NI 43-101 Technical Report
Mineral Resource Estimate
Palmer Project, Alaska, USA

Effective Date: January 13, 2025
Report Date: February 28, 2025

Report Prepared for

Constantine Metal Resources Ltd

510 Burrard St
Vancouver, British Columbia, Canada V6C 3A8

Report Prepared by

srk consulting

SRK Consulting (U.S.), Inc.
999 17th Street, Suite 400
Denver, Colorado 80202

SRK Project Number USPR002055

Signed by Qualified Persons:

Ben Parsons, MSc, MAusIMM (CP), Practice Leader/Principal Consultant, Resource Geology
Kash Kelloff, BSc ChemE, MBA, SME, MMSAQP, Principal Consultant (Mining)

Reviewed by:

Scott Burkett, BSc Geology, SME-RM, Principal Consultant, Exploration Geologist

Table of Contents

List of Tables

List of Figures

Appendices

1 Summary

This report was prepared as a Canadian National Instrument 43-101 Technical Report (the Technical Report) for Constantine Metal Resources Ltd. (Constantine Metals) by SRK Consulting (U.S.), Inc. (SRK) on the Palmer Project (the Project). The Technical Report is titled NI 43-101 Mineral Resource Estimate Palmer Project, Alaska dated March 3, 2025. Constantine Metals is a 100% owned subsidiary of American Pacific Mining Corp the Issuer, of the report.

The Property is owned by Constantine Metals and is held by Constantine North Inc (Constantine North), a 100% owned US (Alaska) subsidiary of Constantine Metals. Portions of the Property, the Palmer Project (the Project), are held by Constantine Mining LLC (Constantine Mining) on which the resources are located. In November 2022, Constantine Metals was acquired by American Pacific Mining Corp. (APM) with exploration work on the Palmer Property continuing under Constantine.

Mineralization on the Project is comprised of massive to semi-massive sulfides that are classified as Volcanogenic Massive Sulfide (VMS) deposits. The last publicly-released National Instrument 43-101 (NI 43-101) technical report on the Property was prepared for Constantine Metals by JDS Engineering & Mining Inc. with a filing date of March 7, 2022 and an effective date of June 3, 2019.

This Technical Report supports and documents a Mineral Resource Statement informed by a borehole database comprising of 227 boreholes (approximately 86,092 m) as of January 13, 2025. The Mineral Resource Statement included material reported to be amenable to underground mining methods.

1.1 Property Description and Ownership

The Property is located 60 kilometers (km) northwest from Haines, Alaska, in the Alaska panhandle. The Property lies 2 km from the Haines Highway, which links the deep-sea port of Haines, Alaska, USA, with Haines Junction, Yukon, Canada, on the Alaska Highway.

The Palmer Project consists of 340 federal unpatented lode mining claims, which cover an area of approximately 6,765 acres (27 km^2), 63 state mineral claims that cover an area of 9,185 acres (37 km^2), and land leased from the Alaska MHT, which total 1,246 acres, giving a Palmer Project total of 16,998 acres (70 km^2). These core claims are held by Constantine Mining. The core claims are surrounded by land held by Constantine North, which include 39 state lode mining claims that cover an area of 4,601 acres (18.6 km^2), and land leased from the Alaska MHT, which covers 40,385 acres (165 km^2) for a total of 65,722 acres held by Constantine North. The total area for the Palmer Property is 81,737 acres (approximately 33,078 ha or 330 km^2).

The host rock at the Property is within the same late-Triassic volcanogenic massive sulfide (VMS) belt as the high-grade producing Greens Creek Mine and the giant Windy Craggy deposit.

1.2 Geology and Mineralization

The Property lies within a mafic-dominated, bimodal sequence of submarine volcanic rocks hosting VMS mineralization. These rocks are part of an approximately 600 km long, discontinuously exposed belt of late-Triassic, rift-related, volcanic and sedimentary rocks belonging to the Alexander Terrane. Throughout southeast Alaska and northwest British Columbia, the Alexander Terrane hosts numerous VMS occurrences, prospects, and deposits, including the giant Windy Craggy copper (Cu)-cobalt (Co)-gold (Au)-silver (Ag)-zinc (Zn) deposit in British Columbia, and the precious metals-rich silver (Ag)-

zinc (Zn)-lead (Pb)-gold (Au) Greens Creek Mine in southeast Alaska (Taylor, 1997). The Property area is underlain by Paleozoic and lower Mesozoic metasedimentary and metavolcanic rocks that have been intruded locally by Cretaceous and Tertiary granitic plutons.

The regional and deposit scale setting has a complex structural history with significant amounts of faulting and folding of the main VMS lenses. An updated structural model has been compiled for the Project with work ongoing to identify structures associated with the mineralizing events.

The Project hosts two known VMS deposits: the Palmer Deposit, which consists of the South Wall (SW) and RW Zones, and the AG Deposit, located 3 km to the southwest. Numerous other mineralized prospects are present throughout the property and share similar alteration and mineralogical characteristics to the known zones, suggesting a large-scale, property-wide, late-Triassic mineralizing event. Six different mineralization styles have been identified at the Property which include:

1. Barite-Carbonate Mineralization
2. Carbonate Mineralization
3. Barite Mineralization
4. Massive Pyrite Mineralization
5. Massive Pyrrhotite Mineralization
6. Semi-massive & Stringer Style

The Palmer South Wall Zone consists of three distinctive zones (lenses) of stratiform massive sulfide-sulfate. The South Wall Zones 1, 2 and 3 are located on the south-facing, steeply dipping limb of a megascopic deposit-scale anticline, disrupted by significant faulting, Drilling to date at South Wall has defined the three zones of VMS-style mineralization with a total plunge length of ~ 700 m and a total strike length ~ 550 m. The Palmer RW Zone includes four defined VMS lenses located on the north-facing, moderately dipping limb of the anticline. All four zones are open to expansion along strike, and both up and downdip.

South Wall Zone I occurs at the up-dip, overturned, edge of the South Wall and consists of a single tabular lens of massive sulfide. Zone 1 is interpreted to be offset from stratigraphically correlative mineralization in South Wall Zone 2 by normal displacement along the high angle footwall fault. Zone 2 sits between the footwall fault and a newly interpreted (2024) Flex fault. Zone 2 outcrops discontinuously for over 100 m as a 2 to 3 m thick, leached, stratiform massive barite-sulfide and chert horizon, and has an approximate combined maximum true thickness of 24 m, dip length of 350 m, and strike length of 425 m. Zone 3 displays a more moderate dip than the overlying steeply dipping Zone 2, which suggests the presence of a synclinal hinge or fault structure separating Zone 2 and 3. Zone 3 has an approximate maximum true thickness of 74 m, dip length of 250 m, and strike length 370 m.

The RW Zone consists of four identified VMS lens which are considered as the west and east zones. Two parallel VMS lenses have been modeled in the western portion of the RW Zone has an approximate maximum true thickness of 6 m, a strike length of 200 m, and a dip length of 1,000 m (based on resource wireframes). Two parallel VMS lenses have been modeled in the western portion of the RW Zone has an approximate maximum true thickness of 6 m, a strike length of 300 m, and a dip length of 1,000 m (based on resource wireframes). The zone remains open both up- and downdip and along strike. The RW East Zone has an approximate maximum true thickness of 11 m, a strike length of 300 m, and a dip length of 250 m (based on resource wireframes). The zone remains open along strike and downdip.

The AG Deposit, previously referred to as the AG Zone and Nunatak prospect, is located approximately 3 km southwest of the Palmer Deposit on a steep Nunatak between two branches of the Saksaia Glacier. The AG Deposit was discovered in 2017 and is defined by 33 drillholes completed from 2017 to 2019.

In general, the AG Deposit area is underlain by a folded sequence of bimodal volcanic flows, fragmental volcanic units, volcaniclastics, tuffs, limey argillites, and siltstone, as two distinct panels: the Nunatak Panel (which hosts the Nunatak prospect) and the JAG Panel (which hosts the JAG prospect), which combined make up the AG Deposit. The two structural panels are separated by a steep, north-to-northeast-dipping, reverse fault called the Main Fault.

The AG Deposit mineralization consists of tabular, steeply northeast-dipping barite and sulfide-rich lenses that vary in thickness from several tens of centimeters to 15 m and extend for approximately 600 m along strike and 100 to 250 m downdip. The mineralized zones are underlain by locally mineralized coherent volcanic and volcaniclastic rocks. The AG Main Lens has a drill-defined strike length of approximately 500 m, vertical extent of approximately 400 m, maximum true thickness of approximately 35 m, and remains open to expansion in most directions.

The zone has a northwesterly trend (approximately 310° to 320° azimuth) and a dip that changes orientation along strike, presumably the result of a second deformation event. The northwest half of the zone is sub-vertical to locally overturned with a southwest dip, whereas the southeast half is upright with a moderate to steep dip to the northeast. To date, the thickest and most developed mineralization is defined in the southeast from holes drilled in 2018.

1.3 Status of Exploration

Base metal sulfides and barite were first discovered in the Glacier Creek prospect area in 1969 by local prospector Merrill Palmer. Exploration work by historic operators from 1969 to 1999 at Palmer included a variety of property-wide geological, geochemical, and geophysical surveys and diamond drilling. Total drilling by all historical operators prior to 2006 was 7,554 m in 35 holes.

Constantine Metals was formed in 2006, with the primary purpose of exploring the Palmer Project. Initial work completed by Constantine included a variety of exploration surveys and approximately 60,203 m of drilling in 156 holes through the end of 2018. This work has led to the discovery of massive sulfide deposits at the Palmer Deposit (including the South Wall and RW Zones) in the Glacier Creek Prospect area and the AG Deposit in the Nunatak Prospect Area.

Diamond drilling from 2006 to 2018 defined a total length of near-continuous SW Zone mineralization of 700 m and a total strike length of 550 m, with exhalative mineralization occurring at more than one stratigraphic level. The RW Zones had been defined over a dip length of 325 m and a total strike length of 800 m. It is reported that the known zones are open to expansion in multiple directions, and (most notably) the thickest mineralized intersection is located at the lower extents of the SW Zone drilling. The RW Zone is constrained to some extent by the topography but contains a number of high-grade intersections which remain open downdip.

Drilling was completed using diamond drilling methods and primarily targeted the SW, RW and AG domains with limited drilling at the CAP, Boundary and HG prospects. Additional drilling was also completed (included in this total) for geotechnical purposes. The resultant drilling was used to generate the previous mineral resources completed by Advantage Geoservices Ltd.

Between 2019 and 2022, Constantine completed a total of 27 holes for 9,768 m at the Palmer and AG Deposits as well as one proximal exploration target to aid in the development of the geological model and to test geological continuity, and to start work on generation of a hydrogeological model. SRK reviewed the documented procedures and technical report and considers, from a geological aspect, that the procedures are reasonable and aligned with industry-standard practices.

The focus of the current drilling programs (2022 – 2024) has been limited to the Palmer Deposit SW and RW Zones, which form the major portion of the current known mineralization at the Project. Additionally, during the 2023 and 2024 field season Constantine has focused on closer-spaced drilling within the Zone 1 portion of the SW deposit to aid in the development of geostatistical parameters (specifically variograms), to increase confidence in the estimation parameters and classification spacing analysis. This combined with the previous drilling post 2018 results in an increase in the database of 87 diamond drillholes for 26,898 m since the previous Mineral Resource Estimate or the equivalent of approximately 39% in drilling meters for the Project. The total drilling for the Project based on the database provided (including redrills and geotechnical holes), is 227 boreholes (approximately 86,092 m). Three new drillholes were completed at the AG Deposit since the previous estimate which were added to the updated resource model during the current MRE update.

All drilling was completed by diamond drilling methods using internal Constantine drilling protocols. SRK reviewed the documented procedures and technical report and considers, from a geological aspect, that the procedures are reasonable and aligned with industry-standard practices.

1.4 Mineral Processing and Metallurgical Testing

Metallurgical testing was performed on Palmer samples by SGS Canada Inc. (SGS) located in Burnaby, British Columbia, in 2013, 2018, and 2023. The most recent test program was conducted by SGS in 2023 (report issued in September 2024) and is used as the basis for the recovery assumptions used in the mineral resource estimate (MRE). The 2023 test work is supported by the previous test work completed in 2013 and 2018.

Based on the results from SGS, it is anticipated that a copper/lead, zinc, pyrite, and barium (Ba) sequential flotation circuit can produce saleable base metal concentrates. Recovery of copper, lead, zinc, gold, and silver into two base metal concentrates form the basis of the metallurgical predictions for the MRE. Locked-cycle test (LCT) work from 2023 on a South Wall Master Composite and an AG Deposit Master Composite form the basis of the recoveries. Pyrite and barite were amendable to flotation in the lab test work in both flotation circuits and present additional upside opportunities that should be studied further.

Comminution test work summarized in Table 1-1 determined that the Palmer and AG Deposits can be classified as soft to very soft and mildly abrasive.

Table 1-1: Comminution Tests Summary

Sample ID	JKTech Parameters (SMC)					BW_i Parameters		Bond A_i		SPI	
	A	b	A x b	t_a	SCSE	Work Index (kWh/t)	POH (%)	A_i (g)	POA (%)	SPI (Minimum)	POH (%)
AG Master Comp	62.9	2.28	143.4	0.86	5.71	6.7	2	0.109	20	31.6	11.7
SW Master Comp	74.2	1.48	109.8	0.80	6.81	7.1	2	0.081	15	25.8	7.9

Source: SGS, 2024

A_i: Abrasion index
BW_i: Bond work index
g: Gram
kWh/t: Kilowatt-hour per tonne
POA: Percent of abrasivity
POH: Percent of hardness
SCSE: Semi-autogenous grinding (SAG) Circuit Specific Energy
SMC: SAG mill comminution
SPI: SAG Power Index

Based on the results from SGS (2023), favorable sulfide flotation results were achieved, and saleable copper/lead and zinc concentrates can be produced. Table 1-2 summarizes the flotation test results for the two master composites (SW-LCT1 and AG-LCT1).

Table 1-2: Sulfide Flotation Test Results Summary

Test ID	CuPb Cleaner Concentrate									
	Grade (% g/t)					Recovery (%)				
	Cu	Zn	Pb	Au	Ag	Cu	Zn	Pb	Au	Ag
SW-LCT1	24.1	6.61	3.15	3.21	431	90.3	6.1	82.9	62.7	75.6
AG-LCT1	3.80	6.74	37.7	8.32	3,760	54.8	2.2	83.4	50.4	82.9

Test ID	Zinc Cleaner Concentrate									
	Grade (% g/t)					Recovery (%)				
	Cu	Zn	Pb	Au	Ag	Cu	Zn	Pb	Au	Ag
SW-LCT1	0.72	55.8	0.09	0.40	48	4.6	89.2	4.2	13.4	14.6
AG-LCT1	0.48	62.2	0.56	0.56	80	31.9	94.8	5.7	15.6	8.1

Source: SGS, 2024

1.5 Validation

To satisfy NI 43-101 reporting requirements, Mr. Ben Parsons MAusIMM (CP#222568), visited the Palmer Project from July 17 to 19, 2023 and from August 19 to 23, 2024 accompanied by Constantine senior geological staff.

SRK has undertaken a high-level validation of the drilling database and completed a detailed review of the QA/QC and assay certificates as required under the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) guidelines for best practice for public disclosure. SRK's independent review of the QA/QC results indicated that while isolated values were reported outside limits there are no significant issues noted as related to precision, accuracy or contamination. SRK has accepted the assay database as provided by Constantine.

Additionally, the QP completed database validation for duplicates, erroneous values, and sample overlaps. The drilling database used for previous models and estimates contained a number of unsampled intervals which needed further consideration for the current estimate. Intersections that were not sampled but exist within the mineralized wireframes were sampled during 2024 to obtain grades.

1.6 Mineral Resource Estimate

SRK completed the mineral resource estimation process using updated mineralization models. Constantine provided SRK with an exploration database with logging indicating the main geological features and units. In addition to the database, SRK worked with Constantine on preliminary geological interpretations, on which, SRK made minor alterations accordingly. The resource estimation methodology involved the following procedures:

- Database compilation and verification
- Construction of wireframe models for the fault networks
- Definition of resource domains
- Data conditioning (compositing and capping) for statistical and geostatistical analysis
- Variography
- Block modeling and grade interpolation
- Resource classification and validation
- Application of reporting CoG, using the 2018 inputs
- Preparation of the mineral resource statement

Mr. Benjamin Parsons, MAusIMM (CP#222568), completed the resource evaluation work. Grade estimation was based on block dimensions of 10 m x 5 m x 5 m for the SW/RW model and 10 m x 5 m x 10 m for the AG model. The smallest distance across the width of the lenses has been used to mimic the grade distribution across the width of the mineralization where possible.

The block size reflects potential size variations for any underground selective mining unit (SMU). Sub-blocking methodology has been utilized in Leapfrog (Octree), which allows subdivision of the parent block by division of (4, 8, 16, 32) to accurately reflect the defined mineralization and lithological models. Sub-blocking methodology has been utilized in Leapfrog (Octree), which allows subdivision of the parent block by division to accurately reflect the defined mineralization and lithological models. The minimum sub-block size selected for both the AG and SW/RW models was 1.25 m x 0.3125 m x 0.625 m to reflect the wireframes.

Two separate models for the Project have been produced to cover the two main areas of mineralization. A single model was generated to cover the estimation of the SW Zone and RW Zones, with a separate model created to estimate the AG Deposit (due to distance). Estimation was completed based on coded 2 m composites (based on the updated defined wireframes), which have been capped to appropriate levels. Grades have been interpolated for gold (g/t), silver (g/t), copper (%), lead (%), zinc (%), barium (%), and density (SG) using a two-pass approach within Seequent Leapfrog Edge.

A number of estimation scenarios were tested for the 2024 Zone 1 model (which contains the most samples) to identify the sensitivity of the estimates to the maximum number of samples being used and the assumption to use a maximum of three composites per borehole during the estimation process. A maximum number of composites were tested ranging from 12,15 or 20 samples to review the impact on potential smoothing on the grades. Through Kriging Neighborhood Analysis (KNA) in Snowden it was noted in the test case that the number of negative weights increased with the highest number of samples. Through Kriging Neighborhood Analysis (KNA) in Supervisor it was noted in the test case that the number of negative weights increased with the highest number of samples. Based on the visual review and plotting of estimates on swath plots and statistical analysis, the QP elected to use a maximum of 15 composites for the estimation process. In the second pass SRK has reduced the number of composites to a minimum of 2 composites and a maximum of 12 composites. In the AG model, SRK has used a maximum of 12 samples for the first and second pass, with a minimum of 4 composites (first pass) and 2 composites (second pass) respectively.

The search ellipses orientation was tested for both by following the typical orientation of the mineralized structures and (where appropriate and possible using the center trend line of the domain in Leapfrog) and by the average dip, strike and plunge, within higher-grade plunging features within the mineralized domains. The results of the variogram analysis were used to define search ranges within each domain. Variable orientation models were utilized for the Zone 1 and Zone 2-3 subdomains in the first pass, with broader ellipses in the second pass following the general strike and dip of each individual domains. The same process has been used for the AG Domain. At the RW domain, the search ellipses were aligned to the general strike and dip for both passes due to the low sample population and confidence in any local variation.

Ordinary kriging (OK) was completed for the domains with sufficient sample support to be completed, with Inverse Distance Weighted (IDW) estimates to a power of 2 being completed in all domains. In cases where OK and IDW estimates exist, a review was completed to note any significant differences. Statistical characteristics (such as search volume used, kriging variance, and number of samples used in an estimate) were also computed and stored in each individual block for descriptive evaluations. All contacts were treated as hard boundaries.

The block classification strategy considers drillhole spacing, geological confidence, variogram range, interpolation pass and continuity of category. The final criteria used are:

Indicated mineral resources: Limited to drilling coverage within a 45 m x 45 m grid completed by Constantine and influenced by greater than or equal to (≥) three holes. A 10% allowance to the 40 m x 40 m grid is added to these spacings to account for irregular collar placement and drillhole deviation and provide continuity of the classification. Within Zone 2-3, a portion of the drilling at depth is clustered, but given the lower confidence in the geological model, a limit of the 915 m (elevation) has been applied for Indicated estimates.

Inferred mineral resources: All other material within the key modeled domains, which have already been limited in their extent from the end of the drilling information (therefore considered reasonable as a limit to which the geological continuity) could be classified as Inferred. Note that any material defined by ID using svol2 has been downgraded to Inferred.

The QP considers that there are no Measured blocks within the Palmer Project.

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

"A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.

The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling."

The "reasonable prospects for eventual economic extraction" (RPEEE) requirement generally implies that the quantity and grade estimates meet certain economic thresholds and that the mineral resources are reported at an appropriate cut-off grade (CoG) that takes into account extraction scenarios and processing recoveries. In order to meet this requirement, SRK considers that Palmer Project resources are amenable for underground extraction.

To meet the RPEEE requirement, Palmer has been deemed only amenable to underground mining, with a CoG established for this scenario and the economic assumptions as presented in the PEA.

SRK updated the CoG calculated for underground mining to reflect current market conditions and adjusted the economic assumptions used in the 2022 PEA (effective date June 3, 2019) to account for inflation and new price assumptions. SRK also reviewed the latest work completed by SGS Canada summarized in, "An Investigation into Mineralogy, Comminution, and Flotation on Samples from the Palmer Project," prepared for Constantine Mining on September 30, 2024. This test work was conducted on all the deposits to provide the most reasonable assumptions for each deposit in terms of expected recoveries. In summary, SRK revised CoG to include adjustments to the following key inputs:

- Price assumptions
- Cost assumptions (mining and plant)
- Any potential changes to the metallurgical recoveries
- General and administrative (G&A) cost review
- Terms and conditions (T&C) assumptions

To determine the potential for economic extraction, SRK used the assumptions as presented in Table 1-3. Recent metallurgical test work completed LCTs on composites from both the SW/RW and AG Domains. This test work demonstrated different recoveries for the AG Deposit as compared to the SW/RW Domains; therefore, SRK calculated the NSR based on both recovery assumptions to test the sensitivity. SRK elected, for reporting purposes, to use the AG-specific recoveries but notes that further test work may result in changes as the copper grade used in the metallurgical studies was considered low; however, this is also reflected in the average grades of the deposit, and therefore SRK considered these assumptions to be more representative at this stage.

Table 1-3: NSR Assumptions

Metal	Price (US$) 2019	Recovery (%) 2019	Price (US$) 2024	Recovery SW/ RW (%) 2024	Recovery AG (%) 2024
Copper	3.00/lb	89.6	4.50/lb	90.3	54.8
Zinc	1.15/lb	93.1	1.15/lb	89.2	94.8
Silver	16.00/oz	90.9	16.00/oz	90.2	91.0
Gold	1,250/oz	69.6	2,100/oz	76.1	66.0
Lead	Not applicable	Not applicable	0.95/lb	82.9	83.4

Source: SRK, 2025

Based on these assumptions, SRK determined the following conversion factor for NSR, which has been applied on a block-by-block basis, for the current study:

SW/RW NSR block = US$77.25 x %Cu + US$20.32 x %Zn + US$9.64 x %Pb + US$0.64 x g/t Ag + US$43.07 x g/t Au

AG NSR block = US$49.04 x %Cu + US$22.25 x %Zn + US$10.14 x %Pb + US$0.70 x g/t Ag + US$33.77 x g/t Au

In 2022 Constantine published a preliminary economic assessment ("PEA"), (effective date June 3, 2019), and reported the mineral resource based on a US$75/t CoG (NSR) for SW and RW, and a 5.0% ZnEq for the AG Deposit. To complete the current review, SRK used the individual cost components defined in the PEA, and escalated them to define a new CoG accounting for inflation. No updated engineering work was completed to define the revised numbers. The revised CoG was determined at US$92.90/t CoG using the following assumptions:

- Mining costs: US$41.30/t
- Processing costs: US$23.92/t
- G&A costs: US$11.77/t
- Sustaining capital: US$15.92/t

These assumptions represent an increase in the order of 24% on the previous cut-off used in the previous estimates. SRK notes that in the 2022 PEA (effective date of June 3, 2019) revenue was proposed from the sale of barite under the following assumptions:

> *"BaSO4 net-value equals US$0.566 x BaSO4% (e.g. a resource grade of 24% BaSO4 x $0.566 = US$13.60/t or 0.85% ZnEq). Formula based on barite recovery of 91.1% from metallurgical tests, assumed wholesale drilling-grade barite price in nearest North American markets of US$227/metric tonne, and assumed all-in transportation cost of US$150/tonne."*

However, these assumptions are not included in the current NSR calculations and would therefore provide upside to value in the ground and potentially additional tonnage of material reporting above cut-off. An updated review of the potential metallurgical processing required to define how to recognize the value and an updated market study should be completed to ensure consistency. Additionally, as the barium values are not typically subjected to the same levels of QA/QC as the other elements, additional validation of the database may be required to confirm the current grades.

The CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (2019) notes that assessment for RPEEE should be completed for all deposits. To complete this analysis, the factors used should be considered current, reasonably developed, and based on generally accepted industry practice and experience. For MREs prepared on the assumption of underground mining methods, practitioners should carefully review the results of all MREs that utilize the application of an economic limit (such as a CoG or value) only, as reliance on an economic limit alone may produce undesired results due to a selective reporting bias. At a minimum, these constraints can be addressed by creation of constraining volumes. Constraining volumes should be used in conjunction with other criteria for the preparation of an MRE. For properties that are in the discovery or study stage, the input parameters are best determined from first principles that are consistent with the conceptual operating scenario. To apply this assumption for the Palmer Deposit, conceptual mineable stopes were generated assuming two different mining methods (stoping in steeper SW and AG Domains and cut-and-fill flatter portions of RW to account for the changes in dip of the orebody in the RW Zone). To conduct the exercise, the block model was exported from Leapfrog to Deswick, which was used to run a mineable stope optimizer (MSO) at the CoG of US$92.90/t. The following parameters have been assumed for the two mining methods:

- Sublevel stoping:
    - 10 m Width x 20 m Height x 2 m to 30 m Length
    - Stope dip at 50°
    - NSR cut-off at 92.9
- Cut-and-fill:
    - 30 m Length x 5 m Height x 1 m to 10 m Width
    - Stope dip at 40°

- o NSR cut-off at 92.9

Once the MSO shapes were defined, they were exported back into Leapfrog, and the in-situ blocks were coded with a criteria of RPEEE = 1 (inside MSO) or RPEEE = 0 (outside MSO).

Table 1-4 provides a summary of the mineral resources for the Project based on blocks within the MSO shape and the US$92.90/t CoG. At Constantine's request, SRK also included metal equivalents for zinc and copper (based on NSR value/NSR factor for each element and domain). SRK does not consider these equivalents as part of the final mineral resource statement.

Table 1-4: Summary of Palmer Project Mineral Resource Estimates, Effective Date January 13, 2025 [(1), (2), (5), (9), (10)]

Classification	Zone	Domain	Mass (Mt)	Average Grade						Contained Metal						Metal Equivalent (%)	
				Cu (%)	Zn| (%)	Pb (%)	Ag (g/t)	Au (g/t)	BaSO4[(6)] (%)	Cu (Mlb)	Zn (Mlb)	Pb (Mlb)	Ag (koz)	Au (koz)	BaSO4[(6)] (kt)	ZnEq[(7)]	CuEq[(8)]
Indicated	SW(3)	Zone_1	2.75	2.15	5.20	0.11	25.7	0.33	20.5	130.2	315.4	6.6	2,275	28.8	562.8	14.9	3.9
		Zone_2	2.02	1.08	5.12	0.17	32.1	0.23	20.7	47.9	227.6	7.7	2,078	15.1	417.6	10.8	2.8
		Total	**4.77**	**1.69**	**5.17**	**0.14**	**28.4**	**0.29**	**20.6**	**178.0**	**543.0**	**14.2**	**4,353**	**43.9**	**980.4**	**13.2**	**3.5**
Inferred	RW(3)	RW	1.68	0.71	3.50	0.47	46.5	0.31	30.2	26.2	129.9	17.6	2,516	16.9	509.2	8.5	2.2
	SW(3)	Zone_1	1.30	1.79	4.93	0.18	34.4	0.39	24.9	51.0	140.8	5.1	1,432	16.4	323.2	13.7	3.6
		Zone_2	0.89	0.87	4.32	0.15	26.2	0.20	14.4	17.2	85.0	2.9	754	5.9	128.6	9.0	2.4
		Zone_3	2.78	0.65	3.64	0.09	21.2	0.21	17.6	39.5	222.7	5.4	1,895	18.9	489.1	7.2	1.9
	AG(4)	AG (JAG)	5.13	0.15	4.04	0.83	96.7	0.40	29.3	16.8	456.7	93.3	15,942	66.0	1,500.9	8.5	3.8
		AG (Nunatak)	0.22	0.16	0.25	0.20	434.7	0.57	47.3	0.8	1.2	1.0	3,049	4.0	103.1	15.3	7.0
		Total	**12.00**	**0.57**	**3.92**	**0.47**	**66.3**	**0.33**	**25.5**	**151.5**	**1,036.4**	**125.2**	**25,587**	**128.1**	**3,054.2**	**8.9**	**3.1**

Notes:

(1) Mineral resources, which are not mineral reserves, do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, market or other relevant issues. The deposit has been classified as Indicated and Inferred based on confidence in the geological model and drill spacing. The quantity and grade of reported Inferred resources are uncertain in nature, and there has not been sufficient work to define these Inferred mineral resources as Indicated or Measured resources. There is no certainty that any part of a mineral resource will ever be converted into reserves.

(2) Mineral resources are reported using an assumed NSR, which includes prices, recoveries, and payabilities CoG based on metal price assumptions,* variable metallurgical recovery assumptions,** mining costs, processing costs, G&A costs, and variable NSR factors. Mining (US$41.3), processing (US$23.92), and G&A costs (US$11.77) and sustaining capital (US$15.92) total US$92.9/t for underground mining.

*Metal price assumptions considered for the calculation of metal equivalent grades are US$2,100.00/oz Au, US$28.0/oz Ag, US$4.50/lb Cu, US$0.95/lb Pb, and US$1.50/lb Zn.

**CoG calculations assume variable metallurgical recoveries as a function of grade and relative metal distribution. Average metallurgical recoveries for the SW/RW Zones are 76.1% Au, 90.2% Ag, 90.3% Cu, 82.9% Pb, and 89.2% Zn. Average metallurgical recoveries for the AG Deposit are 66.0% Au, 91.0% Ag, 54.8% Cu, 83.4% Pb, and 94.8% Zn.

(3) NSR calculations for SW/RW Domains: NSR = US$77.25 x %Cu + US$20.32 x %Zn + US$9.64 x %Pb + US$0.64 x g/t Ag + US$43.07 x g/t Au

(4) NSR calculation for AG Domain: NSR = US$49.04 x %Cu + US$22.25 x %Zn + US$10.14 x %Pb + US$0.70 x g/t Ag + US$37.77 x g/t Au

(5) The resources are considered to have potential for extraction using underground methodology and are constrained by mineable shapes. Resources are presented undiluted and in situ and are considered to have reasonable prospects for economic extraction.

(6) Barite as reported is shown for economic potential but has not been used in the NSR value at this stage.

(7) ZnEq is defined by the equation SW and RW = NSR value per block/US$20.32; AG = NSR value per block/US$22.25; note that barite has been excluded from the ZnEq and NSR calculations.

(8) CuEq is defined by the equation SW and RW = NSR value per block/US$77.25; AG = NSR value per block/US$49.04; note that barite has been excluded from the ZnEq and NSR calculations.

(9) Mineral resources are based on validated data, which have been subjected to QA/QC analysis, using capped, composited samples at 2 m. Estimation has been completed using a combination of OK and IDW estimation methodologies and classified based on confidence in the underlying data and drill spacing. Mineral resource tonnages have been rounded to reflect the precision of the estimate.

(10) The mineral resources were estimated by Benjamin Parsons, BSc, MSc Geology, MAusIMM (CP#222568) of SRK, a QP.

1.7 Mineral Reserve Estimate

Mineral reserve estimates are not applicable for the current level of study and have not been included in this report.

1.8 Environmental Studies and Permitting

Constantine has carried out ongoing environmental baselines studies to support permitting, exploration, and engineering activities. Such studies include hydrology, hydrogeology, acid rock drainage potential, vegetation, wildlife, cultural resources, environmental liabilities, and annual environmental monitoring.

Constantine is currently exploring the Project under an approved Federal Mine Plan of Operations and Environmental Assessment (DOI BLM-AK-A020-2016-006-EA) granted on August 23, 2016, as amended under the Constantine Mine Plan 2017 Modification and Environmental Assessment on September 21, 2017 (DOI-BLM-AK-010-2017-025-EA). Constantine also holds various permits and licenses from the State of Alaska, including: Plan of Operations for Surface Exploration (Uplands Lease 9100759), Plan of Operations for Surface Construction (Uplands Lease 9100759), Multi-Year (2024 to 2028) Plan of Operations approval Hardrock Exploration and Reclamation, and five Temporary Water Use Authorizations for supplying water to drills. Constantine elected to utilize the Statewide Bond Pool and is currently bonded for 40.0 acres of disturbance.

Constantine has conducted community relations activities since 2006. As part of their ongoing efforts, Constantine conducts regular stakeholder meetings, maintains community outreach materials, hosts project site tours, attends and supports local programs and events, supports local hire and procurement, and participates in local community organizations.

1.9 Conclusions and Recommendations

SRK has produced a CIM compliant Mineral Resource Estimate for the Palmer Project. The work completed includes an increase in the geological database of 87 diamond drillholes for 26,898 m since the previous Mineral Resource Estimate or the equivalent of approximately 39% in drilling meters for the Project. SRK notes that the additional drilling has been focused on increasing the confidence in the geological and mineralization model for the Project and reducing the drill spacing from approximately 50 m x 50 m used to define the previous estimate.

SRK considers that the infill drilling has aided in completing these main objectives in the upper portion of the deposit as has been drilled to average distances of between 25 to 40 m. SRK considers the confidence in the Zone 1 and the upper portions of Zone 2 within the SW Zone estimate presented herein to add more confidence to the classification applied in the 2022 PEA (effective date June 3, 2019), which was noted to be limited by relatively simplistic geological domaining and over-statement of the confidence limits in the estimate.

The updated model has included a more detailed review of the geological conditions, both structural and lithological, to assess the potential controls on mineralization. While this work continues to be on-going, the latest information has been integrated into this latest estimate. Additionally, the work completed during 2023-2024 achieved the other main goals of increasing the confidence in the geostatistical parameters within Zone 1 and 2 of the SW Zone, which has aided in the work required to define classification requirements to achieve Indicated mineral resources to a 40 m x 40 m drilling grid. This will aid in drillhole planning for infill in the Zone 3 portion of the deposit. The geostatistical study completed based on the 2023 drilling has provided confidence in the assessment of the required spacing for infill drilling within known mineralization and can help guide the future drilling programs.

In addition to the latest estimates SRK has also updated the economic assumptions used to define the Mineral Resources including updating the cut-off grade calculated for underground mining to reflect current market conditions and adjusted the economic assumptions used in the 2022 PEA (effective date June 3, 2019) to account for inflation and new price assumptions. SRK has also reviewed the latest testwork completed on all the deposits to provide the most reasonable assumptions for each deposit in terms of expected recoveries.

Mineral Resources have been estimated in conformity with generally accepted Canadian Institute of Mining (CIM) Estimation of Mineral Resource and Mineral Reserves Best Practices Guidelines (November 2019) and are reported in accordance with the Canadian Securities Administrators' National Instrument 43-101.

The mineral resource presented herein focused on the two main known VMS deposits at the Project (Palmer and AG), which in the opinion of the QP still remain open namely to the western edges of the deposit. The complex structural nature of the local geology presents some difficulty locating potential extensions and further work on improvements to the structural model presented in the current report should be completed. Downhole geophysics should be considered to test for drill areas that would include the on-strike and downdip extensions of the Palmer deposit¸ including previously reported potential of a 200 m down-dropped faulted offset of the Zone 3 mineralization, which represented some of the thickest mineralization found to date at the Project.

The presence of the SW, RW and AG Zones confirm the multi-deposit district potential of the Palmer Project. Outside of the current Mineral Resource Estimate a number of other prospective targets exist on the current Property and in relatively close proximity to the current mineral resources. Further exploration will be required to investigate these areas and will remain a high priority for the Company to potentially add to the current mineral resources. These additional targets include but are not limited to the CAP, HG, Mount Henry Clay (MHC), the Boundary prospect and Christmas Creek. There is no certainty that further exploration will result in increased mineral resources.

The Palmer Project in addition to the VMS mineralization has potential to produce Barite as a byproduct of mine. Barite has potential commercial value as an industrial mineral and is used in industry as an addition to drilling mud as a weighted agent to increase its density. The previous NI 43-101 preliminary economic assessment for the Project as detailed in the report titled “Amended NI 43-101 Technical Report, Palmer Project, Alaska, USA”, dated March 7, 2022, included Barite within the economic analysis. It is SRKs view that the presence of an established market to meet the requirements for RPEEE has not been established with an average price (US$227/t) used in that study, and that the basis for inclusion of the Barite in the economic assessment for the cut-off grades is not supported for the current estimates. SRK does, however, consider this to represent a potential upside to the Project which warrants further metallurgical work and market analysis to potentially add value to the deposit. Based on this assumption SRK has presented the Barite (BaSO4%) in the current estimate.

The QP of this technical report considers the Palmer project to be a project of merit warranting additional exploration drilling and associated activities to increase the confidence of the currently defined Mineral Resource and to follow-up on identified exploration targets to potentially expand this Mineral Resource, with the view of generating an updated PEA for the project.

The roadmap to initiate a PEA includes approximately 30,000 m of drilling, a metallurgy test work program to fill data gaps, an underground mine access study, and advance initial site screening for potential infrastructure locations. This multi-year proposed work program to advance the Palmer Project includes:

- Core drilling to further develop and expand the Palmer Deposit and proximal targets, with a focus on prospects within 1 to 3 km of the current resource. Priority VMS prospects include the Kudo Offset/Wedge target, the CAP-HG-Waterfall syncline target, the RW North extension, and Christmas/Red Creek
- Continued community and government consultations and engagement, including presentations and permitting
- Continuation of baseline environmental studies and continued compliance monitoring, including wildlife, terrain, aquatic, fisheries, archaeology, infrastructure support, travel, field work, and reporting
- Project assessment activities, which would include a desktop/field survey of Project road access and port infrastructure options, salaries, travel, field support, professional contracting, and management
- Airborne UAV LiDAR and photogrammetry should be completed over the Palmer and AG Deposits and expanded out to proximal prospects
- Continuing metallurgical test work assessing production of multiple saleable flotation concentrates, accompanying barite marketing studies, performing additional comminution test work, and producing samples for solid-liquid separation test work to inform process design criteria
- Geotechnical and geohydrological studies to support extraction scenarios and site selection studies
- Ongoing site logistics and camp maintenance
- Updated mineral resource and post-exploration drilling, with associated conceptual mining studies to include mine and infrastructure engineering design and studies, gap analyses studies, economic analyses, and preparation of a PEA

The total cost of the recommended work program is estimated at US$30.0 million.

2 Introduction

2.1 Terms of Reference and Purpose of the Report

This report was prepared as an MRE-level NI 43-101 Technical Report for Constantine Metals Resources Ltd (Constantine Metals) by SRK Consulting (U.S.) Inc (SRK). Constantine Metals is a 100% owned subsidiary of American Pacific Mining Corp the Issuer of the report.

The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in SRK'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 set forth in this report. This report is intended for use by Constantine Metals subject to the terms and conditions of its contract with SRK and relevant securities legislation. The contract permits Constantine Metals to file this 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 report by any third party is at that party's sole risk. The responsibility for this disclosure remains with Constantine Metals. 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 report provides mineral resource estimates and a classification of resources prepared in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards on Mineral Resources and Reserves: Definitions and Guidelines, May 10, 2014 (CIM, 2014).

2.2 Qualifications of Consultants

The consultants preparing this technical report are specialists in the fields of geology, exploration, mineral resource and mineral reserve estimation and classification, underground mining, geotechnical, environmental, permitting, metallurgical testing, mineral processing, processing design, capital and operating cost estimation, and mineral economics.

None of the consultants or any associates employed in the preparation of this report has any beneficial interest in Constantine. The consultants are not insiders, associates, or affiliates of Constantine. 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 Constantine and the consultants. The consultants are being paid a fee for their work in accordance with normal professional consulting practice.

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 report and are members in good standing of appropriate professional institutions. QP certificates of authors are provided in Appendix A. The QPs are responsible for specific sections as follows:

- Benjamin Parsons, BSc (Hons), MSc, a Principal Consultant at SRK, is the QP responsible for all Sections except Section 13, of this Technical Report.
- Kash Kelloff, BSc Chem Eng, MBA, a Principal Consultant at SRK, is the QP responsible for Mineral Processing and Metallurgical Testing Section 13 and portions of Sections 1, 25, and 26 summarized therefrom, of this Technical Report.

2.3 Details of Inspection

The QP has conducted a personal site inspection of the Project as part of data verification. Mr. Ben Parsons, MAusIMM (CP#222568), Principal Consultant at SRK, last visited the project site from August 19 to 23, 2024, accompanied by Constantine geology staff. Table 2-1 shows a summary of the site visits completed by SRK.

Table 2-1: Site Visit Participants

Personnel	Company	Expertise	Dates of Visit	Details of Inspection
Ben Parsons	SRK	Geology/ mineral resources	July 17 to 19, 2023	Review site logistics, review drill core, overview of exploration locations, aerial tour of Palmer and AG deposits
Ben Parsons	SRK	Geology/ mineral resources	August 19 to 23, 2024	Review 2023 and 2024 drilling intersections, review new site facilities, witness logging and sampling, visit drill pads for validation, aerial tour of exploration targets

Source: SRK, 2025

The purpose of the SRK site visit was to review the exploration procedures, review and define parameters to be used in the geological modeling procedures, examine drill core, interview project personnel, and collect relevant information for the preparation of a mineral resource model and the compilation of associated Technical Report sections (including data verification and mineral resource estimation).

The SRK site visit also aimed at investigating the geological controls and relationships between the distribution of the Massive Sulfide, Stockwork Mineralization, and Barite Zones to facilitate the construction of 3D mineralization domains to constrain future grade interpolation.

SRK was provided with full access to relevant data and conducted interviews with Constantine's technical staff to obtain information on the past exploration work to understand procedures used to collect, record, store, and analyze historical and current exploration data. During the visit, particular attention was given to data collected by Constantine.

During the site visit, Mr. Parsons inspected the historical drilling platforms and toured the general layout of the site while performing the following tasks:

- Discussed general geology and the status of current site exploration activities
- Helicopter-supported project tour involving investigation of mineralized surficial outcrop exposures in the South Wall, RW Zone, and AG Deposit as well as other exploration targets in the property boundary
- Observation of ongoing drilling activities in the field, as well as core handling, logging, and sampling activities
- Drillhole collar verification in the field
- Drill core review of a selection of key intervals, including logging verification
- Witnessed sampling for later comparison to assay certificates and databases verification
- Reviewed relevant exploration and data collection and storage procedures

2.4 Sources of Information

The sources of information include data and reports supplied by Constantine personnel, as well as documents cited throughout the report and referenced in Section 27.

2.5 Effective Date

The effective date of this report is January 13, 2025, which is the date of the last updated exploration database provided by Constantine to SRK.

2.6 Declaration

SRK's opinion contained herein is based on information collected by SRK throughout the course of SRK's investigations, which in turn reflect various technical and economic conditions at the time of writing. Given the nature of the mining business, these conditions can change significantly over relatively short periods of time. Consequently, actual results may be significantly more or less favorable.

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

SRK is not an insider, associate, or an affiliate of Constantine, its subsidiaries, or its affiliates in connection with this Project. The results of the technical review by SRK are not dependent on any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings.

2.7 Units of Measure

The metric system has been used throughout this report. Tonnes are metric of 1,000 kilograms (kg), or 2,204.6 lb. All currency is in U.S. dollars (US$) unless otherwise stated.

3 Reliance on Other Experts

The consultant's opinion contained herein is based on information provided to the consultants by Constantine throughout the course of the investigations. SRK has relied upon the work of other consultants in the project areas in support of this Technical Report.

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 Technical 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.

The QP conducted a limited search of land record data on Alaska Department of Natural Resources website. Whereas publicly available information on title was reviewed for this report, this report does not constitute nor is it intended to represent a legal or any other opinion to title.

The authors were informed by Constantine that there are no known litigations potentially affecting the Palmer Project.

4 Property Description and Location

4.1 Property Location

The Property is located in the Porcupine Mining District, 55 km northwest of the town of Haines, in Southeast Alaska, USA. The western boundary of the Property is coincident with the international border and the Province of British Columbia, Canada (Figure 4-1). The Property is located immediately south of the Haines Highway, which links the deep-sea port of Haines, a terminal of the Alaska Marine Highway system, with British Columbia, Yukon, and the Alaska Highway. Access to the Property area is by gravel roads from the 26 mile marker on the Haines Highway. The geographic coordinates of the center of the Property are approximately 136°25’N and 59°20’W.

Source: Constantine, 2024

Figure 4-1: Project Location Map

4.2 Property Description and Mineral Title

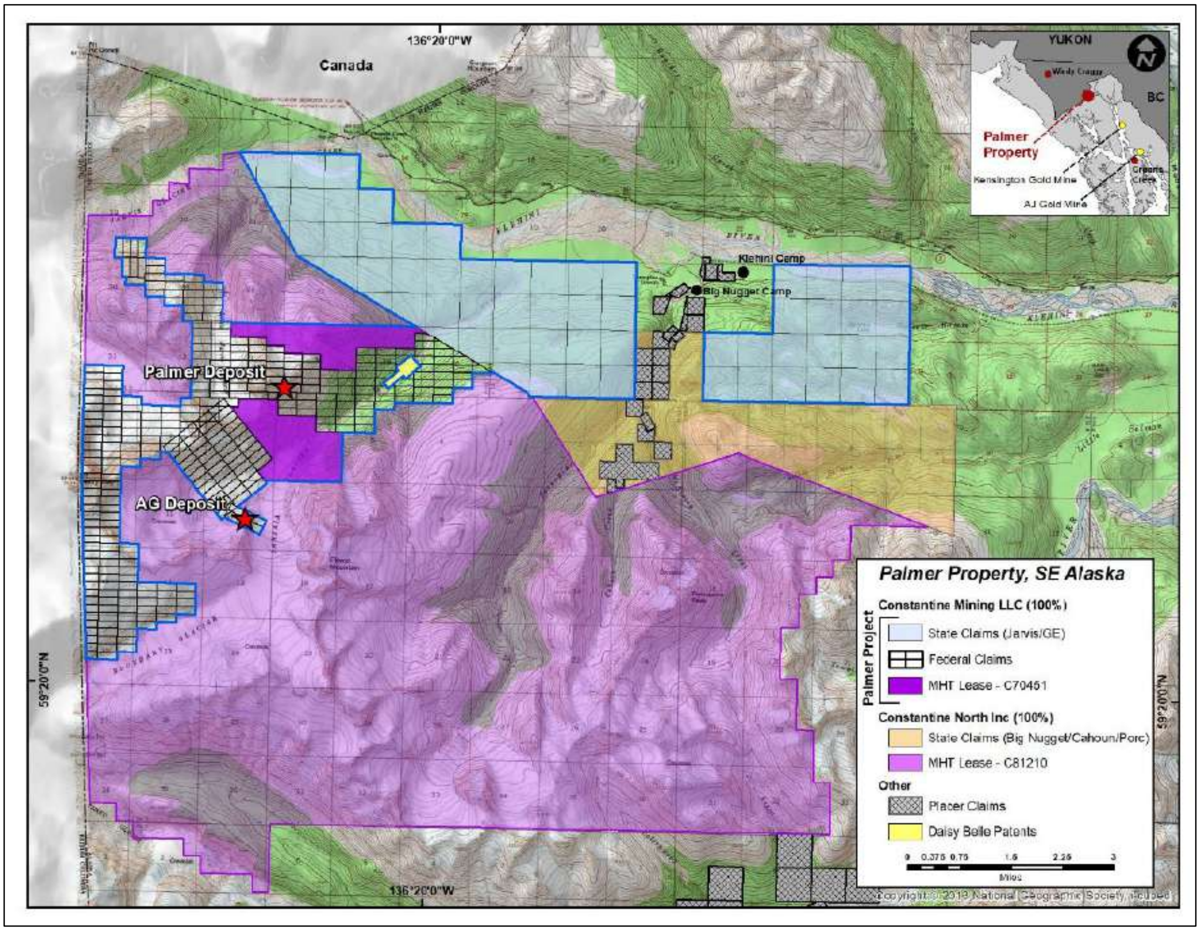
The Project consists of a non-contiguous block of land (Figure 4-2) consisting of 340 federal unpatented lode mining claims, which cover an area of approximately 6,765 acres (27 km^2), 63 state mineral claims that cover an area of 9,185 acres (37 km^2), and land leased by Constantine Mining from the Alaska MHT, which total 1,246 acres, giving a Project total of 16,998 acres (70 km^2) (Table 4-2 and Table 4-3). These land parcels were transferred from Constantine North to Constantine Mining on November 5, 2021.

The Project claims are surrounded by land held by Constantine North, which include 39 state lode mining claims that cover an area of 4,601 acres (18.6 km^2), and land leased from the Alaska MHT, which total 40,385 acres (165 km^2) (Table 4-1).

Table 4-1: Summary of Palmer Property as of December 31, 2024

Claim	Ownership	Number of Claims	Area (km^2)	Area (acres)
Constantine Mining LLC (100%)				
Federal claims	Land lease agreement with Alyu Mining Inc. and Haines Mining-Exploration Inc.	340	27	6,765
State claims	100% owned: no underlying agreement	63	37	9,185
MHT lease (C70451)	MHT land lease agreement	Lease	6	1,246
Constantine North Inc. (100%)				
State claims	100% owned: no underlying agreement	39	18.6	4,601
MHT lease (C81210)	MHT land lease agreement	Lease	165	40,385

Source: Constantine, 2025



Source: Constantine, 2024

Figure 4-2: Land Tenure Map

Table 4-2: Federal Unpatented Lode Mining Claims by Bureau of Land Management (BLM) Number Leased by Constantine Mining

Claim Name	BLM	Claim Name	BLM Number	Claim Name	BLM Number
#1 of Marmot Mine	AA 27186	Jarvis 3	AA 51513	Clay #53	AA 52687
#2 of Marmot Mine	AA 27187	Jarvis 4	AA 51514	Clay #54	AA 52688
#3 of Marmot Mine	AA 27188	Jarvis 5	AA 51515	Clay #55	AA 52689
#4 of Marmot Mine	AA 27189	Jarvis 6	AA 51516	Clay #56	AA 52690
M.V.P. Mining Claims #1	AA 27190	Jarvis 7	AA 51517	Clay #57	AA 52691
M.V.P. Mining Claims #2	AA 27191	Jarvis 8	AA 51518	Clay #58	AA 52692
Marmot #5	AA 27192	"Ice" #43	AA 51519	Clay #59	AA 52693
Marmot #6	AA 27193	"Ice" #44	AA 51520	Clay #60	AA 52694
Marmot #7	AA 27194	"Ice" #45	AA 51521	Marmot Hole #1	AA 52945
Marmot #8	AA 27195	"Ice" #46	AA 51522	Marmot Hole #2	AA 52946
Marmot #9	AA 27196	"Ice" #47	AA 51523	Marmot Hole #3	AA 52947
Marmot #10	AA 27197	"Ice" #48	AA 51524	Marmot Hole #4	AA 52948
Marmot Claim #20	AA 27198	"Ice" #49	AA 51525	Marmot Hole #5	AA 52949
Marmot Claim #21	AA 27199	"Ice" #50	AA 51526	Marmot Hole #6	AA 52950
Marmot Claim #22	AA 27200	"Ice" #51	AA 51527	Marmot Hole #7	AA 52951
Marmot Claim #23	AA 27201	"Ice" #54	AA 51528	Marmot Hole #8	AA 52952
Marmot Claim #24	AA 27202	"Ice" #55	AA 51529	Fey #1	AA 52953
Marmot Claim #25	AA 27203	"Ice" #56	AA 51530	Fey #2	AA 52954
Marmot Claim #26	AA 27204	"Ice" #57	AA 51531	Fey #3	AA 52955
Marmot Claim #27	AA 27205	"Ice" #60	AA 51532	Fey #4	AA 52956
Marmot Claim #28	AA 27206	"Ice" #61	AA 51533	Fey #5	AA 52957
Marmot Claim #29	AA 27207	"Ice" #62	AA 51534	Fey #6	AA 52958
Marmot Claim #30	AA 27208	"Ice" #63	AA 51535	Fey #7	AA 52959
Marmot Claim #31	AA 27209	"Ice" #64	AA 51536	Fey #8	AA 52960
Marmot #32	AA 27210	"Ice" #65	AA 51537	Fey #9	AA 52961
Marmot #33	AA 27211	"Ice" #66	AA 51538	Fey #10	AA 52962
Marmot #101	AA 27213	"Ice" #67	AA 51539	Fey #11	AA 52963
Marmot #102	AA 27214	"Ice" #68	AA 51540	Fey #12	AA 52964
Marmot #103	AA 27215	"Ice" #69	AA 51541	Fey #13	AA 52965
Marmot #104	AA 27216	"Ice" #70	AA 51542	Fey #14	AA 52966
Marmot #105	AA 27217	"Ice" #71	AA 51543	Fey #15	AA 52967
Marmot #106	AA 27218	"Ice" #72	AA 51544	Fey #16	AA 52968
Marmot #107	AA 27219	"Ice" #73	AA 51545	Fey #17	AA 52969
Marmot #108	AA 27220	"Ice" #74	AA 51546	Fey #18	AA 52970
Marmot #109	AA 27221	Kic #1	AA 51558	Fey #19	AA 52971
Marmot #110	AA 27222	Kic #2	AA 51559	Fey #20	AA 52972
Marmot 111	AA 27223	Kic #3	AA 51560	Boundless #1	AA 52973
Marmot #112	AA 27224	Kic #4	AA 51561	Boundless #2	AA 52974
Marmot 113	AA 27225	Kic #5	AA 51562	Boundless #3	AA 52975
Marmot #114	AA 27226	Kic #6	AA 51563	Boundless #4	AA 52976
Marmot #115	AA 27227	Kic #7	AA 51564	Boundless #5	AA 52977
Marmot #116	AA 27228	Kic #8	AA 51565	Boundless #6	AA 52978
Marmot #117	AA 27229	Kic #9	AA 51566	Boundless #7	AA 52979
Marmot 118	AA 27230	Kic #10	AA 51567	Boundless #8	AA 52980
Marmot 119	AA 27231	Kic #11	AA 51568	Boundless #9	AA 52981
Marmot #120	AA 27232	Kic #12	AA 51569	Boundless #10	AA 52982
Marmot #121	AA 27233	Kic #13	AA 51570	Boundless #11	AA 52983
Marmot 122	AA 27234	Kic #14	AA 51571	Boundless #12	AA 52984
Marmot #123	AA 27235	Kic #15	AA 51572	Boundless #13	AA 52985
Marmot 124	AA 27236	Kic #16	AA 51573	Boundless #14	AA 52986
Marmot #125	AA 27237	"Hot Dawg" #1	AA 51574	Boundless #15	AA 52987
Marmot #126	AA 27238	"Hot Dawg" #2	AA 51575	Boundless #16	AA 52988
Marmot #127	AA 27239	"Hot Dawg" #3	AA 51576	Boundless #17	AA 52989
Marmot #128	AA 27240	"Hot Dawg" #4	AA 51577	Boundless #18	AA 52990
Marmot #129	AA 27241	"Hot Dawg" #5	AA 51578	Boundless #19	AA 52991
Marmot #130	AA 27242	"Hot Dawg" #6	AA 51579	Boundless #20	AA 52992
Marmot #131	AA 27243	"Hot Dawg" #7	AA 51580	Boundless #21	AA 52993
Marmot #132	AA 27244	"Hot Dawg" #8	AA 51581	Boundless #22	AA 52994
Marmot #134	AA 27246	"Hot Dawg" #9	AA 51582	Boundless #23	AA 52995
Marmot #135	AA 27247	"Hot Dawg" #10	AA 51583	Boundless #24	AA 52996
Marmot #136	AA 27248	"Hot Dawg" #11	AA 51584	Boundless #25	AA 52997
Marmot #137	AA 27249	"Hot Dawg" #12	AA 51585	Boundless #26	AA 52998
Marmot #138	AA 27250	"Hot Dawg" #13	AA 51586	Boundless #27	AA 52999
Marmot #139	AA 27251	"Hot Dawg" #14	AA 51587	Boundless #28	AA 53000
Marmot #140	AA 27252	"Hot Dawg" #15	AA 51588	Boundless #29	AA 53001
Marmot #141	AA 27253	"Hot Dawg" #16	AA 51589	Boundless #30	AA 53002
Marmot #142	AA 27254	"Hot Dawg" #17	AA 51590	Boundless #31	AA 53003
Marmot #143	AA 27255	"Hot Dawg" #18	AA 51591	Boundless #32	AA 53004
Marmot #144	AA 27256	"Hot Dawg" #19	AA 51592	Boundless #33	AA 53005
Marmot #145	AA 27257	"Hot Dawg" #20	AA 51593	Boundless #34	AA 53006
Marmot #146	AA 27258	"Hot Dawg" #21	AA 51594	Boundless #35	AA 53007
Marmot #147	AA 27259	"Hot Dawg" #22	AA 51595	Boundless #36	AA 53008
Marmot #148	AA 27260	"Hot Dawg" #23	AA 51596	Boundless #37	AA 53009
Marmot #149	AA 27261	"Hot Dawg" #24	AA 51597	Boundless #38	AA 53010
Marmot #150	AA 27262	"Hot Dawg" #25	AA 51598	Boundless #39	AA 53011
Marmot #151	AA 27263	"Hot Dawg" #26	AA 51599	Boundless #40	AA 53012
Marmot #152	AA 27264	"Hot Dawg" #27	AA 51600	Boundless #41	AA 53013
Marmot #153	AA 27265	"Hot Dawg" #28	AA 51601	Boundless #42	AA 53014
Marmot #154	AA 27266	Clay #17	AA 52651	Boundless #43	AA 53015
Marmot #155	AA 27267	Clay #18	AA 52652	Boundless #44	AA 53016
Marmot #156	AA 27268	Clay #19	AA 52653	Boundless #45	AA 53017
Marmot #157	AA 27269	Clay #20	AA 52654	Connexion #1	AA 53018
Marmot #158	AA 27270	Clay #21	AA 52655	Connexion #2	AA 53019
Marmot #159	AA 27271	Clay #22	AA 52656	Connexion #3	AA 53020
Marmot #160	AA 27272	Clay #23	AA 52657	Connexion #4	AA 53021
Marmot #161	AA 27273	Clay #24	AA 52658	Connexion #5	AA 53022
Marmot #162	AA 27274	Clay #25	AA 52659	Connexion #6	AA 53023
Marmot #163	AA 27275	Clay #26	AA 52660	Connexion #7	AA 53024
Marmot #164	AA 27276	Clay #27	AA 52661	Connexion #8	AA 53025
Marmot #166	AA 27277	Clay #28	AA 52662	Connexion #9	AA 53026
Marmot #167	AA 27278	Clay #29	AA 52663	Connexion #10	AA 53027
Marmot #171	AA 27279	Clay #30	AA 52664	Connexion #11	AA 53028
Marmot #172	AA 27280	Clay #31	AA 52665	Connexion #12	AA 53029
Rat Dawg 43	AA 29575	Clay #32	AA 52666	Connexion #13	AA 53030
Rat Dawg 44	AA 29576	Clay #33	AA 52667	Connexion #14	AA 53031
Rat Dawg 53	AA 29577	Clay #34	AA 52668	Connexion #15	AA 53032
Rat Dawg 54	AA 29578	Clay #35	AA 52669	Connexion #16	AA 53033
Rat Dawg #55	AA 29579	Clay #36	AA 52670	Connexion #17	AA 53034
Rat Dawg 56	AA 29580	Clay #37	AA 52671	Connexion #18	AA 53035
Rat Dawg #57	AA 29581	Clay #38	AA 52672	Connexion #19	AA 53036
Rat Dawg 58	AA 29582	Clay #39	AA 52673	Connexion #20	AA 53037
Rat Dawg 64	AA 29583	Clay #40	AA 52674	Connexion #21	AA 53038
Rat Dawg #65	AA 29584	Clay #41	AA 52675	Connexion #22	AA 53039
Rat Dawg 66	AA 29585	Clay #42	AA 52676	Connexion #23	AA 53040
Rat Dawg #67	AA 29586	Clay #43	AA 52677	Connexion #24	AA 53041
Rat Dawg #68	AA 29587	Clay #44	AA 52678	Connexion #25	AA 53042
Rat Dawg #75	AA 29588	Clay #45	AA 52679	Connexion #26	AA 53043
Rat Dawg #76	AA 29589	Clay #46	AA 52680	Connexion #27	AA 53044
Rat Dawg #77	AA 29590	Clay #47	AA 52681	Connexion #28	AA 53045
Rat Dawg #85	AA 29591	Clay #48	AA 52682	Connexion #29	AA 53046
Rat Dawg #86	AA 29592	Clay #49	AA 52683	Connexion #30	AA 53047
Rat Dawg #87	AA 29593	Clay #50	AA 52684	Connexion #31	AA 53048
Jarvis 1	AA 51511	Clay #51	AA 52685		
Jarvis 2	AA 51512	Clay #52	AA 52686		

Source: Constantine, 2024

Table 4-3: State Lode Mining Claims Held by Constantine Mining

Claim Name	Claim Number	Section	Township	Range	Claim Name	Claim Number	Section	Township	Range
Jarvis 1	661267	16SW	T28S	53E	GE 9	662069	26NE	T28S	54E
Jarvis 2	661268	16SE	T28S	53E	GE 10	662070	25NW	T28S	54E
Jarvis 3	661269	15SW	T28S	53E	GE 11	662071	25NE	T28S	54E
Jarvis 4	661270	15SE	T28S	53E	GE 12	662072	25SE	T28S	54E
Jarvis 5	661271	21NE	T28S	53E	GE 13	662073	25SW	T28S	54E
Jarvis 6	661272	22NW	T28S	53E	GE 14	662074	26SE	T28S	54E
Jarvis 7	661273	22NE	T28S	53E	GE 15	662075	26SW	T28S	54E
Jarvis 8	661274	23NW	T28S	53E	GE 18	662078	29SE	T28S	54E
Jarvis 9	661275	21SE	T28S	53E	GE 19	662079	29SW	T28S	54E
Jarvis 10	661276	22SW	T28S	53E	GE 20	662080	30SE	T28S	54E
Jarvis 11	661277	22SE	T28S	53E	GE 21	662081	30SW	T28S	54E
Jarvis 12	661278	23SW	T28S	53E	GE 25	662082	31NW	T28S	54E
Jarvis 13	661279	23SE	T28S	53E	GE 26	662083	31NE	T28S	54E
Jarvis 14	661280	24SW	T28S	53E	GE 27	662084	32NW	T28S	54E
Jarvis 15	661281	27NW	T28S	53E	GE 28	662085	32NE	T28S	54E
Jarvis 16	661282	27NE	T28S	53E	GE 31	662088	34NW	T28S	54E
Jarvis 17	661283	26NW	T28S	53E	GE 32	662089	34NE	T28S	54E
Jarvis 18	661284	26NE	T28S	53E	GE 33	662090	35NW	T28S	54E
Jarvis 19	661285	25NW	T28S	53E	GE 34	662091	35NE	T28S	54E
Jarvis 20	661286	25NE	T28S	53E	GE 35	662092	36NW	T28S	54E
Jarvis 21	661287	26SW	T28S	53E	GE 36	662093	36NE	T28S	54E
Jarvis 22	661288	26SE	T28S	53E	GE 37	662094	36SE	T28S	54E
Jarvis 23	661289	25SW	T28S	53E	GE 38	662095	36SW	T28S	54E
Jarvis 24	661290	25SE	T28S	53E	GE 39	662096	35SE	T28S	54E
Jarvis 25	661291	35NE	T28S	53E	GE 40	662097	35SW	T28S	54E
Jarvis 26	661292	36NW	T28S	53E	GE 41	662098	34SE	T28S	54E
Jarvis 27	661293	36NE	T28S	53E	GE 42	662099	34SW	T28S	54E
GE 2	662062	30NW	T28S	54E	GE 45	662102	32SE	T28S	54E
GE 3	662063	30NE	T28S	54E	GE 46	662103	32SW	T28S	54E
GE 4	662064	29NW	T28S	54E	GE 47	662104	31SE	T28S	54E
GE 5	662065	29NE	T28S	54E	GE 48	662105	31SW	T28S	54E
GE 8	662068	26NW	T28S	54E					

Source: Constantine, 2024

Table 4-4: MHT Lands Leased by Constantine Mining

Mineral Lease File Number	MHT Parcel Number	Rights	Ownership
MHT 9100759	C70451	Subsurface and surface	Constantine Mining LLC

Source: Constantine, 2024

Table 4-5: State Lode Mining Claims Held by Constantine North

Claim Name	Claim Number	Section	Township	Range	Claim Name	Claim Number	Section	Township	Range
Big Nugget 1	731797	03NE	T29S	R55E	Big Nugget 21	731817	06NW SE	T29S	R55E
Big Nugget 2	731798	03SE	T29S	R55E	Big Nugget 22	731818	06NE SW	T29S	R55E
Big Nugget 3	731799	10NE	T29S	R55E	Big Nugget 23	731819	06NW	T29S	R55E
Big Nugget 4	731800	10NE SE	T29S	R55E	Cahoon 1	731820	01NE	T29S	R54E
Big Nugget 5	731801	10NW SE	T29S	R55E	Cahoon 2	731821	01SW SE	T29S	R54E
Big Nugget 6	731802	10NW	T29S	R55E	Cahoon 3	731822	01NW NW	T29S	R54E
Big Nugget 7	731803	03SW	T29S	R55E	Cahoon 4	731823	01SW SW	T29S	R54E
Big Nugget 8	731804	03NW	T29S	R55E	Cahoon 5	731824	01NW	T29S	R54E
Big Nugget 9	731805	O4NE	T29S	R55E	Cahoon 6	731825	02NE	T29S	R54E
Big Nugget 10	731806	04SE	T29S	R55E	Cahoon 7	731826	02SW SE	T29S	R54E
Big Nugget 11	731807	09NE NE	T29S	R55E	Cahoon 8	731827	11NE NE	T29S	R54E
Big Nugget 12	731808	09NE NW	T29S	R55E	Cahoon 9	731828	11NW NE	T29S	R54E
Big Nugget 13	731809	04SW	T29S	R55E	Cahoon 10	731829	02SE SW	T29S	R54E
Big Nugget 14	731810	04NW	T29S	R55E	Cahoon 11	731830	02NE	T29S	R54E
Big Nugget 15	731811	05NE	T29S	R55E	Cahoon 12	731831	03NE	T29S	R45E
Big Nugget 16	731812	05SE	T29S	R55E	Cahoon 13	731832	03SE NE	T29S	R45E
Big Nugget 17	731813	05 NE SW	T29S	R55E	Porc 1	731833	33NE	T28S	R45E
Big Nugget 18	731814	05NW	T29S	R55E	Porc 2	731834	33SE	T28S	R45E
Big Nugget 19	731815	06NE	T29S	R55E	Porc 3	731835	33NW	T28S	R45E
Big Nugget 20	731816	06NE SE	T29S	R55E					

Source: Constantine, 2024

Table 4-6: MHT Lands Leased by Constantine North

Mineral Lease File Number	MHT Parcel Number	Rights	Ownership
MHT 9100759	C81210	Subsurface	Constantine North Inc.

Source: Constantine, 2024

4.2.1 Nature and Extent of Issuer's Interest

American Pacific Mining Corporation (APM) holds 100% interest in Constantine Metals which holds a 100% interest in U.S. subsidiary Constantine North and Constantine Mining.

Surface Rights and Legal Access

Constantine owns and/or maintains lease agreements for all the mineral tenures and holds the land use permits and water licenses that allow the company to conduct surface exploration and use water, as further outlined in Section 4.8.

The federal claims are located on federal lands that are managed (both surface and mineral estates) by the United States Department of the Interior, BLM. The state claims are located on Alaska State lands that are managed by the Alaska Department of Natural Resources, Division of Mining, Land, and Water (DNR). The MHT lands are managed by the Alaska MHT Authority acting by and through the State of Alaska, Department of Natural Resources, Mental Health Trust Land Office (collectively the TLO).

The federal claims, state claims, and MHT leased lands are in good standing as of the date of this report.

Obligations Required to Retain Property

Federal Claims

Annual aggregate advance royalty cash payments are to be made to Alyu Mining Inc. and Haines Mining-Exploration Inc. of US$42,500. The advance royalty payments are to be paid in quarterly tranches of US$10,625 each on February 10, May 10, August 10, and November 10.

An annual maintenance fee payment of US$68,000 (currently US$200/claim) and notarized affidavit of payment and notice of intent to hold is required on or prior to September 1 for the 340 federal mining claims managed by the BLM. Federal claims are currently in good standing until September 1, 2025.

State Claims (GE and Jarvis claims)

An annual rental payment of US$51,975 (currently US$825/claim) is required on or prior to November 30 for the 63 state mining claims managed by the DNR. In addition to the annual rental payment, annual labor of US$400/quarter section (US$25,200 total) is to be completed by September 1 of each year. Work expenditure performed on adjacent federal claims or MHT leased lands can be applied to state claims to satisfy this requirement. Excess work expenditure can be carried forward and applied to subsequent years for as many as 4 years. An Statement of Annual Labor is required to be filed with the state on or prior to November 30. State claims are in good standing until September 1, 2025.

State Claims (Big Nugget, Cahoon, and Porc claims)

An annual rental payment of US$10,175 (currently US$330/claim (28) and $85/claim (11)) is required on or prior to November 30 for the 39 state mining claims managed by the DNR. In addition to the annual rental payment, annual labor of US$400 per quarter section (28 claims) and US$100 per 40 acres claims (11 claims) for a total US$12,300 is to be completed by September 1 of each year. Work expenditure performed on adjacent federal claims or MHT leased lands can be applied to state claims to satisfy this requirement. Excess work expenditure can be carried forward and applied to subsequent years for as many as 4 years. A Statement of Annual Labor is required to be filed with the state on or prior to November 30. State claims are in good standing until September 1, 2025.

MHT Lands

An annual lease payment of US$68,750 is required on or prior to September 1 for the Upland Mining Lease MHT No. 9100759 (MHT Lease). The MHT Lease also requires an annual expenditure report to be filed with the TLO on or prior to November 30, with a Technical Report due by March 1 of the following year. The MHT Lease is in good standing until September 1, 2025.

4.3 Property Ownership History

Constantine Metals, incorporated March 3, 2006, was created for the purpose of acquiring a 100% interest in the Palmer property, which was held by Toquima North Inc., a wholly owned U.S. subsidiary of Toquima Minerals Corporation (Toquima). Constantine Metals acquired Toquima's interest in 2006 by means of a plan of arrangement and assignment of its interest in Toquima North Inc. to Constantine Metals. Toquima North Inc. was subsequently renamed to Constantine North on January 28, 2010.

Constantine Metals, through its wholly owned U.S. subsidiary Constantine North (formerly Toquima North Inc.), has a 99 year mineral lease agreement on the 340 federal unpatented lode mining claims. The mineral lease (dated effective December 19, 1997, and originally signed by Rubicon) is with Alyu

Mining, Inc. and Haines Mining-Exploration Inc. Section 4.4 provides additional details on the Alyu-Haines mineral lease.

The Jarvis State lode mining claims were staked in 2007 by Toquima North Inc. (now Constantine North). In 2009, Millrock Resources LLC conveyed its 100% interest in the GE State lode mining claims to Toquima North, Inc. (now Constantine North), and a mining quitclaim deed was recorded with the Haines recording office.

On February 1, 2013, Constantine Metals entered into an option and joint venture agreement with Dowa (the Option Agreement) granting Dowa the sole and exclusive right and option to acquire an interest in the Palmer Project. Under the terms of the Option Agreement, Dowa had the option to earn a 49% interest in the Palmer Project by making aggregate expenditures of US$22 million over a 4 year period. Included in the aggregate expenditure were cash payments to Constantine Metals totaling US$1,250,000 over 4 years. The Option Agreement also included terms allowing Dowa to acquire 100% of the zinc off-take rights at arms-length commercial terms.

On November 2, 2013, Dowa assigned all its interest in the Option Agreement to its 100% owned subsidiary, Dowa Alaska.

In 2014, Constantine North was the successful applicant in a competitive lease process for the Haines Block (Parcels C81209, C81210, and C70451) offered by the Alaska MHT. The MHT Lease was finalized and signed with an effective date of September 1, 2014. Section 4.5 provides additional details on the MHT Lease.

On January 20, 2015, Dowa Alaska selected MHT Lease Parcel C70451 (Selection Area) to be included in the Option Agreement as provided in the MHT selection agreement; Section 4.5.4 provides additional details.

On January 5, 2017, Constantine Metals announced that Dowa Alaska had completed its US$22 million earn-in and had exercised its option to participate as a partner in the Palmer Project. A joint venture was formed for the purpose of further exploring and developing the Project, with Constantine North owning a 51% participating interest and Dowa Alaska owning a 49% participating interest.

On July 1, 2017, the joint venture partners formalized the joint venture agreement and created Constantine Mining under which to hold the properties and operate the joint venture, with Constantine North as Operator.

On November 5, 2021, the properties under the joint venture agreement were transferred from Constantine North to Constantine Mining, which included the Alyu-Haines mineral lease, the Jarvis and GE state lode mining claims, and the MHT selection agreement. The Selection Area transfer to Constantine Mining was completed on August 4, 2022.

On November 1, 2022, APM acquired all the issued and outstanding shares of Constantine Metals through a plan of arrangement. The Constantine company names remained unchanged following the plan of arrangement.

On November 15, 2024, Dowa elected to withdraw from the joint venture agreement and APM completed a purchase agreement with Constantine North and Dowa Alaska, whereby Constantine North acquired Dowa Alaska's interest in Constantine Mining, the holder of the Palmer Project. Dowa retained a zinc offtake option, whereby Dowa can purchase up to 50% of the zinc concentrate annually.

Constantine Metals now holds a 100% interest in the Palmer Project through its 100%-owned U.S. subsidiary Constantine North.

4.4 Mineral Lease Agreement (Alyu-Haines Mining)

Constantine Mining currently holds the 99 year mineral lease agreement (the Alyu-Haines Mineral Lease) of the 340 federal unpatented lode mining claims with Alyu Mining, Inc. and Haines Mining-Exploration Inc. (collectively the Owners), both of Haines, Alaska.

The Alyu-Haines Mineral Lease dated effective December 19, 1997, was originally signed by Rubicon and was subsequently transferred in 2004 to Toquima North Inc, a wholly owned subsidiary of Toquima. In 2006, Constantine Metals acquired Toquima's interest by means of a plan of arrangement and its assignment of its interest in Toquima North Inc. (following which it was renamed Constantine North) a 100%-owned U.S. subsidiary of Constantine Metals.

In November 2021, Constantine North assigned its 100% interest in the Alyu-Haines Mineral Lease to Constantine Mining as per the joint venture agreement with Dowa Alaska. The material terms of the mineral lease are as described in Sections 4.4.1 and 4.4.2.

4.4.1 Advance Royalty Payments to the Owners

Constantine Mining is to make annual aggregate advance royalty cash payments to the Owners of US$42,500. The initial advance royalty payments are to be paid in quarterly tranches of US$10,625 each, commencing on November 10, 1997, and continuing up to and including the 98th anniversary of the mineral lease. The advance royalty payments are fully paid to date. To maintain the mineral lease, Constantine Mining is also required to make annual maintenance fee payments to the BLM.

4.4.2 NSR Royalty to the Owners

The Owners will each be entitled to half of a 2.5% NSR royalty under the Alyu-Haines Mineral Lease. The advance royalty cash payments shall be recouped from the NSR royalty payable in that year or in subsequent years; however, in no year shall the amount of the aggregate of the NSR royalty and the advance royalty cash payment be less than (<) US$42,500. The obligation to pay annual advance royalty cash payments shall be extinguished once the Owners have received a total of US$4,500,000 in advance royalty cash payments. Constantine Mining has the right of first refusal to purchase the NSR royalty, or any portion thereof, at any time during the term of the mineral lease.

4.5 MHT Lease Agreement

During Alaska's transition to a state, the U.S. Congress passed the Alaska Mental Health Enabling Act of 1956. This act transferred the responsibility for providing mental health services from the federal government to the territory of Alaska and ultimately the state, by creating the Alaska MHT. To fund the trust, the state selected one million prime acres of land that would be managed to generate income to help pay for a comprehensive and integrated mental health program in Alaska. The area granted to the MHT overlaps the Project. Should claims lapse, mineral title of the lapsed claims would transfer to the MHT.

In 2014, Constantine North was the successful applicant in a competitive lease process for the Haines Block (Parcels C81209, C81210, and C70451) offered by the MHT. The MHT owns the subsurface mineral estate of the Haines Block, and for a small subset of the block (Parcel C70451), the land is held fee simple for which the trust owns both the surface and subsurface estate. The MHT Lease between the TLO and Constantine North was finalized and signed with an effective date of September 1, 2014.

4.5.1 Description of the MHT Leased Lands (Haines Block)

The Haines Block is located on the flanks of the Chilkat Mountains in the Haines Recording District, approximately 30 miles northwest of Haines, Alaska, USA. The land consists of approximately 99,257 acres across three parcels, of which, approximately 41,631 acres in two parcels remain under lease to Constantine Mining and Constantine North for mineral exploration and development (Table 4-1).

The subject parcels are in the Skagway C-3, C-4, B-3, and B-4 quadrangle, Alaska, USA, and originally included Parcels C81209 (dropped in 2017), C81210 (reduced in 2020), and C70451 (maintained). Portions of Parcel C81210 are subject to placer mining leases in the east as well as four federal mining claims on Cahoon Creek. The MHT's mineral estate is subject to the federal mining claims owned by Alyu Mining Inc. and Haines Mining-Exploration, Inc., which are under lease to Constantine Mining.

4.5.2 Terms of MHT Lease Agreement

The initial terms of the 9 year MHT Lease from 2014 to 2023 included annual rental fees of US$25,000 per year for the initial 3 year MHT Lease term, US$40,000 for Years 4 to 6, and US$55,000 for Years 7 through 9 with work commitments of US$75,000 per year, escalating US$50,000 annually (completed). There was a mandatory acreage reduction of 25,000 acres at the end of the first and second 3 year MHT Lease terms (completed under Amendments #1 and #2).

In August 2023, the TLO extended the MHT Lease for three (3) years with an Effective Date of September 1, 2023, covering lease Years 10-12 (Amendment #3). Annual rent payments for the 3 year term are US$68,750 for Years 10 through 12, with work commitments of US$525,000 per year, escalating US$50,000 annually. The lease expires on August 31, 2026, unless extended by applicable provisions of the lease. All other terms of the MHT Lease remain in effect.

Annual rental payments are replaced by royalty payments upon achieving commercial production. Production royalties payable to the TLO include a sliding scale of 1% to 4.5% royalty for gold based on gold price and a 3.5% royalty on minerals other than gold.

4.5.3 Amended Terms of the MHT Lease Agreement

The MHT Lease was amended as follows:

- Amendment #1 (effective September 1, 2017): Constantine North notified the TLO of their intent to drop MHT Parcel C81209 on the north side of the Klehini River and reduced the MHT Lease area as per requirements of the MHT Lease.
- Amendment #2 (effective September 1, 2020): Constantine North notified the TLO of their intent to reduce the eastern portion of MHT Parcel C81210 as per requirements of the MHT Lease.
- Amendment #3 (effective September 1, 2023): The MHT Lease was extended with the TLO for another 3 year term from September 1, 2023, to August 31, 2026, for Constantine Mining (Parcel C70451) and for Constantine North (Parcel C81210) with an effective date of September 1, 2023. Annual rent payments for the 3 year term are US$68,750 for Years 10 through 12, with work commitments of US$525,000 per year, escalating US$50,000 annually.

4.5.4 MHT Leased Lands added to Joint Venture

In a letter dated October 16, 2014, Constantine North advised Dowa that they were a successful applicant in a competitive lease offered by the TLO and that they had signed a lease agreement. On January 19, 2015, Dowa Alaska advised Constantine North that it had selected a portion of the MHT Lease area (Selection Area) to be included as part of the Palmer Project, for which expenditures would apply to Dowa's 49% earn-in expenditures during the option phase of the agreement.

The Selection Area that was requested by Dowa Alaska and accepted by Constantine North constitutes part of the Palmer Project as represented in the MHT Lease by Parcel C70451, with surface and mineral estate to the extent owned by the TLO and comprising approximately 3,483 acres that lies within T.028S., R.053E. Sections 33, 34, and 35, T.029S., R.053E. Section 1, and T.029S., R.054E. Section 6 (Figure 4-2). Terms of the Selection Area are defined in the MHT selection agreement with an effective date of January 20, 2015, and forms part of the Option Agreement.

Upon the formation of the Joint Venture, the Selection Area was assigned to the joint venture such that the interest that Dowa Alaska had earned pursuant to the Option Agreement would include a 49% interest in the Selection Area, subject to the approval of the TLO at the time, as provided for in Section 15 of the MHT Lease. Under the terms of the MHT selection agreement, the ongoing work expenditure (as defined in the MHT Lease) and annual lease payment obligations would be 75% to Constantine Mining and 25% to Constantine North. Work expenditures in excess of that required on an annual basis would be accrued for the benefit of both parties.

4.6 Other Underlying Agreements or Options

There are no other underlying agreements or obligations encumbering the Project. As the claims are unpatented, no local or county-based property taxes have been assessed against them.

4.7 Environmental Liabilities

To the extent known, there are no social issues that could materially impact Constantine’s ability to conduct exploration activities on the property. The authors are not aware of any other significant factors or risks that may affect the access, title, right, or ability to perform work on the property. The authors are also not aware of any environmental liabilities on the property; Section 20 provides details summarizing the environmental and social aspects of the Project.

4.8 Required Permits and Status

To conduct exploration activities in the state of Alaska, permits and licenses may be required from state and federal agencies. These permits and licenses are typically obtained through filing the state of Alaska multi-agency permit application form for hard rock exploration. Reclamation and bonding are required of all exploration operations with a disturbed area. A notice of intent to operate must be filed with the BLM for surface disturbances under 5 acres. Surface disturbances >5 acres require a plan of operation to be filed and involve an environmental review of the project.

4.9 Other Significant Factors and Risks

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

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

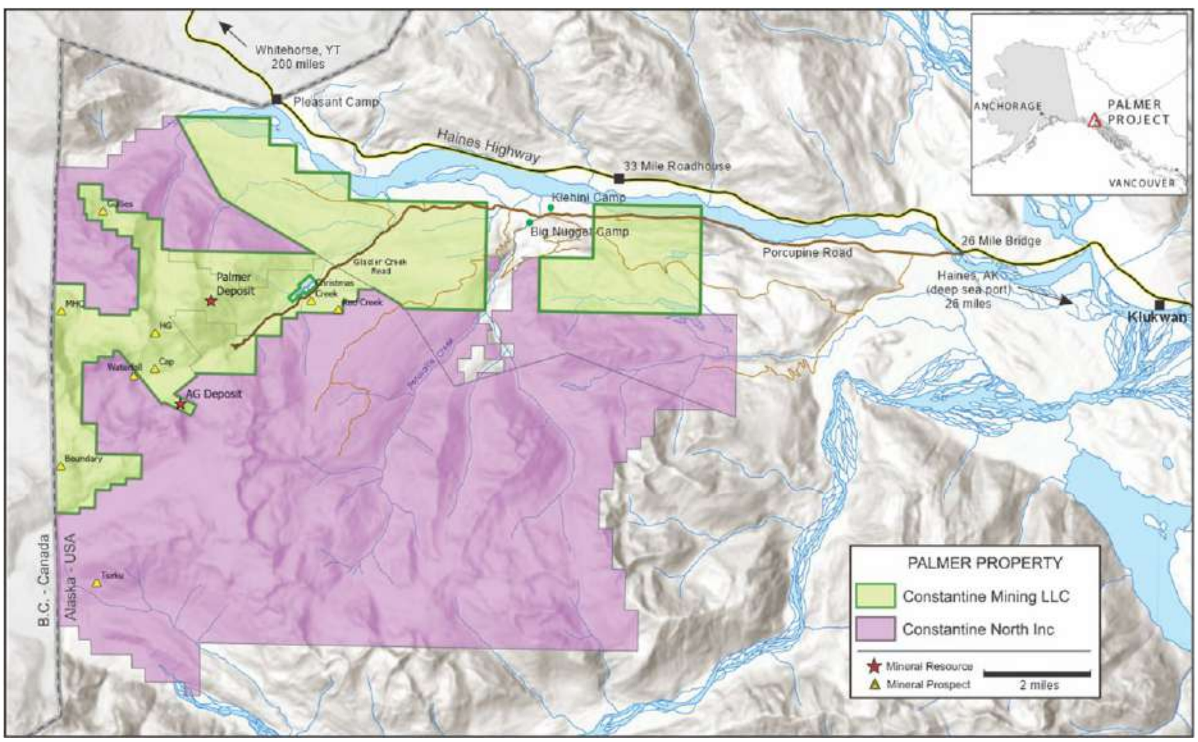
5.1 Topography, Physiography, Elevation, and Vegetation

The Palmer Project is located in mountainous terrain on the eastern edge of the Saint Elias Mountain range with relief ranging from 300 up to 2,000 m above sea level (6,400 feet (ft)). Coastal rainforests dominate lower elevations, and higher elevations are barren of vegetation and contain extensive areas with permanent snow and ice cover. The Palmer Project is located to the northwest of the Glacier Creek, which forms at the base of the Saksaia Glacier. The AG Deposit, previously referred to as the Nunatak prospect, is located ~3 km southwest from the Palmer Deposit, on a steep Nunatak between two branches of the Saksaia Glacier.

5.2 Accessibility and Transportation to the Property

The Palmer Property is located adjacent to the paved all-weather Haines Highway (Alaska Highway #7), which connects the town of Haines, Alaska, USA (situated 65 km to the southeast), with the town of Haines Junction, Yukon, Canada (located 200 km to the north).

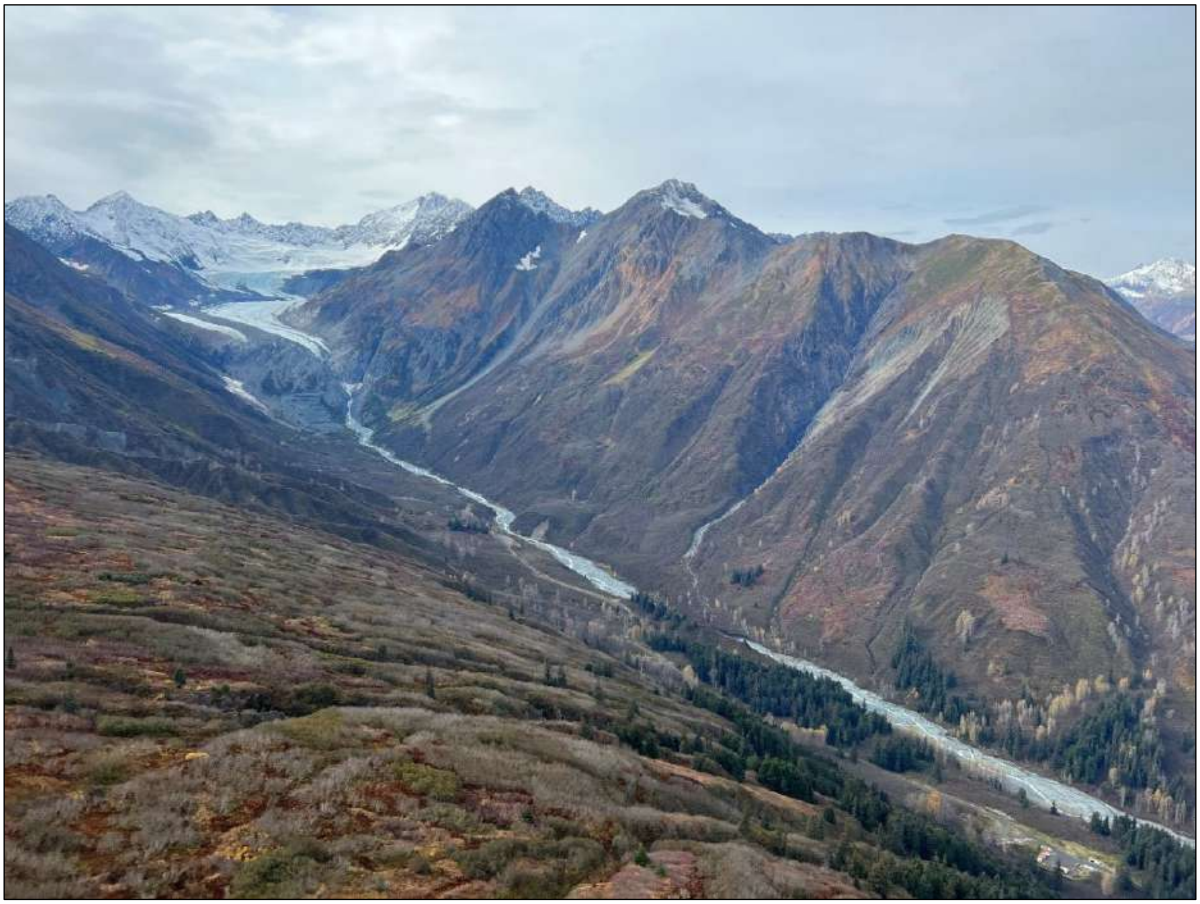
Access to the northern and eastern portions of the Property from the Haines Highway is achieved by crossing the Klehini River via the bridge at the 26 mile marker of the Haines Highway (approximately 42 km from Haines). Travel continues westward along the Porcupine gravel access road maintained by the Haines Borough for 11 km to the company's Klehini Camp located on private land near Porcupine Creek Valley (Figure 5-1).



Source: Constantine, 2025

Figure 5-1: Project Access Routes and Local Infrastructure

Travel from Klehini Camp to the center of the Project area (an additional 11 km) is afforded by a series of logging roads maintained by the Forestry Service, which connects to the Glacier Creek access road that was constructed and is maintained by Constantine (Figure 5-2). The Glacier Creek access road provides two-wheel drive access to an equipment laydown area and helicopter pad in Glacier Creek Valley within a short distance of the mineral resources. However, practical access to a majority of the Project, including nearly all exploration drill sites, is by helicopter. Drill core logging and storage facilities and a helicopter pad are located at the Big Nugget Camp (Figure 5-3), a short distance from the Klehini Camp (Figure 5-4).



Source: Constantine, 2022

Figure 5-2: West View Up Glacier Creek Valley towards Saksaia Glacier, October 2022

Source: Constantine, 2025

Figure 5-3: Big Nugget Core Logging and Storage Facilities

Source: Constantine, 2025

Figure 5-4: Klehini Camp

5.3 Climate and Length of Operating Season

Temperatures are typical of the north coast of Southeast Alaska, with lows of -25 degrees Centigrade (°C) in the winter to highs of 25°C in the summer. At the higher elevations, fieldwork is limited to late May through early October because of extensive snowfall in the range of 250 to 300 inches annually.

5.4 Sufficiency of Surface Rights

Constantine owns and/or has lease agreements for all the mineral tenures and holds all land use permits and water licenses that allow the company to conduct surface exploration and use water.

5.5 Local Resources

The town of Haines (population of 2,400) is a year-round deep-sea port at the north end of the Alaska Marine Highway, and the town boasts infrastructure to support exploration and mining operations. Many residents commute daily via ferry from Juneau to the Kensington Gold Mine operated by Coeur Mining and the Green’s Creek Silver-Gold-Lead-Zinc Mine operated by Hecla Mining Company. The nearest major economic centers are Whitehorse, Yukon (350 km by paved road), and Juneau, Alaska (4.5 hours by ferry). Daily scheduled flights connect Haines, Alaska, with Juneau, Alaska (which, in turn, has daily connections with the continental U.S.) and via Whitehorse, Yukon, to Vancouver, British Columbia, in Canada.

Power is currently provided on-site by diesel generators for the camps and exploration activities. Water to support exploration activities is available from previously installed groundwater wells or seasonal surface streams. Communications in this remote area are made possible primarily by satellite (which provides for telephone and high-speed internet connections) and radio communications while on-site.

The sufficiency of surface rights for mining operations, the availability of mining personnel, potential tailings storage areas, potential waste disposal areas, heap leach areas, and processing plant sites are not relevant to the Project at this stage.

6 History

Previous exploration work on the Palmer Property is provided in the following sections. Table 6-1 summarizes previous exploration work, and Table 6-2 summarizes previous drilling.

Table 6-1: Summary of Previous Exploration Programs on the Palmer Property

Year	Company	Work Completed	Area/Prospect
1969	Merrill Palmer, prospector	Prospecting; discovery of Main Zone base metal and barite occurrences	Glacier Creek prospect
1969 to 1971	United States Geological Survey	Regional government mapping	Skagway B-3 and B-4 quadrangles
1971 to 1977	Alyu Mining Corporation & B.P. Alaska Inc.	Barite flotation and recovery tests	Glacier Creek prospect
1979 to 1980	Anaconda Copper Company (Anaconda)	Diamond drilling (three holes, 801 m) and geological mapping	Glacier Creek prospect
1980 to 1983	Southeastern Minerals	Prospecting and sampling; discovery of several new base metal and barite occurrences	Property wide
1983 to 1985	Bear Creek Mining Company (expl. Division of Kennecott)	Geological mapping; ground and airborne geophysics (magnetic and electromagnetic (EM)); ground-penetrating radar used to determine ice thickness; diamond drilling (seven holes, 1,720 m) at Mount Henry Clay (MHC)	Property wide (focus on MHC prospect)
1983 to 1986	Alaska Division of Geological and Geophysical Surveys and United States Bureau of Mines (USBM)	Geological mapping of the Porcupine mining area; sampling and study of Palmer mineral occurrences	Property wide
1987 to 1989	Newmont Exploration	Detailed geological mapping; rock and soil sampling; diamond drilling (four holes, 419 m)	Cap, Nunatak, and Glacier Creek prospects
1989	Granges Exploration Ltd.	Diamond drilling (four holes, 932 m)	MHC prospect
1990 to 1993	Cominco Alaska	Time domain electromagnetic (TDEM) (EM-37) ground geophysics survey; geological mapping and prospecting	Glacier Creek prospect, Red Creek, and Gullies
1993 to 1997	Kennecott	Diamond drilling (three holes, 823 m)	Glacier Creek prospect
1998 to 2000	Rubicon	Geological mapping and prospecting; diamond drilling (14 holes, 2,769 m); M.Sc. thesis sponsorship (Darwin Green)	Property wide
2004	Toquima North Inc	Geological mapping; rock and soil sampling	Property wide (focus on Glacier Creek prospect)

Source: Constantine, 2025

Table 6-2: Summary of Previous Drilling on the Palmer Project

Year	Number of Drillholes	Company	Area	Drillhole ID	Drilling (m)	Cumulative Drilling (m)
1979	3	Anaconda	Main	GC-01 to GC-03	801	801
1984	2	Kennecott – Bear Creek Mining	MHC	K84-01 to K84-02	596	1,397
1985	5	Kennecott – Bear Creek Mining	MHC	K85-03 to K85-07	1,129	2,526
1989	4	Granges	MHC	G89-08 to G89-11	932	3,458
1994	3	Kennecott – Bear Creek Mining	EM-37/Main/ Jarvis	P94-01 to P94-03	800	4,258
1998	4	Newmont Mining	Main/Cap	MZ-01, CAP-01 to CAP-03	419	4,677
1998	4	Rubicon	Cap, Main, 737	RMC98-01 to RMC98-04	992	5,669
1999	10	Rubicon	MHC/Glacier Creek	RMC99-05 to RMC99-14	1,875	7,554
Total	**35**			**Total**	**7,554**	

Source: Constantine, 2025
Note: Main and Glacier Creek are equivalent with the South Wall area

6.1 Historical Exploration

Base metal sulfides and barite were first discovered in the Glacier Creek prospect area (Main and Upper Main occurrences, now the Palmer Deposit) in 1969 by local prospector Merrill Palmer. Mr. Palmer staked the discoveries and continued to prospect the area in subsequent years. Barite was the main focus of exploration potential, and Palmer arranged for tests to be conducted on bulk samples by B.P. Alaska Inc. and Lutak Trading & Stevedoring Company. Although the baritic material was determined to be suitable for production of drilling mud concentrates, none of the prospects were developed.

From 1969 to 1971, the United States Geological Survey (USGS) completed regional mapping in the area, which provided a geological framework for the Palmer Property (MacKevett et al., 1974).

In 1979, Anaconda optioned the property and drilled the first three diamond drillholes (totaling 801 m) on the property. Although all holes failed to intersect the main mineralized barite and base metal sulfide horizons, one hole (GC-02) cored 426 m of rock containing pyrite and sericite alteration, and the hole reportedly ended in siliceous sulfide breccia containing pyrite and sericite. Anaconda began a mapping program the following year (1980) in efforts to resolve structural problems during the drill program; however, Anaconda terminated the option before follow-up drilling.

In the early 1980s, exploration successes at nearby Windy Craggy and Greens Creek improved the understanding of base metal potential at the Palmer property. In 1983, high-grade massive sulfide boulders up to 1.8 m (6 ft) in diameter, and grading up to 33% Zn and 2.5% Cu, were discovered at the base of a small ice sheet near MHC (Still et al., 1991). 26 samples of various boulders collected by the USBM returned an average grade of 19.3% Zn, 1.0% Cu, 0.4% Pb, 38.2 g/t Ag, 0.22 g/t Au, and 20.6% Ba (Still, 1984). The discovery of these boulders was followed up with four consecutive drill programs by operators Bear Creek Mining/Kennecott (1984 and 1985), Granges Exploration Inc. (1989), and Rubicon (1999). Over this period, 13 holes were drilled and totaled 2,958 m of core. None of the drill programs located the source of the boulders.

In the mid- to late-1980s, Newmont Exploration Ltd. conducted exploration on the property and focused primarily on the Cap and Nunatak prospects. The Cap prospect was drilled by Newmont in 1988 and again by Rubicon in 1998, with the best intercept of the four holes containing 134 g/t Ag over 23.2 m within massive pyritic barite and baritic breccia. At the Nunatak prospect, a bulk sample (91 kg (200 lb) divided into 13 separate samples) returned an arithmetic average grade of 11.84 oz/ton Ag and 0.092 oz/ton Au (Goodwin et al., 2019).

In the early 1990s, ice retreat exposed an outcrop of massive sulfide in the Palmer Deposit area that is now known as the Little Jarvis occurrence. The best grades received by Kennecott from chip samples at the Little Jarvis occurrence contained up to 13.0% Zn, 7.0% Cu, 0.02 oz/ton Au, and 7.0 oz/ton Ag over 4.6 m (Wakeman, 1995). Rubicon was unsuccessful at reproducing these chip grades, with their best grade containing 10.8% Zn, 0.27% Cu, 0.17 parts per million (ppm) (0.005 oz/ton) Au, and 44.2 ppm (1.29 oz/ton) Ag over 3.05 m (Goodwin et al., 2019).

Several geophysical surveys have been conducted on the Palmer Property over time, the most significant of which was a helicopter-borne magnetic-EM survey completed by Kennecott in the mid-1980s that covered most of the main mineral occurrences. A follow-up survey was conducted in 1991, when Cominco detailed three of the airborne EM priority targets with TDEM (EM-37) ground surveys. One of the TDEM surveys confirmed that an airborne EM anomaly 750 m eastward along strike of the mineral occurrences at the Glacier Creek prospect (now Palmer Deposit) represented a significant conductor, with a geophysical signature consistent with that of a large, massive sulfide deposit (Cominco, 1993). Cominco Alaska proposed three drillholes to test the different geophysical interpretations of the conductor (based on spatial orientation: flat-lying vs. steeply dipping); however, the holes were not drilled before Cominco’s option lapsed.

In 1993, Kennecott drilled one hole (P94-01) to test an interpretation that the conductive anomaly was flat-lying, and in 1998, Rubicon drilled a second hole (RMC98-04). No significant mineralization was intersected in either hole. It was proposed that significant problems with locating the original survey grid may have been a factor in the holes missing their intended target.

In 1999, Rubicon interpreted that the Little Jarvis occurrence was correlative with the Upper Main occurrence on the other side of the mountain to the southeast, which led to the discovery of the RW Zone. Semi-massive to massive sulfide and a leached, oxidized equivalent of the RW Zone was intersected in six drillholes and was open at depth.

No additional exploration drilling occurred on the property until the acquisition of Toquima North Inc. by Constantine Metals in 2006.

6.2 Prior Ownership and Ownership Changes

Section 4.3 (Property Ownership History) provides additional information on prior ownership and ownership changes.

The original Palmer Property, consisting of 340 federal unpatented lode mining claims, was initially staked by Mr. Merrill Palmer in the late 1970s and held under Mr. Palmer’s companies (Alyu Mining Inc. and Haines Mining - Exploration Inc.). From the 1970s to the early 2000s, the property was optioned to various exploration companies, as outlined in Table 6-1. These companies completed various surface exploration programs, which included eight diamond drilling campaigns totaling 7,544 m in 37 drillholes (Table 6-2).

In 2006, Constantine Metals acquired a 100% interest in the Palmer Project held by Toquima North Inc., a wholly owned U.S. subsidiary of Toquima. Constantine Metals acquired the interest by means of a plan of arrangement, whereby Toquima assigned its 100% interest in Toquima North Inc. to Constantine Metals.

As a result, Constantine Metals, through its wholly owned U.S. subsidiary Toquima North Inc., held a 99 year mineral lease agreement on the 340 federal unpatented lode mining claims. The mineral lease, dated effective December 19, 1997, was originally signed by Rubicon and is with Alyu Mining, Inc. and Haines Mining-Exploration Inc.

In 2007, the Jarvis state lode mining claims were staked by Toquima North Inc., and in 2009, Millrock Resources LLC conveyed its 100% interest in the GE state lode mining claims to Toquima North Inc. A mining quit claim deed was recorded with the Haines recording office.

In January 2010, Toquima North Inc. was renamed to Constantine North.

In 2013, Constantine Metals entered into an Option Agreement with Dowa granting Dowa the sole and exclusive right and option to acquire an interest in the Palmer Project. Under the terms of the Option Agreement, Dowa had the option to earn a 49% interest in the Palmer Project by making aggregate expenditures of US$22 million over a 4 year period. Included in the aggregate expenditure were cash payments to Constantine Metals totaling US$1,250,000 over 4 years. The Option Agreement also included terms allowing Dowa to acquire 100% of the zinc off-take rights at arms-length commercial terms.

On November 2, 2013, Dowa assigned all of its interest in the Option Agreement to its 100% owned U.S. subsidiary Dowa Alaska.

In 2014, Constantine North was the successful applicant in a competitive lease process for the Haines Block (Parcels C81209, C81210, and C70451) offered by the TLO. The MHT Lease was finalized and signed with an effective date of September 1, 2014. On January 20, 2015, Dowa Alaska selected the Selection Area to be included in the Option Agreement as provided in the MHT selection agreement.

On January 5, 2017, Constantine Metals announced that Dowa Alaska had completed its US$22 million earn-in and had exercised its option to participate as a partner in the Palmer Project.

On July 1, 2017, Constantine North and Dowa Alaska formalized the joint venture agreement and created Constantine Mining, a 50/50 joint venture partnership company under which to hold the Palmer properties and operate the joint venture.

On November 5, 2021, the properties under the joint venture agreement were transferred from Constantine North to Constantine Mining and included the Alyu-Haines mineral lease, the Jarvis and GE state lode mining claims, and the MHT selection agreement. The MHT mineral lease (Parcel C70451) transfer to Constantine Mining was completed on August 4, 2022.

On November 1, 2022, APM of Vancouver, British Columbia, Canada, acquired all the issued and outstanding shares of Constantine Metals through a plan of arrangement. Constantine Metals became a 100%-owned subsidiary of APM, where Constantine Metals remains focused on advancing the Palmer Project through its U.S. subsidiary, Constantine North.

On November 15, 2024, Dowa elected to withdraw from the joint venture agreement, relinquishing its interest in Constantine Mining to Constantine North. Dowa retained a zinc offtake option, whereby

Dowa can purchase up to 50% of the zinc concentrate annually. Constantine Metals now holds a 100% interest in the Palmer Project through its 100%-owned U.S. subsidiary Constantine North.

6.3 Historic Mineral Resource and Reserve Estimates

Three historical NI 43-101 mineral resource estimates have been prepared for the Palmer Deposit, beginning in 2010 with updates in 2015 and 2018, and one historical NI 43-101 MRE was prepared for the AG Deposit in 2018.

A preliminary economic assessment (PEA) was completed on behalf of Constantine Metals in 2019 and was amended in March 2022 (Goodwin et al., 2022). The PEA technical report documents and discusses the exploration work, mineral processing, metallurgical testing, mining plan, and MREs completed up to an effective date of June 3, 2019. The preliminary economic evaluation of the Project was presented in this assessment; however, the economic parameters and analysis presented in the PEA are now considered to be out of date. Table 6-3 tabulates the mineral resource statement presented in the PEA, with an effective date of June 3, 2019. The historical estimates are provided for information only, as they are no longer relevant and are not to be relied upon. The QPs have not done sufficient work to classify the historical estimate as current mineral resources. The following MRE is not being treated as current by the Issuer and has been superseded by the current estimates discussed herein.

Table 6-3: Summary of the Palmer MRE, with an Effective Date of June 3, 2019

Zone	**Cut-Off**	**Resource Category**	**Tonnage (kt)**	**Zn (%)**	**Cu (%)**	**Pb (%)**	**Ag (g/t)**	**Au (g/t)**	**Barite (%)**	**ZnEq (%)**	**CuEq (%)**
RW and South Wall	US$75/t NSR	Indicated	4,677	5.23	1.49		30.8	0.30	23.9	10.21	3.92
	US$75/t NSR	Inferred	5,338	5.20	0.96		29.2	0.28	22.0	8.74	3.35
AG Deposit	5.0% ZnEq	Inferred	4,256	4.64	0.12	0.96	119.5	0.53	34.8	9.04	3.46
Total		Indicated	4,677	5.23	1.49		30.8	0.30	23.9	10.21	3.92
		Inferred	9,594	4.95	0.59	0.43	69.3	0.39	27.7	8.87	3.40
Contained Metal		**Resource Category**		**Zn (Mlb)**	**Cu (Mlb)**	**Pb (Mlb)**	**Ag (Moz)**	**Au (koz)**	**Barite (kt)**	**ZnEq (Mlb)**	**CuEq (Mlb)**
Total		Indicated		539	154		4.6	45.1	1,116	1053	404
		Inferred		1,047	124	90	21.4	120.6	2,654	1876	719

Source: Constantine, 2019

Notes: ZnEq and CuEq were based on assumed metal prices and 90% recovery and payable for copper, zinc, lead, silver, and gold.
CuEq = (25.3 x Zn% + 66 x Cu% + 22 x Pb% + 0.51 x Ag g/t + 40.19 x Au g/t)/66
ZnEq = (US$66 x Cu% + US$25.3 x Zn% + US$22 x Pb% + US$0.51 x Ag g/t + US$40.19 x Au g/t)/25.3
Assumed metal prices are US$3.00/lb Cu, US$1.15/lb Zn, US$1.00/lb Pb, US$1,250/oz Au, and US$16/oz Ag.

6.4 Historic Production

No historic production has been reported on the Palmer Project.

7 Geological Setting and Mineralization

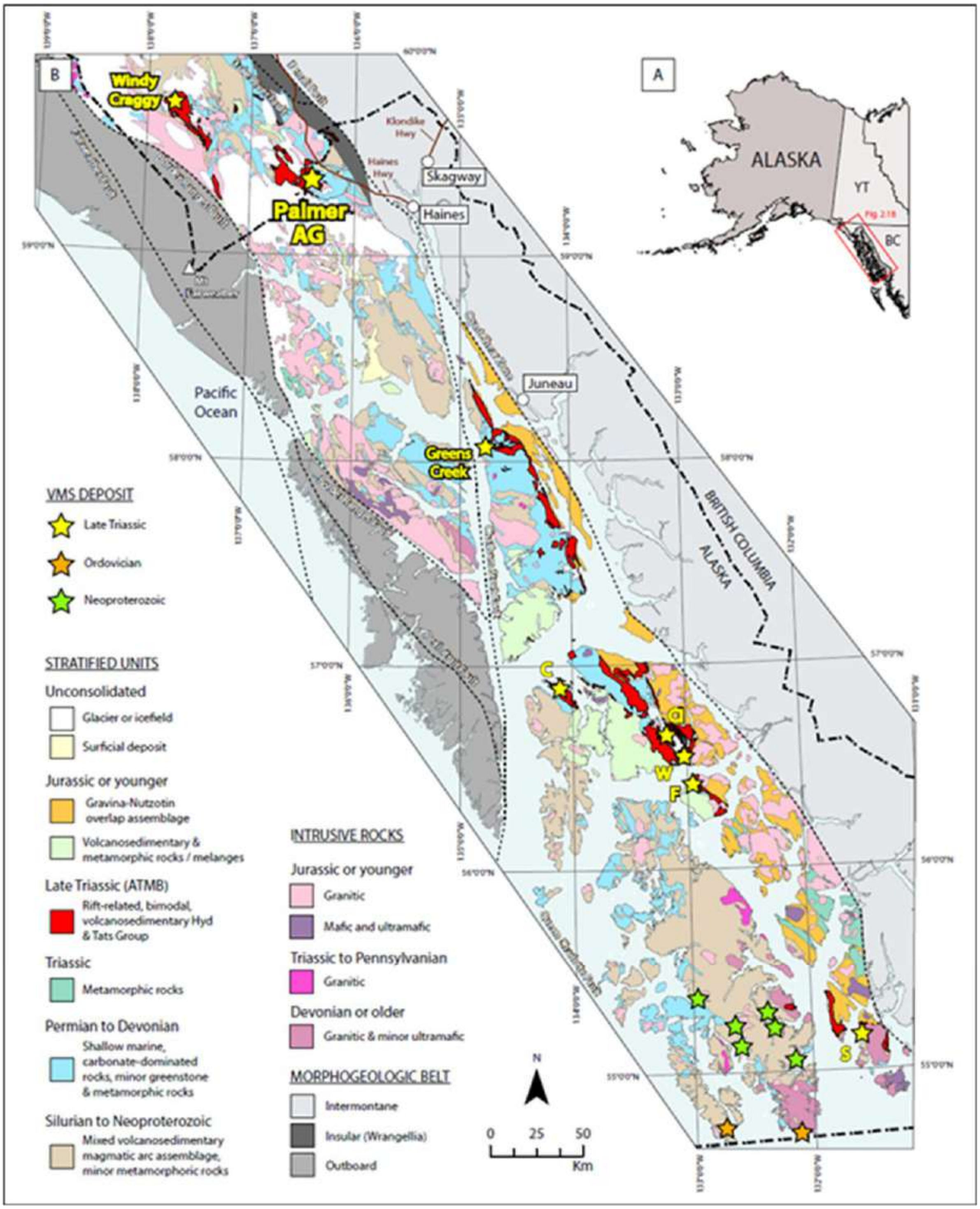
7.1 Regional Geology

The Palmer Property is located within the allochthonous Alexander Terrane that extends along the coast of northwest British Columbia northward through the Alaskan panhandle (southeast Alaska), through the Saint Elias Mountains of British Columbia and the Yukon, and westward into the Wrangell Mountains of Alaska (Wheeler and McFeely, 1991). The Alexander Terrane evolved along a convergent plate margin from the Precambrian-Cambrian to Early Devonian, with continuous deposition of arc-type igneous and sedimentary rocks (Gehrels and Berg, 1994). The latest Precambrian and early Paleozoic strata were subsequently deformed and metamorphosed during Middle Cambrian-Early Ordovician and Middle Silurian-earliest Devonian orogenies (Gehrels and Berg, 1994).

Shallow marine carbonates, clastic rocks, and mafic-intermediate volcanic rocks were deposited during a period of relative tectonic stability from Middle Devonian to Early Permian (Gehrels and Saleeby, 1987). Late Triassic rift-related volcanic and sedimentary rocks were deposited unconformably over the Permian and older rocks (Gehrels et al., 1986). Overprinting deformation and metamorphism occurred mainly throughout the mid-Jurassic to Cretaceous accretion of the Alexander Terrane to inboard Cordilleran terranes (Berg et al., 1972, and Coney et al., 1980), with further dismemberment occurring along regional-scale right-lateral strike slip faulting during Tertiary to recent time.

The Palmer property is largely underlain by mafic-dominated, bimodal sequence of submarine volcanic and sedimentary rocks that host VMS mineralization. These rocks are part of an approximately 600-km-long, discontinuously exposed metallogenic belt of Late Triassic, rift-related volcanic and sedimentary rocks belonging to the Alexander Terrane.

The metallogenic belt (referred to as the Alexander Triassic Metallogenic Belt (ATMB)) comprises the easternmost and youngest portion of the Alexander Terrane from Annette Island in the south, and northward to Windy Craggy (Figure 7-1). The ATMB is host to numerous VMS occurrences, prospects, and deposits, including the giant Windy Craggy copper-cobalt deposit in northwest British Columbia, the precious metals-rich Greens Creek zinc-lead-silver-gold deposit in southeast Alaska, and the Palmer and AG Deposits (Taylor et al., 2008).



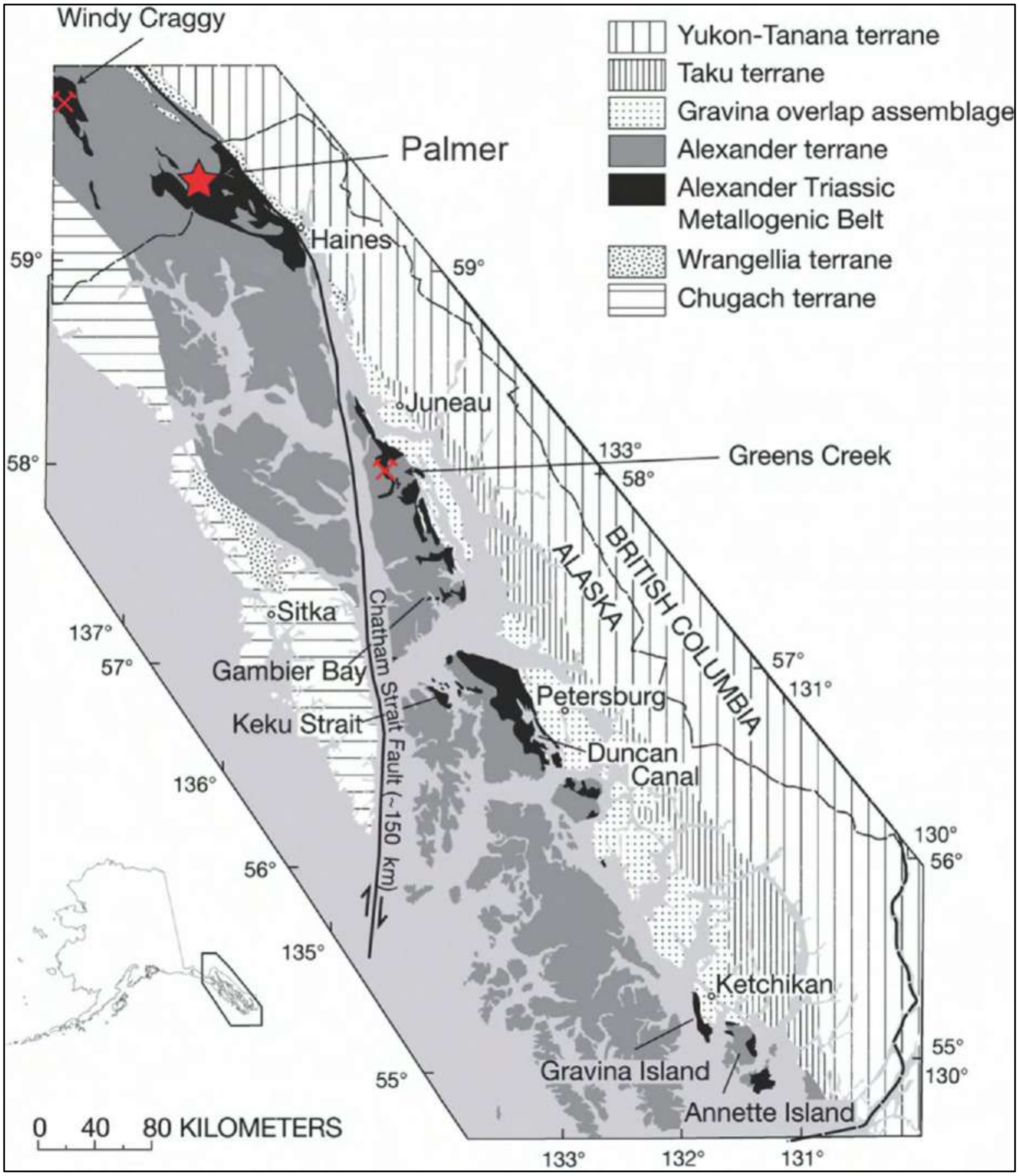
Source: Quinn, 2024

Notes: The ATMB hosts several VMS deposits, including Windy Craggy, Palmer & AG, Greens Creek, C: Corwalis Peninsula, CI: Castle Island, W: Woewodski, F: Frenchie, and S: Sylburn Peninsula. Reconstructing offset along the Chatham-Strait fault places Greens Creek <50 km from Palmer/AG.

Figure 7-1: Regional-Scale Geology Map Centered on Northern Southeast Alaska

In general, the stratigraphy within the Alexander Triassic metallogenic belt consists of a 200 to 800 m thick sequence of conglomerate, limestone, marine clastic sedimentary rocks, volcanic rocks, and tuff that are intercalated with, and overlain by, a distinctive unit of mafic pyroclastic rocks and pillowed flows. Faunal data bracket the age of the host rocks between the Middle Triassic and Late Triassic (Taylor et al., 2008). The Palmer Deposit appears to be transitional in character between the zinc-lead-silver-rich ores at Greens Creek and the copper-cobalt-rich ores at Windy Craggy and may reflect the transition from a mature back-arc or intra-arc rift setting in the north to a basin-margin setting in the south within the ATMB (Taylor et al., 2008, and Steeves et al., 2016).

In a regional structural context, the deposit host rocks are correlative with the Hyd Formation in southeast Alaska (Loney, 1964, and Gehrels et al., 1986) and the informally named Tats group exposed in the Saint Elias Mountains of British Columbia. The Hyd Formation hosts the Greens Creek deposit, and the Tats group hosts the Windy Craggy deposit. After restoration of 150 km of Tertiary dextral offset along the Chatham Strait – Denali fault system (Hudson et al., 1982), the Palmer Project would be located <50 km from the Greens Creek deposit (Figure 7-2).



Source: Steeves et al., 2016

Figure 7-2: ATMB, Chatham Strait Fault

7.2 Local Geology

The Palmer Property is located in Skagway B4 quadrangle in southeast Alaska. Most of Constantine's understanding of the regional geology of the area is from government geological mapping work by MacKevett et. al. (1974) and then continued by Redman et al. (1985). In the early 1990s, USBM geologists provided further economic mineral investigations in the Haines-Juneau area with detailed mine, prospect, and mineral occurrence descriptions (Still et al., 1991). The following is summarized from the authors mentioned above.

The Skagway B-3 and B-4 quadrangles are near the northern extremity of southeastern Alaska in a mountainous region characterized by abundant glacier-related erosional and depositional features. The Chilkat River fault (a segment of the Chatham Strait fault), which is a major tectonic element in southeastern Alaska, underlies the markedly linear Chilkat River valley and separates the quadrangles into two distinctive geologic terranes.

The terrane east of the Chilkat River fault (Wrangellia) is dominated by igneous rocks of Cretaceous and early Tertiary age. These rocks consist of an older mafic and ultramafic assemblage that includes metamorphosed lavas, gabbro, diorite, pyroxenite, and the younger quartz diorite and related rocks of the Coast Range batholith. Structural and topographic trends east of the fault have a markedly linear northwestward orientation, which is typical of large parts of southeastern Alaska.

The terrane west of the Chilkat River fault (Alexander Terrane) is characterized by rocks of the Paleozoic and Mesozoic (Triassic) divided into three metamorphic bedrock groups. The oldest group occurs in the northeast part of the area and is informally designated the Four Winds Complex. This area of the complex consists of a lower amphibolite unit overlain by a unit of discontinuously intercalated phyllite, felsic schist, mafic schist, chert, and marble. North of the Klehini River, metamorphic grade increases to the northeast from greenschist to amphibolite facies. The age of the Four Winds Complex is presumed to be older than overlying Mississippian-Devonian rocks.

Overlying the Four Winds Complex are the Porcupine slate and Porcupine marble. Most of the central part of the area is underlain by tightly folded, commonly limonite-stained, black slate, and dark-gray phyllite with subordinate black argillite and banded silt stone. Locally, the unit contains sheared, recrystallized, medium-gray bioclastic limestone and marble. The Porcupine marble contains Devonian-Mississippian fossils.

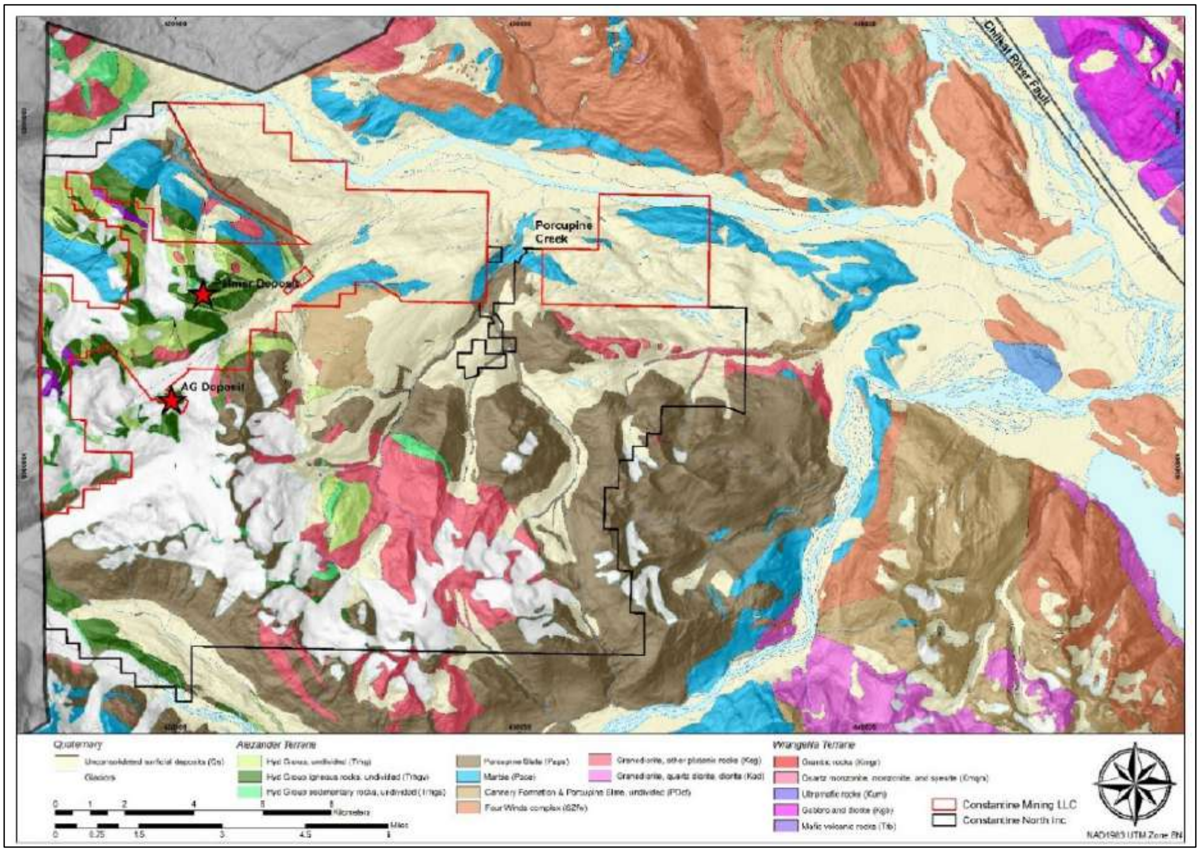
The Glacier Creek volcanics overlie and interfinger with the Porcupine slate. The unit is composed of massive to slightly schistose flows of basalt and basaltic andesite, which also locally occur in dikes. Slate, chert, and argillaceous marble form important but subordinate intervals. The Glacier Creek volcanics are mid- to late-Triassic in age.

The stratigraphy is cut by Cretaceous granodiorite and diorite. These plutonic rocks, and associated dikes, are particularly abundant at the head of Porcupine Creek. In the northeast corner of the Porcupine mining area, the highest-grade part of the Four Winds Complex contains intermediate orthogneiss, with subordinate amphibolite, pelitic schist, and paragneiss.

Pre-Cretaceous metamorphic rocks of the Porcupine mining area exhibit the effects of regional dynothermal metamorphism and large-scale folding. Most rocks display phyllitic foliation, schistosity, or gneissic foliation and scattered microscopic to outcrop-scale isoclinal folds from an early deformational event. Overprinted on the older metamorphic structures are large, tight folds with axes that trend 300 to 315 degrees (°) and plunge steeply to the northwest.

Reported mining interest in the Porcupine mining area began in 1898 with the discovery of gold placers along Porcupine Creek. Shortly thereafter, gold placers were discovered along Glacier Creek and other creeks in the area. From 1898 to 1969, geologic mapping and prospecting in the vicinity centered on the Porcupine placers. Attempts were made by early prospectors to find a lode source for the

Porcupine placers, and during the early 1930s, a local prospector discovered the Lost Silver Ledge Mine near Summit Creek. During the early 1980s, Jim McLaughlin discovered the Golden Eagle Lode prospect on McKinley Creek. The first reported occurrences of massive sulfide deposits within the Porcupine mining area were the 1969 and 1971 discoveries by prospector Merrill Palmer of Haines, Alaska. From 1969 to 1971, E. M. MacKevett of the USGS mapped the geology of the Skagway B-3 and B-4 quadrangles and briefly examined the Glacier Creek occurrences. In the 1980s, Redman continued with regional mapping of the Skagway B4 quadrangle. Figure 7-3 shows the regional geology of the Property.

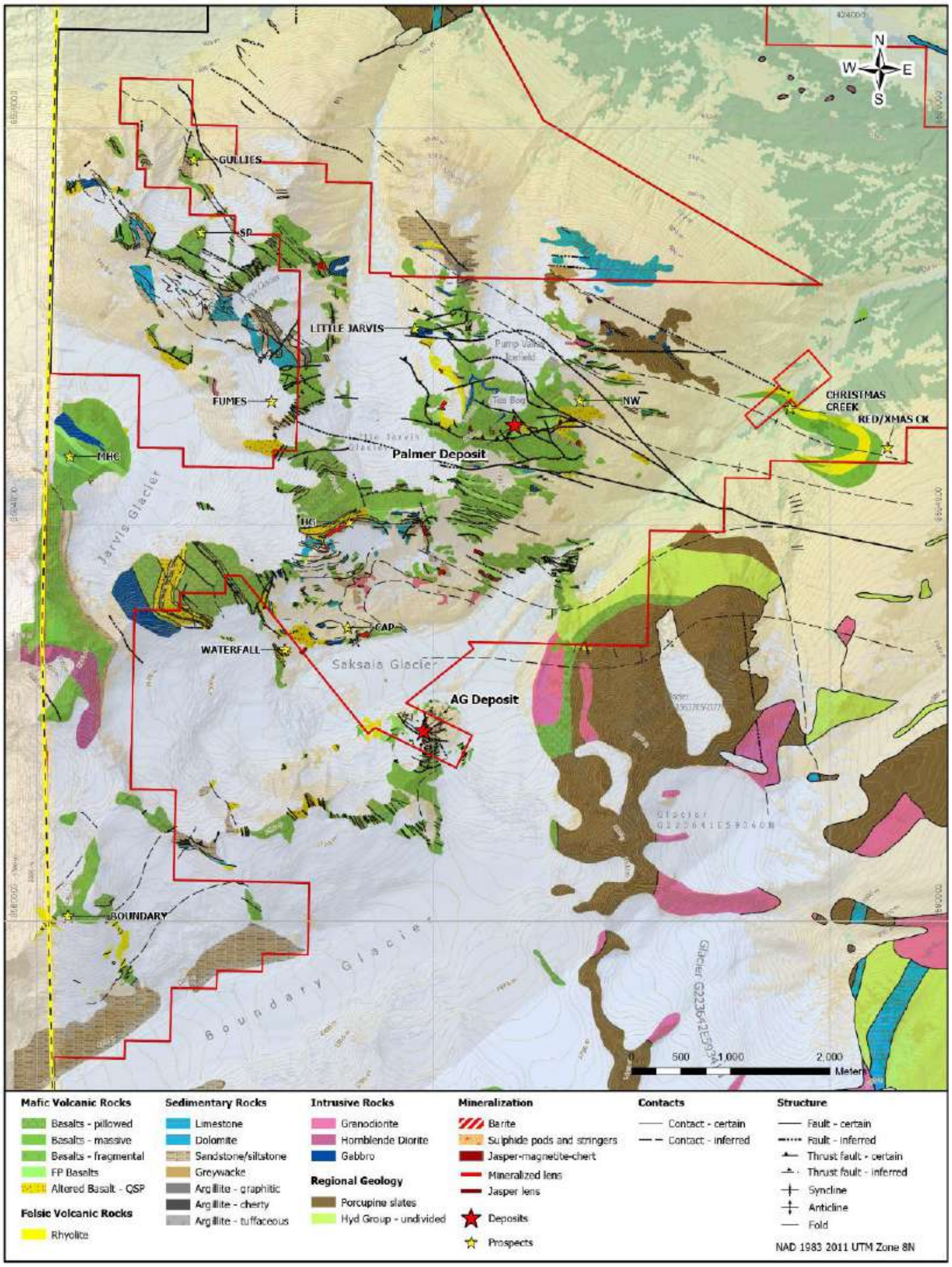


Source: Constantine, 2025

Figure 7-3: Regional Geology of the Palmer Property Area

7.3 Property Geology

The Palmer property is underlain by Paleozoic and lower Mesozoic metasedimentary and metavolcanic rocks that have been intruded locally by Cretaceous and Tertiary granitic plutons (Figure 7-4). The oldest rocks in the area appear to be thin-bedded limestone and massive marble that contain fossils of Devonian to Carboniferous age. The contact relationship between these rocks and the Late Triassic volcanic and sedimentary rocks is uncertain. Elsewhere in the Alexander terrane, an unconformity separates Late Triassic from Paleozoic rocks (Gehrels et al., 1986), and on the Palmer property, a marble-clast-bearing conglomerate that marks the base of the Late Triassic rocks is interpreted to be a Permian-Triassic unconformity (Proffett, 2019).



Source: Constantine, 2025

Figure 7-4: Property Geology Map of the Palmer Area

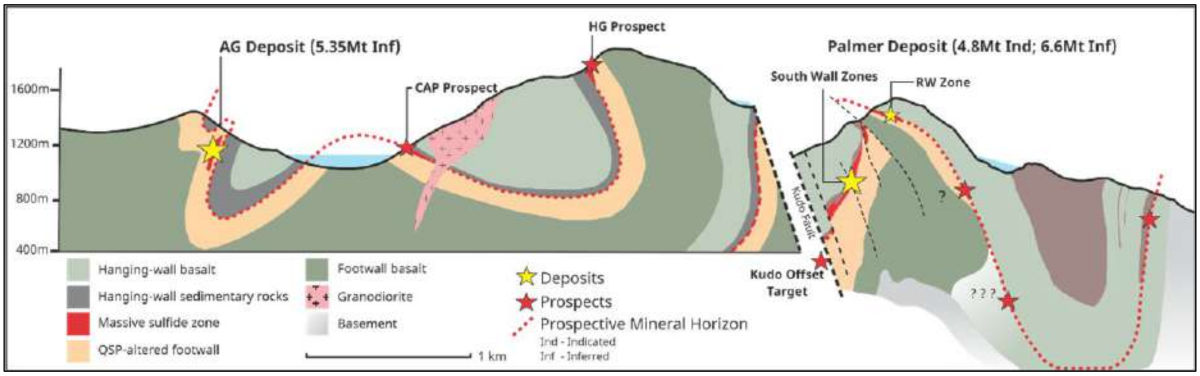
The base of the Late Triassic section is a thick sequence of thinly bedded, fine-grained, basinal clastic rocks known as the Porcupine Slate. Overlying and interfingered with the Porcupine Slate is a dominantly mafic volcanic pile that is host to the known VMS deposits in the area. The VMS host rocks (Hyd Group) include a thick package of pillowed, massive, and locally brecciated aphyric to feldspar-phyric mafic flows and volcaniclastic rocks intercalated with thin units of tuffaceous limestone and argillite and rare rhyolite flows and dykes (Steeves et al., 2016). These rocks have undergone lower- to mid-greenschist facies regional metamorphism (Green et al., 2003). The Late Triassic age of the mafic volcanic sequence was confirmed by microfossil data and uranium (U)-lead dating of volcanic rocks from the Palmer Deposit area (Green, 2001).

Property-wide, the folding and faulting is likely repeated stratigraphically and may in part be responsible for the broad distribution of exhalative mineralization and associated quartz-sericite-pyrite (QSP) alteration across the Project (Figure 7-5). Alteration is commonly several hundred meters in extent and is of such strong intensity that discrimination of the protolith is difficult without the use of immobile element geochemistry.

7.4 Structural Geology

The rock units on the Palmer Project record at least four different episodes of deformation that primarily relate to mid-Cretaceous accretion of the Alexander Terrane to North America (Karl et al., 1998, Haeussler et al., 1999, and Steeves et al., 2016):

1. The earliest and most evident deformation event (D1) is a north-to-south contractional event characterized by a slatey to schistose cleavage (S1), which is likely axial planar to south-verging folds and thrust faults (Lewis, 1998). Fabric intensity is highly variable, reflecting the strong contrast in rheology between massive basalts and thin-bedded silty rocks comprising most of the section. In most places, preservation of primary rock textures is very good, although the rocks are locally deformed beyond recognition of the protolith. In general, the S1 fabric is most strongly developed within sedimentary strata and intensely altered volcanic rocks. Map-scale D1 folds have kilometer-scale wavelengths, close to tight forms, and are commonly overturned. Outcrop-scale D1 folds are rare and typically restricted to intercalations of sedimentary strata.
2. The second phase of deformation (D2) is less readily observed and has no associated fabric. The phase is evidenced by map-scale folds that affect bedding and S1 foliation. The folds are generally tight and have sub-angular hinges with axes that plunge variably to the northwest. Although important at the property scale, the effects of the D2 deformation event are not as apparent in the Palmer Deposit area.
3. The D3 deformation is manifested by weakly developed northeasterly trending crenulation fabrics that are present locally within some of the more schistose rocks (Lewis, 1998); they are interpreted to post-date the D2 event because the orientation of the crenulation cleavage is independent of position on D2 folds. Regional strain associated with D3 is minor and does not appear to have produced any megascopic structures.
4. The D4 deformation consists of late southwest- and northwest-striking, high-angle, conjugate brittle faults that offset the stratigraphy, although the amount of displacement is poorly known. These brittle faults may be related to the Late Cretaceous to early Tertiary dextral faulting that took place throughout the Alexander Terrane and formed the Chatham Strait fault system.



Source: Constantine, 2025

Figure 7-5: Schematic Section Showing Folded Stratigraphy

7.5 VMS Mineralization

The Palmer Project hosts two known VMS deposits: the Palmer Deposit, which consists of the SW and RW Zones, and the more recently discovered AG Deposit, located 3 km to the southwest. Numerous other mineralized prospects and occurrences are also present throughout the property. The various prospects and deposits share similar alteration and mineralogical characteristics, suggesting a large-scale, property-wide, Late Triassic mineralizing event with multiple hydrothermal vent centers.

Six VMS mineralization styles have been identified and are grouped according to dominant mineral assemblages and texture; Table 7-1 and Table 7-2 summarize these styles, which are outlined in the following text (Gray and Cunningham-Dunlop, 2019). Figure 7-6 shows these mineralization styles within a typical VMS lens.

Table 7-1: Description of Principal Mineralization Styles

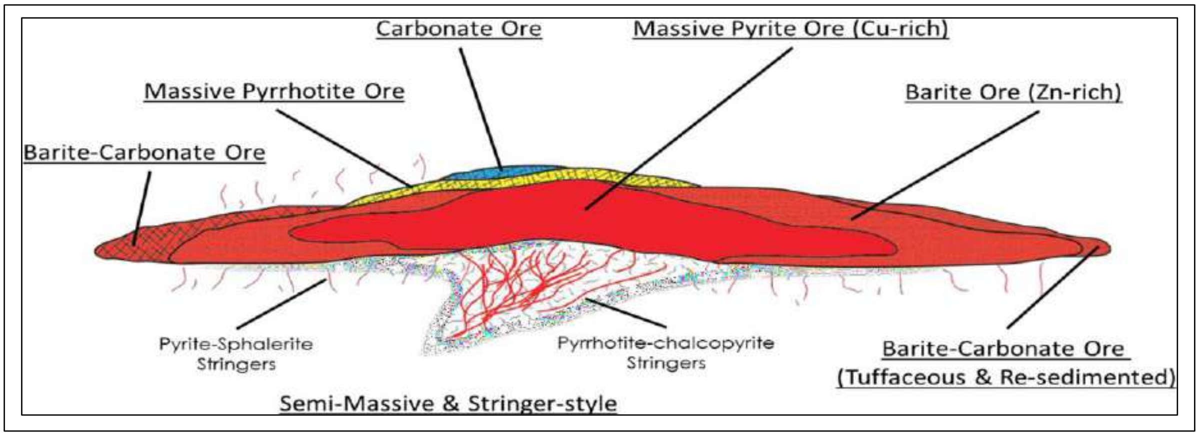
	Description
Barite-carbonate mineralization (tuffaceous and re-sedimented)	<50% pyrite ± sphalerite ± chalcopyrite within variable carbonate rich rock; located on the margins of massive sulfide lenses
Carbonate mineralization	>50% carbonate; capping massive sulfides and possibly as infilling and replacement of calcareous tuffs
Barite mineralization	<50% sulfide with dominantly barite gangue; banded to massive texture; dominated by pyrite-sphalerite, with varying chalcopyrite
Massive pyrite mineralization	>50% sulfide; pyrite and chalcopyrite with quartz/barite gangue
Massive pyrrhotite mineralization	>50% sulfide, dominated by pyrrhotite, quartz and carbonate megacrysts; up to 15% chalcopyrite, 20% sphalerite
Semi-massive and stringer style pyrrhotite-chalcopyrite	<50% pyrrhotite-chalcopyrite within quartz-muscovite altered rock within footwall
Semi-massive and stringer pyrite-sphalerite (± chalcopyrite)	<50% pyrite-sphalerite (± chalcopyrite) within quartz-muscovite altered rock, above and below mineralized lenses; >2% sphalerite ± chalcopyrite

Source: Constantine, 2019

Table 7-2: Mineralogy of Principal Mineralization Styles

Cherty, Tuffaceous, and Barite- Carbonate Mineralization	Carbonate Mineralization	Barite Mineralization	Massive Pyrite Mineralization	Massive Pyrrhotite Mineralization	Pyrrhotite-Chalcopyrite Stringers	Semi-Massive and Stringer Pyrite-Sphalerite (± Chalcopyrite)
Pyrite chalcopyrite sphalerite, ± galena, ± tetrahedrite, ± arsenopyrite	Iron (Fe)-rich sphalerite chalcopyrite, ± pyrite, ± pyrrhotite	Iron-poor sphalerite pyrite chalcopyrite, ± tetrahedrite, ± galena, ± arsenopyrite, ± covellite	Pyrite chalcopyrite sphalerite, ± tetrahedrite, ± arsenopyrite, ± covellite	Pyrrhotite chalcopyrite sphalerite pyrite	Pyrrhotite chalcopyrite pyrite, ± iron-rich sphalerite	Pyrite iron-poor sphalerite, ± chalcopyrite, ± tetrahedrite
Associated Gangue Minerals						
Barite carbonate, ± muscovite, ± chlorite, ± barium-feldspar, ± albite	Carbonate, ± quartz, ± chlorite, ± muscovite, ± barium-feldspar	Barite, ± quartz, ± muscovite, ± chlorite	Quartz, ± muscovite, ± chlorite, ± barite, ± carbonate, ± albite, ± barium-feldspar	Carbonate, ± quartz, ± muscovite, ± chlorite	Quartz muscovite, ± chlorite	Quartz muscovite carbonate, ± albite, ± chlorite

Source: modified from Constantine, 2019
Note: Minerals are listed in approximate, relative order of abundance; ± indicates presence in only a few samples.



Source: Constantine, 2019

Figure 7-6: Mineralization Styles within a Typical VMS Lens

7.5.1 Barite Mineralization (Zinc-Rich)

Barite-rich ores contain abundant pale honey-brown, low-iron sphalerite with variable amounts of pyrite, locally minor galena, tetrahedrite, arsenopyrite, and variable concentrations of late chalcopyrite. Barite ores contain >50% barite and 30% to 50% sulfides and resemble some types of black ore in Kuroko deposits (Eldridge et al., 1983). Barite is the dominant gangue mineral. Compositional bands dominated by either barite, sphalerite, pyrite, or chalcopyrite occur locally. This compositional banding is likely primary (by comparison with Kuroko analogs) but may have been enhanced by deformation. The barite-rich mineralized rock grades locally into massive pyrite mineralized rock as sulfide content increases and quartz becomes the dominant gangue. Barite mineralized rock also grades into a barite-carbonate mineralized rock at the upper limits and flanks of SW Zones 1 and 2, with carbonate increasing in abundance at the margins of the lens.

7.5.2 Massive Pyrite Mineralization (Copper-Rich)

Massive pyrite mineralization typically occupies the core of the lens and is dominant in SW Zone 1 and parts of SW Zones 2 and 3. This facies is classified as having >50% sulfide content, typically as pyrite and chalcopyrite with lesser sphalerite and associated minor quartz and/or barite gangue. This mineralization unit resembles the yellow ore of the Kuroko deposits (Eldridge et al., 1983). The massive pyrite mineralization commonly exhibits compositional banding with variable amounts of sphalerite and chalcopyrite. This facies also shows fine-grained, dispersed pyrite followed by later, coarser, anhedral pyrite with remobilized intergranular chalcopyrite or sphalerite.

7.5.3 Semi-Massive and Stringer-Style Mineralization

Semi-massive and stringer-style pyrite ± sphalerite ± chalcopyrite zones stratigraphically underlie and form the feeder zones to massive sulfide mineralization. The semi-massive and stringer mineralization zones consist of 30% to 50% by volume (vol%) and 15 to 30 vol% sulfide, respectively. Pyrite grains occur as very fine disseminated grains and as coarser grains within stringers. Sphalerite and chalcopyrite are also disseminated with pyrite and within stringers. Locally, stratigraphically below SW Zone 1 and 2 massive sulfide mineralization and within the alteration zone, stringer-style mineralization is dominated by pyrrhotite-chalcopyrite, rather than pyrite-sphalerite. This facies is characterized by <50 vol% sulfides as stringer-style and stockwork veins and >50 vol% gangue of quartz and muscovite. The chalcopyrite content ranges from 3 to 15 vol%, with pyrrhotite content up to 40 vol%. Trace sphalerite is present in most samples as dark red, anhedral grains.

7.5.4 Massive Pyrrhotite Mineralization

Massive pyrrhotite mineralization occurs both above and below massive pyrite mineralization and barite mineralization (Figure 7-6) within SW Zones 1, 2, and 3 and generally represents a volumetrically small portion of the mineralized zones. The facies contains >50 vol% sulfide with up to 15 vol% chalcopyrite, up to 20 vol% sphalerite, and <1 vol% pyrite. Chalcopyrite and sphalerite occur within massive pyrrhotite and in fractures in pyrrhotite. The dominant gangue minerals are quartz and carbonate with minor very fine-grained muscovite. Trace hematite and rare molybdenite are present within muscovite-rich patches cross-cutting quartz and sulfide grains.

7.5.5 Carbonate Mineralization

Carbonate-rich mineralization is found at the stratigraphic top of SW Zone 1. Carbonate mineralization typically contains 60 vol% coarse-grained carbonate, with minor quartz, muscovite, and dark green chlorite, up to 35 vol% dark red-burgundy sphalerite, and up to 5 vol% chalcopyrite. Trace amounts of partially replaced (barium-potassium (K)) feldspar are also observed. More massive carbonate contains relatively coarse, subhedral to euhedral, interlocking crystals of calcite (up to 3 millimeters (mm)). Late chalcopyrite stringers cross-cut carbonate as thin veinlets, and sphalerite is disseminated throughout, locally as relatively coarse anhedral to euhedral grains (up to 1 mm) forming aggregates. These rocks appear to be highly recrystallized.

7.5.6 Barite-Carbonate Mineralization (Tuffaceous and Re-Sedimented)

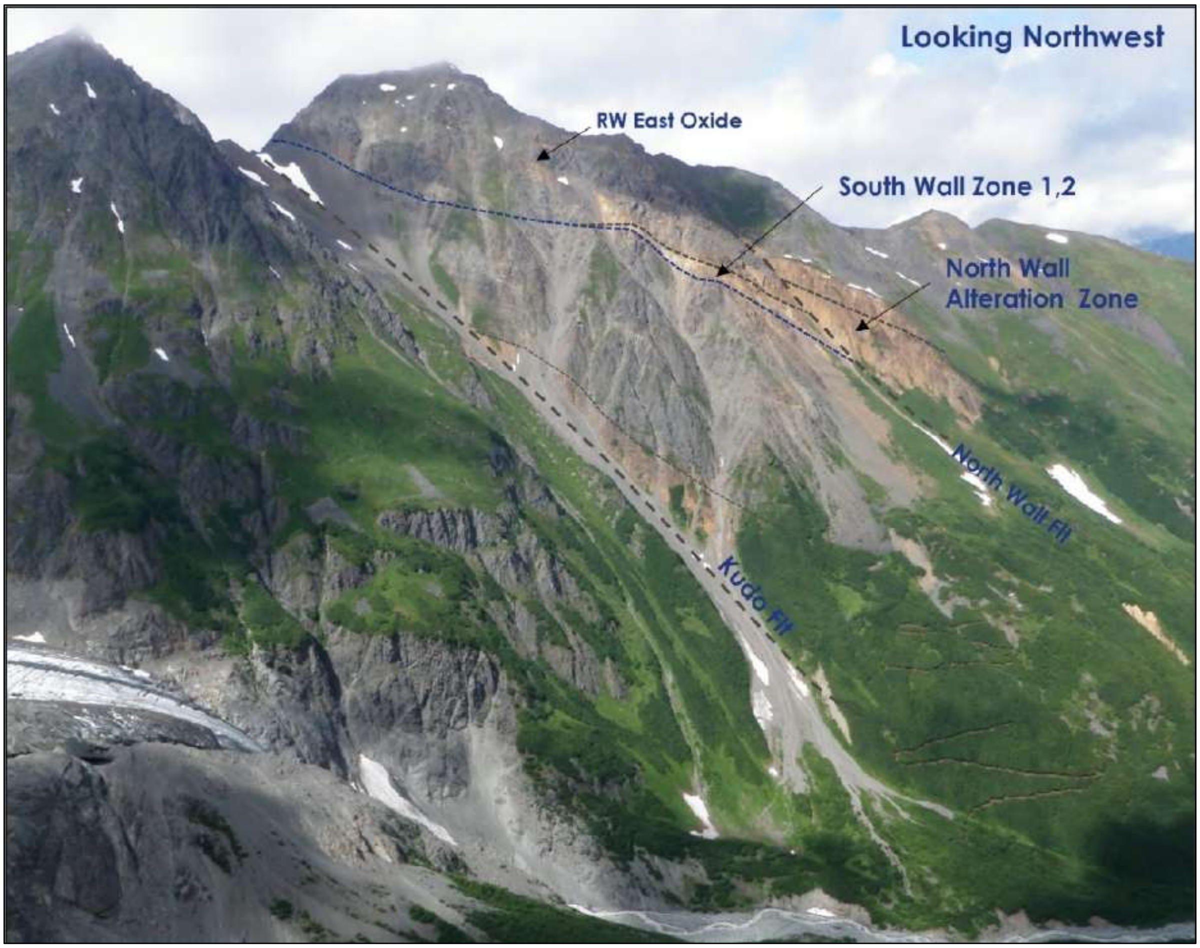
At the margins of SW Zones 1 and 2 (and to a lesser extent in SW Zone 3), there is a mix of carbonate-rich and sulfide-rich mineralization; these include a finely layered barite-carbonate-sulfide facies, some sulfide-clast and barite crystal-rich facies, and a variably mineralized tuffaceous and cherty facies. Barite mineralized rock grades outward into a barite-carbonate mineralized rock as the disseminated carbonate content increases and gradually becomes more tuffaceous, with interlayered barite and carbonate laminae.

Above this unit is a weakly mineralized, barite-free tuffaceous horizon. This capping tuffaceous horizon overlies the entire lens and is characterized by weak mineralization, barium-potassium-feldspar, barian muscovite, local albite, and cherty patches/layers, and it is strongly calcareous. The horizon is intercalated with cherts and altered volcaniclastics and may continue laterally along the mineral horizon. Cherts and tuffaceous units above SW Zones 1 and 2 are locally cross-cut by thin pyrite ± sphalerite stringers containing quartz, carbonate, albite, and muscovite, which is suggestive of continued hydrothermal activity after the deposition of each lens. Tuffaceous units locally contain chalcopyrite, possibly as replacement of amygdules and/or feldspars and sphalerite.

Locally within SW Zone 2, the barite-carbonate mineralized rock has a distinctive clastic texture. These rocks contain euhedral, and locally broken, barite crystals and clasts of massive barite, sulfide, and/or quartz within a very fine-grained carbonate matrix. Massive barite clasts are irregular, angular, and can reach up to 1 centimeter (cm) across. Other minerals include minor to trace albite, muscovite, and chlorite. Sulfides are dominantly pyrite and pale honey-brown sphalerite, with minor to trace chalcopyrite, galena, tetrahedrite, and arsenopyrite. Chalcopyrite typically replaces pyrite, which is framboidal and less recrystallized than in the main massive sulfide lenses. The clastic nature of this facies and the abundant broken crystals of barite suggest that this material was re-sedimented.

7.6 Palmer Deposit

The Palmer Deposit area, previously referred to as the Glacier Creek prospect, is host to the SW and RW Zones semi-massive to massive sulfide mineralization (collectively, the Palmer Deposit) and is exposed on flanks of Mount Morlan (Figure 7-7). The overall structure of the Mount Morlan host rocks is that of a large, overturned, south-verging anticline with an axial plane that dips moderately to the northeast.



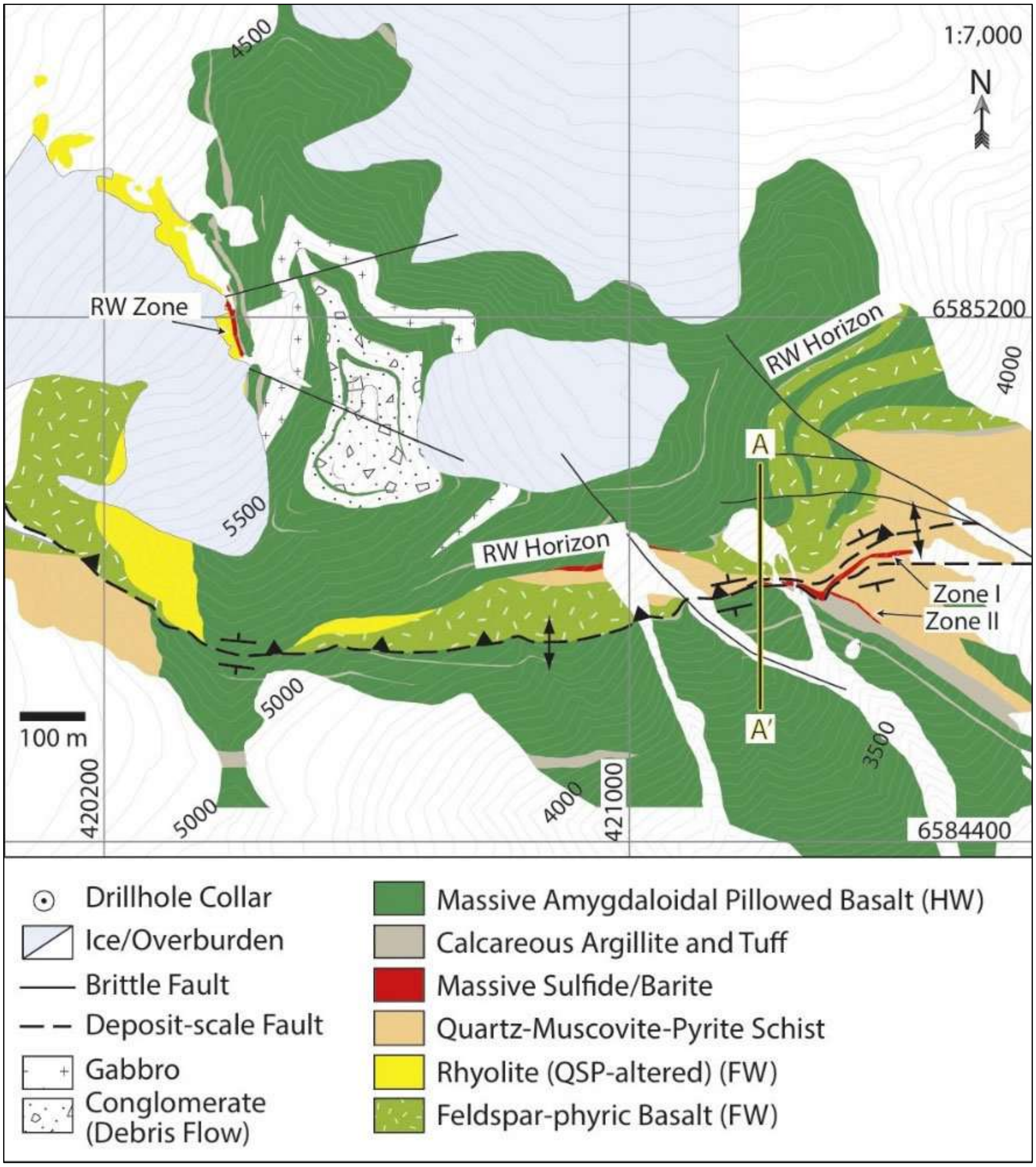
Source: Constantine, 2025

Figure 7-7: Mount Morlan, Palmer Deposit, Looking Northwest

7.6.1 Geology

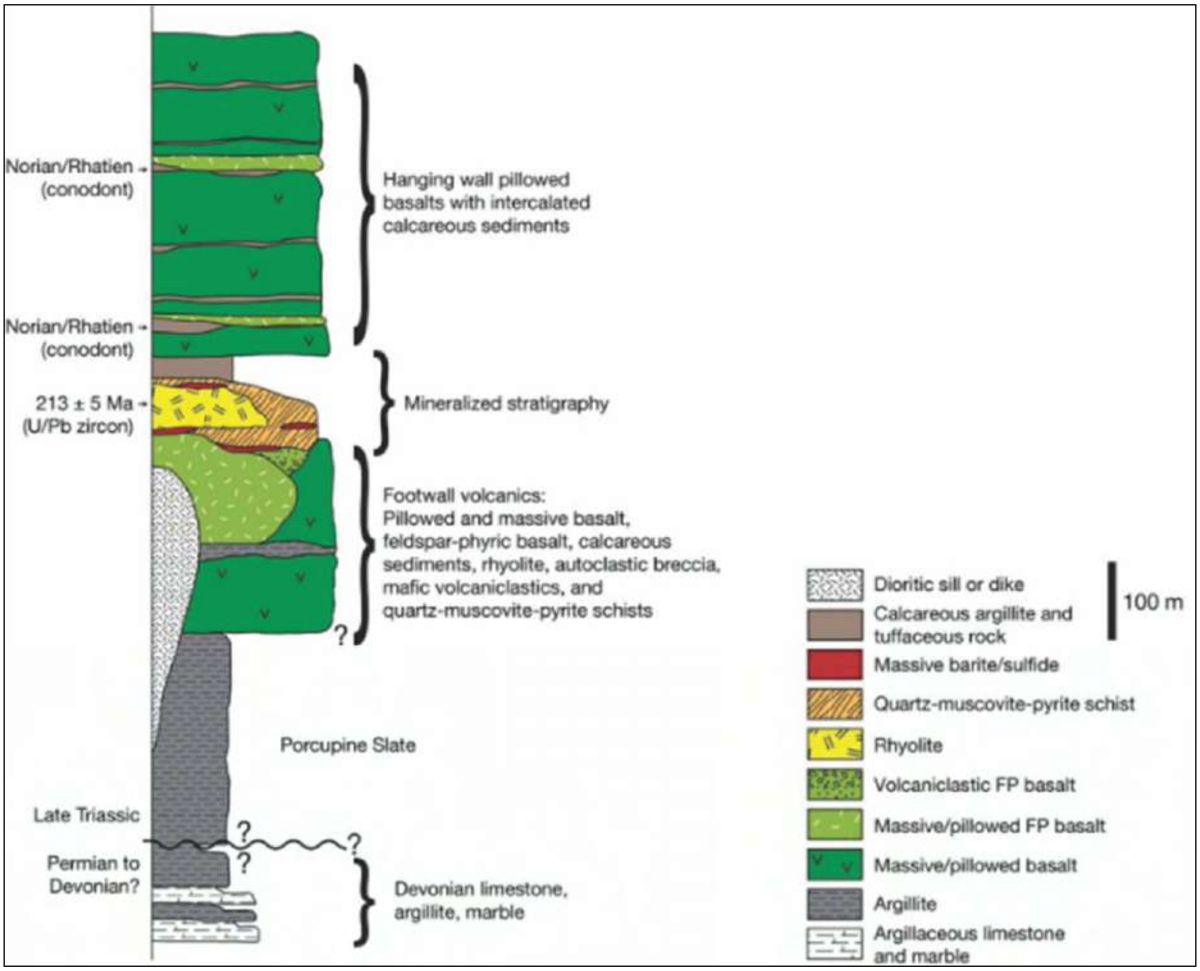
The Palmer Deposit stratigraphic section is dominated by massive to pillowed basalt flows, with subordinate impure carbonate rocks, tuff, and lesser felsic volcanic rocks, as shown on Figure 7-8 and Figure 7-9. The entire stratigraphy is variably intruded by fine to coarse grained intermediate to mafic dykes and sills. The rocks have undergone prolonged hydrothermal activity and host stacked zones of semi-massive to massive sulfide mineralization (Green, 2001). The general stratigraphy and structure of the Palmer Deposit is as follows:

- **Hangingwall stratigraphy:** Younger, amygdaloidal, massive to pillowed, and locally spherulitic basalts are considered the unaltered hangingwall sequence. These basalts can be differentiated chemically and also appear on the steeper South Wall limb.
- **Mineralized horizon:** VMS mineralization at the RW Zone is hosted by rhyolite, while the massive sulfide units at the SW Zone consist of stratiform massive barite and sulfide and rare black shaley limestone. Calcareous argillite, chert and tuffaceous sediments typically cap the mineralized horizon.l
- **Footwall stratigraphy:** Feldspar-phyric basalt underlies the host rhyolite and the RW Zone mineralization. Intense alteration in the footwall obscures primary protolith stratigraphically below the SW Zones, although it appears to be similar to the footwall rocks in the RW Zone. The primary difference is that the stratigraphic footwall to the SW Zones has a lower volume of feldspar-phyric rocks, a much greater proportion of fragmental rocks (volcaniclastic), and a higher percentage of aphyric basalt. The extent and intensity of QSP alteration may be controlled by the permeability of the volcanic precursor, with volcaniclastic units likely being the focus of more widespread alteration.



Source: Constantine, 2025 (from Steeves et al, 2016)

Figure 7-8: Geology of Palmer Deposit Area, SW and RW Zones



Source: Constanine 2025 (from Steeves et al. 2016)

Figure 7-9: Schematic Stratigraphic Column for the Palmer Deposit (South Wall/RW Zones)

Metamorphism

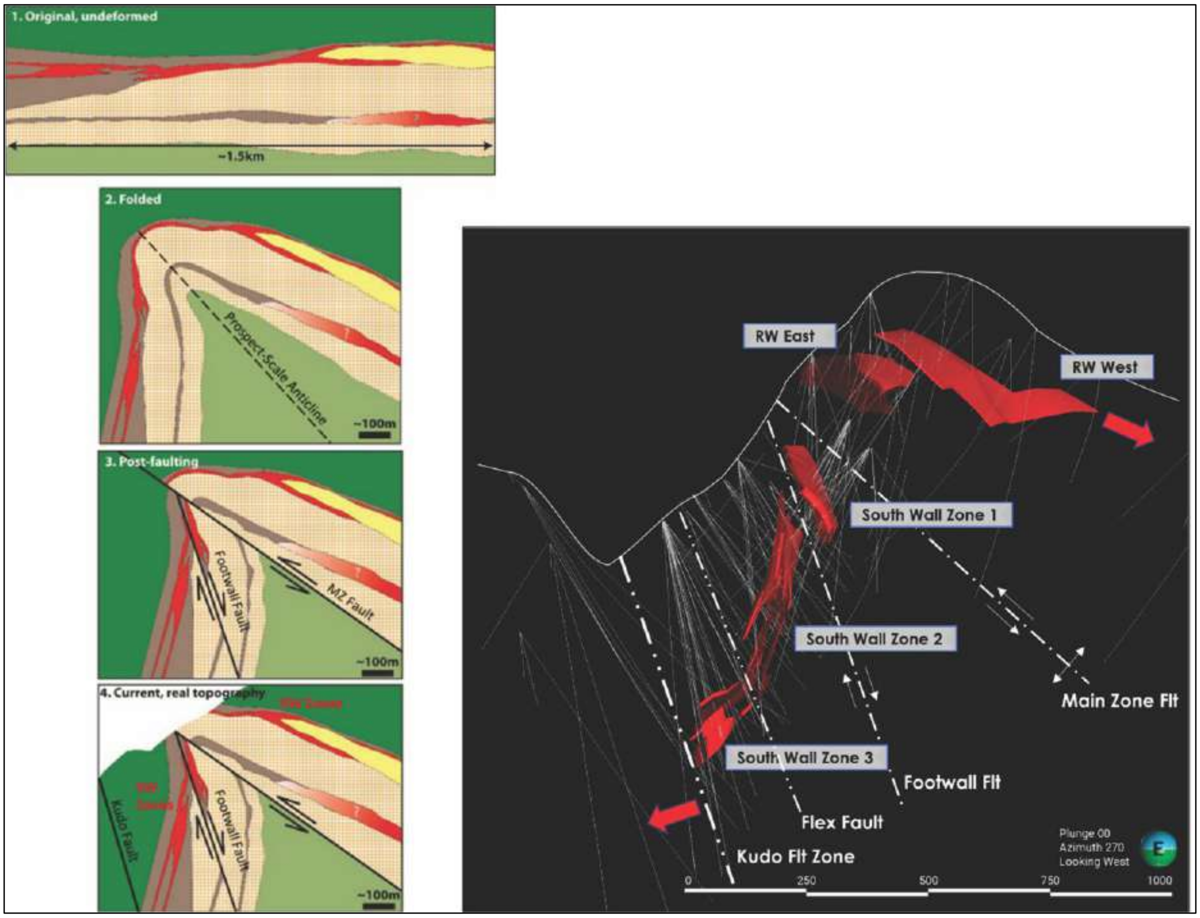
The rocks have undergone regional greenschist facies metamorphism, and metamorphic assemblages of chlorite, calcite, quartz, and epidote are typical where rocks are less impacted by hydrothermal alteration. Although the volcanic rocks are affected by metamorphism and VMS-related alteration, primary textures, and lithologic contacts are well-preserved in much of the stratigraphy.

7.6.2 Structure

Deposit-scale structural features of the Palmer Deposit are outlined below and are further illustrated on Figure 7-10, with a schematic-interpreted reconstruction of the Palmer Deposit:

- **Deposit-Scale Anticline:** The large, overturned, northeast-trending, south-verging anticline is the dominant feature of the Palmer Deposit area. The stratigraphy of the upright fold limb around the RW Zone is generally intact and has been relatively undisturbed by folding or faulting. The upper limb is upright, moderately northeast dipping, and host to RW Zone mineralization. The lower limb is overturned to sub-vertical and is host to SW Zone mineralization.

- **Footwall Fault:** The area between massive sulfide lenses within the SW Zones (subdivided as Zones 1, 2, and 3) is also complicated by structure. Work by Steeves (2013 and 2016) supports all three zones being located within the steep overturned lower limb of the prospect-scale anticline and that the three zones are crudely time-stratigraphic equivalent. A moderate to steep, north-dipping, normal fault (termed the footwall fault) is interpreted to offset Zone 1 from Zone 2, which are believed to have originally been contiguous. An extension of this interpretation is that SW Zones 1, 2, and 3 and the RW Zones all represent (more or less) a single time/stratigraphic equivalent body of mineralization.
- **Main Zone (MZ) Fault:** A poorly constrained, shallow, prospect-scale thrust fault with an orientation similar to the axial plane of the deposit-scale anticline offsets the upper limb from the lower limb of the deposit-scale fold. Offset on the thrust is top to the south with an estimated 300 m or less of displacement. A single, discrete, clearly defined structure representative of the thrust fault that can be correlated from drillhole to drillhole has not been observed in the mineral resource area drilling; instead, the thrust fault appears to be manifest as a structural zone of variable thickness, characterized by a highly strained variety of feldspar-phyric basalt, referred to as FP Lentil for its characteristic flattened and lenticular shaped feldspar phenocrysts.
- **Flex Fault:** During the geological modeling completed during 2023 with targeted drilling at Zone 3, it was noted there is a significant change in the orientation of the mineralization between Zone 2 (dip of 75°) and Zone 3 (dip of 45°). The modeled fault strikes east to west and dips at an angle of 73° to the north.
- **Kudo Fault:** The lower portion of the South Wall resource area has been offset by a major, steeply dipping, east-to-west-striking fault system (termed the Kudo Fault). Displacement is interpreted to include both reverse (approximately 180 m north-side up) and left-lateral, strike-slip, with movement interpreted to be on the order of approximately 350 m (Proffett, 2016). A splay of the Kudo Fault (referred to as the Kudo North Fault) acts as the boundary to the Zone 3 mineralization at depth within the SW.



Source: Constantine, 2025

Figure 7-10: Schematic Geological Reconstruction and Structural Evolution of the Palmer Deposit

7.6.3 Alteration

Four alteration facies are associated with the mineralized zones and include quartz-pyrite, muscovite, carbonate-chlorite, and epidote (Table 7-3). The laterally extensive alteration zone is typical of VMS deposits with permeable volcaniclastic footwalls (Franklin et al., 2005, and Large et al., 2001c). Alteration zonation at the Palmer Deposit, except for weakly transposed quartz-pyrite facies conduits, appears to parallel stratigraphy and may outline previous lithologies (Steeves, 2013).

Table 7-3: Dominant Alteration Facies

Alteration Facies	Mineral Assemblage	Description
Quartz-pyrite	Quartz > pyrite + muscovite	Underlies massive sulfide and forms feeder zones
Muscovite	Muscovite > quartz + pyrite	Dominant, pervasive footwall alteration
Carbonate-chlorite	Quartz + muscovite + pyrite > carbonate ± chlorite	Up to 10% carbonate ± chlorite; stratabound footwall and mineralized horizon alteration
Epidote	Epidote > muscovite > quartz + pyrite/pyrrhotite	Distal alteration/metamorphism

Source: Constantine, 2018

Quartz-Pyrite Facies

Quartz-pyrite facies occurs immediately below massive sulfide mineralization and forms partially transposed feeder zones to the mineralized lenses. Quartz is extensively recrystallized and forms polygonal, granoblastic texture of varying grain size. Directly underlying the center of Zone 1, this quartz-pyrite dominated assemblage contains minor chlorite associated with stringers. The quartz-pyrite facies likely grades into the pyrrhotite-chalcopyrite stringer zone underlying Zone 1.

Muscovite Facies

The dominant footwall facies is a muscovite > quartz + pyrite assemblage which forms a large alteration zone referred to as QSP schist. In general, alteration intensity increases towards the mineralization. Muscovites throughout the deposit are barium-rich and will be discussed below. Rocks show a simple mineralogy and, in strongly altered zones, have lost nearly all primary textures. Within weakly altered feldspar-phyric basalts, muscovite selectively replaces the igneous feldspar. In the moderately altered volcaniclastic rocks, muscovite replaces the matrix or clasts. Locally, quartz alteration may also be selective, replacing clasts, amygdules, or matrix material.

Carbonate-Chlorite Facies

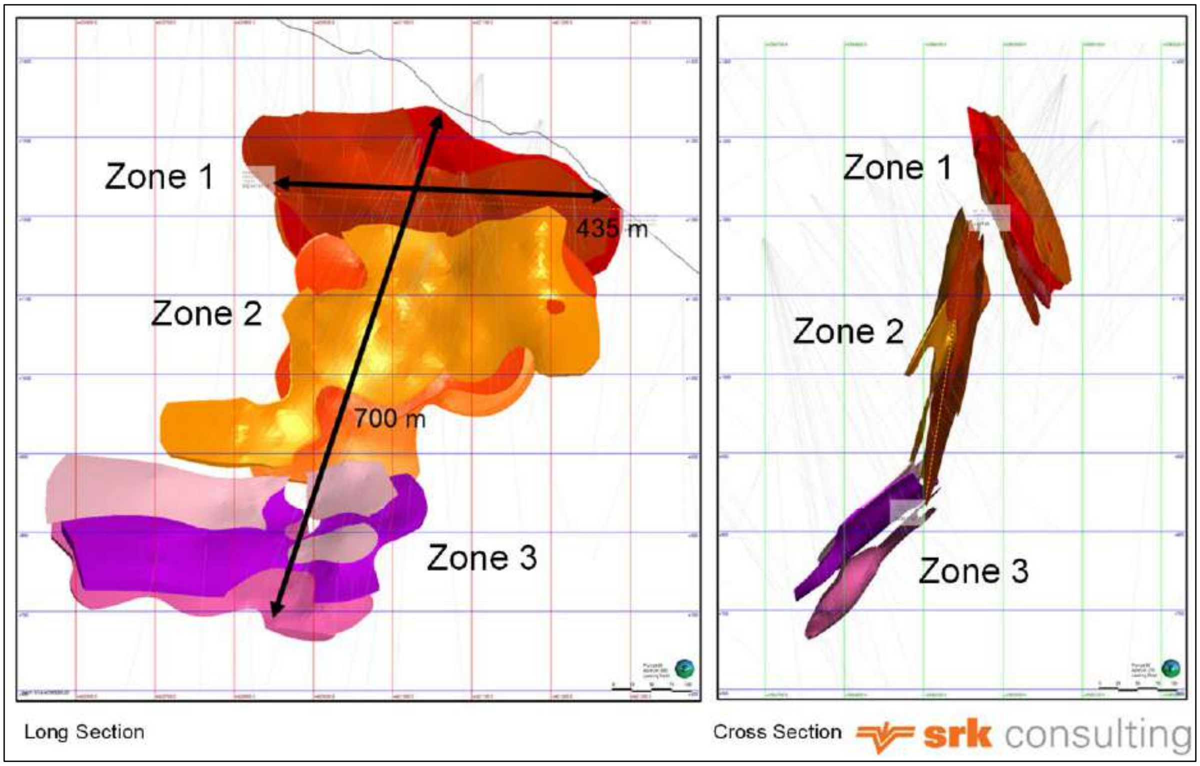
Moderately altered rocks containing minor carbonate ± chlorite (up to 10 vol%) form a stratabound alteration facies 20 to 40 m below Zone 2 and just below Zone 3 massive sulfide lenses. This facies is also observed locally below Zone 1. Carbonate and chlorite are also found enveloping massive sulfide lenses where the rocks are thought to be tuffaceous. This carbonate alteration may be from an earlier alteration phase or even diagenesis of the volcanic precursor.

Epidote Facies

Stratigraphically below the mineralized zones (>100 m), muscovite + quartz + pyrite alteration grades into an epidote + muscovite + quartz + pyrite/pyrrhotite alteration facies. The least altered volcanic rocks typically have a greenschist facies metamorphic mineral assemblage of chlorite, carbonate, feldspar, and locally minor quartz and epidote. These least altered rocks are typically relatively calcareous, magnetic, and are cut by numerous thin calcite veinlets.

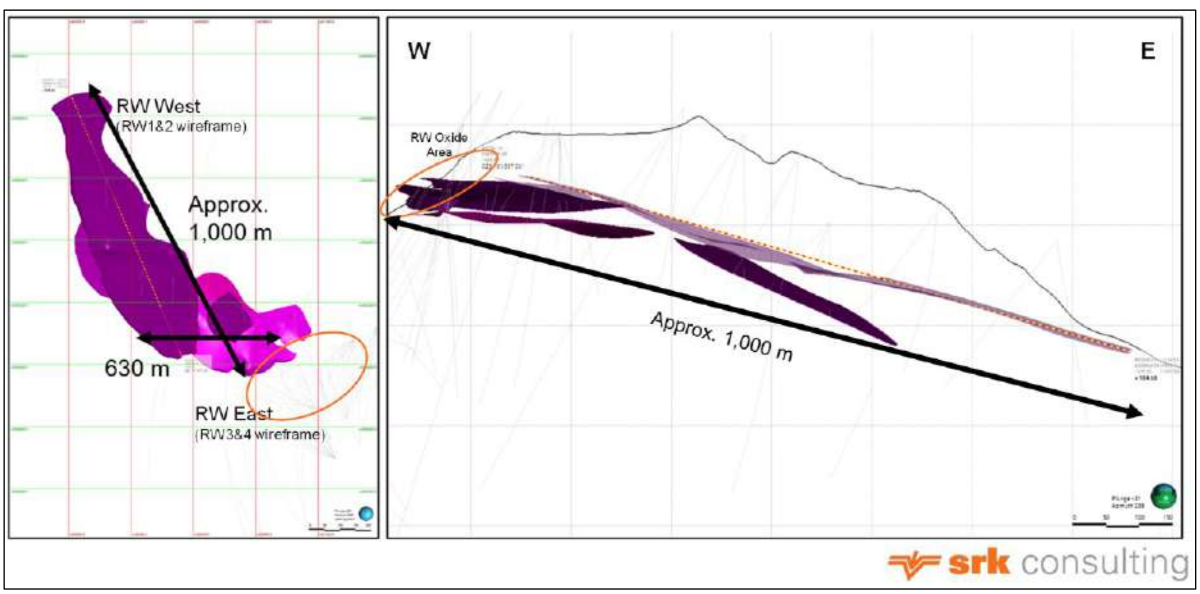
7.6.4 Mineralized Zones

The Palmer Deposit consists of six distinctive zones of stratiform massive sulfide-sulfate. Zones 1, 2, and 3, located on the south-facing, steeply dipping limb of the megascopic, deposit-scale anticline, disrupted by significant faulting, are referred to as the SW (Figure 7-11 and Figure 7-12). The RW Zone, which includes RW West, RW East, and RW Oxide, are located on the north-facing, gently dipping upper limb. The RW Oxide Zone is the near surface equivalent of the RW East Zone, where sulfide minerals of massive barite-sulfide mineralization have been oxidized and leached, depleting the zone of copper and zinc and enriching the silver and gold grades.



Source: SRK, 2025

Figure 7-11: Long and Cross-Section Showing South Wall Mineralization



Source: SRK, 2025

Figure 7-12: Plan and Cross-Section Showing RW Mineralization

SW Zone

Drilling to date at South Wall has defined three zones of VMS-style mineralization with a total plunge length of approximately 700 m and a total strike length of approximately 550 m. All three zones are open to expansion along strike and both up and downdip.

SW Zone 1 occurs at the up-dip, overturned, edge of the South Wall and consists of a single tabular lens of massive sulfide. Zone 1 is interpreted to be offset from stratigraphically correlative mineralization in SW Zone 2 by normal displacement along the high-angle Footwall Fault. Exhalative mineralization occurs at more than one stratigraphic level in Zone 2 within a section that measures 40 to 80 m in thickness. The upper part of Zone 2 is located at the stratigraphic top near the contact with overlying argillite, whereas the lower part of Zone 2 is stratigraphically lower and is generally the thicker and better developed of the two. In places, the two zones merge or coalesce into a single sulfide body. This feature occurs up-dip toward Zone 1 and may reflect proximity to the axis or core of the mineralizing system. In one drillhole (CMR14-65), replacement and stringer-like sulfide mineralization links the upper and lower massive sulfide lenses to produce a continuous zone of mineralization with a true width of 65 to 75 m. Continuity of mineralization is good between drillholes, which are generally spaced from 25 to 100 m apart.

Figure 7-11 shows details of the SW Zones, which are discussed in the following sections.

Zone 1

SW Zone 1 outcrops for over 120 m along the southern slope of Mount Morlan, where it is largely oxidized and leached of sulfide (Greig and Giroux, 2010). The massive sulfide lens is located at the core of the deposit-scale anticline and appears to be bound above and below by faults (main zone thrust fault above and footwall fault below). Zone 1 has an approximate maximum true thickness of 30 m, a dip length of 220 m, and a strike length of 350 m (based on resource wireframes). The zone is composed mainly of massive pyrite (pyrite > chalcopyrite > quartz), semi-massive pyrite (pyrite > quartz > chalcopyrite-sphalerite), and massive to layered barite mineralization (barite > sphalerite > pyrite > chalcopyrite). Pyrrhotite-chalcopyrite and pyrite ± sphalerite stringers overlie and underlie massive pyrite and barite ores. Cherty, tuffaceous, or carbonate-rich ores presently underlie the massive ores, supporting the interpretation that Zone 1 is overturned and on the south-facing limb of the anticline. In addition to the main Zone 1 mineralization, the geological team noted a thinner (10 m) hangingwall and footwall zone, which run parallel to the main zone. In the west of the main zone the mineralization splits and a separate wireframe referred to in this report as the Zone 1 West domain has been identified. The Zone 1 west domain has a strike length of 200 m and a dip extent of 200 m, with width averaging 5 to 7 m but varying up to 20 m.

Zone 2

SW Zone 2 outcrops discontinuously for over 100 m as a 2 to 3 m thick, leached, stratiform massive barite-sulfide and chert horizon (Greig and Giroux, 2010). Zone 2 has an approximate combined maximum true thickness of 24 m, dip length of 350 m, and strike length of 425 m (based on resource wireframes). Most of Zone 2 consists of massive, mineralized barite ore with thin mineralized chert and carbonate horizons stratigraphically above and below. The upper part of Zone 2 also contains significant resedimented barite-sulfide mineralization, similar to that seen in several Kuroko-style deposits in Japan (Eldridge et al., 1983).

Zone 3

Zone 3 displays a more moderate dip than the overlying steeply dipping Zone 2, which suggests the presence of a synclinal hinge or fault structure separating Zone 2 and 3. Zone 3 has an approximate maximum true thickness of 74 m, dip length of 250 m, and strike length 370 m (based on resource wireframes). Zone 3 is composed of most of the same mineralization types as those present in Zones 1 and 2 and includes both lateral and vertical mineral zonation within the massive sulfide lenses. A well-developed, copper-rich footwall stringer zone has yet to be defined in this area. The downdip edge of Zone 3 is truncated by a high-angle, north-dipping, reverse fault referred to as the Kudo North Fault. An apparent vertical offset of approximately 200 m is estimated for the fault, and a component of left-lateral strike-slip displacement is also interpreted. Strong QSP alteration and lower-grade mineralization (e.g., 7.3 m at 0.43% Cu and 0.46% Zn in Hole CMR15-69) has been identified on the south side of the Kudo Fault, suggesting potential for continuation of the SW Zone.

Mineralogy

Primary mineralogy of the SW Zones consist of barite, sphalerite, pyrite, chalcopyrite, quartz, and galena, with lesser calcite, magnetite, pyrrhotite, arsenopyrite, chalcocite, tetrahedrite, and tennantite. Typical zoning consists of copper-rich massive pyrite-chalcopyrite mineralization, grading laterally and vertically outwards into zinc-dominant barite-sphalerite-pyrite ± chalcopyrite mineralization. Further outward, mineralization locally grades into massive carbonate-sphalerite or variably precious metal-enriched low sulfide chert-barite mineralization. Other types of mineralization include copper-rich pyrite and/or pyrrhotite stockwork and massive pyrrhotite-chalcopyrite. Continuity of mineralization is good between drillholes, which are generally spaced 25 to 100 m apart. The zones are open to expansion along strike and both up- and downdip.

RW Zone

The RW Zone, on the upright limb of the prospect-scale anticline, was the initial massive sulfide lens discovered at Glacier Creek. The RW Zone outcrops discontinuously along both the western and southern faces of Mount Morlan. A coherent rhyolite flow is associated with the RW Zone mineralization. Exhalative massive barite-sulfide occurs at both the upper and lower contacts of the rhyolite, with RW West predominantly overlying the rhyolite and RW East predominantly underlying the rhyolite or occurring east of where the rhyolite pinches out. The western and eastern sections of the RW Zone have been partially defined and traced to within approximately 100 m of one another but have yet to be demonstrated to be contiguous by drillholes. A portion of the eastern section has been oxidized and leached of much of its sulfide content. The mineralized zone grades laterally and vertically into tuffaceous and argillaceous rocks, much like the other lenses (Green, 2001).

Figure 7-12 shows details of the various RW Zones, which are discussed in the following sections.

Western lenses

SRK has modeled two parallel VMS lenses in the western portion of the RW Zone that have an approximate maximum true thickness of 6 m, a strike length of 300 m, and a dip length of 1,000 m (based on resource wireframes). The zone remains open both up- and downdip and along strike.

Eastern Lenses

The eastern portion of the RW Zone has an approximate maximum true thickness of 11 m, a strike length of 300 m, and a dip length of 250 m (based on resource wireframes). The zone remains open along strike and downdip. Notably, the area between the RW East and the RW West Zones is untested except for one hole (RMC99-14) that intersected 25.2 m of stockwork mineralization at 0.52% Cu and 0.40% Zn. It is reported that the RW eastern zone has a portion of oxidation near surface which transitions to oxide facies mineralization to the south and east consisting of vuggy, porous, silica-barite rock in which primary sulfide minerals have been oxidized and largely leached away in the near surface environment. The zone has an approximate true thickness of 24 m, a strike length of 190 m, and a dip length of 260 m. Oxidized parts of the RW Zone typically contain negligible copper and zinc, whereas lead, gold, and silver grades remain similar or higher than those of non-oxidized parts. Locally, remnant blocks or lenses of weakly oxidized to unoxidized RW Zone sulfide mineralization are also present.

Surface Occurrences

The RW Zone is exposed on the west side of Mount Morlan at the Little Jarvis occurrence, where it can be traced discontinuously along the slope for about 50 m, varying in thickness from 4 to 5 m to a few tens of centimeters. On the southeast side of Mount Morlan, the RW Zone is exposed at the Upper Main and Upper Merrill Palmer (UMP) occurrences, as well as at local exposures in between.

Mineralogy

The primary (hypogene) mineralogy of the RW Zone consists of relatively coarse-grained barite, sphalerite, pyrite, chalcopyrite, quartz, and galena, with lesser calcite, magnetite, pyrrhotite, arsenopyrite, tetrahedrite, and tennantite. Overall character of the mineralization is similar to the SW Zones. Exhalative chert is common distal to massive barite-sulfide.

7.6.5 Metal Zonation

South Wall massive sulfide lenses Zones 2 and 3 exhibit typical, vertical metal zonation, with copper-rich zones underlying zinc-rich zones and zones elevated in lead. Zone 1 is the exception, with generally copper-rich mineralization at the tops of the drillholes and zinc and lead enrichment at the bottom, suggesting that the lens is overturned (Steeves, 2013).

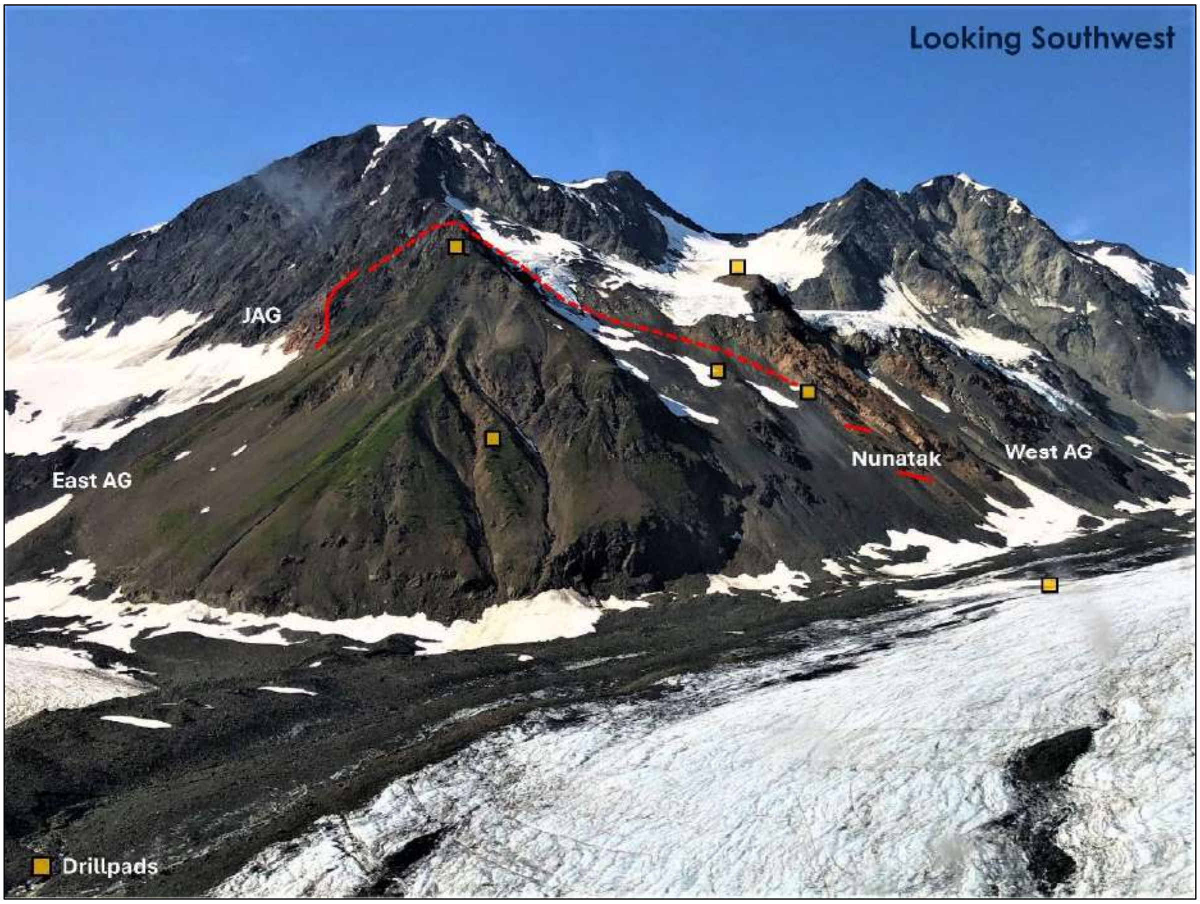
The RW Zone (both East and West Zones) shows unequivocal metal zonation (i.e., copper below zinc below lead with a deeper stringer zone). The RW Zone is spatially associated with a large rhyolite body and may represent a more proximal setting during deposition. Massive sulfides have been intersected both above and below the rhyolite unit; this contrasts with the clastic-associated, locally re-sedimented SW Zones 1, 2, and 3 mineralized intersections, which may have formed in topographic lows or on the flanks of the volcanic center.

No large, significant, pipe-like feeder zone has been discovered at the deposit to date; this may be due to a lack of focused, high-temperature hydrothermal up-flow through the permeable volcaniclastic rocks that host Zones 2 and 3 (and part of Zone 1) or transposition of originally discordant stringer networks (Steeves, 2013). Local, small stringer zones have been intersected below the RW Zone and SW Zone 1 within more competent feldspar-phyric basalts, and further exploration may reveal more feeder-style mineralization and the roots to the system.

7.7 AG Deposit

The AG Deposit, previously referred to as the AG Zone and Nunatak prospect, is located approximately 3 km southwest of the Palmer Deposit on a steep Nunatak between two branches of the Saksaia Glacier (Figure 7-13). The AG Deposit was discovered in 2017 and is defined by

33 drillholes completed from 2017 to 2019. Most of the more recent understanding of the AG Deposit stratigraphy and mineralization is through M.Sc. thesis work completed by Quinn (2024).

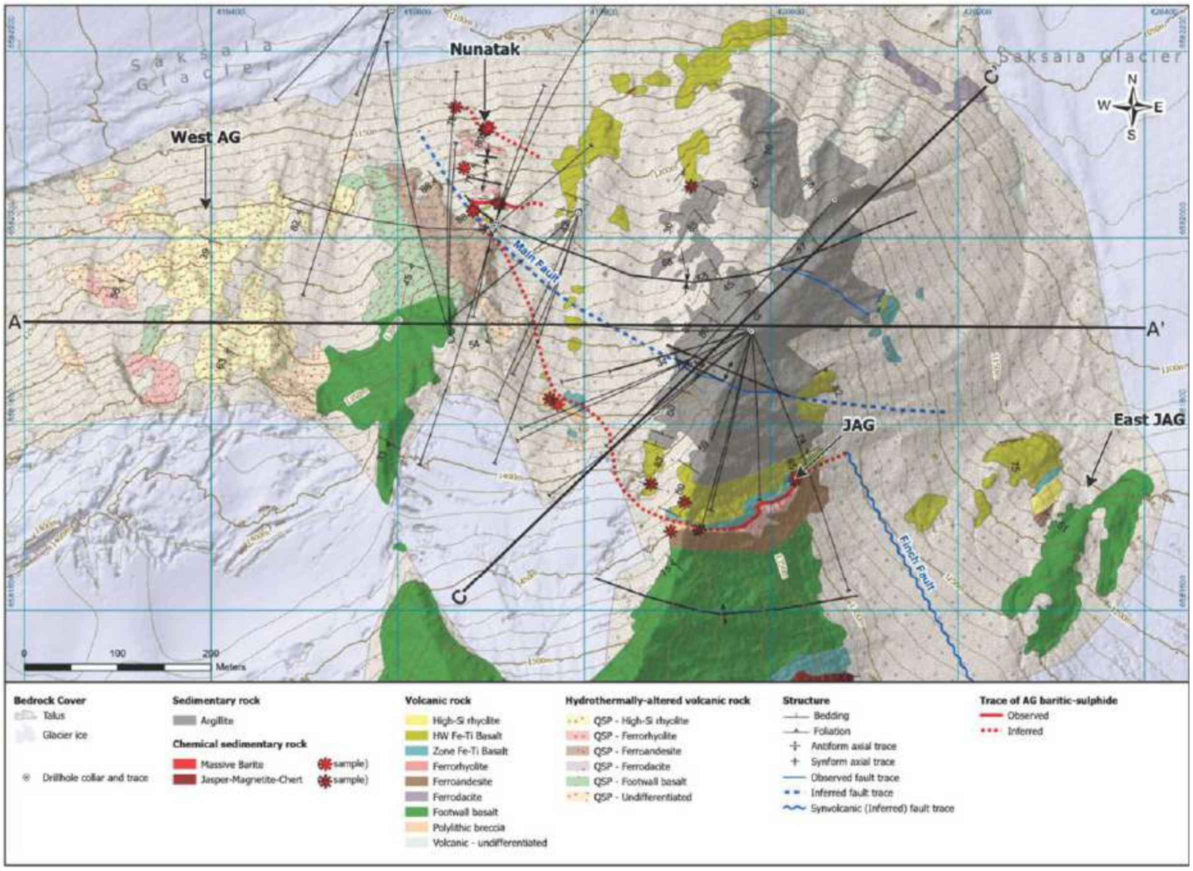


Source: Constantine, 2025

Figure 7-13: AG Deposit Looking Southwest

7.7.1 Geology

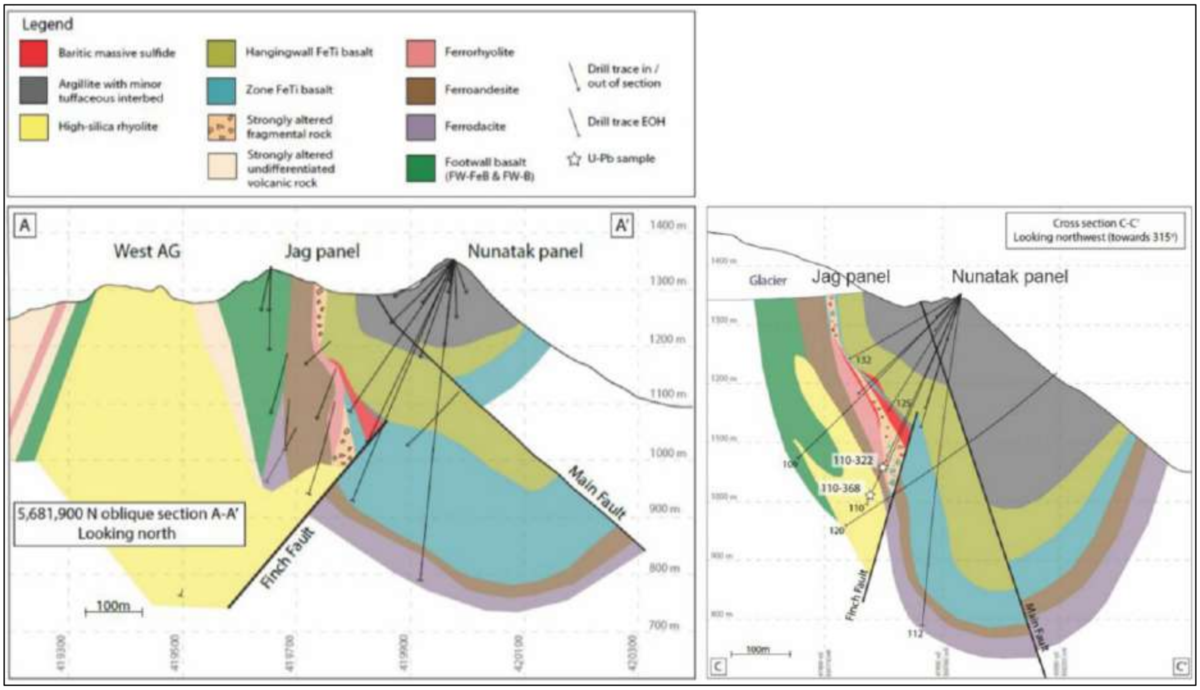
In general, the AG Deposit area is underlain by a folded sequence of bimodal volcanic flows, fragmental volcanic units, volcaniclastics, tuffs, limey argillites, and siltstone (Figure 7-14). The stratigraphy has been interpreted by Quinn (2024) as two distinct panels: the Nunatak Panel (which hosts the Nunatak prospect) and the JAG Panel (which hosts the JAG prospect), which combined make up the AG Deposit. The two structural panels are separated by a steep, north-to-northeast-dipping, reverse fault called the Main Fault.



Source: Constantine, 2025 (modified from Quinn, 2024)

Figure 7-14: Geological Map of the AG Deposit

The AG Deposit mineralization consists of tabular, steeply northeast-dipping barite and sulfide-rich lenses that vary in thickness from several tens of centimeters to 15 m and extend for approximately 600 m along strike and 100 to 250 m downdip (Figure 7-15). The mineralized zones are underlain by locally mineralized coherent volcanic and volcaniclastic rocks. The immediate footwall is comprised of rhyolitic lapilli tuffs that also locally host replacement-style VMS mineralization. Most of the footwall consists of basalt, andesite, and dacite flows. Mafic volcaniclastic rocks (termed the hangingwall Fe-Ti basalts) overlie the deposit and are capped by argillite. The following descriptions of the Nunatak Panel and JAG Panel are summarized from Quinn (2024).



Source: Constantine, 2025 (from Quinn, 2024)

Figure 7-15: Section A-A’and Section C-C’ through AG Deposit

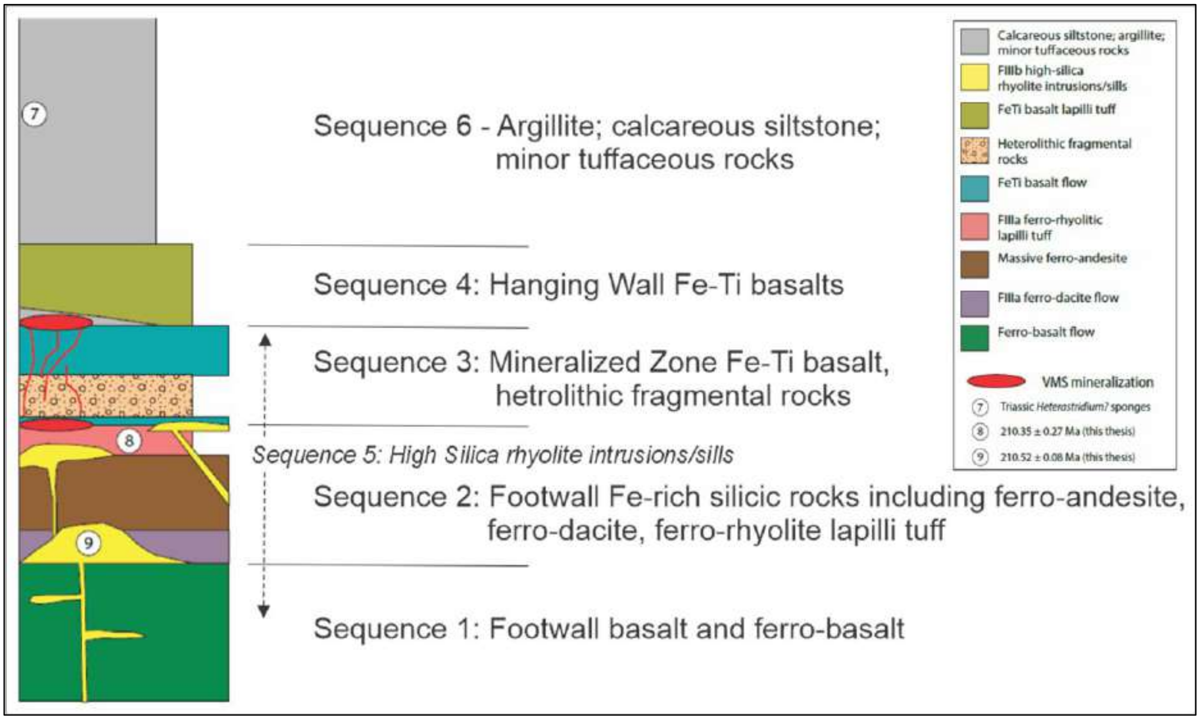
Nunatak Panel

The Nunatak Panel hosts the Nunatak prospect consisting of two massive barite beds layered with pyrite, sphalerite, galena, and sulfosalts on talus-dominated north-facing slopes. The more northern exposures are within a steeply south-dipping bed between strongly hydrothermally altered ferro-andesitic volcanic rocks to the south and a chloritic, strongly foliated, undifferentiated mafic volcanic unit to the north. The stratigraphy is folded in a tight syncline marked by fragmental basalts (HW-FeTiB) in the core of the syncline and strongly hydrothermally altered rhyolitic fragmental rocks (FeR) underlying the moderately south-dipping limb. Stratigraphic reconstruction of the Nunatak Panel has been hindered by chaotic folding, poorly understood faulting, intense hydrothermal alteration, and limited drilling in this area. Most of the Nunatak outcrops are strongly quartz-sericite-pyrite altered, and lithogeochemistry is critical in determining protolith composition.

JAG Panel

The JAG Panel hosts the bulk of the AG Deposit, including its surface expression at the JAG prospect on an east-facing cliff between elevations of 1,310 to 1,410 m. The stratigraphy consists of upright, steeply north-to-northwest-dipping beds of baritic massive sulfide with laminations of pyrite, sphalerite, sulfosalts, and galena that overlie strongly hydrothermally altered ferro-rhyolite and are overlain by iron-titanium (Ti) basalt flows with intense chlorite, carbonate, and magnetite alteration. The northeastern extent of the AG Deposit (where mineralization is the thickest) is truncated by the Finch Fault, a moderately, northeast-dipping fault zone that is only identified on the JAG Panel (Figure 7-15). The Finch Fault is defined by the complete discontinuation of units and sharp changes in the thickness of units. Intrusive felsic rocks are localized on the southwestern side of this fault and taper in thickness away from this structure. In drill core, the Finch Fault is obscured by intrusive rocks, which are interpreted to post-date mineralization.

Compared to the Nunatak Panel, the JAG Panel is relatively more densely drilled and marks a roughly 400 m section of stratigraphy that occupies the steep northeast-dipping, upright limb of the northeast-closing, deposit-scale syncline (Figure 7-15). Based primarily on the intact JAG Panel, the AG succession is divided by Quinn (2024) into six informal litho- and chemo-stratigraphic sequences, as shown on Figure 7-16.



Source: Constantine, 2025 (modified from Quinn, 2024)

Figure 7-16: Schematic Stratigraphic Column for JAG Panel

Most of the exhalative and replacement-style VMS mineralization is hosted in Sequence 3, but the upper parts of Sequence 2 are also an important host for replacement-style mineralization, where ferro-rhyolitic lapilli tuffs locally host replacement style mineralization. The entire succession (particularly Sequence 6) is intruded by various undifferentiated dykes and sills.

Some of the thickest intersections of mineralization occur near accumulations of hydrothermally altered heterolithic fragmental rocks that have sharp lateral transitions into thick sequences of relatively less altered zones of iron-titanium basalts flows that help define the Finch Fault. Sequence 3 is dominantly clastic southwest of the Finch Fault but flow-dominant northeast of the Finch Fault.

7.7.2 Structure

Based on work by Quinn (2024), the stratigraphic sequence is broadly folded along a deposit-scale syncline. The axial trace of the syncline is consistent with northwest-oriented schistose foliation that is best developed in strongly hydrothermally altered units and may be related to the north-to-south contractional deformation event (D1) displayed by the geometry of the Palmer Deposit. Local occurrences of northeast-striking schistosity suggest that the axial traces of the D1 folds were broadly refolded by a later deformation event (D2) along north-to-northwest fold axial traces.

Hangingwall sedimentary rocks are well exposed along a prominent north-to-south ridge in the northeast part of the deposit mapping area. This sedimentary package has widely varied bedding orientations and a major fault (the Main Fault), which divides two stratigraphic panels. The Main Fault is a steep (approximately 70° dip), north-to-northeast dipping, up to 1 m wide, recessively weathered reverse fault composed of sheared rock and gouge that roughly parallels the hinge of the deposit-scale syncline between the JAG and Nunatak prospects.

In the Nunatak Panel, the dominant structural style of the mineralized zone consists of tight folds with fold axial traces trending west-to-northwest to east-to-southeast and folds plunging to the east-to-southeast. Distribution of rock units is dominated by a large-scale anticline defined by an upright, moderately southwest-dipping south limb and an overturned, steeply southwest-dipping north limb. Synclines are mapped to the south and north of the anticline. Small-scale parasitic folds are also inferred based on mapped distribution of rock units and bedding measurements. A second phase of deformation may be the cause of further deformation/warping of the stratigraphy in the map area.

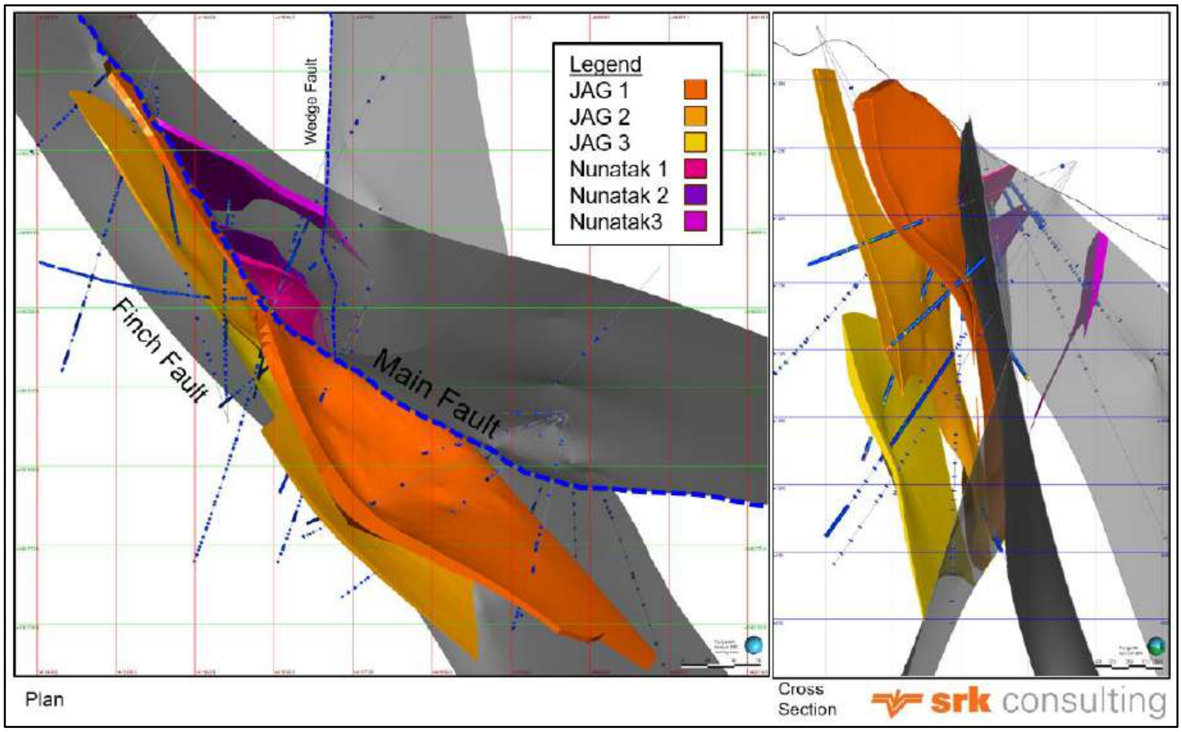
In the JAG Panel, the mineralized zone is steeply dipping, well zoned, and comprises a large majority of the drill defined extent of the AG Deposit. The zone has a northwesterly trend (approximately 310° to 320° azimuth) and a dip that changes orientation along strike, presumably the result of a second deformation event. The northwest half of the zone is sub-vertical to locally overturned with a southwest dip, whereas the southeast half is upright with a moderate to steep dip to the northeast.

7.7.3 Alteration

Footwall alteration at the AG Deposit is similar to the Palmer Deposit, dominated by sericite-pyrite-quartz alteration increasing in intensity towards mineralization and extending at least 200+ m into the footwall. Hangingwall alteration is typified by magnetite, jasper, iron-carbonate, minor chlorite, and local sericite alteration up to tens of meters above the mineralization. Although the volcanic rocks are affected by metamorphism and VMS-related alteration, primary textures and lithologic contacts are well preserved in much of the stratigraphy.

7.7.4 Mineralized Zones

Mineralization at the AG Deposit consists of mainly massive barite beds with variable base and precious metal mineralization hosted in sphalerite, galena, and sulfosalts, which outcrops in several places on the north-to-northwestern flanks of the mountainside. The eastern aspect of the slopes at the JAG showing includes an outcrop of barite and massive galena with sphalerite. Talus and glaciers cover a large portion of the prospect area and limit the ability to confidently demonstrate continuity of the mineral horizons between outcrops, creating the potential for differing geological interpretations. Nevertheless, it is clear that exhalative mineralization along this horizon is widespread both on surface and at depth and also attains significant width. The AG Deposit consists of two stratigraphic panels that host VMS mineralization (Figure 7-17). The following sections describe the VMS mineralization within the two main panels.



Source: SRK, 2025

Figure 7-17: Plan and Cross-Section showing AG Mineralized Zones

Nunatak Panel

The Nunatak prospect area (Nunatak Panel) was drilled for the first time in 2017 and targeted the downdip extension of the exposed barite beds while drilling across an interpreted anticline-syncline fold pair to test for possible repetition of the mineralized zone. The drilling was successful with the upper sections of initial drillholes intersecting gold- and silver-rich beds of massive barite within an area referred to as the Upper Zone. The Upper Zone consists of a folded massive barite ± sulfide bed(s) that is structurally offset by the Main Fault from a steeply dipping, relatively planar zone of mineralization at depth in the JAG Panel. Three zones of mineralization have been currently identified in the Nunatak Panel, which all dip to the south. Given the limited drilling and the complex folding and potential additional faulting in the area, two of the zones have limited strike extents (approximately 100 m), and the dip extent (approximately 50 m) is limited by interaction with the AG Main Fault. The third VMS lens at AG is located to the northeast of the panel and has a strike length of 175 m and a dip extent of approximately 100 m but is defined by limited drillhole intersection and surface mapping. This third mineralized lens is noted to have relatively high precious metal contents (average of 224 g/t Ag and 0.96 g/t Au).

JAG Panel

Deeper sections of initial drillholes (and subsequent drilling thereafter) have defined the main body of mineralization at the AG Deposit within the JAG Panel. This body consists of stratiform massive barite-sulfide, the AG Main Lens, and feeder-style replacement and stringer mineralization in the stratigraphic footwall (referred to as the AG Footwall Zinc Zone). Drilling to date has defined a combined total strike length of approximately 550 m within two zones and a vertical dip length of 250 m.

AG Main Lens (JAG 1)

The AG Main Lens has a drill-defined strike length of approximately 500 m, vertical extent of approximately 400 m, maximum true thickness of approximately 35 m, and remains open to expansion in most directions (all dimensions as defined by 3D resource wireframes). The zone has a northwesterly trend (approximately 310° to 320° azimuth) and a dip that changes orientation along strike, presumably the result of a second deformation event. The northwest half of the zone is sub-vertical to locally overturned with a southwest dip, whereas the southeast half is upright with a moderate to steep dip to the northeast. To date, the thickest and most developed mineralization is defined in the southeast from holes drilled in 2018. Mineralization is stratiform and varies from silver-rich massive barite to zinc-lead rich massive sulfide, with both vertical and lateral zonation between these two end members.

AG Footwall Zinc Zone (JAG 2)

The AG Footwall Zinc Zone has a drill-defined strike length of approximately 365 m, vertical extent of approximately 315 m, and maximum true thickness of approximately 14 m. The zone is located 5 to 40 m stratigraphically below the AG Main Lens and has the same general trend and orientation (320° azimuth and 80° dip north). The AG Footwall Zinc Zone is typically zinc ± lead rich, with significantly lower-grade precious metals than observed in the AG Main Lens. Mineralization is characterized by veins, irregular seams and patches, and what appears to be replacement of a volcaniclastic protolith. The immediate hangingwall to the mineralized horizon is dominated by mafic volcaniclastics that are locally altered to a distinct assemblage of quartz-sericite-magnetite ± chlorite ± iron-carbonate ± jasper (QSM). This package of intense QSM alteration also occurs between what is interpreted as two separate stratigraphic units of mineralization.

AG Lower Zone (JAG 3)

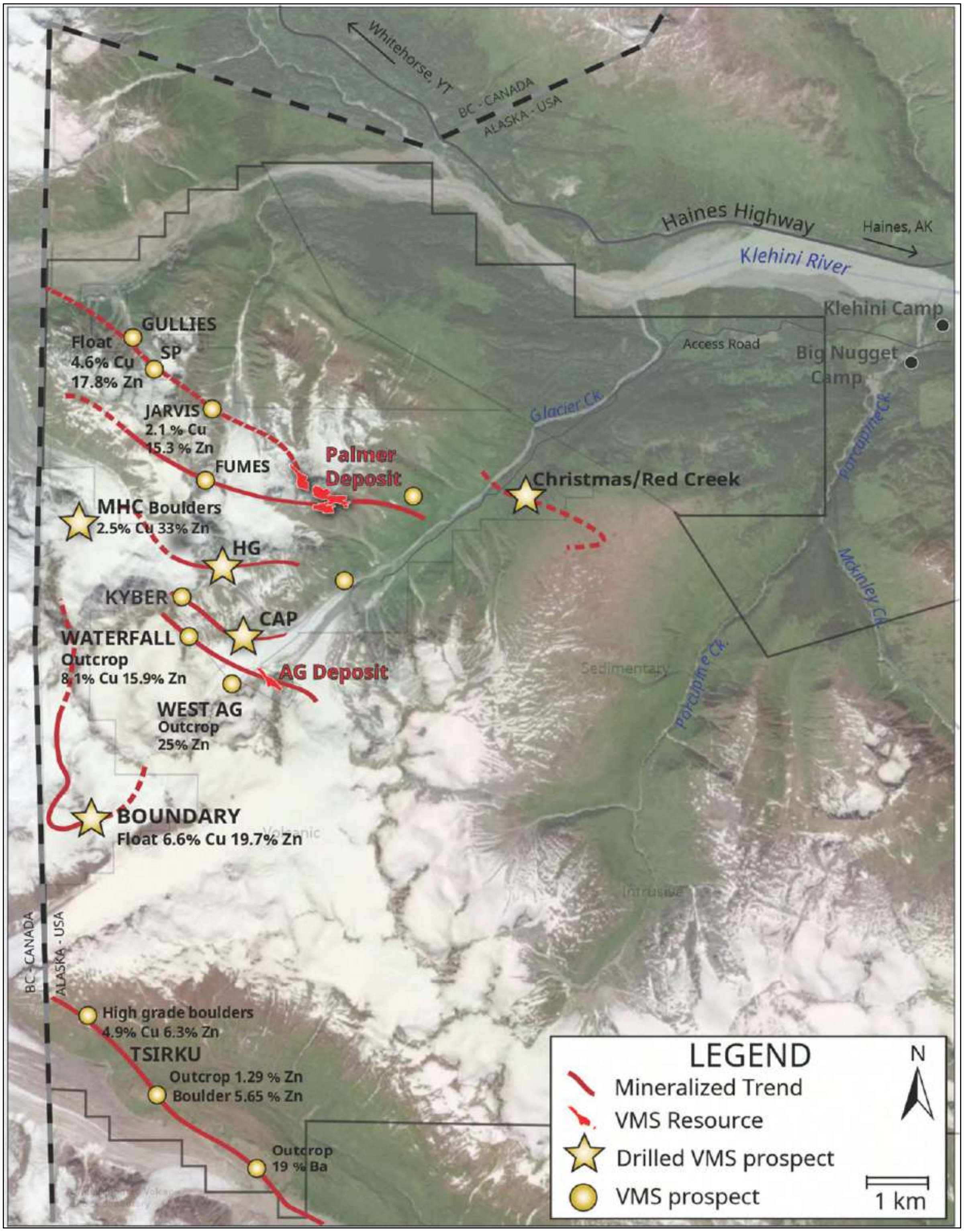
A minor lens has been identified in the footwall of the AG Footwall Zinc Zone, which has a strike extent of 300 m and a dip extent of 200 m; this is a thin zone of mineralization that varies in thickness from 2 to 7 m.

Mineralogy

The primary mineralogy of the AG Deposit includes zinc occurring in low-iron sphalerite, lead within galena and within the sulfate anglesite, silver predominantly in tetrahedrite-tennantite and in the rare lead-silver-antimony sulfosalt, diaphorite, lesser copper in chalcopyrite, and rare gold in discrete grains of electrum. Barite is abundant in the AG Main Lens and locally as stringers and patches in the footwall. Pyrite is common but occurs in significantly lower concentration than barite within the AG Main Lens. Doherty (2018) noted that nearly all sulfide phases in the AG Deposit were fully recrystallized during regional greenschist metamorphism, which resulted in coarsening of grain sizes and the simplification of mineral boundaries.

7.8 Prospective Mineralized Zones

The Palmer Property is host to a number of regional mineralized prospects which overall have seen limited exploration work when compared to the Palmer and AG Deposits. Figure 7-18 shows at least 10 of the better-known prospects, which include CAP, Hanging Glacier (HG), MHC, Boundary, and Christmas Creek, which have seen some drill testing. Table 7-4 provides a summary of Palmer prospects and occurrences. The following sections provide further description of these prospects.



Source: Constantine, 2025

Figure 7-18: Regional Prospects at the Palmer Project

Table 7-4: Summary Table of Palmer Property Prospects and Occurrences

Summary of Drill-Tested Prospects	
CAP	Massive barite and sulfides between least altered basalt with intercalated argillite and altered basalt with stringers. Sample highlights include 134 g/t Ag over 23.2 m in drillhole CAP01, 31 g/t Ag over 90.6 m in drillhole RMC98-01, a surface grab sample of 1,828 g/t Ag, 11.2 g/t Au, and 0.83%, and a 5.5 m continuous channel sample averaging 265 g/t Ag and 0.27% Zn. 11 drillholes (2,829 m) have defined an upper mineralized horizon, a lower mineralized horizon, and a thick section of intense QSP alteration.
HG	HG prospect marked by massive barite and sulfides between argillite and altered basalt with stringers. Grab samples from the mineralize zone contain up to 54% Ba, 0.36% Cu, 14.1% Zn, 2.3% Pb, 198.9 ppm Ag, and 1.58 ppm Au. West extension to HG coincides with strong airborne EM anomaly. Two holes (870 m) in 2019 intersected altered footwall. In 2022, one drillhole (927 m) tested downdip of HG and intersected to prospective VMS horizons.
MHC	Extensive field of high-grade massive baritic sulfide boulders near altered basalt and subordinate rhyolite. Local pods of in situ mineralization. Historic drilling completed (13 drillholes, 2,957 m).
Boundary	Baritic sedimentary and exhalative rocks at contact between least-altered basalt and altered rhyolite. Barite-sulfide stringers in rhyolite. Several high-grade boulders. Coincides with 2017 airborne EM conductor. Four drillholes (1,370 m).
Christmas/ Red Creek	Massive pyrite and pyrite-cemented breccia within intensely altered basalt and rhyolite. Geochemical similarities to AG Deposit. Two drillholes (556 m) intersected altered rhyolites with holes ending in argillite.
Summary of Untested Prospects	
Gullies	Numerous, stratigraphically controlled mineralized showings. Some similarities in geochemistry to Windy Craggy copper-cobalt deposit. Grab samples collected from the various showings yield up to 1.3% Cu, 0.3% Pb, 17.8% Zn, 11.6 ppm Ag, and 0.16 ppm Au, and a sample of float yielded 4.6% Cu, 7.9% Zn, 20.3 ppm Ag, and 0.94 ppm Au (Still, 1984).
SP	Mineralized lenses in calcareous siltstone-argillite.
Fumes	Altered, strongly siliceous, pillowed basalts with spalerite, pyrite, and pyrrhotite in colloform vein texture. Coincides with 2017 airborne EM conductor.
Khyber	Strongly altered schistose unit (approximately 20 m wide) with baritic veins and disseminated pyrite.
Waterfall	Chalcopyrite stringers in chloritic host rock and local massive sphalerite pods. Altered basalt and lesser rhyolite. Westerly extension of CAP/HG mineralize horizon.
Tsirku	Mineralized boulders from Erma Creek. Outcrop of locally altered basalt and minor rhyolite lenses.

Source: Constantine, 2025

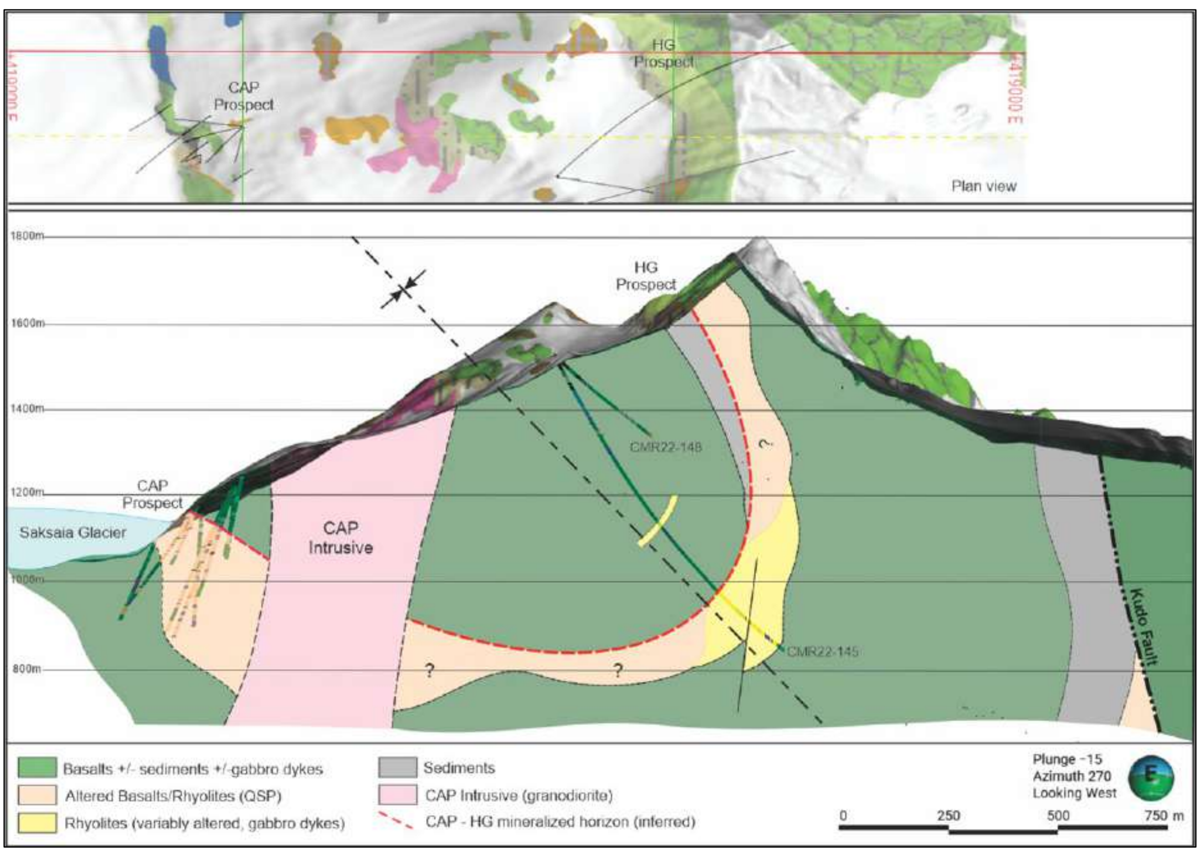
CAP Prospect

The CAP prospect is located 0.5 to 1.0 km north-to-northwest of the AG Deposit and is interpreted to be in the same mineralized horizon (Rosenkrans, 1991), as shown in Figure 7-5. The prospect is a silver-rich, barite-dominated system that contains locally elevated concentrations of zinc, lead, and gold. Base and precious metal mineralization is hosted within veined and brecciated, intensely QSP-altered basalt, which is in turn capped by a bed of massive pyritic barite. Several generations of channel sampling and detailed geologic mapping have identified a moderately northwest-dipping, approximately 230°- to 240°-striking, 7 to 8 m horizon of silver-rich barite with laminated pyritic seams associated with a robust area of intensely QSP-altered basalt. A consistent foliation is observed, steeply dipping between 70° and 80° to the northwest along a similar strike to the strike of the barite horizon.

Eleven (11) drillholes completed by Newmont (CAP-01 to CAP-03), Rubicon (RMC98-01), and Constantine (CMR07-04 and -05, CMR16-79 and -80, and CMR17-83, -85, and -87) have defined an upper mineralized horizon, a lower mineralized horizon, and a thick section of intense QSP alteration.

The upper mineralized horizon is composed of several 5 to 8 m thick beds of silver-rich, variably pyritic massive barite within brecciated and veined QSP. The horizon is stratigraphically below a thin bed of chert, which is below intercalated amygdaloidal basalt flows and limey argillite. Sample highlights include 23.2 m of 134 g/t Ag in drillhole CAP-01 within massive pyritic barite and baritic breccia; 90.6 m of 31 g/t Ag in drillhole RMC98-01; a surface grab sample of 1,828 g/t Ag, 11.2 g/t Au, and 0.83%, and a 5.5 m continuous channel sample averaging 265 g/t Ag and 0.27% Zn. Below the upper mineralized horizon is a thick (at least 110 m) zone of intensely QSP-altered basalt with 5% to 15% pyritic stockwork and local zones with dense amygdules. The upper horizon mineralization is open downdip to the north-to-northwest. A deeper, less-understood stratabound horizon of semi-massive to massive sulfide bands/veins hosted within intensely siliceous and altered amygdaloidal basalt returned the highest base metal values along with elevated precious metal values (1.9 m at 3.75% Zn, 1.91% Pb, 92.1 g/t Ag, and 0.47 g/t Au in drillhole CMR07-04). The deeper, lower horizon mineralization is open to the west.

Both surface and drill data suggest that the hydrothermal system is diminishing in strength along strike to the northeast, but downdip and to the southwest (below the ice), it maintains its intensity and has been only partially tested with drilling. Regionally, the CAP stratigraphy is interpreted to be on the southwestern limb of a regional-scale synform, which may connect the mineralized horizon at CAP with the mineralized, discontinuous sulfide-bearing barite lenses exposed in QSP-altered rocks at the HG Prospect. Figure 7-19 provides a schematic section showing the relationship between the CAP and HG prospects.



Source: Constantine, 2025

Figure 7-19: Schematic Section Showing CAP and HG Prospects

HG Prospect

The HG prospect (located approximately 1,100 m upslope from the CAP prospect) consists of discontinuous sulfide-bearing barite lenses up to a few meters thick and over an approximately 610 m strike length. The mineral horizon dips steeply to the north within the overturned northern limb of a large-scale syncline. Mineralization occurs stratigraphically above an extensive zone of strong QSP ± chlorite alteration and is overlain by calcareous siltstone, black slatey limestone, interbedded pillow basalt flows, and associated fragmental units (Figure 7-20). Grab samples contain up to 0.36% Cu, 14.1% Zn, 2.3% Pb, 198.9 ppm Ag, and 1.58 ppm Au (Still et al., 1991).

The HG prospect is interpreted to be stratigraphically equivalent to the CAP prospect on the southern limb of the same regional syncline, located 1,100 m to the south and 700 m lower in elevation. A large area of the target mineral horizon is preserved in the syncline between HG and CAP (estimated at 2,000+ m of dip length and 2,000+ m of strike length). The majority of this key stratigraphy is accessible to exploration with moderate length holes. If an interpretation of normal offset on the Kudo Fault system is assumed, then the HG mineral horizon may also be stratigraphically equivalent to the SW–RW Zones of the Palmer Deposit and is perhaps the fault displaced down plunge continuation of the SW system.

The west-to-northwest extension of the HG alteration zone projects beneath the glacier in the direction of the MHC prospect, located 2 km away. The 2017 airborne EM survey shows a large conductive response under the ice along this trend located approximately 500 m west of the HG prospect. In 2019, CMR19-141 (287.7 m, 179/-45) tested this airborne EM anomaly along the interpreted HG alteration trend and intersected QSP-altered footwall (interpreted as stratigraphically below) to 167 m downhole followed by a thick section of graphitic and pyrrhotite-bearing argillite where expected (along strike from the HG prospect). A second hole (CMR19-142 (582 m, 250/-62)) from the same location is interpreted to have remained in footwall rocks, intersecting a thick interval of QSP alteration with a small interval of anomalous zinc mineralization.

Drilling in 2022 (aimed at testing the downdip extension of the surface showing) at the exposed HG prospect intersected two notable felsic volcanic horizons at 468 m and 677 m downhole (Figure 7-20-19). The upper zone intersected fragmental rhyolites similar to that underlying the AG Deposit, and the lower horizon intersected a 10 m jasper-magnetite followed by variably altered flows and fragmental rhyolite units to the end of the hole. The upper and lower horizons are located approximately 450 m and 650 m below the HG prospect surface trace, respectively.

Source: Constantine 2025
Note: Barite galena at contact between grey altered chlorite (above) and dark argillaceous limestone (below)

Figure 7-20: HG Prospect Looking Northeast

<u>Mount Henry Clay (MHC) Prospect</u>

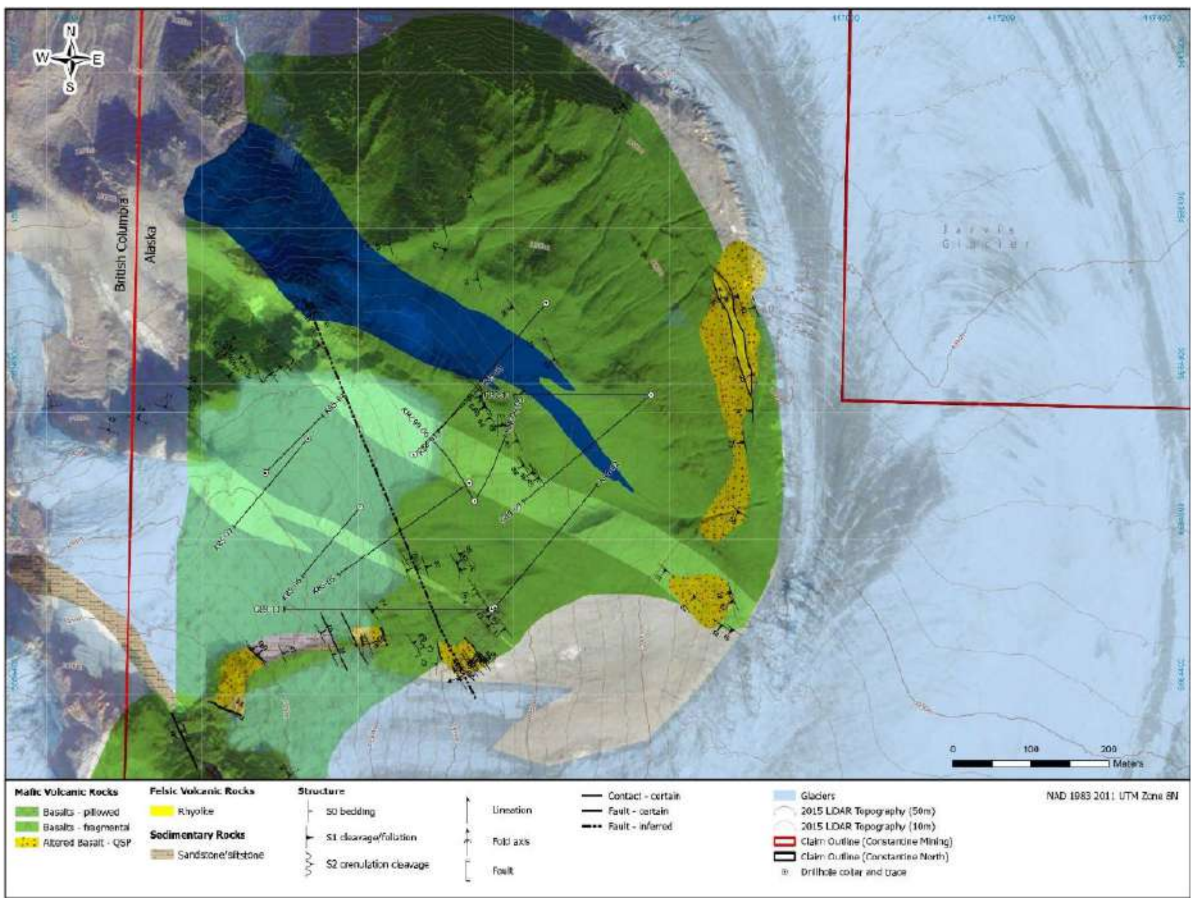
The prospector Merrill Palmer discovered high-grade massive sulfide boulders at the base of a stranded glacier at the MHC prospect in 1983. The USBM subsequently completed a sampling program on 26 of these boulders. The average grade of several types of boulders, as sampled by the USBM (Still, 1984), are as follows:

- 26 boulders of barite-sulfide (zinc-rich):
  - 19.3% Zn, 1.0% Cu, 0.4% Pb, 38.2 g/t Ag, 0.22 g/t Au, and 20.6% Ba
  - 33.0% Zn, 2.5% Cu, and 5% Ba from a 6.0 ft (1.83 m) chip of the largest boulder
- Four boulders of massive pyrite and chalcopyrite:
  - 5.18% Cu, 0.03% Pb, 1.00% Zn, 44.1 g/t Ag, trace Au, and 0.12% Ba
- Six boulders of mineralized volcanic host rocks (lacking barite):
  - 2.83% Cu, 3.90% Zn, 0.02% Pb, trace Au, 9.8 g/t Ag, and 0.41% Ba
- The mean grade of all the boulders sampled by the USBM:
  - 18.5% Zn, 0.87% Cu, 1.3 oz/ton Ag, 0.02 oz/ton Au, and 5.9% Ba

The MHC mineralization appears to consist of primary sphalerite, chalcopyrite, barite, and pyrite with minor late-stage galena, tetrahedrite, native silver, and quartz-carbonate gangue. Two principal styles of mineralization occur on the prospect: stratiform zinc-copper-barium (sphalerite, chalcopyrite, and barite) and stringer (feeder zone) chalcopyrite. MHC is associated with thin intercalated beds of volcanic flows, carbonates, and elastic rocks, and conglomeratic textures are frequently observed in the sulfide boulders.

The MHC massive sulfide target has not been located in outcrop, although the high-grade zinc-copper-rich and precious metals-enriched massive sulfide boulders found scattered along the margins and near the terminus of the MHC glacier suggest a source beneath the glacier. Thirteen drillholes have been completed at this prospect, for a total of 2,957 m: seven drillholes by Kennecott Exploration, four drillholes by Granges Exploration Ltd, and two drillholes by Rubicon (Figure 7-21). The drilling identified two mineralized horizons beneath the MHC Glacier but did not intersect mineralization with grades equivalent to those in the boulders. Several drillholes did intersect lower-grade mineralization within broad pyrite-sericite alteration zones, including 49.1 m at 0.19% Cu in drillhole K85-03, 10.7 m at 0.44% Cu in drillhole K84-02, and 36.6 m at 0.29% Cu in drillhole G89-09 (Still et al., 1991, and Rubicon, 1998).

Annually retreating ice led to a discovery by Rubicon of an intensely foliated chlorite-sericite alteration zone containing pyrite-chalcopyrite stockwork veins that was dubbed the P2 zone. It is speculated that the P2 zone may represent footwall feeder mineralization and alteration to the horizon from which the high-grade boulders were sourced (Bull, 1998).



Source: Constantine, 2025

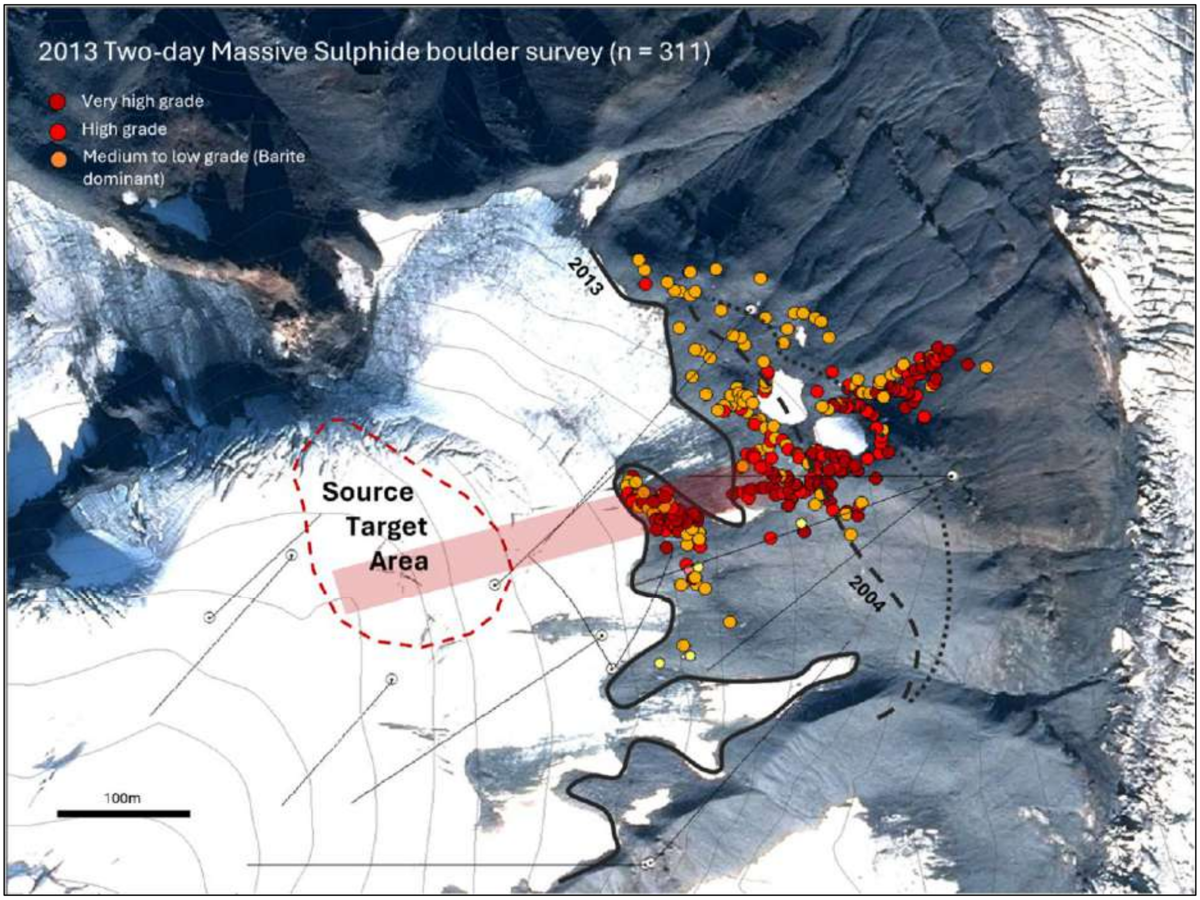
Figure 7-21: MHC Geology Map

As glacial ice continues to retreat, high-grade boulders appear to be vectoring back towards their bedrock source based on the 2013 MHC boulder sampling program (see Figure 7-22). In 2013, 311 mineralized boulders were recorded over 2 days at the MHC prospect (ranging in size (length) from 7 to 240 cm). The survey did not document all boulders within the survey area but did document sufficiently high numbers to be representative of the distribution, density, and character of the boulders. More boulders are known to exist outside of the area surveyed, but their occurrence is less frequent.

The average size of all boulders is 29 cm (based on maximum length). Mineralized boulders were categorized as either Massive Sulfide, Semi-Massive Sulfide or Heavy Sulfide, and Massive Barite. Sphalerite content averaged 24.6%, chalcopyrite content averaged 3.6%, barite content averaged 59%, and pyrite content averaged 19%. Of the 102 boulders mapped as Massive Sulfide, sphalerite content averages 37.1%, chalcopyrite content averages 4.2%, barite content averages 35%, and pyrite content averages 27.3%.

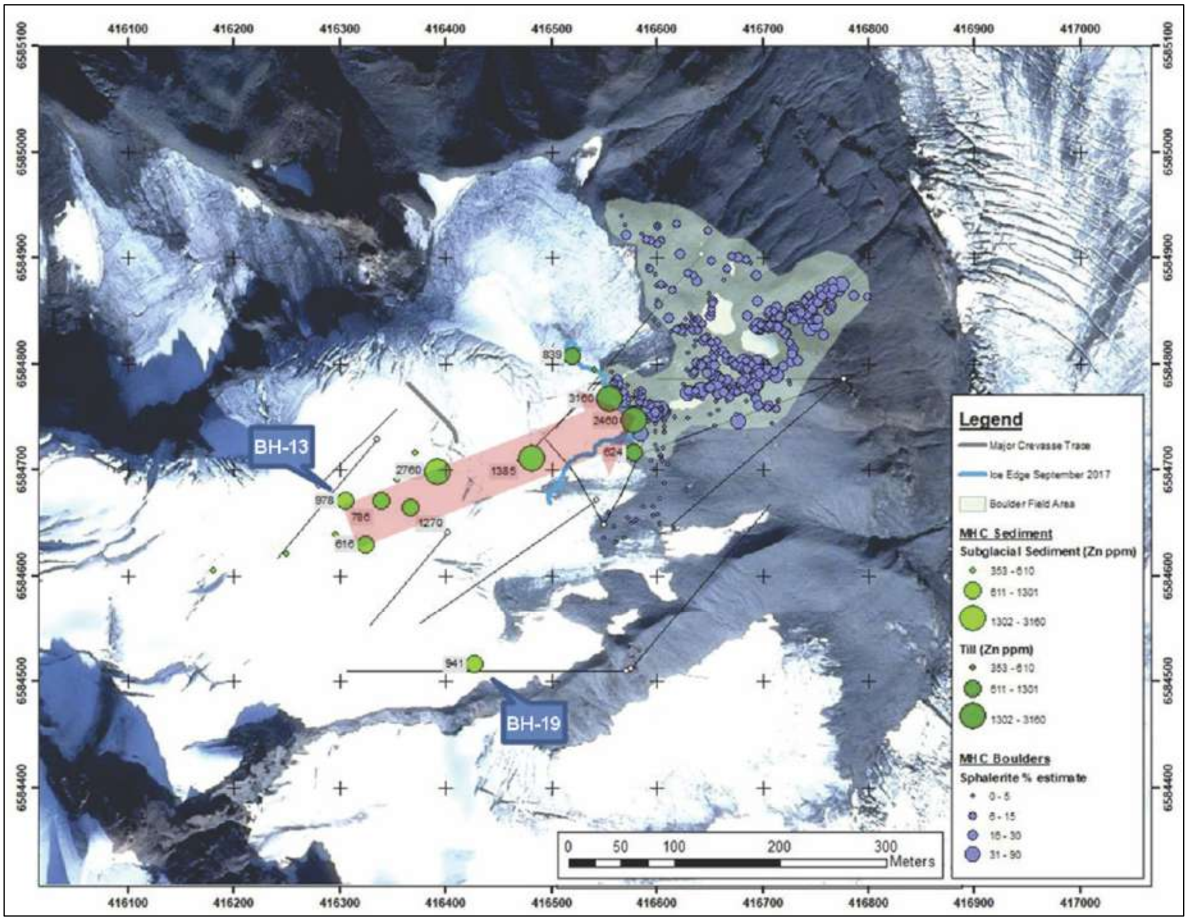
The largest concentration of mineralized boulders defined a roughly 50 m wide east-to-northeast to northeast-trending corridor over approximately 250 m and suggested a bedrock source located to the southwest in the area with the greatest density of past drilling at MHC boulder sampling at MHC.

In 2017, twenty-one boreholes were drilled through the ice (BH01–BH21) of which fourteen boreholes produced sediment. Five sediment samples were also collected from the surface at the toe of the glacier. Results from sediment sampling combined with visual sphalerite modal abundance estimates of the 311 boulders at the toe of the glacier provide a distinct, anomalous surface Zn trend (Figure 7-23). Boreholes west of BH13 show a drop in Zn content. Historic bedrock drilling surrounds but does not effectively target this trend. Future bedrock drilling plans should focus on the area around BH13 to target mineralized rock in the subsurface. Future subglacial sampling and glacier boreholes should target the area west of BH13 and BH19 to obtain a better control on the limits of anomalous Zn.



Source: Constantine, 2025 (2017 Report on Exploration; aerial imagery from 2013)

Figure 7-22: 2013 MHC Boulder Survey Map

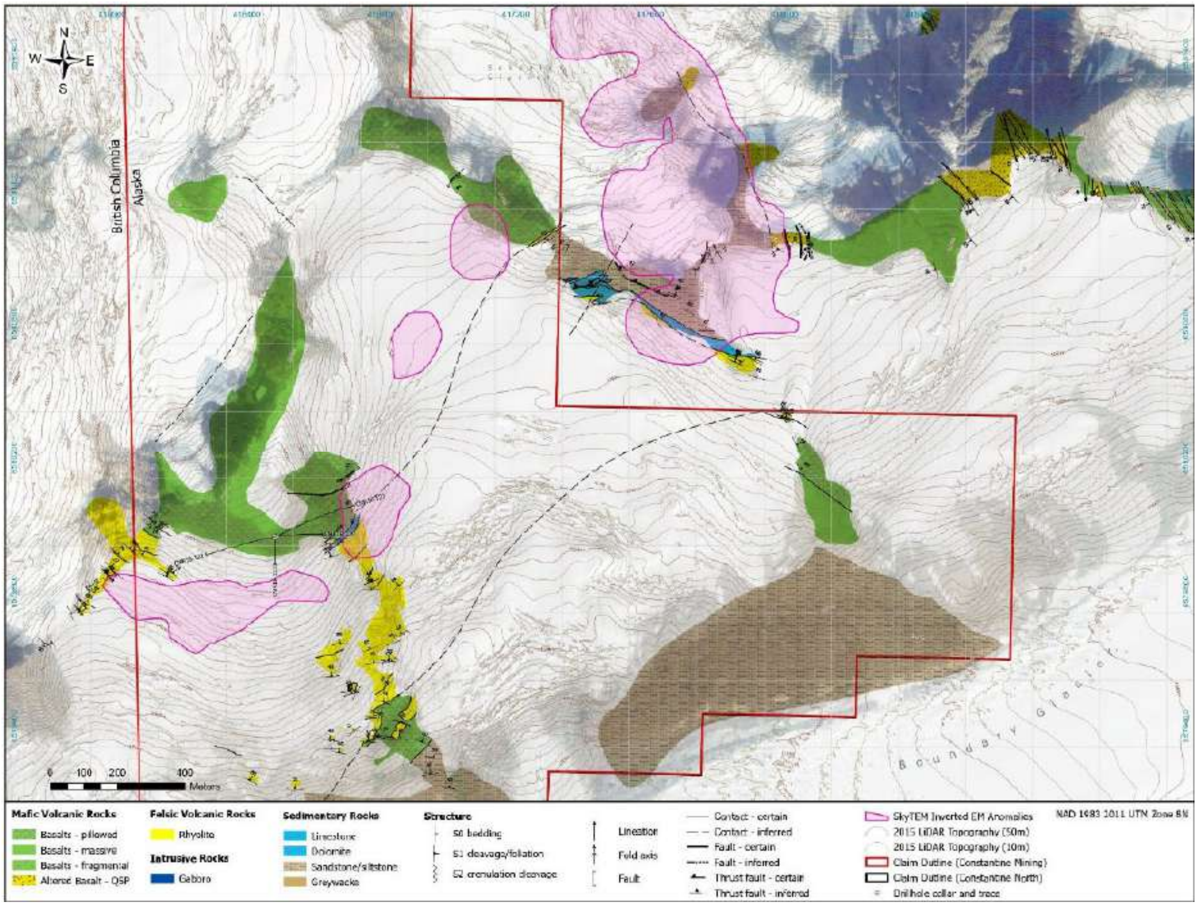


Source: Constantine, 2025 (2017 Report on Exploration; aerial imagery from 2013)

Figure 7-23: 2017 MHC Borehole Subglacial Sediment Samples and Till Samples

Boundary Prospect

The Boundary target is defined by mineralized boulders, favorable stratigraphy (including the thickest known section of rhyolite on the Palmer property), the presence of chalcopyrite stringers and anomalous barium in outcrop, altered volcanics, and EM anomalies at depth (Figure 7-24).



Source: Constantine, 2025 (from 2018 Report on Exploration)

Figure 7-24: Boundary Target with Interpreted Geology

The Boundary prospect is exposed as a ridge of outcrop in a large ice field near the international border and consists of chalcopyrite mineralization and anomalous barium within QSP schist and rhyolite that is intermittently exposed over a distance of 2 to 3 km. A marker bed of iron-stained meta-sediments (phyllite, pelitic schist, and argillaceous sediments) are overlain by unaltered hangingwall basalt and underlain by the altered rhyolite. The stratigraphy may be correlative to occurrences outside the Palmer Property (e.g., the Herbert showings), located by Stryker Resources Ltd. on the Canadian side of the border (McDougal et al., 1983). Regionally, the Boundary stratigraphy is near the base of the Triassic stratigraphy.

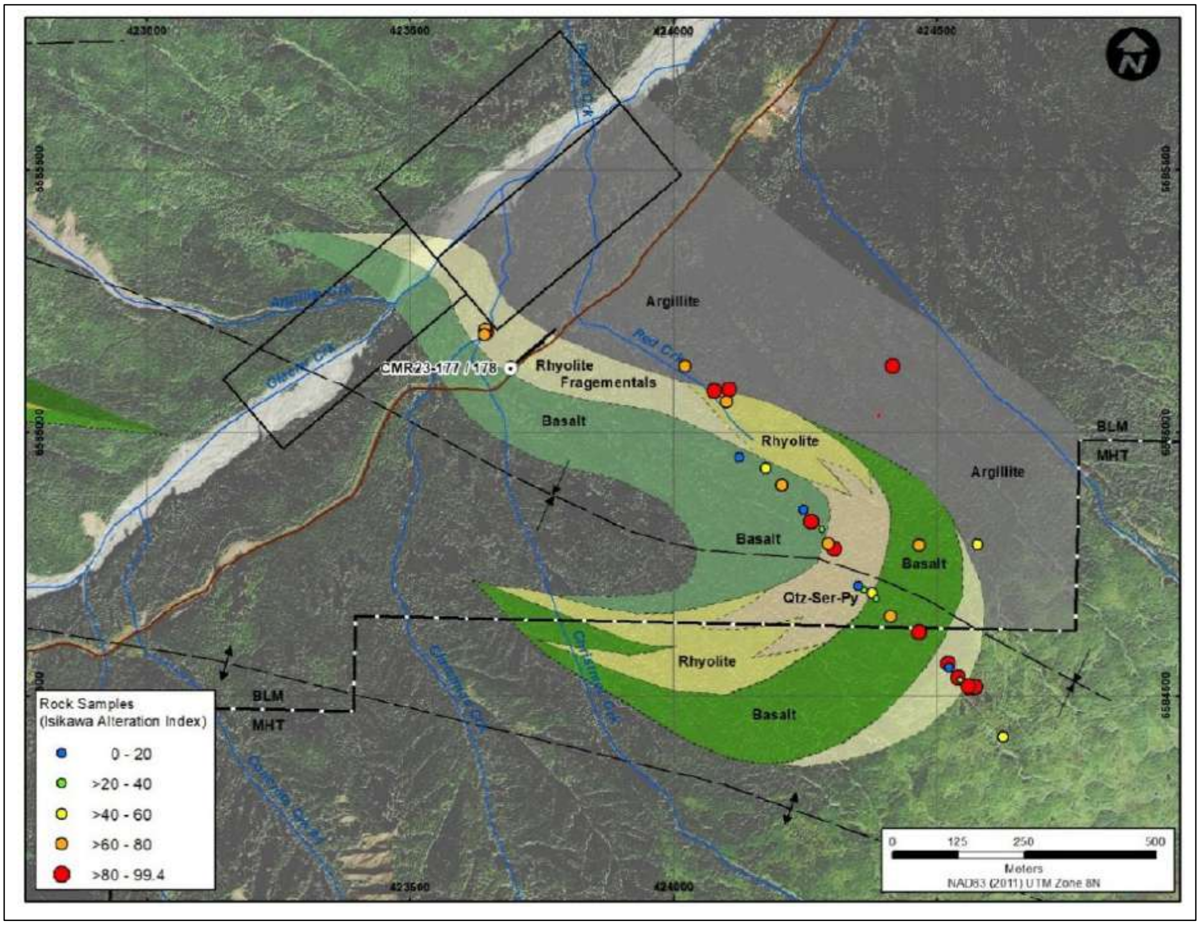
Historic grab samples returned up to 6.6% Cu, 3,610 ppm Zn, 12 ppm Ag, and 1.98 ppm Au (Wakeman, 1995). More recent prospecting by Constantine has documented barite-sulfide boulders grading up to 2.28% Cu, 19.7% Zn, 49.7 ppm Ag, and 0.61 ppm Au. The mineralized boulders are located directly downslope from the fall-line of the upper contact of the rhyolite. Two airborne EM anomalies are located at depth (somewhat along the projection of the upper rhyolite contact) and may correlate to massive sulfide mineralization. Rhyolite is documented to occur proximal to base and precious metal mineralization elsewhere on the Palmer property (RW and AG).

The Boundary prospect was drilled for the first time in 2018 and included four drillholes (1,370 m) that targeted high-grade mineralization correlative with stringer chalcopyrite in outcrop and float boulders of massive sulfide (pyrite-chalcopyrite and barite-sphalerite) along with a strong EM anomaly identified from the 2017 airborne geophysical survey. While massive sulfide was not intersected, strong and widespread hydrothermal alteration of the rhyolite with trace base and precious metal mineralization distributed throughout are encouraging for the potential discovery of a significant massive sulfide deposit.

Christmas/Red Creek Prospect

The Christmas Creek/Red Creek prospect area is defined by the massive pyrite veins and a historic sphalerite showing associated with felsic rocks near the confluence of Christmas and Glacier Creeks and pyritic rhyolite at the Red Creek prospect. Geochemically, these rhyolites have textural, geochemical, and alteration characteristics that are similar to the felsic volcanics that host the AG Deposit and the RW Zone of the Palmer Deposit. The rhyolites show strong alteration signatures (Ishikawa); however, the base metal and precious metal contents are only background values to locally elevated zinc (1,260 ppm).

In September 2023, two drillholes (050/-50 and 050/-75, 556 m) were completed from a drill site located along the Glacier Creek Road. The drillholes intersected variably altered massive to fragmental rhyolite units with elevated barium content (up to 0.5% Ba) and minor gabbroic dykes. The drillholes both ended in argillite with 1% to 3% pyrite. No significant base metal mineralization was intersected. The steeper drillhole (CMR23-178) was lined with polyvinyl chloride (PVC) pipe for future borehole geophysical surveys. Figure 7-25 shows the Christmas-Red Creek prospect geology.



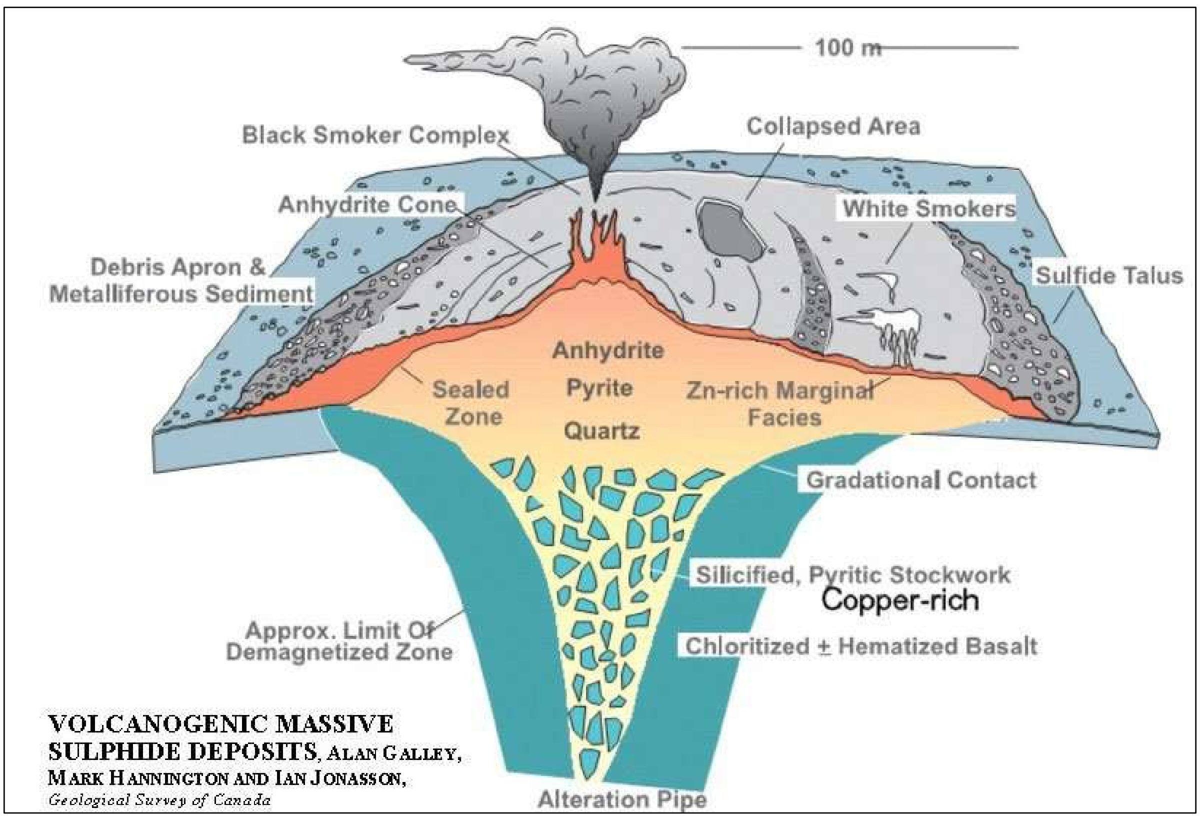
Source: Constantine, 2024

Figure 7-25: Christmas-Red Creek Prospect Geology

8 Deposit Type

8.1 Mineral Deposit

The Palmer Project is host to VMS-style mineralization. As a group, VMS deposits are stratiform accumulations of sulfide minerals that formed on or near the seafloor by precipitation near a discharge site (or vents) of hydrothermal fluids (Franklin et al., 1981; see Figure 8-1). VMS deposits form polymetallic mineralized bodies and commonly contain economic concentrations of zinc, copper, lead, silver, and gold. Many VMS deposits occur in clusters (with several individual mineralized bodies occurring within a radius of a few kilometers), and they are often stacked above one another at different stratigraphic levels. Late-Triassic, rift-related volcanic and sedimentary rocks within the Alexander Terrane are host to numerous VMS occurrences, prospects, and deposits throughout southeast Alaska and northwest British Columbia. Major deposits in the belt include the Windy Craggy copper-cobalt-gold deposit (the fourth-largest VMS deposit by size in the world and the largest of the copper-rich (Besshi-type) VMS deposits) and the Greens Creek silver-zinc-lead-gold mine (one of the world's richest large-tonnage VMS deposits) (Galley et al., 2007).



Source: Franklin et al., 1981

Figure 8-1: Cross-Sectional View of Typical VMS Deposit

The Project most closely resembles the Greens Creek deposit. However, significant differences exist, most notably the much higher copper/zinc and zinc/lead ratios present at Palmer, which more closely resemble deposits in Noranda, Quebec, or at Kidd Creek, Ontario. Zinc is the dominant base metal at both the Greens Creek deposit (Swainbank et al., 2000) and Palmer. Silver grades are locally similarly enriched but are much lower within the mineral resource area at Palmer than at Greens Creek. Gold grades are commonly elevated at Palmer (e.g., 0.5 to 1.5 g/t) but are lower than the average at Greens Creek (0.12 oz/ton (4.11 g/t)). Barite is common in both deposits and is the dominant gangue mineral for parts of the orebody at the Greens Creek deposit. Deformation at the Greens Creek deposit is much more ductile in style than at Palmer, resulting in sometimes tight and complex folding of the mineralized zones and host stratigraphy at Greens Creek.

9 Exploration

Exploration activities at the Palmer Project started in 1979, prior to Constantine Metal's acquisition of the land package in 2006. An overview of the historical exploration activities is provided in Section 6 and Table 6-3. This section focuses on exploration activities other than drilling (see Section 10). Constantine's exploration activities have continued to refine historical exploration data combined with more recent systematic exploration information.

Since acquiring the Palmer property in 2006, Constantine has completed prospecting, regional and detailed geological mapping, soil and rock sampling, airborne EM and magnetic geophysical surveys, ground and borehole pulse EM geophysics, light detection and ranging (LiDAR) surveys plus geotechnical work, metallurgical engineering, and environmental baseline studies. The more recent exploration programs have been successful in contributing significant new geological data relied on to develop geological models for the VMS mineralization on the property. Table 9-1 summarizes the exploration programs.

Table 9-1: Summary of Constantine Exploration from 2006 to 2024

Year	Work Completed	Prospect Area	Significant Result
2006	Diamond drilling (three holes, 829 m) tested eastern extension of RW Zone; started 11-line-km grid cutting for soil sampling and geophysical surveys downslope and along trend to the east of the Glacier Creek prospect (SW Zone)	Glacier Creek	Extend RW Zone
2007	Diamond drilling (seven holes, 2,314 m: two holes tested the Cap prospect, and five holes targeted the Glacier Creek prospect (RW/SW)); regional field mapping and prospecting on federal claims; completed the 11-line-km grid cutting and soil sampling	CAP, Glacier Creek, property wide	Discover SW Zone 1 mineralization; notable soil anomalies downslope of SW
2008	Diamond drilling (12 holes, 4,395 m; two holes abandoned); tested Glacier Creek prospect; regional field mapping and prospecting (federal claims); completed ground magnetics and controlled source audio-magneto tellurics (CSAMT) geophysical surveys on the 11-line-km grid	Glacier Creek, property wide	SW Zones 1 and 2 advancement
2009	Diamond drilling (10 holes, 4,643 m). 3D borehole TDEM geophysical surveys (eight of 10 holes). Regional field mapping and prospecting (federal claims). Metallurgically-focused high-definition mineralogical work and benchmarking	Glacier Creek, property wide	SW Zones 1 and 2 advancement
2010	Diamond drilling (10 holes, 4,017 m). Surface and borehole TDEM surveys (surface, totaling approximately 37-line-km). Report: Initial Palmer Mineral Resource Estimate (Grieg and Giroux, 2010)	Glacier Creek, property wide	SW Zones 1 and 2 advancement; initial NI 43-101 resource estimate
2011	No field work		
2012	No field work		
2013	Diamond drilling (10 holes, 3,745 m). Borehole EM surveys. MHC boulder sampling program. Other: metallurgical testing, baseline environmental, and geotechnical studies; Dowa Option Agreement	Palmer Deposit	SW Zones 1 and 2 advancement; Borehole Geophysics (EM) review defines lower, Zone 3 target.
2014	Diamond drilling (16 exploration holes and one geotechnical hole for 9,796 m). Regional field mapping, LiDAR survey, borehole TDEM surveys. Other: geotechnical studies (including sub-horizontal drillhole, hydraulic/groundwater testing, avalanche studies, and slope stability analysis). Baseline environmental studies. Construction of 3.6-km access road from existing road network to prospect area.	Palmer Deposit, property wide (CAP, Nunatak, JAG, and MHC reconnaissance)	Discover SW EM Zone mineralization (Zone 3)
2015	Diamond drilling (eight exploration holes and one geotechnical hole, 7,736 m). Regional field mapping, Regional reconnaissance soil sampling program at McKinley/Nugget Creek and Tsirku areas; surface and borehole TDEM surveys. Report: Palmer Deposit Mineral Resource Estimate Update (Gray and Cunningham-Dunlop, 2015). Other: geotechnical studies (including drilling, hydraulic/groundwater testing, shallow seismic overburden surveying, and avalanche modeling). Baseline environmental studies	Palmer Deposit	SW Zones 1, 2, and 3 advancement; NI 43-101 resource estimate update
2016	Diamond drilling (four exploration holes and three geotechnical holes, 1,967 m). Borehole downhole TDEM survey. Geological mapping, structural analysis (J. Proffett). Regional reconnaissance soil sampling program in Tsirku area. Other: construction of 2.0-km road extension. Geotechnical studies (including drilling, surface mapping, avalanche modeling, hydraulic/groundwater testing, and underground exploration access option analysis), baseline environmental studies	CAP, Pump Valley; Palmer Deposit	BHEM outlines additional targets in SW Zone 3
2017	Diamond drilling (26 exploration holes and six geotechnical holes, 10,631 m). Borehole TDEM survey (AG Deposit), SkyTEM airborne EM-magnetic geophysical survey. Geological mapping, structural analysis (J. Proffett). Subglacial sediment sampling program at MHC. Other: approval of spur road and construction of 0.5-km road extension. Geotechnical studies including drilling to test paleochannel depth, ice depth studies, avalanche modeling, hydraulic/groundwater testing, and underground exploration access option analysis; baseline environmental studies	Palmer Deposit: SW, AG Desposit, regional prospects (CAP, MHC, and others)	Discover AG Deposit mineralization; airborne survey outlines nine priority targets
2018	Diamond drilling (28 holes, 9,694 m) and geotechnical drilling (two holes, 400 m); significant AG Deposit expansion; first Boundary prospect holes (four holes); report: Palmer Deposit Mineral Resource Update, Initial AG Deposit Mineral Resource Estimate (Gray and Cunningham-Dunlop, 2018); other: surface road construction (Phase I plan of operations); monitoring well installation; metallurgical tests; PEA initiated; baseline and permit-related environmental studies	Palmer Deposit: SW, AG Deposit, Boundary prospect; Glacier Creek Valley	SW and AG Deposit advancement; update NI 43-101 MRE at Palmer; initial NI 43-101 MRE at AG Deposit
2019	Diamond drilling (eight holes, 3,165 m) targeting extensions to the AG Deposit (three holes), RW Zone (three holes), and testing airborne EM anomaly at HG West prospect area (two holes); geological field mapping, M.Sc. initiated on AG Deposit (K. Quinn); report: Preliminary Economic Assessment (Goodwin et al., 2019); other: ongoing baseline data collection and near-term data needs to support the design and permit of underground exploration plans. Waste management permit issued for planned underground development	RW West, HG West, and AG Deposit	Positive PEA completed for the Palmer Project; north extension to the RW mineralization
2020	No drilling; geological field mapping; prospecting and soil sampling at McKinley Creek; other: ongoing environmental baseline data collection and near-term data needs to support the design and permit of underground exploration plans	Jasper Mountain-Terminus-HG, Christmas-Red Creek	
2021	Diamond drilling (two infill holes and six geotechnical holes, 2,788 m); other: sonic overburden drilling (12 overburden holes to support environmental and hydrogeological work, 678 m); seismic refraction survey; aerial photogrammetry; geotechnical studies (point load testing, tracer studies, infiltration tests, and mounding data); ongoing baseline and permit-related environmental studies to support underground exploration plans	Palmer Deposit: SW Glacier Creek Valley	SW Zones 3 advancement
2022	Diamond drilling (eight exploration holes and one geotechnical hole, 3,546 m); other: Phase II plan of operations infrastructure development, including portal access road, Land Application Discharge (LAD) and camp construction; aerial photogrammetry and LiDAR acquisition (Glacier Creek valley road and Porcupine Road); ongoing baseline and permit-related environmental studies	Jasper Mountain: HG and Terminus targets; Kudo Offset target	HG drilling intersected two prospective VMS horizons
2023	Diamond drilling (37 infill holes and two exploration holes, 10,622 m); drill core geotechnical studies (point load testing, Q-system, and point joints); other: sonic drilling (10 overburden holes to support site investigation and engineering studies, 403.4 m); seismic refraction survey; geotechnical studies (point load testing, Q-system, and point joints); hydrogeological studies (packer tests, transducer monitoring and installations, well installations, and water sampling); unmanned aerial vehicle (UAV) aerial photogrammetry and LiDAR (site/road assessment); ongoing baseline and permit-related environmental studies	Palmer Deposit	SW Zones 1, 2 and 3 advancement. Infill drilling intersected significant copper mineralization in Zone 1
2024	Diamond drilling (two infill, 14 expansion, and three exploration holes (North Wall), 6,035.9 m); infill gap sampling for resource; UAV photogrammetry and LiDAR acquisition at Palmer and AG Deposits and HG prospects; other: metallurgical laboratory test work; hydrogeological studies (transducer downloads and water sampling); ongoing baseline and permit-related environmental studies	Palmer Deposit	SW Zones 1 and 2 advancement

Source: Constantine, 2025

9.1 Grids and Survey Parameters

The original regional identification of the Palmer Project likely used USGS topographic maps. The USGS quadrangle maps from this period use the horizontal North American Datum of 1927 (NAD27). Constantine continued to use this datum until 2018. In 2018, the Palmer Project horizontal datum was changed from NAD27 to North American Datum of 1983 (NAD83) (2011) Zone 8N. All surface exploration mapping, geochemistry samples, geophysical surveys, and drill collars were converted to the NAD83 (2011) datum. A method of converting geographic information system (GIS) files in NAD27 into NAD83 was investigated. Converting shapefiles from NAD27 to NAD83 by importing the NAD27 shapefiles into Trimble Global Positioning System (GPS) Pathfinder Office and re-exporting as NAD83 shapefiles proved to be the best method, with shifting errors amounting to <1 cm. The accepted transformation parameters to go from NAD27 to NAD83 within the bounds of the Palmer Project are as such:

- NAD83 Easting (meters) plus 99 m = NAD27 Easting (meters)
- NAD83 Northing (meters) minus 165.75 m = NAD27 Northing (meters)

Field data locations are recorded using handheld Garmin GPS units for prospecting, geological mapping, and sampling.

9.2 Prospecting

Prospecting has been a successful exploration tool on the Palmer Project, where most of the numerous mineral prospects were discovered by prospecting prior to Constantine acquiring the Project in 2006. Constantine carried out additional prospecting in conjunction with regional geological and structural mapping between 2006 to 2009 and again in 2014 and 2015 that identified the JAG, Waterfall, Khyber Pass, and MW prospects.

9.3 Geological Mapping

Property-wide regional and detailed geological mapping has been carried out on the Project since 2006, with two principal regional mapping programs carried out in the 2006 to 2009 field seasons (Hardolph Wasteneys) and again in the 2014 and 2015 field seasons (Roy Greig). Regional mapping resulted in follow-up detailed mapping at various prospects, including MHC, Nunatak, and Boundary prospects and Terminus, East Pump Valley, Waterfall, and Khyber Pass areas.

The Glacier Creek prospect (now Palmer Deposit) was mapped in detail by Nathan Steeves and forms the basis of his 2013 Master of Science thesis. The Nunatak prospect was mapped in detail during the 2016 and 2017 field seasons to guide the 2017 drilling that resulted in the AG Deposit discovery. The AG Deposit was the focus of a Master of Science thesis completed by Quinn in 2024.

In 2017 and 2018, structural mapping by Dr. John Proffett was part of all mapping programs to assist in regional and detailed stratigraphic correlation. Detailed structural work in 2017 was carried out on the SW Deposit area that included a detailed structural analysis of the Kudo Fault zone to determine the fault displacement of the downdip SW Zone mineralization. In 2018, detailed stratigraphic and structural mapping was completed in Pump Valley in the hangingwall to the RW Zone.

The 2017 to 2018 field programs included ongoing geological mapping and rock sampling at the Nunatak prospect area, detailed geological mapping at the AG Deposit areas in support of an Applied

Master's thesis project, a subglacial sampling program at MHC, and detailed geological mapping and sampling at Terminus, East Pump Valley, Khyber Pass, and Boundary prospect areas.

Constantine has supported thesis work on the Palmer property by N. Steeves (MSc. 2013), L. Miller (B.Sc. 2015), F. Transburg (2020), and K. Quinn (M.Sc. 2024).

9.4 Soil Geochemistry

Much of the prospective Palmer geology is above tree line in mountainous terrain with considerable rock exposure; however, the eastern extension of the SW-RW geology below 2,000 ft has extensive slide alder and devils club that is very difficult to traverse.

In 2006, a 100 m-spaced line grid was cut to cover an area of approximately 1 km^2 to facilitate geochemical and geophysical survey work in this area (approximately 11-line-km of grid), resulting in 385 A and B horizon soil samples, depending on soil horizon development. Soil samples were collected at 25 m intervals along the 100 m-spaced grid lines and identified several multi-element geochemical anomalies. In 2021, geotechnical drilling in this grid area recognized the area (at least in part) covered a large, slide block located downslope from the SW Zone.

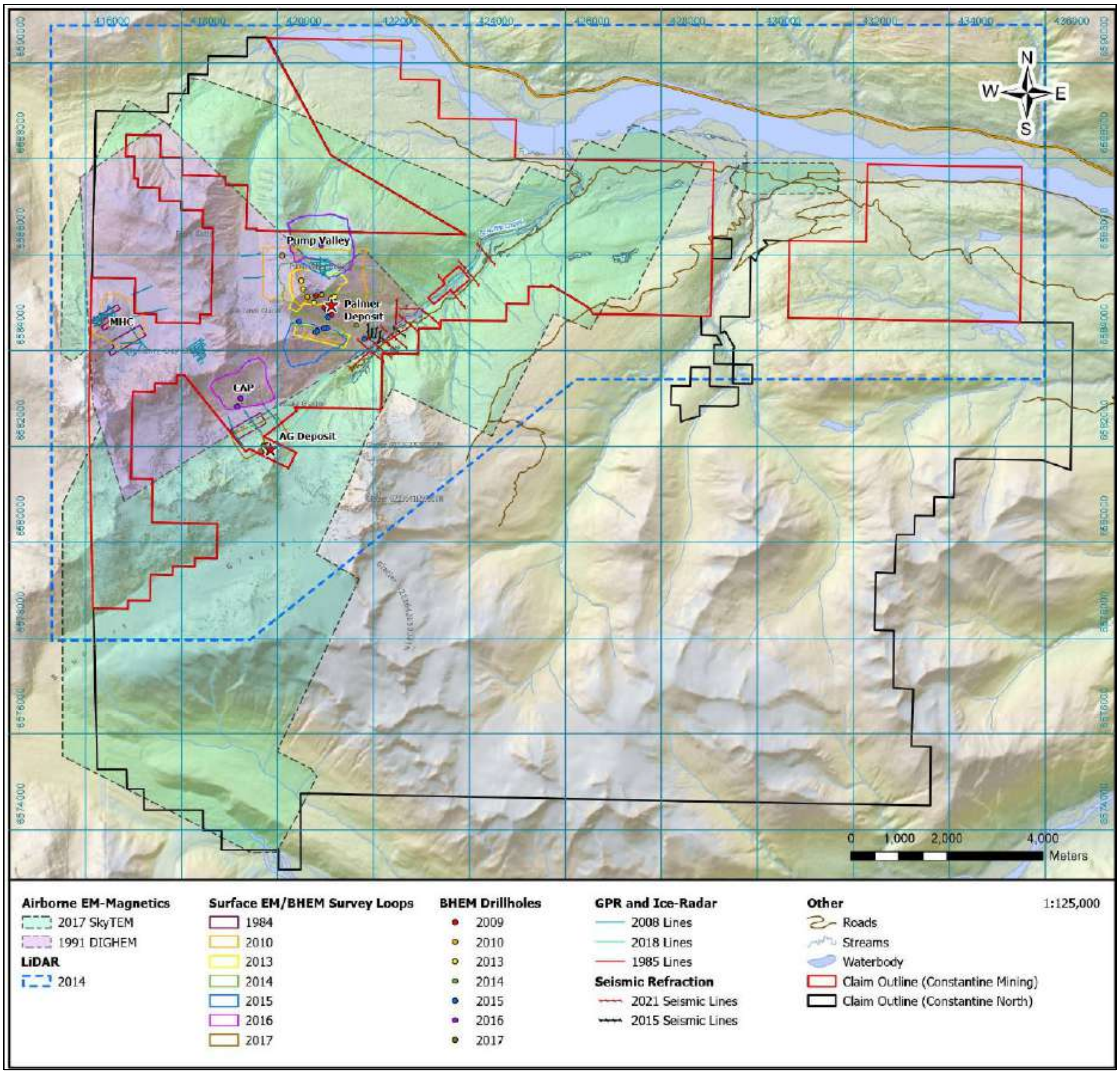
In 2015 and 2016, regional reconnaissance soil surveys were carried out on MHT lands with 464 soils samples collected. 393 soil samples were collected in the Tsirku area in the southwestern part of the MHT property, and 71 soils samples were collected in the McKinley Creek/Nugget Creek area in the central-southeastern part of the MHT property.

9.5 Rock Geochemistry

The Palmer surface rock sample database includes 1,438 samples, of which 947 samples (65%) have been collected by Constantine. By far the greater majority of samples collected by Constantine are grab samples taken to test for the existence of mineralization (928 samples), but the samples also include 635 whole rock samples to characterize stratigraphic rock units and alteration. A small percentage of these samples represent chip samples of exposed mineralization. Rock samples have been collected property-wide with no particular distribution or spacing; however, they were influenced by accessible rock exposure and the numerous occurrences of mineralization and alteration across the property. Boulder sampling has also been completed in 2013 which is discussed in Section 7.8.

9.6 Geophysical Surveys

Various geophysical surveys have been carried out on the Project as a tool to prioritize drill targets in conjunction with surface mineralization, geology, and alteration. The steep mountainous terrain is a challenge for both surface and airborne geophysics (Figure 9-1). The mineralization on the Project is also characterized by very high barite content compared to most VMS deposits, which results in overall poor conductivity and therefore poor EM response. Lack of a conductive response does not rule out a drill target. Internal SW Deposit mineralization zoning, however, has higher-grade copper and pyrite-pyrrhotite-rich zones that do give strong EM responses and are detectable, as demonstrated by the downhole geophysical discovery of the SW Zone 3 and the (after-the-fact) response to the SW Zone 1 high-grade copper zone.



Source: Constantine, 2025

Figure 9-1: Geophysical Compilation Map

9.6.1 CSAMT Surveys

In 2008, Constantine completed a variety of surface geophysical techniques, including CSAMT, which was carried out on the 11-km line grid. Data collection was performed by Zonge Engineering and Research, with over 13 total lines totaling 510 stations over a period of 17 days. Several targets with low resistivity/high conductivity that may be correlative with massive sulfide deposits were identified from the survey (Grieg and Giroux, 2010). The CSAMT survey technique was amenable to steep terrain surveying with a fixed-current electrode.

9.6.2 Surface and Borehole TDEM Surveys

In 2009, eight of the 10 drillholes completed in 2009 were surveyed by SJ Geophysics using 3D downhole TDEM geophysics, which proved to be effective at identifying copper-rich portions of SW Zone massive sulfide.

In 2010, surface TDEM surveys were conducted at the MHC prospect (7.9-line-km) and Palmer Deposit area (20.8-line-km). In addition to the TDEM at MHC, 3.4-line-km of horizontal loop electromagnetic survey was surveyed using 100 m coil separation and 25 m station spacing. In addition, six of the 10 drillholes completed in 2010 were surveyed by SJ Geophysics Ltd. using 3D downhole TDEM geophysics utilizing the same surface loops as the surface TDEM. The borehole survey proved to be effective at identifying copper-rich portions of SW Zone massive sulfide.

Results of the 2009 and 2010 borehole TDEM survey were further analyzed by external consultant Dr. Jovan Silic in 2013. Analysis concluded that the RW West, RW East, and RW Oxide zones do not correspond to significant conductive targets. SW Zone 1 was identified as a conductive target, but no extension was identified that had not already been delineated by drilling. SW Zones 2 and 3 were also identified as variably conductive targets. Additional conductive prospective mineralization west of CMR09-31 was suggested, a prediction that was tested with great success in later drillholes. Dr. Silic cautioned that known mineralization at Palmer can produce a widely variable conductivity response dependent on the type of mineralization. Possible concentrations of economic mineralization that are not copper-rich (barite and sphalerite) may not be well represented in future borehole EM studies and that the absence of a large EM response does not always imply the absence of VMS mineralization. Dr. Silic recommended that additional surface EM surveying be completed north of the 2010 surveyed area in Pump Valley/Little Jarvis to better estimate the shape and location of the conductor.

In 2013, seven of 10 drillholes completed at Palmer Deposit RW and SW Zones were surveyed with borehole TDEM, with only three of the drillholes successfully surveyed to depth.

In 2014, borehole TDEM geophysics was completed by SJ Geophysics on six drillholes (2,164 m), with the objective of gathering data to assist in planning future deep target drillholes to explore the deep SW EM Zone (Zone 3). The survey was conducted with SJ Geophysics' proprietary Volterra Borehole System, which allowed for surveying to be performed through the end of rods while rods were being removed from the hole. Extension tubes were additionally placed to offset the instrument from the metallic drill rods to limit interference. Survey stations were spaced every 9 to 12 m, and readings were 120 to 240 seconds in duration.

Initial analysis of 2014 borehole EM data identified three conductive zones within the survey area: a conductive zone thought to be correlative with the upper zone of SW mineralization intersected in CMR14-54, another potentially correlative with the far field deep background conductor identified in previous surveys, and the third possibly representing an (Kudo Offset or Wedge?) offset of mineralization in front of and near the bottom of CMR14-65.

In 2015, additional surface TDEM survey work was carried out by Discovery Int'l Geophysics on the Pump Valley (5.5-line-km) and the Cominco Grid (2.0-line-km) using 100 m spaced lines with 25 m reading along the lines. The Pump Valley grid extended the 2010-surveyed area northwards per the recommendation of Dr. Silic to better image the northwest-striking conductor thought to be correlative with argillites north of the Palmer Deposit. The second grid was constructed to re-image areas that were surveyed with CSAMT and EM by Cominco in the early 1990s.

At the Pump Valley grid, three conductive plates (two early-time and one late-time) were modeled in EMIT Maxwell software. The two early-time plate models are sub-horizontal and roughly consistent with the projection of the RW Zone mineralization trend. The deeper late-time conductor assumes a much steeper dip. Follow-up drilling in 2016 indicates that the early time plate models was likely correlative with graphitic argillite (hole CMR16-81B). Mapping in 2018 suggested that the 540 m of argillite intersect in CMR16-81B may explained by drilling parallel to the axis of a tight syncline. At the Cominco grid, no priority conductive targets were identified; however, additional data to the north was recommended to further investigate the approaching conductor that may or may not be associated with the Pump Valley trend.

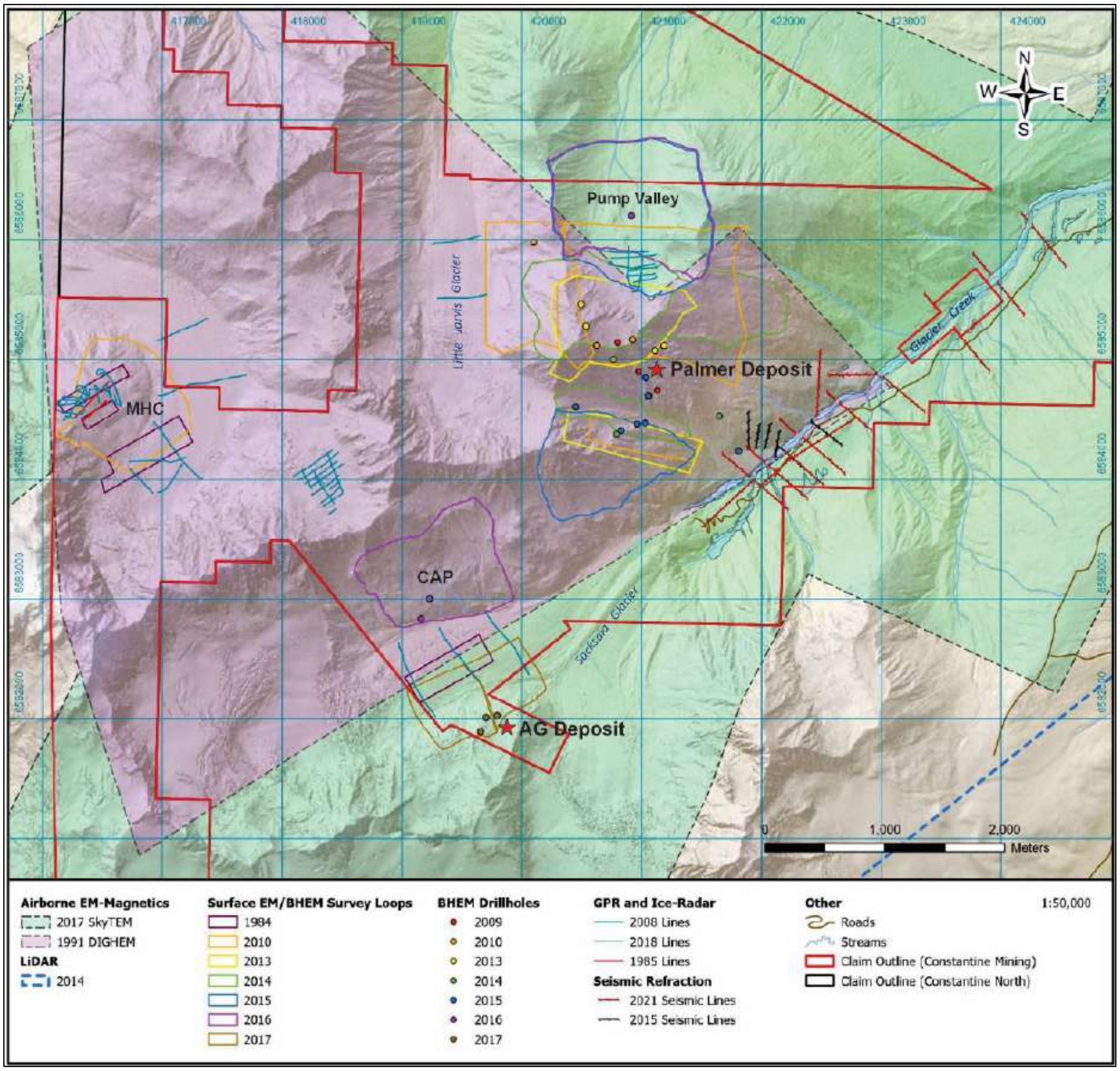
Borehole TDEM surveying was also completed by Discovery Int'l Geophysics in 2015 on eight drillholes (9,053 m) extending into the lower SW area, including CMR14-56EXT, CMR14-66, -73, and -75. Two loops were placed for surveying: the North Loop enclosed the surface EM survey grid in Pump Valley, while the South Loop was optimized to test ground south of the Kudo Main Fault. The new borehole data and VPEM3D and Maxwell modeling continues to suggest a deep conductive source is present at depth to the immediate north and south of the Kudo Fault. The modeled plates north of the Kudo Fault suggest conductive source is present outside of the current resource to the west and at depth. The early time, steeply dipping conductive plates south of the Kudo Fault are interpreted to be associated with sedimentary/argillite horizons and dip steeply to the south-to-southwest. The conductors are beyond the depth of the deepest drillholes; therefore, the exact definition of these conductors remains untested.

In 2016, additional borehole TDEM was completed by Discovery Int'l Geophysics at the CAP and Pump Valley prospects. Two loops were placed to survey three boreholes (CMR16-79 and CMR16-80 at CAP and CMR16-81B at Pump Valley).

Results from surveying the CAP area (CMR16-79 and CMR16-80) did not identify any significant conductors. However, the results were not consistent with observed geology in drillholes (graphitic argillite and locally semi-massive pyrite), so the possibility of null coupling was suggested (i.e., a situation in which the primary field current orientation parallels stratigraphy orientation resulting in no observed response).

Results from surveying CMR16-81B revealed that the late-time conductor modeled from 2015 survey results is located deeper than previously interpreted (approximately 250 m past the end of the hole). Two plates modeled from the survey were in agreement with the previous 2015 VPEM3D model. The uppermost plate, which dips at an angle shallower than the deeper plate, was found to likely correlate with graphitic argillite intersected in CMR16-81B. The lower plate was not reached by drilling and was recommended as a potential future drill target given its apparent stratigraphic position below the argillite.

In 2017, Discovery Int'l Geophysics completed borehole TDEM surveying at the Nunatak/JAG prospects (AG Deposit area). Two loops were placed to survey five drillholes. Survey equipment, methodology, and data processing software were the same as in 2015 and 2016. A plate model was developed from both loops for drillholes CMR17-104 and CMR17-106. Three conductive anomalies were identified in both loops, but due to the weak response, they were not interpreted to be correlated with conductive VMS mineralization. No significant conductive anomalies were identified in the four other drillholes surveyed (CMR17-96, CMR17-96, CMR17-99, and CMR17-101). The lack of significant responses in the other four drillholes may have been the result of poor coupling. If the plate modeling for CMR17-104 and CMR17-106 best described the strike/dip of geology in the survey area, the loop configuration used may have prohibited coupling with the other four holes, as the primary field orientation would have been near parallel to stratigraphy that intersects the drillholes. A different loop configuration was recommended for future surveys to increase the odds of positive coupling. Continued drilling at the AG Deposit would confirm the presence of zinc-lead-silver-gold-barite mineralization. The lack of chalcopyrite-pyrrhotite mineralization at AG in relation to SW may help explain the disparity in conductivity and detectability with EM surveying methods. Figure 9-2 shows the surface and borehole TDEM survey areas.



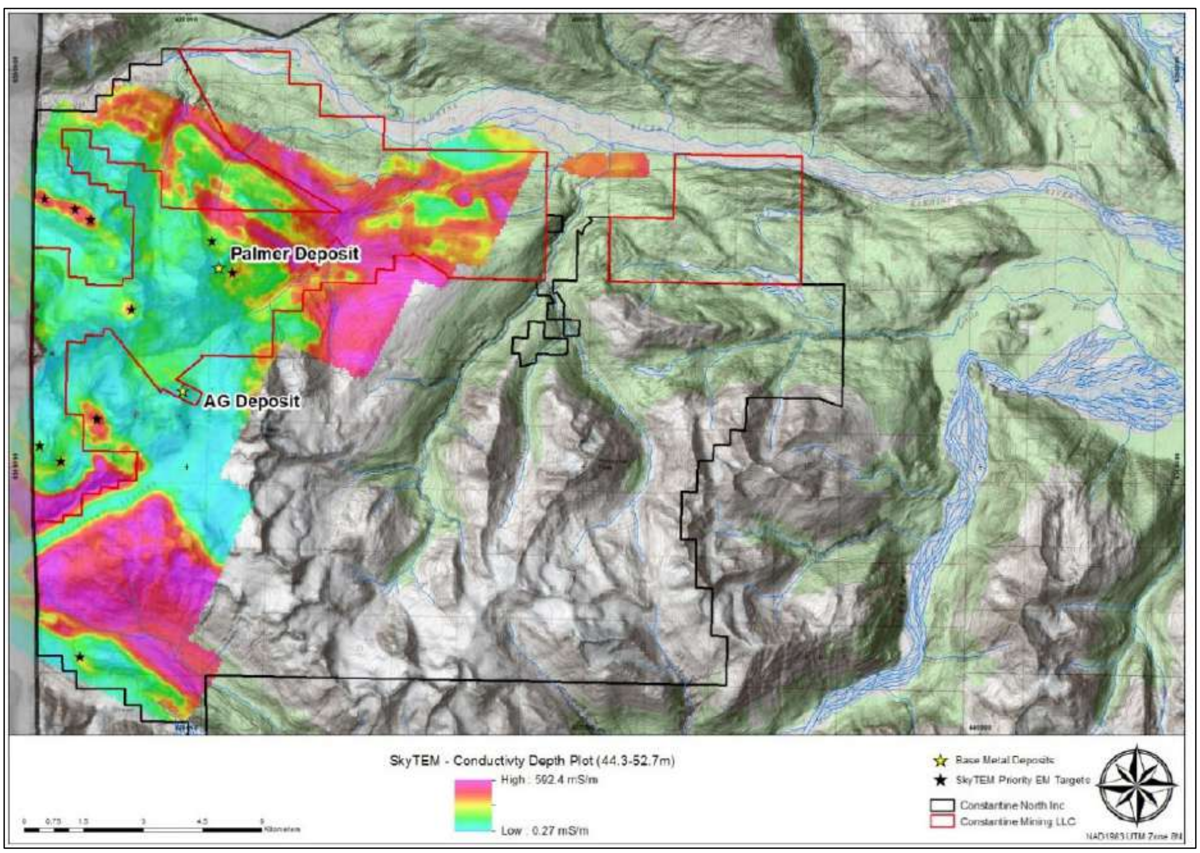
Source: Constantine, 2025

Figure 9-2: Surface and Borehole TDEM Survey Areas

9.6.3 Airborne Geophysical Surveys

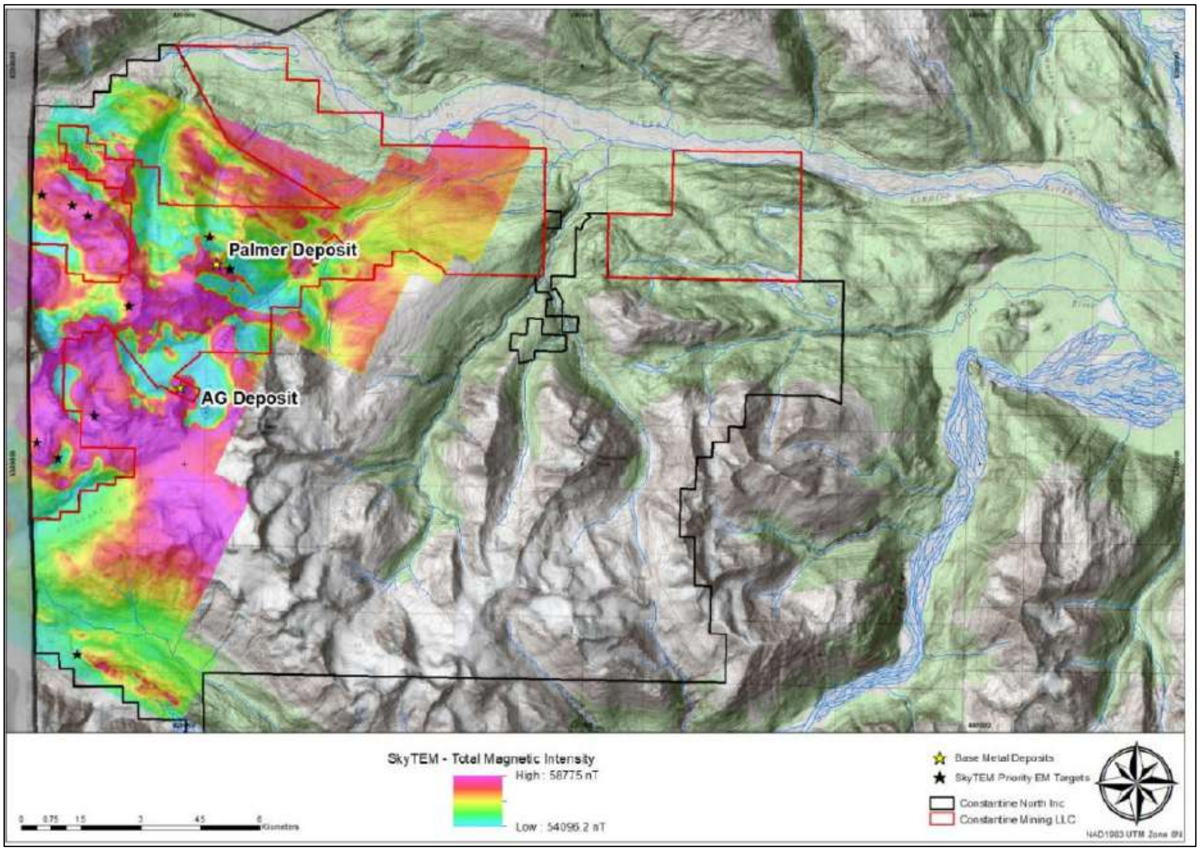
Prior to Constantine acquiring the property in 2006, a helicopter-borne magnetic-EM survey was completed by Bear Creek Mining/Kennecott during their 1983 to 1985 option on the Palmer property. The survey covered most of the main mineral occurrences. In 1991, Cominco followed up on the airborne with TDEM (EM-37) ground surveys over select areas. One of the ground EM-37 surveys confirmed that an airborne EM anomaly 750 m eastward along strike of the mineral occurrences at the Glacier Creek prospect (now Palmer Deposit) represented a significant conductor, with a geophysical signature consistent with that of a large, massive sulfide deposit (Cominco, 1993). Cominco proposed three drillholes to test the different geophysical interpretations of the conductor (based on spatial orientation: flat lying vs. steeply dipping); however, the holes were not drilled before Cominco's option lapsed.

In 2017, Constantine completed a 1,137-line-km SkyTEM airborne EM and magnetic survey over most of the Palmer Project area at a 100 m line spacing. The steep terrain compromised data collection in some areas. The survey for the first time provided EM and magnetic survey data across the entire Project to facilitate geological interpretation and to help prioritize drilling targets (Figure 9-3 and Figure 9-4).



Source: Constantine, 2025

Figure 9-3: 2017 Airborne EM with Priority EM Targets



Source: Constantine, 2025

Figure 9-4: 2017 Airborne Total Magnetic Intensity with Priority EM Targets

9.6.4 Ground Penetrating Radar Surveys

Ground penetrating radar (GPR) surveys to determine glacial ice thickness at MHC, North Saksaia, Jarvis Glacier, and Little Jarvis were also completed in 2008 using GPS-controlled gridlines over limited areas. Ice thicknesses of 10 to 50 m were approximated for the MHC Glacier, ice thickness of 20 to 200 m were approximated for the Saksaia Glacier, ice thicknesses of 80 to 180 m were approximated for the Jarvis Glacier, and ice thicknesses of 80 to 190 m were approximated for the Little Jarvis Glacier over their respective survey areas. At MHC, a ground magnetic survey was done in conjunction with the GPR.

Additional GPR survey work was carried out in 2018 by Logic Geophysics & Analytics of Anchorage, Alaska, over 4.5 km of survey line on the surface of the Saksaia and South Saksaia Glaciers (Logic Geophysics & Analytics LLC, 2018). Site access was provided via helicopter, and the survey was carried out using 25 and 50 megahertz (MHz) GPR antennas mounted on a sled and pulled across the desired transects by the survey crew (Figure 9-5). Results of the survey include:

- At the terminus of the Saksaia Glacier, interpreted ice thicknesses ranged from 60 to 134 m. Due to flowing water in the glacier negatively impacting data quality, imaging of any subglacial paleochannels was not possible.
- On the main parts of the Saksaia and South Saksaia Glaciers, interpreted ice thicknesses ranged from 67 to 180 m.

Source: Constantine, 2018

Figure 9-5: GPR Survey Crew on Sakasia Glacier

9.6.5 Seismic Geophysical Surveys

Seismic refraction and multi-spectral analysis of surface waves (MASW) surveys were carried out in 2015 by Frontier Geosciences Inc. and by Logic Geophysics & Analytics in 2021 and 2023. The geophysical investigation were carried out to determine the thicknesses, distribution of overburden layering, and depths to bedrock in select areas of Glacier Creek Valley. The purpose of the surveys was to provide initial geotechnical information for various infrastructure and engineering studies.

9.6.6 Satellite Imagery and LiDAR

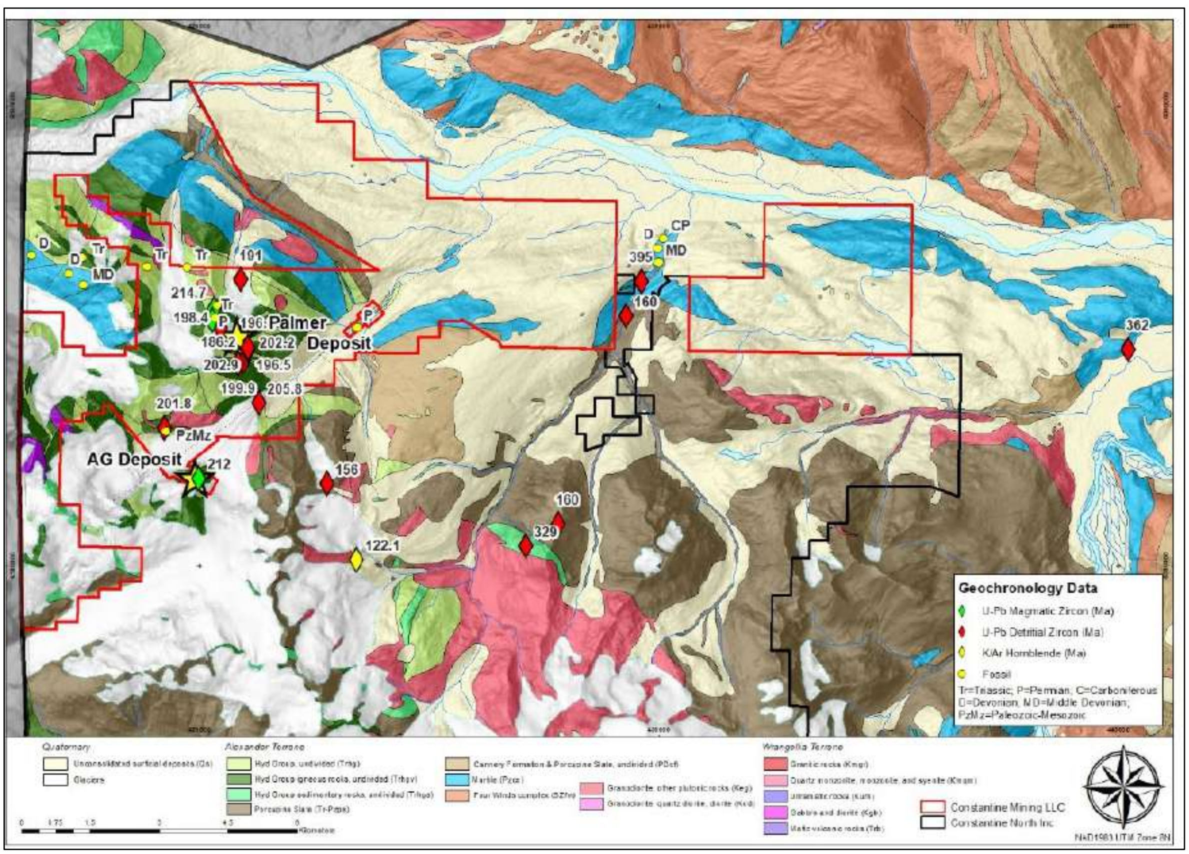
Several different periods of satellite imagery from 2010, 2013, and 2020 have been used on the Project that provide >1 m resolution. The latest satellite image over the property (at 50 cm resolution and dated August 20, 2023) was purchased from Apollo Mapping and processed by Image2 Map Services in 2024. In 2014, a Palmer property-wide LIDAR data survey was acquired for detailed topography, avalanche studies, slope stability analysis, and road design work and provides 2 m-interval contour data in areas where required. The LiDAR survey was completed by Quantum Spatial Inc of Anchorage, Alaska, with key survey location points provided by the DOWL HKM of Juneau, Alaska.

In 2023, Constantine purchased a DJI Matrice 350 RTK UAV (drone) with a LiDAR sensor for ongoing LiDAR and photogrammetry data collection. The LiDAR resolution is 10 cm. During the 2024 field season, the RW, HG, CAP, AG, SW, North Wall, and various other areas of interest were flown with LiDAR and photogrammetry.

9.6.7 Geochronology

Geochronologic constraints throughout the ATMB are sparse, and the most recent overview is provided by Sack et al. (2016). Windy Craggy and Green's Creek are dominated by sedimentary host rocks and/or mafic volcanic rocks, which make constraining the timing of mineralization more challenging and less precise. Felsic igneous rocks are ideal candidates for acquiring high-precision uranium-lead dates, but they are rare in the Green's Creek stratigraphy and absent from the Windy Craggy stratigraphy. At Green's Creek, a rhyolite dome in the stratigraphic hangingwall to the deposit yielded a uranium-lead zircon age of 226.86 ± 0.24 mega annum (Ma) (Sack et al., 2011), and gabbro's intruding Hyd argillite yielded a uranium-lead zircon age of 219 ± 8 Ma. Windy Craggy is interpreted to be Norian age based on conodont fossils (Peter and Scott, 1997).

The majority of geochronologic constraints on the Palmer property are from conodont fossils (Green et al., 2003) and detrital zircons (Karl et al., 2020). The timing of mineralization at the RW Zone of the Palmer Deposit is constrained by one uranium-lead igneous zircon date of 213 ± 5 Ma from the hydrothermally altered RW rhyolite (Green et al., 2003). The most recent geochronologic results from detrital zircons have provided key evidence to understand the stratigraphic location of specific sedimentary packages in the region and the constraints on the tectonic setting and timing of mineralization (Karl et al., 2020). Figure 9-6 shows the regional property geology map with geochronology data.



Source: Constantine, 2025

Figure 9-6: Regional Property Geology Map with Geochronology Data

9.6.8 Research Studies

Constantine has supported a number of research studies on the Palmer Project, including:

- Nathan Steeves (2013) completed MSc. Thesis on the Glacier Creek prospect (now Palmer Deposit) titled, "Mineralization and Alteration of the Late Triassic Glacier Creek Cu-Zn VMS deposit. Palmer Project, Alexander Terrane, Southeast Alaska." The study describes the mineralization and hydrothermal alteration of the Palmer Deposit massive sulfide lenses and surrounding host rock using core logging, mapping, petrography, geochemistry, sulfur (S) isotopes, electron microprobe, scanning electron microscopy, and short wavelength infrared spectroscopy (SWIR) and compared observations from these analytical methods to current knowledge of VMS deposits withing the metallogeny of the ATMB.
- Logan Miller (2015) completed a Bachelor of Arts Thesis titled, "Stratigraphy, structure, and volcanic rock geochemistry in the Little Jarvis Area of the Palmer Property, Southeast Alaska. Unpublished Senior Thesis, Middlebury College, Middlebury, VT." The thesis aimed to explore several topics, including delineation of lithologic units across the Little Jarvis Fault, assess the deformation adjacent to the Little Jarvis Fault zone, and determine whole-rock lithogeochemical signatures of the rock units in the local area.
- Fred Transburg (2020) completed a research project through the University of Alaska Anchorage in May 2020. The goal of the research project was to use petrography, hyperspectral imaging, and electron microprobe analysis (EPMA) to describe the white mica chemistry of the hydrothermally altered basaltic to rhyolitic rocks in the footwall and hangingwall of the AG Deposit and to determine if white mica chemistry can be used as an exploration vector. Transburg presented the results of his research at the Alaska Miner's Association (AMA) conference in Anchorage in November 2020.
- Kei Quinn (2024) completed an MSc. Thesis on the AG Deposit titled, "Geology, Lithogeochemistry, Age and Genesis of the Zn-Pb-Cu-Ag-(Au)-Barite AG Volcanogenic Massive Sulfide (VMS) Deposit, Haines, Alaska."

9.7 Significant Results and Interpretation

Sufficient exploration and geophysics have been completed to confirm the presence of the known mineralization and will require addition drilling to continue to advance the known mineral resources. The work to-date has also provided additional exploration targets, which will require further fieldwork, including detailed geological mapping and prospecting, UAV LiDAR/photogrammetry and UAV geophysics, borehole geophysics, and drilling to test the potential. There is no certainty that further exploration will result in increased mineral resources.

10 Drilling

10.1 Type and Extent

10.1.1 Historical Drilling

A description of all historical drilling on the Project is contained in Section 6.1 of this report. In summary, 35 surface diamond drillholes were completed on the Project by previous owners prior to 2006, for a total of 7,554 m. Drilling during these years was targeted around the Glacier Creek prospect area (now known as the Palmer Deposit), as well as the nearby CAP and MHC prospects.

A summary of the key drilling work conducted by previous owners is summarized below:

- **1987 to 1989:** Newmont Exploration, four drillholes targeting the CAP and Glacier Creek prospects
- **1989:** Granges Exploration Inc., four drillholes targeting the MHC prospect
- **1979 to 1980:** Anaconda, three drillholes targeting the Glacier Creek prospect area Upper Main and Lower Main Zones
- **1983 to 1985:** Bear Creek Mining Company (a division of Kennecott), seven drillholes targeting the MHC prospect
- **1993 to 1997:** Kennecott, three drillholes targeting the Glacier Creek Upper Main Zone, Little Jarvis, and EM-37 prospects
- **1998 to 1999:** Rubicon, 14 drillholes targeting the Glacier Creek prospect area Lower and Upper Main Zones, the 737 prospect, the CAP prospect, the Little Jarvis prospect, and MHC prospect. In 1999, Rubicon discovered the RW Zone.

10.1.2 Constantine Drilling (2006 to 2024)

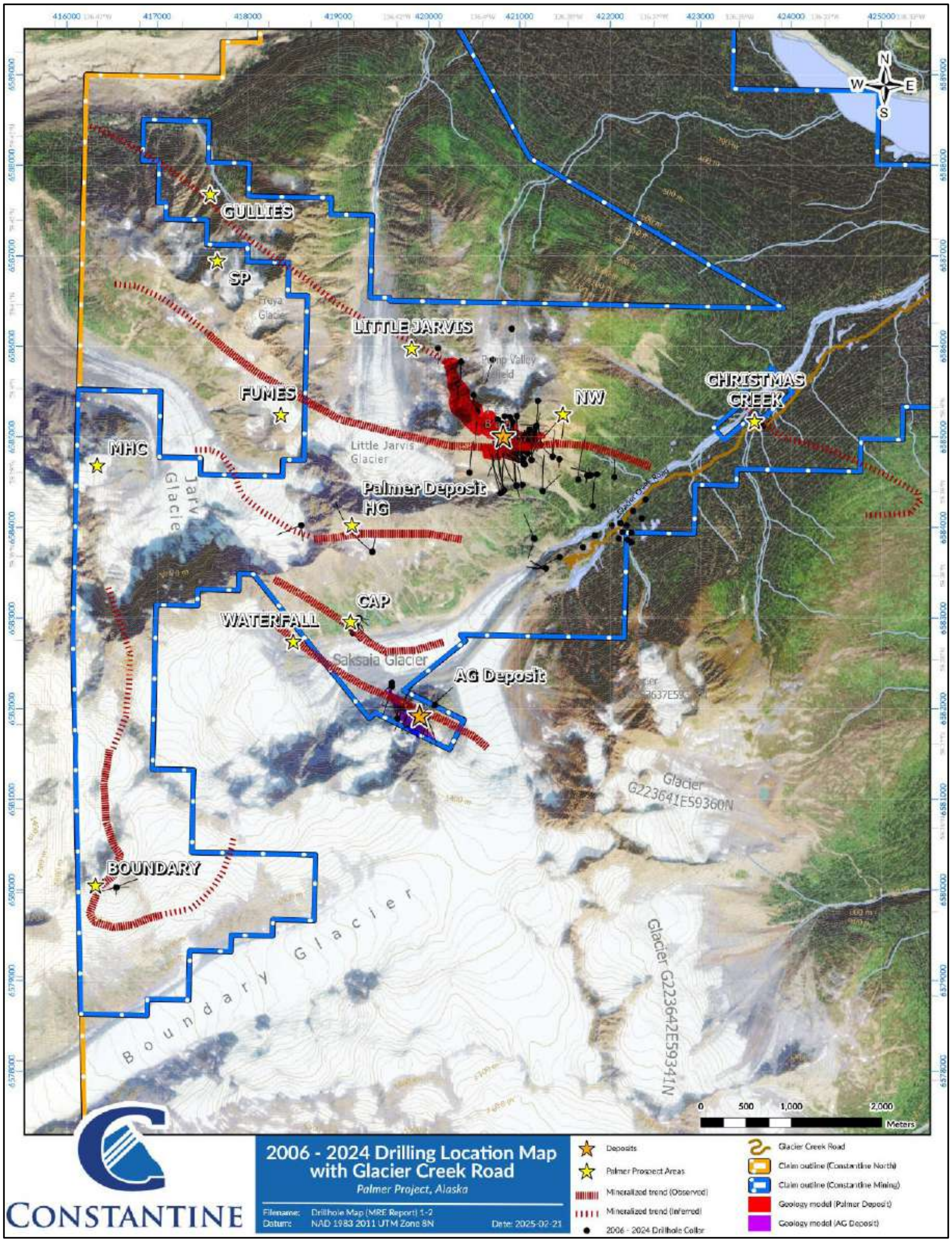
Constantine Metals was formed in 2006 with the primary purpose of exploring the Palmer property. Between 2006 and 2024, 227 diamond drillholes (86,092 m) were completed by Constantine I and its option and joint venture partner, Dowa. Table 10-1 provides a summary of the total drilling completed by Constantine, and Figure 10-1 provides a visual presentation of the drilling. Drilling by Constantine from 2006 to 2024 was focused on several objectives, including the development of the Palmer and AG Deposit resources as well as the exploration of various nearby VMS prospect areas. Table 10-1 includes prospects/showings of interest by year.

Table 10-1: Summary of all Drilling Completed by Constantine at the Palmer Project

<table>
<tr><th>Year</th><th>Number of Holes Drilled</th><th>Total Length (m)</th><th>Owner</th><th>Showings/Zones Drilled</th></tr>
<tr><td>2006</td><td>3</td><td>830</td><td rowspan="5">Constantine</td><td>Glacier Creek (RW)</td></tr>
<tr><td>2007</td><td>7</td><td>2,315</td><td>Glacier Creek (RW and SW) and CAP</td></tr>
<tr><td>2008</td><td>12</td><td>4,241</td><td>Glacier Creek prospect (SW)</td></tr>
<tr><td>2009</td><td>10</td><td>4,562</td><td rowspan="2">Glacier Creek prospect (SW and RW)</td></tr>
<tr><td>2010</td><td>10</td><td>4,018</td></tr>
<tr><td>2013</td><td>10</td><td>3,745</td><td rowspan="4">Constantine

and option partner Dowa</td><td rowspan="2">Palmer Deposit (SW and RW)</td></tr>
<tr><td>2014</td><td>17</td><td>9,796</td></tr>
<tr><td>2015</td><td>9</td><td>7,736</td><td>Palmer Deposit (SW)</td></tr>
<tr><td>2016</td><td>7</td><td>1,967</td><td>Palmer Deposit (SW), CAP, and Pump Valley</td></tr>
<tr><td>2017</td><td>32</td><td>10,631</td><td rowspan="7">Constantine and joint venture partner Dowa Alaska</td><td>Palmer Deposit (SW), AG Deposit (discovery), CAP</td></tr>
<tr><td>2018</td><td>30</td><td>10,094</td><td>Palmer Deposit (SW), AG Deposit (discovery), Boundary prospect</td></tr>
<tr><td>2019</td><td>8</td><td>3,165</td><td>RW West Zone, AG Deposit (Nunatak), Jarvis Glacier EM target (west of HG)</td></tr>
<tr><td>2021</td><td>8</td><td>2,788</td><td>Palmer Deposit (SW)</td></tr>
<tr><td>2022</td><td>9</td><td>3,546</td><td>Palmer Deposit (Kudo Offset and Kudo Wedge), HG-Jasper Mountain, Phase II plan of operations portal and exploration drift</td></tr>
<tr><td>2023</td><td>39</td><td>10,622</td><td>Palmer Deposit (SW), Christmas Creek</td></tr>
<tr><td>2024</td><td>16</td><td>6,035.90</td><td>Palmer Deposit (SW), North Wall</td></tr>
<tr><td>Total</td><td>227*</td><td>86,092</td><td></td><td></td></tr>
</table>

Source: Modified from Constantine, 2025
*Does not include restarted/reentered/wedge drillholes



Source: Constantine, 2025

Figure 10-1: Overview of All Drilling Completed by Constantine at the Palmer Project

Drilling for Constantine was completed by multiple contractors, including Connors Drilling (2006 to 2008 and 2013), Peak Exploration (2009), Kluane Drilling (2010), First Drilling (2014), Hy-Tech Drilling (2015 to 2019), Tuuq Drilling (2021), and More Core Diamond Drilling Services (2022 to 2024). The number of diamond drill rigs on-site per year varied and was dependent upon Constantine's objectives for each season. The majority of drilling on the Project is helicopter-supported, and drill crews made use of the Glacier Creek laydown facilities provided by Constantine for all drill storage and slinging operations while maintaining residence while on-site at site camps.

All holes were diamond drilled with core ranging from NQ (NWT casing) to HQ (HWT casing) depending upon drill objectives and rock competence. Figure 10-2 shows an example of the heli-portable drill rig setup.

Source: Constantine, 2025

Figure 10-2: Example of a Drill Rig Setup from the 2024 Drill Campaign at the Palmer Project

10.2 Procedures

10.2.1 Historical Drilling

No information is available detailing drilling, surveying, logging, or sampling procedures for work completed by previous owners prior to 2006.

10.2.2 Constantine Drilling (2006 to 2024)

Limited information is available detailing drilling, surveying, logging, or sampling procedures for work completed by Constantine from 2006 to 2008. Drilling during this period was focused on the CAP prospect (not included in the current mineral resource) and the RW Deposit, with limited drilling on the SW Zone. The main bulk of the drilling was completed from 2008 to 2024 using the following drill program procedures and specifications.

Drill Contractors

All drilling was completed using diamond drilling contractors who are independent of Constantine. The use of external contractors is considered appropriate and has changed over time as each drilling season has been placed under tender for exploration. In the historical holes not all the drilling contractors have been recorded, but this is not considered to be material; where recorded, these included:

- Interstate drilling (used by Kennecott and Bear Mining)
- Nana Coate (used by Granges)
- JT Thomas (used by Rubicon)

Drilling by Constantine has been completed by seven different drilling contractors. The names of the contractors and drilling periods used are detailed below:

- Connors US: used between 2006 and 2008 and again in 2013
- Peak Exploration: used in 2009
- Kluane Drilling: used in 2010
- First Drill: used in 2014
- Hy-Tech: used between 2014 and 2019
- Tuuq: used in 2021
- More Core: used between 2022 and 2024

Collar Surveying

Given the extreme topographical challenges in drilling the deposit, drilling is completed from several established drilling platforms that have been constructed by Constantine on the mountain side by experienced ground staff. Access to drillholes and pads is gained via helicopter. High-accuracy positional data was acquired for all borehole collars between 2006 and 2024 in NAD83. GPS equipment was calibrated to a survey monument 14-03. The reference position of the base station at monument 14-03 was defined in 2014 by Artisan Surveying Group using NAD83 (NGS 2012 EPOCH 2010) and NAVD88 (GEOID 12A ALASKA).

Rig Alignment and Downhole Survey Tools

The Reflex TN-14 Gyrocompass was utilized to determine borehole azimuth and dip during drill rig alignment. Use of the TN-14 (a fiber optic system independent from magnetics and satellites) is optimal on the Palmer property, where GPS reliability can be difficult to achieve and where rocks are often strongly magnetic.

During active drilling, the drillholes were surveyed at 45 m intervals by drill crews using the Sprint-IQ tool as a fast and affordable means of monitoring real-time drillhole deviation. Use of the Sprint-IQ tool for downhole surveys is optimal on the Palmer property because it is unaffected by magnetics, instead orienting itself based on the rotation of the earth. The Reflex ROTA-LOCK Overshot system was used with the Sprint-IQ tool to reduce survey time and drilling downtime.

On drillhole completion, a final downhole survey was performed using the Sprint-IQ OMNI42 tool. All-aspect orientation data is collected every 50 m in and out during the continuous survey and averaged at each survey depth station to produce final survey results.

Core Transportation

Drill core was collected at the drill rig and affixed with sling gear for transportation via helicopter at the end of a shift. Each morning, the core from each drill was slung down to either the laydown or the camp helipad and received by Constantine geologists. Core was then trucked to the core shack and unloaded onto core racks to undergo geotechnical and geological logging (Figure 10-3).

Source: Constantine, 2025

Figure 10-3: Example of Core Ground Transportation Laydown Area to Core Shack

Units

All drillholes were drilled in feet. Drillholes were surveyed in meters. Drill crews placed wooden run blocks at the end of the core itself each time the core barrel was pulled, recording the footage drilled for each run, which are generally 10 ft rod lengths. Geologists/geotechnicians converted all run blocks to meters while verifying their accuracy. Each wooden core box was labelled with its starting meterage following conversion from feet to meters.

When completing logging and sampling all rock quality designation (RQD), logging, sampling, and magnetic susceptibility data were collected in meters. Drillhole log data were collected in meters and converted back to feet to maintain both metric and imperial measurements in the drillhole database tables.

Core Recovery

Core recoveries are typically calculated once the trays are delivered back to the core facility/yard and recorded in the geological logs. The recording of recoveries is the responsibility of the geotechnicians. Core recoveries are typically greater than 91%.

Core Photographs

Prior to cutting, all core (both dry and wet) is routinely photographed by the geologists. The color and texture of the rock are best seen when the core is wet, but the fracture patterns (which are important to the geotechnical study) are best viewed when the core is dry.

High-resolution photographs were taken using a camera at an 18 mm focal length mounted in a portable photograph station. A fixed camera mount and remote shutter were utilized to capture photographs at the same focal distance and with consistent light. Care was taken to place core in the center of the camera's field of view to minimize lens distortion around the perimeter of the photographs.

The project location, drillhole ID, tray number, depths start/end of tray, and indication whether the core was dry or wet were written on white board and placed at the top of the box. Core photographs were cropped to remove backdrop. Detailed photographs of all whole rock characterization samples, significant textures, geologic structures, mineralization, and/or alteration were also taken at the discretion of the core logging geologist.

Geotechnical Logging

Detailed geotechnical data were collected over the length of some drillholes, selected in certain years to test the geotechnical characteristics and hydrogeology of rock within and surrounding the Palmer Deposit. Q-system (RQD, strength, weathering, joint number (Jn), joint roughness (Jr), joint alteration (Ja), open fracture quantity, total core recovery (TCR), and point load test) data were collected and recorded by core logging geologists and geotechnicians.

Geological Logging

Detailed geological logs were created for all drill core and reviewed by senior geologists for accuracy and completeness. Core logging geologists recorded observations directly on portable field computers equipped with Geospark Core logging software, which consists of a heavily customized set of Microsoft Access data entry forms acting as a frontend for a relational Access database. Graphic geological logs were produced from the drillhole database using the Strater 4 software program. Geological logging captured the following geological features: lithology, alteration, veining, mineralization, and major structure.

Specific Gravity

Bulk specific gravity was measured by trained Constantine personnel performing the industry standard weight-in-water/weight-in-air (Figure 10-4). Representative sections of core (generally consisting of one to five 10- to 30 cm-long pieces) were measured and averaged for most assay sample intervals within mineralized intervals and adjacent wall rock. Samples containing significant void space (such as those from the RW Oxide Zone) were first coated in paraffin wax to ensure more accurate and representative density measurements.

Source: SRK, 2024

Figure 10-4: Specific Gravity Measurement Setup at Palmer

Magnetic Susceptibility

Magnetic susceptibility data was collected on drill core at the Palmer Project. Magnetic susceptibility data provides an objective and quantitative measure of the degree of magnetic minerals within a rock, which may be representative of variations in alteration, mineralization, and metamorphism between lithologies of interest. Magnetic susceptibility data was collected at 1 m intervals for all drill core using a Terraplus KT-10 magnetic susceptibility detection instrument. Care is taken to record data on whole-core samples away from metallic objects that may cause interference.

Sampling

Drill core samples were selected by core logging geologists based on apparent mineralization, alteration, and lithological observations. All samples were analyzed by four-acid digestion multi-element inductively coupled plasma (ICP). Some samples were analyzed by gold fire assay, and select samples were analyzed for barium using x-ray fluorescence (XRF) or with a complete lithogeochemical characterization package, including whole rock by XRF. This method is used to obtain major oxide XRF data plus additional elements (i.e., rare earths, volatiles, and some trace elements, such as mercury (Hg) and titanium) and is particularly useful for identifying and differentiating basaltic flows.

Samples were prepared by properly trained and supervised Constantine employees at a secure on-site facility. Samples of drill core were cut by a geologist or geotechnician using a diamond blade rock saw, with one half of the cut core placed in individually labeled and sealed polyurethane bags and the other half of the core placed back into the original core box for permanent storage. Sample lengths typically vary from a minimum 0.2 m interval to a maximum 1.5 m interval.

Barcoded sample tags (provided each year by ALS Global) were placed at the start of a delineated sample by the logging geologist in the core shack. The top portion of these tags were collected from the core box by the core cutter prior to cutting the sample, and the associated sample number was drawn onto a plastic sample bag with permanent marker. The bottom portion of the sample tags remain in the sample box stored on-site to correlate the collected sample with the physical core. Both the sample tag and the half-core cut sample were placed into the labeled sample bag and secured with a plastic zip-tie (Figure 10-5). The cut samples were organized by batch number in preparation for shipping.

Samples were then placed in security-sealed, woven plastic bags and driven by Constantine personnel to Manitoulin Transport in Whitehorse, Yukon. Samples were then trucked by Manitoulin to the ALS Geochemistry facility in North Vancouver, British Columbia, for sample preparation and analysis.

Source: SRK, 2024
Note: The left image shows the core saw, and the right image shows the sample batch layout.

Figure 10-5: Sample Preparation at Palmer

Quality Assurance/Quality Control Insertions

Logging geologists are responsible for the bulk of quality control insertions. Quality control insertions are inserted on-site with assay/sampling following the protocols below:

- Barcode sample ID tickets are provided by ALS Global. Sample IDs for quality assurance/ quality control (QA/QC) materials follow the same sequence as regular sample IDs. Samples must be laid out and QA/QC materials inserted at their correct positions before putting everything together in a batch.
- Certified reference materials (CRM) are sourced from CDN Resource Laboratories Ltd. of Langley, British Columbia.
- Standards (CRMs) should be inserted into routine sample batches at an insertion rate of 5% every 20, 40, 60, 80, and 100 samples. When a standard is to be inserted, select a standard within the grade-range of the expected values in the routine samples.
- Blanks (both coarse and fine) are similarly inserted on-site, using material collected and tested to be blank. Samples are inserted every 10, 30, 50, 70, and 90 samples.
- Duplicates are inserted into routine analytical batches at a rate of 3%, depending on the size of the batch, with insertion at every 33, 66, and 99 samples. In the case of drill core, duplicates should be one-quarter of the drill core.

Core Storage

All core is catalogued and stored at the Porcupine Creek exploration camp, Big Nugget mine site, Alaska. Mineralized intervals contained with the current resource are housed in metal racks surrounding the core shack, while all other historic core has been arranged by prospect and year and placed on a flat area of high ground uphill of the core shack facilities (Figure 10-6). The QP notes that while efforts are made to minimize the potential risk to the core by covering the stacked boxes and by placing them on higher ground to avoid flooding risk, the core boxes are still exposed to the elements, and a level of degradation is expected. The extra effort taken to provide covered racks for the key mineralized intervals is also noted. As the Project develops, more core storage will be required, but it is the QP's opinion that the flat ground surrounding the new camp facilities should provide space for the next stage of core storage once the current areas are filled.

Source: Constantine, 2024

Figure 10-6: Core Storage on the Palmer Project

10.3 Interpretation and Relevant Results

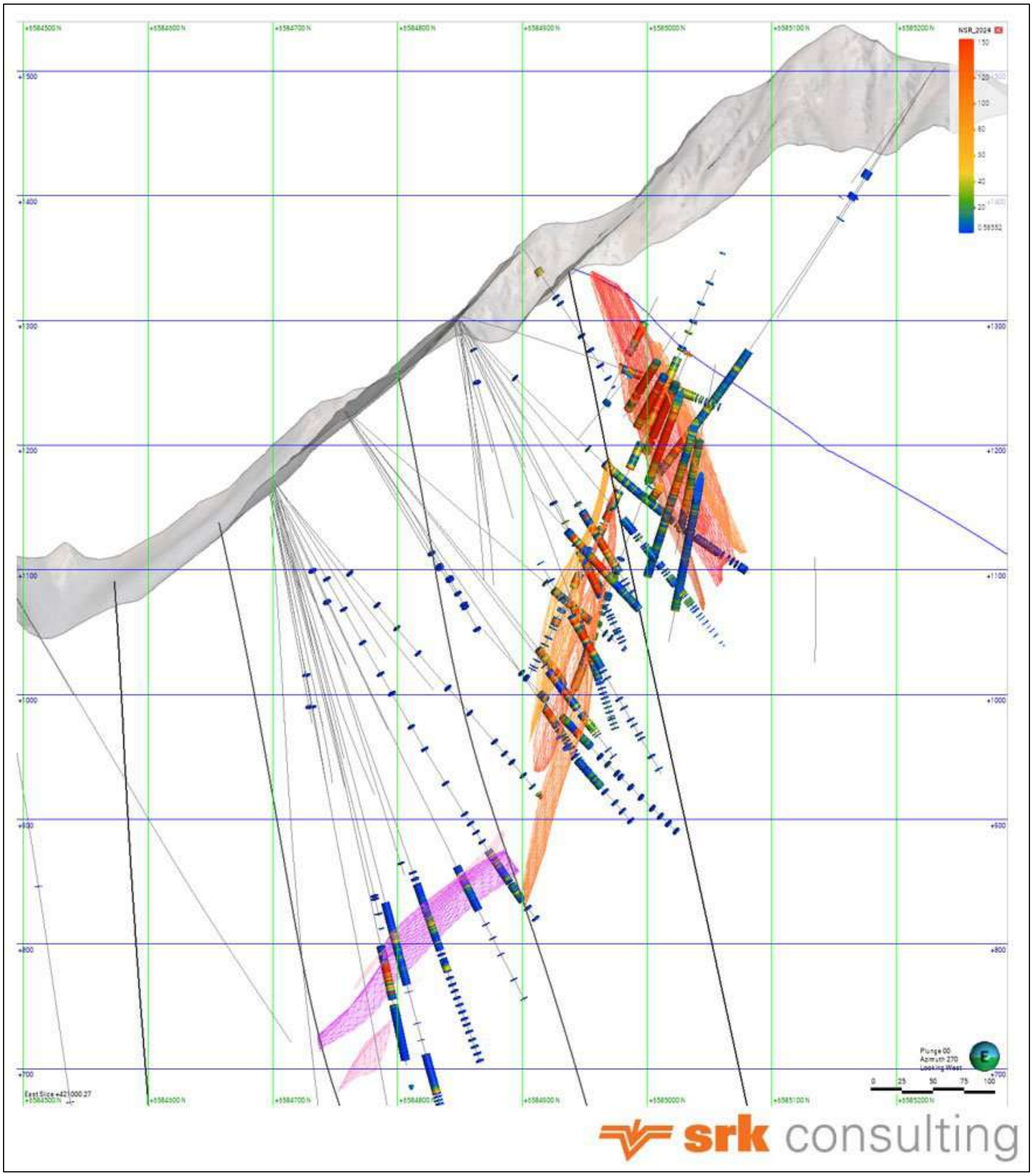
It is the QP's opinion that diamond drilling is considered the most appropriate sampling method for the Project, and this technique has been applied by all operators since early exploration. All of the drilling and sampling has been completed from surface, with drillholes designed to provide reasonable intersections to the interpreted dip and strike of the mineralization.

Given the extreme topography in the area, all drilling is completed from wooden platforms constructed on the mountainside and supported by helicopters to transport supplies and the core. Drilling has therefore not been completed on a regular grid pattern but from fans from each of the pads. Intersection angles are designed to be appropriate for the mineralization orientations, but due to borehole deviations, the intersection angles are not considered to be perpendicular to the mineralization; however, Constantine has made efforts to obtain the best intersection angles where possible. Drilling to depth on Zone 3 has some limitations using the current established platforms.

In the QP's opinion, Constantine's methodology and procedures currently meet or exceed typical industry standards. During the initial stages of the Project, there is some limited information related to the historical drilling, but in the QP's opinion, these are not material to the current estimates based on the spatial location.

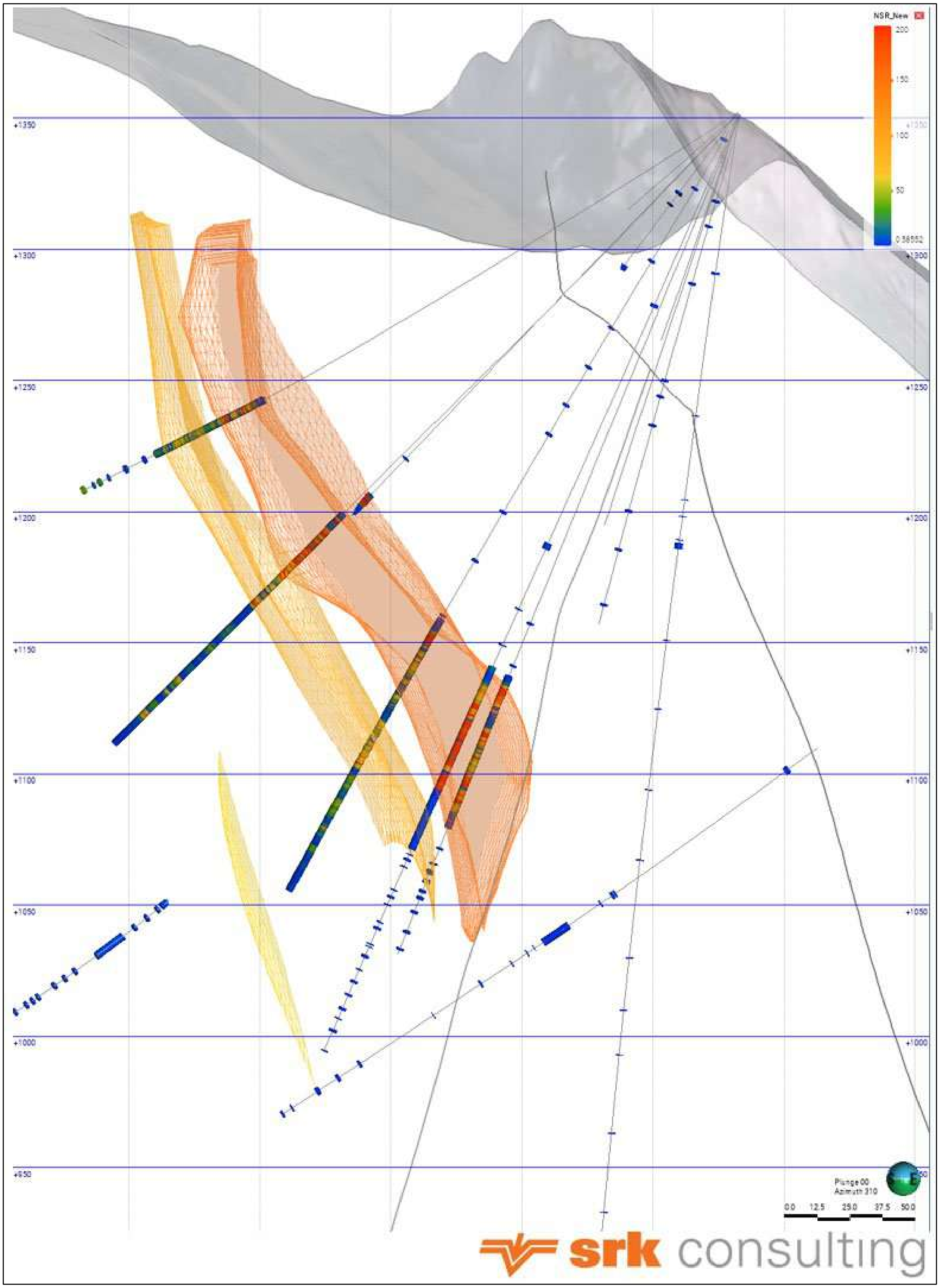
Overall, it is the QP's opinion that the drilling conducted on the property has produced a reliable geological and geochemical database.

The results of the drilling have enabled SRK to interpret the geological sequence consisting of several VMS lenses across three zones (SW, RW, and AG Zones). The drilling intersections are considered reasonable to provide confidence to generate the geological and mineralization models used in this estimate. Where limited confidence is known, the QP has limited the extent of the mineralization models appropriately. Figure 10-7 shows an example of the intersections for the SW Zones, and Figure 10-8 shows a cross-section through the AG Deposit; however, SRK notes that in the western edges of the AG Deposit, there is limited drilling within the Nunatak fault block, and confirming mineralization continuity is more difficult without the use of surface mapping.



Source: SRK, 2025

Figure 10-7: Cross-Section Showing SW Drilling vs. Mineralization Interpretation



Source: SRK, 2025

Figure 10-8: Cross-Section Showing AG Deposit Drilling vs. Mineralization Interpretation

11 Sample Preparation, Analysis, and Security

Since 2006, all rock, soil, and drill core samples have been collected and prepared by properly trained and supervised Constantine employees at a secure on-site facility. Sample collection and security has been undertaken in accordance with currently acceptable methods and standards in use in the mining exploration industry. The sampling methodology and approach applied by Constantine are deemed by the QP to be appropriate for the styles of mineralization exhibited on the Project.

11.1 Sample Collection and Security

11.1.1 Soil Geochemical Sample Collection

Any geochemical soil samples were collected from the B horizon (or C horizon in underdeveloped soil if on talus slopes) at an average depth of 10 to 15 cm. A shovel or mattock was used to dig a hole at each station, and the soil was placed in a standard kraft paper soil sample bag that was labeled with a sample number.

11.1.2 Rock Geochemical Sample Collection

Any surface rock geochemical sampling included grab samples of alteration and mineralization in outcrop and float and randomly spaced grab samples of outcrop for alteration and lithogeochemical discrimination studies. Rock chip sampling was carried out along outcrops of prospective rocks for geochemical characterization.

11.1.3 Drill Core Sample Collection

Drill core samples were selected by core logging geologists based on mineralization, alteration, and lithology observations. All sample analyses were selected by the core logger based on the content and purpose of the selected sample. Analyses available for selection were four-acid digestion multi-element ICP, gold fire assay, and a complete lithogeochemical characterization package, including whole rock by XRF. Samples through significant mineralization were also analyzed for barium by XRF.

Samples were prepared by trained and supervised Constantine employees at a secure on-site facility. Samples of drill core were cut by a diamond blade rock saw, with one half of the core placed in individually labeled and sealed polyurethane bags and the other half placed in the original core box for permanent storage. Sample lengths typically vary from a minimum 0.3 m interval to a maximum 2.0 m interval, with an average 1.0 to 1.5 m sample length. Samples were placed in sealed woven plastic bags and driven by Constantine personnel to Manitoulin Transport in Whitehorse, Yukon, Canada. Both drill core and rock samples were trucked by Manitoulin to the ALS Geochemistry facility in either Kamloops or North Vancouver, British Columbia, Canada (depending on the year), where they were prepared and analyzed.

Sample collection and security were undertaken in accordance with currently acceptable methods and standards in use in the mining exploration industry. The sampling methodology and approach applied by Constantine are deemed by the QP to be appropriate for the styles of mineralization exhibited on the Project.

11.2 Sample Preparation and Analysis

Between 2006 and the current 2024 season, 17,098 drill core samples (including 769 certified standards, 799 blanks, and 436 duplicates) were submitted for analysis by Constantine. Of these 17,098 samples, 4,165 were submitted since the last Technical Report (2019 to 2024), which included 205 certified standards, 214 blanks, and 117 duplicates. All drill core samples were prepared and analyzed by ALS Minerals Canada Ltd. (International Organization for Standardization (ISO) 9001) in Vancouver, British Columbia, which is an independent laboratory of the issuer. ALS Geochemistry meets all requirements of International Standards ISO/International Electrotechnical Commission (IEC) 17025:2017 and ISO 9001:2015. ALS Global operates according to the guidelines set out in ISO/IEC Guide 25.

Between 2006 and the current 2024 season, 1,811 geochemical rock, soil, and chip samples were taken at the surface from around the Palmer Project property. Of these 1,811 samples, 159 rock samples were taken since the last Technical Report. All rock samples were prepared and analyzed by ALS Minerals Canada Ltd.

For samples not being analyzed by metallic screening, the raw samples were crushed in an oscillating steel jaw crusher (>70% of the sample passing through a 6 mm screen), followed by a riffle split of 250 g using a Boyd crusher/rotary splitter combination, then pulverized in a chrome steel ring mill (>85% of the sample passing through a 75-µm screen) (ALS preparation codes CRU- 21q, PUL-31, SPL-22Y, and WEI-21).

For samples analyzed by metallic screening, the raw samples were crushed in an oscillating steel jaw crusher (>70% of the sample passing through a 2 mm screen), followed by a riffle split of 1,000 g using a Boyd rotary splitter, then pulverized in a chrome steel ring mill (>85% of the sample passing through a 75-µm screen) (ALS preparation code PREP-31B).

Gold analysis was performed on a 30-g sub-sample using ALS Method Au-AA23: fire assay fusion with atomic absorption spectroscopy (AAS) finish.

Metallic screening (ALS Method ME-SCR24) was performed for analysis of samples with coarse-grained gold and silver mineralization. The method utilizes 1,000 g of prepared pulp material screened through a 100-µm stainless steel mesh to separate the oversize fractions. Any material larger than 100 µm is analyzed by fire assay fusion with gravimetric finish and reported as the positive fraction result. Material that is smaller than 100 µm is then homogenized, and two sub-samples are analyzed using fire assay with gravimetric finish. The average of the two sub-samples' gravimetric results is reported as the negative fraction result. Results of all three analyses are used to calculate the metal content across the positive and negative fractions. No metallic screening analyses were performed since the previous Technical Report (2018).

Four-acid digestion ICP (ALS Method ME-ICP61) was performed for analysis of 33 elements: silver, aluminum, arsenic (As), barium, beryllium (Be), bismuth (Bi), calcium, cadmium (Cd), cobalt, chromium, copper, iron, gallium (Ga), potassium, lanthanum, magnesium, manganese, molybdenum (Mo), sodium, nickel (Ni), phosphorus, lead, sulfur, antimony (Sb), scandium, strontium (Sr), thorium, titanium, thallium, uranium, vanadium, tungsten, and zinc. The method utilizes ICP-atomic emission spectrometry (AES) conducted on 0.25 g of prepared sample digested in perchloric, nitric, hydrofluoric, and hydrochloric acids. For samples in which copper, zinc, lead, or silver values exceeded the ME-ICP61 upper detection limit, ALS Method OG62 was utilized: a four-acid ICP-AES technique calibrated for ore grade mineralization. For samples in which zinc or silver exceeded the OG62 upper detection limits, zinc titration (ALS Method Zn-VOL50) or silver by fire assay and gravimetric finish (Ag-GRA21) were used, respectively.

A complete characterization package (ALS Method CCP-PKG03) that consists of several methods was performed for the analysis of 65 oxides and elements. This analytical package also includes measurement of loss-on-ignition (LOI). Individual methods consist of ALS Methods ME-XRF26, ME-MS81, ME-4ACD81, ME-MS42, and ME-IR08. ALS Method ME-XRF26 is a 13-element oxide package where the sample is prepared utilizing lithium borate fusion into a fused disc where it is then analyzed by XRF spectrometry. This method yields aluminum oxide (Al_2O), barium oxide (BaO), calcium oxide (CaO), chromium oxide (Cr_2O_3), iron oxide (Fe_2O_3), potassium oxide (K_2O), magnesium oxide (MgO), manganese oxide (MnO), sodium oxide (Na_2O), phosphorus pentoxide (P_2O_5), sulfur trioxide (SO_3), silicon dioxide (SiO_2), and titanium dioxide (TiO_2). The ALS Method ME-MS81 is a 31-element package that includes barium, cerium, chromium, cesium, dysprosium, erbium, europium, gallium, gadolinium, hafnium, holmium, lanthanum, lutetium, niobium, neodymium, praseodymium, rubidium, samarium, tin (Sn), strontium, tantalum, terbium, thorium, thulium, uranium, vanadium, tungsten, yttrium (Y), ytterbium, and zirconium. The method is a lithium borate fusion technique followed by acid dissolution and ICP-MS analysis. Arsenic, bismuth, mercury, indium (In), rhenium, antimony, selenium (Se), tellurium, and thallium were analyzed using the aqua regia digestion and ICP-mass spectrometry (MS) method (ALS Method ME-MS42), while carbon and sulfur were analyzed by combustion furnace (ALS Method ME-IR08). ME-4ACD81 is an identical method to the main four-acid digestion ICP method (ME-ICP61) except it yields results for only 10 elements: silver, cadmium, cobalt, copper, lithium (Li), molybdenum, nickel, lead, scandium, and zinc. This method is already built into the whole-rock characterization package in ALS Minerals' price schedule, and it is more cost-efficient to process this method despite the duplicate analyses.

The barium analysis utilized lithium borate fusion into fused discs for XRF Analyses (ALS Method ME-XRF26).

All pulps and selected coarse rejects that may merit additional analyses or are near or within the zone of mineralization were retrieved from the laboratory and stored in Constantine's storage locker in Vancouver. All historic and recent whole and split diamond drill core remain at the Porcupine Creek exploration camp, Big Nugget mine site, Alaska (Figure 11-1 and Figure 11-2). It is the QP's opinion that these methods of sample preparation and analysis are standard within the mining exploration industry and result in analyses suitable for resource estimation.

Source: Constantine, 2024

Figure 11-1: Aerial View of Big Nugget Exploration Camp Core Shack Facilities, Helipad, and Historic Core Storage

Source: Constantine, 2024

Figure 11-2: Aerial View of Big Nugget Exploration Camp Historic Core Storage

11.3 QA/QC Procedures

Quality control measures are typically 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, assaying, data management, and database integrity. Appropriate documentation of quality control measures and regular analysis of quality control data are important as a safeguard for Project data and form the basis for the quality assurance program implemented during exploration.

Analytical control measures typically involve internal and external laboratory control measures implemented to monitor the precision and accuracy of the sampling, preparation, and assaying. The measures are also important to prevent sample mix-up and to monitor the voluntary or inadvertent contamination of samples.

Quality control data for the Project includes both internal and external quality control measures. ALS Minerals Canada Ltd. implements internal laboratory measures consisting of quality control samples (blanks, CRMs, and duplicate pulps) within each batch of samples submitted for assaying. Results of the lab quality control samples were monitored, per batch, as results were returned such that problems and errors were detected prior to the inclusion of results in the Project database.

Constantine implements a robust external QA/QC program on-site, which includes the insertion of standard reference material, blank material, and field duplicates that are tracked by technical staff upon the issue of assay results.

From 2006 to 2024, 2,004 QA/QC samples were submitted to the laboratory, which included certified standards, blanks, and field duplicates. Of these 2,004 QA/QC samples, 536 samples were submitted since the last Technical Report (2019 to 2024).

All results have been recorded in an Excel document containing all QA/QC data and charts by Constantine's database manager and have been vetted by senior company technical staff.

In the QP's opinion, the current analytical quality control program developed by Constantine for the Project is mature and is overseen by appropriately qualified professional geologists. The exploration data were acquired using adequate quality control procedures that meet industry best practices for a drilling-stage exploration project, and the data are adequate for the purposes of MRE.

11.3.1 Standards

CRM control samples (standards) provide a means to monitor the precision and accuracy of the laboratory assays. Between 2006 and the current 2024 season, 769 certified standards were submitted to the laboratory. Of these 769 samples, 205 were submitted since the last Technical Report (2019 to 2024).

Ten separate professionally prepared standards have been used on the Palmer Project since 2006, most of which were obtained from CDN Resource Laboratories Ltd. of Langley, British Columbia. Since the last Technical Report (2018), there have been five standards used, all of which were from CDN Research Laboratories Ltd. Table 11-1 details the standard certified values used between 2006 and 2018, and Table 11-2 details the submissions from 2019 to 2024. Standards were selected based on having gold, silver, copper, and zinc contents within the range of Palmer mineralization. Standards were inserted routinely every 20 samples (specifically, sample numbers ending in 00, 20, 40, 60, and 80). Selection of an appropriate standard was based on the core logging geologist's interpretation of visible mineralization in the drill core.

Table 11-1: 2006 to 2018 Certified Values from Reference Materials, CDN Resource Laboratories Ltd.

Certified Standard	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)
CDN-ME-2	2.10	14.0	0.480	Not applicable	1.35
CDN-ME-14	0.100	42.3	1.221	0.495	3.10
CDN-ME-1301	0.437	26.1	0.299	0.188	0.797
CDN-ME-1414	0.284	18.2	0.219	0.105	0.732
CDN-ME-17	0.452	38.2	1.36	0.676	7.34
CDN-CM-26	0.372	2.6	0.246	Not applicable	Not applicable
LK-NIP-1	0.004	<0.2	0.016	0.0003	0.01
ORCA-1	0.001	<0.2	0.01	0.0005	0.005

Source: Constantine, 2025
Note: Gold value for CDN-ME-17 is provisional, and silver value for CDN-CM-26 is indicated and not certified.

Table 11-2: 2019 to 2024 Certified Values from Reference Materials, CDN Resource Laboratories Ltd.

Certified Standard	Au (g/t)	Ag (g/t	Cu (%)	Pb (%)	Zn (%)
CDN-ME-13	0.148	76.5	2.96	1.70	18.48
CDN-ME-14	0.100	42.3	1.221	0.495	3.10
CDN-ME-1414	0.284	18.2	0.219	0.105	0.732
CDN-ME-17	0.452	38.2	1.36	0.676	7.34
CDN-ME-1709	0.178	11.8	0.138	0.053	0.194

Source: Constantine, 2025
Note: Gold value for CDN-ME-17 is provisional.

Scatter plots for each standard marked with second and third standard deviations were generated. Analyses that exceeded the second standard deviation for the standards, as well as the warning level limit for the blanks, are considered potentially suspect, and certificates of analysis for these samples were subjected to further review and investigation.

11.3.2 Blanks

Field blanks are used to monitor contamination introduced during laboratory sample preparation, check analytical accuracy of the laboratory, and advise of sample sequencing errors. True blanks should not contain levels of any of the elements of interest higher than the detection levels of the instrument being used; however, in base metal exploration (unlike precious metal exploration), contamination generally has to be in the hundreds of parts per million (an order of magnitude higher than detection limit) before it has any meaningful impact on the integrity of database or MRE (Grieg and Giroux, 2010).

Between 2006 and the current 2024 season, 799 blank samples were submitted to the laboratory. Of these 799 samples, 214 were submitted since the last Technical Report (2019 to 2024). Four separate blank materials have been used on the Palmer Project since 2006, including unaltered post-mineralization quartz diorite intrusive rock from the CAP prospect area, a certified pulp blank (MMG sandstone), historically drilled barren intrusions, and quartz landscape rock. Since the last Technical Report (2018), only three of these blank materials have been used: CAP intrusive, MMG sandstone, and quartz landscape rock.

Field blanks were inserted every 20 samples (specifically, for sample numbers ending in 10, 30, 50, 70, and 90). Blank results prior to CAP intrusive were plotted on scatter plots marked with five times laboratory detection or third standard deviation for copper, lead, and zinc as warning levels.

11.3.3 Duplicates

Field duplicate samples are typically collected to monitor sample preparation, as well as homogeneity of the sample submitted for assaying. Duplicates were collected every 33 samples (specifically, for sample numbers ending 33, 66, and 99). Duplicates typically were made of the immediately preceding sample number (specifically, ending in 32, 65, and 98), although they were sometimes of other nearby samples when the immediately preceding sample was not appropriate or ideal for making a duplicate. Duplicates were collected by further cutting the core in quarters.

Between 2006 and the current 2024 season, 436 duplicate samples were submitted to the laboratory. Of these 436 samples, 117 were submitted since the last Technical Report (2019 to 2024). Duplicate assay values were plotted against each other to analyze results, applying a standard regression line and R2 value for reference. The coefficient of variance of the assay values for each duplicate pair was then plotted against the mean value of the pair.

11.3.4 Results

The assay results for the external quality control samples prior to 2019 have been evaluated by QPs of the following 43-101 reports:

- Pre-2010: Palmer VMS Project, Southeast Alaska, Mineral Resource estimation and Exploration update. Greig, C. J., and Giroux, G. H., 2010
- 2010 to 2014: NI 43-101 Technical Report and Updated Resource Estimate for the Palmer Exploration Project. Grey, J. N., and Cunningham-Dunlop, I. R., 2015
- 2015 to 2017: NI 43-101 Technical Report and Updated Resource Estimate for the Palmer Exploration Project. Grey, J. N., and Cunningham-Dunlop, I. R., 2018
- 2018: NI 43-101 Technical Report and Updated Resource Estimate to include the AG Deposit for the Palmer Exploration Project. Grey, J. N., and Cunningham-Dunlop, I. R., 2019

In the QPs' opinions, the analytical QA/QC program utilized by Constantine for this Project was mature and overseen by qualified geologists. Exploration data were collected using adequate quality control procedures that generally meet industry best practices for a drilling-stage exploration project, and the data are adequate for the purposes of MRE. Table 11-3 and Table 11-4 show the samples submittals for the 2006 to 2018 and 2019 to 2024 periods, respectively.

Table 11-3: 2006 to 2018 Sample Submittals

Palmer Project	2006	2007	2008	2009	2010	2013	2014	2015	2016	2017	2018
	RW	**RW, SW, CAP**	**SW**	**RW, SW**	**RW, SW**	**Palmer**	**Palmer**	**Palmer**	**Palmer, CAP, Pump Valley**	**Palmer, AG Deposit, CAP**	**Palmer, AG Deposit, Boundary**
Drillhole samples	108	419	1,142	701	752	854	1,419	791	216	2,824	2,234
Standards	No records	No records	5	38	43	46	84	44	12	158	125
Blanks	No records	No records	10	41	41	48	95	49	13	160	126
Duplicates	No records	No records	3	20	21	26	50	26	6	93	74
Total samples	**Approximately 108**	**Approximately 419**	**1,160**	**800**	**857**	**974**	**1,648**	**910**	**247**	**3,235**	**2,559**

Source: Constantine, 2025

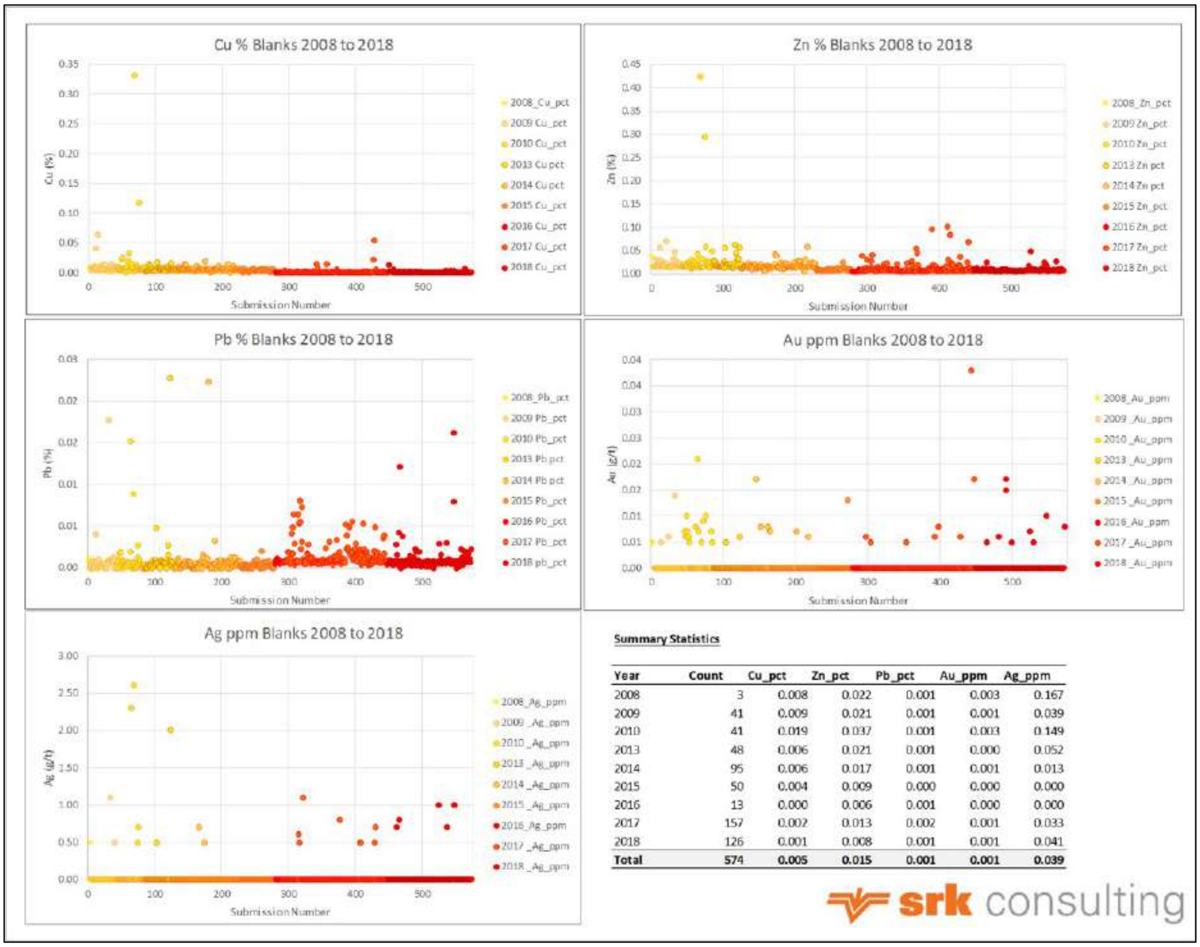
Table 11-4: 2019 to 2024 Sample Submittals

Palmer Project	2019	2020	2021	2022	2023	2024	2024
	RW/AG/HG	**No Drilling**	**Palmer**	**Palmer**	**Palmer**	**Palmer**	**Palmer Historic Infill**
Drillhole samples	321		283	262	1,592	1,171	124
Standards	18		17	14	91	65	6
Blanks	17		14	14	91	76	8
Duplicates	10		10	7	51	39	0
Total samples	**366**		**324**	**297**	**1,825**	**1,351**	**138**

Source: Constantine, 2025

Blanks

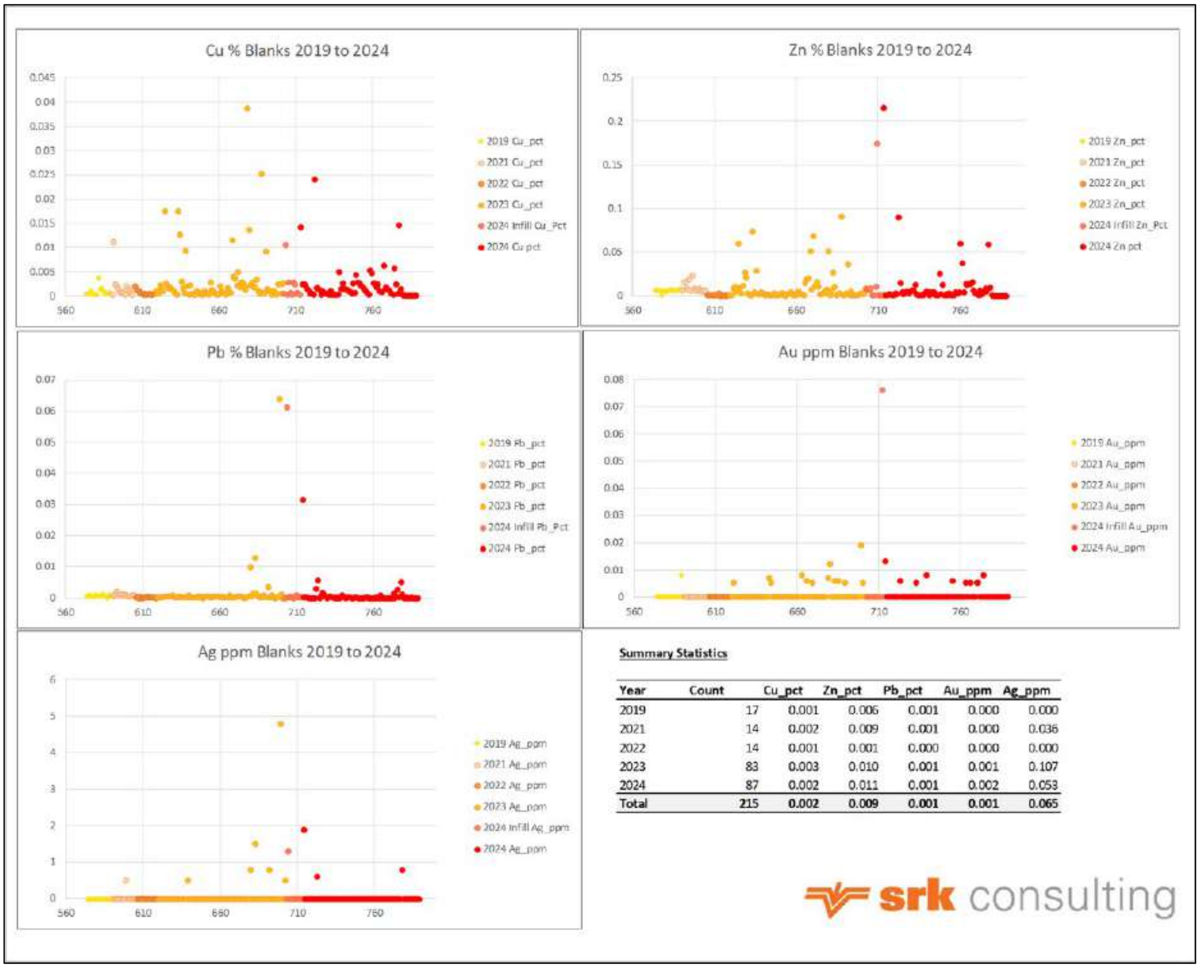
In general, analyses of blank samples consistently yielded copper, lead, zinc, silver and gold values below the warning limit. The warning limit is defined by the authors as equivalent to 10 times the detection limit of the variable. Minor occurrences of higher grades were noted in the historical data (2008-2009) in the copper, lead, zinc datasets, but overall SRK considers the historical datasets do not show any indication of a systematic contamination issues (Figure 11-3). Review of the 2019 – 2024 datasets (Figure 11-4) show one period in the later submissions of 2023 when the level of contamination displayed more spikes, but this appears to have been addressed with improved performance at the laboratory in 2024. Overall SRK considers the performance to be acceptable in terms of the blank submissions.



Year	Count	Cu_pct	Zn_pct	Pb_pct	Au_ppm	Ag_ppm
2008	3	0.008	0.022	0.001	0.003	0.167
2009	41	0.009	0.021	0.001	0.001	0.039
2010	41	0.019	0.037	0.001	0.003	0.149
2013	48	0.006	0.021	0.001	0.000	0.052
2014	95	0.006	0.017	0.001	0.001	0.013
2015	50	0.004	0.009	0.000	0.000	0.000
2016	13	0.000	0.006	0.001	0.000	0.000
2017	157	0.002	0.013	0.002	0.001	0.033
2018	126	0.001	0.008	0.001	0.001	0.041
Total	**574**	**0.005**	**0.015**	**0.001**	**0.001**	**0.039**

Source: SRK, 2025

Figure 11-3: Summary of blank submissions from 2008 to 2018.



Year	Count	Cu_pct	Zn_pct	Pb_pct	Au_ppm	Ag_ppm
2019	17	0.001	0.006	0.001	0.000	0.000
2021	14	0.002	0.009	0.001	0.000	0.036
2022	14	0.001	0.001	0.000	0.000	0.000
2023	83	0.003	0.010	0.001	0.001	0.107
2024	87	0.002	0.011	0.001	0.002	0.053
Total	**215**	**0.002**	**0.009**	**0.001**	**0.001**	**0.065**

Source: SRK, 2025

Figure 11-4: Summary of blank submissions from 2019 to 2024.

CRM's

CRM analyses that exceeded the second standard deviation for the standards, the warning level limit for blanks (five times the detection limit for gold and silver and three standard deviations above the average value for copper, lead, and zinc), or the 20% precision lines for duplicates are considered potentially suspect, and certificates of analysis for these samples were subjected to further review and investigation.

Data is organized chronologically by Constantine to determine the rate of laboratory failure over time. If two consecutive CRMs returned values that were outside the expected range by two standard deviations, the set of samples that were referenced to those CRMs was sent for reanalysis. Constantine provided SRK with excel files summarizing their investigation into the CRM's, for which SRK has undertaken an independent analysis. An example of the chart analysis used by Constantine and SRK is shown in Figure 11-5. If any one of the CRM's result was outside of the expected range by three standard deviations or more, 10 samples ahead of and behind the failed CRM were sent for re-assay. For consecutive CRMs that failed by three standard deviations, the entire batch of samples was re-assayed for the failed analyte. If the internal QA/QC performed by ALS was sufficient to provide confidence in the assay results despite external quality control indications, no reanalysis was performed. Table 11-5 and Table 11-6 show the CRM analyses for the 2006 to 2018 and 2019 to 2024 periods, respectively.

Element	2022	2023	2024	Total
Count	7	5	34	46
Assigned Cu (%)	0.1380	0.1380	0.1380	0.1380
Assay Cu (%)	0.1401	0.1368	0.1366	0.1371
Assigned Pb (%)	0.0530	0.0530	0.0530	0.0530
Assay Pb (%)	0.0539	0.0537	0.0533	0.0534
Assigned Zn (%)	0.1940	0.1940	0.1940	0.1940
Assay Zn (%)	0.1982	0.2004	0.1941	0.1956
Assigned Au (g/t)	0.1780	0.1780	0.1780	0.1780
Assay Au (g/t)	0.1820	0.1820	0.1806	0.1810
Assigned Ag (g/t)	11.8000	11.8000	11.8000	11.8000
Assay Ag (g/t)	12.9286	12.3600	12.3294	12.4239
# Assays Outside +/-2 Std Dev	1	0	4	5
# Assays Outside +/-3 Std Dev	0	0	0	0

Source: SRK, 2025

Figure 11-5: Example of CRM analysis for CDN-ME-1709

Table 11-5: 2006 to 2018 CRM Analysis

Palmer Project	**2006**	**2007**	**2008**	**2009**	**2010**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Exploration Focus	**RW**	**RW, SW, CAP**	**SW**	**RW, SW**	**RW, SW**	**Palmer**	**Palmer**	**Palmer**	**Palmer, CAP, Pump Valley**	**Palmer, AG Deposit, CAP**	**Palmer, AG Deposit, Boundary**
CRM samples submitted	**No records**		**15**	**79**	**84**	**94**	**179**	**93**	**25**	**318**	**251**
CRM analytes above two standard deviations			n/a	n/a	n/a	17	10	6	3	45	35
CRM analytes above three standard deviations			n/a	n/a	n/a	2	9	2	0	23	9
CRM BLK analytes above warning level limit			n/a	n/a	n/a	5	8	1	1	27	13
DH samples submitted for re-assay			n/a	n/a	n/a	0	0	0	0	0	167
Standards	**No records**										
CDN-ME-2			3	38	42	15	1				
CDN-ME-13											
CDN-ME-1301			1				60	38	12	51	
CDN-ME-14											
CDN-ME-1414										55	99
CDN-ME-17						9	17	6		52	26
CDN-ME-1709											
CDN-CM-26			1		1	22	6				
Blanks	**No records**										
CAP intrusive									13	160	126
Blank, previous drilled			10	41	41	48	95	49			
Duplicates	**No records**										
Field duplicate			3	20	21	26	50	26	6	93	74

Source: Constantine, 2025
n/a: Not applicable

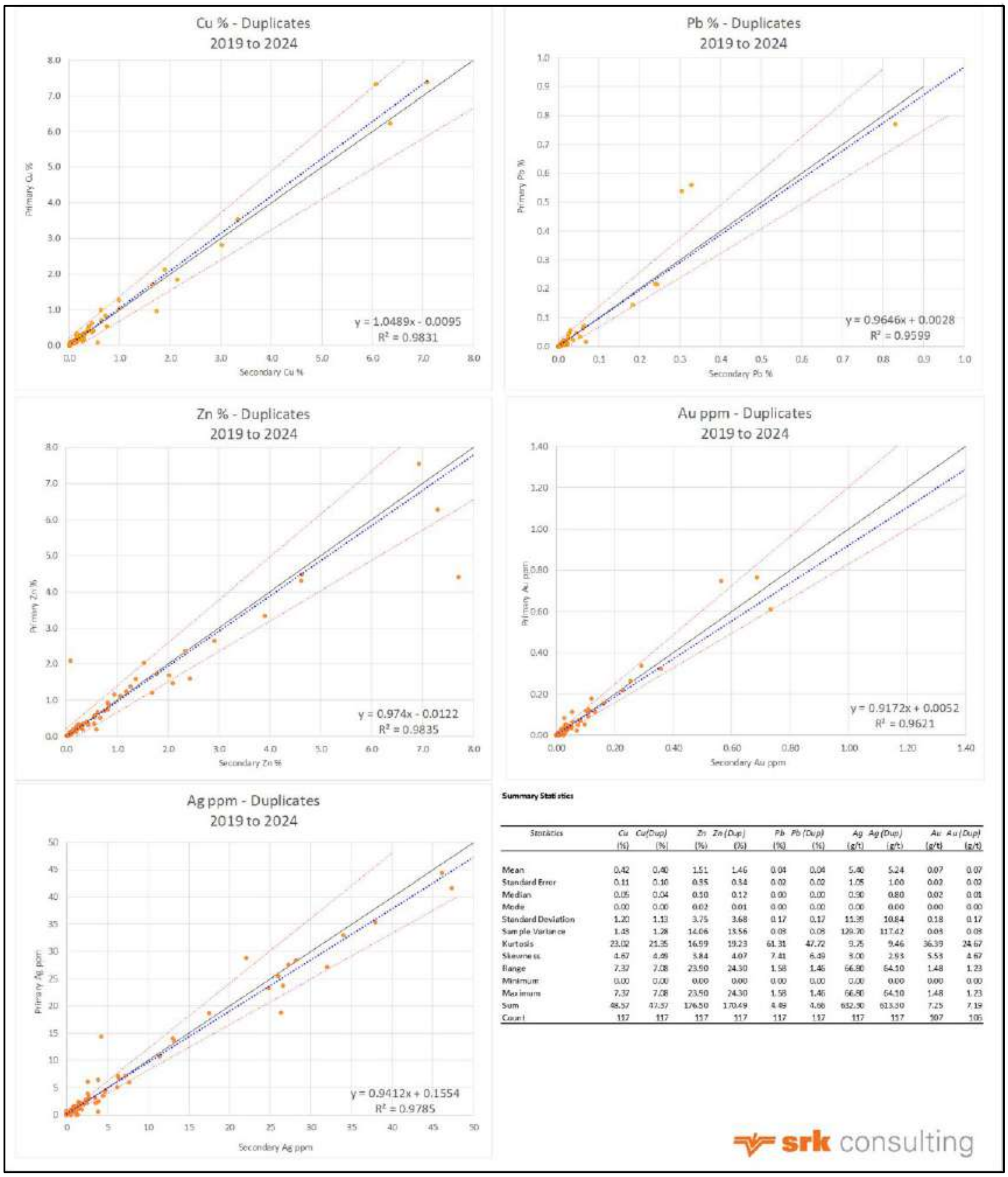
Table 11-6: 2019 to 2024 CRM Analysis

Palmer Project	2019	2020	2021	2022	2023	2024	2024
	RW/HG/AG	No Drilling	Palmer	Palmer	Palmer	Palmer	Palmer Historic Infill
CRM samples submitted	**35**		**31**	**28**	**182**	**151**	**14**
CRM analytes above two standard deviations	5		7	9	10	10	0
CRM analytes above three standard deviations	3		4	2	4	3	0
CRM BLK analytes above warning level limit	1		2	2	27	7	1
DH samples submitted for re-assay	35		0	0	0	0	0
Standards							
CDN-ME-13			1		14		
CDN-ME-1301							
CDN-ME-14			2		41	18	6
CDN-ME-1414	18		11	7			
CDN-ME-17			3		31	11	
CDN-ME-1709				7	5	36	
Blanks							
CAP intrusive, quartz diorite	17		14				
MMG certified blank sandstone				14	87		
Gardening stone, white rock					4	86	8
Duplicates							
Field duplicate	10		10	7	51	39	0

Source: Constantine, 2025

Duplicates

The results from paired field duplicate data collected from quarter core in 2019 - 2024 suggests that the original samples may have a slight low bias for all elements except copper which reported higher in the original. The bias noted are not considered to be material with the R^2 for all elements greater than 0.95. SRK considers the results indicate the laboratory reported a high level of repeatability in the assays during this period.



Summary Statistics

Statistics	Cu (%)	Cu(Dup) (%)	Zn (%)	Zn (Dup) (%)	Pb (%)	Pb (Dup) (%)	Ag (g/t)	Ag (Dup) (g/t)	Au (g/t)	Au (Dup) (g/t)
Mean	0.42	0.40	1.51	1.46	0.04	0.04	5.40	5.24	0.07	0.07
Standard Error	0.11	0.10	0.35	0.34	0.02	0.02	1.05	1.00	0.02	0.02
Median	0.05	0.04	0.10	0.12	0.00	0.00	0.90	0.80	0.02	0.01
Mode	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Standard Deviation	1.20	1.13	3.75	3.68	0.17	0.17	11.39	10.84	0.18	0.17
Sample Variance	1.43	1.28	14.06	13.56	0.03	0.03	129.70	117.42	0.03	0.03
Kurtosis	23.02	21.35	16.99	19.23	61.31	47.72	9.75	9.46	36.39	24.67
Skewness	4.67	4.49	3.84	4.07	7.41	6.49	3.00	2.93	5.53	4.67
Range	7.37	7.08	23.50	24.30	1.58	1.46	66.80	64.10	1.48	1.23
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum	7.37	7.08	23.50	24.30	1.58	1.46	66.80	64.10	1.48	1.23
Sum	48.57	47.37	176.50	170.49	4.49	4.66	632.90	613.30	7.25	7.19
Count	117	117	117	117	117	117	117	117	107	106

Source: SRK, 2025

Figure 11-6: SRK analysis of duplicates at Palmer 2019 - 2024

11.4 Opinion on Adequacy

In the QP's opinion, the sampling preparation, security, and analytical procedures used by Constantine are consistent with generally accepted industry best practices and are therefore adequate. The QA/QC program implemented by Constantine is comprehensive and is supervised by adequately qualified personnel. One improvement would be to conduct more routine external umpire laboratory checks at the end of each drilling season. SRK also recommends storing the drill core under cover to avoid excessive weathering of the core.

12 Data Verification

12.1 Procedures

12.1.1 Site Visit

The purpose of the SRK site visit was to review the exploration procedures, review and define parameters to be used in the geological modeling procedures, examine drill core, interview Project personnel, and collect relevant information for the preparation of a mineral resource model and the compilation of associated technical report sections (including data verification and MRE).

The SRK site visit also aimed at investigating the geological controls and relationships between the distribution of the massive sulfide, stockwork mineralization, and barite zones to facilitate the construction of 3D mineralization domains to constrain future grade interpolation.

SRK was provided with full access to relevant data and conducted interviews with Constantine technical staff to obtain information on past exploration work to understand procedures used to collect, record, store, and analyze historical and current exploration data. During the visit, particular attention was given to data collected by Constantine.

During the site visit, Mr. Parsons inspected the historical drilling platforms and toured the general layout of the site, and SRK staff performed the following tasks:

- Discussed general geology and the status of current site exploration activities
- Helicopter-supported Project tour involving investigation of mineralized surficial outcrop exposures in the SW, AG Deposit, RW Zone, and other exploration targets in the property boundary
- Observation of ongoing drilling activities in the field, as well as core handling, logging, and sampling activities
- Drillhole collar verification in the field
- Drill core review of a selection of key intervals, including logging verification
- Witness sampling for later comparison to assay certificates and databases verification
- Review of relevant exploration and data collection and storage procedures

12.1.2 Drill Collar Verification

All drilling at Palmer and AG has been completed from platforms placed on the mountains by Constantine’s mountain support team. Collar surveys were performed using a Trimble Geo 7x receiver, which achieved centimeter-scale survey precision. The UTM Datum is NAD83_2011_Zone8. During the 2024 site inspection, SRK visited a number of the drilling platforms (including the NSFW, Canada, pads) to validate the hole locations. Based on the review, SRK is satisfied with the level of accuracy on the collar locations. Drillholes have been capped with metal caps that are labeled with the hole number for reference (Figure 12-1).

Source: SRK, 2024

Figure 12-1: Canada Pad Drilling Platform (Left) and Capped Holes at the NSFW Pad (Right) at Palmer

12.1.3 Core Logging Verification

During his visit, Mr. Parsons reviewed nine boreholes during the site inspection: CMR17-092, CMR18-110, CMR18-130, CMR24-181, CMR24-183, CMR24-184, CMR24-189, CMR24-190C, and CMR24-194. The logged rock types were consistent with what was observed in drill core.

Mr. Parsons also reviewed the massive sulfide and sulfide mineralization zones for selected core for SW and AG Deposit mineralization (Figure 12-2), which is consistent with the logging for lithology. The massive sulfide zone was confirmed to consist dominantly of pyrite with barite in core reviewed from Zone 1, with bornite, sphalerite, and chalcopyrite noted. Mr. Parsons noted that the drilling on the AG Deposit is older, and therefore the condition of the drill core has deteriorated more than the recent drilling on SW and RW. While it was more difficult to assess rock mass properties on the core, Mr. Parsons was able to verify mineralization over the key intersections selected.

Source: SRK, 2024
Note: The left image shows SW mineralization (CMR24-194), and the right image shows AG mineralization (CMR18-130).

Figure 12-2: Core Boxes Showing Intersections

Mr. Parsons reviewed drill core with intersections of massive as well as disseminated sulfide and confirmed that the mineralization occurs over the selected intervals; he also identified a number of shorter unsampled intersections which contained sulfides within stockwork-style mineralization, which were recommended for sampling. Overall, SRK considers the logging data are adequate for the purpose of this report.

12.1.4 Sampling Verification

SRK was present and reviewed the sampling protocols for the Project from core-markup through to core cutting and bagging of samples. SRK has also been supplied with the geotechnical and core cutting standard operating procedures (SOP), which were reviewed during the site inspection. SRK reviewed the methodology used for selecting sample intervals, with the core clearly marked with cut lines and start/end marks for each sampling interval. The core reviewed was cut following the guidelines with half the core placed in clear polythene bags (Figure 12-3). The sample tags are taken from pre-printed sample books, which include sample names and barcodes. Each sample bag was clearly labeled with the equivalent sample numbers. Overall, SRK considered the process meets industry standards, with the SOP followed in the samples witnessed by the QP. Review of the drill core and structures noted some isolated cases where the opposite side of the core appears to have been taken, which, while not considered material for the sampling process, limits the ability to review structure/ textures when revisiting the drillholes in the future, if required.

Source: SRK, 2024
Note: Final samples are sealed with zip ties.

Figure 12-3: Core Samples Cut and Prepared for Sample Submission

12.1.5 Assay Certification Verification

SRK completed an independent check on selected assayed certificates vs. the provided database and did not notice any transcription errors during the review. SRK focused the review on the 2024 assay programs and reviewed the pdf and .csv exports from the following holes. CMR24-179, CMR24-181, CMR24-182, CMR24-184, CMR24-191, CMR24-193, CMR24-194, and CMR24-195. No errors were noted in the review.

12.1.6 Database Verification

SRK imported the drilling database into Seequent Leapfrog Geo software and undertook a high-level validation of the drilling and sampling database using standard validation tools. SRK completed a review of the database procedures during the site inspection, which SRK considered appropriate for the style of mineralization. SRK did note that in some areas, historically there has been limited sampling based on geological interpretation of hangingwall and footwall material, which in SRK's opinion shows evidence of low-grade sulfides mineralization, which should be routinely sampled. Procedures were adjusted in 2024 to improve these processes, and efforts have been made to review key unsampled intersections selected by SRK during the 2024 field program of the historical holes. It is likely intersection selection might need further review for the 2025 field program based on the revised geological model. Overall, SRK considers there to be reasonable checks in place to minimize potential database errors.

During the validation process, SRK noted a number of points for future consideration. As noted, a number of intersections exist that have not been completely sampled based on the assumption that they were potentially low grade during previous campaigns. To provide the best datasets for geological modeling and estimation, continuous sampling from hangingwall to footwall (or vice versa) should be completed on all holes, including potential internal waste or low-grade domains.

For the purpose of the current estimate, SRK took a conservative approach and inserted values at half detection limits where drillholes existed with no sampling, regardless of the reason the sampling was not completed. Whether the drillholes were not sampled due to the assumed low-grade or barren material or due to previous cost saving measures, sampling and assay of these zones is recommended and may represent an upside.

In 2024, Constantine completed a significant review of the lithological model, which involved development of updated coding (simplified in most cases). This review was combined with more simplified logging codes used during the 2024 exploration program by the logging contract company used. SRK continues to recommend Constantine review the historical and current level of detail in the lithological logging to ensure continuity of both simplified codes and the more detailed lithological variations for future estimates. The 2024 logging removed some of the excessive logging codes previously used, which overall is considered to be more simplified (easier for geological modeling). The revised geological coding at present is contained within the Leapfrog Project used by the Constantine geological team. SRK recommends that a new grouped or major lithology system also be stored in the master database, while retaining the original logging code for possible future refinements.

SRK produced a 2023 interim internal model for Constatine to aid in drilling planning for 2024. SRK noted during the construction of the model there were a number of relatively large intersections within the proposed wireframes that were not sampled during 2023.

SRK reviewed the basis for not sampling with Constantine which noted the absence of sampling has been either geological (unsampled fault material), or a function of logging, which upon review indicated presence of sulfides materials. Based on the surrounding holes (which all contain relatively high-grade copper or zinc mineralization), at the time SRK made the decision to exclude these samples rather than apply the half detection limits for the purpose of this estimate. SRK discussed this decision with the Constantine geological team, and it was decided that application of the detection limit would likely result in an underestimation of the surrounding areas. During 2024, Constantine located the core boxes for these holes and undertook assays where possible. Overall, the sampling of these intersections (especially in the footwall or stringer zones) have returned low grades, which has resulted in a reduction in both tonnage and grades within these areas of the model.

12.2 Limitations

SRK has not had any limitations in terms of access to the Constantine staff and information that was used to form the basis for this MRE. Access to site to review potential exploration sites has not been completed to date, with access limited by the length of the season.

12.3 Opinion on Data Adequacy

Based on SRK's review and findings from the database audit, SRK is of the opinion that the data are reliable and adequate to support the current MRE update.

13 Mineral Processing and Metallurgical Testing

Metallurgical testing was performed on Palmer samples by SGS Canada Inc. (SGS Canada), Burnaby, British Columbia, in 2013, 2018, and 2023. The most recent test program was conducted by SGS Canada in 2023 (report issued in September 2024) and is used as the basis for the recovery assumptions used in the MRE. The 2023 test work is supported by the previous test work completed in 2013 and 2018.

A full breakdown of the results for each test program can be found in the following reports:

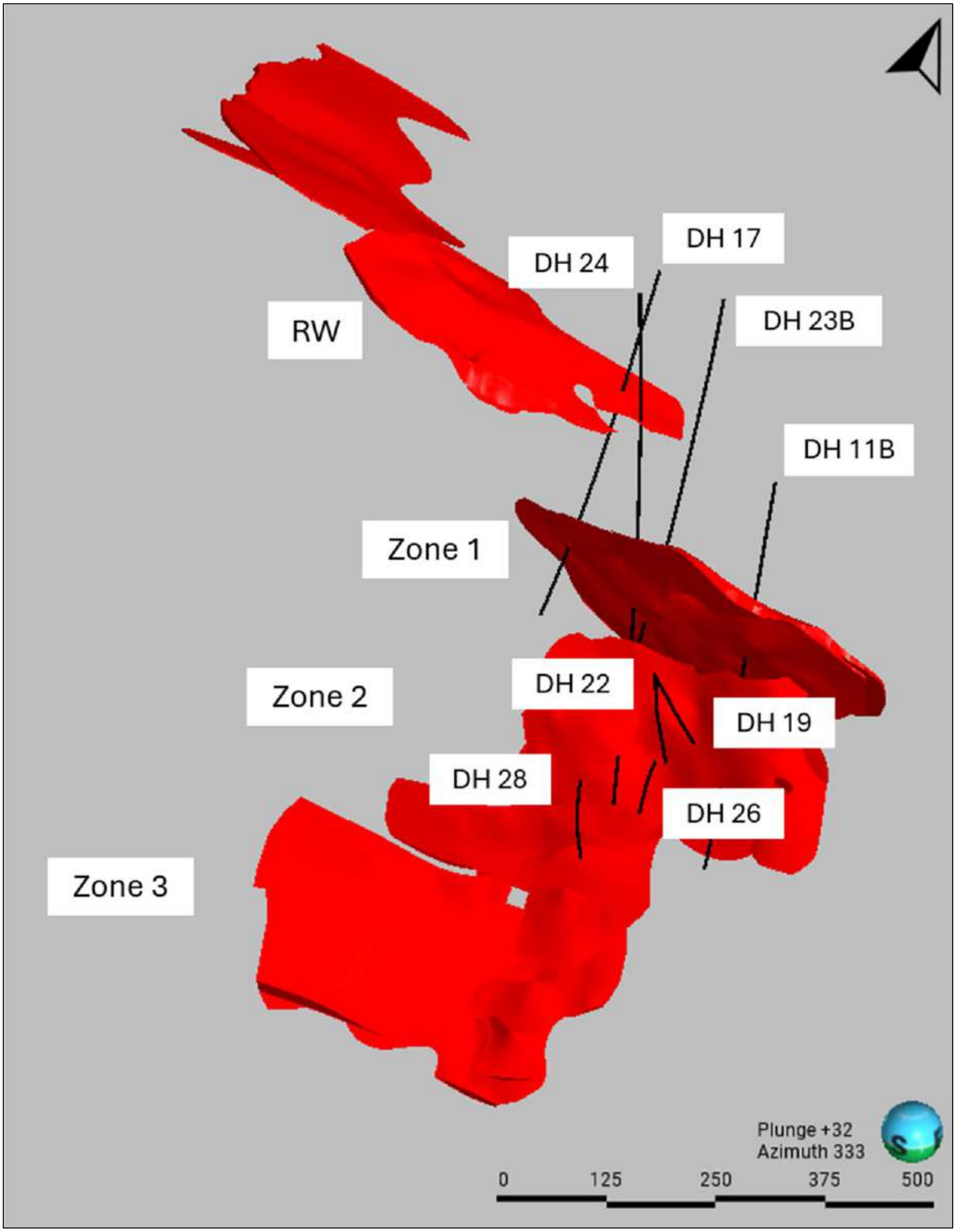
- SGS Canada, "The Recovery of Copper, Zinc, Silver and Gold from the Palmer Samples," Project No. 14063-001, issued October 28, 2013
- SGS Canada, "Barite Metallurgical Testwork on the Palmer VMS Project," Project No. 14063-002, issued July 30, 2018
- SGS Canada, "Comminution and Mineralogy on the Palmer VMS Deposit," Project No. 14063-03 Revision 1, issued December 14, 2018
- SGS Canada, "An Investigation into Mineralogy, Comminution, and Flotation on Samples from the Palmer Project," Project No. 14063-04, issued September 30, 2024

SGS Canada is a third-party ISO-accredited laboratory with laboratory facilities throughout the U.S. and Canada. Through their network of 2,700 laboratories worldwide, SGS Canada is renowned in the mining industry for providing high-quality, reliable test work. SGS Canada is independent of the issuer and the results from the test work performed in the Burnaby, British Columbia, laboratory are considered reliable for the purposes of this MRE.

Based on the results from SGS Canada, it is anticipated that a copper/lead, zinc, pyrite, and barium sequential flotation circuit can produce saleable base metal concentrates. Recovery of copper, lead, zinc, gold, and silver into two base metal concentrates form the basis of the metallurgical predictions for the MRE. LCT test work from 2023 on a SW master composite and an AG Deposit master composite form the basis of the recoveries. Pyrite and barite flotation circuits could present additional upside opportunities and should be studied further.

13.1 2013 Metallurgical Testing Summary

Approximately 500 kg of the Palmer Deposit material from exploration rejects was used to create a master composite for flotation test work. The master composite was developed using a blend from eight drillholes located throughout the deposit, as illustrated on Figure 13-1. The composite was assayed, and Table 13-1 lists the head grades. The composite was determined to be sufficiently representative of the deposit in support of an MRE, owing to the relatively similar grades of copper and silver, with slightly higher zinc and lower gold concentrations in conjunction with the spatial representation across the deposit.



Source: Constantine, 2025
Note: The presented wireframe is the current resource representation.

Figure 13-1: 2013 Master Composite Drillhole Locations, Palmer Deposit

Table 13-1: 2013 Composite Head Grade

	Cu (%)	Pb (%)	Zn (%)	Au (g/t)	Ag (g/t)	Fe (%)	S (%)
2013 Master Composite	1.56	0.20	6.47	0.19	28.5	13.1	19.2

Source: SGS Canada, 2013

The test program included BW_i, mineralogical analysis, and sequential flotation of the copper and zinc, which included rougher flotation, cleaner flotation, and LCT. The BW_i was determined at 6.3 kWh/t, indicating that the ore is very soft.

The mineralogy indicated that the material is relatively coarse grained, with most of the copper as chalcopyrite and the zinc as sphalerite. Secondary copper minerals were noted in the mineralogy, and depressant reagents were required to reduce zinc activation. Of the material tested at a P_{80} target grind size of 72 µm, results indicated that sequential copper and zinc flotation could achieve recoveries in the range of 87% to 93% Cu and 90% Zn, producing concentrate grades of 27% to 30% Cu and 55% Zn. Table 13-2 provides the averages of the two completed LCTs, showing similar recovery for copper, slightly lower recovery for zinc, slightly lower copper grade, and slightly higher zinc grade than what was achieved through the sequential testing.

Table 13-2: 2013 LCT Grade and Recovery Results

Concentrate	Grade (%, g/t)							Recovery (%)					
	Cu	Pb	Zn	Au	Ag	Fe	S	Cu	Zn	Fe	Au	Ag	S
Copper cleaner	25.5	4.22	8.54	3.11	393	26.2	34.2	89.6	7.44	10.7	61.5	73.7	9.39
Zinc cleaner	0.91	-	59.1	0.41	51.4	5.7	34.8	5.27	84.9	3.87	13.5	16.0	15.8

Source: SGS Canada, 2013

Further optimization of the flowsheet was recommended moving forward in addition to variability test work and mapping of secondary minerals throughout the deposit that could influence recovery.

13.2 2018 Metallurgical Testing Summary

In March 2018, a metallurgical test program commenced at SGS Canada in Burnaby, British Columbia (Project No. 14063-002). Drill core rejects from two drillholes in the Palmer Deposit were used to create the Palmer High Ba composite, which was submitted for metallurgical testing to support the development of a PEA. The test program focused on mineralogy and sequential flotation of copper, zinc, pyrite, and barium.

Six samples from a single drillhole in the AG Deposit were also collected and sent to SGS Canada for mineralogical analysis. No flotation test work was conducted on the AG Deposit samples.

13.2.1 Testing Procedures

Comminution

SMC tests were conducted on one sample of drill core from the Palmer Deposit (SW Zone); BW_i tests were completed on two Palmer (SW Zone) composites.

Flotation

Batch rougher and cleaner flotation tests were conducted on the Palmer High Ba composite to confirm recovery of copper, zinc, pyrite, and barium in sequential flotation tests. Two LCTs were then conducted. The first LCT was conducted to test the copper and zinc flotation circuit, and the second LCT tested the pyrite and barite flotation circuits using tailings from the zinc rougher circuit.

Copper-Zinc Flotation

The batch rougher and cleaner flotation tests were conducted on the Palmer High Ba composite sample as confirmation of the previous test program (SGS Canada 14063-001) and to refine the test conditions from the 2013 program for copper and zinc. From the zinc tailings, pyrite rougher flotation and barium flotation tests were completed to investigate the parameters and flowsheet that would produce a saleable barium concentrate.

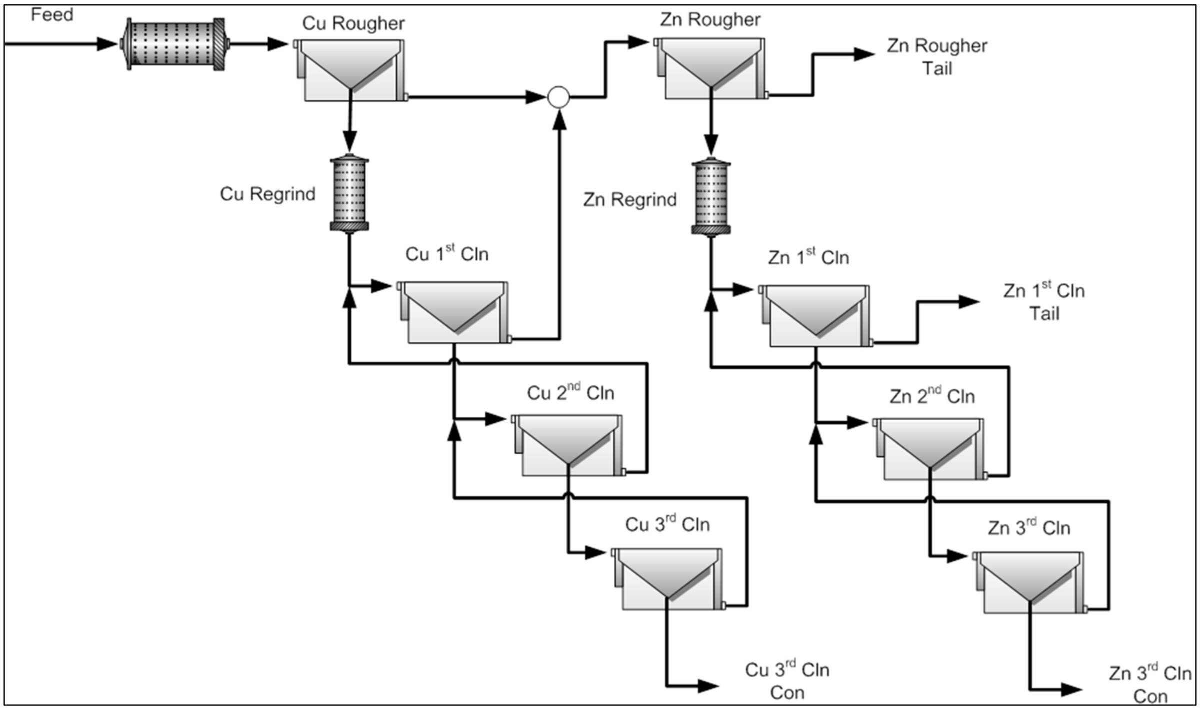
The main flotation conditions included a primary grind size targeting a P_{80} of 72 µm followed by sequential rougher flotation of the copper and then zinc. Other important parameters tested included potassium amyl xanthate (PAX) as a collector, methyl isobutyl carbinol (MIBC) as a frother, the effect of sodium cyanide (NaCN) and zinc sulfate ($ZnSO_4$) dosage on zinc depression, copper sulfate ($CuSO_4$) in the zinc circuit to reactivate and enhance zinc flotation, and lime as a pH modifier.

After completing the copper rougher flotation, the pH of the flotation pulp was adjusted up to 11.5 with lime, and $CuSO_4$ was added to activate sphalerite.

Two batch cleaner flotation tests were conducted to determine if higher concentrate grades could be achieved while maintaining copper and zinc recovery. Sequential copper and zinc flotation at a primary target P_{80} grind size of 72 µm was completed with three stages of cleaning. The rougher concentrates regrind sizes of 44 and 30 µm for the copper circuit and 62 and 40 µm for the zinc circuit were tested.

In the first cleaner test (CF1), no NaCN was added to the grinding stages for copper, and a coarser regrind size was targeted for both copper and zinc. The second cleaner test (CF2) was carried out with NaCN added to the primary grinding and copper regrind stages, as well as at a higher PAX dosage in the copper rougher flotation stage. The main changes to CF1 for the zinc circuit included a higher $CuSO_4$ dosage in the rougher flotation circuit and lime being added to the regrind mill.

Three additional cleaner tests were completed (F10-5, F10-8, and F10-9) to produce a bulk sample for the barium flotation test work. The tests were also used for additional optimization to improve the copper and zinc concentrate recoveries. Using the optimized conditions developed from Test F10-8, a single LCT was completed on the Palmer High Ba composite using the flowsheet illustrated on Figure 13-2.



Source: SGS Canada, 2018

Figure 13-2: LCT Flowsheet

Pyrite-Barium Flotation

Five rougher flotation tests were completed using the zinc bulk tailings sample from Tests F10-5, -8, and -9. Table 13-3 shows the chemical analysis of the zinc tailings sample feeding the pyrite rougher flotation circuit.

Table 13-3: Pyrite-Barium Flotation Sample Feed Grade

Sample	Ba (%)	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	Fe (%)	S (%)
Zinc tailings	28.0	0.07	3.5	0.07	<0.01	0.26	11.8	20.7

Source: SGS Canada, 2018

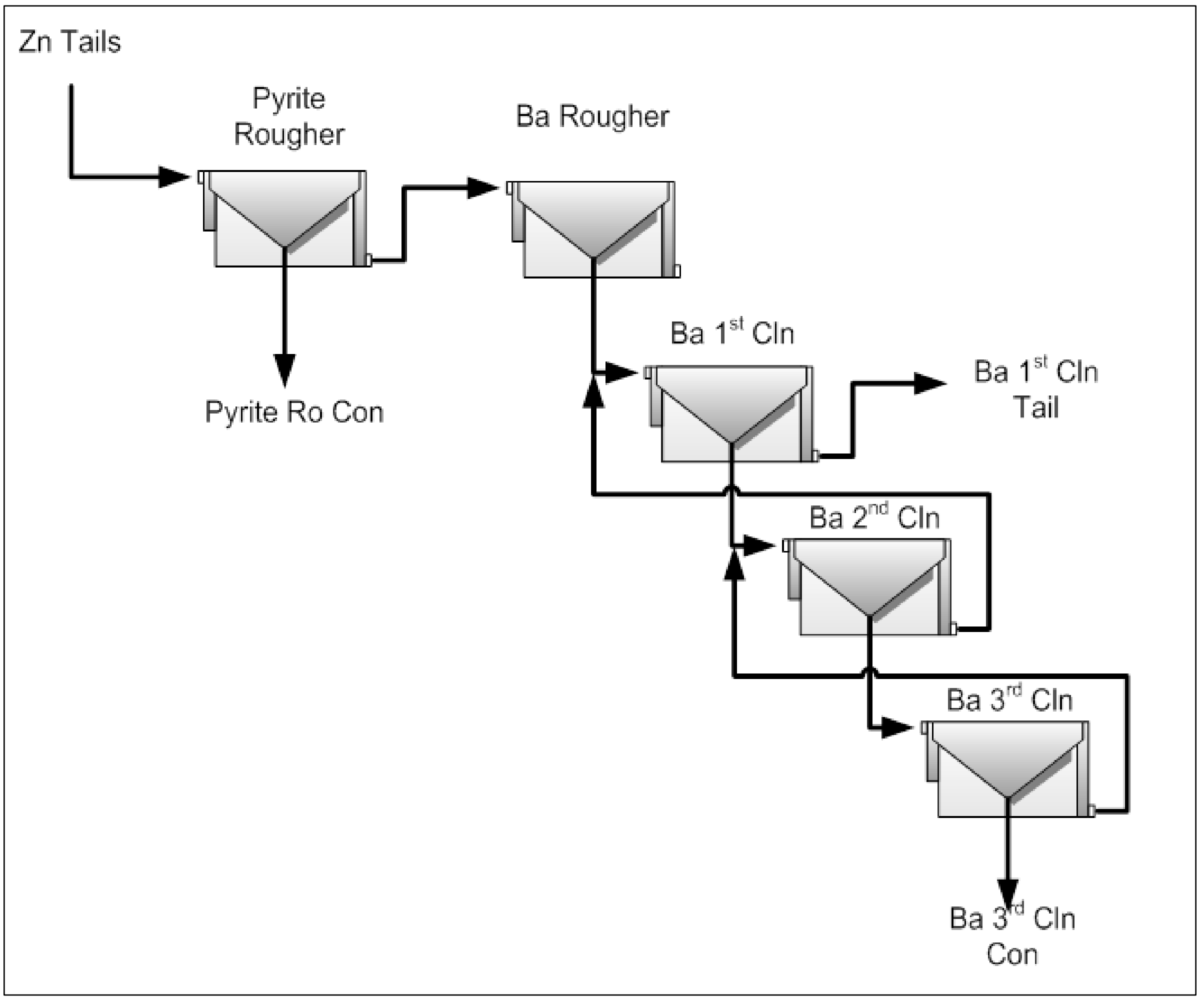
Of the five rougher tests (Ba-RF1 through Ba-RF5), only Ba-RF2 included a pyrite flotation test prior to the barium float. The barium rougher flotation tests were carried out using soda ash, Aero 845, fuel oil, MIBC, and guar gum at varying dosages and float times (12 to 16 minutes), maintaining a pH of 10. Due to the recovery curves leveling off in rougher tests Ba-RF2 and Ba-RF3, the parameters used in these tests were used for the rougher flotation in the next stage of cleaner test work.

Production of a pyrite concentrate was important to producing a saleable barium concentrate but also to remove material that could be potentially acid generating (PAG) and segregate it for disposal. Preliminary consideration has been given to deposition underground as paste. Test Ba-RF2 implemented pyrite flotation prior to barium flotation. PAX and MIBC were used to produce the pyrite concentrate.

Eight barium cleaner tests were completed on the zinc tailings sample (Ba-CF1 through Ba-CF8). The test work included three to five stages of cleaning at varying slurry densities utilizing Aero 845, fuel oil, MIBC, and sodium silicate to facilitate the upgrade of the rougher concentrate. The tests were run at a pH in the range of 9.2 to 9.7, with the exception of test Ba-CF7, where lime was added to maintain a pH of 10.5. The tests were conducted with pyrite pre-float, with the exception of tests Ba-CF1 and Ba-CF3.

Test Ba-CF8 included a pyrite rougher flotation stage with the rougher tailings feeding the barium rougher circuit. The rougher flotation was followed by five stages of cleaning. The addition of sodium silicate as a depressant in the first cleaner and performing the tests at a lower slurry density of 20% solids provided the best conditions.

Using the conditions developed from test Ba-CF8 with three stages of cleaning, a single LCT was completed on the Palmer High Ba composite zinc tailings. Figure 13-3 shows an illustration of the flowsheet.



Source: SGS Canada, 2018

Figure 13-3: LCT Flowsheet

Minerology

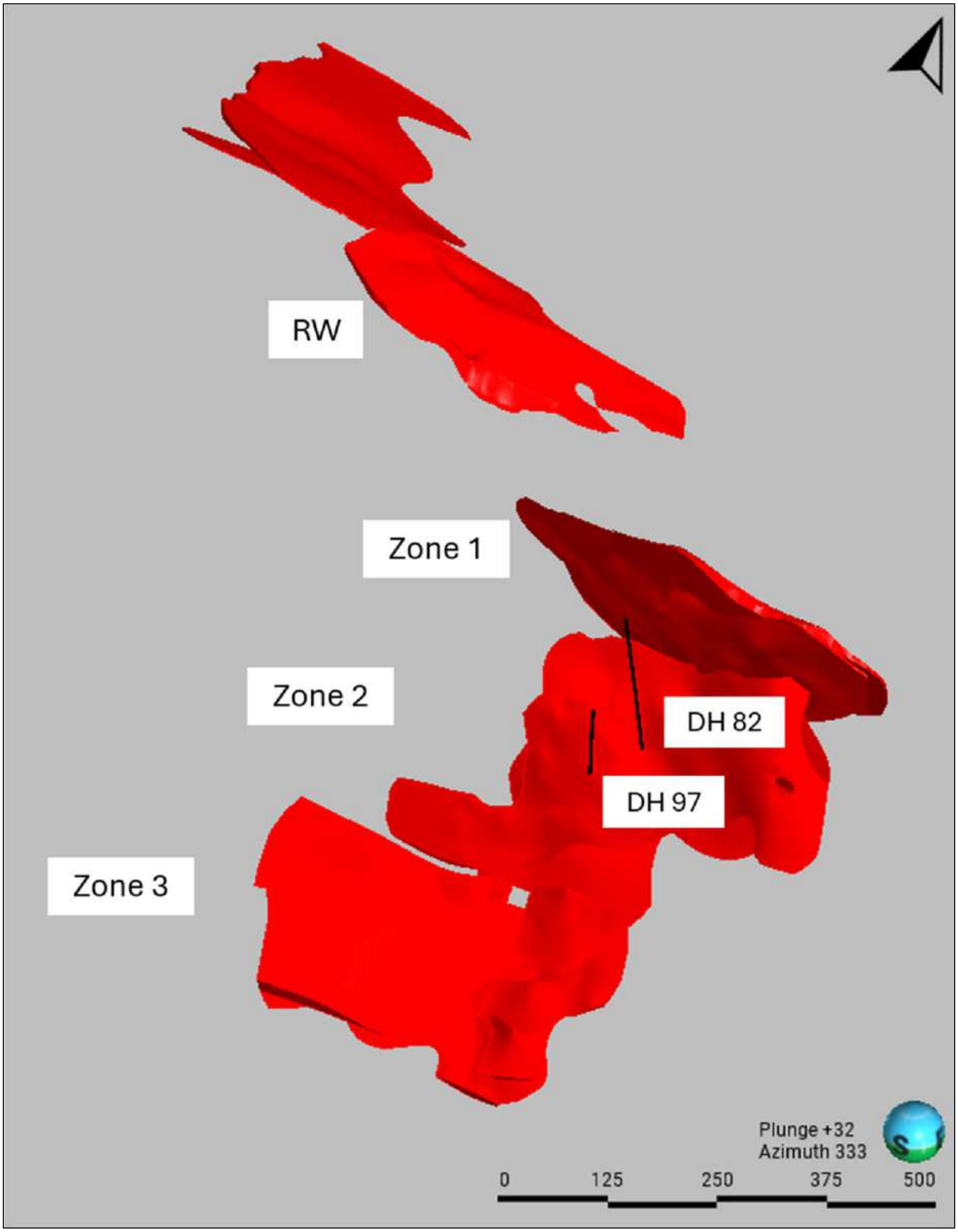
A sample of the Palmer High Ba composite was ground to a P_{80} of approximately 70 µm and analyzed using quantitative evaluation of materials by scanning electron microscopy (QEMSCAN) and PMA routine to determine mineral content and mineral fragmentation. The sample was screened into +38 µm and -38 µm size fractions and analyzed separately.

QEMSCAN and particle mineral analysis (PMA) were performed on the AG Deposit sample to determine mineral content and mineral fragmentation.

13.2.2 Samples Representativeness

Palmer Deposit

The Palmer High Ba composite was created using a blend of exploration reject material from two drillholes from the Palmer Deposit. Figure 13-4 shows the location of the two drillholes. Table 13-4 shows the head assays for the Palmer High Ba composite.



Source: Constantine, 2025
Note: Wireframe presented is the current resource representation.

Figure 13-4: Palmer High Ba Composite Drillhole Locations

Table 13-4: Head Assays for Palmer High Ba Composite

Composite	Cu (%)	Pb (%)	Zn (%)	Fe (%)	S (%)	Ba (%)	Au (g/t)	Ag (g/t)
High Grade Ba Composite	1.61	0.37	10.3	13.6	26.2	23.2	0.29	49.0

Source: SGS Canada, 2018

The two drillhole samples were identified specifically to create a high-barium-content sample to test the ability of creating a saleable barite concentrate and not necessarily as representative of the deposit. As a result, the copper, lead, zinc, and silver all measured at concentrations higher than the defined mineral resource in 2018. Therefore, the Palmer High Ba composite sample can be considered indicative for the tests performed but is not necessarily representative of the Palmer Deposit as a whole.

AG Deposit Sample

Constantine collected coarse reject samples from six intervals in drillhole CMR18-110 between 241.7 and 277.3 m in depth in the AG Deposit and sent them to SGS Canada for mineralogical analysis using QEMSCAN. The samples collected from this drillhole were selected to be representative of the dominant mineralization in the deposit. Table 13-5 shows the mineralized zone and head assays of the samples.

Table 13-5: Head Assays for AG Deposit Samples

Hole ID	Meters Below Surface		Zone	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Au (g/t)	Ba (%)
	From	To							
CMR18-110	241.7	242.6	Ag-Ba Zone	0.00	1.43	0.28	77	0.13	52.56
CMR18-110	247.9	248.6	Ag-Ba Zone	0.05	3.19	1.33	318	0.79	55.34
CMR18-110	258.5	259.4	Zb-Pb-Ag-Ba Zone	0.42	8.97	4.06	624	4.26	19.27
CMR18-110	265.5	266.4	Zn-Pb-Cu-Ag Zone	0.84	11.3	3.78	164	0.41	7.85
CMR18-110	270.2	271.1	Zn-Pb Zone	0.01	10.85	1.92	36	0.09	11.83
CMR18-110	276.4	277.3	FW Stringer Zone	0.21	6.51	3.30	90	0.14	2.85
CMR18-110	**-**	**-**	**AG Deposit**	**0.26**	**7.04**	**2.45**	**218.17**	**0.97**	**24.95**

Source: SGS Canada, 2018

13.2.3 Summary of Results

Comminution Test Work

A BW_i test was completed on the Palmer High Ba composite at a sieve size of 106 µm; Table 13-6 summarizes the results. The results indicate the sample can be classified as very soft.

Table 13-6: Bond Ball Mill Work Index Results for Palmer High Ba Composite

Composite	Sieve Size (µm)	Feed Size, F_{80} (µm)	Product Size, P_{80} (µm)	Grams per Revolution (g)	BW_i (kWh/t)
High Ba Composite	150	2,363	85	3.88	6.3

Source: SGS Canada, 2018
F_{80}: 80% passing size of the feed circuit

SMC, A_i, and BW_i test work were conducted on the drill core sample from the Palmer Deposit. The results indicate the mineralized rock is soft with an A x b value of 89.6 and mildly abrasive with an A_i of 0.119 g. The BW_i indicates that the material is very soft, with a BW_i of 6.9 kWh/t at a P_{80} of 79 µm; Table 13-7 shows the results.

Table 13-7: Comminution Test Results

Sample ID	A	b	A x b	t_a	SCSE (kWh/t)	DWI (kWh/m^3)	M_{ia} (kWh/t)	M_{ih} (kWh/t)	M_{ic} (kWh/t)	A_i (g)	BW_i (kWh/t)
SW Sample	82.2	1.09	89.6	0.66	7.42	3.92	9.7	6.5	3.3	0.119	6.9

Source: SGS Canada, 2018

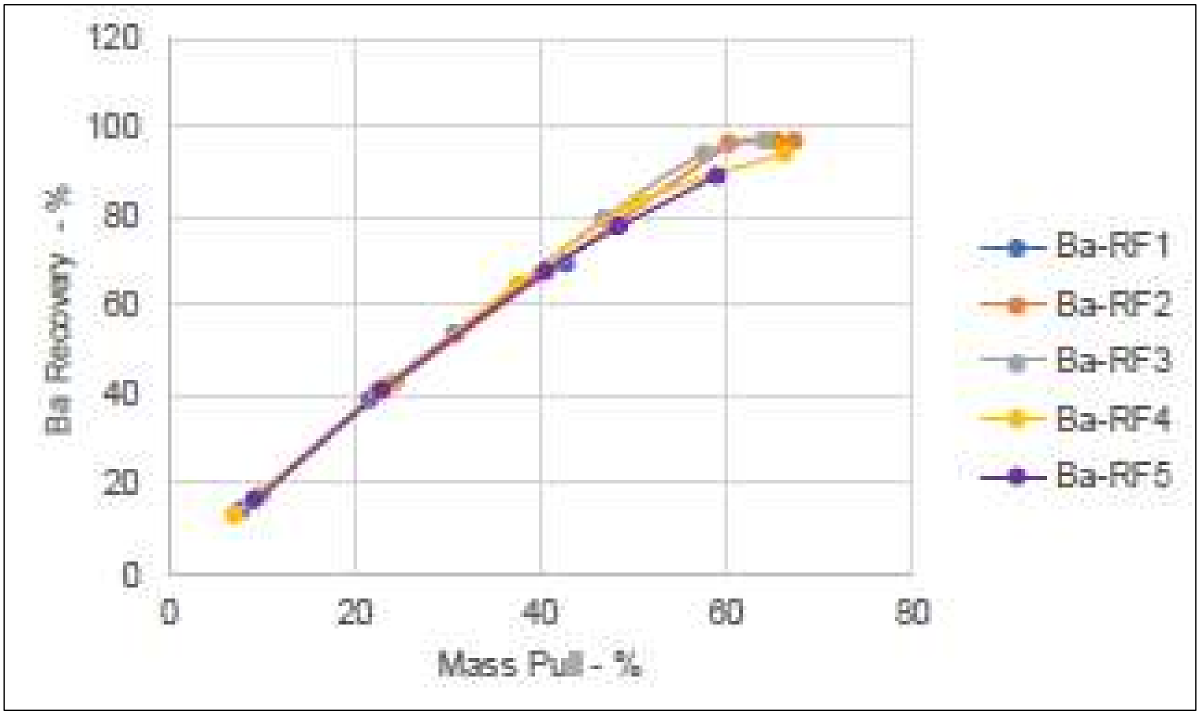
Batch Flotation Test Work

No flotation test work was conducted on the AG Deposit sample in the 2018 test program.

The results from the Palmer High Ba composite rougher test work indicated that a lower depressant dosage improved copper recovery, while the zinc rougher tests indicated relatively good zinc rougher performance with conventional reagent dosages. Overall recoveries in the mid-90s were achieved to the zinc rougher concentrate.

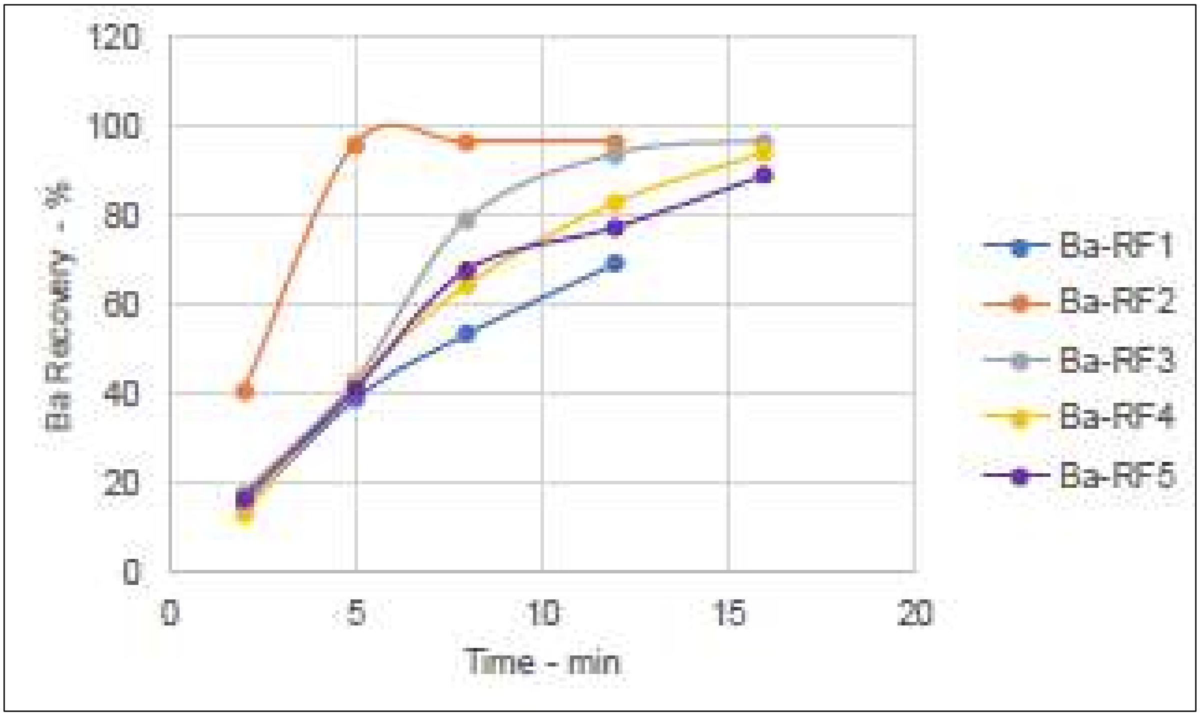
The best results were produced using conditions from test F10-8, with a final copper concentrate recovering 73.2% Cu at a grade of 27.7% Cu and a zinc concentrate recovering 90.5% Zn at a grade of 63.4% Zn. The test parameters from F10-8 were used for the copper and zinc LCT tests.

All five barium rougher flotation tests produced similar mass pulls and grades for barium to the concentrate. Ba-RF2 and Ba-RF3 were the only tests where the recovery curves leveled off after the final stage of flotation. Figure 13-5 and Figure 13-6 show the mass vs. recovery and grade vs. recovery curves. In the one pyrite rougher flotation test, the results indicate that 64.5% S and 3.0% Ba reported to the pyrite concentrate.



Source: SGS Canada, 2018

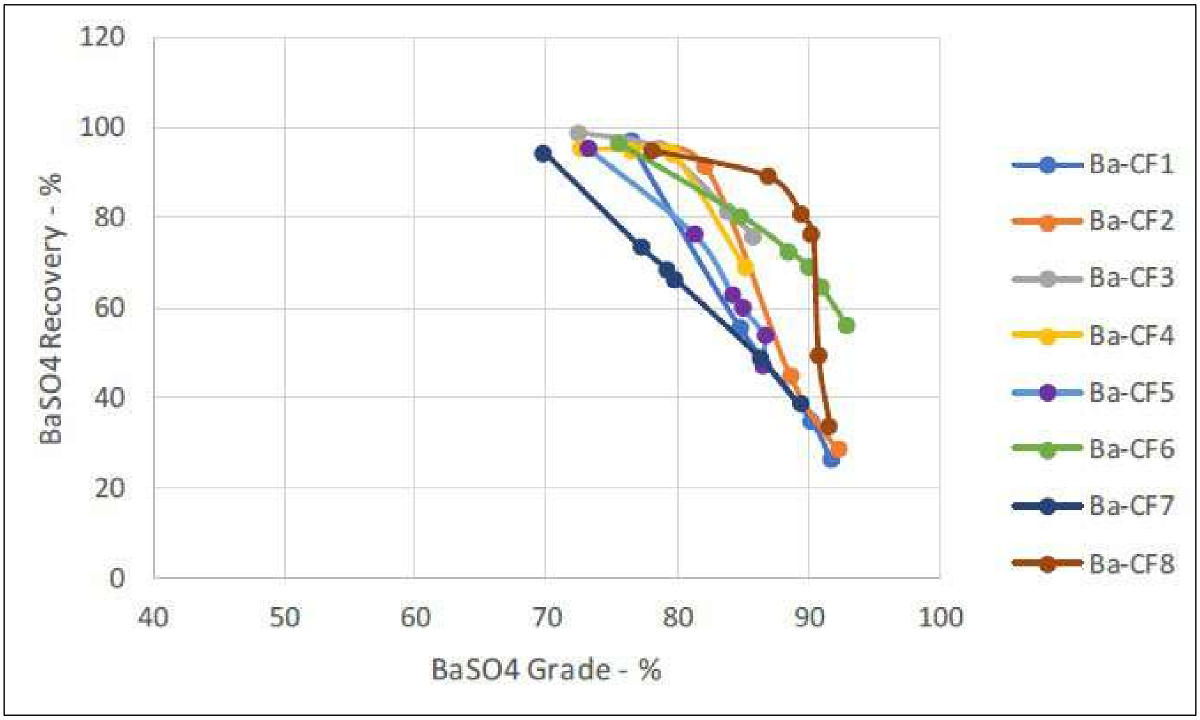
Figure 13-5: Barium Rougher Flotation, Mass Pull vs. Barium Recovery



Source: SGS Canada, 2018

Figure 13-6: Barium Rougher Flotation, Barium Grade vs. Recovery

Of the eight barium cleaner tests, the best grade and recovery results were produced from test Ba-CF8. These results were used as the criteria for the LCT; Figure 13-7 shows the grade vs. recovery curves, and Table 13-8 shows the results.



Source: SGS Canada, 2018

Figure 13-7: Barium Grade vs. Recovery

Table 13-8: Ba-CF8 Cleaner Test Results

Test	Product	Mass Pull (%)	Grade (%)			Recovery (%)		
			Ba	S	$BaSO_4$	Ba	S	$BaSO_4$
Ba-CF8	Barium fifth cleaner concentrate	18.2	53.9	13.9	91.6	33.6	12.0	33.6
	Barium fourth cleaner concentrate	26.9	53.4	13.9	90.7	49.1	17.7	49.1
	Barium third cleaner concentrate	41.8	53.1	13.8	90.3	76.0	27.3	76.0
	Barium second cleaner concentrate	44.8	52.6	13.7	89.4	80.5	29	80.5
	Barium first cleaner concentrate	50.9	51.1	13.3	86.9	89.0	32.1	89.0
	Barium rougher concentrate	60.4	45.9	11.8	78.1	94.9	33.7	94.9
	Pyrite rougher concentrate	28.7	4.6	48.8	7.82	4.5	66.2	4.5
	Barium rougher tailings	10.9	1.7	0.19	2.89	0.6	0.1	0.6
	Head (calculated)	100	29.2	21.1	49.7	100	100	100

Source: SGS Canada, 2018

The results of the test work indicate that at three stages of cleaning, a barium recovery of 75% at a grade of 53.1% Ba (90.3% $BaSO_4$) can be achieved. The fourth and fifth stages of cleaning provided minimal additional benefit.

<u>LCTs</u>

The copper-zinc LCT on the Palmer High Ba composite produced a copper concentrate recovering 88.9% of the copper at a concentrate grade of 24.5% Cu, while the zinc concentrate recovered 93.1% of the zinc at a concentrate grade of 61.3% Zn based on the average of cycles D, E, and F. Table 13-9 shows the final results based on five cycles.

Table 13-9: Average Cu and Zn LCT Results Based on Cycles D, E, and F

Product	Weight		Assays (% g/t)							Distribution (%)						
	Dry	%	Cu	Zn	Pb	Fe	Au	Ag	S	Cu	Zn	Pb	Fe	Au	Ag	S
Copper third cleaner concentrate	120.8	6.0	24.5	8.21	4.39	26.6	3.17	521.4	35.2	88.9	4.8	81.1	12.1	49.5	70.8	8.3
Zinc third cleaner concentrate	315.0	15.7	0.67	61.3	0.29	3.49	0.49	56.7	33.7	6.3	93.1	14.2	4.1	20.1	20.1	20.8
Zinc first cleaner tailings	164.4	8.2	0.40	0.92	0.11	24.0	0.46	18.1	32.1	2.0	0.7	2.8	14.9	9.8	3.3	10.4
Zinc rougher tailings	1,406	70.1	0.07	0.20	0.01	13.0	0.11	3.67	22	2.8	1.4	1.9	68.8	20.6	5.8	60.5
Head (calculated)	2,006	100	1.66	10.3	0.33	13.2	0.39	44.4	25.4	100	100	100	100	100	100	100

Source: SGS Canada, 2018

The pyrite-barium LCT on the Palmer High Ba composite zinc tailings produced a barium concentrate recovering 91.1% Ba at a concentrate grade of 52.3% Ba (88.8% $BaSO_4$) based the average of cycles E and F. Table 13-10 shows the final results from cycles E and F of the six cycle LCT.

Table 13-10: Average Copper and Zinc LCT Results Based on Cycles E and F

Product	Weight Dry	%	Grade (%)			Recovery (%)		
			Ba	S (Total)	$BaSO_4$	Ba	S (Total)	$BaSO_4$
Pyrite rougher concentrate	614.6	30.7	6.70	47.1	11.4	7.0	66.9	7.0
Barium third cleaner concentrate	1,021.3	50.9	52.3	13.9	88.8	91.1	32.7	91.1
Barium first cleaner tailings	281.6	14.0	2.71	0.41	4.61	1.3	0.3	1.3
Barium rougher tailings	87.7	4.4	3.75	0.43	6.38	0.6	0.1	0.6
Head (calculated)	2,005	100	29.2	21.6	49.6	100	100	100

Source: SGS Canada, 2018

Mineralogy

Palmer

Table 13-11 presents a summary of mineral content from the Palmer High Ba composite.

Table 13-11: Mineral Content for the High Ba Composite

Fraction		Combined	+38 µm		-38 µm	
Mass size distribution (%)		100.0	53.5		46.5	
Calculated equivalent spherical diameter particle size (µm)		17.2	43.1		11.0	
		Sample (percent by weight ((wt%))	Sample (wt%)	Fraction (wt%)	Sample (wt%)	Fraction (wt%)
Mineral Mass (%)	Pyrite	24.8	16.0	29.9	8.80	18.9
	Pyrrhotite	0.01	0.01	0.01	0.01	0.01
	Chalcopyrite	5.07	2.29	4.29	2.78	5.98
	Sphalerite	13.4	8.34	15.6	5.03	10.8
	Galena	0.66	0.16	0.30	0.49	1.06
	Arsenopyrite	0.07	0.04	0.08	0.03	0.06
	Other Sulfides	0.12	0.05	0.10	0.06	0.14
	Quartz	8.79	4.82	9.00	3.97	8.54
	Feldspar	1.04	0.58	1.09	0.45	0.97
	Celsian	0.62	0.34	0.64	0.28	0.60
	Mica	1.36	0.66	1.23	0.71	1.52
	Chlorite	1.44	0.47	0.88	0.97	2.09
	Clays	0.06	0.02	0.04	0.04	0.09
	Other Silicates	0.24	0.13	0.25	0.11	0.23
	Oxides	0.61	0.18	0.34	0.43	0.93
	Carbonates	0.48	0.26	0.48	0.22	0.48
	Smithsonite	0.19	0.09	0.16	0.10	0.22
	Barite	40.9	19.0	35.6	21.8	46.9
	Other	0.18	0.02	0.03	0.17	0.36
	Total	**100.0**	**53.5**	**100.0**	**46.5**	**100.0**

Source: SGS Canada, 2018

Copper is associated with chalcopyrite (96.5%) and to a minor extent tennantite-tetrahedrite (2.8%). The chalcopyrite and tennantite-tetrahedrite were equally distributed between the two size fractions with respect to copper deportment. Zinc was predominately associated with sphalerite (98.6%) and, to a lesser extent, smithsonite (1.1%). Approximately 89.6% of the sphalerite was liberated, indicating a high recovery potential through flotation. Sphalerite was evenly distributed between +38- and -38-µm size fractions.

The barium mineralogy indicates the majority of the barium is associated with barite and is 95.4% liberated. The barium final concentrate was analyzed, and the majority of the sample (95.6%) was barite.

AG

The mineralogical analysis of the AG Deposit sample indicated that the copper mineral was predominately tennantite-tetrahedrite (0.6%), zinc mineral was sphalerite (11%), barite content was 38%, and the main sulfide mineral was pyrite (25%). In addition to these minerals, lead was present as galena (3%), and the main non-sulfide minerals are mica (14%) followed by quartz (6%).

The mineralogy indicates tennantite-tetrahedrite is 80.9% liberated (76.9% fully exposed), and sphalerite is 92.5% liberated (88.6% exposed). Liberation was higher in the -38-µm size fraction for both tennantite-tetrahedrite and sphalerite. Barite was found to be 97% liberated (94.5% exposed). The results suggest that minimal regrind will be required to recover copper, zinc, and barium.

13.3 2023 Metallurgical Testing Summary

The 2024 SGS Canada test work report summarizes the test work completed on 2023 test program samples originating from the Palmer Deposit and AG Deposit. The main objective of this program was to evaluate the composites' metallurgical response to flotation.

13.3.1 Testing Procedures

Comminution

Comminution tests were provided on two master composites.

Flotation

Flotation test work was focused on the two flotation master composites, and each culminated with a LCT using a flowsheet comprising copper-lead bulk flotation followed by zinc flotation. Three variability cleaner flotation tests were performed (one on each of three additional composites). Barite flotation was also performed on combined zinc tailings (zinc rougher, zinc cleaner, and one scavenger tailing).

Despite the limited test work and representativeness from the 2013 and 2018 test programs, the SW flotation flowsheet was perceived to be well understood due to consistencies typical of a VMS deposit. The 2023 program was designed to investigate optimization characteristics and further validate the proposed flowsheet with a LCT on the new SW (Palmer Deposit) master composite while also confirming flotation conditions by conducting initial flotation tests on the AG Deposit master composite.

SW (Palmer Deposit) Flotation

The SW batch program started by investigating rougher recovery at two grid sizes: P_{80} of 77 and 91 µm. The grind size investigation continued and investigated the impact of grind size at lower depressant dosages to 200 g/t NaCN and 600 g/t $ZnSO_4$ (half of the original dosage) to improve copper recovery. The tests were completed at four grind sizes: P_{80} of 53, 77, 99, and 120 µm. The copper rougher recovery improved significantly at lower depressant dosages.

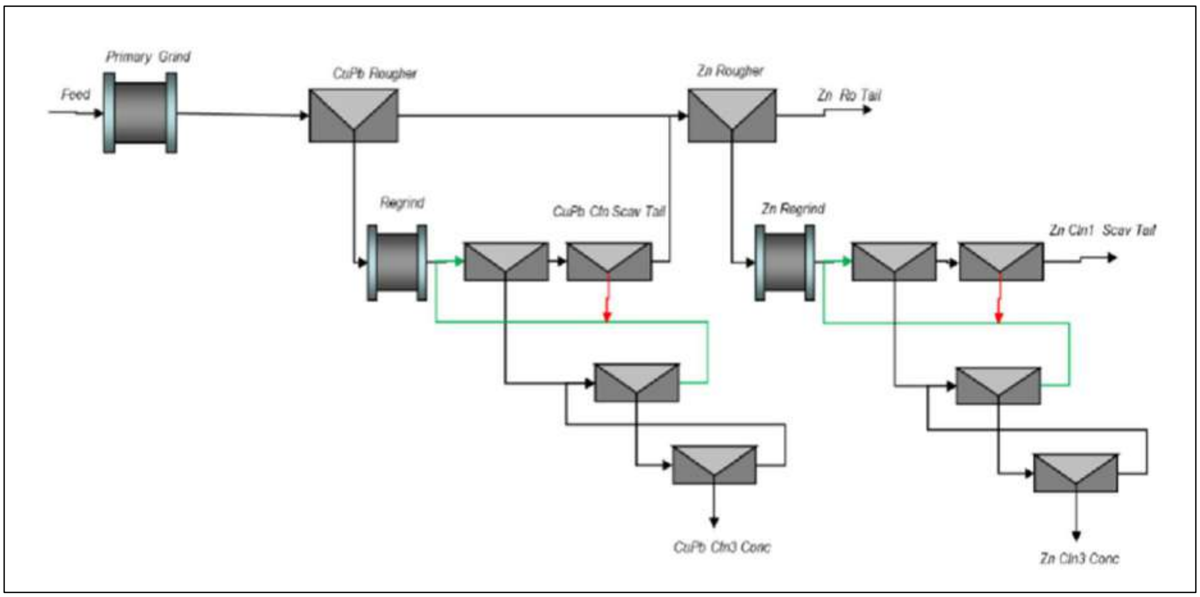
Batch tests investigated alternative collectors 3418A, SIPX, 5100, and PAX and noted lead rougher recoveries were very sensitive to some collector types.

After completion of the grind sensitivity and collector tests, seven sequential flotation tests were completed at various pH and depressant doses to optimize flotation conditions.

One copper-lead and six lead-copper sequential rougher flotation tests were performed. The objective was to investigate whether separate copper and lead concentrates could be achieved. Although the lead-copper sequential flotation was promising for producing separate lead, copper, and zinc cleaner concentrates, a decision was made to test the bulk lead/copper flotation flowsheet in a batch test (SW-F28) and LCTs (SW-LCT1) with the SW master composite, considering the low lead head grade of this feed. The locked-cycle flowsheet incorporated cleaning of the bulk rougher concentrates to produce a copper/lead bulk cleaner concentrate and a zinc cleaner concentrate. SW-F28 served as the new base case flowsheet and had the following preferred conditions at the conclusion of batch testing:

- 77-µm target primary grind size with 200 g/t NaCN and 600 g/t $ZnSO_4$
- PAX as the collector in both the copper and zinc circuits
- Flotation at a pH of 10 and 11.5 in the copper and zinc roughers, respectively
- Copper sulfate added in both the zinc rougher and cleaner
- Both copper and zinc circuits applied a regrind on their respective rougher concentrates.

LCT targeted the same flotation conditions developed in SW-F28 and is illustrated by the flowsheet on Figure 13-8.



Source: SGS Canada, 2024

Figure 13-8: SW Composite Copper/Lead and Zinc Flotation Circuit LCT Flowsheet

One bulk cleaner flotation test was completed on each of the three variability composites (SW Upper, SW Middle, and RW East) using the SW-F28 conditions.

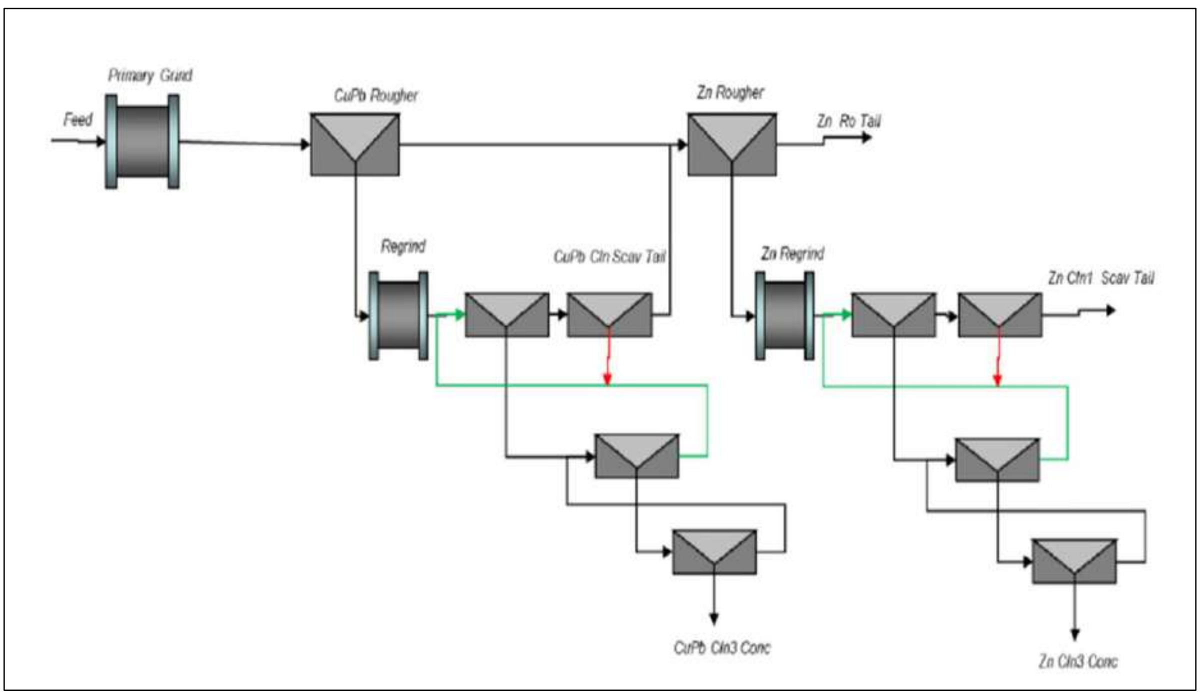
AG Deposit Flotation

Because the AG Deposit master composite contained relatively small amounts of copper (0.14%) compared to lead (0.94%) and reasonable amounts of zinc (5.25%), most of the tests were focused on bulk copper and lead flotation followed by zinc flotation. Sequential copper-lead or lead-copper flotation were only briefly tested. The test program concluded with a locked-cycle flotation test to produce a lead/copper bulk cleaner concentrate and a zinc cleaner concentrate (the same as SW-LCT1).

AG Deposit master composite batch tests began by investigating performance under various depressant and dosages, similar to the SW test program. The addition of a combination of sufficient NaCN and $ZnSO_4$ was critical to get good copper/lead and zinc separation. Low depressant addition (AG-F3), no depressant addition (AG-F4), and addition of $ZnSO_4$ or NaCN only (AG-F5 and AG-F6) were tested. Soda ash was tested as a pH modifier (AG-F7). Three alternative collectors to PAX (3418A, SIPX, and 5100) were tested on AG Deposit, and results aligned with SW conclusions. Three grind sizes were tested on the AG Deposit master composite as alternatives to the SW base case of a P_{80} of 77 µm (52, 97, and 110 µm).

Multiple copper and lead separation conditions were tested at the batch scale. In contrast to the SW composite, the AG Deposit composite is lead dominated and relatively lower grade in copper (compared to the SW composite being copper dominated and relatively lower grade in lead). Three tests were performed using SO_2 in an attempt to depress lead and selectively float copper. There were varying degrees of success, and more optimization is warranted. The Project went on to investigate lead and copper sequential flotation. Three lead and copper sequential flotation tests were explored even though the copper and lead head grades were low.

The AG Deposit master composite flotation flowsheet selected AG-F18 as the base case; AG-F18 has the same conditions as the preferred flotation conditions for the SW master composite, so the conditions were advanced to LCT. Figure 13-9 illustrates the LCT flowsheet.



Source: SGS Canada, 2024

Figure 13-9: AG Copper/Lead and Zinc Flotation Circuit LCT Flowsheet

Barite Flotation

Barite flotation was performed on combined zinc tailings (zinc rougher and zinc cleaner 1 scavenger tailings) collected from the SW-LCT1 and AG-LCT1 tests. The combined zinc tailing was filtered, air-dried, blended well, and split into 12 charges for barite flotation.

One barite flotation test was performed on each of the three variability composites (SW Upper, SW Middle, and RW East). The tests were carried out immediately following the zinc cleaner flotation (no drying of the barite feed). No LCTs were conducted for barite flotation as part of the 2023 test program.

Mineralogy

TESCAN Integrated Mineral Analyzer (TIMA) analysis was performed on two flotation master composites and six variability composites. The composites were all sulfide ores except the RW oxide composite, which is partially oxidized and contains some smithsonite ($ZnCO_3$). Copper, lead, and zinc were present mainly as chalcopyrite, galena, and sphalerite at varied contents, and barite content was high for most composites.

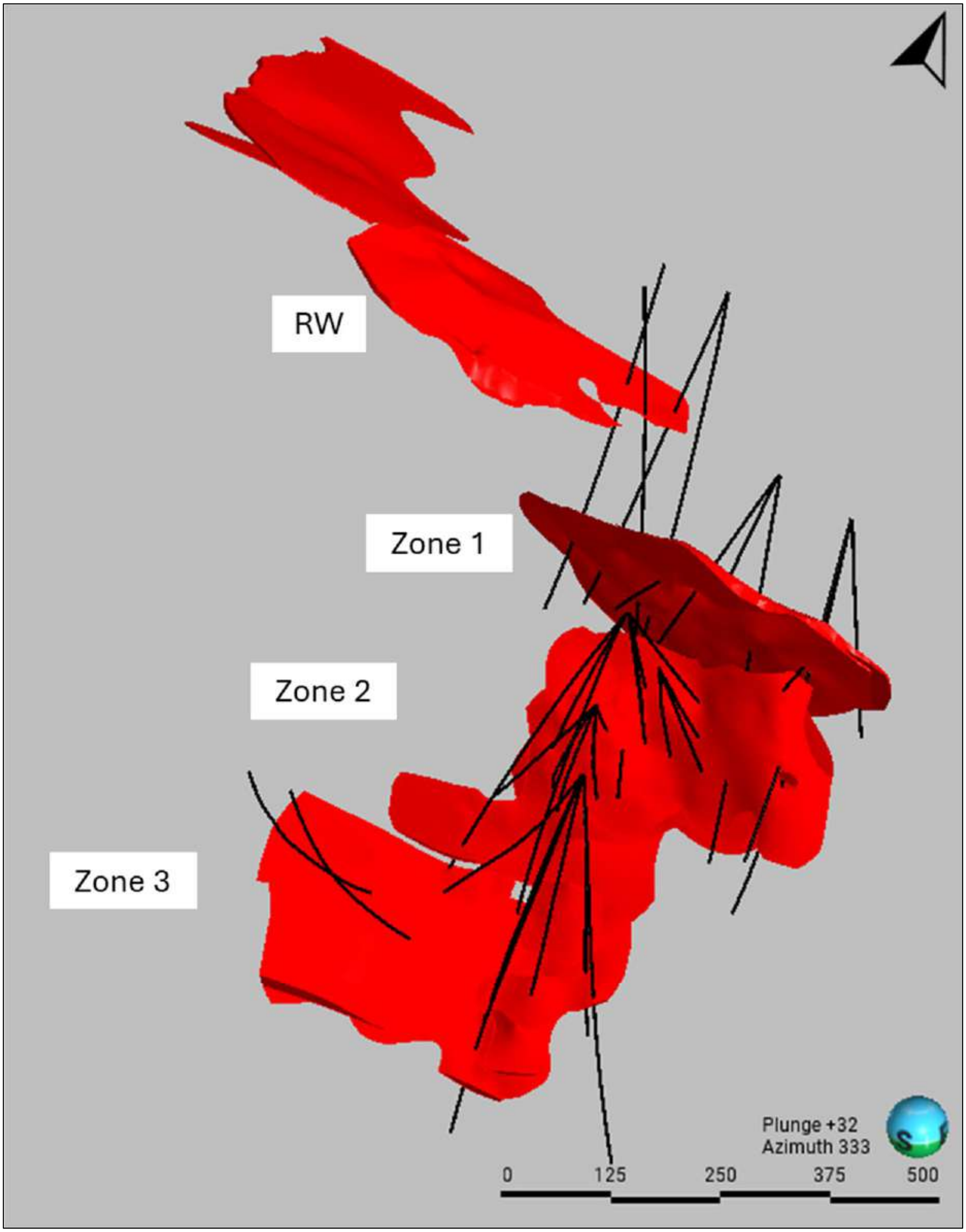
13.3.2 Sample Representativeness

For the 2023 test program, 10 composite samples were created and delivered to SGS Canada. Upper, middle, and lower composites were created from the SW Zone of the Palmer Deposit; east, west, and oxide composites were created from the RW Zone of the Palmer Deposit; two SW Zone master composites (one for flotation and one for comminution) were created from the Palmer Deposit; and two AG Deposit master composites (one for flotation and one for comminution) were created. Of the 10 composites, only five of them were used in the 2023 flotation test program; Table 13-12 summarizes the head assays of the major elements. Figure 13-10 and Figure 13-11 illustrate the drillhole locations within each deposit that were used in developing the composites.

Table 13-12: 2023 Head Assays for Tested Composites

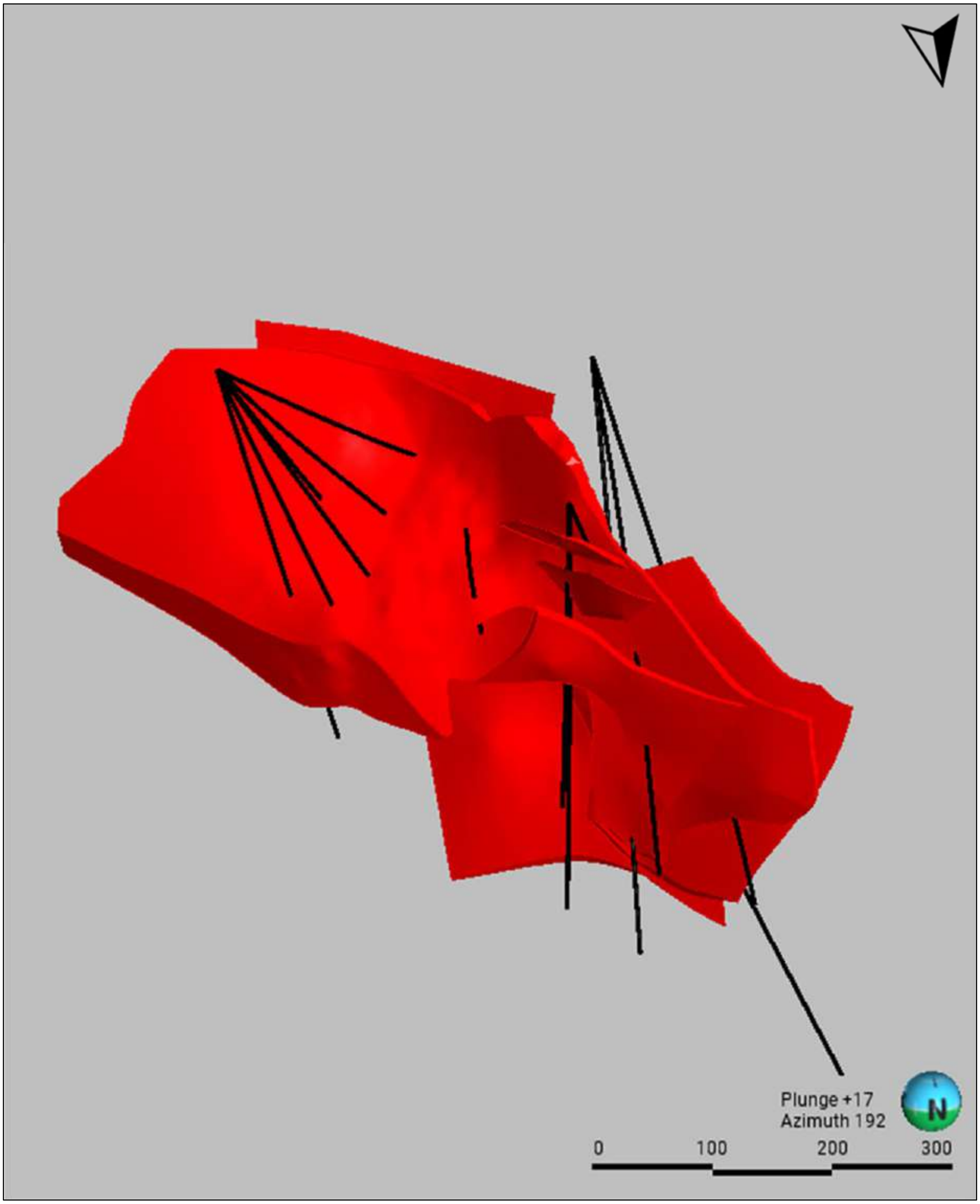
Composite ID	Cu (%)	Pb (%)	Zn (%)	Fe (%)	S (%)	Au (g/t)	Ag (g/t)	Ba (%)
SW Upper	1.81	0.29	6.42	14.3	22.1	0.47	35	19.0
SW Middle	0.99	0.22	5.14	12.9	17.1	0.17	23	8.99
SW Lower	0.85	0.11	3.88	15.3	20.3	0.25	18.2	10.8
SW Master Comp – Flotation	1.14	0.16	4.45	11.7	16.5	0.54	27	12.3
AG Master Comp – Flotation	0.14	0.94	5.25	8.94	16.1	0.43	106	16.7
SW Master Comp – Comminution	1.51	0.09	5.89	13.2	19.8	0.30	26	14.4
AG Master Comp – Comminution	0.11	0.47	2.66	7.36	13.4	0.34	91	19.9
RW West	0.19	0.44	4.33	6.76	10.3	0.13	30.4	10.0
RW East	3.02	0.14	4.85	15.2	18.9	0.38	33	4.27
RW Oxide	0.12	0.91	2.57	2.46	9.5	0.39	62.9	36.0

Source: SGS Canada, 2024



Source: Constantine, 2025

Figure 13-10: Palmer Deposit Drillholes Used in Developing Metallurgical Samples for Testing



Source: Constantine, 2025

Figure 13-11: AG Deposit Drillholes Used in Developing Metallurgical Samples for Testing

The composites for the 2023 test work program were carefully selected with the intention to be representative of each deposit based on their spatial and geological locations from within the deposit, as well as the concentrations of key elements. After review of the head assays, the SW (Palmer

Deposit) and AG master composites are considered representative of each deposit for purposes of this MRE, while the variability composites provide appropriate ranges of the mineralization throughout the deposit to inform sensitivity to testing conditions.

13.3.3 Summary of Results

Comminution and abrasivity tests performed on the master composites demonstrated that they were very soft to soft in terms of SMC, BW_i, and SPI and mildly abrasive in terms of A_i when compared to the SGS Canada database.

Test work on the sequential lead-copper flotation flowsheet showed that lead flotation followed by copper flotation and finally zinc flotation is feasible, and reasonable results were achieved; however, LCT was more amenable to producing a lead-copper bulk concentrate and a zinc concentrate. More test work is needed to confirm the ability to produce separate lead, copper, and zinc concentrates.

The two master composites were found to be mineralogically favorable ores for sulfide flotation, containing mainly chalcopyrite and sphalerite in the SW (Palmer) master composite and galena and sphalerite in the AG Deposit master composite. The main silver carriers were hessite, diaphorite, and tetrahedrite/ tennantite, and the silver-bearing phases were well liberated, occurring mainly as pure, free, and liberated particles or association with other sulfides.

Comminution Test Work

Comminution tests were performed on the two comminution master composites, and Table 13-13 summarizes the results. The composites are considered very soft to soft in terms of the SMC, Bond rod mill work index, and BW_i and mildly abrasive in terms of the A_i.

Table 13-13: Comminution Tests Summary

Sample ID	JK Parameters (SMC)					BW_i Parameters		Bond A_i		SPI	
	A	b	A x b	t_a	SCSE	Work Index (kWh/t)	POH (%)	A_i (g)	POA (%)	SPI (Minimum)	POH (%)
AG Master Composite	62.9	2.28	143.4	0.86	5.71	6.7	2	0.109	20	31.6	11.7
SW Master Composite	74.2	1.48	109.8	0.80	6.81	7.1	2	0.081	15	25.8	7.9

Source: SGS Canada, 2024

Flotation Test Work

Table 13-14 summarizes the flotation test results for the two master composites (SW-LCT1 and AG-LCT1) and three variability composites (SW Upper-F1, SW Middle-F1, and RW East-F1). Favorable sulfide flotation results were achieved for the two master composites and the SW middle composite. Favorable barite flotation results were achieved for the two master composites (SW-F30 and AG-F23).

Table 13-14: Sulfide and Barite Flotation Test Results Summary

Test ID	Copper-Lead Cleaner Concentrate									
	Grade (% g/t)					Recovery (%)				
	Cu	Zn	Pb	Au	Ag	Cu	Zn	Pb	Au	Ag
SW-LCT1	24.1	6.61	3.15	3.21	431	90.3	6.1	82.9	62.7	75.6
AG-LCT1	3.80	6.74	37.7	8.32	3,760	54.8	2.2	83.4	50.4	82.9
SW Upper-F1	12.6	40.0	1.03	2.26	264	21.9	20.5	11.5	15.8	24.5
SW Middle-F1	25.1	3.53	5.38	1.84	415	76.1	2.1	75.9	35.3	57.2
RW East-F1	13.8	37.3	0.44	1.46	152	12.3	20.9	7.8	13.2	15.3

Test ID	Zinc Cleaner Concentrate									
	Grade (% g/t)					Recovery (%)				
	Cu	Zn	Pb	Au	Ag	Cu	Zn	Pb	Au	Ag
SW-LCT1	0.72	55.8	0.09	0.40	48	4.6	89.2	4.2	13.4	14.6
AG-LCT1	0.48	62.2	0.56	0.56	80	31.9	94.8	5.7	15.6	8.1
SW Upper-F1	7.67	34.4	1.88	1.31	145	25.9	34.1	40.6	17.7	26.1
SW Middle-F1	0.75	57.1	0.11	0.38	47	5.5	83.9	3.7	17.6	15.6
RW East-F1	13.1	37.9	0.47	1	103	26.5	48.2	19.0	20.6	23.5

Test ID	Barite Cln Conc Grade (%)				Barite Cln Conc Recovery (%)			
	Ba	BaO	$BaSO_4$	Ba	BaO	$BaSO_4$	Ba	BaO
SW-F30	56.7	63.3	96.4	73.6	73.6	73.6	SW-F30	56.7
AG-F23	57.4	64.1	97.6	70.1	70.1	70.1	AG-F23	57.4
SW Upper-F2	45.5	50.8	77.3	30.7	30.7	30.7	SW Upper-F2	45.5
SW Middle-F2	52.9	59.0	89.9	50.7	50.7	50.7	SW Middle-F2	52.9
RW East-F2	33.7	37.6	57.3	6.4	6.4	6.4	RW East-F2	33.7

Source: SGS Canada, 2024

Further flotation optimization is recommended as the Project advances, but the flotation flowsheet is well understood for an MRE.

SW Flotation

Master Composite

Results from each sequential flotation test were reviewed and informed the changing of conditions for the next test. At the culmination of the optimization test work, SW-F28 was defined as the new base case flowsheet. LCT targeted the same flotation conditions developed in SW-F28. Favorable results were achieved in SW-LCT1. The copper/lead cleaner concentrate averaged 24.1% Cu, 6.6% Zn, and 3.2% Pb at 90.3% Cu and 82.9% Pb recovery, while the zinc cleaner concentrate averaged 55.8% Zn at 89.2% Zn recovery. Table 13-15 shows the test results for SW-F28 and SW-LCT1.

Table 13-15: SW Flotation Base Case (SW-28F) and LCT (SW-LCT1) Results

Summary Results of Bulk Cleaner Flotation: SW-F28 and SW-LCT1

Test ID	Copper-Lead Cleaner Concentrate															
	Mass	Grade								Recovery (%)						
	g	%	Cu (%)	Zn (%)	Pb (%)	Fe (%)	Au (g/t)	Ag (g/t)	S (%)	Cu	Zn	Pb	Fe	Au	Ag	S
SW-F28	68.2	3.4	26.1	5.34	3.58	27.4	4.79	462	34.2	76.1	4.2	68.1	7.7	45.0	58.1	6.9
SW-LCT1	470.0	4.1	24.1	6.61	3.15	28.7	3.21	431	35.0	90.3	6.1	82.9	10.8	62.7	75.6	9.0

Test ID	Zinc Cleaner Concentrate															
	Mass	Grade								Recovery (%)						
	g	%	Cu (%)	Zn (%)	Pb (%)	Fe (%)	Au (g/t)	Ag (g/t)	S (%)	Cu	Zn	Pb	Fe	Au	Ag	S
SW-F28	87.9	4.4	0.35	63.5	0.05	3.02	0.44	40	33.3	1.3	65.1	1.2	1.1	5.3	6.5	8.7
SW-LCT1	807.5	7.0	0.72	55.8	0.09	8.06	0.40	48	34.0	4.6	89.2	4.2	5.2	13.4	14.6	15.0

Summary Results of SW-LCT1

Product	Weight		Assay (%, g/t)							Distribution (%)						
	g	%	Cu	Zn	Pb	Fe	Au	Ag	S	Cu	Zn	Pb	Fe	Au	Ag	S
Copper-lead cleaner 3 concentrate	470.0	4.07	24.1	6.61	3.15	28.7	3.21	431	35.0	90.3	6.1	82.9	10.8	62.7	75.6	9.0
Zinc cleaner 3 concentrate	807.5	7.00	0.72	55.8	0.09	8.06	0.40	48	34.0	4.6	89.2	4.2	5.2	13.4	14.6	15.0
Zinc cleaner 1 scavenger tailings	696.4	6.04	0.24	0.44	0.06	21.6	0.14	10	24.4	1.3	0.6	2.2	12.0	4.0	2.7	9.3
Zinc rougher tailings	9,563.3	82.9	0.05	0.21	0.02	9.46	0.05	2.0	12.7	3.8	4.0	10.7	72.1	19.9	7.1	66.7
Feed	11,537.2	100.0	1.09	4.38	0.15	10.9	0.21	23	15.8	100	100	100	100	100	100	100

Source: SGS Canada, 2024
Note: Blue text indicates final concentrate produced

Variability Samples

Batch test results comparable to the SW master composite were achieved in the SW Middle variability composite bulk cleaner flotation test. Additional optimization is recommended for SW Upper and RW East composites. Table 13-16 illustrates the results of all SW variability composite bulk cleaner flotation tests.

Table 13-16: SW Variability Composite Bulk Cleaner Flotation Test

Test ID	Copper-Lead Cleaner Concentrate															
	Mass	Grade								Recovery (%)						
	g	%	Cu (%)	Zn (%)	Pb (%)	Fe (%)	Au (g/t)	Ag (g/t)	S (%)	Cu	Zn	Pb	Fe	Au	Ag	S
SW Upper-F1	62.8	3.2	12.6	40	1.03	13.0	2.26	264	31.3	21.9	20.5	11.5	2.8	15.8	24.5	4.7
SW Middle-F1	57.4	2.9	25.1	3.53	5.38	30.3	1.84	415	34.6	76.1	2.1	75.9	6.6	35.3	57.2	6.1
RW East-F1	53.7	2.7	13.8	37.3	0.44	14.9	1.46	152	32.7	12.3	20.9	7.8	2.7	13.2	15.3	4.9
Test ID	**Zinc Cleaner Concentrate**															
	Mass	Grade								Recovery (%)						
	g	%	Cu (%)	Zn (%)	Pb (%)	Fe (%)	Au (g/t)	Ag (g/t)	S (%)	Cu	Zn	Pb	Fe	Au	Ag	S
SW Upper-F1	121.8	6.2	7.67	34.4	1.88	18.8	1.31	145	35.9	25.9	34.1	40.6	7.8	17.7	26.1	10.4
SW Middle-F1	138.7	7.0	0.75	57.1	0.11	7.68	0.38	47	33.1	5.5	83.9	3.7	4.0	17.6	15.6	14.2
RW East-F1	122.0	6.2	13.1	37.9	0.47	14.4	1.00	103	32.3	26.5	48.2	19.0	5.8	20.6	23.5	11.0

Source: SGS Canada, 2024

AG Deposit Flotation

Master Composite

Results from each sequential flotation test were reviewed and informed the changing of conditions for the next test. At the culmination of the optimization test work, AG-F18 was defined as the base case flowsheet with the same conditions as the base case for the SW composite. Favorable LCT results were achieved for AG-LCT1 considering the low copper and lead head grade. The copper/lead cleaner concentrate averaged 3.8% Cu, 6.7% Zn, and 37.7% Pb at recoveries of 54.8% Cu and 83.4% Pb. The zinc cleaner concentrate averaged 62.2% Zn at 94.8% Zn recovery. The stability of the LCT was good. Table 13-17 shows the test results for AG-F18 and AG-LCT1.

Table 13-17: AG Deposit Flotation Base Case (AG-18F) and LCT (AG-LCT1) Results

Summary Results of Bulk Cleaner Flotation: AG-F18 and AG-LCT1																
Test ID	Copper-Lead Cleaner Concentrate															
	Mass	Grade								Recovery (%)						
	g	%	Cu (%)	Zn (%)	Pb (%)	Fe (%)	Au (g/t)	Ag (g/t)	S (%)	Cu	Zn	Pb	Fe	Au	Ag	S
Ag-F18	30.7	1.5	4.42	5.72	43.8	14.9	9.79	4,680	26.7	43.8	1.6	71.0	2.6	47.2	76.5	2.6
Ag-LCT1	206.8	1.8	3.80	6.74	37.7	16.0	8.32	3,760	27.8	54.8	2.2	83.4	3.0	50.4	82.9	2.9
Test ID	Zinc Cleaner Concentrate															
	Mass	Grade								Recovery (%)						
	g	%	Cu (%)	Zn (%)	Pb (%)	Fe (%)	Au (g/t)	Ag (g/t)	S (%)	Cu	Zn	Pb	Fe	Au	Ag	S
Ag-F18	133.9	6.7	0.29	65.1	0.33	1.62	0.56	62.0	32.7	12.5	81.6	2.3	1.2	11.8	4.4	13.8
Ag-LCT1	954.0	8.1	0.48	62.2	0.56	2.04	0.56	79.5	33.0	31.9	94.8	5.7	1.8	15.6	8.1	15.9

Summary Results of Locked-Cycle Flotation Test AG-LCT1																
Product	Weight		Assays (%, g/t)							Distribution (%)						
	g	%	Cu	Zn	Pb	Fe	Au	Ag	S	Cu	Zn	Pb	Fe	Au	Ag	S
Copper-lead cleaner 3 concentrate	206.8	1.75	3.80	6.74	37.7	16.0	8.32	3,760	27.8	54.8	2.2	83.4	3.0	50.4	82.9	2.9
Zinc cleaner 3 concentrate	954.0	8.10	0.48	62.2	0.56	2.04	0.56	79.5	33.0	31.9	94.8	5.7	1.8	15.6	8.1	15.9
Zinc cleaner 1 scavenger tailings	713.0	6.05	0.04	1.16	0.18	15.5	0.14	11.6	19.8	1.8	1.3	1.4	10.0	2.9	0.9	7.1
Zinc rougher tailings	9,911.1	84.1	0.02	0.10	0.09	9.49	0.11	7.67	14.8	11.5	1.6	9.5	85.2	31.0	8.1	74.1
Feed	11,785.0	100	0.12	5.31	0.79	9.36	0.29	79.6	14.1	100	100	100	100	100	100	100

Source: SGS Canada, 2024
Note: Blue text indicates final concentrate produced.

Barite Flotation

High-grade barite concentrates were achieved with the zinc float tails from the SW master composite and AG Deposit master composite. The most favorable tests resulted in concentrates that assayed 96.4% $BaSO_4$ at 73.6% Ba recovery and 97.6% $BaSO_4$ grade at 70.1% recovery. The tests were completed with five stages of barite cleaning. Cleaner tests from the 2018 test work showed limited improvement with additional cleaning stages, but those tests were completed on a limited composite sample. Should the market for barite warrant production from the SW and AG Deposits, additional test work is recommended to confirm the barite performance in an LCT on a master composite and variability composites that represent the deposits.

Mineralogy

Table 13-18 summarizes the mineral compositions. Pyrite is identified as the major sulfide for the two composites, measuring 20.5% and 18.3%, respectively. The composites also contain 20.4% and 31.4% barite, respectively. The six variability composites that were tested showed similar compositions to the master composites, with the exception of the RW oxide, which (in addition to being oxidized and containing more smithsonite) also included significantly lower levels of pyrite (1.16%) and higher levels of barite (63.5%) as compared to the SW master composite.

Table 13-18: SW and AG Master Composite Mineral Compositions

Sample		SW Master Composite					AG Master Composite				
Fraction		**Combined**	**+38 µm**		**-38 µm**		**Combined**	**+38 µm**		**-38 µm**	
Mass % of size fraction (%)			**53.5**		**46.5**			**49.8**		**50.2**	
Median particle size (µm)			**69**		**11**			**56.7**		**9.76**	
		Sample	**Sample**	**Fraction**	**Sample**	**Fraction**	**Sample**	**Sample**	**Fraction**	**Sample**	**Fraction**
Mineral mass (%)	Pyrite	20.5	13.5	25.3	7.02	15.1	18.3	10.9	21.9	7.44	14.8
	Tennantite-tetrahedrite	0.07	0.03	0.06	0.03	0.07	0.17	0.10	0.20	0.07	0.14
	Chalcocite	0.04	0.01	0.02	0.03	0.07	0.02	0.00	0.01	0.02	0.04
	Chalcopyrite	3.34	1.83	3.42	1.51	3.25	0.24	0.13	0.27	0.11	0.21
	Sphalerite	6.66	3.91	7.31	2.75	5.92	8.29	4.80	9.63	3.49	6.96
	Galena	0.13	0.05	0.10	0.08	0.17	1.16	0.58	1.16	0.59	1.17
	Molybdenite	0.01	0.00	0.00	0.01	0.02	0.01	0.00	0.00	0.01	0.01
	Other sulfides	0.04	0.04	0.07	0.01	0.02	0.01	0.01	0.02	0.01	0.01
	Quartz	20.8	12.5	23.3	8.33	17.9	16.3	8.93	17.9	7.37	14.7
	Feldspar	7.17	3.61	6.74	3.57	7.68	7.05	3.02	6.05	4.03	8.03
	Hyalophane	1.02	0.66	1.23	0.36	0.78	0.09	0.05	0.10	0.04	0.08
	Epidote	0.80	0.53	0.99	0.28	0.59	0.93	0.57	1.15	0.36	0.71
	Micas/illite	8.24	2.20	4.10	6.04	13.0	10.9	2.91	5.83	8.04	16.0
	Chlorites	4.25	1.82	3.39	2.43	5.24	2.59	1.08	2.16	1.51	3.01
	Titanite	0.22	0.12	0.22	0.10	0.22	0.42	0.21	0.42	0.22	0.43
	Clays	0.18	0.02	0.03	0.16	0.34	0.17	0.04	0.07	0.13	0.27
	Other silicates	0.22	0.11	0.21	0.11	0.24	0.20	0.13	0.25	0.08	0.16
	Iron oxides	0.99	0.58	1.08	0.41	0.88	0.24	0.09	0.18	0.15	0.31
	Cuprite	0.01	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.01
	Rutile	0.22	0.11	0.20	0.12	0.25	0.35	0.19	0.37	0.17	0.33
	Other oxides	0.03	0.02	0.03	0.01	0.03	0.01	0.01	0.01	0.00	0.01
	Ankerite	0.44	0.32	0.59	0.12	0.27	0.02	0.01	0.02	0.01	0.03
	Calcite	3.24	2.05	3.83	1.19	2.56	0.66	0.33	0.67	0.33	0.65
	Dolomite	0.10	0.07	0.13	0.03	0.06	0.01	0.00	0.00	0.01	0.01
	Smithsonite	0.26	0.21	0.39	0.06	0.12	0.01	0.00	0.00	0.01	0.01
	Apatite	0.28	0.12	0.22	0.17	0.36	0.26	0.07	0.14	0.19	0.38
	Barite	20.4	9.00	16.8	11.4	24.6	31.4	15.7	31.4	15.8	31.4
	Edingtonite	0.18	0.11	0.21	0.07	0.15	0.04	0.03	0.06	0.01	0.01
	Native copper	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Other	0.05	0.03	0.05	0.02	0.04	0.03	0.01	0.03	0.02	0.03
	Total	**100**	**53.5**	**100.0**	**46.5**	**100.0**	**100**	**49.8**	**100.0**	**50.2**	**100.0**

Source: SGS Canada, 2024

Due to the overall similarities of the variability composites relative to the master composites, only the master composite results are included in Table 13-18. SRK recommends that when advancing the Project to an updated PEA or prefeasibility study, more consideration be given to the mineralogy of the variability composites to ensure laboratory tests and process design include the potential for variation.

Zinc deportment is presented in Table 13-19, where over 96.0% of the zinc presents as sphalerite. Sphalerite is well-liberated, and the pure, free, and liberated sphalerite is over 95% for the two composites, which correlates with the favorable recovery observed in the flotation test work.

Table 13-19: Zinc Deportment in SW and AG Master Composites

Mineral Name	SW Master Composite	AG Master Composite
Sphalerite	96.9	99.8
Tetrahedrite	0.09	0.16
Smithsonite	2.96	0.07

Source: SGS Canada, 2024

Table 13-20 summarizes the copper deportment. Copper mostly presents as chalcopyrite, which should be favorable for copper flotation recovery. The pure, free, and liberated chalcopyrite is high at 78.5% for the SW master composite and 64.8% for the AG Deposit master composite, again correlating with the recovery results observed through the flotation test work.

Table 13-20: Copper Deportment in SW and AG Master Composites

Mineral Name	SW Master Composite	AG Master Composite
Chalcopyrite	96.7	86.1
Chalcocite	2.74	10.3
Enargite	0.03	0.29
Copper oxides	0.48	3.10
Native copper	0.02	0.23

Source: SGS Canada, 2024

Table 13-21 summarizes the barium deportment. Over 98% of the barium presents as barite. The barite is well-liberated; the pure, free, and liberated barite is over 95%, correlating to the positive flotation recovery results achieved in the test work.

Table 13-21: Barite Deportment in SW and AG Master Composites

Mineral Name	SW Master Composite	AG Master Composite
Barite	98.7	99.9
Hyalophane	0.93	0.06
Edingtonite	0.40	0.06

Source: SGS Canada, 2024

Table 13-22 summarizes the silver deportment. The main carriers are hessite, diaphorite, and tetrahedrite/tennantite. The silver-bearing phases occur mainly as pure, free, and liberated particles or in association with other sulfides.

Table 13-22: Silver Deportment in the SW and AG Master Composite Flotation Products

Modal/Sample	Combined	SW Master Composite		Combined	AG Master Composite	
		Sink	Float		Sink	Float
Acathite	0.06	0.07	0.00	0.07	0.08	0.00
Silver tennantite-tetrahedrite	27.6	17.9	86.1	64.7	65.4	55.4
Diaphorite	0.05	0.05	0.00	28.4	27.3	42.3
Electrum	0.92	1.07	0.00	1.25	1.36	0.00
Hessite	62.5	72.8	0.00	0.18	0.00	2.27
Polybasite	0.31	0.00	2.20	2.95	3.20	0.00
Pyrargyrite	0.00	0.00	0.00	0.62	0.67	0.00
Silver	7.02	6.25	11.7	1.70	1.84	0.00
Stromeyerite	0.31	0.36	0.00	0.15	0.16	0.00
Tellurium with silver	1.28	1.50	0.00	0.00	0.00	0.00
Total	**100**	**100**	**100**	**100**	**100**	**100**

Source: SGS Canada, 2024

13.4 Relevant Results

Through the three identified test work programs conducted by SGS Canada in 2013, 2018, and 2023, progressive and supportive results with regard to copper/lead and zinc flotation have been achieved on samples representative of the resource at a level sufficient to support the updated MRE. Additional variability test work and optimization are recommended to take the Project to the next level, but the test work that has been completed to date is thorough and can be used to inform future variability, sensitivity, and optimization test work.

Based on the test work conducted to date and the significant difference in the copper and lead head concentrations between the SW and AG Deposit ores, recovery assumptions have been applied separately for the purposes of this MRE. Additional test work is required to further define the processing approach related to processing SW (Palmer) and AG ores and whether a suitable flowsheet can be defined such that the ores can be processed together or whether there is an advantage to processing them separately.

Reasonable results were achieved to support further investigation of pyrite and barite flotation circuits. While neither pyrite nor barite are included in the MRE, having the ability to separate these minerals through flotation could provide a substantial opportunity for Constantine and should be further investigated.

13.4.1 Recovery Estimates

The SW master composite and AG Deposit master composite completed LCTs under the same conditions and represent the base case flowsheet for the base metals. The LCTs were closed-cycle tests and thus provide good representation of recoveries to the base metal concentrates for each deposit. The recoveries presented in Table 13-23 for SW and RW and in Table 13-24 for the AG Deposit have been determined to represent a reasonable estimate to support the MRE based primarily on the 2023 test work but are also supported by the 2013 and 2018 test work.

Table 13-23: SW: Estimated Recoveries for NSR

Element	Copper/Lead Concentrate	Zinc Concentrate	Combined
Copper	90.3	4.6	
Zinc	6.1	89.2	
Lead	82.9	4.2	
Gold	62.7	13.4	76.1
Silver	75.6	14.6	90.2

Source: SRK, 2025 (compiled from SGS Canada, 2024)

Table 13-24: AG Deposit: Estimated Recoveries for NSR

Element	Copper/Lead Concentrate	Zinc Concentrate	Combined
Copper	54.8	31.9	
Zinc	1.6	94.8	
Lead	83.4	5.7	
Gold	50.4	15.6	66.0
Silver	82.9	8.1	91.0

Source: SRK, 2025 (compiled from SGS Canada, 2024)

Copper and lead are payable in the copper concentrate, zinc is payable in the zinc concentrate, and gold and silver are payable in both concentrates.

13.4.2 Concentrate Quality

In addition to confirming a reasonable level of recovery for each of the key base metals, the results of the SGS Canada test work have also demonstrated the ability to produce a saleable concentrate with base metal concentrations at a level that would support reasonable prospects for eventual economic extraction (RPEEE). Table 13-25 summarizes the estimated concentrate grade based on the 2023 SGS Canada test work for the SW Deposit, and Table 13-26 summarizes the concentrate grade based on the 2023 SGS Canada test work for the AG Deposit.

Table 13-25: SW Estimated Concentrate Grade

Metal	Copper/Lead Concentrate	Zinc Concentrate
Copper (%)	24.1	0.72
Lead (%)	3.15	0.09
Zinc (%)	6.61	55.8
Gold (g/t)	3.21	0.4
Silver (g/t)	431	48

Source: SRK, 2025 (compiled from SGS Canada, 2024)

Table 13-26: AG Deposit Estimated Concentrate Grade

Metal	Copper/Lead Concentrate	Zinc Concentrate
Copper (%)	3.8	0.48
Lead (%)	37.7	0.56
Zinc (%)	6.74	62.2
Gold (g/t)	8.32	0.56
Silver (g/t)	3,760	80

Source: SRK, 2025 (compiled from SGS Canada, 2024)

Product Characterization

The copper/lead and zinc cleaner concentrates from the respective LCTs were submitted for characterization; Table 13-27 and Table 13-28 present the results. Elevated levels of arsenic (As) and antimony (Sb) were found in one of the samples from the AG master composite locked cycle test. Further test work is needed to confirm the recurrence of these elements and if additional steps are required to reduce the concentrations such that penalties are not incurred and/or the concentrate remains saleable.

Table 13-27: Product Characterization (1 of 2)

Sample ID	As (g/t)	Ba (g/t)	Be (g/t)	Bi (g/t)	Cd (g/t)	Co (g/t)	Li (g/t)	Mo (g/t)	Ni (g/t)	Sb (g/t)	Se (g/t)	Sn (g/t)	Sr (g/t)	Ti (g/t)	Y (g/t)	SiO_2 (%)
SW_LCT1-6 copper-lead cleaner 3 concentrate	2,950	71.2	<0.04	34	308	15	<20	78	11	1,140	31	<20	13	<30	0.5	0.6
SW_LCT1-6 zinc cleaner 3 concentrate	168	40.2	<0.04	<10	2,640	17	<20	63	14	53	<30	<20	8.65	<30	<0.5	0.66
AG_LCT1-6 copper-lead cleaner 3 concentrate	9,960	35.2	<0.04	<10	307	18	<20	234	30	10,100	902	<20	13.7	64	0.8	2.1
AG_LCT1-6 zinc cleaner 3 concentrate	101	35.7	<0.04	<10	2,410	<3	<20	46	<6	113	179	<20	8.85	<30	0.7	0.72

Source: SGS Canada, 2024

Table 13-28: Product Characterization (2 of 2)

Sample ID	Al_2O_3 (%)	MgO (%)	CaO (%)	K_2O (%)	TiO_2 (%)	MnO (%)	Cr_2O_3 (%)	V_2O_5 (%)	Na_2O (%)	P_2O_5 (%)	Ga (g/t)	Ge (g/t)	In (g/t)	Hg (g/t)	F (%)	Cl (HNO_3 soluble) (g/t)
SW_LCT1-6 copper-lead cleaner 3 concentrate	0.18	0.063	0.1	<0.04	0.05	0.011	<0.02	<0.008	0.02	<0.02	<5	<1	5	9.4	<0.005	14
SW_LCT1-6 zinc cleaner 3 concentrate	0.17	0.041	0.2	<0.04	0.05	0.034	<0.02	<0.008	0.01	<0.02	14	<1	8	56.4	<0.005	<10
AG_LCT1-6 copper-lead cleaner 3 concentrate	0.76	0.11	0.2	0.18	0.17	0.021	<0.02	<0.008	0.02	0.02	6	3	<3	25.6	0.006	<10
AG_LCT1-6 zinc cleaner 3 concentrate	0.26	0.03	0.1	0.05	0.09	0.044	<0.02	<0.008	0.01	<0.02	17	<1	4	64.3	<0.005	13

Source: SGS Canada, 2024
Cl: Chlorine
F: Fluorine
Ge: Germanium

13.5 Significant Factors

No significant factors are known beyond what has already been discussed in this section that would affect the processing or recovery of ore from the Palmer or AG Deposits.

14 Mineral Resource Estimate

14.1 Drillhole Database

SRK was supplied with an export from the Constantine central database (GeoSpark) in Microsoft Access format and dated January 13, 2025. SRK completed exports from the database in ascii format (.csv), which forms the effective date of this report. All key tables have been imported into Leapfrog Geo/Edge for use in the current estimate. The extracted files used to form the basis for the estimate included the following key tables (Table 14-1).

Table 14-1: Summary of database files

Filename	Basis	Number of Records
tblCollars.csv	Collar location, hole type,	309
tblGenAssaysDrillholeJan13.csv	Final assays	16,717
tblLithology.csv	Lithology	11,435
tblMineralization.csv	Mineralization style	22,944
tblSpecificGravity.csv	Density analysis	6,695
tblSurveys.csv	Downhole Survey	4,719
tblAlteration.csv	Alteration	18,138
tblGeotech.csv	Geotechnical parameters, RQD, Recovery	29,501

Source: SRK, 2025

14.2 Geologic Model

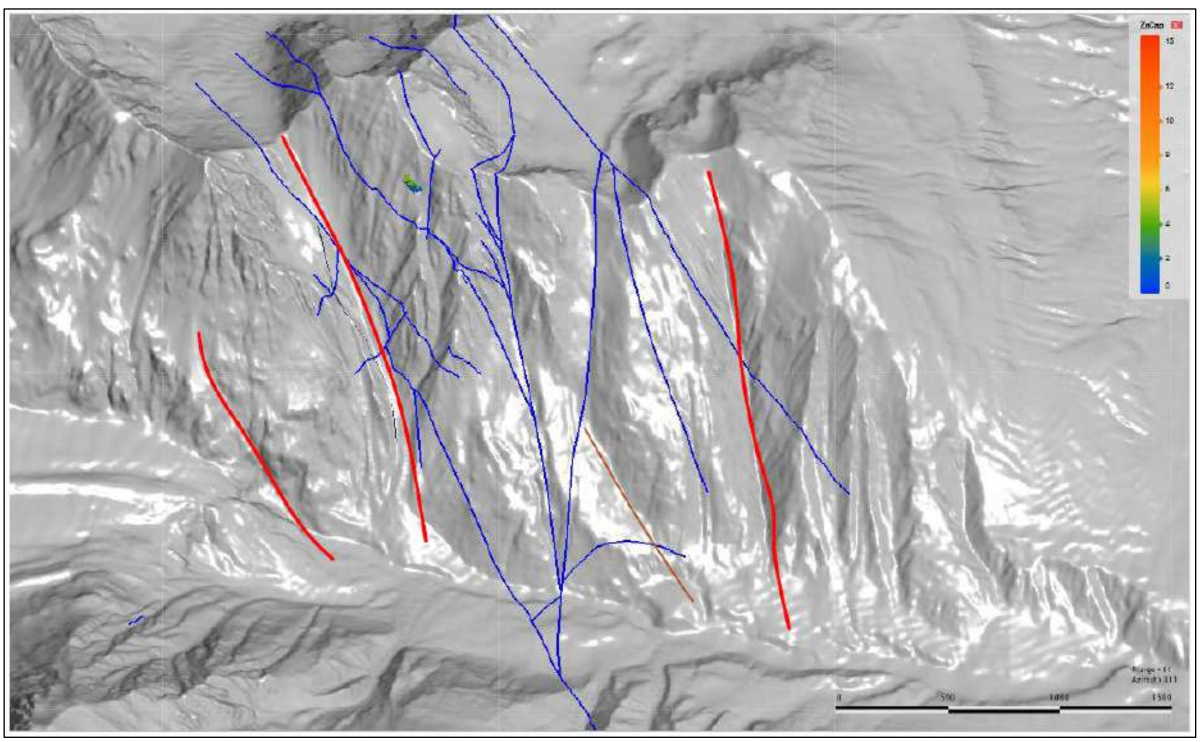
14.2.1 Palmer Deposit

SRK completed a review of the available structural data and generated a preliminary structural framework model in Q4 2023. The findings of the study were presented to Constantine in November 2023 in a presentation entitled, “Palmer Structural Data Review and Preliminary Fault Modeling,” completed by Ron Uken. Mr. Uken noted the following key findings:

- Oriented fault data are strongly biased to structures normal to the drill axis.
- There is concern over the reliability of data based on spoking patterns noted on stereonet analysis of the data. It is SRK’s opinion that this is likely an issue with beta-angle measurements in the database; this is highlighted by the faults, bedding, and foliation, all recording similar orientations and distributions. This issue limits the value of the structural information in the database for detailed structural modeling.
- Review of the surface mapping information provided higher levels of confidence with a dominant steep northwest and west-to-northwest trend.
- Timing relationships are currently unclear, but further refinement of the model during the 2024 exploration program through logging and improved orientation of core should increase confidence.
- SRK based the initial model on modeled faults from the surface (Figure 14-1). More detailed digital mapping and lineament analysis can be used to support modeling of additional secondary and tertiary fault sets.
- Historically, a major thrust fault (Main Thrust Zone) was modeled to the north of Zone 1, but detailed analysis of the downdip intersections shows the fault does not always honor the lithological logging in the holes; therefore, refinement of the structure is recommended. Thrust intercepts should be identified based on the lithological descriptions and supported by

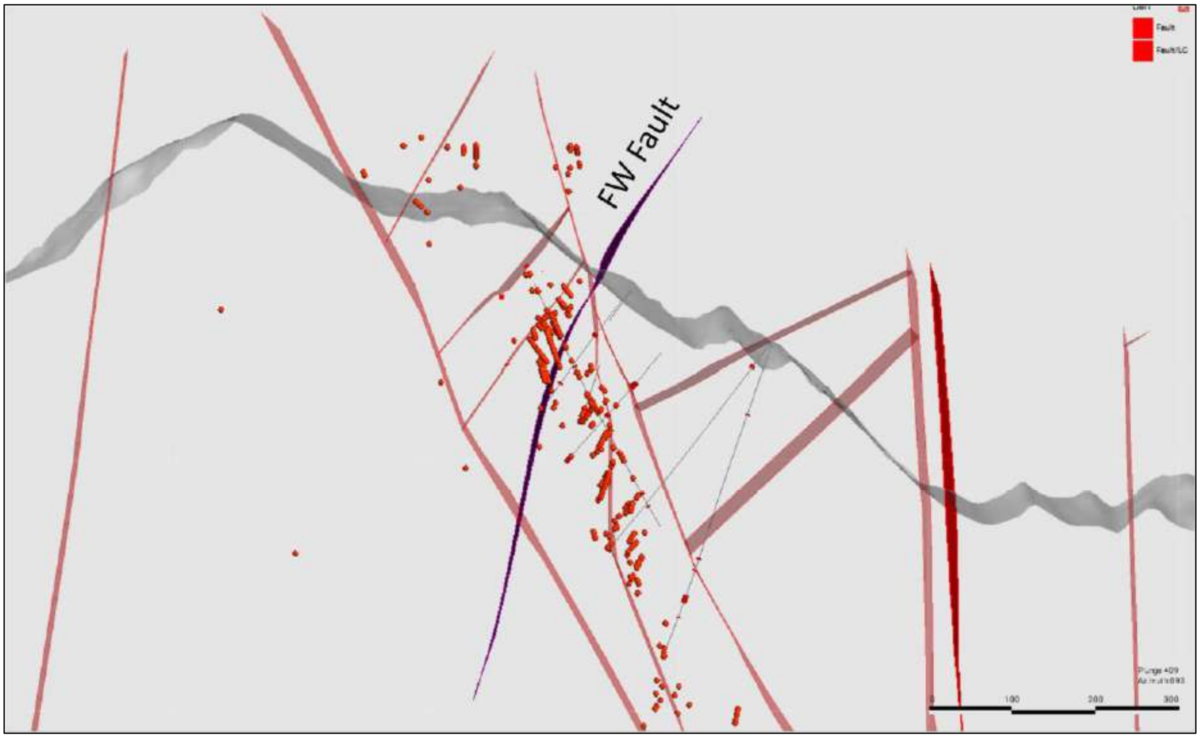
additional structural attributes (such as fill type) and fault kinematics through more detailed review of the logging process.

- SRK's preliminary fault modeling exercise focused on the proposed underground mine designs, stopes, and planned drilling, with some extensions into the more deposit-scale regional setting where appropriate.
- The following structural data were used to inform the structural modeling:
  - Historic structural surface maps
  - Surface lineaments
  - Fault intercept data
  - RQD data
  - Assay data
  - Geophysics data
- SRK integrated (where possible) historical fault wireframes with the revised interpretation, which included a change in the orientation of the large-scale Kudo Fault to a more east-to-west orientation compared to the northwest-to-southeast orientation used in the previous model.
- SRK also noted that the historically modeled FW Fault (Figure 14-2) had a strong correlation to controls on mineralization at the base of the Zone 1 area.
- During the 2024 exploration program and with the additional work completed by Constantine geological team on the ongoing lithological model, SRK noted changes in both orientation and lithology that are best explained by further faulting between Zone 2 and Zone 3 within the SW Zone.



Source: SRK, 2023
Note: Blue lines indicate mapped faults, and red lines indicate interpreted faults.

Figure 14-1: Major Faults as Modeled from Surface Features



Source: SRK, 2023
Note: Mineralization shown on boreholes indicating potential economic material

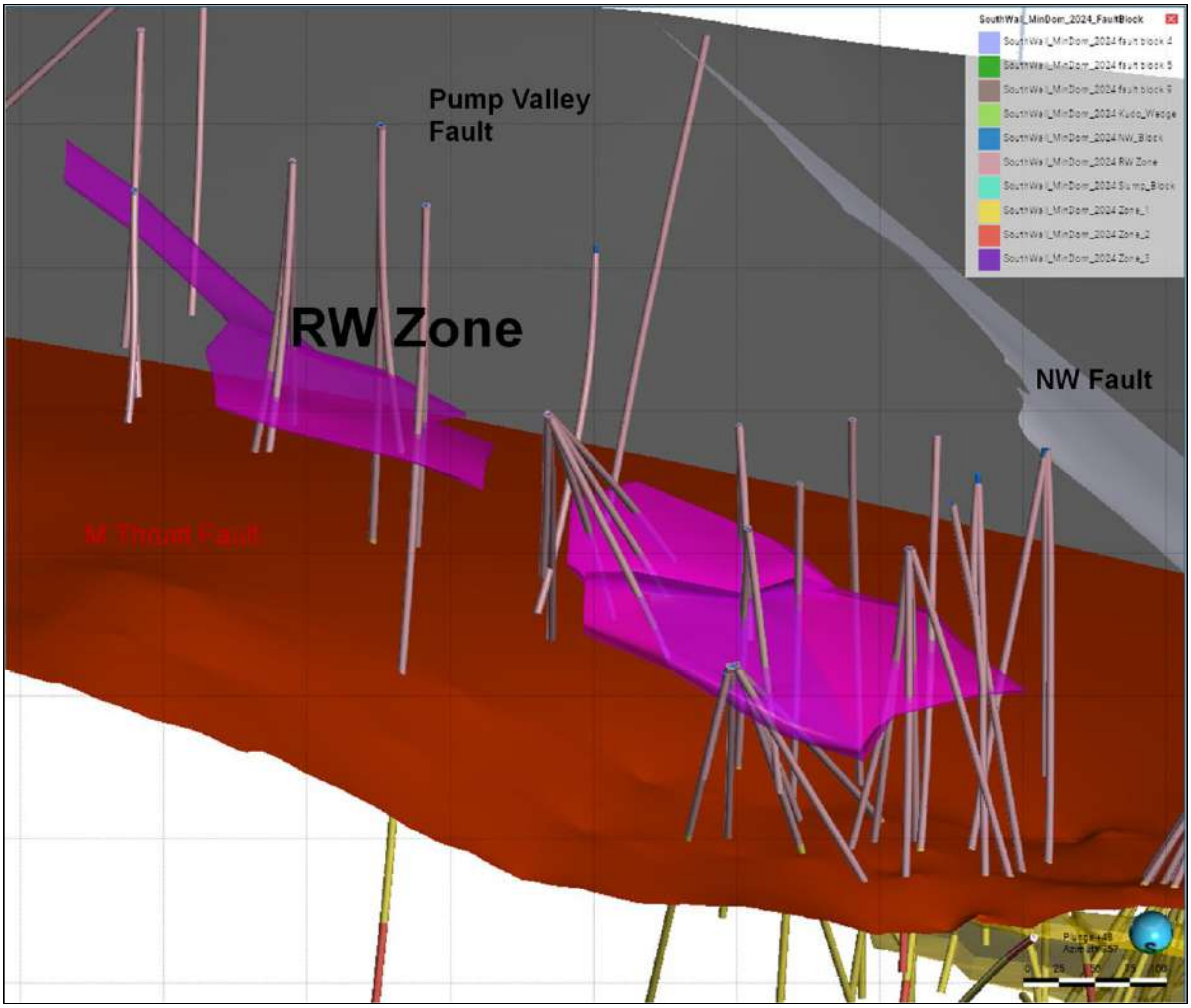
Figure 14-2: Location of the FW Fault Relative to the Mineralization, Looking East

To complete the updated mineralization models, SRK created a refined geological model within Leapfrog Geo using selected faults from the preliminary fault model produced by Ron Uken, which has been adjusted and reviewed by both Constantine and SRK based on the 2024 drilling programs and ongoing work on consolidation of historical mapping data.

The final structures used for the 2024 update are referred to in the Leapfrog Model as:

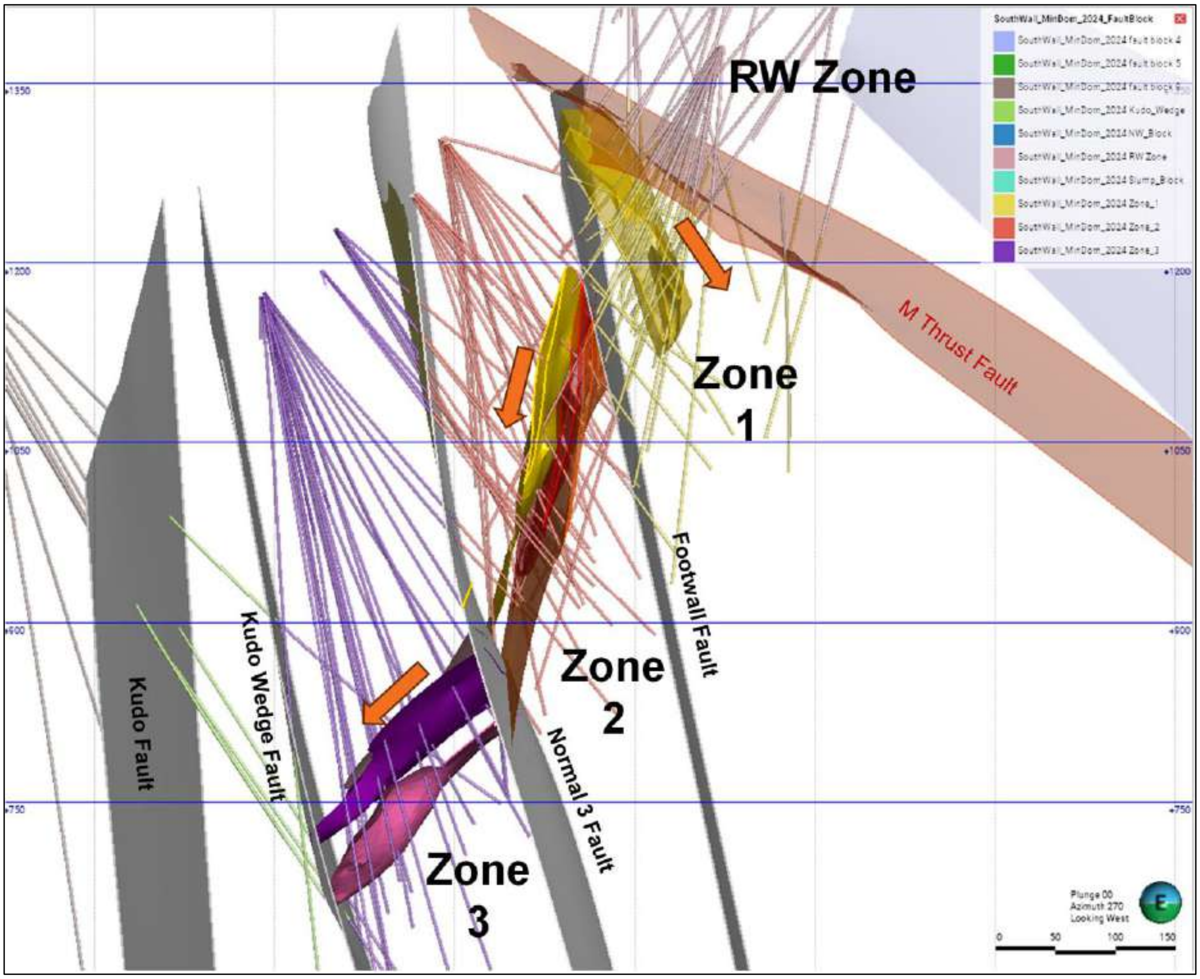
- MainZone Thrust Fault (M Thrust)
- Footwall Fault (FW Fault)
- Normal Fault 3 (Normal 3)
- Kudo Wedge/Kudo North Fault (Kudo_Wedge)
- Northwest Fault (NW Fault)
- Kudo Fault (Kudo)
- 737 Fault (737 Fault)
- Slump Block Fault (Slump Block)

Only the first four faults noted above were used to generate the fault block models which control the mineralization. The other faults are used to generate individual fault blocks to help aid future exploration, but SRK notes that additional faulting in the local area is likely, and the fault models may need future refinement with continued exploration. A summary of the RW Zone and the SW Zones 1-2-3 shown in Figure 14-3 and Figure 14-4 show a summary of the RW Zone and SW Zones 1, 2, and 3.



Source: SRK, 2024

Figure 14-3: 3D View of RW Zone Mineralization Relative to Key Faults as Modeled in the Preliminary Structural Model

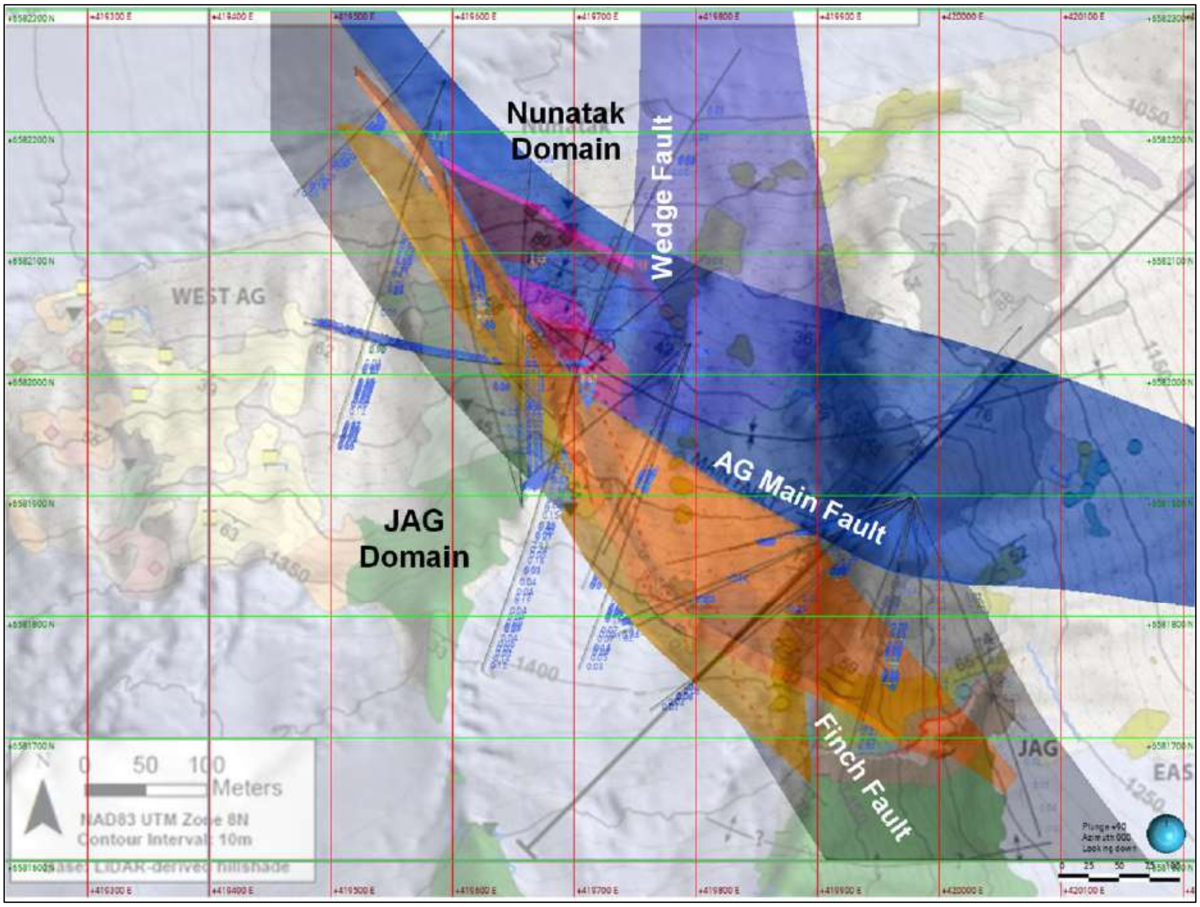


Source: SRK, 2024
Note: Dominant mineralization orientation is shown in orange.

Figure 14-4: 3D View of SW Zones 1, 2, and 3 Mineralization Relative to Key Faults as Modeled in the Preliminary Structural Model

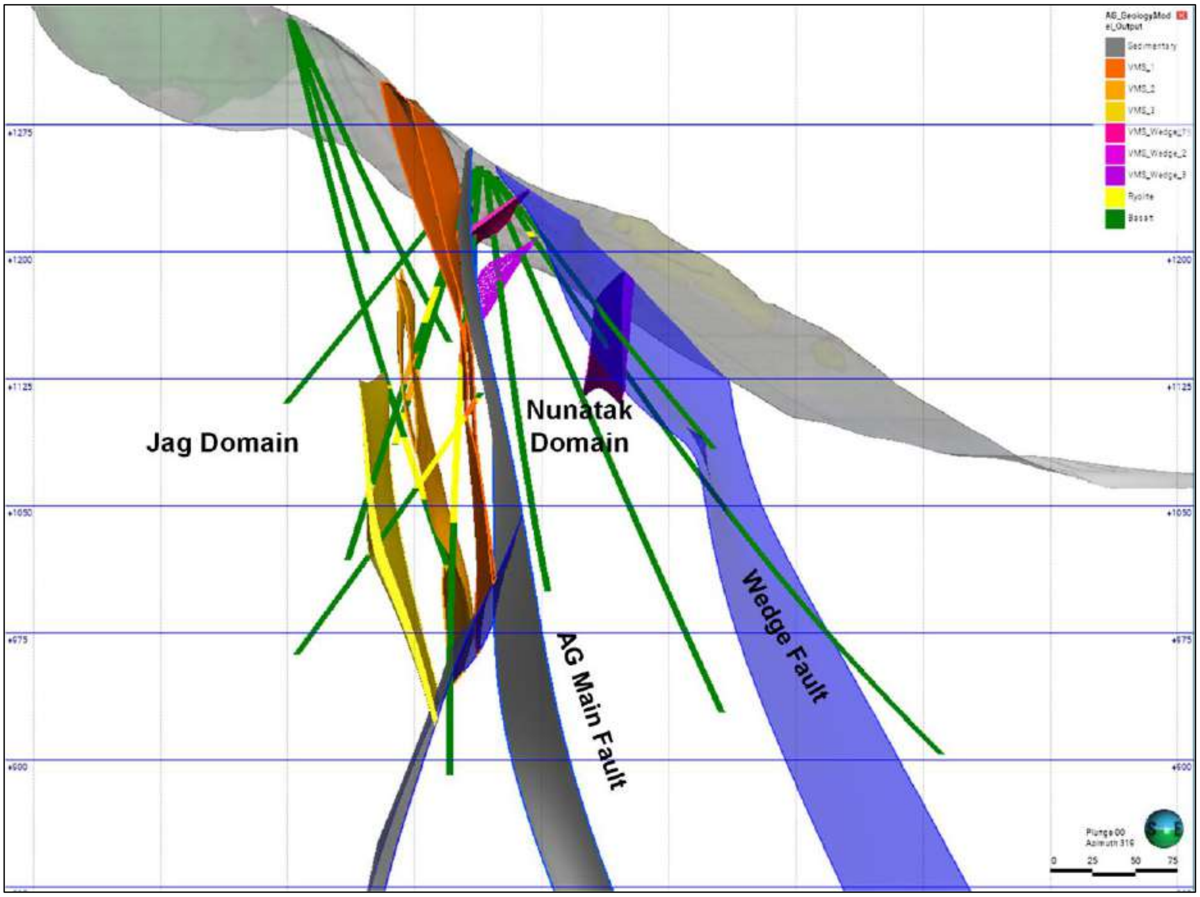
14.2.2 AG Deposit

Limited drilling and exploration have been completed on the AG Deposit to date, in comparison to the SW Zone. The current mapping and geological interpretation from the drilling have identified three key faults which impact the mineralization. These faults are referred to as the Main Fault and Wedge Fault, with a minor structure noted at depth named the Finch Fault, which is not projected to surface. The Main and Wedge Faults have been modeled from a combination of the surface mapping, with the Main Fault being mapped clearly in historical mapping. Evidence for the Wedge and Finch Faults are based on inputs provided by Constantine, which SRK considered to be reasonable. The Finch Fault is interpreted to cut the mineralization at depth. SRK notes based on the mineralization in the northeast portion of the deposit, understanding of the structural setting is still considered a risk to the current interpretation; follow-up exploration via mapping and infill drilling will be required to increase the confidence in this portion of the model. Figure 14-5 and Figure 14-6 show a summary of the structural model for the AG Deposit in both plan and section.



Source: SRK, 2024

Figure 14-5: Plan Showing AG Deposit Fault Model



Source: SRK, 2024

Figure 14-6: Cross-Section Showing AG Fault Model vs. Mineralization

14.3 Mineralization Model

14.3.1 Palmer Deposit

SRK worked with the Constantine site team to develop an updated interpretation of the SW domains (Zones 1, 2, and 3) as previously defined in the 2018 mineralization model. The current update has maintained the previous model for the RW West domain and minor edits were completed on the RW East domain.

SRK provided Constantine with an interim interpretation based on the 2023 drilling programs and using the previous 2018 interpretation as a guideline. These zones were referred to as Zone 1 and Zone 2-3 mineralization. The Zone 1 wireframe identified four potential mineralized zones that merge and split over a strike length of approximately 350 m. For ease of reference, SRK named the units Zone 1, Zone 1 Upper, Zone 1 Lower, and Zone 1 West. Upon review by SRK, it was noted that the model broadly fits the historical Zone 1 model (single zone) but is more discrete than previous modeling.

During the 2024 geological modeling, SRK had previously used a combined Zone 2-3 domain to fit with the historical interpretation. Constantine also provided a revised interpretation for the upper portions of the Zone 2-3 domains which differs from the historical interpretation. The Constantine model was based on lithological coding (compared to assay based) and appeared more discontinuous in the interpretation provided. Therefore, SRK decided to use the 2018 (updated to 2023 drilling) interpretation as the basis for the current model. Review of the preliminary geological model provided by Constantine and reviewing the orientation of the mineralization between the steeper upper Zone 2 mineralization and the shallower dipping Zone 3 mineralization, SRK has added in an additional fault to the geological model (Normal 3) to help explain the change in dip. SRK has provided Constantine with the updated interpretation for review and acceptance.

SRK notes the lower portions of the deposit are still considered complex, and it is expected additional faults are likely to be present, which accounts for the relatively quick changes in the thickness of the mineralized lenses at depth. At this stage, SRK does not consider there to be sufficient drilling to model these structures with confidence. Therefore, there are areas where the current mineralization may extend beyond the unmodeled faults, which could terminate the mineralization in a future model; however, there also remains potential for extensions to the current model if the fault kinematics are better understood.

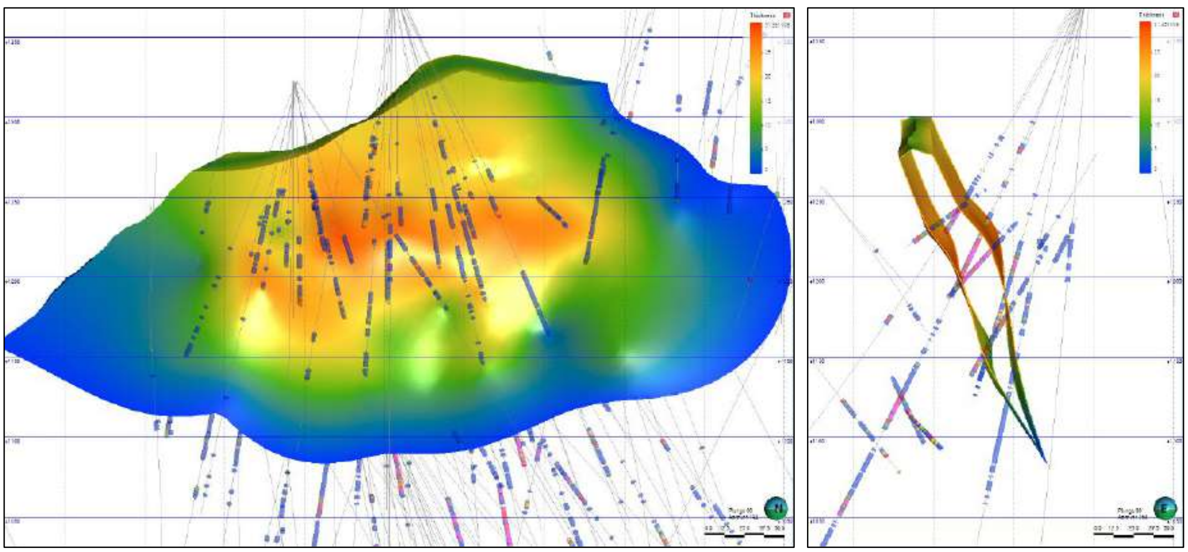
SRK has produced a revised mineralization model for SW and RW Domains:

- The 2018 mineralization model was compared to the revised geological model presented by Constantine, and it was noted that previous model had mineralization cross-cutting geological units which are defined as barren or low-grade. Therefore, SRK created an updated model using the Leapfrog vein model units.
- SRK generated an NSR calculation, which is defined as follows:
  - SW/RW Domains: NSR = US$77.25 x %Cu + US$20.32 x %Zn + US$9.64 x %Pb + US$0.64 x g/t Ag + US$43.07 x g/t Au
  - AG Domains: NSR = US$49.04 x %Cu + US$22.25 x %Zn + US$10.14 x %Pb + US$0.70 x g/t Ag + US$37.77 x g/t Au
  - The calculation is based on the 2024 assumed metal prices of gold (US$2,100.00/oz), silver (US$28.0/oz), copper (US$4.50/lb), lead (US$0.95/lb), and zinc (US$1.50/lb).
  - Estimated metal recoveries for SW/RW are 76.1% Au, 90.2% Ag, 90.3% Cu, 82.9% Pb, and 89.2% Zn. Estimated metal recoveries for AG Deposit are 66.0% Au, 91.0% Ag, 54.8% Cu, 83.4% Pb, and 94.8% Zn.
- The samples were initially coded as potential Zone 1, Zone 2, or Zone 3 mineralization. These coded samples were then modeled using the Leapfrog vein modeling tool, which allows improved geological control on definition of the hangingwall and footwall contacts for each of the sub-domains. Sample selection has been based initially on logging, but is aided by the NSR values to aid in the selection of intervals which may have been mis-logged or have sulfide mineralization based on the assay information.
- The model has been refined using the interval selection tool within Leapfrog by adding hangingwall and footwall contact polylines to merge the hangingwall and footwall domains. SRK coded the model and sampling into four sub-domains for Zone 1 (Main, Upper, Lower, and West) and three-domains for the Zone 2 and Zone 3 domain (Zone2 - Main, Upper, Lower, Zone3 – Main, Lower, Upper).
- All surfaces have been cropped to the fault boundaries with no mineralization extending beyond the limiting fault blocks.
- A comparison of the volumes of the wireframes from 2018 to 2024 shows:
  - Zone 1 increase from approximately 1.07 to 1.54 million cubic meters (Mm^3)

- o Zone 2-3 increase from approximately 2.17 to 2.28 Mm^3
- o RW increase from approximately 0.75 to 1.48 Mm^3

The higher tonnage noted in the 2025 models are attributed to a combination of the impact of new drilling and the lower NSR cut-off used by SRK to define the updated domains. Once the models for the various sub-domains were completed, SRK undertook a review with the Constantine geological team before continuing the estimation process, with all sides in agreement that the revised model was representative of the underlying data.

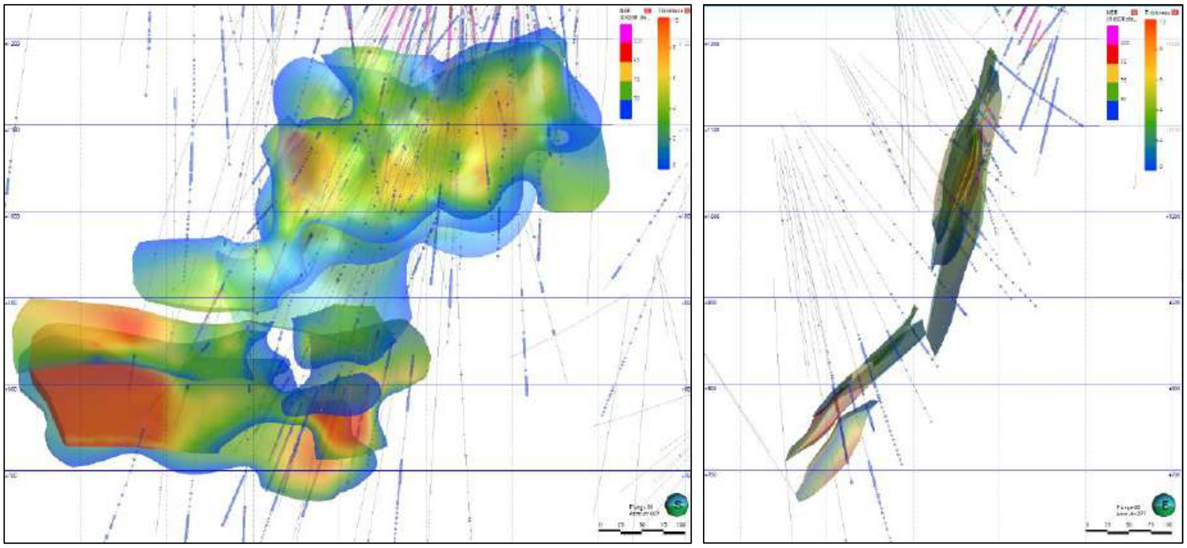
The final Zone 1 main domain currently extends approximately 450 m along strike and 250 m downdip, with thickness ranging from 5 to 30 m. The sub-domains have been defined as Zone 1 Main Zone, Zone 1 Upper, Zone 1 Lower, and Zone 1 West. Figure 14-7 shows a long-section and cross-section of the Zone 1 main zone.



Source: SRK, 2024
Note: The left image shows a long-section, and the right image shows a cross-section.

Figure 14-7: SRK Zone 1 Main Domain

The final Zone 2-3 main domain currently extends approximately 450 to 500 m along strike and approximately 500 m downdip, with thickness ranging from 2 to 20 m, with some areas at depth in the proximity of the historical stringer domain reaching up to 40 m. Figure 14-8 shows a long-section and cross-section of the Zone 2-3 main zone.



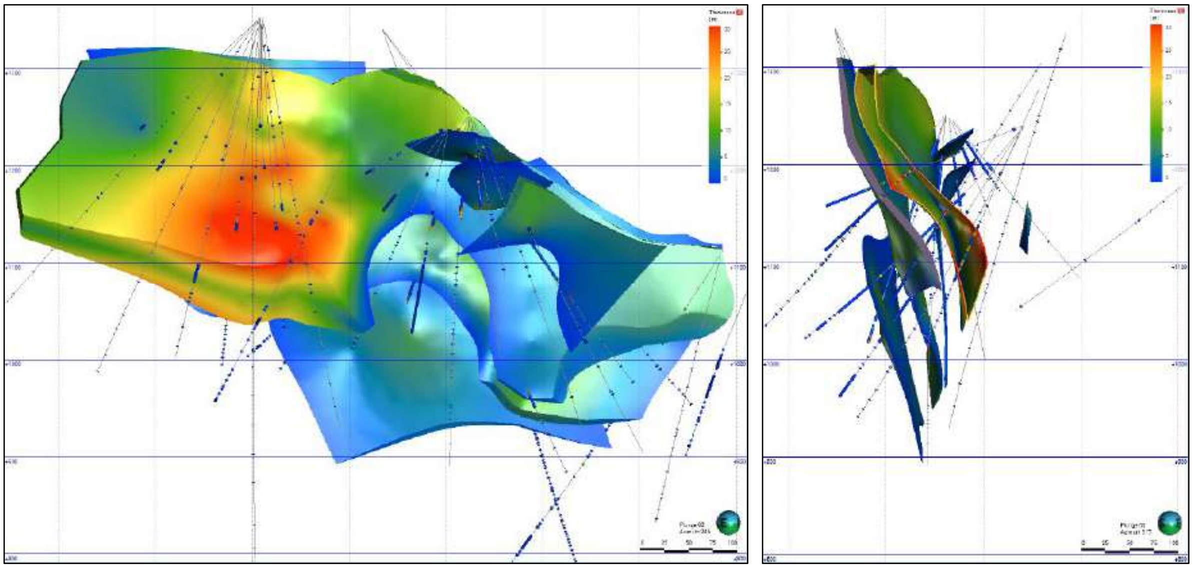
Source: SRK, 2024
Note: The left image shows a long-section, and the right image shows a cross-section.

Figure 14-8: SRK Zone 2-3 Domain

14.3.2 AG Deposit

The AG Deposit is comprised of two different fault blocks in which mineralization has been identified which are split by the AG Main Fault. The two fault blocks are referred to as the JAG Fault Block, which hosts to the majority of the AG Deposit mineralization and is also referred to as the AG Main Zone to the southwest of the Main Fault. To the northeast of the Main Fault, a number of more discrete domains exist with the AG Nunatak Fault Block. The geology in this fault block consists of a series of tight anticlines and synclines based on geological mapping, with the mineralization following this deformation. Limited drilling has been completed within the domain; therefore, geological continuity is more difficult to predict, and further infill in this area is needed.

In the AG Main zone, the deposits strike to the northwest and in general have a relatively steep dip on the order 70° to 80° to the northeast. Three VMS lenses have been identified in the area and are referred to in the model as JAG1, JAG2, and JAG3. The main lens (JAG1) has been traced for a strike length of 750 m and maximum vertical extent of approximately 300 m. In the southeast, the deposit is cut by the Finch Fault, which therefore limits the downdip extent. The average thickness of the deposit is variable from 10 to 25 m in the southern portion to 3 to 5 m in the northern portion as currently modeled. The second biggest lens in terms of tonnage is JAG2, which is in the footwall of VMS and has a similar strike length (600 m), but thickness is more in the order of 2 to 10 m. JAG3 represents the smallest domain in the footwall and has been traced over approximately 250 m. Figure 14-9 shows a long-section and cross-section of the AG Deposit.



Source: SRK, 2024
Note: The left image shows a long-section, and the right image shows a cross-section.

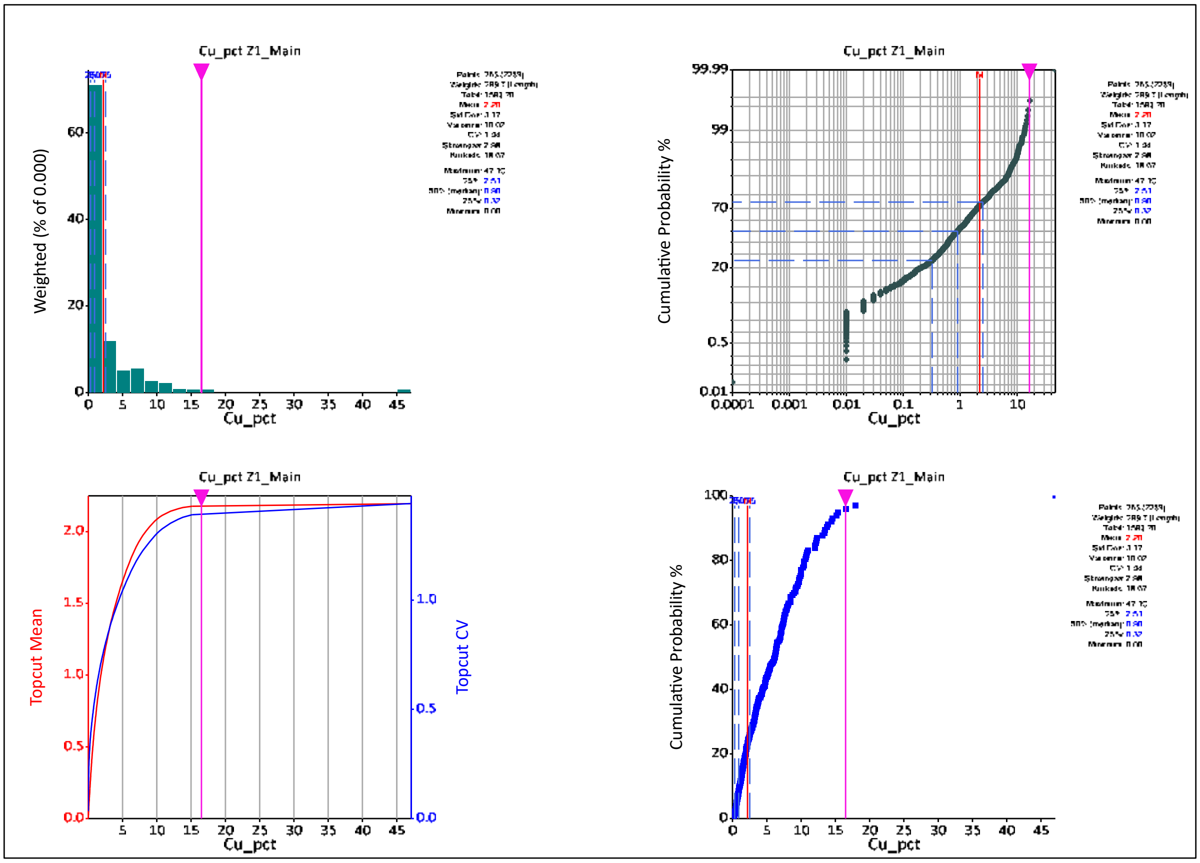
Figure 14-9: AG Deposit

14.4 Assay Capping and Compositing

14.4.1 Outliers

High-grade capping is undertaken where data are no longer considered to be part of the main population. SRK completed the analysis based on log probability plots and raw and log histograms, which can be used to distinguish the grades at which samples have significant impacts on the local estimation and whose effect is considered extreme. SRK notes that the mean grades within the different veins are sensitive to changes in the capping values.

SRK completed a statistical analysis of the impact of grade capping by importing the geologically domained coded samples into Snowden Supervisor v 9.0.3.0, statistical software packages for review. High-grade capping was applied based on a combination of histograms and cumulative distribution plots to understand its basic statistical distribution. During the analysis, SRK tracked the percentage of metal loss. Figure 14-10 provides an example of the capping analysis, and Table 14-2 provides a summary of the capping levels per sub-domain.



Source: SRK, 2024

Figure 14-10: Example of Capping Analysis Snowden Supervisor Software, Zone 1 Main Copper (%)

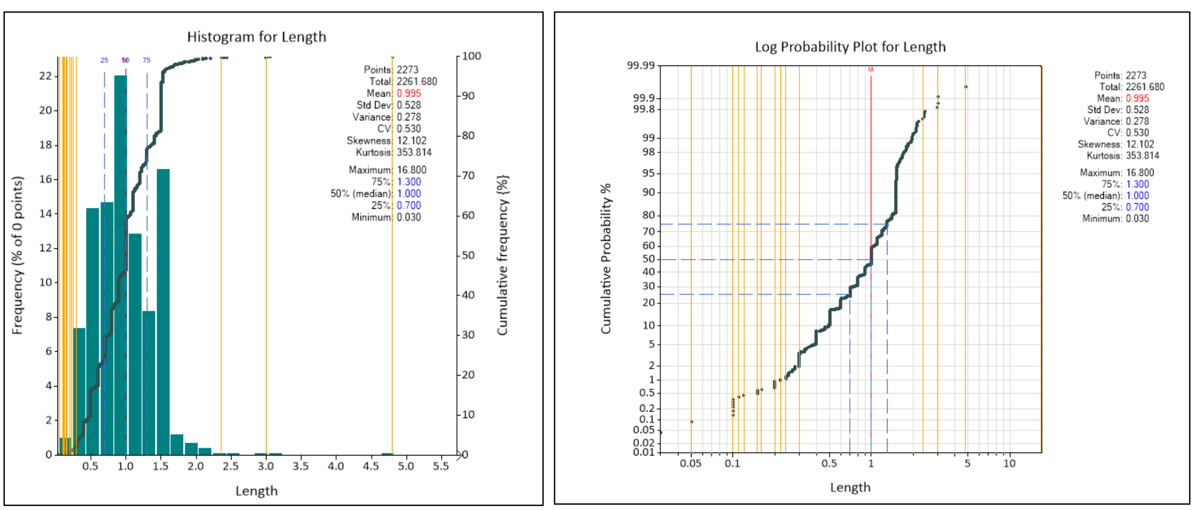
Table 14-2: Summary of Capping Levels per Sub-Domain

Zone	Domain	Cu (%)	Zn (%)	Ag (g/t)	Au (g/t)	Pb (%)	Ba (%)
RW	RW 1	8.00	17.0	250	3.0	3.75	30
	RW 2	8.00	17.0	250	3.0	3.75	30
	RW 3	8.00	17.0	250	3.0	3.75	30
	RW 4	8.00	17.0	250	3.0	3.75	30
Zone 1	Zone 1	16.50	35.0	140	2.0	1.90	30
	Zone 1 FW	4.00	14.5	80	0.9	0.50	30
	Zone 1 HW	5.00	14.0	40	0.35	0.25	30
	Zone 1 West	7.00	20.0	160	1.75	1.50	30
Zone 2	Zone2 Main	11.00	25.0	150	2.0	1.50	30
	Zone2 Upper	4.75	20.0	140	1.2	1.00	30
	Zone2 Lower	5.50	19.0	140	1.2	1.10	30
Zone 3	Zone3 Main	2.25	10.0	120	1.0	1.25	30
	Zone3 Upper	1.00	7.5	90	0.6	1.00	30
	Zone3 Lower	9.00	15.0	120	3.0	1.00	30
AG	JAG_1	1.65	30.0	750	5.0	10	45
	JAG_2	1.00	23.0	200	1.1	2.00	45
	JAG_3	0.50	12.0	80	0.8	5.00	45
	Nunatak 1	0.25	12.5	350	3.0	2.70	45
	Nunatak_2	0.40	2.5	850	1.6	2.00	45
	Nunatak_3	0.10	1.34	400	1.6	0.87	45

Source: SRK, 2025

14.4.2 Compositing

The composite length review indicates that approximately 50% of the samples taken are <1 m in length, and 99.0% of the samples are <2 m in length within the mineralized domains (Figure 14-11). The largest samples occur in the RW Domain with only 95% of the samples <2 m. Based on this review, SRK selected 2 m for the composite lengths for all estimation domains.

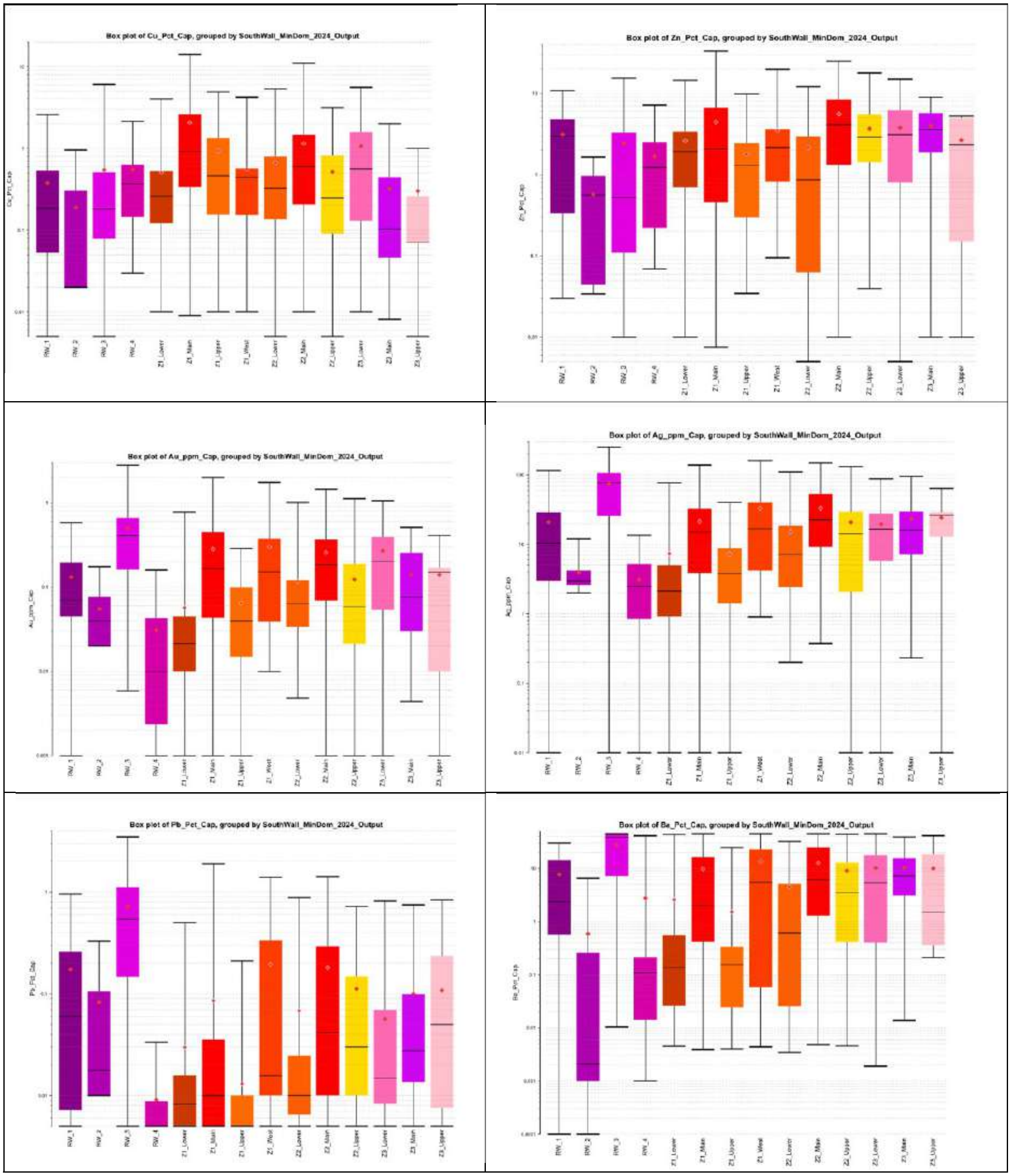


Source: SRK, 2024
Note: 99% data below 2 m composite

Figure 14-11: Length Analysis Sample Length within the SW and RW Domains

14.5 Exploration Domain Analysis (EDA)

SRK reviewed the sample statistics based on the revised geological information in Leapfrog. Based on the coded model, SRK undertook the geological model interpretation as defined above, which focused the basis for the EDA to within the Zone 1 and Zone 2-3 domains of the SW Zone. Figure 14-12 shows a summary of the review for all of the key elements estimated within Zone 1, with the exercise repeated for Zone 2-3. The results show some degree of variability in the grade distribution across all elements with some common trends between selected elements; SRK considers that this variation may be important for future studies when considering metallurgical composites.



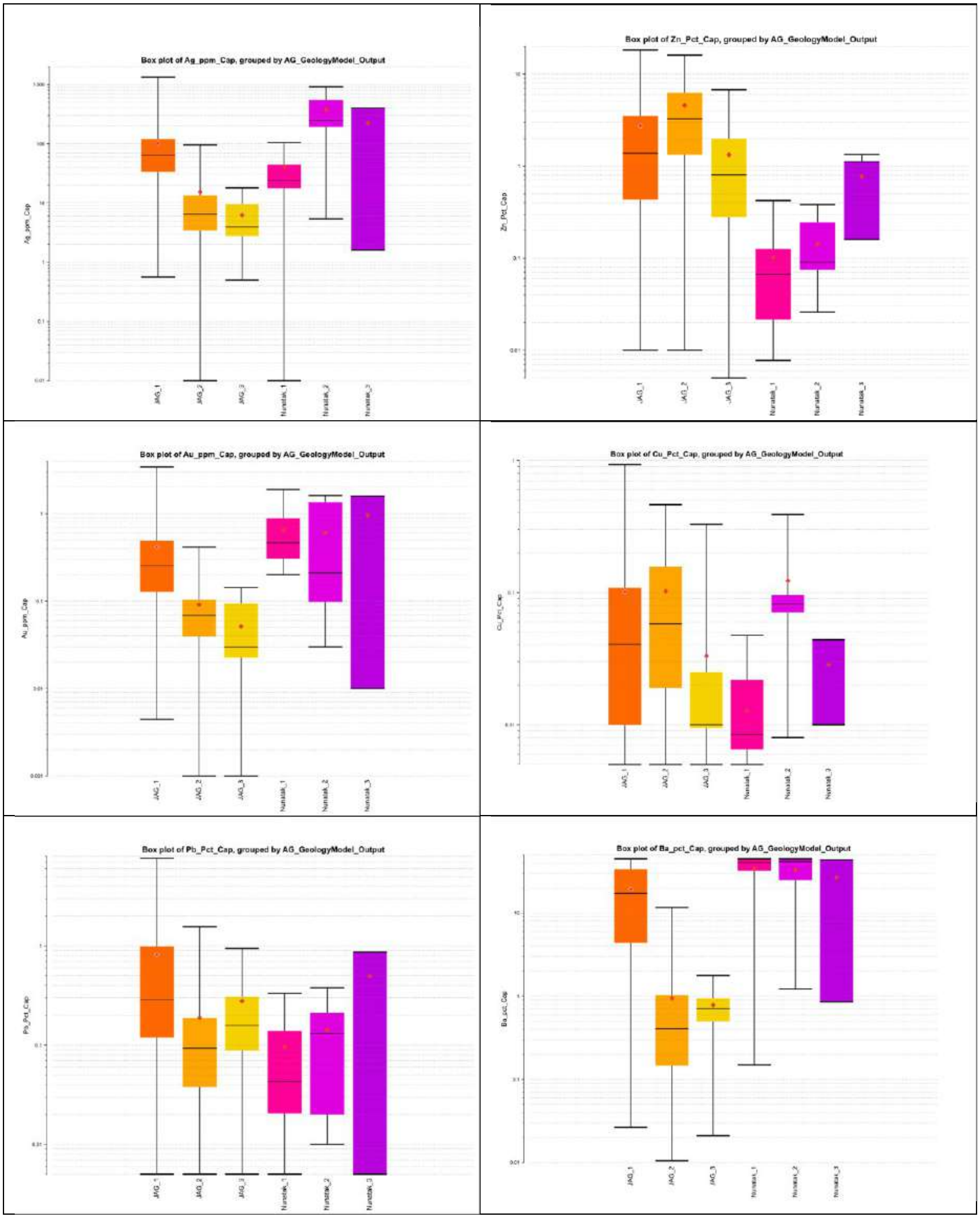
Source: SRK, 2024

Figure 14-12: Example of Box-Whisker Plot Showing Domain Analysis by Element for 2 m Composite Data within Each SW and RW Sub-Domain

Within the Zone 1 Domain, the data were subdivided into three domains to complete the review, which are described as Zone 1 Main Domain (Zone 1), Zone 1 Footwall (Zone 1 FW), and Zone 1 Hangingwall (Zone 1 HW). Note that the highest grades report consistently in the Zone 1 domain for all elements, whereas the copper, gold, and silver datasets report lower values in the Zone 1 FW compared to Zone 1 HW Domains. In comparison, the zinc, lead, and barium values report higher in Zone 1 FW than Zone 1 HW.

Within the Zone 2-3 Domain, the data were subdivided into three sub-domains, which represent different lenses within the mineralization. These lenses were considered independent for the purposes of the current exercises. The results of the domain analysis showed slight variations in the grade distribution, with the highest mean grades typically located in Lens 2 for all elements. One variation noted is that in Lens 3, the base metals (copper, zinc, and lead) all typically report the lowest grades, but the barium shows the highest grades.

SRK has completed the same analysis on the RW and AG Domains. At RW, the mineralization model has been adjusted to fit the revised lithological model. During the analysis of the RW, it is noted that in general, the various lenses (four in total) display similar populations for copper but are lower in terms of grade than those noted within the SW Domains. In general, with the exception of one lens (RW-3), the grades are lower for all elements; however, the RW-3 domain contains relatively higher values of silver and lead than the other zones. SRK's analysis of the AG Domain (Figure 14-13) shows variation in the zinc concentrations between the domains in the AG Main Block (VMS 1, VMS 2, and VMS 3), compared to the domains in the Wedge Block. In contrast, the domains in the Wedge Block appear to demonstrate higher values of precious metals silver and gold compared to the AG Main Block. Overall, the AG Deposit displays lower copper values compared to those noted at SW and RW. Based on the analysis, it is SRK's opinion that estimating the sub-domains as defined are independent for the purpose of estimation and are appropriate for the current update.



Source: SRK, 2024

Figure 14-13: Example of Box-Whisker Plot Showing Domain Analysis by Element for 2 m Composite Data within Each AG Sub-Domain

14.6 Variogram Analysis and Modeling

The QP reviewed the geostatistical properties of the domains using Snowden Supervisor variogram analysis on the capped 2 m composite dataset for Zone 1, Zone 2, and Zone 3 sub-domains. Based on the size of the data populations, initial test work for semi-variograms in the RW Zone and AG Deposits returned poor structures; therefore, the QP elected to not define model variograms within these domains.

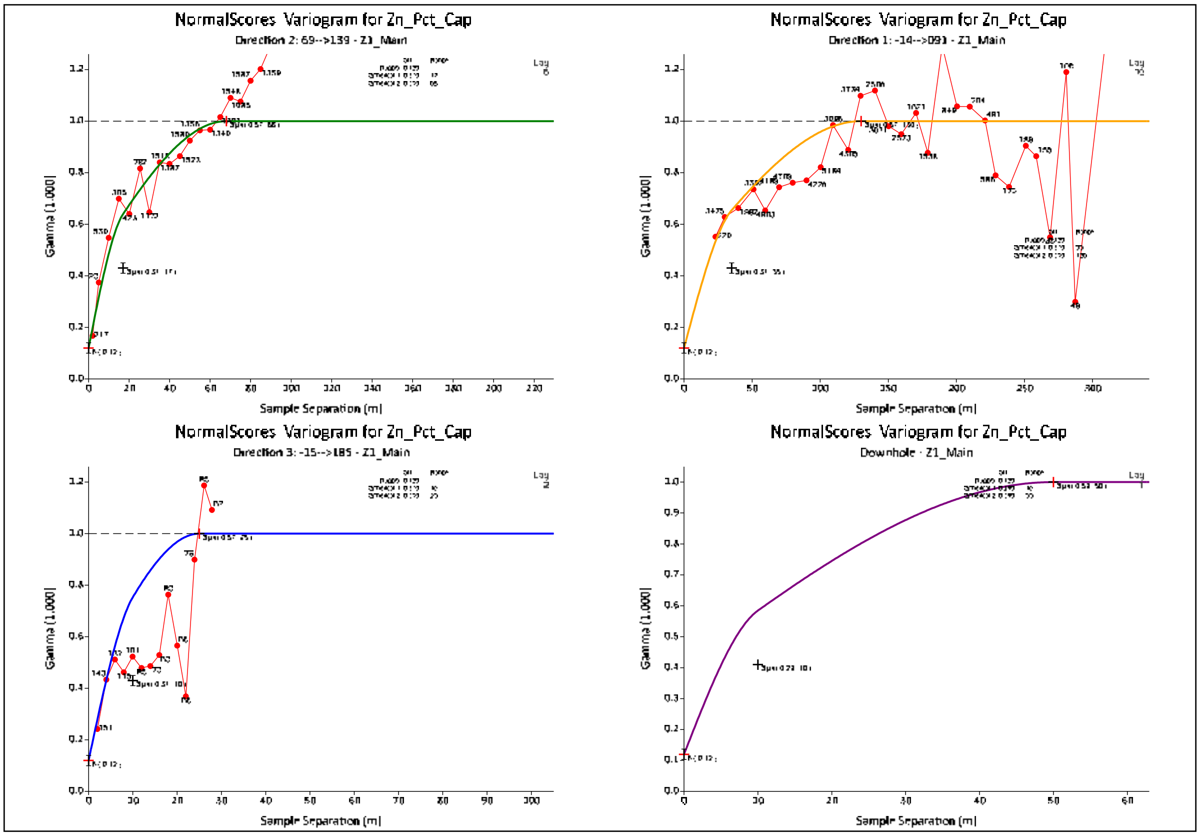
To complete the variogram analysis within Zone 1, the analysis included review of the radial plot (to define the general orientation) then definition of the major, semi-major, and minor axis variograms, which for Zone 1 domains, most cases have been orientated to a dip of 70°, dip azimuth of 5°, and pitches ranging from horizontal to 20° to 30°. Directional variograms were tested for the Zone 2 and Zone 3 domains, but the results were deemed to be inconclusive, which is in part due to the wider-spaced drilling located at lower levels of the Project. Therefore, SRK elected to test omni-directional variograms for these domains. No variography has been completed on the RW and AG Deposits due to the relatively low number of data points which would result in poor definition of the experiment variograms for modeling.

Variograms have been modeled using a combination of variograms and normal scored transformed variograms depending on the quality of the experimental variogram data, which have been back-transformed as required. Table 14-3 shows a summary of the final parameters selected for the main sub-domains. Figure 14-14 shows an example of the supervisor variogram analysis for Zone 1. Typical variogram parameters provided nugget variances on the order of 12% to 22% of the sill and ranges of up to 50 to 100 m along strike, depending on the element and orientation. SRK considers that this study remains relatively high-level based on the current sample spacing, and infill drilling may be needed to improve the confidence in the current selected parameters.

Table 14-3: Summary of Variogram Parameters SW Zone by Sub-Domains (Zones 1, 2, and 3)

General	Rotations			Nugget	Structure 1				Structure 2			
Variogram Name	**Dip**	**Dip Azimuth**	**Pitch**	**Co**	**C1**	**Major**	**Semi-Major**	**Minor**	**C2**	**Major**	**Semi-Major**	**Minor**
Ag_ppm Z1_Lower	62	355	145	0.26	0.46	5	5	5	0.28	95	95	45
Ag_ppm Z1_Main	75	5	165	0.14	0.23	22	17	6	0.63	108	62	28
Ag_ppm Z1_Upper	70	5	90	0.29	0.29	16	16	16	0.41	70	70	35
Ag_ppm Z1_West	65	6	90	0.31	0.42	45	25	5	0.48	105	70	15
Ag_ppm Z2_Lower	80	170	148	0.32	0.30	9	9	6	0.38	55	55	14
Ag_ppm Z2_Main	80	170	148	0.31	0.42	35	25	5	0.27	180	90	15
Ag_ppm Z2_Upper	80	170	145	0.23	0.30	10	10	5	0.47	112.5	136.6	20
Ag_ppm Z3_Lower	45	180	90	0.13	0.51	30	23	10	0.36	60	100	30
Ag_ppm Z3_Main	45	190	90	0.18	0.46	12	15	10	0.37	105	80	22
Ag_ppm Z3_Upper	45	190	90	0.21	0.34	29	29	5	0.45	110	110	25
Au_ppm Z1_Lower	65	3	145	0.38	0.42	24	39.39	6.188	0.20	150	95	18.38
Au_ppm Z1_Main	75	5	165	0.14	0.35	24	18	9	0.50	87	51	21
Au_ppm Z1_Upper	70	5	90	0.30	0.25	6	6	2.4	0.46	105	105	20
Au_ppm Z1_West	65	6	90	0.22	0.33	29.5	25.42	2	0.44	105.2	70.85	15.01
Au_ppm Z2_Lower	80	170	148	0.28	0.28	14	11	10	0.44	131	30	20
Au_ppm Z2_Main	80	170	145	0.26	0.34	25	9	9	0.40	120	100	20
Au_ppm Z2_Upper	65	180	90	0.20	0.80	100	75	30				
Au_ppm Z3_Lower	45	190	90	0.23	0.41	50	20	9.988	0.36	125	70	20.07
Au_ppm Z3_Main	45	190	90	0.32	0.25	13	13	13	0.43	95	95	30
Au_ppm Z3_Upper	45	190	90	0.22	0.60	29.6	30	5	0.16	60	60	20
Cu_Pct Z1_Lower	65	3	145	0.33	0.46	19	19	10	0.21	62	62	30
Cu_Pct Z1_Main	65	355	90	0.11	0.43	20	15	10	0.47	95	70	30
Cu_Pct Z1_Upper	70	5	90	0.29	0.29	16	16	8	0.42	70	70	35
Cu_Pct Z1_West	65	6	90	0.18	0.57	25	40	10	0.34	75	120	20
Cu_Pct Z2_Lower	80	170	148	0.30	0.49	21.23	18.9	2	0.21	50.48	52.86	2.4
Cu_Pct Z2_Main	80	170	145	0.27	0.40	40	30	10	0.33	120	105	20
Cu_Pct Z2_Upper	65	180	90	0.35	0.65	66	66	20				
Cu_Pct Z3_Lower	45	190	90	0.16	0.42	27	34	10	0.41	73	105	20.15
Cu_Pct Z3_Main	45	190	90	0.21	0.28	17	17	17	0.51	90	90	40.59
Cu_Pct Z3_Upper	45	190	90	0.32	0.42	26.94	27	10	0.25	75	75	20
Pb_Pct Z1_Lower	65	5	90	0.37	0.39	7	7	7	0.24	65	65	30
Pb_Pct Z1_Main	75	5	165	0.11	0.36	10	7	8	0.53	90	59	23
Pb_Pct Z1_Upper	59	5	90	0.45	0.36	22	22	10	0.18	88	88	44
Pb_Pct Z1_West	65	6	90	0.20	0.51	35	40	5	0.29	105	105	15
Pb_Pct Z2_Lower	80	170	148	0.18	0.43	8	8	6	0.39	98	70	40
Pb_Pct Z2_Main	80	170	145	0.29	0.45	44.08	90	2	0.26	150	108	2.4
Pb_Pct Z2_Upper	65	180	90	0.26	0.74	65	122	20				
Pb_Pct Z3_Lower	45	190	90	0.25	0.41	15	15	5	0.34	80	90	30
Pb_Pct Z3_Main	45	190	90	0.20	0.48	10	10	5	0.33	122	122	30
Pb_Pct Z3_Upper	45	190	90	0.34	0.53	27	27	10	0.12	95	95	12
Zn_Pct Z1_Lower	65	5	145	0.30	0.31	10	10	2.4	0.39	80	80	40
Zn_Pct Z1_Main	65	5	150	0.15	0.37	35	17	10	0.48	130	68	25
Zn_Pct Z1_Upper	59	5	90	0.28	0.09	6	6	6	0.63	66	66	33
Zn_Pct Z1_West	65	6	90	0.16	0.36	54	62	5	0.48	131	200	15
Zn_Pct Z2_Lower	80	170	148	0.08	0.39	25	25	15	0.53	80	90	24
Zn_Pct Z2_Main	80	170	145	0.22	0.41	32.5	25	15	0.37	100	100	40
Zn_Pct Z2_Upper	65	181	90	0.23	0.77	70	70	20				
Zn_Pct Z3_Lower	45	190	90	0.22	0.45	18	12	10	0.33	70	45	20
Zn_Pct Z3_Main	45	190	90	0.23	0.29	49	55	10	0.47	135	100	18
Zn_Pct Z3_Upper	45	190	90	0.18	0.81	50	50	8				
Ba_Pct Z1_Lower	65	5	145	0.42	0.33	10	10	2.4	0.25	80	80	40
Ba_Pct Z1_Main	65	5	150	0.17	0.31	35	10	6	0.52	130	45	35
Ba_Pct Z1_Upper	59	5	90	0.45	0.12	6	6	6	0.42	66	66	33
Ba_Pct Z1_West	65	6	90	0.15	0.33	54	62	5	0.51	131	200	15
Ba_Pct Z2_Lower	80	170	148	0.09	0.43	25	25	15	0.48	80	90	24
Ba_Pct Z2_Main	80	170	145	0.25	0.40	32.5	25	15	0.35	100	100	40
Ba_Pct Z2_Upper	65	181	90	0.26	0.74	70	70	20				
Ba_Pct Z3_Lower	45	190	90	0.23	0.45	18	12	10	0.31	70	45	20
Ba_Pct Z3_Main	45	190	90	0.27	0.31	49	55	10	0.42	135	100	18
Ba_Pct Z3_Upper	45	190	90	0.21	0.78	50	50	8				

Source: SRK, 2024



Source: SRK, 2024

Figure 14-14: Example of Supervisor Variogram Study Showing Zone 1 Zinc (%) Analysis

14.7 Block Model

SRK produced two separate models for the Project to cover the two main areas of mineralization. A single model was generated to cover the estimation of the SW Zone and RW Zones, with a separate model created to estimate the AG Deposit (due to distance). Estimation was completed based on coded 2 m composites (based on the updated defined wireframes), which have been capped to appropriate levels. Grades have been interpolated for gold (g/t), silver (g/t), copper (%), lead (%), zinc (%), barium (%), and density (specific gravity) using a two-pass approach within Seequent Leapfrog Edge.

Grade estimation was based on block dimensions of 10 m x 5 m x 5 m for the SW/RW model and 10 x 5 x 10 m for the AG model, which varies from the 6 m x 6 m x 6 m blocks with the parameters used in 2018 model but is more consistent with the proposed underground stope optimization. SRK considered that relative to the current drill spacing, the 6 m x 6 m x 6 m block size to be on the small side. SRK used the smallest distance across the width of the lenses to try to mimic the grade distribution across the width of the mineralization where possible.

The block size reflects potential size variations for any underground selective mining unit (SMU). SRK utilized sub-blocking methodology in Leapfrog (Octree), which allows subdivision of the parent block by division of (4, 8, 16, and 32) to accurately reflect the defined mineralization and lithological models, The minimum sub-block size selected for both the AG and SW/RW models was 1.25 x 0.3125 x 0.625 m to reflect the wireframes.

14.8 Estimation Methodology

Mr. Benjamin Parsons, MAusIMM (CP#222568), completed the resource evaluation work. SRK completed the Mineral Resource Estimate (MRE) process using the updated mineralization models discussed previously in this report. Constantine provided SRK with an exploration database with logging indicating the main geological features and units. In addition to the database, SRK worked with Constantine on preliminary geological interpretations, on which, SRK made minor alterations accordingly. The resource estimation methodology involved the following procedures:

- Database compilation and verification
- Construction of wireframe models for the fault networks and centerlines of mining development per vein
- Definition of resource domains
- Data conditioning (compositing and capping) for statistical and geostatistical analysis
- Variography
- Block modeling and grade interpolation
- Resource classification and validation
- Application of reporting CoG using the 2025 inputs
- Preparation of the mineral resource statement

SRK tested a number of estimation scenarios for the 2024 Zone 1 model (which contains the most samples) to identify the sensitivity of the estimates to the maximum number of samples being used and the assumption to use a maximum of three composites per borehole during the estimation process. SRK tested a maximum number of composites ranging from 12,15, or 20 samples to review the impact on potential smoothing on the grades. SRK noted both through kriging neighborhood analysis (KNA) in Snowden and in the test case that the number of negative weights increase with the highest number of samples. Based on the visual review and plotting of estimates on swath plots and statistical analysis, SRK elected to use a maximum of 15 composites for the estimation process. In the second pass, SRK reduced the number of composites to a minimum of two composites and a maximum of 12 composites. Given the limited number of samples in portions of the Zone 2-3 and RW Domains, SRK elected to apply the same maximum and minimum samples for Zone 2-3 and RW as defined for Zone 1. In the AG model, SRK used a maximum of 12 samples for the first and second pass, with a minimum of four composites (first pass) and two composites (second pass), respectively.

The search ellipses orientation was tested for both by following the typical orientation of the mineralized structures and (where appropriate and possible using the center trend line of the domain in Leapfrog) by the average dip, strike, and plunge, within higher-grade plunging features within the mineralized domains. SRK used the results of the variogram analysis to define search ranges within each domain. SRK utilized variable orientation models for the Zone 1 and Zone 2-3 sub-domains in the first pass, with broader ellipses in the second pass following the general strike and dip of each individual domains. The same process has been used for the AG Domain. At the RW Domain, the search ellipses were aligned to the general dip and strike for both passes due to the low sample population and confidence in any local variation.

SRK completed ordinary kriging (OK) for the domains with sufficient sample support to be completed, with inverse distance weighted (IDW) estimates to a power of two being completed in all domains. In cases where OK and IDW estimates exist, SRK completed a review to note significant differences. Statistical characteristics (such as search volume used, kriging variance, and number of samples used in an estimate) were also computed and stored in each individual block for descriptive evaluations. All contacts were treated as hard boundaries.

For the final grade estimates, SRK used a nested logic statement to define the final grade estimates, which used the following logic:

- If OK estimates exist (Zone 1), use as the primary estimate.
- If no OK estimates exist, use IDW (first search).
- If no OK or IDW (svol1) estimates exist, use the IDW (svol2) and consider low confidence in the classification.

Additional estimates using nearest neighbor (NN) have been completed on 8 m composites (which were selected to reflect the size of the parent cell based on sample orientation)

14.9 Density

Density is a key factor in any MRE and is particularly key when working within a VMS-style deposit, which contains variable amounts of sulfide material and displays a relatively wider variability within any given domain. In the 2018 model, a default density of 3.51 g/cm^3 was used for the Zone 1 domain, and 3.41 g/cm^3 was used for the Zone 2-3 domain, but given the variable contents of sulfides, the use of a standard density is not appropriate in SRK's opinion.

Bulk specific gravity was measured by trained and qualified company personnel performing the industry standard weight-in-water/weight-in-air. Representative sections of halved core, generally consisting of one to five 10 to 30 cm-long pieces, are measured and averaged for all assay sample intervals within mineralized intersections with the potential to be included in resource wireframes. SRK would recommend a portion of the samples also be tested at a laboratory to validate the density measurements presented before the next public disclosure.

Therefore, SRK has estimated the density based on the average specific gravity value taken from samples during the analysis for all sub-domains; SRK considers this more likely to be a true reflection on the density variation across the domain, with further work needed to test any relationship between density and the barite, zinc, copper, and iron values in the database. SRK completed a review of the statistics for the various domains; Table 14-2 summarizes this review. While SRK notes the average grades overall report lower than the 2018 estimates, it should be noted that the lower density values are typically associated with the low-grade samples.

Table 14-4: Summary of Assigned Density 2018 vs. 2023

Domain	2018 Model (grams per cubic centimeter (g/cm^3))	Volume (cubic meters (m^3))	Mean (g/cm^3)	Standard Deviation (g/cm^3)	Minimum (g/cm^3)	Maximum (g/cm^3)
RW_1	3.20	784,143	3.19	0.24	2.82	3.80
RW_2	3.24	136,564	3.40	0.14	3.05	3.56
RW_3	3.24	510,839	3.07	0.27	2.16	3.90
RW_4	3.24	86,242	3.06	0.14	2.95	3.56
Z1_Lower	3.51	176,276	3.01	0.23	2.60	3.97
Z1_Main	3.51	1,064,356	3.63	0.38	2.65	4.58
Z1_Upper	3.51	86,193	3.34	0.19	2.88	4.08
Z1_West	3.51	162,534	3.36	0.26	2.88	4.14
Z2_Lower	3.41	204,168	3.30	0.24	2.78	4.25
Z2_Main	3.41	517,797	3.51	0.35	2.90	4.41
Z2_Upper	3.41	324,080	3.15	0.28	2.70	4.07
Z3_Lower	3.41	573,249	3.45	0.27	2.96	4.28
Z3_Main	3.41	522,432	3.21	0.17	2.81	3.89
Z3_Upper	3.41	101,648	3.43	0.18	2.72	4.05

Source: SRK, 2024

SRK highlights that variation in the density values could result in changes to the preliminary numbers as presented; therefore, further effort should be made to increase the confidence in sample database, in addition to review of the methodology to most accurately reflect variation in mineralization and sulfides content.

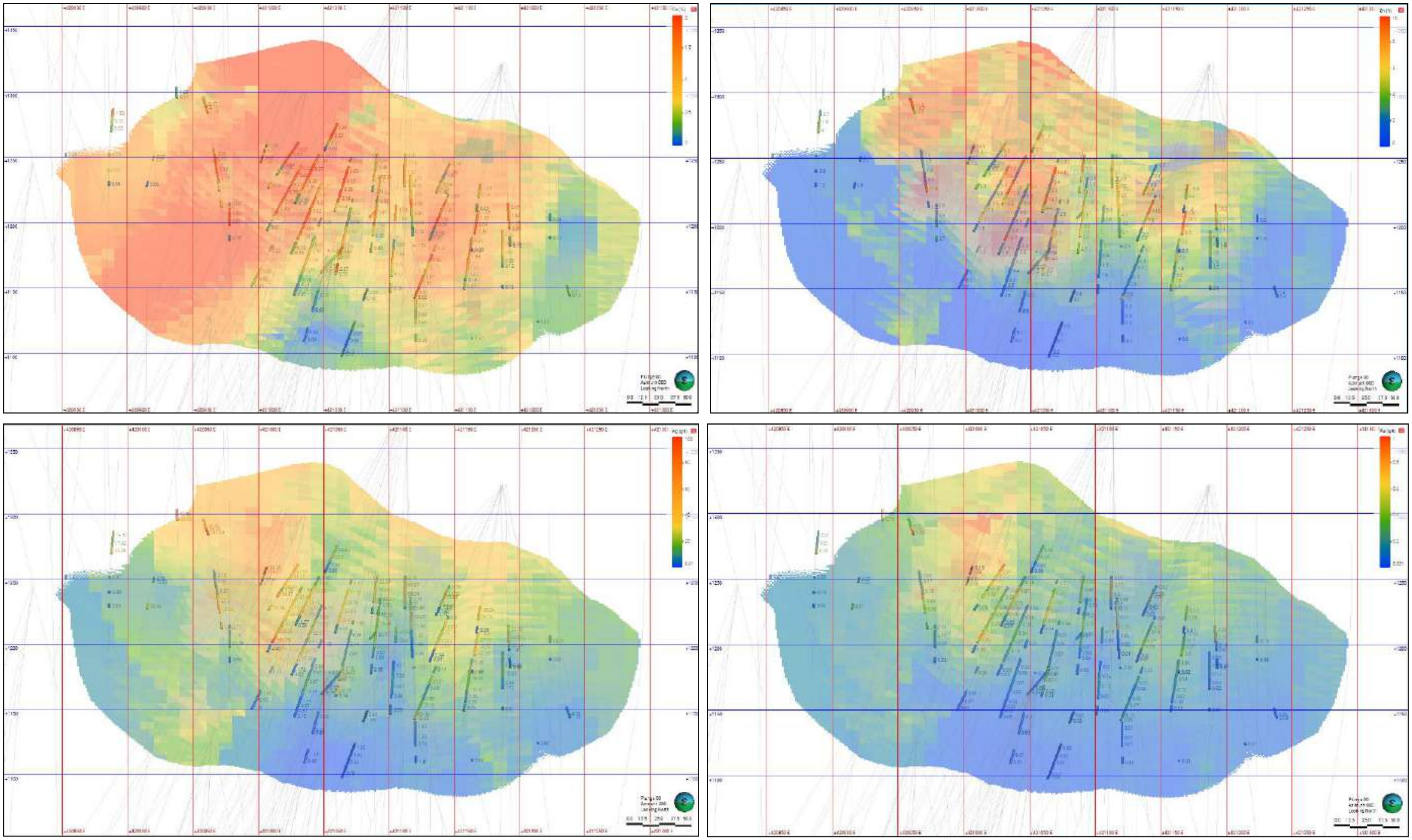
14.10 Model Validation

SRK validated the block model using the following techniques:

- Visual inspection of block grades in comparison with drillhole data
- Statistical comparison of estimation methods to raw grades and nearest neighbor
- Sectional validation of the mean sample grades in comparison to the mean model grades

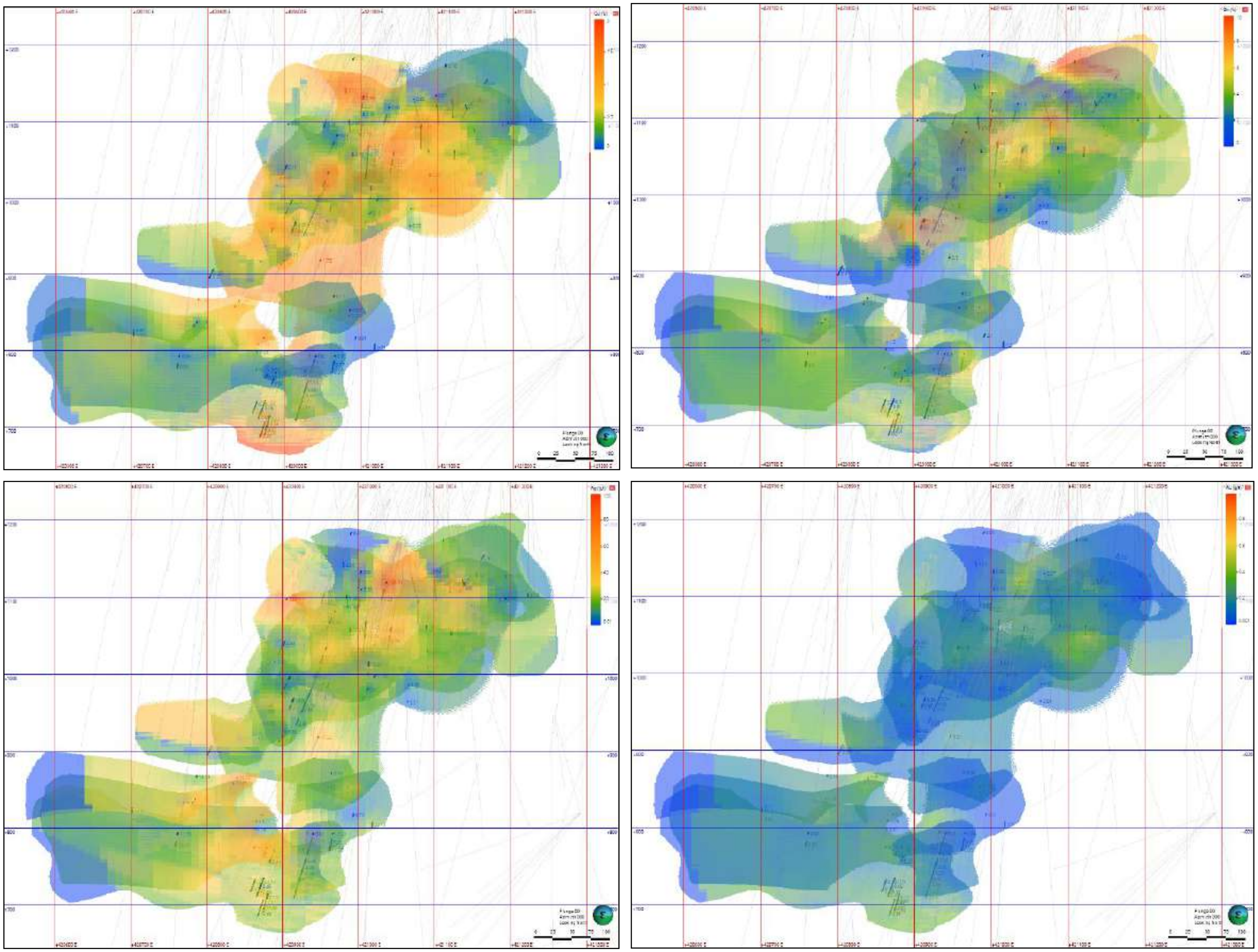
14.10.1 Visual Comparison

Visual inspection of block grades in comparison with drillhole data are shown in Figure 14-15 to Figure 14-18, for each deposit. Overall, SRK considers the validation to be reasonable. The visual comparison of the 2 and 8 m composite to the estimated grades shows no obvious bias with a fair reflection of both the high and low grade samples. Given the variable sample coverage, SRK also inspected the grade continuity, which is supported by high grades in the composites in the models with limited over-smoothing of data. In areas of low drilling coverage at the edges of the current drilling grade has been projected, which is considered to have lower confidence and SRK has considered this during classification.



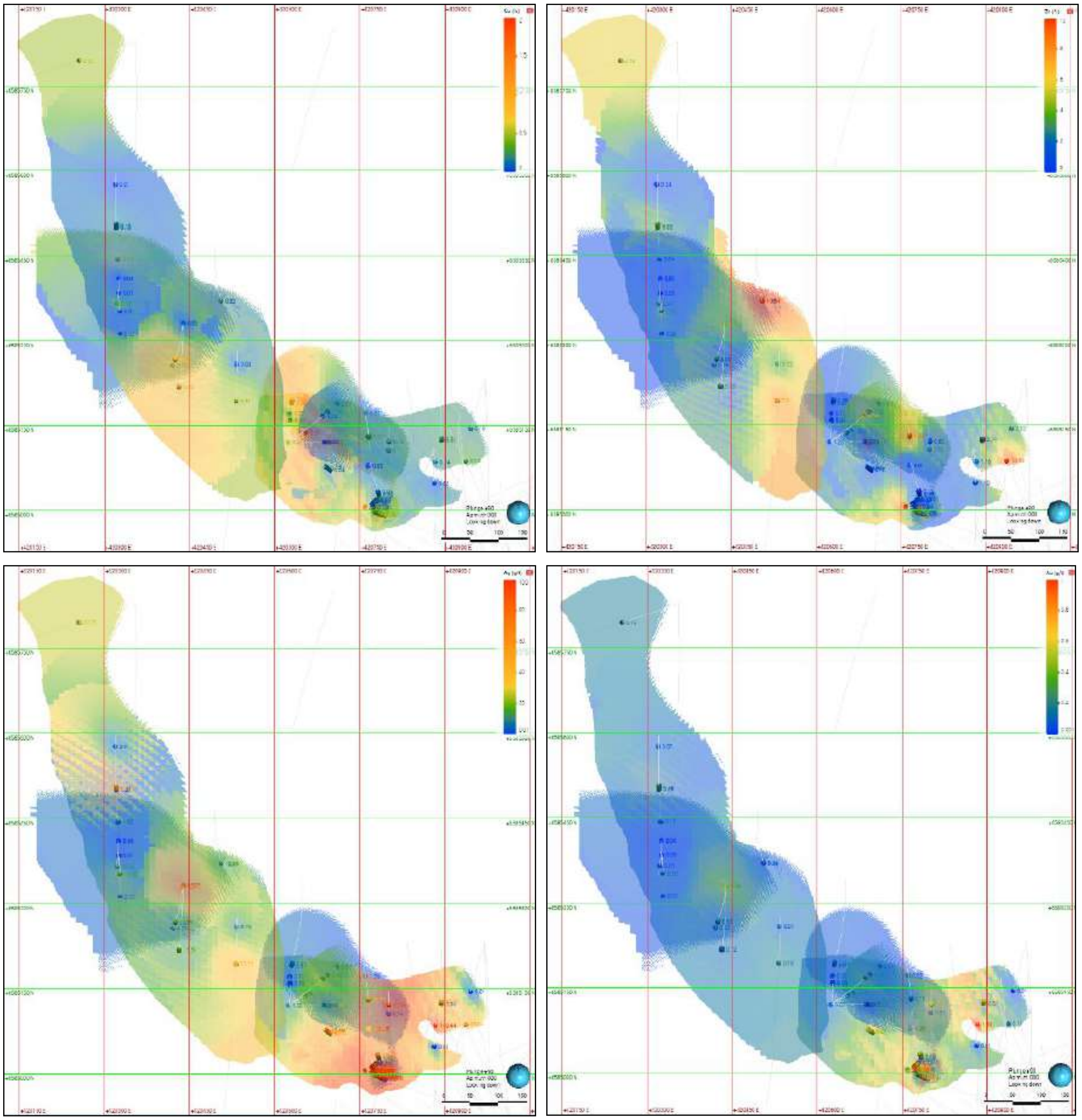
Source: SRK, 2025

Figure 14-15: Long-Section Showing Cu (%), Zn (%), Ag (g/t), and Au (g/t) for SW Zone 1 Main Estimates vs. 8 m Composite Values, Looking North



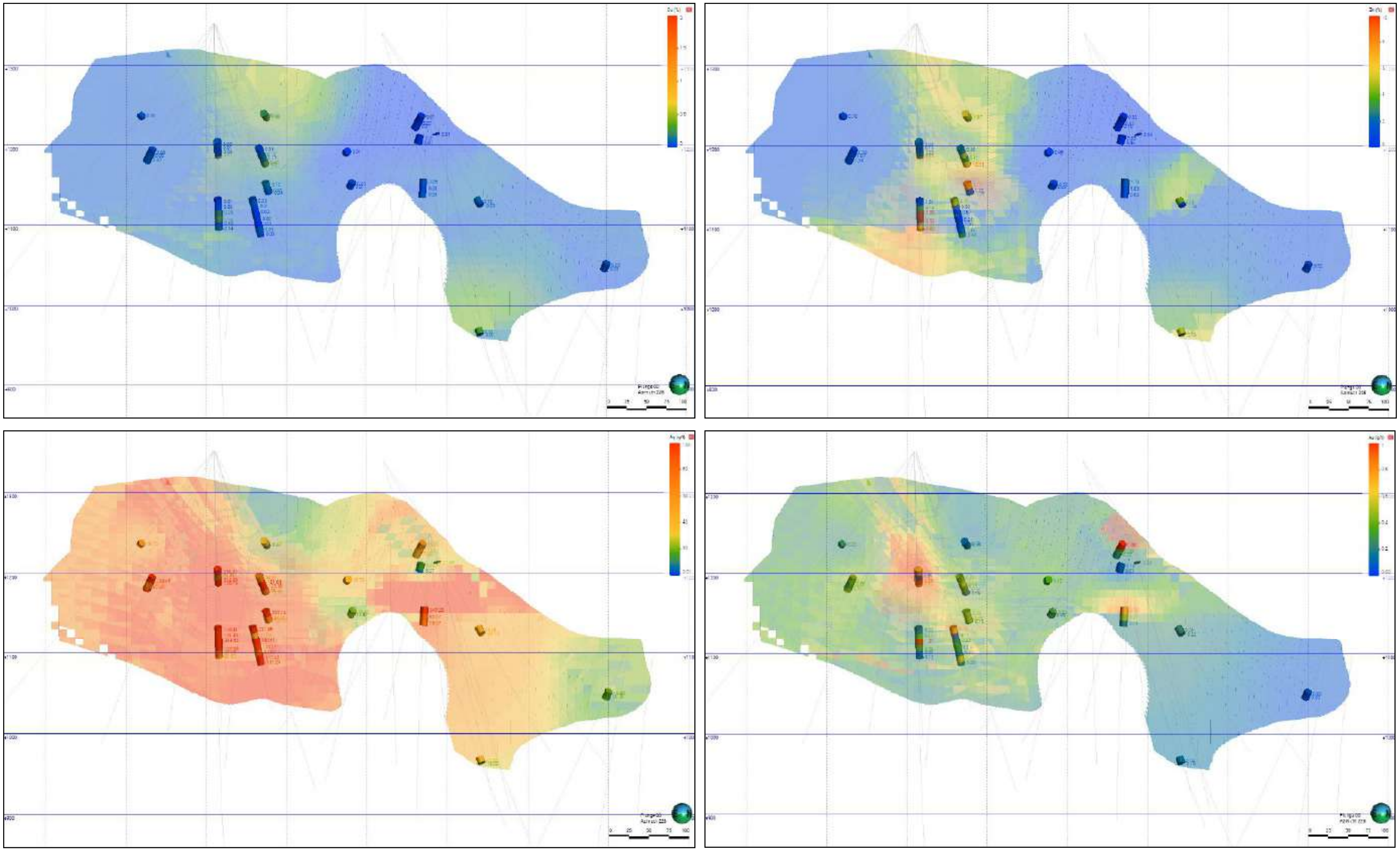
Source: SRK, 2025

Figure 14-16: Long-Section Showing Cu (%), Zn (%), Ag (g/t), and Au (g/t) Zone 2-3 Estimates vs. 8 m Composite Values, Looking North



Source: SRK, 2025

Figure 14-17: Plan Showing Cu (%), Zn (%), Ag (g/t), and Au (g/t) RW Domain Estimates vs. 8 m Composite Values, Plan View



Source: SRK, 2025

Figure 14-18: Long-Section Showing Copper (%), Zinc (%), Silver (g/t), and Gold (g/t) AG Main VMS 1 Domain Estimates vs. 8 m Composite Values, Looking Southwest

14.10.2 Comparative Statistics

In general, the statistical comparison (Table 14-5 to Table 14-7) shows acceptable correlations in the mean grades between the grade estimates and NN estimates. In areas where the differences increase, SRK noted these are in areas with limited drilling at the edges of the deposit and where grades have been extended to fit the model mineralization. These areas are considered lower confidence and have been classified appropriately.

Table 14-5: Comparison SW Sub-Domains of NN to Grade Estimate (OK/ID2)

SouthWall_ MinDom_2024	Units	Z1_ Lower	Z1_ Main	Z1_ Upper	Z1_ West	Z1 Total	Z2_ Lower	Z2_ Main	Z2_ Upper	Total	Z3_ Lower	Z3_ Main	Z3_ Upper	Total
Mass	kt	525	3,837	266	544	5,172	661	1,815	959	3,435	1,591	984	245	2,821
Cu_Pct_ID	%	0.47	2.18	0.81	0.53	1.76	0.86	1.16	0.49	0.92	0.88	0.34	0.37	0.64
Cu_Pct_OK	%	0.46	2.05	0.77	0.49	1.66	0.86	1.16	0.49	0.92	0.88	0.34	0.37	0.64
Cu_Pct_NN	%	0.44	1.86	0.73	0.51	1.52	0.76	1.12	0.47	0.87	0.96	0.40	0.23	0.70
Zn_Pct_ID	%	2.38	4.98	1.78	3.28	4.37	2.91	5.39	3.70	4.44	3.56	3.57	3.19	3.54
Zn_Pct_OK	%	2.40	4.88	1.68	3.39	4.31	2.91	5.39	3.70	4.44	3.56	3.57	3.19	3.54
Zn_Pct_NN	%	2.52	4.53	1.68	3.52	4.07	2.97	5.25	3.27	4.26	3.91	3.73	3.97	3.85
Pb_Pct_ID	%	0.03	0.11	0.01	0.21	0.11	0.08	0.19	0.13	0.15	0.08	0.10	0.08	0.08
Pb_Pct_OK	%	0.03	0.11	0.01	0.22	0.11	0.08	0.19	0.13	0.15	0.08	0.10	0.08	0.08
Pb_Pct_NN	%	0.02	0.11	0.01	0.22	0.11	0.10	0.18	0.13	0.15	0.08	0.09	0.08	0.08
Au_ppm_ID	g/t	0.05	0.33	0.06	0.35	0.29	0.13	0.26	0.13	0.20	0.26	0.13	0.16	0.20
Au_ppm_OK	g/t	0.05	0.33	0.06	0.35	0.29	0.13	0.26	0.13	0.20	0.26	0.13	0.16	0.20
Au_ppm_NN	g/t	0.04	0.31	0.06	0.38	0.27	0.14	0.26	0.13	0.20	0.29	0.13	0.15	0.22
Ag_ppm_ID	ppm	6.06	25.58	6.48	36.24	23.74	17.24	33.46	23.24	27.48	21.44	19.65	27.72	21.36
Ag_ppm_OK	ppm	6.22	25.75	6.25	37.36	23.99	17.24	33.46	23.24	27.48	21.44	19.65	27.72	21.36
Ag_ppm_NN	ppm	5.38	24.65	5.99	38.87	23.23	17.55	32.06	24.67	27.20	22.55	19.34	29.77	22.06
Ba_Pct_ID	%	1.75	12.01	1.77	15.93	10.85	5.54	12.10	9.07	9.99	9.25	9.70	14.70	9.88
Ba_Pct_NN	%	2.31	11.65	1.64	16.08	10.66	5.99	12.28	7.79	9.82	12.21	10.47	16.36	11.96

Source: SRK, 2025
Mt: Million tonnes

Table 14-6: Comparison RW Sub-Domains of NN to Grade Estimate (OK/IDW to the Power of Two)

SouthWall_MinDom_2024	Units	RW_1	RW_2	RW_3	RW_4	RW Total
Mass	kt	1,556	190	1,478	244	3,468
Cu_Pct_ID	%	0.40	0.26	0.55	0.52	0.46
Cu_Pct_OK	%	0.40	0.26	0.55	0.52	0.46
Cu_Pct_NN	%	0.37	0.23	0.41	0.43	0.38
Zn_Pct_ID	%	3.26	0.54	2.29	1.86	2.60
Zn_Pct_OK	%	3.26	0.54	2.29	1.86	2.60
Zn_Pct_NN	%	3.13	0.52	1.91	2.19	2.40
Pb_Pct_ID	%	0.17	0.09	0.57	0.01	0.33
Pb_Pct_OK	%	0.17	0.09	0.57	0.01	0.33
Pb_Pct_NN	%	0.18	0.10	0.59	0.01	0.34
Au_ppm_ID	g/t	0.13	0.07	0.39	0.03	0.23
Au_ppm_OK	g/t	0.13	0.07	0.39	0.03	0.23
Au_ppm_NN	g/t	0.14	0.07	0.40	0.03	0.24
Ag_ppm_ID	ppm	20.44	4.07	57.27	2.54	33.98
Ag_ppm_OK	ppm	20.44	4.07	57.27	2.54	33.98
Ag_ppm_NN	ppm	20.59	3.97	54.63	2.12	32.90
Ba_Pct_ID	%	9.02	0.46	23.47	0.76	14.13
Ba_Pct_NN	%	9.88	0.40	20.02	0.22	13.01

Source: SRK, 2025

Table 14-7: Comparison AG Domain Sub-Domains of NN to Grade Estimate (OK/IDW to the Power of Two)

Element	Units	JAG_1	JAG_2	JAG_3	Nunatak_1	Nunatak_2	Nunatak_3	Total
Mass	Mt	4.27	1.43	0.30	0.05	0.12	0.03	6.20
NSR	$/t	155.21	122.38	34.50	35.56	222.04	293.00	142.80
Cu_Pct_All	%	0.11	0.13	0.02	0.01	0.09	0.04	0.11
Cu_NN	%	0.10	0.11	0.02	0.01	0.10	0.03	0.10
Zn_Pct_All	%	2.79	4.41	1.12	0.08	0.18	1.00	3.00
Zn_NN	%	2.77	4.46	0.95	0.09	0.15	0.91	2.99
Pb_Pct_All	%	0.73	0.21	0.27	0.05	0.17	0.67	0.57
Pb_NN	%	0.72	0.19	0.25	0.09	0.15	0.61	0.56
Ag_ppm_All	g/t	93.69	17.55	5.71	23.66	270.00	304.25	75.76
Ag_NN	g/t	92.87	16.06	5.28	34.06	303.11	273.57	75.36
Au_NN	g/t	0.38	0.09	0.04	0.60	0.60	1.17	0.31
Au_ppm_All	g/t	0.39	0.10	0.04	0.43	0.61	1.30	0.31
Ba_NN	%	16.79	1.09	0.73	29.63	31.40	26.55	12.82
Ba_Pct_All	%	17.80	0.96	0.75	33.67	35.20	33.29	13.62

Source: SRK, 2025

SRK notes a strong correlation of the Zone 1 domain for zinc, silver, gold, lead, and barium. SRK does note some discrepancy in the copper correlation, but visual validation was deemed acceptable. SRK completed a more detailed review of the differences to understand where the main differences exist, which were noted to be on the eastern and western portions of the deposit that currently have limited drilling. The biggest differences occur on the western edge of the deposit, which has relatively high-grade copper results in the composite files (>2% in the 8 m composites), with isolated lower grades near surface of between 0.5% and 1.0% Cu, which bring down the average grades in this portion of the model. Given the lower confidence, this portion of the model is considered to be Inferred.

In Zone 2, the copper, silver, gold, and lead all have reasonable correlations, while the zinc estimates have acceptable correlations in the Indicated portion of the deposit but report lower in the NN within the Inferred. Upon review, SRK attributes these differences to low grades at the edge of the deposit and the limited sampling at depth within Zone 2 area. Further review of the distribution of zinc shows that internally to the Zone 1 domain there is a degree of variation within the zinc distribution which the OK estimates smooth out compared to the NN assignments. SRK considered the level of smoothing to be appropriate as the overall distribution from high to low grades vertically noted in long section are honored in the SRK estimates. The internal smoothing of grade across the width of the mineralization is likely more realistic during mining.

In Zone 3, the largest differences between the estimated grades and the nearest neighbor assignment occur within the copper and zinc estimates, with the estimated grades reporting lower than the composites and the NN assignments. It is noted that in Zone 3 the average distance to the samples is wider in a number of blocks, which have been downgraded to exploration potential from Inferred given the wider drill spacing. SRK also notes that the mineralization wireframes within Zone 3 are currently defined using the same process as Zones 1 and 2 using the NSR, but SRK notes more variability in the distribution of elements contributing to the NSR values; therefore, internal sub-domaining should be considered once further drilling has been completed in Zone 3 to better define potential difference in mineralization style.

The comparison in the AG Deposit displayed a reasonable correlation across all elements. The biggest differences, which occur in terms of percentages, are typically in the lower-grade units, such as copper or zinc grades within the Wedge domains. Overall, SRK considered these estimates reasonable.

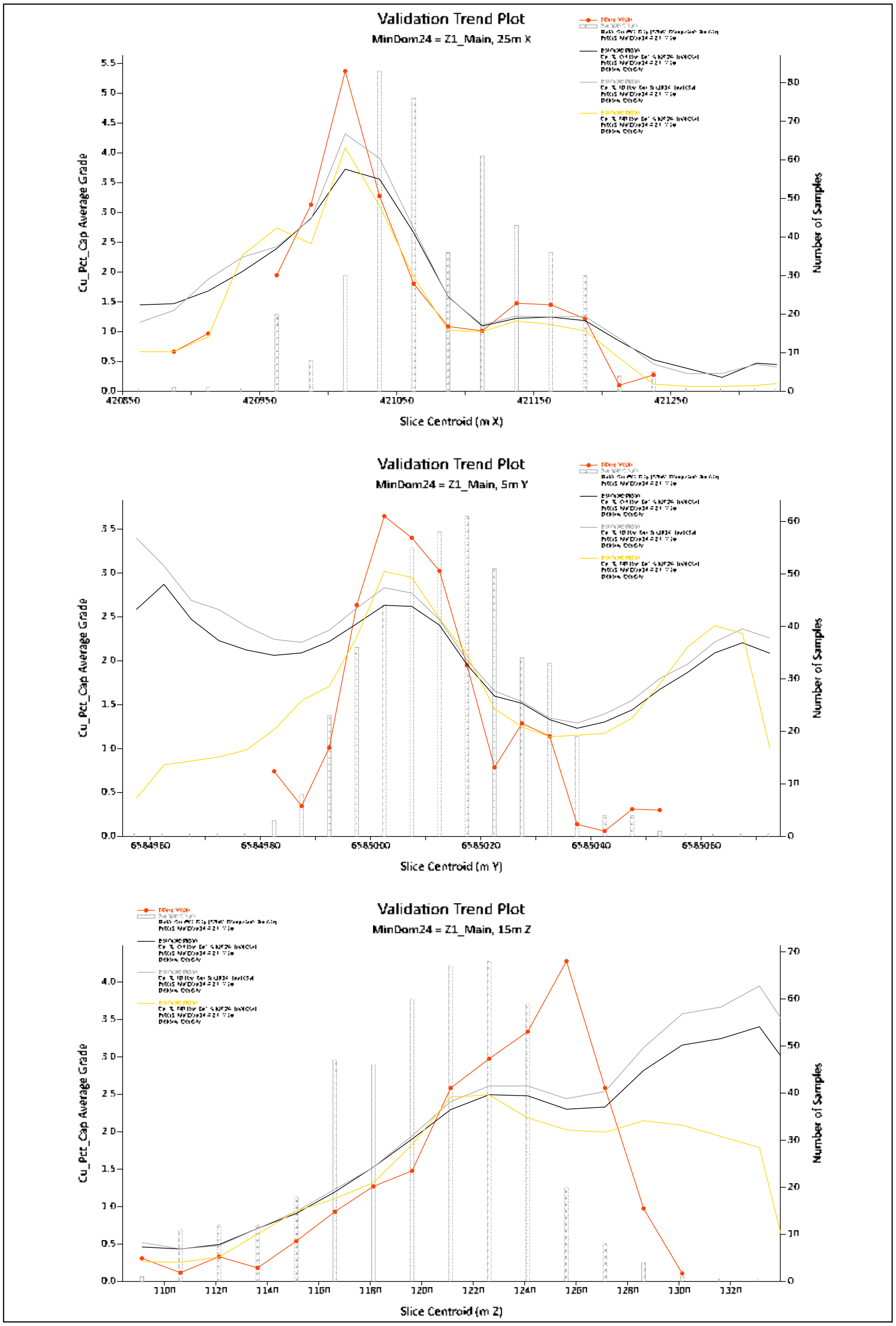
As noted, SRK highlights that in areas where there are significant differences between the kriged estimates and NN, further work may be required, including infill drilling or localized revision of the estimation parameters (shorter ranges) to ensure more isolated low grades (or high grades) are reflected in the kriged estimates (which are more smoothed).

SRK also notes that on a percentage basis, the lead values have relatively large differences; however, given the low-grade nature of lead and value to the Project, this is not considered material at this stage. The correlation between the estimates and the NN for the RW Domains is reasonable for all elements, with the most significant differences noted in the $BaSO_4$ (%) estimates at RW4, which has relatively low tonnage overall and has limited blocks above the economic cut-off; therefore, differences noted are not considered to be material.

Overall, SRK considers the estimates to be reasonable and to accurately reflect the global mean of the domains from the statistical analysis.

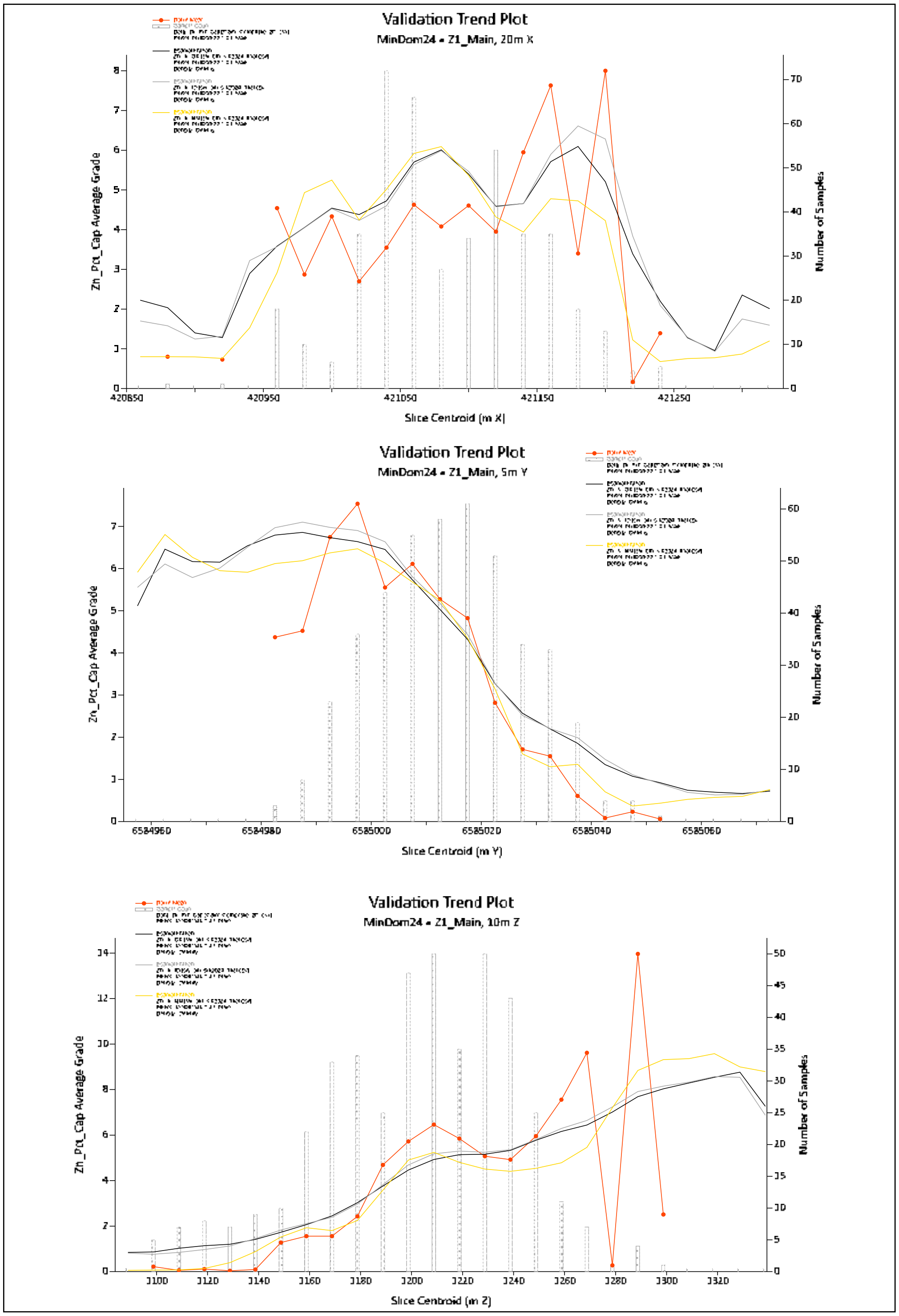
14.10.3 Swath Plots

A more-local comparison between the blocks and the composites has been completed for all domains using swath plots; Figure 14-19 and Figure 14-20 show examples for Zone 1 Main. The comparisons show both the varying means of the block and composites grades along swaths (or slices) through the model, as well as the amount of data supporting the estimate in each swath. The swath plots show that there are no significant local biases in the estimation. Based on the review of Zone 1, SRK notes that in general, the grade estimates to the western edge of the deposit increase in the estimates but level off in the NN values. Further drilling is required in these areas to investigate the model, but based on the histogram of volumes, the tonnage related to these values is not considered to be material to the overall estimate at this stage. These areas should typically be defined as lower confidence.



Source: SRK, 2024
Note: The top graph shows strike, the middle graph shows across strike, and the bottom graph shows vertical.

Figure 14-19: Zone 1 Swath Analysis for Copper (%)



Source: SRK, 2024
Note: The top graph shows strike, the middle graph shows across strike, and the bottom graph shows vertical.

Figure 14-20: Zone 1 Swath Analysis for Zinc (%)

14.11 Resource Classification

Block model quantities and grade estimates for the project were classified according to the CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014). Mineral resource classification is typically a subjective concept. Industry best practices suggest that classification should consider the confidence in the geological continuity of the mineralized structures, the quality and quantity of exploration data supporting the estimates, and the geostatistical confidence in the tonnage and grade estimates. Appropriate classification criteria should aim to integrate both concepts to delineate regular areas at similar resource classification.

Data quality, drillhole spacing, and the interpreted continuity of grades controlled by mineralization and high grades allowed SRK to classify portions of the Project into the Indicated and Inferred mineral resources categories. SRK based the current classification on a review of the variograms, statistical support to the confidence of the estimates (estimation variance and slope of regression), number of composites, and number of holes used to define each estimate.

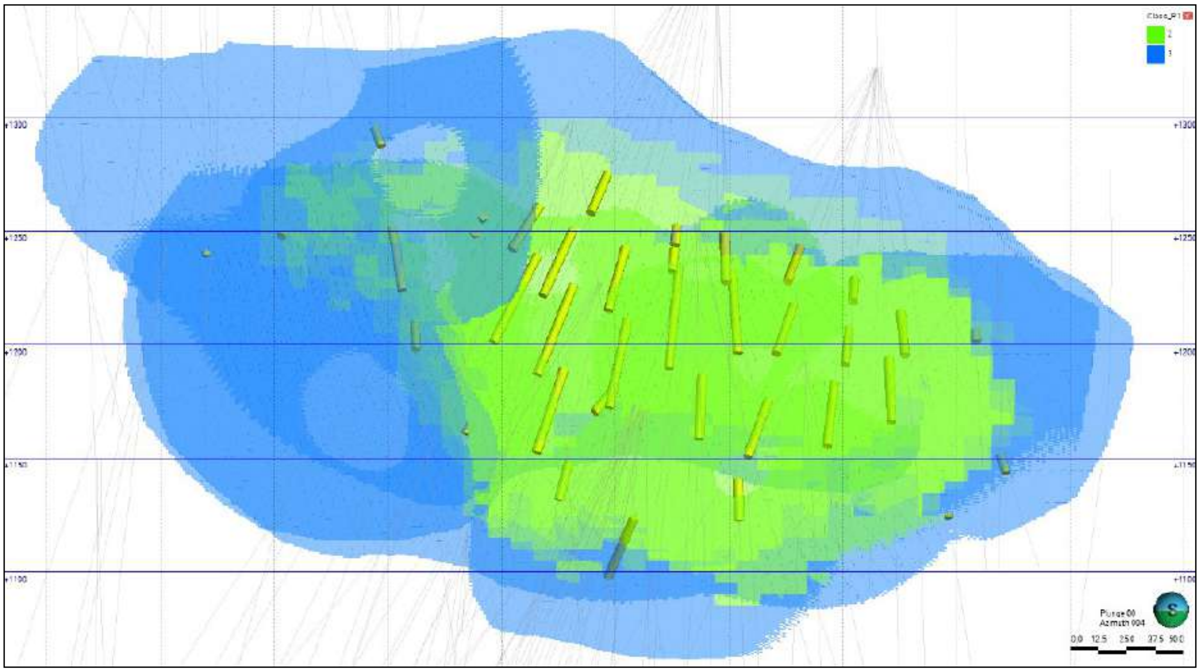
SRK completed a review of the requirements for drill spacing risk analysis study, which was presented to Constantine in a presentation in January 2024. To complete the study, SRK:

- Generated basic updated Zone 1 domain wireframe
- Coded samples inside wireframe and exported for statistical analysis
- Reviewed composite length analysis from 1 to 5 m
- Selected a composite length of 2 m
- Identified main revenue drivers (zinc and copper (approximately 90%))
- Completed a drill spacing risk analysis using 90%:15% confidence rule. This rule is a recognized industry practice that, for an Indicated resource, the drillhole spacing should be sufficient to predict tonnage, grade, and metal on annual production within a relative ±15%.

The findings of the study, based on the information available, demonstrated that overall production panels <2,000 tonnes per day (t/d) would require a tight drill spacing of 25 x 25 m. For production panels of 2,500 to 3,000 t/d, drill spacing would be on the order of 40 x 40 m, with the best continuity in the copper datasets (which suggests that a 50 m x 50 m grid could be used). SRK recommends focusing on a 40 m x 40 m grid, which, in the QP's opinion at this level, suggests drill spacing is usually close enough to permit the assumption of grade and volume (tonnes) continuity between drillholes. Using the above study as a guide, SRK defined the following classification criteria for the Zone 1 update (Figure 14-21) and Zone 2-3 (Figure 14-22):

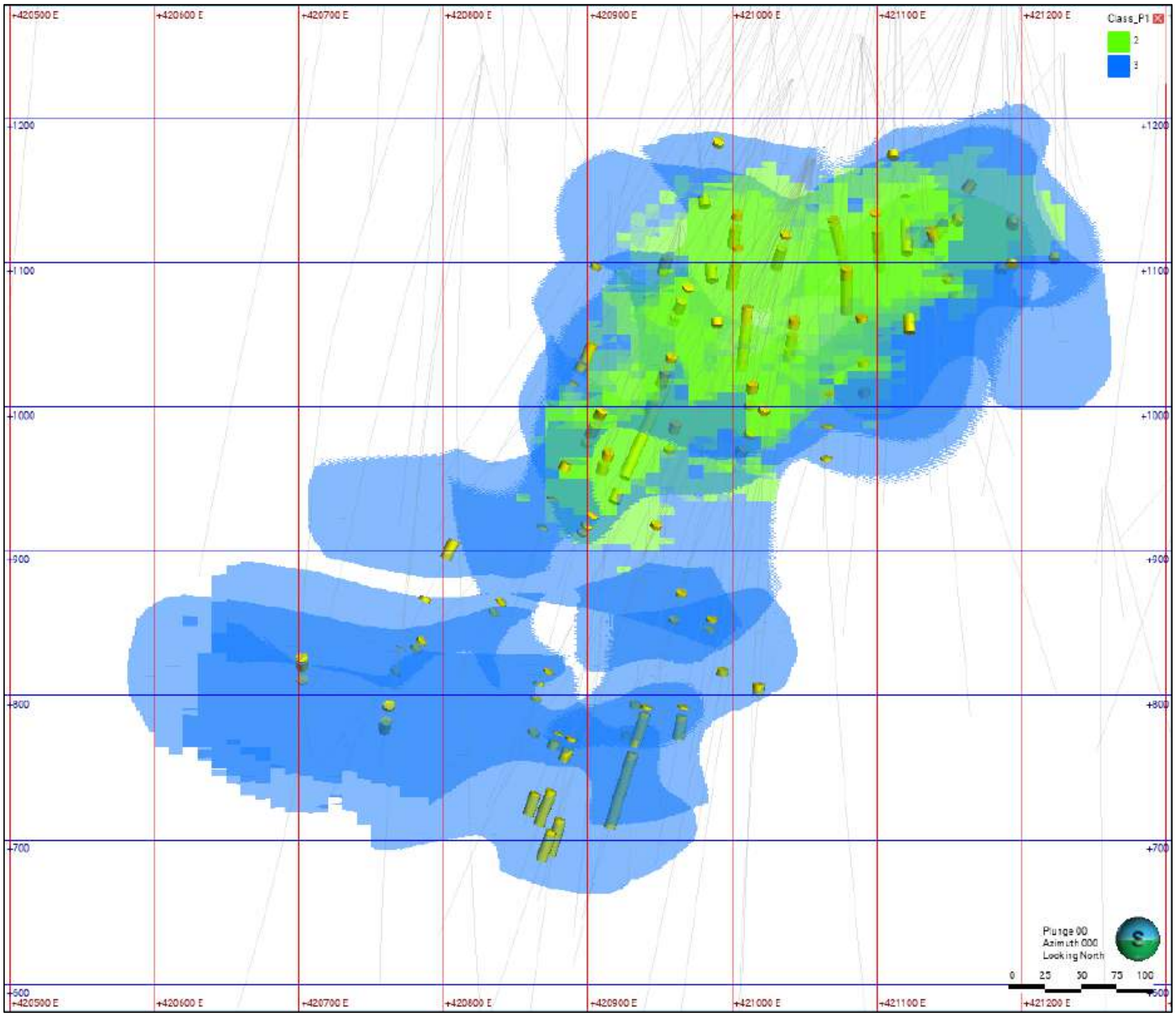
- **Measured mineral resources:** Not considered at this time; will require increase in confidence in the fault domains, geological model, mineralogy, and grade continuity
- **Indicated mineral resources (Figure 14-23):** Limited to drilling coverage within a 45 m x 45 m grid completed by Constantine and influenced by greater than or equal to (≥) three holes. A 10% allowance to the 40 m x 40 m grid is added to these spacings to account for irregular collar placement and drillhole deviation and provide continuity of the classification. Within Zone 2-3, a portion of the drilling at depth is clustered, but given the lower confidence in the geological model, a limit of the 915 m (elevation) has been applied for Indicated estimates.
- **Inferred mineral resources:** All other material within the key modeled domains, which have already been limited in their extent from the end of the drilling information (therefore

considered reasonable as a limit to which the geological continuity) could be Inferred. Note that any material defined by ID using svol2 has been downgraded to Inferred.



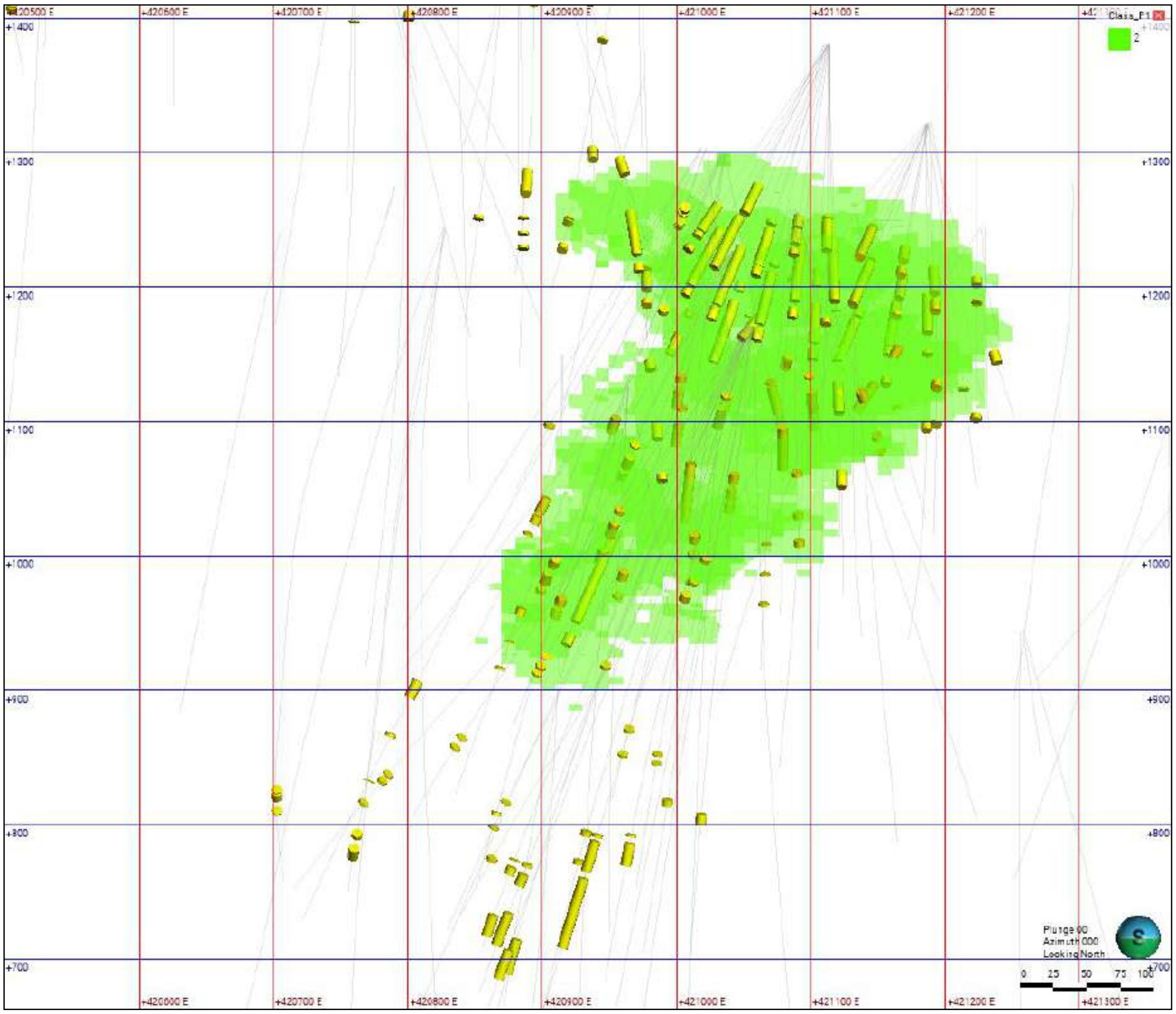
Source: SRK, 2024

Figure 14-21: Long-Section Looking South Showing Classification (Indicated and Inferred) for Zone 1 Based on Defined Criteria



Source: SRK, 2024

Figure 14-22: Long-Section Looking North Showing Classification (Indicated and Inferred) for Zone 2-3, Based on Defined Criteria



Source: SRK, 2024

Figure 14-23: Long-Section of SW Domain Looking North Showing Classification Based on Defined Criteria, Filtered to Indicated Only

14.12 Mineral Resource Statement

CIM defines a Mineral Resource as:

> *"(A) concentration or occurrence of diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge".*

The RPEEE requirement generally implies that the quantity and grade estimates meet certain economic thresholds and that the mineral resources are reported at an appropriate CoG, taking into account extraction scenarios and processing recoveries. To meet the RPEEE requirement, Palmer has been deemed only amenable to underground mining, with a CoG established for this scenario and the economic assumptions as presented in the PEA.

SRK updated the CoG calculated for underground mining to reflect current market conditions and adjusted the economic assumptions used in the 2022 PEA (effective date June 3, 2019) to account for inflation and new price assumptions. SRK also reviewed the latest work completed by SGS Canada summarized in, "An Investigation into Mineralogy, Comminution, and Flotation on Samples from the Palmer Project," prepared for Constantine Mining LLC on September 30, 2024. This test work was conducted on all the deposits to provide the most reasonable assumptions for each deposit in terms of expected recoveries. In summary, SRK revised CoG to include adjustments to the following key inputs:

- Price assumptions
- Cost assumptions (mining and plant)
- Any potential changes to the metallurgical recoveries
- General and administrative (G&A) cost review
- Terms and conditions (T&C) assumptions

To determine the potential for economic extraction, SRK used the assumptions as presented in Table 14-8, which details the key assumptions, additional T&C account for shipping costs, treatment charges, payability, and refining cost. Recent metallurgical test work completed LCTs on composites from both the SW/RW and AG Domains. SRK noted that this test work demonstrated different recoveries for the AG Deposit as compared to the SW/RW Domains; therefore, SRK calculated the NSR based on both recovery assumptions to test the sensitivity. SRK elected for reporting to use the AG-specific recoveries but notes that further test work may result in changes as the copper grade used in the metallurgical studies was considered low; however, this is also reflected in the average grades of the deposit, and therefore SRK considered these assumptions to be more representative at this stage.

Table 14-8: NSR Assumptions

Metal	Price (US$) 2019	Recovery (%) 2019	Price (US$) 2024	Recovery SW/ RW (%) 2024	Recovery AG (%) 2024
Copper	3.00/lb	89.6	4.50/lb	90.3	54.8
Zinc	1.15/lb	93.1	1.15/lb	89.2	94.8
Silver	16.00/oz	90.9	16.00/oz	90.2	91.0
Gold	1,250/oz	69.6	2,100/oz	76.1	66.0
Lead	Not applicable	Not applicable	0.95/lb	82.9	83.4

Source: SRK, 2025

Based on these assumptions, SRK determined the following conversion factor for NSR, which has been applied on a block-by-block basis, for the current study:

SW/RW NSR block = US$77.25 x %Cu + US$20.32 x %Zn + US$9.64 x %Pb + US$0.64 x g/t Ag + US$43.07 x g/t Au

AG NSR block = US$49.04 x %Cu + US$22.25 x %Zn + US$10.14 x %Pb + US$0.70 x g/t Ag + US$33.77 x g/t Au

In the 2022 PEA (effective date June 3, 2019), a US$75/t CoG (NSR) was used for SW and RW, and a 5.0% ZnEq was used for the AG Deposit. To complete the current review, SRK looked at the individual cost components (as detailed below), which has been escalated to account for inflation. No updated engineering work was completed to define the revised numbers. The revised CoG was determined at US$92.90/t CoG using the following assumptions:

- Mining costs: US$41.30/t
- Processing costs: US$23.92/t
- G&A costs: US$11.77/t
- Sustaining capital: US$15.92/t

These assumptions represent an increase in the order of 24% on the previous cut-off used in the previous estimates. SRK notes that in the PEA revenue is proposed from the sale of barite under the following assumptions:

> *"BaSO4 net-value equals US$0.566 x BaSO4% (e.g. a resource grade of 24% BaSO4 x $0.566 = US$13.60/t or 0.85% ZnEq). Formula based on barite recovery of 91.1% from metallurgical tests, assumed wholesale drilling-grade barite price in nearest North American markets of US$227/metric tonne, and assumed all-in transportation cost of US$150/tonne."*

However, these assumptions are not included in the current NSR calculations and would therefore provide upside to value in the ground and potentially additional tonnage of material reporting above cut-off. An updated review of the potential metallurgical processing required to define how to recognize the value and an updated market study should be completed to ensure consistency. Additionally, as the barium (ppm) values are not typically subjected to the same levels of QA/QC as the other elements, additional validation of the database may be required to confirm the current grades.

The CIM Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines (2019) notes that assessment for RPEEE should be completed for all deposits. To complete this analysis, the factors used should be considered current, reasonably developed, and based on generally accepted industry practice and experience. For MREs prepared on the assumption of underground mining methods, practitioners should carefully review the results of all MRES that utilize the application of an economic limit (such as a CoG or value) only, as reliance on an economic limit alone may produce undesired results due to a selective reporting bias. At a minimum, these constraints can be addressed by creation of constraining volumes. Constraining volumes should be used in conjunction with other criteria for the preparation of an MRE. For properties that are in the discovery or study stage, the input parameters are best determined from first principles that are consistent with the conceptual operating scenario. To apply this assumption for the Palmer Deposit, SRK generated conceptual mineable stopes assuming two different mining methods (stoping in steeper SW and AG Domains and cut-and-fill flatter portions of RW to account for the changes in dip of the orebody in the RW Zone). To conduct the exercise, SRK exported the block model from Leapfrog to Deswick, which was used to run a mineable stope optimizer (MSO) at the CoG of US$92.90/t. The following parameters have been assumed for the two mining methods:

- Sublevel stoping:
  - 10 m width x 20 m height x 2 to 30 (m length)
  - Stope dip at 50°
  - NSR cut-off at 92.9
- Cut-and-fill:
  - 30 m length x 5 m height by 1 to 10 m width
  - Stope dip at 40°

- NSR cut-off at 92.9

Once the MSO shapes were defined, they were exported back into Leapfrog, and the in situ blocks were coded with a criteria of RPEEE = 1 (inside MSO) or RPEEE = 0 (outside MSO).

Table 14-9 details a summary of the mineral resources for the Project based on blocks within the MSO shape and the US$92.90/t CoG. At Constantine's request, SRK also included metal equivalents for zinc and copper (based on NSR value/NSR factor for each element and domain). SRK does not consider these equivalents as part of the final mineral resource statement.

Table 14-9: Summary SRK of Palmer Project Mineral Resource Estimates, Effective Date January 13, 2025(1), (2), (5), (9), (10)

Classification	Zone	Domain	Mass	Average Grade						Contained Metal						Metal Equivalent (%)	
			(Mt)	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Au (g/t)	$BaSO_4$(6) (%)	Cu (Mlb)	Zn (Mlb)	Pb (Mlb)	Ag (koz)	Au (koz)	$BaSO_4$(6) (kt)	ZnEq(7)	CuEq(8)
Indicated	SW(3)	Zone_1	2.75	2.15	5.20	0.11	25.7	0.33	20.5	130.2	315.4	6.6	2,275	28.8	562.8	14.9	3.9
		Zone_2	2.02	1.08	5.12	0.17	32.1	0.23	20.7	47.9	227.6	7.7	2,078	15.1	417.6	10.8	2.8
		Total	**4.77**	**1.69**	**5.17**	**0.14**	**28.4**	**0.29**	**20.6**	**178.0**	**543.0**	**14.2**	**4,353**	**43.9**	**980.4**	**13.2**	**3.5**
Inferred	RW(3)	RW	1.68	0.71	3.50	0.47	46.5	0.31	30.2	26.2	129.9	17.6	2,516	16.9	509.2	8.5	2.2
	SW(3)	Zone_1	1.30	1.79	4.93	0.18	34.4	0.39	24.9	51.0	140.8	5.1	1,432	16.4	323.2	13.7	3.6
		Zone_2	0.89	0.87	4.32	0.15	26.2	0.20	14.4	17.2	85.0	2.9	754	5.9	128.6	9.0	2.4
		Zone_3	2.78	0.65	3.64	0.09	21.2	0.21	17.6	39.5	222.7	5.4	1,895	18.9	489.1	7.2	1.9
	AG(4)	AG (JAG)	5.13	0.15	4.04	0.83	96.7	0.40	29.3	16.8	456.7	93.3	15,942	66.0	1,500.9	8.5	3.8
		AG (Nunatak)	0.22	0.16	0.25	0.20	434.7	0.57	47.3	0.8	1.2	1.0	3,049	4.0	103.1	15.3	7.0
		Total	**12.00**	**0.57**	**3.92**	**0.47**	**66.3**	**0.33**	**25.5**	**151.5**	**1,036.4**	**125.2**	**25,587**	**128.1**	**3,054.2**	**8.9**	**3.1**

Notes:
(1)Mineral resources, which are not mineral reserves, do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, market or other relevant issues. The deposit has been classified as Indicated and Inferred based on confidence in the geological model and drill spacing. The quantity and grade of reported Inferred resources are uncertain in nature, and there has not been sufficient work to define these Inferred mineral resources as Indicated or Measured resources. There is no certainty that any part of a mineral resource will ever be converted into reserves.
(2)Mineral resources are reported using an assumed NSR, which includes prices, recoveries, and payabilities CoG based on metal price assumptions,* variable metallurgical recovery assumptions,** mining costs, processing costs, G&A costs, and variable NSR factors. Mining (US$41.3), processing (US$23.92), and G&A costs (US$11.77) and sustaining capital (US$15.92) total US$92.9/t for underground mining.
*Metal price assumptions considered for the calculation of metal equivalent grades are US$2,100.00/oz Au, US$28.0/oz Ag, US$4.50/lb Cu, US$0.95/lb Pb, and US$1.50/lb Zn.
**CoG calculations assume variable metallurgical recoveries as a function of grade and relative metal distribution. Average metallurgical recoveries for the SW/RW Zones are 76.1% Au, 90.2% Ag, 90.3% Cu, 82.9% Pb, and 89.2% Zn. Average metallurgical recoveries for the AG Deposit are 66.0% Au, 91.0% Ag, 54.8% Cu, 83.4% Pb, and 94.8% Zn.
(3)NSR calculations for SW/RW Domains: NSR = US$77.25 x %Cu + US$20.32 x %Zn + US$9.64 x %Pb + US$0.64 x g/t Ag + US$43.07 x g/t Au
(4)NSR calculation for AG Domain: NSR = US$49.04 x %Cu + US$22.25 x %Zn + US$10.14 x %Pb + US$0.70 x g/t Ag + US$37.77 x g/t Au
(5)The resources are considered to have potential for extraction using underground methodology and are constrained by mineable shapes. Resources are presented undiluted and in situ and are considered to have reasonable prospects for economic extraction.
(6)Barite as reported is shown for economic potential but has not been used in the NSR value at this stage.
(7)ZnEq is defined by the equation SW and RW = NSR value per block/US$20.32; AG = NSR value per block/US$22.25; note that barite has been excluded from the ZnEq and NSR calculations.
(8)CuEq is defined by the equation SW and RW = NSR value per block/US$77.25; AG = NSR value per block/US$49.04; note that barite has been excluded from the ZnEq and NSR calculations.
(9)Mineral resources are based on validated data, which have been subjected to QA/QC analysis, using capped, composited samples at 2 m. Estimation has been completed using a combination of OK and IDW estimation methodologies and classified based on confidence in the underlying data and drill spacing. Mineral resource tonnages have been rounded to reflect the precision of the estimate.
(10)The mineral resources were estimated by Benjamin Parsons, BSc, MSc Geology, MAusIMM (CP#222568) of SRK, a QP.

14.13 Mineral Resource Sensitivity

Table 14-10 through Table 14-12 show the continuity of the grade estimates at various cut-off increments and the sensitivity of the mineral resource to changes in CoG. The reader should note that the results presented herein have been limited to the current MSO shape and show limited growth on cut-off below US$90/t, while comparison of in situ tonnage and grades may show greater growth. The reader is cautioned that the values in Table 14-10 through Table 14-12 should not be misconstrued with the mineral resource statement. The values are only presented to show the sensitivity of the block model estimates to the selection of CoG. All values are rounded to reflect the relative accuracy of the estimates.

Table 14-10: Grade Sensitivity Table (Indicated) SW/RW Zone

Cut-Off NSR (US$/t)	Mass (Mt)	Average Value						
		NSR (US$/t)	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Au (g/t)	$BaSO_4$ (%)
40	4.87	263.6	1.67	5.09	0.13	0.3	27.95	20.26
50	4.87	263.6	1.67	5.09	0.13	0.3	27.96	20.26
60	4.87	263.8	1.67	5.10	0.13	0.3	27.98	20.27
70	4.86	264.1	1.67	5.10	0.13	0.3	28.00	20.29
80	4.84	265.0	1.68	5.12	0.13	0.3	28.11	20.37
90	4.79	266.7	1.69	5.15	0.13	0.3	28.31	20.50
92.9	4.77	267.6	1.69	5.17	0.14	0.3	28.40	20.56
95	4.74	268.6	1.70	5.18	0.14	0.3	28.49	20.64
100	4.68	270.8	1.72	5.22	0.14	0.3	28.72	20.82
105	4.59	274.0	1.74	5.28	0.14	0.3	29.02	21.08
110	4.50	277.4	1.76	5.34	0.14	0.3	29.38	21.36
115	4.39	281.5	1.79	5.41	0.14	0.3	29.77	21.66
120	4.28	285.7	1.82	5.49	0.14	0.3	30.18	21.99
125	4.19	289.5	1.84	5.55	0.15	30.5	0.31	22.28

Source: SRK, 2024

Table 14-11: Grade Sensitivity Table (Inferred) SW/RW Zones

Cut-Off NSR (US$/t)	Mass (Mt)	NSR (US$/t)	Cu (%)	Zn (%)	Pb (%)	Ag (g/t)	Au (g/t)	$BaSO_4$ (%)
40	6.91	180.3	0.89	3.87	0.21	0.3	30.40	21.67
50	6.91	180.4	0.89	3.87	0.21	0.3	30.40	21.68
60	6.90	180.6	0.89	3.87	0.21	0.3	30.44	21.70
70	6.87	181.0	0.89	3.88	0.21	0.3	30.50	21.74
80	6.82	181.8	0.90	3.90	0.21	0.3	30.58	21.78
90	6.74	183.0	0.90	3.93	0.21	0.3	30.65	21.79
92.9	6.65	184.2	0.91	3.95	0.21	0.3	30.84	21.80
95	6.48	186.5	0.93	3.97	0.21	0.3	31.33	21.91
100	6.15	191.3	0.97	4.02	0.22	0.3	32.19	22.21
105	5.96	191.3	0.97	4.02	0.22	0.3	32.19	22.21
110	5.76	197.2	1.01	4.10	0.22	0.3	32.84	22.70
115	5.54	200.6	1.04	4.15	0.22	0.3	33.12	23.00
120	5.14	207.0	1.08	4.25	0.23	0.3	33.84	23.27
125	4.80	211.2	1.13	4.25	0.24	34.5	0.31	23.69

Source: SRK, 2024

Table 14-12: Grade Sensitivity Table (Inferred) AG Deposit

Cut-Off NSR (US$/t)	Mass (Mt)	Average Value						
		NSR (US$/t)	Zn (%)	Cu (%)	Pb (%)	Ag (g/t)	Au (g/t)	$BaSO_4$ (%)
40	8.29	152.3	3.01	0.12	0.62	86.2	0.34	25.5
50	7.77	159.4	3.16	0.12	0.65	90.3	0.35	26.5
60	7.42	164.4	3.26	0.13	0.67	93.2	0.36	27.2
70	6.93	171.4	3.40	0.13	0.70	97.3	0.37	28.1
80	6.27	181.6	3.63	0.14	0.74	102.6	0.39	28.9
90	5.77	190.0	3.80	0.15	0.77	107.7	0.40	29.6
92.9	5.66	191.8	3.83	0.15	0.78	108.7	0.40	29.7
95	5.58	193.4	3.86	0.15	0.79	109.7	0.41	29.9
100	5.32	198.0	3.95	0.15	0.81	112.5	0.41	30.1
105	5.09	202.3	4.03	0.16	0.83	115.2	0.42	30.4
110	4.91	205.8	4.09	0.16	0.85	117.5	0.43	30.7
115	4.72	209.6	4.16	0.16	0.87	120.0	0.43	31.0
120	4.54	213.2	4.22	0.16	0.89	122.3	0.44	31.3
125	4.36	217.0	4.27	0.17	0.91	125.2	0.45	31.7

Source: SRK, 2024

14.14 Relevant Factors

SRK is not aware of any additional Environmental, permitting, legal, title, taxation marketing or other factors that could affect resources.

15 Mineral Reserve Estimate

Section 15, Mineral Reserve Estimates, is not applicable for the current level of study and has not been included in this report.

16 Mining Methods

Section 16, Mining Methods, is not applicable for the current level of study and has not been included in this report.

17 Recovery Methods

Section 17, Recovery Methods, is not applicable for the current level of study and has not been included in this report.

18 Project Infrastructure

Section 18, Project Infrastructure, is not applicable for the current level of study and has not been included in this report.

19 Market Studies and Contracts

Section 19, Market Studies, is not applicable for the current level of study and has not been included in this report.

20 Environmental Studies, Permitting, and Social or Community Impact

20.1 Environmental Study Results

The Palmer Project is located in coastal southeast Alaska, on the southeast margin of the Saint Elias Mountain Range. The Project is situated in the Glacier Creek watershed and includes 11,729 ha of largely undeveloped habitats. The Project area is in steep, mountainous terrain, with 1,219 m of relief. At upper elevations, several glaciers originate from the summit of MHC at the western edge of the Project area.

The climate is temperate rain forest with average precipitation of 119 cm, approximately two-thirds of which occurs as snow. Average temperature varies between -7°C to 18°C and rarely below -15°C. The warm season extends from May 18 through September 8, and the cold season extends from November 14 through March 14. Median cloud cover ranges from 69% (partly cloudy) to 99%.

20.1.1 Hydrology

The Palmer Project is centered within the Glacier Creek watershed that drains into the Klehini River. The Klehini River in turn flows into the Chilkat River approximately 14 miles downstream of the Glacier Creek and Klehini River confluence. The Klehini River follows a large, braided channel that runs from west to east along the northern Project boundary. From north-to-south within the Palmer Project, the names of the stream systems are Jarvis Creek, Little Jarvis Creek, Sarah Creek (also known as Pump Valley Creek), and Glacier Creek.

Flow measurements and water quality baseline sampling have been conducted by Constantine and its consultants on Glacier Creek and its tributaries, unnamed streams and seeps, and the Klehini River since 2014. Water quality sampling has continued through 2024 for both compliance purposes and baseline data gathering efforts.

20.1.2 Hydrogeology

Hydrogeological investigations have been ongoing since 2014 with two objectives: develop a better understanding of the Project to support potential future prefeasibility- and feasibility-level characterizations.

Work to date has included groundwater level monitoring in drillholes and installation of pressure transducers in select exploration and geotechnical drillholes to monitor annual groundwater level fluctuation. Work has also included various hydraulic tests such as shut-in tests on shallow-angle artesian wells, packer testing of drillholes to determine hydraulic conductivity of select rock units, and soil percolation tests. The data has supported the development of a conceptual hydrogeological model for the core project area and a transient analytical flow model for predicting water flow rates into areas of underground development (Tundra, 2018). Constantine has continued to pursue the types of baseline hydrogeologic characterization detailed by Tundra in their 2018 report.

20.1.3 Vegetation and Wildlife

The forested portions of the Project area include both Mountain Hemlock (*Tsuga mertensiana*) (MH) forest at upper elevations (400 to 1,000 m) and Cedar (*Thuja plicata*) and Western Hemlock (*Tsuga* *heterophylla*) Coastal Western Hemlock (CWH) forests at lower elevations (0 to 400 m). Deciduous trees encountered at lower elevations include black cottonwood (*Populus trichocarpa*) and red alder (*Alnus rubra*), along with tall shrubs, including Sitka alder (*Alnus viridis ssp. sinuata*) and willows (*Salix spp*). As elevation increases, CWH transitions to dense closed canopy forests of Sitka alder then to alpine habitat. Alpine conditions occur on the tops of mountain ridges and are characterized by shrubby, low-stature vegetation and rocky outcrops (Hemmera, 2015).

The CWH zone supports the greatest diversity and abundance of wildlife habitat in the study area, hosting large game species such as moose (*Alces alces*) as well as furbearers and bald eagles. Middle to lower sections of Glacier Creek support Dolly Varden (*Salvelinus malma*). Higher elevations are frequently used by large mammals, including black bear (*Ursus americanus*), grizzly bear (*Ursus arctos*), and mountain goat (*Oreamnos americanus*). Migratory bird species occurring in the Project area in this habitat type include golden eagle, varied thrush (*Ixoreus naevius*), hermit thrush (*Catharus guttatus*), Wilson's warbler (*Cardellina pusilla*), and yellow warbler (*Setophaga petechia*). Resident sooty grouse (*Dendragapus fuliginosus*) and ptarmigan (*Lagopus spp*) occur at the transition zone at upper elevations (Hemmera, 2015).

Primary species of interest (SOI) occurring in the Project area include, bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), grizzly bear, and mountain goat. Bald eagles, golden eagles, and their nests are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668), 50 CFR 22. Alaska Department of Fish and Game (ADFG) considers grizzly bear a traditionally and economically important species. Feeding and killing of black and grizzly bears is regulated by the Alaska administrative code. Mountain goats are recognized as an important game animal by ADFG and are a focal species for monitoring by ADFG in the Haines mountain goat census area. Ongoing baseline inventory and monitoring studies for the species have been conducted by Constantine in the Project area since 2015.

20.1.4 Cultural Resources

In 2014, Constantine contracted Northern Land Use Research Alaska, LLC (NLURA) to perform a cultural resources survey for a 3,962 m access road along the northern and southern margins of Glacier Creek. No cultural resources were discovered during the survey. No additional Alaska Heritage Resources Survey sites were added to the existing Office of History and Archaeology (OHA) database. NLURA recommended a finding of No Historic Properties Affected (36 CFR 800.4(d)(1)), and in their opinion, no further fieldwork was required in advance for the Project. The work was summarized in a report entitled, "*Cultural Resource Survey Report of the Palmer Exploration Project, Haines, Alaska*" (NLURA, 2015). This report was submitted to the BLM.

In May of 2017, Constantine contracted NLURA to conduct desktop- and field-based cultural resource assessments of an expansion area for the Palmer Project access road and exploration area. No significant cultural resources were noted or discovered within the 2017 Palmer Project Cultural Resources assessment areas. NLURA recommended a finding of No Historic Properties Affected. The work was summarized in a report entitled, "*Cultural Resource Survey for the Palmer Project, Glacier Creek, Southeast Alaska*" (NLURA, 2017). This report was submitted to the BLM to support the road amendment permit application.

NLURA completed this project as a Level I, Identification Phase cultural resources survey as defined by the OHA in Historic Preservation Series No. 11, revised 2003 (Alaska Department of Natural

Resources (ADNR), 2003). Level I surveys are intended to locate archaeological and historic properties that might be eligible for the National Register of Historic Places in an undertaking's area of potential effect. NLURA completed fieldwork applying standard archaeological methods for projects of this nature.

In May of 2024, Constantine again engaged with NLURA to provide background research on several areas being considered for potential project infrastructure. NLURA is in the process of aggregating information found during their background research as well as during a site visit to both archives located in Haines and the Project site itself. This report is anticipated to be completed in 2025.

20.1.5 Environmental Liabilities

Stantec Consulting Services, Inc. (Stantec) completed an ASTM Phase I Environmental Site Assessment (ESA) on November 11, 2015. The ESA was conducted to identify if there are historical and/or current, potential on-site and/or nearby, off-site environmental concerns that might pose possible impact to the Project. Stantec performed the ESA in conformance with the scope and limitations of ASTM Practice E1527-13. Stantec completed an additional ASTM Phase I ESA on September 25, 2023, which yielded the same findings.

In summary, Stantec has not identified any on-site or off-site Recognized Environmental Concerns that might impact the Project detrimentally (Stantec, 2024). Stantec's analysis of data and information reviewed as part of the ESA, as well as visual observations during the site visit, did not identify any indications of stockpiled, waste rock, or similar, prospect-related material, nor released hazardous or petroleum product constituents in any quantity deemed of potential environmental concern.

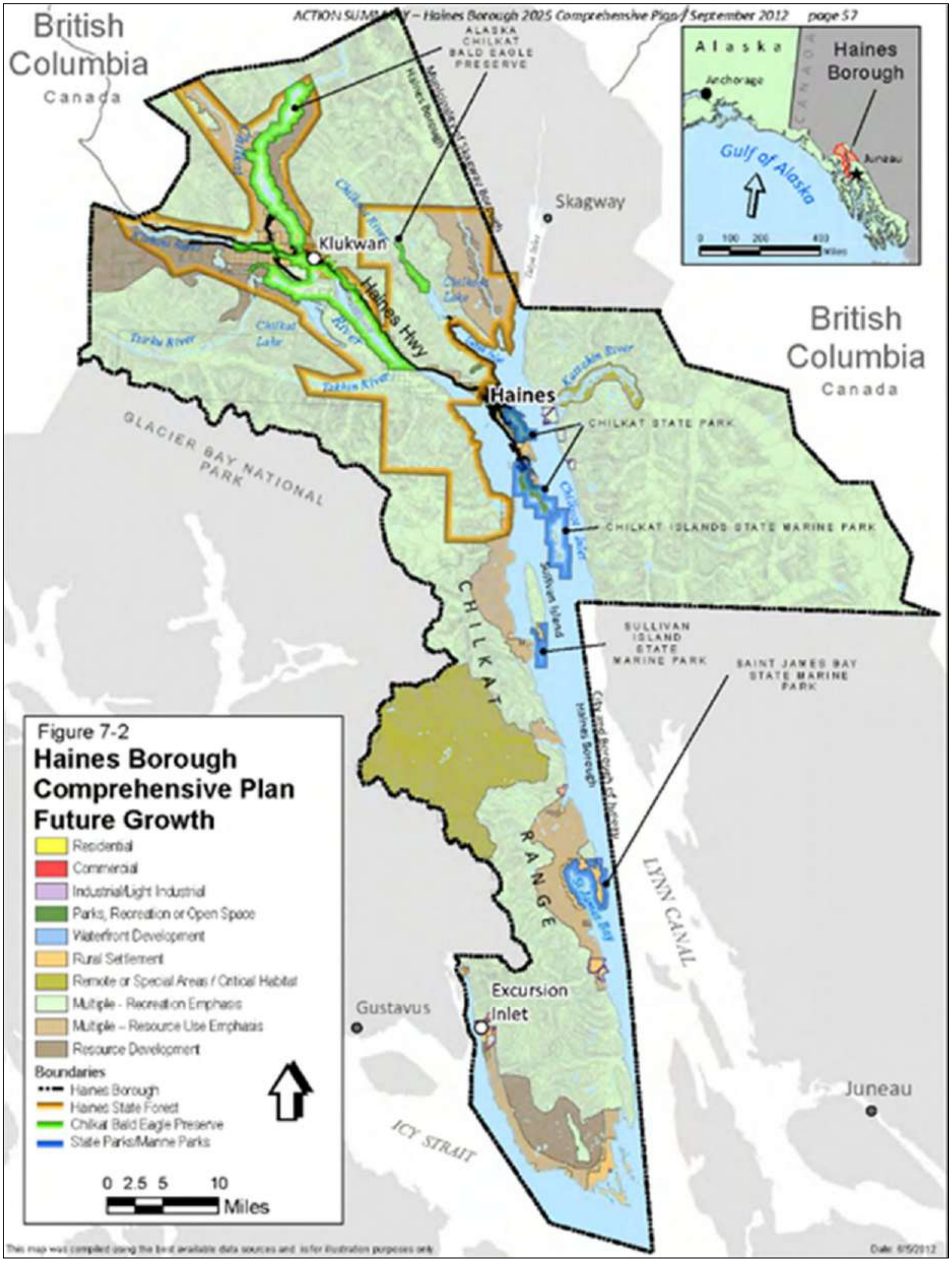
20.1.6 Government Land Use Management Plans

There are several land and resource management plans considered relevant to the Project area; these include the Haines Borough Comprehensive Plan, the Haines State Forest Management Plan, and the BLM Ring of Fire Resource Management Plan. The plans recognize mineral exploration and mining activities as important uses of the land and resources within the Project area. Adjacent lands include surface and mineral estate owned and managed by the Alaska MHT Authority. The trust is mandated to generate revenue from their lands to support MHT programs. Trust lands adjacent to the Project area were selected specifically for their potential to generate revenue from minerals. Revenue generated from trust lands support MHT programs.

Haines Borough Comprehensive Plan

The Project area is located within the administrative boundaries of the Haines Borough. The borough has a comprehensive plan (updated in 2024) that is designed to act as a guide for citizens and civic decision makers concerning land use, growth, development, and enhancement of the quality of life for residents and visitors to the community. The Haines Borough region has a rich history of mining, and mining is highlighted as an important sector to the local economy.

The land use designation for the Project area is public use (Figure 20-1). The public use designation is for land where the borough is not the authorizer of uses. In this case, the borough acknowledges that state and federal entities authorize land uses in these areas under separate planning documents or rules. The comprehensive land use plan identifies that the allowable uses within those separate land management plans should be the primary driver of land uses.



Source: Modified from Haines Borough Comprehensive Plan, 2024

Figure 20-1: Haines Borough Comprehensive Plan

Economic Development Objective 10A of the comprehensive plan is to "work with project developers and regulators to achieve responsible development, which is defined as complying with environmental regulations, ensuring fishery resource and riparian zone protection, providing protection of salmon habitat and Bald Eagle Preserve resources, maintaining scenic view sheds, and buffering operations when needed to protect adjacent users and activities."

The Haines Borough Comprehensive Plan was updated in 2024. Updates to the Comprehensive Plan identify the location of the Project as "Public Land" and recognizes that many of the lands surrounding the project area are outside the direct control of the Borough. Land use in the areas identified as "Public Land" should be informed by the land use plans associated with the appropriate governing body (i.e. state or federal plans).

Haines State Forest Management Plan

On July 1, 1982, Alaska took the first step in the development of a system of state-owned lands legislatively dedicated to the multiple use management of forest resources. Alaska Statutes (AS) 41.15.300 through 41.15.330 established the Haines State Forest Resource Management Area (State Forest). At the same time, AS 41.21.610 through 41.21.630 established the Alaska Chilkat Bald Eagle Preserve, which is surrounded by the State Forest. This legislation was the result of cooperation among a host of diverse interest groups. The legislature intended the State Forest to include timber harvest, recreation, mining, traditional uses, fish and wildlife habitat protection, tourism, and other uses. The type, intensity, and location of these uses was (under AS 38.04.005) to be derived from a planning process that would determine the best balance of these uses. Most importantly, the State Forest was to be managed for multiple uses. Multiple use management could include a mix of those uses identified under AS 38.05.112(c) and varying levels of use, depending on the results of the planning analysis.

In contrast, the Chilkat Bald Eagle Preserve has an exclusive use management intent, rather than multiple use. The preserve's management focuses on the protection of bald eagles and their associated habitat, as well as the spawning and rearing areas of the anadromous streams that provide food for the bald eagle population. The traditional lifestyle of the Haines community is recognized as an important value and its continuation is included in the management of the preserve.

This distinction between multiple use and exclusive use was intended by the legislature. According to AS 41.21.610(c): "Accordingly, the establishment of the Alaska Chilkat Bald Eagle Preserve and the Haines State Forest Resource Management Area under AS 41.15.305 is determined to *represent a proper balance between the preservation of state public domain land and water for bald eagle preserve purposes and state public domain land and water more appropriate for multiple use*" (Italics added for emphasis as taken from the Haines State Forest Land Management Plan).

BLM, Ring of Fire Management Plan

The BLM currently manages the federal lands located within the Project area. The mineral potential within the Project area has been described in the Ring of Fire Management Plan (June 2006). The Project area falls within the Haines planning block boundary included in the subsequent draft Resource Management Plan Amendment (December 2012) but is outside areas of proposed special land use designation. The State of Alaska MHT has a valid land selection (top filing) over the federal lands currently controlled through Constantine's federal mining claims. When a valid top filing exists as in this situation, the owner of the federal mining claims has the right to request that these federal lands be conveyed to the state MHT, though no formal request has been lodged with the land management authorities to date.

20.1.7 Annual Environmental Monitoring

Environmental work on the Project has been ongoing since 2006 and has been designed to support long-term baseline data collection and near-term Project data needs. Environmental programs over the course of the last 18 years have included:

- Stream flow monitoring
- Surface water quality sampling
- Surface water discharge measurements
- Ground water sampling
- Ground water level monitoring
- Ground water hydrology studies
- Aquatic biology and habitat surveys
- Wildlife surveys
- Wetland delineations
- Plant and invasive species surveys
- Meteorological monitoring
- Snow depth/avalanche monitoring
- Acid base accounting
- Preliminary historic use research
- Phase I ESA (Stantec 2015 and 2024)

20.2 Required Permits and Status

This section describes the primary permitting structure Constantine operates within. A number of the authorizations in this section require additional subsequent authorizations which are not outlined in this section.

20.2.1 Federal Mine Plan of Operations

Constantine is currently exploring federal lands at the Palmer Project under authority of the BLM Record of Decision dated August 16, 2016, that approved the Mine Plan of Operations and Environmental Assessment (DOI BLM-AK-A020-2016-006-EA) (the Plan) and as amended under the Constantine Mine Plan 2017 Modification and Environmental Assessment on Sept 21, 2017 (DOI-BLM-AK-010-2017-025-EA) (the Amended Plan).

The Amended Plan allows for surface disturbance related to exploration activities for up to 40.0 acres. As of 2025, Constantine has disturbed approximately 13 acres of federal land. The Amended Plan has no expiration date.

20.2.2 State Plan of Operations for Surface Exploration

Surface exploration activities on state lands at the Palmer Project have been applied in a plan of operations application submitted in November 2023 through the State of Alaska Applications for Permits to Mine group. This application has been reviewed by DNR and undergone public comment, and approval was received in January 2025. Currently, this approval is valid until December 31, 2028, but it could be approved for up to 10 years should Constantine apply for an extension. The activities outlined in the recently approved plan of operations include activities focused on investigating potential infrastructure locations. These activities include geotechnical drilling, meteorological monitoring stations, test pitting, installation of monitoring wells, etc.

Plan of Operations Approval for Surface Exploration

Constantine was granted a plan of operations approval for surface exploration on the Haines Block by the Alaska MHT on April 4, 2024. These trust lands are controlled by Constantine through Upland Mining Lease 9100759. The approved 2024 mineral exploration activities include geological mapping, prospecting, soil sampling, environmental and geotechnical baseline work, diamond core drilling, and overburden drilling. Plan approvals are granted annually.

Plan of Operations Approval for Surface Construction

Constantine was granted a plan of operations approval for surface construction on the Haines Block by the Alaska MHT on April 19, 2018. The approved 2018 activities are limited to extending the Glacier Creek access road 0.7 miles to a future portal location, construction of the portal pad, development of a gravel quarry, construction of two water settling ponds, construction of snow avalanche defense structures, and excavation of a trench that will eventually be used for a buried land application disposal system to dispose of underground seepage water during future underground activities. The Alaska MHT approved Phase II of the plan of operations in April 2019. Phase II of the plan allowed for excavation and material management facilities associated with the planned underground exploration portal. The plan of operations also included a reclamation plan and an estimate of the reclamation costs. The reclamation cost estimate was updated in 2024 to account for changes to labor costs and inflation. This plan has been reviewed by DNR's large mine permitting team, undergone a public comment period, and was approved in November of 2024.

Temporary Water Use Authorizations

Constantine holds five temporary water use authorizations (TWUA) from ADNR for supplying water to drills. If additional water sources are required, Constantine will ensure appropriate authorizations are obtained:

- **TWUA F2024-058** for five water sources in the Project area. The period of approved withdrawal is May 1 to October 31 at a rate not to exceed 86,400 gallons per day (gpd). The expiration date is December 31, 2028.
- **TWUA F2024-075** for five water sources in the Project area. The period of approved withdrawal is May 1 to October 31 at a rate not to exceed 86,400 gpd. The expiration date is December 31, 2028.
- **TWUA F2021-024 (Amendment #1)** for five water sources in the Project area. The period of approved withdrawal is May 1 to October 31 at a rate not to exceed 86,400 gpd. The expiration date is December 31, 2025.
- **TWUA F2024-057** for five water sources in the Project area. The period of approved withdrawal is May 1 to October 31 at a rate not to exceed 86,400 gpd. The expiration date is December 31, 2028.
- **TWUA F2021-025** for two water sources in the Project area. The period of approved withdrawal is May 1 to October 31 at a rate not to exceed 86,400 gpd. The expiration date is December 31, 2025.

20.2.3 Reclamation Plan Approval and Reclamation Financial Assurance

Constantine is required to provide financial assurance for reclamation activities under both state and federal regulations. On federal land in accordance with 43 CFR3809.500 - Financial Guarantee Requirements, Constantine must post and maintain a financial assurance adequate to cover reclamation cost, as calculated in the reclamation cost estimate (RCE). The Project's RCE estimated reclamation costs to be US$360,474 for reclamation of surface disturbance on BLM land. Per 43 CFR3809.555- Forms of Financial Guarantees, Constantine can provide bonding through several different mechanisms or through a state-approved financial guarantee (Alaska Statewide Bond Pool (43 CFR 3809.570)). Constantine elected to utilize the Statewide Bond Pool to meet its financial assurance requirement for the US$360,474 obligation and is currently bonded for 21.0 acres of disturbance.

Separately, Constantine is also obligated to bond for surface disturbance on MHT lands approved by the MHT Phase II Plan of Operations Approval dated April 2022 and most recently amended and approved in 2024. The plan of operations amendment included a reclamation plan and reclamation cost estimate of US$450,000 to cover current disturbance and approximately US$1,300,000 to cover reclamation costs associated with full implementation of Phase II. ADNR approved that reclamation plan and cost estimate under its authority in November of 2024. Constantine is required to post a financial assurance in that amount in advance of initiating any additional work in the Phase II Plan of Operations.

20.2.4 Other Permits and Licenses

- NWP No. 14: Approval to Discharge Gravel into Streambed below High-Water Mark (POA-2014-150). There is no expiration date.
- Permit to Appropriate Water LAS 34317: Allows for appropriation of water at camp up to 3,120 gpd. The expiration date is January 10, 2028.
- Camp fire safety approval and certification (2022ANCH1778). There is no expiration date.
- Camp food services permit (Permit #15025). The expiration date was December 31, 2025, .

Other Relevant Information

A lawsuit was filed by The Southeast Alaska Conservation Council et al. against The Alaska Department of Environmental Conservation (DEC) for their 2019 issuance of Constantine's waste management permit. This permit is associated with Constantine's Phase II Plan of Operations on MHT land and would allow Constantine to use a land application disposal method for water dewatered from the underground exploration drift. In August of 2023, the DEC commissioner issued a decision upholding DEC's decision. The commissioner's decision was then appealed to the superior court and is currently being reviewed at the superior court level. A decision by the court is anticipated in H1 of 2025.

20.3 Social and Community

Constantine has conducted community relations activities since 2006. As part of their ongoing efforts, Constantine conducts regular stakeholder meetings, maintains community outreach materials, hosts Project site tours, attends and supports local programs and events, supports local hire and procurement, and participates in local community organizations.

Constantine opened a local, year-round Project administrative office in 2015 and employs dedicated community relations staff. Constantine plans to continue efforts to further strengthen stakeholder communications and relations, with the goal of maximizing mutual benefits and finding solutions to any concerns.

21 Capital and Operating Costs

Section 21, Capital and Operating Costs, is not applicable for the current level of study and has not been included in this report.

22 Economic Analysis

Section 22, Economic Analysis, is not applicable for the current level of study and has not been included in this report.

23 Adjacent Properties

There are no properties of merit in the immediate area of the Palmer Project. However, there are two VMS deposits in the greater district with some similarities to Palmer. The QP has not been able to verify the information presented below, and the information is not necessarily indicative of the mineralization of the Palmer Project deposits.

23.1 Greens Creek Silver-Zinc-Lead-Gold VMS Deposit, Alaska, USA

The Greens Creek Mine, owned by the Hecla Greens Creek Mining Company, is located 175 km southeast of the Project on Admiralty Island, Alaska. Greens Creek is one of the largest and lowest-cost primary silver mines in the world. In 2023, Greens Creek produced 9.73 Moz Ag at a cash cost, after byproduct credits, of US$2.53/oz Ag (a non-generally accepted accounting principles (GAAP) measure), and 60,896 oz Au (Table 23-1). Production in 2024 is expected to be 8.6 to 9.0 Moz Ag.

Table 23-1: Greens Creek Mine Annual Production

Production (Years-Ending December 31)	2023	2022	2021	2020
Ore milled (tons)	914,796	881,445	941,967	818,408
Silver (oz)	9,731,752	9,741,935	9,243,222	10,494,726
Gold (oz)	60,896	48,216	46,088	48,491
Zinc (tons)	51,496	52,312	53,648	56,814
Lead (tons)	19,578	19,480	19,873	21,400
AISC, after by-product credits, per silver oz	$7.14	$5.77	$3.19	$7.97

Source: Hecla, 2023

The Greens Creek deposit is a polymetallic, stratiform, massive sulfide deposit located within the Admiralty sub-terrane of the Alexander Terrane (similar to Palmer). The host rock consists of predominantly marine sedimentary, and mafic to ultramafic volcanic and plutonic rocks, which have been subjected to multiple periods of deformation. These deformational episodes have imposed multiple folding of the mineralized bodies to create a complex geometry. Mineralization occurs discontinuously along the contact between a structural hangingwall of quartz mica carbonate phyllites, and a structural footwall of graphitic and calcareous argillite.

Ore lithologies fall into two broad groups: massive mineralization with over 50% sulfides and white mineralization with <50% sulfides. The massive mineralization is further subdivided as either base metal or pyrite dominant. Massive mineralization varies greatly in precious metal grade from uneconomic to bonanza gold (>0.5 oz per ton) and Ag (>100 oz ton). White mineralization is subdivided into three groups by the dominant gangue mineralogy: white carbonate, white siliceous, and white baritic mineralization which tends to be base metal poor and precious metal rich. Major sulfide minerals are pyrite, sphalerite, galena, and tetrahedrite/tennantite.

Greens Creek is an underground mine which produces approximately 2,100 to 2,300 tons of material per day. The primary mining methods are cut-and-fill and longhole stoping.

Table 23-2 shows information with respect to Proven and Probable ore reserves and Measured and Inferred resources (as of December 31, 2023, unless otherwise noted).

Table 23-2: Greens Creek Mine, Resources and Reserves

Measured and Inferred Resources (as of December 31, 2023)									
	Tons (000)	Silver (oz/ton)	Gold (oz/ton)	Zinc (%)	Lead (%)	Silver (koz)	Gold (oz)	Zinc (tons)	Lead (tons)
Proven reserves(1,2)	8.8	11.3	0.08	8.4	3.5	100	700	740	310
Probable reserves(1,2)	10,009	10.5	0.09	6.6	2.5	105,122	879,700	657,990	250,270
Proven and probable reserves	10,018	10.5	0.09	6.6	2.5	105,222	880,400	658,730	250,580
Measured resources(3)	-	-	-	-	-	-	-	-	-
Indicated resources(3)	8,040	13.9	0.10	8.0	3.0	111,526	800,000	643,950	239,250
Measured and Indicated resources	8,040	13.9	0.10	8.0	3.0	111,526	800,000	643,950	239,250
Inferred resources(3)	1,930	13.4	0.08	6.9	2.9	25,891	154,000	133,260	55,890

Source: Hecla Mining Company, 2023 Annual Company Overview
(1)Includes byproduct credits from gold, lead, and zinc production. Cash cost, after byproduct credits, per silver ounce and AISC, after byproduct credits, and per silver ounce represent non-GAAP measurements that management uses to monitor and evaluate the performance of mining operations. Constantine believes these measurements provide indicators of economic performance and efficiency at each location and on a consolidated basis, as well as provide a meaningful basis to compare their results to those of other mining companies and other operating mining properties. A reconciliation of cost of sales and other direct production costs and depreciation, depletion, and amortization (the most comparable GAAP measure) to these non-GAAP measures can be found in Item 7. Management's discussion and analysis of financial condition and results of operations, under reconciliation of total costs of sales (GAAP) to cash cost, before byproduct credits and cash cost, after byproduct credits (non-GAAP) and all-in sustaining cost, before byproduct credits and all-in sustaining cost, and after byproduct credits (non-GAAP).
(2)Proven and Probable mineral reserves are calculated and reviewed in-house and are subject to periodic audit by others, although audits are not performed on an annual basis. CoG assumptions vary by orebody and are developed based on reserve metals price assumptions, anticipated mill recoveries, smelter payables, and cash operating costs. Due to multiple ore metals and complex combinations of ore types, metal ratios, and metallurgical performances at Greens Creek, the CoG is expressed in terms of NSR rather than metal grade. The CoG at Greens Creek is US$230/ton NSR for all zones except Gallagher, which has a CoG of US$235/ton NSR. The CoG calculations include costs associated with mining, processing, surface operations, environmental, G&A, sustaining capital, and royalty charges, if any. Constantine's estimates of Proven and Probable reserves are based on metals prices in Hecla's 2023 Annual Company Overview.
(3)Measured resources were not defined for year-end 2023; Indicated resources for silver increased 5% from 2022 given additions from drilling and reclassification of some previously defined reserve material; Inferred resources for silver decreased 6% from 2022 given conversion to Indicated resources of reserves due to drilling.

23.2 Windy Craggy Copper-Cobalt-Gold VMS Deposit, British Columbia, Canada

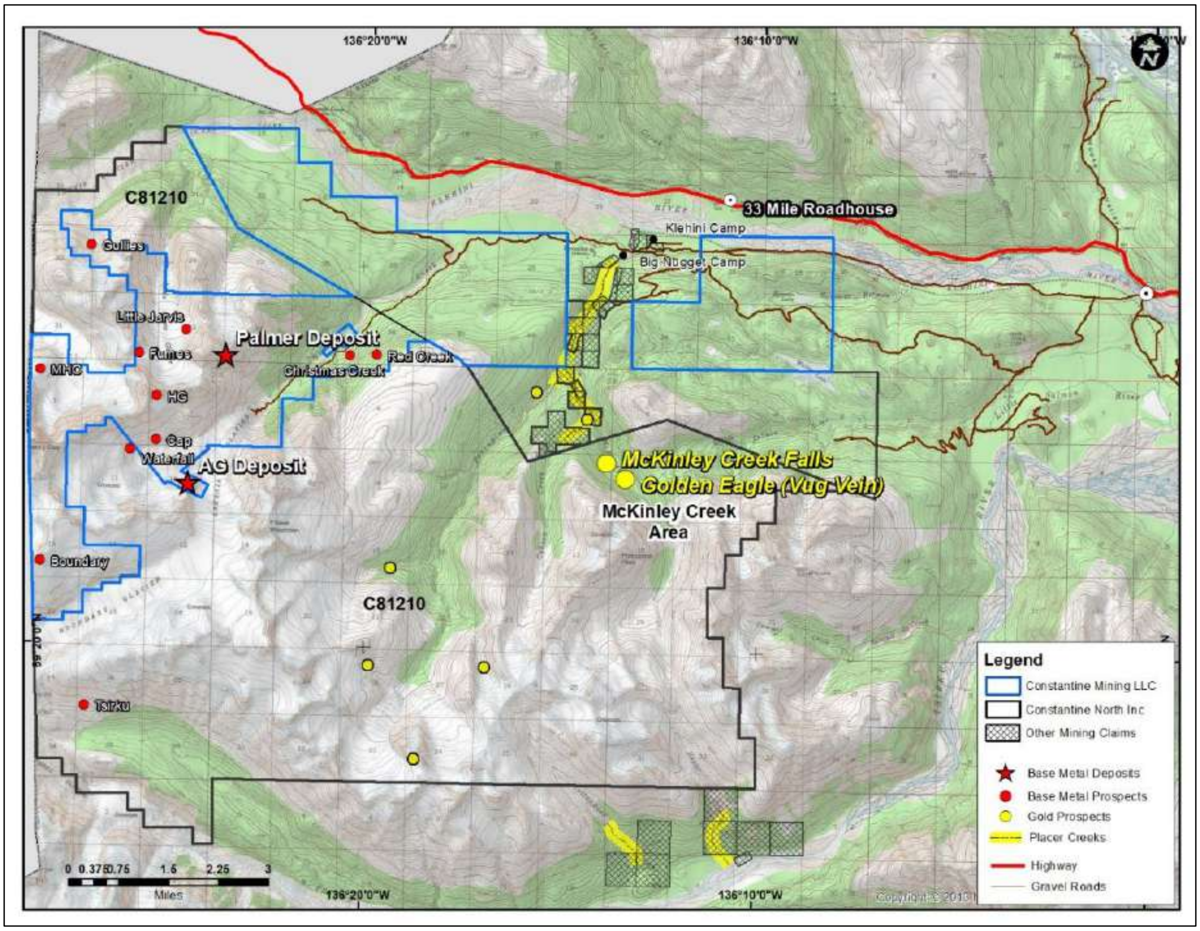
The 297 Mt Windy Craggy deposit, located 60 km northwest of the Palmer Project, is the world's fourth-largest VMS deposit by size and tops the list as the largest of the copper-rich (Besshi-type) category of VMS deposits. Windy Craggy is situated in the Alsek-Tatshenshini River area of the St. Elias Mountains, within the confines of the Tatshenshini-Alsek Provincial Park, designated as a World Heritage Site by United Nations Educational, Scientific and Cultural Organization.

Windy Craggy lies within the allochthonous Alexander terrane (similar to Palmer), which comprises a thick succession of complexly deformed Proterozoic to Permian basinal and platformal carbonate and clastic rocks with a subordinate volcanic component. These rocks have been subject to relatively low-grade metamorphism and are unconformably overlain by a Late-Triassic succession of calcareous turbidites and a mafic volcanic suite which host the Windy Craggy deposit.

Continuous massive sulfide mineralization is developed over a minimum strike length of 1,600 m, at least 600 m vertical extent, and >200 m in width. The mineralization appears to consist of two discrete sulfide bodies (the North and South Sulfide Bodies), each with a variably developed stockwork/stringer zone. The tabular to lenticular, concordant North Sulfide Body is about 120 to 150 m thick by 500 m in diameter. The body is elongated in a west-to-northwest direction and dips moderately to steeply to the north-to-northeast. The South Sulfide Body is more deformed, is lensoidal, and plunges steeply to the southeast, extending to the southeast as a series of 15 m to 60 m wide massive sulfide lenses. The massive sulfides and enclosing hosts have been subjected to two phases of deformation, producing isoclinal and open folds, respectively. The main faults close to the deposit strike are steeply dipping and strike northwest, subparallel to the strike of the host rocks.

24 Other Relevant Data and Information

The discovery of placer gold in the late 1890s along Porcupine Creek forms a significant part of the mining history in the vicinity of the Palmer Project. The Porcupine Creek area was the site of considerable placer mining activity between 1898 and 1936, with small operations still active in the area today, including placer mining on McKinley Creek (Figure 24-1). The area is reported as one of the most important placer districts in southeastern Alaska. Minimum estimated production from sparse records through to 1985 are reported as 79,650 oz Au (Still, 1991).



Source: Constantine, 2025

Figure 24-1: McKinley Creek Area and Gold Prospects

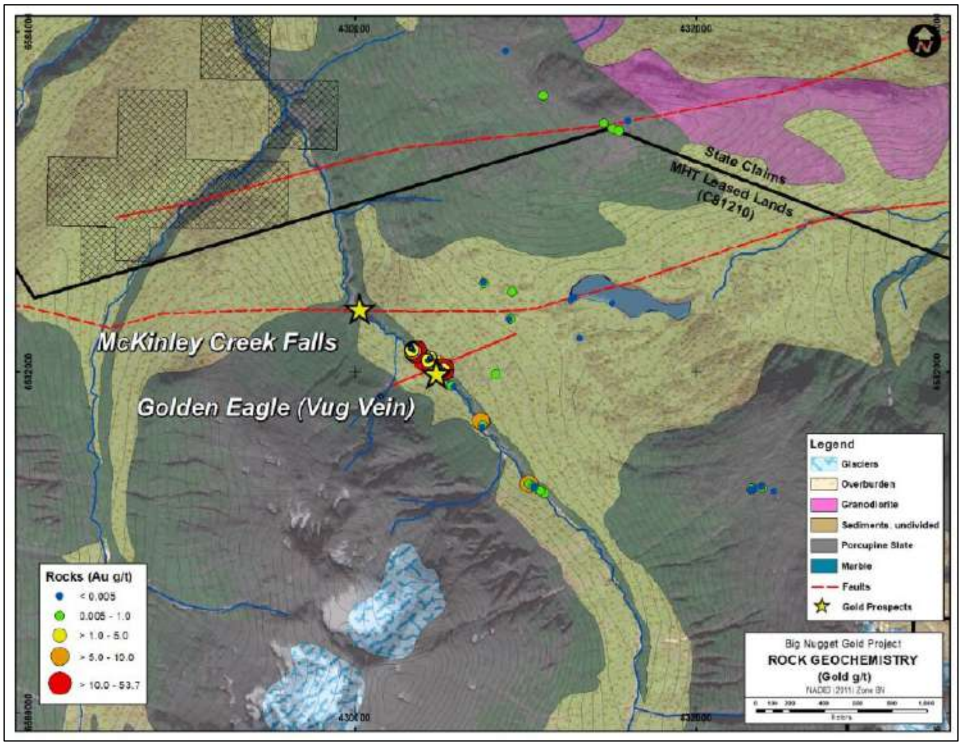
24.1 Big Nugget Gold

In 2020, Constantine initiated exploration work in the McKinley Creek area to locate the potential source of the historic and currently mined Porcupine placer gold deposits (Figure 24-1). Two key gold prospects (Golden Eagle and McKinley Creek Falls) are located upstream from the Porcupine Creek gold placer operations along McKinley Creek. The gold prospects (as described in historic government reports) have high-grade gold sample results that have received no systematic exploration for their economic potential. Both gold prospects are located on Constantine's 100% leased lands about 8 km east of Constantine's advanced-stage Palmer copper-zinc-gold-silver massive sulfide project.

Exploration field programs to date have consisted of prospecting along McKinley Creek (143 rock samples) (Figure 24-2), soil sampling on 100 m to 200 m spaced lines along the east side of McKinley Creek (640 soil samples) (Figure 24-3), LiDAR and photogrammetry surveys over key areas, and the evaluation of the geological setting of the gold mineralization. No geophysics or diamond drilling has yet been completed on the McKinley Creek gold prospects.

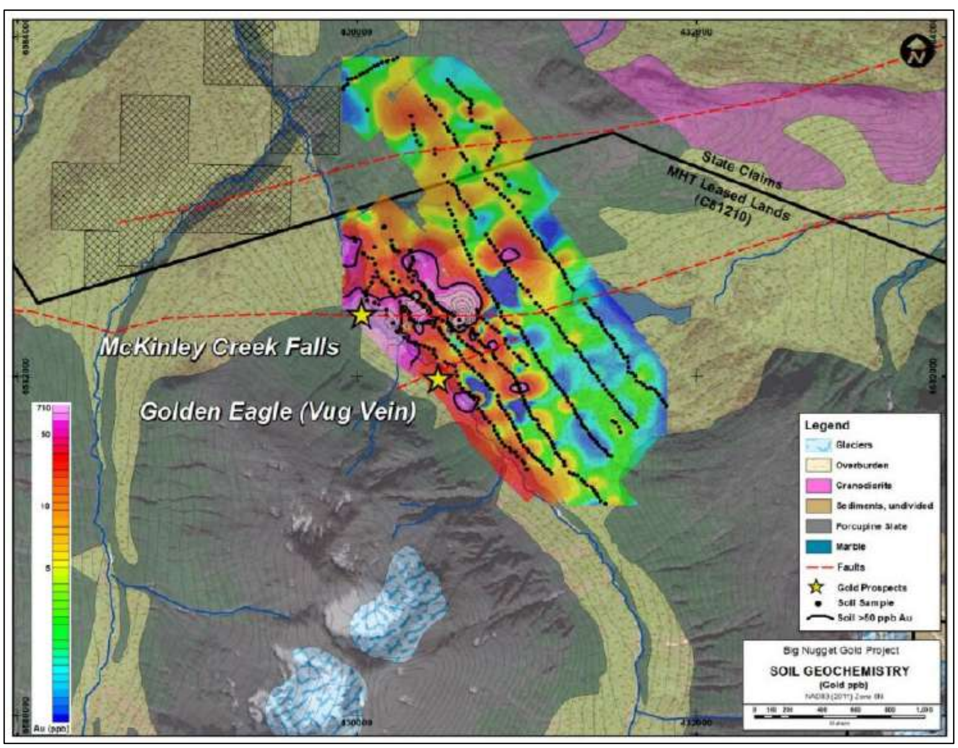
Exploration highlights include:

- Confirmation of high-grade gold mineralization at the Golden Eagle prospect (Vug vein zone) with outcrop grab samples ranging from trace to 44.7 g/t Au. The Vug vein zone is characterized by quartz-pyrite-pyrrhotite-sphalerite veins that cut through a 4 m wide, tan colored, silica-carbonate altered mafic dyke hosted in metasediments (Porcupine Slate). Chip samples across the Vug vein zone returned 9.8 g/t Au over 2.3 m and 3.6 g/t Au over 1.0 m.
- Pyritic-quartz vein grab samples from outcrops located 140 and 185 m downstream of the Golden Eagle prospect returned 22.4 and 57.3 g/t Au, respectively. Upstream of the Golden Eagle prospect, at about 400 m, quartz-pyrite-sphalerite boulder samples returned 8.0 g/t Au (34.5% Zn) and at about 800 m, quartz-pyrite veins in altered mafic dyke boulders returned 8.1 g/t Au.
- Soil sampling outlined a broad, 250 m to 300 m wide, >50-parts-per-billion (ppb) gold-in-soil anomaly at the McKinley Creek Falls prospect with results ranging up to 710 ppb Au. The gold-in-soil anomaly extends approximately 650 m to the east along a previously interpreted fault zone. Soils appear to be an effective exploration tool and additional sampling is required to determine the full-extent of the anomaly.
- The McKinley Creek gold mineralization is associated with quartz-carbonate-muscovite ± sulfide (pyrite-sphalerite-pyrrhotite-chalcopyrite) veining within altered mafic dykes and to a lesser extent within the Porcupine slates. The altered mafic dykes range in thickness from a few centimeters to upwards of 10 m in width (Figure 24-4) and crosscut and parallel the slate stratigraphy. The Porcupine slates and altered mafic dykes are moderate to tightly folded about east-to-west-trending fold axes with an overall shallow to moderate westerly plunge. Mineralized gold-bearing veins appear to be controlled in part by extension linked to the folding.



Source: Constantine, 2025

Figure 24-2: Rock Samples with Gold Assays Results



Source: Constantine, 2025

Figure 24-3: Soil Sample Locations with Contoured Gold Soil Data

Source: Constantine, 2025

Figure 24-4: McKinley Creek Folded Slate Stratigraphy and Altered Mafic Dykes

24.2 History of the Porcupine Creek-McKinley Creek Placer Deposits

The Porcupine Gold Field was discovered in 1898 by prospectors working as supply packers on the Dalton trail, an alternative route to the Klondike gold rush from the more famous Chilkoot and White passes. The Porcupine Creek area was the site of considerable placer mining activity between 1898 and 1936, with small operations still active in the area today, including placer mining on McKinley Creek. Minimum estimated production from sparse records through to 1985 are reported as 79,650 oz Au (Still, 1991).

It was not until 1983 that surface discoveries by a local Haines prospector immediately upstream from the Porcupine placer operations provided a probable source area for the Porcupine placer gold. The Golden Eagle and McKinley Creek Falls gold prospects were subsequently well documented by the USBM where rock sampling in 1984 and 1985 returned high-grade gold samples ranging from nil to 531.1 g/t Au (Still, 1989, and Still et al., 1991). The historical USBM sample results above have not been verified or validated by Constantine, but the presence of high-grade gold mineralization is supported by the summer sampling program.

Although the rocks cannot be correlated directly, the geological environment of the Mckinley Creek gold prospects have similarities with the AJ Mine in Juneau that yielded 3.5 Moz Au and 2.2 Moz Ag from the late 1800s until the mine closed in 1944. Surface and underground exploration at the AJ Mine by Echo Bay Mines Ltd. in the 1980s established a geological Inferred resource estimate of

100,000,000 tons with a grade of 0.04 oz/ton Au (Redman et al., 1989). The AJ Mine was characterized by narrow discontinuous quartz veins and stringers from a few inches to 1 to 2 ft in width and several tens of feet in length (Spencer, 1906) mainly in the dark slate/phyllites associated with brownish, highly altered mafic intrusives. Where the narrow quartz veins and stringers were sufficiently concentrated, they could be bulk mined from underground.

These historical sample results have not been verified or validated by Constantine and are not necessarily representative of mineralization on the property. The information on the past producing AJ Mine and historical resource estimate as described in the U.S. government reports is provided as background information only. The AJ Mine is not located on Constantine's property and the information is not necessarily indicative of the mineralization on Constantine's property.

24.3 QP Assessment

The QPs have not done sufficient work to verify the information and this information is not necessarily indicative of the mineralization on the property that is the subject of the technical report, and therefore the exploration potential has not been assessed.

25 Interpretation and Conclusions

The Palmer Project is located 60 km northwest of Haines, Alaska, and consists of a contiguous block of land covering approximately 81,737 acres. The project area is underlain by Paleozoic and lower Mesozoic metasedimentary and metavolcanic rocks, hosting two known VMS deposits: the Palmer deposit and the AG Deposit.

SRK has produced a CIM compliant Mineral Resource Estimate for the Palmer Project. The core drilling has provided necessary information for a detailed current estimate of the grade and tonnages of the Mineral Resources at the Palmer Project. The Palmer Mineral Resources are estimated based on 227 boreholes (approximately 86,092 m) as of January, 13, 2025, including 87 diamond drillholes for 26,898 m being completed since the previous Mineral Resource Estimate or the equivalent of approximately 39% in drilling meters for the Project.

SRK notes that the additional drilling has been focused on increasing the confidence in the geological and mineralization model for the Project and reducing the drill spacing from approximately 50 m x 50 m used to define the previous estimate. The core drilling has provided necessary information for a detailed current estimate of the grade and tonnages of the Mineral Resources at the Palmer Project.

25.1 Exploration

Exploration work at Palmer has included geological, geochemical, and geophysical surveys, as well as diamond drilling. Sufficient exploration and geophysics have been completed to confirm the presence of the known mineralization, and has provided additional exploration targets, which will require further fieldwork including drilling to test the potential. There is no certainty that further exploration will result in increased mineral resources. The various geophysical surveys carried out on the Project have aided in the prioritization of drill targets in conjunction with surface mineralization, geology and alteration. The steep mountainous terrain is a challenge for both surface and airborne geophysics. The mineralization on the Project is also characterized by very high barite content compared to most VMS deposits which results in overall poor conductivity and therefore poor electromagnetic response. Lack of a conductive response does not rule out a drill target, as demonstrated by the downhole geophysical discovery of the SW Zone 3 and the aiding in the definition of SW Zone 1 high-grade copper zone.

It is the QP’s opinion that diamond drilling is considered the most appropriate sampling method for the Project and this technique has been applied by all operators since early exploration. The drilling and sampling has been completed from surface with drillholes designed to provide reasonable intersections to the interpreted dip and strike of the mineralization. Given the extreme topography in the area all drilling is completed from wooden platforms constructed on the mountain side and supported by helicopters to transport supplies and the core. Drilling has therefore not been completed on a regular grid pattern but from fans from each of the pads. Intersection angles are designed to be appropriate for the mineralization orientations but due to borehole deviations the intersection angles are not considered to be perpendicular to the mineralization, but efforts have been made by Constantine to obtain the best intersection angles where possible. Drilling to depth on Zone 3 has some limitations using the current established platforms.

Drill core was collected at the drill rig and affixed with sling gear for transportation via helicopter at the end of a shift. Each morning the core from each drill was slung down to either the laydown or the camp helipad and received by Constantine geologists. Core was then trucked to the core shack and unloaded onto core racks to undergo geotechnical and geological logging.

Drill core samples were selected by core logging geologists based on mineralization, alteration and lithology observations. All sample analyses were selected by the core logger based on the content and purpose of the selected sample. Analyses available for selection were: 4-acid digestion multi-element ICP, gold fire assay, and includes whole rock analysis by XRF. Samples through significant mineralization were also analyzed for barium by XRF. Constantine has included routine submission of QA/QC samples as part of the routine submissions to SGS laboratories.

Sample collection and security were undertaken in accord with currently acceptable methods and standards in use in the mining exploration industry.

Constantine methodology and procedures in the QP's opinion currently meet or exceed typical industry standards. During the initial stages of the project there is some limited information related to the historical drilling, but in the QP's opinion these are not material to the current estimates based on the spatial location. In the opinion of the QP the sampling preparation, security and analytical procedures used by Constantine are consistent with generally accepted industry best practices and are therefore adequate. SRK has used all the available information to aid in the development of the geological models which form the basis for the current estimates.

25.2 Mineral Resource Estimate

The Project hosts two known VMS deposits, the Palmer deposit, which consists of the South Wall and RW Zones, and the newly discovered AG Deposit, located three km to the southwest. The South Wall Zones (SWZI, SWZII-III, SWEMZ) are located on the south-facing, steeply dipping limb of megascopic, deposit-scale anticline, disrupted by recognized thrust faulting, normal faulting and strike-slip faulting. The RW Zones (RW East, RW West, RW Oxide) are located on the north-facing, gently dipping upper limb of the same anticline. The AG Deposit (including the AG Main Lens and AG Footwall Zone) is located 3 km to the southwest of the SW deposit, on an outcrop between the Saksaia and South Saksaia Glaciers.

Drilling to date has defined a total plunge length of near-continuous South Wall mineralization of 700 m, and a total strike length to 550 m, with exhalative mineralization occurring at more than one stratigraphic level. The RW Zones has a shallow dip compared to the SW mineralization and in places comes to surface where oxidation of the mineralization has been noted. Based on the drilling coverage the RW zone has been identified over a strike length of approximately 650 m and a dip length of over 1,000 m. The new AG Deposit is split into two main fault blocks (JAG and Nunatak) with the main bulk of the mineralization located in the JAG block and has a strike length of 550 m and a vertical extent of 250 m. SRK notes the grades of the precious metals Au and Ag appear to be higher in the Nunatak block and this may warrant further investigation but the geology of this block is considered more complex with folding and faulting of the different domains which may limit geological continuity.

At the South Wall and RW Zones, six mineralization styles have been identified which include Barite mineralization (Zn-rich), Massive Pyrite Mineralization (Cu-rich), Semi-massive and Stringer-style Mineralization, Massive Pyrrhotite Mineralization, Carbonate Mineralization and Barite-Carbonate Mineralization. At the AG Deposit, mineralization consists of Massive and Semi-massive sulfide and barite, and feeder-style stringers and replacement.

The updated model has included a more detailed review of the geological conditions, both structural and lithological, to assess the potential controls on mineralization. While this work continues to be on-going, the latest information has been integrated into the latest estimate.

SRK notes that the Project has extreme terrain and historically locating drilling to designed intersection at the lowest levels has proven difficult.

25.3 Exploration Potential

The mineral resource presented herein focused on the two main known VMS deposits at the Project (Palmer and AG Deposit), which in the opinion of the QP still remain open namely to the western edges of the deposit. The complex structural nature of the local geology presents some difficulty locating potential extensions and further work on improvements to the structural model presented in the current report should be completed. Downhole geophysics should be considered to test for drill areas would include the on-strike and downdip extensions of the Palmer deposit¸ including previously reported potential of a 200 m down-dropped faulted offset of the Zone 3 mineralization, which represented some of the thickest mineralization found to date at the Project.

The presence of the SW, RW and AG Deposits confirm the multi-deposit district potential of the Palmer Project. Outside of the current Mineral Resource estimate as highlighted in Section 7.8 , a number of other prospective targets exist on the current Property and in relatively close proximity to the current mineral resources. Further exploration will be required to investigate these areas and will remain a high priority for the Company to potentially add to the current mineral resources. These additional targets include but are not limited to the CAP, HG, Mount Henry Clay (MHC), the Boundary prospect and Christmas Creek. There is no certainty that further exploration will result in increased mineral resources.

The QP of this technical report consider the Palmer project to be a project of merit warranting additional exploration drilling and associated activities to increase the confidence of the currently defined Mineral Resource and to follow-up on identified exploration targets to potentially expand this Mineral Resource.

25.4 Metallurgy and Processing

Through the three identified test work programs conducted by SGS in 2013, 2018, and 2023, progressive and supportive results with regard to copper/lead and zinc flotation have been achieved on samples representative of the resource at a level sufficient to support the updated MRE. Additional variability test work and optimization is recommended to take the Project to the next level, but the test work that has been completed to date is thorough and can be used to inform future variability, sensitivity, and optimization test work.

Based on the test work conducted to date and the significant difference in the copper and lead head concentrations between the SW and AG Deposit ores, recovery assumptions have been applied separately for the purposes of this MRE. Additional test work is required to further define the processing approach related to processing SW and AG ores and whether a suitable flowsheet can be defined such that the ores can be processed together or whether there is an advantage to processing them separately.

The key recoveries used to support the MRE for the Palmer Deposit are 90.3% Cu and 82.9% Pb to the copper/lead concentrate and 89.2% Zn to the zinc concentrate. Overall recoveries of 76.1% Au and 90.2% Ag combined between both concentrates were also used. Key recoveries for the AG Deposit used to support the MRE are 54.8% Cu and 83.4% to the copper/lead concentrate and 94.8% Zn to the zinc concentrate. Overall recoveries of 66.0% Au and 91.0% Ag combined between both concentrates were also used for AG.

Reasonable results were achieved to support further investigation of pyrite and barite flotation circuits. While neither pyrite or barite are included in the MRE, having the ability to separate these minerals through flotation could provide a substantial opportunity for Constantine and should be further investigated.

25.5 Barite

The Palmer Project has the potential to produce barite as a byproduct of mining in addition to the VMS mineralization. Barite has potential commercial value as an industrial mineral – listed by USGS as a critical mineral – and is used in industry as an additive to drilling mud as a weighted agent to increase its density. The previous NI 43-101 preliminary economic assessment for the Project as detailed in the report entitled “Amended NI 43-101 Technical Report, Palmer Project, Alaska, USA”, dated March 7, 2022, included Barite within the economic analysis. It is SRK view that the presence of an established market to meet the requirements for RPEEE has not been established with an average price (US$227/t) used in that study, that the basis for inclusion of the barite in the economic assessment for the cut-off grades is not supported for the current estimates. SRK does, however, consider this to represent a potential upside to the Project which warrants further metallurgical work and market analysis to potentially add value to the deposit. Based on this assumption SRK has presented the barite ($BaSO_4$%) in the current estimate.

25.6 Environmental Considerations

Environmental studies and permitting are ongoing, with Constantine conducting various baseline studies and holding multiple permits and licenses from the State of Alaska. The project's infrastructure, capital, and operating costs, as well as economic analysis, are not applicable at the current level of study and have not been included in the report

26 Recommendations

26.1 Exploration, PEA, and Conceptual Mining Studies

The geological setting, character of the copper-zinc-silver-gold-barite mineralization delineated, and exploration results to date are of sufficient merit to justify additional exploration expenditures. The authors of this Technical Report recommend a work program that includes drilling, project assessment activities, and engineering studies over 3 years aimed at completing the further characterization of the Palmer Project and culminating in a PEA.

Based on historic exploration data, the current MRE and the geological setting of the Palmer property, additional prospect exploration is recommended to advance the Project.

Updated geophysical studies, particularly airborne magnetic and borehole EM, are recommended property-wide to assist in ongoing geological and structural modeling and to aid in deposit expansion and proximal exploration drill targeting.

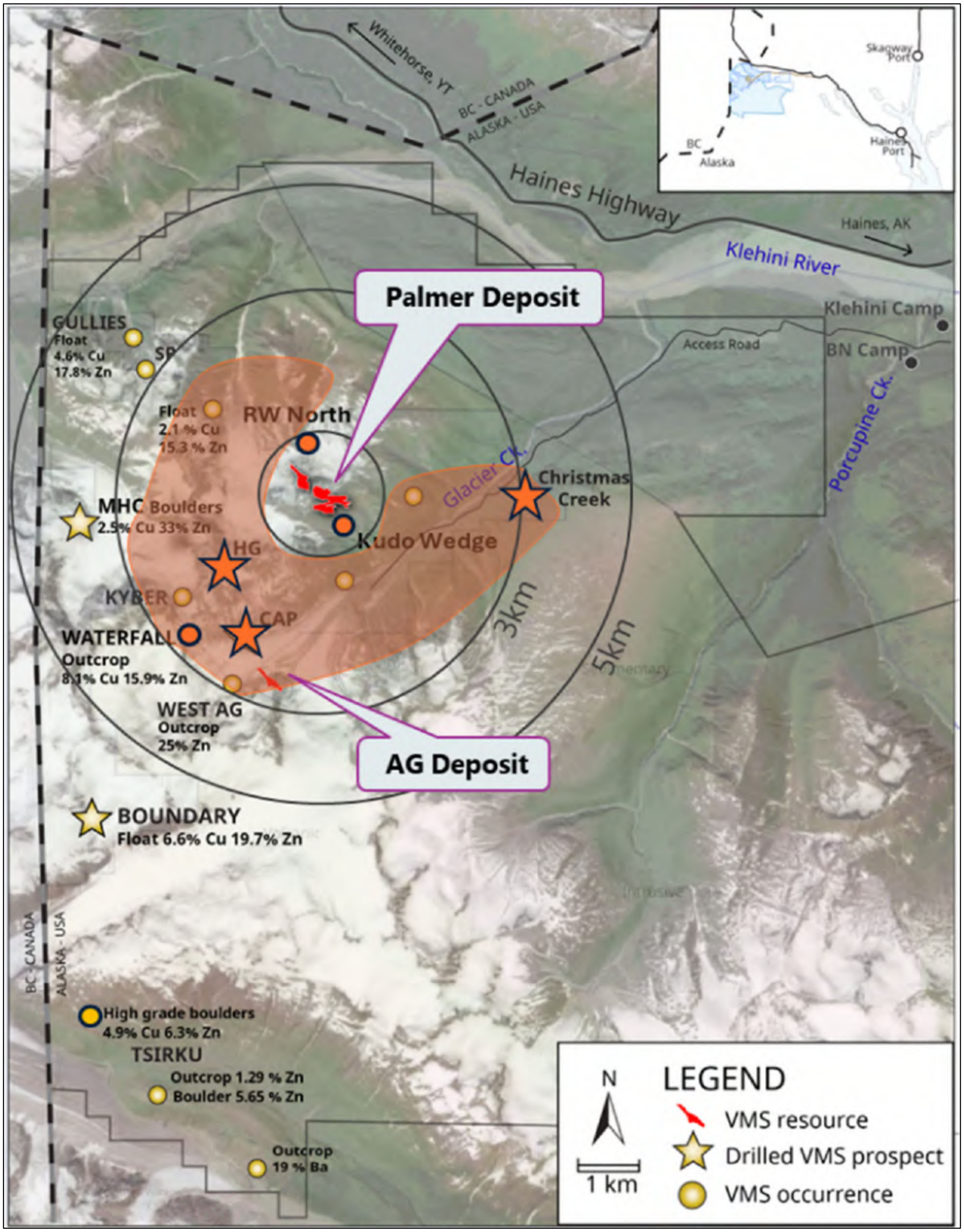
A detailed structural interpretation of the property is recommended to assist with further drill targeting. This interpretation would include a detailed review of historic reports, a review of drill core and drill core photographs, a review of historic structural data and of the geological model prepared for the current resource estimate. Additionally, diversifying the drilling directions within the Palmer Deposit to intercept potential structures would potentially improve the understanding on structural controls of the deposit.

Umpire pulp analyses are recommended for select drillholes within the Palmer and AG resources. The samples selected should represent a variety of mineralization types and grades. SRK recommends that the analysis methods for umpire samples has similar methodology and resultant detection limits to generate meaningful statistics.

The roadmap to initiate a PEA includes approximately 30,000 m of drilling, kick off a metallurgy test work program to fill data gaps, kick off an underground mine access study, and advance initial site screening for potential infrastructure locations. This multi-year proposed work program to advance the Palmer Project includes:

- Core drilling to further develop and expand the Palmer Deposit and proximal targets, with a focus on prospects within 1 to 3 km of the current resource, including mob-demob, support and camp costs, helicopter and fixed wing transportation, and analyses; this includes delineation and exploration types of drilling. Priority VMS prospects include the Kudo Offset/Wedge target, the CAP-HG-Waterfall syncline target, the RW North extension, and Christmas/Red Creek (Figure 26-1).
- Continued community and government consultations and engagement, including presentations and permitting
- Project assessment activities, which would include a desktop/field survey of Project road access and port infrastructure options, salaries, travel, field support, professional contracting, and management
- Continuation of baseline environmental studies and continued compliance monitoring, including wildlife, terrain, aquatic, fisheries, archaeology, infrastructure support, travel, field work, and reporting

- Airborne UAV LiDAR and photogrammetry should be completed over the Palmer and AG Deposits and expanded out to proximal prospects. Areas of glacial recession should be reflown annually.
- Continuing metallurgical test work assessing production of multiple saleable flotation concentrates, an accompanying barite marketing studies, , and producing samples for solid-liquid separation test work to inform process design criteria
- Geotechnical and geohydrological studies to support extraction scenarios and site selection studies
- Ongoing site logistics and camp maintenance
- Updated mineral resource and post-exploration drilling, with associated conceptual mining studies to include mine and infrastructure engineering design and studies, gap analyses studies, economic analyses, and preparation of a PEA



Source: Constantine, 2025

Figure 26-1: Priority VMS Prospects for Proposed Exploration Drilling

The total cost of the recommended work program is estimated at USD$30 million (Table 26-1). SRK is unaware of any other significant factors and risks that may affect access, title, or the right or ability to perform the exploration, PEA, and multi-disciplinary work recommended to assess and advance the potential of the Palmer Project.

Table 26-1: Estimated Cost for the Exploration Program Proposed for the Palmer Project

Activity	Cost (US$)
Exploration activities (30,000 m)	19,260,000
Site selection	1,500,000
Camp support	3,165,000
Metallurgical testing	250,000
Mineral resource and engineering studies	2,500,000
Environment data collection, baseline analysis, and compliance	720,000
Subtotal	**27,395,000**
Contingency (~10%)	2,605,000
Total	**30,000,000**

Source: Constantine, 2025

26.2 Mineral Processing and Metallurgical Testing

A considerable amount of metallurgy and flowsheet development has been completed on the Palmer massive sulfide Project, with the majority focused on the base metal flowsheet. While the base metal flowsheet to recover copper, lead, and zinc was developed for the 2022 PEA (effective date June 3, 2019), additional metallurgy could increase the confidence for barite recovery and is recommended in collaboration with a barite market study with potential to add an additional revenue source.

To further investigate the flowsheet and capture opportunities to increase overall revenue, the following test work is recommended:

- Further testing and optimization of the pyrite and barite flotation circuits in conjunction with a barite marketing study
- As potential mine plans are developed, a blending strategy and possible additional flotation tests could be considered to further develop the copper-lead separation flotation circuit
- Solid-liquid separation tests on concentrates and final mill tailings
- Baseline metallurgy test work as geological drilling identifies new and additional resources

The cost to complete this test work is estimated between US$250,000 and US$500,000, to be completed in stages dependent upon the first stage of results. Additional testing, and cost of testing, may be considered as the flowsheet is developed and as exploration and infill drilling fully defines the Palmer Project resources.

27 References

Alaska Department of Natural Resources (ADNR), 2003. Historic Preservation Series, Office of History and Archaeology, 2 p.

Berg, H.C., Jones, D.L., and Richter, D.H., 1972. Gravina-Nutzotin belt – Tectonic significance of an upper Mesozoic sedimentary and volcanic sequence in southern and southeastern Alaska. U.S. Geological Survey Professional Paper 800D, p. D1-D24.

Bull, K. 1998. Work summary - 1998, Mt. Henry Clay Area, Palmer Property. Rubicon Minerals Corporation. Unpublished company report. 6 p.

Canadian Institute of Mining, Metallurgy and Petroleum (CIM), 2014. Canadian Institute of Mining, Metallurgy and Petroleum Standards on Mineral Resources and Reserves: Definitions and Guidelines, May 10, 2014.

Cominco Alaska Exploration, 1993. Prospectus, Palmer Property Southeast Alaska. Unpublished company report. 27 p.

CDN Resource Laboratories Ltd. Depleted standards certificates: Mining Standards, https://cdnlabs.com/depleted-standards-certificates/.

Coney, J.P., Jones, D.L., and Monger, J.W.H., 1980. Cordilleran suspect terranes. Nature, v. 288, p. 329-333.

Constantine Metal Resources Ltd., 2019. Palmer Property, 2019 Annual Report on Exploration, unpublished company report, 189 p.

Constantine Metal Resources Ltd., 2024 Palmer Property, 2019 Annual Report on Exploration, unpublished company report, 189 p.

Doherty, J., 2018. The Mineralogy, Ore Mineral Chemistry, and Geochemistry of the Nunatak Prospect AG Zone: A New Zn-Pb-Cu-Ag (Au)-Barite VMS Discovery Outside of Haines, Alaska, M.Sc. Project Paper, Queen’s University, Kingston, Ontario, 83 p.

Eldridge, C.S., Barton, P.B. Jr., Ohmoto, H., 1983. Mineral Textures and their bearing on formation of the Kuroko orebodies. Economic Geology, Monograph 5, p. 241-281.

Franklin, J.M., Sangster, D.M., and Lydon, J.W., 1981. Volcanic-associated massive sulfide deposits. In Economic Geology 75th Anniversary Volume, p. 485-627

Franklin, J.M., Gibson, H.L., Jonasson, I.R., and Galley, A.G., 2005. Volcanogenic Massive Deposits. In Economic Geology 100th Anniversary Volume, p. 523-560.

Galley, A. G., Hannington, M.D., and Jonasson, I.R., 2007. Volcanogenic Massive Sulfide Deposits In: Goodfellow, W.D., Mineral Deposits of Canada, A synthesis of major Deposit Types, District Metallogeny, the Evolution of Geological Provinces, and Exploration Methods. Geological Association of Canada, Mineral Deposits Division, Special Publication No. 5, p. 141-161.

Gehrels, G.E. and Berg, H.C., 1994. Geology of southeastern Alaska, Chapter 13, in Plafker, G. and Berg, H.C., eds, The Geology of Alaska, the Geological Society of America, v. G-1, p. 451-467.

Gehrels, G.E. and Saleeby, J.B., 1987. Geologic framework, tectonic evolution, and displacement history of the Alexander Terrane. Tectonics, v. 6(2), p. 151-173.

Gehrels, G.E., Dodds, C.J., and Campbell, R.B., 1986. Upper Triassic rocks of the Alexander terrane, SE Alaska, and the Saint Elias Mountains of B.C. and Yukon. Geological Society of America Abstracts with Programs, v. 18, p. 109.

Gilbert, W. G., Burns, L. E., Redman, E. C., and Forbes, R. B., 1987. Preliminary bedrock geology and geochemistry of the Skagway B-3 Quadrangle, Alaska: Alaska Division of Geological & Geophysical Surveys Report of Investigation 87-2, 2 sheets, scale 1:36,200.

Goodwin, R., Mcleod, K., Levy, M., DiMarchi, J.J., Gray, J.N., and Casey, J., 2019, NI43-101 Technical Report Palmer Project Alaska, USA: NI 43-101 Report for Constantine Metal Resources Ltd. June 3, 2019, 326 p.

Goodwin, R., Mcleod, K., Levy, M., DiMarchi, J.J., Gray, J.N., and Casey, J., 2022, Amended NI43-101 Technical Report, Palmer Project Alaska, USA: NI 43-101 Report for Constantine Metal Resources Ltd. March 7, 2022, 387 p.

Gray, J.N. and Cunningham-Dunlop I.R. 2015, Palmer Exploration Project, Porcupine Mining District, Southeast Alaska, USA - Updated Resource Estimate. NI 43-101 compliant technical report prepared for Constantine Metal Resources Ltd., May 11, 2015, 181 p.

Gray, J.N. and Cunningham-Dunlop I.R. 2018, NI 43-101 Technical Report and Updated Resource Estimate to include the AG Zone for the Palmer Exploration Project, Porcupine Mining District, Southeast Alaska, USA, 331 January 2019.

Green, D., 2001. Geology of Volcanogenic Massive Sulfide Prospects of the Palmer Property, Haines Area, Southeastern Alaska. M.Sc. Thesis, Carleton University, Ottawa-Carleton Geoscience Centre, Ottawa, Ontario, p. 254.

Green, D., MacVeigh, J. G., Palmer, M., Watkinson, D. H., and Orchard, M. J., 2003. Stratigraphy and Geochemistry of the RW Zone, a new discovery at the Glacier Creek VMS prospect, Palmer Property, Porcupine Mining District, Southeastern Alaska, In: Clautice, K.H and Davis, P.K. (eds) Short Notes on Alaskan Geology 2003. Division of Geological & Geophysical Surveys Professional Report 120. p. 35-51.

Greig, C.J. and Giroux, G.H. 2010. Palmer VMS Project, Southeast Alaska. Mineral Resource Estimation and Exploration Update, NI 43-101 compliant technical report prepared for Constantine Metal Resources Ltd., p. 82.

Haeussler, P.J., Karl, S.M., Mortensen, J.K., Layer, P.W., and Himmelberg, G.R., 1999. Permian and mid-Cretaceous deformation of the Alexander terrane on Admiralty and Kupreanof islands, southeastern Alaska: GSA Abstracts with Programs, v. 31, p. A-60.

Haines Borough Comprehensive Plan, 2024. Haines Borough, Alaska, 257 p.

Hecla Mining Company, 2023 Annual Company Overview, from Hecla Mining website.

Hemmera, 2015. Terrestrial Wildlife and Habitat Assessment, Constantine Metal Resources, Palmer Project Site. Unpublished company report, 83 p.

Hudson, T., Plafker, G., and Dixon, K., 1982. Horizontal offset history of the Chatham Strait fault, In: Coonrad, W.L. (ed), United States geological survey in Alaska; Accomplishments during 1980. U.S. Geological Survey Circular 844, p. 128-132.

Karl, S.M., Haeussler, P.J., Layer, P., and Himmelberg, G.R., 1998, Two new events in the metamorphic and deformational history of the Alexander ter rane on Admiralty Island, southeastern Alaska, in Karl, S.M., 1998, ed., Cutting Edge in Alaska, Science and Technology Conference: Anchorage, Alaska, Alaska Geological Society, p. 15.

Karl, S., Steeves, N., Quinn, K., Proffett, J., O'Sullivan, P.B., McMillan, J., and Jones, J. V, 2020, Lower Jurassic volcanic and sedimentary rocks depositionally overlie Upper Triassic host rocks at the Palmer VMS property in the Alexander Triassic metallogenic belt, southeast Alaska: Geological Society of America, Abstracts with Programs, v. 52, doi:10.1130/abs/2020AM-357716.

Large, R.R., McPhie, J., Gemmell, J.B., Hermann, W., Davidson, G., 2001c. The spectrum of ore deposit types, volcanic environments, alteration halos, and related exploration vectors in submarine volcanic successions: some examples from Australia. Economic Geology, vol. 96, p. 913-938.

Lewis, P., 1998. Palmer Project Preliminary Field Report: Structural and Stratigraphic Setting of Mineral Occurrences, Glacier and Jarvis Creek area, Haines, Alaska. Unpublished company report prepared for Rubicon Minerals Corporation, 11 p.

Logic Geophysics & Analytics LLC, 2018. Ground-Penetrating-Radar Surveys near Haines, Alaska, Final Report. Unpublished company report prepared for Constantine Mining LLC, 17 p.

Loney, R.A., 1964. Stratigraphy and petrography of the Pybus-Gambier area, Admiralty Island, Alaska, U.S. Geological Survey, Bulletin 1178, 103 p.

MacKevett Jr., E. M., Robertson, E. C., and Winkler, G. R., 1974. Geology of the Skagway B-3 and 8-4 quadrangles, southeastern Alaska: U.S. Geological Survey Professional Paper 832, 33 p., scale 1 :63,360, 1 sheet.

McDougall, J., Perkins, D, and Glatiotis, A., 1983. Geological report of the Tsirku group mineral claims located in the Tsirku-Jarvis Glacier area northwest British Columbia for the 1983 summer field season and proposal for the 1984 field season, Stryker Resources Ltd. and Freeport Resources Inc, unpublished company report, 46 p.

Northern Land Use Research Alaska, LLC (NLURA), 2015. Cultural Resource Survey Report for the Palmer Exploration Project, Haines, Alaska. Unpublished company report prepared for Constantine Metal Resources Ltd., 88 p.

NLURA, 2017. Cultural Resource Assessment for the Palmer Project, Southeast Alaska, Exploration Block and Access Road. Unpublished company report for Constantine Metal Resources Ltd., 15 p.

Peter, J.M. and Scott, S.D., 1997. Windy Craggy, northwestern British Columbia: The world's largest Besshi-type deposit.

Proffett, J. 2016. Review of the Kudo Fault and Adjacent Area, Glacier Creek Deposit, Palmer Prospect, Southeast Alaska. Unpublished company report for Constantine Metal Resources Ltd., 14 p.

Proffett, J. 2017. Progress Report on Geological Work in 2017 on the Palmer Project, Alaska. Unpublished company report prepared for Constantine North Inc., 26 p.

Proffett, J. 2017. Report on Geological Work in 2018 on the Palmer Project, Alaska. Unpublished company report for Constantine North Inc., 26 p.

Quinn, K., 2024, Geology, lithogeochemistry, age, and genesis of the Zn-Pb-Cu-Ag-(Au)-Barite AG volcanogenic massive sulfide (VMS) deposit, Haines, Alaska. M.Sc. Thesis. Memorial University, Newfoundland.

Redman, E.C., Gilbert, W.G., Jones, B.K., Rosenkrans, D.S., and Hickok, B.D., 1985, Preliminary bedrock geologic map of the Skagway B-4 Quadrangle: Alaska Division of Geological & Geophysical Surveys, Report of Investigations 85-6, scale 1:40,000, 1 sheet.

Redman, E.C. et al, 1989. Bureau of Mines Mineral Investigations in the Juneau Mining District, Alaska, 1984-1988, Vol 2, Section D.

Ring of Fire Management Plan and Final Environmental Impact Statement, 2006. U.S Department of the Interior Bureau of Land Management, Anchorage Field Office, Alaska, Vol 1, 369 p.

Ring of Fire Resource Management Plan Amendment Haines Block Planning Area, 2012. U.S Department of the Interior Bureau of Land Management, Anchorage Field Office, Alaska, 204 p.

Rosenkrans, D.S. 1991. Southeast Alaska progress report 1990, Palmer Property-Haines area. Unpublished report prepared for Cominco Alaska Exploration.

Rubicon Minerals Corporation, 1998. Palmer VMS Project Haines, Alaska, executive summary. Unpublished company report, 15 p.

Sack, P.J., Berry, R.F., Meffre, S., Falloon, T.J., Gemmell, J.B., and Friedman, R.M., 2011, Insitu location and U-Pb dating of small zircon grains in igneous rocks using laser ablation inductively coupled plasma-quadrupole mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 12, article Q0AA14.

Sack, P.J., Berry, R.F., Gemmell, J.B., Meffre, S., and West, A., 2016, U-Pb zircon geochronology from the Alexander terrane, southeast Alaska: implications for the Greens Creek massive sulphide deposit: Canadian Journal of Earth Sciences, v. 53, p. 1458–1475.

SGS Canada, 2013. “The Recovery of Copper, Zinc, Silver and Gold from the Palmer Samples,” Unpublished company report prepared for Constantine Metal Resources Ltd., Project No. 14063-001,

SGS Canada Inc., 2018. “An Investigation into the Barite Metallurgical Testwork on the Palmer VMS Project”. Unpublished company report prepared for Constantine Metal Resources Ltd., Project 14063-002 – Final Report, 236 p.

SGS Canada, 2018. “An Investigation into Comminution and Mineralogy on the Palmer VMS Deposit,” Unpublished company report prepared for Constantine Metal Resources Ltd. Project No. 14063 03 Revision 1.

SGS Canada, 2024. “An Investigation into Mineralogy, Comminution, and Flotation on Samples from the Palmer Project,” Unpublished company report prepared for Constantine Mining LLC. Project No. 14063-04.

Spencer, A.C. 1906. The Juneau Gold Belt, United States Geological Society, Bulletin No. 287

Stantec, 2015. ASTM Phase I Environmental Site Assessment Report. Unpublished company report prepared for Constantine North Inc., Project No: 203706033, 200 p.

Stantec, 2024. ASTM Phase I Environmental Site Assessment Report. Unpublished company report prepared for Constantine North Inc., Project No: 203723413, 152 p.

Steeves, N.J. 2013. MSc. Thesis on the Glacier Creek prospect (now Palmer Deposit) titled, “Mineralization and Alteration of the Late Triassic Glacier Creek Cu-Zn VMS deposit. Palmer Project, Alexander Terrane, Southeast Alaska.”

Steeves, N. J., Hannington, M. D., Gemmell, J. B., Green, D., and Mcveigh, G., 2016. The Glacier Creek Cu-Zn VMS deposit, southeast Alaska: an addition to the Alexander Triassic Metallogenic Belt: Economic Geology, p. 151–178.

Still, J.C., 1984. Stratiform massive sulfide deposits of Mt. Henry Clay area, southeast Alaska

Still, J.C. 1989: Bureau of Mines Mineral Investigations in the Juneau Mining District, Alaska, 1984-1988, Vol 2, Section A

Still, J. C., 1991. Section A: Haines - Klukwan - Porcupine subarea, in U.S. Bureau of Mines, Mineral investigations in the Juneau mining district, Alaska, 1984-1988: Volume 2 - Detailed mine, prospect, and mineral occurrence descriptions: U.S. Bureau of Mines Special Publication VOL. 2A, 214 p., 9 sheets.

Still, J. C., Hoekzema, R. B., Bundtzen, T. K., Gilbert, W. G., Wier, K. R., Burns, L. E., and Fechner, S. A., 1991. Economic geology of Haines-Klukwan-Porcupine area, southeastern Alaska:

Swainbank, R.C., Szumigala, D.J., Henning, M.W. and Pillifant, F.M., 2000. Alaska’s Mineral Industry 2000: Alaska Division of Geological and Geophysical Surveys. *Special Report*, *54*, p.73.

Taylor, C.D., 1997. An arc-flank to back-arc transect: Metallogeny of Late Triassic volcanogenic massive sulfide occurrences of the Alexander Terrane, southeast Alaska and British Columbia. [extended abs.] In: SEG Neves Corvo Field Conference Abstracts and Program: p. 68.

Taylor, C. D., Premo, W. R., Meier, A. L., and Taggart, J. E. J., 2008. The Metallogeny of Late Triassic Rifting of the Alexander Terrane in Southeastern Alaska and Northwestern British Columbia: Economic Geology, v. 103, p. 89–115.

Tundra Consulting, LLC, 2018. 2017 Hydrogeology Report, Palmer Exploration Project. Unpublished company report prepared for Constantine North, Inc., p. 118.

Wakeman, B., 1995. Summary marketing document, Kennecott. Unpublished company report, p. 12.

Wheeler, J.O and McFeely, P. (comp) 1991. Tectonic assemblage map of the Canadian Cordillera and adjacent parts of the United States of America. Geological Survey of Canada, Map 1712A, scale 1:2,000,000

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 Resources

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 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 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 Definition of Terms

The following general mining terms may be used in this 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.

Term	Definition
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	Initial process of reducing 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 economic to recover its gold content by further concentration.
Dilution	Waste, which is unavoidably mined with ore.
Dip	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 concentration of gold within mineralized rock.
Hangingwall	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 minimizes the estimation error.
Level	Horizontal tunnel the primary purpose is the transportation of personnel and materials.
Lithological	Geological description pertaining to different rock types.
LoM Plans	Life of Mine plans.
LRP	Long Range Plan.
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.
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.
RoM	Run of 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 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 doré phase and separated from the gangue components that accumulate in a less dense molten slag phase.
Stope	Underground void created by mining.
Stratigraphy	The study of stratified rocks in terms of time and space.
Strike	Direction of line formed by the intersection of strata surfaces with the horizontal plane, always perpendicular to the dip direction.
Sulfide	A sulfur 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).

28.3 Abbreviations

The following abbreviations may be used in this report.

Table 28-2: Abbreviations

Abbreviation	Unit or Term
%	percent
>	greater than
<	less than
≥	greater than or equal to
≤	less than or equal to
°	degree
°C	degrees Centigrade
µm	micron
AAS	atomic absorption spectroscopy
ADFG	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AES	atomic emission spectrometry
Ag	silver
Agreement	option and joint venture agreement
A_i	abrasion index
AISC	
Al_2O	aluminum oxide
Alyu-Haines Mineral Lease	99 year mineral lease agreement
AMA	Alaska Miner’s Association
Anaconda	Anaconda Copper Company
APM	American Pacific Mining Corporation
As	arsenic
AS	Alaska Statute
ATMB	Alexander Triassic Metallogenic Belt
Au	gold
Ba	barium
BaO	barium oxide
$BaSO_4$	barite
Be	beryllium
Bi	bismuth
BLM	Bureau of Land Management
BW_i	Bond ball mill work index
CaO	calcium oxide
Cd	cadmium
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
Cl	chlorine
cm	centimeter
Co	cobalt
CoG	cut-off grade
Constantine	Generic for all Constantine Metals Subsidiaries and JV Partnerships
Constantine Metals	Constantine Metal Resources Ltd.
Constantine Mining	Constantine Mining LLC
Constantine North	Constantine North Inc
Cr_2O_3	chromium oxide
CRM	certified reference material
CSAMT	controlled source audio-magneto tellurics
Cu	copper
CuEq	copper equivalent
$CuSO_4$	copper sulfate
CWH	Coastal Western Hemlock
DEC	The Alaska Department of Environmental Conservation

Abbreviation	Unit or Term
DNR	Alaska Department of Natural Resources, Division of Mining, Land, and Water.
Dowa	Dowa Metals & Mining Co., Ltd.
Dowa Alaska	Dowa Metals & Mining Alaska Ltd.
Dowa JV	joint venture between Constantine North and Dowa Alaska
EDA	estimation domain analysis
EM	electromagnetic
EPMA	electron microprobe analysis
ESA	Environmental Site Assessment
F	fluorine
F_{80}	80% passing size of the feed circuit
Fe	iron
Fe_2O_3	iron oxide
ft	foot
g	gram
g/cm^3	grams per cubic centimeter
g/t	grams per tonne
G&A	general and administrative
Ga	gallium
GAAP	generally accepted accounting principals
Ge	germanium
GIS	geographic information system
gpd	gallons per day
GPR	ground penetrating radar
GPS	global positioning system
ha	hectare
ICP	inductively coupled plasma
IDW	inverse distance weighted
IEC	International Electrotechnical Commission
In	indium
ISO	International Organization of Standardization
Ja	joint alteration
Jn	joint number
Jr	joint roughness
K	potassium
K2O	potassium oxide
kg	kilograms
km	kilometer
km^2	square kilometer
KNA	kriging neighborhood analysis
koz	thousand troy ounces
kt	thousand tonnes
kWh/t	kilowatt-hour per tonne
lb	pound
Li	lithium
LiDAR	light detection and ranging
LCT	locked-cycle test
LOI	loss-on-ignition
m	meter
m^3	cubic meter
Ma	mega annum
MASW	multi-spectral analysis of surface waves
MgO	magnesium oxide
MH	Mountain Hemlock
MHC	Mount Henry Clay
MHT	Mental Health Trust
MHT Lease	Upland Mining Lease Mental Health Trust No. 9100759
MHz	megahertz
MIBC	methyl isobutyl carbinol

Abbreviation	Unit or Term
mL	milliliter
Mlb	million pounds
mm	millimeter
Mm^3	million cubic meters
MnO	manganese oxide
Mo	molybdenum
Moz	million troy ounces
MRE	Mineral Resource Estimate
MS	mass spectrometry
MSO	minable stope optimizer
Mt	million tonnes
MZ	main zone
Na2O	sodium oxide
NaCN	sodium cyanide
NAD27	North American Datum of 1927
NAD83	North American Datum of 1983
Ni	nickel
NI	Canadian National Instrument
NLURA	Northern Land Use Research Alaska, LLC
NN	nearest neighbor
NSR	net smelter return
OHA	Office of History and Archaeology
OK	ordinary kriging
Option Agreement	Constantine Metal Resources Ltd. and Dowa Metals & Mining Co., Ltd. option and joint venture agreement
oz	troy ounce
P_2O_5	phosphorus pentoxide
P_{80}	80% passing size
Palmer NI 43-101 MRE	Palmer Project 2024 NI 43-101 Mineral Resource Estimate Update
Pb	lead
PEA	preliminary economic assessment
ppb	parts per billion
POA	percent of abrasivity
POH	percent of hardness
ppm	parts per million
Project	Palmer Project
Property	Palmer Property
QA/QC	quality assurance/quality control
QEMSCAN	quantitative evaluation of materials by scanning electron microscopy
QP	Qualified Person
QSM	quartz-sericite-magnetite ± chlorite ± iron-carbonate ± jasper
QSP	quartz-sericite-pyrite
PAG	potentially acid generating
PAX	potassium amyl xanthate
PEA	Preliminary Economic Assessment
PMA	particle mineral analysis
ppb	parts per billion
ppm	parts per million
PVC	polyvinyl chloride
RCE	reclamation cost estimate
RPEEE	reasonable prospects for eventual economic extraction
RQD	rock quality designation
Rubicon	Rubicon Minerals Corporation
S	sulfur
SAG	semi-autogenous grinding
Sb	antimony
SCSE	SAG Circuit Specific Energy
Se	selenium
Selection Area	MHT Lease Parcel C70451

Abbreviation	Unit or Term
SGS	SGS Mineral Services
SGS Canada	SGS Canada Inc.
SiO_2	silicon dioxide
SMC	SAG mill comminution
SMU	selective mining unit
Sn	tin
SO_3	sulfur trioxide
SOI	species of interest
SOP	standard operating procedure
SPI	SAG Power Index
Sr	strontium
SRK	SRK Consulting (U.S.), Inc.
Stantec	Stantec Consulting Services, Inc.
State Forest	Haines State Forest Resource Management Area
SW	South Wall
SWIR	short wavelength infrared spectroscopy
t	tonne (metric ton) (2,204.6 pounds)
t/d	tonnes per day
T&C	terms and conditions
TCR	total core recovery
TDEM	time domain electromagnetic
Technical Report	Canadian National Instrument 43-101 Technical Report
Ti	titanium
TIMA	TESCAN Integrated Mineral Analyzer
TiO2	titanium oxide
TLO	State of Alaska, Department of Natural Resources, Mental Health Trust Land Office
Toquima	Toquima Minerals Corporation
TWUA	temporary water use authorizations
U	uranium
UAV	unmanned aerial vehicle
UMP	Upper Merrill Palmer
USBM	United States Bureau of Mines
USGS	United States Geological Survey
VMS	volcanic massive sulfide
vol%	percent by volume
wt%	percent by weight
XRF	x-ray fluorescence
Y	yttrium
Zn	zinc
ZnEq	zinc equivalent
$ZnCO_3$	smithsonite
$ZnSO_4$	zinc sulfate

Appendices

Appendix A: Certificates of Qualified Persons

SRK Consulting (U.S.), Inc.
Suite 400
999 Seventeenth Street
Denver, CO 80202

T: 303.985.1333
F: 303.985.9947

denver@srk.com
www.srk.com

CERTIFICATE OF QUALIFIED PERSON

I, Kash Kelloff, BSc ChemE, MBA, SME, MMSAQP do hereby certify that:

1. I am Principal Consultant (Mining) of SRK Consulting (U.S.), Inc., 999 Seventeenth Street, Suite 400, Denver, CO, USA, 80202.
2. This certificate applies to the technical report titled " NI 43-101 Technical Report, Mineral Resource Estimate, Palmer Project, Alaska, USA" with an Effective Date of January 13, 2025 (the "Technical Report").
3. I graduated with a degree in Chemical Engineering and Petroleum Refining from the Colorado School of Mines in 1995. In addition, I have obtained a Master of Business Administration from the University of Arizona in 2009. I am a member of the Society for Mining, Metallurgy, and Exploration (SME) and a QP member of the Mining and Metallurgical Society of America (MMSA) (Membership Number 1604QP). I have worked as a Metallurgist/Mineral Processing Engineer for a total of 20 years since my graduation from university.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Palmer Project property on July 17, 2023 for 2 days.
6. I am responsible for Mineral Processing and Metallurgical Testing Section 13 and portions of Sections 1, 25, and 26 summarized therefrom, of this Technical Report.
7. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.
8. I have had prior involvement with the property that is the subject of the Technical Report. The nature of my prior involvement is development of a gap analysis and roadmap to PFS.
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
10. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 3rd Day of March, 2025.

"Signed" *"Stamped"*

____

Kash Kelloff, BSc ChemE, MBA, SME, MMSAQP
Principal Consultant (Mining)

SRK Consulting (U.S.), Inc.
Suite 400
999 Seventeenth Street
Denver, CO 80202

T: 303.985.1333
F: 303.985.9947

denver@srk.com
www.srk.com

CERTIFICATE OF QUALIFIED PERSON

I, Benjamin Parsons, MSc, MAusIMM (CP) do hereby certify that:

1. I am a Principal Consultant (Resource Geology) of SRK Consulting (U.S.), Inc., 999 Seventeenth Street, Suite 400, Denver, CO, USA, 80202.
2. This certificate applies to the technical report titled " NI 43-101 Technical Report, Mineral Resource Estimate, Palmer Project, Alaska, USA" with an Effective Date of January 13, 2025 (the "Technical Report").
3. I graduated with a degree in Exploration Geology from Cardiff University, UK in 1999. In addition, I have obtained a Masters degree (MSc) in Mineral Resources from Cardiff University, UK in 2000 and have worked as a geologist for over 20 years since my graduation from university. I am a member of the Australian Institution of Materials Mining and Metallurgy (Membership Number 222568) and I am a Chartered Professional. I have previous experience working on a number of polymetallic projects globally having previously created geological models and mineral resource estimates for Projects in Central America, South America and more recently Spain, specializing in geological modelling and Mineral Resource estimation. The latest VMS Projects I have acted as QP is:
    - Denarius Metals Corp: NI 43-101 Technical Report Mineral Resource Estimate for Lomero Poyatos Andalucía, Spain, Effective date July 19,2022, report data November 2, 2022
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I last visited the Palmer Project property on August 19, 2024 for 5 days and July 17, 2023 for 3 days.
6. I am responsible for all Sections except Section 13, and portions of Sections 1, 25, and 26.
7. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.
8. I have had prior involvement with the property that is the subject of the Technical Report. The nature of my prior involvement is providing assistance in geological modelling, geostatistical studies
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
10. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 3rd Day of March, 2025.

"Signed" *"Stamped"*

____

Benjamin Parsons, MSc, MAusIMM
Principal Consultant (Resource Geology)