 g/t to 30 g/t Au and 30 g/t to 40 g/t Ag.

Hydrocyclone overflow from the secondary grinding stage will feed the rougher conditioning tanks. The rougher flotation will consist of multiple flotation tank cells. Rougher concentrate will go directly to the cleaner conditions tank, while the rougher tailings will report to final tailings.

The cleaner I stage will consist of multiple cells producing a concentrate that will report to the cleaner II stage while the cleaner I tailings will be sent to the cleaner-scavenger stage. The cleaner-scavenger stage will include multiple flotation cells. The cleaner-scavenger concentrate will return to the cleaner conditioning tank while the tailings will join the rougher tailings to become general flotation tailings.

The cleaner II stage will consist of multiple cells. The final concentrate will be pumped to the Cu thickener and the tailings will be returned to the cleaner conditioning tank.

Figure 17-4 shows the proposed Cu-Au-Ag flotation circuit.

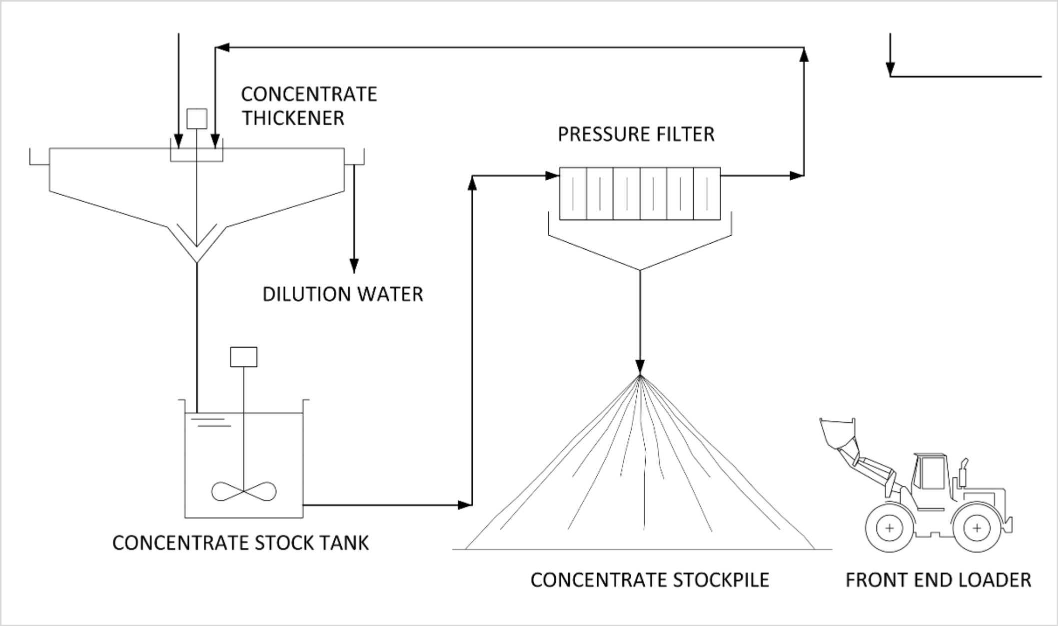


Source: Nordmin, 2019

Figure 17-4: Proposed Cu-Au-Ag flotation circuit

17.7 Concentrate Dewatering

The Cu-Au-Ag concentrate high rate thickener will be fed a slurry at 20% solids and is expected to produce an underflow at 55% solids content. The thickener underflow will be pumped to a pressure filter to produce a final concentrate cake at 10% moisture. Concentrate cake will be trucked to a port of export for sale. Figure 17-5 shows the thickening and filtering circuit proposed to produce a Cu-Au-Ag concentrate. Tailings will be transported by pumps to the WMF.



Source: Nordmin, 2019

Figure 17-5: Proposed thickening and filtering circuit

17.8 Comments on Section 17

The process plant and site infrastructure requirements are summarized in Section 17 and Section 18.8. The expected power for the 16,000 t/d plant is expected to average 12,000 kW. The conceptual water management plan and balance for the project are discussed in Section 18.11 and Section 18.12.

The recovery process will be based on conventional Cu-Au-Ag flotation recovery methods. Mineralization is expected to respond reasonably to this flowsheet and metallurgical testing of samples from the various mineralized zones indicate that a Cu-Au-Ag concentrate is expected to assay between 20 g/t to 30 g/t Au and 30 g/t to 40 g/t Ag. The Cu-Au-Ag concentrate is expected to be a marketable concentrate with no deleterious elements. Future geometallurgical variability testing programs should be conducted on a broader set of samples, collected across multiple zones and weathering environments in order to refine the process design criteria. The further definition will also de-risk the projected Cu, Au and Ag recoveries, process operating costs and metal production.

18. PROJECT INFRASTRUCTURE

18.1 Introduction

The main project infrastructure components include mine and process plant supporting infrastructure, site accommodation facilities, WMF, external and internal access roads, power supply and distribution, freshwater supply and distribution and water treatment plant. The infrastructure is likely to be situated within the locations shown in Figure 18-1.

18.2 Project Logistics

Currently, the Project is accessible by travelling on a paved two-lane highway to Puerto Libertador and then by driving approximately 21 km from Puerto Libertador on a hard-packed, gravel road. The paving of the road past Puerto Libertador is ongoing and the planned extent is unknown. The main access road between La Rica and the planned security gate of the project site is of a lower quality, being only wide enough for one vehicle and with sharp turns and abrupt grade changes. This road is 6 km long and is the intended haul road for concentrate. For cost estimation purposes, it has been assumed that approximately 6 km of road will need to be upgraded and widened to allow two-way traffic and transport trucks.

The road network is maintained by the local governments and would be used to transport personnel, materials, consumables and concentrate to the port to export. A local airstrip is present just south of Puerto Libertador, 18 km from the project site. Airports also exist in Montelibano and Caucasia, which are a respective 64 km and 109 km from the project site entrance to the airport terminal. Ports are located at Tolú and Cartagena: Tolú is 273 km away from the project site by road, and Cartagena is 418 km away (see Figure 4-1 in Section 4)

Limited accommodations will need to be provided for employees who cannot be hired from local communities.

18.3 Port Facilities

A preliminary analysis was conducted of ports that could be used for the project (Figure 4-1). The port facilities at Tolú or Cartagena are both available for export to international smelters. The review found that the Port of Tolú was closest to the site. After considering the various existing port facilities, this port was selected as the concentrate export facility for PEA purposes. The Cu-Au-Ag concentrate will be shipped to smelters in Asia India, or Europe. Port selection should be reviewed during more detailed studies, once the final concentrate specification is finalized.

18.4 Infrastructure On-site

The final locations of infrastructure at the mining site will be determined following further geotechnical studies and a thorough land survey. At the current level of study, preliminary locations have been selected. An overall site plan is shown in Figure 18-1, and a more detailed view of the mill area shown in Figure 18-2. These are the locations of buildings and other infrastructure based on information gathered from a site visit and geographic data including existing roads and watersheds.

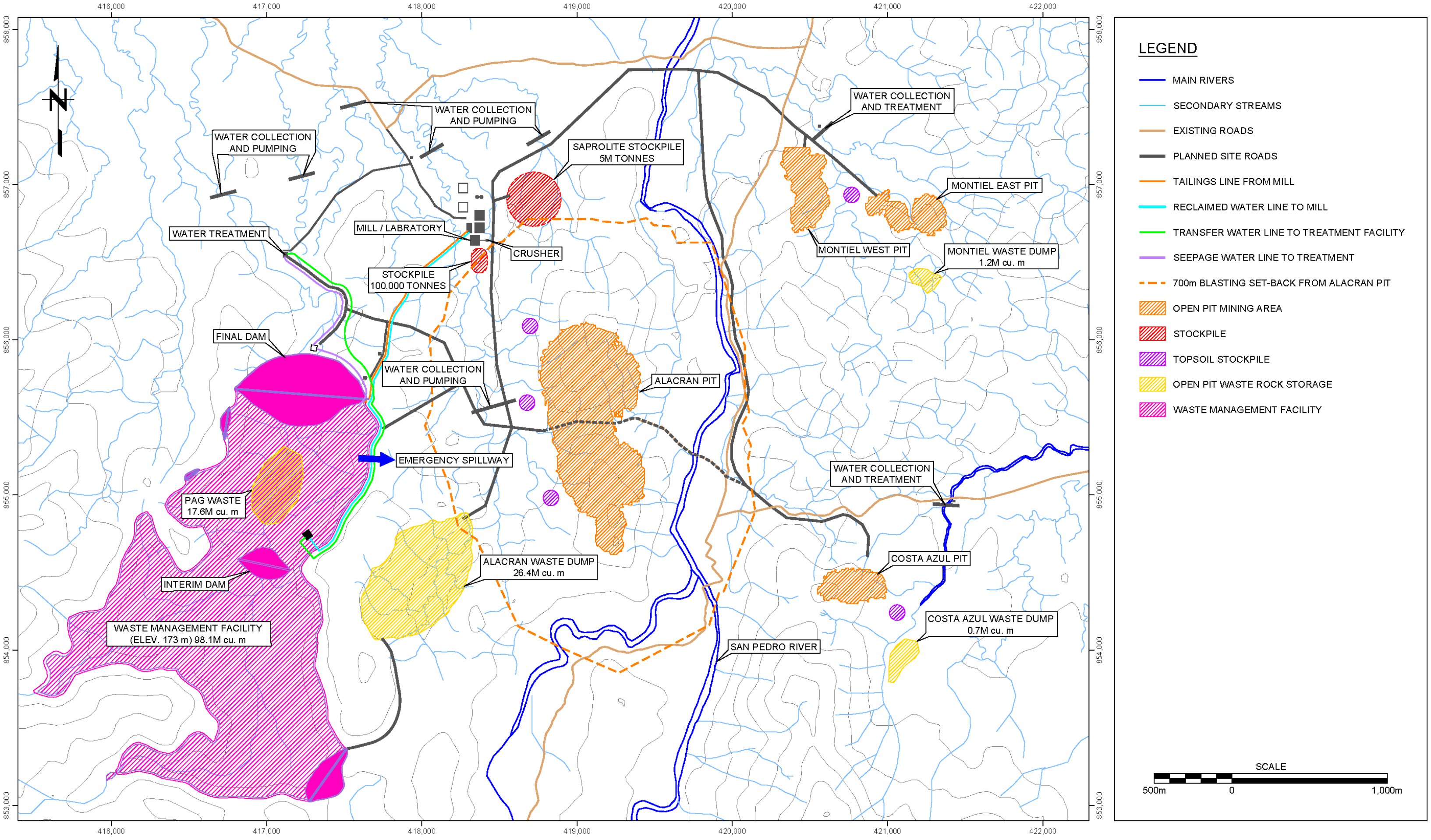
The four pits are situated on either side of the San Pedro River, with the Alacran deposit straddling two hills on the east side of the river; Montiel East and Montiel West are to the north, and Costa Azul is to the south. Three waste storage dumps support these pits and are located close to each pit, with Montiel East and Montiel West sharing one dump due to their mutual proximity. Explosives and detonator magazines are located near the main dam of the WMF, where they are a safe distance from blasting activity, fuel storage, electrical substations, and the buildings.

The mill is located just over 700 m from the Alacran pit and the other buildings are to the north of the mill. These buildings are relatively close together in a flat dry area of the property near both the main pit and the WMF. The laboratory, where samples will be assayed, is planned to be in the same building as the mill for efficiency. A stockpile located to the northeast of the mill stores saprolite and a smaller stockpile to the south of the mill holds fresh material to supply the mill during the rainy season when mining may be slower.

The WMF is proposed to be constructed within the valley west of the Alacran pit, as described in Section 18.12.

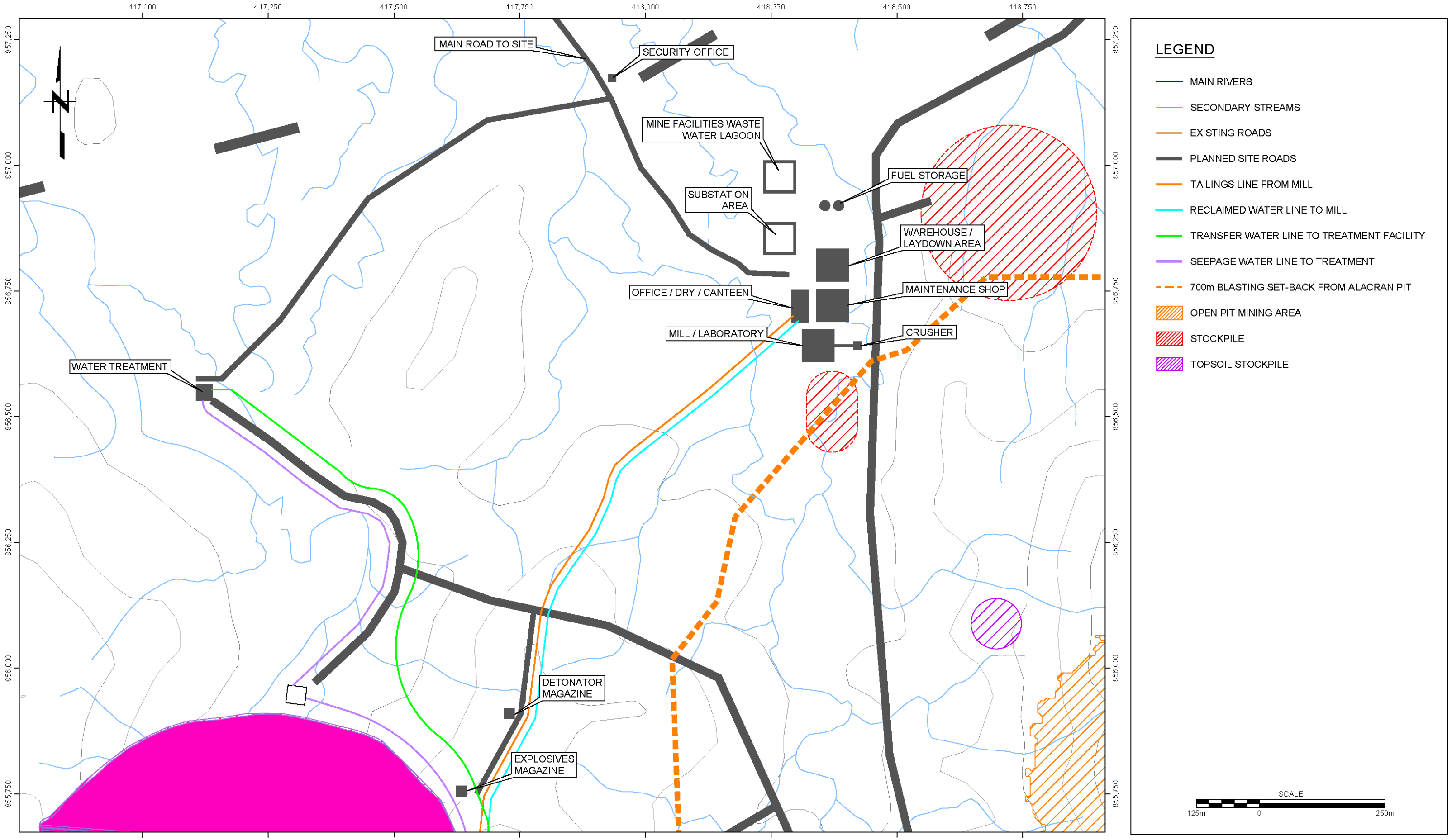
The maintenance shop is north of the mill with the office beside it to the west. The office building also includes the dry as well as a canteen kitchen. The warehouse is to the north of the shop with a laydown yard area.

North of the warehouse is the fuel storage area with a turn-off from the road for fueling equipment. The electrical substation is northwest of the warehouse and the wastewater lagoon is north of all the buildings.



Source: Cordoba, 2019

Figure 18-1: Site conceptual general arrangement



Source: Cordoba, 2019

Figure 18-2: Site facility conceptual general arrangement

18.5 Buildings and Facilities

The PEA general mine and process surface facilities assumptions include:

- a maintenance shop;
- a mill and laboratory;
- an explosive storage magazine;
- water ponds;
- warehouse and laydown area;
- administrative office building with dry and canteen; and
- core sheds.

In total, approximately 10,000 m^2 of general buildings have been accounted for in the capital cost estimate.

The main operational and support buildings are located on the flat area of land northwest of the main Alacran pit just outside the 700 m buffer zone for blasting. The mill is the building closest to the pits with the crusher station between the mill and the road. Further studies are required to determine the materials and method of construction that will be most cost-effective, efficient in construction, and appropriate to the local conditions.

18.6 Road Network

Haulage roads on site will be built to withstand frequent, heavy traffic. Like the Alacran pit and conceptual waste dump, they will be wide enough to accommodate two trucks passing each other, being 23.45 m, and have grades no greater than 10%.

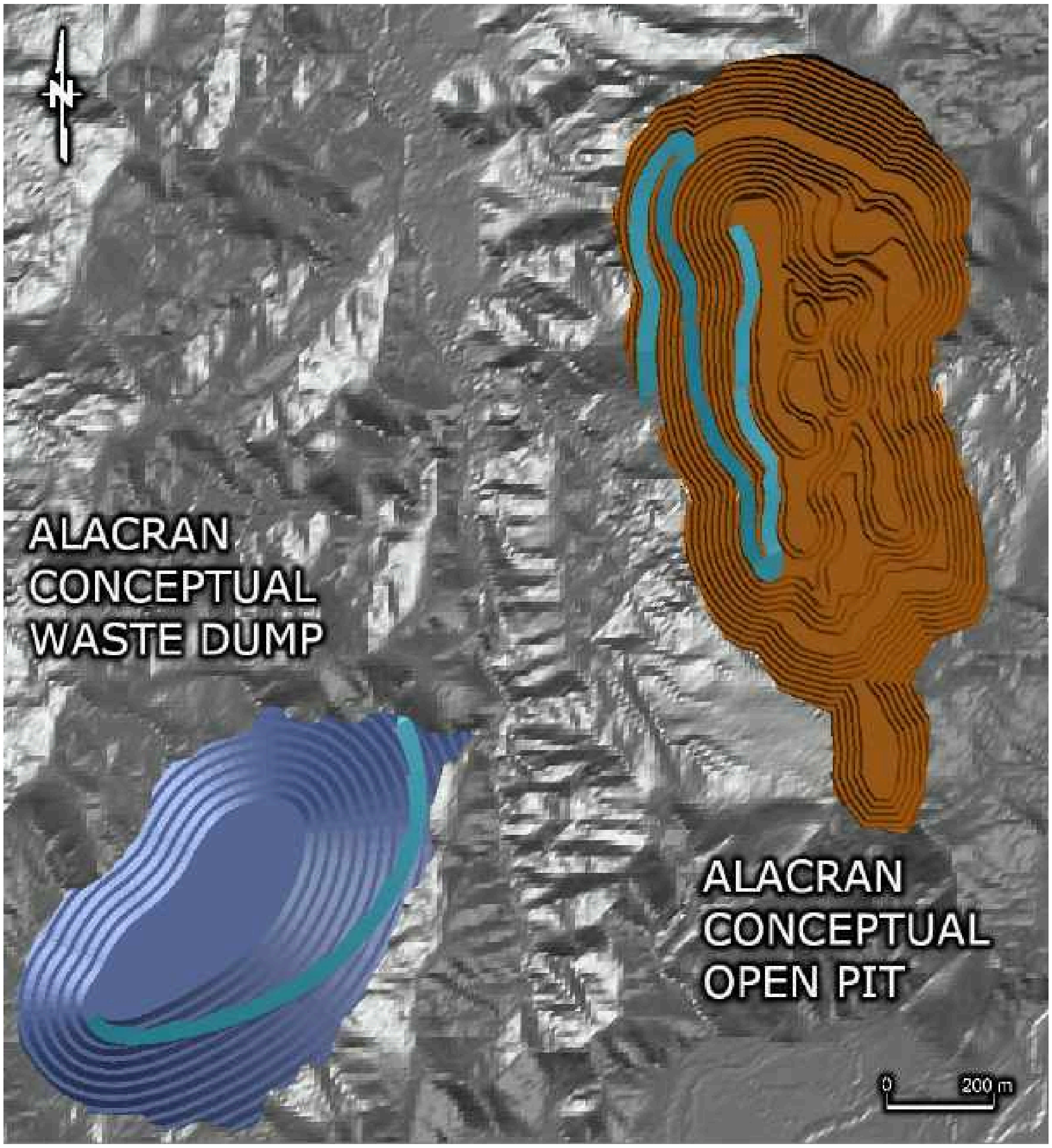
Service roads other than those used by haulage trucks can be approximately 8 m wide and less resistant to heavy loads.

The San Pedro River divides the property with the mill and Alacran pit on one side, and the satellite pits on the other, therefore a bridge will be required to be built across the river at the northern extent of the operation for general access. A second bridge, parallel to the first, will need to be built prior to developing the satellite pits, where the haulage road from the satellites must cross the river. This is to ensure no conflict between truck traffic and light vehicle, animal and pedestrian traffic. This bridge will be engineered to accommodate one loaded haulage truck.

18.7 Waste Rock Storage

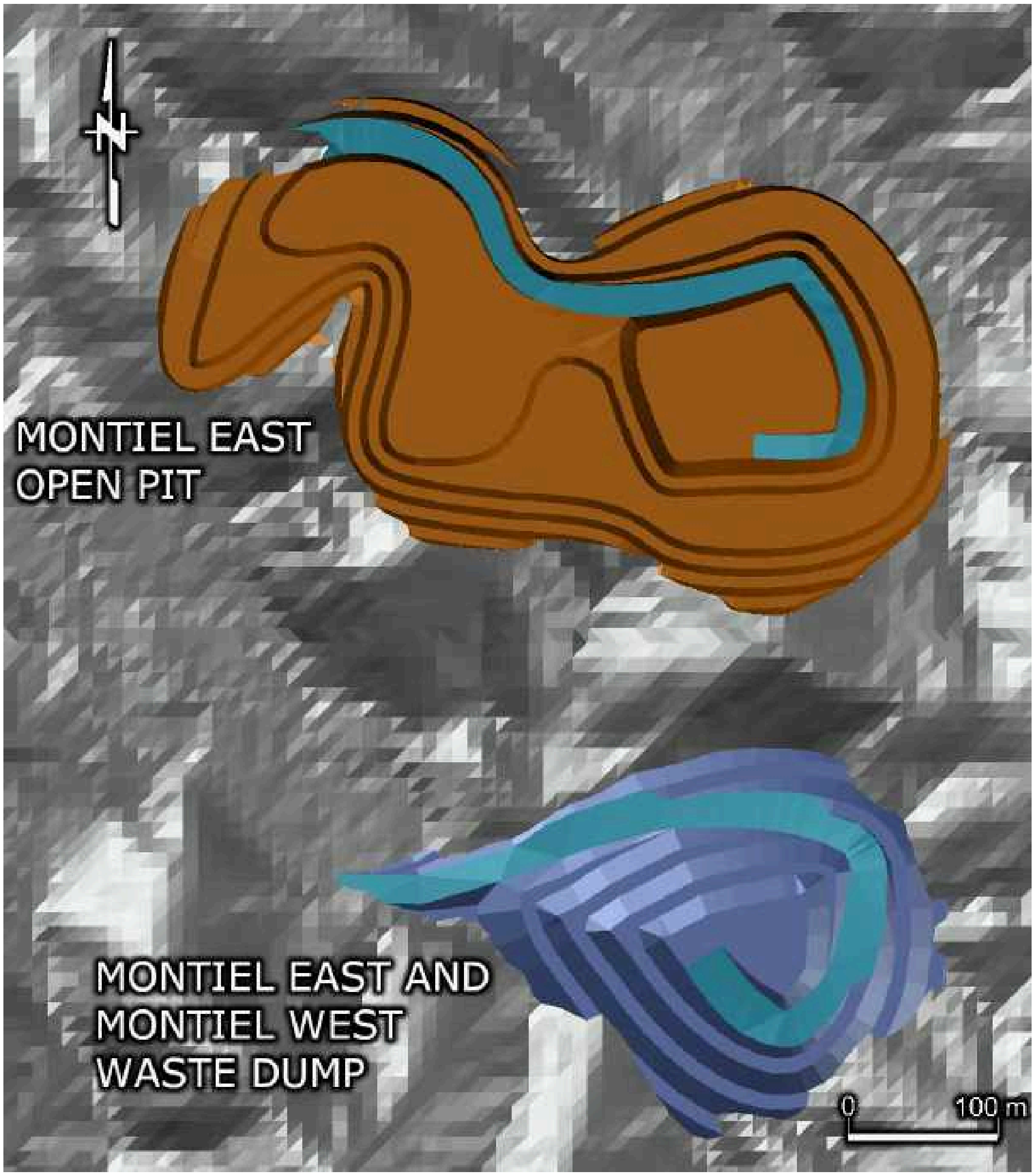
Waste rock that is likely to generate acid will be stored underwater inside the WMF. Other waste rock, after it is characterized as non-acid-generating, can be used in the construction of roads and earthworks, and the remainder is placed in waste piles a short distance from each pit. Montiel East and Montiel West share a single waste dump as they are very close to each other.

The three waste piles will be built in 10 m lifts with 10 m benches and a simple ramp spiralling up each one. The angle of the walls is 35°. Ramp width is 29.1 m for the large dump at Alacran in order to accommodate two-way travel. Ramps are 19.1 m for the small dumps at Montiel East, Montiel West and Costa Azul. All three of the ramps have a grade of 10%, as in the pits. Figure 18-3 through Figure 18-5 show the dumps as their final shape.



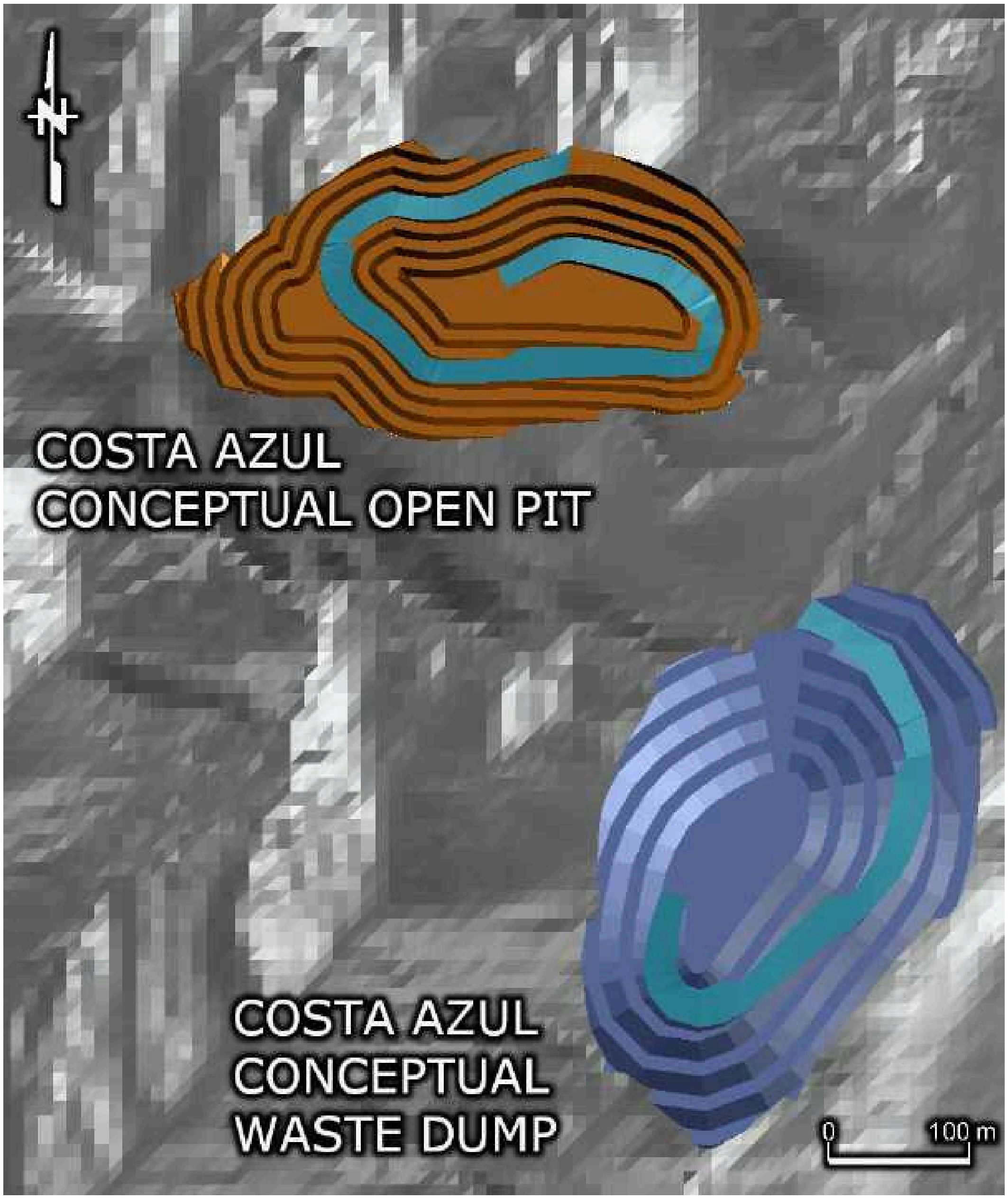
Source: Cordoba, 2019

Figure 18-3: Alacran conceptual waste dump with conceptual open pit



Source: Cordoba, 2019

Figure 18-4: Montiel East and Montiel West conceptual waste dump with the Montiel West conceptual open pit



Source: Cordoba, 2019

Figure 18-5: Costa Azul conceptual waste dump with conceptual open pit

18.8 Power Supply and Distribution

18.8.1 Project Power Requirements

Based on benchmarking, the average forecast of overall project power demand is approximately 41 megawatts ("MW"), taking into consideration the total site-wide power requirements for the process plant, tailings and general infrastructure plus an allowance. Annual energy consumption of approximately 237,870 megawatt hours ("MWh"). Actual requirements will be determined as part of future detailed studies.

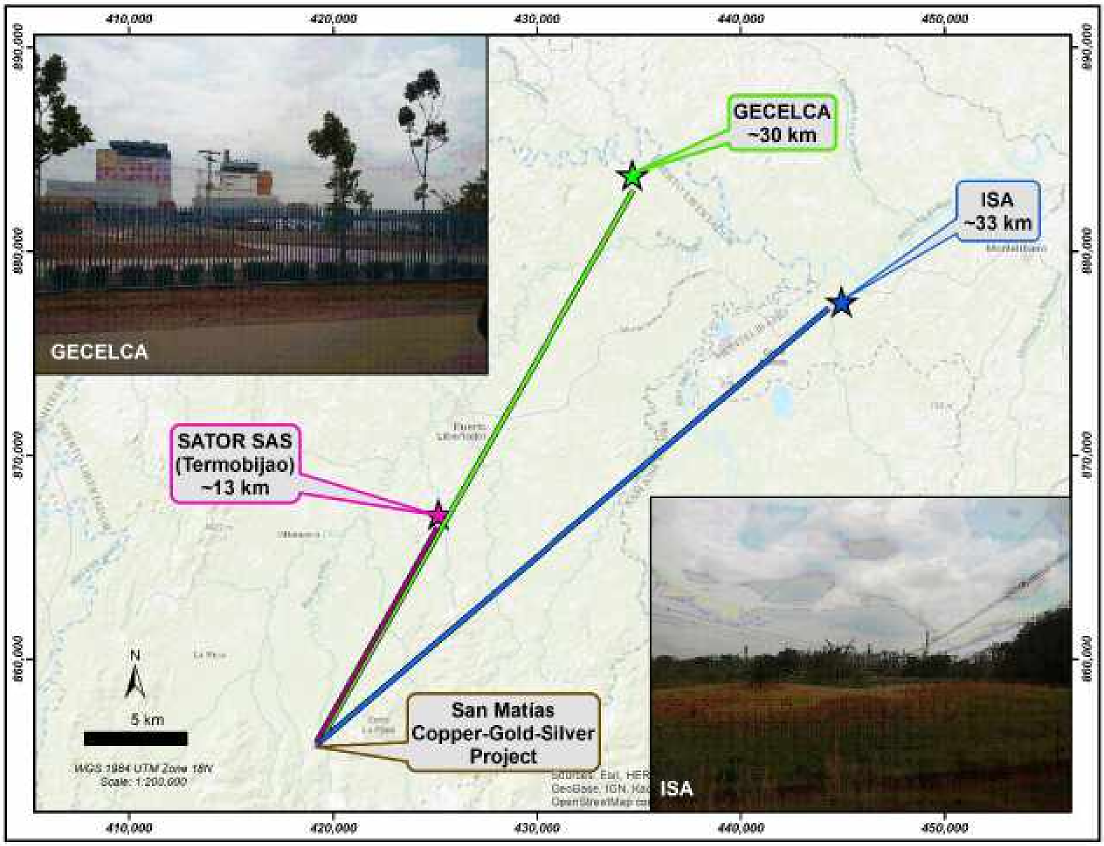
18.8.2 Supply and Distribution

Power to the Project is expected to be supplied via a 15 km, 230 kV powerline connecting to the Sator SAS 300 MW thermal power plant. The Sator SAS plant is part of a permitted regional electric grid expansion that includes the currently operating ISA and Gecelca 300 MW thermal power plants. The Sator SAS plant is expected to be operational within the next three to five years.

In time, power will be generated from the Sator SAS plant for regular operations; however, the existing thermal power plants can supply power to the project in the interim. Further, these plants will provide a reliable and strong backup supply should the Sator SAS plant be shut down for maintenance or repair once it is in operation.

The project site primary power distribution will operate nominally at 4.16 kV, which is provided by two 30 MVA 230 kV/4.16 kV step down transformers connected to a “main-tie-main” switchgear lineup. The switchgear lineup and two transformers give redundancy to the primary power distribution in case some distribution equipment requires to be put offline for maintenance or repair for any extended length of time.

A site-wide pole line distribution has been planned for construction, which will feed the north side and south side infrastructure from two separate 13.8 kV line feeders. Two 5 MVA 4.16 kV/13.8 kV step-up transformers will be installed for the pole line supply. These two transformers will be connected in a redundant fashion like the primary distribution transformers. The north power line distribution will supply power to the water treatment plant, water collection and pumping stations, and the Montiel East and Montiel West conceptual open pit areas. The south power line will provide power to the Alacran pit, Costa Azul pit, waste storage, WMF and south side water collection & treatment.



Source: Cordoba, 2019

Figure 18-6: Power generating station locations relative to the Project

18.9 Services and Utilities

18.9.1 Fuel

The PEA assumes that fuel supply will be contracted out and delivered by road transport. Fuel storage tanks and the project gas station are planned to be located close to the mine services facilities area. A total of 300,000 litres of fuel would be stored initially, expanding to 500,000 litres after the fifth year (approximately). This capacity represents the forecasted monthly consumption rate.

18.9.2 Water

Process water will be sourced from the WMF, via a pump on a barge collecting clear water, which is conveyed to the mill via a pipeline.

Water to supply the buildings, as well as for the fire suppression distribution system will be provided by the water treatment facility. Used water and sewage are handled by a lagoon, to the north and downhill of all buildings.

18.9.3 Security

A security office and guardhouse are provided at the public entrance to the site and will be staffed continuously. Perimeter fencing will be built as required.

18.9.4 Communications

Cellular service is currently available at the site, as is Wi-Fi, but will need to be extended to the office and mill area. Ultra High Frequency ("UHF") radio will be used in the pits and WMF, with a base station at the guardhouse.

18.10 Site Preparation and Earthworks

The site is sparsely forested, with most areas consisting of grassy fields. Tree cover exists for approximately 60% of the land to be cleared. Any pad material required can be quarried from the fresh rock material in the Alacran pit area. Further study will be required to ensure that the material to be quarried will not generate acid.

18.11 Water Management

The project area has seasonal variations in rainfall, with a period of heavy rain during the beginning and end of the year, and a drier time midyear. In order to keep contaminated water from leaving the site, a number of water collection and pumping stations will be established. The current design demonstrates a need for eight of these containments, but a more thorough study of the hydrology may alter this number. It has been expected and assumed in the PEA that the WMF will operate in a water surplus during the wet season, and supernatant water will need to be transferred to the water treatment plant, treated (as required) and discharged to the environment for a portion of the year. It is envisioned that the water treatment plant would be located downstream of the Final Dam. Water would be conveyed from the floating pump barge to the water treatment plant via a high density polyethylene ("HDPE") pipeline.

18.12 Waste Management Facility

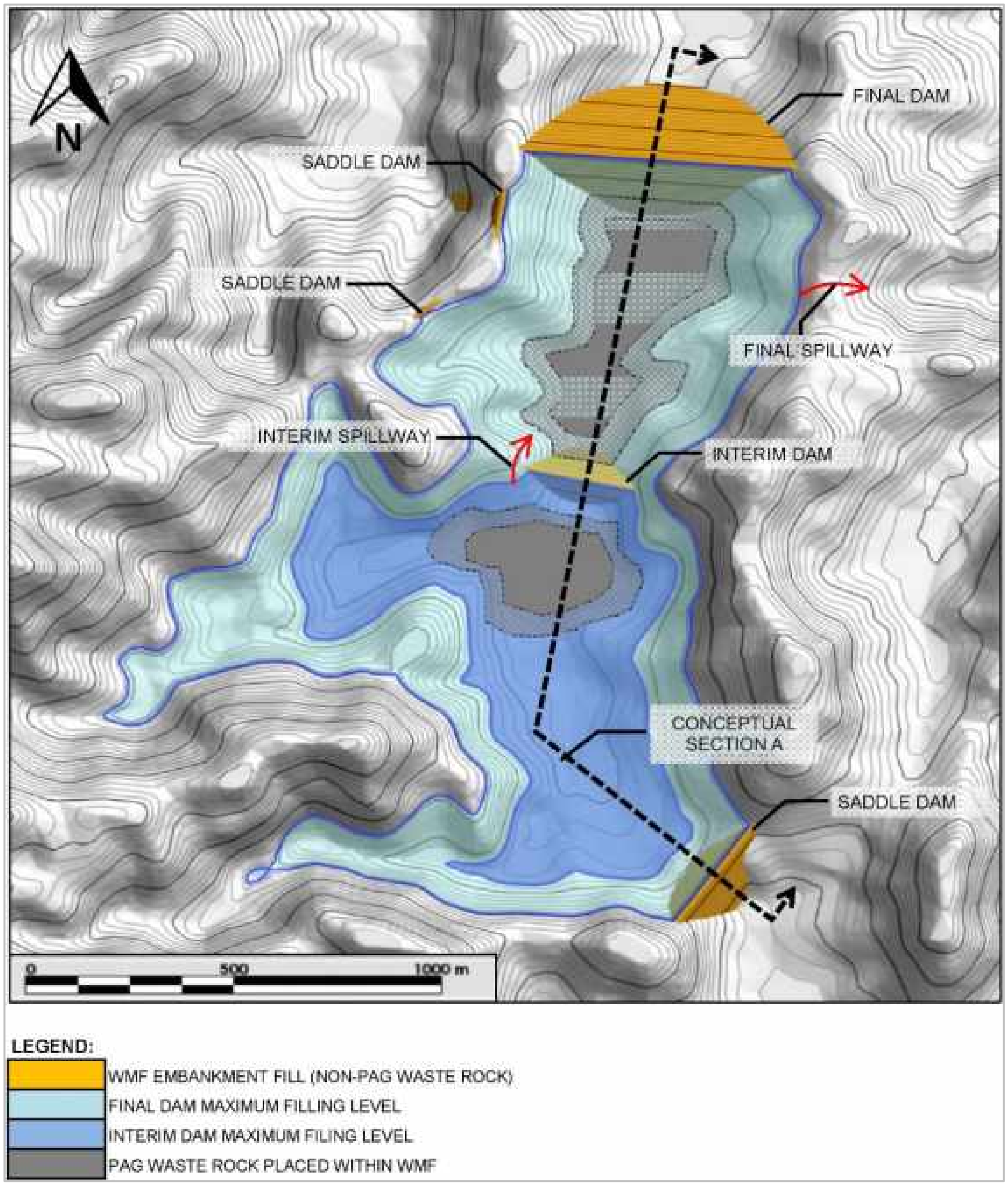
Tailings and PAG waste rock will be stored in the WMF located in the Concepcion Creek Valley, approximately 1.5 km west of the Alacran pit. The site general arrangement, including the location of the WMF, is provided in Figure 18-1. The final WMF arrangement is illustrated in Figure 18-7 and Figure 18-8.

The Interim Dam for the WMF will be constructed using non-PAG waste rock from open pit mining operations to develop a valley type impoundment. The Interim Dam will be lined with a geosynthetic lining system on the upstream dam face and will provide approximately four years of storage. The Final Dam will be constructed approximately 1 km downstream of the Interim Dam. The Final Dam will also be constructed using non-PAG waste rock from open pit mining operations and will also be lined with a geosynthetic lining system on the upstream dam face. The Final Dam will be raised in several stages using the downstream construction method to provide approximately 14 years of storage. The Interim Dam will be inundated with tailings during filling of the final WMF basin.

Conventional tailings slurry will be conveyed from the plant to the WMF via a pipeline, and the waste rock will be hauled and placed in the WMF basin by the mine haul trucks and a dozer. The tailings slurry will be sub-aqueously discharged from multiple locations along the dam crests (interim and final) and around the perimeter of the WMF basin. This approach will evenly fill the impoundment, maintain a permanent water cover over the tailings and keep the majority of the waste rock submerged during operations. The PAG waste rock will be strategically placed within the WMF basin such that the tailings and supernatant pond will cover and maintain the PAG waste rock in a saturated state following operations.

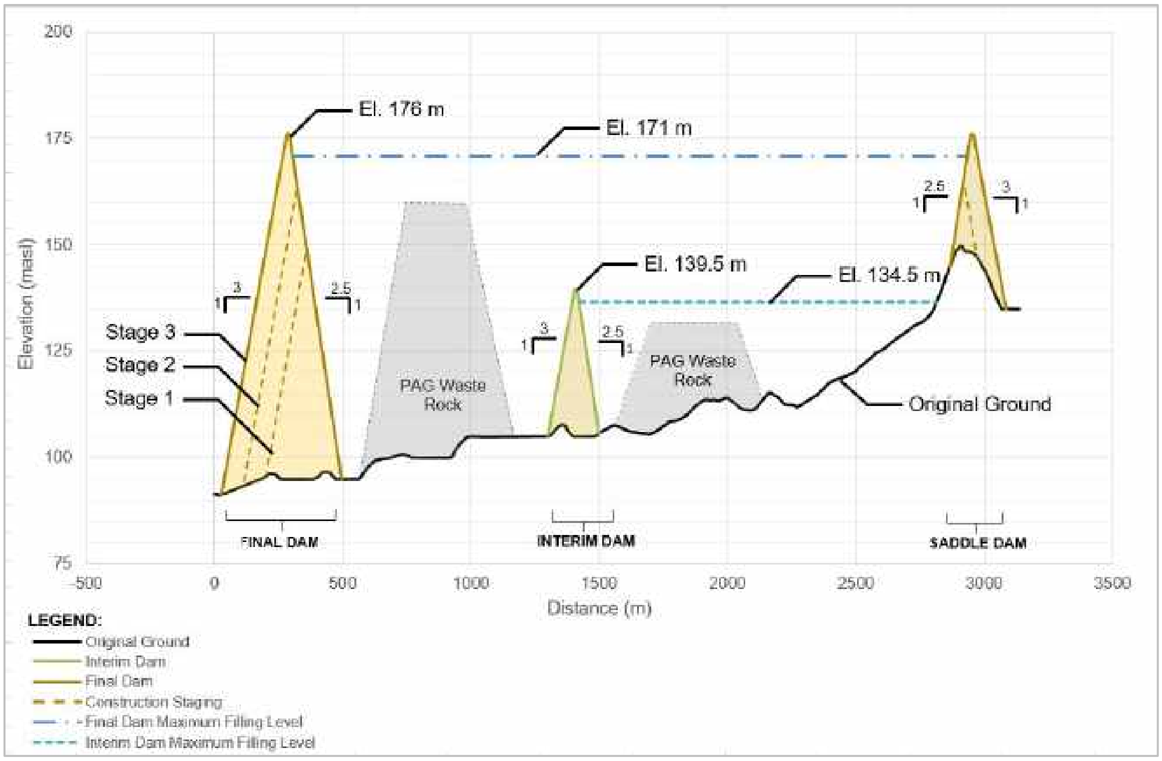
A floating pump barge will be installed at start-up to reclaim process water from the WMF to the plant for reuse in the process. The WMF concept includes freeboard to temporarily store run-off resulting from the Environmental Design Storm ("EDS") and a spillway to safely convey the peak flows resulting from the Inflow Design Flood ("IDF"). It is expected that the WMF will operate in a water surplus during the wet season and that supernatant water will need to be treated (as required) and discharged over a portion of the year.

The final site selection will require additional evaluation to further define the physical and geochemical characteristics of the waste materials and the permeability of foundation materials. Currently, there are no provisions to include a geosynthetic lining system within the WMF basin. Ultimately, a portion or all of the WMF basin may require a geosynthetic lining system, or other seepage reduction measures, if adverse basin foundation conditions are encountered.



Source: Knight Piésold, 2019

Figure 18-7: WMF conceptual arrangement



Source: Knight Piésold, 2019

Figure 18-8: WMF conceptual section A

18.13 Comments on Section 18

The PEA design assumes conventional infrastructure and conceptual infrastructure locations and includes the construction of a new project access road from the La Rica community as the current access road would require significant upgrading to support truck traffic.

Water management and water supplies will be important to the Project operations; in particular, an agreement must be reached with the regulatory authorities and stakeholders regarding freshwater usage and any discharge to the environment. Therefore, a water treatment plant will be required for contact water treatment prior to any discharge to the environment.

19. MARKET STUDIES AND CONTRACTS

19.1 Market Studies

The information summarized in this subsection is derived from OPUK, a third-party concentrate trading and marketing specialist company, who were contracted by Cordoba to prepare a market study to support the PEA (Ocean Partners UK Limited, 2019).

19.2 Current Copper Concentrate Market Summary

After rising during the second half of 2018, the average monthly spot treatment and refining charges ("TCRCs") for sales of clean concentrate from mines to traders as reported by Wood Mackenzie peaked at $95/t & 9.5¢/lb in December 2018. Terms have since fallen with the reported average for mine to trader sales during June 2019 being $45/t & 4.5¢/lb.

The decline in spot TCRCs for sales of Cu concentrate by miners to traders during the first half of 2019 was accompanied by a corresponding drop in the spot terms paid by smelters. Typical Chinese smelter buying terms for clean concentrate were at $95/t & 9.5¢/lb in December 2018 and subsequently fell to a reported average of $60/t & 6.0¢/lb during March 2019.

TCRCs have fallen during the first quarter of 2019 despite the fact that some significant smelter disruptions have been on-going. However, it should be noted that it is mainly smelters in China that are feeling a tightening Cu concentrate market; smelters elsewhere in the world are generally understood to be well-stocked with feed material.

Lower TCRCs reflect the fact that the global Cu concentrate market has moved into a significant deficit during the first half of 2019. Factors contributing to this situation are summarized in the paragraphs below:

- New Chinese smelters with a combined Cu production capability of 1,750 kt/y of Cu are either currently ramping up production after being commissioned last year or are building inventories prior to a start-up date during 2019. Many of these smelters do not have significant long-term contracts with miners or traders and are therefore dependent on the spot market for concentrate purchases. These new smelters are listed below:
    - Chinalco Ningde. 400 kt/y. First anode Oct 2018;
    - Lingbao Jincheng. 120 kt/y. Commissioned July 2018;
    - Tongling Jinchang Relocation. 200 kt/y. Started mid-2018;
    - Nangou Copper . 280 kt/y. Commissioning April 2019;
    - Chifeng Yunnan. 400 kt/y. Commissioning mid-2019;
    - Baiyin Flash Furnace. 200 kt/y. Commissioning mid-2019; and
    - Zijin Mining Qiqihaer. 150 kt/y. Commissioning 2019.
- New smelting capacity in Iran and Kazakhstan is expected to reduce the quantity of Cu concentrate from these countries which will be available to China in 2019 by a total of around 500 thousand dry metric tonnes ("kdmt");
- Smelters outside China were generally well prepared for the reduction in output from PT Freeport Indonesia ("PTFI") which has been well flagged to the market. Japanese smelters in

particular benefit from receiving offtakes associated with their equity holdings in major mines such as Escondida, Los Pelambres and Antamina;

- Demand for Cu in concentrate from Chinese smelter/refineries is encouraged by limitations in the availability of other feed materials. Import restrictions on low-grade scrap, known as category 7, will be extended to higher grade category 6 material from the middle of this year. Additionally, the flow of blister and anode to China from Zambian smelters is expected to be diminished due to the new tax imposed on imports of Cu concentrate imposed by Zambia on imports of Cu concentrate; and
- During the first quarter of 2019, the factors listed above that have contributed to a tightening global Cu concentrate market have been partially mitigated by the continuation of the smelter disruptions that influenced TCRCs during 2018. In particular, Chilean smelters have been closed to allow environmental upgrade work associated with new environmental regulations that came into force at the end of 2018. It appears that work at Codelco's Chuquicamata smelter, which was initially expected to be completed in April, may now overrun into the second half of 2019.

19.3 Concentrate Marketability

Details of the expected Cu-Au-Ag concentrate are currently based upon preliminary assay data that indicates that the Project's concentrate can be regarded as a high-quality Cu-Au-Ag material that is relatively clean. Such material is likely to be in demand from smelters in Japan, China, elsewhere in Asia and Europe. The Au and Ag content are also likely to make the concentrate attractive to traders for blending purposes. The clean quality combined with the combination of freight, Au and Ag payable makes Japanese smelters likely to achieve the best netback.

In order to confirm the marketability, it will be critical that a full chemical analysis and specification of the final concentrate be completed. Currently, OPUK has assumed in its analysis that items (such as F/Cl, Bi, U, S, SiO_2, Fe, MgO, Sb, Hg) will not be at penalty/rejectable levels but the full specification must be produced and reviewed to confirm (Ocean Partners UK Limited, 2019).

The PEA has assumed concentrate grade of 20% to 25% Cu, 20 g/t to 30 g/t Au and 30 g/t to 40 g/t Ag. The smelter is assumed to pay for 95.5% of Cu content, 96.5% for Au and 90.0% for Ag. The smelter refining costs of $0.09/lb Cu, $5.00/oz for Au and $0.30/oz Ag has been applied. No penalties are expected on the concentrate.

The PEA has assumed the concentrate output expected will be between 280 t/d to 300 t/d for the first five years of operation and 560 t/d to 600 t/d thereafter. Concentrate will be hauled by 60-tonne trucks to port facilities at Tolú for export to international smelters.

Preliminary information indicates that the specification of the Cu-Au-Ag concentrate to be exported will be as per Table 19-1.

Table 19-1: Assumed Concentrate Specification

Element	Symbol	Content
Copper	Cu	Minimum of 20-25%
Gold	Au	20 to 30 g/t
Silver	Ag	30 to 40 g/t
Lead	Pb	0.009- 0.01%
Zinc	Zn	0.03 – 0.07%
Mercury	Hg	<5 ppm
Arsenic	As	0.01-0.02%
Cadmium	Cd	0.01-0.02%
Chromium	Cr	0.005-0.01%

Source: Nordmin, 2019

19.4 Commodity Price Projections

Project economics were estimated based on long-term metal prices of $3.25/lb Cu, $1,400/oz Au and $17.75/oz Ag, which was established by Cordoba in conjunction with consensus forecasts from various financial institutions.

The QP notes that Cordoba's pricing used in the cash flow analysis is reasonably aligned with various long term forward-looking financial instructions.

19.5 Contracts

Cordoba has no current contracts for project development, mining, concentrating, smelting, refining, transportation, handling, sales and hedging, forward sales contracts or arrangements.

19.6 Comments on Section 19

The current concentrate with an elevated clean Au and Ag content is likely to be in demand from various smelters within Japan, China, elsewhere in Asia and Europe. The relatively high Au content is likely to make the concentrate attractive to traders for blending purposes. The high-grade Au and Ag grades sold as a dóre, rather than concentrate, represents a potential value add, although a limited value was applied in this PEA. Further metallurgical, technical and marketing studies need to be carried out in order to evaluate how additional value may be derived from producing both a Cu concentrate and Au and/or Ag dóre.

The QP has reviewed and analyzed the results of the metallurgical test for the production of Cu-Au-Ag concentrates supporting the assumptions in this Technical Report.

20. ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

The Project is located in an area of Colombia which has hosted mineral exploration and mining projects for several decades. Previous activities on the property comprise exploration activities as well as artisanal mining and processing.

20.1 Environmental Regulatory Setting and Approvals Process

The permitting process for obtaining environmental licenses for mining projects in Colombia is set out in Law 99, 1993, and is detailed and governed by Decree 1076 of 2015, Section 2, Article 2.2.2.3.2.2, which establishes the authority for granting or denying an environmental license for the mining of metallic minerals and precious and semi-precious stones for projects involving removal of useful and waste material of 2,000,000 t/y or more. The relevant government authority is the National Environmental Licensing Agency (“ANLA”). All activities and infrastructure associated with a project (which involves the use of all renewable natural resources, such as water concessions and discharge permits) can be integrated into and approved by a single environmental instrument, or Global Environmental License (“GEL”), without the need for separate filings. In instances where a GEL is not issued, and an Environmental License is issued for a mining project, the additional environmental permits potentially required are:

- Water Use;
- Wastewater Discharge;
- Atmospheric Emissions;
- Forest Clearing;
- Riverbed Intervention; and
- Land Access.

Typically, solid waste, hazardous waste, and recyclable waste will be managed by third-party companies having the necessary environmental permits and licenses.

During the detailed design phase of the mining project, Cordoba will confirm the international treaties that have been endorsed by the Colombian government and complete the design accordingly. Currently, the main treaties include those related to controlling greenhouse gas emissions, ozone layer protection, the transboundary movement of hazardous wastes, the protection of biodiversity, plants, animals and sites of national cultural significance.

During the detailed design phase, Cordoba will confirm the voluntary industry standards or best practices that will be adopted for the Project. Good International Industry Practice guidelines that may be relevant include:

- International Council on Mining and Project Development Framework (http://www.icmm.com/);
- Voluntary Principles Rights (http://www.voluntaryprinciples.org/);
- “Good Practice: Sustainable Metals Sector”; and
- Towards Sustainable Mining (Mining Association of Canada).

Compliance with the legal requirements, conformance with any voluntary obligations and the commitments arising from the stakeholder engagement process will be consolidated into an environmental design basis that will be integrated into the planning, engineering and execution of the mining project.

20.2 Environmental Studies and Management

This section details the environmental studies being initiated for the Project, environmental aspects and/or issues requiring consideration, and management systems that will be developed for the Project.

20.2.1 Environmental Studies

Baseline monitoring has been initiated to support an EIA and permitting process. Anticipated areas of study are:

- biological assessment work to identify significant habitat features and/or other biological values requiring consideration during project planning;
- hydrogeological characterization and hydrological assessment;
- geochemical characterization of excavated material (quarry rock, development rock, ore, overburden) and tailings;
- geotechnical assessment of foundation conditions and mine host rock;
- groundwater quality and surface water resources;
- assessment of sites of archaeological or cultural significance;
- viewscape analysis;
- socio-economics and demographics;
- environmental health;
- atmospheric environment (air quality, noise);
- identification of valued environmental components (biophysical and socio-cultural); and
- identification of potential impacts based on preliminary predictive modelling.

The baseline studies will be scoped to comply with requirements of eventual Terms of Reference for the EIA and permitting process, as well as corporate social responsibility (“CSR”) requirements pursuant to financing agreement(s).

20.2.2 Anticipated Environmental Aspects

Based on a simple benchmarking of similar projects, anticipated issues to be addressed are summarized in Table 20-1. A detailed list of project-environment interactions will be prepared as the Project progresses for all stages (construction and development, operation and commercial production, decommissioning, closure).

Table 20-1: Anticipated Environmental Issues

Environmental Aspect	**Potential Environmental Issue**
Geology	Sterilization of a future exploitable ore body
Topography	Potential intrusive effect on the visual environment due to the establishment of mine related infrastructures, changes to topography, removal of vegetation and changes in land use (such as grazing to mining)
Soil	Degradation and/or loss of soil resulting in reduced land capacity
	Restricted land use capacity of the project area as a result of mining
Air Quality	Increase in nuisance and health risks to workers and local residents due to an increase in ambient dust concentrations
	Health risk to workers and local villages due to increases in ambient gas concentrations (SO_2, NO_2 and Volatile Organic Compounds)
	Dust generation resulting in reduced visibility leading to an increased potential for hazards/accidents
	Smothering of natural vegetation from dust settlement resulting in vegetation impacts
	The influence of mine generated greenhouse gas emissions on atmosphere processes
	Mobilization of soils due to erosion process leading to sedimentation of local drainage pathways potentially affecting site drainage
Surface Water	Contamination of local drainage pathways resulting in localized water quality impacts due to mine related pollution (run-off from dumps and stockpiles containing suspended particulate matter, and pollution caused by accidental overtopping of water impoundment structures during extreme precipitation events, hydrocarbons, reagents/solvents)
	Tailings dam failure due to poor design//installation and or operational management leading to contamination of surface water resources and human exposure (community health and safety)
	Change in the natural hydrological regime of affected catchment areas resulting in potential changes to the distribution and availability of clean surface water run-off for natural systems
Groundwater	Contamination of groundwater resources as a result of acid or metal-rich seepage from mine residues, waste disposal sites, effluent storage facilities, underground fuel tanks and on-site sewage systems affecting its suitability for use by others
	Drawdown of the groundwater table affecting the hydrogeological regime and availability of water for natural system and agricultural activities
	Potential pit lake formation following the close of the mine. Possible impact of pit lake water on the downstream groundwater quality

Environmental Aspect	**Potential Environmental Issue**
Noise	Disturbance of sensitive receptors along the transport routes
	Increase in background ambient noise levels due to the mine causing disturbance to site workers and nearby residents
	Potential damage to on-site and off-site structures due to vibrations from blasting
	Loss of habitat due to mining disturbances particularly with respect to aquatic habitats
Ecology	Loss of biodiversity within the project area due to mining disturbances
	Displacement of natural fauna due to disturbance from mining activities, vehicles and influx of people to the area
	Loss of sense of place due to visual impacts from mining operations (dust, noise, landform changes, restricted access, etc.)
Socio-economic	Direct and indirect employment and business opportunities and training, leading to improved local community capacity and economy
	Loss of assets, resources and livelihoods of the local population. The main loss will be access to artisanal mining and dwellings, but also loss of agricultural land, grazing land, other natural resources, loss of communal social infrastructure an access routes between villages and loss of access to clean water (main impact)
	Influx of people attracted by jobs and mine-related activities increasing pressure on local resources and services
	Sudden decrease in demand for workers and services, after completion of the construction phase, leading to an increase in unemployment and slowing down of the local economy
	Impact of mine operations and demographic changes (influx) leading to a potential deterioration in community health and an increase in social pathologies
	Mine closure leading to retrenchment, slowing down of the economy and social pathologies
	Social investment leading to improved infrastructure and quality of life

Environmental protection measures that are integrated into the current preliminary engineering designs are:

Management Plan to Prevent Impacts from ARD and Metal Leaching ("ML")

1. Identify quarry rock that poses negligible ARD/ML issues and avoids excavating quarry rock that poses a chemical stability risk.
2. Place PAG development rock beneath a water cover as quickly as is practical following excavation from an open pit. Opportunities to place this rock beneath a water cover exist in the WMF and also in mined-out open pits below the static water level.
3. Remove sulphide minerals in the process plant to ensure tailings are benign.

Minimize Water Use and Wastewater Discharge

1. Operate process plant on reclaim water from the WMF. Utilize reject water from potable water plant for reagent mixing, thereby avoiding the need for freshwater.
2. Construct cut-off walls and/or grout curtains as required to minimize inflows of groundwater into open pits, thereby excluding non-contact water from the site and minimizing discharge volumes.
3. Construct surface water diversions as required to minimize inflows of surface water into open pits, thereby excluding non-contact water from the site and minimizing discharge volumes.
4. Maximize evaporation of surplus water at the site to the extent practical.

Minimize Fugitive Dust

1. Minimize vehicle speed and travel time, utilize dust suppressants on travelled roads, minimize track-out of fines from material handling areas.
2. Minimize stockpile size and utilize buildings and treelines as windbreaks to the maximum extent practical.
3. Implement progressive rehabilitation and re-vegetate exposed surfaces of erodible material as quickly as possible.

   Deposit tailings beneath a water cover.
4. Enclose material transfer points and utilize water sprays to suppress dust.

Minimize Noise Emissions

1. Enclosures around noise sources.
2. Strategically situating building openings.
3. White noise back-up alarms. Lowering heights of mobile equipment exhausts, as well as building exhausts, will be integrated into the Project design.

Minimize Light Pollution

1. Portable lighting will be directed downward.
2. Higher Lux illumination levels (>80 lux) will be placed inside the process plant and mine infrastructure buildings only.
3. External light fixtures will be installed at a tilt angle of 45°.

4. Cut-off angles for external lighting is designed to minimize off-site light trespass.
5. Activities during the closure phase typically occur during daylight hours. Should lighting be required to ensure worker safety portable lighting will be used in required areas only and directed downward.
6. Use of low-pressure or high-pressure sodium vapour lights or wildlife-friendly (i.e., yellow) light-emitting diode (“LED”) lights rather than conventional metal halide or fluorescent lights.
7. Exterior signs will be illuminated from above.
8. Low-reflectance ground cover will be used beneath outdoor lights.

Ability to Meet Effluent Criteria and Prevent Accidental Releases

General effluent criteria for mining projects in Colombia are listed in Table 20-2.

Table 20-2: General Effluent Criteria for Mining Projects in Colombia

Parameter	Units	Maximum Allowable Concentration
pH	Units	Between 6.0 to 9.0
Temperature	°C	40°C
Biochemical Oxygen Demand	mg /L	50.0
Total Chemical Oxygen Demand	mg/L	150.0
Solids, Suspended	mg/L	50.0
Solids, Settleable	mL/L-h	2.00
Grease and oils	mg/L	10.00
Phenols	mg /L	0.20
Detergents	mg/L	Assessment Parameter
Hydrocarbons	mg/L	10.00
Reactive Phosphorus (Orthophosphates)	mg P-PO_4/L	Assessment Parameter
Phosphorous, Total	mg P/L	Assessment Parameter
Nitrate	mg NO_3/L	Assessment Parameter
Nitrite	mg NO_2/L	Assessment Parameter
Ammonia Nitrogen	mg N-NH_3/L	Assessment Parameter
Nitrogen, Kjeldahl	mg N/L	Assessment Parameter
Cyanide, Total	mg CN^-/L	1.00
Chloride	mg Cl^-/L	250.00
Sulphate	mg SO_4^{2-}/L	1,200.00
Sulphite	mg S^{2-}/L	1.00
Metals and metalloids		
Arsenic	mg As/L	0.10
Cadmium	mg Cd/L	0.05
Zinc	mg Zn/L	3.00
Copper	mg Cu/L	1.00
Chromium, Total	mg Cr/L	0.50
Iron	mg Fe/L	2.00
Mercury	mg Hg/L	0.002
Nickel	mg Ni/L	0.50
Silver	mg Ag/L	0.50
Lead	mg Pb/L	0.20
Other parameters		
Alkalinity, Total	mg $CaCO_3$/L	Assessment Parameter
Acidity, Total	mg $CaCO_3$/L	Assessment Parameter
Calcic hardness	mg $CaCO_3$/L	Assessment Parameter
Hardness, Total	mg $CaCO_3$/L	Assessment Parameter
Real Colour at 436 nm	m-1	Assessment Parameter
Real Colour at 525 nm	m-1	Assessment Parameter
Real Colour at 620 nm	m-1	Assessment Parameter

Source: EAG, 2019

1. The majority of contact water requiring treatment is anticipated to originate from site run-off and mine dewatering. This water is anticipated to require less treatment compared to water from the WMF based on experience at similar sites. Depending on the degree of sulphide oxidation generating sulphates and dissolution of minerals contributing chlorides to water, it may be feasible to meet effluent limits using conventional oxidation, chemical conditioning, bulk metal precipitation, filtration and pH adjustment processes. Ion exchange resin to remove ammonia will likely not be required due to efficient blasting practices and explosives production selection. In the event that chlorides and sulphates become elevated, membrane technology will be used to meet effluent criteria. Treatment residuals such as settled solids will be disposed of in the WMF. Brine from the membrane treatment would be evaporated and/or removed from the circuit as tailings pore water to the extent practical.
2. Based on benchmarking and assuming effective diversion of non-contact water, the WMF is anticipated to have a negative water balance due to water losses to tailings interstitial space. Therefore, the WMF will be operated in isolation to the extent practical to minimize treatment and discharge of water from the WMF. This operating practice is anticipated to simplify water treatment and creates an opportunity to use other contact water mine water and site run-off for dust suppression on the project site roads and stockpiles.
3. Contact water that requires treatment prior to discharge will be consolidated where storage capacity is maximized. Where practical and safe to do so, overflow water from storage ponds will be pumped to the water treatment plant in the event of an extreme precipitation event.

Progressive Closure and Minimize Development Footprint

1. Cover mined out quarries with barren material from open pit stripping that does not pose a risk of ARD/ML rather than creating dedicated footprints for this material.
2. Barren development rock that does not pose a risk of ARD/ML will be placed in piles that have stable embankments that are adequate for long-term physical stability. Overburden that is removed from subsequent open pit development will be used to cover and vegetate rock piles.
3. Open pits will be actively flooded with suitable quality water as they are mined out.
4. Development rock that poses a risk of ARD/ML will be deposited beneath a water cover in flooded open pits and/or the WMF supernatant pond during the LoM.
5. The WMF dams will be constructed with adequate factors of safety for long-term stability so that remedial work is not required at closure to manage the water cover in perpetuity.
6. The WMF spillway will be sized to pass the inflow design flood and constructed at an appropriate elevation so that remedial work is not required at closure to manage the water cover in perpetuity.
7. The tailings beach/waste rock beneath the permanent water cover will be covered with an appropriate pioneer layer on a progressive basis during the LoM. This measure will improve the water quality of the supernatant pond and reduce the timeframe for treatment post closure. Portions of the benign tailings beach (sulphides removed) that are deposited sub-aerially will be vegetated during the LoM to improve run-off quality, and this will reduce the timeframe for treatment post closure.

These will be refined as new information is gathered, and issues scoping is progressed with government agencies and stakeholders.

20.2.3 Environmental Management and Monitoring Plans

Cordoba will formalize a management system for the Project to address issues identified during the EIA process, CSR requirements of financiers and to conform to industry best practices. The management system will identify the Project's obligations and outline inspection/audit protocols to ensure non-compliance issues are identified, reported, rectified and documented, and also that risks are mitigated to the extent practical. The obligations being managed will include those related to community engagement/CSR obligations, and the management system will include a commitments registry as well as a life-of-project calendar to identify deadlines.

The management system will incorporate an engagement and monitoring plan for the life of the Project to review the effectiveness of management plans / mitigation measures and revise these as may be required to ensure compliance with obligations and adequately address concerns from stakeholders.

20.2.4 Closure Plan

Rehabilitation of the project at the end of the mine life in accordance with government requirements and industry standards is anticipated to be feasible and efficient. Major closure items are summarized below.

1. Open pits will be actively flooded with suitable quality water as they are mined out. Pit high walls may be sloped or have other measures put in place to mitigate potential safety risk.
2. Cover mined out quarries with barren material from open pit stripping that does not pose a risk of ARD/ML rather than creating additional dedicated footprints for this material.
3. Barren development rock that does not pose a risk of ARD/ML will be placed in piles that have stable embankments that are adequate for long-term physical stability. Overburden that is removed from subsequent open pit development will be used to cover and vegetate develop rock piles.
4. Development rock that poses a risk of ARD/ML will be deposited beneath a water cover in flooded open pits and/or the WMF pond during the LoM.
5. The WMF dams will be constructed with adequate factors of safety for long-term stability so that remedial work is not required at closure to manage the water cover in perpetuity.
6. The WMF spillway will be sized to pass the inflow design flood and constructed at an appropriate elevation so that remedial work is not required at closure to manage the water cover in perpetuity.
7. The tailings beach/waste rock beneath the permanent water cover will be covered with an appropriate pioneer layer on a progressive basis during the LoM. This measure will improve the water quality of the supernatant pond and reduce the timeframe for treatment post closure. Portions of the benign tailings beach (sulphides removed) that are deposited sub-aerially will be vegetated during the LoM to improve run-off quality and this will reduce the timeframe for treatment post closure.

20.3 Considerations of Social and Community Impacts

The Project is accessible via a 70 km paved road from the city of Caucasia to Puerto Libertador and then via a 21 km partially unsurfaced road to the exploration camp. There is a small field camp, including core shack, near the village of San Juan. San Juan and El Alacrán provide general labour to support the on-going work on the Project site. Hotel accommodation and field supplies are available in the towns of Puerto Libertador and Montelíbano. There are daily scheduled flights from Medellín to the city of Caucasia. There are also more frequent scheduled flights from Medellín and Bogota to the city of Montería. Monteria is 170 km by road from Puerto Libertador.

In support of exploration activities, Cordoba has conducted a number of town-hall meetings with local communities. Cordoba also maintains community relation offices within the region and the Cordoba team endeavours to meet with as many local stakeholders as possible, as often as possible.

Public information sessions and meetings will be held with communities in both the direct and indirect influence areas during the EIA and permitting process. This will highlight the potential of formal job creation and improvements to transportation. The goal of this outreach will be to maximize the participation of local communities in the Project and resolve any concerns or potential adverse impacts. Consultation with local communities and government representatives will be on-going for the life of the Project and will be enshrined in a Community and Social Management Plan as part of Project permitting.

Approximately 80 miners work in 30 shallow pits and adits and process material in numerous small stamp mills and small ball mills. Although the artisanal miners have no legal mining rights, Cordoba has a good relationship with the miners and has made an agreement such that they are allowed to keep mining until such time that construction of a mine begins.

20.4 Permitting

20.4.1 Exploration

Cordoba has applied for and received approvals to conduct all exploration activities to date. For the current exploration phase, environmental licenses are not required.

20.4.2 Construction and Operations

Once the environmental and social impact assessments are approved by Columbian authorities, a variety of permits, licenses and authorizations will be required to proceed with the project construction and operations.

The main permitting requirements include:

- mine closure plan approval;
- water use authorizations and final licence;
- sanitary sewage authorization, approving wastewater treatment system and discharge;
- authorization for drinking water treatment system;
- authorization for acquisition and use of explosives;
- certificates for controlled chemical substances and products; and
- start of activities (including the exploitation of construction materials and mining exploitation).

Review of the final project footprint and activities is required to ensure that permit requirements are identified for all the planned operational areas and activities.

20.5 Comments on Section 20

Mitigation measures to avoid, reduce or compensate for potential effects will need to be developed and supported by comprehensive environmental and social baseline investigations and engineering studies. The PEA has made certain assumptions as to the timelines needed to complete prior consultation and collect the necessary wet season/dry season baseline data to allow the EIA report to be completed and lodged with the relevant regulatory authorities. There is a risk that these timeline assumptions are aggressive and may need to be refined during the EIA application process.

21. CAPITAL AND OPERATING COSTS

21.1 Basis of Estimate

The capital cost estimate was prepared by Nordmin with an expected accuracy range of +50%/-35% weighted average accuracy of actual costs. Base pricing is in the second quarter of 2019 US dollars with no allowances for inflation or escalation beyond that time.

The estimate includes direct and indirect costs, (such as engineering, procurement, construction and start-up of facilities) as well as Owners costs and contingency associated with mine and process facilities and on-site and off-site infrastructure. The following areas are included in the estimate:

- mine (open pit development, equipment fleet, and support infrastructure and services);
- process plant (Cu-Au-Ag concentrates, conventional 8,000 t/d concentrator flotation plant ramping up to 16,000 t/d concentrator plan with support infrastructure and services);
- WMF;
- on-site infrastructure (water treatment and distribution, electrical substation and distribution, shops, and other general facilities); and
- off-site infrastructure (water and power supply and new external access).

A small amount of engineering work, being in the range of 1-2% of total engineering for the Project was carried out to support the estimate. The estimate was based on the following project-specific information:

- preliminary conceptual mine, process plant and WMF design criteria;
- preliminary conceptual process flowsheet;
- preliminary major mechanical equipment list for process plant and mining equipment fleet;
- preliminary general site layout;
- conceptual electrical supply trade-off study;
- preliminary conceptual mine plan and WMF designs;
- preliminary process plant general mechanical arrangement; and
- massive earthworks quantities derived from preliminary sketches (sections).

Factored, end-product units and physical dimensions methods were used to estimate costs based on historical data from similar projects or facilities. The ratio or factored estimating method was used in estimating the cost of process plant components or areas where the cost of the specialized process equipment made up a significant portion of the total component or area cost. Nordmin used historical data available from similar projects; the end-product units estimating method was used to relate the end product units (capacity units) of a plant component to construction costs. This allows an estimate to be prepared relatively quickly, knowing only the end-product unit capacity of the proposed component.

The following assumptions were considered:

- all equipment and materials will be new;
- the main equipment will be purchased and manufactured in appropriate sizes to be transported by the existing main roads from Medellín to the project site;
- the execution work will be continuous without interruptions or stoppages;
- concrete will be produced at the construction site;
- contractors will be contracted under unit price contracts; and
- the project will be executed through an Engineering, Procurement and Construction Management ("EPCM") contract.

The following are excluded from the capital cost estimate:

- land acquisition;
- finance costs and interests during construction;
- costs due to fluctuations in exchange rates;
- cost of working capital;
- changes in the design criteria;
- changes in scope or accelerated schedule;
- changes in Colombian legislation;
- site mitigation (identification and removal of contaminated soils – oil, fuel spilled, heavy metals, pesticides, etc.);
- other than specified obligations and taxes;
- provisions for force majeure;
- wrap-up insurance; and
- reschedule to recover delays due to:
    - change in scope;
    - force majeure;
    - notice to proceed with construction;
    - labour conflicts;
    - non-availability of qualified and other labour;
    - lack of geotechnical and environmental definitions; and
    - different soil conditions.

The proposed Project includes three years pre-production construction period, followed by five years of production supplying a mill feed rate of 8,000 t/d, with an expansion to production and milling capacity to allow the mill feed rate to ramp up to 16,000 t/d for the next 18 years, and one year of post-production for mine closure.

21.2 Labour Assumptions

The construction labour and equipment costs were included in the factors that were used in the estimation to account for installation costs or in the unit costs when applied.

21.3 Material Costs

All materials required for facilities construction are included in the capital cost estimate. Material costs include freight to the site. Material costs related to the processing plant such as concrete, structural steel, piping and fittings, and electrical cable were included within the installation factors applied to the mechanical equipment costs.

Material cost related to the processing plant platform, WMF and planned access roads were determined by material-take off quantities from sketches/drawings and installation unit costs. All earthworks quantities were assumed to be neat in place, with no allowance for swell, waste or compaction of materials. Industry-standard allowances for swell and compaction were incorporated into the unit rate.

21.4 Contingency

The contingency was established deterministically applying the following percentage factors associated with a PEA level estimate:

- 20% for the mine, on-site preparation, haul roads and supporting infrastructure direct costs;
- 25% on the process plant, on-site and off-site infrastructure direct costs, and on the indirect and Owner’s costs; and
- 35% on the WMF.

21.5 Capital Costs

The total estimated capital cost for the Project is approximately $527.5 million (Table 21-1). The initial capital of approximately $161.4 million covers Years -3, which is the start of pre-production activity through to and including Year 1 of production.

The capital costs are broken down into the following two timeframes:

- Initial capital costs: Include the design, procurement, construction and management for the Project start-up production rate of 8,000 t/d (2.92 Mtpa), which will be maintained throughout the first five years of operation; and
- Expansion capital costs: include the expansion of the production rate from 8,000 t/d (2.92 Mtpa to 16,000 t/d (5.84 Mtpa) beginning in Year 6.

The overall expansion capital covers two segments of time with the first segment being expansion capital of approximately $120.6 million covering Years 2 to 7. During this period of time, the Project will transition at the start of Year 6 to a milling throughput of 16,000 t/d (5.84 Mtpa) and at the same time demobilize the mining contractor who will be replaced with an owner-operated mining division. Key expenditures during this time frame will include: buy out of the contractor mining fleet; expansion of the mining fleet; expansion of the mill processing facility; and expansion of the WMF (Figure 21-1).

The second segment of the overall expansion capital being other LoM expansion capital of approximately $49.5 million will cover Years 8 to 24. During this time frame expansion costs are as a result of access to the three satellite pits and expansion of the WMF.

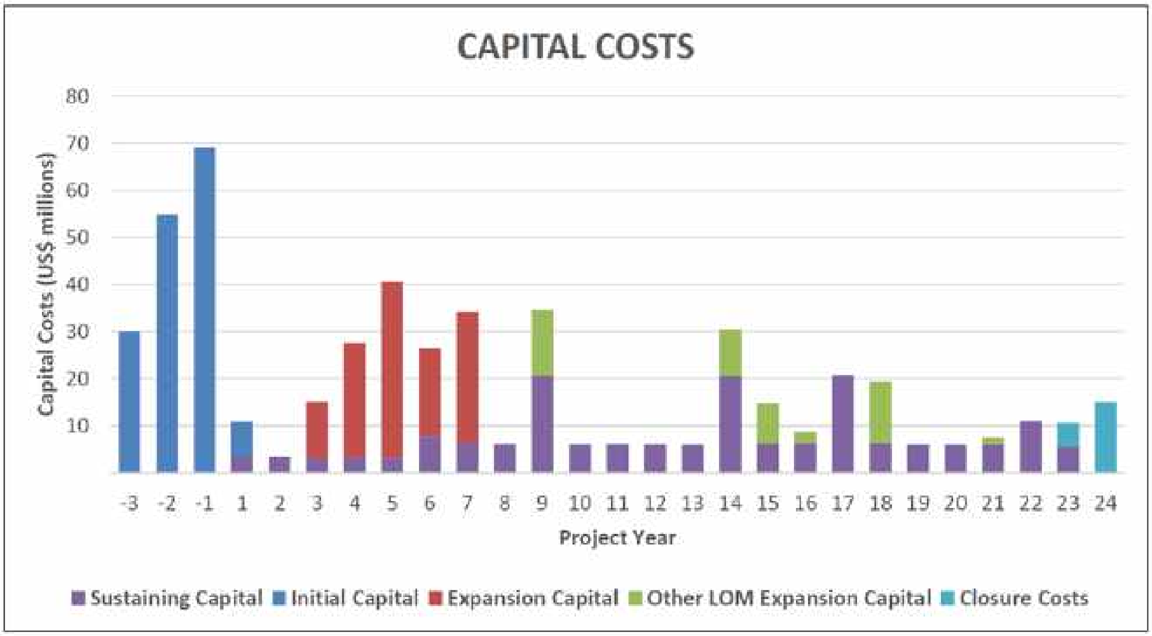
Sustaining capital costs are estimated at approximately $176.0 million. Reclamation and closure costs are estimated at $20.0 million.

The aggregate capital estimate is considered to be within a +50%/-35% weighted average accuracy of actual costs. Base pricing is in the second quarter of 2019 US dollars, with no allowances for inflation or escalation beyond that time.

Table 21-1: Capital Costs Summary

Capital Costs Summary	**Cost ($000)**
Mining	5,811
Processing Plant	65,000
WMF	18,410
Infrastructure and Other	38,654
Contingency/EPCM/Owner's Team (20% Mine, 25% Mill, 35% WMF, 25% Other)	33,519
Total Initial Capital	**161,395**
Expansion Capital	120,580
Other LoM Expansion Capital	49,527
Sustaining Capital	175,960
Reclamation and Closure Costs	20,000
Total LoM Capital Costs	**527,462**

Source: Nordmin, 2019



Source: Nordmin, 2019

Figure 21-1: Capital costs by year

21.5.1 Initial Capital Costs

The initial capital supports the design, procurement, construction and management for the Project start-up production rate of 8,000 t/d (2.92 Mtpa), which will be maintained throughout the first five years of operation. The initial capital costs are captured in four main categories: mining, processing plant, WMF, infrastructure/other, and contingency/EPCM /owner's team (Table 21-2).

Table 21-2: Initial Capital Costs

Initial Capital Costs	**Y -3 ($000)**	**Y -2 ($000)**	**Y -1 ($000)**	**Y 1 ($000)**
Mining	0	2,325	3,487	0
Processing Plant	13,000	22,750	29,250	0
WMF	0	5,000	11,000	2,410
Infrastructure and Other	11,004	15,750	11,900	0
Contingency/EPCM/Owner's Team (20% Mine, 25% Mill, 35% WMF, 25% Other)	6,001	11,375	14,602	1,541
Total Annual Initial Capital	**30,005**	**57,200**	**70,239**	**3,951**

Source: Nordmin, 2019

21.5.2 Mining Capital Costs

It is expected that the initial mining fleet required for mine operations will be supplied by a mining contractor over the first five years of operation. After which time, the owner will buy out the initial mining fleet and at the same time add equipment for the expansion in production in Year 6. As a result, the estimated capital costs for mobile equipment has been deferred to Year 6 of operations. An initial cost related to an equipment down payment by the contractor has been absorbed in the

Year -1 (Table 21-3). Mine capital equipment costs were obtained from the *Mine and Mill Equipment Costs an Estimators Guide* (InfoMine, 2015). An escalation percentage of 8% was applied to bring costs to present value.

Table 21-3: Open Pit Mining Capital Costs

Open Pit Mining Capital Costs	**Cost ($000)**
Mobilization @ 10% of Purchase	2,325
Payment to Cover Contractor Down Payment Fees	3,487
Contingency/EPCM/Owner's Team (20%)	1,162
Total Initial Capital	**6,974**
Expansion Capital	15,613
Contractor Buyout Capital	23,246
Contingency/EPCM/Owner's Team (20%)	7,772
Total Expansion Capital	**46,631**
Other LoM Expansion Capital	1,517
Contingency/EPCM/Owner's Team (20%)	303
Total Other LoM Expansion Capital	**1,821**
Total Open Pit Mining Capital	**55,425**

Source: Nordmin, 2019

21.5.3 Processing Capital Costs

The processing capital costs account for the capital costs associated with the process plant, including site preparation in the Project area and the infrastructure support services.

The process plant and associated infrastructure costs were based on a major mechanical equipment list and budgetary quotations obtained for equipment at similar projects sourced from Nordmin's internal database.

The site preparation and surface water management costs are associated with earthworks in the process plant area that have been estimated from a preliminary general site layout and unit costs sourced from Nordmin's internal database.

Installation costs were accounted for by applying a benchmark factor of 25% on the equipment costs. Processing plant general, ore handling and crushing, grinding and classification, flotation, regrinding and copper concentrate filtration were determined based on installed mechanical equipment costs using the benchmark distribution factors in Table 21-4. The installed mechanical equipment cost accounts for approximately 40% of the total process plant direct cost.

Table 21-12 shows a breakdown of the two phases of the estimated processing plant capital costs. The initial phase completed before Year 1 is to allow an average capacity of 8,000 t/d milling throughput for Year 1 - Year 5. The expansion phase completed before Year 5 is to allow an average capacity of 16,000 t/d milling throughput for Year 6 - Year 23.

Table 21-4: Process Plant Benchmark Distribution by Area

Processing Plant Area Costs	Benchmark Value (%)	Cost ($000)
Processing Plant General	8.5	111,181
Ore Handling & Crushing	26.3	34,524
Grinding & Classification	28.6	37,591
Flotation	16.9	22,142
Regrinding	9.5	12,471
Copper Concentrate Filtration	7.0	9,175
Reagent Plant	3.2	4,167
Total Process Plant Area Cost	**100.0**	**131,250**

Source: Nordmin, 2019

Table 21-5: Processing Plant Capital Costs

Processing Plant Capital Costs	Cost ($000)
Initial Capital	65,000
Contingency/EPCM/Owner's Team (25%)	16,250
Total Initial Capital	**81,250**
Expansion Capital	40,000
Contingency/EPCM/Owner's Team (25%)	10,000
Total Expansion Capital	**50,000**
Total Processing Plant Capital	**131,250**

Source: Nordmin, 2019

21.5.4 Waste Management Facility Capital Costs

The WMF costs were estimated based on quantities obtained from the conceptual layouts. Unit rates were obtained from Knight Piésold's internal database. Liners along the upstream faces of the dams were considered in the cost estimate. The total capital cost for the WMF is estimated to be approximately $85.8 million.

The capital cost to construct the Interim Dam during the initial capital phase is estimated to be approximately $24.9 million. It is assumed that the construction would be completed in Years -2 and -1, prior to plant commissioning. The Interim Dam will provide approximately four years of storage.

The capital cost to construct the Final Dam is estimated to be approximately $61.0 million. The Final Dam will provide approximately 19 years of storage. It is envisioned that the Final Dam will be constructed in four stages. During the expansion capital phase, the cost is estimated to be approximately $23.9 million, and during the other LoM expansion phase, the cost is estimated to be $37.0 million as outlined in Table 21-6.

As there is a high probability of acidic drainage generation as mineralization by sulphides and sulphates is predominant, and based on conceptual water balance results, it is expected that an acid drainage water treatment plant will be required. The cost associated with this plant was estimated based on benchmark estimates from both Nordmin and Knight Piésold.

Table 21-6: Waste Management Facility Capital Costs

Waste Management Facility Capital Costs	Cost ($000)
Initial Capital	18,410
Contingency/EPCM/Owner's Team (35%)	6,444
Total Initial Capital	**24,854**
Expansion Capital	17,740
Contingency/EPCM/Owner's Team (35%)	6,209
Total Expansion Capital	**23,949**
Other LoM Expansion Capital	27,440
Contingency/EPCM/Owner's Team (35%)	9,604
Total Other LoM Expansion Capital	**37,044**
Total Waste Management Facility Capital	**85,847**

Source: Nordmin, 2019

21.5.5 Infrastructure Capital Costs

The total estimated capital cost for site infrastructure is approximately $33.1 million. All infrastructure required for the initial capital period is listed below in Table 21-7. There is a second phase of capital expenditures, which are related to the mining of the satellite pits starting in Year 17.

The cost associated with the site electrical substation and on-site distribution was estimated based on conceptual system design and benchmarked costs for the major components. The power supply cost includes costs associated with the new transmission line from the Sator SAS 300 MW thermal power plant to the projected on-site electrical substation. These costs were estimated based on sketched routes and benchmark costs sourced from Nordmin's internal database. The costs associated with the internal access roads were based on earthworks quantities estimated from the preliminary general site layout and sketched sections and unit costs sourced from Nordmin's internal database.

The general facilities cost accounts for the costs associated with items such as the general office building and warehouses. These costs were estimated based on a referential sizing of the facility footprints and benchmark costs from Nordmin's internal database.

The water supply cost accounts for the costs associated with the freshwater catchment system, storage pond, pipeline and freshwater storage tanks in the Project area. These costs were estimated based on conceptual system design and a combination of unit and benchmark costs for the major components sourced from both Nordmin and Knight Piésold's internal databases.

Table 21-7: Infrastructure Capital Costs

Infrastructure Capital Costs	Cost ($000)
Fuel Tanks	2,000
Internal Haul Roads	1,000
Public Traffic Bridge	750
Site Office, Maintenance, Warehouse, and Security Facilities	8,000
Powder and Explosives Storage	150
Electrical Infrastructure	7,000
Contingency/EPCM/Owner's Team (25%)	4,725
Total Initial Capital	**23,625**
Internal Haul Roads	1,600
Haulage Bridge	3,000
Electrical Infrastructure	3,000
Contingency/EPCM/Owner's Team (25%)	1,900
Total Other LoM Expansion Capital	**9,500**
Total Infrastructure Capital	**33,125**

Source: Nordmin, 2019

21.5.6 Other Capital Costs

The total estimated capital cost for other capital is approximately $4.6 million. All items required for the initial capital period is listed below in Table 21-8. There is a second phase of capital expenditures, which are related to the mining of the satellite pits starting in Year 17.

The cost associated with the external access road was based on earthworks quantities estimated from the preliminary general site layout and sketched sections and unit costs sourced from Nordmin’s internal database.

Table 21-8: Other Mine Capital Costs

Other Mine Capital Costs	Cost ($000)
Pre-Stripping and Grubbing	704
Stripping Soils	1,250
Hiring of Initial Senior Staff	800
Contingency/EPCM/Owner's Team (25%)	689
Total Initial Capital	**3,443**
Pre-Stripping and Grubbing	330
Stripping Soils	600
Contingency/EPCM/Owner's Team (25%)	233
Total Other LoM Expansion Capital	**1,163**
Total Other Mine Capital	**4,605**

Source: Nordmin, 2019

The off-site capital costs listed in Table 21-9 cover expenditures related to social costs, permitting, land purchase and establishing a suitable 13 km access road and 15 km 230kV power line to site.

Table 21-9: Off-site Capital Costs

Off-site Capital Costs	Cost ($000)
Road Access	3,000
Power Line to Site	3,000
EIA, Permits	3,500
Relocation	5,500
Land Purchases	2,000
Contingency/EPCM/Owner's Team (25%)	4,250
Total Initial Capital	**21,250**
Total Off-site Capital	**21,250**

Source: Nordmin, 2019

Closure costs of $20.0 million are the net of an estimated closure cost of $30.0 million offset by the estimated $10.0 million in salvage costs. These costs are scheduled to take effect in Years 23 and 24.

21.5.7 Sustaining Capital Costs

Sustaining capital costs applied to the mining division are costs incurred in purchasing new mining equipment for replacement units required and performing mining equipment rebuilds over the LoM. For the processing plant, a cost per tonne of $0.85/t was applied to cover replacement and overhaul costs. The resulting sustaining capital costs are outlined in Table 21-10.

Table 21-10: Sustaining Capital Costs

Sustaining Capital Costs	Cost ($000)
Sustaining Capital Replacement Costs	40,175
Demobilization of Mining Contractor	1,162
Sustaining Overhaul Costs	20,930
Contingency (20%)	12,454
Total Sustaining Mining Capital	**74,721**
Sustaining Processing Costs	80,991
Contingency (25%)	20,248
Total Sustaining Processing Capital	**101,239**
Total Sustaining Capital	**175,960**

Source: Nordmin, 2019

21.5.8 Capital Cost Summary

The capital cost estimate is presented in Table 21-1. Capital costs include the direct costs for project execution, as well as the indirect costs associated with design, construction and commissioning.

Indirect project capital costs include EPCM, third party consultants, construction facilities and services, equipment freight and vendor support. Percentage factors were based on Nordmin's experience with similar projects that were used to determine indirect project costs, based on the project direct costs.

21.6 Operating Costs

21.6.1 Basis of Estimate

The operating cost estimate was prepared by Nordmin with an expected accuracy range of +50%/-35% weighted average accuracy of actual costs. Base pricing is in the second quarter of 2019 US dollars, with no allowances for inflation or escalation beyond that time. LoM Cu C1 cash costs are expected to an average of $2.51/lb including royalties but before precious metals credits and to an average of $1.32/lb net of credits. Total on-site operating costs, including royalties, are expected to an average of $15.78/t processed. Mining costs are expected to an average of $1.85/t of material mined at the Alacran and satellite pits based on a total of 215.3 million tonnes of total material moved. Cost contingencies of up to 25% have been applied as an additional buffer in the cost estimates.

There is a breakdown of the LoM unit costs in Table 21-11 and Figure 21-2.

Table 21-11: LoM Operating Costs Summary

LoM Operating Costs Summary	$/t Mined	$/t Processed	$/lb Cu Payable	Cost ($000)
Mining	1.85	3.34	0.45	398,106
Processing		8.89	1.20	1,058,394
G&A		1.47	0.20	175,455
Contractual Royalties		0.56	0.08	66,266
Government Royalties		1.52	0.21	180,744
Total Onsite		**15.78**	**2.14**	**1,878,966**
Copper Treatment, Refining and Other Off-site		2.77	0.38	330,501
Total Before By-Product Credits		**18.55**	**2.51**	**2,209,467**
By-Product Credits		(8.80)	(1.19)	(1,048,228)
Total LoM Net of By-Product Credits		**9.75**	**1.32**	**1,161,239**

Source: Nordmin, 2019

Table 21-12 and Table 21-13 show a breakdown in unit costs over the two phases of mining, Year 1 - Year 5 at 8,000 t/d milling throughput and Year 6 - Year 23 at 16,000 t/d milling throughput.

Table 21-12: Year 1 - Year 5 Operating Costs Summary

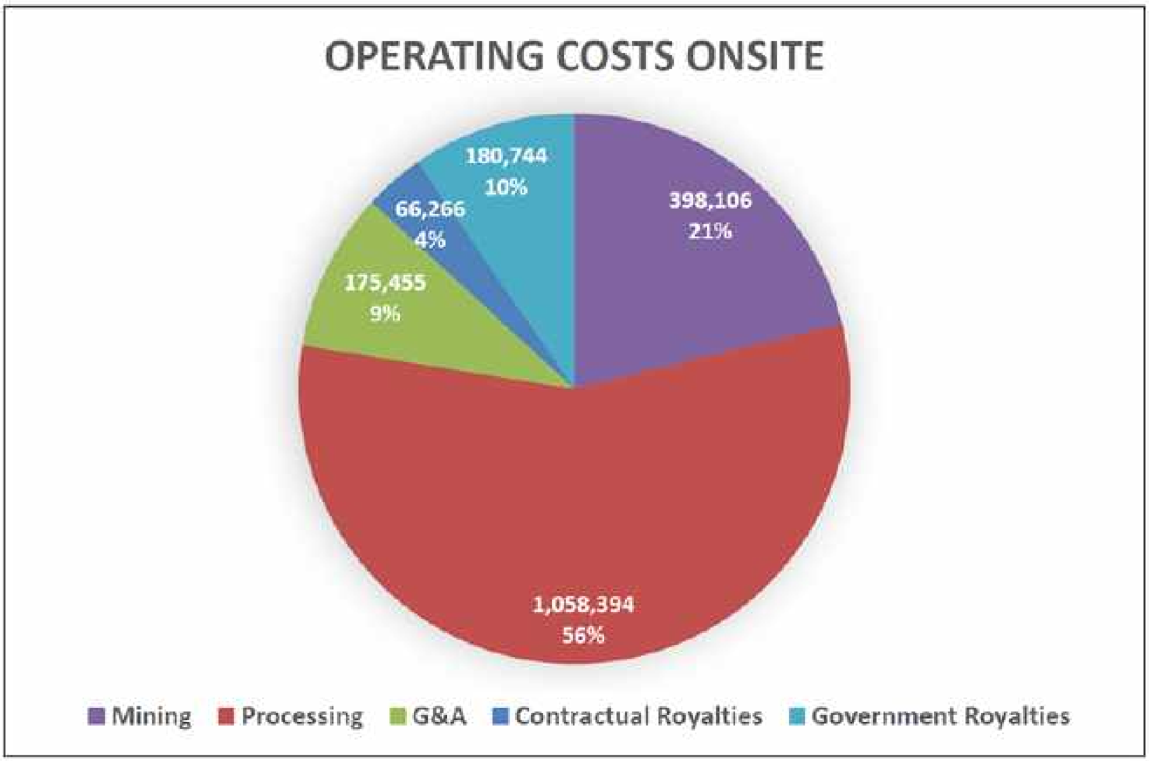
Year 1-5 Operating Costs Summary	$/t Mined	$/t Processed	$/lb Cu Payable	Cost ($000)
Mining	2.39	5.08	0.46	74,232
Processing		8.63	0.78	125,925
G&A		2.56	0.23	37,444
Contractual Royalties		0.79	0.07	11,474
Government Royalties		2.18	0.20	31,773
Total Onsite		**19.24**	**1.73**	**280,848**
TC/RC and Other Off-Site		4.17	0.38	60,909
Total Before By-Product Credits		**23.41**	**2.11**	**341,758**
By-Product Credits		(10.60)	(0.96)	(154,746)
Total Year 1-5 Net of By-Product Credits		**12.81**	**1.15**	**187,012**

Source: Nordmin, 2019

Table 21-13: Year 6 - Year 23 Operating Costs Summary

Year 6-23 Operating Costs Summary	$/t Mined	$/t Processed	$/lb Cu Payable	Cost ($000)
Mining	1.76	3.10	0.45	323,874
Processing		8.92	1.30	932,469
G&A		1.32	0.19	138,011
Contractual Royalties		0.52	0.08	54,791
Government Royalties		1.43	0.21	148,972
Total Onsite		**15.29**	**2.23**	**1,598,118**
TC/RC and Other Off-Site		2.58	0.38	269,591
Total Before By-Product Credits		**17.87**	**2.61**	**1,867,709**
By-Product Credits		(8.55)	(1.25)	(893,482)
Total Year 6-23 Net of By-Product Credits		**9.32**	**1.36**	**974,227**

Source: Nordmin, 2019



Source: Nordmin, 2019

Figure 21-2: LoM operating costs on-site

21.6.2 Mining Operating Costs

Mine operating costs were developed by Nordmin and based on the mine plan, equipment requirements, and workforce requirements. The basis of the operating costs is contractor-operated mining until the end of Year 5, followed by owner-operated mining. The objective of this strategy was to decrease initial capital costs, purchase mobile fleet equipment in a more cash positive position while expanding the production rate and then benefit from the lower operating costs. The mine operating costs include all the supplies, parts, and labour costs associated with mine supervision, operation, and equipment maintenance.

Nordmin estimated the required mining equipment fleets, required production operating hours, and workforce to arrive at an estimate of the mining costs. The estimated mining operating costs were developed from first principles. The mining operating costs are presented in the following categories:

- production drilling;
- production blasting;
- production loading;
- production hauling; and
- support and maintenance equipment/workforce (other mine operations, support equipment operations, maintenance workforce, etc.)

A maintenance parts cost was allocated to each category that requires equipment maintenance. The operating costs are defined as starting in Year 1 and exclude any pre-production operations.

The mining costs may be referenced as per tonne mined (waste and economic material tonnes mined basis), and as per economic material tonne mined. Per economic material tonne mined is not necessarily the same as per economic material tonne processed in the same year due to stockpile economic material re-handling. The "per tonne mined" is defined as being excavated from the open pits and does not include re-handled stockpile economic material.

Employee classifications, wages and burden benefits are based on information provided by Cordoba. The costs for maintenance supplies and materials were based on estimates presented in the *Mine and Mill Equipment Costs an Estimators Guide* (InfoMine, 2015). An escalation percentage of 8% was applied to bring costs to present value.

It was assumed that the Project would not incur duties on imported equipment and supplies.

The mining operating cost estimates include the following parameters:

- diesel fuel cost of $0.50/L (delivered to site);
- average mining bench height of 15 m with economic material mined;
- average drilling penetration rate of 40 m/hour (instantaneous rate, no delays);
- blasting powder factor of 0.167 kg/t (kg explosives per tonne of rock);
- 50% use of AN/FO and 50% use of bulk emulsion explosives for blasting;
- average AN/FO cost of $1.76/kg (at the site) and bulk emulsion cost of $2.14/kg (at the site);
- equipment utilization of 5,256 operating hours per year for both: 90-tonne haul trucks and 14.5 m^3 shovels;
- 20% of plant economic material feed re-handled in saprolite stockpile for blending;
- 8% of plant economic material feed re-handled in primary crusher stockpile for operational delays mainly expected during the rainy season; and
- 20% contingency is included in the mining operating cost estimates.

The estimated mining operating costs for LoM is $398.1 million resulting in a unit rate of $1.85/t mined. The LoM material mined totals 215.3 million tonnes, comprising of 119.1 million tonnes of economic material and 96.2 million tonnes of waste. There is a breakdown of the LoM unit costs in Table 21-14.

The estimated mining operating costs for Year 1 - Year 5 total of $2.39/t mined. During Year 1 - Year 5, the material mined totals 31.0 million tonnes, comprising of 17.1 million tonnes of economic material and 13.9 million tonnes of waste. The mining rate is designed to allow 8,000 t/d milling throughput for Year 1 - Year 5. There is a breakdown of Year 1 - Year 5 unit costs in Table 21-15.

The estimated mining operating costs for Year 6 - Year 23 total of $1.76/t mined. During Year 6 - Year 23, the material mined totals 184.3 million tonnes, comprising of 102.0 million tonnes of economic material and 82.3 million tonnes of waste. The mining rate is designed to allow 16,000 t/d milling throughput for Year 6 - Year 23. This increase to 16,000 from 8,000 t/d milling throughput allows for lower mining operating unit costs in Year 6 - Year 23 with economies of scale. There is a breakdown of Year 6 - Year 23 unit costs in Table 21-16.

Table 21-14: LoM Mining Operating Costs Summary

LoM Mining Operating Costs	$/t Mined	$/t Processed	Cost ($000)
Drilling	0.09	0.16	18,468
Blasting	0.45	0.82	97,102
Loading	0.23	0.41	48,702
Hauling	0.30	0.54	64,275
Support and Maintenance Equipment/Workforce	0.48	0.87	103,209
Contingency (20%)	0.31	0.56	66,351
Total LoM Mining Operating	**1.85**	**3.34**	**398,106**

Source: Nordmin, 2019

Table 21-15: Year 1 - Year 5 Mining Operating Costs Summary

Year 1-5 Mining Operating Costs	$/t Mined	$/t Processed	Cost ($000)
Drilling	0.10	0.21	3,098
Blasting	0.55	1.17	17,014
Loading	0.27	0.57	8,280
Hauling	0.36	0.76	11,075
Support and Maintenance Equipment/Workforce	0.72	1.53	22,394
Contingency (20%)	0.40	0.85	12,372
Total Year 1-5 Mining Operating	**2.39**	**5.08**	**74,232**

Source: Nordmin, 2019

Table 21-16: Year 6 - Year 23 Mining Operating Costs Summary

Year 6-23 Mining Operating Costs	$/t Mined	$/t Processed	Cost ($000)
Drilling	0.08	0.15	15,370
Blasting	0.43	0.77	80,088
Loading	0.22	0.39	40,422
Hauling	0.29	0.51	53,200
Support and Maintenance Equipment/Workforce	0.44	0.77	80,815
Contingency (20%)	0.29	0.52	53,979
Total Year 6-23 Mining Operating	**1.76**	**3.10**	**323,874**

Source: Nordmin, 2019

21.6.3 Process Operating Costs

The process operating cost estimate accounts for the operating and maintenance costs associated with the initial 8,000 t/d process plant operation, support services infrastructure, and tailings disposal to the WMF and the expansion to the 16,000 t/d process plant. Process plant operating costs were estimated using the following cost categories: power, labour, reagents, wear parts, spare parts and other costs. There is a breakdown of processing operating costs by category in Table 21-17.

In general, the process operating cost estimate is based on the following preliminary documentation: conceptual process flowsheet, conceptual mass balance, mechanical equipment list, list of reagents and consumables, and a referential staffing plan.

Reagent consumptions were estimated based on the results of previous metallurgical test work. However, due to the lack of test work information, these reagent usages were estimated based on benchmarks from similar polymetallic processing plants.

Equipment consumables were estimated using Bond empiric correlations for the SAG and ball mill lines and media. These correlations use the abrasion index as the only variable to determine the wear of these in lb/kWh.

The consumables and reagents costs were sourced from both Nordmin and SGS's internal databases.

General consumables for the process plant (personnel protective equipment, a metallurgical laboratory, chemical laboratories, maintenance, office supplies and others) were estimated using a 12% factor from the total consumable and reagent costs.

The unit cost for LoM processing operating is estimated at $8.89/t processed as shown in Table 21-18.

Table 21-17: Processing Operating Costs by Category

Processing Operating Costs by Category	$/t Processed	Cost ($000)
Electric Power	3.48	414,387
Reagents	0.81	97,038
Wear Parts	1.83	218,407
Spare Parts	0.57	68,452
Other Costs	0.78	92,790
Labour	1.40	167,321
Total Processing Operating by Category	**8.89**	**1,058,394**

Source: Nordmin, 2019

Table 21-18: Processing Operating Costs Summary

Processing Operating Costs	$/t Processed	Cost ($000)
Year 1-5	6.90	100,740
Contingency (25%)	1.73	25,185
Total Year 1-5 Processing Operating	**8.63**	**125,925**
Year 6-23	7.14	745,975
Contingency (25%)	1.78	186,494
Total Year 6-23 Processing Operating	**8.92**	**932,469**
Total LoM Processing Operating	**8.89**	**1,058,394**

Source: Nordmin, 2019

21.6.4 Power Operating Costs

Power consumption was estimated based on the power requirements by the major and secondary processing plant equipment and adjusted using benchmark factors to account for auxiliary and minor equipment power demand. Assumptions include:

- 90% average equipment efficiency;
- 75% correction factor;
- crushing circuit operations of 16 h/d;
- other process circuit operations of 24 h/d; and
- 92% annual availability.

The current energy cost is $0.079/kWh and has been used as the basis for the PEA. Considering an assumed loss factor of 7%, the resulting annual operating cost for power at the given rate of $20,108,000.

21.6.5 General and Administrative Operating Costs

The total expenditure for LoM G&A is estimated at $175.5 million resulting in a unit rate of $1.47/t processed. The G&A includes: management labour costs, site services labour costs, engineering and geology labour costs, vehicle costs, office supplies, personnel protection equipment, environmental monitoring and compliance, licences and permits, safety and first aid equipment, security supplies, consultants, communications equipment, software, legal fees, travel, training, community assistance, and maintenance for all buildings and equipment not directly related to mining or processing. The G&A includes a contingency of 21%, which is comprised of 25% for processing related items and 20% for mining related and other site related items.

The estimated G&A costs for Year 1 - Year 5 at 8,000 t/d milling throughput is $2.56/t processed. The estimated G&A costs for Year 6 - Year 23 at 16,000 t/d milling throughput is $1.32/t processed. This increase to 16,000 t/d from 8,000 t/d milling throughput allows for lower G&A unit costs in Year 6 - Year 23 with economies of scale. There is a breakdown of the G&A unit costs in Table 21-19.

Table 21-19: G&A Cost Summary

G&A Costs	$/t Processed	Cost ($000)
Year 1-5	2.11	30,828
Contingency (21%)	0.45	6,616
Total Year 1-5 G&A	**2.56**	**37,444**
Year 6-23	1.09	113,660
Contingency (21%)	0.23	24,352
Total Year 6-23 G&A	**1.32**	**138,011**
Total LoM G&A	**1.47**	**175,455**

Source: Nordmin, 2019

21.6.6 Other Operating Costs

The total expenditure for LoM royalties is estimated $247.0 million, resulting in a unit rate of $2.07/t processed. Contractual royalties consist of 2% of all metal revenue with deductions for concentrate transportation costs, concentrate refinement costs, and government royalties. Colombian government royalties consist of 5% of Cu metal revenue, 4% Au metal revenue, and 4% Ag metal revenue.

The unit cost for all royalties in Year 1 - Year 5 is estimated at $2.96/t processed, and in Year 6 - Year 23 is estimated at $1.95/t processed. Higher unit cost per tonne processed for royalties early in LoM is due to targeting high-grade material as much as possible towards the start of the project. There is a breakdown of the royalties' unit costs in Table 21-19.

Table 21-20: Royalties Cost Summary

Royalties Costs	$/t Processed	Cost ($000)
Year 1-5	0.79	11,474
Year 6-23	0.52	54,791
Total LoM Contractual Royalties	**0.56**	**66,266**
Year 1-5	2.18	31,773
Year 6-23	1.43	148,972
Total LoM Government Royalties	**1.52**	**180,744**
Total LoM Royalties	**2.07**	**247,010**

Source: Nordmin, 2019

The total expenditure for LoM off-site operating costs is estimated at $330.5 million resulting in a unit rate of $2.77/t processed. Freight charges and treatment charges have been estimated based on a market report by OPUK (Ocean Partners UK Limited, 2019). Freight charges of $30/t of concentrate for mine to port freight and $70/t of concentrate for the port to smelter freight.

The unit cost for all off-site operating costs in Year 1 - Year 5 is estimated at $4.17/t processed, and in Year 6 - Year 23 is estimated at $2.58/t processed. Higher unit cost per tonne processed for off-site operating costs early in LoM is due to targeting high-grade material as much as possible towards the start of the project, which generates more tonnes of concentrate per tonne processed. There is a breakdown of the off-site operating unit costs in Table 21-21.

Table 21-21: Off-site Operating Costs

Off-site Operating Costs	$/t Processed	Cost ($000)
Year 1-5	2.28	33,223
Year 6-23	1.41	147,050
Concentrate Freight Charges	**1.51**	**180,273**
Year 1-5	1.90	27,686
Year 6-23	1.17	122,542
Concentrate Treatment Charges	**1.26**	**150,228**
Total Off-site Operating	**2.77**	**330,501**

Source: Nordmin, 2019

21.6.7 Labour Costs

Labour costs were estimated based on a preliminary staffing plan estimate for the operation and maintenance of the process plant based on Nordmin's experience with similar projects. The estimate accounts for management, plant operators and supervisors, as well as laboratory and plant maintenance personnel.

Operating personnel of the plant will work under a rotation system of 12 hours per shift, two shifts per day. Labour costs were sourced from Cordoba internal database. These labour costs include basic salaries as well as bonuses and personnel health insurance costs required by law. The PEA includes employment for about 290 personnel during the first five years of expected production and increasing to 355 personnel for the remaining 18 years.

22. ECONOMIC ANALYSIS

22.1 Cautionary Statements

Certain information and statements contained in this section and in the Technical Report are "forward looking" in nature. Forward-looking statements include, but are not limited to, statements with respect to the economic and study parameters of the project; Mineral Resource estimates; the cost and timing of any development of the project; the proposed mine plan and mining methods; dilution and extraction recoveries; processing method and rates and production rates; projected metallurgical recovery rates; infrastructure requirements; capital, operating and sustaining cost estimates; the projected LoM and other expected attributes of the project; the NPV and IRR and payback period of capital; capital; future metal prices; the timing of the environmental assessment process; changes to the project configuration that may be requested as a result of stakeholder or government input to the environmental assessment process; government regulations and permitting timelines; estimates of reclamation obligations; requirements for additional capital; environmental risks; and general business and economic conditions.

All forward-looking statements in this Technical Report are necessarily based on opinions and estimates made as of the date such statements are made and are subject to important risk factors and uncertainties, many of which cannot be controlled or predicted.

Material assumptions regarding forward-looking statements are discussed in this Technical Report, where applicable. In addition to, and subject to, such specific assumptions discussed in more detail elsewhere in this Technical Report, the forward-looking statements in this Technical Report are subject to the following assumptions:

- There being no signification disruptions affecting the development and operation of the Project;
- The availability of certain consumables and services and the prices for power and other key supplies being approximately consistent with assumptions in the Technical Report;
- Labour and materials cost being approximately consistent with assumptions in the Technical Report;
- The timelines for prior consultation and wet season/dry season baseline data collection being generally consistent with PEA assumptions, and permitting and arrangements with stakeholders being consistent with current expectations as outlined in the Technical Report;
- All environmental approvals, required permits, licenses and authorizations will be obtained from the relevant governments and other relevant stakeholders;
- Certain tax rates, including the allocation of certain tax attributes, being applicable to the Project;
- The availability of financing for Cordoba's planned development activities;
- The timelines for exploration and development activities on the Project; and
- Assumptions made in Mineral Resource estimate and the financial analysis based on that estimate, including, but not limited to, geological interpretation, grades, commodity price assumptions, extraction and mining recovery rates, geotechnical, hydrological and hydrogeological assumptions, capital and operating cost estimates, and general marketing, political, business and economic conditions.

The production schedules and financial analysis annualized cash flow table are presented with conceptual years shown. Years shown in these tables are for illustrative purposes only. If additional mining, technical and engineering studies are conducted, these may alter the project assumptions as discussed in this Technical Report and any result in changes to the calendar timelines presented.

A cash flow projection has been generated from the LoM plan production schedule and capital and operating cost estimates and is summarized in Table 22-5. The associated process recoveries, metal prices, operating costs, refining and transportation charges, royalties, and capital expenditures (pre-production and sustaining) were also taken into account. All costs are presented in the second quarter of 2019 US dollars, with no allowances for inflation or escalation beyond that time.

The economic analysis contained in this report is based, in part, on Inferred Mineral Resources, and is preliminary in nature. Inferred Mineral Resources are considered too geologically speculative to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that economic forecasts on which this PEA is based will be realized.

22.2 Methodology Used

The financial analysis was carried out using a discounted cash flow ("DCF") methodology. Net annual cash flows were estimated projecting yearly cash inflows (or revenues) and subtracting projected yearly cash outflows (such as capital and operating costs, royalties and taxes). These annual cash flows were discounted back to the date of the beginning of capital expenditure and totalled to determine the NPV of the project at selected discount rates. A discount rate of 8% was used as the base discounting rate.

In addition, the IRR expressed as the discount rate that yields an NPV of zero, and the payback period expressed as the estimated time from the start of production until all initial capital expenditures have been recovered, were also estimated.

Sensitivities to variations in commodity prices, grades, initial capital costs and operating costs were carried out to identify potential impacts on NPV and IRR.

All monetary amounts are presented in constant second quarter of 2019 US dollars. For discounting purposes, cash flows are assumed to occur at the end of each period. Revenue is recognized at the time of production.

22.3 Financial Model Input Parameters

The PEA mine plan and financial model is based on the Mineral Resources outlined in Section 14, the mining rates and assumptions discussed in Section 16, and the recovery and processing rates and assumptions discussed in Section 13 and Section 17 respectively.

The proposed Project includes three years pre-production construction period, followed by five years of production supplying a mill feed rate of 8,000 t/d, with an expansion to production and milling capacity to allow the mill feed rate to ramp up to 16,000 t/d for the next 18 years, and finally one year of post-production mine closure. The project is planned to utilize contractor-operated mining until the end of Year 5, followed by owner-operated mining. The objective of a mill feed rate of 8,000 t/d and contractor-operated mining for the first five years was to keep initial capital costs relatively low. Expansion capital spending is planned during a more cash positive position to include expanding processing facilities, expanding WMF, and expansion of existing mobile fleet equipment. The expansion will allow lower processing operating costs per tonne milled. The expansion will lower mining operating costs per tonne mined in conjunction with purchasing the existing mobile fleet equipment from the contractor after Year 5 and switching to owner-operated mining.

Capital and operation cost assumptions are outlined in Section 21. A construction period of 24 months was considered for the overall project implementation. For the purpose of this PEA, it has been assumed that the conceptual open pit mining activities will be performed by a contractor-owned mining fleet for years 1 - 5 of operation (Phase 1) and switch to an owner-operated fleet in Year 6 and onward (Phase 2). The rest of the mine will be run primarily by the Owner.

Royalties are discussed in Section 4.3.7. The PEA assumes the Colombian mining royalties are 4% of all revenues received from Au and Ag exploitation and 5% of all revenue from Cu exploitation. The mining royalties are deductible for income tax purposes. A 2% royalty on the net income for production is payable to Sociedad Ordinaria de Minas Omni all have been included in the cash flow analysis.

Freight charges, treatment charges, and refining charges used in the calculation of financial results are based on a market report by OPUK (Ocean Partners UK Limited, 2019), further details are included in Section 19. Metal prices are based on consensus, long term forecasts from banks, financial institutions, and other sources averaging: $3.25/lb Cu, $1,400/oz Au and $17.75/oz Ag. The cash flow in each year of the Project life is discounted back to the end of the Year -3 to determine the estimated discounted cash flow at an 8% discount rate. A US dollar/COP foreign exchange rate of 3,125:1 has been applied to costs provided in COP.

Principal assumptions used are summarized in Table 22-1.

Table 22-1: Key Input Parameters

Input Parameter	Values	Units
Project Timeline		
Pre-Production Period	3	years
Mill Feed Rate @ 8,000 t/d	5	years
Mill Feed Rate @ 16,000 t/d	18	years
Post-Production Mine Closure	1	years
Mine Operating Days per Year	365	days
Mill Operating Days per Year	365	days
Designed Mill Feed Rate		
Production Year 1-5	8,000	t/d
Production Year 6-23	16,000	t/d
Copper Concentrate Grade	25%	%
Wet Concentrate Water	8%	%
Concentrate Freight Charges		
Mine to Port	30.00	$/t
Port to Smelter	70.00	$/t
Treatment Charge	90.00	$/t
Metal Prices		
Copper	3.25	$/lb
Gold	1,400	$/oz
Silver	17.75	$/oz
Refining Charges		
Copper	0.09	$/lb
Gold	5.00	$/oz
Silver	0.30	$/oz
Refining and Smelting Payable		
Copper	95.5%	%
Gold	96.5%	%
Silver	90.0%	%
Discount Rate	8.0%	%
USD/COP Exchange Rate	3,125:1	

Source: Nordmin, 2019

22.4 Taxation

The tax calculations in the financial model are based on the current tax laws, most notably: (i) Colombian Tax Reform Law 1739, of December 23, 2014, that created the CREE (income tax for equality) and introduced modifications to GMF (financial transactions tax); and, (ii) Colombian Tax Reform Law 1943, of December 28, 2018, that reduced the combined corporate tax rate and CREE from a rate of 33% in 2018 to 32% for 2020, 31% for 2021 and 30% for 2022 and onwards.

Tax deductions are used to adjust the Project's gross income and determine the actual taxable income. The following items are applied to the tax model as deductions:

- A loss carry-forward of COP 80,446million(or $25.1millionat a 3,206:1 exchange rate), provided by Cordoba;
- 50% of the financial transactions tax paid in the same tax year; and
- Tax depreciation.

The tax depreciation is used to amortize the cost of capital assets as expenses over their useful life and reduce the taxable income reported in a period.

Table 22-2 presents the categories of capital assets and the various treatment of the total capital costs of each within the financial model.

Table 22-2: Tax Depreciation of Capital Assets

Sector	Asset Value ($M)	Usable Life	Depreciation Method
Initial Capital (Mine)	87.2	LoM	Units of Production
Initial Capital (Mill Equipment)	65.0	8 Years	Straight Line 12.5%
Expansion Capital (Equipment)	118.3	8 Years	Straight Line 12.5%
Expansion Capital (Tailings Management)	60.1	LoM	Units of Production

Source: Nordmin, 2019

Colombian law dictates that a corporation must pay a minimum amount of tax based on "Presumptive Income," which is calculated as 3% of non-mining assets (overhead and cash).

By Colombian tax law, taxable income is determined as the greater of the net income or the presumptive income. Tax paid against presumptive income can be recovered in later tax years through the application of "presumptive income excesses." Presumptive income only affects the model in the pre-production years, when the operation is not producing the product. All tax paid against presumptive income is then recovered in Year 1 of the operations. The Tax Reform Law 1943 reduced the tax paid against presumptive income to 1.5% in 2019 and 2020 and to 0% for 2021 and onwards.

Table 22-3 presents the basis of calculation for the various Colombian taxes, as well as the total tax paid by the Project within each category.

Table 22-3: Estimated LoM Taxes Payable in Columbia

Tax Category	Tax Rate (%)	Total Tax Paid ($M)
Corporate Income Tax (CIT)	30%	323.3
Financial Transactions Tax (GMF)	0.4%	7.9

Source: Nordmin, 2019

22.5 Inflation

No escalation or inflation has been applied. All amounts are in real (constant) terms.

22.6 Closure Costs and Salvage Value

Closure costs of $20.0 million are the net of an estimated closure cost of $30.0 million offset by the estimated $10.0 million in salvage costs. These costs are scheduled to take effect in years 23 and 24.

22.7 Financing

The PEA analysis is based on 100% equity financing.

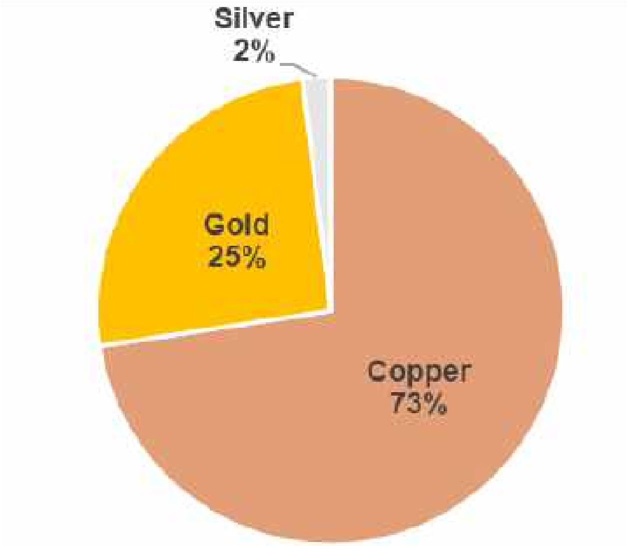
22.8 Economic Analysis

The Project is estimated to have LoM revenue totalling $3.8 billion using metals price assumptions of $3.25/lb Cu, $1,400/oz Au and $17.75/oz Ag. A breakdown of revenue by metals is shown in Table 22-4and Figure 22-1.

Table 22-4: Revenue by Metal

Revenue by Metal	Year 1-5 ($000)	Year 6-23 ($000)	LoM ($000)
Copper	511,657	2,264,650	2,776,307
Gold	140,689	834,609	975,298
Silver	14,057	58,873	72,930
Total Revenue by Metal	**666,403**	**3,158,132**	**3,824,535**

Source: Nordmin, 2019



Source: Nordmin, 2019

Figure 22-1: LoM revenue percent by metal

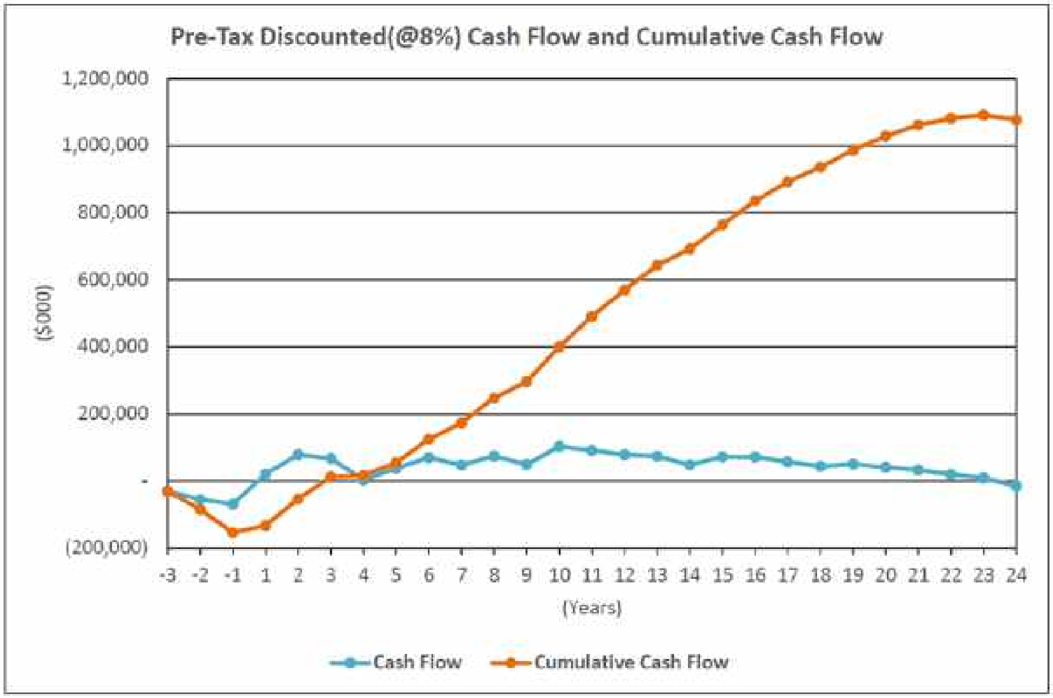
The Project PEA estimates a pre-tax NPV of $347.0 million applying an 8% discount rate and a pre-tax IRR 26.8%. On an after-tax basis, the Project generates an NPV 8% of $210.7 million and an IRR of 20.3% (Table 22-5).

Table 22-5: Project Evaluation Economic Results

Project Evaluation Economic Results	Value ($000)
Metal Revenue	
Copper Revenue	2,776,307
Gold Revenue	975,298
Silver Revenue	72,930
Total Metal Revenue	**3,824,535**
Off-site Operating Costs	
Treatment Charges	(150,228)
Freight Concentrate	(180,273)
Revenue Less Off-Site Costs	**3,494,035**
On-site Operating Costs	
Mining	(398,106)
Processing	(1,058,394)
G&A	(175,455)
Contractual Royalties	(66,266)
Government Royalties	(180,744)
Total On-site Operating Costs	(1,878,966)
Operating Profit (EBITDA)	**1,615,069**
Taxes	(331,176)
Capital Costs	
Initial Capital	(161,395)
Expansion Capital	(120,580)
Other LoM Expansion Capital	(49,527)
Sustaining Capital	(175,960)
Closure Costs	(20,000)
Total Capital Costs	(527,462)
Pre-Tax Metrics	
Free Cash Flow	1,076,505
NPV @ 8%	347,013
Payback Period (Years)	2.8
IRR Before Tax (%)	26.8%
After-Tax Metrics	
Free Cash Flow	745,329
NPV @ 8%	210,724
Payback Period (Years)	5.3
IRR Before Tax (%)	20.3%

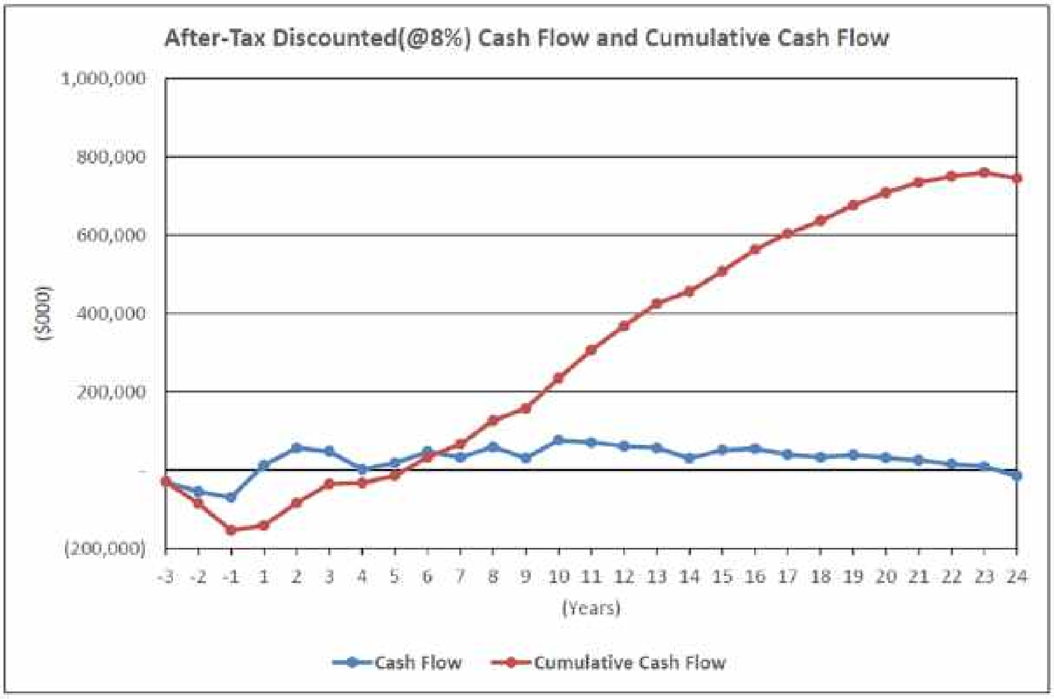
Source: Nordmin, 2019

The Project is estimated to have a 5.3-year payback after taxes. Figure 22-2 and Figure 22-3 presents the cumulative free and discounted cash flow profile, both pre-tax and after-tax.



Source: Nordmin, 2019

Figure 22-2: Pre-tax discounted (@8%) cash flow and cumulative cash flow



Source: Nordmin, 2019

Figure 22-3: After-tax discounted (@8%) cash flow and cumulative cash flow

The economic modelling resulted in an estimated LoM All-In Sustaining Cost ("AISC") of $1.54/lb Cu payable. Year 1-5 is estimated to have an AISC of $1.25/lb Cu payable, compared to Year 6-23 is estimated to have an AISC of $1.61/lb Cu payable. The lower AISC per pound Cu payable for Year 1-5, despite higher operating costs per tonne milled, is due to targeting high-grade areas early in the mine life. A breakdown of AISC/lb Cu payable is shown in Table 22-6.

Table 22-6: Project AISC ($/lb Cu Payable)

Project AISC ($/lb Cu Payable)	Year 1-5	Year 6-23	LoM
Operating Costs On-site			
Mining	0.46	0.45	0.45
Processing	0.78	1.30	1.20
G&A	0.23	0.19	0.20
Contractual Royalties	0.07	0.08	0.08
Government Royalties	0.20	0.21	0.21
Total Operating Costs On-site	**1.73**	**2.23**	**2.14**
Operating Costs Off-site			
Treatment	0.17	0.17	0.17
Freight	0.21	0.21	0.21
Total Operating Costs On-site	**0.38**	**0.38**	**0.38**
Sustaining and Closure Costs			
Sustaining Capital	0.10	0.22	0.20
Reclamation & Remediation	0.00	0.03	0.02
Total Sustaining and Closure Costs	**0.10**	**0.25**	**0.22**
Total Before By-Product Credits	**2.21**	**2.86**	**2.74**
By-Product Credits	(0.96)	(1.25)	(1.19)
Total AISC ($/lb Cu Payable)	**1.25**	**1.61**	**1.54**

Source: Nordmin, 2019

A full LOM annual cash flow model is presented in Table 22-8.

Table 22-7: LoM Annual Cashflow Model

CASHFLOW MODEL																														
Project Time Line Project Year	UNITS	PV	LOM	-3	-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
Metal Prices																														
Copper	US$/lb		3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
Gold	US$/oz		1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00	1,400.00
Silver	US$/oz		17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75	17.75
Mill Feed																														
Total	kmt		119,105				2,920	2,920	2,920	2,920	2,920	5,840	5,840	5,840	5,840	5,840	5,840	5,840	5,840	5,840	5,840	5,840	5,840	5,840	5,840	5,840	5,840	5,840	5,225	
Insitu Grade Cu	%		0.446				0.534	0.837	0.765	0.423	0.784	0.558	0.449	0.443	0.423	0.520	0.478	0.443	0.429	0.414	0.408	0.384	0.403	0.377	0.371	0.355	0.342	0.335	0.317	
Insitu Grade Au	g/t		0.254				0.311	0.373	0.294	0.206	0.312	0.178	0.201	0.217	0.271	0.275	0.229	0.214	0.220	0.246	0.297	0.271	0.250	0.254	0.264	0.260	0.273	0.262	0.282	
Insitu Grade Ag	g/t		2.37				2.19	5.52	5.02	2.04	3.95	4.09	2.77	2.72	2.29	2.83	2.34	2.12	2.18	1.95	1.81	1.69	2.09	1.80	1.72	1.85	1.81	1.61	1.45	
REVENUES																														
Metal Revenues Concentrate																														
Cu Revenue	000 US$	1,073,082	2,776,307				79,473	126,074	118,133	61,533	126,444	167,267	136,625	134,266	128,575	160,904	146,994	136,945	130,833	124,900	129,245	121,232	123,537	110,655	109,110	106,310	105,671	103,749	87,830	
Au Revenue	000 US$	342,761	975,298				29,263	35,124	27,596	19,325	29,381	33,214	37,694	40,558	50,984	51,781	42,989	40,196	41,206	46,304	56,417	51,524	47,067	47,371	49,242	48,751	51,569	49,826	47,918	
Ag Revenue	000 US$	29,209	72,930				1,623	4,183	3,758	1,492	3,002	6,084	4,171	4,107	3,426	4,268	3,504	3,167	3,235	2,868	2,834	2,647	3,197	2,666	2,555	2,783	2,802	2,520	2,037	
Total	000 US$	1,445,052	3,824,535				110,360	165,381	149,487	82,350	158,826	206,565	178,490	178,932	182,984	216,953	193,487	180,309	175,273	174,072	188,496	175,403	173,802	160,692	160,907	157,844	160,042	156,095	137,785	
Treatment Charges Cu Concentrate																														
Treatment Charges	000 US$	58,065	150,228				4,300	6,822	6,392	3,330	6,842	9,051	7,393	7,265	6,957	8,707	7,954	7,410	7,079	6,758	6,994	6,560	6,685	5,988	5,904	5,753	5,718	5,614	4,753	
Freight																														
Freight Concentrate	000 US$	69,678	180,273				5,160	8,186	7,671	3,996	8,210	10,861	8,871	8,718	8,349	10,448	9,545	8,892	8,495	8,110	8,392	7,872	8,022	7,185	7,085	6,903	6,862	6,737	5,703	
Total	000 US$	69,678	180,273				5,160	8,186	7,671	3,996	8,210	10,861	8,871	8,718	8,349	10,448	9,545	8,892	8,495	8,110	8,392	7,872	8,022	7,185	7,085	6,903	6,862	6,737	5,703	
NSR																														
Cu Concentrate	000 US$	1,317,309	3,494,035				100,899	150,372	135,424	75,025	143,774	186,653	162,225	162,948	167,678	197,799	175,989	164,006	159,698	159,204	173,110	160,971	159,096	147,519	147,918	145,188	147,463	143,745	127,330	
Total	000 US$	1,317,309	3,494,035				100,899	150,372	135,424	75,025	143,774	186,653	162,225	162,948	167,678	197,799	175,989	164,006	159,698	159,204	173,110	160,971	159,096	147,519	147,918	145,188	147,463	143,745	127,330	
OPERATING COSTS ONSITE																														
Mining	000 US$	153,326	398,106				18,006	17,313	12,494	15,094	11,325	21,861	20,125	19,060	19,334	18,394	18,084	18,092	17,907	17,699	20,579	19,548	18,744	17,809	15,147	15,297	15,977	15,932	14,284	
Processing	000 US$	349,999	1,058,394				25,185	25,185	25,185	25,185	25,185	43,800	43,800	43,800	43,800	43,800	43,800	43,800	43,800	43,800	43,800	43,800	43,800	51,100	58,400	65,700	73,000	80,300	78,369	
G&A	000 US$	67,563	175,455				7,489	7,489	7,489	7,489	7,489	7,667	7,667	7,667	7,667	7,667	7,667	7,667	7,667	7,667	7,667	7,667	7,667	7,667	7,667	7,667	7,667	7,667	7,667	
Contractual Royalties	000 US$	24,976	66,266				1,914	2,850	2,565	1,422	2,723	3,534	3,074	3,089	3,181	3,750	3,336	3,108	3,028	3,020	3,286	3,055	3,018	2,800	2,808	2,756	2,800	2,729	2,419	
Government Royalties	000 US$	68,533	180,744				5,209	7,876	7,161	3,909	7,617	9,935	8,506	8,500	8,605	10,287	9,209	8,582	8,319	8,212	8,832	8,228	8,187	7,534	7,527	7,377	7,458	7,281	6,390	
Total Onsite Operating Costs	000 US$	664,396	1,878,966				57,803	60,713	54,893	53,099	54,340	86,798	83,172	82,116	82,588	83,899	82,096	81,250	80,721	80,398	84,164	82,299	81,417	86,911	91,550	98,797	106,902	113,910	109,128	
OPERATING PROFIT																														
Operating Profit	000 US$	652,913	1,615,069				43,096	89,660	80,531	21,925	89,434	99,855	79,053	80,832	85,090	113,900	93,892	82,756	78,978	78,806	88,946	78,672	77,679	60,609	56,368	46,391	40,561	29,834	18,201	
Taxes	000 US$	136,289	331,176	-	-	-	7,994	21,821	18,814	1,132	19,227	22,139	14,717	14,968	18,031	26,218	20,058	16,541	16,040	17,764	20,514	16,403	16,837	9,902	11,130	9,175	7,407	4,130	212	
CAPITAL COSTS																														
Initial Capital	000 US$	145,942	161,395	30,005	54,875	69,077	7,438																							
Expansion Capital	000 US$	69,530	120,580						11,975	24,475	37,500	18,736	27,895																	
Other LOM Expansion Capital	000 US$	14,911	49,527												14,094					9,855	8,538	2,515		13,095			1,431			
Sustaining Capital	000 US$	60,039	175,960				3,423	3,352	3,121	3,206	3,058	7,722	6,276	6,168	20,605	6,111	6,121	6,100	6,049	20,512	6,208	6,219	20,732	6,257	6,057	6,069	6,142	10,918	5,534	
Closure Costs	000 US$	2,758	20,000																										5,000	15,000
Total capital costs	**000 US$**	**293,181**	**527,462**	**30,005**	**54,875**	**69,077**	**10,861**	**3,352**	**15,095**	**27,680**	**40,558**	**26,457**	**34,171**	**6,168**	**34,699**	**6,111**	**6,121**	**6,100**	**6,049**	**30,367**	**14,745**	**8,734**	**20,732**	**19,352**	**6,057**	**6,069**	**7,572**	**10,918**	**10,534**	**15,000**
Working Capital																														
Accounts Receivable Yearly	000 US$		3,494,035				100,899	150,372	135,424	75,025	143,774	186,653	162,225	162,948	167,678	197,799	175,989	164,006	159,698	159,204	173,110	160,971	159,096	147,519	147,918	145,188	147,463	143,745	127,330	
Accounts Receivable Adjusted	000 US$		574,362				16,586	24,719	22,261	12,333	23,634	30,683	26,667	26,786	27,564	32,515	28,930	26,960	26,252	26,170	28,456	26,461	26,153	24,250	24,315	23,867	24,240	23,629	20,931	
Change in Accounts Receivable	000 US$		20,931				16,586	8,133	(2,457)	(9,929)	11,301	7,049	(4,015)	119	778	4,951	(3,585)	(1,970)	(708)	(81)	2,286	(1,996)	(308)	(1,903)	66	(449)	374	(611)	(2,698)	
Accounts Payable Yearly	000 US$		2,209,467				67,264	75,721	68,956	60,425	69,392	106,710	99,436	98,100	97,894	103,053	99,595	97,552	96,296	95,267	99,550	96,731	96,123	100,083	104,539	111,453	119,482	126,261	119,584	
Accounts Payable Adjusted	000 US$		181,600				5,529	6,224	5,668	4,966	5,703	8,771	8,173	8,063	8,046	8,470	8,186	8,018	7,915	7,830	8,182	7,950	7,901	8,226	8,592	9,160	9,820	10,378	9,829	
Change in Account Payable	000 US$		9,829				5,529	695	(556)	(701)	737	3,067	(598)	(110)	(17)	424	(284)	(168)	(103)	(85)	352	(232)	(50)	325	366	568	660	557	(549)	
Change in Working Capital	**000 US$**	**(12,719)**	**-11,102**				**(11,058)**	**(7,438)**	**1,901**	**9,227**	**(10,564)**	**(3,981)**	**3,418**	**(229)**	**(794)**	**(4,527)**	**3,301**	**1,802**	**605**	**(3)**	**(1,934)**	**1,764**	**258**	**2,228**	**301**	**1,017**	**286**	**1,168**	**2,150**	
VALUATION INDICATORS																														
Discount Factor	8.0%			1.00	0.93	0.86	0.79	0.74	0.68	0.63	0.58	0.54	0.50	0.46	0.43	0.40	0.37	0.34	0.32	0.29	0.27	0.25	0.23	0.21	0.20	0.18	0.17	0.16	0.15	0.14
Pre Tax																														
Cash Flow	000 US$	347,013	1,076,505	(30,005)	(54,875)	(69,077)	21,177	78,870	67,337	3,473	38,313	69,416	48,300	74,435	49,596	103,262	91,072	78,458	73,533	48,435	72,266	71,702	57,205	43,485	50,612	41,340	33,274	20,085	9,817	(15,000)
Cumulative Cash Flow	000 US$			(30,005)	(84,880)	(153,957)	(132,780)	(53,910)	13,427	16,900	55,212	124,629	172,929	247,364	296,961	400,223	491,294	569,752	643,285	691,720	763,987	835,688	892,893	936,378	986,990	1,028,329	1,061,603	1,081,688	1,091,505	1,076,505
NPV 8%	000 US$		347,013																											
Payback Period	Years		2.8																											
IRR Before Tax	%		26.8%																											
After Tax																														
Cash Flow	000 US$	210,724	745,329	(30,005)	(54,875)	(69,077)	13,183	57,049	48,523	2,341	19,085	47,277	33,583	59,468	31,565	77,043	71,014	61,917	57,493	30,671	51,753	55,298	40,367	33,583	39,481	32,165	25,867	15,955	9,605	(15,000)
Cumulative Cash Flow	000 US$			(30,005)	(84,880)	(153,957)	(140,774)	(83,725)	(35,203)	(32,862)	(13,776)	33,501	67,084	126,551	158,117	235,160	306,174	368,091	425,584	456,255	508,007	563,306	603,673	637,256	676,738	708,902	734,769	750,724	760,329	745,329
NPV 8%	000 US$		210,724																											
Payback Period	Years		5.3																											
IRR After Tax	%		20.3%																											

Source: Nordmin, 2019

22.9 Sensitivity Analysis

To assess the Project value drivers, sensitivity analyses were performed for the NPV and IRR considering variations in metal prices, recoveries, initial capital and operating costs on the pre and after tax NPV 8% and on IRR.

The results of this analysis are shown in Table 22-8 through Table 22-11, Figure 22-4 and Figure 22-5. The Project proved to be most sensitive to fluctuations in the Cu metal price and Cu recoveries and less sensitive to changes in operating costs and initial capital costs. Table 22-9 presents the Project NPV at a range of discount rates from 0 to 15% (the NPV 8%, being the base case, is bolded).

Table 22-8: Copper Price Sensitivity

Copper Price	Pre-tax NPV 8% ($M)	Pre-tax IRR (%)	After-tax NPV 8% ($M)	After-tax IRR (%)
$2.75/lb	191.2	19.7%	100.6	14.6%
$3.00/lb	269.1	23.4%	156.0	17.6%
$3.25/lb	347.0	26.8%	210.7	20.3%
$3.50/lb	424.9	30.0%	265.0	22.8%
$4.00/lb	580.7	35.9%	373.3	27.5%

Source: Nordmin, 2019

Table 22-9: Discount Rate Sensitivity

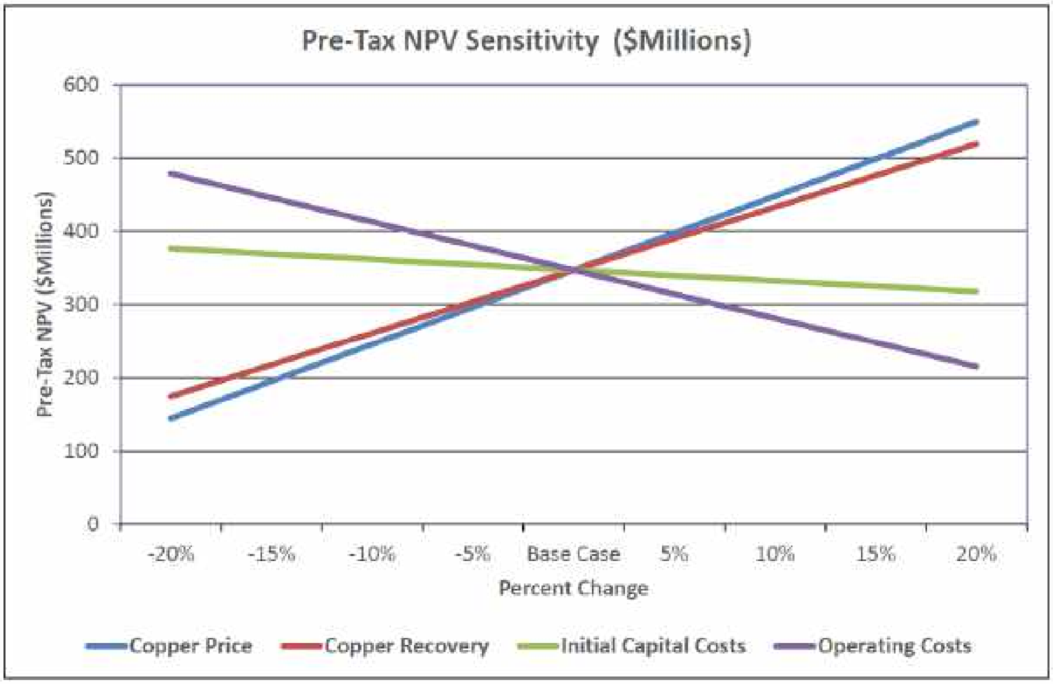
Discount Rate	Pre-tax NPV ($M)	After-tax NPV ($M)
0%	1,076.5	745.3
5%	525.0	340.2
8%	**347.0**	**210.7**
10%	263.6	150.5
15%	129.1	54.4

Source: Nordmin, 2019

Table 22-10: Pre-tax NPV Sensitivity by Item

Pre-tax NPV Sensitivity	-20% ($M)	-15% ($M)	-10% ($M)	-5% ($M)	Base Case ($M)	5% ($M)	10% ($M)	15% ($M)	20% ($M)
Copper Price	144.5	195.1	245.8	296.4	347.0	397.6	448.3	498.9	549.5
Copper Recovery	174.6	217.7	260.8	303.9	347.0	390.1	433.2	476.3	519.4
Initial Capital Costs	376.2	368.9	361.6	354.3	347.0	339.7	332.4	325.1	317.8
Operating Costs	478.8	445.9	412.9	380.0	347.0	314.1	281.1	248.1	215.2

Source: Nordmin, 2019



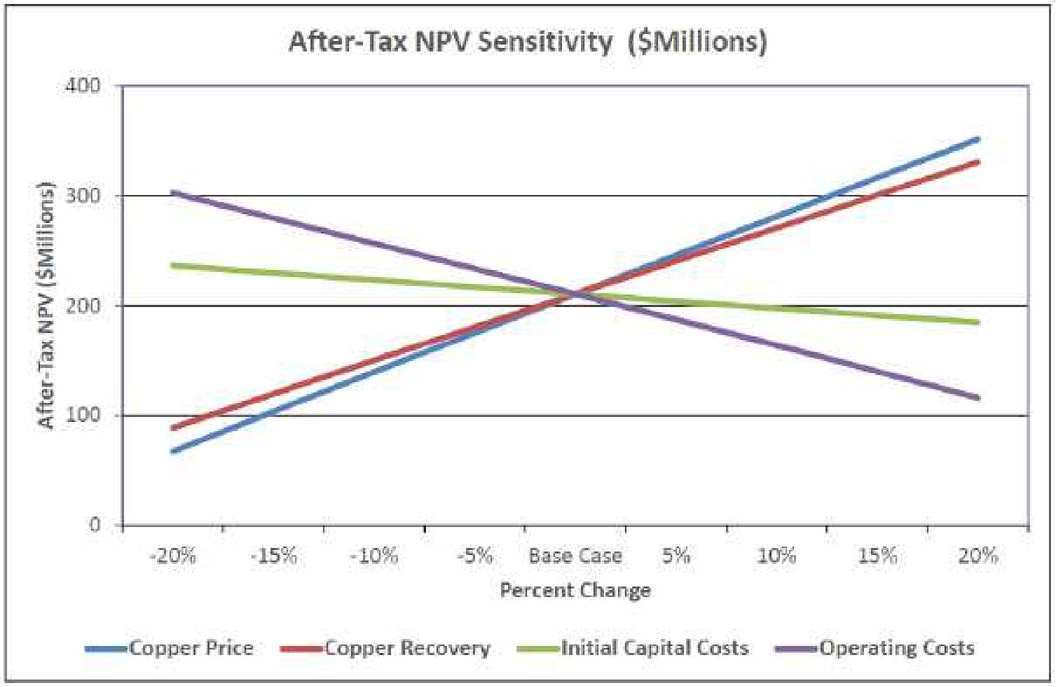
Source: Nordmin, 2019

Figure 22-4: Pre-tax NPV sensitivity spider graph

Table 22-11: After-tax NPV Sensitivity by Item

After-tax NPV Sensitivity	-20% ($M)	-15% ($M)	-10% ($M)	-5% ($M)	Base Case ($M)	5% ($M)	10% ($M)	15% ($M)	20% ($M)
Copper Price	67.2	103.4	139.4	175.3	210.7	246.0	281.2	316.5	351.7
Copper Recovery	88.7	119.5	150.1	180.6	210.7	240.8	270.8	300.8	330.8
Initial Capital Costs	236.6	230.1	223.6	217.2	210.7	204.3	197.8	191.3	184.9
Operating Costs	302.8	279.8	256.8	233.8	210.7	187.5	163.9	140.0	116.0

Source: Nordmin, 2019



Source: Nordmin, 2019

Figure 22-5: After-tax NPV sensitivity spider graph

22.10 Comments on Section 22

Under the assumptions made in this Technical Report, and based on the available data, the project shows positive economics. Using an 8% discount rate, the project has an after-tax NPV of $210.7 million, an IRR of 20.3% and a payback period of 5.3 years. There is potential for the Project if the metal price assumptions increase from the assumptions used in the Technical Report or the contained Mineral Resources increase within the Project.

23. ADJACENT PROPERTIES

Significant properties in the vicinity of the Project, Colombia include:

- The Cerro Matoso mine located approximately 20 km northeast of the project. The Cerro Matoso is one of the largest open-pit ferronickel mines with the highest-grade lateritic nickel ore deposits in the world. It is the largest mine of South America, containing the largest nickel reserve in Colombia is currently operated by South 32 and previously by Anglo-Australian Multinational BHP Billiton; and
- The Carbon del Caribe (coal mines operated by Argos) are privately owned and located approximately 10 km northeast of the project. The mines consist of large open pit coal mines that produce feed for local thermal power plants.

24. OTHER RELEVANT DATA AND INFORMATION

Not applicable.

25. INTERPRETATION AND CONCLUSIONS

25.1 Introduction

The QP's note the following interpretations and conclusions in their respective areas of expertise, based on the review of data available for this Technical Report.

25.2 Mineral Tenure, Surface Rights, Royalties and Agreements

The legal opinion and additional information provided by Cordoba personnel support the following:

- Cordoba has three subsidiary companies (ECSAS, MCSAS and RCSAS) in Colombia. MCSAS holds an ownership interest in the Project:
    - RCSAS, MCSAS and ECSAS have the corporate power to carry out exploration and exploitation activities in Colombia;
    - MCSAS is the sole owner of twenty-six mining titles including those for the Montiel East, Montiel West and Costa Azul deposits. All titles are valid and in good standing; and
    - CM Company is the sole holder of record of mining title for the Alacran deposit (mining title III-08021). The mining title is valid and in good standing.
- Each of the Mining Titles held by MCSAS, as of the date of the legal opinion:
    - vests in its holder of record a right to explore, and, subject to the satisfaction of its terms and conditions, exploit the permitted mines according to each mining title;
    - is currently in force;
    - is registered in the national mining registry of the ANM;
    - has no registration of breach, termination, mandatory early termination or any other record that would deem the mining titles unenforceable; and
    - has no security interest recorded in the Colombian 'security interests' registration system.
- There are two agreements related to mining titles; the option agreement and the future transfer promise agreement:
    - The Option Agreement has been subject to five amendments. Pursuant the Option Agreement (as it has been modified from time to time), the OMNI Parties have granted the Cordoba Parties the exclusive and irrevocable first option to acquire 100% of the issued and outstanding shares of CM Company. CM Company is the current titleholder of Mining Title III-08021, which hosts the Alacran deposit.
    - The Future Transfer Promise Agreement - Activos Mineros is the applicant of the proposal for Concession Agreement PCB-08021 before the ANM, for the technical exploration and economic exploitation of 'precious metals and their concentrates,' in the municipality of Puerto Libertador, Córdoba. On May 19, 2016, Activos Mineros and MCSAS executed the Future Transfer Promise Agreement. Pursuant to this agreement, once Activos Mineros

becomes the holder of record of the mining title PCB-08021, it shall transfer all rights and obligations resulting from the PCB-08021 mining title to MCSAS[10].

- Environmental licenses are not required for the current exploration phase of the Mining Titles. The environmental license is necessary for the titleholder to initiate the construction and assembly phase and is granted by the environmental authority upon the review and assessment of the EIA filed by the titleholder. MCSAS is currently preparing the EIA for the Project.
- Social license considerations: The Colombian Ministry of Internal Affairs certified the presence of the indigenous group 'Cabildo Indígena San Pedro' within the contracted area of the Project. Under Colombian regulations, minority groups such as the 'Cabildo Indígena San Pedro,' shall be consulted in connection with mining activities that might affect them prior to the perfection of the environmental license. There is a decision pending regarding the appeal filed by CM Company on April 5, 2018, in connection with the ongoing process in which the 'Asociación de Mineros Alacran del municipio de Puerto Libertador' has requested the annulment of the concession of the Project.
- For the exploration phase, in which all of the Mining Titles are, the concession permits related to water are only required if the titleholder expects to use water resources. The vestment permit is required for the proper disposal of liquid resources during the exploration phase.
- Cordoba advised that there are no other significant legal factors and risks that may affect access, title, right and ability to perform work on the Project.
- The Project is at an exploration stage. The existing local infrastructure, availability of staff, and methods whereby goods could be transported to the Project area to support exploration activities are well understood by Cordoba and can support the declaration of Mineral Resources.
- Once the concession enters into the exploitation phase, the Project will be subject to Colombian corporate taxes and mining royalties on metals production. The corporate income tax rate in Colombia is 30% from 2022 onwards. Colombian mining royalties are 4% of all revenues received from Au and Ag exploitation and 5% of all revenue from Cu exploitation. The mining royalties are deductible for income tax purposes. A 2% royalty on the Net Income for Production is payable to Sociedad Ordinaria de Minas Omni.
- The Project covers an area that is sufficient for the infrastructure required to support a mining operation.

Near-by mining operations are conducted year-round, and it is expected that any operation conducted by Cordoba would also be year-round. The Company requested a suspension of obligations on the Alacran title due to force majeure on May 24, 2019 and were notified in writing by the ANM of the suspension on July 31, 2019. The suspension is effective from May 24, 2019, until May 23, 2020. Importantly, if the Company deems it safe/appropriate to lift the force majeure and return to work, the Company may request to the ANM that the suspension be lifted at any time before May 23, 2020.

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[10] MCSAS filed an administrative request in connection to the areas covered by concession agreement proposals PCB-08021; OG2- 08107 and NGN-10251 on March 18, 2015. Decision from the ANM is still pending.

25.3 Geology and Mineral Resource

Drilling by Cordoba and its predecessors has led to the discovery of multiple Cu-Au-Ag deposits within the Property. The deposits have been delineated using surface mapping/sampling, RC and diamond drilling, collar and downhole survey methods and sampling and laboratory analysis methods accompanied by appropriate quality control and monitoring.

Mineralized models were constructed for the four deposits (Alacran, Costa Azul, Montiel East, and Montiel West) based on all available drilling and mapping data collected to date. As summarized in Section 14, block modelling was completed in Datamine using explicitly modelled geological and mineralized domains (high-grade vertical structure mineralization, sub-vertical stratabound replacement mineralization, and low-grade mineralization). Structural and mineralization trends were used in the interpretation and for the selection of modelling parameters. The final block model was developed by estimating and combining block models for each domain, and the final block model has been fully validated with no material bias identified.

Mineral Resources were classified into Indicated and Inferred Resource categories based on geological and grade continuity as well as drill hole spacing. The Mineral Resource Estimate has been defined using a CuEq cut-off grade to reflect processing methodology and assumed revenue streams from Cu, Au and Ag for the deposit. The July 2019 PEA Mineral Resource Estimate represents an increase in contained metal from the June 2019 Mineral Resource Estimate. The decrease in the cut-off grade was a result of changes to some of the economic input parameters (mining, process and G&A costs); which resulted in the increase in resource ounces when compared to the July 2019 PEA Mineral Resource Estimate parameters.

Additional material exists in the geological model, which has not been classified as Indicated or Inferred Resource and has the potential to be a target for further exploration. Some of the deposits are open to supporting resource expansion potential based on additional definition diamond drilling.

The geological understanding of the setting (lithologies and structural) and alteration controls on mineralization is sufficient to support the estimation of Mineral Resources.

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

The Exploration programs completed by Cordoba and previous operators are appropriate for the deposit style. The programs have delineated the Alacran, Costa Azul, Montiel East, and Montiel West deposits, as well as a number of exploration targets. Geophysical interpretations and regional surface exploration indicate the potential to discover further targets that warrant further investigation.

The quantity and quality of the lithological, collar and downhole survey data collected in the various exploration programs by various operators are sufficient to support the Mineral Resource Estimate. The collected sampling is representative of the Cu, Au and Ag grades in the deposit, reflecting areas of higher and lower grades. The analytical laboratories used for legacy and current assaying are well known in the industry, produce reliable data, are properly accredited and widely used within the industry.

Nordmin is not aware of any drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of the results. In Nordmin's opinion, the drilling, core handling, logging, and sampling procedures meet or exceed industry standards and are adequate for the purpose of Mineral Resource Estimation.

Nordmin considers the QA/QC protocols in place for the Project to be acceptable and in line with standard industry practice. Based on the data validation and the results of the standard, blank, and duplicate analyses, Nordmin is of the opinion that the assay and bulk density databases are of sufficient quality for Mineral Resource Estimation for the Project.

No limitations were placed on Nordmin's data verification process. Nordmin considers the resource database reliable and appropriate to support a Mineral Resource Estimate.

25.5 Metallurgical Testing and Processing

25.5.1 Metallurgical Testing

Two preliminary metallurgical test work programs have been completed to date on the Alacran deposit. In 2012 Ashmont secured Minpro to complete preliminary flotation test work on two Alacran composites focused on the fresh sulphide zones. In 2019 Cordoba, secured SGS (in Canada) to complete comminution testing on the fresh sulphide zones including head characterization/flotation testing for the saprolite and transition layers for the Alacran, Montiel East, Montiel West and Costa Azul deposits. In addition, SGS conducted initial test work on the vertical high-grade structures indicating up to 50% of the Au and Ag may be recoverable by a gravity circuit. Initial metallurgical responses are reasonably consistent with similar Cu-Au-Ag replacement and porphyry hosted operations in the industry.

Based upon these preliminary metallurgical test programs for saprolite and fresh rock, variable process recoveries were applied for Cu (50.0% to 90.0%), Au (72.0% to 77.5%) and Ag (40.0% to 70.0%) depending on the domain (saprolite, transition or fresh sulphide) and Cu grade.

Further metallurgical test work has been recommended to identify the preferred baseline concentrator flowsheet configuration and design parameters for the project, assess mineralization and geometallurgical variability between the saprolite, transition and fresh rock and to assess concentrate marketing and/or secondary processing.

25.5.2 Mineral Processing

The Cordoba concentrator has been designed to process 8,000 t/d for the initial five years of operation and increasing to 16,000 t/d for the next 18 years. The process flowsheet includes a primary crushing stage prior to a conventional SABC circuit, rougher flotation, two stages of cleaners and scavenger circuit as well as a pyrite flotation circuit fed from rougher and scavenger flotation tailings. The final concentrate reports to a thickener prior to dewatering via pressure filtration. Process water will be recycled as much as possible to minimize water usage.

25.6 Mineral Resource Estimate

The Mineral Resource Estimate for the Project conforms to industry best practices and is reported using the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves. Technical and economic parameters and assumptions applied to the Mineral Resource Estimate are based on an open pit mining method and milling and flotation concentration processing method. Areas of uncertainty that may materially impact the Mineral Resource Estimate include:

- Changes to long-term metal price assumptions;
- Changes to the input values for mining, processing, and G&A costs to constrain the estimate;

- Changes to local interpretations of mineralization geometry and continuity of mineralized zones;
- Changes to the density values applied to the mineralized zones;
- Changes to metallurgical recovery assumptions;
- Changes in assumptions of marketability of the final product;
- Variations in geotechnical, hydrogeological and mining assumptions;
- Changes to assumptions with an existing agreement or new agreements; and
- Changes to environmental, permitting and social license assumptions.

There is potential for an increase in the estimate if mineralization that is currently classified as Inferred can be upgraded to a higher-confidence Mineral Resource category. Additionally, additional increases may occur if any categorized or uncategorized mineralization within the various deposits is upgraded.

25.7 Mine Plan

The PEA mine plan is based on the Mineral Resource Estimate outlined in Section 14.9. The mine plan was based upon four deposits (Alacran, Montiel East, Montiel West and Costa Azul). Collectively these four deposits were designed to be mined using a conventional drill, blast and shovel/truck open pit mining methods, and processed at the mill on-site. Mining activities will be performed by a contractor-owned mining fleet for Years 1 – 5 of operation (Phase 1) and switch to an owner-operated fleet in Year 6 and onward (Phase 2). The initial mining will be from the Alacran conceptual open pit and is planned to target the high-grade, low-waste strip blocks located in the centre of the deposit. Three small pushbacks are planned within the first five years of the operation to ensure consistent high-grade resources are being fed to the mill maximizing NPV.

The Alacran conceptual open pit will be approximately 1.5 km long in a north-south direction, and a maximum of 630 m wide. The satellite conceptual open pits are considerably smaller, at between 500 m and 600 m long each, and about half as wide. The depths of the conceptual open pits from the road pit access elevations are 195 m for the Alacran pit, 60 m for the Costa Azul pit, 75 m for the Montiel East pit, and 45 m for the Montiel West pit.

The stripping ratio for the selected Alacran pit is 0.92:1 and is approximately 0.2:1 for the satellite pits. The production rates scheduled are 8,000 t/d of mill feed for the first five years, and 16,000 t/d of mill feed thereafter. All mill feed is expected from the Alacran pit for the first 17 years. During years 17 to 23, 8,000 t/d of mill feed is expected from the Alacran pit complemented by 8,000 t/d from the satellite pits. The satellite pits begin production simultaneously in order to provide a sustainable supply of mill feed and increase operational flexibility. During Years 17 to 23, 8,000 t/d of mill feed is expected from the Alacran pit complemented by 8,000 t/d from the satellite pits. Mineralized saprolite will be mined and a portion of this material to be stockpiled in order to maintain a set rate of blending with fresh rock prior to being processed through the mill.

Limited geotechnical and hydrogeological information is currently available. Using the limited RQD data available, a maximum overall pit slope angle of 45° was chosen for the fresh rock and transition material in all four pits, and a maximum pit slope angle of 32° was chosen for the saprolite material. The overall configuration of the mineralization is shallower than the 45° pit slopes.

Due to the preliminary nature of the PEA, it must be noted that the material considered in it are Mineral Resources, and as such are too geologically speculative to be categorized as Mineral

Reserves, and there is no certainty that the PEA will result in an operating mine. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

25.8 Infrastructure

The main project infrastructure components include mine and process plant supporting infrastructure, site accommodation facilities, WMF, external and internal access roads, power supply and distribution, freshwater supply and distribution and water treatment plant.

The Project is accessible by travelling on a paved two-lane highway to Puerto Libertador and then by driving approximately 21 km from Puerto Libertador on a hard-packed, gravel road. The main access road between La Rica and the planned security gate of the project site is of a lower quality, being only wide enough for one vehicle and with sharp turns and abrupt grade changes. This road is 6 km long and is the intended haul road for concentrate. For cost estimation purposes it has been assumed that approximately 6 km of road will need to be upgraded and widened to allow two-way traffic and transport trucks.

The road network, which is maintained by the local governments and would be used to transport personnel, materials, consumables and concentrate to the port to export. A local airstrip is present just south of Puerto Libertador, 18 km from the project site. Airports also exist in Montelibano and Caucasia, which are a respective 64 km and 109 km from the project site entrance to the airport terminal. Ports are located at Tolú and Cartagena: Tolú is 273 km away from the project site by road, and Cartagena is 418 km away.

Limited accommodations will need to be provided for employees who cannot be hired from local communities.

Power to the Project is expected to be supplied via a 15 km, 230 kV powerline connecting to the Sator SAS 300 MW thermal power plant. The Sator SAS plant is part of a permitted regional electric grid expansion that includes the currently operating ISA and Gecelca 300 MW thermal power plants. The Sator SAS plant is expected to be operational within the next three to five years.

In time, power will be generated from the Sator SAS plant for regular operations; however, the existing thermal power plants can supply power to the project in the interim. Further, these plants will provide a reliable and strong backup supply should the Sator SAS plant be shut down for maintenance or repair once it is in operation.

The project site primary power distribution will operate nominally at 4.16 kV which is provided by two 30 MVA 230 kV/4.16 kV step down transformers connected to a “main-tie-main” switchgear lineup. The switchgear lineup and two transformers give redundancy to the primary power distribution in case some distribution equipment requires to be put offline for maintenance or repair for any extended length of time.

25.8.1 Waste Management Facility

Based on the current mine plan, the conceptual layouts developed for the WMF indicate that all tailings and PAG waste rock can be safely and securely stored in the Concepcion Creek Valley to the west of the Alacran conceptual open pit. The WMF will be operated to maintain a permanent water cover over the tailings and waste rock to mitigate the generation of acid. It is expected that the WMF will operate under a net annual water surplus. A water treatment system is included in the WMF concept to discharge excess water to the environment over a portion of each operating year.

25.9 Environmental Studies, Permitting and Social or Community Impact

Baseline studies are typically multi-year campaigns and the fieldwork is often season dependant so efficient scheduling is required. Studies should be scoped to meet EIA requirements, address issues that are identified during the consultation process and support eventual permit applications. Concurrently, consultation with stakeholders is advisable so that issues can be identified, and mitigation measures developed. Baseline studies, consultation feedback and engineering for project activities are required to complete project permitting.

25.10 Market Studies and Contracts

Based upon preliminary assay data the Project's concentrate can be regarded as a clean, high Cu, with solid Au-Ag credits. Such material is likely to be in demand from smelters in Japan, China, elsewhere in Asia and Europe. The Au and Ag content are also likely to make the Project's concentrate attractive to traders for blending purposes. The clean quality combined with the combination of freight, Au and Ag payable makes Japanese smelters likely to achieve the best netback.

Project economics were estimated based on long-term metal prices of $3.25/lb Cu, $1,400/oz Au and $17.75/oz Ag. Cordoba has no current contracts for project development, mining, concentrating, smelting, refining, transportation, handling, sales and hedging, forward sales contracts or arrangements.

25.11 Capital Cost Estimates

The capital cost estimate was prepared by Nordmin with an expected accuracy range of +50%/-35% weighted average accuracy of actual costs. Base pricing is in the second quarter of 2019 US dollars, with no allowances for inflation or escalation beyond that time.

The estimate includes direct and indirect costs, (such as engineering, procurement, construction and start-up of facilities) as well as Owners costs and contingency associated with mine and process facilities and on-site and off-site infrastructure.

The capital costs are broken down into the following two timeframes:

- Initial capital costs: Include the design, procurement, construction and management for the Project start-up production rate of 8,000 t/d (2.92 Mtpa), which will be maintained throughout the first five years of operation.
- Expansion capital costs: include the expansion of the production rate from 8,000 t/d (2.92 Mtpa to 16,000 t/d (5.84 Mtpa) beginning in Year 6.

The initial capital costs are estimated at $161.4M and LoM capital costs are estimated at $527.5 M. The sustaining capital costs are estimated at $175.9M.

25.12 Operating Cost Estimates

The operating cost estimate was prepared by Nordmin with an expected accuracy range of +50%/-35% weighted average accuracy of actual costs. Base pricing is in the second quarter of 2019 US dollars, with no allowances for inflation or escalation beyond that time. LoM Cu C1 cash costs are expected to an average of $2.51/lb including royalties but before precious metals credits and to an average of $1.32/lb net of credits. Total on-site operating costs, including royalties, are expected to an average of $15.78/t processed. Mining costs are expected to an average of $1.85/t of material mined at the Alacran and satellite pits based on a total of 215.3 million tonnes of total material moved. Cost contingencies of up to 25% have been applied as an additional buffer in the cost estimates. The LoM operating cost estimate is $1,161.2 million.

25.13 Economic Analysis

The economic analysis contained in this report is based, in part, on Inferred Mineral Resources, and is preliminary in nature. Inferred Mineral Resources are considered too geologically speculative to have the economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that economic forecasts on which this PEA is based will be realized.

The financial analysis was carried out using a DCF methodology. Net annual cash flows were estimated projecting yearly cash inflows (or revenues) and subtracting projected yearly cash outflows (such as capital and operating costs, royalties and taxes). These annual cash flows were discounted back to the date of the beginning of capital expenditure and totalled to determine the NPV of the project at selected discount rates. A discount rate of 8% was used as the base discounting rate.

In addition, the IRR expressed as the discount rate that yields an NPV of zero, and the payback period, expressed as the estimated time from the start of production until all initial capital expenditures have been recovered, were also estimated.

To assess the Project value drivers, sensitivity analyses were performed for the NPV and IRR considering variations in metal prices, recoveries, initial capital and operating costs on the pre and after tax NPV 8% and on IRR. The Project proved to be most sensitive to fluctuations in the Cu metal price and Cu recoveries and less sensitive to changes in operating costs and initial capital costs.

All monetary amounts are presented in constant second quarter of 2019 US dollars. For discounting purposes, cash flows are assumed to occur at the end of each period. Revenue is recognized at the time of production.

The project shows positive economics and is estimated to produce 417,300 tonnes of Cu, 724,500 ounces of Au and 5,930,000 ounces of Ag. Using an 8% discount rate, the project has an after-tax NPV of $210.7 million an IRR of 20.3% and a payback period of 5.3 years. The pre-tax and after-tax values include the Colombian mining royalties of 4% of total precious metals revenue and 5% of total Cu revenue. Over the PEA LoM, the Project is expected to generate $180.7 million in royalty revenue plus $331.2 million in income tax revenue to the government.

There is potential for the Project if the metal price assumptions increase from the assumptions used in the Technical Report or the contained Mineral Resources increase within the Project.

25.14 Risks and Opportunities

High-level risks were documented and assigned a risk rating. Significant risks were identified in the following areas: metallurgical flotation, recoveries and final concentrate characteristics, geotechnical and dewatering assumptions associated with the planned open pit walls and process plant design, potential for acid mine drainage in the WMF necessitating a complete liner installation, water management and treatment plan assumptions and proposed power supply.

Opportunities identified by Nordmin include further high grading of mill feed material early in the mine plan, mine operating costs currently assume all saprolite will need to be drill and blasted versus ripped, Mineral Resource confidence category upgrades/exploration success throughput expansions, producing both a Cu concentrate and Au/Ag dóre.

25.15 Conclusions

Under the assumptions presented in this Report, and based on the available data, the PEA shows positive economics. Exploration activities have shown the Project to retain significant potential, and additional exploration is warranted. Various concentrate marketing and/or secondary processing options should be evaluated once the recommended metallurgical test work is available to assess mineralization and geometallurgical variability.

26. RECOMMENDATIONS

26.1 Introduction

The Company requested a suspension of obligations on the Alacran title due to force majeure on May 24, 2019 and were notified in writing by the ANM of the suspension on July 31, 2019. The suspension is effective from May 24, 2019, until May 23, 2020. Importantly, if the Company deems it safe/appropriate to lift the force majeure and return to work, the Company may request to the ANM that the suspension be lifted at any time before May 23, 2020. When the force majeure is lifted, the following recommendations can proceed and are divided into two phases:

- Phase 1 recommendations are focused on exploration and drilling activities, environmental baseline programs and metallurgical test work. Contingent upon completion of the recommended Phase 1 program and budget and receipt of positive economic results from that work, which is not guaranteed, a Phase 2 program and budget would be warranted; and
- Phase 2 recommendations are related to the further advancement of ongoing technical programs. Phase 1 recommendations are estimated to require a budget of $2.7 million; Phase 2 recommendations are estimated to require a budget of $4.2 million.

26.2 Phase 1 Recommendations

A drill program of approximately 5,000 m of infill and expansion drilling is recommended to support and test the known mineralization extents and the ongoing metallurgical and geotechnical related programs.

The main objectives of metallurgical testing are:

- to further define preliminary flowsheet requirements;
- to further define saprolite, transitional and fresh rock recoveries, and associated costs;
- sample preparation and characterization using core samples;
- metallurgical flotation flowsheet development batch testing;
- metallurgical testing:
    - batch testing, mineralization and product characterization;
    - locked cycle tests and product characterization; and
    - metallurgical comminution testing, consisting of bond work, bond rod, crushing and abrasion index tests, semi-autogenous grind mill comminution tests.
- continuation of environmental baseline studies focusing on hydrogeology, hydrology and water balance to support the WMF; and
- technical studies which include trade-off studies and pre-feasibility study related work.

Table 26-1 outlines the recommended Phase 1 budget.

Table 26-1: Phase 1 Budget Recommendations

Item	Cost ($)
Approximately 5,000 m of infill/expansion drilling (primarily used to support metallurgy and geotechnical related work programs)	525,000
Technical studies (primarily focused on metallurgy and geotechnical)	150,000
Environmental baseline studies (hydrogeology, hydrology and water balance to support the WMF)	187,500
Technical studies 43-101 (pre-feasibility)	900,000
General support and administration costs	705,000
Contingency (10%)	246,750
Total	**2,714,250**

Source: Nordmin, 2019

26.3 Phase 2 Recommendations

The Phase 2 recommendations are contingent upon completion of the Phase 1 recommendations and the receipt of positive economic results from the Phase 1 program. The Phase 2 program is designed for the further advancement of the ongoing drilling and technical programs. Table 26-2 outlines the recommended Phase 2 budget.

Table 26-2: Phase 2 Budget Recommendations

Item	Cost ($)
Approximately 5,000 m of infill/expansion drilling (primarily used to support metallurgy and geotechnical related work programs)	750,000
Approximately 10,000 m of regional drilling	1,500,000
Environmental baseline studies to support the EIA	112,500
WMF test work (water balance, dam location)	187,500
Trade-off studies (mining, milling, concentrate testing)	187,500
General support and administration costs	1,095,000
Contingency (10%)	383,250
Total	**4,215,750**

Source: Nordmin, 2019

26.4 Exploration and Infill Drill Programs

Exploration, infill and step-out drilling is recommended to further investigate and expand current high-grade Cu-Au-Ag mineralization around the known deposits and test the exploration prospects within the Project area. Portions of the drill core from the infill drill program should be used to gather additional geotechnical and density information and for metallurgical testing.

26.5 Mineral Resource Estimate Update

It is recommended that the Mineral Resource Estimate should be updated with the results from the planned drill campaigns with the aim of supporting pre-feasibility level assessments.

26.6 Mine Planning and Infrastructure

It is recommended that a geotechnical field investigation study be conducted to support the project facilities locations and infrastructure design. Once the geotechnical data is available, trade-off studies should be conducted to determine optimal infrastructure location sites.

The WMF locations and design should be further evaluated along with a material balance, which will be required as part of the evaluation process.

A hydrogeological and hydrological study should be completed to understand surface and underground water conditions and behaviours that can support engineering studies, development of a project water balance, and creation of a robust and dynamic conceptual model that can be used to derive additional numerical and prediction models for use in operational water management. Aspects that will need to be included in the work program include:

- development of static and kinetic geochemical analyses and hydrogeochemical models to address the potential of acid drainage;
- completion of an inventory of water sources in the project area of influence, focusing on the two micro-basins in which the project is located;
- implementation of water monitoring activities to provide baseline data; and
- a seismic hazard study should be conducted.

A route study is required to determine what will be required for project access.

A review is required to confirm the availability of port facilities, and to determine the likely concentrate handling costs at the preferred port option.

Although the PEA assumes power will be sourced via the Sator SAS 300 MW thermal power plant, alternate power options should be further researched.

26.7 Metallurgical Test Work

A comprehensive test work and development program will be required before completing detailed mining studies. This should include additional sampling and testing**,** considering as a minimum the following items:

- further define preliminary flowsheet requirements;
- further define saprolite, transitional and fresh rock recoveries, and associated costs;
- sample preparation and characterization using core samples;

- metallurgical flotation flowsheet development batch testing;
- complete treatability test work on representative influent water to refine the water treatment process that is required to meet the effluent criteria;
- further SAG and ball mill grinding design tests, BBWi, abrasion, index, JK drop weight and SMC test;
- flotation optimization and variability test work;
- concentrate thickening and filtration tests; and
- metallurgical testing:
    - batch testing, mineralization and product characterization;
    - locked cycle tests and product characterization; and
    - metallurgical comminution testing, consisting of bond work, bond rod, crushing and abrasion index tests, semi-autogenous grind mill comminution tests.

26.8 Process Design

It is recommended that trade-off studies be conducted to define the preferred process flowsheet and select the process plant facility location.

26.9 Environmental, Social and Permitting

Sufficient baseline studies will need to be completed to support a pre-feasibility study. The Project EIA document will require baseline studies to have been conducted in both dry and rainy seasons. Additional information required to support the pre-feasibility study that remains to be collected includes:

- hydrology/hydrological studies;
- completion of archaeological and heritage searches once the infrastructure locations have been further refined;
- cross-check of the selected infrastructure sites, and other areas that are planned to be disturbed against protected areas such as rivers, wetlands, protected flora, lagoons and registered archaeological sites to ensure selected sites will have minimal disturbance possible;
- continue to consult with the Columbian government to obtain Terms of Reference for the EIA; and
- continue stakeholder consultations and community awareness campaigns to ensure stakeholders are aware of the project scope and likely impacts. This should be completed before the project moves to the next stages.

26.10 Report

When sufficient data is in hand, it is recommended that a pre-feasibility document be completed to support the estimation of Mineral Reserves for the project.

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28. GLOSSARY

The Mineral Resources and Mineral Reserves have been classified according to CIM (CIM, 2014). Accordingly, the resources have been classified as Measured, Indicated or Inferred, the reserves have been classified as proven, and probable based on the Measured and Indicated Resources as defined below.

28.1 Mineral Resource

A **Mineral Resource** is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade or quality, continuity, and other geological characteristics of a Mineral Resource are known, estimated, or interpreted from specific geological evidence and knowledge, including sampling.

An **Inferred Mineral Resource** is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

An **Indicated Mineral Resource** is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from the adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

A **Measured Mineral Resource** is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of modifying factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from the detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve.

28.2 Mineral Reserve

A **Mineral Reserve** is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at pre-feasibility or feasibility-level as appropriate that include the application of modifying factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

The reference point at which Mineral Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported. The public disclosure of a Mineral Reserve must be demonstrated by a pre-feasibility study or feasibility study.

A **Probable Mineral Reserve** is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the modifying factors applying to a Probable Mineral Reserve is lower than that applying to a Proven Mineral Reserve.

A **Proven Mineral Reserve** is the economically mineable part of a Measured Mineral Resource. A Proven Mineral Reserve implies a high degree of confidence in the modifying factors.

28.3 Definition of Terms

Table 28-1 summarizes the general mining terms potentially used in this Technical Report.

Table 28-1: Definition of Terms

Term	Definition
Assay	The chemical analysis of mineral samples to determine the metal content.
Capital Expenditure	All other expenditures not classified as operating costs.
Composite	Combining more than one sample result to give an average result over a larger distance.
Concentrate	A metal-rich product resulting from a mineral enrichment process such as gravity concentration or flotation, in which most of the desired mineral has been separated from the waste material in the ore.
Crushing	The initial process of reducing the ore particle size to render it more amenable for further processing.
Cut-off Grade (CoG)	The grade of mineralized rock, which determines as to whether or not it is economical to recover its gold content by further concentration.
Dilution	Waste, which is unavoidably mined with ore.
Dip	The angle of inclination of a geological feature/rock from the horizontal.
Fault	The surface of a fracture along which movement has occurred.
Footwall	The underlying side of an orebody or stope.
Gangue	Non-valuable components of the ore.
Grade	The measure of the concentration of gold within the mineralized rock.
Hanging wall	The overlying side of an orebody or slope.
Haulage	A horizontal underground excavation which is used to transport mined ore.
Hydrocyclone	A process whereby material is graded according to size by exploiting centrifugal forces of particulate materials.
Igneous	Primary crystalline rock formed by the solidification of magma.
Kriging	An interpolation method of assigning values from samples to blocks that minimize the estimation error.
Level	A horizontal tunnel, the primary purpose is the transportation of personnel and materials.
Lithological	Geological description pertaining to different rock types.
Material Properties	Mine properties.
Milling	A general term used to describe the process in which the ore is crushed and ground and subjected to physical or chemical treatment to extract the valuable metals to a concentrate or finished product.

Term	Definition
Mineral/Mining Lease	A lease area for which mineral rights are held.
Mining Assets	The Material Properties and Significant Exploration Properties.
Ongoing Capital	Capital estimates of a routine nature, which is necessary for sustaining operations.
Ore reserve	See mineral reserve.
Pillar	Rock left behind to help support the excavations in an underground mine.
Sedimentary	Pertaining to rocks formed by the accumulation of sediments, formed by the erosion of other rocks.
Shaft	An opening cut downwards from the surface for transporting personnel, equipment, supplies, ore, and waste.
Sill	A thin, tabular, horizontal to the sub-horizontal body of igneous rock formed by the injection of magma into planar zones of weakness.
Smelting	A high-temperature pyrometallurgical operation conducted in a furnace, in which the valuable metal is collected to a molten matte or dolt phase and separated from the gangue components that accumulate in a less dense molten slag phase.
Stope	The underground void created by mining.
Stratigraphy	The study of stratified rocks in terms of time and space.
Strike	The direction of the line formed by the intersection of strata surfaces with the horizontal plane, always perpendicular to the dip direction.
Sulphide	A sulphur-bearing mineral.
Tailings	Finely ground waste rock from which valuable minerals or metals have been extracted.
Thickening	The process of concentrating solid particles in suspension.
Total Expenditure	All expenditures, including those of an operating and capital nature.
Variogram	A statistical representation of the characteristics (usually grade).

28.4 Abbreviations

The following abbreviations may be used in this Technical Report.

Abbreviation	Unit or Term
A	ampere
Al	aluminum
AA	atomic absorption
Ag	silver
ANLA	National Environmental Licensing Agency
ARD	acid rock drainage
Au	gold
°C	degrees Celsius
CAPEX	capital expenditure
Car	Carbonate
CRD	Carbonate Replacement Deposit
Chl	Chlorite
CIM	Canadian Institute of Mining, Metallurgy, and Petroleum
cm	centimetre
cm^2	square centimetre
cm^3	cubic centimetre
COP	Colombian Pesos
CRM	certified reference material
Cu	copper
CuEq	copper equivalent
°	degree (degrees)
DCF	discounted cash flow
EDS	Environmental Design Storm
EMPA	Electron Microprobe Analysis
EPCM	Engineering, Procurement and Construction Management
EIA	Environmental Impact Assessment
ft	foot (feet)
ft^2	square foot (feet)
ft^3	cubic foot (feet)
g	gram
g/cm^3	grams per cubic centimetre
g/t	grams per tonne

Abbreviation	**Unit or Term**
Ga	giga-annum (1 billion years)
gal	gallon
GEL	Global Environmental License
g/L	gram per litre
g-mol	gram-mole
g/t	grams per tonne
>	greater than
ha	hectare (10,000 m^2)
HDPE	high density polyethylene
HG	high-grade
High-Ti	high titanium basalt
Hp	horsepower
ICP	induced couple plasma
ID2	inverse-distance squared
ICP-AES	Inductively Coupled Plasma Atomic Emission Spectrometry
IDF	Inflow Design Flood
IOCG	Iron Oxide Copper-Gold
IRR	internal rate of return
kdmt	thousand dry metric tonnes
kg	kilogram
kg/m^2	Kilogram per cubic metre
kg/m^3	Kilogram per square metre
km	kilometre
km^2	square kilometer
kt	thousand tonnes
kV	kilovolt
<	less than
L	litre
L/s	litres per second
LG	low-grade
lb	pound
LoM	life of mine
m	metre
m^2	square metre
m^3	cubic metre

Abbreviation	Unit or Term
Ma	mega-annum (1 million years)
µm	Micrometre or micron
mg/L	milligrams/liter
M	million
mm	millimetre
mm^2	square millimetre
mm^3	cubic millimetre
Moz	million troy ounces
Mt	million tonnes
Mtpa	million tonnes per annum
MVA	mega volt amp
MW	megawatt
MWh	megawatt hour
Ni	nickel
NI 43-101	Canadian National Instrument 43-101
NN	nearest neighbour
NPV	net present value
NSR	net smelter return
OK	ordinary kriging
opt	ounce per tonne
oz	troy ounce
%	percent
%w/w	percent mass fraction for percent mass
PAG	potentially acid generating
Pb	lead
Plag	Plagioclase
ppb	parts per billion
ppm	parts per million
Py	Pyrite
QA/QC	quality assurance/quality control
Qtz	Quartz
RC	reverse circulation drilling
RoM	run-of-mine
RQD	rock quality description
sec	second

Abbreviation	Unit or Term
SG	specific gravity
Sph	sphalerite
S	sulphur
t	tonne (metric ton) (2,204.6 pounds)
Th	thorium
Ti	titanium
t/h	tonnes per hour
t/d	tonnes per day
U	uranium
UHF	Ultra High Frequency
US	United States
UTM	Universal Transverse Mercator
VMS	Volcanogenic Massive Sulphide
W	tungsten
WMF	Waste Management Facility
y	year
Zn	zinc

APPENDIX A

Certificates of Qualified Persons

NORDMIN
RESOURCE & INDUSTRIAL
ENGINEERING

CERTIFICATE OF QUALIFIED PERSON

I, Glen Kuntz, P. Geo., of Thunder Bay, Ontario do hereby certify:

1. I am the Consulting Specialist – Geology/Mining with Nordmin Engineering Ltd. with a business address at 160 Logan Ave., Thunder Bay, Ontario.
2. This certificate applies to the technical report titled "NI 43-101 Technical Report and Preliminary Economic Assessment, San Matías Copper-Gold-Silver Project, Colombia" with an Effective Date of July 29, 2019 (the "Technical Report").
3. I am a graduate of the University of Manitoba, 1991, with a Bachelor of Science in Geology.
4. I am a member in good standing of the Association of Professional Geoscientist of Ontario and registered as a Professional Geoscientist, license number 0475.
5. My relevant experience includes 28 years of experience in exploration, operations and resource estimations. I am a "Qualified Person" for the purposes of Canadian National Instrument 43-101 ("NI 43-101" or the "Instrument").
6. My most recent personal inspection of San Matías Copper-Gold-Silver Project ("the Project"), located in Colombia, South America, was April 8 to April 10, 2019 inclusive. The Project is within the jurisdiction of the Municipality of Puerto Libertador, Department of Córdoba, 390 km northwest of Bogotá, 160 km north of Medellín, and 112 km south of Montería.
7. I am responsible for Sections 4 through 12, 14, 19 through 24 (except 21.5.4) and portions of Sections 1, 25 and 26 (the "Relevant Sections") summarized within the Technical Report.
8. I am independent of Cordoba Minerals Corp., as defined by Section 1.5 of the Instrument.
9. I have read the NI 43-101 reporting requirements and the Relevant Sections of the Technical Report, for which I am responsible, have been prepared in accordance with the Instrument and Form 43-101F1.
10. As of the date of this certificate, to the best of my knowledge, information, and belief, the Relevant Sections of the Technical Report that I am responsible for, contain all scientific and technical information relating to the Project that is required to be disclosed to make the Technical Report not misleading.
11. I have no prior involvement with the Project that is the subject of the Technical Report.

Signed and dated this 10th day of September 2019, at Thunder Bay, Ontario.

Glen Kuntz, P.Geo.
Consulting Specialist – Geology/Mining
Nordmin Engineering Ltd.

NORDMIN
RESOURCE & INDUSTRIAL
ENGINEERING

CERTIFICATE OF QUALIFIED PERSON

I, Agnes Krawczyk, P. Eng., of Sudbury, Ontario do hereby certify:

1. I am the Senior Mining Engineer with Nordmin Engineering Ltd. with a business address at 2565 Kingsway Blvd., Unit 2, Sudbury, Ontario.
2. This certificate applies to the Technical Report titled "NI 43-101 Technical Report and Preliminary Economic Assessment, San Matías Copper-Gold-Silver Project, Colombia" with an Effective Date of July 29, 2019 (the "Technical Report").
3. I am a graduate of the University of Toronto, 2003, with a Bachelor of Applied Science in Mineral Engineering - Mining Specialty.
4. I am a member in good standing of the Professional Engineers of Ontario and registered as a Professional Engineer, license number 100160933.
5. My relevant experience includes 15 years of experience in mine planning, ventilation, ground control and blasting patterns. I am a "Qualified Person" for the purposes of Canadian National Instrument 43-101 ("NI 43-101" or the "Instrument").
6. My most recent personal inspection of San Matías Copper-Gold-Silver Project ("the Project"), located in Colombia, South America, was April 8 to April 10, 2019 inclusive. The Project is within the jurisdiction of the Municipality of Puerto Libertador, Department of Córdoba, 390 km northwest of Bogotá, 160 km north of Medellín, and 112 km south of Montería.
7. I am responsible for Section 16, Section 18 and portions of Sections 1, 25 and 26 (the "Relevant Sections") summarized within the Technical Report.
8. I am independent of Cordoba Minerals Corp., as defined by Section 1.5 of the Instrument.
9. I have read the NI 43-101 reporting requirements and the Relevant Sections of the Technical Report, for which I am responsible, have been prepared in accordance with the Instrument.
10. As of the date of this certificate, to the best of my knowledge, information, and belief, the Relevant Sections of the Technical Report that I am responsible for, contain all scientific and technical information relating to the Project that is required to be disclosed to make the Technical Report not misleading.
11. I have no prior involvement with the Project that is the subject of the Technical Report.

Signed and dated this 10th day of September 2019, at Sudbury, Ontario.

Agnes Krawczyk, P.Eng.
Senior Mining Engineer
Nordmin Engineering Ltd.

A. KRAWCZYK
100160933

NORDMIN
RESOURCE & INDUSTRIAL
ENGINEERING

CERTIFICATE OF QUALIFIED PERSON

I, Kurt Boyko, P. Eng., of Thunder Bay, Ontario do hereby certify:

1. I am the Consulting Specialist – Mechanical Systems with Nordmin Engineering Ltd. with a business address at 160 Logan Ave., Thunder Bay, Ontario.
2. This certificate applies to the technical report titled "NI 43-101 Technical Report and Preliminary Economic Assessment, San Matías Copper-Gold-Silver Project, Colombia" with an Effective Date of July 29, 2019 (the "Technical Report").
3. I am a graduate of Lakehead University, 1994, with a Bachelor of Engineering Degree, Mechanical.
4. I am a member in good standing of the Professional Engineers of Ontario and registered as a Professional Engineer, license number 90418484.
5. My relevant experience includes 27 years of experience in machine design, mine dewatering plans, processing plants, materials handling, pumping, and ventilation systems. I am a "Qualified Person" for the purposes of Canadian National Instrument 43-101 ("NI 43-101" or the "Instrument").
6. I have not visited the San Matías Copper-Gold-Silver Project ("the Project"), located in Colombia, South America.
7. I am responsible for Section 13, Section 17 and portions of Sections 1, 25 and 26 (the "Relevant Sections") summarized within the Technical Report.
8. I am independent of Cordoba Minerals Corp., as defined by Section 1.5 of the Instrument.
9. I have read the NI 43-101 reporting requirements and the Relevant Sections of the Technical Report, for which I am responsible, have been prepared in accordance with the Instrument and Form 43-101F1.
10. As of the date of this certificate, to the best of my knowledge, information, and belief, the Relevant Sections of the Technical Report that I am responsible for, contain all scientific and technical information relating to the Project that is required to be disclosed to make the Technical Report not misleading.
11. I have no prior involvement with the Project that is the subject of the Technical Report.

Signed and dated this 10th day of September 2019, at Thunder Bay, Ontario.

Kurt Boyko, P.Eng.
Consulting Specialist – Mechanical Systems
Nordmin Engineering Ltd.

K. A. BOYKO
90418484
SEPT.10/19

CERTIFICATE OF QUALIFIED PERSON

I, Wilson Muir, P.Eng. of North Bay, Ontario do hereby certify:

1. I am a Senior Engineer with Knight Piésold Ltd. with a business address at 1650 Main Street West, North Bay, Ontario.
2. This certificate applies to the Technical Report titled "NI 43-101 Technical Report and Preliminary Economic Assessment, San Matías Copper-Gold-Silver Project, Colombia" with an Effective Date of July 29, 2019 (the "Technical Report").
3. I am a graduate of the University of British Columbia, 1994, with a Bachelor of Applied Science in Geological Engineering.
4. I am a member in good standing with Professional Engineers Ontario and registered as a Professional Engineer, license number 100060272.
5. My relevant experience includes 22 years of experience in tailings and water management. I am a "Qualified Person" for the purposes of Canadian National Instrument 43-101 ("NI 43-101" or the "Instrument").
6. I have not visited the San Matías Copper-Gold-Silver Project ("the Project") site, located in Colombia, South America.
7. I am responsible for Section 18.12 and Section 21.5.4, as well as portions of Sections 1 and 25 (the "Relevant Sections") summarized within the Technical Report.
8. I am independent of Cordoba Minerals Corp., as defined by Section 1.5 of the Instrument.
9. I have read the NI 43-101 reporting requirements and the Relevant Sections of the Technical Report, for which I am responsible, have been prepared in accordance with the Instrument and Form 43-101F1.
10. As of the date of this certificate, to the best of my knowledge, information, and belief, the Relevant Sections of the Technical Report that I am responsible for, contain all scientific and technical information relating to the Project that is required to be disclosed to make the Technical Report not misleading.
11. I have no prior involvement with the Project that is the subject of the Technical Report.

Signed and dated this 10th day of September 2019, at North Bay, Ontario.

C.W. MUIR

Sept 12/19

Wilson Muir, P.Eng.
Senior Engineer
Knight Piésold Ltd.