SIMS RESOURCES LLC
945 Wyoming Street
Missoula, Montana
406-303-0769

CONTANGO ORE
GOLD SILVER COPPER

TECHNICAL REPORT SUMMARY ON THE MANH CHOH PROJECT, ALASKA, USA

PREPARED FOR CONTANGO ORE, INC.

S-K 1300 Report

Qualified Person:

Sims Resources LLC

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1. EXECUTIVE SUMMARY

Sims Resources LLC (SR) was retained by Contango ORE, Inc. (Contango) to prepare a Technical Report Summary (TRS) on the Manh Choh Project (the Project or Manh Choh), located near Tok, Alaska, U.S.A. The purpose of this TRS is to summarize the results of a Feasibility Study (FS) and subsequent FS economic update prepared by KG Mining (Alaska), Inc. (KGMA), Contango's joint venture partner for the Project and an indirect subsidiary of Kinross Gold Corporation (Kinross). This TRS conforms to United States Securities and Exchange Commission's (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601(b)(96) Technical Report Summary.

Contango is a New York Stock Exchange-American (NYSE-American) listed company that engages in exploration for gold and associated minerals in Alaska. It holds a 30% interest in Peak Gold, LLC (or Peak Gold JV), which leases approximately 675,000 acres of exploration and development, with the remaining 70% owned by KGMA, operator and manager of the Project. Contango also owns a 100% interest in approximately 167,000 acres of State of Alaska mining claims through Contango Mineral Alaska, LLC, its wholly owned subsidiary, which gives Contango the exclusive right to explore and develop minerals on these lands.

The Project has been actively explored since 2009 when gold mineralization was discovered in a favourable geological environment for mid-Cretaceous intrusive-related gold deposits of the Tintina Gold Belt as well as late Cretaceous to mid-Tertiary porphyry copper-molybdenum gold and related gold skarn deposits. Two distal gold skarn deposits have been delineated, Manh Choh North (MCN) and Manh Choh South (MCS), and there is excellent potential to discover additional deposits on the Project.

The Project was previously named "Peak Gold" but was renamed "Manh Choh" in March 2021 after close consultation with the local Upper Tanana Athabascan Village of Tetlin and the landowner. The Project contains a relatively high-grade gold deposit. The FS contemplates 4.6 years of open pit production at a life-of-mine (LOM) average mining rate of approximately 10.8 million tonnes per year (tpa). Ore from the Project will be processed at Kinross' Fort Knox processing facilities, located approximately 400 km by paved highway northwest of the Project.

All economic values presented in this TRS are in United States dollars (US$).

Unless stated otherwise, all tonnages are dry metric tonnes and all ounces are troy ounces.

1.1. CONCLUSIONS

Based on the review of the available information, the Qualified Person (QP) provides the following conclusions:

1.1.1. GEOLOGY AND MINERAL RESOURCES

- The northern part of the Project is located in rocks that are highly prospective for mid-Cretaceous intrusive related gold deposits as well as two intersecting belts of mid-Cretaceous to mid-Tertiary porphyry copper-molybdenum-gold deposits and porphyry related distal gold skarn deposits.
- The drilling, sampling, sample preparation, analysis, and data verification procedures meet or exceed industry standard, and are appropriate for the estimation of Mineral Resources.
- As of December 31, 2022, Manh Choh Mineral Resources (100% Peak Gold JV attributable ownership basis) comprise:
  - Indicated Mineral Resources of approximately 845,700 metric tonnes (t) grading 2.4 grams per metric tonne (g/t) gold (Au) and 9.3 g/t silver (Ag) for approximately 65,290 contained ounces (oz) Au and 252,140 contained oz Ag.
  - Inferred Mineral Resources of approximately 21,400 t grading 3.8 g/t Au and 9.2 g/t Ag for approximately 2,570 contained oz Au and 6,290 contained oz Ag.
  - Mineral Resources are reported exclusive of Mineral Reserves.
- As of December 31, 2022, Manh Choh Mineral Resources held by Contango (30% attributable ownership basis) comprise:
  - Indicated Mineral Resources of approximately 253,700 t grading 2.4 g/t Au and 9.3 g/t Ag for approximately 19,590 contained oz Au and 75,640 contained oz Ag.
  - Inferred Mineral Resources of approximately 6,400 t grading 3.8 g/t Au and 9.2 g/t Ag for approximately 770 contained oz Au and 1,890 contained oz Ag.
  - Mineral Resources are reported exclusive of Mineral Reserves.
- The QP is of the opinion that with consideration of the recommendations in this TRS, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.
- The deposits remain open and present exploration potential beyond the current Mineral Resources. As the area is underexplored, there is good potential to delineate additional exploration targets on the Lease.

1.1.2. MINING AND MINERAL RESERVES

MINE DESIGN

- Pit slope design criteria used to develop the FS pit slope designs are at a Pre-Feasibility Study (PFS) level of study/confidence. Stability analyses have not been completed on the final FS pit slope designs.
- A geotechnical stability analysis was completed on the Project's waste rock stockpile areas (WRSAs) and confirmed a low risk of WRSA instability. WRSAs are designed with 3:1 side slopes for ease of final reclamation and are generally located on hilltops where adverse sub-surface conditions and movement are not expected. The northeast walls of MCS may require approximately 33 ft to 50 ft of horizontal depressurization to attain acceptable factors of safety. The extent to which horizontal depressurization is required will need to be confirmed once mining has progressed beyond the elevation of the groundwater table. Due to the overall low-flow groundwater regime, dedicated dewatering wells are not expected to be required.
- A series of pit shells were generated based on varying gold price input factors. The pit shell corresponding to Mineral Reserve prices of $1,300/oz Au and $17/oz Ag was selected as the basis for the ultimate pit design.
- Portions of the detailed pit designs vary significantly from the MCN and MCS pit limits suggested by the ultimate pit shell analysis. This is due to:
  - The degree of accuracy that is possible when modeling complex pit slopes and transitions in a pit shell optimization as compared to completing detailed design.
  - The pit shell optimization over-smooths the influence of in-pit ramps on overall slope angle.
  - The narrower than minimum mining widths that result during pit shell optimization.
  - The degree of accuracy that is possible when allowing the pit shell optimization to achieve the corner design for the northeast wall of MCS.
- Several pit shell sensitivity scenarios were investigated, including sensitivity to metal price, mining cost, transport and processing cost, and slope angles. Generally, there is no material change to the ultimate pit limits for a range of Base Case inputs. This is a result of the high grade, high margin nature of the in-situ mineralization.

OPERATIONS

- Completing extraction in MCN early in the LOM plan is an important Project objective as it:
  - Enables hauling of waste rock from MCS directly into MCN, thereby keeping ex-pit haulage costs to a minimum.
  - Facilitates short hauls in a truck-constrained period of the LOM plan.
  - Serves as a long-term waste storage facility to minimize the size of ex-pit waste stockpiles (WRSAs) that would otherwise require rehandling to meet closure obligations.
- Key mining equipment performance metrics are based on both internal and external benchmarks for similar equipment, are unchanged in all LOM plan time periods, and are used as a measure of maximum productive hours to drive the LOM plan.

- During the Project's operating phase, waste rock swell factors will be investigated to confirm WRSA designs and storage capacity. In the event that additional waste rock storage capacity is required, or MCN in-pit backfill capacity is not available as planned, sections of the Main WRSA may be constructed to greater than 3:1 slopes.
- The Project will require a rigorous grade control program to mitigate mining dilution and ore loss. Program elements will include blasthole sampling in ore and waste blasts, high-precision global position system (GPS) equipment on loading units, and blast movement monitoring activities.
- The selected highway transport rate (3,000 U.S. short tons per day (stpd) ore) requires that ore stockpiles be maintained to disconnect the variable ex-pit ore mining rate from the ore delivery rate to the Fort Knox process plant. Maintaining a consistent ore delivery rate is important to allow the transport contractor to maintain steady-state operations and for the Project not to incur standby charges.
- The Project's labor strategy will include both shared responsibilities with existing Fort Knox personnel and dedicated Manh Choh labor on rotational schedules. Mine site leadership positions will report to the Fort Knox Mine Manager.

MINERAL RESERVES

- As of December 31, 2022, Manh Choh Mineral Reserves (100% Peak Gold JV attributable ownership basis) comprise Probable Mineral Reserves of approximately 3.94 million metric tonnes (Mt) grading 7.9 g/t Au and 13.6 g/t Ag for approximately 997,143 contained oz Au and 1,718,571 contained oz Ag.
- As of December 31, 2022, Manh Choh Mineral Reserves held by Contango (30% attributable ownership basis) comprise Probable Mineral Reserves of approximately 1.18 Mt grading 7.9 g/t Au and 13.6 g/t Ag for approximately 299,143 contained oz Au and 515,571 contained oz Ag.
- The QP is not aware of any risk factors associated with, or changes to, any aspects of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

1.1.3. MINERAL PROCESSING

METALLURGICAL CHARACTERIZATION

- Mineralogy analysis, analyses on cleaner flotation concentrates and tailings, and X-ray Diffraction (XRD) analysis indicate that the predominant sulfide mineral in the MCS deposit is pyrrhotite while the predominant copper mineral is chalcopyrite. Gold was observed in samples and is predominantly free gold and electrum.
- XRD, QEMSCAN, optical microscopy, Scanning Electron Microscopy (SEM) equipped with Energy Dispersive Spectrometers (EDS), and chemical analysis found that samples contain moderate (10% to 30%) to major (>30%) pyrrhotite and suggest a gold recovery circuit design having gravity concentration followed by finer grinding for further liberation.
- In 2018, seven metallurgical composites were tested to measure abrasion index, Bond ball mill work index, and rod mill work index. Samples selected were well distributed in both pits. In 2021, four master composites and eight variability composites were tested.

The results of this testing demonstrate that all samples are between soft and medium hardness and abrasiveness.

- Two sulfide master composite samples that were sent for semi-autogenous grinding (SAG) mill comminution (SMC) testing yielded one sample with medium to soft hardness and the other sample considered to be hard.

METALLURGICAL TESTING

- Results of metallurgical testing programs demonstrate that Manh Choh ore is amenable to being recovered by gravity concentration, flotation, and cyanidation. Both MCS and MCN ores respond well to cyanide leaching, gravity concentration, and flotation.
- Cyanide leaching test work showed that highly reactive sulfide materials in the Manh Choh ores are one of the challenges for economical gold and silver recovery, although adding cement in grinding and leaching with oxygen sparging helps reduce high reagent consumptions.
- In 2014, a series of flotation tests were completed on 13 metallurgical composite samples from the Project. Test results show a direct correlation between the percentage of total sulfur content in the feeds and the gold flotation recoveries and indicates most of the gold in the samples is associated with sulfide minerals.
- In 2019, 22 rougher flotation tests and nine cleaner flotation tests were completed on Manh Choh ore samples, of which four rougher flotation tests and four cleaner flotation tests were assayed for gold content. Test results show a direct correlation for both gold recovery and mass pull with the total sulfur content in the samples. The cleaner tests show that the gold grade in the flotation concentrate can be improved but at the expense of the overall gold recovery.
- Gold recoveries from 51 gravity concentration tests did not show clear correlation between gold head grades and gold recoveries. The average gold recovery from all tests was 25%, however, the recovery variance standard deviation is as high as 20%. The average silver recovery from all tests was 10%.
- In 2021, Extended Gravity Recovery Gold (EGRG) tests were completed on four master composites from Manh Choh. Test results show that the maximum gold recovery for Manh Choh ore samples varies between 16.3% and 50.7%.
- The results of the flowsheet options study confirmed that Manh Choh samples respond well to the gravity/flotation/cyanidation flowsheet, however, the overall reagent consumption was higher as compared to whole ore leaching options. Based on the study of the MCS sulfide composite, the savings in NaCN and lime consumption made the whole ore leach the preferred option for the FS.

PROCESS SELECTION AND OPERATIONS

- The existing Fort Knox processing facility will continue to operate with Fort Knox ore on a batch basis along with the Manh Choh ore. The equipment and process as is currently designed will not be modified when processing ore from Fort Knox, however, additional equipment and piping modifications to some areas of the plant will be required for when processing Manh Choh ore.
- The site conditions, operating conditions, and safety parameters are documented and provided for in the design basis. The environmental constraints have been identified and are considered in the design.

- Any adjustments to the FS LOM plan or stockpiling strategy need to be carefully considered relative to the current stockpiling objective, i.e., prioritizing high-grade Fort Knox mill feed early in the life of the Project.
- The QP is of the opinion that the data derived from the Project's metallurgical testing activities is adequate for the purposes of Mineral Resource and Mineral Reserve estimation.

1.1.4. ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

- The Project is located on land owned and controlled by the Native Village of Tetlin (Tetlin), an indigenous Upper Tanana Athabascan Native Alaskan community. Tetlin owns both the surface and the subsurface rights to their land.
- In accordance with the U.S. National Environmental Policy Act (NEPA), the U.S. Army Corps of Engineers (ACOE) is required to prepare either an EA or an Environmental Impact Statement (EIS) for the Project using environmental baseline surveys and public comments. Based on a proactive effort to minimize Project-related impacts to wetlands, an EIS was not required and a wetlands permit was issued in September 2022 as part of an environmental assessment (EA) of the Project.
- Although not considered material to operating permits, in response to public concerns, the Department of Transportation and Public Facilities has funded an independent corridor analysis to review potential impacts of an increase in traffic along the selected access route. The selected corridor analysis contractor will work with the newly established Transportation Advisory Committee (TAC) that is being led by a consultant. The TAC will make recommendations to the contractor and will help identify areas of concern.
- Manh Choh ore has both potentially acid generating (PAG) and non-acid generating (NAG) components. Manh Choh ore will be processed at Fort Knox prior to the onset of PAG conditions.
- Waste rock in the mine site area includes materials that are both PAG and metal leaching (ML).
    - Pit wall rock masses assessed as being ML or PAG will be covered during mining and reclamation activities.
    - During mining, surface water run-off and pit inflows will be collected and treated via a perimeter ditch collection system and in-pit dewatering infrastructure.
    - WRSAs are designed to minimize recharge and to isolate PAG and ML material, thereby minimizing any potential for external discharge from the waste rock over the long term.
- Since 2012, surface water monitoring data has been collected from 19 sites around the Project area. Stream discharge is perennial in all catchments and most stream flows during the low-flow late fall and winter months are assumed to represent baseflows due to the limited precipitation in the Project area during this period. The Project does not include disturbance of fish habitat.
- Groundwater flow in the Project area is extremely low and localized due to dry conditions and limited recharge area. The small amount of recharge that does occur is related to spring snowmelt and the relatively large seasonal fluctuation of groundwater levels is indicative of a low storage groundwater system.

- Low rates of groundwater in-flow to the pits, low bedrock hydraulic conductivity, and a deep water table suggests that drawdown will be limited to the localized areas of the pit walls.
- Manh Choh will be a low water-usage mine and droughts are not expected to have a significant impact on operations. If more frequent or intense rainstorms occur, the mine site is well situated on a hilltop high above the flood plain, is designed to safely manage a 1 in 100-year storm event, and by designing to low probability events, infrastructure becomes inherently resilient to changes in precipitation over the relatively short mine life.
- Water quality is generally good in headwater streams that drain the Project area. Baseline iron, arsenic, and manganese concentrations in Tors Creek exceed Alaska Department of Environmental Conservation (ADEC) guideline values due to the proximity of the mineralized orebody. Baseline sulfate, metals, and total dissolved solids (TDS) concentrations are consistently higher in groundwater than surface water, particularly in the vicinity of the orebody, however, concentrations are not consistently higher than ADEC guideline values.
- None of the species recorded in the Project area are listed as Threatened or Endangered as specified by the U.S. Fish and Wildlife Service (USFWS). There are however some fauna species and habitat worth noting:
    - The Tetlin Hills are within the breeding range of the Olive-sided Flycatcher, which is designated by the USFWS as a species of conservation concern.
    - The Short-eared Owl was not observed but is also a species of conservation concern and may occur in the area.
    - Two Bald Eagle nests were found during the raptor nest survey, both greater than two miles from the Project. The USFWS advises that activities within two miles of Bald Eagle or Golden Eagle nests may require an incidental take permit.
    - Three common raven nests were found and these species are protected under the Migratory Bird Treaty Act (MBTA).
    - The Project avoided important lowland moose habitat surrounding the Tok River. Individual animals from two caribou herds may be present seasonally. Caribou avoid areas of recent wildfire, which indicates they may naturally avoid the Project.
- No Project activities are located within protected areas. The closest protected area is the Tetlin National Wildlife refuge, which is approximately 20 to 30 miles to the east and southeast of the Project.
- During Project baseline information collection activities, seven prehistoric archaeological sites were identified with five of these sites meeting federal archaeological site significance criteria making them eligible for listing on the National Register of Historic Places (NRHP). Based on the Project's 2021 mine and infrastructure plans, the Project could impact one NRHP eligible site while the four other NRHP eligible sites should be avoidable over the course of the LOM.
- A Cultural Heritage Management Plan has been developed to address the mitigation plan for the NRHP eligible archaeological site that will be adversely affected by the Project and future discoveries of cultural resources that may be discovered during the Project's construction and operation.

- The local area of Tok and surrounding areas, including Tetlin, have expressed support for the Project in numerous engagements, community meetings, public testimony, and in letter form. The local communities expect that the Project will maximize opportunities for local employment and local business, operate in a safe and environmentally responsible manner, properly maintain the tribal road impacted by increased traffic, and respect the desire to maintain cultural and subsistence ways of life.
- Mine site reclamation and closure will be performed in accordance with the Manh Choh Project Reclamation and Closure Plan (RCP). The RCP was originally submitted for approval to Alaska Department of Natural Resources (ADNR) and ADEC in December 2021 and was subsequently updated and re-submitted in January 2022. The RCP includes a closure cost estimate prepared using Alaska's Standardized Reclamation Cost Estimator (SRCE) model, which was used for calculating the financial assurance amount (bond) required by ADNR and ADEC. The SRCE model estimated a financial assurance requirement of approximately $63.5 million. Contango's attributable ownership portion of the financial assurance requirement is approximately $19.1 million, or as may be amended in the future.
- In the QP's opinion, the current plans related to environmental compliance, permitting, and local individuals or groups are reasonable for this level of study.

1.2. RECOMMENDATIONS

1.2.1. GEOLOGY AND MINERAL RESOURCES

1. Geologic exploration is on-going in the vicinity of the Manh Choh deposit and new data should be incorporated in the resource area when quality assurance/quality control (QA/QC) and validation work is complete. Several other holes were drilled in 2021 with results not available at the time of the model estimate.
2. Review second-laboratory and additional QA/QC results pending at the time of the model estimate.
3. Complete additional relogging validation of skarn intensity codes, redox codes, and structural measurements to add additional support to the estimate domains and methodology.
4. Complete additional density measurements in oxide waste areas where sample density could be increased.
5. Carry out additional metal estimates based on geochemical results to support other recovery, geochemical, and metallurgical considerations such as bismuth, lead, and zinc.
6. Complete additional sensitivity work related to simulated gold grade dilution.
7. Carry out a comparison of the grade capping on the 10 ft composites and the variable raw assays.
8. Use Disintegration Analysis for grade capping.
9. To avoid over-estimation of grades in certain areas, review and confirm declustered mean values.
10. Test the variable orientation and estimation in Leapfrog rather than moving the work to Vulcan software.

11. Tabulate and review capped vs. uncapped gold volumetric output (grade and ounces) from the block model by domain.
12. Prior to production, complete a reverse circulation (RC) grade control program to assess closer spaced grade variability.
13. The QP has reviewed the inputs for the reporting of Mineral Resources and is of the opinion that they are reasonable. The QP recommends that these inputs be reviewed during any future studies.

1.2.2. MINING AND MINERAL RESERVES

1. Complete additional geotechnical drilling, site investigation, and analysis to further optimize FS mine designs and the operational phase of the Project. Confirm the orientation of critical structures and further inform potentially problematic domains, i.e., the North Domain in MCS and the Northeast Domain in MCN.
2. For optimal wall control, adopt pre-split blasting in all geotechnical domains. Trim blasting may be sufficient for the design sectors identified as having slope stability controlled by discrete faults or fault/shear anisotropy.
3. Horizontal groundwater depressurization may be required in one geotechnical design sector, however, this should be confirmed during the Project's operating phase.
4. At MCS, straight north and east pit walls are designed to meet at a corner to avoid transitioning to a northeast wall orientation that would parallel problematic structures. It is critical that the orientations of the straight north and east pit walls fall outside the range of influence of adversely orientated structures. The orientation of adverse structures at these pit wall locations should be confirmed by further drilling.

1.2.3. MINERAL PROCESSING

1. Review/evaluate the following potential improvements:
    - Install Auto Dilution for the thickener feed well to decrease the feed solids level prior to flocculation, improving particle setting rates.
    - Acid wash carbon prior to elution. This will improve elution efficiency by removing impurities such as copper, calcium, and magnesium which can impede both the elution step and the later adsorption of gold onto the carbon after it has been returned to the Carbon-in-Pulp (CIP) circuit.
    - Complete regeneration of all carbon prior to sending it back to the CIP circuit. This will restore the activity of spent activated carbon by removal of organic absorbates and lower the need to add additional fresh carbon into the circuit.
    - To increase solution flow rates, replace piping to electrowinning circuit.
    - To reduce costs, complete a hydraulic study of slurry flow to evaluate the elimination of smaller inter-tank piping and instead use existing piping.
    - To reduce equipment scaling and improve heat exchange, complete regular cleaning of the heat exchanger and associated lines with sulfamic acid.
    - Evaluate in-line heating of eluate or heating of a portion of the eluate prior to stripping. Either improvement may eliminate the need for an extra heater to heat the elution columns and reduce elution times.

1.2.4. ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

1. Continue adherence to the existing avoidance plan for all seven identified prehistoric sites to prevent any damage to their current condition or integrity until ACOE NRHP eligibility determinations are formalized.

1.3. ECONOMIC ANALYSIS

The economic analysis contained in this TRS is based on Contango's 30% attributable ownership interest in Manh Choh Proven and Probable Mineral Reserves.

Economic assumptions and capital and operating costs in this analysis are based on the Manh Choh FS and FS economic update prepared by KGMA for the Peak Gold JV.

All costs are expressed without allowance for escalation or currency fluctuation in United States dollars (US$) with a H1 2022 cost basis and assume a West Texas Intermediate (WTI) oil price of US$80 per barrel.

The economic analysis is presented in metric units of measure.

A summary of key inputs for the analysis is provided below.

1.3.1. PHYSICALS

- Physicals (mineable ore inventory): Equal to Contango's 30% attributable ownership interest in Manh Choh Probable Mineral Reserves
- Mine life: 4.6 years (between years 2024 and 2028)
- Open pit operations
  - Open pit mine life: 4.6 years
  - Total ore tonnes mined: 1.18 Mt at 7.9 g/t Au and 13.6 g/t Ag
  - Waste tonnes: 13.7 Mt
  - Maximum mining rate: 13,023 tpd (ore and waste) in year 2024
- Processing of Mineral Reserves:
  - Total Ore Feed to Plant: 1.18 Mt
    - Gold grade: 7.9 g/t Au
    - Silver grade: 13.6 g/t Ag
    - Maximum milling rate: 13,200 tpd (ore will be processed on a batch basis approximately four times a year)
  - Contained Metal
    - Gold: 299,143 oz
    - Silver: 515,571 oz
  - Average LOM Plant Recovery
    - Gold 90.3%

- Silver 69.2%
  - Recovered Metal
    - Gold: 269,971 oz
    - Silver: 356,819 oz

1.3.2. REVENUE

- Revenue stated in this section of the TRS only considers Contango's 30% interest in Peak Gold JV.
- Revenue is estimated over the LOM based on Contango's corporate guidance prices from January 2023 on a real basis, with a flat long-term price of $1,600/oz Au and $22.00/oz Ag, respectively. The QP considers these prices to be aligned with the current industry standards.
- Payable metals are estimated at 99.9% for gold and 99.0% for silver.
- Refinery charges are estimated to be as follows:
  - Doré transportation shipments: 15,000 oz per shipment.
  - Doré shipment costs: $10,000 per shipment.
  - Refining charges: $5.00/oz Au and $0.50/oz Ag.
- After transportation and refining charges, LOM Net Smelter Returns (NSR) of approximately $437 million.

1.3.3. CAPITAL COSTS

- A summary of the Project capital costs included in the economic analysis is provided in Table 1-1.

TABLE 1-1 PROJECT CAPITAL COSTS

Description	Units	Peak Gold JV (100% basis)	Contango[1] (30% portion)
Initial Capital Costs for Project Construction	$ million	189.4	56.8
Capitalized Waste Development - Initial	$ million	25.9	7.8
Sustaining Capital Costs	$ million	20.1	6.0
Capitalized Waste Development - Sustaining	$ million	55.8	16.7
Salvage Value	$ million	11.5	3.5
Closure/Reclamation Capital	$ million	105.6	31.7

Note:

1. Excludes approximately $52 million in capital costs allocated to Fort Knox (captured in Toll Milling costs).

1.3.4. OPERATING COSTS

- Operating costs summarized below are LOM average values and are based on Contango's 30% interest in the Peak Gold JV.

- Open pit mining: $5.97/t mined (ore and waste)
- Capitalized waste development: ($2.07)/t mined (credit)
- Ore haulage: $63.39/t milled
- Processing (toll milling): $52.26/t milled
- General and Administrative (G&A): $18.47/t milled ($5.5 million per year)
- Total unit operating costs: $183.43/t milled
- LOM total operating costs: $217 million (Contango's 30% interest)
- JV Management fee: In addition to site operating costs, there is a JV Management Fee charged by Peak Gold to the JV partners for running the site and operations. The fee is a percentage charge of applicable Project costs as specified in the JV Agreement. The fee varies between a 3% charge during pre-production and a 2% charge during the operations period. The JV Management Fee for Contango's 30% interest totals approximately $5.4 million over the LOM.

1.3.5. TAXATION AND ROYALTIES

- The Project is subject to the following royalties:
  - Production royalty with the Native Village of Tetlin. When production is achieved, Peak Gold will begin paying the Tetlin Council a production royalty less all advanced royalty payments and the $450,000 "buy up" payment. The current production royalty for gold, silver, platinum, palladium, rhodium, ruthenium, osmium, iridium, or any other precious metals or gems to the Native Village of Tetlin per Lease is:
    - 3.0% NSR royalty on the first four years of full-scale production
    - 4.0% NSR royalty on the fifth, sixth, and seventh years of full-scale production
    - 5.0% NSR royalty on the eighth and subsequent years of full-scale production
- Production royalty to Royal Gold, Inc., comprising:
    - 3.0% NSR royalty on the Lease
    - 28% NSR royalty on silver from the Lease
- The mining industry pays an Alaska corporate income tax of up to 9.4% of income, which is the same for all corporations in the state. The mining industry also pays up to 7% of net profits as an additional mining license tax, which applies to all mining operations, including royalty owners, regardless of size, land status, mineral ownership, or location.
- The QP has relied on Grant Thornton LLP (Contango's tax adviser) for the calculation of income and mining taxes applicable to the economic analysis.

1.3.6. CASH FLOW ANALYSIS

The QP has reviewed the Manh Choh FS financial model (100% Peak Gold JV basis) prepared by KGMA (Kinross Model) and Contango's own unlevered after-tax cash flow model for Contango's 30% interest in the Project (Contango Model).

Project economics in the Contango Model have been evaluated using the discounted cash flow method and considering annual processed tonnages and grade of ore. The QP reviewed the Contango Model and its assumptions for metal prices, metallurgical recoveries, operating costs, refining and transportation charges, and initial and sustaining capital expenditures and finds them to be reasonable.

Annual cash flow model results are presented in Section 19 of the TRS with no allowance for inflation.

At a 5% discount rate, results include a pre-tax and after-tax net present value (NPV) of approximately $49 million and $30 million, respectively. The QP is of the opinion that the application of a 5% discount rate for after-tax cash flow discounting of a precious metals Project in a politically stable region is reasonable and appropriate.

The economic analysis confirms that Contango's 30% interest in Project Mineral Reserves is economically viable at the assumed metal prices.

Undiscounted pre-tax cash flows total approximately $71 million and undiscounted after-tax cash flows total approximately $46 million.

The Project's internal rate of return (IRR) is defined as the discount rate that results in a Project NPV equal to zero. The Project's pre-tax IRR is approximately 31% and the Project's after-tax IRR is approximately 23%.

The World Gold Council Adjusted Operating Cost (AOC) on a Gold Equivalent (AuEq) basis is $899 per AuEq oz. The LOM sustaining capital cost is $218 per AuEq oz, for an All-In Sustaining Cost (AISC) of $1,116 per AuEq oz. Contango's portion of annual gold sales is approximately 58,402oz per year from 2024 to 2028.

Table 1-2 presents a summary of the Contango Model cash flow results.

TABLE 1-2 SUMMARY OF CONTANGO MODEL CASH FLOW RESULTS

	Units	Total LOM
Production		
Mine Life	years	4.6
Pit Production	**'000 tonnes**	**1,181**
Au Grade	g/t	7.9
Ag Grade	g/t	13.6
Waste	'000 tonnes	13,740
Process Plant Feed	**'000 tonnes**	**1,181**
Au Grade	**g/t**	**7.9**
Ag Grade	**g/t**	**13.6**
Total Contained Production		
Contained Au	'000 oz	299
Contained Ag	'000 oz	515
Average Metallurgical Recoveries		
Au Recovery	%	90.3%

	Units	Total LOM
Ag Recovery	%	69.2%
Total Recovered Production		
Recovered Au	'000 oz	270
Recovered Ag	'000 oz	357
Total Payable Production		
Payable Au	'000 oz	270
Payable Ag	'000 oz	353
Metal Prices		
Gold Price - average	$/oz	1,600
Silver Price - average	$/oz	22.00
Cash Flow		
Gross Revenue	**$ million**	**439.3**
Transportation & Refining	$ million	(1.9)
Royalties	$ million	(28.5)
Operating Costs		
Mining (Open Pit)	$ million	(89.1)
Capitalized Waste & Mine Development	$ million	30.9
Ore Hauling	$ million	(74.8)
Processing	$ million	(61.7)
G&A	$ million	(21.8)
Other Admin Expenses - Management Fee	$ million	(5.4)
EBITDA[1]	**$ million**	**186.9**
Capital Costs		
Initial Capital	$ million	(56.8)
Sustaining Capital	$ million	(6.0)
Capitalized Waste Dev. - Initial	$ million	(7.8)
Capitalized Waste Dev. - Sustaining	$ million	(16.7)
Salvage Value	$ million	3.5
Reclamation & Closure	$ million	(31.7)
Change in Working Capital	$ million	0
Pre-Tax Net Cash Flow	**$ million**	**71.3**
Federal & State Income Taxes	$ million	(25.1)
After-Tax Cash Flow	**$ million**	**46.2**
Project Economics		
Pre-Tax		
Pre-tax NPV at 5%	**$ million**	**49.0**
IRR	**%**	**30.6**
After-Tax		
After-Tax NPV at 5%	**$ million**	**29.7**
IRR	**%**	**22.5**

Note:

1. Earnings before interest, taxes, depreciation, and amortization.

1.3.7. SENSITIVITY ANALYSIS

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities on after-tax NPV at a 5% discount rate. The following parameters were examined:

- Gold head grade
- Gold metallurgical recovery
- Gold metal price
- Operating costs
- Capital costs (initial, sustaining, salvage, and closure)

After-tax sensitivities have been calculated for -20% to +20% variations for gold grade, and gold price, -6% to +6% variations for gold recovery, and -5% to +15% for operating costs and capital costs to determine the most sensitive parameter of the Project. The sensitivities are presented in Table 1-3.

TABLE 1-3 SENSITIVITY ANALYSIS SUMMARY

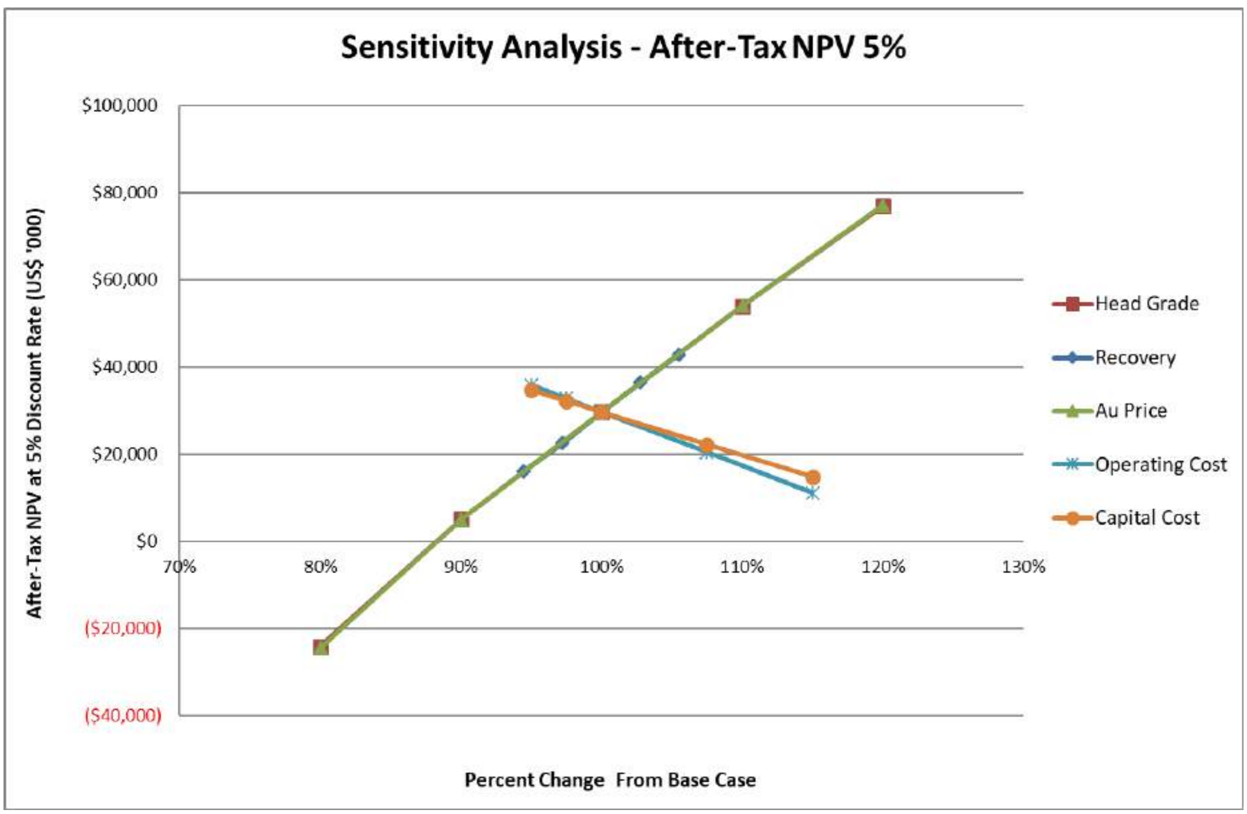
Variance From Base Case	Head Grade (g/t Au)	NPV at 5% (US$ M)
-20%	6.30	(24.1)
-10%	7.09	5.2
0%	**7.88**	**29.7**
10%	8.67	54.0
20%	9.46	76.9
Variance From Base Case	**Recovery (% Au)**	**NPV at 5% (US$ M)**
-6%	85.3%	16.2
-3%	87.6%	22.6
0%	**90.3%**	**29.7**
3%	92.8%	36.5
6%	95.1%	42.9
Variance From Base Case	**Metal Prices (US$/oz Au)**	**NPV at 5% (US$ M)**
-20%	$1,280	(24.4)
-10%	$1,440	5.1
0%	**$1,600**	**29.7**
10%	$1,760	54.1
20%	$1,920	77.1

Variance From Base Case	Operating Costs (US$/t)	NPV at 5% (US$ M)
-5%	$174	35.9
-2,5%	$179	32.8
0%	**$183**	**29.7**
7.5%	$197	20.5
15%	$211	11.2

Variance From Base Case	Capital Costs (US$ 000)	NPV at 5% (US$ M)
-5%	$109,777	34.7
-2,5%	$112,666	32.2
0%	$115,554	29.7
7.5%	$124,221	22.3
15%	$132,888	14.9

A comparison of results for the various sensitivity cases using after-tax NPV at a 5% discount rate are presented in Figure 1-1.

FIGURE 1-1 AFTER-TAX NPV AT 5% SENSITIVITY ANALYSIS



The Project is most sensitive to changes in metal prices, head grade and metallurgical recoveries, followed by operating costs and then capital costs.

1.4. TECHNICAL SUMMARY

1.4.1. PROPERTY DESCRIPTION

The Project is located in the Tetlin Hills and Mentasta Mountains of eastern Interior Alaska, approximately 300 km (190 miles) SE of the city of Fairbanks (city and immediate area population approximately 100,000) and 20 km (12 miles) SE of Tok, Alaska

1.4.2. LAND TENURE

Peak Gold, a joint venture entity of KGMA (70%) and Core Alaska, LLC (30%), exclusively holds the rights to explore, mine, extract, and sell the metalliferous minerals derived from any mineral deposits of a mineral lease (the Lease) from the Native Village of Tetlin covering approximately 675,000 acres (the Leased Land). In addition, Peak Gold holds the mineral rights to 159 Alaska state mining claims (State Claims). These claims, totaling approximately 13,500 acres, are located adjacent to the Leased Land to the NW.

1.4.3. HISTORY

The first known arrival of a prospector to what is now the Manh Choh Project was in 1908 when James Northway brought a steam prospecting boiler to Tanacross and then set up a trading post at Tetlin Village the following spring. No other mention of Northway's prospecting efforts is available. In the fall of 1913, prospector Andrew Taylor recovered about 200 ounces of gold from his discovery on the Chisana River bordering the eastern Project area. A small rush to the district occurred, however, it was short-lived as the district was soon found to contain few large or paying placer gold deposits.

Mineral exploration in the Manh Choh Project area came to a halt on June 10, 1930 when the approximately 750,000 acre Tetlin Indian Reserve (Tetlin Reserve) was established by the signing of Executive Order 5365 by President Herbert Hoover.

No other significant prospecting or geological work was reported from the Tetlin lands until the late 1960s. Approximately 40 geochemical samples were collected on the extreme southern edge of the Project during regional geologic mapping and geochemical sampling conducted by the US Geological Survey (USGS) in the late 1960s and early 1970s. This work revealed no significant gold or base metal anomalies, possibly due to the crude, high detection limit analytical methods used.

The Tetlin Reserve was revoked in 1971 upon passage of the landmark Alaska Native Claims Settlement Act (ANCSA). In the mid-1970s, Resources Associates of Alaska (RAA), a Fairbanks-based mineral consulting firm, was allowed to conduct a limited reconnaissance mineral survey of Tetlin Tribal lands. The results of this work are not available and attempts to locate data from this effort have not been successful. Limited information on this program indicated that reconnaissance-level geochemical sampling was conducted in 1976 and eight days of field work were completed in 1980. This work succeeded in discovering a tungsten skarn occurrence (exact location unknown) and two massive pyrite occurrences with nearby copper-lead-zinc exhalite horizons in the Meiklejohn Pass area.

The Lease was acquired by Juneau Mining Company (Juneau), an affiliate of Contango, in mid-June 2008. In November 2010, Contango was formed and the Lease was contributed to it at that time. Mineral exploration work was conducted on the property in 2009 through 2013. In 2015, Royal Alaska, LLC, a subsidiary of Royal Gold, and Core Alaska, LLC, a subsidiary of Contango, entered into a joint venture with Contango for the Project, and the Lease and interests in the Project were contributed to Peak Gold JV. Peak Gold JV conducted further mineral exploration work on the Project from 2015 through 2018.

In September 2018, JDS Energy & Mining Inc. (JDS) prepared an internal Preliminary Economic Assessment (PEA) on the Project, which envisaged a conventional open pit truck and shovel operation with gold processing with cyanide leaching at a rate of 3,500 tonnes per day (tpd) over the potential Project life of eight years.

On September 30, 2020, Contango and Royal Gold each announced that a subsidiary of Kinross had acquired Royal Gold's 40% interest and an additional 30% interest from Contango and was appointed Manager and Operator of Peak Gold JV, with the resulting ownership being KGMA at 70% and Contango at 30%.

1.4.4. GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

The Project area is located in the eastern portion of the Yukon-Tanana Terrane (YTT) and is largely hosted within poly-metamorphic rocks. The majority of the bedrock in the deposit area consist of a Lower Paleozoic quartz-muscovite ± biotite schist (QMS) containing conformable layers of amphibolite schist. The deposit is hosted within calcareous metasedimentary rock that hosts silicate skarn alteration, as well as gold, silver, copper, and sulfide mineralization. The composition of the calcareous rocks vary from rare pure marble, through a gradational calc-schist package ranging from a calcareous arenite to a silty marble.

Weathering at Manh Choh is pervasive and largely controlled by the schist fabric, skarn alteration intensity, and intersecting faults. The MCN deposit has a deeper oxidation profile than the MCS deposit, characterized primarily by logged identification of more intense weathering minerals at depth and lower sulfur geochemical signature.

Both the MCS and MCN deposits have appreciable quantities of gold (Au), silver (Ag), and copper (Cu) associated with pyrrhotite-chalcopyrite-arsenopyrite dominant stratabound replacement bodies interlayered with calcium-iron (Ca-Fe) amphibole, which replace the calcareous portions of the interlayered calcareous to argillaceous schist. The highest gold and silver grades are associated with the junctions of the discordant veining and the calcareous schist, with precious metal grade rapidly decreasing down dip, and gently tapering up dip.

1.4.5. EXPLORATION

Mineral exploration work was conducted on the Peak Gold property in 2009 through 2013 and 2015 through 2021.

Gold mineralization was discovered at the property during stream sediment and pan concentrate sampling in 2009 and exploration efforts since then have included top of bedrock soil sampling, induced polarization and DC resistivity and magnetotelluric (Titan-24 DCIP&MT) ground geophysics, airborne magnetic and electromagnetic geophysical surveys, and approximately 85,509 m of diamond core drilling. These exploration efforts defined two high-grade gold skarn deposits, MCS and MCN, hosted in skarn-altered calcareous metasediments within an area of anomalous gold, copper, and pathfinder metals that measures at least 6 km N-S by 5 km E-W. Several promising near-resource exploration targets have been identified and have been explored during 2017 and 2018. A total of 521 diamond core holes comprising 98,843 m have been completed on the Project between 2011 and December 31, 2022, the effective date of the current Mineral Resource estimate.

1.4.6. MINERAL RESOURCE ESTIMATE

The Mineral Resources are contained within two deposits: MCS and MCN. Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300. The Mineral Resources were developed using a computer-based block model based on drill hole assay information and geologic interpretation of the mineralization boundaries. Mineral Resources were estimated using the block model and open pit design software to establish the component of the deposit with reasonable prospects for economic extraction. The Mineral Resource block model and estimate were prepared by Kinross Technical Services (KTS) and reviewed by the Contango QP. The model was based on validated drilling data available through June 2021. Additional drilling has been completed on the property outside of the resource area.

Table 1-4 summarizes the Mineral Resource estimate for the Project, effective December 31, 2022 (100% Peak Gold JV basis). Table 1-5 summarizes Contango's 30% attributable ownership of the Mineral Resource estimate.

TABLE 1-4 MINERAL RESOURCE ESTIMATE AS OF DECEMBER 31, 2022 – PEAK GOLD 100% ATTRIBUTABLE OWNERSHIP

Classification	Tonnes (000)	Au Grade (g/t)	Au Ounces (000)	Ag Grade (g/t)	Ag Ounces (000)
Measured	-	-	-	-	-
Indicated	846	2.4	65	9.3	252
TOTAL	**846**	**2.4**	**65**	**9.3**	**252**
Inferred	21	3.8	3	9.2	6

TABLE 1-5 MINERAL RESOURCE ESTIMATE AS OF DECEMBER 31, 2022 – CONTANGO 30% ATTRIBUTABLE OWNERSHIP

Classification	Tonnes (000)	Au Grade (g/t)	Au Ounces (000)	Ag Grade (g/t)	Ag Ounces (000)
Measured	-	-	-	-	-
Indicated	254	2.4	20	9.3	76
TOTAL	**254**	**2.4**	**20**	**9.3**	**76**
Inferred	6	3.8	1	9.2	2

Notes for Tables 1-4 and 1-5:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources.
2. Mineral Resources are reported exclusive of Mineral Reserves.
3. Mineral Resources are estimated using long term prices of US$1,600/oz Au price and US$22/oz.
4. Mineral Resources are reported using un-diluted Au and Ag grades.
5. Mineral Resources are reported within constraining pit shells.
6. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
7. Mineral Resources are reported in dry metric tonnes.
8. Numbers may not add due to rounding.

The QP reviewed consensus long-term (10 year) metal price forecasts for gold and silver and verified that the selected metal prices for estimating Mineral Resources are in line with independent forecasts from banks and other lenders.

The QP is of the opinion that with consideration of the recommendations summarized in Sections 1 and 23 of this report, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

The estimates of Mineral Resources may be materially affected if mining, metallurgical, or infrastructure factors change from those currently anticipated at the Manh Choh Project. Although the QP has a reasonable expectation that the majority of Inferred Mineral Resources could be upgraded to Indicated or Measured Resources with continued exploration, estimates of Inferred Mineral Resources have significant geological uncertainty and it should not be assumed that all or any part of an Inferred Mineral Resource will be converted to the Measured or Indicated categories.

1.4.7. MINERAL RESERVE ESTIMATE

Table 1-6 summarizes the Mineral Reserve estimate for the Project, effective December 31, 2022 (100% Peak Gold JV basis). Table 1-7 summarizes Contango's 30% attributable ownership of the Mineral Reserve estimate.

TABLE 1-6 MINERAL RESERVE ESTIMATE AS OF DECEMBER 31, 2022 – PEAK GOLD 100% ATTRIBUTABLE OWNERSHIP

Classification	Tonnes (000)	Au Grade (g/t)	Au Ounces (000)	Ag Grade (g/t)	Ag Ounces (000)
Proven	-	-	-	-	-
Probable	3,936	7.9	997	13.6	1,719
TOTAL	**3,936**	**7.9**	**997**	**13.6**	**1,719**

TABLE 1-7 MINERAL RESERVE ESTIMATE AS OF DECEMBER 31, 2022 – CONTANGO 30% ATTRIBUTABLE OWNERSHIP

Classification	Tonnes (000)	Au Grade (g/t)	Au Ounces (000)	Ag Grade (g/t)	Ag Ounces (000)
Proven	-	-	-	-	-
Probable	1,181	7.9	299	13.6	516
TOTAL	**1,181**	**7.9**	**299**	**13.6**	**516**

Notes for Tables 1-6 and 1-7:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources.
2. Mineral Reserves were estimated at long term prices of $1,300/oz Au and $17/oz Ag.
3. Mineral Reserves are reported at an economic cut-off that varies by process cost and metallurgical recovery, approximately equivalent to 2.50 g/t Au.
4. Mineral Reserve estimates incorporate dilution built in during the re-blocking process and assume 100% mining recovery.
5. Mineral Reserves are reported in dry metric tonnes.
6. Numbers may not add due to rounding.

The QP is not aware of any risk factors associated with, or changes to, any aspects of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

The smallest mining unit (SMU) is deemed to be 20 ft x 20 ft x 10 ft (height). The primary ore loading fleet will therefore be tailored to maintain selectivity at this scale, with excavator buckets not to exceed 7 ft to 8 ft widths, and flitch mining in 10 ft flitches (20 ft blasts) to occur in ore zones. Dilution was estimated using a 2 ft thick block skin on every other ore contact, to simulate dilution incurred along the floor of each 10 ft flitch.

1.4.8. MINING

The Project mine design includes two open pits, Manh Choh North and Manh Choh South (MCN and MCS), that will be mined with conventional open pit mining equipment. The Project includes waste rock storage areas (WRSA), ore stockpile and load-out facilities, and related surface infrastructure and support buildings.

Pre-production mining will commence in Q3 2023, followed by first ore delivered to the Fort Knox processing facility in January 2024. The Project's ex-pit mining rate is between 15 Mtpa and 17 Mtpa over the life of mine (LOM) with peak ex-pit mining rates expected in 2024 when ore and waste hauls are shortest and MCN and MCS pits are being mined concurrently. Ore and waste extraction is completed first in MCN, approximately two years into Project mine life, and provides important and time-sensitive in-pit waste storage capacity. Ex-pit ore and waste mining and in-pit waste backfilling are expected to occur over a four-year period, followed by approximately six months of waste re-handling and in-pit backfilling in support of reclamation and closure activities.

The LOM plan includes ore haulage by the mining fleet to an ore load-out facility proximal to the MCN and MCS pits. At the load-out facility, ore will be transferred into highway trucks by a third-party contractor for transport to the Fort Knox site where it will be processed at the existing CIP mill.

Mining activities at the Project are proposed to commence in July 2023 with the start of the pre-production period. The pre-production period includes mining MCS Phase 1 (MCS P1) to build high-grade ore stockpiles ahead of ore transport ramp-up, and mining MCS Phase 2 (MCS P2) and MCN to expedite sinking of the large pits and to source clean waster rock for construction priorities (mining roads, etc.). The pre-production period lasts until first transport of ore to Fort Knox, in January 2024, at which time the production period begins. MCN mining is completed in August 2025 and corresponding in-pit backfill capacity becomes available for receiving waste from mining the remainder of MCS P2. Mining of MCS P2 is on the critical path to completion of the overall mining sequence, with expected completion in July 2027, four years after mining begins.

1.4.9. MINERAL PROCESSING

Three historical metallurgical testing programs and one recent metallurgical test program were performed on the Project ore samples, which included.

- Gravity concentration and flotation tests in 2014 by SGS, in Burnaby, British Columbia, Canada,
- Gravity concentration, flotation, and cyanide leaching tests in 2014 by Kappes, Cassiday & Associates (KCA), Reno, Nevada, USA,
- Flotation, magnetic separation, gravity concentration, cyanide leaching, and comminution tests from 2017 to 2019 by McClelland Laboratories, Inc. (MLI), in Sparks, Nevada, USA.

- Flotation, gravity concentration, cyanide leaching, and comminution tests in 2021 by MLI, 2021.

Results of previous metallurgical testing programs show that Manh Choh ore is amenable to being recovered by gravity concentration, flotation, and cyanidation.

Both MCS and MCN ores respond well to cyanide leaching, gravity concentration, and flotation.

Starting in the second half of 2024 to the beginning of 2028, a total of 4.3 million st of Manh Choh ore is expected to be transported to the Fort Knox mineral processing facility. Approximately 900 koz of gold (90.3% LOM recovery) will be produced. Gold is recovered by gravity concentration and CIP process. During the third quarter of the Manh Choh ore processing campaign in 2024, the gold and silver recoveries are reduced by 5% to account for processing ramp-up.

The existing Fort Knox processing facility will be modified to process Manh Choh ore on a campaign or batch basis. ROM ore will be trucked from Manh Choh to Fort Knox and side dumped onto a coarse ore stockpile. From the coarse ore stockpile, ore will be transported to the Gyratory crusher. Crushed ore will be drawn from the crushed ore stockpile using variable speed apron feeders which will feed the semi-autogenous grinding (SAG) mill feed conveyor. The SAG mill product will discharge onto a wet vibrating screen where the undersize will flow into a common mill sump along with the ball mill product and the oversize, to the pebble crusher to further reduce the critical size material which will then be recycled back to the feed end of the SAG mill. From the common mill sump, SAG mill discharge screen undersize and ball mill discharge will be pumped to a set of hydrocyclones. The cyclone overflow will flow to trash screens to remove grit and wood chips. Screen underflow will report to the pre-leach thickener where flocculant is added to aid in the settling process. Thickener underflow will be pumped to the leach circuit, consisting of six CIP tanks.

Due to its higher gold content, the ore will require additional carbon to maintain low solution losses. Total carbon transfer from CIP tanks No.1 and No. 2 will total approximately 38 stpd. The slurry and carbon from CIP tanks No.1 and 2 will be sent to two new loaded carbon dewatering screens to wash the pulp off the carbon. A loaded carbon holding tank will be added to have a capacity to hold 12 st of carbon. When the elution columns are ready to be filled, the loaded carbon will be transferred to the elution columns and the stripping cycle will begin. Currently, the carbon stripping circuit at Fort Knox is comprised of two stripping vessels, of which only one operates at any given time, processing the loaded carbon from the CIP. When Manh Choh ore is being processed, to avoid excess accumulation of carbon, two stripping vessels will be used simultaneously.

Cyanide tailings generated from the Manh Choh ore will report to the cyanide destruction circuit, which will consist of two tanks. Discharge from the last CIP tank will flow by gravity into the tailings thickener feed box along with the addition of process water from the reclaim water pond to reduce the feed density to the thickener from the CIP tank from 55% wt solids to a lower density. The thickener underflow will then be pumped to the carbon safety screen distributor box which feeds the carbon safety screens. To improve water recovery, overflow clarity and underflow densities, a new feedwell will be installed. It was also recommended to install an auto dilution system to ensure proper mixing of the flocculent with the slurry.

1.4.10. INFRASTRUCTURE

To support Project activities at the Manh Choh mine site, the following new or upgraded infrastructure is planned:

- Construction of a new "Twin Road" parallel to the existing Tetlin Village Access (TVA) Road to facilitate ore haulage with highway trucks.
- A new Manh Choh Mine Access (MCMA) Road from the TVA Road to the mine site, including several material laydown areas along the route.
- A new highway truck ore load-out facility, including infrastructure for maintenance, truck scale operations, administrative functions, and associated waste and water management facilities.
- North Waste Rock Storage Facility (WRSF), North Pit WRSF, Main WRSF, Overburden and Wet Stockpiles, and Marginal Low-Grade Ore (LGO) Stockpile Pad.
- A new Mine Infrastructure Site, including mine offices, mine maintenance facilities, warehousing facilities, a water treatment plant, and emergency response infrastructure.
- Facilities for re-fueling, explosives storage and handling, and sewerage.
- New laydown areas, upgraded off-site accommodation facilities, and general buildings.
- Primary mine site power supply consisting of enclosed diesel generators and switchgear with three-phase power distribution via on-surface and underground cable runs.
- Process controls for water and wastewater management, mine dewatering pumps, building systems, and equipment washdown.
- Communications infrastructure for facilities, administration, mine operations and mine maintenance activities, and environmental monitoring.
- Surface water diversion channels and water treatment and retention facilities.
- Two additional water supply wells will be installed to ensure sufficient water is available to manage dust. The first additional well will be in the vicinity of the pits, with the second to be drilled close to the access road near the Alaska Highway. Potable drinking water will be available at fill stations at the upgraded accommodations complex in Tok and will be delivered from the complex to the mine site offices.

To support Project activities at Fort Knox, the following new or upgraded infrastructure is planned:

- Process plant modifications to process Manh Choh ore on a campaign or batch basis.
- Minor modifications to the Fort Knox Access Road.
- A new Manh Choh coarse ore stockpile, including a new surface water collection and management facility and associated pipelines.
- Tailings from Manh Choh ore will be deposited in the mined-out Fort Knox open pit.

1.4.11. ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

Policies, procedures, and requirements for environmental protection and compliance with regulatory requirements at Manh Choh will be developed once regulatory agency permits, plans, and agreements are approved and issued. These agency documents will provide specific regulatory requirements that will be used for development of Manh Choh's policies and procedures. These policies and procedures will be incorporated into the Manh Choh Environmental Management Plan (EMP), which will apply to all aspects of Manh Choh operations, including, but not limited to, mine construction and operations, crushing, maintenance, warehousing, and exploration activities, as well as ancillary facilities (e.g., ore transfer, water management, powder magazine, reverse osmosis water treatment system, etc.). The EMP will describe environmental tasks; list environmental permits, licenses, and authorizations and corresponding obligations; contain inspection and monitoring routines and checklists; and include reporting and environmental management procedures. The EMP is aligned with the Peak Gold Safety and Sustainability Policy, the Kinross Corporate Safety and Sustainability Policy, as well as the Kinross Corporate Responsibility Management System (CRMS) Environmental Management System standards.

Project development requires the US Army Corps of Engineers (ACOE) to prepare either an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) using environmental baseline surveys and public comments. The ACOE's EA is required by the agency because of the U.S. CWA §404 Wetlands Fill permitting process. In September 2022, the Project received a Wetlands Fill Permit under Clean Water Act (CWA) §404 as part of an EA.

Based on a proactive effort to minimize Project-related impacts to wetlands, it appears that the ACOE will complete an EA based on only 5.2 acres of wetland disturbance and ACOE's public notice for the CWA §404 Wetlands Fill Permit Application on January 13, 2022. Provided that the ACOE follows through with completion of an EA, the permitting timeframe is estimated to take no more than six to nine months to complete.

All other key permit applications and plans for the Project have been submitted to the respective regulatory agencies for approval.

Interior Alaska continues to be supportive of mining and is cognizant of its mining-rich history. The local area of Tok and surrounding areas, including the Native Village of Tetlin, have expressed support for the Project in numerous engagements, community meetings, public testimony, and in letter form. The local communities see great value in the Project to include hope and opportunities that could be generationally impactful. They also expect that the Project will maximize opportunities for local employment and local business, operate in a safe and environmentally responsible manner, properly maintain the tribal road impacted by increased traffic, and respect the desire to maintain cultural and subsistence ways of life.

The current ore transport plan anticipates that the ore trucks will depart from the Manh Choh mine site and will end at the Fort Knox mill for processing, traveling approximately 240 miles on 90% public roadways along the Alaska, Richardson, and Steese highways. The route will pass through the communities of Tok, Delta Junction, Salcha, North Pole, Fairbanks, and Fox. Two smaller lakeside communities that the corridor will pass by, but not through, are Harding Lake and Birch Lake. Public meetings have been held in communities along the route, either virtually or in-person, to provide information and listen to community concerns.

A community engagement plan has been in place since 2020 which details an estimated consultation schedule for all key stakeholders, in alignment with key internal targets such as contractor/employee trainings, baseline studies, newsletters, etc. The plan outlines meeting frequency, purpose, site lead, and resources needed, both internal and external. Documentation of each of these engagements is maintained on the Manh Choh internal SharePoint site, to include (when available) meeting minutes, sign-in sheets, announcements, and photographs.

Mine site reclamation and closure will be performed in accordance with the Manh Choh Project RCP. The RCP was originally submitted for approval to ADNR and ADEC in December 2021 and was subsequently updated and re-submitted in January 2022. The RCP includes a closure cost estimate prepared using the SRCE model, which was used for calculating the financial assurance amount (bond) required by ADNR and ADEC. The SRCE model estimated a financial assurance requirement of approximately $63.5 million. Contango's attributable ownership portion of the financial assurance requirement is approximately $19.1 million, or as may be amended in the future.

The public comment period for the revised (January 2022) RCP ended March 13, 2023 and approval of the revised RCP is expected approximately May 2023.

1.4.12. CAPITAL AND OPERATING COSTS

The pre-production capital cost for the Project is approximately $189 million (Peak Gold JV 100% attributable basis). An allowance of US$52 million has been estimated for modifications needed to the Fort Knox processing facility to treat ore from the Manh Choh mine site. The capital costs for Fort Knox mill modifications are not directly attributable to the Project or the Peak Gold JV and instead will be recovered by Kinross through a toll processing charge.

Table 1-8 provides a summary of the Project capital cost estimate (100% Peak Gold JV basis).

TABLE 1-8 PROJECT CAPITAL COST SUMMARY

WBS	Description	Manh Choh (100%) Total Cost ($M)	Fort Knox Mill Mods (100%) Total Cost ($M)	Manh Choh + Fort Knox Mill Mods (100%) Total Cost ($M)
00	General Contracts	-	$2.7	$2.7
20	Mining & Mobile Equipment	$4.7	$2.5	$7.2
30	Site Development	$77.4	$3.2	$80.6
40	Process Facilities	-	$22.2	$22.2
50	Tailings	-	$2.6	$2.6
80	Indirect Costs	$18.8	$12.0	$30.8
89	Contingency & Escalation	$14.0	$6.4	$20.4
Initial Capital		**$114.9**	**$51.6**	**$166.5**
Pre-Production G&A				$12.9
Admin Fee				$6.4
Highway Ore Transport				$33.6
Pre-Production Capitalized Stripping				$21.4
Total Capital Costs				**$240.8**

Table 1-9 shows the operating costs by area. The operating costs are presented on a 100% JV basis.

TABLE 1-9 OPERATING COST ESTIMATE

Operating Cost	Unit	LOM Average Unit Cost
Mining	$/t mined[1]	5.97
Processing	$/t ore	52.26
G&A	$/t ore	18.47
Ore Haul[2]	$/t ore	63.39

[1] Includes capitalized stripping and WTI Oil Adjustment.
[2] Includes initial cost of trucks amortized across mine life and includes fuel cost based on $3.00/gal.

2. INTRODUCTION

Sims Resources LLC (SR) was retained by Contango ORE, Inc. (Contango) to prepare a Technical Report Summary (TRS) on the Manh Choh Project (the Project or Manh Choh), located near Tok, Alaska, U.S.A. The purpose of this TRS is to summarize the results of a Feasibility Study (FS) prepared by KGMA (Kinross), Contango's joint venture partner for the Project. This Technical Report Summary (TRS) conforms to United States Securities and Exchange Commission's (SEC) Modernized Property Disclosure Requirements for Mining Registrants as described in Subpart 229.1300 of Regulation S-K, Disclosure by Registrants Engaged in Mining Operations (S-K 1300) and Item 601(b)(96) Technical Report Summary.

Contango is a New York Stock Exchange - American NYSE-A) company that engages in exploration for gold and associated minerals in Alaska. The Company holds a 30% interest in Peak Gold, LLC (Peak Gold JV or Peak Gold) with the remaining 70% owned by KGMA, operator and manager of the Peak Gold JV. Peak Gold leases approximately 675,000 acres of fee simple land from the Tetlin Tribe and controls an additional approximately 13,000 acres of State mining claims open to exploration and development. Contango also owns a 100% interest in approximately 167,000 acres of State of Alaska mining claims through Contango Mineral Alaska, LLC, its wholly owned subsidiary, which gives Contango the exclusive right to explore and develop minerals on these lands.

The Project has been actively explored since 2009 when gold mineralization was discovered in a favourable geological environment for mid-Cretaceous intrusive-related gold deposits of the Tintana Gold Belt as well as late Cretaceous to mid Tertiary porphyry copper-molybdenum gold and related gold skarn deposits. Two distal gold skarn deposits have been delineated, Manh Choh North (MCN) and Manh Choh South (MCS) and there is excellent potential to discover additional deposits on the Project.

The Project was previously named "Peak Gold" but was renamed "Manh Choh" in March 2021 after close consultation with the local Upper Tanana Athabascan Village of Tetlin and the landowner. The Project contains a relatively high-grade gold deposit. The FS contemplates 4.6 years of open pit production at a life-of-mine (LOM) average mining rate of 10.8 million tonnes per year (tpa). Ore from the Project will be processed at Kinross' Fort Knox processing facilities, located approximately 400 km by paved highway northwest of the Project.

All economic values presented in this TRS are in United States dollars (US$).

Unless stated otherwise, all tonnages are dry metric tonnes and all ounces are troy ounces.

This TRS updates the previously filed Technical Report Summary on the Manh Choh Project, Alaska, USA by Sims Resources LLC and dated April 8, 2021.

2.1. SITE VISITS

The Qualified Person (QP) for this Technical Report is:

- John Sims, AIPG Certified Professional Geologist, President of Sims Resources LLC (SR)

The QP is of the opinion that with consideration of the recommendations summarized in Sections 1 and 23 of this report, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

Mr. Sims visited the site in August of 2021 and inspected core and surface outcrops, drill platforms, and sample cutting and logging areas. Further, the QP discussed the details of geology and mineralization with Project staff.

2.2. SOURCES OF INFORMATION

When the Manh Choh property was acquired by KGMA, the QP was Senior Vice President, Mineral Resources and Brownfields Exploration at Kinross. Post-acquisition, the QP became an independent consultant to Kinross. The documentation reviewed, and other sources of information, are listed at the end of this report in Section 24 References.

2.3. LIST OF ABBREVIATIONS AND ACRONYMS

Both metric and imperial units of measurement are used in this report. The Mineral Resource estimate in Section 11 is reported in metric units, while historic information is reported in both metric and imperial units. All currency in this report is US dollars (US$) unless otherwise noted.

a	annum
A	ampere
bbl	barrels
BTU	British thermal units
°C	degree Celsius
C$	Canadian dollars
cal	calorie
cfm	cubic feet per minute
cm	centimetre
cm^2	square centimetre
d	day
dia	diameter
dmt	dry metric tonne
dwt	dead-weight ton
E	east
°F	degree Fahrenheit
FASL	feet above sea level
ft	foot
ft^2	square foot
ft^3	cubic foot
ft/s	foot per second
g	gram
G	giga (billion)
Gal	Imperial gallon
g/L	gram per litre
Gpm	Imperial gallons per minute
g/t	gram per tonne
ha	hectare
hp	horsepower
hr	hour
Hz	hertz
in.	inch
in^2	square inch
J	joule
k	kilo (thousand)
kcal	kilocalorie
kg	kilogram
km	kilometre
km^2	square kilometre
km/h	kilometre per hour
koz	thousand ounces
kPa	kilopascal
kt	thousand tonnes
kVA	kilovolt-amperes
kW	kilowatt
kWh	kilowatt-hour
L	litre
lb	pound
L/s	litres per second
µ	micron
m	metre
M	mega (million); molar
m^2	square metre
m^3	cubic metre
Ma	million years
MASL	metres above sea level
µg	microgram
m^3/h	cubic metres per hour
mi	mile
min	minute
µm	micrometre
mm	millimetre
mph	miles per hour
MVA	megavolt-amperes
MW	megawatt
MWh	megawatt-hour
N	north
NE	northeast
NW	northwest
oz	Troy ounce (31.1035g)
oz/st	ounce per short ton
ppb	part per billion
ppm	part per million
psia	pound per square inch absolute
psf	per square foot
psig	pound per square inch gauge
RL	relative elevation
s	second
S	south
SE	southeast
SW	southwest
st	United States short ton
stpa	United States short ton per year
stpd	United States short ton per day
t	metric tonne
tpa	metric tonne per year
tpd	metric tonne per day
US$	United States dollar
USg	United States gallon
USgpm	US gallon per minute
V	volt
W	west
wmt	wet metric tonne
wt%	weight percent
yd^3	cubic yard
yr	year

Acronyms used in this TRS are listed below.

Acronym	Description
AAS	Atomic Absorption Spectroscopy
ABA	Acid Base Accounting
ACI	American Concrete Institute
ACOE	U.S. Army Corps of Engineers
ADEC	Alaska Department of Environmental Conservation
ADNR	Alaska Department of Natural Resources
ADOT	Alaska Department of Transportation
ANCSA	Alaska Native Claims Settlement Act
ANSI	American National Standards Institute
AGMA	American Gear Manufacturers Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AP&T	Alaska Power and Telephone
APDES	Alaska Pollutant Discharge Elimination System
API	American Petroleum Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Ventilation, and Refrigeration Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
BFA	Bench Face Angle
BICSI	Building Industry Consulting Service International
BLM	Bureau of Land Management
BRT	Bottle Roll Test
BTS	Brazilian Tensile Strength
CAP	Council of Alaska Producers
CEMA	Conveyor Equipment Manufacturers Association
CF	Cash Flow
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CIP	Carbon-in-Pulp
CMAA	Crane Manufacturers Association of America
CV	Coefficient of Variation
DCS	Distributed Control System
DEF	Diesel Exhaust Fluid
EA	Environmental Assessment
EDA	Exploratory Data Analysis
EDS	Energy Dispersive Spectrometers
EHS	Environment, Health and Safety
EID	Environmental Information Document
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EMS	Environmental Management System
ERT	Emergency Response Ream
FCC	Federal Communications Commission
FGMI	Fairbanks Gold Mining, Inc.
FOS	Factor of Safety
FEL	Front End Loader
FS	Feasibility Study
G&A	General and Administration
GCO	Grade Control Optimization
GHG	Greenhouse Gas
HDPE	High Density Polyethylene
IBC	International Building Code

Acronym	Description
ICP-AES	Inductively Coupled Plasma Atomic Emission Spectrography
IFC	International Fire Code
IMC	International Mechanical Code
ISO	International Organization for Standardization
ID	Inverse Distance
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IP	Induced Polarization
ISO	International Organization for Standardization
JIC	Joint Industrial council
KCA	Kappes, Cassiday & Associates
KNA	Kriging Neighborhood Analysis
KTS	Kinross Technical Services
LBMA	London Bullion Market Association
LiDAR	Light Detection and Ranging
LOM	Life of Mine
LUC	Localized Uniform Conditioning
MCN	Manh Choh North
MCS	Manh Choh South
MCW	Manh Choh West
ML	Metal Leaching
MLI	McClelland Laboratories, Inc.
MSEP	MineSight Economic Planner
MSGP	Multi-Sector General Permit
MSHA	Mine Safety and Health Administration
MTO	Material Take Offs
NACE	National Association of Corrosion Engineers
NAG	Non-Acid Generating
NE	Northeast
NEC	National Electrical Code
NECA	National Electrical Contractors Association
NEMA	National Electrical Manufacturers Association
NEPA	U.S. National Environmental Policy Act
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
NHD	National Hydrography Dataset
NN	Nearest Neighbor
NPR	Neutralization Potential Ratio
NRHP	National Register of Historic Places
NRTL	Nationally Recognized Testing Laboratory
NW	Northwest
OK	Ordinary Kriging
OSA	Overall Slope Angle
OSHA	Occupational Safety and Health Standards
P&ID	Piping and Instrumentation Diagram
PAG	Potentially Acid Generating
PAX	Potassium Amyl Xanthate
PEA	Preliminary Economic Assessment
PPI	Plastics Pipe Institute
PFS	Pre-Feasibility Study
QA/QC	Quality Assurance and Quality Control
QMS	Quartz-Muscovite ± Biotite Schist
QP	Qualified Person
RMR	Rock Mass Rating
RQD	Rock Quality Designation

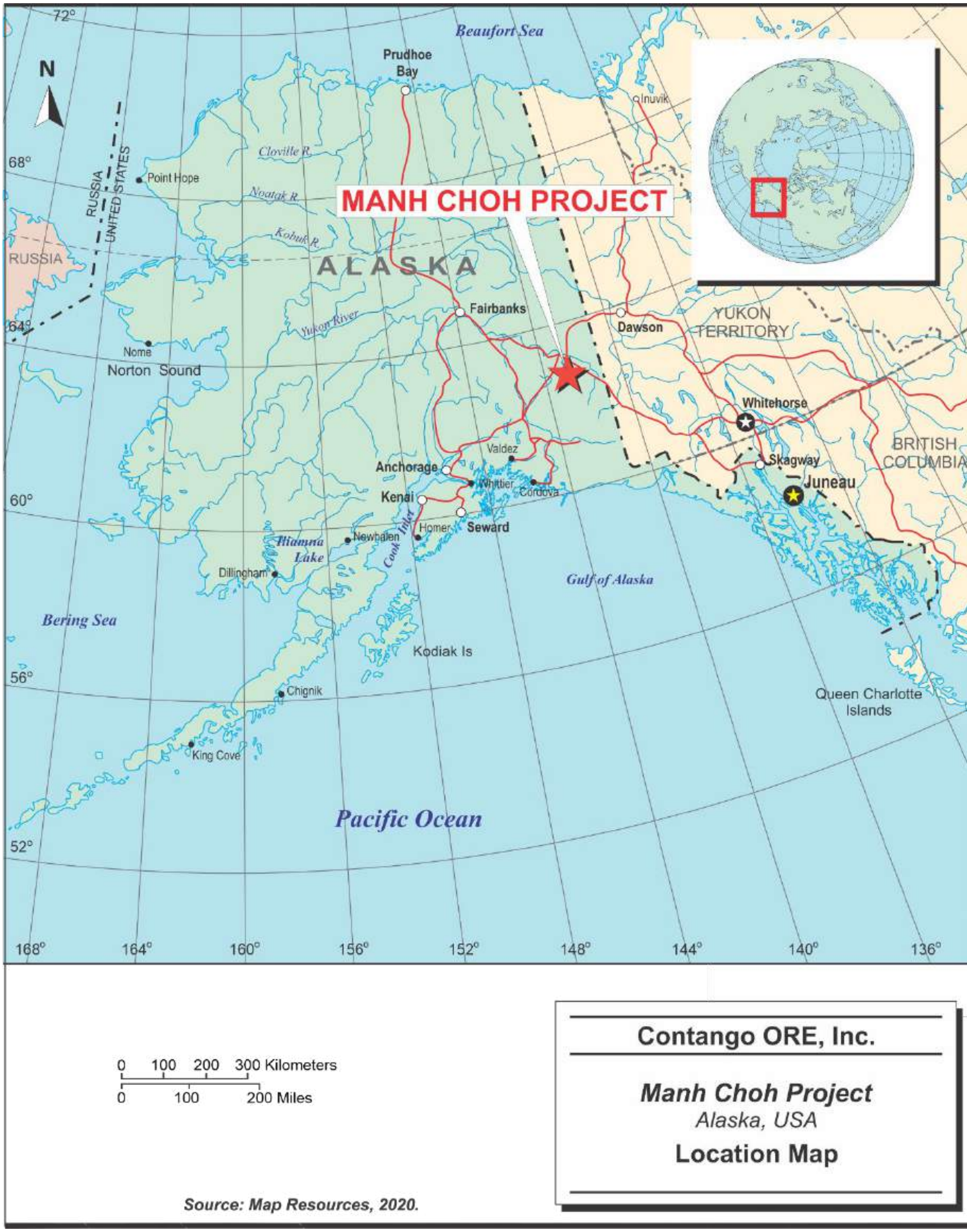
Acronym	Description
RSA	Reimbursable Service Agreement
SDS	Safety Data Sheet
SE	Southeast
SEM	Scanning Electron Microscopy
SHPO	State Historic Preservation Office
SMBS	Sodium Metabisulfite
SMU	Smallest Mining Unit
SPCC	Spill Prevention, Control, and Countermeasure
SRCE	Standardized Reclamation Cost Estimator
SW	Southwest
SWPPP	Storm Water Pollution Prevention Plan
TAC	Transportation Advisory Committee
TCS	Triaxial Compressive Strength
TDS	Total Dissolved Solids
TNC	Tetlin Native Corporation
TIA	Telecommunications Industry Association
TMF	Tailings Management Facility
UCS	Unconfined Compressive Strength
UL	Underwriters Laboratory
UPC	Uniform Plumbing Code
USFWS	U.S. Fish and Wildlife Service
UTM	Universal Transverse Mercator
WGC	World Gold Council
WRMP	Waste Rock Management Plan
WRSA	Waste Rock Storage Facility
XRD	X-ray Diffraction
YTT	Yukon-Tanana Terrane

3. PROPERTY DESCRIPTION

3.1. LOCATION

The Project is located in the Tetlin Hills and Mentasta Mountains of eastern Interior Alaska, approximately 300 km (190 miles) SE of the city of Fairbanks (city and immediate area population approximately 100,000) and 20 km (12 miles) SE of Tok, Alaska (population 1,258). The Project is located at approximately 63°N latitude and 143°E longitude (Figure 3-1). UTM coordinates for the Project are 404688E, 7007487N, and 900 MASL elevation. The Project covers an area measuring approximately 80 km (50 miles) N-S by 60 km (37 miles) E-W in eastern Interior Alaska.

FIGURE 3-1 LOCATION MAP



3.2. LAND TENURE

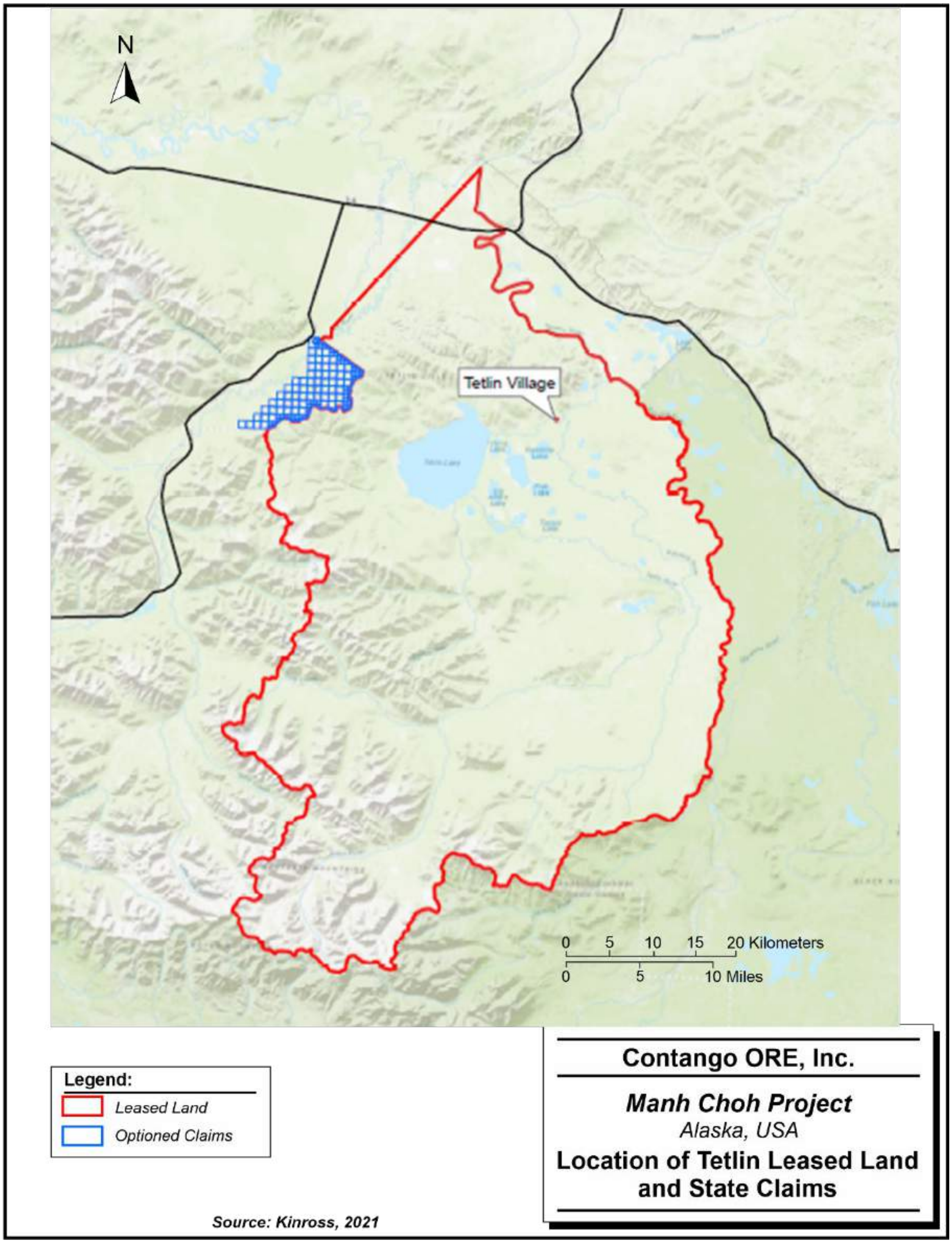
Peak Gold, a joint venture entity of a KGMA and Core Alaska, LLC, exclusively holds the rights to explore, mine, extract, and sell the metalliferous minerals derived from any mineral deposits of a mineral lease (the Lease) from the Native Village of Tetlin covering approximately 675,000 acres (the Leased Land). In addition, Peak Gold holds the minerals rights to 159 Alaska state mining claims (State Claims). These claims, totaling approximately 13,500 acres, are located adjacent to the Leased Land to the NW. Table 3-1 summarizes the Project mineral rights holdings and Figure 3-2 is a map showing the location of the Alaska State Claims and Leased Land. The Manh Choh North (MCS) and Manh Choh South (MCN) deposits are located entirely within the Leased Land. The State Claims are in good standing. Peak Gold is owner, lessee, or optionee of adequate surface rights to allow for stockpiling, processing, and tailings storage within the Project area.

The approximately 750,000-acre Tetlin Indian Reserve (the Reserve) was established in 1930. An airstrip was constructed in 1946, and an all-weather road linking the Tetlin Village with the Alaska Highway was constructed in the 1990s. When the Alaska Native Claims Settlement Act (ANCSA) was passed in 1971, the “Reserve” status was revoked and the Tetlin Native Corporation (TNC) was granted fee simple surface and subsurface title to approximately 743,000 acres of land in the former Reserve. TNC later transferred all lands south of the midline of the Tanana River, approximately 675,000 acres, to the Tetlin Village.

TABLE 3-1 MINERAL RIGHTS AND PROPERTIES SUMMARY

Property	Owner	Commodities	Claims	Acres	Type
Tok-Eagle	Contango Minerals Alaska, LLC	Gold, Copper	159	13,500	Optioned Alaska State Mining Claims
Tetlin-Village	Peak Gold, LLC	Gold, Copper	0	675,000	Leased Private, Fee-Simple
		TOTALS:	**159**	**688,500**	

FIGURE 3-2 LOCATION OF STATE CLAIMS AND TETLIN LEASED LANDS



3.2.1. STATE CLAIMS

Exploration by Contango Minerals Alaska, LLC has been conducted on the State Claims adjacent to and near the Leased Land. All of the optioned State Claims are located in the Copper River meridian. Peak Gold, LLC has exercised its option on the State Claims and now has the right of possession and right to develop and extract a discovered, valuable, mineral deposit.

Peak Gold owns approximately 13,500 acres of State of Alaska mining claims immediately north and east of the Tetlin leased lands (see Figure 3-2). The State Claims give Peak Gold the exclusive rights to explore and develop minerals subject to specific permitting requirements. The State Claims do not provide Peak Gold with exclusive surface rights or the right to receive fee simple Patent ownership rights to State Claims. Surface Activities on the State Claims are permitted through the Alaska Department of Natural Resources. Peak Gold's permits are addressed in Section 17.

The State Claims can be maintained indefinitely by satisfying (i) annual claim rental fee obligations and (ii) annual minimum work expenditure requirements. The annual claim rental fees are to be paid between September 1 and November 30 in advance for the following claim year. The amount of the annual claim rental fees starts at $140 for each 160 acre claim and $35 for each 40 acre claim and increases based on tenure. The annual minimum work expenditure requirements can be met by actual labor or development work within the annual labor year, carried forward credits from the previous four years or payment in lieu of labor. Annual work must be completed between noon, September 1 of the current year and noon, September 1 of the following year and evidence of such work must be recorded in the appropriate recording district between September 1 and November 30 of each calendar year. The annual minimum work expenditure requirements are $400 for each 160 acre claim and $100 for each 40 acre claim ($2.50 per acre). The State Claims are currently in good standing and Peak Gold plans to complete all work commitments, pay all annual claim rental fees, and file all appropriate annual labor documents to maintain the State Claims in good standing. None of the State Claims have been surveyed by a registered land or mineral surveyor and there is no State or federal law or regulation requiring such surveying.

3.2.2. LEASED LAND

Juneau Exploration, LP doing business as Juneau Mining Company (Juneau) entered into a mineral lease with the TRIBE OF TETLIN aka the NATIVE VILLAGE OF TETLIN, whose governmental entity is Tetlin Tribal Council (Tetlin Council) effective July 15, 2008 (as amended and assigned, the "Lease") covering the Leased Land. By a series of assignments, Peak Gold succeeded to Juneau's interest under the Lease. The primary term of the Lease has been extended through July 15, 2028 and the Lease can be further extended past the primary term for so long as Peak Gold continues exploration, development, or mining activities on the Leased Land.

The Tetlin Council holds fee simple title to the Leased Land. The Lease provides Peak Gold the exclusive, complete, and unrestricted right to make any use or uses of the Leased Land to explore for, develop, mine, remove, treat, and sell all ore and minerals on the Leased Land.

Pursuant to the Lease, Peak Gold is required to make minimum expenditures in order to maintain the Lease in addition to making certain production royalty payments to the Tetlin Council. Peak Gold must spend a minimum of $350,000 a year exploring, evaluating, or developing the Leased Land. Peak Gold has accumulated enough work credit to last through December 31, 2029. Peak Gold makes annual advanced minimum royalty payments to the Tetlin Council of $75,000 a year, plus an escalation adjustment equal to $75,000 x the CPI percentage increase (as published by the U.S. Bureau of Labor Statistics) during the period from January 1, 2012 to the immediately preceding January 1 prior to the date of disbursement. Recently, the Native Village of Tetlin exercised its option (stated in the Lease) of "buying up" its royalty 0.75% for a cost of $450,000 to be deducted from Peak Gold's initial royalty payments. If and when production is achieved, Peak Gold will begin paying the Tetlin Council a production royalty less all of the advanced royalty payments and the $450,000 "buy up" payment.

The current production royalty for gold, silver, platinum, palladium, rhodium, ruthenium, osmium, iridium, or any other precious metals or gems to the Native Village of Tetlin per the Lease is as follows:

- 3.0% NSR - First four years of full-scale production
- 4.0% NSR - Fifth, sixth and seventh years of full-scaled production
- 5.0% NSR - Eighth and subsequent years of full-scale production

In addition to the above-mentioned royalties, Peak Gold owes a production royalty to Royal Gold, Inc. which is as follows:

- 3.0% NSR on the Lease
- 3.0% NSR on State Mining Claims
- 28% NSR on Silver from the Lease
- 28% NSR on Silver from State Mining Claims

3.3. ENVIRONMENTAL LIABILITIES

The QP is not aware of any environmental liabilities on the property. Peak Gold JV has all required permits to conduct the proposed work on the property. The QP is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program on the property.

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

4.1. ACCESSIBILITY

The paved Alaska Highway 2 passes through the northern edge of the Leased lands. The paved Tok Cut-off of the Glenn Highway passes within a kilometer of the Leased Lands and traverses through the Eagle and Hona claim blocks along the NW side of the Project. The 23-mile-long Tetlin Village Access (TVA) Road provides year-round access to the northern Tetlin Hills, linking Tetlin Village to the Alaska Highway.

A new Twin Road will be constructed parallel to the existing TVA Road and cross the TVA Road where the Twin Road meets the Manh Choh Mine Access Road (Figure 4-1).

FIGURE 4-1 SITE ACCESS

LOCATION MAP

Legend	Description
Green dot	Camp Infrastructure • Kitchen. Dining • Bedrooms • Parking • Offices
Light blue dot	• Loadout Site • Ore Stockpile • Maintenance Facilities • Truck Scale
Orange dot	Mine Infrastructure • Maintenance Facilities • Fuel Storage • Water Treatment • Power Generation • Mine Offices

4.2. CLIMATE

The Project area (elevation range 900 MASL to 1,000 MASL) has a dry-winter continental subarctic climate. Summer daytime temperatures on the Project are typically in the 60°F to 80°F range with summertime lows in the 40°F to 50°F range. Winter daytime temperatures vary from highs in the +20ºF range to lows in the -30°F to -50ºF range. Average annual precipitation in the Project area, including snow fall, is 13 in. to 15 in., most of which falls as snow in the winter months. The majority of exploration takes place in summer months, however, mines in the area operate on a year-round basis.

The nearest weather station is approximately nine miles from the Project area in the town of Tok, Alaska (elevation 490 MASL). The station has recorded weather since 1954 (Table 4-1).

TABLE 4-1 TOK, ALASKA MONTHLY CLIMATE SUMMARY, PERIOD OF RECORD JUNE 1954 TO APRIL 2016

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (˚F)	-6.5	7.6	24.7	44.3	60.4	70.4	72.	68	54.4	31.5	8.6	-3.4	36.1
Average Min. Temperature (˚F)	-24.6	-15.9	-6.4	16	29.8	39.9	43.7	39	29.3	12.8	-9.8	-21.1	11.1
Average Total Precipitation (in.)	0.36	0.27	0.18	0.19	0.7	2.31	2.14	1.32	0.82	0.56	0.49	0.45	9.78
Average Total Snow (in.)	4.7	3.6	2.7	2.4	0.7	0	0	0.2	1.4	7.1	6.8	5.	35.7
Average Snow Depth (in.)	15	17	16	9	0	0	0	0	0	2	7	12	7

Source: Western Regional Climate Center

4.3. LOCAL RESOURCES AND INFRASTRUCTURE

The nearest town to the Project is Tok with a population of approximately 1,250 people. Roads connect Tok to both Fairbanks and Anchorage. Tok area medical needs are served primarily by the Tok Clinic and EMS which are based in the same facility. If more advanced medical treatment is needed, patients are typically air-lifted via air ambulance to a medical center in Fairbanks.

Tok and the Tetlin Village are part of the Alaska Gateway School District. Tok School is a K–12 campus while the Tetlin Village school is a P-12 campus. There is also a small University of Alaska office that provides distance education and even some local classes for the small community.

Power for the site is being supplied by a local utility company, AP&T, in conjunction with Golden Valley Electrical Association. The nearest line power is approximately 100 miles northwest serving the town of Delta Junction. An existing well (TET) has been used to provide a water supply for exploration and resource drilling.

4.4. PHYSIOGRAPHY

The Project is situated in an area of varied topographic relief with elevations ranging from 1,600 ft along the Tanana River to over 8,300 ft at the top of Noyes Mountain. Mountainous terrain, primarily in the southern part of the Project, comprises approximately 50% of the Project with the remaining lands being composed of low rolling hills and wetlands. Two mountain belts are present in the Project. From north to south these are the Tetlin Hills and the Mentasta Mountains, a subsidiary unit of the Alaska Range. The Tetlin Hills extend from the Tanana River flats on the north and east to the Tok River flats on the west and to the lakeshore of Tetlin Lake on the south. In the Tetlin Hills, ridges are generally rounded and typically have flat rubble crop and alpine tundra covered summits with maximum elevations reaching 3,300 ft. North and west facing hillsides are forested with black spruce, aspen, birch, and alder. Lower elevations are often poorly drained due in part to discontinuous permafrost conditions and are covered by soft muskeg and stunted black spruce forest. Outcrops occur locally along the ridgelines but colluvial and vegetative cover mask bedrock on hillsides and valley bottoms. Much of the northern and western portions of the Tetlin Hills have been burned by wildfires during the 1990s and early 2000s to as recently as June and July 2016. In these burned areas, black and white spruce have been largely replaced by deciduous species, including aspen, birch, willow, and alder.

5. HISTORY

5.1. PRIOR OWNERSHIP

In 2008, Juneau entered into a mineral lease with the Tetlin Council covering the Leased Land. By a series of assignments, Peak Gold JV succeeded to Juneau's interest under the Lease. In late 2009, Ken Peak, President & CEO of Contango Oil & Gas Co. acquired 50% of Juneau's interest and placed this into a newly formed wholly owned subsidiary, Contango Mining Co. Contango Mining Co. acquired the remaining 50% in 2010 and Contango Ore (Contango) became a public company. In 2014, Contango entered into a joint venture agreement with Royal Gold, whereby Royal Gold took over operatorship of the Peak Gold JV and spent $30 million by end of October 2018 in order to earn a 40% interest in the Project. On September 30, 2020, Contango and Royal Gold announced that KGMA had acquired Royal Gold's 40% interest and an additional 30% interest from Contango. Contango retains 30% of Peak Gold JV and is a 100% owner of the State Leases.

5.2. EXPLORATION HISTORY

The following is summarized from JDS Energy & Mining Inc. (2018). Historically, the name of the Project was the Peak Gold Project, which included the Main Peak, North Peak, and West Peak deposits, and these names are used in this subsection. In 2021, the Project was renamed "Manh Choh Project" and the deposits were renamed, respectively, Manh Choh South, Manh Choh North, and Manh Choh West.

Units of measure vary in this section, and where appropriate, values have been rounded to the nearest unit for consistency (e.g., foot or metre).

5.2.1. PRE-2008

The first known arrival of a prospector to what is now the Manh Choh Project was in 1908 when James Northway brought a steam prospecting boiler to Tanacross and then set up a trading post at Tetlin Village the following spring (Brown, 1984). No other mention of Northway's prospecting efforts is available. In the fall of 1913, prospector Andrew Taylor recovered approximately 200 ounces of gold from his discovery on the Chisana River bordering the eastern Project area. A small rush to the district occurred, however, it was short-lived as the district was soon found to contain few large or paying placer gold deposits. By the summer of 1914, the district had left many of those working in search of better ground (Capps, 1916).

Mineral exploration in the Project area came to a halt on June 10, 1930 when the approximately 750,000 acre Tetlin Reserve was established by the signing of Executive Order 5365 by President Herbert Hoover (Brown, 1984). Although mineral prospecting and development under the 1872 Mining Law was contemplated for the Tetlin Reserve at some future date, such activities needed adoption of enabling regulations. Attempts were made to promote the passage of such regulations, however, no such regulations were put forth and the Tetlin Reserve remained closed to mineral entry. Part of the reason that the Tetlin Reserve was never opened to mineral entry was the statements by noted U.S. Geological Survey Geologist Dr. Phillip Smith, who indicated that "there was but slight chance of any minerals of consequence being found within the area". Dr. Smith also indicated that although he thought the Tetlin Reserve should be open to mineral entry as a matter of principle, "the tentative boundaries of the reservation were laid down so that all areas judged to be mineral bearing were excluded" from the Tetlin Reserve (Brown, 1984).

No other significant prospecting or geological work was reported from the Tetlin lands until the late 1960s. Approximately 40 geochemical samples were collected on the extreme southern edge of the Project area during regional geologic mapping and geochemical sampling conducted by the USGS in the late 1960s and early 1970s (Matson and Richter, 1971a; Matson and Richter, 1971b; Matson and Richter, 1971c). All of these samples are located in the extreme south end of the Project area and analyses were conducted by atomic absorption for gold and by semi-quantitative emission spectrography for all other elements. This work revealed no significant gold or base metal anomalies, possibly due to the crude, high detection limit analytical methods used.

The Tetlin Reserve was revoked in 1971 upon passage of the landmark Alaska Native Claims Settlement Act (ANCSA). ANCSA authorized the formation of 12 Alaska Native regional corporations and over 200 Alaska Native village corporations to which 44 million acres of land (generally including both surface and minerals) have been conveyed. Because a reserve had been established for the Tetlin Council, ANCSA allowed the TNC to choose whether (1) to make selections of a limited quantity of surface estate under ANCSA in the vicinity of the village and to participate in the broader benefits of ANCSA or (2) to take fee simple title to the lands within its former reserve and thereby forgo all other benefits under ANCSA (including revenue sharing under section 7(i)-(j) of ANCSA). TNC chose the latter option and took fee simple surface and subsurface title to approximately 743,000 acres of land over the old Tetlin Reserve. TNC later transferred all lands south of the midline of the Tanana River, approximately 675,000 acres, to the Tetlin Council, which represented the only inhabited village within the 675,000-acre tract. TNC retained corporate ownership of the remaining lands north of the Tanana River. The mineral location closure that had been in effect since 1930 became permanent on both the TNC lands and on Leased Land.

In the mid-1970s, the Tetlin Council allowed Resources Associates of Alaska (RAA), a Fairbanks-based mineral consulting firm, to conduct a limited reconnaissance mineral survey of their lands. The results of this work are not available and attempts to locate data from this effort have not been successful. Limited information on this program indicated that reconnaissance-level geochemical sampling of some sort was conducted in 1976 and eight days of field work were completed in 1980. This work succeeded in discovering a tungsten skarn occurrence (exact location unknown) and two massive pyrite occurrences with nearby Cu-Pb-Zn exhalite horizons in the Meiklejohn Pass area (exact location unknown, Eng, 1980).

5.2.2. 2008 TO 2021

The Lease was acquired by Juneau, an affiliate of Contango, in mid-June 2008. Mineral exploration work was conducted on the property in 2009 through 2013, and 2015 through 2018. Initial field work on the Leased Lands was completed in mid-June 2009 by Avalon Development Corporation (Avalon), a contractor to Peak Gold JV through 2018. Phase 1 field work included 270 man-days of project-wide helicopter supported reconnaissance geochemical sampling and prospecting. Field work was conducted with a Hughes 500D helicopter and included evaluation of over 40 high priority sites identified by pre-season remote sensing analysis. During this one-month work program, the four two-person teams collected a total of 387 rock samples, 94 pan concentrate samples, and 11 stream sediment samples over the Project area (Table 5-1). Gold was found in a rock sample at the Discovery zone during this phase of work.

TABLE 5-1 SUMMARY OF HISTORICAL WORK ON MANH CHOH PROJECT

Year	Core (m)	Core Samples	Rock Samples	Soil Samples	Pan Concentrate Samples	Stream Sediment Samples	Geophysics (km)
2009	0.00	0	958	33	94	11	0
2010	0.00	0	613	760	668	795	14
2011	2,456	1,267	20	688	0	0	3,957
2012	10,974	5,223	82	1,029	0	0	0
2013	14,333	8,970	14	1,406	85	278	2,414
2014	0.00	0	0	0	0	0	0
2015	14,059	8,352	133	0	0	0	0
2016	20,523	10,450	21	694	0	0	23.5
2017	18,088	11,864	112	975	408	408	48.0
2018	6,059	2,973	420	0	1	9	32.6
Total	**86,509**	**49,099**	**2.373**	**5,585**	**1,256**	**1,501**	**6,489**

Phase 2 work in 2009 consisted of limited field follow-up of the initial rock and pan concentrate sample anomalies at the Chief Danny prospect. The area covers the current MCS and MCN deposits, as well as other prospects. The work was completed in early September and included collection of 49 rock samples and 33 soil samples. Possible road access routes were also identified during this phase of work.

Phase 3 work in 2009 was designed to expose mineralization at the Discovery zone using heavy equipment. This program was completed in October. Following construction of a 13-mile-long pioneer trail to the Discovery zone, a total of 2,330 ft of dozer trenching was completed in four trenches. All trenches were mapped and a total of 522 rocks samples was collected in the trenches and along the access trail constructed to the site.

Encouraging results from the 2009 program prompted Juneau/Contango to expand their efforts in 2010. The 2010 Phase 1 program included helicopter-supported reconnaissance level stream sediment and pan concentrate sampling and prospect-scale soil auger sampling, rock sampling, induced polarization (IP) ground geophysics, and prospecting (Brown et al., 2010). The stream sediment and pan concentrate sampling began in drainages surrounding the Chief Danny prospect area and worked concentrically outward from this area to eventually provide geochemical sampling coverage for most major stream drainages of the Tetlin Hills and several of the larger drainages on the southern end of the Project. The soil sample crews collected top of bedrock soil auger samples on the Chief Danny prospect and surrounding areas. During this phase of work, the exploration stream sediment/pan concentrate teams collected a total of 296 rock samples, 667 pan concentrate samples, and 795 stream sediment samples over the Project area. Exploration in the Chief Danny prospect area resulted in collection of 292 rock samples and 560 soil samples. Zonge Engineering completed 9.65 line-km of dipole-dipole IP ground geophysics over the main Chief Danny prospect area.

The encouraging results from 2010 Phase 1 soil sampling and IP surveys prompted Juneau/Contango to approve additional IP and soil sampling as part of a Phase 2, 2010 field program. Phase 2 soil and IP surveys on the Chief Danny prospect were conducted between September 7 and October 8 (Brown et al., 2010; Fleming and Pendrigh, 2010). Work concentrated on the expansion of the Chief Danny IP geophysics coverage, initial IP coverage of a coincident gold-copper-arsenic anomaly at the Saddle zone, and limited top of bedrock soil auger sampling over the new IP lines completed. A total of 200 top of bedrock soil auger samples and 25 grab rock samples were collected during Phase 2 work. In addition, a total of 4.5 line-km of IP geophysics was completed east of the Chief Danny prospects and in the Saddle zone. Interpretive work was conducted by Windels (2010) and Beasley (2010) using IP, regional-scale magnetics and project geochemical data.

The Tok claim block was staked by Contango in 2010 and expanded in 2012. There is no record of any mineral exploration work on these lands in the past. Subsequent exploration of these lands, which are located west of and adjacent to the Leased Land, was conducted in 2010, 2012, 2013, and 2015 through 2018. The incremental cost of exploration on the Tok lands was not tracked separately in 2010 but in 2012 it was considered part of the MM prospect where soil auger sampling was conducted. A total of 358 soil auger samples were collected on the MM prospect in 2012. Airborne magnetic and electromagnetic surveys were conducted over the Tok claims and 99 soil auger samples collected at MM in 2013.

The 2011 exploration program at the Project consisted of three phases of work extending from late April through mid-October. Phase 1 work consisted of 3,957.3 line-km of DIGHEM airborne magnetics and electromagnetics completed by Fugro Airborne Surveys before the summer field season began (Fugro, 2011). The survey covered four (non-contiguous) areas including the Tetlin Hills block (includes the Chief Danny-MM-Chisana prospect areas, 2,004.3 line-km), the Taixtsalda Hill block (352.6 line-km), the Copper Hill block (1,421.9 line-km), and the Triple Z block (178.5 line-km). Flight lines were N-S on all blocks with tie lines at right angles on all blocks except Copper Hill where topographic considerations required modification of the tie line directions to azimuth 123° (303°). Flight line spacing over the main Chief Danny prospect in the Tetlin Hills block was 100 m while spacing on all other blocks was 200 m. Instrument height above ground was 35 m for both the magnetic and electromagnetic sensors. Final digital products delivered from this work included all raw data, electromagnetic anomaly maps, calculated vertical gradient maps, residual magnetic intensity maps, and 56,000 Hz, 7,200 Hz and 900 Hz resistivity maps. A detailed summary of the program and equipment used is presented in Fugro (2011). Interpretive work was conducted by Windels (2011) using this magnetics and resistivity data. Geophysical contractors Zonge Engineering, Condor Geophysics, and Kim Cook also conducted geophysical reinterpretation work on data from the Project area during 2015 through 2018.

Phase 2 efforts in 2011 consisted of top of bedrock soil auger sampling on the Chief Danny prospect and lesser amounts of reconnaissance soil auger sampling on the MM and Chisana prospects and shovel soil sampling on the Copper Hill prospect. During this phase of work 668 soil auger and 20 grab rock samples were collected at Chief Danny, 304 soil auger and one grab rock sample was collected at MM, 327 soil auger samples were collected at Chisana and 290 shovel soil samples, 16 grab rock samples, five pan concentrate samples, and one stream sediment sample were collected at Copper Hill.

Phase 3 work in 2011 consisted of 2,456 m of drilling in 11 diamond core holes (1,267 core samples, Table 6-1). With the exception of part of one hole, all core drilled was HQ diameter (2.5 inch). This drilling was conducted by Connors Drilling of Montrose, Colorado using a CS1000 fly-capable drill rig.

The 2012 exploration program consisted of top of bedrock soil auger sampling at the Chief Danny, Taixtsalda, and MM prospects and 36,004 ft of diamond core drilling in 50 drill holes at the Chief Danny prospect. The drilling was conducted by Connors Drilling of Montrose, Colorado using a CS14 wheel mounted drill rig and a CS1000 fly-capable drill rig. All core drilled was HQ diameter (2.5 inch). Initial field efforts consisted of 137 soil samples at Taixtsalda to cover coincident airborne magnetic and resistivity anomalies and 357 soil samples along the ridges above anomalous pan concentrate and stream sediment gold and pathfinder element anomalies in the streams draining the MM prospect. A total of 534 soil samples and 82 grab rock samples were collected on the western and southern margins of the Chief Danny prospect during 2012. Drilling with the CS14 drill rig at the Discovery zone at the Chief Danny prospect began on May 23 and continued at several other targets through September 21.

In addition to exploration work in 2012, several other project improvements were completed. Initial baseline water sampling was conducted by ABR, Inc. of Fairbanks, Alaska in May and September. The “Eagle” claims were staked on state land adjacent to and west of the Leased Lands. This new block consists of 217 state claims and covers 32,187 acres. No field work was conducted on these claims in 2012. During July and August, an additional four miles of access road was permitted and constructed between the Tetlin Village road and the 2009 Chief Danny Road. This new spur road cut travel distance to the Chief Danny Prospect by nearly 11 miles and allowed year-round access to the Project.

The 2013 exploration program at the Project consisted of four phases of work extending from late May through early-October. Initial work consisted of 1,622.9 line-km (1,420.4 line-km N-

W and 202.5 line-km E-W) of frequency-domain DIGHEM airborne magnetics and electromagnetics completed by Fugro Airborne Surveys before the summer field season began (Table 6-1, Fugro, 2013a and Fugro, 2013b, and Beard, 2013). This part of the survey expanded the 2011 airborne coverage in the Tetlin Hills and included the Eagle prospect to the NW of the Tetlin Hills. The survey consisted of three separate blocks: the north edge of the Tetlin Hills (274.9 line-km), south margin of the Tetlin Hills (556.8 line-km) and the newly acquired Eagle claims to the NW (791.2 line-km). Flight lines were N-S on all blocks with tie lines at right angles on all blocks. Flight line spacing was 200 m. Instrument height above ground was 35 m for both the magnetic and electromagnetic sensors. Final digital products delivered from this work included all raw data, electromagnetic anomaly maps, calculated vertical gradient maps, residual magnetic intensity maps, and 56,000 Hz, 7,200 Hz and 900 Hz resistivity maps. In addition, 791.1 line-km of time-domain HELITEM electromagnetic survey (706.1 line-km N-S and 85 line-km E-W) was conducted over the Chief Danny zone and vicinity. A detailed summary of the program and equipment used is presented in Fugro (2013). All geophysical survey data from 2010 through 2013 as well as all other technical data was then merged and reinterpreted by Condor Geophysics of Denver, CO (Cunion, 2013).

During 2013, Contango completed 14,350 m of diamond core drilling in 69 holes at the Chief Danny prospect. All but eight of these holes, totaling 2,189 m, were drilled in the Peak zone. The majority of the drilling was conducted by Connors Drilling of Montrose, Colorado using a CS14 wheel mounted drill rig and a CS1000 fly-capable drill rig. A second CS14 was added to the program in mid-August. Following repeated mechanical issues with one of the CS14 drills, it was replaced in late August by a similar CS14 drill provided by CnC Drilling of Fairbanks, Alaska. All core drilled was HQ3 diameter (6.06 cm/2.406 in) using ACT 2 and three orientation tools in conjunction with a split tube system. Drilling commenced on May 29 and continued through October 3.

Following completion of the 2013 drilling program at the Peak zone, Contango published its first resource estimate for the Peak zone (Giroux, 2013b). This resource estimate includes data from 130 drill holes totaling 27,767 m for diamond core drilling. The resource estimate was not made public.

During the 2013 field program, a total of 1,406 top of bedrock, soil samples were collected in the Tetlin Hills. Samples were collected on 100 m by 100 m grids in twenty target areas and along the Chief Danny drill road over six prospects. Sample collection targets were selected to expand on previously sampled areas and to collect samples in areas with coincident high magnetic susceptibility and high conductivity geophysical signatures, similar to that seen in the Peak zone. From these sample areas, 243 samples were collected in the Chief Danny prospect, 498 samples were collected in Chisana, 74 samples were collected in Himalaya, 99 samples were collected in MM, 453 samples were collected in Tors, and 30 samples were collected in Wishbone.

The approximately 56,000-acre Eagle claim block was staked in 2012 and 2013 as a response to the Peak zone discovery and subsequent drilling program. The Eagle block is underlain by similar geology as the northern Tetlin Hills and limited reconnaissance stream sediment and pan concentrate samples collected by Federal government agencies in the 1970s revealed widespread copper and arsenic anomalies within the area now covered by the Eagle claims. No field work was conducted on the Eagle claims in 2012, however, a reconnaissance level stream sediment and pan concentrate sampling program completed over the Eagle claims in 2013. This work resulted in collection of eight rock samples, 278 stream sediment samples, 85 pan concentrate samples, and coverage of the SE half of the Eagle claims by DIGHEM airborne magnetic and electromagnetic surveys.

Examination of existing regional geological and geochemical data also prompted Contango to stake the Bush and West Fork claim blocks in early 2013. Each of these claim blocks consists of 48 State of Alaska mining claims covering 7,680 acres. These claim blocks, located north of Leased Lands, exhibited copper and arsenic anomalies similar to those within the Eagle block. No field work was required or conducted on these two claims blocks in 2013.

The environmental baseline program started in 2012 was continued and expanded during 2013. Fairbanks-based ABR, Inc. conducted seasonal baseline water quality samples, and completed initial biotic inventories of fish, macroinvertebrates, and periphyton. Water quality sampling was conducted at 16 sites in June and again in October. Fish sampling was conducted at six sites during July. In addition to the above baseline environmental monitoring work, an initial Wetland Determination study was completed on 3,180 acres of the Tetlin Hills in mid-August. This work was centered on the Chief Danny prospect access roads and covered the majority of the prospect's gold and copper in soil anomalies. A weather station was also installed at Vertical Angle Bench Mark (VABM) Tetling in July to provide climatic data for environmental baseline studies and to provide weather conditions for flight operations on the Project. Information from the solar powered wet-cell battery weather station was connected to an internet uplink allowing real-time data analysis.

No field operations were conducted during 2014.

In 2015, Royal Alaska, LLC, a subsidiary of Royal Gold, and Core Alaska, LLC, a subsidiary of Contango, entered into a joint venture agreement for the Peak Gold Project.

Exploration efforts during 2015 included two phases of drilling in the Chief Danny area, Phase 1 in May through July and Phase 2 in September and October, separated by a month of data analysis and budgeting in August.

In addition to the drilling in 2015, a total of 133 rock samples were collected over the Eagle and Noah prospects and Peak Gold JV continued baseline water quality and wetlands jurisdiction studies. Late in the fall, the Project acquired a post-wildfire air photo of the northern Tetlin Hills to document the extent of the fire and the nature of disturbances created by the Alaska Division of Forestry during its firefighting efforts.

In 2016, three phases of drilling were completed to test targets in the North Peak, West Peak and East Peak areas. In addition to the drilling in 2016, the Peak Gold JV completed 23.5 line-km of dipole-dipole ground IP geophysics by Quantec Geosciences Ltd., collected 694 top-of-bedrock soil auger samples over the Ridgeline prospect SW of Main Peak, and continued baseline water quality and wetlands jurisdiction studies. Peak Gold JV also commenced efforts toward completion of the first resource update since late 2013. Tucson-based Independent Mining Consultants, Inc. (IMC) was selected to complete this work as 2017 Phase 1 data became available.

Following an interpretive review of the airborne geophysical surveys conducted by Contango in 2011 and 2013 and by the State Division of Geological and Geophysical Surveys in 2014 (Emond et al., 2015), the Peak Gold JV staked 219 State of Alaska mining claims cover 34,440 acres over what is known as the Noah claim block. In early 2017, the Noah block was expanded with the staking of an additional 222 State of Alaska mining claims coving an additional 34,440 acres. The Noah claims are located contiguous with and west of the Leased Land block and contiguous with and south of the Eagle claim block.

Phase 1 drilling in the period January through mid-April 2017 consisted of infill and expansion drilling at North Peak as well as scout drilling at the West Peak (PT pad) and True Blue Moon targets. The drilling consisted of 40 drill holes (3,702 m) in the North Peak zone, one hole (281 m) in the PT target at West Peak zone and six holes (1,251 m) in the True Blue Moon target. The majority of the North Peak drilling was targeted at infill and perimeter drilling to better define the resource estimate being conducted by IMC. The drill target at West Peak was an exploration hole targeting a magnetic high not previously tested by drilling. The True Blue Moon drilling targeted a multi-discipline magnetic-resistivity-soil anomaly along the general NW trend of the North Peak deposit. SRK Consulting (U.S.), Inc. (SRK) was retained to take over all permitting and environmental affairs management for the Peak Gold JV, resulting in submission of the Project's first individual wetlands permit through the U.S. Army Corps of Engineers. This work was accompanied by wetlands reclamation conducted in April 2017.

Phase 2 work was conducted from May through August 2017 and consisted of core drilling, IP geophysics, and geochemical sampling. Core drilling of 16 drill holes (3,374 m) was carried out in the Main Peak, 7 O'clock, West Peak Extension, and Waterpump zones. Drilling at Main Peak was for confirmation and metallurgical purposes while drilling at the other three zones was exploration oriented to follow up on previously identified geochemical and geophysical targets. Ontario-based Quantec Geosciences Ltd completed 47.9 line-km of pole-dipole IP including:

- Infill over the NW extensions of the Main Peak and North Peak deposits (primarily in Waterpump Creek),
- Expansion of the 7 O'clock target area; and,
- Expansion of the 8 O'clock area.

Phase 2 work also included collection of 873 top of bedrock soil samples and 14 grab rock samples in the South Limb, String of Pearls and southern 8 O'clock areas. Later in the summer, the Peak Gold JV collected 363 pan concentrate samples, 364 stream sediment, and five grab rock samples over the Noah and southern Eagle claim blocks and completed logging, photographing, and Niton XRF analysis of the 885 m of split core from three Hona prospect core holes loaned to the Project by Kinross.

In June 2017 Peak Gold JV completed a mineral resource estimate update on the Main Peak and North Peak deposits (IMC, 2017). IMC completed this work using drilling data available through the end of 2017 Phase 1. The resource estimate was considered compliant with CIM Definition Standards (2014) incorporated by reference in Canadian National Instrument 43-101, Standards of Disclosure for Mineral Projects. This resource estimate is superseded by the Mineral Resource reported in Section 11 of this TRS.

During Phase 2, SRK continued its efforts to obtain an Individual Permit for the Peak Gold JV from the U.S. Army Corps of Engineers. This wetlands permit was eventually awarded late in 2017. In addition, Peak Gold JV conducted extensive reclamation of the greater Chief Danny area with focus on the North Peak, Waterpump, Main Peak, New Moon, and TBM prospect areas. At the conclusion of this work, all past wetlands disturbances had been reclaimed.

On September 26 and 27, 2017, Peak Gold JV conducted its first use of a drone for airborne photogrammetric work. The work was conducted by Anchorage-based K2 Dronotics who conducted surveys over 1,096 acres of the Project. Coverage included the Main Peak – North Peak deposits as well as adjacent surrounding areas. The Main Peak – North Peak area, covering 269 acres, was covered at a resolution of at least 2 inches per pixel from an instrument height above ground of 380 ft. The surrounding areas, broken up into six additional blocks totaling 827 additional acres, were covered at a resolution of at least 3 inches per pixel from an instrument height above ground of 400 ft.

Phase 3 exploration for 2017 was conducted in September and October and consisted of drilling of 16 core holes (2,966 m) in the 7 O'clock, West Peak Extension, Forks and North Peak areas. Other than the North Peak drilling, all of the Phase 3 drilling was exploration in nature and designed to expand or follow up on previously identified targets. The North Peak drilling was designed to test down-dip mineralization on the southern edge of the North Peak resource.

During 2018, Phase 1 exploration, conducted from mid-April to June, consisted of 34.1 line-km of pole-dipole IP, 43.4 line-km of Titan 24 DCIP-MT ground geophysics, and core drilling at the 2 O'clock and 8 O'clock zones (nine holes, 957 m). Additional drilling was conducted in the second half of 2018. Fairbanks-based ABR Inc. conducted an early summer water quality sampling program on May 29 and 30 with another round of sampling in mid-September. Additional Titan 24 DCIP-MT ground geophysics at Copper Hill and Taixtsalda prospects and core drilling at Copper Hill and North Saddle also were conducted in August through October 2018.

In September 2018, JDS Energy & Mining Inc. (JDS) prepared a Preliminary Economic Assessment (PEA) on the Project, which envisaged a conventional open pit truck and shovel operation with gold processing with cyanide leaching at a rate of 3,500 tonnes per day (tpd) over the potential Project life of eight years.

On September 30, 2020, Contango and Royal Gold each announced that a subsidiary of Kinross, KG Mining (Alaska), Inc., had acquired Royal Gold's 40% interest and an additional

30% interest from Contango, and was appointed Manager and Operator of the newly formed Peak Gold JV.

During 2020 to 2022, further drilling was completed including resource and development drilling and exploration drilling within 5 km of the deposit area.

Further details of drilling at the Project are provided in Section 7.2.

5.3. PAST PRODUCTION

There has been no production from the property up to the effective date of the report.

6. GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

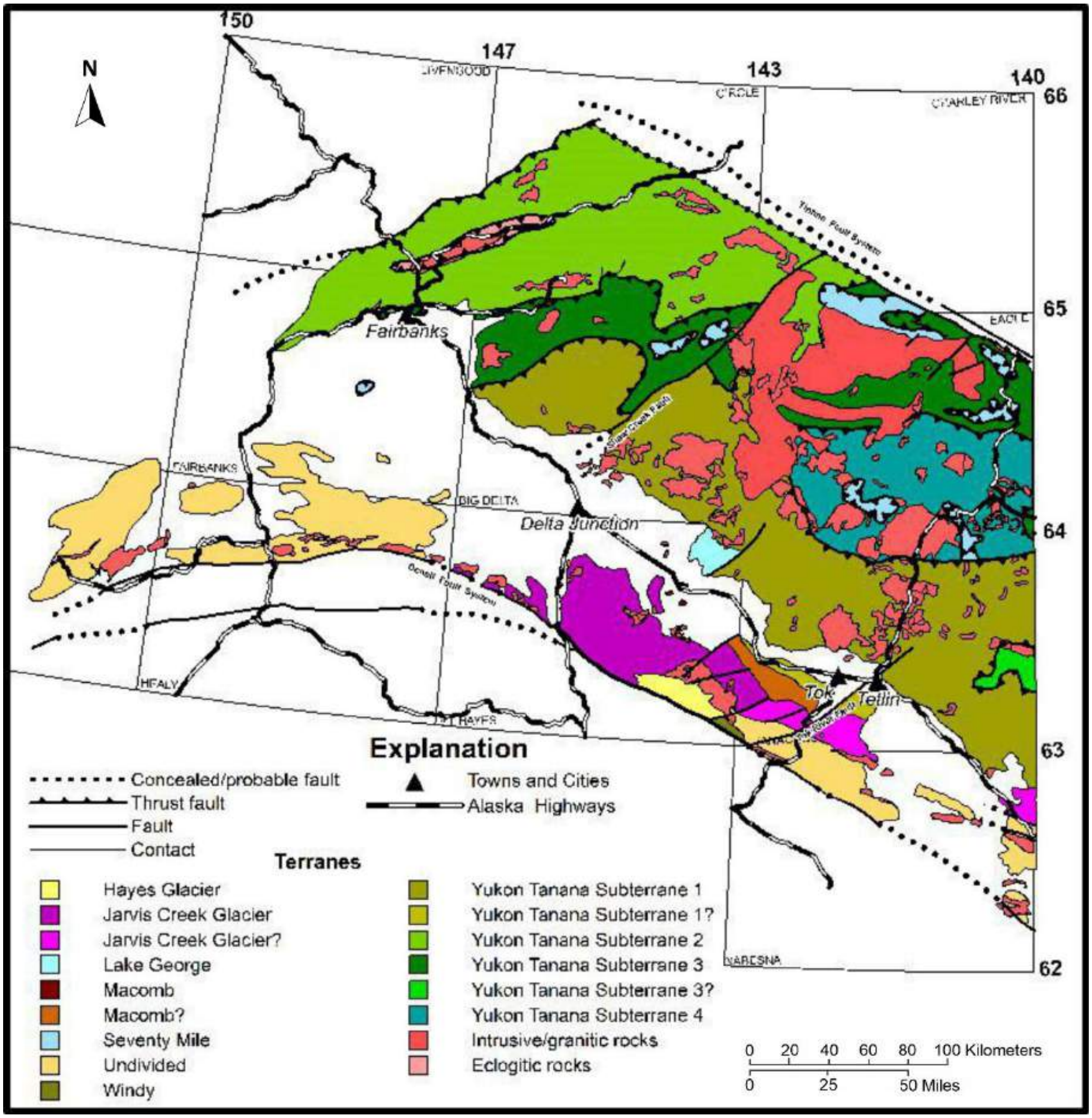
6.1. REGIONAL GEOLOGY

The Tok area is located in the eastern portion of the Yukon-Tanana Terrane (YTT) (Nokleberg et al., 1994). The YTT is bounded by the Tintina Fault system to the north and Denali Fault system to the south. These parallel, dextral strike slip faults form major sutures with up to 400 km of offset since the middle Cretaceous (Flanigan et al., 2000). The YTT is thought to be a Devonian volcanic arc along the continental margin of the North American Craton (Aleinikoff et al., 1981, Nokleberg et al., 1994). Regional geology is illustrated in Figure 6-1.

Subsequent mapping has subdivided the YTT into several broad lithologic packages. Nokleberg et al. (1992) and Foster et al. (1994) have correlated rocks within the Project area to the Jarvis Creek Glacier (JCG) subterrane. Rocks of the JCG are greenschist to granulite facies metamorphic rocks of Mississippian or older age. Rocks consist of fine-grained polydeformed schist derived from sedimentary and volcanic rocks. Metasedimentary rocks are pelitic schist, quartzite, calcareous schist, quartz-feldspar schist, and marble. Metavolcanic rocks are meta-andesite and metaquartz-keratophyre with minor components of metadacite, metabasalt, and rare metarhyolite.

The YTT is intruded by Mesozoic and Cenozoic plutonic rocks (Foster et al., 1994; Illig, 2015). The intrusives are largely unfoliated and predominantly felsic to intermediate composition. Radiometric age dates indicate that most of the plutonic rocks in the Tok area are Late Triassic to Late Tertiary. Volcanic rocks were deposited during the Cretaceous and Cenozoic and are largely found in the eastern YTT. The Tertiary and Holocene volcanic rocks are rhyolite to basalt. Illig (2015) conducted argon-argon dating of hornblende from the volcanic rocks north of the Project area. Age dates from hornblende andesite volcanic rocks returned a mean 40Ar/39Ar age of 75.5+0.7 Ma.

FIGURE 6-1 REGIONAL GEOLOGY OF THE YUKON TANANA UPLANDS, EASTERN AND CENTRAL ALASKA



From Foster et al (1994), modified by Kinross Gold Corp, 2021.

6.2. LOCAL GEOLOGY

The Project is located largely within poly-metamorphic rocks of the YTT. Mapping by Foster (1970) and Richter (1976) has defined several broad lithologic packages which Nokleberg et al. (1992) and Foster, Keith and Menzie (1994) correlate with the Jarvis Creek Glacier subterrane, the southernmost of four regionally extensive subterranes identified within the YTT. Basement rocks in the Jarvis Creek subterrane are generally greenschist to granulite facies metamorphic rocks of Mississippian or older age. A brief description of these rock types on the Project follows.

The only published geologic maps available for the Leased Lands on the Project are 1:250,000 scale (one inch equals four miles) quadrangle maps dating from the 1970s (Foster, 1970; Richter, 1976). These regional scale maps provide only a basic framework geology for the Project. The northern half of the Project, primarily in the Tetlin Hills and extending to the NW onto the Project's Eagle claim block, is mapped as poorly exposed calcareous and non-calcareous quartz-muscovite schist, quartz-biotite gneiss and schist, quartz-hornblende gneiss, quartz-feldspar-biotite gneiss, augen gneiss, quartz-muscovite-garnet gneiss, and quartzite (Foster, 1970). Garnet is a common component in these rocks. Although not mapped by Foster (1970), the Tetlin Hills hosts a significant amount of carbonate-bearing rocks, ranging from clean marbles to calcareous schists with variable but significant carbonate content. These calcareous units, which are host to the MCS and MCN skarn mineralization, generally are less than two metres to three metres in individual thickness but can form mixed calcareous schist–pelitic schist packages over 30 m (100 m) in thickness.

A gradational metamorphic isograd boundary separates higher grade schist and gneiss on the north from lower grade schist and phyllite units to the south. These lower grade rocks consist of light pink, light green, tan, and gray phyllite, quartz-sericite schist, quartz-sericite-chlorite schist, quartzite, and marble. In the Alaska Range in the SW part of the Tanacross quadrangle, these rocks are primarily light pink, light green, gray, and tan phyllite with some included greenstone. Several discontinuous marble beds up to 15 m (50 ft) thick and associated quartzite units occur in this rock package although they are not mapped separately by Foster (1970) or Richter (1976). Foster (1970) reported two age dates from the biotite gneiss and schist unit on the SE end of the Eagle claim block about 16 km (10 miles) south of Tok near the Tok Cutoff to the Glenn Highway. A Rb87/Sr87 age date returned an age of 120 Ma from biotite while a muscovite sample returned a K40/Ar40 age date of 119 Ma and a Rb87/Sr87 age date of 524 Ma. A Rb87/Sr87 whole rock age date of 1,173 Ma suggesting that rocks are likely Precambrian to Paleozoic in age and have been reset by more than one period of regional metamorphism.

Southward, the rocks become more schistose with quartz-sericite schist, quartz-sericite-chlorite schist, quartz-graphite-schist, and quartzite becoming the dominant rock types. Rocks of this unit are primarily greenschist facies. These lower-grade schists and phyllites are intruded by small bodies of gray altered and metamorphosed diorite that occur as small sills, dikes, and plugs. Intrusives become more common to the south and extend into the northern

Nabesna Quadrangle where Richter (1976) mapped these rocks as more continuous sillform bodies and described these units as fine to coarse-grained augite and hornblende bearing diorite and gabbro. These rocks have an equigranular hypidiomorphic to ophitic textures consisting principally of ophitic augite, saussuritized calcic plagioclase, and minor hornblende. The primary plagioclase and the lack of foliation indicate that these diorite to gabbro units were emplaced after the primary folding and metamorphic events in this part of the Alaska Range.

Dark-greenish-gray massive greenstone consisting chiefly of fine-grained epidote, chlorite, and albitized feldspar occur in the Copper Hill area of the Project and appears to be in fault contact with overlying marine metasedimentary rocks to the south (Richter, 1976). These greenstone units often are actinolite-bearing and in the Copper Hill prospect area contain <0.5% disseminate fine grained pyrite. These mafic extrusive units are commonly in fault contact above and below with dark-gray phyllite, dark-gray to buff quartzite and calcareous quartzite, light-gray slate, buff to light-gray calcareous quartz mica schist, and light-gray marble. Rocks are isoclinally folded with axial-plane schistosity well defined in the phyllite and schist layers. These phyllite and quartzite units are structurally overlain by dark-to light-gray phyllite and brownish-gray metaconglomerate containing conspicuous stretched clasts and subordinate quartz mica schist, quartzite, calcareous mica schist, quartz-chlorite schist, and thin marble lenses. Rocks exhibit well-defined axial plane schistosity deformed by a later period of kink-folding. Thermal metamorphism has locally produced cordierite- and andalusite-bearing knotty schists peripheral to the widespread plutonic rocks just north of the Denali fault. Gray to dark-gray recrystallized limestone is interbedded with the marine schists and phyllite units, often forming resistant pinnacles along ridgelines. Rugose and tabulate corals from widely scattered localities indicate a Middle Devonian age (Richter, 1976).

The southernmost portion of the Project is hosted in post-accretionary Jura-Cretaceous rocks of the Gravina-Nutzotin Terrane which are separated from metamorphic rocks of the YTT by the Denali fault. The Gravina-Nutzotin Terrane lies disconformably on the regionally extensive Wrangellia Terrane, which crops out on the extreme southern edge of the Project (Richter, 1976; Foster et al., 1994). Rocks of the Gravina-Nutzotin Terrane include a 900 m thick sequence of dark gray argillite and minor siltstone, mudstone, greywacke, and impure limestone. Conspicuous clasts of light-gray massive limestone, ranging in size from cobbles to house-size boulders, occur sporadically through the lowermost section. Sparsely distributed Buchia fossils throughout the unit indicate a Late Jurassic age. Clasts in the conglomerate consist of well-rounded volcanic and volcaniclastic rocks, limestone, chert, and crystalline igneous rocks derived from underlying strata, and white quartz and metamorphic rocks probably derived from the metamorphic terrane north of the Denali fault. These rocks are regionally extensive and correlative with Jura-Cretaceous flysch units of the Kahiltna Terrane to the SW (Nokleberg et al., 1994; Silberling et al., 1994).

The Wrangellia Terrane is a regionally extensive allocthonous terrane separated from the YTT by the Denali fault (Nokleberg et al., 1994). The contact between the YTT and Wrangellia is obscured by the post-accretionary Gravina-Nutzotin Terrane. Dextral offsets of up to 8 m (26 ft) in a single event have been documented on the Denali fault as recently as 2002. The southern edge of the Project is hosted in the Slana River subterrane, the northern of two E-W trending Wrangellia subterranes in this part of Alaska. The Slana River subterrane consists mainly of:

- A thick sequence of Pennsylvanian and Permian island-arc andesite and dacite overlain by marine limestone, argillaceous chert, volcaniclastics and tuffs of the Tetelna Volcanics, Slana Spur Formation, and Eagle Creek Formation which are part of the Skolai arc;
- A 1,500 m thick sequence of disconformably overlying massive basalt flows of the Late Triassic Nikolai Group and co-genetic gabbroic and ultramafic intrusives; and
- Late Triassic limestone.

Rocks of the YTT, Pingston, Windy McKinley, Gravina-Nutzotin, and Wrangellia Terrane are extensively intruded by Mesozoic and Cenozoic granitic rocks (Foster, Keith and Menzie, 1994; Illig, 2015; Benowitz et al., 2017; Sicard et al., 2017; and Twelker et al., 2016). These largely unfoliated, predominantly felsic to intermediate, plutonic rocks reach batholithic proportions east of the Shaw Creek fault (Foster, Keith and Menzie, 1994). Radiometric age dates indicate that most of the plutonic rocks west of the Shaw Creek fault are mid-Cretaceous to early Tertiary, whereas plutonic rocks east of the Shaw Creek Fault range from Late Triassic to Late Tertiary. Age dates have been used to subdivide the plutonic rocks of the YTT into three distinctive groups:

- Late Triassic – Early Jurassic (215 Ma – 188 Ma);
- Mid- to Late Cretaceous (110 Ma – 85 Ma, with most clustering from 95 Ma – 90 Ma); and,
- Latest Cretaceous to Eocene (70 Ma – 50 Ma) in two subgroups that cluster around 70 Ma and 55 Ma.

Figure 6-2 and Figure 6-3 illustrate the stratigraphic column and a typical cross-section of the local geology, respectively.

FIGURE 6-2 STRATIGRAPHY OF THE MANH CHOH PROJECT, CHIEF DANNY AREA

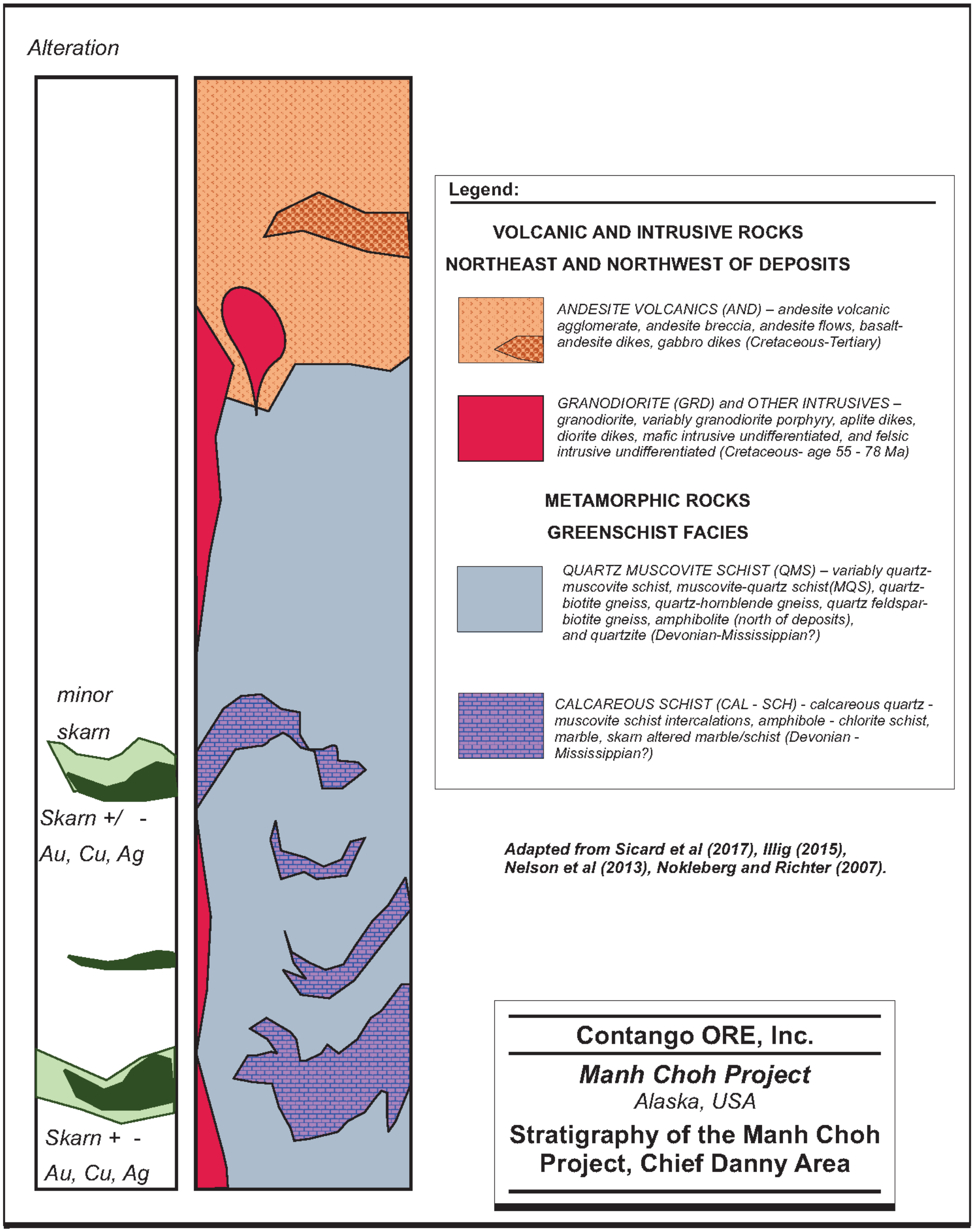
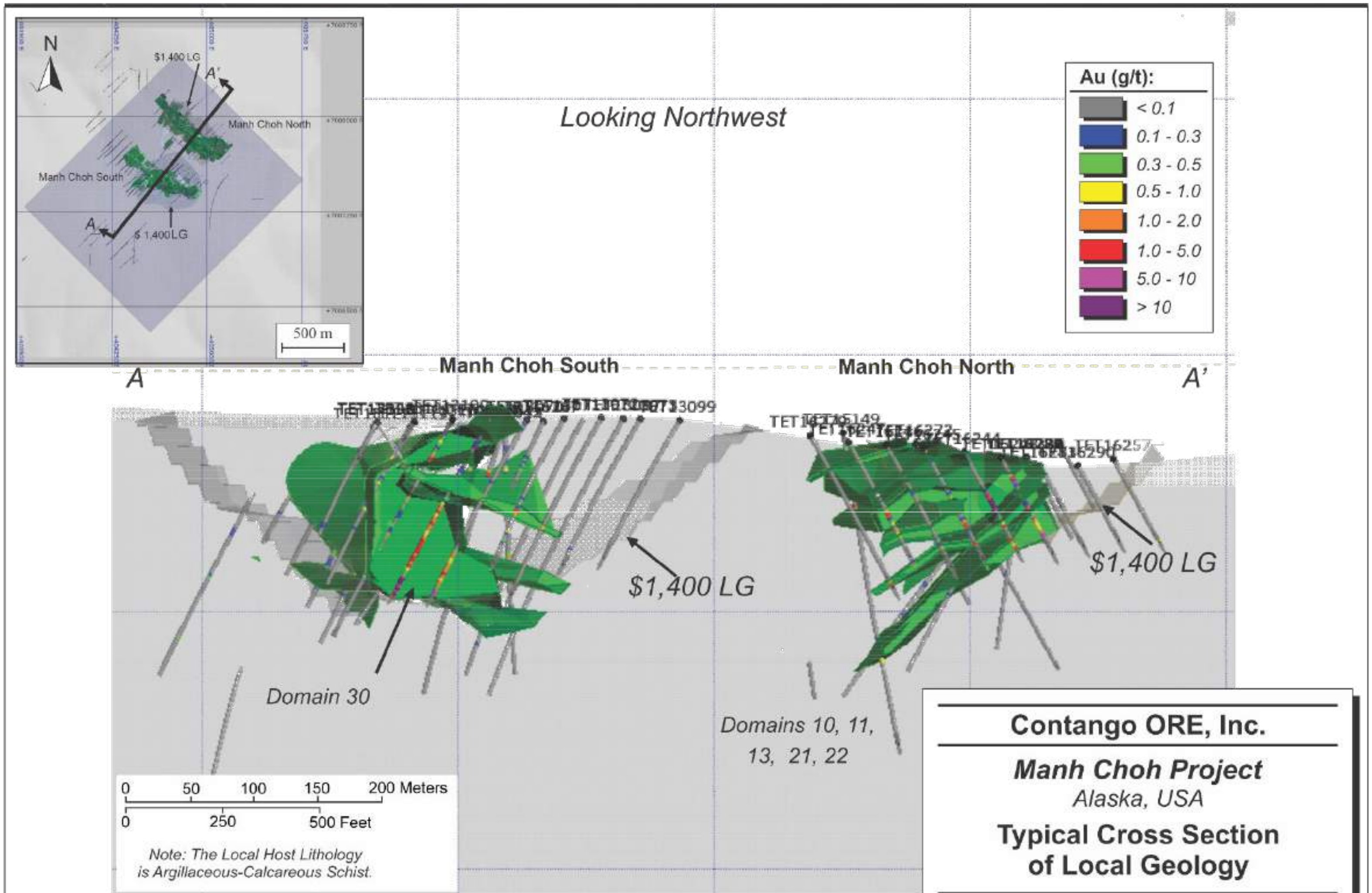


FIGURE 6-3 TYPICAL CROSS SECTION OF LOCAL GEOLOGY



Source: Sims Resources LLC, 2021.

6.3. PROPERTY GEOLOGY

The majority of the bedrock in the deposit area consist of quartz-muscovite ± biotite schist unit (QMS) containing conformable layers of amphibolite schist. The QMS unit is primarily comprised of quartz, muscovite, biotite, and local garnet with minor actinolite and epidote.

The deposit is hosted within a calcareous unit that hosts silicate skarn alteration as well as gold, silver, copper, and sulfide mineralization. The composition of the calcareous unit varies from rare pure marble through a gradational schist package ranging from a calcareous arenite to a silty marble.

Calcareous arenite to silty marble forms the primary host for skarn alteration and gold-sulfide mineralization. Calcareous schist is less competent than the surrounding rock package; it deforms more easily, resulting in complex deformational textures, including structural thickening and thinning, isoclinal and recumbent folding, cascade folding, and disharmonic folding. It is believed that most of the deformation exhibited by calcareous schist predates mineralization.

Layers of massive, equigranular amphibolite schist ranging from five feet to 50 ft thick are located south of the Spring fault (Figure 6-4). This unit is weakly to moderately foliated with minor calcite and trace to minor disseminated pyrrhotite + chalcopyrite. Amphibolite is often interbedded with quartz-mica schist and/or calcareous schist. The rock is dark greenish-gray to black and can be distinguished in airborne magnetics due to its high magnetic susceptibility (Fugro, 2011).

Small plugs of hypabyssal intrusive bodies of felsic, intermediate, and mafic composition have intruded the country rock. The largest of these bodies, a porphyritic quartz monzodiorite, outcrops along the northern end of Mohawk Ridge (Figure 6-4). The quartz monzonite body contains local zones of one to two centimeter thick A-type quartz-magnetite veins (Sillitoe, 2013).

Intermediate, mafic and felsic hypabyssal rocks and their more widespread volcanic equivalents are common along the extreme western edge of the Chief Danny area and north of the Tor fault (Figure 6-4). These rocks are thought to be post-mineral in age and preserved at the current erosional surface due to north-side down motion on the Tors fault. See Figure 6-2 for a generalized stratigraphic column of area rocks.

Linear stream drainages, low saddles, and distinctive magnetic and resistivity features within the Tetlin Hills define the surface expression of several fault orientations in this part of the Tetlin Project. The three dominant structural orientations in the Chief Danny prospect area include:

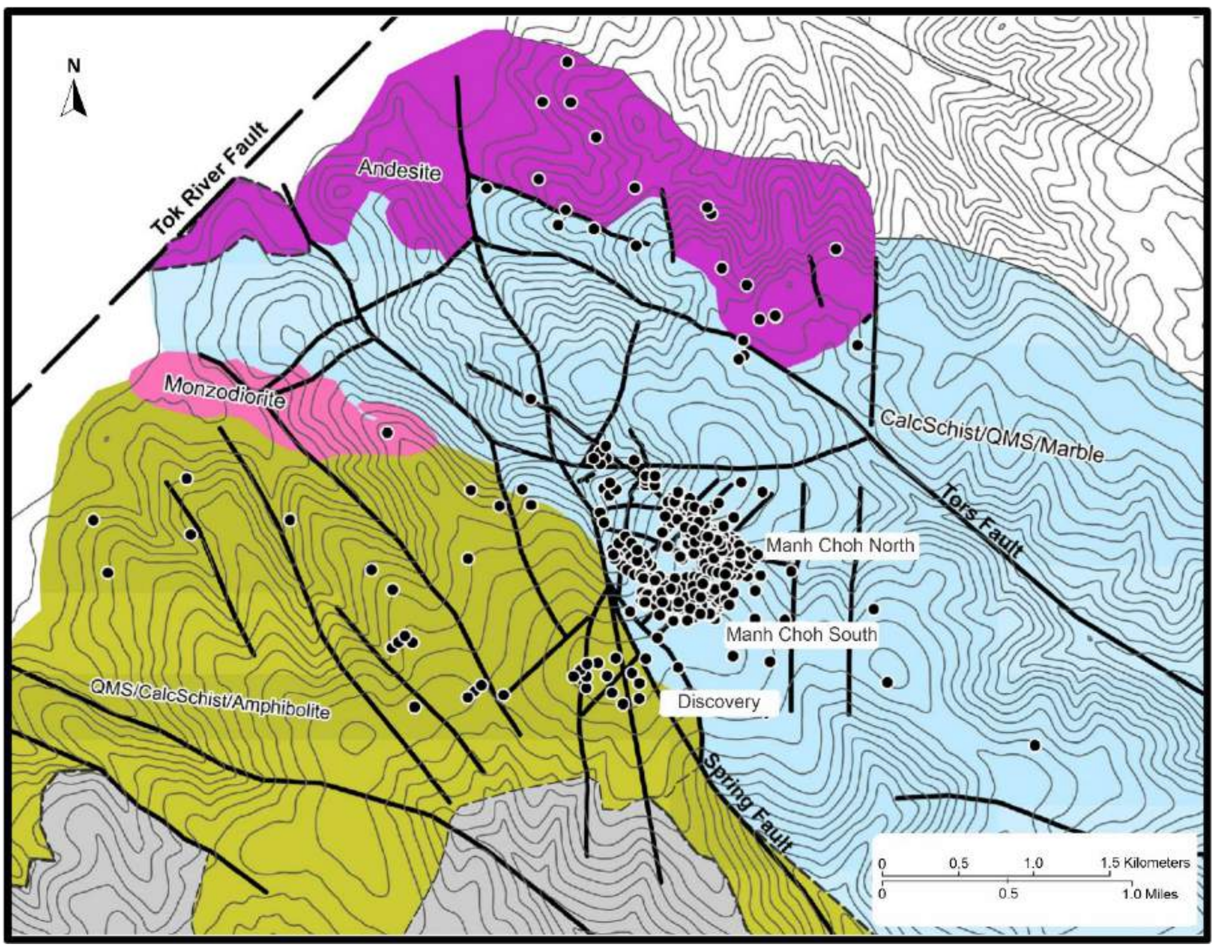
- NW striking high angle faults with dips to the north and south with both dip-slip and right-lateral strike-slip motion;
- NE striking high angle faults with both dip-slip and left-lateral strike-slip motion, and

- post-mineral north-south trending, east dipping reverse faults (Figure 6-4) that truncate mineralization in the MCS and MCN deposit resource area.

SRK's (2019) regional structural interpretation used deposit drill oriented and unoriented core data to model several fault interpretations within the deposit area. Cross-cutting relationships in the model conform to the regional paragenesis outlined with later syn- and post-mineral faulting offsetting earlier shallow southwest dipping thrust faults defining the overall deposit foliation fabric.

Weathering at Manh Choh is pervasive and largely controlled by the schist fabric, skarn alteration intensity, and intersecting faults. The MCN deposit has a deeper oxidation profile than the MCS deposit, characterized primarily by logged identification of more intense weathering minerals at depth and lower sulfur geochemical signature.

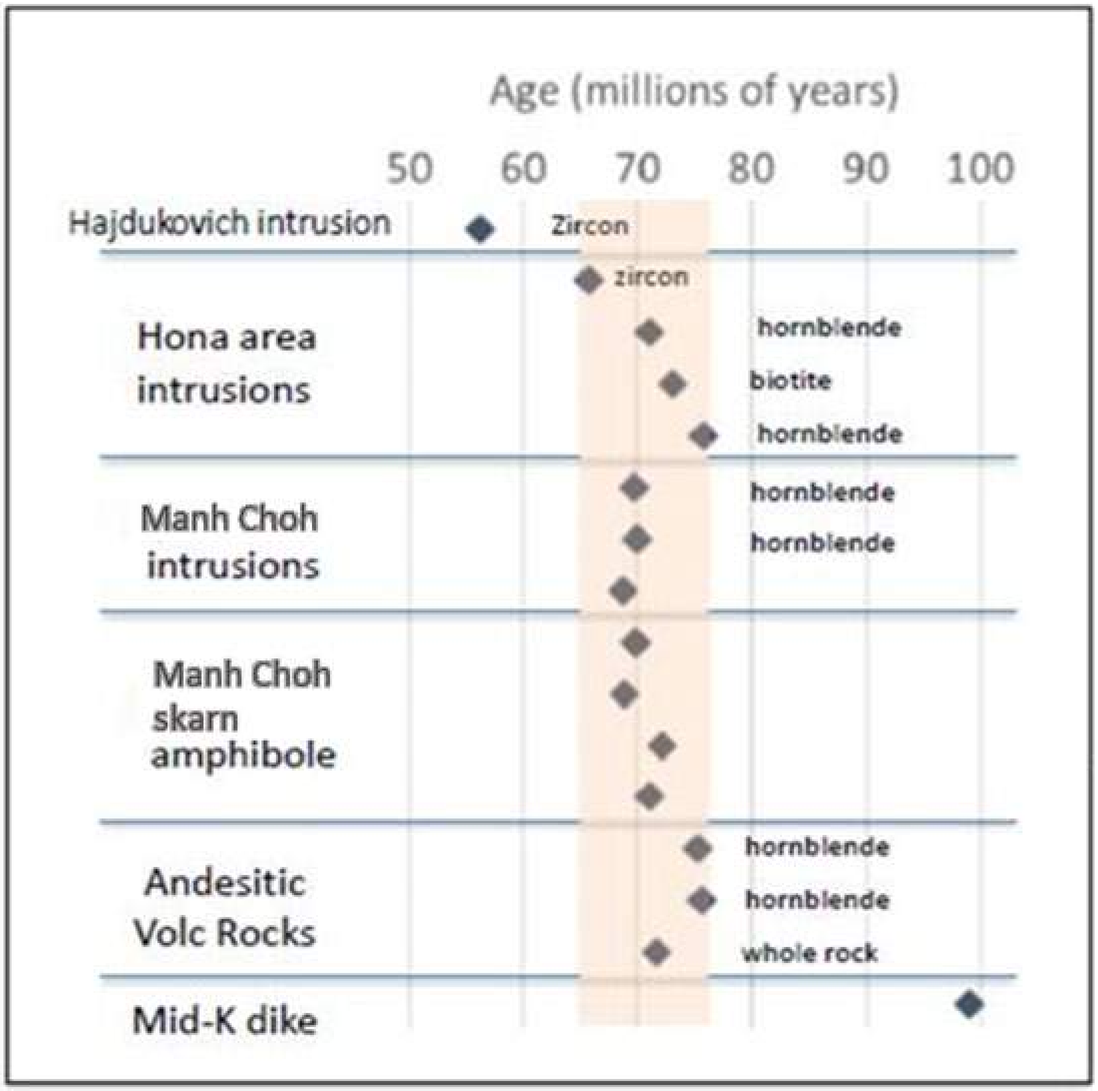
FIGURE 6-4 GENERALIZED GEOLOGY OF THE CHIEF DANNY AREA INCLUDING THE MANH CHOH SOUTH AND NORTH DEPOSITS OF THE TETLIN PROJECT, ALASKA



Both argon-argon and uranium-lead dating was conducted by Illig (2015) on rocks from the skarn and surrounding rocks. Age dates from the hornblende quartz monzonite on Mohawk

Ridge immediately west of the Manh Choh skarn deposit returned mean 40Ar/39Ar ages for hornblende of 69.4 + 0.5 Ma and a nearly identical uranium-lead zircon age of 69.7+ 0.2 Ma. Both of these ages are slightly younger than the 40Ar/39Ar ages of 71.5 + 0.5 Ma age returned from hornblende in the skarn (Figure 6-5). Given these dates, the causative pluton responsible for the Manh Choh skarn deposit and other skarn-related mineralization in the Chief Danny area remain unknown.

FIGURE 6-5 AGE DATES



Note. Age dates from Illig (2015); Hajdukovich age from Avalon Development, other Ar/Ar ages from Benowitz et al. (2017) and Newberry et al. (1998), U-Pb from Holm-Denoma et al (2020)

6.4. MINERALIZATION

The Manh Choh Project contains two deposits, the MCS and MCN. Both deposits have appreciable quantities of gold (Au), silver (Ag), and copper (Cu) associated with pyrrhotite-chalcopyrite-arsenopyrite dominant stratabound replacement bodies interlayered with calcium-iron (Ca-Fe) amphibole which replace the calcareous portions of the interlayered calcareous to argillaceous schist unit. High angle discordant pyrrhotite-chalcopyrite-arsenopyrite-spalerite-galena-boulangerite-pyrite-amphibole-calcite-quartz veins show open space textures and are proposed to represent the D2 hydrothermal fluid conduits connecting from the source pluton to the chemically responsive host rock trap. The highest gold and silver grades are associated with the junctions of the discordant veining and the calcareous schist with precious metal grade rapidly decreasing down dip, and gently tapering up dip. Two major discordant vein orientations, one generally striking E-W and dipping steeply N, and a second one striking NW-SE and dipping steeply N control the shape of the mineralized body, which is elongate in the E-W direction with a NW oriented tail. The intersection of these major discordant veins and secondary NE to N trending faults creates east dipping shoots which have localized and accentuated hydrothermal fluid flow.

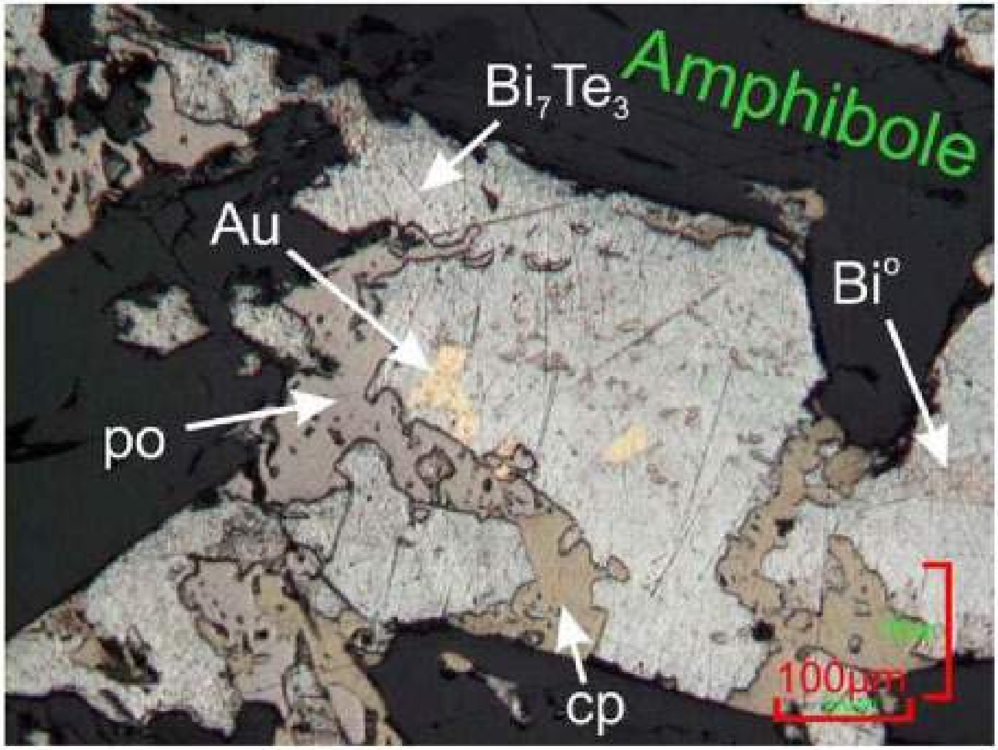
6.4.1. MINERALIZATION CHARACTERISTICS

Gold, silver, and copper ore from the MCS and MCN deposits and is associated with sulfide mineralization largely within amphibole skarns in a complex folded geometry. Ore minerals include native gold, electrum, chalcopyrite, pyrargyrite (Ag_3SbS_3), acanthite (Ag_2S), argentopyrite ($AgFe_2S_3$), and hessite (Ag_2Te). Additional metals with anomalous values include bismuth (Bi), tellurium (Te), arsenic (As), antimony (Sb), zinc (Zn), cadmium (Cd), nickel (Ni), cobalt (Co), and tungsten (W), which contrasts with the known Au-Bi-Te ± As metal associations of intrusive related deposits in Interior Alaska such as Fort Knox and Pogo mines (Flanigan et al., 2000). Metallurgical testing has been conducted with respect to the recovery of gold and silver by cyanidation and results suggest that the mineralization is amenable to recovery. Other metals and elements critical to the characterization of waste and process recovery of ore are characterized in the block model and discussed further in Sections 5.0, 8.0, and 9.0.

GOLD CHARACTERIZATION

Highest Au grades occur in dark green amphibole-rich skarn with coarse grained arsenopyrite and coarse-grained pyrrhotite typically with total sulfide content in the 5% to 15% range. In general, the higher the ratio of chalcopyrite to arsenopyrite, the lower the average Au grade. Gold is often in solid solution with Ag and Bi minerals. Gold grains are typically 10 µm to 1 mm in diameter. Coarser Au grains are more common in higher grade mineralization. Three samples from MCN and MCS had gold fineness ((Au wt% / (Au wt% + Ag wt%)) * 1000) ranging from 580 to 906 (Illig, 2015). An example reflected-light photomicrograph image of Au-amphibole skarn at the Manh Choh deposit is shown in Figure 6-6 showing typical association but atypical angular morphology.

FIGURE 6-6 REFLECTED LIGHT PHOTOMICROGRAPH OF AU-AMPHIBOLE SKARN



Note. po = pyrrhotite; cp = chalcopyrite.

SILVER CHARACTERIZATION

Significant Ag concentrations partly overlap both the Cu and Au zones at MCS and MCN. The partial overlap between Au and Ag reflects the wide variations in the Ag:Au ratio (>28,000 to <0.05) seen in deposit assays. Pyrargyrite, acanthite, argentopyrite, and lesser hessite are likely present in areas with high Ag:Au ratios. Gold and gold electrum contain silver commonly in areas with Au >> Ag. Silver grades tend to track more predictably with Au grades at MCN compared to MCS. Average Ag:Au ratio excluding detection limit samples is 97:1 at MCN, 136:1 at MCS, and 118:1 for the deposit areas. Within skarn mineralization, the average and median Ag:Au ratio is 110:1 and 8:1 respectively for the combined deposit areas.

COPPER CHARACTERIZATION

Copper at the MCS and MCN deposits is predominantly hosted in chalcopyrite ($CuFeS_2$). Chalcopyrite is associated with pyrrhotite ($Fe_{1-x}S$) in disseminated and banded grains ranging from <0.1 mm to >1.0 cm. Native copper, bornite, chalcocite, and other copper bearing minerals are rare within the Manh Choh deposits. Au:Cu ratios typically increase from east to west across both MCS and MCN with lowest ratios to the west in MCS. The higher copper content in portions of MCS contrast with lower concentrations in assay results at MCN. More discussion on the cyanidation of copper and its characteristics relative to gold and silver recovery is provided in Section 10.0.

PETROLOGY, MINERALOGY AND GEOCHEMISTRY

Mineralogically, higher Au grades occur in skarn horizons containing coarse-grained euhedral amphibole and/or calcite, often in discordant, late structures. Illig (2015) describes some compositional zonation of the skarn and associated geochemistry.

Geochemical signature of a skarn horizon includes highly anomalous Au, Ag, As, Bi, Co, Cu, and sometimes anomalous Mo, Pb, Sn, or Te. Geochemical signature of potential plumbing features at the MCS and MCN deposits is characterized by high Ag, Sb, Pb, and Zn values with variable amounts of Au, As, Bi, Co, Cu, Mo, Sn and Te. In general, the MCN deposit average As, Bi, Pb, Sb, and Zn concentrations are higher than those of MCS. In contrast, MCS deposit Cu, P, and S concentrations are typically higher than those of MCN.

6.4.2. MANH CHOH SOUTH DEPOSIT

MCS is a largely unoxidized distal skarn hosted in recumbent folded calcareous schist and marble interbedded with amphibolite grade argillaceous schist and quartzite. A cross section through MCS is presented in Figure 6-4. A penetrative foliation/axial planer cleavage characterizes the Chief Danny prospect, this cleavage is striking 150° and dipping 20°-30° SW. The numerous recumbent isoclinal folds measure 0.1 cm to 2.0 cm across the axis and form a composite overturned isoclinal fold shape with its axis sub parallel to the strike of foliation and opening to the NE. This larger composite fold body of calcareous schist, also opening to the NE, crops out at the surface, measures 200 m vertically and 300 m horizontally in cross section. In long section, the fold measures just over 500 m. The calcareous schist body is dissected by three to four high angle NE-SW trending normal faults which display offsets of 2 m to 10 m, appear to be post-mineralization in age, and have a periodicity of 100 m along the strike of the folded calcareous schist body. The eastern edge of the composite fold is proposed to be truncated by the B1 fault, a N-NE striking, moderately east dipping (45°-50°) reverse fault, also of D2 age. At least one NW striking, sub-vertical fault, thought to be a D2 feeder zone, can be traced along the long axis of the mineralization. This fault is characterized by +100 g/t Ag values associated with highly anomalous Pb, Sb, and Zn with the highest-grade concentration of these metals in the extreme SE portion of the MCS deposit.

Gold, silver, and copper mineralization is associated with pyrrhotite-chalcopyrite-arsenopyrite dominant strata bound replacement bodies interlayered with Ca-Fe amphibole dominant gangue which has replaced the calcareous portions of the interlayered calc-schist units. High angle discordant pyrrhotite-chalcopyrite-arsenopyrite-spalerite-galena-boulangerite-pyrite-amphibole-calcite-quartz veins show open space textures and are thought to represent the hydrothermal fluid conduits connecting the source plutonic system to the chemically responsive host rock. The highest Au and Ag grades are associated with the junctions of the discordant veining and the calcareous schist with precious metal grade rapidly decreasing down dip, and gently tapering up dip. Two major discordant vein orientations have been identified at MCS one generally striking E-W dipping steeply to the north (the 275 fault), the other striking NW-SE and dipping steeply north (the 305 fault). Combined, these two feeder systems control the shape of the mineralized body, which is elongate in the E-W direction with a NW oriented tail. The intersection of these major discordant veins and secondary N-E to N trending faults creates east dipping shoots which have localized and accentuated hydrothermal fluid flow. As is true at the MCN resource, the eastern portion of these feeders returned significantly higher Ag grades (>100 g/t) associated with higher Pb, Sb and Zn, possibly indicating a higher temperature and fluid flow regime on the extreme SE end of the MCS resource.

6.4.3. MANH CHOH NORTH DEPOSIT

MCN is a largely oxidized distal skarn hosted in recumbent folded calcareous schist and marble interbedded with amphibolite grade argillaceous schist and quartzite. A significant portion of the MCN resource area is oxidized to depths in excess of 50 m below surface, resulting in widespread Fe, Cu, and As oxides. This strong, pervasive oxidation destroyed the magnetic and conductive pyrrhotite-arsenopyrite-chalcopyrite skarn mineralization, resulting in geophysical signatures unlike those over the unoxidized MCS zone. A cross section through MCN is presented in Figure 6-4.

A penetrative foliation/axial planer cleavage characterizes the Chief Danny prospect, striking 150° and dipping 20° to 30° to the SW. The numerous recumbent isoclinal folds measure 0.1 m to 2.0 m across the axis and form a larger composite overturned isoclinal fold shape with its axis subparallel to the strike of foliation and opening to the SW. This composite fold body of calcareous schist measures 150 m vertically and 100 m horizontally in cross section. In long section, the fold measures just over 270 m over the NW portion of the resource and is proposed to have had the upper limb and hinge eroded in the SE portion of the resource. The calcareous schist body is dissected by four to five high angle NE-SW trending normal D3 faults which display offsets of 2 m to 10 m, appear to be post-mineralization in age, and have a periodicity of 100 m along the strike of the folded calcareous schist body. The eastern edge of the resource area is proposed to be truncated by the B1 fault, a N-NE striking, moderately east dipping (45° to 50°) reverse D3 fault.

Gold, silver, and copper mineralization is associated with pyrrhotite-chalcopyrite-arsenopyrite dominant strata bound replacement bodies interlayered with Ca-Fe amphibole dominant gangue which has replaced the calcareous portions of the interlayered calc-schist units in the NW half of the resource. The weathering product of this mineralization, dominated by hematite, limonite, goethite, and scorodite-rich clays, make up a significant portion of the SE resource area. High angle discordant pyrrhotite-chalcopyrite-arsenopyrite-spalerite-galena-boulangerite-pyrite-amphibole-calcite-quartz veins show open space textures and are thought to represent the D2 hydrothermal fluid conduits connecting the source plutonic system to the chemically responsive host rock. The highest Au and Ag grades are associated with the junctions of the discordant veining and the calcareous schist with precious metal grade rapidly decreasing down dip, and gently tapering up dip. At least two steeply dipping, NW striking D2 feeder faults have been identified within the MCN zone, the 125 and 110 faults, named for their strike directions. As in the MCS zone, the eastern portion of these feeders returned significantly higher Ag grades (>100 g/t) associated with higher Pb, Sb and Zn, possibly indicating a higher temperature and fluid flow regime on the extreme SE end of the MCN resource.

6.5. DEPOSIT TYPE

Exploration results from 2009 through 2018 revealed the presence of a distinctive suite of elements, sulfide minerals, and alteration minerals at the MCN, MCS, and Discovery zones that do not match the typical characteristics of an intrusive related gold system but do share several diagnostic characteristics of distal reduced gold-copper-silver skarns and the larger porphyry copper systems with which such skarns are sometimes associated.

Petrologic data from Deininger (2012) and Illig (2015) confirmed the rare presence of remnant prograde skarn minerals (hedenbergite and wollastonite). The most pervasive and often abundant alteration assemblage associated with gold-sulfide mineralization, however, is amphibole and chlorite, a mineral assemblage normally associated with retrograde skarn alteration. This evidence suggests the highest temperatures reached during silicate alteration were stable for amphibole and chlorite but temperatures rarely reached levels where true prograde skarn minerals were stable. From a strictly technical standpoint, amphibole at MCS and MCN is a prograde mineral, however, to avoid confusion of the reader, the terms “prograde” and “retrograde” will not be used in this report except in places where their use is defined and in compliance with the commonly understood technical meaning of these two terms.

New Pb-isotope data from the deposit area plots in a zone with other replacement / vein style mineral deposits with 206Pb / 204Pb ratios in the 19.1 to 19.2 range and 207Pb/204Pb ratios in the 15.64 to 15.68 range (Illig, 2015). The deposit area Pb-isotope data are considerably more radiogenic than Devonian-Mississippian volcanogenic massive sulfide deposits that are common to the west in the Delta Mining District. Lead isotope data from Cretaceous and Tertiary plutonic rocks in the Yukon Tanana Terrane plot in a similar range to the deposit area samples and other skarn samples from Eastern Interior Alaska, leading Newberry et al. (1997) to conclude that the source of lead for Yukon Tanana Terrane skarns was plutonic.

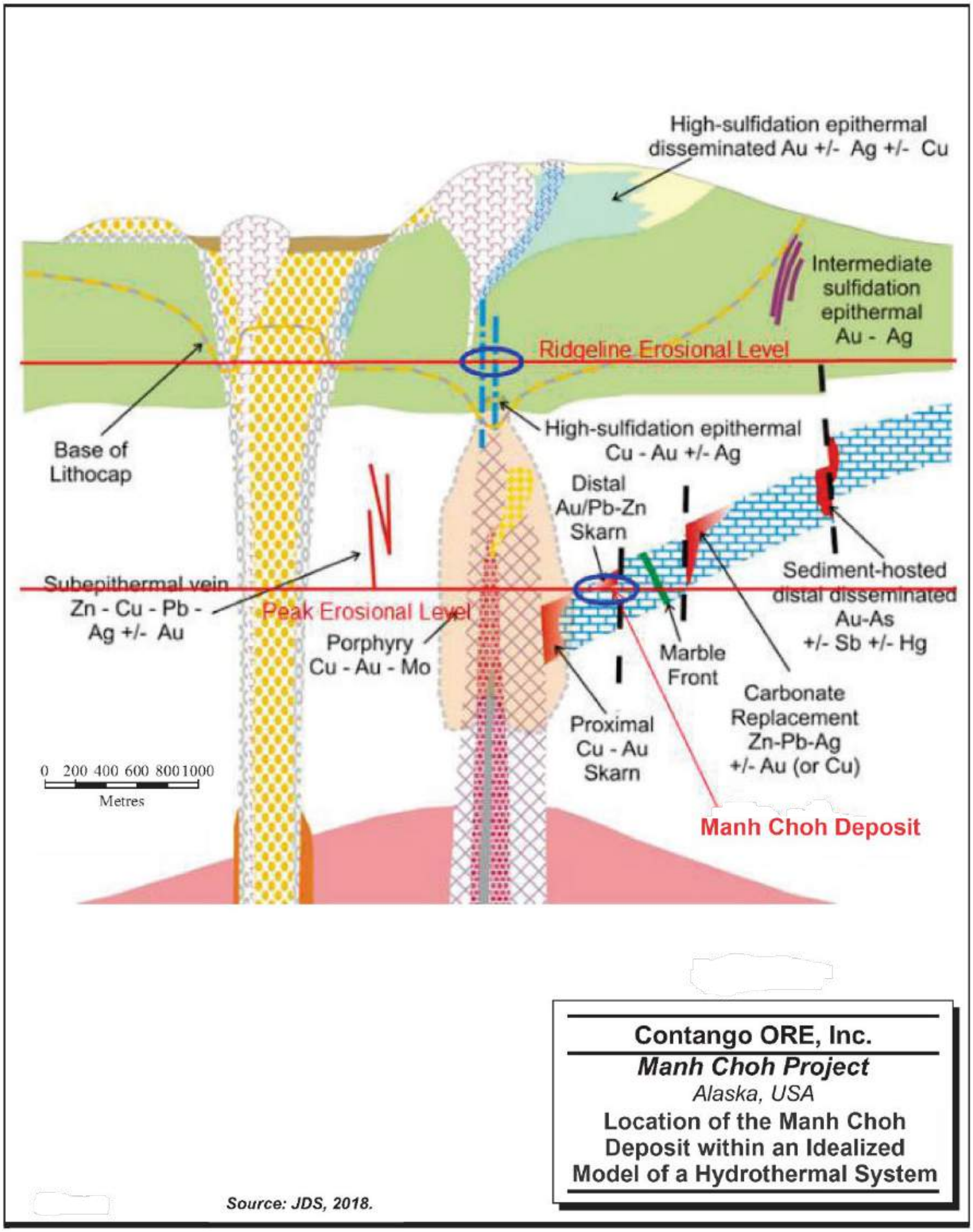
In September 2013, noted economic geologist Richard Sillitoe conducted a two-day site visit to the Project and agreed with the previously drawn conclusion that the gold-rich mineralization at Manh Choh was part of a reduced gold skarn system within a larger porphyry copper setting (Sillitoe, 2013). Additional evidence supporting the presence of a larger porphyry copper-gold system includes:

- 35 km^2 of anomalous copper, gold and pathfinder element soil sample geochemistry zoned from a copper-gold enriched core to arsenic-lead-zinc-manganese enriched rim;
- A-type quartz magnetite veins observed in a crowded quartz monzonite porphyry intrusive in drill hole TET11006 on Mohawk Ridge; and
- A metal and mineral suite similar to well-known distal gold skarn deposits in other parts of the world.

The link to a porphyry copper system was further strengthened by trace element work conducted by Illig (2015). On a plot of Y/Sr compared to SiO_2 content, the MCS skarn at Manh Choh plots clearly in the porphyry copper field with other well-known examples such as Bingham Canyon, Yanacocha, Batu Hijau, Pebble and similar age porphyries in the adjacent Yukon Territory.

Sillitoe (2013) suggested that the Manh Choh zone alteration and mineralization most closely resembles the gold-sulfide skarn deposits mined at the Fortitude deposit in the Battle Mountain Mining District of central Nevada. Figure 6-7 illustrates the location of the Manh Choh Project within an idealized model of a hydrothermal system.

FIGURE 6-7 LOCATION OF MANH CHOH DEPOSIT WITHIN AN IDEALIZED MODEL OF A HYDROTHERMAL SYSTEM



Source: JDS, 2018.

7. EXPLORATION

7.1. EXPLORATION

7.1.1. SUMMARY

A Lease to explore Tetlin Village tribal lands was secured in June 2008. Prior to the Lease, the authors are not aware of any detailed geologic exploration conducted on the lease (see subsection 5.2.1). Initial reconnaissance consisting of surface sampling, trenching, and geophysics occurred on the Lease during 2009 and 2010. Drill testing followed in 2011, testing several prospects, including Discovery and the northernmost edge of MCN.

During the 2012 drilling campaign, the discovery drill hole at MCS was completed along with six drill hole fences and fans. During 2013, an extensive infill drilling program was conducted at MCS deposit, defining the bulk of resource. Following the 2013 program, Contango published its first resource estimate for the MCS and MCN deposits (Giroux, 2013b). This resource estimate included data from 130 drill holes totaling 27,767 m for diamond core drilling. The resource estimate is not considered compliant with Canadian National Instrument 43-101, Standards of Disclosure for Mineral Projects.

Contango initiated a process to market for sale its interest in the Tetlin Project. Numerous companies visited the Project in 2014. As a consequence, no field operations were conducted during 2014. This process resulted in Royal Alaska, LLC, a subsidiary of Royal Gold, and Core Alaska, LLC, a subsidiary of Contango, entering into a joint venture agreement for Peak Gold in 2015.

The 2015 field program included additional infill drilling at the western extent of MCS and the first systematic grid drilling at MCN. Follow-up drilling at North in 2016 and 2017 expanded the resource and roughly defined the extent of the orebody.

Tucson based Independent Mining Consultants, Inc (IMC) was selected to complete a resource update in 2017. In June 2017 a mineral resource update on the MCS and MCN deposits (IMC, 2017) was completed using drilling data available. The resource estimate is considered compliant with Canadian National Instrument 43-101, Standards of Disclosure for Mineral Projects.

Additional exploration drilling occurred during 2018 and 2019 tested for potential extensions to the resource and tested targets outside of the immediate deposit area. Drilling during 2020 and 2021 included resource and development drilling and exploration drilling within 5 km of the deposit area.

Exploration activities have employed a number of methods to test the area including:

- 1:250,000 geologic mapping completed by Foster (1970)
- Rock chip mapping derived from grid-based top of bedrock soil auger sampling

- Trench, road cut and drill pad geologic mapping
- Stream sediment, pan concentrate, soil, and rock sampling
- Airborne and ground-based geophysics
- Diamond core drilling

Further details on exploration at MCS, MCN, and MCW are provided in the following sections, summarized from JDS (2018).

7.1.2. MANH CHOH SOUTH EXPLORATION

The MCS deposit area is located 250 m N-NW of VABM Tetling approximately 15 km S-SE of Tok Junction and measures 600 m in the E-W direction and 220 m in the N-S direction within the Tintana Gold Belt.

Following delineation of anomalous gold and pathfinder metals in rock, soil, stream sediment, and pan concentrate samples in 2009 and 2010, the MCS deposit was discovered by drilling an Au-As-Cu soil auger anomaly in June 2012. Drill holes TET12016-12019 targeted a NW-SE oriented elevated gold-in-soil anomaly; the four drill holes were placed to create a crossed scissors section to test either a NE or SW dip to mineralization. Holes TET12016-12017 were angled at -50° and -70° to the NE and holes 12018-12019 were offset 15 m to the NW, drilled at -50° and -70° to the SW. From the collar to 114 m downhole, TET12016 intercepted stratiform disseminated to massive pyrrhotite, arsenopyrite, and chalcopyrite mineralization hosted in stratiform semi-massive to massive amphibole-chlorite skarn. Drill holes TET12017-12019 returned similar results and defined a steep NE dip to the mineralized body, while the host stratigraphy displayed foliation dipping shallowly to the SW. After assay results of core samples from drill holes TET12016-12019 confirmed the presence of high-grade gold mineralization (1.51 to 845 gram-meters), a series of three-hole fans of -50°, -70°, and -90° were drilled at 100 m step outs from the two fences of scissor holes. Two fences were drilled to the SE and three to the NW. This drill program allowed for the initial 2012 resource estimate (Giroux, 2013a).

The 2013 drill program was designed to upgrade the Inferred Resource to the Indicated level. Drilling was laid out at a nominal 30 m spacing between 225° azimuth, -60° inclination holes as well as between fences. This drill program allowed for the second MCS resource estimate (Giroux, 2013b). The 2015 drill program at MCS extended the resource to the west and explored the depth extent with two 1,000 m deep drill holes. During 2016, four cardinal direction-oriented drill holes were completed to test the resource integrity between fences. These holes showed good correlation with previously modeled mineralization and mineralized intervals from these holes were used for metallurgical testing. A total of 106 drill holes totaling 23,027 m have been completed in the MCS resource area.

Limited drilling to the east of the MCS resource suggests decreasing gold grades although drill density on the eastern end of the MCS resource is sparce. The down-dip portion of the lower fold limb, heading NE, has not been drilled extensively due to its depth below surface and the lower gold grade returned from the few drill holes that have tested it. It is proposed that the lower limb of the folded calcareous unit may join the mineralized MCN folded calcareous unit and that there may be undiscovered D2 feeder structures which would act as fluid conduits to create additional precious metal mineralization between the MCS and MCN resource areas.

Extensive drilling in 2016 and 2017 on the western extension of the MCS resource revealed the presence of the N-S striking, shallow east dipping B2 reverse fault. This post-mineral D3-age fault truncates the western end of the MCS zone and juxtaposes it with a thick, distinctive purple-green colored calc-schist unit which contains thinner, lower-grade gold zones characterized by extremely low arsenic values. Potential for MCS grade-thickness intervals is present in the footwall of the B2 fault, known as the Manh Choh West Extension, including hole TET17379 which returned 8.16 m grading 5.22 g/t Au starting at 103.24 m and an additional 29.1 m grading 2.53 g/t Au starting at 116.6 m. Continuity of grade and thickness, however, could not be established during grid-based 2017 drilling.

7.1.3. MANH CHOH NORTH EXPLORATION

The MCN deposit area is located 650 m N of VABM Tetling (elevation 1,019.5 m) and measures 540 m in the SE-NW direction and at its maximum is 180 m wide in the NE-SW direction.

The MCN zone was originally targeted with limited drilling in 2011 (hole 11010) and several follow-up holes in 2013, all of which were targeted on anomalous gold and pathfinder anomalies in top of bedrock soil samples in the resource area. In addition, construction of the main project access road exposed several areas of highly oxidized gossan that contained iron, arsenic, and copper oxides in rock samples. Geophysical modeling of both airborne magnetic and electromagnetic surveys as well as ground dipole-dipole IP surveys was completed prior to the 2015 field season and revealed coincident airborne magnetic highs and resistivity lows that were coincident with NW trending Au-Cu-As soil anomalies. Magnetic and resistivity anomalies at MCN were weaker than those at MCS and these lower responses were deemed unfavorable indicators of gold skarn mineralization.

Drilling completed in 2015 revealed several significant grade-thickness intervals, culminating in discovery hole 153 which intercepted 22.72 m grading 9.38 g/t Au starting at 10.2 m and an additional 13.29 m grading 6.52 g/t Au starting at 42.06 m. Follow-up drilling conducted in the Phase 1 2016 winter drilling program expanded the MCN mineralization over 200 m to the SE and revealed significant gold mineralization that cropped out at the paleo-surface and was masked only by two to four metres of aeolian silt. Infill and expansion drilling continued at MCN through Phases 2 and 3 drilling programs in 2016 and culminated in the Phase 1 2017 drill program that resulted in the updated resource estimate by IMC (2017).

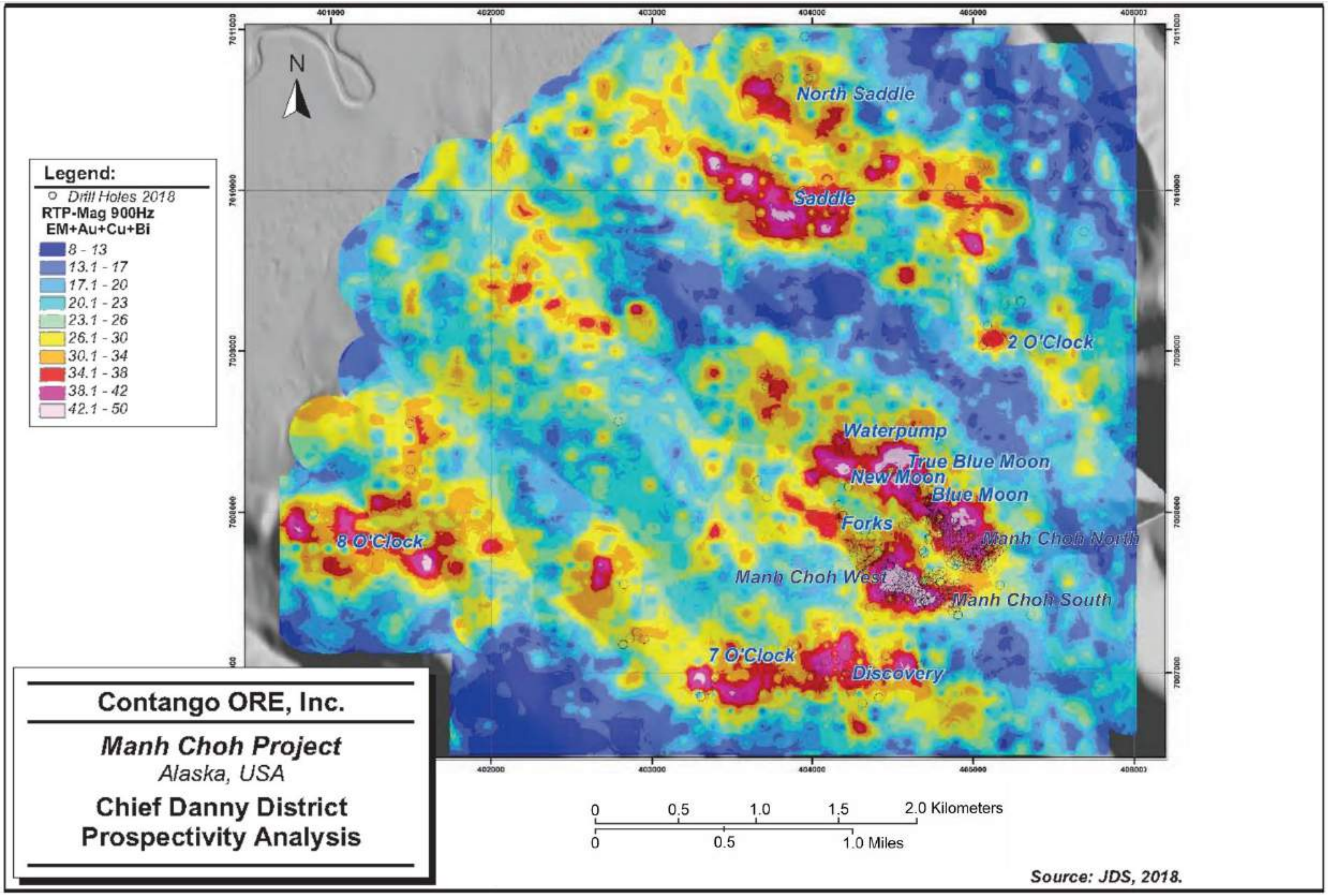
Potential for expansion of the MCN deposit outside of the current resource area exists down dip to the SW along mineralized carbonate beds toward an area known as Middle Earth where favorable horizons are correlated with those within the MCN deposit area. Hole 12033 intercepted 14.02 m grading 1.36 g/t Au starting at 248.41 m and an additional 12.19 m grading 3.62 g/t Au starting at 268.53 m. Hole 15148 was subsequently drilled to confirm the suggested south-dipping geometry of this area and intercepted 5.84 m grading 4.63 g/t Au starting at

229.6 m and 3.00 m grading 1.84 g/t Au starting at 240.84 m. These intervals fell below the $1,400/oz gold pit bottom modeled during the IMC resource estimation so no further drilling has been conducted at Middle Earth and the relationship between it and the North Peak or Main Peak zones remains uncertain.

7.1.4. MANH CHOH SOUTH AND NORTH GEOCHEMICAL SIGNATURE

Both the MCS and MCN deposits have unique geochemical signatures. The soil geochemical data shows elevated Au-As-Cu-Bi as well as other elements. These elements along with the airborne magnetic and electromagnetic data have been combined into a prospectivity analysis for the Chief Danny area. Figure 7-1 shows the results of combining leveled and normalized values for Au + Cu + Bi + Reduced to Pole (RTP) Magnetics + 900 Hz electromagnetic data. Each dataset has been leveled to a scale from 1 to 10 and summed to obtain a total prospectivity value. Zones of the highest prospectivity value are at the MCS and MCN deposits. Other targets highlighted in the prospectivity analysis are the extensions to the NW from MCN at True Blue Moon and Waterpump. Other areas highlighted include Discovery, Saddle, and 8 O'clock. Exploration and limited diamond drilling have concentrated on these target areas within the Chief Danny area.

FIGURE 7-1 CHIEF DANNY DISTRICT PROSPECTIVITY ANALYSIS



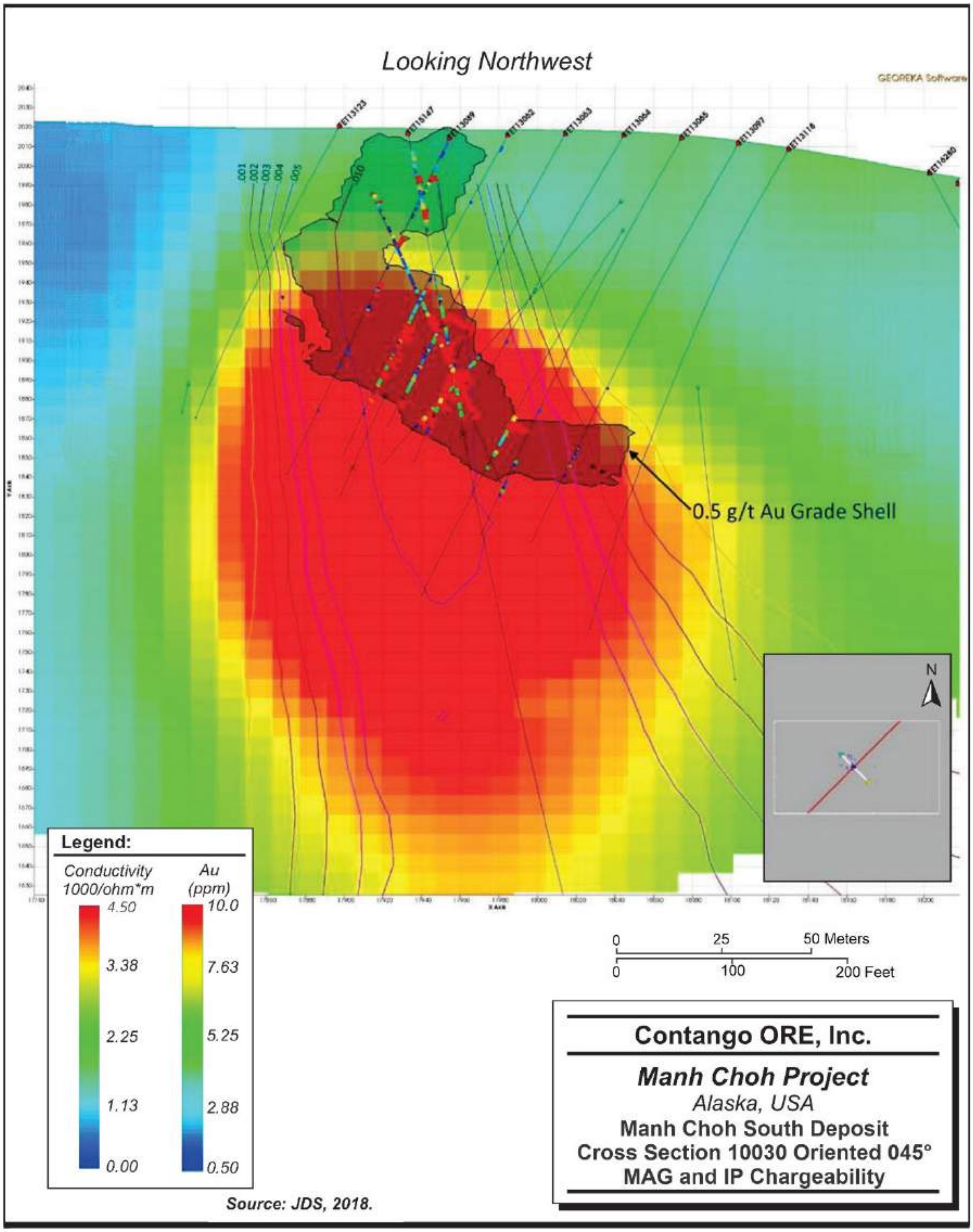
Source: JDS, 2018.

7.1.5. MANH CHOH SOUTH AND NORTH GEOPHYSICAL SIGNATURE

Both the MCS and MCN deposits have unique geophysical characteristics that help define the mineralized bodies. The characteristic signature has been used for additional exploration targeting. The key characteristics are that both deposits are located on annular three dimensional (3D) magnetic chimney-like structures and have a bulls-eye target of IP conductivity high that in the case of MCS sits on and below the deposit and at MCN sits below the deposit.

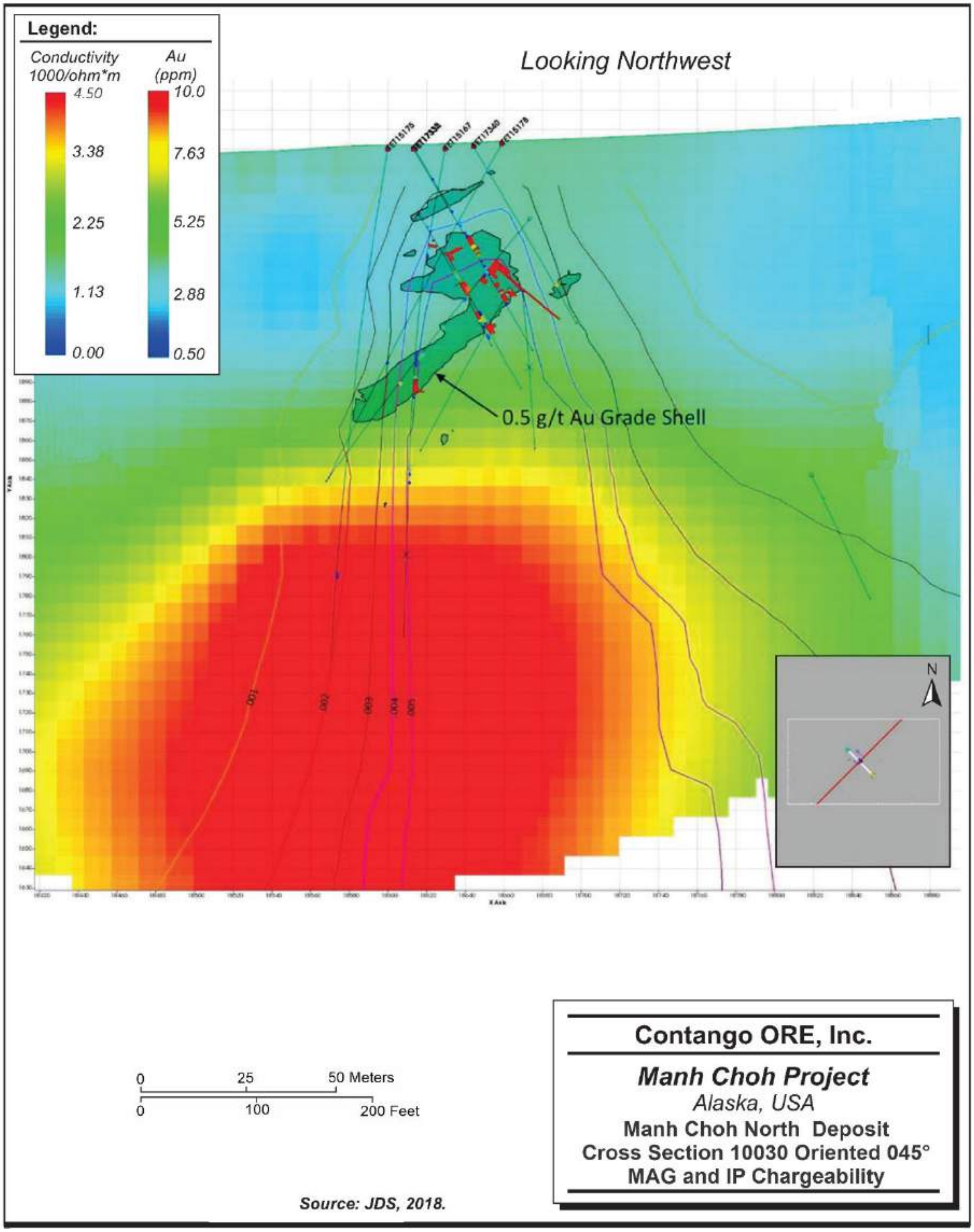
Figure 7-2 shows a cross-section of the MCS deposit with a slice of the 3D magnetic isograde shells (red contours) with gridded IP chargeability. The 3D magnetic shell was derived from UBC inversion of the Dighem RTP-TMI magnetic data (Condor 2016). The IP data is from the Quantec pole-dipole ground survey and was gridded by Peak Gold JV. Figure 7-3 is a cross-section for the MCN deposit that shows a similar 3D inversion magnetic chimney-like feature with a strong IP conductivity anomaly. The deposit itself sits above the conductivity anomaly presumably because of the deeper oxidation level at MCN versus the limited near surface oxidation level at MCS.

FIGURE 7-2 MANH CHOH SOUTH DEPOSIT CROSS-SECTION 9735 ORIENTED 045° - MAG AND IP CHARGEABILITY



Source: JDS, 2018.

FIGURE 7-3 MANH CHOH NORTH DEPOSIT CROSS-SECTION 10030 ORIENTED 045° - MAG AND IP CHARGEABILITY



Source: JDS, 2018.

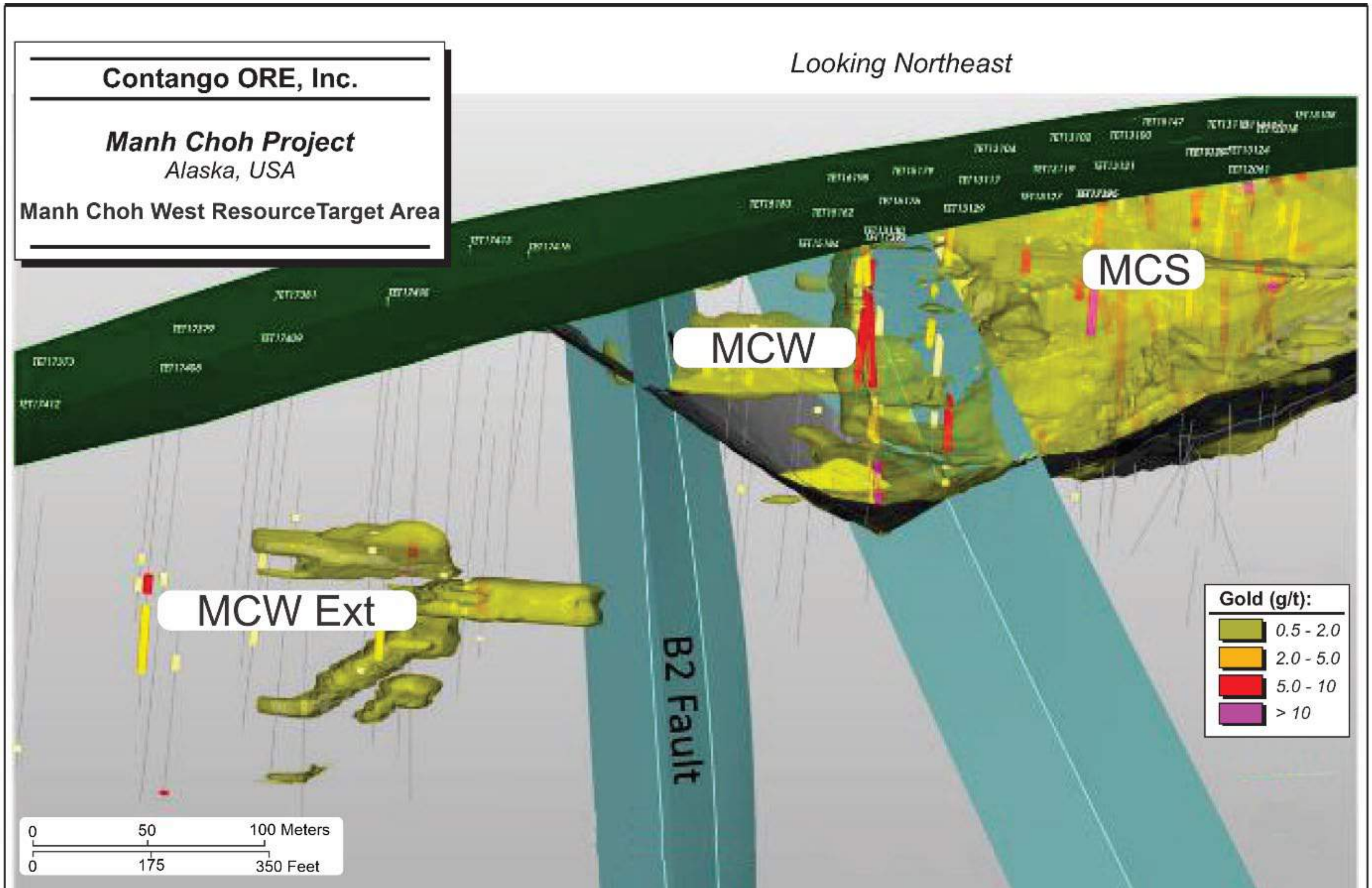
7.1.6. MANH CHOH WEST EXPLORATION

The Manh Choh West (MCW) deposit area is located 550 m NW of VABM Tetling and is believed to be geologically contiguous with the MCS resource area. Insufficient drilling has been completed to confirm or negate this supposition, so the MCW area is treated as a separate mineralized area for purposes of this report. Known gold mineralization at MCW measures 120 m NW-SE and 60 m SW-NE. Drilling intercepted gold mineralization both above and below the B2 fault, a N-NE striking moderately E dipping (45°-50°) D3-age reverse fault.

First drilled in 2012, auriferous skarn mineralization in MCW is generally less sulfide mineral rich than the Main Peak resource area and contains significantly lower arsenic values. Drill holes TET12047-049 contained multi-gram gold grades for multiple meters in an upper skarn zone that returned a combined 54 gram-meters of significant drill intercepts (14 m to 78 m down hole). Follow-up drilling in 2016 defined an upper hangingwall mineralized body and a lower footwall mineralized body related to the N-NE striking moderately east dipping (45°-50°) B2 reverse fault. Drill hole sets TET16217-16219, 16262, 16263, 16264, 16265, and 16273 traced the two zones of mineralization to the NW.

Unlike the MCS and MCN resource areas, there is no host rock fold structure or hinge thickening apparent at MCW. The B2 fault was identified as a post-mineral D3 fault with a clear IP chargeability signature, most likely the result of the white-yellow unoxidized clay-rich gouge which marks the trace of the B2 fault. Calcareous host rock is present above and below the B2 fault. The MCS 305 and 275 D2 plumbing structures are cut by and appear to be offset by the D3-age B2 fault with an apparent west-side down motion (Figure 7-4).

FIGURE 7-4 MANH CHOH WEST RESOURCE TARGET AREA



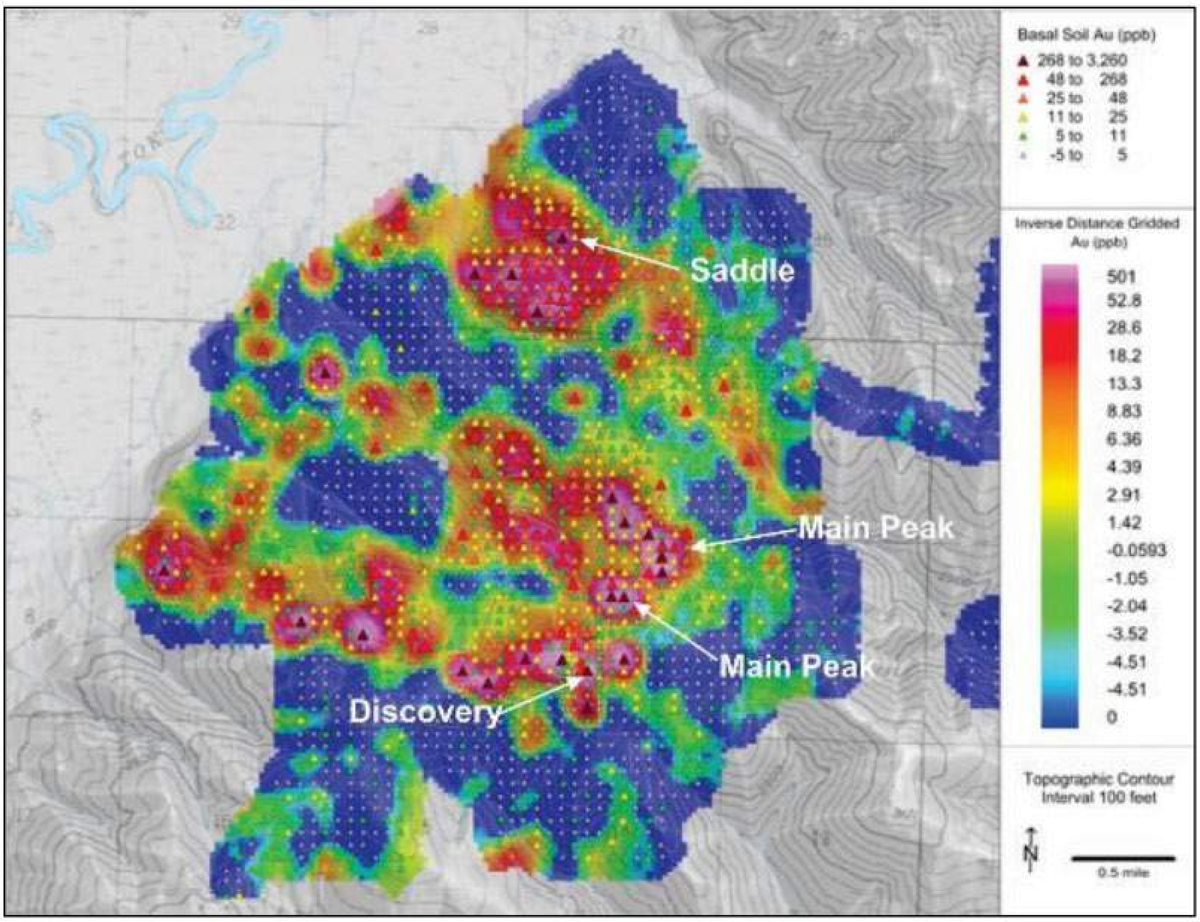
Source: JDS, 2018.

7.1.7. EXPLORATION POTENTIAL

During the 2012 through 2019 exploration programs, several areas of the greater Chief Danny area were explored by soil auger sampling, rock sampling, magnetic and electromagnetic airborne geophysics, IP and/or Titan 24 DCIP/MT geophysics, and core drilling. The exploration targets include the Discovery, 7 O'clock, 8 O'clock, 2 O'clock, Saddle, North Saddle, Tors, Moons, Waterpump, and Forks zones.

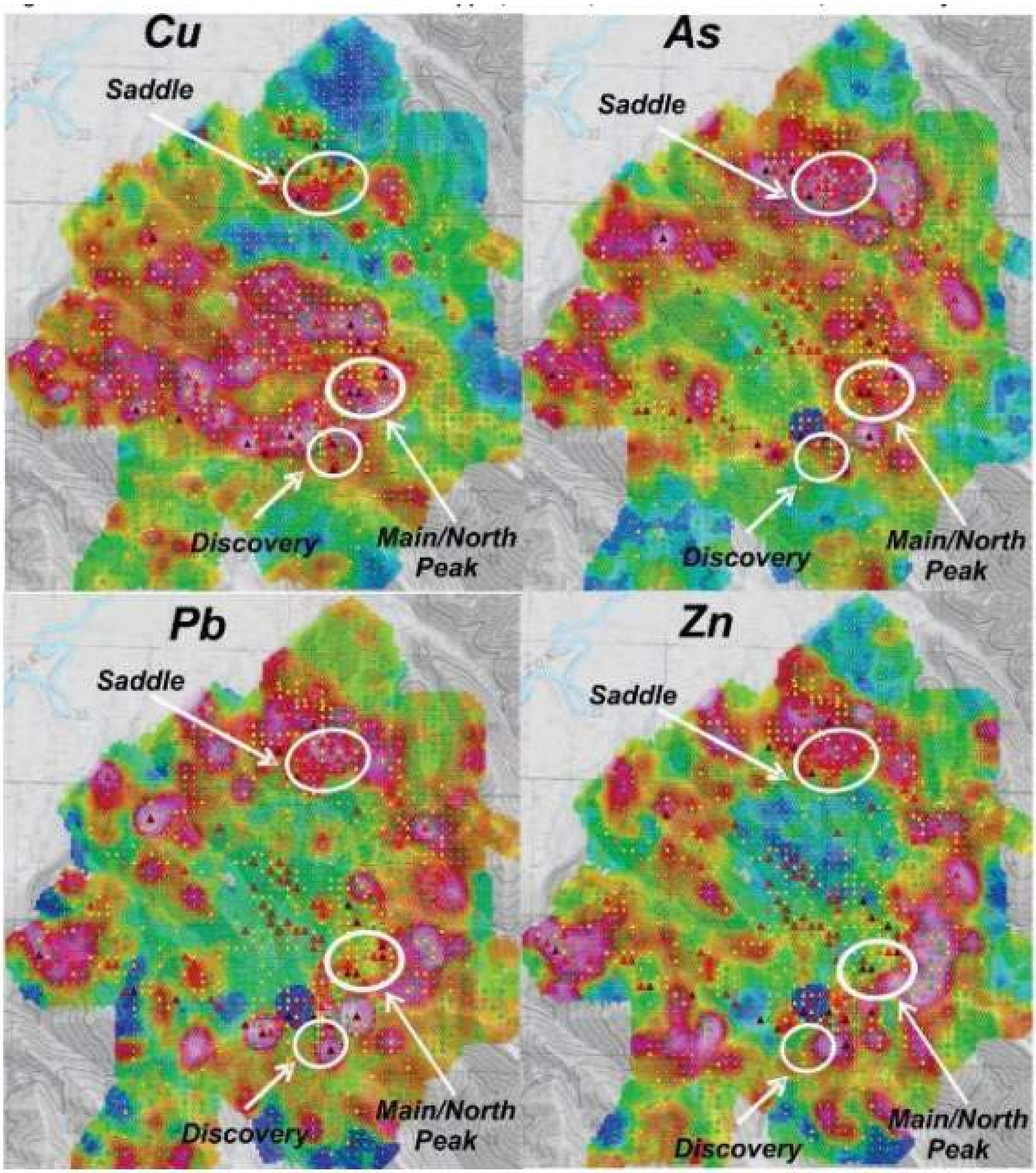
Contango began top of bedrock soil auger sampling in 2010, and continued that work in subsequent years, expanding the soil grid. The result of this work is a remarkably consistent multi-element anomaly, zoned from a copper-rich core, grading outward through a gold-copper zone where the MCS and MCN resources are located, then copper-gold-arsenic and rimmed by lead-zinc-antimony-manganese (Figure 7-5 and Figure 7-6).

FIGURE 7-5 INVERSE DISTANCE GRID OF GOLD IN SOILS, CHIEF DANNY AREA



Other metallic elements of interest, such as silver, bismuth, cobalt, tungsten, manganese and iron, show more irregular patterns that are not as easily explained when compared with gold, copper, arsenic, lead, and zinc. In general, higher gold values tend to have higher bismuth and arsenic values associated with them while copper tends to be associated with anomalous silver and iron (Figure 7-6).

FIGURE 7-6 INVERSE DISTANCE GRID OF COPPER, ARSENIC, LEAD, AND ZINC IN SOILS, CHIEF DANNY AREA



Initial drill targets in the Chief Danny area were identified with soil sampling. Subsequent airborne and ground geophysics and over 80,000 m of diamond core drilling have generated a series of exploration characteristics that allow both pre-drill targeting and post-drill refinement of near-resource targets. These two phases of drill targeting are summarized as follows.

PRE-DRILLING SKARN INDICATORS:

1. Most gold-bearing skarn mineralization is magnetic and conductive because pyrrhotite is the dominant sulfide and causes a positive magnetic response and a negative resistivity response.
2. The Calculated Vertical Gradient (CVG) product of the airborne magnetic survey emphasizes the magnetic response from the upper 500 m of bedrock, and therefore is the most useful for drill targeting of pyrrhotite-dominant gold skarn. Chimney-like magnetic highs occur immediately below the MCS and MCN resource areas.
3. Airborne resistivity has a penetration depth of less than 100 m, and is attenuated by the first conductor it encounters, therefore this tool will only identify very shallow conductors.
4. Plumbing structures are linear, high angle features, and may be clay and/or pyrrhotite rich resulting in low resistivity response in IP surveys. A moderate to weak chargeability high caused by disseminated peripheral pyrrhotite/pyrite may form adjacent to an IP resistivity low.
5. Coincident IP chargeability highs with IP resistivity lows are most likely unmineralized clay-altered shear or gouge zones.
6. Elevated soil gold or pathfinders (particularly arsenic) occur only where skarn or plumbing-related mineralization is exposed at the surface. Even one meter of barren QMS overlying mineralization will prevent a gold-pathfinder response in soils. Soils cannot be used as a condemnation tool.
7. Elevated soil gold or pathfinders may occur with little or no magnetic or resistivity response due to +50 m thick bedrock oxidation zone that has destroyed magnetic minerals and degraded or destroyed magnetic and resistivity responses.

In summary, the best pre-drilling targets are chimney-like CVG highs, coincident with small IP resistivity lows, which are coincident with linear soil sample anomalies containing elevated gold plus pathfinder elements.

POST-DRILLING INDICATORS:

1. Highest gold grades occur in dark green amphibole-rich skarn with coarse grained arsenopyrite and coarse-grained pyrrhotite. Visible gold is rare.
2. The higher the arsenopyrite content, the more likely the interval will contain high-grade gold, however, extremely high arsenic grades can occur in gold-poor zones.
3. The higher the ratio of chalcopyrite to arsenopyrite, the lower the average gold grade.
4. The highest gold grades occur in rock with total sulfide percentages ranging from 5% to 15%. Lower gold values occur at <5% total sulfide percentages, although lower gold also occurs at extremely high sulfide percentages (>20%).
5. Higher gold grades often occur in skarn horizons containing coarse-grained euhedral amphibole and/or calcite, often in discordant, late structures.
6. Geochemical signature of a skarn horizon includes highly anomalous gold, silver, arsenic, bismuth, cobalt, and copper and sometimes anomalous molybdenum, lead, tin, or tellurium.

7. Geochemical signature of a plumbing feature includes extremely high silver, tin, lead, and zinc with highly variable amounts of gold, arsenic, bismuth, cobalt, copper, molybdenum, tin, and tellurium.
8. Higher grade-thickness intervals are more likely to occur up-dip of a plumbing feature than downdip below a plumbing feature.
9. Plumbing structures tend to strike to the NW and dip steeply to the NE or SW.

In summary, the QP has reviewed the exploration information and concurs that the best post-drilling targets occur up-dip of discordant plumbing features in dark green amphibole-rich skarn with coarse-grained arsenopyrite and pyrrhotite, high pyrrhotite:chalcopyrite ratios, total sulfide volumes ranging from 5% to 15%, coarse-grained euhedral amphibole and/or calcite, low levels of lead, antimony, and zinc, and silver values generally below 34 g/t.

The QP believes that there is good exploration potential at the Manh Choh Project between the MCS and MCN deposits. This area was drill tested in 2022 and could potentially expand or add to the Mineral Resource inventory. There is additional gold-silver exploration potential as outlined by the geochemistry in Figure 7-5 along the numerous mineralized trends, including the MCS, MCN, Discovery, and Saddle trends.

7.2. DRILLING

There is no evidence of exploration drilling on the Project prior to 2011.

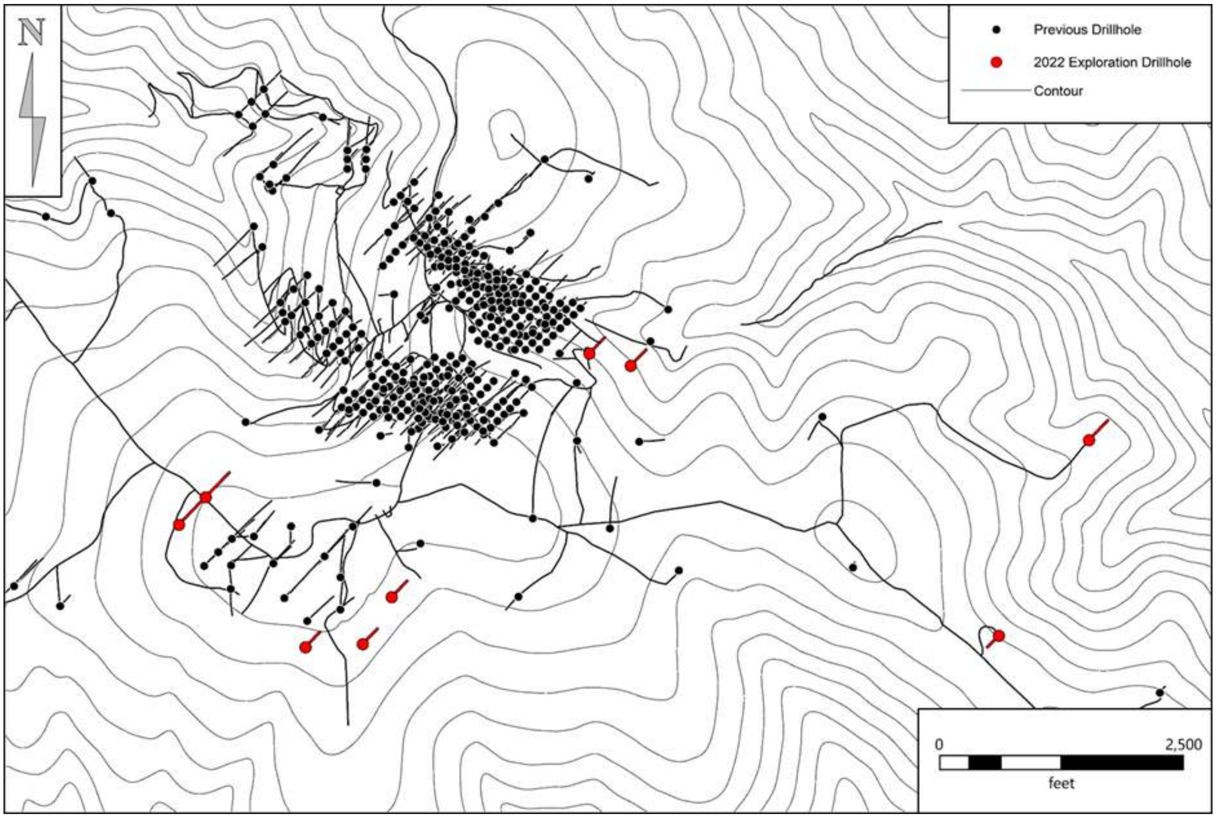
A total of 530 diamond core holes comprising 100,822 m have been completed on the Project between 2011 and December 2022. An annual drilling summary is presented in Table 7-1. A drill hole plan is presented in Figure 7-7 Drill Hole Plan.

TABLE 7-1 SUMMARY OF DRILL HOLES FROM THE MANH CHOH PROJECT

Year	Company	Number of Holes	Length (ft)	Total (m)
2011	Contango/Juneau	11	8,056	2,456
2012	Contango/Juneau	50	36,004	10,974
2013	Contango/Juneau	69	47,025	14,333
2015	Royal Gold/Contango Peak Gold LLC	61	46,126	14,059
2016	Royal Gold/Contango Peak Gold LLC	119	67,332	20,523
2017	Royal Gold/Contango Peak Gold LLC	107	59,344	18,088
2018	Royal Gold/Contango Peak Gold LLC	28	21,179	6,455
2019	Royal Gold/Contango Peak Gold LLC	4	5,811	1,771
2020	KGMA/Contango Peak Gold LLC	13	4,589	1,399
2021	KGMA/Contango Peak Gold LLC	59	28,822	8,785
2022	KGMA/Contango Peak Gold LLC	9	6,493	1,979
	Total	**530**	**330,781**	**100,822**

As of the resource reporting cut-off date (December 31, 2022), a total of 53,400 valid assay intervals were available for 521 diamond drill holes for a total of 324,288 ft (98,843 m) of diamond drilling. The remaining nine drill hole intervals were not validated as of the cut-off date and were still pending but are added in Table 7-1 to show the entire drill footages.

FIGURE 7-7 DRILL HOLE PLAN



7.2.1. DRILLING METHODS AND EQUIPMENT

Drilling from 2011 to 2022 at the Project was primarily diamond core HQ diameter (63.5 m/2.5 in.). A number of NQ2 diameter (50.7 mm/2.00 in.) drill holes were completed in 2011, 2015, 2017, and 2018. Select drill holes were started with PQ (85 mm) diameter and reduced to HQ diameter or drilled entirely as PQ to improve near surface recoveries in 2016, 2017, and 2018. NQ2 and PQ diameter drilling accounts for less than 5% of the total drilling. The majority of annual drill campaigns were completed during May to October months. Drilling activities in 2016 through 2021 were largely conducted on a 24-hour per day, 7-day per week basis.

The majority of 2011 to 2019 drilling was completed using a combination of a road-supported Atlas-Copco CS14 wheel mounted drill rig and a CS1000 fly-capable drill rig. Drilling in 2020 and 2021 was completed with Boart Longyear LF90 track-mounted drills.

The following drilling contractors have been used at the Project since 2011:

- 2011-2012 - Connors Drilling of Montrose, Colorado
- 2013 - CNC Drilling of Fairbanks, Alaska and Connors Drilling

- 2015 - CNC Drilling and First Drilling of Montrose, Colorado
- 2016-2019 - CNC Drilling
- 2020 - Boart Longyear of Salt Lake City, Utah
- 2021 - Ruen Drilling of Clark Fork, Idaho
- 2022 - T&J Drilling of Arlee, Montana

7.2.2. COLLAR AND DOWNHOLE SURVEYS

Drill locations are initially set using handheld global positioning system (GPS) units. High precision surveys are completed periodically during the drill program. All of the drill holes used for the MCS and MCN resource have been precision surveyed.

Collar surveys through August 2016 were found to have a consistent error of less than 2 m due to survey control mis-location. The control was corrected and all collar coordinates adjusted and corrected prior to estimation of current Mineral Resources.

The surveys through 2019 were completed using Leica RTK survey equipment in UTM meters. Surveys in 2020 and 2021 were completed using Trimble RTK equipment in UTM meters. In 2021, all collected data including collar and downhole surveys were transformed to Alaska State Plane using US Survey feet units. The acQuire database with all associated logged data retains UTM Zone 7N coordinate system. The Project coordinate system details are:

- Coordinate System: UTM Zone 7 North
- Datum: NAD 83
- Vertical Datum: NAVD88
- Geoid: AK Geoid 12B

Site visits by the QP have included visits to historic drill locations to verify collar positions. All drill holes visited were monumented and properly located relative to topography and other drill holes. Three collar locations for TET12020, TET12021, and TET19448 were re-surveyed in 2021 to confirm elevation coordinates relative to adjacent drill holes showing approximately 3 m to 5 m (10 ft to 15 ft) of variance. Elevations were not adjusted for the resource estimation. The expected impact is less than 0.1% to resource inventory as TET19448 was drilled entirely outside mineralization and TET12020 and TET12021 have low gold grade mineralization at the northern extents of MCN. Table 7-2 shows the expected changes to collar location elevations for the three holes.

TABLE 7-2 2021 COLLAR VERIFICATION RESULTS

HoleID	Original X	Original Y	Original Z	SPCS83_ TRANS_X	SPCS83_ TRANS_Y	SPCS83_ TRANS_Z	Collar Elevation Change
TET12020	1,492,900.623	3,358,701.578	3,225.518	1,492,900.623	3,358,701.578	3,209.580	(15.938)
TET12021	1,492,905.515	3,358,705.658	3,225.158	1,492,905.515	3,358,705.658	3,209.836	(15.321)
TET19448	1,493,709.675	3,357,175.022	3,166.004	1,493,709.675	3,357,175.022	3,177.070	11.066

Note. Alaska State Plane Zone 2 grid coordinates in US Survey feet.

In 2021, survey control monuments and verification were completed by a professionally licensed surveyor with Lounsbury & Associates, Inc. confirming coordinate details for the Project.

Downhole surveys were completed for each drill hole to measure variation in orientation. Downhole surveys were conducted by the drilling contractors at specified downhole intervals while drilling and typically used a REFLEX EZ magnetic probe attached to the drill rig wireline. In 2021, select holes were surveyed with a REFLEX Gyro Sprint tool representing approximately 5% of all downhole surveys recorded.

Downhole surveys are collected in the field in hard copy and collated by geology staff in Microsoft (MS) Excel compilations corrected for average magnetic declination during drilling. Measurement data is visualized and compared to neighboring surveys for quality control. Some pyrrhotite-bearing measurement data were excluded based on deviation from expected hole trace and magnetic intensity. In 2021, a KGMA review of historic excluded downhole survey data confirmed the selected exclusions. Magnetic declination was revised for all drill data based on month and year drilled to better constrain true azimuth of historic data in acQuire.

7.2.3. RECOVERY

The style of mineralization and host rocks at the MCS and MCN deposits require careful collection of downhole core samples to ensure acceptable recoveries. Drilling samples were collected using a triple-tube method to minimize core loss. Recovery measured at the core shack during logging compares core length to drill interval length and is stated as a percent. Average and median core recovery for Manh Choh are 90% and 96% respectively.

Previous reports have discussed the occurrences of lower recoveries in HQ diameter core samples particularly in near-surface oxidation and at MCN. Local PQ diameter twin holes of HQ diameter drilling oxide zones were completed when HQ diameter recoveries were below 80% to ensure acceptable and representative sample volumes were collected for drilled intervals. Intervals with calculated recovery greater than 100% or consistently below 75% were evaluated.

7.2.4. DEPOSIT DRILLING

Since 2017, drilling at the Project has consisted of angled diamond core holes. Seven RC water well holes were drilled in 2021.

The 2011 drilling program focused on the Discovery prospect 500 m SW of MCS but included three holes targeting the MCS and MCN prospects. The majority of subsequent drilling was at MCS, MCW (subset of MCS), and MCN with over 72,000 m (236,000 ft) of drilling from 403 drill holes, constituting 73% of all Project drilling. Initial definition drilling was completed at MCS in 2013 and 2015 on approximately 30 m (100 ft) spaced section lines with most holes angled 225° SW perpendicular to overall NE dipping mineralization. Major deposit drilling at MCN occurred in 2015 through 2017 infilling 30 m (100 ft) spaced section lines with most holes angled 45° NE perpendicular to overall SW dipping mineralization. An infill program at MCS and MCN was completed during 2021 targeting gaps in previous drilling.

7.2.5. LOGGING PROCEDURES

Drill core was transported from the drill sites to the core shack in Tok Junction via helicopter or truck in the morning and evening. When the core arrived at the core shack, it was washed and laid out on tables, and drill recovery and rock quality designation (RQD) was measured and recorded (Figure 7-8 and Figure 7-9). Beginning in 2020 expanded geotechnical parameters were added to the standard logging procedure to capture additional hardness and fracture information. During logging, the core was written on with chinagraph markers to identify important features by the logging geologist and these features are visible during photographing of the core.

FIGURE 7-8 CORE LOGGING FACILITY IN TOK, TETLIN PROJECT, ALASKA

FIGURE 7-9 EXAMPLE OF SPLIT CORE PRIOR TO SAMPLING, TETLIN PROJECT, ALASKA

In 2011 and 2012, all logging data was recorded using Coreview logging software running on Toshiba netbooks. Starting in 2013, all logging data was recorded using MS Excel on a template designed by Avalon Development, specifically for logging the Tetlin Project drill core. The MS Excel logging template was modified in 2015 to include more features prevalent at both MCS and MCN such as skarn alteration. Logging includes collar, prospect, lithology, alteration, mineralization, structural vein and fault intervals, sample intervals, and comment annotations at the geologist's discretion. Geologists and geotechnicians also complete linear core length recovery, RQD, and density measurements. Implementation of an acQuire database for active logging into the database began in 2021.

After the core was logged it was photographed and stacked for cutting. Core was split in half lengthwise, and one side of split core sampled. The half the core that was not sampled remains in the core box and is stored in wooden boxes, under permanent cover, in Tok. In 2013 and 2015, prior to the core boxes being stored, geotechnicians took readings every 50 cm over the entire hole with a GDD Inc. MPP- EM2S+ Multi Parameter Probe (MPP). The MPP records magnetic susceptibility, conductivity (MHOS/M), and conductor response (Hz).

Sample interval blocks are placed by the logger, leaving every tenth sample number open for blanks and standards. Full sample bags were stacked in polyvinyl super-sacks and stored at the core shack warehouse until they were dispatched to Fairbanks for assay.

7.3. GEOTECHNICAL, HYDROLOGICAL AND METALLURGICAL DRILLING

All core drilled on the Tetlin Project in 2013 was oriented using the Reflex ACT II RD orientation tool. This tool allows the core to be oriented to its original position in the ground. Once a drill run was complete and the core barrel was out of the hole, the drill helper placed the barrel in a horizontal stand, attached the ACT II handheld controller, and rotated the barrel until the controller indicated the down position. At this point the rig geologist, using the bubble level supplied with the ACT II tool, marked the bottom of the core on the downhole side with a red chinagraph marker. The shoe of the core barrel, containing the piece of core with the orientation mark, was removed from the core barrel and set aside. A split tube containing the shoe was pieced back together with the core in the tube and an orientation line was extended up the core as far as possible from the initial orientation mark. Orientation was not able to extend beyond areas of spun core, gouge, or zones of broken rock if the rock could not be pieced back together and the line extend up core beyond this zone with confidence in orientation accuracy. Recovery, RQD, and number of fractures in the core were then recorded by the rig geologist and important features noted in a quick log.

Rig geologists recorded orientation lock interval quality (IQ) by measuring the orientation line lock with the previous or following drill run and assigned a value of 1 to 5. A 5 was recorded if the orientation line locked with the previous and/or following drill run's orientation line and had a lock angle within 10°. A value of 4 had the same requirements except that the lock angle between the two orientation lines was greater than 10° but no more than 20°. A 3 was assigned if no lock was available with the previous or next run but an orientation line was able to be drawn up the core from the orientation mark from the shoe. The value 2 was unused and a value of 1 was assigned if the lock angle between orientation lines was greater than 20°. At this point, core was placed in wooden core boxes by the rig geologists, a run block was placed and hole number, box number, and depths were recorded on the top and front of the box and the box lid secured with wood screws. In 2019, a consultant review of oriented core data found generally acceptable orientation lock interval qualities given the schist fabric and faulted nature of the drill core.

Structural data was processed with a structural calculator program running in MS Excel. Any orientation measurements recorded in core that did not have an orientation lock quality of 3 or greater were not used. In 2013, oriented core reference lines were preserved where possible in the remaining half core after sampling.

In 2020 and 2021, geotechnical drill holes were completed around the perimeter of pit designs. Geotechnical parameters were collected on-rig by a consultant. After completion of the drilling an optical televiewer survey was conducted for in situ structural information. Vibrating wire piezometers and thermistors were installed in select drill holes for additional groundwater and ground temperature information.

Two water wells were completed in 2015 and 2016. Wells were drilled as 8 in. diameter, 800 ft (244 m) water wells with 6 in. standpipes. Well #2 located approximately two miles north of MCN was flow-tested at over 450 gpm for 20 hours without discernable draw-down with calculated recharge rate at 100 gpm. Groundwater monitoring wells were completed in 2019 to measure and monitor groundwater levels, water quality, and temperatures. Seven additional 8 in. diameter groundwater monitoring wells were completed in 2021.

Select holes were drilled at MCS and MCN as PQ diameter and HQ diameter for metallurgical testing in 2020. Additional metallurgical samples were selected from archived drill core during 2021.

7.4. QUALIFIED PERSON'S OPINION ON DRILLING PROGRAMS

In the QP's opinion, there are no drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of the results. The quantity and quality of the lithological, geotechnical, collar, and downhole survey data collected in exploration and infill drill programs are considered to be sufficient by the QP to support the Mineral Resource and Mineral Reserve estimation as follows:

- Core logging was conducted to a sufficient degree of detail and archived samples are safely stored for reference.
- Collar surveys have been performed with adequate precision using industry standards.
- Downhole surveys have been performed using industry standards.
- Core sample recovery is acceptable.
- Geotechnical logging of drill core is of sufficient quantity and quality for open pit design.
- The ground monitoring wells did not indicate any issues that might impact the Project.

8. SAMPLE PREPARATION, ANALYSES, AND SECURITY

8.1. SAMPLING METHOD AND APPROACH

Diamond drill core samples were placed by contract drillers and drill helpers in wooden boxes after each run of core. Depth markers were added by the drill contractor after every run and boxes were labelled with drill hole number and depths contained in the box. Core boxes were then transported to the core shack for logging, photography, sampling, and storage.

After logging, sample interval blocks were placed by the logging geologist, leaving every tenth sample number open for blanks and standards. Sample intervals were generated at the geologists' discretion and notes were added in the logging MS Excel template for each sample noting whether the sample interval was a geologic break or met the maximum sample length criteria for the program, typically not more than 3.1 m (10.0 ft). All Tetlin Project core was split in half lengthwise using core saws. Core is cut perpendicular to foliation by contract geotechnicians. Loggers drew cut lines on the core in areas where they want the core to be cut in a specific way. Split core was placed back in the core boxes until it is sampled. During sampling, one side of the split core from each sample was placed in a cloth sample bag with the sample number written on the bag and the sample tag inside the bag and the bag was tied closed. The half the core that was not sampled remains in the core box and is stored in wooden boxes under permanent cover in Tok. Full sample bags were stacked in super-sacks and stored at the core shack warehouse until they were sent out for assay.

8.2. DENSITY

Samples selected for specific gravity (SG) measurement have the dry sample weight and wet sample weight recorded. Prior to 2020, samples were selected for SG measurements every 20 m (65 ft) downhole. During 2020 and 2021 samples were selected every 15 m (50 ft) and at changes in oxidation or lithology.

Specific gravity procedures using Archimedes' principle are as follows:

- 10 cm to 15 cm (4 in. to 6 in.) samples selected from whole core.
- Oxides and highly broken sulfides are typically dried at 230°F for 24 hours.
- The dried samples are vacuum sealed in <1 mm plastic.
- Samples are weighed dry, and immersed in water.
- The weights are recorded to determine density and are entered into drill hole logging worksheets.
- Intact specific gravity samples are returned to core boxes after density analysis before sampling.

8.3. ANALYTICAL LABORATORIES

All surface samples submitted in 2009, 2010, and drill and surface samples from 2011 were prepared for assay by ALS Chemex, an independent laboratory with ISO/IEC 17025:2005 accreditation, at their facilities in Fairbanks, Alaska and analyzed at their Vancouver, British Columbia facility.

Samples submitted in 2012 were prepared by Acme Analytical Laboratories Ltd. (Acme), an independent laboratory with ISO/IEC 17025 accreditation, at their facilities in Fairbanks and analyzed for gold at their Fairbanks, Alaska facility and for all other elements at their Vancouver, British Columbia facility. Sample reject material was submitted as check assays to be prepared by ALS Chemex at their facilities in Fairbanks, Alaska and analyzed at their Vancouver, British Columbia facility.

Drilling samples in 2013 were prepared by Acme and ALS Minerals, at their respective facilities in Fairbanks, Alaska and analyzed at their respective facilities in Vancouver, British Columbia. ALS Minerals analyzed 57% of the samples and Acme analyzed 43% of the 2013 drilling samples. All 2013 surface samples (soils, sediments, etc.) were prepared and analyzed by ALS Minerals.

All samples submitted in 2015 and 2016 were prepared for assay by ALS Minerals at their facilities in Fairbanks, Alaska and analyzed at their Vancouver, British Columbia facility.

In 2016, select drill core pulps from 2012, 2013, 2015, and 2016 were re-analyzed for Au, Ag, and Cu by cyanide leach with atomic absorption spectroscopy (AAS) finish. These samples were analyzed by ALS Minerals at their Vancouver, British Columbia facility.

Samples during 2017 were prepared and analyzed by both ALS Minerals and Bureau Veritas Minerals, an independent laboratory with ISO/IEC 17025 accreditation. Sample preparation was completed at their Fairbanks, Alaska facilities and analysis completed at their Vancouver, British Columbia facilities for multi-element analysis and Reno, Nevada facilities for primary Au analysis.

In 2018 and 2019, samples were prepared for assay by Bureau Veritas Minerals at their facilities in Fairbanks, Alaska and analyzed at their Vancouver, British Columbia facilities for multi-element analysis and Reno, Nevada facilities for primary Au analysis.

Samples during 2020 and 2021 were prepared by ALS Minerals at their Fairbanks, Alaska, Whitehorse, Yukon, and Vancouver, British Columbia facilities. Sample analysis was performed at the ALS Mineral facilities in Reno, Nevada and Vancouver, British Columbia.

All laboratories are independent of Contango, KGMA, or Peak Gold.

8.4. SAMPLE PREPARATION

Sample preparation procedures have varied over the duration of the Project.

Prior to 2020, sample preparation was completed as outlined below.

- Upon receipt by the preparation laboratory, samples were inventoried. Sample submission information was verified to confirm all samples were present. A received weight was measured, the sample was dried at 160°-180°F in fan forced ovens, and a dry weight was collected.
- A primary jaw crusher was used to crush the core samples to 70% passing 2 mm. Some preparation facilities included two stages of crushing with coarse crushing to 70% passing 19 mm and secondary fine crushing to 70% passing 2 mm.
- The fine crushed samples were riffle-split to obtain a 250 g sub-sample for pulverization. The split was pulverized to >85% passing 75 µm (-200 mesh) with a vibratory ring pulverizer.
- The 250 g pulp was split with 100 g to 120 g sent to the primary analytical laboratory and 10 g to 20 g for separate multi-element analysis. Remaining pulp fraction was retained as the master pulp. An extra pulp was prepared from every 10th coarse and pulverized sub-sample for coarse and pulp replicate analysis.

After 2020, the sub-sample size between crushing and pulverization has been increased to 800 g. An additional split has been collected every 10 samples for internal and external pulp duplicates.

8.5. SAMPLE ANALYSIS

In 2009 to 2019, analytical work consisted of 30 g fire assay with an AAS finish for gold and inductively coupled plasma atomic emission spectrography (ICP-AES) using 4-acid digestion for multi-element analysis at the various laboratories used at the Tetlin Project. Since 2012, check assays have also been analyzed by fire assay with an AAS finish for gold and ICP-AES using 4-acid digestion for multi-element analysis.

All samples above 10 ppm Au were automatically re-assayed using a gravimetric finish. In 2018, ICP multi-acid analysis was conducted in Vancouver, British Columbia using a Spectro Ciros Vision and Spectro Arcos ICPs. Over-limits, above upper detection limits, are automatically re-analyzed for Ag, Cu, Pb, and Zn with an AAS finish.

Since 2020, analytical methods have been modified. The size of gold fire assay with an AAS finish increased from 30 g to 50 g. Over-limit analyses for gold was decreased to 5 ppm and added for As, Co, and S.

8.6. QUALITY ASSURANCE AND QUALITY CONTROL

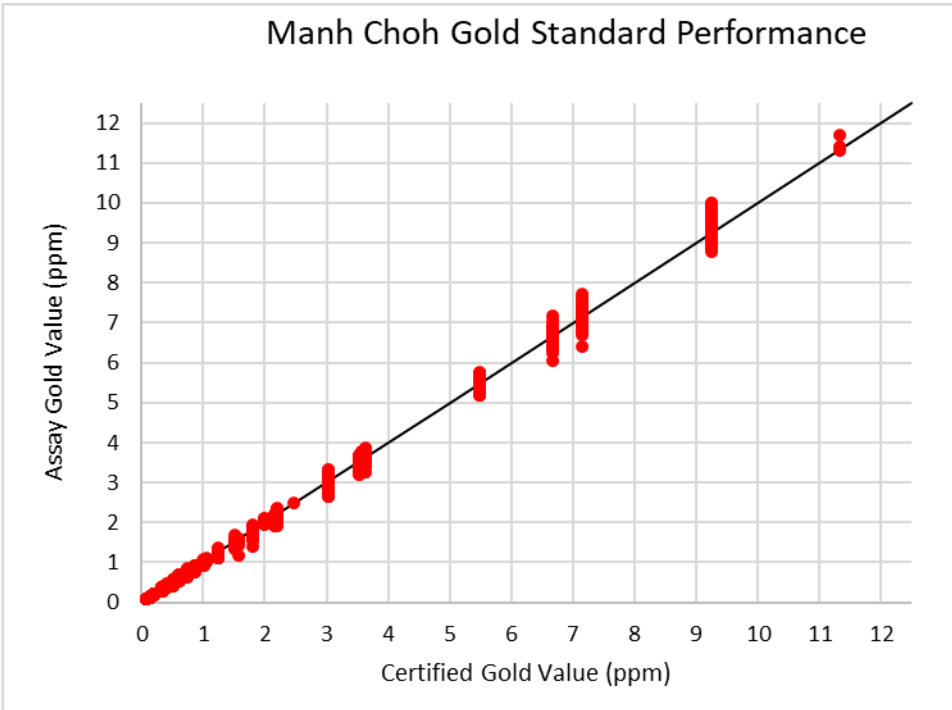
A blank or standard has been inserted at a rate of approximately 10% since 2011. Certified reference materials (CRM or standards) are purchased from Rocklabs and Ore Research & Exploration Pty Ltd (OREAS) and reflect a range of Au, Ag, and Cu grades that span the grade range at Tetlin. Blank material is sourced from Browns Hill Quarry in North Pole, Alaska and each blank contains approximately one kilogram of material.

There are 4,706 gold bearing standards (8% of the database intervals) and 1,863 blanks (3% of the database intervals) to date. There are fewer measured results for Cu and Ag because some of the standards are not certified for these metals.

8.6.1. STANDARDS

Figure 8-1 is a summary plot of all of the assay results for standards versus the certified standard value on the X axis. The graph indicates that there is no observed bias and that sample swaps are not apparent in the standard value range. The total standard failure rate for the Project is under 2%, and the standards performance indicates no significant areas of concern.

FIGURE 8-1 STANDARDS PAIRS PLOT, 2011 THROUGH 2021



8.6.2. BLANKS

Blank material assayed above 0.025 ppm Au is treated as a failure. Total blank failure for the Project is below 2.5%. Based on the performance of blank material, there are no significant concerns.

8.6.3. REPLICATES

Pulp and crush duplicates of samples have been taken since 2015. To date, 1,427 pulp duplicates and 888 crush duplicates have been collected. In 2021, field duplicates were also collected by using the remaining half-split core after collecting the primary sample. Field duplicates were taken from 2021 drill core as well as select drill holes from previous campaigns. To date, 261 field duplicates have been collected.

Figure 8-2, Figure 8-3, and Figure 8-4 plot gold assay results for pulp, crush, and field duplicates, respectively.

FIGURE 8-2 PULP REPLICATE GOLD ASSAY RESULTS

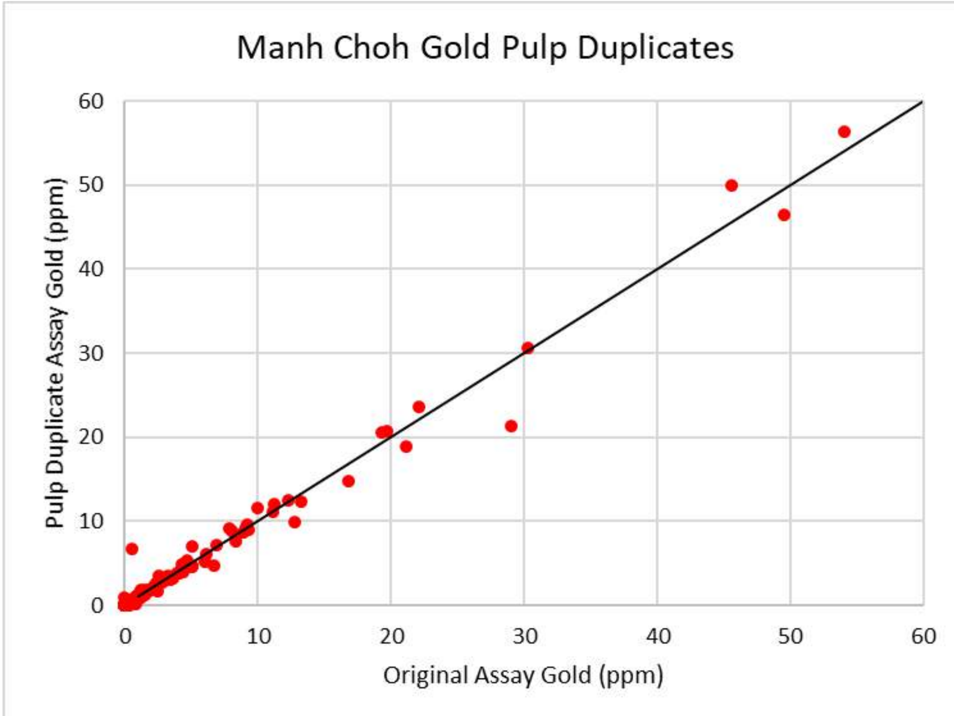


FIGURE 8-3 COARSE REJECT REPLICATE ASSAY RESULTS

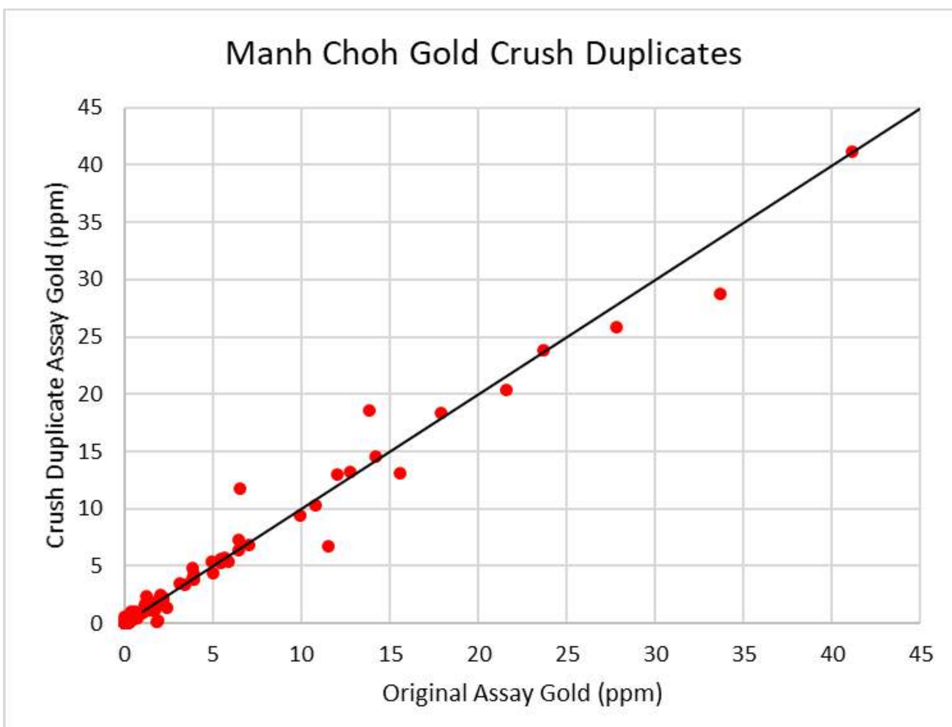
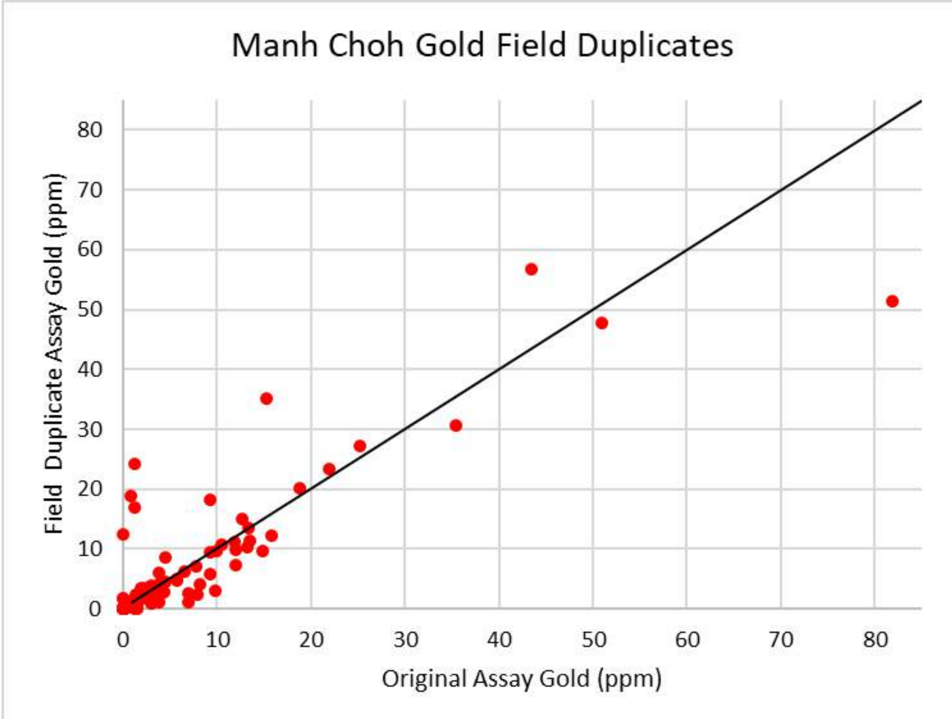


FIGURE 8-4 FIELD REPLICATE ASSAY RESULTS



8.7. SAMPLE STORAGE AND SECURITY

All samples processed in 2009 through 2021 were catalogued in the field and shipped via ground transport to the respective preparation facilities. A sample submittal document is prepared and chain of custody forms are submitted with the samples.

8.8. QUALIFIED PERSON'S OPINION ON SAMPLE PREPARATION, ANALYSIS AND SECURITY

The QP is of the opinion that the samples taken and the sample preparation, analysis, and security procedures are adequate and suitable for Mineral Resource and Mineral Reserve estimation.

9. DATA VERIFICATION

The drilling, data collection, and database management for the Project was completed and administered by Avalon Development Corp. as a contractor to Peak Gold through 2019. Beginning in 2020, KGMA became operator of the Project and took over drilling, data collection, and database management for the Project. Drilling at the Project that was used in this estimate spanned the period of 2011 through June 2021. KGMA geologists and database staff under the direction of the QP reviewed the data collection procedures as well as quality assurance and quality control (QA/QC) procedures and results to verify the Project drill hole database.

The database verification included the following steps:

- Imported all assay data from the original certificate into the acQuire database for verification. Imported all geologic data from the original digital logs to validate data.
- A statistical analysis of the QA/QC inserted standards;
- A statistical analysis of the QA/QC inserted blanks;
- A statistical analysis of the replicate pulps and replicate coarse rejects;
- A statistical comparison of the two assay laboratories using nearest neighbor methods;
- Review of the specific gravity data collection;
- Review of the drill hole collar survey information; and
- During site visits in 2019 and 2020, KGMA geologists observed and reviewed the sample procedures and quality control data handling as described in this text.

The QP carried out a review of these protocols and procedures during his site visit in 2021.

9.1. QUALIFIED PERSON'S OPINION ON ADEQUACY OF THE DATA

As a result of the data verification work that is summarized in this section, the QP finds that the Project data is reliable and suitable for the estimation of Mineral Resources and Mineral Reserves.

10. MINERAL PROCESSING AND METALLURGICAL TESTING

10.1. TEST WORK PROGRAMS AND LABORATORIES

Three historical metallurgical testing programs and one recent metallurgical test program were performed on Manh Choh mineralized samples by the following independent laboratories.

1. SGS (Burnaby, British Columbia) performed gravity concentration and flotation tests in 2014 (SGS, 2014). ISO/IEC Standard 17025:2005 Accreditation.
2. Kappes, Cassiday & Associates (KCA) (Reno, Nevada) performed gravity concentration, flotation, and cyanide leaching tests in 2014 (KCA, 2014). No accreditation at that time.
3. McClelland Laboratories, Inc. (MLI) (Sparks, Nevada) performed flotation, magnetic separation, gravity concentration, cyanide leaching, and comminution tests on the Manh Choh mineralized samples from 2017 to 2019 (MLI, 2017, 2018, 2019). MLI performed flotation, gravity concentration, cyanide leaching, and comminution tests on Manh Choh samples in 2021 (MLI, 2021; Pocock, 2022). ISO/EIC Standard 17025:2017 Accreditation.
   - In 2018, MLI sub-contracted Bureau Veritas (BV) (Richmond, British Columbia) to perform analyses on cleaner flotation concentrates and tailings.
   - In 2021, MLI sub-contracted Mineral Lab, Inc. (Mineral Lab) (Golden, Colorado) to perform X-Ray Diffraction (XRD) analyses on mineralized composites.
   - MLI sub-contracted Cyanco International, LLC (Sparks, Nevada) to perform testing and analysis related to the use of cyanide.
   - MLI sub-contracted FLSmidth (Salt Lake City, Utah) to perform semi-autogenous grinding (SAG) mill comminution (SMC) testing.

In addition, Steinert carried out an ore sorting test program (Steinert, 2021).

10.2. METALLURGICAL SAMPLING PROGRAMS

For SGS's 2014 test work, all samples collected were from MCS. Test composite information is listed in Table 10-1.

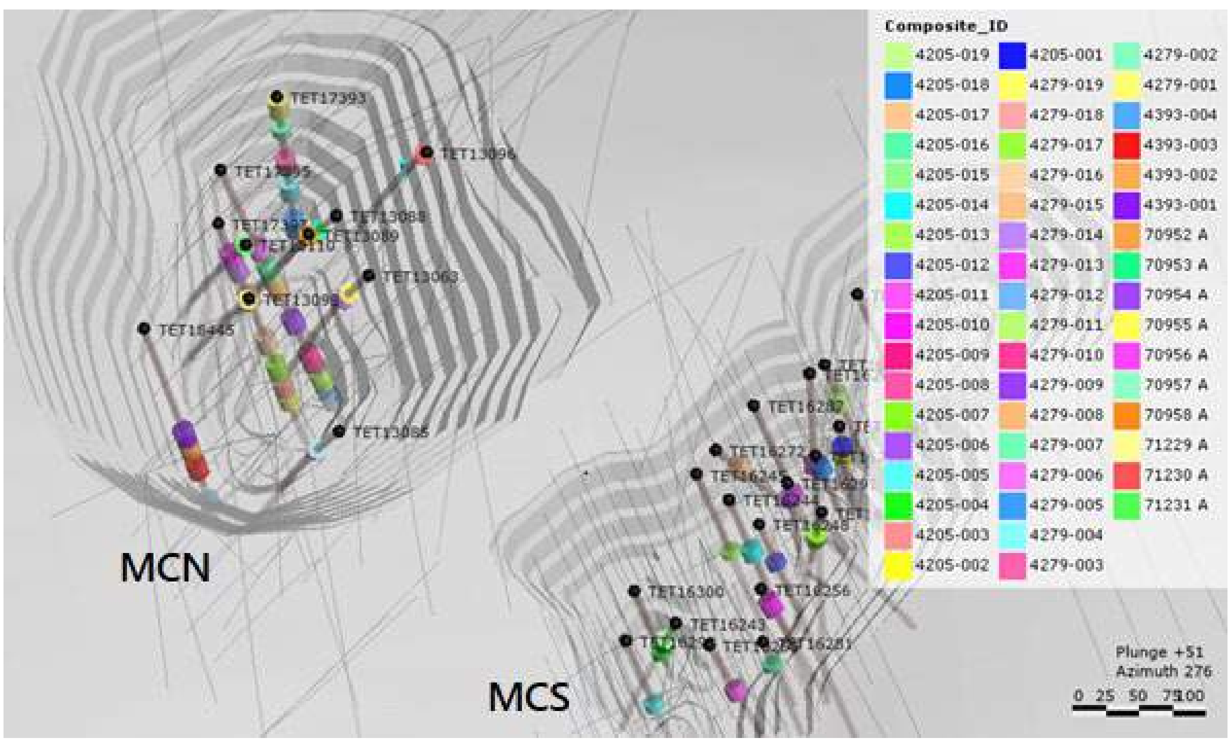
TABLE 10-1 SGS TEST COMPOSITES SUMMARY

Composites ID	Laboratory	Au (oz/st)	Ag (oz/st)	Cu (%)	S_{total} (%)	Label
A - 564063	SGS	2.424	0.15	0.17	10.9	564063 – AVALON_DEV Drill Core, Split Rej FBK13000089RJ23
B - 573066	SGS	0.004	6.56	5.85	29.2	FA 1312588R027 TET 573066 Raw Sample FA 13125881 R 027
C - 565119	SGS	0.656	1.13	1.31	10.5	565119

Samples tested by KCA and MLI before 2020 were collected from 29 drill core samples from MCS and MCN. The sample locations are illustrated in Figure 10-1.

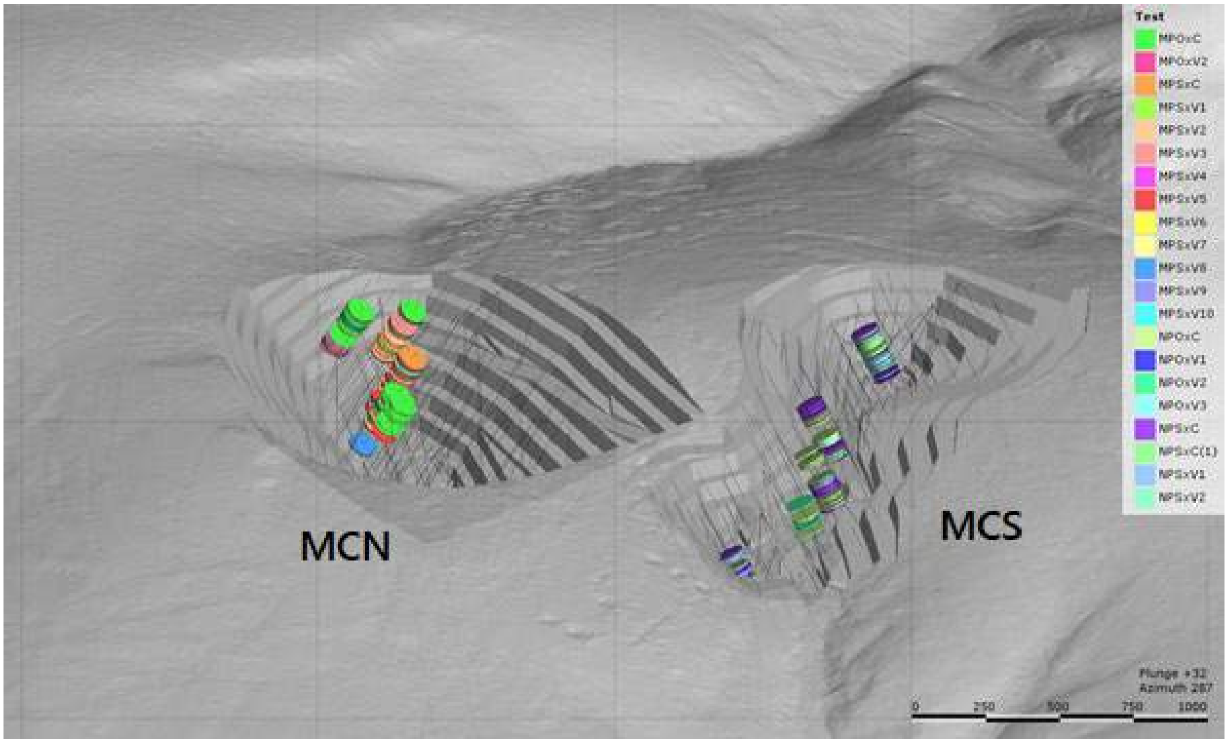
Samples tested by MLI in 2021 were collected from 10 drill core samples from a drill program completed in early 2021. One quarter of the drill core was used for geochemistry purposes with the remaining three quarters of the core used for MLI's metallurgical testing program. The sample locations are illustrated in Figure 10-2. Sample selection was carried out using predicted exploration block model grades and logged data. Samples were selected by identifying the desired redox and grade in each individual hole. The sample selection criteria are listed in Table 10-2.

FIGURE 10-1 KCA AND MLI DRILL CORE SAMPLES PRIOR TO 2020



Source: KGMA, 2022a

FIGURE 10-2 MLI 2021 DRILL CORE SAMPLES



Source: KGMA, 2022a

TABLE 10-2 SAMPLE SELECTION CRITERIA

Composites ID	Sample Name	Redox Class	Au Range ppm	S Range %	Location
MPSxC	Manh Choh South Sulfide Master Composite	Unoxidized	1-10	1-5	-
MPOxC	Manh Choh South Oxide Master Composite	Oxidized	1-10	<1	-
NPSxC	Manh Choh North Sulfide Master Composite	Unoxidized	1-10	0.5-5	-
NPSxC(1)	Manh Choh North Sulfide Master Composite (1)	Unoxidized	1-10	0.5-5	-
NPOxC	Manh Choh North Oxide Master Composite	Oxidized	1-10	<0.5	-
MPSxV1	Manh Choh South Sulfide Variability Composite 1	Unoxidized	>5	-	shallow
MPSxV2	Manh Choh South Sulfide Variability Composite 2	Unoxidized	>5	-	deep
MPSxV3	Manh Choh South Sulfide Variability Composite 3	Unoxidized	<3	-	shallow
MPSxV4	Manh Choh South Sulfide Variability Composite 4	Unoxidized	<3	-	deep
MPSxV5	Manh Choh South Sulfide Variability Composite 5	Unoxidized	3-5	1-3	east
MPSxV6	Manh Choh South Sulfide Variability Composite 6	Unoxidized	3-5	1-3	west
MPSxV7	Manh Choh South Sulfide Variability Composite 7	Unoxidized	-	>3	shallow
MPSxV8	Manh Choh South Sulfide Variability Composite 8	Unoxidized	-	>3	deep
MPSxV9	Manh Choh South Sulfide Variability Composite 9	Unoxidized	-	<1	shallow
MPSxV10	Manh Choh South Sulfide Variability Composite 10	Unoxidized	-	<1	deep
MPOxV1	Manh Choh South Oxide Variability Composite 1	Oxidized	>5	>1	average
MPOxV2	Manh Choh South Oxide Variability Composite 2	Oxidized	<5	<1	average
NPSxV1	Manh Choh North Sulfide Variability Composite 1	Unoxidized	>5	>1	average

Composites ID	Sample Name	Redox Class	Au Range ppm	S Range %	Location
NPSxV2	Manh Choh North Sulfide Variability Composite 2	Unoxidized	<5	<1	average
NPOxV1	Manh Choh North Oxide Variability Composite 1	Oxidized	>3	-	shallow
NPOxV2	Manh Choh North Oxide Variability Composite 2	Oxidized	<3	-	shallow
NPOxV3	Manh Choh North Oxide Variability Composite 3	Oxidized	>3	-	deep
NPOxV4	Manh Choh North Oxide Variability Composite 4	Oxidized	<3	-	deep

10.3. METALLURGICAL CHARACTERIZATION

In 2014, SGS performed mineralogy analysis on metallurgical test head samples. In 2018, Bureau Veritas (BV), as sub-contractor to MLI, performed analyses on cleaner flotation concentrates and tailings. The analyses indicate that the predominant sulfide mineral in the MCS deposit is pyrrhotite while the predominant copper mineral is chalcopyrite. Pyrite, arsenopyrite, galena, and sphalerite were also present in the metallurgical samples. Gold was observed in the samples and is predominantly free gold and electrum.

During the 2021 metallurgical test campaign by MLI, XRD analysis was performed on ore composites by Mineral Lab, Inc. (sub-contracted by MLI). Results of the XRD analysis indicated that MCS contain substantial pyrrhotite (up to 20%). Arsenopyrite, orpiment, marcasite, and other sulfide minerals were observed in unoxidized composites.

10.3.1. 2014 SGS MINERALOGY REPORT

In 2014, SGS performed XRD, QEMSCAN, optical microscopy, Scanning Electron Microscopy (SEM) equipped with Energy Dispersive Spectrometers (EDS), and chemical analysis on three metallurgical tests samples, 564063 A, 573066 B, and 565119 C.

The analysis found all three samples contain moderate (10% to 30%) to major (>30%) pyrrhotite. Sample 573066 B contains moderate chalcopyrite and Sample 565119 C contains minor (2% to 10%) chalcopyrite. All samples contain minor to trace amounts of pyrite. Sample 565119 C also contains trace amounts of arsenopyrite and marcasite.

A summary of the liberation and association, exposure, and grain size of the gold for samples 563063 A and 565119 C is provided in Table 10-3. No liberation and association, exposure, or grain size measurements were performed on Sample 573066 B due to low gold concentration in the sample.

Samples 563063 A and 565119 C have different mineral associations and gold grain sizes. Sample 563063 A consists of large size free gold, whereas gold in Sample 565119 C is mainly associated with sulfide minerals and contains fine grained gold. Taken together, the results suggest a gold recovery circuit design having gravity concentration followed by finer grinding for further liberation.

TABLE 10-3 2014 SGS GOLD MINERAL OCCURRENCE

Gold Minerals	Distribution_%	564063 A	565119 C
Liberation and Association	Liberated	56.7	23.1
	Gold Minerals: Sulfides	17.2	60.1
	Gold Minerals: Silicates	2.1	0.2
	Complex Grains	24	16.6
Exposure	Exposed	6.9	12
	–0–- 80% Exposed	65.4	17.2
	–0–- 30% Exposed	26.3	57.7
	locked	1.4	13
Grain Size	>200 microns	7	0
	1–0–- 200 microns	41.2	0
	–0–- 100 microns	20.9	3.1
–0–- 50 microns	30.9	96.9	

10.3.2. 2018 BV MINERALOGY REPORT

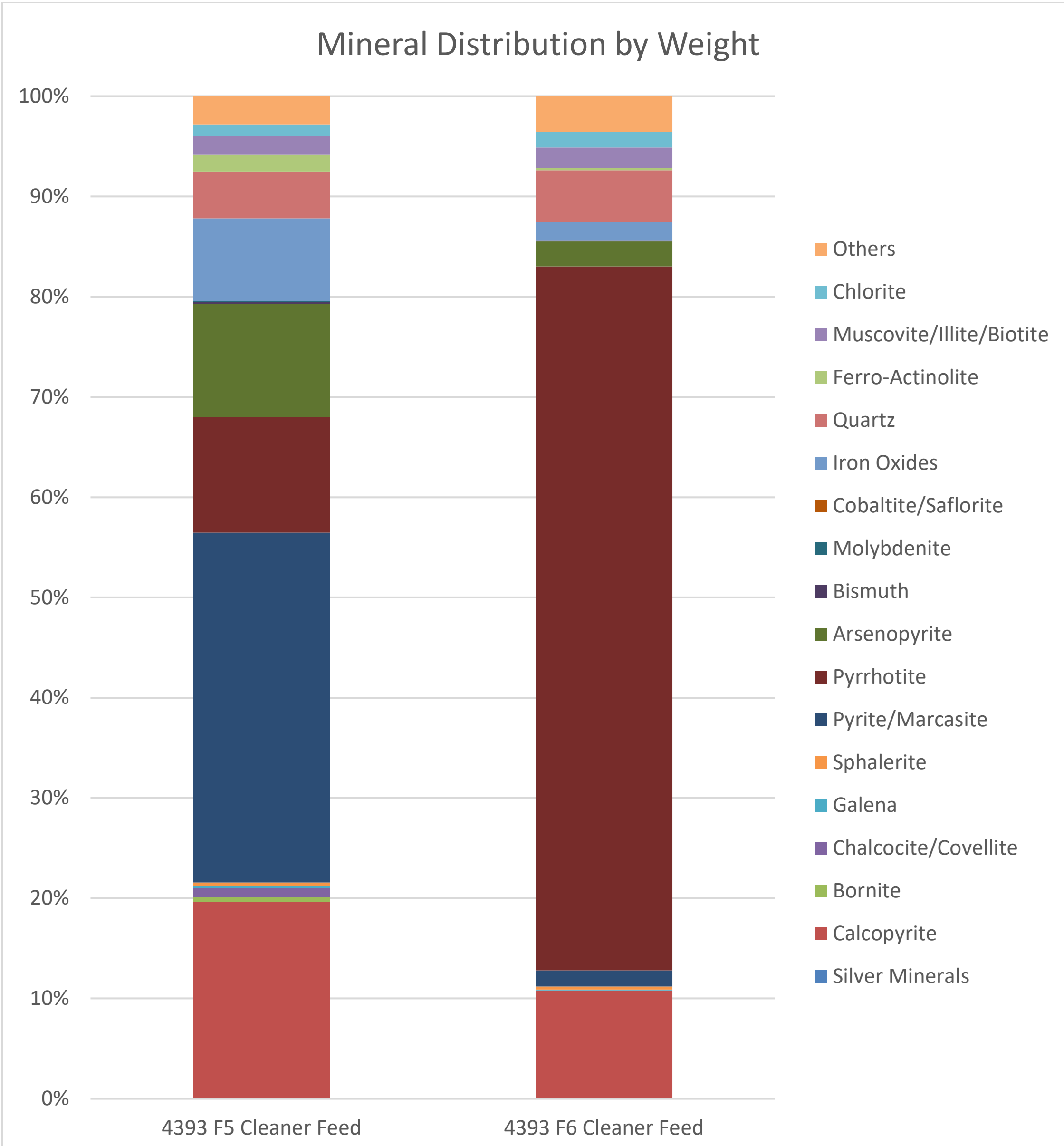
In 2018, MLI sub-contracted mineralogical assessment to BV in Richmond, British Columbia, Canada. BV analyzed two cleaner concentrate samples and two cleaner tailing samples. The main objective of the analysis was to provide evidence and guidance for improving the rougher and cleaner flotation test procedure for copper minerals. The mineral distribution for the rougher concentrates which generated the two cleaner concentrates and tailings is shown in Figure 10-3.

The analysis indicates that the most abundant mineral in the 4393 F5 rougher concentrate is pyrite/marcasite, followed by chalcopyrite, pyrrhotite, and arsenopyrite. There are also approximately 8% iron oxides identified in the rougher flotation concentrate. Minor minerals include bornite, chalcocite, and covellite.

The major mineral in the 4393 F6 rougher concentrate is pyrrhotite, with approximately 10% being chalcopyrite. There are also trace amounts of arsenopyrite, pyrite, and galena in the rougher concentrate.

Analysis of gold deportment shows approximately 40% of the gold in feed samples 4393 F5 and 4393 F6 is native gold and electrum.

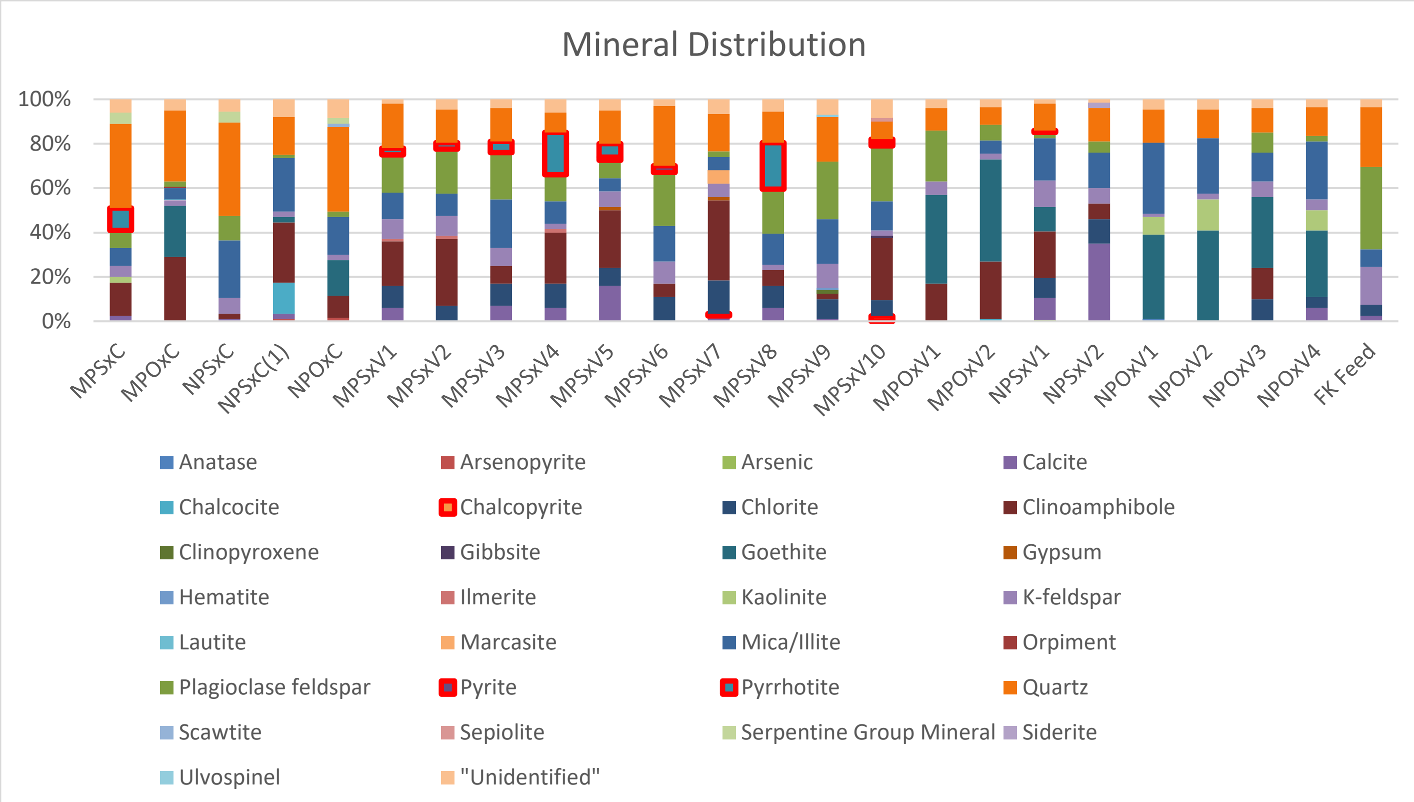
FIGURE 10-3 2018 BV MINERAL DISTRIBUTION



10.3.3. 2021 MINERAL LAB, INC REPORT

In 2021, MLI sub-contracted XRD assessment to Mineral Lab. Mineral Lab analyzed five Manh Choh master composites, 18 Manh Choh variability composites, and one Fort Knox leach feed composite. The mineral distribution is shown in Figure 10-4. The analysis indicates that the most common sulfide gangue minerals in the MCS sulfide samples are pyrrhotite, pyrite, and chalcopyrite.

FIGURE 10-4 MINERAL DISTRIBUTION BY MINERAL LAB, INC.



10.3.4. PHYSICAL CHARACTERISTICS

In the 2021 MLI metallurgical test work campaign, 23 Manh Choh ore composite samples were tested for specific gravity (SG). The SG of these samples ranges from 2.66 to 2.92 with a weighted average of 2.82. Ore moisture is assumed to be 2% to 3%.

In the 2021 MLI metallurgical test work campaign, leached tailing composites were sent to Pocock Industrial, Inc. (PII) for solid liquid separation (SLS) tests. The result (Table 10-4) shows that with proper type and dosage of flocculant, and at a feed density of 16.5% solids, the Manh Choh leach tailing thickening underflow density can reach up to 64% solids. For design purposes, a 60% tailing underflow density was considered for the FS.

TABLE 10-4 2021 PII SLS TEST RESULT

Material Tested	Recommended High-Rate Thickener Operating Parameter Ranges						
	Tested Feed Solids (%)	Flocculant			Design Basis Net Feed Loading (m^3/m^2hr)	Predicted Overflow TSS Conc. Range (mg/L)	Predicted Underflow Density
		Type	Dose (g/MT)	Conc. (g/L)			
AL-211 Leach Slurry	16.5	SNF AN905SH	38-42	0.1	4.2	150-250	64%

10.3.5. COMMINUTION CHARACTERISTICS

In June 2018, seven metallurgical composites (three from MCN and four from MCS) were tested to measure abrasion index, Bond ball mill work index, and rod mill work index. Samples selected were well distributed in both pits. In 2021, four master composites and eight variability composites were tested by MLI. The results in Table 10-5 demonstrate that all samples are between soft and medium hardness and abrasiveness.

Two sulfide master composite samples were sent to FLSmidth for semi-autogenous grinding (SAG) mill comminution (SMC) testing. The results are listed in Table 10-6 and Table 10-7. Based on the JKTech Database, Composite NPSxC(1) is considered to be medium to soft hardness, while Composite MPSxC is considered to be hard.

TABLE 10-5 2021 MLI COMMINUTION TEST RESULTS

Composites ID	Sample Location	Ore Type	Bond Ball Mill Work Index		Bond Rod Mill Work Index		Abrasion Index		Crusher Work Index	
			kWh/st	Class	kWh/st	Class	g	Class	kWh/st	Class
PK18-MET-001	Main Peak		12.44	Medium	12.52	Medium	0.174	Moderate		
PK18-MET-002	Main Peak		12.62	Medium	11.46	Medium	0.096	Light		
PK18-MET-003	Main Peak		10.50	Medium	9.67	Soft	0.136	Moderate		
PK18-MET-004	Main Peak		9.60	Soft	11.65	Medium	0.097	Light		
PK18-MET-005	North Peak		11.29	Medium	8.96	Soft	0.124	Moderate		
PK18-MET-006	North Peak		11.11	Medium	7.05	Soft	0.101	Moderate		
PK18-MET-007	North Peak		12.14	Medium	9.96	Medium	0.008	Light		
MPOxC	Main Peak	Oxide	10.76	Medium	9.33	Soft				
MPOxV1	Main Peak	Oxide	9.88	Soft	8.83	Soft	0.021	Light	2.560	Very Soft
MPSxC	Main Peak	Sulfide	13.72	Medium	12.26	Medium				
MPSxV1	Main Peak	Sulfide	12.48	Medium	10.97	Medium	0.180	Moderate	5.961	Very Soft
MPSxV2	Main Peak	Sulfide	13.16	Medium	12.13	Medium	0.220	Abrasive	4.611	Very Soft
MPSxV3	Main Peak	Sulfide	12.36	Medium	12.57	Medium	0.145	Moderate	4.901	Very Soft
MPSxV4	Main Peak	Sulfide	13.30	Medium	11.45	Medium	0.142	Moderate	4.981	Very Soft
MPSxV5	Main Peak	Sulfide	14.07	Medium	11.88	Medium	0.135	Moderate	4.841	Very Soft
NPOxC	North Peak	Oxide	11.98	Medium	8.27	Soft				
NPOxV3	North Peak	Oxide	9.76	Soft	9.99	Soft	0.084	Light	5.351	Very Soft
NPSxC(1)	North Peak	Sulfide	13.10	Medium	12.43	Medium				
NPSxV1	North Peak	Sulfide	12.53	Medium	10.12	Medium	0.152	Moderate	5.041	Very Soft
Average			**12.26**		**10.85**		**0.135**		**4.781**	
75th Percentile			**13.26**		**12.22**		**0.173**		**5.273**	

TABLE 10-6 SMC TEST RESULTS

Composite ID	Dwi		Mi Parameters			SG
			Mia	Mih	Mic	
	kWh/m³	%	kWh/mt	kWh/mt	kWh/mt	
NPSxC(1)	4.5	23	13.00	8.80	4.600	2.930
MPSxC	6.7	51	18.10	13.40	6.900	2.920

TABLE 10-7 PARAMETERS DERIVED FROM THE SMC TEST RESULTS

Composite ID	A	b	A x b	t_a	SCSE (kWh/mt)
NPSxC(1)	51.4	1.28	65.8	0.58	8.27
MPSxC	62.2	0.7	43.5	0.39	9.96

10.4. METALLURGICAL TESTING

Results of metallurgical testing programs demonstrates that Manh Choh ore is amenable to being recovered by gravity concentration, flotation, and cyanidation. Both MCS and MCN ores respond well to cyanide leaching, gravity concentration, and flotation.

In 2014, KCA performed gravity concentration, flotation, and leaching tests on 13 composites made from 18 assay reject samples from MCS. During the same period, SGS performed gravity concentration and flotation tests on three ore samples from MCS.

From 2017 to 2018, more comprehensive metallurgical test campaigns were undertaken by MLI. Samples from both MCN and MCS were subjected to gravity concentration, cyanide leaching, and comminution testing. A total of 45 ore composites were tested, of which 22 composites were made from MCN drill core samples and 23 composites were made from MCS drill core samples.

In 2019, additional drill core samples from Manh Choh were tested using rougher flotation, cleaner flotation, and magnetic separation.

In 2021, more drill core samples from Manh Choh were sent to MLI by Kinross. The samples were tested using agitated leaching, flotation, gravity concentration, etc.

10.4.1. CYANIDE LEACHING TESTS

TEST WORK BY KCA

In May 2014, KCA performed 26 cyanide bottle roll tests (BRT) on 13 ore composites made from MCS drill core samples. A total of 13 tests were conducted on head samples and 13 leaching tests were conducted on the gravity concentration tailings. All samples were ground to 80% passing (P_{80}) 75 µm and leached at 40% solid. The NaCN concentration was maintained at 1 g/L. The leaching tests were run for 96 hours. Test results are shown in Figure 10-5 to Figure 10-7.

For the leaching tests on the fresh composites without any gravity concentration, the average gold recovery is 83% and the average silver recovery is 32%. The variance of these test results is high between 55% and 98% for gold and 0% and 86% for silver (Figure 10-5).

Tests on the gravity concentration tailings show that the average gold recovery increases to more than 85% and the silver recovery, to greater than 50% (Figure 10-5).

FIGURE 10-5 2014 KCA BRT GOLD AND SILVER EXTRACTION RATES

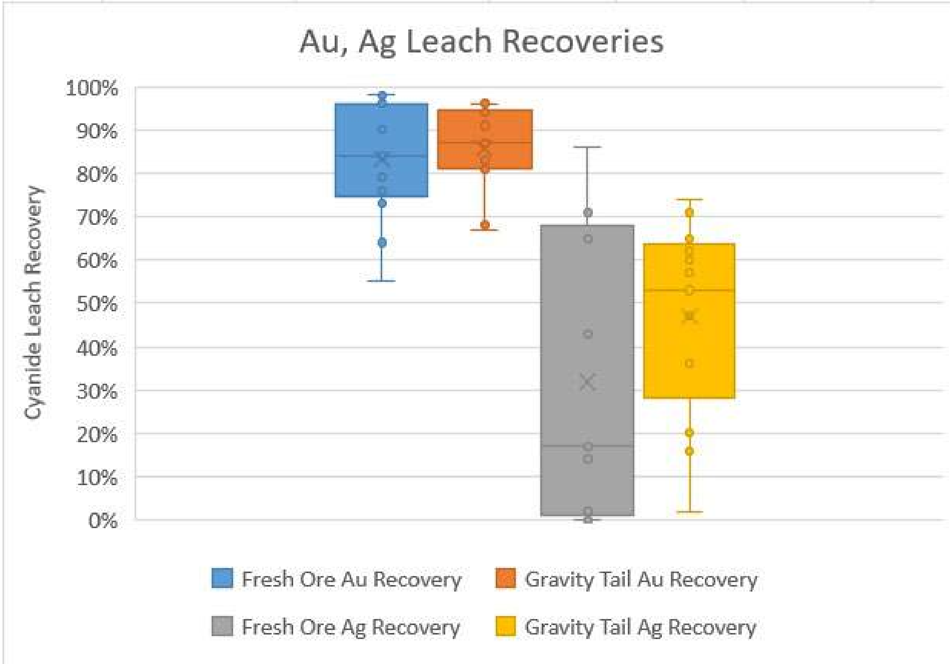


Figure 10-5 compares leaching kinetics between the test series conducted on the fresh ore sample and gravity tailing samples. The results show that leaching gravity tailing samples takes less time than the leaching fresh mineralized samples.

FIGURE 10-6 2014 KCA BRT GOLD LEACHING KINETICS

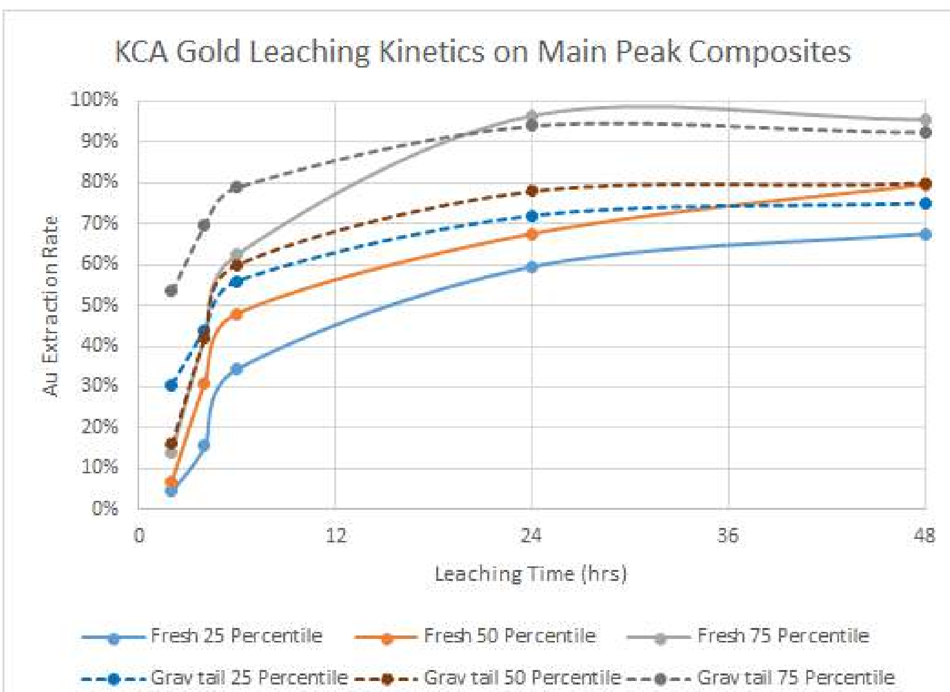


Figure 10-7 presents the sodium cyanide (NaCN) and lime consumption rates. Fresh ore composites had an average NaCN consumption of 11.6 lb/st of ore, and lime ($Ca(OH)_2$) consumption averaged 11.1 lb/st. After gravity concentration, the NaCN consumption decreased to 6.4 lb/st of ore, while lime consumption remained at the same level as the consumption on the fresh ore leach.

FIGURE 10-7 2014 KCA BRT SODIUM CYANIDE AND LIME CONSUMPTION

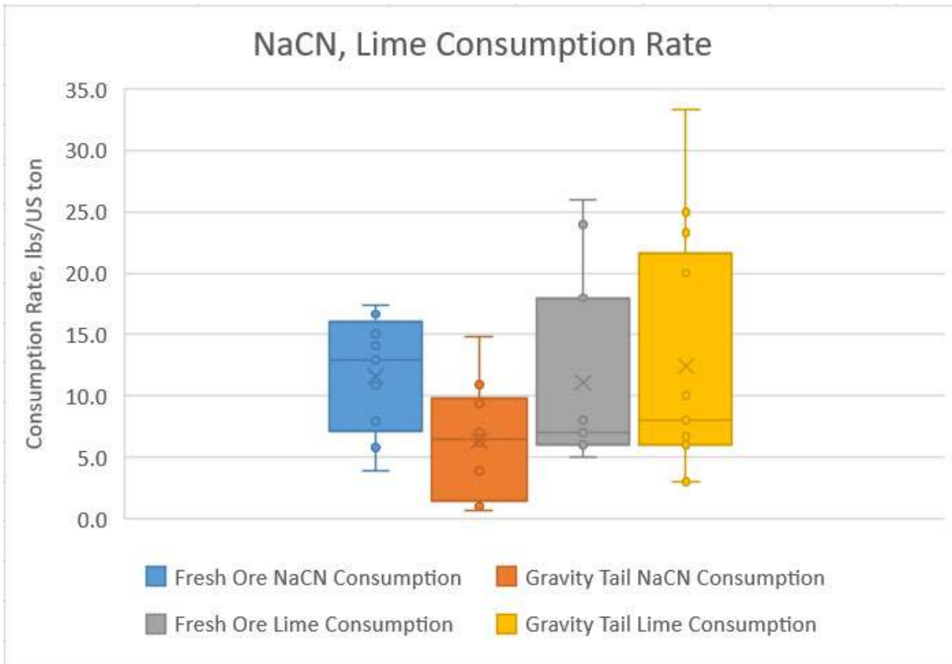
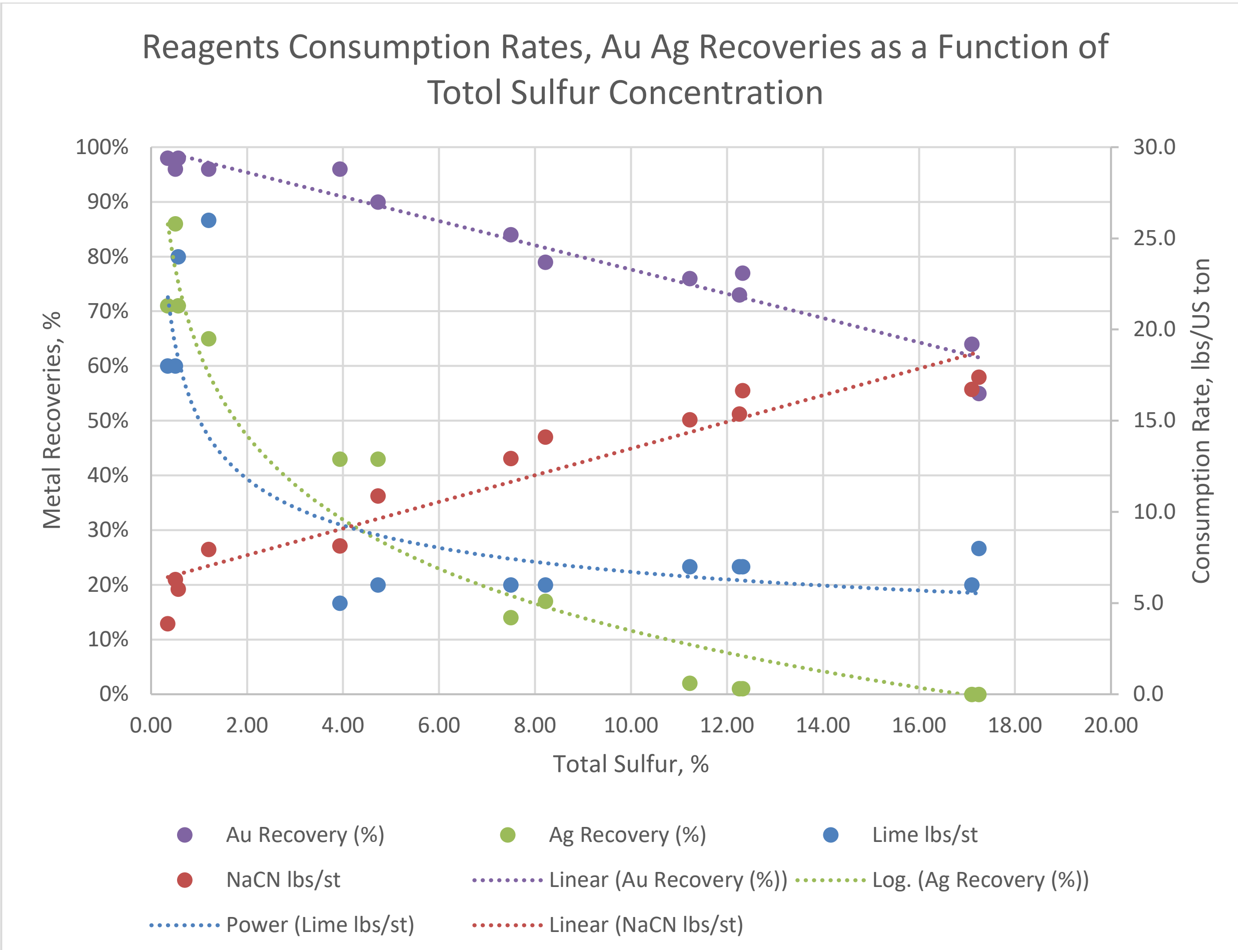


Figure 10-8 presents the reagent consumptions and gold and silver recoveries as a function of total sulfur concentration. Further analysis shows that the variance for gold and silver recoveries, and NaCN and lime consumptions directly correlate with the total sulfur grade in the samples.

FIGURE 10-8 2014 KCA REAGENT CONSUMPTION RATES AND GOLD AND SILVER RECOVERIES AS A FUNCTION OF TOTAL SULFUR CONCENTRATION



TEST WORK BY MLI

From 2017 to 2021, 266 leaching tests were performed by MLI on 68 ore composites from the Project and one leach feed composite from the Fort Knox milling facility. A total of 31 composites were prepared from MCN drill core samples and the remaining 37 composites were prepared from MCS drill core samples. The Fort Knox leach feed composite is made of Fort Knox daily mill samples that were sampled in January 2021.

2017 MLI Test Work

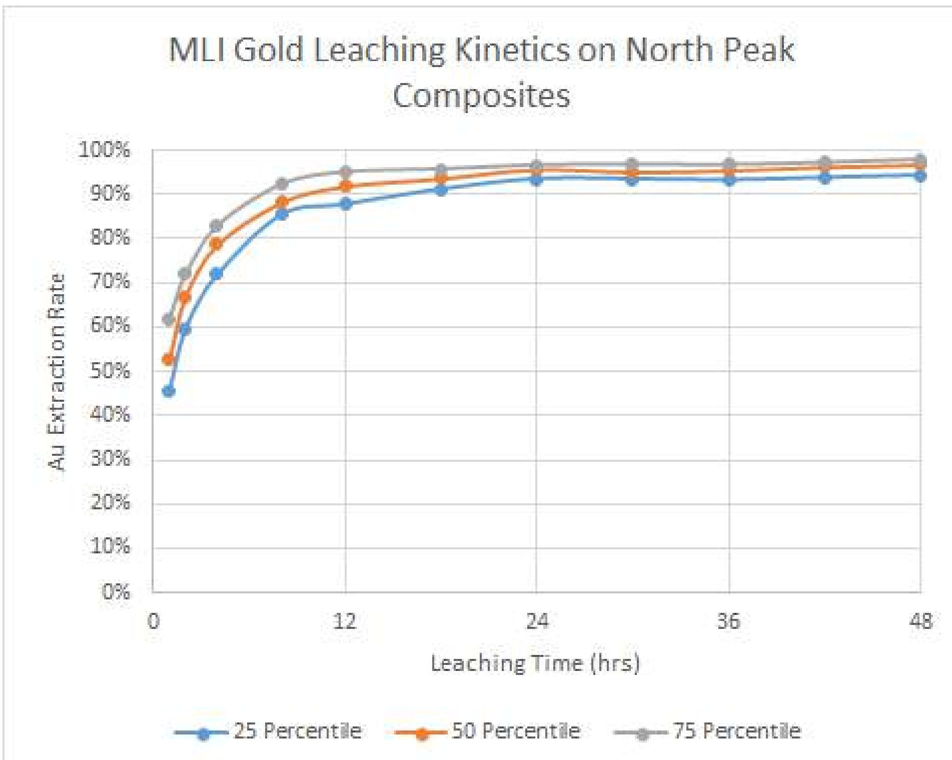
In 2017, MLI conducted bottle roll leaching tests on 19 metallurgical composites made of drill core samples from MCN. Later in 2018, additional leaching tests were conducted on three low-grade composites made of drill core samples from MCN.

The above bottle roll tests were conducted following Test Procedure #1 (TP-1), whereby the samples were ground to P_{80} of 75 µm using laboratory steel ball mill. Leaching was done on 40% solid ore slurry. Lime was added to adjust pH of the pulp to between 10.5 and 11 before adding cyanide. Sodium cyanide was controlled and maintained at 2.0 g/L in the pulp. The leaching lasted for 48 hours. Rolling was paused for interim sampling.

The gold extraction rate at 48 hours averaged 96% and ranged between 90% and 100%. The average silver extraction rate is 68%. The results showed a slight direct correlation between gold extraction rate and gold head grade.

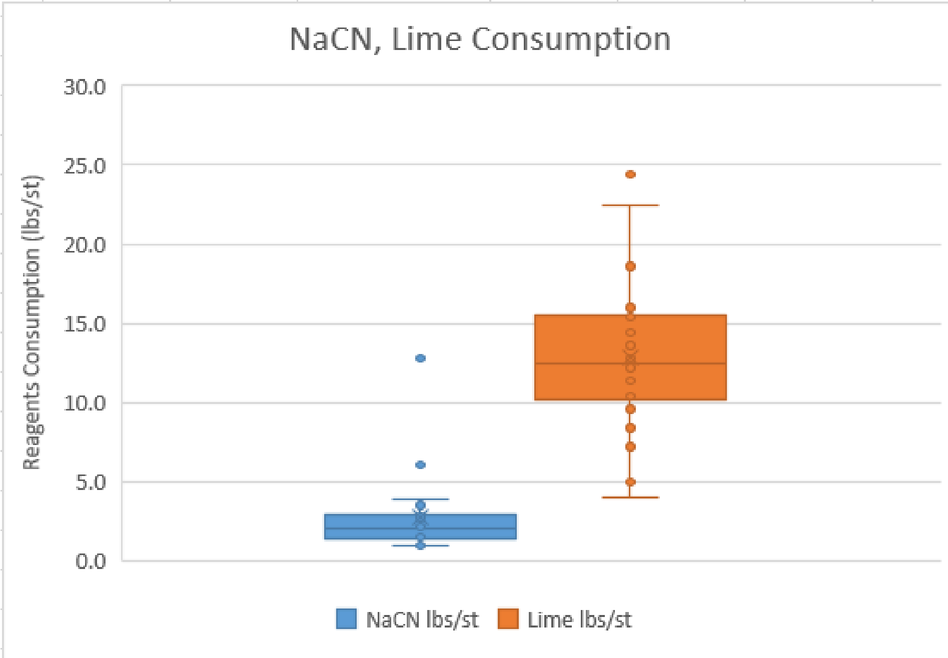
Figure 10-9 shows the 25, 50, and 75 percentile of gold leaching kinetics. The gold extraction rate increased with increased cyanide concentration (2 g/L NaCN). Eleven of the 22 samples tested achieved more than 90% gold extraction within 12 hours of leaching.

FIGURE 10-9 2017 MLI MCN GOLD LEACHING KINETICS



The average NaCN consumption is 2.9 lb/st and the lime consumption averaged 13.5 lb/st. These consumptions directly correlated with total sulfur concentration in the ores. The results are shown in Figure 10-10.

FIGURE 10-10 2017 MLI MCN LEACH TEST REAGENT CONSUMPTION



2018 MLI Test Work

Test Procedure TP-1

In 2018, a total of 28 BRT leaching tests were conducted on ore composites made of drill core samples from MCS. The test procedure that was followed in these tests is the same as that used for the BRT tests on the MCN ores (TP-1).

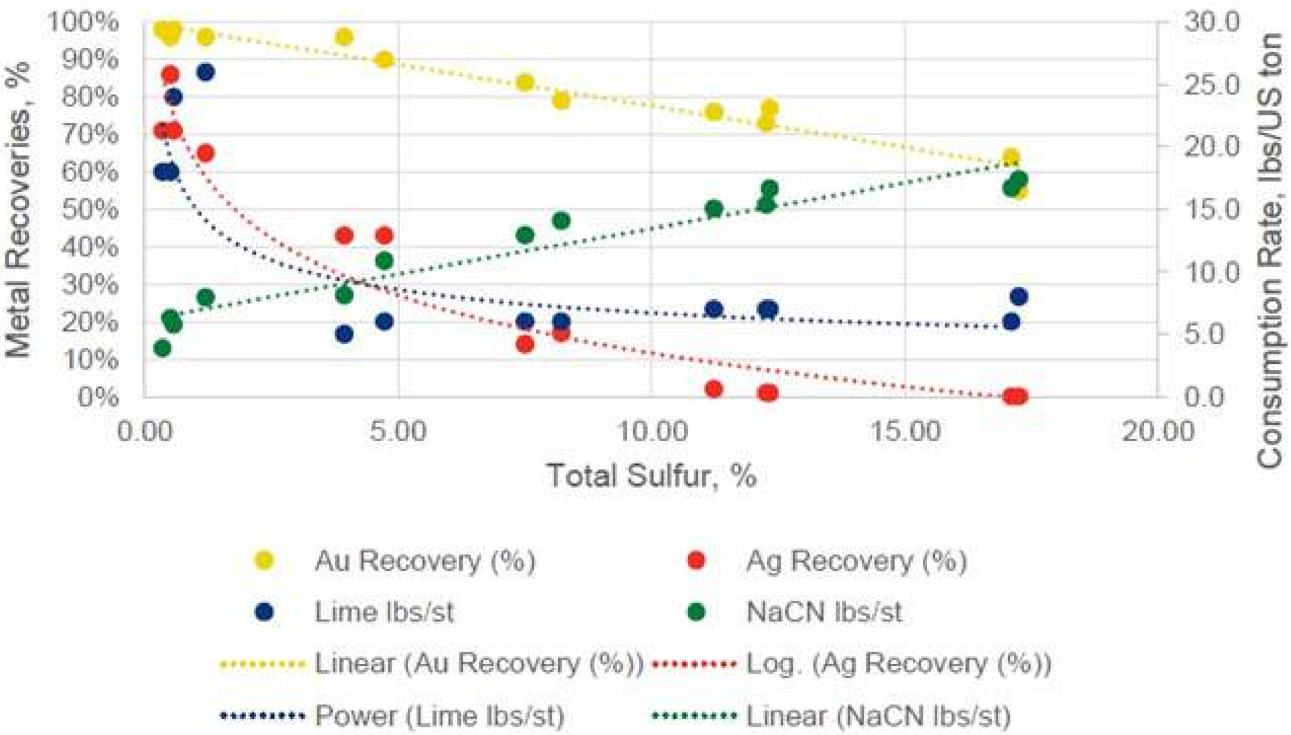
Samples were ground to P_{80} 75 µm in a laboratory steel ball mill, followed by adjusting the slurry %solid to 40%. The slurry pH was adjusted between 10.5 and 11 by using hydrated lime. The NaCN concentration was monitored and controlled to be maintained at 2.0 g/L. Periodic solution samples were taken and assayed for leaching kinetics assessments. Pregnant solutions and residues were analyzed after 48 hours.

The MCS BRT testing results are as follows:

- Gold extraction at 48 hours averaged 91% and ranged between 83% and 97%, with silver extraction averaging 41%.
- The gold extraction is relatively slower than that of the MCN samples under the same test conditions. At a 12-hour leach time, only eight of the 28 samples tested reached 85% gold extraction. At 24 hours, 20 of the 28 samples reached 85% gold extraction.
- NaCN consumption is much higher than that for MCN ore samples under the same test conditions. The NaCN consumption averages 15.4 lb/st and ranges between 2.2 lb/st and 28.8 lb/st for the 48 hours leaching period. Lime consumption averages 6.2 lb/st and ranges between 1.6 lb/st and 19.4 lb/st.

Figure 10-11 illustrates the direct correlation between NaCN consumption and total sulfur concentration, while the lime consumption rate is negatively correlated with the total sulfur concentration in the samples. A similar correlation is noticed for copper head grades in the head sample, although not as clear as the correlation with total sulfur grade.

FIGURE 10-11 2018 MLI BRT MCS REAGENT CONSUMPTION AND GOLD AND SILVER RECOVERIES AS A FUNCTION OF TOTAL SULFUR CONCENTRATION



The high NaCN consumption is caused by the highly reactive iron sulfide minerals, pyrrhotite and marcasite, in the MCS composite samples. MLI performed agitated leaching tests with addition of cement in the grinding stage and oxygen/air sparging in the leaching stage to mitigate the high reagent consumptions.

<u>Test Procedure TP-2</u>

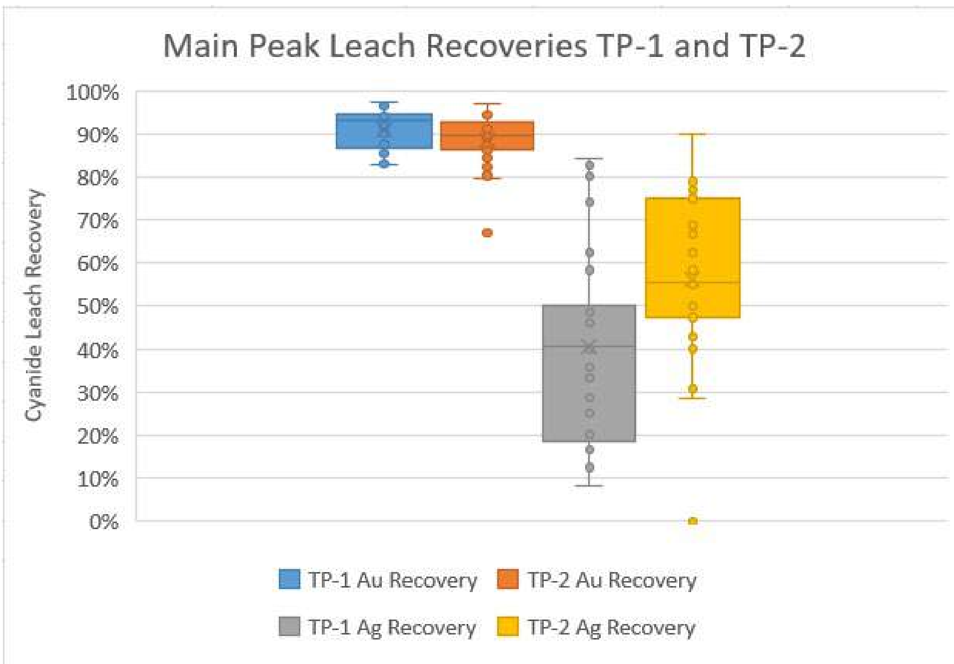
Throughout multiple test conditions, test procedure #2 (TP-2) delivered the most favorable results. In TP-2, ore samples were ground to P_{80} 75 µm with lime and Portland type I/II cement (8 lb/st). Leaching was conducted at 1 g/L NaCN, pH 10.5 to pH 11, and continuous oxygen/air sparging to increase dissolved oxygen in the pulp. Interim solution samples were taken and assayed for leaching kinetics assessments. Pregnant solutions and residues were analyzed after 36 hours of leach.

For the 28 MCS and three MCN composites that were tested under the TP-2 conditions, gold extraction after 36 hours averaged 89% and ranged from 77% and 97%, with silver extraction averaging 56%.

Comparison of TP-1 and TP-2 Procedures

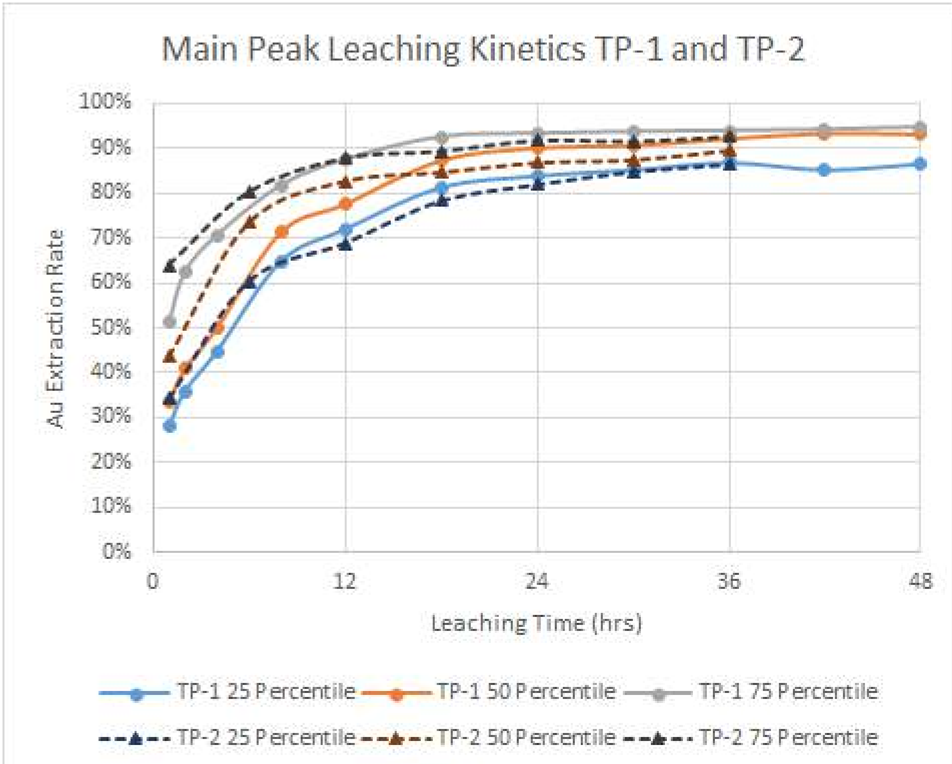
Figure 10-12, Figure 10-13, and Figure 10-14 compare the test results between TP-1 and TP-2 on the same MCS composite samples. The average silver recovery is increased by applying TP-2 test procedure, without noticeably decreasing gold recovery. The gold leaching kinetics are slightly improved in the early stage of leaching from 0 to 12 hours. More importantly, the NaCN consumption rate decreases significantly from 15.4 lb/st to 4.5 lb/st. In addition, lime consumption decreased from 6.2 lb/st to 3.3 lb/st.

FIGURE 10-12 2018 MLI GOLD AND SILVER EXTRACTION RATES USING TP-1 AND TP-2 ON MCS COMPOSITES



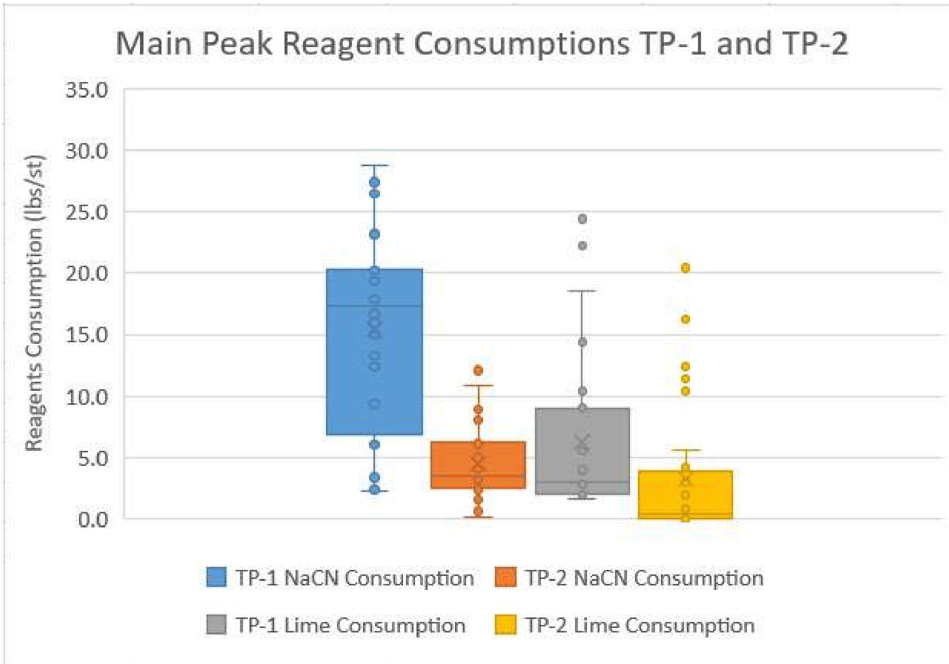
The gold leaching kinetics, shown in Figure 10-13, are slightly faster than in TP-1 on the MCS composites. Eleven of the 28 samples achieved higher than 85% gold extraction after being leached for 12 hours.

FIGURE 10-13 2018 MLI GOLD LEACHING KINETICS USING TP-1 AND TP-2 ON MCS COMPOSITES



The average reagent consumptions in TP-2 were significantly lower than those in TP-1. The NaCN consumption averaged 4.5 lb/st and ranged between 0.1 lb/st and 12.0 lb/st of ore. The average lime consumption was 3.3 lb/st. The results are shown in Figure 10-14.

FIGURE 10-14 2018 MLI REAGENT CONSUMPTIONS USING TP-1 AND TP-2 ON MCS COMPOSITES



In the later stage of the metallurgical test campaign, three ore composites made of drill core samples taken from MCN were also tested using the TP-2 procedure. Figure 10-15, Figure 10-16, and Figure 10-17 compared the results of using TP-1 and TP-2 on the same MCN composite samples. For the three composites tested, TP-1 and TP-2 have very similar gold and silver recoveries and gold leaching kinetics. NaCN consumptions between the two test procedures are at the same level, while the average lime consumption decreased from 8.9 lb/st to lower than 4 lb/st. Lower lime consumption in the TP-2 testing is due to the buffering from the addition of Portland type I/II cement.

FIGURE 10-15 2018 MLI GOLD AND SILVER EXTRACTION RATES USING TP-1 AND TP-2 ON MCN COMPOSITES

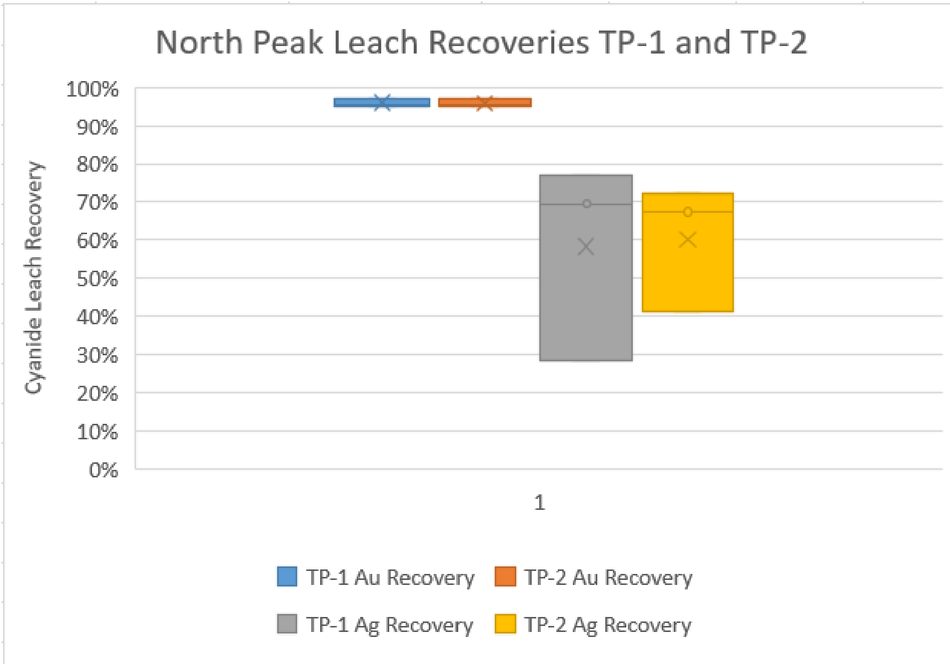


FIGURE 10-16 2018 MLI GOLD LEACHING KINETICS USING TP-1 AND TP-2 ON MCN COMPOSITES

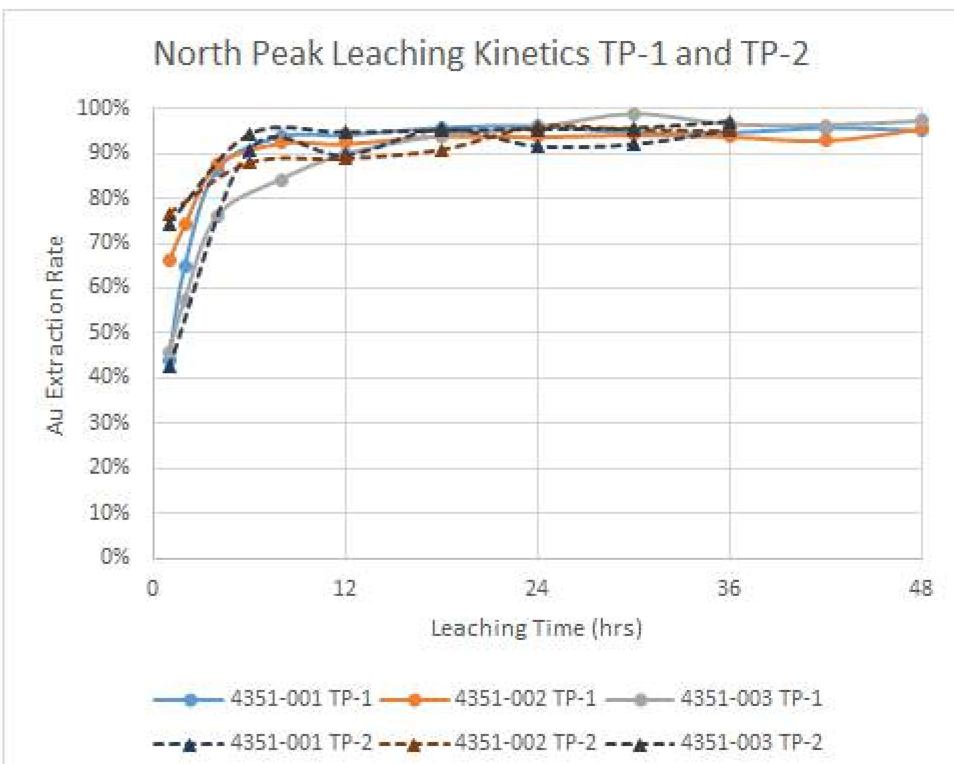
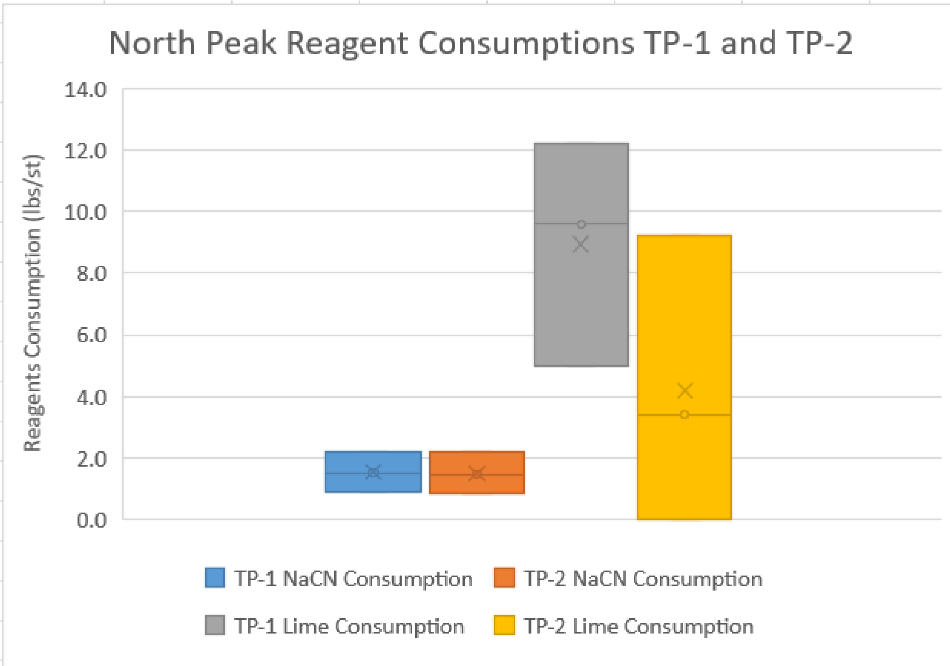


FIGURE 10-17 2018 MLI REAGENT CONSUMPTIONS USING TP-1 AND TP-2 ON MCN COMPOSITES



Evaluation of Other Test Procedures

MLI also tested other conditions to optimize gold extraction and reduce reagent consumption. From 2017 to 2018, a total of 10 test procedures, including TP-1 to TP-10, were tested on ore composites made of drill core samples from the MCS deposit. The test parameters are detailed in Table 10-8.

TABLE 10-8 MLI LEACHING TEST PROCEDURES MATRIX

Test Procedures	Test Type	Pretreatment	P80 microns	Cement lb/US ton	NaCN g/L	Lead Nitrate lb/US ton	Leach Time hrs	Oxygen Sparging	Air Sparging
TP-1	BRT	No	75	0	2	No	48	No	Air sparging conducted at interim sampling intervals when slurry D.O. <2.0 mg/L.
TP-2	Agitated Leach	No	75	8	1	No	36	Yes	No
TP-3	Agitated Leach	No	75	4	1	No	48	No	Air sparging conducted continuously when slurry D.O. <2.0 mg/L
TP-4	Agitated Leach	Alkaline aeration pretreatment	75	0	1	No	48	No	Air sparging conducted continuously when slurry D.O. <2.0 mg/L
TP-5	Agitated Leach	No	75	8	1	No	24	Yes	No
TP-6	Agitated Leach	No	75	10	1	No	24	Yes	No
TP-7	Agitated Leach	No	75	8	1	No	24	O2 sparging conducted continuously during first 4 hrs, then only if D.O. <5mg/L	No
TP-8	Agitated Leach	No	75	10	1	No	24	O2 sparging conducted continuously during first 4 hrs, then only if D.O. <5mg/L	No
TP-9	Agitated Leach	No	45	8	1	No	24	Yes	No
TP-10	Agitated Leach	No	45	4	1	0.5	24	No	Yes

TP-1 to TP-6 were compared on a set of composites, 4279-020, 021, 022, and 023 and the results are shown in Figure 10-18. TP-1 delivers the highest average gold extraction rate, followed by TP-2 at 88% and TP-6 at 85%, with the remaining three test procedures providing gold recoveries lower than 85%. The average silver recovery of TP-2 is 54%, which is the highest. The average NaCN consumption rates of TP-2 to 6 are all significantly lower than TP-1. TP-2, 5, and 6 have the lowest NaCN consumption. TP-4 has the highest average lime consumption, while TP-2, 5, and 6 have the lowest. Gold leaching kinetics are shown in Figure 10-19. TP-2, 5, and 6 have faster gold leaching kinetics than TP-1 in the early stage of the leaching. Overall, TP-2 is the best performer, having the second highest gold recovery, first highest silver recovery, and low NaCN and lime consumption rates. The series of tests confirmed that adding 8 lb/st of cement during grinding and oxygen sparging during the 36 hours leach delivers the best overall results.

TP-1, 2, and TP-7 to 10 were compared on a set of composites, 4279-011, 012, 014, and 016. The test results are shown in Figure 10-20. Among all six test conditions, TP-8 is the only procedure where the average gold extraction is lower than 80%. Except for TP-8, all test procedures give an average recovery in a range between 83% and 86%. TP-2 provides the highest average silver extraction (51%). All test procedures provide significantly lower NaCN consumption compared to TP-1. TP-2, TP-7 to 9 consumed an average or less than 1 lb/st of lime. TP-9 and TP-10 confirmed that finer grinding does not provide a noticeable recovery improvement for gold and silver. Moreover, the finer grinding slightly increased reagent consumption. All test procedures provide faster gold leaching kinetics in the early stage of leaching than TP-1 (Figure 10-21). Given the second highest average gold extraction rate, the first highest silver extraction rate, and low NaCN and lime consumptions, TP-2 is considered the best performer.

FIGURE 10-18 MCS SOUTH LEACH CONDITION OPTIMIZATION TP-1 TO TP-6

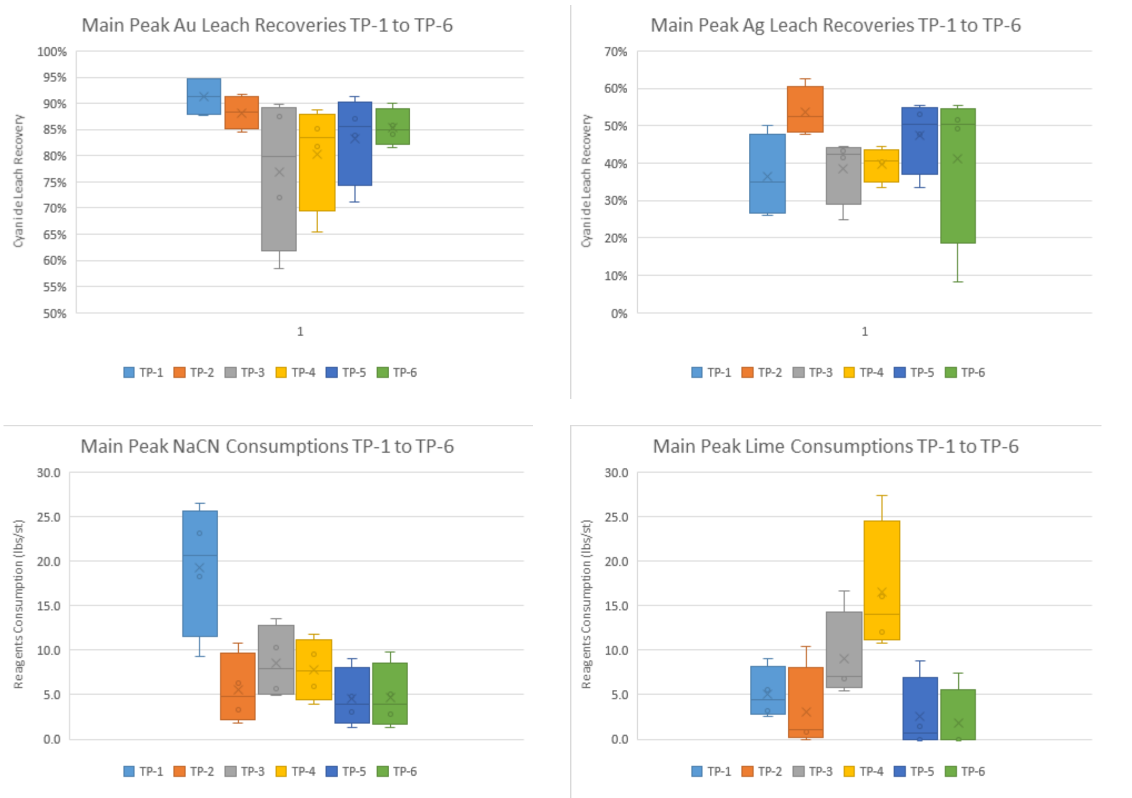


FIGURE 10-19 MCS GOLD LEACHING KINETICS ON TP-1 TO 6

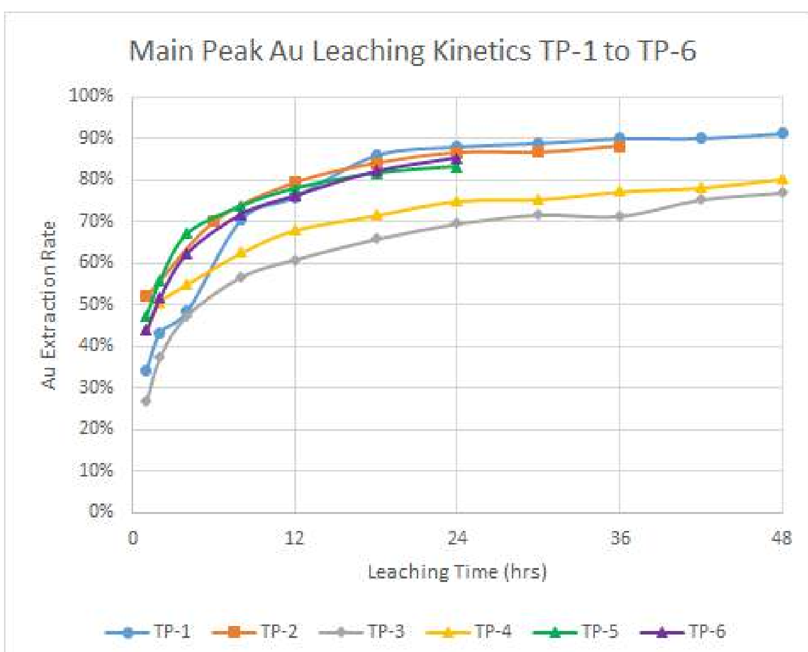


FIGURE 10-20 MCS LEACH CONDITION OPTIMIZATION TP-1, 2, 7 TO 10

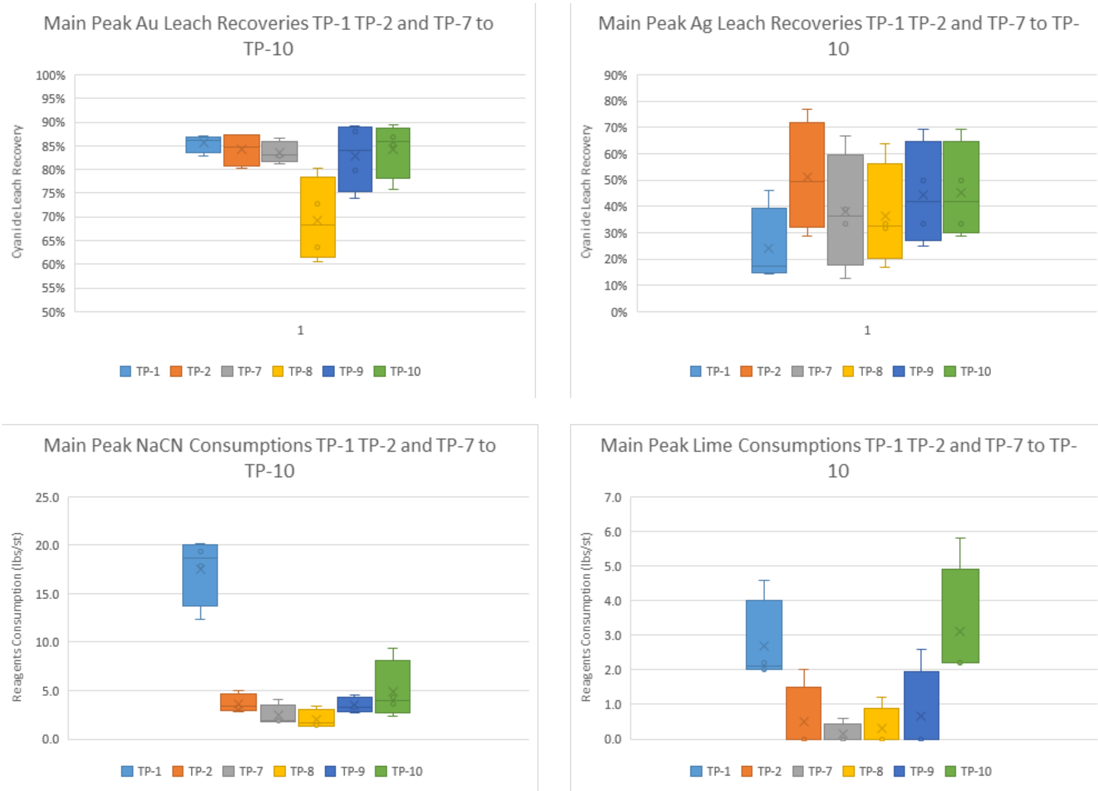
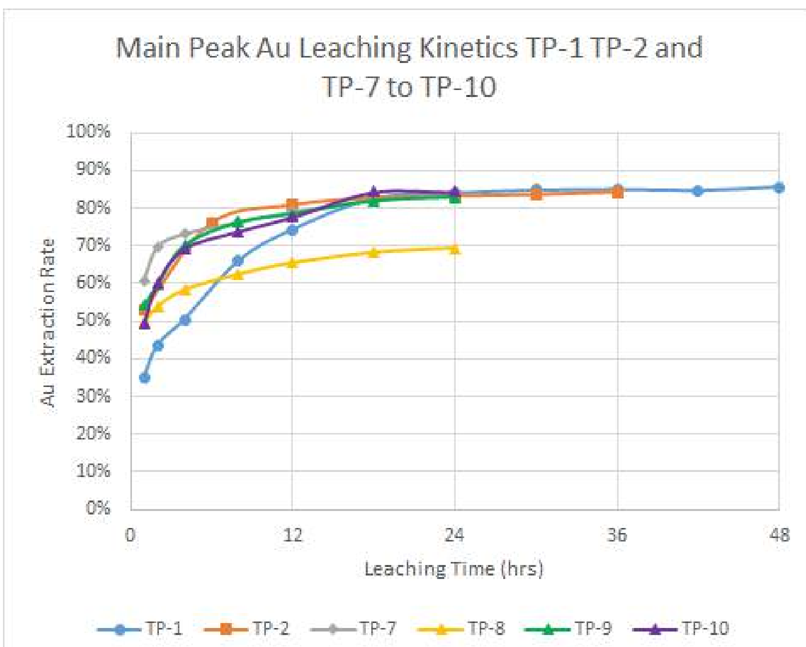


FIGURE 10-21 MCS GOLD LEACHING KINETICS ON TP-1, 2, 7 TO 10

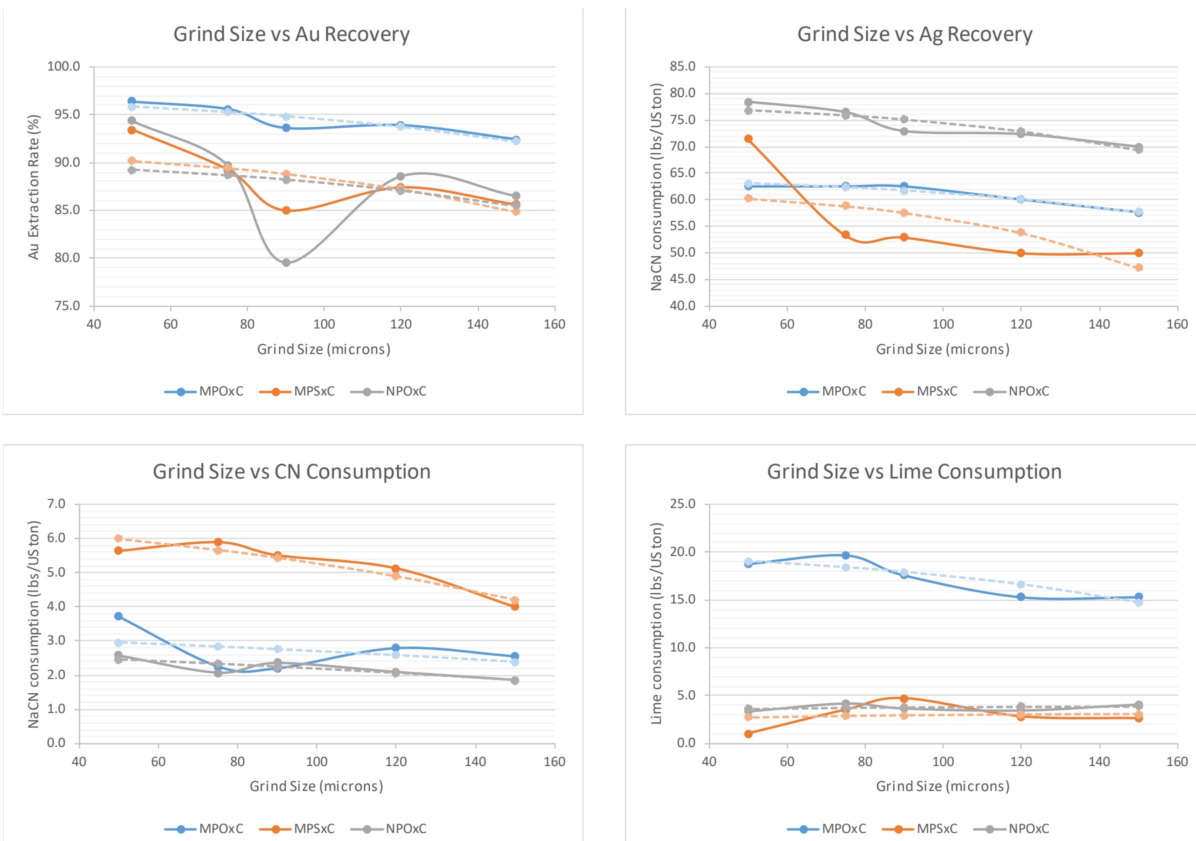


2021 Test Work

In 2021, 158 leaching tests were performed by MLI on five master composites and 18 variability composites from Manh Choh and one leach feed composite from Fort Knox.

The grind size for agitated leaching was first determined by leaching the Manh Choh master composites ground to different mill product sizes (P_{80}s). The test results presented in Figure 10-22 show that composites were sensitive to grind size, with recoveries improving by grinding finer than P_{80} 75 µm, however, lime and cyanide consumptions increase with the decrease of grind size which makes grinding finer less preferable. As a result, the grind size of P_{80} 75 µm and 60 µm are considered in the following test work at MLI.

FIGURE 10-22 LEACH GRIND SIZE OPTIMIZATION



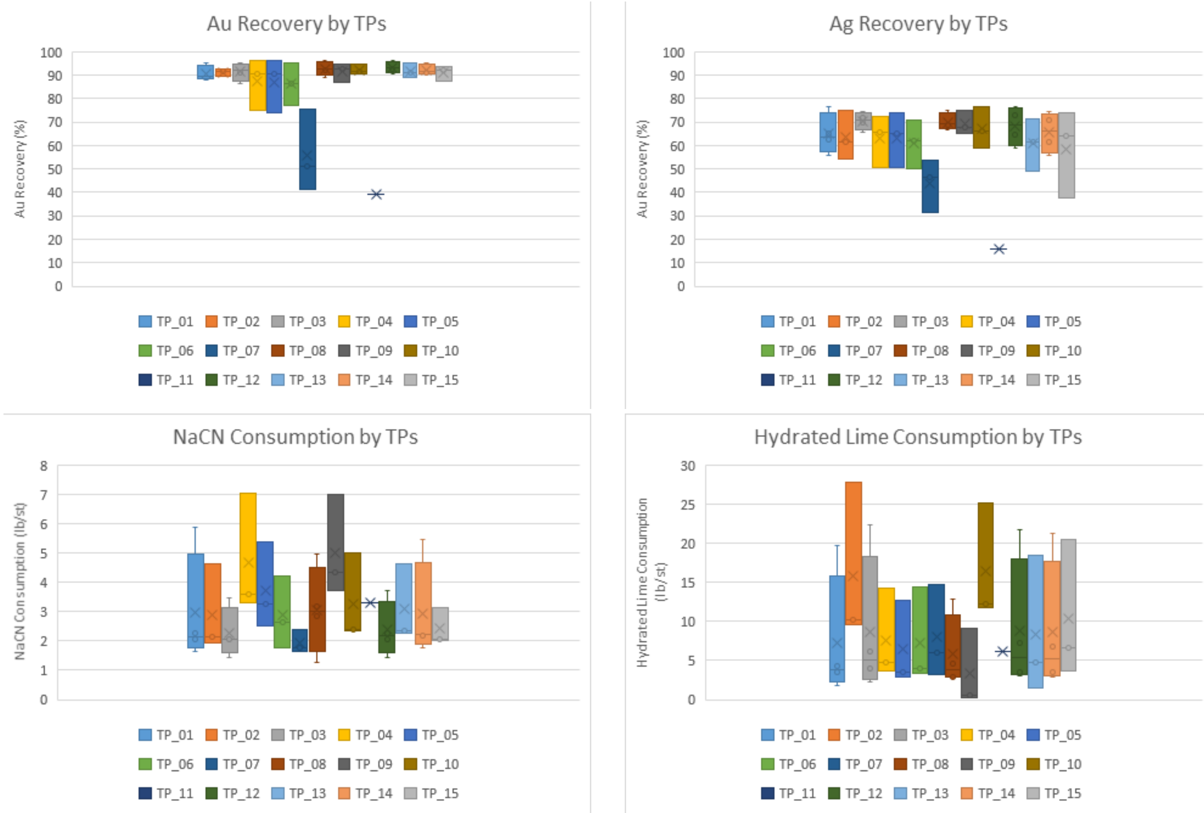
A total of 15 different leaching conditions were tested on the Manh Choh master composites to study the optimum processing method. The conditions are listed below in Table 10-9 and the results of the optimization tests are presented in Figure 10-23. Considering recovered precious metals prices, reagents and power costs, TP-3 is considered to be the optimum leaching condition for the Manh Choh mineralization.

In TP-3, 8 lb/st Portland type I/II cement and adequate amount of hydrated lime are added in grinding. The hydrated lime addition is based on experience that after grind pH is expected to be close to 10.5-11.0. The ore is ground to P_{80} 75 µm, and then subjected to cyanide leaching at 2.0 lb NaCN per US ton solution. The leaching solution is periodically oxygen sparged to maintain a dissolved oxygen content of 5 ppm to 15 ppm. Slurry density is 40% solid. The leaching cycle is 24 hours. Under TP-3, gold leach rates were moderate to rapid.

TABLE 10-9 2021 MLI LEACH TEST CONDITIONS

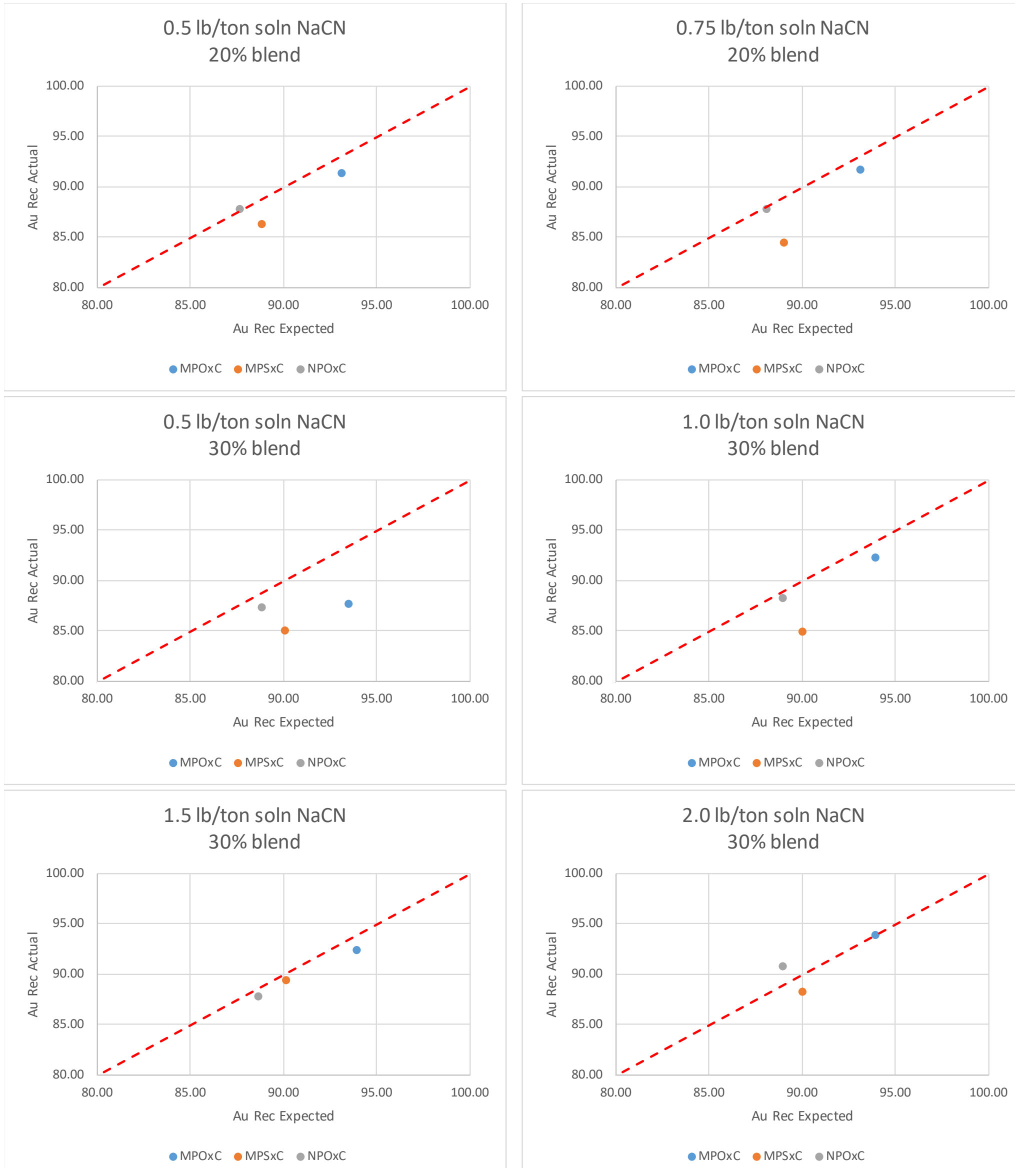
Test Procedure No.	Feed Size	Added During Grind lb/st		Pre-aeration	NaCN Conc. lb/st soln.	Leaching pH	Lead Nitrate lb/st	Leach Time hr
		Hydrated Lime	Cement					
1	Varied	No	8	No	2	10.5-11.0	0	24
2	80%-75 µm	Yes	0	No	2	10.5-11.0	0	24
3	80%-75 µm	Yes	8	No	2	10.5-11.0	0	24
4	80%-75 µm	No	4	No	2	10.5-11.0	0	24
5	80%-75 µm	No	8	No	1.5	10.5-11.0	0	24
6	80%-75 µm	No	8	No	1	10.5-11.0	0	24
7	80%-75 µm	No	8	No	0.5	10.5-11.0	0	24
8	80%-75 µm	No	8	No	2	10.5-11.0	1	24
9	80%-75 µm	No	8	No	2	9.8-10.2	0	24
10	80%-75 µm	Yes	0	Yes	2	10.5-11.0	0	24
11	80%-75 µm	No	8	No	0.5	10.5-11.0	0	72
12	80%-60 µm	Yes	8	No	2	10.5-11.0	1	24
13	80%-60 µm	Yes	10	No	2	10.5-11.0	0	24
14	80%-60 µm	Yes	8	No	2	10.5-11.0	0	24
15	80%-75 µm	Yes	8	No	2	10.5-11.0	1	24

FIGURE 10-23 LEACHING CONDITION OPTIMIZATION



The blending tests are performed to investigate the feasibility of leaching Manh Choh ore and Fort Knox ore together in the same leaching train. The range of the ore blend ratio between Manh Choh ore and Fort Knox ore is between 20% and 30%. The results presented in Figure 10-24 indicate that at the 20% blend ratio, the blended ore can be effectively leached at 0.5 lb/st NaCN strength, while the 30% blend ratio requires the NaCN concentration to be as high as 1.5 lb/st. As presented in Figure 10-27, results are evaluated on an actual vs. expected recovery basis.

FIGURE 10-24 BLENDING TEST – ACTUAL VS. EXPECTED GOLD RECOVERY



GOLD CYANIDE WHOLE ORE LEACHING SUMMARY

The following conclusions are based on the test work conducted by KCA and MLI:

- Both fresh drill core samples and gravity concentration tailings are amenable to cyanide leaching at P_{80} 75 µm.
- The gold extraction, silver extraction, and lime consumption were negatively impacted with the increase in total sulfur grade and copper grade in the head samples; the NaCN consumption increases with an increase in total sulfur grade and copper grade in the head samples.

- The high NaCN consumption and need for additional oxygen for the MCS composites is likely due to highly reactive iron sulfides (pyrrhotite) and cyanide soluble copper (chalcopyrite) present.
- Grinding to P_{80} 75 µm resulted in sufficient gold extraction. Finer grinding to P_{80} 45 µm did not provide noticeable recovery improvements for gold or silver extraction. Finer grinding also caused slightly higher lime and NaCN consumption.
- Oxygen sparging during leaching was shown to be required to maintain sufficient dissolved oxygen levels in the pulp. Air sparging was not as effective as oxygen sparging.
- Adding cement at 8 lb/st reduced NaCN consumption significantly with no noticeable decrease in gold extraction. Silver recovery was improved by adding cement.
- Adding lead nitrate with a decreased cement dosage decreased NaCN consumption with little effects on gold or silver extraction. Additional lime was needed in the absence of cement.

The cyanide leaching test work conducted by KCA and MLI showed that high reactive sulfide materials in the Manh Choh ores are one of the challenges for economical gold and silver recovery, although adding cement in grinding and leaching with oxygen sparging helps reduce the high reagent consumptions.

10.4.2. FLOTATION TESTS

In April 2014, SGS performed nine rougher flotation tests on three metallurgical composites after gravity concentration. The series of tests were conducted to evaluate flotation recovery of gold as a function of grind size. Target grind sizes were set to be P_{80} 60 µm, 75 µm, 95 µm. The flotation tests were run at natural pH, without any pH adjustment. During the flotation tests, potassium amyl xanthate (PAX) was used as the sulfide mineral collector. Copper sulfate ($CuSO_4$) was used as the activator and methyl isobutyl carbinol (MIBC) was used as the frother.

The test results are summarized in Figure 10-25 and Table 10-10. The results show that with finer grinding, gold recoveries of the three composites are slightly higher. Different grind sizes had minimal impact on rougher flotation concentrate mass pull. Test B-573066 had the highest mass pull, averaging 74% of the feed mass. The high mass pull is caused by high sulfide minerals content in the sample, which is mainly pyrrhotite.

FIGURE 10-25 2014 SGS FLOTATION TESTS – GOLD RECOVERY AND MASS PULL

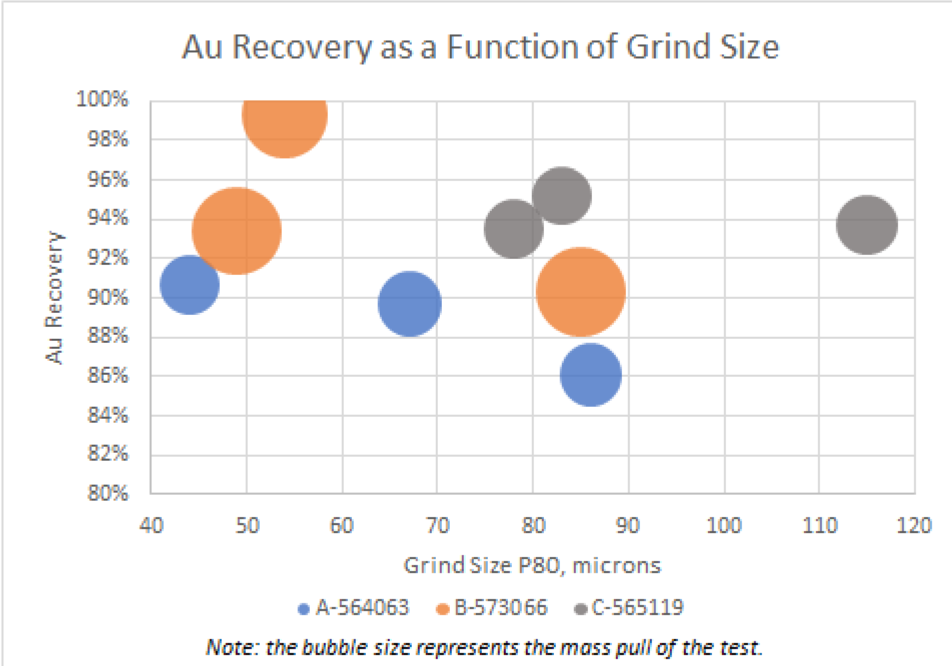


TABLE 10-10 2014 SGS FLOTATION TESTS

Composite ID	Calc Au Head (oz/st)	Grind Size P_{80} (microns)	Au Recovery (%)	Mass Pull (%)
A-564063	1.256	44	91	36
A-564063	1.181	67	90	41
A-564063	1.318	86	86	39
B-573066	0.012	54	99	74
B-573066	0.003	49	93	79
B-573066	0.003	85	90	78
C-565119	0.586	83	95	44
C-565119	0.505	78	94	36
C-565119	0.589	115	94	36

In May 2014, KCA performed a series of flotation tests on 13 metallurgical composite samples from the Project. Due to the limited sample size received, all flotation tests were only done at P_{80} 75 µm. PAX was used as the sulfide minerals collector, $CuSO_4$ was used as the activator, and Flo 742 was used as the frother. The slurry pH was measured but not adjusted throughout the tests.

The test results presented in Figure 10-26 and Table 10-11 show a direct correlation between the percentage of total sulfur content in the feeds and the gold flotation recoveries. This indicates most of the gold in the samples is associated with sulfide minerals.

FIGURE 10-26 2014 KCA GOLD RECOVERY AND MASS PULL AS A FUNCTION OF TOTAL SULFUR CONTENT

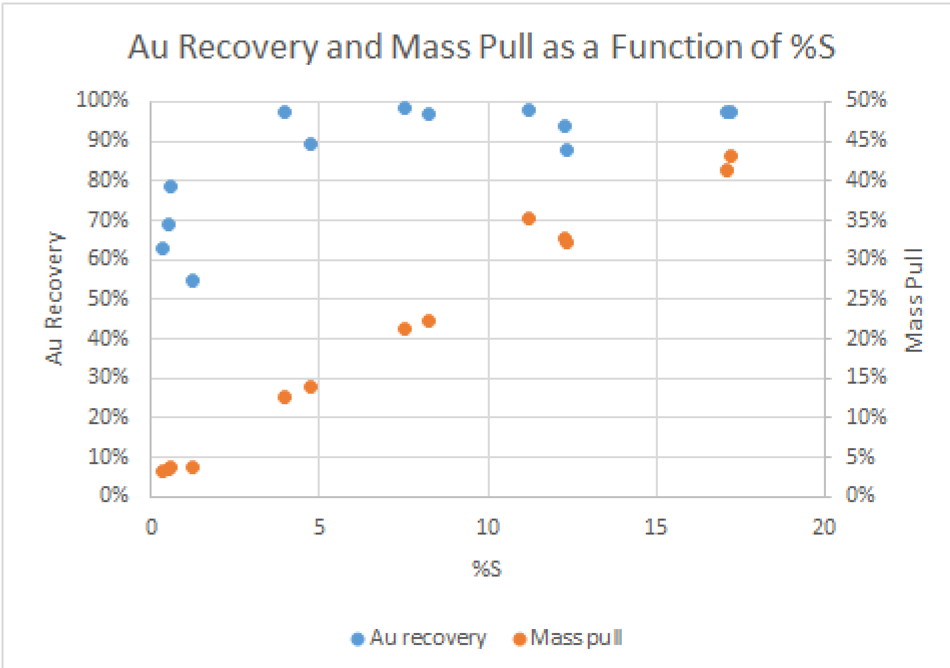


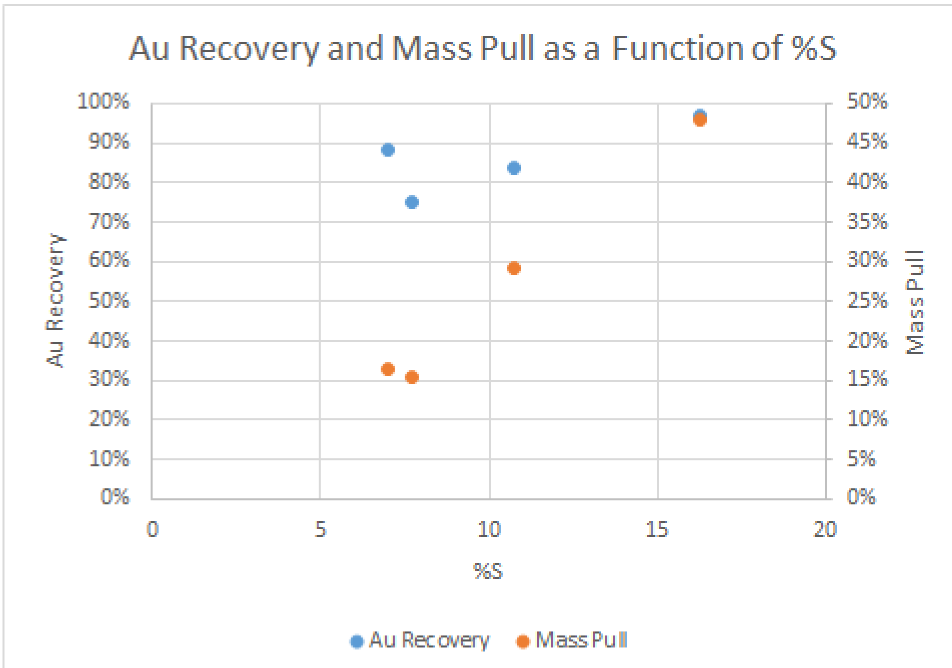
TABLE 10-11 2014 KCA FLOTATION TESTS

Composite ID	Calc Au Head (oz/st)	Total Sulfur (%)	Au Recovery (%)	Mass Pull (%)
MET-1	0.482	17.1	98	41
MET-2	0.106	4.7	90	14
MET-3	0.309	12.3	94	33
MET-4	0.197	3.9	97	13
MET-5	0.170	8.2	97	22
MET-6	0.222	11.2	98	35
MET-7	0.039	0.5	69	4
MET-8	0.415	1.2	55	4
MET-9	0.726	0.6	79	4
MET-10	0.342	0.4	63	3
MET-11	0.556	17.3	97	43
MET-12	0.178	12.3	88	32
MET-13	0.283	7.5	98	21

In 2019, MLI conducted 22 rougher flotation tests and nine cleaner flotation tests on the Manh Choh ore samples, of which only four rougher flotation tests and four cleaner flotation tests were assayed for gold content. Rougher flotation tests were conducted at P_{80} 106 μm after grinding, and cleaner flotation tests were conducted on the rougher flotation concentrates. Rougher flotation slurry pH was measured but not adjusted. The cleaner flotation tests were adjusted to pH 12 with hydrated lime. The rougher flotation tests used PAX as the sulfide minerals collector and alkyl dithiophosphate (AERO 208) as the gold collector. $CuSO_4$ was added as an activator and AERO 3418A was used as the frother.

The results from MLI rougher flotation tests show a direct correlation for both gold recovery and mass pull with the total sulfur content in the samples (Figure 10-27). Similar correlation was seen in the KCA flotation test work.

FIGURE 10-27 2019 MLI GOLD ROUGHER RECOVERY AND MASS PULL AS A FUNCTION OF TOTAL SULFUR CONTENT



Cleaner tests were conducted to produce sellable copper concentrate. However, neither the gold nor the copper was successfully beneficiated in the four cleaner tests. The gold recovery in the cleaner tests averaged 41%, with approximately 45% of the gold lost in the cleaner tails. The copper recovery averaged 76.2%, with 17.5% lost in the cleaner tails.

Cleaner concentrates and tailings from Test F-5 (on composite 4393-003) and Test F-6 (on composite 4393-004) were sent to BV for mineralogy analysis. The results are summarized in Section 10.3.5 Comminution Characteristics.

In the 2019 MLI metallurgical test campaign, three Manh Choh ore composites were tested. The result shows that Manh Choh ore is amenable to flotation. Without gravity concentration, gold recovery in the rougher flotation stage varies between 74.0% and 92.6%, with the mass pull varying between 5.9% and 11.6%.

Gold recoveries were lower for the oxide composites; cumulative gold recoveries were 74.0% for MCS oxides and 79.2% for MCN oxides comparing to 92.6% for MCS sulfides.

The cleaner tests show that the gold grade in the flotation concentrate can be improved but at the expense of the overall gold recovery.

10.4.3. GRAVITY CONCENTRATION TESTS

From 2014 to 2018, 26 gravity concentration tests were performed by SGS, KCA, and MLI. The results are tabulated in Table 10-12.

SGS studied gold recovery form gravity concentration as a function of grind size. The grind sizes tested were 60 µm, 75 µm, and 95 µm. Tests were performed on three different ore composites. The nine gravity concentration test results did not show clear correlation between gold recoveries and the grind sizes.

KCA conducted gravity concentration tests on 13 ore composites from Manh Choh. All tests were performed on 80% passing 75 µm ground ore composites.

MLI completed four gravity concentration tests on four metallurgical composites made of drill hole samples from the MCS. All samples were ground to 75 µm and hand panned to generate gravity rougher concentrate and then furthered cleaned by hand panning to produce gravity cleaner concentrates.

In the 2021 MLI metallurgical test campaign, 25 gravity concentration tests were performed. The test procedure is the same as the 2018 tests at MLI.

TABLE 10-12 GRAVITY TESTS SUMMARY

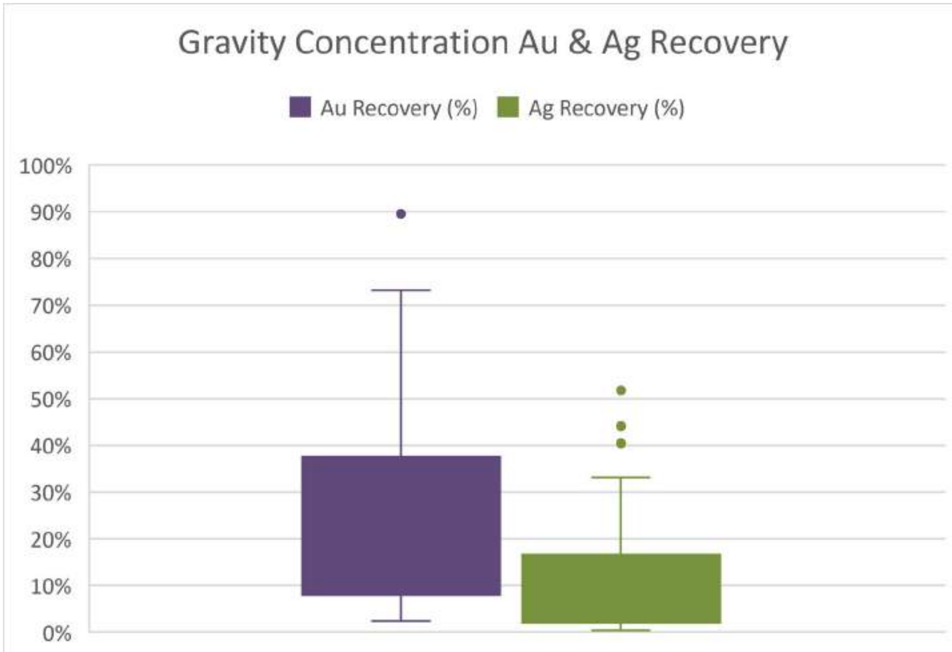
Composite ID	Laboratory	Test ID	Calc Au Head (oz/st)	Grind Size P_{80} (µm)	Au Recovery (%)	Ag Recovery (%)	Mass Pull (%)
A - 564063	SGS	R-01	1.397	44	8%	5%	0.05%
A - 564063	SGS	R-04	2.117	67	42%	44%	0.23%
A - 564063	SGS	R-07	2.313	86	40%	23%	0.18%
B - 573066	SGS	R-02	0.102	54	90%	1%	0.28%
B - 573066	SGS	R-10	0.003	49	10%	3%	0.15%
B - 573066	SGS	R-11	0.003	85	6%	1%	0.33%
C - 565119	SGS	R-03	0.796	83	22%	5%	0.24%
C - 565119	SGS	R-06	0.580	78	8%	4%	0.26%
C - 565119	SGS	R-09	0.682	115	10%	5%	0.28%
MET-1	KCA	70973	0.520	75	63%	33%	7.50%
MET-2	KCA	70974	0.145	75	59%	52%	5.00%
MET-3	KCA	70975	0.326	75	48%	27%	9.40%
MET-4	KCA	70976	0.169	75	73%	40%	6.40%
MET-5	KCA	70989	0.167	75	52%	7%	1.00%
MET-6	KCA	70990	0.247	75	30%	7%	2.10%
MET-7	KCA	71236	0.333	75	17%	17%	0.50%
MET-8	KCA	70977	0.048	75	57%	7%	4.20%
MET-9	KCA	71237	0.514	75	14%	9%	0.60%
MET-10	KCA	71235	0.326	75	5%	17%	0.20%

Composite ID	Laboratory	Test ID	Calc Au Head (oz/st)	Grind Size P_{80} (µm)	Au Recovery (%)	Ag Recovery (%)	Mass Pull (%)
MET-11	KCA	71238	0.520	75	45%	19%	3.00%
MET-12	KCA	71239	0.336	75	28%	19%	4.80%
MET-13	KCA	71240	0.131	75	44%	13%	3.40%
4279-020	MLI	G-1	0.564	75	52%	18%	1.74%
4279-021	MLI	G-2	0.407	75	30%	10%	2.40%
4279-022	MLI	G-3	0.330	75	15%	11%	1.77%
4279-023	MLI	G-4	0.140	75	24%	26%	1.32%
MPOxC	MLI	G-8	0.279	75	12%	2%	0.30%
MPSxC	MLI	G-9	0.108	75	16%	7%	0.48%
NPOxC	MLI	G-10	0.130	75	24%	3%	0.52%
MPSxV1	MLI	G-12	0.036	75	4%	3%	0.44%
MPSxV2	MLI	G-13	0.048	75	16%	2%	0.45%
MPSxV3	MLI	G-14	0.049	75	23%	3%	0.39%
MPSxV4	MLI	G-15	0.085	75	11%	0%	0.68%
MPSxV5	MLI	G-16	0.135	75	20%	5%	0.49%
MPSxV6	MLI	G-17	0.010	75	15%	3%	0.48%
MPSxV7	MLI	G-18	0.128	75	21%	8%	0.55%
MPSxV8	MLI	G-19	0.178	75	6%	2%	0.79%
MPSxV9	MLI	G-20	0.012	75	3%	8%	0.53%
MPSxV10	MLI	G-21	0.051	75	8%	3%	0.31%
MPOxV1	MLI	G-22	0.092	75	2%	0%	0.52%
MPOxV2	MLI	G-23	0.200	75	2%	1%	0.52%
NPSxV1	MLI	G-24	0.327	75	33%	17%	0.38%
NPSxV2	MLI	G-25	0.106	75	13%	1%	0.41%
NPOxV1	MLI	G-26	0.142	75	5%	1%	0.40%
NPOxV2	MLI	G-27	0.047	75	35%	1%	0.37%
NPOxV3	MLI	G-28	0.319	75	38%	11%	0.48%
NPOxV4	MLI	G-29	0.117	75	6%	2%	0.88%
NPSxC(1)	MLI	G-30	0.093	75	7%	0%	0.50%
MPSxV5	MLI	G-31	0.127	75	13%	3%	0.55%
MPSxV7	MLI	G-32	0.128	75	15%	3%	0.41%
MPSxV10	MLI	G-33	0.053	75	16%	5%	0.68%
Average					25%	10%	1.37%
25 Percentile					8%	2%	0.37%
75 Percentile					38%	17%	1.32%
IQR					30%	15%	0.95%
Low Bound					2%	0%	0.05%
High Bound					82%	38%	2.75%

The gold recoveries from all 51 gravity concentration tests did not show clear correlation between gold head grades and gold recoveries. The average gold recovery from all tests was

25%, but the recovery variance standard deviation is as high as 20%. The average silver recovery from all tests was 10% (Figure 10-28).

FIGURE 10-28 GOLD AND SILVER RECOVERY – GRAVITY CONCENTRATION



In MLI's 2021 metallurgical testing campaign, MLI performed Extended Gravity Recovery Gold (EGRG) tests on four master composites from Manh Choh. The results show that the maximum gold recovery for Manh Choh ore samples varies between 16.3% and 50.7% (Figure 10-29). MCN oxide and MCS sulfide samples have the highest possible gravity gold recovery, while MCN sulfide's maximum gold gravity recovery is 16.3%.

FIGURE 10-29 EGRG VS. GRIND SIZE

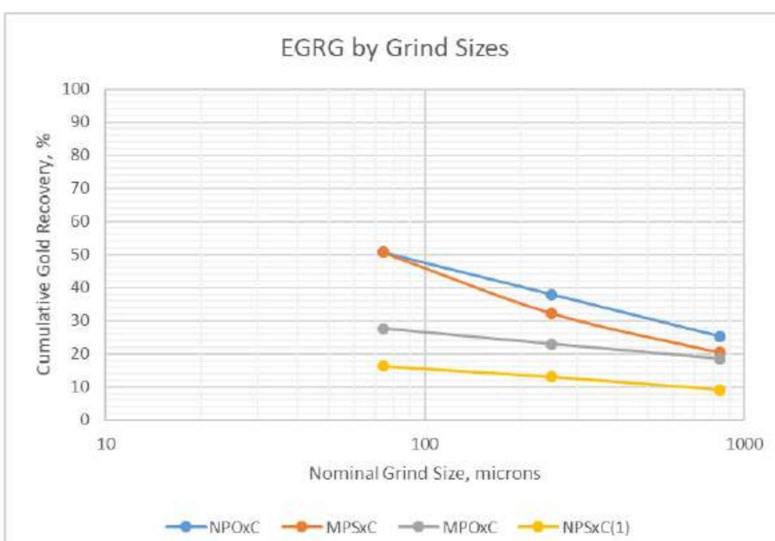
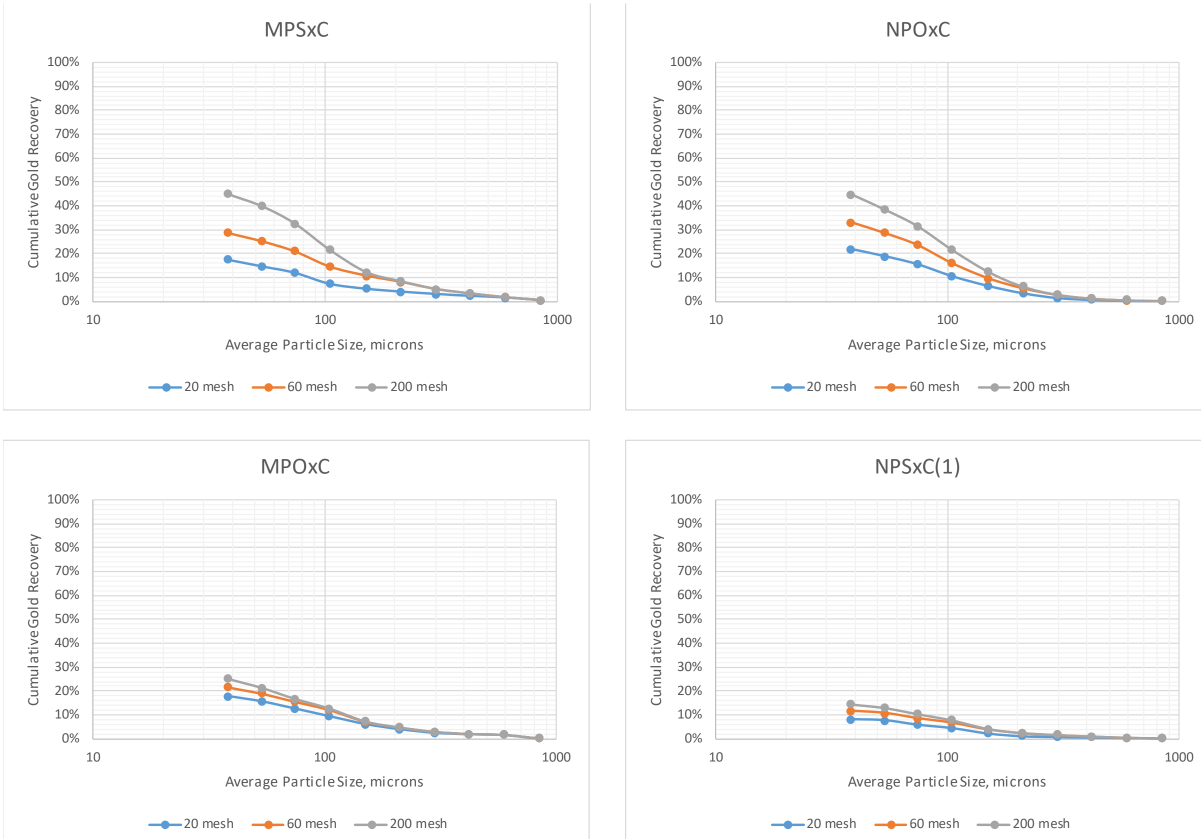


FIGURE 10-30 CUMULATIVE EGRG BY SIZE FRACTION

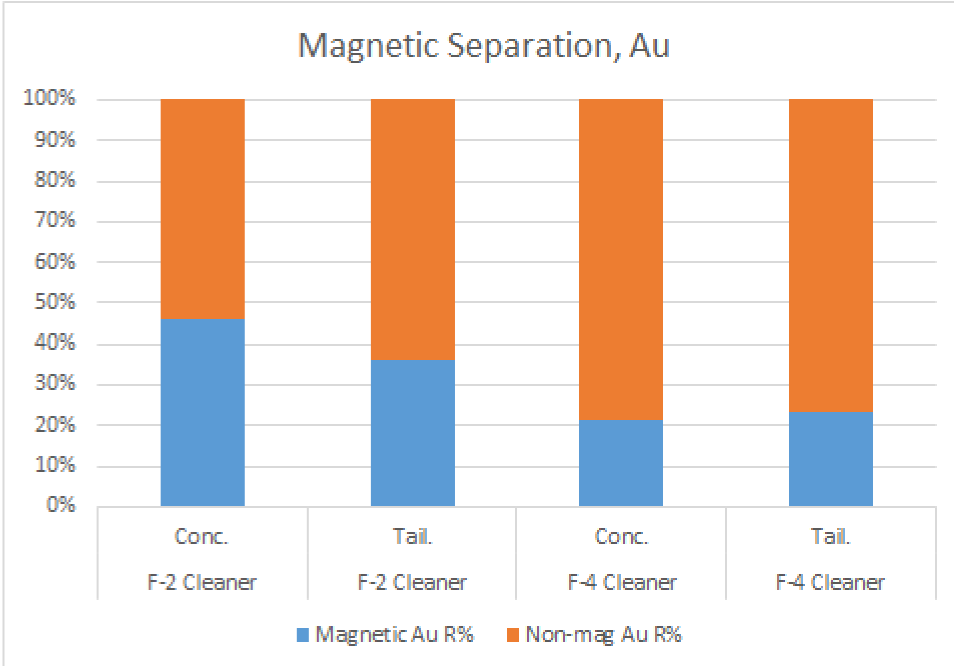


10.4.4. MAGNETIC SEPARATION TESTS

In 2019, MLI conducted four magnetic separation tests on the cleaner concentrate and cleaner tailings from the F2 (4393-002) and F4 (4393-004) cleaner flotation tests. The tests used a permanent handheld magnet (420 gauss).

The results in Figure 10-31 demonstrate that gold in the rougher concentrate tends to be beneficiated with non-magnetic particles. Based on the mineralogy analysis, the majority of magnetic mineral in the 4393-002 and 4393-004 rougher concentrates is pyrrhotite. This indicates that some gold is associated with pyrrhotite in these rougher concentrates.

FIGURE 10-31 GOLD DISTRIBUTION IN MAGNETIC SEPARATION



10.4.5. FLOWSHEET TESTS

GRAVITY/CYANIDATION

A total of four master composites and 18 variability composites were tested by hand panning followed by cyanide leaching (using TP-3) on the hand panned tailings. The samples represent MCS sulfide ore (11 samples), MCS oxide ore (three samples), MCN sulfide ore (three samples) and MCN oxide ore (five samples). The test results are provided in Table 10-13, Table 10-14, Figure 10-32, and Figure 10-33.

TABLE 10-13 OVERALL METALLURGICAL RESULTS, GRAVITY CONCENTRATION TAILINGS CYANIDATION TESTS

Composite	MPOxC		MPSxC		NPOxC		NPSxC (1)	
Metallurgical Results	G-8/AL-108		G-9/AL-109		G-10/AL-110		G-30/AL-139	
	Au	Ag	Au	Ag	Au	Ag	Au	Ag
Extraction % of Total								
By Gravity	11.4	1.8	16.1	7.0	23.7	2.6	7.4	0.4
By Cyanidation								
in 1 hr	37.9	40.7	21.2	14.4	48.8	56.6	51.6	51.1
in 6 hrs	81.4	58.9	63.3	44.3	62.7	68.9	79.5	64.2
in 12 hrs	83.4	60.5	72.5	50.4	68.7	73.5	84.1	66.3
in 18 hrs	84.0	62.0	74.5	52.1	70.5	73.4	85.8	69.2
in 24 hrs	83.5	60.2	76.8	55.8	68.8	73.6	84.5	72.4
Combined Grav/CV Extraction, % of total	94.9	62.0	92.9	62.8	92.5	76.2	91.9	72.8
Extracted, oz/st feed	0.242	0.20	0.092	0.10	0.110	0.35	0.079	0.08
Tail Assay, oz/st(*)	0.013	0.12	0.007	0.06	0.009	0.11	0.007	0.03
Calculated Head, oz/st feed	0.255	0.32	0.099	0.16	0.119	0.46	0.086	0.11
Head assay, oz/st ore(*)	0.279	0.32	0.106	0.17	0.135	0.48	0.091	0.11
Gravity Conc. Wt.% of feed	0.30		0.48		0.52		0.50	
NaCN Consumed, lb/ton feed	2.73		4.32		2.96		1.97	
Lime Added, Lb/ton feed	22.2		3.5		4.2		2.0	
Final pH	11.0		11.0		10.9		10.4	
Natural pH (40% solids)	11.1		11.2		11.0		10.7	

(*) Average of triplicate assays.

TABLE 10-14 SUMMARY METALLURGICAL RESULTS, GRAVITY CONCENTRATION TAILINGS CYANIDATION TESTS

MLI Test		Lime Added During Grind lb/ton	Au Recovery % of total			oz/ton Au feed					Cu Ext'd(*) 22m	Reagent Requirements lb/ton feed	
						Grav.	Ext'd		Head Grade			NaCN	Lime
Composite	No.		Grav.	CN	Total	Conc.	CN	Tail	Cl'd	Assayed		Cons.	Added
MPSxV1	AL-121	4.0	3.6	78.3	81.9	0.001	0.026	0.006	0.033	0.034	84	2.05	4.0
MPSxV2	AL-122	4.0	16.0	72.6	88.6	0.007	0.032	0.005	0.044	0.047	432	3.51	6.4
MPSxV3	AL-123	3.9	23.1	68.1	91.2	0.010	0.031	0.004	0.045	0.039	106	2.16	3.9
MPSxV4	AL-124	4.0	10.5	76.7	87.2	0.008	0.060	0.010	0.078	0.097	173	2.87	4.0
MPSxV5	AL-125	4.0	19.8	74.5	94.3	0.024	0.092	0.007	0.123	0.150	541	6.97	13.0
MPSxV5	AL-144	13.0	12.2	81.7	93.9	0.014	0.094	0.007	0.115	0.150	511	5.67	15.1
MPSxV6	AL-126	4.0	14.2	75.1	89.3	0.001	0007	0.001	0.009	0.011	105	1.62	4.4
MPSxV7	AL-127	4.0	20.9	68.0	88.9	0.024	0.080	0.013	0.117	0.119	497	7.46	13.8
MPSxV7	AL-145	13.8	14.7	75.1	89.8	0.017	0.088	0.012	0.117	0.119	548	6.81	17.4
MPSxV8	AL-128	4.0	5.8	85.6	91.4	0.009	0.139	0.014	0.162	0176	93	3.32	4.0
MPSxV9	AL-129	4.0	3.3	87.9	91.2	0.000	0.010	0.001	0.011	0.009	37	0.54	4.0
MPSxV1O	AL-130	4.0	7.8	50.3	58.1	0.004	0.024	0.020	0.048	0.049	2,274	12.47	19.0
MPSxV1O	AL-149	19.0	16.4	46.0	62.4	0.008	0.022	0.018	0.048	0.049	1,967	11.90	25.3
MPOxV1	AL-131	5.0	2.4	91.6	94.0	0.002	0.077	0.005	0.084	0.087	164	2.73	12.9
MPOxV2	AL-132	5.0	2.4	94.3	96.7	0.004	0.173	0.006	0.183	0.214	60	1.18	16.4
NPSxV1	AL-133	5.0	32.6	60.0	92.6	0.097	0.179	0.022	0.298	0.293	82	1.32	5.0
NPSxV2	AL-134	5.0	13.0	73.7	86.7	0.013	0.072	0.013	0.098	0.105	282	2.03	5.0
NPOxV1	AL-135	5.0	4.6	86.2	90.8	0.006	0112	0.012	0.130	0.150	40	1.08	11.2
NPOxV2	AL-136	5.0	34.5	>63.2	>97.7	0.015	0.028	<0.001	<0.044	0.057	65	0.82	8.7
NPOxV3	AL-137	5.0	37.4	55.8	93.2	0.109	0.163	0.020	0.292	0.381	61	1.01	6.2
NPOxV4	AL-138	5.0	6.5	86.0	92.5	0.007	0.092	0.008	0.107	0.097	74	1.26	5.1

(*) CN feed basis, i.e., lb Cu extracted per 106 lb of feed.

FIGURE 10-32 GOLD AND SILVER RECOVERIES – GRAVITY AND CYANIDE LEACHING TESTS

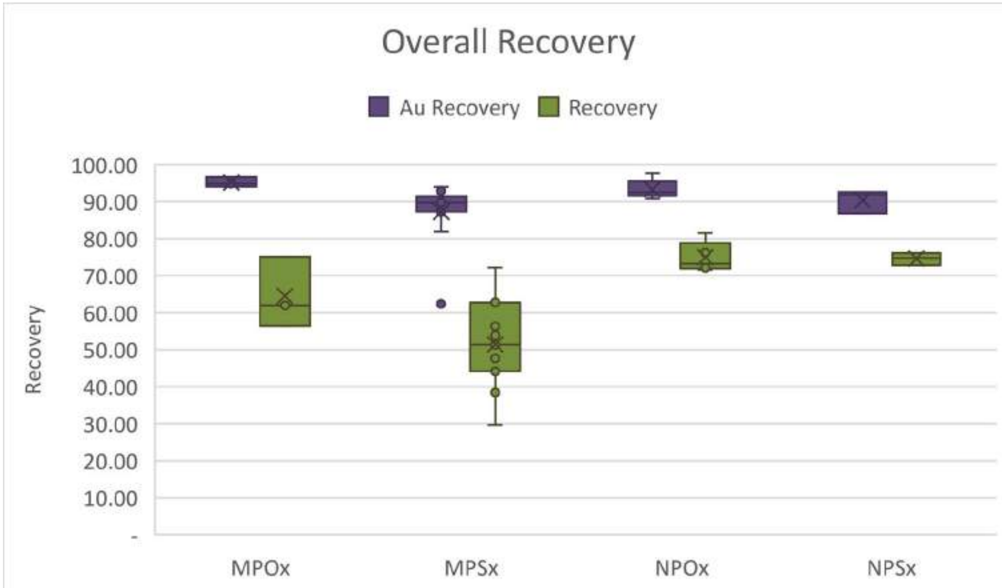
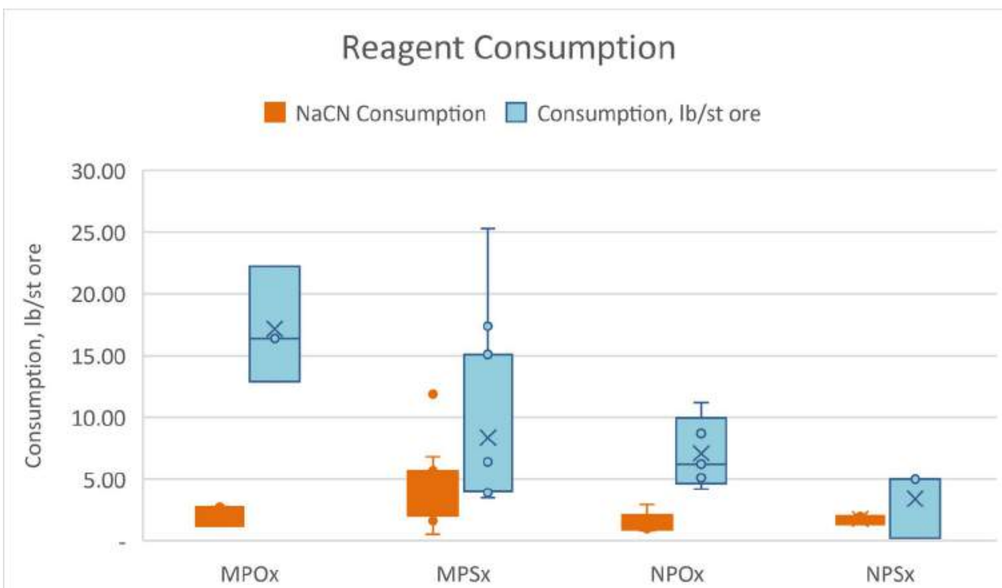


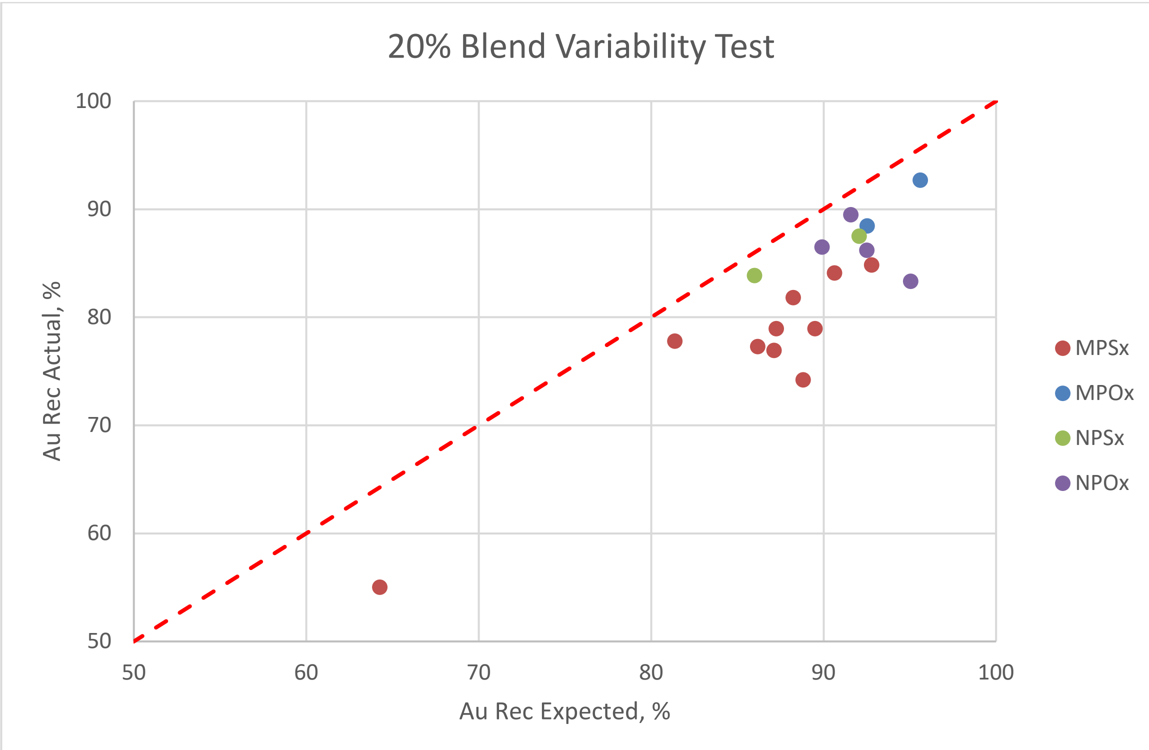
FIGURE 10-33 REAGENT CONSUMPTION – GRAVITY AND CYANIDE LEACHING TESTS



Gravity/cyanide leaching tests were also conducted on each of the 18 variability composites after blending with Fort Knox feed material at a 20% ratio. The Manh Choh variability samples were ground with lime and 8 lb/st cement. After grinding, the samples were hand panned to recover gravity gold. The tailings of the gravity concentration were blended with the Fort Knox leach feed composite at 0.5 lb/st NaCN maintained. The slurry was sparged continuously with air.

The gold recoveries are evaluated by comparing to the unblended variability test results. As shown in Figure 10-34, all gravity/cyanide leaching tests on 20% blend samples were below their expected gold recoveries.

FIGURE 10-34 GOLD RECOVERY – BLENDING TESTS



GRAVITY/ROUGHER (+CLEANER) FLOTATION/CYANIDATION

Three Manh Choh master composites were subjected to bulk gravity concentration followed by flotation concentration and cyanide leaching treatment (Figure 10-35 and Figure 10-36).

The ore samples were ground to P_{80} 212 µm. The ground samples were slurried with water and processed through a laboratory scale Knelson gravity concentrator to produce rougher gravity concentrates and tailings. The rougher concentrates were further beneficiated by hand panning to generate cleaner concentrates. Both cleaner concentrates and tailings were assayed. The remaining cleaner tailings were combined with rougher tailings for the next stage's treatment.

The combined gravity tailings were ground to P_{80} 75 µm and then subjected to flotation tests. The ground slurry was diluted to 33% solid using water, then conditioned with copper sulfate. Hydrated lime or soda ash was used to adjust the slurry pH to 7.5. PAX and AERO 208 were used as the collectors. For gravity/rougher flotation/cyanidation tests, the rougher concentrates were subjected to intensive leaching, while the rougher tails were subject to agitated leaching. For gravity/rougher and cleaner/cyanidation tests, the rougher concentrates were further beneficiated by cleaner flotation without introducing any additional reagents. The cleaner tailings were re-combined with rougher tailings as flotation tailings for agitated leaching tests.

The flotation tailings were leached following standard Fort Knox plant leaching conditions. The slurry density was adjusted to 50% solids, continuous air sparging, and the solution cyanide concentration was maintained at 0.50 lb/st NaCN. The samples were leached for 24 hours.

FIGURE 10-35 FLOWSHEET – GRAVITY/ROUGHER/CYANIDATION

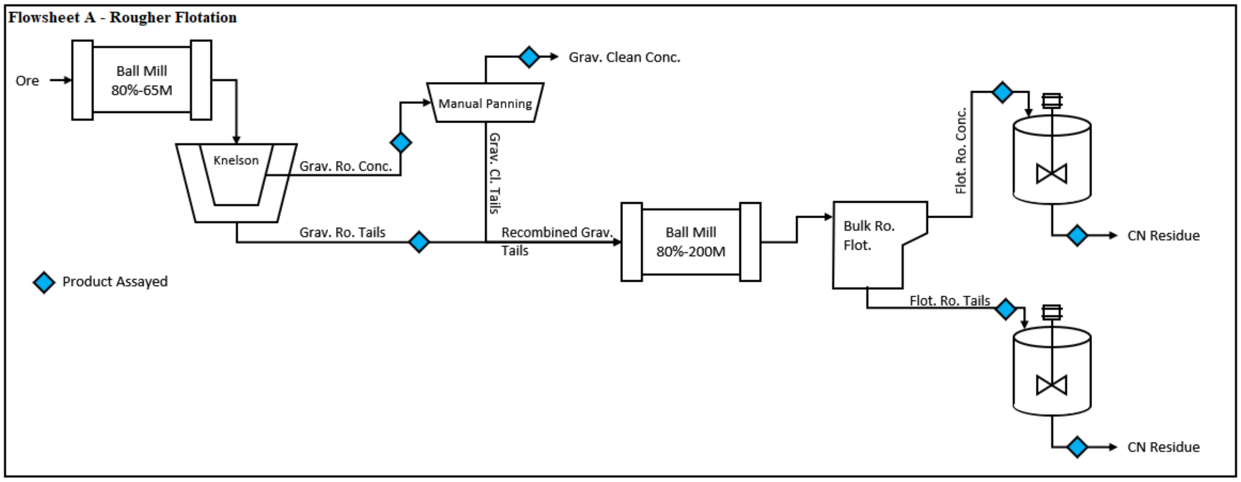
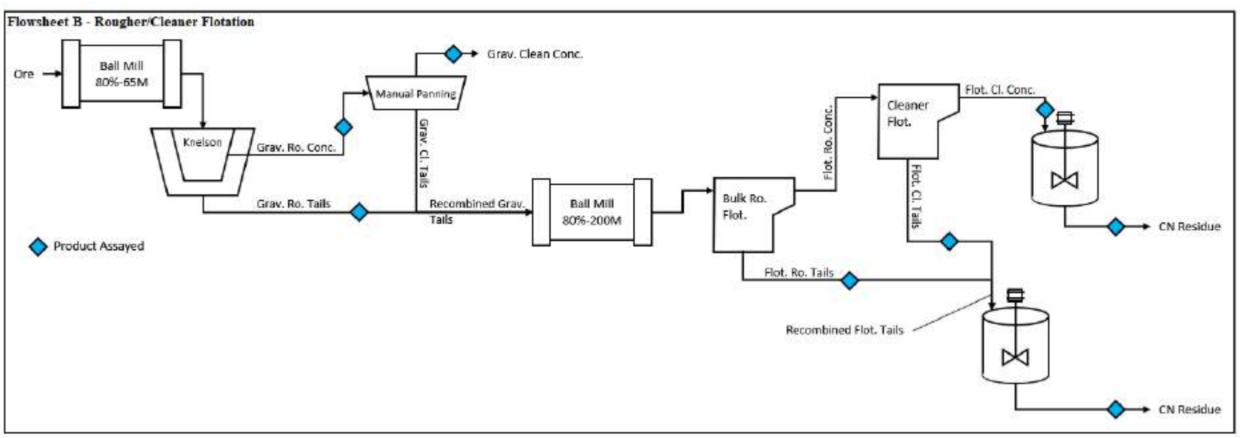


FIGURE 10-36 FLOWSHEET – GRAVITY/ROUGHER AND CLEANER/CYANIDATION



SUMMARY RESULTS OF FLOWSHEET OPTIONS STUDY

The results of the flowsheet options study are summarized in Table 10-15. The Manh Choh samples respond to the gravity/flotation/cyanidation flowsheet well, however, the overall reagent consumption was higher than the whole ore leaching options. Especially for the MCS sulfide composite, the savings in NaCN and lime consumption made the whole ore leach the preferred option for the FS.

TABLE 10-15 RESULTS OF FLOWSHEET OPTION STUDY

Composite	Process	Au Recovery %	Ag Recovery %	NaCN Consumption lb/st	Lime Consumption lb/st
MPOxC	CN	95.5	74.5	2.0	22.3
	Grav/CN	94.9	62.0	2.7	22.2
	Grav/Ro. Flot/CN	94.8	63.5	2.4	16.5
	Grav/Ro+Cl. Flot/CN	89.3	76.7	1.7	18.4
MPSxC	CN	93.0	65.5	3.5	3.9
	Grav/CN	92.9	62.8	4.3	3.5
	Grav/Ro. Flot/CN	91.1	55.8	11.0	7.0
	Grav/Ro+Cl. Flot/CN	83.4	31.0	6.6	11.7
NPOxC	CN	91.0	71.7	2.1	6.2
	Grav/CN	92.5	76.2	3.0	4.2
	Grav/Ro. Flot/CN	89.2	72.4	2.8	5.8
	Grav/Ro+Cl. Flot/CN	72.9	58.5	1.8	9.2

10.5. PROCESS SELECTION

10.5.1. PROCESS DESIGN CRITERIA

The key process design criteria for the facility are provided in Table 10-16.

TABLE 10-16 DESIGN CRITERIA

Description	Units	Value
Manh Choh Ore		
Campaign Duration	days	30.42
Mass Flow Rate	stpd	12,000
Feed Grade - Au	Troy oz/st	0.32
Feed Grade - Ag	Troy oz/st	0.44
Overall Recovery - Au	%	90.50
Overall Recovery - Ag	%	69.34
Feed Rate	stph	543.5
Availability	%	92
Ore Characteristics		
Crushing Work Index	kWh/st	9.0
Bond Ball Mill Work Index	kWh/st	11.4
Bond Rod Mill Work Index	kWh/st	12.2
Abrasion Index	g	0.11
Ore Bulk Density	lbs/ft^3	100-112
Solids SG		2.82

Description	Units	Value
Moisture	%	2-3
Product Size – P_{80}	microns	75
Design Life	years	5
Maximum Cement Addition	lbs/st ore	8.0
Maximum Lime Addition Leach Circuit	lbs/st ore	17.4
Grinding Area		
Operating Hydrocyclones	No.	10
Hydrocyclone Diameter	inches	20
Cement Silo Capacity	st	100
Leach & CIP Area		
Number of Leach Tanks	No.	2
Number of CIP Tanks	No.	6
Gold Recovery in CIP Circuit	%	90
Silver Recovered in CIP Circuit	%	61.5
CIP Carbon Advance Rate	st/d	38
Cyanide Addition to Leach Circuit	lbs/st ore	4.1
Leach Slurry Density	% solids	55
Elution Area		
Elution Columns	No.	2
Elution Column Capacity	st	12
Loaded Carbon	oz/st carbon	150
Stripped Carbon	oz/st carbon	10
Elution Time	hours	11.1
Strips per day per Column	No.	2
Stripping Temperature	°F	270
Additional Boilers Required	No.	1
Additional Heat Exchangers Required	No.	2
Cyanide Destruction		
Number of Detox Tanks	No.	2
Retention Time	hours	2.0
Feed Rate - Design	stph	939
Product Size - P_{80}	microns	75
Feed Density	%	59
Operating pH		8.0 – 9.0
Cyanide Concentration Feed End	ppm	500
Cyanide Concentration After Detox	ppm	7.0
SMBS Consumption Rate	lbs/st	6.00
Copper Sulfate Consumption Rate	lbs/st	1.02
Lime Consumption Rate	lbs/st	2.03

The existing Fort Knox processing facility will continue to operate with Fort Knox ore on a batch basis along with the Manh Choh ore. The equipment and process as is currently designed will not be modified when processing ore from Fort Knox, however, additional equipment and piping modifications to some areas of the plant will be required for when processing Manh Choh ore. To offset the reduction in throughput when processing Manh Choh ore, modifications will be done in parallel alongside the existing equipment. Where applicable, synergies that can be found throughout the entire circuit when processing either ore will be used to reduce capital expenditures (capex) and installation times. The modifications to the plant will be flexible and will allow for a seamless switch from one ore to the other.

The site conditions, operating conditions, and safety parameters are documented and provided for in the design basis. The environmental constraints have been identified and are considered in the design. There is a low probability for the production of leachate that is acidic or contains levels of metals that might contaminate surface or groundwater from the coarse ore stockpile. To mitigate any potential contamination of ground water, any seepage is collected via the stockpile runoff pond and pumped to the process water tank in the mill.

10.5.2. POTENTIAL PROCESS IMPROVEMENTS

Flotation was investigated as an alternative process in the test work. No new alternative processes were identified for the Mill Modification project. Several process improvements have been identified and are listed in Table 10-17.

TABLE 10-17 POTENTIAL PROCESS IMPROVEMENTS

	Description	Conclusion
1	Installation of Auto Dilution for the thickener feed well.	Will decrease the feed solids level prior to flocculation, improving particle setting rates.
2	Acid wash carbon prior to elution.	Improve elution efficiency by removing impurities such as copper, calcium, and magnesium which can impede both the elution step and the later adsorption of gold onto the carbon after it has been returned to the CIP circuit.
3	Regeneration of all carbon prior to sending back to CIP circuit.	Restore the activity of spent activated carbon by removal of organic absorbates. This will lower the need to add additional fresh carbon into the circuit.
4	Replace piping to electrowinning circuit.	Increase solution flow rates.
5	Hydraulic study of the slurry flow.	Eliminate smaller inter tank piping and use existing piping to save on costs.
6	Regular cleaning of heat exchanger and lines with sulfamic acid.	Will reduce the buildup of scale within the heat exchanger and associated piping. Also improve heat exchange within the heat exchangers.
7	In-line heating of eluate.	Potential to eliminate extra heater for heating of elution columns. Reduction of elution time.
8	Heating of portion of eluate prior to stripping.	Potential to eliminate extra heater for heating of elution columns. Reduction of elution time.

10.5.3. PROCESS MODIFICATIONS

Higher grade ore from the proposed Manh Choh mine site will be processed at the existing Fort Knox milling complex.

Manh Choh ore will be batched or campaigned through the Fort Knox concentrator at a rate of 12,000 stpd for a period of 20 to 30 days. The ore will be processed using the existing process flowsheet with some modifications to accommodate for the decrease in throughput. Where possible, the processing of the Manh Choh ore will share equipment with the processing of the Fort Knox ore, to reduce capital costs, reduce construction time, and standardize operating and maintenance practices. Equipment and facilities with capacity to cater for the processing of Manh Choh ore will not be duplicated (e.g., gold smelting facilities, crushing/grinding, leaching, and CIP circuits).

The process plant includes a primary crusher, a SAG mill, and two ball mills of which only one is currently operating in closed-circuit, each with a cluster of hydrocyclones to control grind size.

When processing Manh Choh ore, only ball mill No. 2 will be operated, along with a single gravity concentrator to recover gravity recoverable coarse gold, and two (of seven) cyanide leach tanks to compensate for the reduction in tonnage. The recovery of gold in solution via activated carbon (CIP circuit) will use all six existing tanks to maximize absorption efficiency due to the high-grade Manh Choh plant feed.

Modifications to the carbon elution circuit will include two new loaded carbon dewatering screens, one new boiler, and two additional heat exchangers. A new cyanide detoxification circuit is required to lower cyanide content in the CIP tails before they are sent to the TSF. Modifications to the existing feedwell for the tailings thickener is also scheduled. The current reagent pumps will be replaced along with the addition of a new cement silo, lime silo package (includes pumps and tanks) and a new cyanide mixing system using ISO containers to generate a 24%wt cyanide solution used in the leaching circuit. Piping modifications throughout the circuit will also be needed to account for the reduction in tonnage across the plant.

Fort Knox Mill Modifications are as follows.

Ore Handling System/Grinding Area/Leach/CIP Area

- A new 100 st cement silo located next to the existing 200 st lime silo discharging onto the SAG mill feed conveyor.
- New cyclones for cyclone cluster No. 2. A total of ten in. to 20 in. diameter cyclones.
- Installation of an existing slurry line which will have the ability to divert 20% wt of the cyclone underflow to the SAG mill feed chute.
- Installation of a new line (12 in.) from the pre-leach thickener distributor box (23-CU-016) to the thickener feed box.
- A new pre-leach thickener underflow pump (23-PP-701) and a line to the grit feed box distributor (23-CU-018).

- A new line (14 in.) from the distributor grit feed box (23-CU-018) to the grit screens distributor (23-CU-020).
- A new line (14 in.) from the drop box in leach tank No. 1 to the feed on leach tank No. 6 and new inter tank line to leach tank No. 7.
- A new line (14 in.) from the discharge of leach tank No. 7 to the feed end of CIP tank No. 1 and No. 2 (tank 23-TK- 009/010)
- New inter-tank lines (14 in.) for all connections pipes to the CIP tanks.
- A new line (12 in.) from the discharge of CIP No. 6 to the tailings thickener feed box (F29-TAN-201).
- A new sump pump (13-PP-701) for the stockpile runoff pond.

Elution Area

- A new hot water heater with 10 million BTU/h capacity (26-HF-701) along with two pumps (26-PP-702/703), hot water surge vessel (26-VS-701) and two pumps (26-PP-704/705), and two new heat exchangers (26-HX-701/702).
- New loaded carbon holding tank (12 st capacity 26-TK-701) and pump (26-PP-701).
- Two new loaded carbon dewatering screens (26-SR-701/702) to replace existing units.
- A new structure and building for handling the cyanide ISO containers. The system also requires a new cyanide transfer pump (25-PP-707) and cyanide off loading sump pump (25-PP-706).
- A new air receiver (25-VS-701) to supply high pressure air to the ISO container.

Cyanide Detoxification Area

- New piping (14 in.) from tailings thickener feed box (F29-TAN-201) to thickener feed well. An intermediate feed box (F29-TK-701) also to be installed.
- Replacement of the existing feedwell (F29-AE-701) with a new unit.
- A new thickener under flow pump (F29-PP-701) and piping (12 inch) to safety screen distributor box (F29-CU-023)
- A new pump box (24-TK-701), new pump (24-PP-701), and lines from the screen underflow to the detoxification tanks and back to tailings discharge pump box (32-TK-001)
- New reagent pumps for copper sulfate (25-PP-704/705) and SMBS (25-PP-701/702/703).
- A new mix tank (25-TK-701) and agitator (25-AG-701) for copper sulfate.
- A new copper sulfate storage tank (25-TK-702).
- Two new cyanide detoxification tanks (33-TK-703/704) and agitators (33-AG-703/704) along with a new discharge pump (33-PP-705).
- A new 100 st lime silo, which will be a complete vendor package to include a lime silo, transfer pumps, distribution pumps, mix tank and agitator, and storage tank and agitator. A new building to house new tanks and pumps will also be required.
- A new lime sump pump (33-PP-706).

- A new air compressor (23-CA-701).

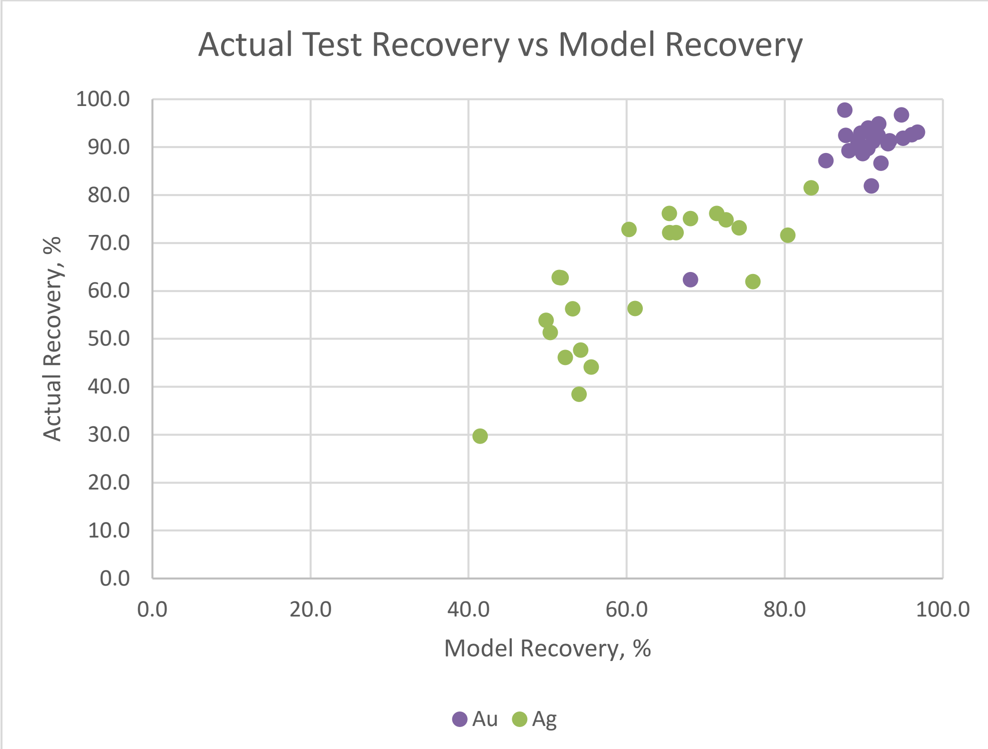
10.5.4. ACTUAL VS. MODELED RECOVERIES

Mill gold and silver recovery models are developed using gravity and cyanidation test results on four Manh Choh master composites and 18 Manh Choh variability composites. A comparison between actual test recoveries and model calculated recoveries is provided in Table 10-18 and Figure 10-37.

TABLE 10-18 ACTUAL VS. MODELED RECOVERIES

Test ID	Sample ID	Au Recovery, %		Ag Recovery, %		NaCN Consumption lb/st	Lime Consumption lb/st
		Test Actual	Model	Test Actual	Model		
AL-108	MPOxC	94.90	91.88	61.99	75.95	2.73	22.20
AL-109	MPSxC	92.92	89.61	62.80	51.70	4.32	3.50
AL-110	NPOxC	92.45	91.80	76.19	71.38	2.96	4.20
AL-139	NPSxC(1)	91.90	94.96	72.84	60.28	1.97	0.20
AL-121	MPSxV1	81.93	90.92	44.17	55.49	2.05	4.00
AL-122	MPSxV2	88.65	89.82	56.31	53.14	3.51	6.40
AL-123	MPSxV3	91.21	91.12	62.85	51.43	2.16	3.90
AL-124	MPSxV4	87.21	85.18	29.69	41.43	2.87	4.00
AL-144	MPSxV5	93.98	90.59	72.17	65.40	5.67	15.10
AL-126	MPSxV6	89.28	88.09	51.35	50.31	1.62	4.40
AL-145	MPSxV7	89.76	90.51	46.17	52.22	6.81	17.40
AL-128	MPSxV8	91.38	93.22	53.88	49.76	3.32	4.00
AL-129	MPSxV9	91.21	89.22	38.47	53.97	0.54	4.00
AL-149	MPSxV10	62.40	68.03	47.70	54.14	11.90	25.30
AL-131	MPOxV1	94.05	90.53	56.38	61.02	2.73	12.90
AL-132	MPOxV2	96.73	94.74	75.15	68.03	1.18	16.40
AL-133	NPSxV1	92.62	96.04	74.83	72.53	1.32	5.00
AL-134	NPSxV2	86.69	92.15	76.22	65.38	2.03	5.00
AL-135	NPOxV1	90.77	93.04	71.63	80.36	1.08	11.20
AL-136	NPOxV2	97.74	87.58	72.19	66.21	0.82	8.70
AL-137	NPOxV3	93.16	96.77	81.57	83.30	1.01	6.20
AL-138	NPOxV4	92.52	87.68	73.22	74.22	1.26	5.10

FIGURE 10-37 ACTUAL VS. MODELED RECOVERIES



The average mill gold and silver recoveries are estimated based on gold and silver head grades, total sulfur and copper head grade. The recovery formulas are as follows:

$$Au_{recovery\,\%} = 99.69 - 8.805 \times 1.751^{-Au_{head\,ppm}} + 0.02677 \times \%S_{tot} - 0.004927 \times Cu_{head\,ppm}$$
$$Ag_{recovery\,\%} = 53.47 + 1.782 \times Au_{head\,ppm} + 0.6496 \times Ag_{head\,ppm} - 2.345 \times \%S_{tot}$$

where,

$Au_{recovery\%}$ is the overall Manh Choh ore gold recovery, which includes gravity concentration recovery plus leaching recovery.
$Ag_{recovery\%}$ is the overall Manh Choh ore gold recovery, which includes gravity concentration recovery plus leaching recovery.
$Au_{head\,ppm}$ is the gold head assay.
S_{tot} is the total sulfur assay.
$Cu_{head\,ppm}$ is the copper head assay.

In addition, the gold recovery has a cap of 93.36%, and the silver recovery has a cap of 73.62%.

10.6. QUALIFIED PERSON'S OPINION ON MINERAL PROCESSING AND METALLURGICAL TESTING

The QP is of the opinion that the data derived from the testing activities described above are adequate for the purposes of Mineral Resource and Mineral Reserve estimation.

11. MINERAL RESOURCE ESTIMATES

11.1. SUMMARY

Mineral Resources have been classified in accordance with the definitions for Mineral Resources in S-K 1300. The Mineral Resources were developed using a computer-based block model based on drill hole assay information and geologic interpretation of the mineralization boundaries. Mineral Resources were estimated using the block model and open pit design software to establish the component of the deposit with reasonable prospects for economic extraction. The Mineral Resource block model and estimate were prepared by Kinross Technical Services (KTS) and reviewed by the Contango QP. The model was based on validated drilling data available through June 2021. Additional drilling has been completed on the property outside of the resource area.

The Mineral Resources are contained within two deposits: MCS and MCN. There is an area southwest of MCS that contains several drill holes named Discovery Hill. The Discovery Hill area was not modeled for this block model and is not included in the stated Mineral Resources. The northwest end of the MCS deposit is referred to as MCW because there are structural offsets between MCS and MCW. The MCW mineralization was modeled incorporating those structural offsets, and it is tabulated as part of MCS on the resource tables. Figure 11-1 illustrates the general location of the deposits, associated drill data, and extents of the block model used for the resource inventory.

FIGURE 11-1 LOCATION MAP OF MANH CHOH SOUTH AND NORTH DEPOSITS, MANH CHOH PROJECT, ALASKA

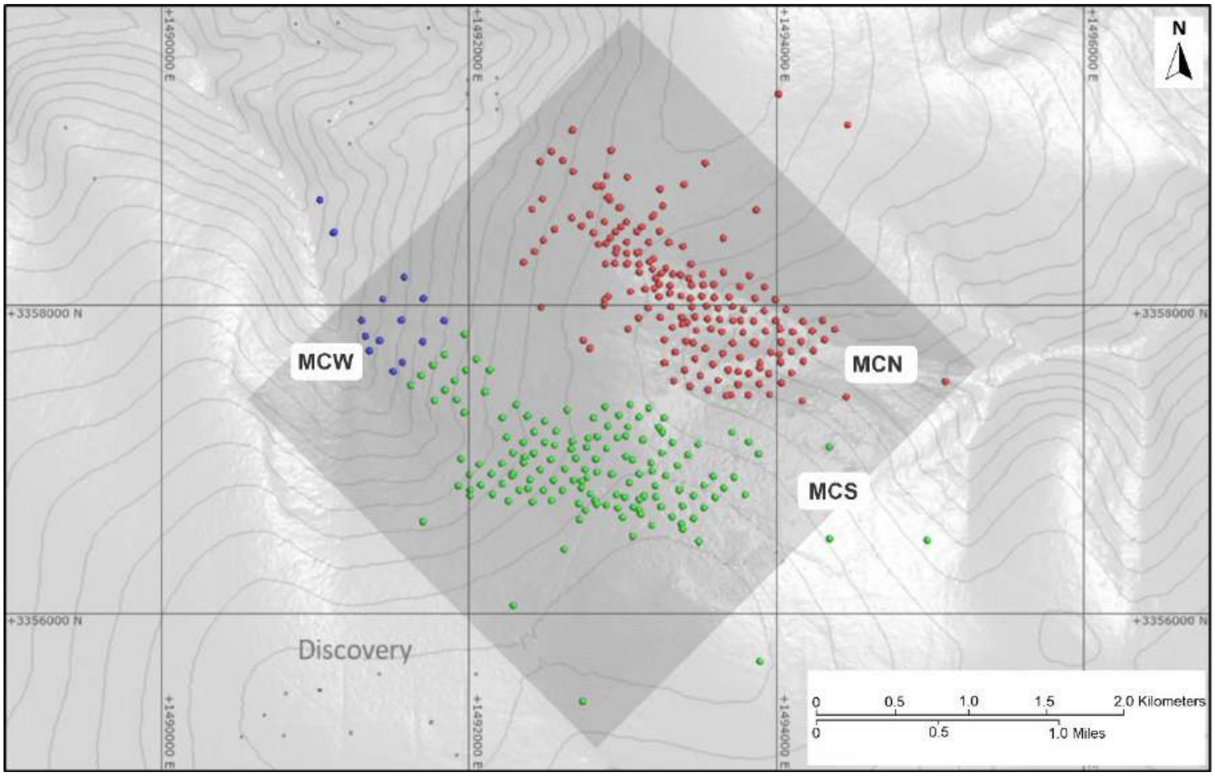


Table 11-1 summarizes the Mineral Resource estimate for the Project effective December 31, 2022 on a 100% attributable ownership basis. Table 11-2 summarizes Contango's portion of Project Mineral Resources (30% attributable basis).

TABLE 11-1 MINERAL RESOURCE ESTIMATE AS OF DECEMBER 31, 2022 – PEAK GOLD 100% ATTRIBUTABLE OWNERSHIP

Classification	Tonnes (000)	Au Grade (g/t)	Au Ounces (000)	Ag Grade (g/t)	Ag Ounces (000)
Measured	-	-	-	-	-
Indicated	846	2.4	65	9.3	252
TOTAL	**846**	**2.4**	**65**	**9.3**	**252**
Inferred	21	3.8	3	9.2	6

TABLE 11-2 MINERAL RESOURCE ESTIMATE AS OF DECEMBER 31, 2022 – CONTANGO 30% ATTRIBUTABLE OWNERSHIP

Classification	Tonnes (000)	Au Grade (g/t)	Au Ounces (000)	Ag Grade (g/t)	Ag Ounces (000)
Measured	-	-	-	-	-
Indicated	254	2.4	20	9.3	76
TOTAL	**254**	**2.4**	**20**	**9.3**	**76**
Inferred	6	3.8	1	9.2	2

Notes for Tables 11-1 and 11-2:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources.
2. Mineral Resources are reported **exclusive** of Mineral Reserves.
3. Mineral Resources are estimated using long term prices of US$1,600/oz Au price and US$22/oz.
4. Mineral Resources are reported using un-diluted Au and Ag grades.
5. Mineral Resources are reported within constraining pit shells.
6. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
7. Mineral Resources are reported in dry metric tonnes.
8. Numbers may not add due to rounding.

The QP reviewed consensus long-term (10 year) metal price forecasts for gold and silver and verified that the selected metal prices for estimating Mineral Resources are in line with independent forecasts from banks and other lenders.

The QP is of the opinion that with consideration of the recommendations summarized in Sections 1 and 23 of this report, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

The estimates of Mineral Resources may be materially affected if mining, metallurgical, or infrastructure factors change from those currently anticipated at the Manh Choh Project. Although the QP has a reasonable expectation that the majority of Inferred Mineral Resources could be upgraded to Indicated or Measured Resources with continued exploration, estimates of Inferred Mineral Resources have significant geological uncertainty and it should not be assumed that all or any part of an Inferred Mineral Resource will be converted to the Measured or Indicated categories.

Mr. Sims, the QP, visited the site in August 2021. The QP worked with the Project staff to inspect core and surface outcrops, drill platforms, and sample cutting and logging areas, and discussed geology and mineralization.

11.2. RESOURCE DATABASE

The database for the block model consists of completed and validated drill data as of August 13, 2021. There are 528 drill holes in the Tetlin Project database including 521 core holes and seven RC holes. Only diamond core drill holes within the areas defined as South (MCS), West (MCW), and North (MCN) are used for resource estimation highlighted in darker gray in Figure 11-1. A total of 134 drill holes were excluded including seven dewatering RC holes, 18 core holes pending results as of the database cut-off date, and 109 drill holes from targets distal to the Manh Choh deposit. Table 11-3 summarizes excluded drill holes not used in the block model. As a result, the actual number of drill holes used for modeling is 394 for a total of 69,574 m (228,260 ft) of assays.

TABLE 11-3 SUMMARY OF DRILL HOLES EXCLUDED FROM THE MODEL DATASET

Dewatering RC Holes (7)	Pending Results Holes (18)	Distal Holes to the Model Extents (109)					
TET21484	TET21511	TET11002	TET12050	TET15139	TET17357	TET17396	TET18431
TET21490	TET21512	TET11004	TET12051	TET15140	TET17362	TET17398	TET18432
TET21494	TET21513	TET11005	TET12052	TET15141	TET17363	TET17399	TET18433
TET21502	TET21514	TET11006	TET12053	TET15142	TET17364	TET17400	TET18434
TET21506	TET21515	TET11007	TET12054	TET15143	TET17365	TET17401	TET18435
TET21509	TET21516	TET11008	TET12055	TET15144	TET17366	TET17402	TET18436
TET21510	TET21517	TET11009	TET12056	TET15146	TET17367	TET18418	TET18437
	TET21518	TET11011	TET13111	TET15155	TET17370	TET18419	TET18438
	TET21519	TET12012	TET13115	TET15156	TET17372	TET18420	TET18439
	TET21520	TET12013	TET13116	TET15157	TET17375	TET18421	TET18440
	TET21521	TET12014	TET13128	TET15180	TET17377	TET18422	TET18441
	TET21522	TET12015	TET15131	TET16201	TET17380	TET18423	TET18442
	TET21523	TET12024	TET15132	TET16202	TET17382	TET18424	TET18443
	TET21524	TET12025	TET15133	TET16203	TET17383	TET18425	TET19449
	TET21525	TET12026	TET15134	TET17352	TET17384	TET18426	
	TET21526	TET12027	TET15135	TET17353	TET17387	TET18427	
	TET21527	TET12028	TET15136	TET17354	TET17391	TET18428	
	TET21528	TET12029	TET15137	TET17355	TET17392	TET18429	
		TET12030	TET15138	TET17356	TET17394	TET18430	

Non-positive values indicative of assay results below detection limit were replaced with ½ detection limit. Missing data was left as null. Additional drilling completed after June 2021 was not included in the generation of the block model. The .csv database was validated against original logs, historic driller data, and complete assay certificates. Historic data was validated and compiled for inclusion in an acQuire database with coordination translation to US Survey feet. Partial relogging and review of core photographs was completed along with normal database validation procedures for acQuire database implementation in 2021. All fire assay and ICP geochemical data were re-imported from original assay certificates during acQuire database implementation. Historically accepted re-run assay QA/QC data were reviewed with no significant discrepancies or errors found.

Drill hole data were loaded from .csv export files to Leapfrog software with inherent validation tools used to verify that no significant errors were present. Data were compared within original UTM meter and translated Alaska State Plane US Survey feet coordinate systems to ensure database integrity. Collar locations, downhole survey QA/QC consistency, original log comparisons, and FROM and TO interval comparisons were completed.

Comprehensive re-logging of skarn alteration was completed in 2015 on pre-2015 drill data with logging scheme adopted through 2021 drilling. No significant data errors or material inconsistencies were noted in large part due to good historic MS Excel based database management and recent execution of all drill programs using modern methods and industry best practices.

11.3. GEOLOGICAL INTERPRETATION

The Manh Choh gold-copper mineralization is hosted by metasedimentary rocks consisting of mainly siliciclastic schist, which underwent complex folding and regional metamorphism. The folding appears to have concentrated calcareous components of the host rock along axial planes of the folding.

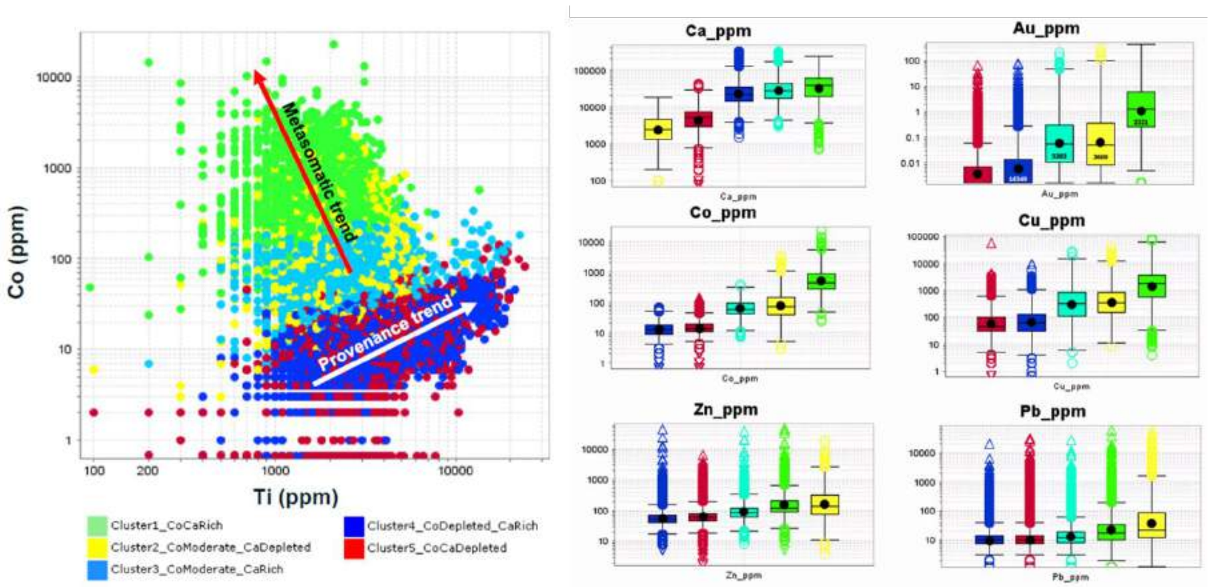
Later metasomatic events formed localized skarn bodies of varying degrees of alteration and mineralization textures and intensity within the schist. The fluids that formed the skarns likely also controlled the placement of the gold, silver, and copper mineralization. The distribution of gold, silver, and copper demonstrate hard boundaries with abrupt grade changes for the metals with relatively high grade within the mineralized skarn and lower grades outside of these zones. Mixed metasomatized skarn and schist intervals with elevated pathfinder geochemical elements are logged as minor skarn.

The drill hole ICP-ME geochemical data was used in 2021 by KTS (Ordóñez, 2021) to generate two cluster analyses of the deposit:

- Metal zoning characterization was established using seven isometric log-ratio coordinates balancing sulfur, gold, arsenic, molybdenum, cobalt, and bismuth against other metals. The analysis produced six significant clusters, with three characterizing ore and three characterizing waste. The ore and waste clusters individually subdivide the dataset relative to expected redox boundaries. The cluster results were reviewed in 3D for appropriateness relative to final domains.
- Lithogeochemistry characterization was established using three isometric log-ratio coordinates of mobile and relatively immobile elements:
    - Ca, Co | MgVTiAlSc, NiLaP
    - Ca | Co
    - MgVTiAlSc| NiLaP

Five clusters were identified. Clusters 1, 2, and 3 represent gradational metasomatic alteration defined by variable cobalt and calcium content. Clusters 4 and 5 represent less altered background siliciclastic schist rock (Figure 11-2).

FIGURE 11-2 LITHOGEOCHEMICAL CLUSTER CHARACTERIZATION OF MANH CHOH



From Ordóñez, 2021

The analysis suggests that the protolith for the deposit skarn alteration is from mixed siliciclastic and limited calcareous sediments. The analysis supports logged skarn alteration used to define the mineralization control and shows good correlation. Cluster 1 and Cluster 3 represent strong and moderate calc-silicate alteration, respectively, predominantly overprinting metal-poor, less altered but Ca-rich Cluster 4. Given the lithogeochemical clusters, 81% of Cluster 1 and 45% of Cluster 3 were logged as skarn. The reconciled distribution of lithogeochemical clusters for logged minor skarn and skarn lithologies is shown in Table 11-4.

TABLE 11-4 LITHOGEOCHEMICAL CLUSTER GIVEN LOGGED LITHOLOGY FOR SKARN AND MINOR SKARN

Logged Lithology	Cluster1_ CoCaRich	Cluster2_ CoMod_CaDepleted	Cluster3_ CoMod_ CaRich	Cluster4_ CoDepleted_CaRich	Cluster5_ CoCaDepleted
Minor Skarn (100%)	4%	13%	19%	**40%**	24%
Skarn (100%)	**26%**	15%	**33%**	18%	8%

Cross section and 3D re-interpretation of the skarn and minor skarn altered lithology code establishes the general geometry of the mineralization. To simplify, the logged geologic codes were grouped by dominant association and statistical comparison for consistency and use in constructing the geologic interpretation. For example, a calc schist sub-code ("Calc schist" 71-90) indicates mixed skarn alteration with less than 30% schist and was grouped with the global "calc schist" code. The calc schist lithology was used with secondary geochemical data to group with minor skarn and skarn intervals.

In 2021, select drill holes were re-logged on sections from both MCS and MCN and sections were infilled with a comprehensive review using core photographs. Paper cross sections for logged lithology, alteration, metal zonation, and other geologic features were constructed and geo-referenced for use in software interpretation.

Leapfrog 3D solid wireframes were developed using drill hole geochemistry and logged skarn and calc schist lithology interval selections as primary controls and with gold, silver, and copper grades as secondary controls. Arsenic, cobalt, and iron were used to inform interval selections to form cohesive estimation domains. Logged skarn, minor skarn, and gold associated calc schist intervals not included in primary domains were grouped into an isotropic domain for South and North encapsulating discrete modeled skarn domains. The minor skarn domain is a gradational buffer zone approximating the lithogeochemical shift observed in the cluster analysis (Ordóñez, 2021).

A 0.5 ft to 18.0 ft thick overburden domain was created respecting a minimum 0.5 ft offset to the 2020 drone Light Detection and Ranging (LiDAR) topographic surface. This interval of material has been reworked extensively for drill pads and access.

The overburden, skarn, and minor skarn domains were coded to drill holes to guide compositing and were coded to model blocks on a whole block basis from block centroids by priority (Figure 11-3 and Figure 11-4). The overburden domain supersedes skarn coding in composites and blocks below the topographic surface. The background QMS pelitic schist was subset by deposit by coding as 1 for South and 11 for North. The minor skarn was coded as 4 and 14 for South and North, respectively. The mineralized domain codes assigned to model blocks and composites follow the general priority (Table 11-5):

- 9 = Overburden (OVB)
- 201, 205 = Primary skarn South (SKN)
- 202, 203, 204, 206-212 = Secondary skarn South (SKN)
- 108, 109 = Primary skarn North (SKN)
- 101-107, 111-112 = Secondary skarn North (SKN)
- 4,14 = Minor skarn indicator (MINSKN)
- 1,11 = Schist (QMS)

Top of sulfide (fresh rock), transition, and oxide interval selections were also interpreted for redox domains. The interpretation was assessed for each drill hole in the model area using total sulfur within the ICP geochemistry data and reviewed against geologic logging of oxidation intensity of null/0-absent to 4-intense/complete oxidation. The redox interpretation includes:

- 4 = oxide (<0.1% S with logged oxidation intensity >0),
- 3 = transition (>.1%S and generally with logged oxidation <4), and
- 1 = sulfide/fresh (>0.25%S and null oxidation intensity).

The contacts between sulfide/transition and transition/oxide define domain solids that were used to code the composites and model blocks on a nearest whole block basis. The redox domain boundaries are illustrated relative to block domains in Figure 11-5.

Secondary marble, massive sulfide, and garnetiferous schist lithologic domains were generated but are not used in estimation after exploratory data analysis indicated limited extent and statistical correlation to already defined schist and skarn domains.

Structural interpretation and analysis is still ongoing to better constrain folding and fault relationships and their influence on the deposit domains. SRK (2019) structural interpretations were used with additional 2021 downhole televiewer and validated oriented core data to influence the modeled domains for potential fault offsets. The overall interpretation of domains conforms with the pervasive southwest foliation fabric except in the MCS deposit where the skarn logging at depth suggests an NE continuity. The primary geologic domains are of high confidence given the extent of drilling data in the deposit areas.

TABLE 11-5 DOMAIN FLAGGING

Deposit Category	Variable	Domain Solid	Code	Priority
Global	DOMAIN	Global Schist (Default code)	1,11	0
Global	DOMAIN	LITHO-SKARNINDICATOR	4,14	1
North Secondary	DOMAIN	LITHO- LITHO-MIDDLEEARTHSKARN	112	4
North Secondary	DOMAIN	LITHO-NP-3	111	5
North Secondary	DOMAIN	LITHO-NP3	101	6
North Secondary	DOMAIN	LITHO-NP2	103	8
North Secondary	DOMAIN	LITHO-NP1	104	9
North Primary	DOMAIN	LITHO-NP-1	108	10
North Secondary	DOMAIN	LITHO-NP2.5	102	11
North Primary	DOMAIN	LITHO-NP-1.5	109	12
North Secondary	DOMAIN	LITHO-NP0	107	13
North Secondary	DOMAIN	LITHO-NP0.5	105	14
North Secondary	DOMAIN	LITHO-NP0.25	106	15
South Secondary	DOMAIN	LITHO-MPSOUTHBLOB	212	5
South Secondary	DOMAIN	LITHO-MP_SKARN2	211	6
South Secondary	DOMAIN	LITHO-MPLOWER3	210	7
South Secondary	DOMAIN	LITHO-MPSKARNLOWER2_MERGE	209	8
South Secondary	DOMAIN	LITHO-MPLOWER1	208	9
South Secondary	DOMAIN	LITHO-MPSKARNLOWER3_MERGE	207	10
South Secondary	DOMAIN	LITHO-MP_UPPERSWDIP2	206	11
South Secondary	DOMAIN	LITHO-MP_UPPERSWDIP	204	12
South Secondary	DOMAIN	LITHO-MP_UPPERNEDIP	202	13
South Secondary	DOMAIN	LITHO-MP_UPPERNEDIP1	203	14
South Primary	DOMAIN	LITHO-MP_UPPERSWDIP1	205	15
South Primary	DOMAIN	LITHO-MPSKARN1_MERGE	201	16
Global Primary	DOMAIN	LITHO-OVERBURDEN	9	17

FIGURE 11-3 CROSS SECTION OF MANH CHOH SOUTH AND NORTH SHOWING DOMAIN LITHOLOGY BLOCK AND DRILL HOLE CODE, LOOKING NORTHWEST

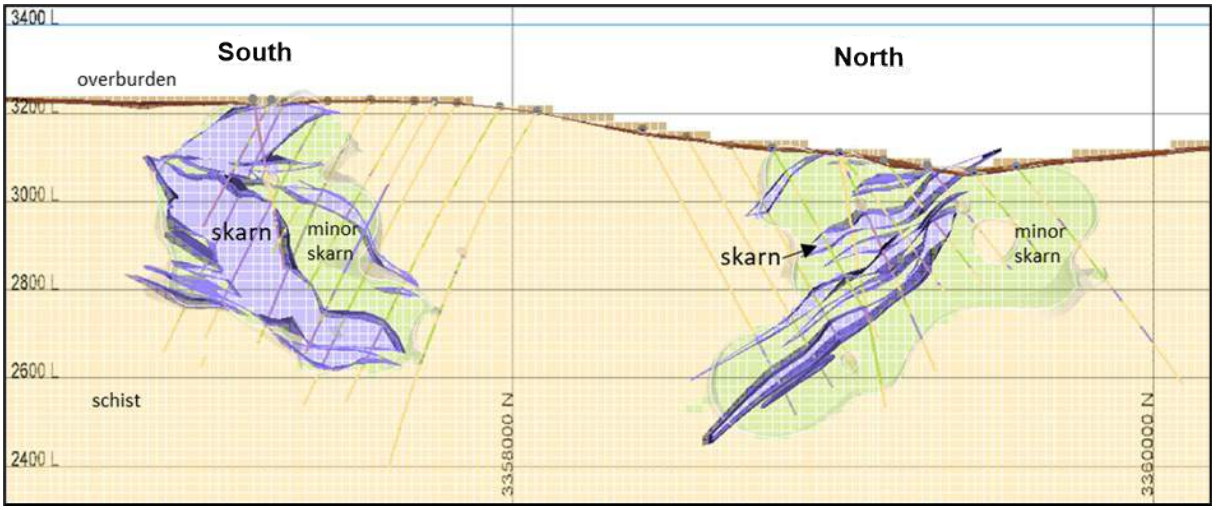


FIGURE 11-4 DETAIL OF MANH CHOH SOUTH AND NORTH SKARN DOMAIN CODES

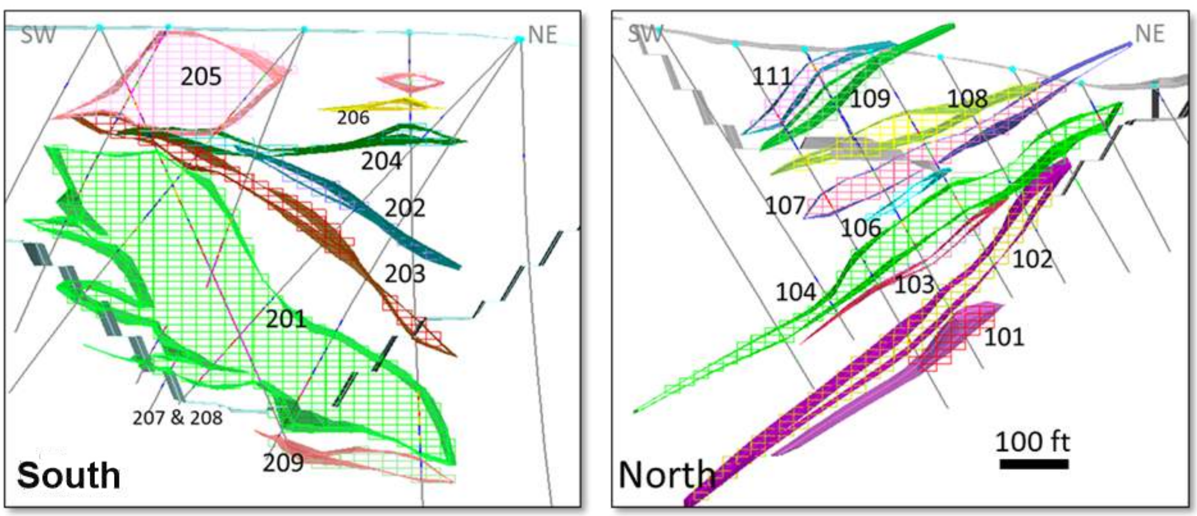
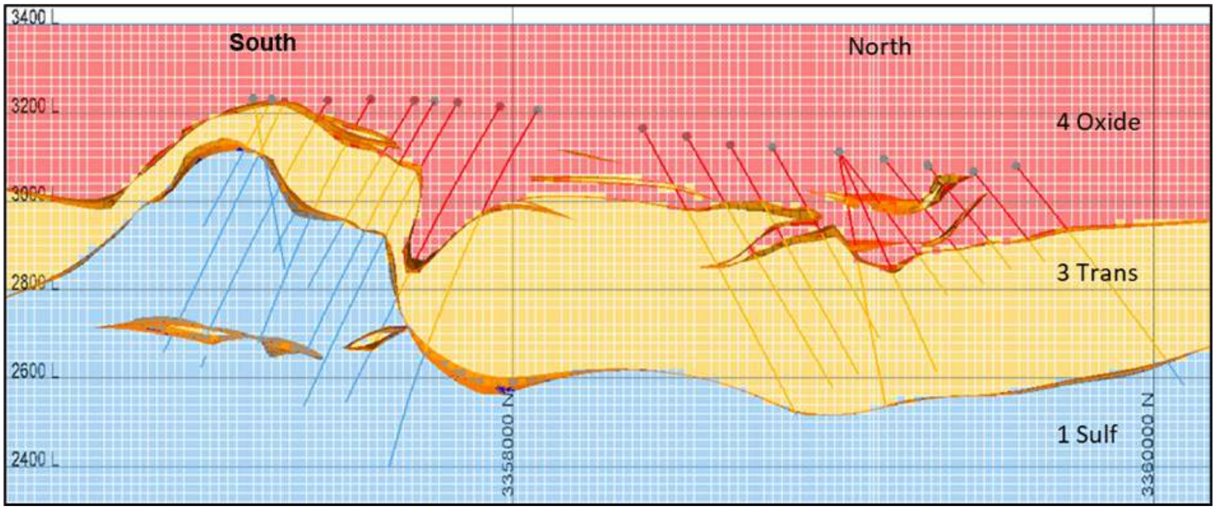


FIGURE 11-5 CROSS SECTION OF MANH CHOH SOUTH AND NORTH SHOWING REDOX BLOCK AND DRILL HOLE CODE, LOOKING NORTHWEST



11.4. EXPLORATORY DATA ANALYSIS (EDA)

11.4.1. RAW STATISTICS

Initial statistics were completed on raw assay intervals sorted by deposit area and by the coded domains described under Geological Interpretation. Leapfrog software statistical tools were used to generate general histograms and basic statistics to understand relationships between various metals and assist with initial domaining. Additional exploratory data analysis (EDA) was completed in MS Excel and using Supervisor 8.14.3 software. Table 11-6 summarizes global uncapped gold and silver assay data within the South and North areas. Skarn domains which exhibited similar grade distributions, low assay sample counts, as well as spatially limited domains, were grouped iteratively during further analysis and in estimation.

Run length statistics for assay analytical data was reviewed. The mean length within the South and North deposit areas is 5.8 ft with a range from 0.2 ft to 40.0 ft (Figure 11-6). Approximately 98% of the dataset has sample lengths from 1.0 ft to 10.4 ft with larger samples occurring rarely in areas outside the main resource zones. Samples of 4.9 ft to 5.1 ft and 9.91 ft to 10.14 ft lengths represent 19% and 14% of the dataset, respectively.

FIGURE 11-6 RAW RUN-LENGTH STATISTICS FOR VALID ASSAY DATA

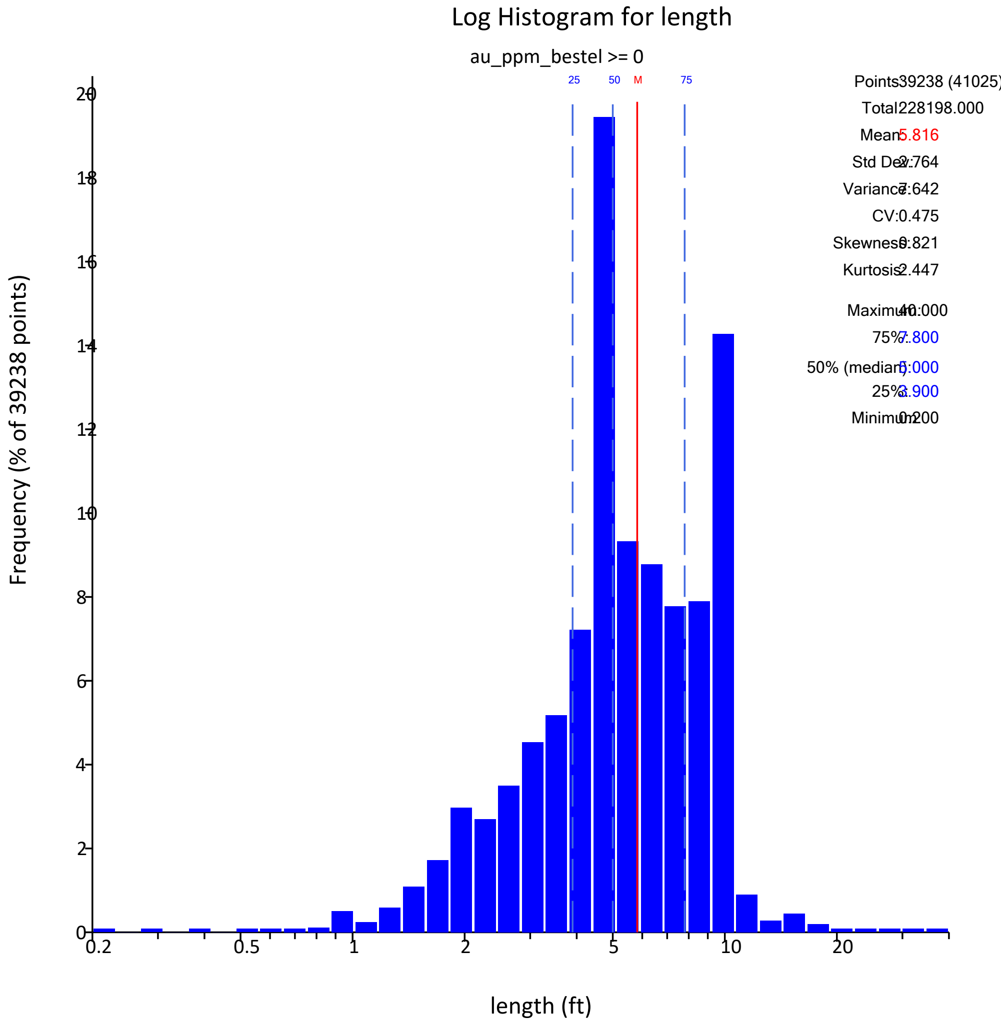
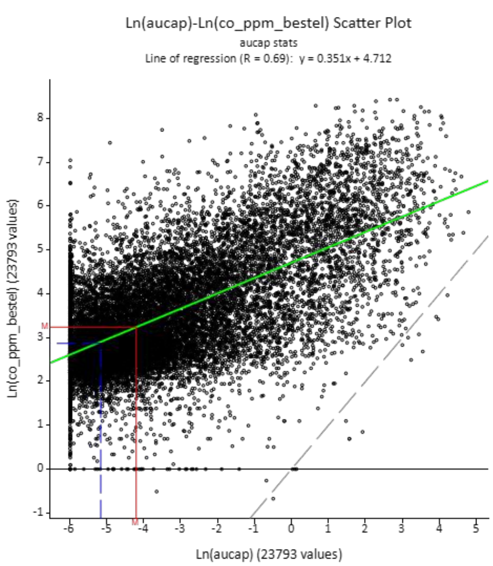


TABLE 11-6 UNCAPPED RAW ASSAY STATISTICS WITHIN MANH CHOH SOUTH AND NORTH

Deposit	Number of Assays	Assay Length (m)	Assay Length (ft)	Mean	Standard Deviation	CV	Minimum*	Maximum
Gold (g/t)								
South & West	21,724	37,443	122,844	0.844	5.110	6.1	0.0025	207.700
North	17,514	32,112	105,354	0.965	8.255	8.6	0.0025	416.000
Total	39,238	69,555	228,198	0.898	6.699	7.5	0.0025	416.000
* detection limit of 0.005 g/t Au								
Silver (g/t)								
South & West	21,724	37,443	122,844	3.43	19.07	5.6	0.25	828.00
North	17,514	32,112	105,354	4.70	34.67	7.4	0.25	3210.00
Total	39,238	69,555	228,198	4.00	27.17	6.8	0.25	3210.00
* detection limit of 0.5 g/t Ag								

Correlation matrices and paired scatter plots were generated between various elements to determine suitability for possible estimation using similar continuity analysis. Cobalt has a moderate correlation for both the MCS and MCN deposits with gold, with a subset of the MCS deposit containing higher grade gold relative to the expected log-log distribution (Figure 11-7). Iron and sulfur show a strong correlation, and continuity analysis for sulfur was used as a basis for iron percent estimates.

FIGURE 11-7 LOG SCATTERPLOT OF CAPPED AU ASSAYS AND COBALT AND CORRELATION MATRIX



Indep/Dep	aucap	agcap	as_ppm	ca_pct	co_ppm	cu_ppm	fe_pct	s_pct
aucap	1	0.38	0.38	0.13	0.42	0.23	0.43	0.23
agcap	0.38	1	0.51	0.02	0.38	0.54	0.42	0.3
as_ppm	0.38	0.51	1	0.09	0.66	0.34	0.51	0.24
ca_pct	0.13	0.02	0.09	1	0.2	0.13	0.24	0.28
co_ppm	0.42	0.38	0.66	0.2	1	0.48	0.51	0.37
cu_ppm	0.23	0.54	0.34	0.13	0.48	1	0.51	0.51
fe_pct	0.43	0.42	0.51	0.24	0.51	0.51	1	0.72
s_pct	0.23	0.3	0.24	0.28	0.37	0.51	0.72	1

11.4.2. OUTLIER MANAGEMENT AND CAPPING STRATEGY

Log probability plots and histograms of both raw assays and 10 ft. composites were developed by domain and zone. Raw assays, despite variable lengths, were used for capping prior to compositing. Plots for the MCS and MCN deposits were considered separately within and outside the 23 modeled skarn domains. Outside schist and minor skarn shared similar gold and silver distributions separate from overburden and skarn. Similar grade distributions supported combined capping strategies for domained primary and secondary skarn domains. MCS skarn was grouped as two primary and 10 secondary skarn domains and MCN skarn was grouped as three primary and nine secondary skarn domains. A different cap was applied for gold and silver after review of grouped domains based on visual breaks within log probability plots. Log probability plots illustrating capping analysis of several skarn domains is shown in Figure 11-8.

The total number of capped gold assays was 49 (99.8th percentile) for both MCS and MCN. Silver assays were similarly capped near the 99th percentile of its respective data distributions. Assays outside skarn domains were retained and had higher capping levels for gold and silver to reduce the influence of outlier data. Anticipated metal loss due to capping is higher in overburden, schist, minor skarn, and secondary skarn domains. Capped data was reviewed visually for each domain to confirm that further domain segregation of higher grade continuity was warranted. Table 11-7 illustrates the cap values that were applied to gold and silver raw assay data.

FIGURE 11-8 GOLD CAPPING LOG PROBABILITY PLOTS FOR SOUTH PRIMARY SKARN (UPPER) AND NORTH SKARN (LOWER)

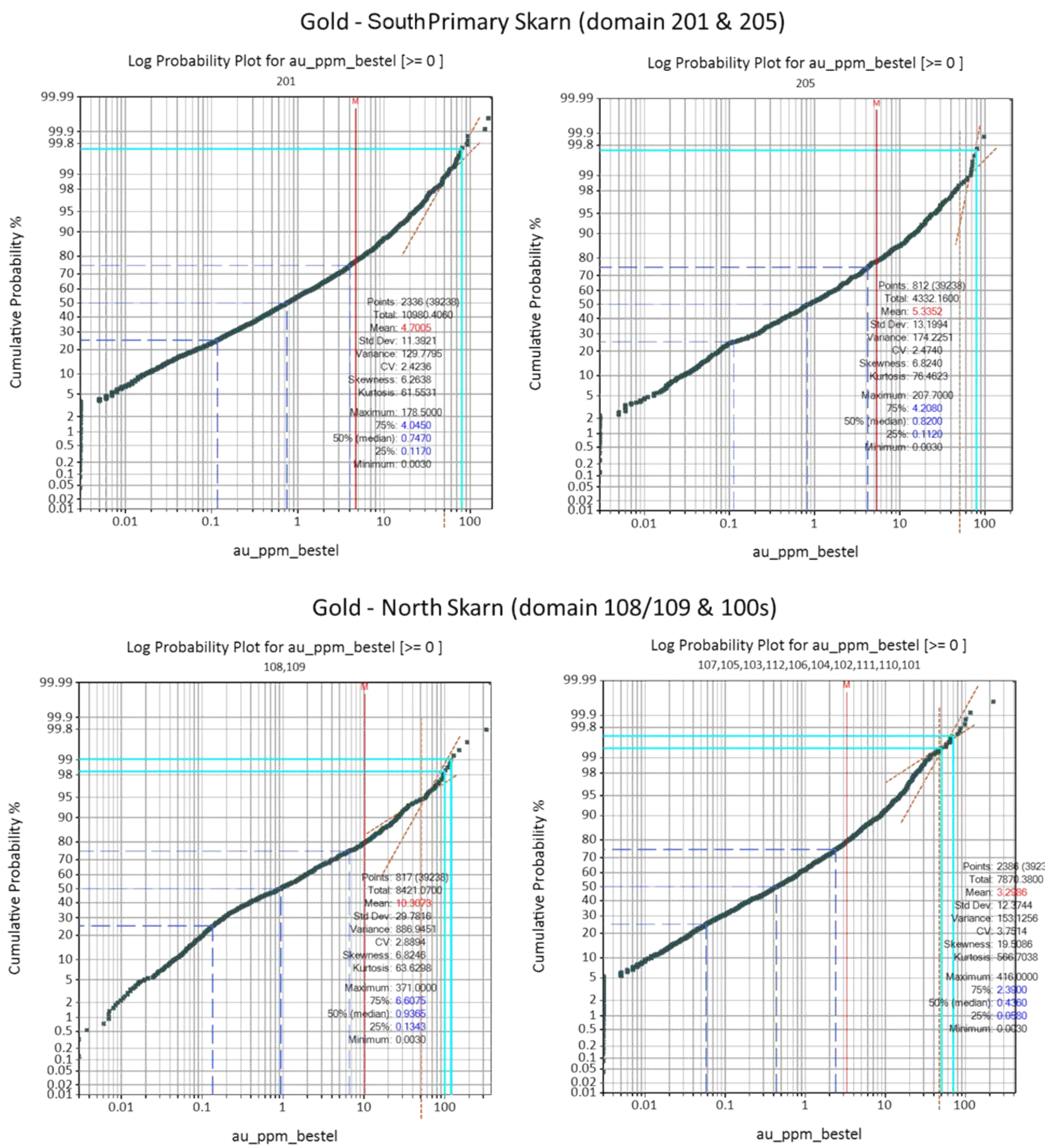


TABLE 11-7 MANH CHOH ASSAY CAPPING STRATEGY

Deposit	Domain	Gold Cap (g/t)	Silver Cap (g/t)
Global	1- QMS schist	10	100
Global	4 - Minor Skarn	10	100
Global	9-OVB over-burden	1	20
North	102 North Skarn	70	300
North	108 North Skarn	120	200
North	109 North Skarn	120	200
North	100s North Secondary Skarn	70	200
South	201 South Skarn	80	300
South	205 South Skarn	80	100
South	200s South Secondary Skarn	20	100

Overall, capping followed the outlier management strategies used in the previous estimate. In addition to capping, high yield restrictions of capped composite data were used to reduce the influence of higher grades beyond local data support (see Grade Interpolation). Capped assays were inspected visually to ensure outliers were spatially distributed and not part of a potential sub-domain.

Additional estimates were generated for non-economic metals and elements included in the ICP dataset without capping, including arsenic, calcium percent, cobalt, copper, iron percent, and sulfur percent. The distribution for sulfur percent multi-element data includes 495 results for which no over-limit analyses were completed above the maximum detection limit of 10.0%. Local portions of high-grade sulfur zones may be biased low. A total of 122 pre-2021 and forty 2021 over-limit analyses were completed with an average of 13.8% S and these results were incorporated in the estimate.

Raw ICP geochemistry data for arsenic includes 719 samples at the maximum detection limit of 10,000 ppm As with no over-limit analyses. These isolated samples are largely mitigated with compositing and block estimation but some high arsenic zones of the deposits may be biased low. In 2021, a selection of 77 over-limit samples were analyzed and resulted in an average over-limit analysis of 20,826 ppm As. The 77 over-limit samples were incorporated in the estimate.

The Project's raw and capped statistics by domain are summarized in Table 11-8 for gold and Table 11-9 for silver.

TABLE 11-8 MANH CHOH UNCAPPED AND CAPPED GOLD ASSAY STATISTICS BY DOMAIN AND DEPOSIT

Gold (g/t Au)	All	1- QMS schist	4 - Minor Skarn	9 - OVB Over-burden	102 - North Skarn	108 - North Skarn	109 - North Skarn	100s - North Secondary Skarn	201 - South Skarn	205 - South Skarn	200s - South Secondary Skarn
Uncapped											
Samples	39,238	22,009	8,953	151	342	517	389	1,982	2,323	813	1,759
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	416.000	64.200	8.930	49.000	84.500	151.500	371.000	416.000	178.500	207.700	149.500
Mean	0.900	0.030	0.060	0.530	2.190	6.570	13.300	3.520	4.720	5.330	1.370
SD	2.909	0.540	0.260	4.030	6.090	16.600	38.620	13.290	11.420	13.190	5.710
CV	**13.4**	**21.0**	**4.0**	**7.5**	**2.8**	**2.5**	**2.9**	**3.8**	**2.4**	**2.5**	**4.2**
98%	8.330	0.130	0.470	2.430	17.230	58.800	100.750	22.350	33.190	40.480	10.160
99%	19.700	0.340	0.840	5.810	22.830	89.540	169.960	37.330	54.720	67.530	16.320
Capped											
Samples	39,238	22,009	8,953	151	342	517	389	1,982	2,323	813	1,759
Cap Count	49	2	0	8	2	2	6	7	7	3	12
Capped %	0.1%	0.0%	0.0%	5.3%	0.6%	0.4%	1.5%	0.4%	0.3%	0.4%	0.7%
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	120.000	10.000	8.930	1.000	70.000	120.000	120.000	70.000	80.000	80.000	20.000
Mean	0.832	0.020	0.060	0.120	2.150	6.500	11.190	3.200	4.600	5.150	1.130
SD	2.012	0.170	0.260	0.270	5.550	16.040	24.840	7.760	10.110	11.250	2.820
CV	**5.8**	**7.9**	**4.0**	**2.2**	**2.6**	**2.5**	**2.2**	**2.4**	**2.2**	**2.2**	**2.5**

TABLE 11-9 MANH CHOH UNCAPPED AND CAPPED SILVER ASSAY STATISTICS BY DOMAIN AND DEPOSIT

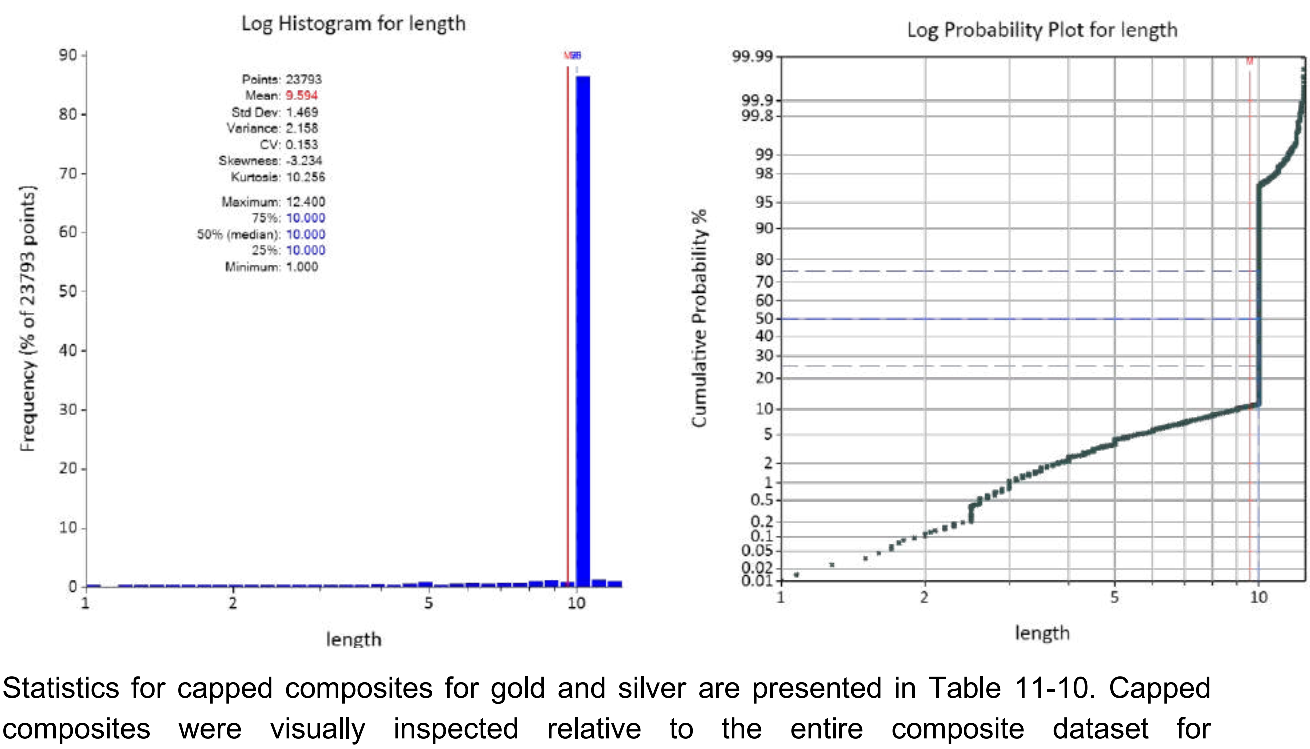
Silver (g/t Ag)	All	1- QMS schist	4 - Minor Skarn	9 - OVB Over-burden	102 - North Skarn	108 - North Skarn	109 - North Skarn	100s - North Secondary Skarn	201 - South Skarn	205 - South Skarn	200s - South Secondary Skarn
Uncapped											
Samples	39,238	22,009	8,953	151	342	517	389	1,982	2,323	813	1,759
Minimum	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Maximum	3210.00	626.00	469.00	94.10	656.00	428.00	3210.00	927.00	828.00	778.00	783.00
Mean	4.00	0.88	1.76	2.76	32.36	15.39	27.30	17.03	14.22	12.85	8.20
SD	27.17	7.11	7.63	7.95	60.72	32.79	181.29	47.75	42.00	35.18	30.30
CV	**6.8**	**8.1**	**4.4**	**2.9**	**1.9**	**2.1**	**6.6**	**2.8**	**3.0**	**2.7**	**3.7**
98%	29.20	4.00	9.80	10.65	189.70	93.26	142.55	125.45	120.96	63.17	50.02
99%	68.60	8.80	19.55	14.52	258.00	145.49	597.03	208.62	190.08	103.27	104.04
Capped											
Samples	39,238	22,009	8,953	151	342	517	389	1,982	2,323	813	1,759
Cap Count	81	9	6	1	2	2	6	21	6	9	19
Capped %	0.2%	0.0%	0.1%	0.7%	0.6%	0.4%	1.5%	1.1%	0.3%	1.1%	1.1%
Minimum	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Maximum	100.00	100.00	100.00	20.00	300.00	200.00	200.00	200.00	300.00	100.00	100.00
Mean	3.56	0.81	1.68	2.27	31.01	14.77	13.65	15.29	13.59	11.29	6.85
SD	8.95	3.51	4.97	3.12	50.60	26.92	33.66	32.37	34.21	17.71	15.08
CV	**3.6**	**4.3**	**3.0**	**1.4**	**1.6**	**1.8**	**2.5**	**2.1**	**2.5**	**1.6**	**2.2**

11.4.3. COMPOSITING

Raw assay length intervals are predominantly less than or equal to 10 ft. Compositing of capped assay analytical data including gold and silver as well as uncapped arsenic, calcium, cobalt, copper, iron percent, and sulfur percent is completed at nominal 10.0 ft lengths for both deposits. A total of 283 non-sampled intervals for 2,312 ft were excluded from compositing. Only 394 holes within the model extent were used for compositing excluding holes from the Discovery target and other distal targets.

Compositing is completed on a run-length downhole basis in Vulcan 2021.3 starting from the top of hole or first analytical sample to the bottom sample depth. Composites were completed respecting the 'domain' variable back flagged to the raw assay data. Composite intervals less than 1.0 ft were merged with the previous composite to reduce small composite influence in the estimate. Approximately 86% of composites are 10 ft long, with 11% of composites shorter than 10 ft retained to honor narrow geometries with hard boundaries (Figure 11-9). The remaining 3% larger than 10 ft assay intervals were primarily due to short interval merging at the end of holes and larger samples taken outside the mineralized areas. Composites larger than 11 ft and smaller than 9 ft were checked visually against gold grade and no bias was noted.

FIGURE 11-9 COMPOSITE LENGTH STATISTICS



Statistics for capped composites for gold and silver are presented in Table 11-10. Capped composites were visually inspected relative to the entire composite dataset for appropriateness. Composite variable 'ORE' matches block 'DOMAIN', and 'GEOCD2' is domain back flagged lithology simplified to overburden (9), schist (1), minor skarn (4), and primary and secondary domain skarn (5).

An external distance to composites software was run to calculate the average drill hole and composite spacing of the deposit areas. The MCS deposit area averages 69 ft drill hole spacing from 220 holes. The MCN deposit area averages 90.9 ft drill hole spacing from 184 holes.

Composites for arsenic, calcium, cobalt, copper, iron percent, and sulfur percent were completed for the entire drill dataset as part of the gold and silver composite dataset.

Cell declustering was completed on composites using Supervisor software at 160 ft x 160 ft x 20 ft to generate declustering weights to reduce the influencing of tightly drilled areas in non-kriging estimates. This resulted in a declustered mean of 0.283 g/t Au globally versus raw capped mean of 0.641 g/t Au (Figure 11-10).

FIGURE 11-10 CELL DECLUSTERING OF CAPPED COMPOSITES

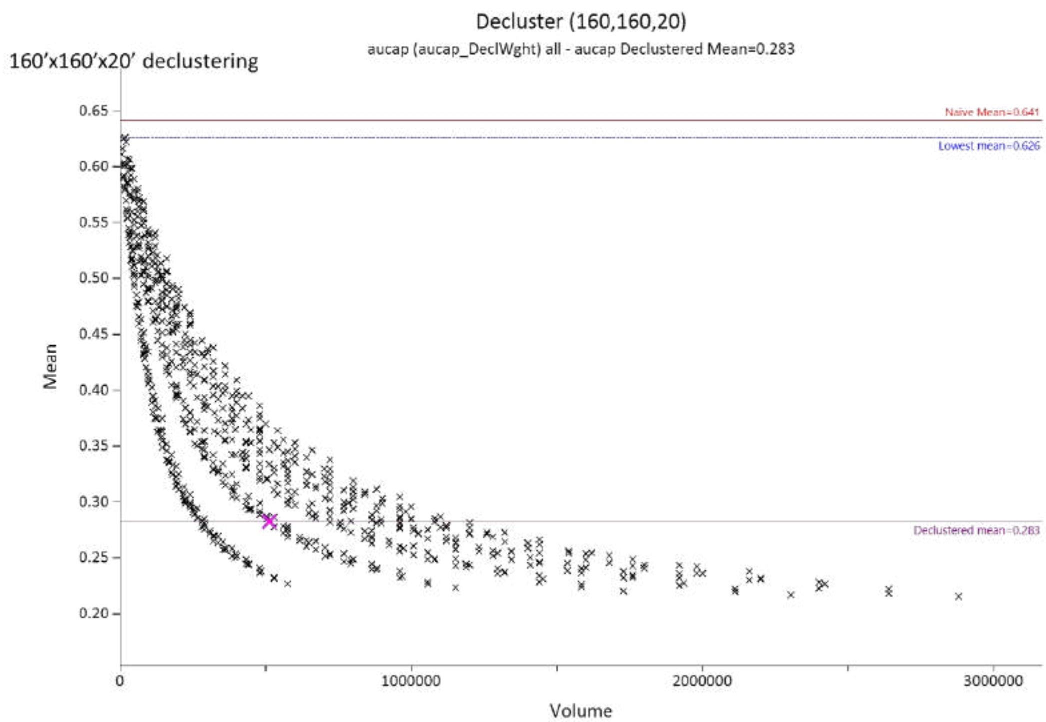


TABLE 11-10 MANH CHOH GLOBAL CAPPED COMPOSITE STATISTICS

Gold Composites (g/t)	All	1- QMS schist	4 - Minor Skarn	9 - OVB over-burden	102 - North Skarn	108 - North Skarn	109 - North Skarn	100s - North Secondary Skarn	201 - South Skarn	205 - South Skarn	200s - South Secondary Skarn
Composites	23,793	14,140	5,405	136	162	285	207	1,051	1,054	410	943
Minimum	0.002	0.003	0.003	0.003	0.003	0.003	0.002	0.003	0.003	0.003	0.002
Maximum	120.000	3.995	6.420	2.505	11.250	84.032	120.000	57.222	75.170	67.959	20.000
Mean	0.662	0.018	0.062	0.118	1.773	5.822	10.492	3.139	4.628	4.553	1.044
SD	1.315	0.089	0.179	0.295	2.523	10.700	20.585	6.250	8.513	8.450	2.225
CV	**4.0**	**5.0**	**2.9**	**2.5**	**1.4**	**1.8**	**2.0**	**2.0**	**1.8**	**1.9**	**2.1**
98%	6.421	0.124	0.461	0.979	8.621	29.469	76.415	20.044	30.539	28.476	7.386
99%	16.763	0.263	0.740	1.000	11.180	50.716	97.954	33.510	36.241	39.533	11.090

Silver Composites (g/t)	All	1- QMS schist	4 - Minor Skarn	9 - OVB over-burden	102 - North Skarn	108 - North Skarn	109 - North Skarn	100s - North Secondary Skarn	201 - South Skarn	205 - South Skarn	200s - South Secondary Skarn
Composites	23,793	14,140	5,405	136	162	285	207	1,051	1,054	410	943
Minimum	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Maximum	254.70	100.00	100.00	45.16	181.41	148.53	200.00	200.00	254.70	100.00	100.00
Mean	2.94	0.70	1.56	2.57	26.93	14.44	13.19	14.97	13.39	11.31	6.00
SD	11.53	2.29	3.69	4.65	35.99	19.72	29.54	28.57	29.10	15.55	11.51
CV	**2.8**	**3.3**	**2.4**	**1.8**	**1.3**	**1.4**	**2.2**	**1.9**	**2.2**	**1.4**	**1.9**
98%	24.41	3.50	9.29	12.34	130.49	69.62	104.56	96.77	107.64	58.00	39.48
99%	52.12	6.59	16.67	15.66	163.26	76.02	152.73	157.20	167.01	74.37	63.77

11.4.4. CONTACT ANALYSIS

Boundary conditions were checked within the composited dataset for gold and silver. The major boundary conditions considered were the contacts between overburden (9), QMS pelitic schist (1), minor skarn (4), South skarn (200s), and North skarn (100s). Redox domains were treated as open or soft boundaries for a secondary control to composite selections.

The overburden profile is generally composed of limited soils over heavily fractured bedrock. Overburden has a one-way soft boundary to QMS pelitic schist and minor skarn allowing estimates of overburden to project 20 ft (6.1 m) into underlying bedrock for composites.

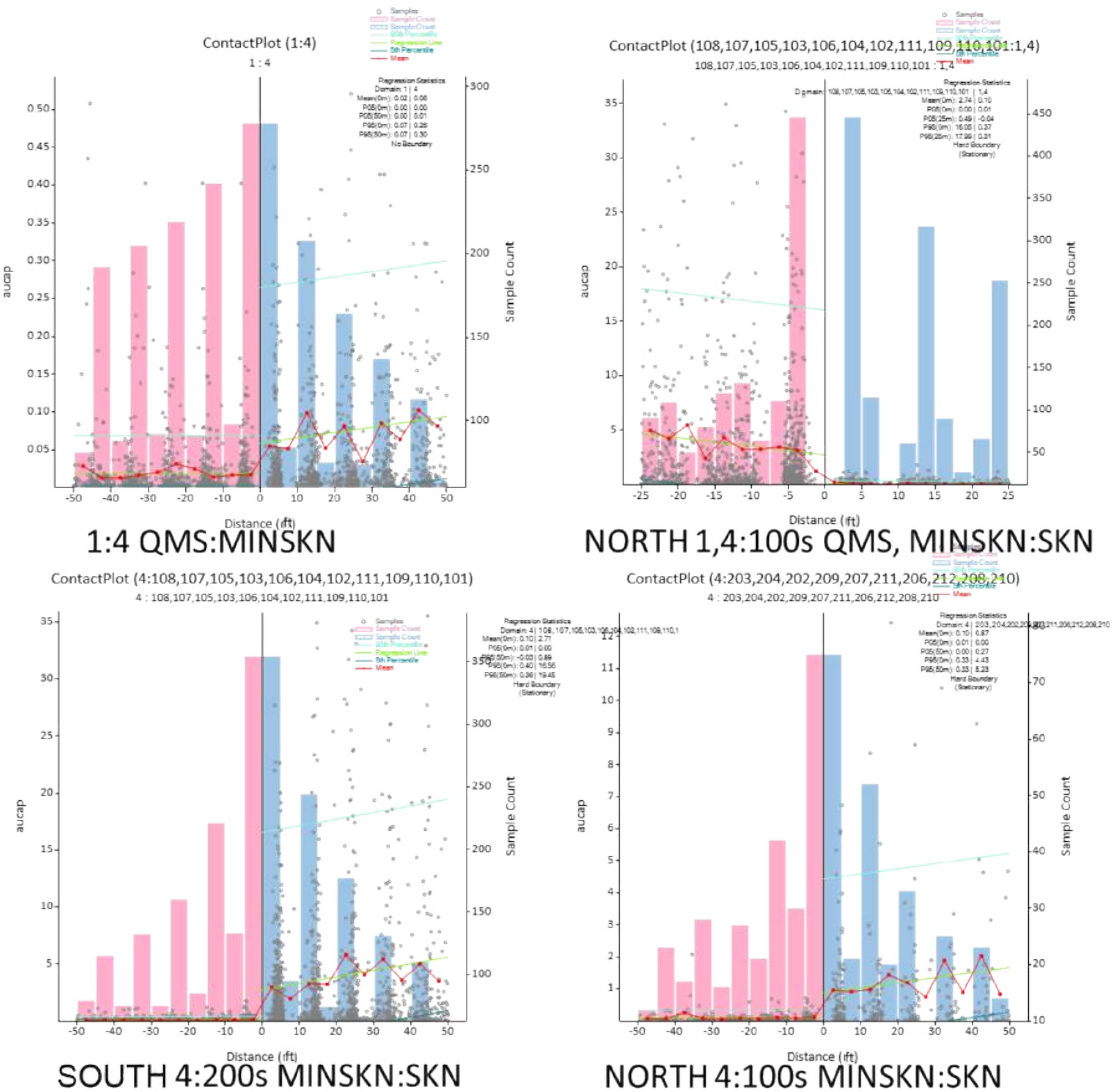
The contact between background QMS pelitic schist and the indicator minor skarn domain is gradational and suggests no boundary consistent with the mixed skarn logging and gradational alteration noted at the margins of the true skarn altered domains. To reduce the influence of higher grade composites, the QMS pelitic schist generally used a 45 ft (13.7 m) soft boundary to minor skarn but the minor skarn estimates were open to lower grade QMS pelitic schist.

Contact plots for both North and South suggest a hard boundary between primary skarn domains to QMS pelitic schist and to the minor skarn domain. Intersecting domains suggesting possible fold thrust continuity between skarn domains have soft or open boundary conditions between them. For example, primary MCS domain 205 has a two-way soft boundary with domain 204, one-way soft boundary with domain 203, and open boundary with secondary domain 206.

Contact plots for secondary skarn domains, which are narrower and exhibit gradational contacts in drill core and lower average gold and silver grades, show one-way soft boundaries where average grades inside and outside the domain are relatively similar. This relationship is particularly apparent for more distal secondary skarn domains. Some estimates for secondary skarn domains are one-way soft allowing use of minor skarn and pelitic schist composites in estimation. Secondary domains exhibit hard boundaries to primary skarn domains.

Example boundary condition contact plots are presented in Figure 11-11. Boundary conditions appropriate for gold were confirmed for other elements estimated, supported by the geologic interpretation of the skarn altered lithology encapsulating the predominant metal zonation of the deposits.

FIGURE 11-11 COMPOSITE CONTACT PLOT OF GOLD WITHIN ESTIMATE DOMAINS



11.4.5. DENSITY

Specific gravity sampling in the core shack was carried out on a regular basis as outlined in subsection 8.2. Previous models used averaged domain densities based on lithology and the top of sulfide contact separately for MCS and MCN. An additional reduction factor was applied to better reflect in situ bulk density with high alteration and weathering. The specific gravity tests are typically conducted on spot samples of relatively intact rock, as density sampling is complicated in areas where rock strength is low due to alteration and faulting.

In 2020 and 2021, density measurement frequency was increased with additional samples taken at major geologic boundaries. Pre-2020 density sample frequency was approximately one measurement every 79 ft and was increased to an average of one measurement every 22 ft from 2020 onwards. An additional 1,204 measurements were taken in the model area in 2020 and 2021 representing 37% of all model area density measurements.

Density data distribution is reasonable across the model area, based on 355 of the core drill holes with 3,278 individual density measurements. The mean of model area specific gravity measurements was 2.72 g/cm^3 with a range from 1.51 g/cm^3 to 4.98 g/cm^3. Within logged skarn alteration domains characterizing the ore, the mean density is 2.83 g/cm^3 with North mean density of 2.60 g/cm^3 and South mean density of 3.02 g/cm^3. The density data were subdivided by deposit, skarn domain, and redox domain and grouped into 17 subsets. Visual inspection of the domain coded approach showed over-smoothing of density measurements. To better represent variable densities throughout the deposit, a domained estimate of density was generated as outlined in later in subsection 11.5.5.

11.5. BLOCK MODELLING AND GRADE ESTIMATION

The geologic interpretation for MCS and MCN was developed in Leapfrog software version 6.0. The block model and estimation were completed in Vulcan software version 2021.3.

11.5.1. BLOCK MODEL SETUP

The block model was developed using blocks sized 20 ft (6.1 m) x 20 ft (6.1 m) on plan with a 10 ft (3.0 m) bench height. The block size was selected to honor the discrete, moderate dipping grade distributions and skarn domains while respecting a reasonable expected minimum mining unit. The model was sub-blocked to a minimum size of 5 ft x 5 ft x 5 ft (1.52 m x 1.52 m x 1.52 m) to accommodate small volume domains. The sub-blocked model was reblocked after metal estimation to 20 ft x 20 ft x 10 ft (6.1 m x 6.1 m x 3.1 m) block size to produce a regular block size for use in Minesight planning software. Density was estimated into the regularized blocks model.

The mineralization within the MCS and MCN deposits generally strikes northwest (315°). To improve the representation of the geologic contacts, the block model is rotated 45° to align with the strike of the mineralized material and perpendicular to the azimuth orientations of the majority of drilling at both deposits. Figure 11-1 illustrates the modeled area as the darker gray area over the area topography. Table 11-11 provides the model location parameters and extent. The model has been developed in the Alaska State Plane (NAD83) coordinate system. The model area excludes the Discovery prospect.

TABLE 11-11 MODEL SETUP PARAMETERS

Parameter	
Block Origin Easting[1]	1,495,300
Block Origin Northing[1]	3,357,600
Block Origin Elevation[1]	2,200
Columns	160
Rows	175
Levels	60
Reblock Block Count	1,680,000
Reblock Block Size (ft)	20 x 20 x 20
Reblock Block Size (m)	6.1 x 6.1 x 6.1
Z-Axis Rotation (Vulcan)	315°

Note.
1. Alaska State Plane Zone 2 grid coordinates in US Survey feet

11.5.2. BLOCK SEARCH ANISOTROPY

Vulcan software's Unfolding module was used to generate block search anisotropy to provide variable search orientations within the anastomosing estimate domains respecting dominant continuity direction and overall schist fabric within the MCS and MCN deposits. The orebody has a general NW strike and, to simplify, no plunge control was estimated. The tool allows for the creation of "bearing", "plunge", and "dip" rotation angles from the Z-axis, Y-axis, and Z-axis respectively based on back flagging of the 3D spatial orientations of triangulation faces. The result generally varies plunge and dip but respects the major axis strike by electing a preferred major direction during setup.

Leapfrog generated reference surfaces approximating the generalized centerline planar trend of a domain as well as footwall and hangingwall triangulated surfaces were considered. Reference surfaces extend beyond the desired back flagged block extents to ensure no edge effects produce unwanted orientations. Filtering of triangle complexity in Vulcan is completed to simplify the orientations coded to blocks. The parameters used to code all model blocks are outlined in Table 11-12. The block variables coded are 'bear', 'plung', and 'dip'.

The global anisotropy used to code model block search rotations was based on foliation structural trend surfaces generated using available oriented core and televiewer foliation measurements. An upper (FOL_globa_with_TV_-_0_25_FILTER) and lower (FOL_globa_with_TV_-_-0_75FILTER) trend surface were used to blend orientations which fit the foliation measurement data and best approximated the fabric orientations anticipated in MCS and MCN (Figure

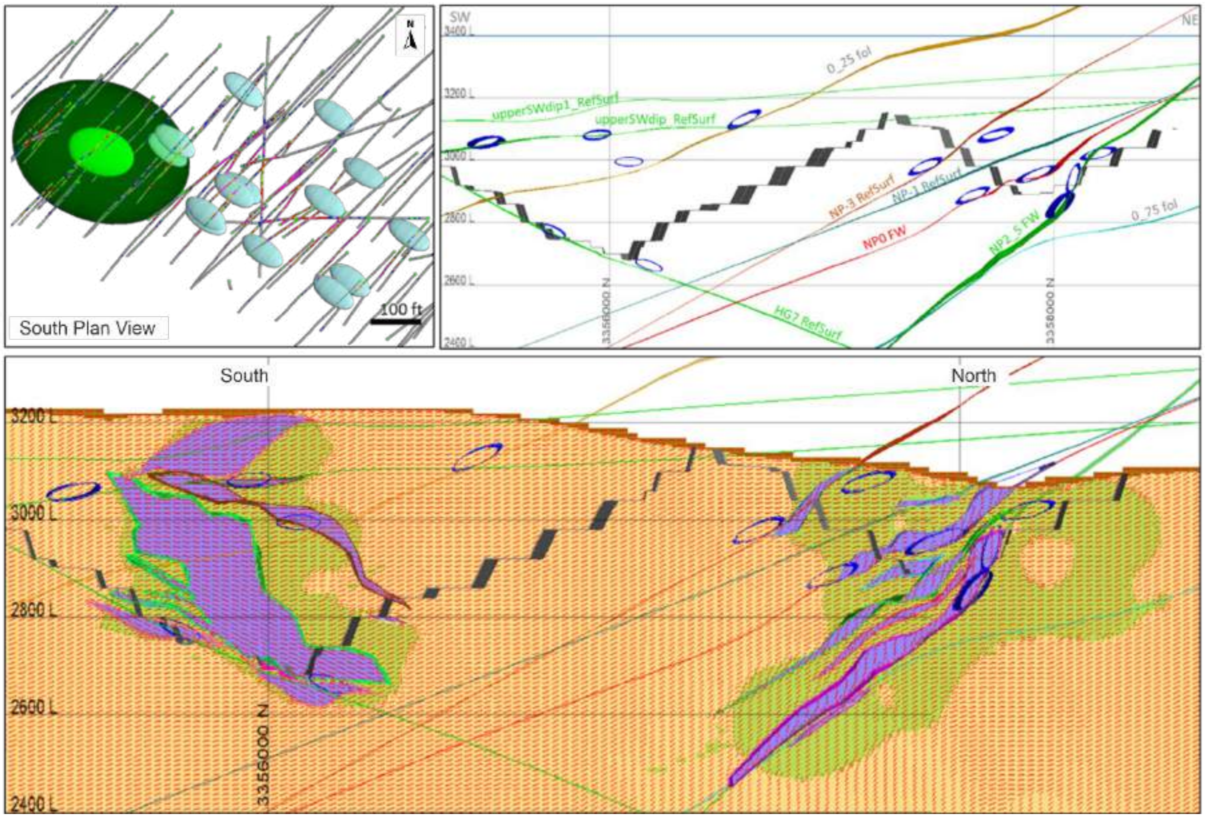
11-12). The preferred major direction aligns with variogram parameters for the QMS pelitic schist with major axis aligned 182.2°.

Within the skarn domains, the overall geometry respects the foliation fabric of the schist and interpreted orientations of the skarn alteration. The lower portion of the MCS deposit including primary domain 201 uses two surface blended orientation. The upper surface is consistent with foliation fabric from a relatively flat southwest dipping reference surface (Litho_-_MP_upperSWdip_RefSurf). The lower surface follows a moderate northeast dipping reference surface (HG_Select_-_HG7_RefSurf). The variogram and continuity for silver shows major strike oriented 305°. Prior to estimating silver, the block search anisotropy parameter 'mpskarn1ag' is run to align the major search axis.

TABLE 11-12 BLOCK SEARCH ANISOTROPY PARAMETERS

Name	Deposit	Domains	Preferred Major Direction (°)	Upper Triangulation	Lower Triangulation
Global	all	all, non-overburden	182	FOL_globa_with_TV_-_0_25_FILTER	FOL_globa_with_TV_-_-0_75FILTER
Mpupper	South	204,205,206	305	upperSWdip1_RefSurf	upperSWdip_RefSurf
mpskarn1	South	201,207,208,209,210	335	Litho_-_MP_upperSWdip_RefSurf	HG_Select_-_HG7_RefSurf
mpskarn1ag	South	201,207,208,209,210	305	Litho_-_MP_upperSWdip_RefSurf	HG_Select_-_HG7_RefSurf
MPNEs	South	202,203,211	305	Litho_-_MP_upperSWdip_RefSurf	HG_Select_-_HG7_RefSurf
nPupper	North	108,109,110,111	315	Litho_-_NP-3_RefSurf.	Litho_-_NP-1_RefSurf.
Nplower	North	101-107	315	Litho_-_NP0_FW_FILTER.	Litho_-_NP2_5_Footwall.

FIGURE 11-12 BLOCK SEARCH ANISOTROPY DETAIL WITH IDEALIZED SEARCH ELLIPSOIDS ELONGATED ALONG STRIKE



11.5.3. VARIOGRAPHY AND CONTINUITY ANALYSIS

Variograms were tabulated for all estimated metals and elements including gold, silver, copper, arsenic, calcium, sulfur, iron, and cobalt. Continuity analysis defined anisotropy within the separate datasets for MCS and MCN. Declustered capped 10 ft composites were used to generate variograms for gold and silver and non-declustered capped composites were used for other metals. Variography was performed in Supervisor software for each domain separately and for grouped domains with low composite counts to ensure sufficient data support.

Variograms were modeled with two structures in non-transformed space where possible and back transformed normal scores structures were appropriate. Nuggets for all variograms were obtained from the downhole variogram of 10 ft composites. An example gold variogram for South primary skarn domain 201 is shown in Figure 11-13. While the geometry of domain 201 is striking northwest and has an apparent northeast dip, review of core and structural interpretations of the fabric suggests that dominant metal continuity is to the SW consistent with upper South domain 205 and with the MCN deposit in general. Gold variograms exhibited variable continuity orientations throughout the deposits. Attempts to use gold variograms for specific domains for silver did not produce acceptable continuity models and more generalized variograms were generated. Table 11-13 shows structure 2 variogram parameters for gold and silver for both the MCS and MCN deposits.

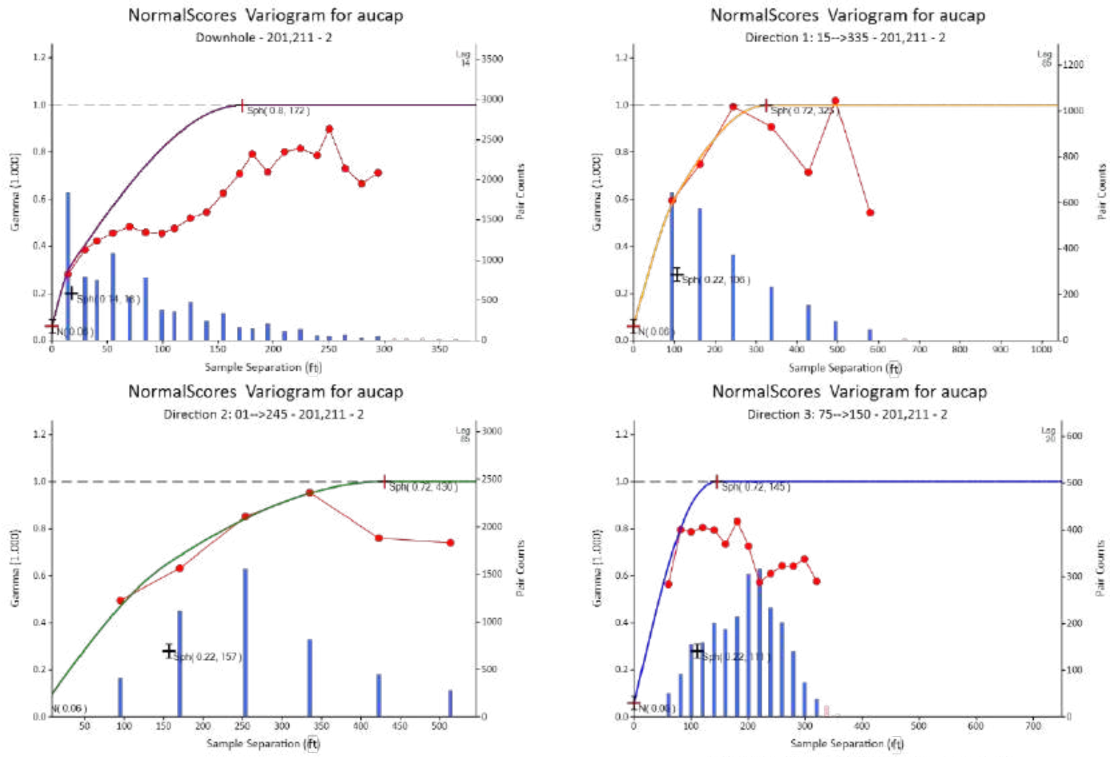
Arsenic, calcium, copper, and sulfur normal space variograms were simplified to the general orientation of greatest continuity with a northwest major strike direction (305°) and shallow (10°) to moderate (25°) dip with no plunge. Continuity analysis for arsenic, calcium, and sulfur suggested local shallow (-10°) NE dips in the deeper portions of the MCS pit within skarn domains 201, 207, 208, 209, 210, 211, and 212.

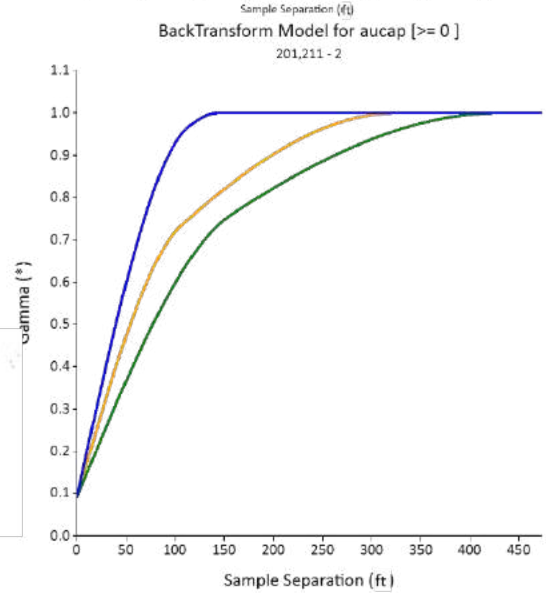
Kriging Neighborhood Analysis (KNA) was used on the MCS and MCN domains to assess appropriate estimation parameters. Blocks at a parent size of 20 ft x 20 ft x 10 ft with composite counts greater than four showed kriging efficiencies above 80%. The analysis for several domains did not show significant changes with search ellipse size. A 3 x 3 x 3 discretization was chosen for all estimates based on the results.

TABLE 11-13 VARIOGRAM PARAMETERS FOR GOLD AND SILVER

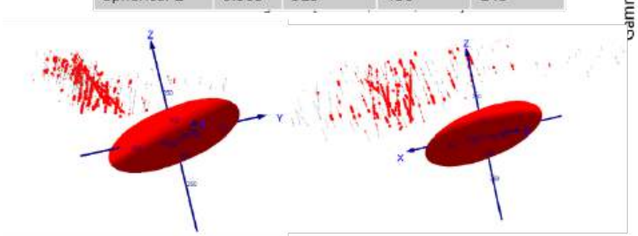
			Rotation (°)			Range (ft)			Range (m)		
Domain /Deposit	**Nugget**	**Sill**	**Bearing**	**Plunge**	**Dip**	**Major**	**Semi**	**Minor**	**Major**	**Semi**	**Minor**
Gold Variogram Parameters (Structure 2)											
201, 211	0.092	0.5027	335.2	14.9	-1.3	325	430	145	99.1	131.1	44.2
202, 203, 212	0.105	0.5879	307.5	-9.8	-28.5	750	445	76	228.6	135.6	23.2
204, 205, 206	0.094	0.3256	305.0	0.0	-10.0	530	370	105	161.5	112.8	32.0
207, 208, 209, 210	0.091	0.4706	232.5	21.5	166.9	170	240	80	51.8	73.2	24.4
1,4/ South	0.192	0.2224	182.2	-18.9	-16.7	283	400	180	86.3	121.9	54.9
100s North	0.105	0.4166	66.3	35.6	-19.5	380	225	105	115.8	68.6	32.0
1,4/ North	0.167	0.3018	182.2	-18.9	-16.7	280	310	140	85.3	94.5	42.7
Silver Variogram Parameters (Structure 2)											
200s South	0.074	0.3167	305.0	0	-10	360	310	180	109.7	94.5	54.9
1, 4 / Global	0.237	0.2297	182.2	-18.89	-16.69	365	315	160	111.3	96.0	48.8
100s North	0.128	0.6102	66.33	35.63	-19.53	520	440	220	158.5	134.1	67.1

FIGURE 11-13 EXAMPLE NORMAL SCORES BACK-TRANSFORM VARIOGRAM FOR SOUTH PRIMARY SKARN (DOMAIN 201)





Structure	Sill	Major Range (ft)	Semi Range (ft)	Minor Range (ft)
Nugget	0.091			
Spherical 1	0.404	106	157	111
Spherical 2	0.505	325	430	145



Isometric view versus composites > 2 gpt Au

11.5.4. GRADE ESTIMATION

Alternative methods of grade estimation were evaluated before selecting the inverse distance cubed method (ID^3). Ordinary linear kriging (OK), inverse distance squared (ID^2), and nearest neighbor (NN) estimates were compared with ID^3 as options for grade estimation. OK appeared to "over-smooth" the block grades, meaning that the block variance between blocks was less than what would be predicted by inverse distance methods. Additional refinement will be needed to apply a Localized Uniform Conditioning (LUC) non-linear estimate as localized results from panel estimates appeared to "over-smooth" similar to OK results.

Table 11-14 summarizes the ID^3 gold grade estimation parameters. Search distances varied from 240 ft to 500 ft along the longest axis for all gold estimates. All search orientations use the block search anisotropy reflecting major axis orientations and generalized ellipse radii from variography (Figure 11-14). A table of soft boundary conditions used for gold composite selections is presented in Table 11-16. In general, soft boundaries used a generalized search orientation based on domain variography and search of 45 ft x 45 ft x 15 ft depending on domain and boundary conditions. The estimates used composite counts of:

- Maximum Composites = 10
- Minimum Composites = 3
- Maximum per Drill Hole = 2

The search composite counts were refined iteratively and informed with initial KNA using Supervisor during EDA. A 3 x 3 x 3 discretization was used for all estimates.

Search limits were established to limit the interpolation on higher gold grade values based on visual and statistical breaks in grades seen in the raw assay data. Figure 11-8 illustrates gold assay distribution breaks observed below the capping limit for primary skarn domains. Composites with gold values greater than thresholds presented in Table 11-14 were restricted to a 60 ft x 60 ft x 20 ft search ellipse. The ellipse size approximates 1/2 drill hole spacing for both deposits on average. For example, domain 201 gold assays were capped at 80 g/t prior to compositing. Composites greater than 50 g/t Au were only interpolated in blocks within a 60 ft x 60 ft x 20 ft ellipse which selected the composite using the specified parameters (Figure 11-15). No high grade restrictions were used for silver or other estimates.

Based on drill hole coverage across the entire block model, gold estimates were completed for greater than 99% of domain coded blocks in primary skarn domains, 95% of domain coded blocks in secondary skarn and minor skarn domains, and 55% of blocks in background QMS pelitic schist estimate 55% of blocks.

The overburden and cleanup estimate passes use two minimum composites. To ensure all blocks are estimated within 400 ft) of a drill hole, a cleanup pass (PASS=2) excluding overburden composites is estimated using a minimum of two composites from one drill hole. The cleanup pass uses background schist and minor skarn composites with a soft boundary 45 ft x 45 ft x 15 ft ellipsoid into higher grade skarn composites within secondary domain variable 'GEOCD2' approximating domain lithology. This pass does not use the block search anisotropy and uses the variogram search for background schist/minor skarn (bearing 182.2, plunge -18.9, dip -16.7).

Silver estimates were completed for the South and North skarn domains similar to gold estimates with equal major and semi-major search radius between 320 ft and 350 ft informed by the silver composite variography (Table 11-13). The block search anisotropy (LVA) was used for all estimates except overburden (Table 11-15). Domain 203 was able to see domain 212 composites as part of the soft boundary search whereas all other soft boundary conditions were treated similar to gold (Table 11-16). A plan view and cross section of silver estimate searches and estimate are shown in Figure 11-16.

For arsenic, calcium (percent), copper, and sulfur (percent) estimates, major axis searches vary from 300 ft to 570 ft.

FIGURE 11-14 GOLD ESTIMATE SEARCH ELLIPSE IN PLAN VIEW (TOP) AND NW-LOOKING CROSS SECTION (BELOW)

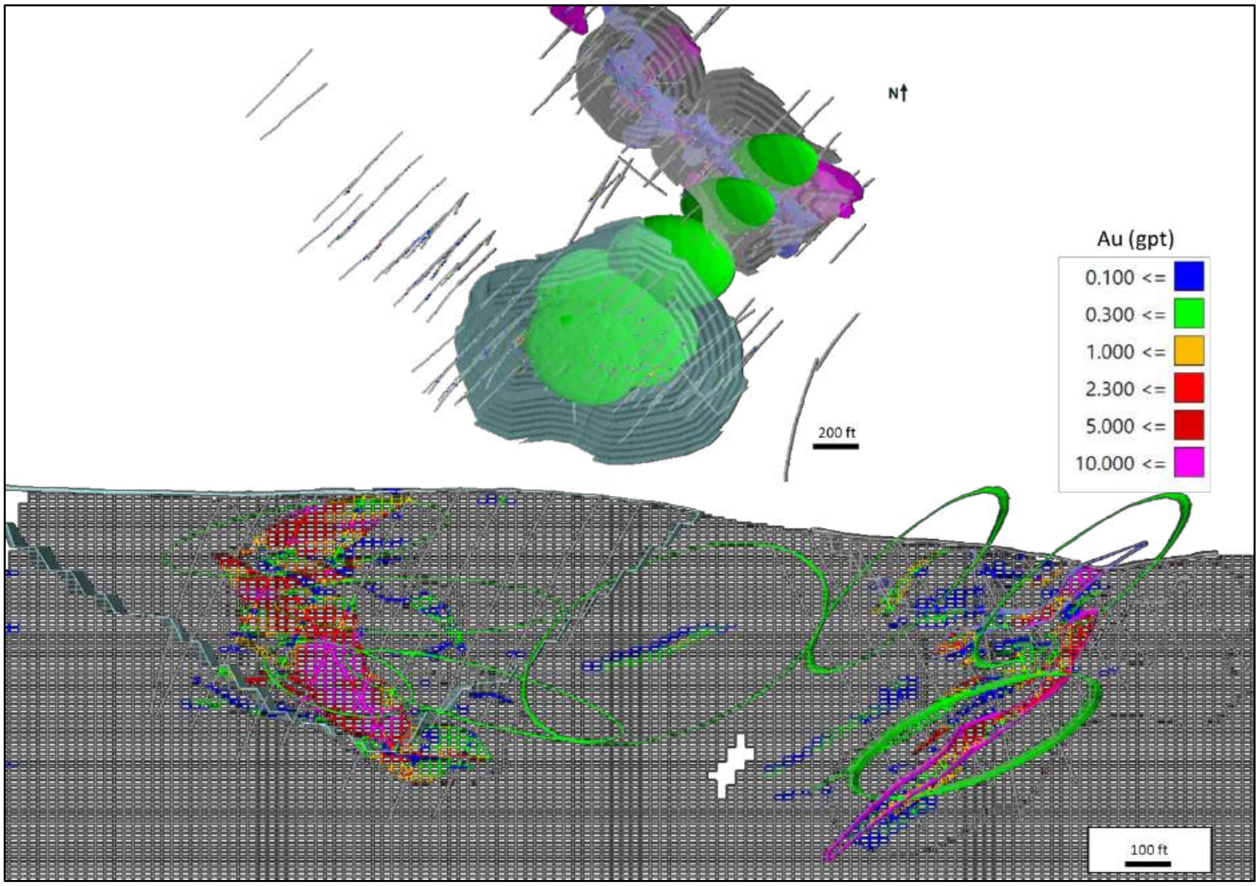


FIGURE 11-15 GOLD HIGH GRADE RESTRICTION SEARCH SHOWN IN GREEN VERSUS DOMAIN 201 SEARCH ELLIPSE IN BLUE

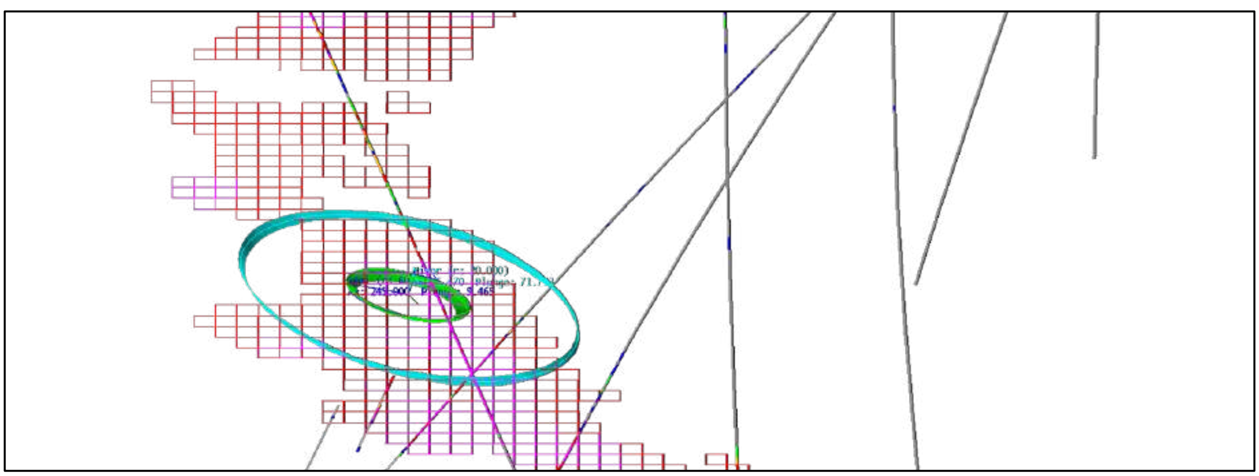


FIGURE 11-16 SILVER ESTIMATE SEARCH ELLIPSE IN PLAN VIEW (TOP) AND NW-LOOKING CROSS SECTION (BELOW)

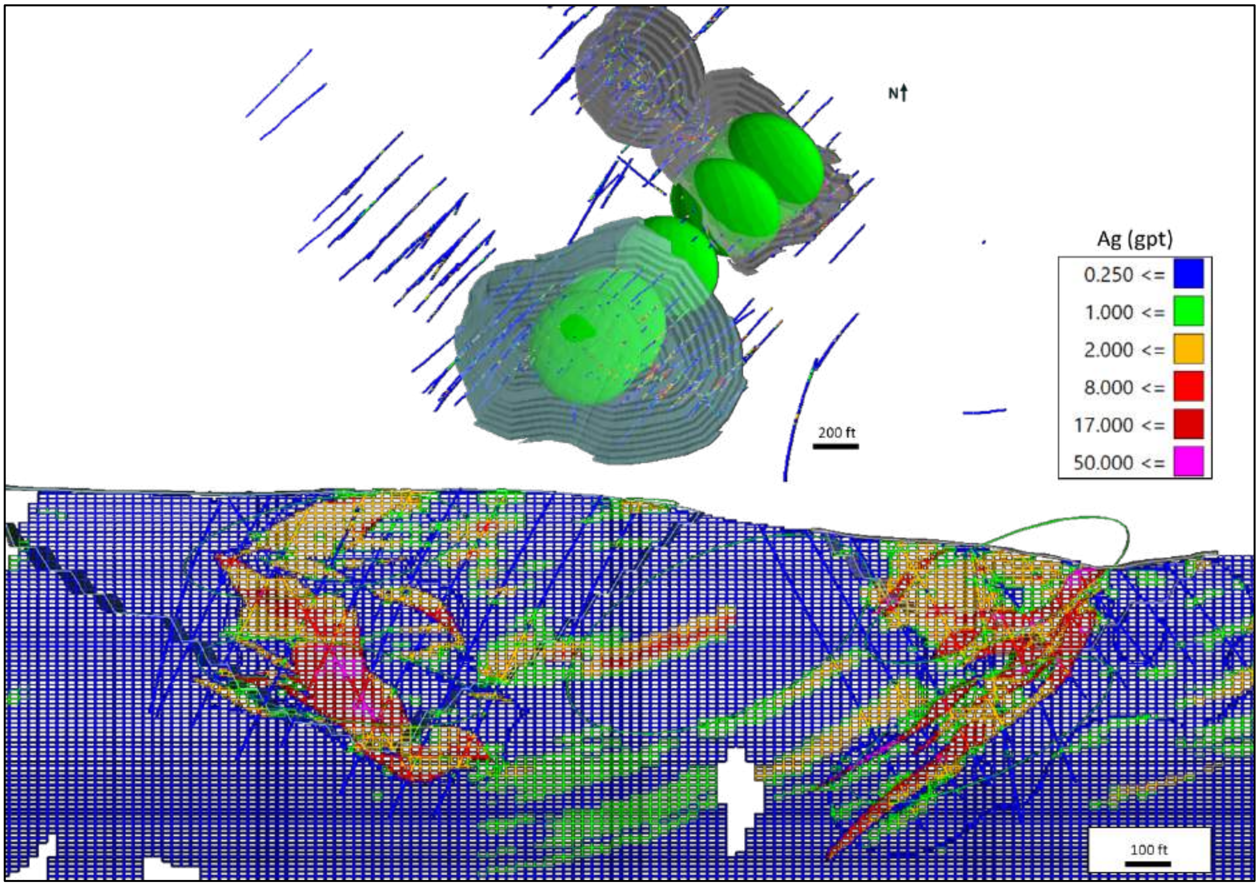


TABLE 11-14 GOLD GRADE ID^3 ESTIMATE PARAMETERS

Area	Est Domain	EstID	Comp Selection (soft boundary)	Soft Bound	HG Restrict Au g/t	LVA	Min Comp	Max Comp	Max/ Hole	Major (ft)	Semi (ft)	Minor (ft)	Block Domain Selection
South	201	i201	ORE=201,(203)	Y	50	Y	**3**	**10**	**2**	220	160	70	(domain eq 201)
South	202	i202	ORE=202,(203,204)	Y	15	Y	**3**	**10**	**2**	500	300	60	(domain eq 202)
South	203	i203	ORE=203,(202,204)	Y	15	Y	**3**	**10**	**2**	500	300	60	(domain eq 203)
South	204	i204	ORE=204,(202,203,205,206)	Y	15	Y	**3**	**10**	**2**	370	300	70	(domain eq 204)
South	205 & 206	i205	ORE=205,206,(203,204)	Y	50	Y	**3**	**10**	**2**	370	300	70	(domain eq 205 or domain eq 206)
South	207, 208, 209, 210	i207	ORE=207,208,209,210		15	Y	**3**	**10**	**2**	170	240	70	(domain eq 207 ,208 , 209, 210)
South	211	i211	ORE=211		15	Y	**3**	**10**	**2**	300	350	130	(domain eq 211)
South	212	i212	ORE=212 , (201,203,205)	Y	15	Y	**3**	**10**	**2**	400	400	100	(domain eq 212)
South	QMS schist	imsch	ORE=1,(4)	Y	8	Y	**3**	**10**	**2**	300	400	180	(domain eq 1 and pit eq 2)
South	Minor skarn	imskn	ORE=1,4		8	Y	**3**	**10**	**2**	300	400	180	(domain eq 4 and pit eq 2)
North	101	in101	ORE=101,111,112		15	Y	**3**	**10**	**2**	330	200	80	(domain eq 101, 111, 112)
North	102 & 103	in102	ORE=102,103,(104)	Y	25	Y	**3**	**10**	**2**	330	200	80	(domain eq 102 or domain eq 103)
North	104	in104	ORE=104, (102,103)	Y	25	Y	**3**	**10**	**2**	330	200	80	(domain eq 104)
North	105	in105	ORE=105,(106)	Y	25	Y	**3**	**10**	**2**	330	200	80	(domain eq 105)
North	106	in106	ORE=106,(102,104,105,107)	Y	25	Y	**3**	**10**	**2**	250	200	70	(domain eq 106)
North	107	in107	ORE=107		25	Y	**3**	**10**	**2**	330	200	80	(domain eq 107)
North	108	in108	ORE=108,(109)	Y	50	Y	**3**	**10**	**2**	250	200	70	(domain eq 108)
North	109	in109	ORE=(108),109	Y	50	Y	**3**	**10**	**2**	250	200	70	(domain eq 109)
North	QMS schist	insch	ORE=1,(4)	Y	8	Y	**3**	**10**	**2**	280	310	140	((domain eq 1 or 11) and pit eq 1)
North	Minor skarn	inskn	ORE=1,4		8	Y	**3**	**10**	**2**	280	310	140	((domain eq 4 or 14) and pit eq 1)
All	Overburden	ovb	ORE=(1,4),9	Y	8		**2**	**8**	**2**	90	90	10	(domain eq 9)
All	Cleanup	Clean	GEOCD2 = 1,4, (5)	Y	8		**2**	**10**	**2**	300	400	180	domain ne 9 and auid3 lt 0

Overburden estimate uses 305, 0, 0 search orientation. Cleanup estimate uses 182.2, -18.9, -16.7 search orientation

TABLE 11-15 SILVER GRADE ID^3 ESTIMATE PARAMETERS

Area	Est Domain	EstID	Comp Selection (soft boundary)	Soft Bound	HG Restrict Ag g/t	LVA	Min Comp	Max Comp	Max/ Hole	Major (ft)	Semi (ft)	Minor (ft)	Block Domain Selection
South	201	i201	ORE=201,(203)	Y	N/A	Y	**3**	**10**	**2**	320	300	150	(domain eq 201)
South	202	i202	ORE=202,(203,204)	Y	N/A	Y	**3**	**10**	**2**	320	300	150	(domain eq 202)
South	203	i203	ORE=203,(202,204,212)	Y	N/A	Y	**3**	**10**	**2**	320	300	150	(domain eq 203)
South	204	i204	ORE=204,(202,203,205,206)	Y	N/A	Y	**3**	**10**	**2**	350	350	110	(domain eq 204)
South	205 & 206	i205	ORE=205,206,(203,204)	Y	N/A	Y	**3**	**10**	**2**	350	350	110	(domain eq 205 or domain eq 206)
South	207, 208, 209, 210	i207	ORE=207,208,209,210		N/A	Y	**3**	**10**	**2**	320	300	160	(domain eq 207 ,208 , 209, 210)
South	211	i211	ORE=211		N/A	Y	**3**	**10**	**2**	320	300	160	(domain eq 211)
South	212	i212	ORE=212 , (201,203,205)	Y	N/A	Y	**3**	**10**	**2**	320	300	160	(domain eq 212)
All	QMS schist	imsch	ORE=1,(4)	Y	N/A	Y	**3**	**10**	**2**	320	320	150	(domain eq 1 and pit eq 2)
All	Minor skarn	imskn	ORE=1,4		N/A	Y	**3**	**10**	**2**	320	320	150	(domain eq 4 and pit eq 2)
North	101	in101	ORE=101,111,112		N/A	Y	**3**	**10**	**2**	350	350	150	(domain eq 101, 111, 112)
North	102 & 103	in102	ORE=102,103,(104)	Y	N/A	Y	**3**	**10**	**2**	350	350	150	(domain eq 102 or domain eq 103)
North	104	in104	ORE=104, (102,103)	Y	N/A	Y	**3**	**10**	**2**	350	350	150	(domain eq 104)
North	105	in105	ORE=105,(106)	Y	N/A	Y	**3**	**10**	**2**	350	350	150	(domain eq 105)
North	106	in106	ORE=106,(102,104,105,107)	Y	N/A	Y	**3**	**10**	**2**	350	350	150	(domain eq 106)
North	107	in107	ORE=107		N/A	Y	**3**	**10**	**2**	350	350	150	(domain eq 107)
North	108	in108	ORE=108,(109)	Y	N/A	Y	**3**	**10**	**2**	350	350	150	(domain eq 108)
North	109	in109	ORE=(108),109	Y	N/A	Y	**3**	**10**	**2**	350	350	150	(domain eq 109)
All	Overburden	ovb	ORE=(1,4),9	Y	N/A		**2**	**8**	**2**	90	90	10	(domain eq 9)
All	Cleanup	Clean	GEOCD2 = 1,4, (5)	Y	N/A	Y	**2**	**10**	**2**	320	320	150	domain ne 9 and agid lt 0

Overburden Ag estimate uses 305, 0, 0 search orientation. Cleanup estimate uses LVA.

TABLE 11-16 SOFT BOUNDARY COMPOSITE SELECTION CRITERIA FOR GOLD AND SILVER ESTIMATE

Deposit	Est Domain	EstID	Comp Selection (soft boundary)	Soft Boundary Comp Selection	Soft Bound Major Axis Radius (ft)	Soft Bound Semi Axis Radius (ft)	Soft Bound Minor Axis Radius (ft)	Soft Bound Bearing	Soft Bound Plunge	Soft Bound Dip
South	201	i201	ORE=201,(203)	[203]	45	45	15	305	0	0
South	202	i202	ORE=202,(203,204)	[203,204]	45	45	15	305	0	0
South	203*	i203	ORE=203,(202,204)*	[202,204]	45	45	15	305	0	0
South	204	i204	ORE=204,(202,203,205,206)	[202,203,205,206]	45	45	15	305	0	0
South	205 & 206	i205	ORE=205,206, (203,204)	[203,204]	45	45	15	305	0	0
South	207, 208, 209, 210	i207	ORE=207,208,209,210							
South	211	i211	ORE=211							
South	212	i212	ORE=212 , (201,203,205)	[201,205,203]	45	45	15	305	0	0
South	QMS schist	imsch	ORE=1,(4)	[4]	45	45	45	305	0	0
South	Minor skarn	imskn	ORE=1,4							
North	101	in101	ORE=101,111,112							
North	102 & 103	in102	ORE=102,103,(104)	[104]	45	45	15	305	0	20
North	1004	in104	ORE=104, (102,103)	[102,103]	45	45	15	305	0	20
North	105	in105	ORE=105,(106)	[106]	45	45	15	305	0	20
North	106	in106	ORE=106,(102,104,105,107)	[102,104,105,107]	45	45	15	305	0	20
North	107	in107	ORE=107							
North	108	in108	ORE=108,(109)	[109]	45	45	15	305	0	20
North	109	in109	ORE=(108),109	[108]	45	45	15	305	0	20
North	QMS schist	insch	ORE=1,(4)	[4]	45	45	45	305	0	10
North	Minor skarn	inskn	ORE=1,4							
All	Overburden	ovb	ORE=(1,4),9	[1,4]	20	20	20	305	0	0
All	Cleanup	clean	GEOCD2 = 1,4, (5)	[5 (skarn)]	45	45	15	305	0	0
All	Cleanup	clean	GEOCD2 = 1,4, (5)	[5 (skarn)]	45	45	15	305	0	0

*domain 203 estimate for silver includes soft boundary composites from ORE domain 21

11.5.5. DENSITY INTERPOLATION

An ID^3 estimate was completed for density based on individual non-composited density point sample measurements from downhole data. The estimate was run with soft 90 ft isotropic search boundaries between redox domains within skarn domains and all outside domains including minor skarn. Transition and sulfide redox domains were estimated together. This resulted in four estimations:

- Oxide background – redox codes 3,4 and domain codes 0 through 20, soft bound to redox = 3
- Oxide skarn – redox codes 3, 4 and domain codes greater than 20, soft bound to redox = 3
- Transition/sulfide background – redox codes 1,3,4 and domain codes 0 through 20, soft bound to redox = 4
- Transition/sulfide skarn – redox codes 1,3,4 and domain codes greater than 20, soft bound to redox = 4

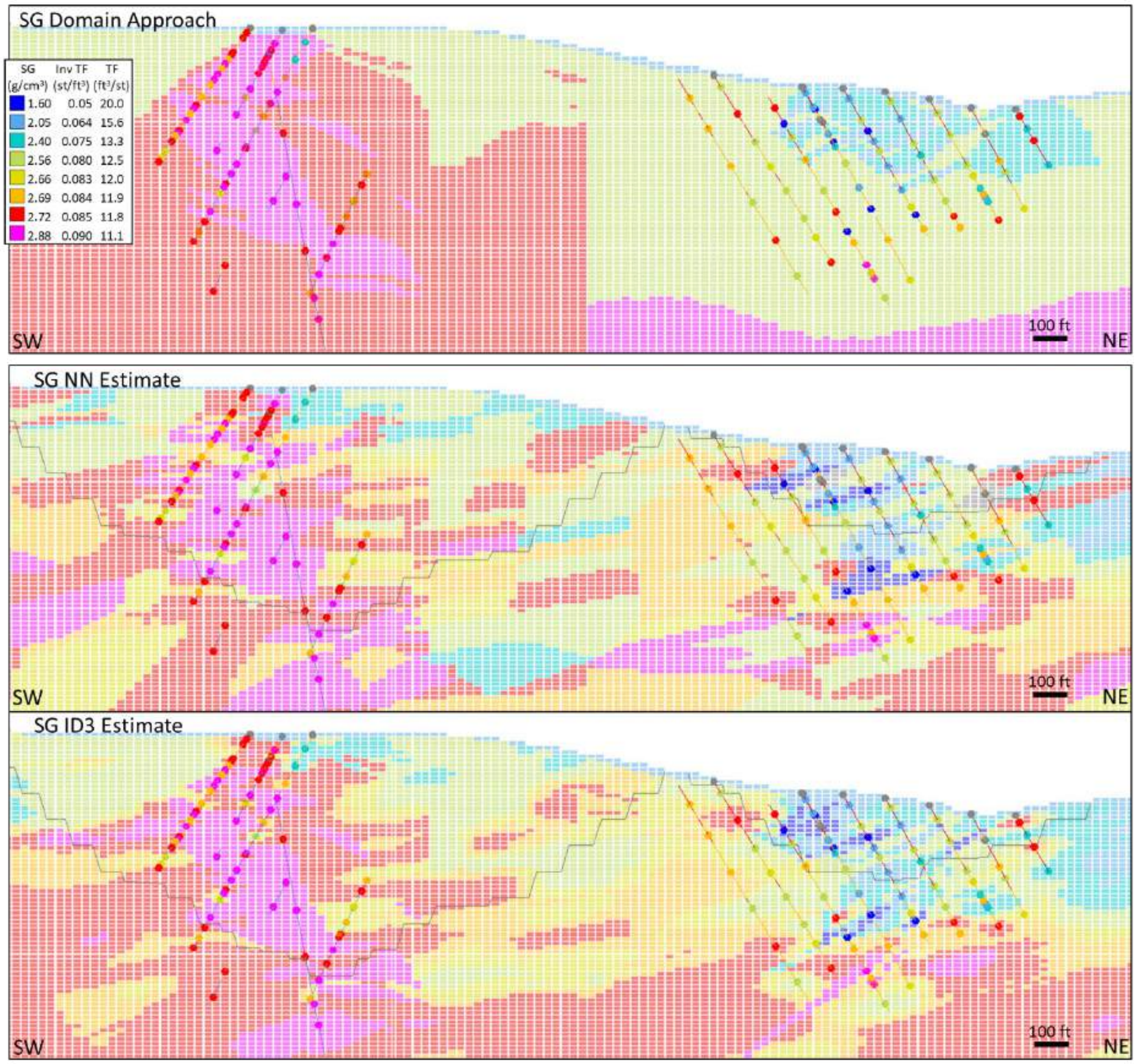
The estimate was based on the following criteria:

- Sample Count = 2
- Maximum Samples = 6
- Maximum Samples per Drill Hole = 2

A 600 ft x 600 ft x 200 ft ellipsoidal search was used with global mean NW trending schist fabric orientation of 305°, 0° plunge, and 10° dip used for the estimates.

NN, ID^2, and variable minimum and maximum sample counts were iteratively tested to determine an estimate that honored local density data variability appropriately. ID^2 and higher counts are over-smoothed versus sample data. Estimates without respecting the skarn domains extended local higher density sample values beyond reasonable geologic interpretation of the skarn extents. A comparison of domain approach, NN, and ID^3 estimates for density are shown in Figure 11-17. Imperial unit density is expressed in the DENS variable as inverse tonnage factor (TF) using ton/ft^3 and in the TF variable as tonnage factor using ft^3/st.

FIGURE 11-17 CROSS SECTION COMPARISON OF DOMAIN APPROACH, NN, AND ID[3] ESTIMATES FOR MANH CHOH



11.6. MODEL VALIDATION

Estimation sensitivities were run at various capping levels as a check of the appropriateness of loss in total metal content for gold and silver at incrementally lower and higher capping levels. An uncapped gold estimate within the reserve design produces 7% more total gold metal globally. The estimated metal loss varies for each domain estimate. A global comparison within the reserve design of the un-declustered composite mean gold grade to estimate methods is presented in Table 11-17. Visual checks of the estimated block grades and corresponding composites were completed for all metals and elements estimated.

Swath plots were generated for the gold and silver estimates completed for the Manh Choh deposits relative to the block model rotated X-, Y-, and Z-axes. Gold swath plots are shown in Figure 11-18 to Figure 11-20. Silver swath plots are shown in Figure 11-21 to Figure 11-23. For both gold and silver estimates, the swath plots suggest that all estimates are smooth relative to the declustered composite mean grade data. The ID^3 estimate produces a reasonable estimate between the OK and NN estimates.

Figure 11-24 shows the global grade-tonnage profile of the Manh Choh deposits for gold estimates within Indicated Mineral Resource classification below topography but unconstrained by a resource solid or design. The model shows an under-estimated grade profile versus 10 ft (3.1 m) composite NN estimate for the ID^3 final gold estimator.

TABLE 11-17 GLOBAL COMPARISON OF UNCAPPED, CAPPED AND DECLUSTERED 10 FT COMPOSITES TO ID^3 AND NN ESTIMATES

	Uncapped AU_PPM Composite Mean (g/t)	AUCAP Composite Mean (g/t)	Declustered AUCAP Composite Mean (g/t)	AUID3 (g/t)	AUNN (g/t)
Inside Design, inside skarn domains >0	5.36	4.96	1.89	1.465	1.473

FIGURE 11-18 SWATH PLOT GOLD 045 AZIMUTH (X AXIS)

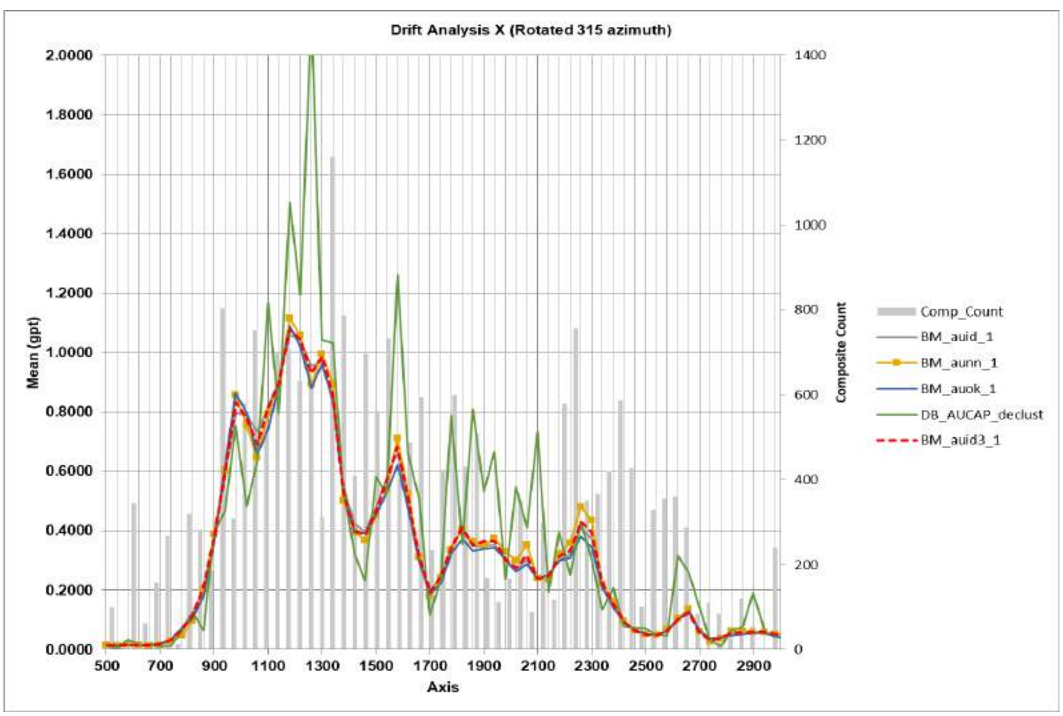


FIGURE 11-19 SWATH PLOT GOLD 315 AZIMUTH (Y AXIS)

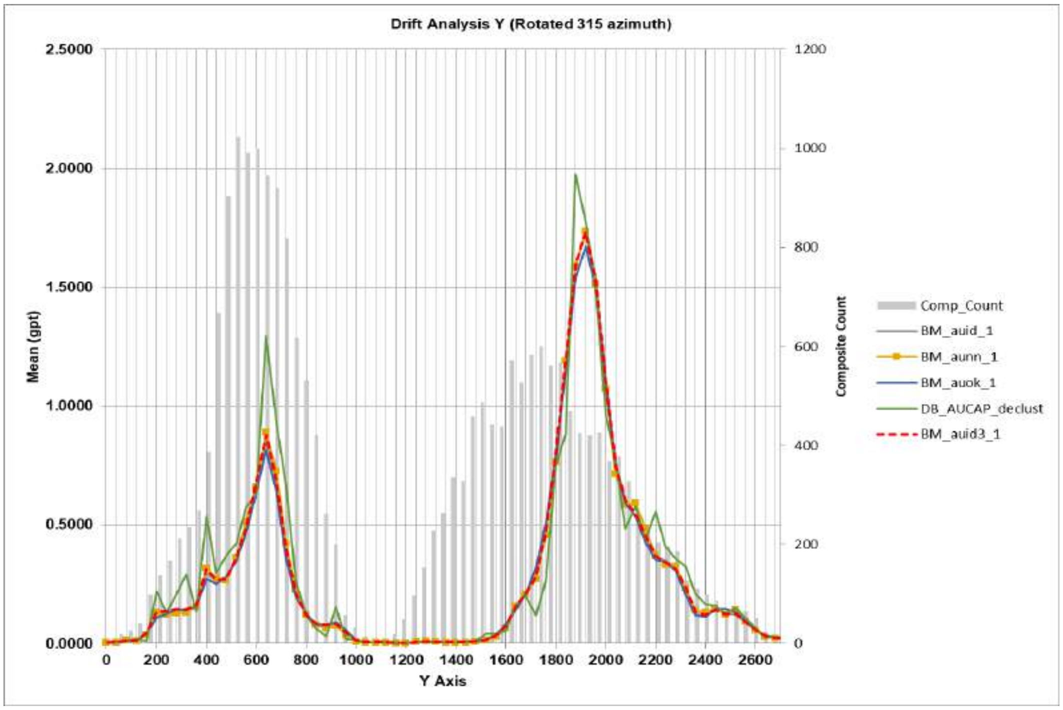


FIGURE 11-20 SWATH PLOT GOLD (Z AXIS)

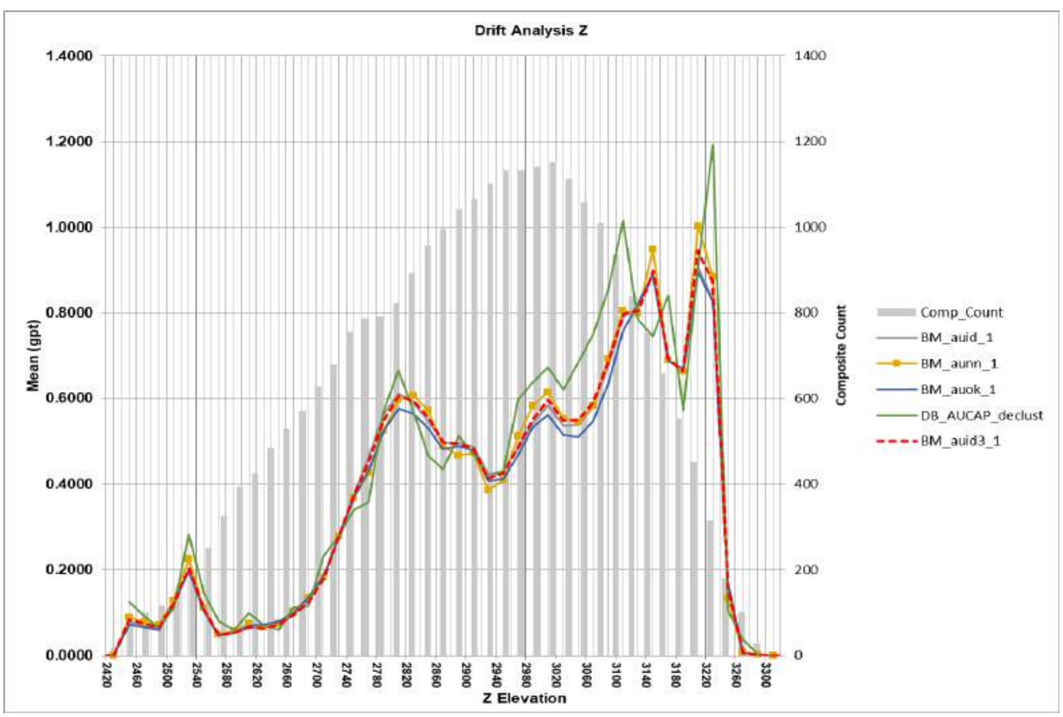


FIGURE 11-21 SWATH PLOT SILVER 045 AZIMUTH (X-AXIS)

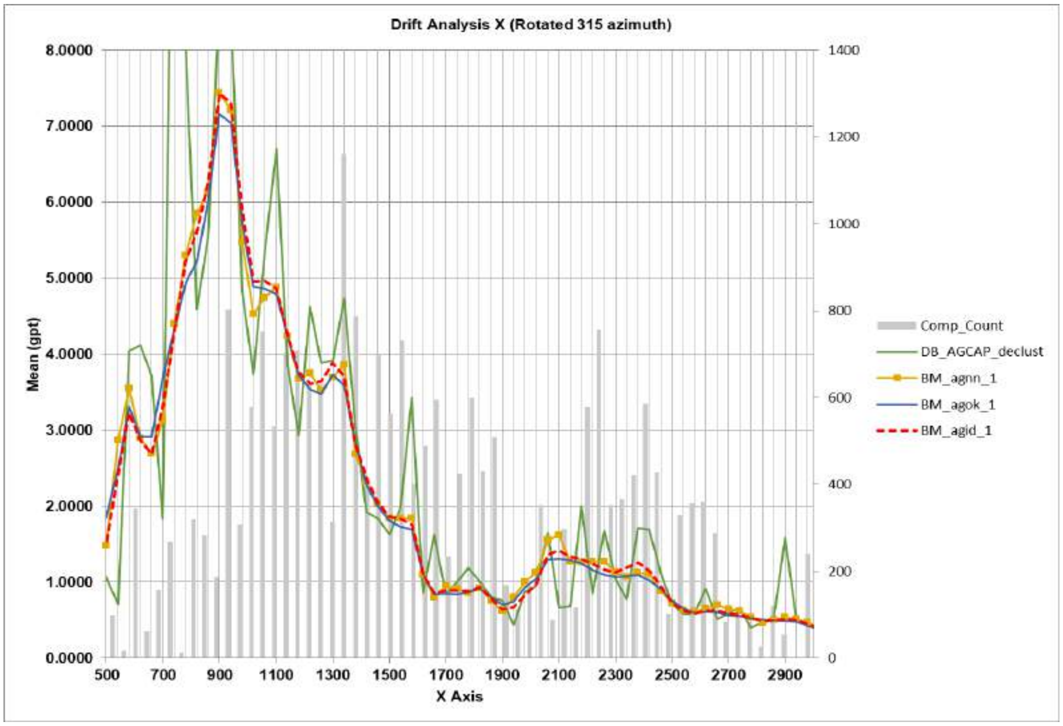


FIGURE 11-22 SWATH PLOT SILVER 315 AZIMUTH (Y AXIS)

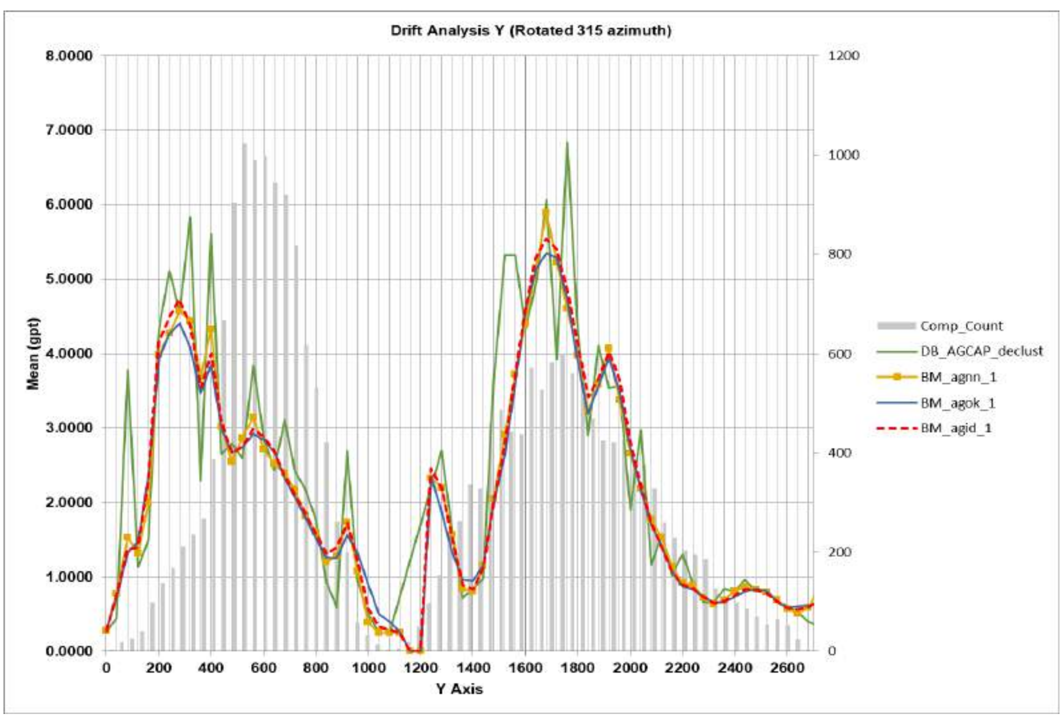


FIGURE 11-23 SWATH PLOT SILVER (Z AXIS)

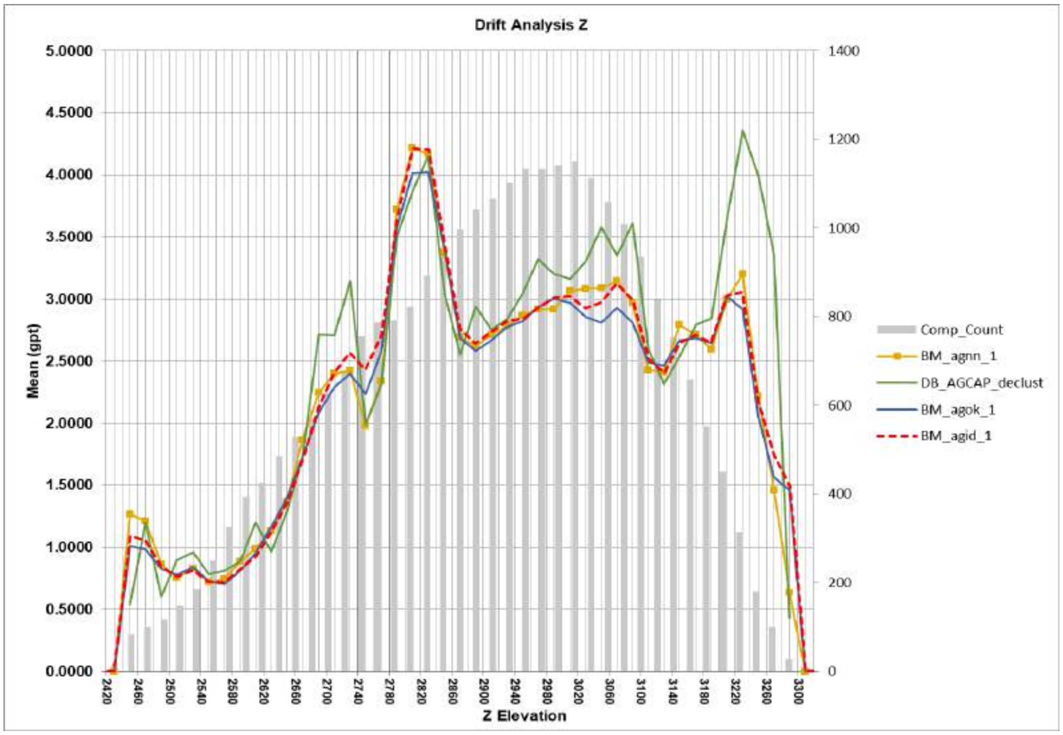
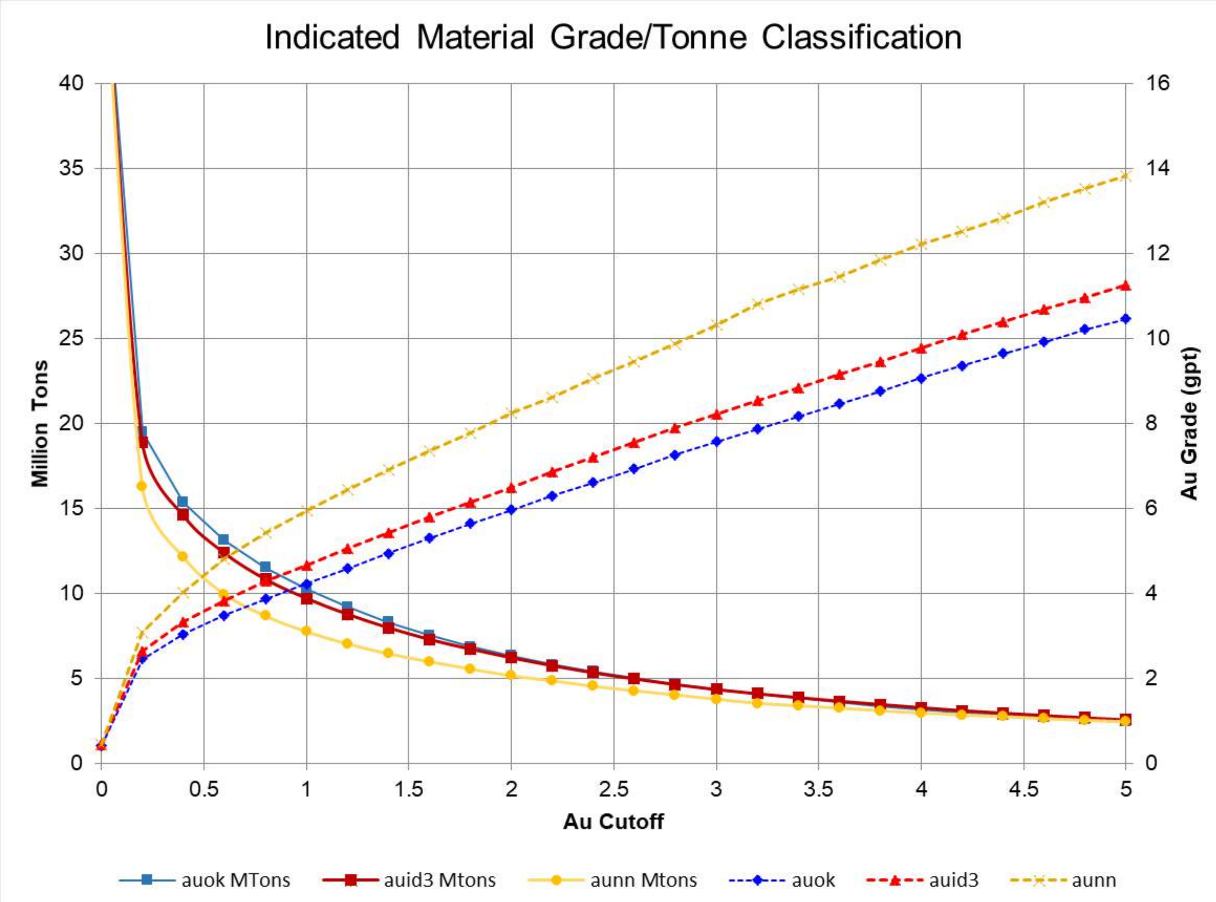


FIGURE 11-24 GRADE TONNAGE CURVE COMPARISON OF ID3 (RED) TO OK (BLUE) AND NN (YELLOW).



11.7. RESOURCE CLASSIFICATION

Definitions for resource categories used in this TRS are those defined by SEC in S-K 1300. Mineral Resources are classified into Measured, Indicated, and Inferred categories.

Blocks were coded as Indicated or Inferred based on the ID^3 gold grade estimate, the minimum distance to the nearest composite, and drill hole spacing. Plan sections of the model were sliced to correlate minimum composite distances within the estimate and drill hole spacing. Polygonal outlines of cohesive drill clusters were generated to eliminate isolated drill holes. The outlines were used to generate a solid wireframe to black flag the model. The Indicated class solid encloses drill holes within 65.6 ft (20 m) drill spacing. The Inferred class solid encloses effective drill spacing of 131.2 ft (40 m).

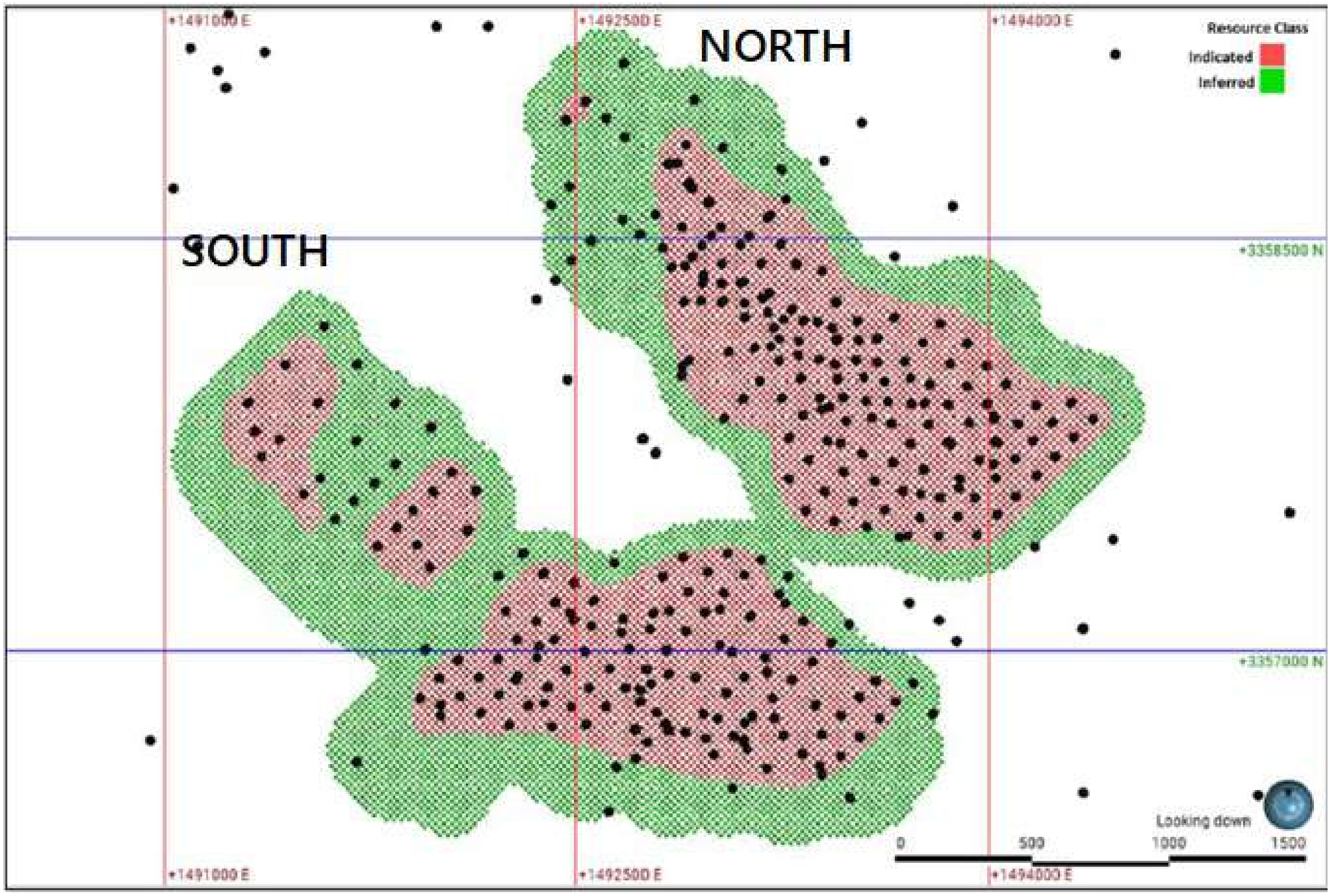
MCS and MCN classification:

- Measured: Not classified
- Indicated: Average Distance < 65.6 ft

- Inferred: Average Distance < 131.2 ft
- Unclassified: Remaining estimated blocks

Figure 11-25 presents a plan view sliced section of the South and North areas showing block model classification relative to drill hole traces.

FIGURE 11-25 PLAN VIEW OF MAHN CHOH NORTH AND SOUTH DEPOSITS BLOCK MODEL CLASSIFICATION (2021 DRILL COLLARS IN BLUE)



The QP has reviewed the resource block model and classification and is of the opinion that they adequately support the reporting of Mineral Resource and Mineral Reserves.

11.8. MINERAL RESOURCE REPORTING

Mineral Resources summarized in this section follow the definitions for Mineral Resources in S-K 1300. The following paragraphs are quoted from those documents. "A Mineral Resource is 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, geologic characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge."

"The phrase 'reasonable prospects for economic extraction' implies a judgment by the Qualified Person in respect to the technical and economic factors likely to influence the prospects of economic extraction. A Mineral Resource is an inventory of mineralization that under realistically assumed and justifiable technical and economic conditions might become economically extractable. These assumptions must be presented explicitly in both public and technical reports." "The reader is cautioned that mineral resources are considered too speculative geologically to have economic considerations applied to them that would enable them to be realized or that they will convert to mineral reserves."

Contango's December 31, 2022 Mineral Resource statement comprises Indicated and Inferred Mineral Resources for the MCN and MCS deposits.

Mineral Resources are reported within a Lerchs Grossmann optimization shell, exclusive of Mineral Reserves, using prices of $1,600/oz for gold and $22/oz for silver and a Process Cash Flow (PCF) cut-off criteria defining model blocks which produce PCF greater than or equal to zero after allowance for dilution, recovery, mining, and process costs. Mineral Resources are reported using un-diluted gold and silver grades for both MCS and MCN and are exclusive of Mineral Reserves. Mineral Resources are reported below the Project topographic surface with no depletion as no mining has been conducted on the deposits.

Table 11-18 and Table 11-19 summarize Manh Choh Mineral Resources, exclusive of Mineral Reserves, for Peak Gold's 100% attributable ownership basis and Contango's 30% ownership basis, respectively.

TABLE 11-18 SUMMARY OF MINERAL RESOURCES AS OF DECEMBER 31, 2022 – PEAK GOLD, LLC'S 100% OWNERSHIP

Classification	Tonnes (000)	Au Grade (g/t)	Au Ounces (000)	Ag Grade (g/t)	Ag Ounces (000)
			Manh Choh South		
Measured	-	-	-	-	-
Indicated	574.3	2.5	45.7	7.0	129.4
TOTAL	**574.3**	**2.5**	**45.7**	**7.0**	**129.4**
Inferred	4.3	4.2	0.4	2.8	0.3
			Manh Choh North		
Measured	-	-	-	-	-
Indicated	271.4	2.2	19.4	14.0	122.7
TOTAL	**271.4**	**2.2**	**19.4**	**14.0**	**122.7**
Inferred	17.1	3.7	2.1	10.6	6.0
			Total Mineral Resource, Manh Choh South and North		
Measured	-	-	-	-	-
Indicated	845.7	2.4	65.3	9.3	252.1
TOTAL	**845.7**	**2.4**	**65.3**	**9.3**	**252.1**
Inferred	21.4	3.8	2.6	9.20	6.3

TABLE 11-19 SUMMARY OF MINERAL RESOURCES AS OF DECEMBER 31, 2022 – CONTANGO'S 30% ATTRIBUTABLE OWNERSHIP

Classification	Tonnes (000)	Au Grade (g/t)	Au Ounces (000)	Ag Grade (g/t)	Ag Ounces (000)
			Manh Choh South		
Measured	-	-	-	-	-
Indicated	172.3	2.5	13.7	7.0	38.8
TOTAL	**172.3**	**2.5**	**13.7**	**7.0**	**38.8**
Inferred	1.3	4.2	0.1	2.8	0.1
			Manh Choh North		
Measured	-	-	-	-	-
Indicated	81.4	2.2	5.8	14.0	36.8
TOTAL	**81.4**	**2.2**	**5.8**	**14.0**	**36.8**
Inferred	5.1	3.7	0.6	10.6	1.8
			Total Mineral Resource, Manh Choh South and North		
Measured	-	-	-	-	-
Indicated	253.7	2.4	19.6	9.3	75.6
TOTAL	**253.7**	**2.4**	**19.6**	**9.3**	**75.6**
Inferred	6.4	3.8	0.8	9.20	1.9

Notes for Tables 11-18 and 11-19:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources.
2. Mineral Resources are reported **exclusive** of Mineral Reserves.
3. Mineral Resources are estimated using long term prices of US$1,600/oz Au price and US$22/oz.
4. Mineral Resources are reported using un-diluted Au and Ag grades.
5. Mineral Resources are reported within constraining pit shells.
6. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
7. Mineral Resources are reported in dry metric tonnes.
8. Numbers may not add due to rounding.
9. Mineral Resources are tabulated using Process Cash Flow (PCF) cut-off criteria to define model blocks which produce PCF greater than or equal to zero value after subtraction of dilution, process, and other costs.

11.9. QUALIFIED PERSON'S OPINION AND RECOMMENDATIONS

The QP has reviewed the inputs for the reporting of Mineral Resources and is of the opinion that they are reasonable. The QP recommends that these inputs be reviewed during any future studies.

The QP is of the opinion that with consideration of the recommendations summarized below and in Sections 1 and 23 of this report, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.

The estimates of Mineral Resources may be materially affected if mining, metallurgical, or infrastructure factors change from those currently anticipated at the Manh Choh Project. Although the QP has a reasonable expectation that the majority of Inferred Mineral Resources could be upgraded to Indicated Resources with continued exploration, estimates of Inferred Mineral Resources have significant geological uncertainty and it should not be assumed that all or any part of an Inferred Mineral Resource will be converted to the Measured or Indicated categories.

The QP offers the following recommendations:

1. Carry out a comparison of the grade capping on the 10 ft composites and the variable raw assays.
2. Use Disintegration Analysis for grade capping.
3. To avoid over-estimation of grades in certain areas, review and confirm declustered mean values.
4. Test the variable orientation and estimation in Leapfrog rather than moving the work to Vulcan software.
5. Tabulate and review capped vs. uncapped gold volumetric output (grade and ounces) from the block model by domain.

12. MINERAL RESERVE ESTIMATES

12.1. SUMMARY

Table 12-1 summarizes the Manh Choh Mineral Reserve estimate for the Project, effective December 31, 2022 (100% Peak Gold JV attributable ownership basis). Table 12-2 summarizes Contango's 30% attributable ownership of the Mineral Reserve estimate.

TABLE 12-1 MINERAL RESERVE ESTIMATE AS OF DECEMBER 31, 2022 – PEAK GOLD 100% ATTRIBUTABLE OWNERSHIP

Classification	Tonnes (000)	Au Grade (g/t)	Au Ounces (000)	Ag Grade (g/t)	Ag Ounces (000)
Proven	-	-	-	-	-
Probable	3,936	7.9	997	13.6	1,719
TOTAL	**3,936**	**7.9**	**997**	**13.6**	**1,719**

TABLE 12-2 MINERAL RESERVE ESTIMATE AS OF DECEMBER 31, 2022 – CONTANGO 30% ATTRIBUTABLE OWNERSHIP

Classification	Tonnes (000)	Au Grade (g/t)	Au Ounces (000)	Ag Grade (g/t)	Ag Ounces (000)
Proven	-	-	-	-	-
Probable	1,181	7.9	299	13.6	516
TOTAL	**1,181**	**7.9**	**299**	**13.6**	**516**

Notes for Tables 12-1 and 12-2:

1. The definitions for Mineral Resources in S-K 1300 were followed for Mineral Resources.
2. Mineral Reserves were estimated at long term prices of $1,300/oz Au and $17/oz Ag.
3. Mineral Reserves are reported at an economic cut-off that varies by process cost and metallurgical recovery, approximately equivalent to 2.50 g/t Au.
4. Mineral Reserve estimates incorporate dilution built in during the re-blocking process and assume 100% mining recovery.
5. Mineral Reserves are reported in dry metric tonnes.
6. Numbers may not add due to rounding.

The QP is not aware of any risk factors associated with, or changes to, any aspects of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

12.2. DILUTION AND ORE LOSS

The Project involves mining two small, high-grade open pits. Due to the high grade and high process cost regime of the Project, maintaining selectivity and mitigating external dilution and ore loss during the mining process are key value drivers. The smallest mining unit (SMU), thus emulated by the regularized resource model block size, is deemed to be 20 ft x 20 ft x 10 ft (height). The primary ore loading fleet will therefore be tailored to maintain selectivity at this scale, with excavator buckets not to exceed 7 ft to 8 ft widths, and flitch mining in 10 ft flitches (20 ft blasts) to occur in ore zones.

As mining dilution and ore loss are of particular importance, several analytical methods were employed to quantify the associated risk and develop a recommended approach to applying dilution to the Mineral Reserve estimate. This includes block skin dilution from adjacent blocks in all three directions, identifying ore blocks isolated by four or more waste contacts, and employing Maptek Pty Limited's Vulcan Grade Control Optimization (GCO) module to simulate short-range grade control practices. The recommended approach to dilution is to apply block skin dilution in the vertical direction only.

To simulate dilution along the floor of each 10 ft flitch, a 2 ft thick block skin was introduced along every other ore contact. Adjacent block grades in the planning model inform the grade of the 2 ft thick block skin. No external waste dilution or ore loss factors were applied to the Mineral Reserve estimate.

The Project will require a rigorous grade control program to mitigate mining dilution and ore loss.

- To inform the short-range planning model, at least 60% of blastholes in ore blasts will be sampled on 2 ft x10 ft intervals. Blasthole samples will be shipped to the assay lab at Fort Knox for assays of Au, Ag, S, Cu, As, and Ca to facilitate block cash flow and waste classification calculations.
- To inform waste rock characterization, the short-term planning model, and haulage destinations, the blasthole sampling program will include sampling 25% of blastholes in waste blasts for LECO analysis.
- Ore excavators will be equipped with high-precision GPS and field flagging of ore/waste contacts will be completed by dedicated ore control geologists.
- Orica Limited's OrePro 3D software or similar blast movement monitoring programs will be used to model the movement of ore-waste contacts delineated in the short-range planning model and depict the vertical swell of each blast to guide the ore excavators along the correct flitch elevations.

12.3. CUT-OFF GRADE

Ore and waste determination is based on a net block cash flow method calculated within the planning model. The calculation is based on:

- Mineral Reserve prices of $1,300/oz Au and $17/oz Ag.
- Per ounce charges for smelting and refining.
- Tetlin and Royal Gold royalties.
- Unit operating costs.
- Metallurgical recoveries for Au and Ag.

Where the net block cash flow exceeds zero in the planning model, and the block has either a Measured or Indicated Mineral Resource classification in the resource model, the block is considered part of the Mineral Reserve.

Table 12-3 summarizes the cut-off grade calculation inputs for Mineral Reserves.

TABLE 12-3 MINERAL RESERVE CUT-OFF GRADE INPUTS

Item	Unit	Value	Note
Gold Price	$/oz	1,300	
Silver Price	$/oz	17.00	
Gold Charges	$/oz	5.67	Per oz recovered
Silver Charges	$/oz	1.17	Per oz recovered
Tetlin Royalty	%	3	NSR – Au and Ag
Royal Gold Royalty	%	3	NSR – Au and Ag
Royal Gold Royalty	%	28	NSR – Ag only
Processing – Base	$/ton proc.	8.70	Fort Knox (FK) base processing cost, including crushing
Processing – Reagents (Variable)	$/ton proc.	~7.57	Actual based on consumption formulae
Processing – Reagents (Fixed)	$/ton proc.	0.11	
Rehandle	$/ton proc.	1.92	FK rehandle into crusher
Sub-total – FK Processing	$/ton proc.	~18.30	
Ore Transport	$/ton proc.	67.00	Includes access road haulage
Sub-total – MC Processing	$/ton proc.	67.00	
Total Processing	$/ton proc.	~85.30	
Metallurgical Recovery (Au)	%	~90.0	Actual based on recovery formula
Metallurgical Recovery (Ag)	%	~67.7	Actual based on recovery formula
Mineral Reserve (Processing) Cut-off Grade	**g/t Au**	**~2.50[1,2,3]**	**Proxy/estimate – actual is based on net block cash flow**

Notes:

1. KGMA prepared cut-off grades for Peak Gold JV. Calculations exclude incremental Fort Knox G&A costs.
2. KGMA prepared cut-off grades for Peak Gold JV. Calculations exclude Manh Choh G&A costs.
3. KGMA prepared cut-off grades for Peak Gold JV. Calculations exclude Toll Milling Profit.

Considering the chosen highway transport rate (3,000 stpd ore) is the downstream bottleneck, ore stockpiles must be maintained to disconnect the ex-pit ore mining rate and ore delivery rate, as there are periods in the LOM plan with more or less than the requisite 3,000 stpd. Maintaining a consistent delivery rate is important to allow the transport contractor to maintain steady-state operations and for the Project not to incur standby charges due to lack of ore available to transport.

The ore stockpiles enable the Project to employ an elevated cut-off grade strategy. In every planning period, the LOM plan selects from available ex-pit sources or from the highest-grade stockpile to maximize the in-period cash flow of the ore delivered to Fort Knox.

The estimates of Mineral Reserves may be materially affected if mining, metallurgical, or infrastructure factors change from those currently anticipated at the Manh Choh Project.

13. MINING METHODS

13.1. MINE DESIGN CONSIDERATIONS

13.1.1. RESOURCE AND PLANNING MODELS

The primary economic drivers of the LOM plan are estimates of gold (ID^3) and silver (ID^2) in the 2021 resource model. The model's estimate of density (ID^3) was used to calculate block tonnages. A planning model was developed to overlay the resource model with calculations of net block revenue to capture variable downstream costs and recovery and to prioritize higher-revenue blocks early in the LOM plan by way of a stockpiling strategy. This is of particular importance to Project economics as the on-highway delivery rate to Fort Knox (3,000 stpd) is the limiting bottleneck. Estimation domains 109 (MCN) and 205 (MCS) are significant drivers of Project value as both are primary sources of high-grade ore early in the mine life.

Two alteration models have been developed to inform the planning model:

1. An alteration model including sulfides, transitional material, and oxides, which is based on wireframes developed from core logging and used for geotechnical design, blasting design, and waste characterization. Overburden is also flagged in the planning model based on these wireframes.
2. An alteration model including only sulfides and oxides, which is based on sulfur grade criteria and used to determine downstream reagent dosages and processing costs.

In the planning model, estimates of copper (ID^2) and sulfur (ID^2) are drivers of both recovery and downstream processing costs. Estimates of calcium (ID^2) in addition to sulfur are used to calculate acid potential (AP), neutralization potential (NP), and neutralization potential ratio (NPR), which results in the classification of some waste as potentially acid generating (PAG). An estimate of arsenic (ID^2) is used to calculate potential for metal leaching which results in the classification of some waste as non-acid generating but potentially metal leaching (ML or NAG-ML).

The resource model carries estimates of RQD (ID^2), however, this parameter is not a key driver of the LOM plan. If warranted, rock mass hardness, swell factor, and diggabilty parameters will be investigated during the Project's operating phase.

13.1.2. GEOTECHNICAL CONSIDERATIONS

In 2018, SRK completed a geotechnical report to support the PEA of the Project (Gopinathan et al., 2018). The reference dataset consisted of oriented core logging and RQD data obtained from previous exploration drilling performed by the prior site owners. SRK also developed a desktop-level structural model and pit design criteria.

SRK's 2018 work and geotechnical report have since been superseded by a study completed by Piteau Associates Engineering Ltd. (Piteau) in September 2021. The Piteau report is based on data collected from an 11-hole, 5,280 ft geotechnical drilling program completed in 2021, including oriented core logging, detailed logging of structures, and downhole televiewer surveys. A suite of laboratory testing was performed on samples gathered from the 2021 program, including various strength tests and triaxial testing on samples of fault gouge. The Piteau report details 2D limit equilibrium stability analyses on 11 sections through interim pit designs for MCN and MCS, combining the orientation of modeled structures and intact rock strength parameters.

Piteau's 2021 report asserts that the pit slope design criteria used to develop the FS pit slope designs are in fact at a Pre-Feasibility Study (PFS) level of study/confidence. Piteau has not performed stability analyses on the final FS pit slope designs.

2021 PITEAU ASSESSMENT

Piteau's geotechnical appraisal is summarized as follows:

- **Rock Mass Description:** Bedrock at the Project area is comprised primarily of QMS and is covered by a very thin layer of overburden, followed by three principal geotechnical units based on the deposit alteration model: oxides, transitional material, and sulfides (Figure 13-1 and Table 13-1).
    - Oxides comprise the upper 5 ft to 260 ft of the deposit and are most prevalent at MCN, which is weathered to a greater depth extent than MCS. Oxides have the lowest Rock Mass Rating (RMR) of the three geotechnical units.
    - Transitional material occurs beneath the oxides and varies in thickness from 90 ft to 270 ft.
    - Sulfides occur below the transitional material and are most prevalent at MCS. Sulfides demonstrate the highest RMR values of the three geotechnical units, being the least weathered and altered. As such, during mining, rock mass conditions are expected to be more challenging in MCN as compared to MCS and generally improve with depth.
- **Structural and Fault Models:** The Project area displays two dominant structural orientations expressed by high-angle, brittle faulting: northwest-southeast and northeast-southwest. This is consistent with the dominant regional stress regime in Eastern Interior Alaska. Faulting at the deposit is attributed to three major deformation events, D_{1-3}. Generally, D_1 and D_2 faults are northwest-southeast striking with steep dip and D_3 faults cross-cut the deposit trending northeast-southwest, orthogonal to the D_1 and D_2 fabric. The structural model developed by KGMA suggests that five D_1 faults, seven D_2 faults, and three D_3 faults potentially interact with MCN or MCS. Of these, Piteau identified three faults as having potentially adverse impact on pit wall stability with stability being sensitive to fault orientation and location relative to the pit walls.

FIGURE 13-1 PIT CROSS SECTION SHOWING ALTERATION MODEL

Source: KGMA, 2022a.

TABLE 13-1 GEOTECHNICAL DOMAINS

Pit	Domain	Geotechnical Unit	Pit Area
MCS	North Southeast South West	Oxide Transition Sulfide	North Walls East and Southeast Walls South Walls West Walls
MCN	Northeast Southwest	Oxide Transition	North and Northeast Walls South and Southwest Walls

- **Rock Mass Strength:** A suite of strength tests were carried out to supplement geotechnical core logging, including unconfined compressive strength (UCS) tests, point load index (PLI) tests, triaxial compressive strength (TCS) tests, and Brazilian tensile strength (BTS) tests. Direct shear testing was also performed to determine the strength of discontinuities, which does not appear to change substantially with lithology or geotechnical domain. For design purposes, RMR values ascribed to each domain are 57, 71, and 80 for oxides, transitional material, and sulfides, respectively.
- **Pit Design Criteria:** 2D limit equilibrium analyses were performed to model possible kinematic failure modes, combining assessments of rock mass strength and known discontinuities. Design acceptability criteria (Table 13-2) are based on a minimum static factor of safety (FOS) of 1.2 for inter-ramp slopes and 1.3 for overall slopes. Most geotechnical domains are controlled by bench kinematics, resulting in slopes between 43° and 49°. Two domains were identified as having particular sensitivity to structural controls and require low slope angles to ensure stability:

- The North Domain of MCS is controlled by fault and shear anisotropy, requiring low slope angles where the orientation of the walls is within 30° of the strike of faults and foliation.
- Slope stability for the Northeast Domain of MCN is controlled by faults GM-D1_7b and GM-D1_7c where the orientation of the walls is within 30° of the faults.

TABLE 13-2 GEOTECHNICAL DESIGN CRITERIA

Pit	Design Sector	Structural Domain	Slope Dip Dir. (°)	Bench Height (ft)	Bench Width (ft)	Bench Face Angle (°)	Inter-ramp Angle (°)
MCS	I	North	177 to 240	60	107	75	26
	II	Southeast	240 to 270	60	46	75	44
	III	Southeast	270 to 010	60	42	75	46
	IV	Southeast	310 to 010	60	44	75	45
	V	South	330 to 040	60	38	75	48
	VI	West	340 to 360	60	44	75	45
	VII	West	000 to 020 140 to 180	60	40	75	47
	VIII	West	020 to 060	60	36	75	49
	IX	West	060 to 140	60	34	75	50
	X	North	160 to 169 169 to 177	60	48	75	43 34
MCN	XI	Northeast	172 to 255	60	97	75	28(upper) 30(lower)
	XII	Northeast	255 to 290	60	51	75	42
	XIII	Northeast	140 to 160	60	44	75	45
	XIV	Northeast	172 to 232	60	80	75	32
	XV	Southwest	300 to 040	60	44	75	45
	XVI	Southwest	040 to 100	60	36	75	49
	XVII	Southwest	300 to 040	60	44	75	45
	XVIII	Southwest	100 to 140	60	40	75	47

Piteau Recommendations:

- Complete additional geotechnical drilling, site investigation, and analysis to support FS mine designs and execution.
- Complete additional drilling, site investigation, and analysis to confirm the orientation of critical structures and further inform potentially problematic domains, i.e., North Domain in MCS and Northeast Domain in MCN.
- Adopt pre-split blasting in all geotechnical domains for optimal wall control. Piteau notes trim blasting may be sufficient for the design sectors identified as having slope stability controlled by discrete faults or fault/shear anisotropy.
- Horizontal groundwater depressurization may be required in one geotechnical design sector, however, this should be confirmed during the Project's operating phase.

GEOTECHNICAL DESIGN

Pit Walls and Mining Dimensions

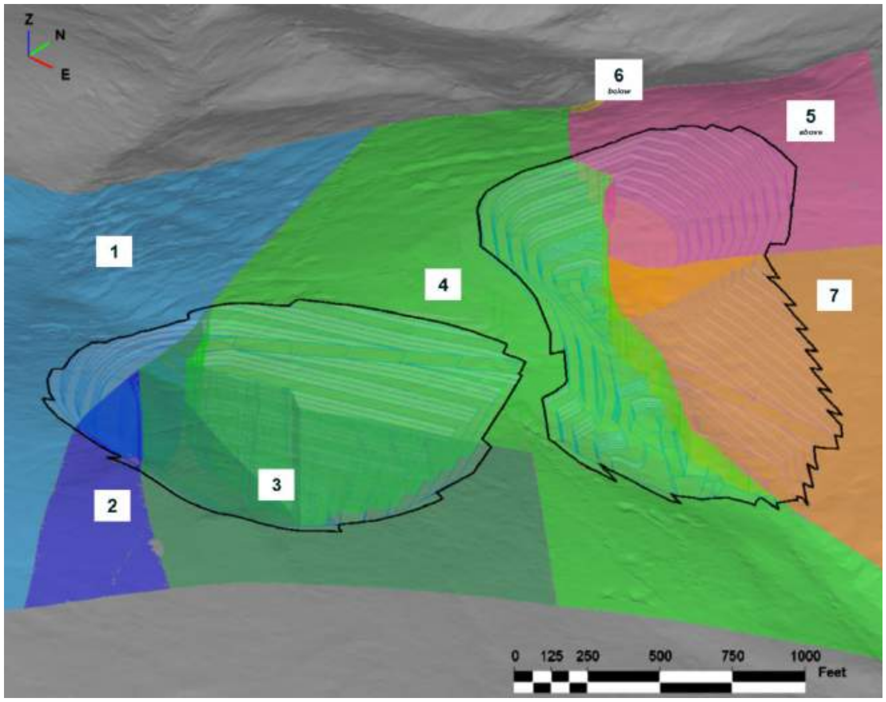
The maximum design height of pit walls at MCN is 400 ft and 650 ft at MCS. Consistent with block dimensions in the regularized resource model, the smallest mining unit (SMU) is 20 ft x 20 ft x10 ft (high). While bench heights will be blasted at a minimum of 20 ft, two 10 ft high flitches will be mined in ore zones to maintain selectivity in the vertical direction. Where persistent areas of waste are expected, 40 ft to 60 ft high benches may be blasted and mined with larger loading equipment to improve waste extraction productivity.

While slope design criteria were provided by Piteau for 20 ft, 40 ft, and 60 ft high benches, 60 ft high (triple) benches were selected for most final walls to allow for a steeper inter-ramp angle. Piteau's recommended bench face angle (BFA) is 75° with an expected break-back angle of 55° to 70°, depending on the geotechnical domain. For the northwest wall of MCN, single, 20 ft bench heights were selected to minimize expected rockfall induced by bench face break-back, as the structural fabric is expected to be adversely oriented into the pit along this wall. At MCS, similar challenges along the northeast walls are mitigated by designing straight north and east walls that meet at a corner to avoid transitioning to a northeast wall orientation that would parallel the problematic structures. It is critical that the orientation of the north and east straight walls fall outside the range of influence of adversely orientated structures. The orientation of adverse structures at these pit wall locations should be confirmed by further drilling.

Geotechnical Design Sectors in Planning Model

The planning model contains coding for geotechnical design sectors developed within Hexagon MinePlan 3D (MP3D) software. The geotechnical coding incorporates Piteau's 2021 recommendations for the design of slopes. Geotechnical codes, wall azimuths, and overall slope angles (OSA – flattened for planned in-pit ramps) are used for both the pit shell optimization process and pit design (Figure 13-2 and Table 13-3).

FIGURE 13-2 GEOTECHNICAL CODES IN PLANNING MODEL



Source: KGMA, 2022a.

TABLE 13-3 GEOTECHNICAL CODES IN PLANNING MODEL AND OPTIMIZATION SLOPE CODE INPUTS

Model Code	Corresponding Design Sector	Wall Azimuth (º)	Inter-ramp Angle (º)	Overall Slope Angle (º)
0	-	-	42	42
1	VI	340 to 000	45	41
	VII	000 to 020	47	43
	VIII	020 to 060	49	44
	IX	060 to 140	50	43
	-	140 to 340	45	45
2	V	330 to 040	48	42
	-	040 to 330	45	45
3	II	240 to 270	44	40
	III	270 to 010	46	42
	-	010 to 240	45	45
4	I	160 to 169	43	39
	X	169 to 177	34	31
	X	177 to 240	26	24
	XV	300 to 040	45	45
	XVI	040 to 100	49	45
	XVIII	100 to 140	47	43
	-	240 to 300	45	45
	-	140 to 160	45	45
5	XI	172 to 255	28	28
	XII	255 to 280	42	42
	XIII	140 to 172	45	45
	-	280 to 140	45	45
6	XI	172 to 255	30	30
	XII	255 to 280	42	42
	XIII	140 to 172	45	45
	-	280 to 140	45	45
7	XIII	140 to 172	45	38
	XIV	172 to 232	32	28
	-	232 to 140	45	45

A geotechnical stability analysis was completed on the Project’s waste rock stockpile areas (WRSAs) and confirmed a low risk of WRSA instability. WRSAs are designed with 3:1 side slopes for ease of final reclamation and are generally located on hilltops where adverse sub-surface conditions and movement are not expected.

13.1.3. HYDROLOGICAL AND HYDROGEOLOGICAL CONSIDERATIONS

Piteau completed a hydrogeology report and groundwater model in December 2021. A summary of Piteau’s findings is as follows:

- **Baseline hydrogeological conditions:** Overall, the Project area is relatively dry with mean annual precipitation at the site expected to be 11.6 in. The overburden cover is thin and the bedrock has low hydraulic conductivity. As such, groundwater flow and recharge are expected to be minimal. The majority of groundwater recharge is seasonal and results from spring snowmelt. Seasonal groundwater levels have been observed to fluctuate significantly, another indication of the low-flow groundwater regime.

- **Operational water management:** Most contact water will be collected and managed by way of a perimeter collection ditch that captures the site area, diverting surface water away from the pits. Groundwater inflow into each pit is expected to be minimal (less than six gallons per minute (gpm) in each of MCN and MCS). Pit inflow will be managed by a system of in-pit sumps and will be pumped to the collection basins of the perimeter system. In-pit water management will be required principally during spring snowmelt and after periods of rainfall in the summer and autumn months. Water accumulated in collection basins will be used for dust suppression, with any excess amount expected to be infiltrated or treated as necessary to maintain water quality commitments. During operation, groundwater levels will be monitored by a system of vibrating-wire piezometers (VWP's) installed in pit walls and monitoring wells at the Project site. Monitored parameters will include water quality, drawdown influence, pore pressures for pit slope stability, and will support reconciliation of the hydrogeological model.

The geotechnical assessment and design criteria by Piteau (2021) also consider the modeled groundwater regime. During mining operations, it is anticipated that the outer 80 ft of exposed slope drains naturally due to blasting and excavation and that this quantity can be managed with in-pit sumps. The northeast walls of MCS may require approximately 33 ft to 50 ft of horizontal depressurization to achieve acceptable factors of safety. Depressurization may be achieved by drilling horizontal drain holes once mining has advanced below the groundwater table. The extent to which horizontal depressurization is required will need to be confirmed once mining has progressed beyond the elevation of the groundwater table.

Due to the overall low-flow groundwater regime, dedicated dewatering wells are not expected to be required.

13.1.4. MINE SEQUENCING

Both pits will be mined concurrently, with MCN completed first, approximately two years into the overall LOM. Completing extraction in MCN early in the LOM plan is an important Project objective and value driver as it:

- Enables hauling of waste rock from MCS directly into MCN, thereby keeping ex-pit haulage costs to a minimum.
- Facilitates short hauls in a truck-constrained period of the LOM plan.
- Serves as a long-term waste storage facility to minimize the size of ex-pit waste stockpiles (WRSAs) that would otherwise require rehandling to meet closure obligations.

Maintaining consistent, productive advance at MCS is critical to avoiding period-based cost overruns due to mine life extensions.

13.1.5. PROCESSING CONSIDERATIONS

Other than consideration of metallurgical recovery and processing cost in the planning model, no other processing considerations have been incorporated into the LOM plan. In future, the

LOM plan and stockpiling strategy can be adjusted to accommodate new processing objectives or address downstream challenges that could arise with reagent costs, metallurgical recovery at the Fort Knox mill, or downstream metallurgical accounting. The stockpiling strategy may be adjusted to separate different ores (e.g., segregating by pit or alteration type, binning by sulfur grade) and releasing a blended ore to be shipped to Fort Knox. To protect Project value, any adjustments will need to be carefully considered relative to the current stockpiling objective, i.e., prioritizing high-grade Fort Knox mill feed early in the life of the Project.

13.2. MINE CONFIGURATION

13.2.1. OPEN PIT OPTIMIZATION

The 2021 FS resource and planning models developed by KGMA were used as the basis for pit shell analysis. This analysis was performed using Hexagon MineSight Economic Planner (MSEP) software, which employs the Lerchs-Grossmann algorithm to determine optimized ultimate pit limits.

Key economic inputs are built into the net block cash flow estimates described in Section 12.3. Block cash flow estimates were used as the primary economic driver of pit shell analysis. Pit shell analysis only considered blocks with Measured or Indicated Mineral Resource classifications.

Mining costs were estimated from external quotes received in 2021 through a Request for Proposal (RFP) process for contract mining at Manh Choh. Quotes received include contractor overheads and other period-based costs. Updated mining costs were prepared in early 2023 and are not materially different from 2021 values.

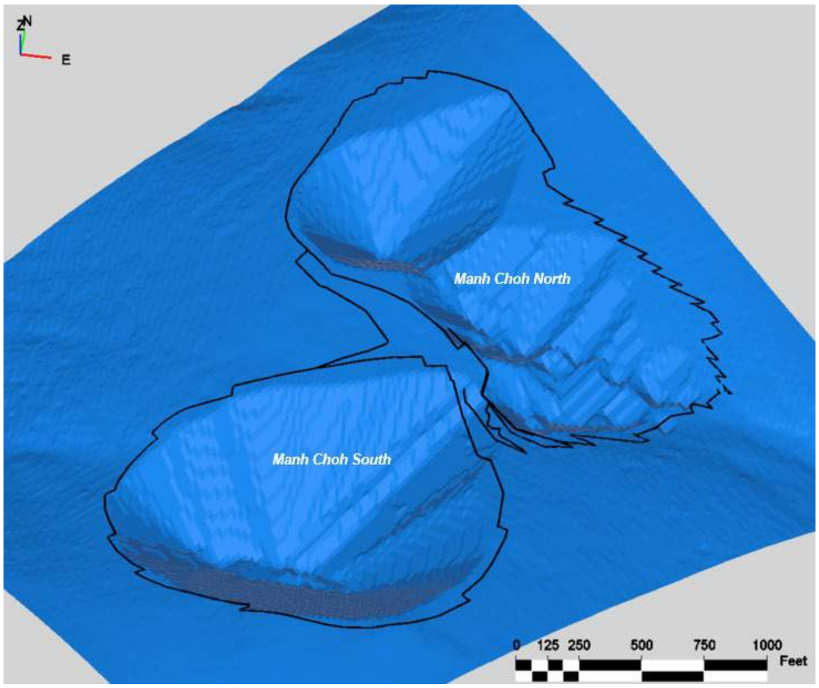
Pit slope inputs are derived based on the inter-ramp angles outlined in Table 13-4 and flattened to overall slope angles for walls where in-pit ramps are planned.

TABLE 13-4 PIT SHELL OPTIMIZATION INPUTS

Item	Unit	Value	Note
Commodity Prices	-	-	See Table 12-3
TC / RC / Royalties	-	-	See Table 12-3
Processing / G&A Costs	-	-	See Table 12-3
Metallurgical Recoveries	-	-	See Table 12-3
Mining Cost – Base	$/ton mined	4.52	Based on budgetary contractor quotes
Mining Cost – Rehandle	$/ton mined	1.69	Incr. only for PAG waste
Bench Discount Rate	%/year	10	
Yearly Vertical Advance	#/year	24	~12 blasted levels progressed per year
Overall Slope Angles	-	-	Table 13-3

A series of pit shells were generated based on varying gold price input factors in MSEP. Pit shells corresponding to Mineral Reserve prices of $1,300/oz Au and $17/oz Ag were selected as the basis for the ultimate pit designs. Outlines of the ultimate pit designs are presented in Figure 13-3 and corresponding pit shell inventories are presented in Table 13-5.

FIGURE 13-3 MINERAL RESERVE PIT SHELLS VS. DESIGN PIT OUTLINES



Source: KGMA, 2022a.

TABLE 13-5 MINERAL RESERVE PIT SHELL INVENTORY

Pit	Ore Tons (kt)	Au Grade (g/t–dil)	Ag Grade (g/t–dil)	Waste Tons (kt)	Total Tons (kt)	Strip Ratio
MCN	1,266	8.23	18.4	10,591	11,859	8.4
MCS	2,866	7.95	11.2	26,794	29,660	10.3
Total	4,132	8.04	13.4	37,385	41,517	10.0

The QP notes that there are portions of the detailed pit designs that vary significantly from the MCN and MCS pit limits suggested by the ultimate pit shell analysis. Overall, this is due to:

- The degree of accuracy that is possible when modeling complex pit slopes and transitions in a pit shell optimization as compared to completing detailed design.
- The pit shell optimization over-smooths the influence of in-pit ramps on overall slope angle.
- The narrower than minimum mining widths that result during pit shell optimization.
- The degree of accuracy that is possible when allowing the pit shell optimization to achieve the corner design for the northeast wall of MCS.

Several pit shell sensitivity scenarios were investigated, including sensitivity to metal price, mining cost, transport and processing cost, and slope angles. Generally, there is no material change to the ultimate pit limits for a range of the Base Case inputs. This is a result of the high grade, high margin nature of the in-situ mineralization.

Generally, as costs increase or metal prices decrease, the ultimate pit limits remain unaffected with corresponding ore and waste inventories changing by way of a changing the internal cut-off value. As pit slopes shallow, the pit shells tend to achieve the same pit bottom elevation and width, with more waste added to the pit walls.

Below a gold price of approximately $900/oz (or with a corresponding increase in costs), MCS becomes significantly smaller and shallower, while MCN becomes shallower at both the northwest and southeast pit bottoms. Above a gold price of approximately $2,000/oz (or with a corresponding decrease in costs), MCS expands slightly to the west, with minimal additions or depth extensions at either MCN or MCS pit bottoms.

MCN and MCS ultimate pit limits are based on the results of the pit shell optimization process previously described. There are no physical or regulatory limitations on where the ultimate pit limits are located, however, there is limited flexibility to expand the pits into areas designated as wetlands and minor concessions have been made to mitigate wetlands disturbance. To ensure pit slope and WRSA stability, permanent WRSA footprints were offset from design pit limits by 200 ft.

13.2.2. MINE DESIGN

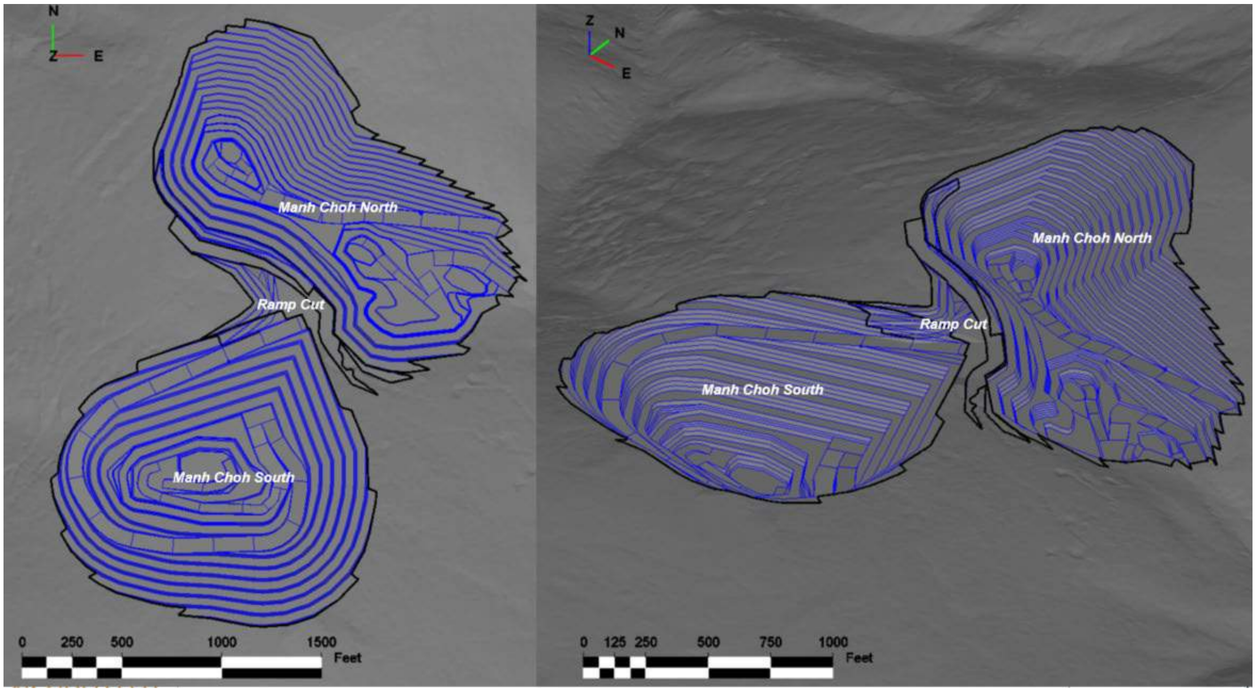
OPEN PITS

To accommodate a fleet of 100-ton class haul trucks, a 75 ft wide, double-lane ramp design was selected, with major ex-pit haul roads designed at a width of 80 ft. Both MCN and MCS pit designs incorporate 45 ft wide, single-lane ramps close to the pit bottom where ex-pit mining rates and haul truck traffic are expected to be reduced as mining progresses through narrow, high-grade zones. All in-pit ramps and ex-pit mine roads are designed at a maximum gradient of 10%. Pit designs ensure minimum mining widths in excess of 100 ft for most benches, with some pit bottom benches having 70 ft to 80 ft minimum widths in narrow ore zones. The final 10 ft to 20 ft high benches at the pit bottoms are shown without ramp access and retreat mining of the ramp will be carried out to maximize ore recovery.

As the MCN and MCS pit designs come within 100 ft of each other, a dedicated ramp cut has been designed to establish a wide inter-pit intersection that also acts as a major throughway from the northwest to the southeast of the mine site (Figure 13-4).

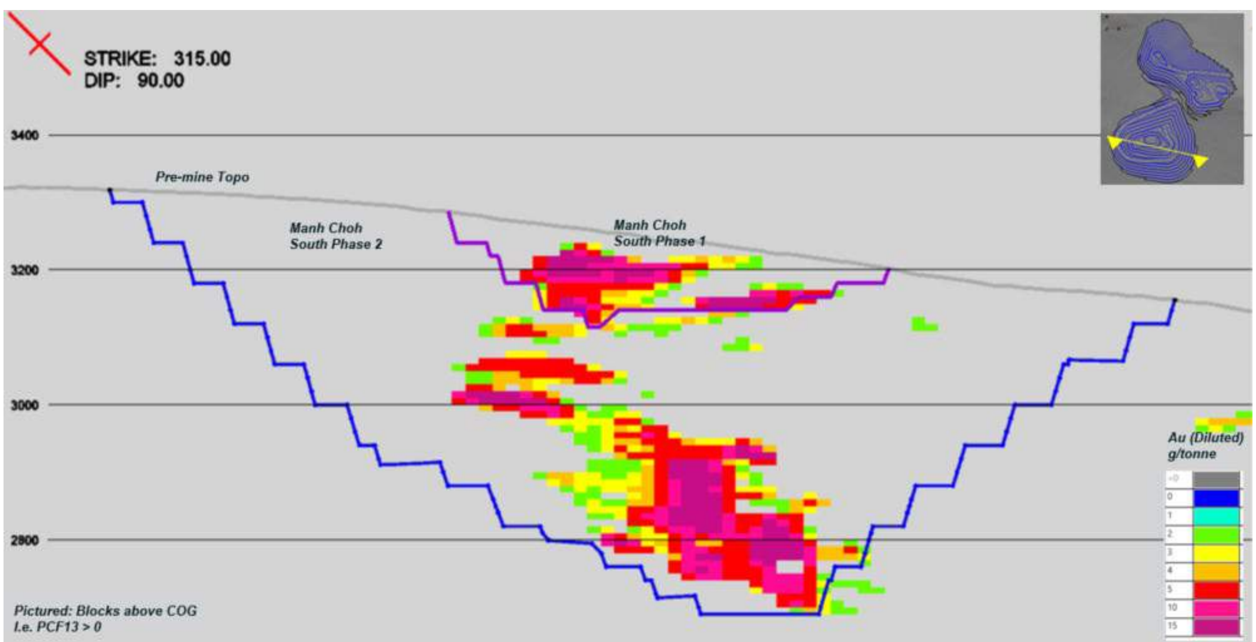
Figure 13-5 and Figure 13-6 show the MCS and MCN pit designs, respectively.

FIGURE 13-4 MANH CHOH PIT DESIGNS



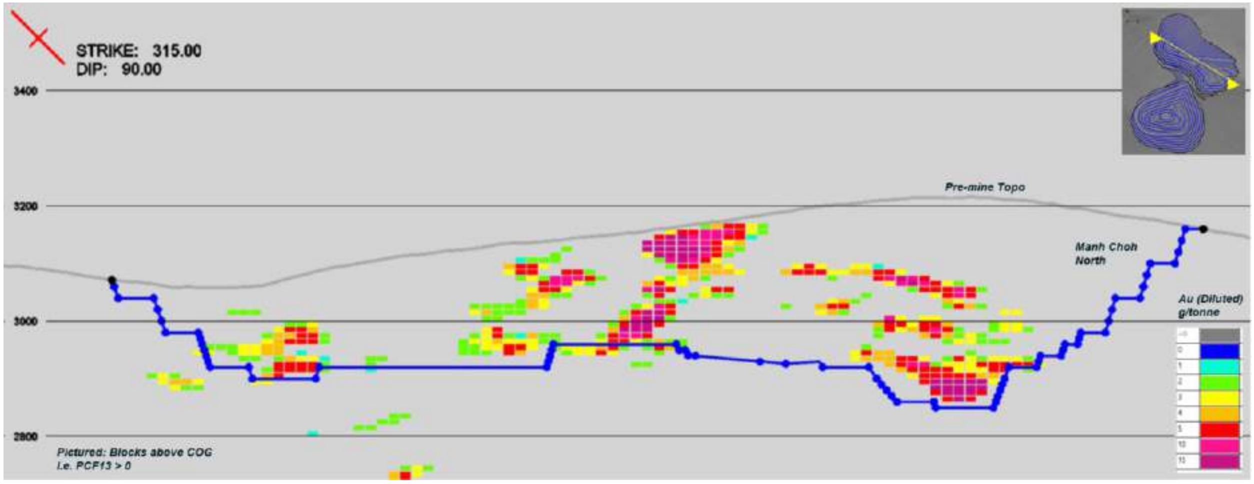
Source: KGMA, 2022a.

FIGURE 13-5 MCS DESIGN, PHASES 1 AND 2



Source: KGMA, 2022a.

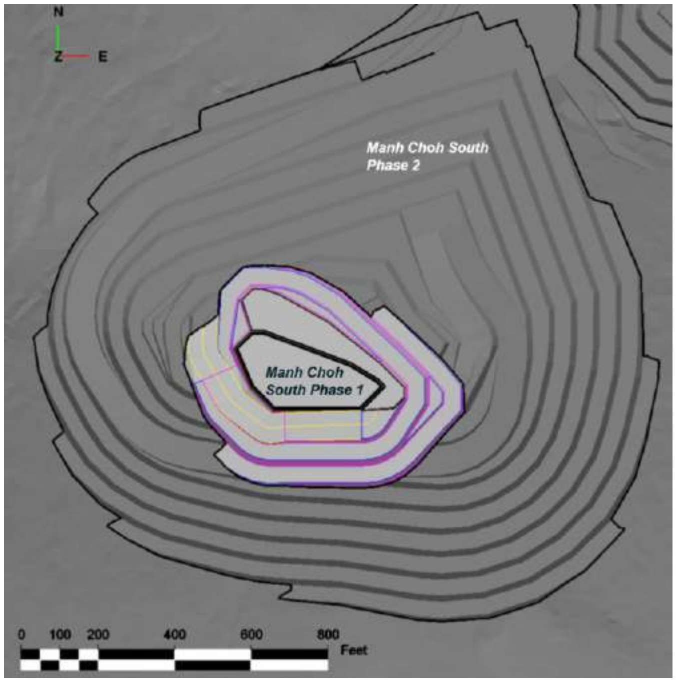
FIGURE 13-6 MCN DESIGN



Source: KGMA, 2022a.

The MCS phasing strategy was selected to ensure early availability of high-grade ore for transport to Fort Knox. The MCS Phase 1 starter pit (MCS P1) is not based on a nested pit shell but rather targets the shallower portion of high-grade mineralization at MCS, which is temporarily truncated by lower grades and waste below MCS P1. The purpose of the starter pit is to achieve an adequate ore stockpile inventory early in the mine life such that the ore transport contractor has sufficient high-grade material available during their ramp-up period. The upper benches of MCS Phase 2 (MCS P2) are mined in conjunction with MCS P1 as MCS P2 is an important source of clean waste rock (i.e., non-acid generating or non-metal leaching) for building stockpile footprints and mine infrastructure early in the mine life. The MCS pit phases are shown in Figure 13-7.

FIGURE 13-7 MCS PIT PHASES



Source: KGMA, 2022a.

MCN was not sub-divided into phases to eliminate the need for an independent ramp system in the northwest lobe of MCN. Once MCN is established to the saddle between both pit bottoms at 2,960 FASL, the mine sequence dives into the northwest pit bottom, to uncover higher grade ore and to create capacity for in-pit backfilling as early as possible.

SURFACE LAYOUT DESIGN

The Manh Choh mine site layout (Figure 13-8) is designed to achieve two principal objectives:

- Minimize wetlands disturbance.
- Work inwards from the surface water collection ditch system, which is designed to passively drain to collection points.

To the extent possible, WRSAs, waste stockpiles, and other surface infrastructure have been confined to uplands resulting in shorter hauls from the pit to key haulage destinations. Major on-surface infrastructure includes:

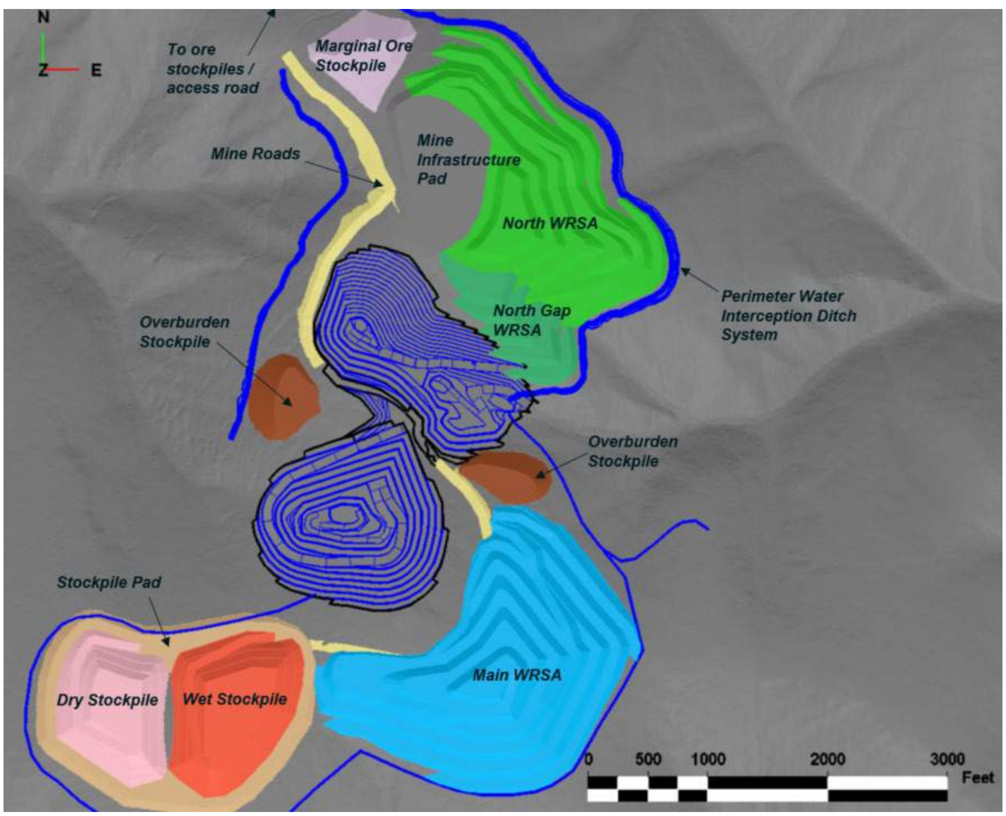
- The Main WRSA, southeast of MCS, for clean waste rock and low-sulfur, PAG rock (low-S PAG).
- The North WRSA, northeast of MCN, for clean waste rock and low-S PAG.
- The North Gap WRSA, between MCN and the North WRSA. This is an overflow facility for clean waste rock and low-S PAG once MCN has been backfilled to at least the pit rim.

- The Dry Stockpile, to receive waste material and potentially metal leaching rock (NAG-ML) for subsequent rehandle to the MCN Dry Backfill destination.
- The Wet Stockpile, to receive waste material and PAG rock for rehandle to the MCS Submerged Backfill destination.
- The Stockpile Pad, located underneath the Wet and Dry stockpiles, to receive clean waste rock for waste stockpile footprints.
- Two overburden stockpiles for low-permeability material used in closure objectives.
- The Marginal Ore Stockpile, to receive sub-economic material between resource and reserve planning prices ($1,600/oz and $1,300/oz Au, respectively).

Major mine infrastructure such as the truck shop, warehouse, truck park-up, and offices will be located on a mine infrastructure pad north of MCN and surrounded by the North WRSA.

Organic cover in the mine site area is limited in thickness and will be cut and pushed to the toe of the key disturbance areas uphill of surface water collection ditches.

FIGURE 13-8 MINE SITE LAYOUT



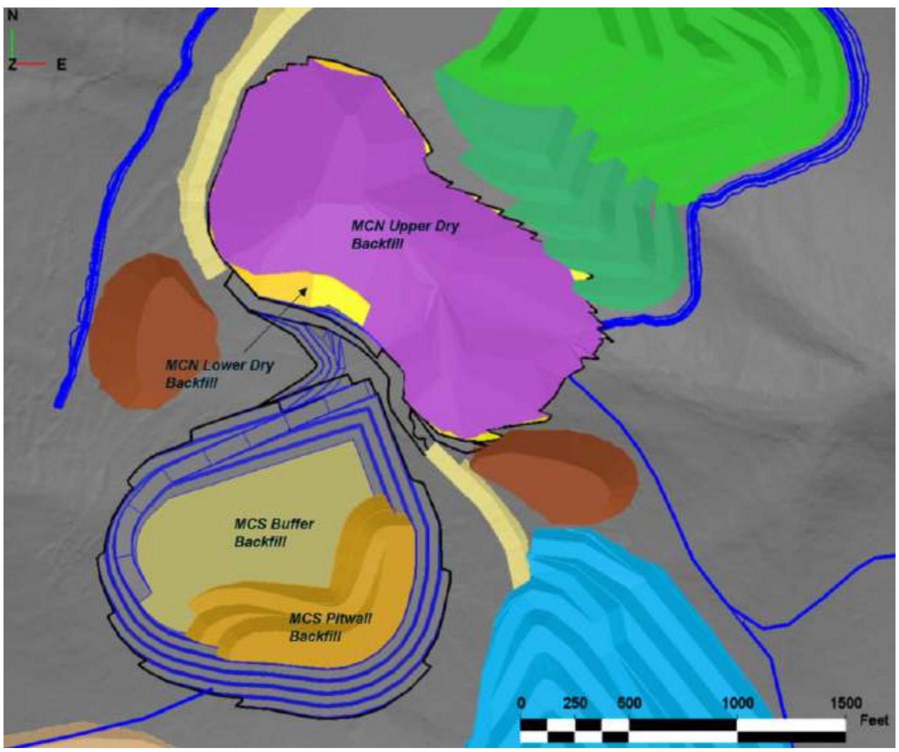
Source: KGMA, 2022a.

The ore stockpiles and load-out facility are located approximately 2,900 ft north of the mine site. The load-out location was selected to prevent mixing of highway truck and mine haul truck traffic and to avoid highway trucks having to traverse a final stretch of elevated topography.

In-pit backfilling in both pits is critical to the Project's waste management plan and achieving geochemical objectives in the Project closure plan. In-pit backfill areas include (Figure 13-9 to Figure 13-11):

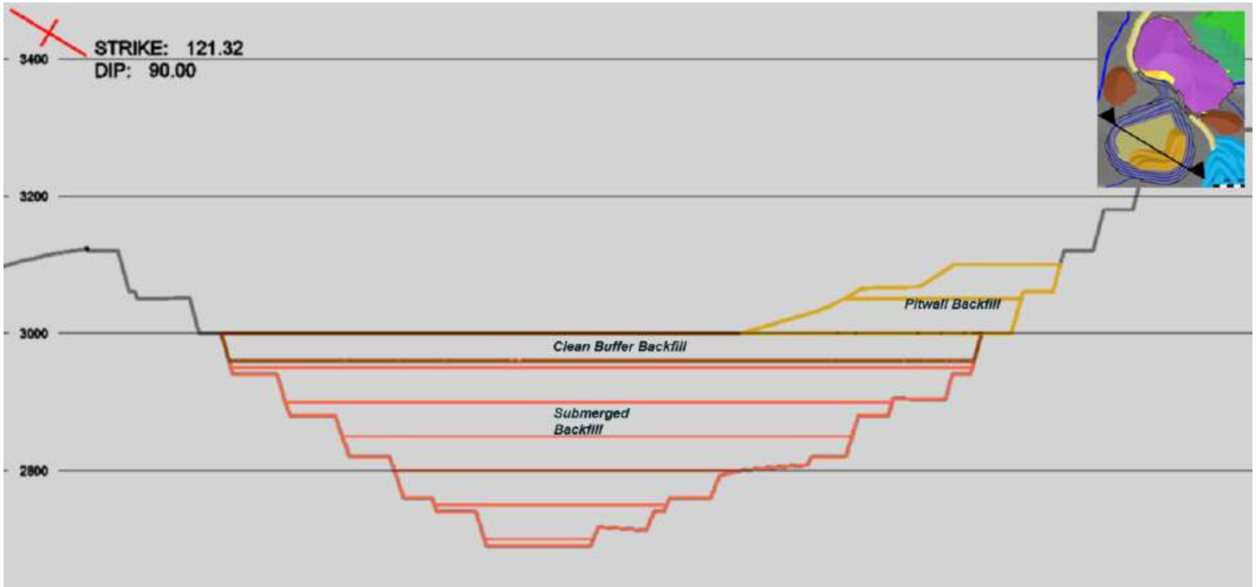
- MCN Submerged Backfill, to 2,950 FASL, comprising clean waste rock that does not influence long-term groundwater quality.
- MCN Lower Dry Backfill, to pre-mine topography, for dry disposal of NAG-ML and PAG waste rock.
- MCN Upper Dry Backfill, built above pre-mine topography to 3,310 FASL.
- MCS Submerged Backfill, to 2,960 FASL, comprising PAG waste rock to be submerged to prevent oxidation.
- MCS Clean Buffer Backfill, to 3,000 FASL, comprising clean waste rock to cover the expected seasonal fluctuations in groundwater levels at MCS.
- MCS Pitwall Backfill, built to 3,100 FASL, to cover the southeast pit wall where PAG may be exposed in the ultimate pit.

FIGURE 13-9 PLAN VIEW OF IN-PIT BACKFILL



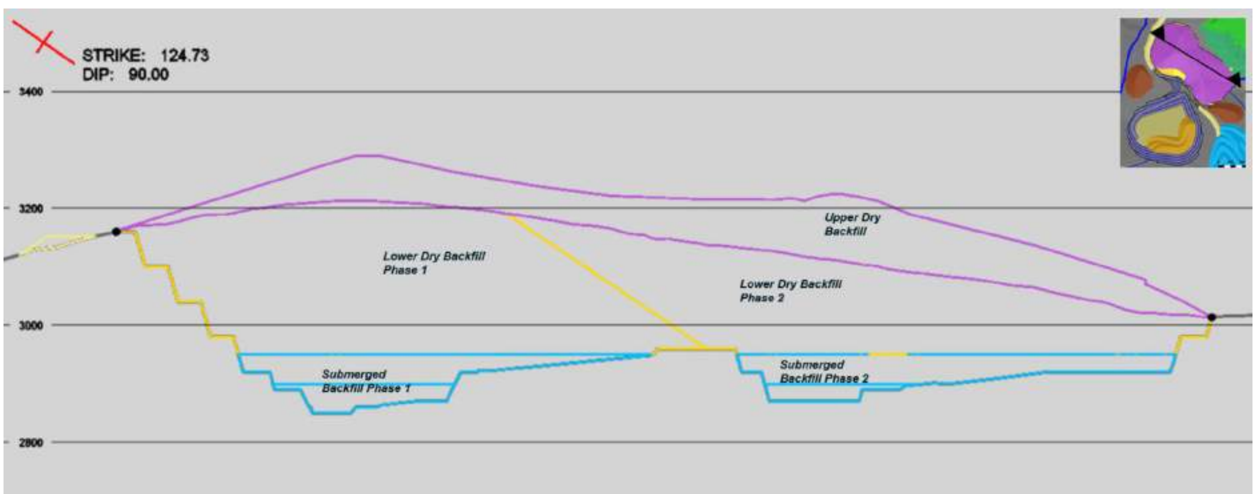
Source: KGMA, 2022a.

FIGURE 13-10 MCS IN-PIT BACKFILL



Source: KGMA, 2022a.

FIGURE 13-11 MCN IN-PIT BACKFILL



Source: KGMA, 2022a.

In support of closure activities, the mining fleet will:

- Rehandle materials in the Dry and Wet Stockpiles to designated dry and submerged in-pit locations.
- Rehandle materials in Stockpile Pad and Main WRSA to designated in-pit locations.
- Re-sloping of WRSAs to achieve 3:1 reclamation slopes.

- Rehandle overburden and low-permeability material to cover MCN Upper Dry Backfill areas.

13.3. DESIGN OF WASTE STORAGE FACILITIES

Generally, on-surface WRSAs have been sited near hilltops to minimize wetlands disturbance and to help ensure sub-surface stability. Respecting a minimum 200 ft offset, WRSAs are located close to the open pits to minimize overall haulage requirements and to fit within the outer perimeter system of water collection ditches. Site preparation will include removal of organics and loosely consolidated overburden in the WRSA footprints.

A geotechnical stability analysis was completed on the Project's WRSAs and confirmed a low risk of WRSA instability. WRSAs are designed with 3:1 side slopes for ease of final reclamation and are generally located on hilltops where adverse sub-surface conditions and movement are not expected. The WRSA slope design criteria are summarized in Table 13-6.

TABLE 13-6 WRSA SLOPE DESIGN CRITERIA

WRSA	Lift Height (ft)	Catch Bench Width (ft)	Lift Face Angle (°)	Overall Slope Angle (°)	Top Elevation (FASL)
Main WRSA	50	80	34	18	3,450
North WRSA	50	80	34	18	3,310

During the Project's operating phase, waste rock swell factors will be investigated to confirm WRSA designs and storage capacity. In the event that additional waste rock storage capacity is required, or MCN in-pit backfill capacity is not available as planned, sections of the Main WRSA may be constructed to greater than 3:1 slopes. When clean backfill is required at the end of the mine life, waste rock should be sourced from WRSAs with slopes steeper than 3:1 to achieve closure objectives.

Generally, dump lifts and tip heads have a minimum width of at least 100 ft. The WRSA construction sequence has been developed to minimize haulage requirements in all periods, identifying and exploiting the shortest hauls available from each pit source. Table 13-7 summarizes the waste balance for major WRSA and stockpile facilities.

Due to their temporary nature, the Dry, Wet, and Overburden Stockpiles are designed at the expected angle of repose for their corresponding materials (approximately 34°). The MCN Upper Dry Backfill area is designed without benches as dozers will slope this material to 3:1 during waste placement.

Condemnation drilling by Peak Gold at the proposed WRSA locations confirmed mineralization below these structures, however, mineralization grades and widths are not sufficient to support an economic case for extraction.

TABLE 13-7 WASTE BALANCE – MAJOR WRSA AND STOCKPILE FACILITIES

WRSA/Stockpile	Waste Types	Max. Operating Inventory (kt)	Inventory at Closure (kt)
Main WRSA	Clean, low-S PAG	14,230	13,097
North WRSA	Clean, low-S PAG	6,846	6,846
North Gap WRSA	Clean	922	922
Dry Stockpile	NAG-ML	6,023	0
Wet Stockpile	PAG	7,064	0
Stockpile Pad	Clean	2,455	0
Overburden Stockpiles	Overburden	990	0
Roads and Infrastructure	Clean	329	329
Marginal Ore Stockpile	*Ore*	778	0
MCN Submerged Backfill	Clean	1,020	1,020
MCN Lower Dry Backfill	Low-S PAG, NAG-ML	12,553	12,553
MCN Upper Dry Backfill	Low-S PAG, PAG, NAG-ML	4,429	4,429
MCS Submerged Backfill	PAG	5,953	5,953
MCS Clean Buffer Backfill	Clean	2,013	2,013
MCS Pitwall Backfill	Clean	1,575	1,575

13.4. ORE INVENTORY

Table 13-8 summarizes the ore inventory for the Project's LOM plan.

TABLE 13-8 ORE INVENTORY

Item	Unit	Manh Choh South		Manh Choh North	Ramp Cut	Total
		Phase 1	Phase 2			
Ore	000 t	489	2,215	1,231		3,935
Au Grade (dil)	g/t	8.56	7.71	7.91	-	7.88
Ag Grade (dil)	g/t	12.4	11.2	18.4	-	13.6
Cont. Au	000 oz	135	549	313	-	997
Cont. Ag	000 oz	195	796	727	-	1,718
Waste	000 t	1,178	29,727	14,335	561	45,801
Total Mined	000 t	1,667	31,942	15,566	561	49,736
Strip Ratio	-	2.41	13.42	11.64	-	11.64

Notes:
1. Ore inventory excludes Inferred Resources.
2. Totals may not sum due to rounding.

13.5. MINE PRODUCTION SEQUENCE AND SCHEDULES

Mining aspects of the FS LOM plan were optimized using Hexagon's suite of planning software, including MineSight Haulage (MSHaulage) and MinePlan Schedule Optimizer (MPSO).

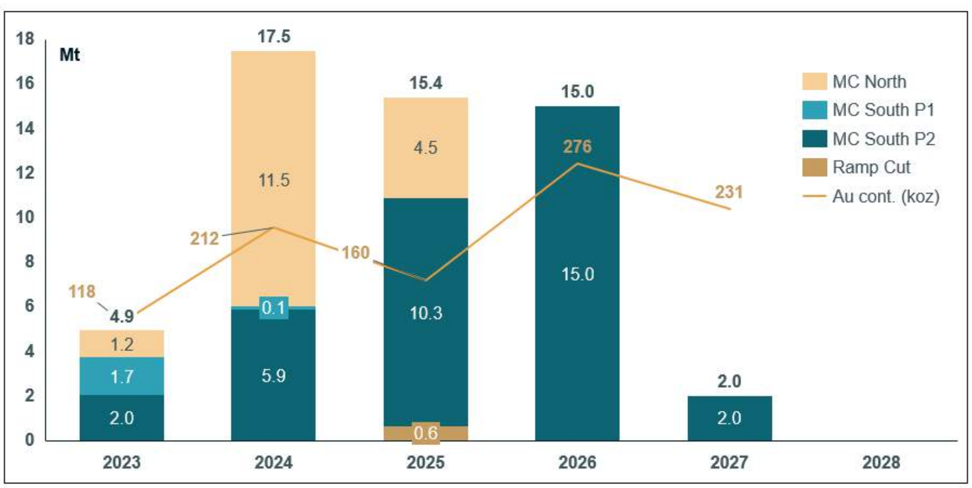
Based on the FS, mining activities at the Project are projected to commence in July 2023 with the start of the pre-production period. Priorities for material movement during the pre-production phase are:

- Stripping organics and overburden.
- Mining MCS P1 to build high-grade ore stockpiles ahead of ore transport ramp-up.
- Mining MCS P2 and MCN to expedite sinking of the large pits and to source clean waste rock for construction priorities.
- Building mine roads and the Stockpile Pad using clean waste rock.
- Stockpiling any PAG, NAG-ML, or marginal ore encountered during extraction activities.

The pre-production period lasts until first transport of ore to Fort Knox, in January 2024, at which time the production period begins. Capital stripping for each pit is not defined by this time period, rather, it is defined by the 5/4ths rule where waste is capitalized initially in the mining sequence if the bench strip ratio exceeds 5/4ths of the overall pit strip ratio.

MCN mining is completed in August 2025 and corresponding in-pit backfill capacity becomes available for receiving waste from mining the remainder of MCS P2. Mining of MCS P2 is on the critical path to completion of the overall mining sequence, with expected completion in July 2027, four years after mining begins (Figure 13-12).

FIGURE 13-12 ANNUAL MINING RATE BY PHASE



Source: KGMA, 2022a.

Overall, the ex-pit mining rate fluctuates between 15 Mtpa and 17 Mtpa (Figure 13-13), with peak ex-pit production expected in 2024 when in-pit hauls are short and mining is occurring in both pits simultaneously. While the ore delivery rate to Fort Knox is set at a steady-state 1.1 Mtpa (3,000 stpd), the ex-pit ore mining rate fluctuates between 0.8 Mtpa and 1.3 Mtpa depending on the mining sequence. Ex-pit ore mining will be complete in Q3 2027 with shipping of the remaining ore stockpiles expected to continue through Q1 2028 (Figure 13-14).

FIGURE 13-13 QUARTERLY ORE AND WASTE MINING RATES

Source: KGMA, 2022a.

FIGURE 13-14 ANNUAL ORE STOCKPILE MOVEMENT

Source: KGMA, 2022a.

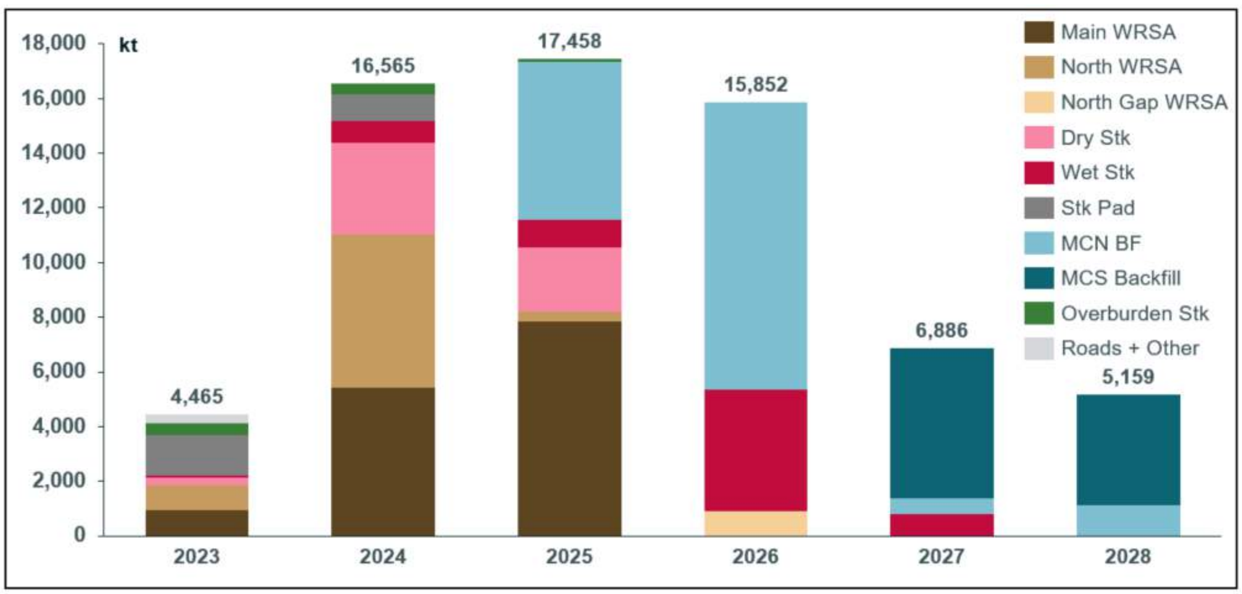
Managing the sequence and use of major waste destinations will be critical to mitigate stockpiling, rehandling, and long-haul requirements for the haulage fleet. The general sequence for major WRSAs and waste destinations is summarized in Figure 13-15 and further described as follows:

- **Pre-production:** Clean waste is sent to the Stockpile Pad footprint and mine roads along with other miscellaneous construction priorities. Low-sulfur PAG material is sent to either the North or Main WRSA, while any PAG or NAG-ML waste is placed in the appropriate waste stockpile.
- **Production – Q1 2024 to Q3 2025 (MCN northwest pit bottom achieved):** Clean waste and low-sulfur PAG is sent to either the North or Main WRSA, prioritized by

shortest haul route from either pit to the active dump lift. Any PAG or NAG-ML encountered is still placed in the appropriate waste stockpile. The North WRSA (excluding the North Gap WRSA) is expected to be complete in this time period.

- **Production – Q3 2025 to Q3 2027 (MCS complete):** Once the MCN northwest pit bottom has been extracted and placement of clean waste has been completed in the Lower Submerged Backfill area, low-sulfur PAG and NAG-ML extracted from the pit are diverted directly to the MCN Dry Backfill location. In this period, no material is added to the Dry Stockpile and a gradual rehandling of the Dry Stockpile into the MCN Dry Backfill location occurs. Any PAG material encountered is placed in the Wet Stockpile. Clean waste will continue to be sent to the Main WRSA until the facility reaches its capacity and any remaining clean waste encountered in the LOM plan will be diverted to the MCN Dry Backfill location.
- **Production / End of Mining / Active Closure Q3 2027+:** When all ex-pit mining is complete, PAG material from the Wet Stockpile is rehandled to the MCS Submerged Backfill location, followed by rehandling of clean waste from the Stockpile Pad or Main WRSA to construct the MCS Buffer Backfill and Pitwall Backfill facilities. If the final elevation of the MCS Submerged Backfill facility is achieved before the Wet Stockpile is completely rehandled, excess PAG will be rehandled to the MCN Dry Backfill facility. During closure, the main rehandling activities into MCS backfill facilities are expected to extend to Q2 2028.

FIGURE 13-15 ANNUAL WASTE MOVEMENT BY DESTINATION (REHANDLE INCLUDED)



Source: KGMA, 2022a.

13.6. MINE EQUIPMENT AND FACILITIES

13.6.1. MINE EQUIPMENT – LOADING AND HAULING

The current mine plan considers a haulage fleet of 100-ton class trucks (e.g., CAT 777 or equivalent). The number of haul units fluctuates over the course of the LOM plan, with fewer units required when haul distances are shorter and during rehandle activities for reclamation.

The LOM plan includes four principal loading units. Ore loading will be performed primarily by two small excavators with 8 yd^3 to 9 yd^3 buckets (e.g., CAT 6015-B or equivalent). These units are sized to execute the selective mining required by the ore control program (two to three bucket widths span the desired SMU and they are able to set-up on 10 ft flitches). Waste loading will be performed primarily by one large face shovel (approximately 22 yd^3 bucket, CAT 6030 or equivalent) and one large front-end loader (approximately 15 yd^3 bucket, CAT 992 or equivalent). The aforementioned units have acceptable pass matching for loading 100-ton class (CAT 777) trucks:

- CAT 6015-B: six to seven passes
- CAT 6030: three to four passes
- CAT 992: four to five passes

The LOM plan was informed by wireframes in each pit that delineate internal ore zones and external waste zones, plus a 50 ft buffer. The buffer zones were scheduled to simulate ore mining equipment working across the ore/waste boundary to cleanly separate ore and waste, minimizing dilution. The LOM plan assumes only small excavators will selectively mine ore zones, i.e., LOM plan ore production rates account for consistent, selective mining in ore. Conversely, small excavators are not deployed for any waste stockpile rehandle during reclamation.

As the Project life is approximately 4.6 years, no provision has been made for major mining equipment rebuilds or replacements. Due to the climate at the Project site, all major mining equipment will be outfitted with arctic climate or cold weather packages.

Key mining equipment performance metrics are based on both internal and external benchmarks for similar equipment, are unchanged in all LOM plan time periods, and are used as a measure of maximum productive hours to drive the LOM plan (Table 13-9 and Table 13-10). Over the LOM plan, equipment utilization fluctuates below the maximum/target level when the maximum sinking rate is reached, when there is a lack of rehandle material available for all loader types, or there is a loading or haulage constraint in a given time period.

TABLE 13-9 KEY PERFORMANCE METRICS – LOAD AND HAUL

Unit	Peak Units	Productivity (tph)	Availability	Max. Utilization
CAT 777	10	280	85%	80%
CAT 6015-B	2	550	85%	80%
CAT 6030	1	1500	85%	80%
CAT 992	1	1000	85%	80%

13.6.2. MINE EQUIPMENT – DRILLING AND BLASTING

The LOM plan will require both rotary production drills and top-hammer pre-split drills. Both drill types will be capable of drilling 4 in. to 6¾ in. blastholes on a single-pass, 20-ft bench height. Benches in ore will be drilled and blasted at 20-ft heights and mined on 10-ft high flitches. Benches in waste will be blasted at 40-ft heights, followed by mining the full 40-ft face using the large face shovels with dozer support.

The overall blast design strategy targets a blasted P_{80} of 14 in. to 16 in. Fragmentation and oversize control will be of utmost importance given the ore transported to Fort Knox will be uncrushed, run-of-mine. Blast designs were informed by a fragmentation assessment by Orica USA Inc. A nominal 12.5 ft x 14.4 ft pattern with 3 ft of sub-drill was selected for most ore and waste shots, with a wider pattern of 15.1 ft x 17.4 ft selected for oxide waste materials. Penetration rates for both drill types are based on internal and external benchmarks and are variable based on rock alteration. Ore penetration rates have been de-rated to allow for blasthole sampling at 10-ft intervals on 20-ft blastholes. The LOM plan assumes all in-pit material requires blasting.

13.6.3. MINE EQUIPMENT – ANCILLARY EQUIPMENT

Major support equipment required to achieve the LOM plan is summarized in Table 13-12.

TABLE 13-10 ANCILLARY EQUIPMENT LIST

Unit	Representative Model	Units Required
Dozer – production support	CAT D9	4
Dozer – miscellaneous support	CAT D6	1
Mine Grader	CAT 16M	1
Small Graders – site services	CAT 14M	2
Rubber-tire Dozer – miscellaneous support	CAT 834 RTD	1
Small Excavator – miscellaneous support	CAT 320	1
Mine Water Truck	CAT 740 Custom Box	1
Tire Handler	L220H	1
Light Duty Trucks		4
Light Plants		12
Utility Truck w/ Boom Crane		1
Haul Road Gravel Spreader		1
Stemming Loader		1
Crew Busses		3
Mechanic's Trucks		1
Welder's Trucks		1
Explosives Trucks		1
Small Water Trucks		1
Forklift		1

An additional front-end loader (CAT 966, CAT 988, or equivalent) will be dedicated to operating in ore stockpiles to load third-party highway trucks that will transport ore to Fort Knox.

13.7. MINE LABOR REQUIREMENTS

Generally, the Project's labor strategy will include both shared responsibilities with existing Fort Knox roles and dedicated Manh Choh labor on rotational schedules. The mine's organizational structure will not feature a dedicated Mine Manager, with the top site-based operational roles (Mine Superintendent, Mine General Foreman) reporting to the Fort Knox Mine Manager.

Similarly, the Technical Services team will not feature a dedicated Chief Engineer or Technical Services Manager, with both roles combining with existing Fort Knox-based equivalents. The on-site Technical Services team will be responsible for short-range mine planning, geotechnical monitoring, field geology and ore control, environmental monitoring, and site survey. Mid and long-range mine planning, resource modeling, and other technical functions will be performed by the Fort Knox Technical Services team.

Dedicated Manh Choh labor requirements are summarized in Table 13-13.

At the time of report preparation, additional contracted service opportunities were being investigated and are considered viable for the Project (e.g., full contract mining or sub-components such as at-the-hole explosives delivery or drilling and blasting). Should the Project owners decide to adopt additional contracted services as part of the Project's operating model, the Project's labor and management structure will be adjusted. In any contract or hybrid operating structure, the key technical and operating functions will report to KGMA, the operator and manager of the Project.

TABLE 13-11 MANH CHOH LABOR REQUIREMENTS

Role	Rotation	Empl. Per Role	Number of Roles 2023	2024	2025	2026	2027	2028
Mine Maintenance								
Mine Maintenance. Superintendent	4x3 Day Shift	1	1	1	1	1	1	0.5
Sr. Maintenance General Foreman	2/2 Day Shift	2	1	1	1	1	1	0.5
Maintenance Supervisor	2/2 Day + Night	4	1	1	1	1	1	0.5
Maintenance Trainer	2/2 Day Shift	2	1	1	1	1	1	0.5
Sr. Maintenance Planner	2/2 Day Shift	2	1	1	1	1	1	0.5
Tire Technician	2/x Day + Night	4	1	1	1	1	1	0.5
Welder	2/x Day + Night	4	2	2	2	2	2	1
Mobile Mechanic	2/x Day + Night	4	4	4	8	8	8	6
Facilities Maintenance	2/2 Day Shift	2	1	1	1	1	1	0.5
Fuel + Lube Mechanic	2/2 Day + Night	4	1	1	1	1	1	0.5
General Laborer	2/2 Day + Night	4	1	1	1	1	1	0.5
Mine Operations								
Mine Superintendent	4x3 Day Shift	1	1	1	1	1	1	0.5
Mine General Foreman	2/2 Day Shift	2	1	1	1	1	1	0.5
Sr. Mine Supervisor	2/2 Day Shift	2	1	1	1	1	1	0.5
Mine Supervisor	2/2 Day + Night	4	1	1	1	1	1	0.5
D&B Supervisor	2/2 Day Shift	2	1	1	1	1	1	0
Blaster	2/2 Day Shift	2	1.5	3	3	3	1.5	0
Dewatering Technician	2/2 Day Shift	2	0.5	2	2	2	2	1
Dispatch Operator	2/2 Day + Night	4	1	1	1	1	1	0.5
Dispatch Technician	2/2 Day + Night	4	0.5	1	1	1	1	0.5
Drill Technician	2/2 Day Shift	2	1	1	1	1	0.5	0
Drill Operator	2/2 Day + Night	4	2	4	4	4	2	0
Mine Trainer	2/2 Day Shift	2	0.5	1	1	1	1	0.5
Loader Operator	2/2 Day + Night	4	2	4	4	4	4	2
Truck Operator	2/2 Day + Night	4	3	9	11	11	9	3
Dozer Operator	2/2 Day + Night	4	3	6	6	6	6	3
Grader Operator	2/2 Day + Night	4	1	2	2	2	2	1
Utility Operator	2/2 Day + Night	4	1	2	2	2	2	1
Technical Services								
Geology Technician	7x7 Day Shift	2	1	2	2	2	2	1

Role	Rotation	Empl. Per Role	Number of Roles					
			2023	2024	2025	2026	2027	2028
Mine Engineer	7x7 Day Shift	2	1	2	2	2	2	1
Mine Geologist	7x7 Day Shift	2	1	2	2	2	2	1
Senior Engineer	7x7 Day Shift	2	0.5	1	1	1	1	0.5
Surveyor	7x7 Day Shift	2	1	2	2	2	2	1

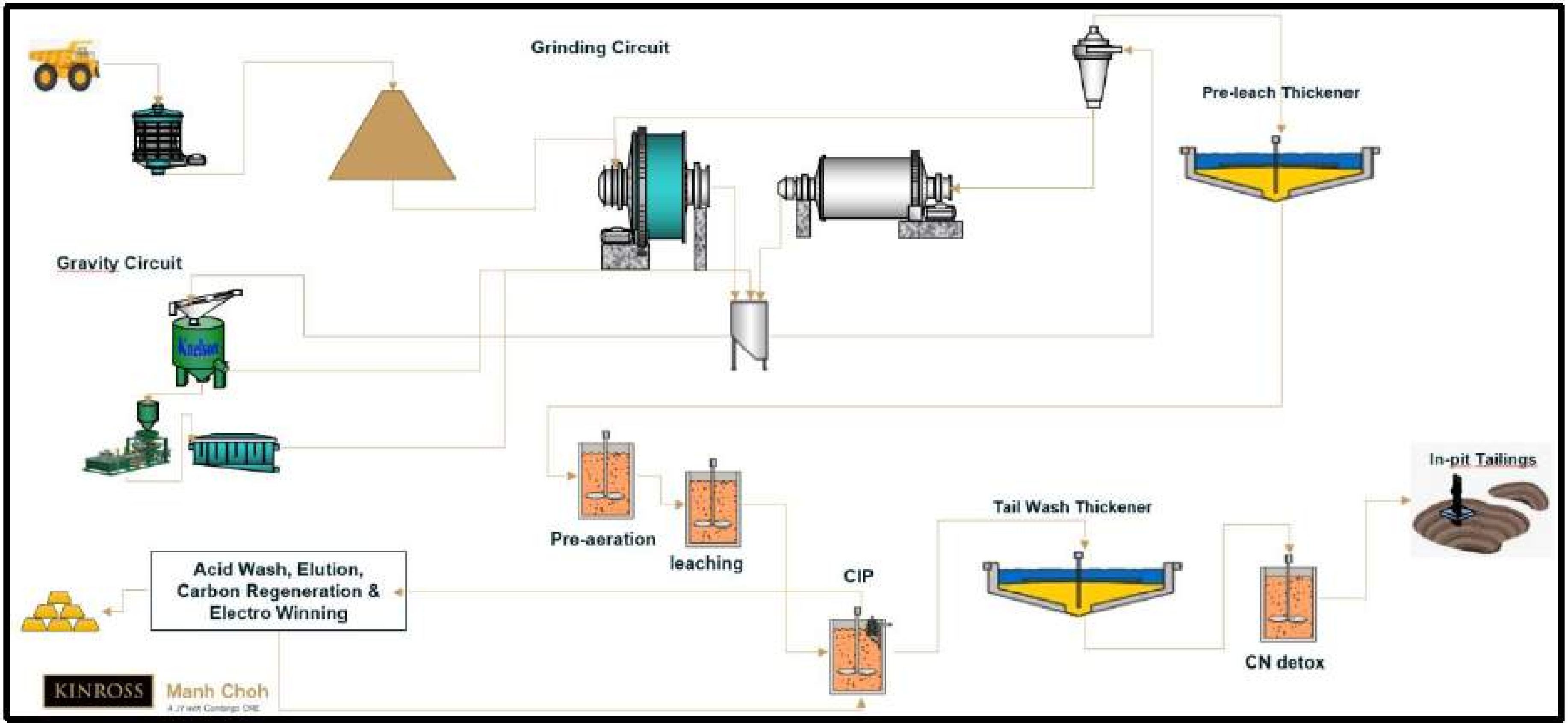
14. PROCESSING AND RECOVERY METHODS

14.1. FACILITY DESCRIPTION

The Fort Knox process plant was designed to process ore 24 hours per day, 365 days per year at a nominal capacity of 36,000 stpd. The current design feed rate for the Manh Choh ore will be approximately one-third of the design capacity and modifications to certain areas of the process plant will be required.

The existing Fort Knox processing facility will be modified to process Manh Choh ore on a campaign or batch basis (the Mill Modification). Ore campaigns or batches will be approximately 240,000 st, equivalent to approximately 30 days of processing. Figure 14-1 presents a simplified block flow diagram of the modified process.

FIGURE 14-1 SIMPLIFIED BLOCK FLOW DIAGRAM OF MODIFIED PROCESS



14.1.1. ORE HANDLING AND LEACH/CIP CIRCUITS

ROM ore will be trucked from the Manh Choh mine site to the Fort Knox processing facility. Ore will be transported to site using highway trucks which will side dump onto a coarse ore stockpile. Ore will be reclaimed by a front-end loader (FEL) from the coarse ore stockpile and transported to the gyratory crusher via Fort Knox mine haul trucks.

The crushing circuit is designed to crush approximately 26.6 million stpa of Fort Knox ore, however, the Manh Choh ore will be crushed on a batch or campaign basis four times a year. Crushed ore will be conveyed to a crushed ore stockpile with a live capacity of 20,000 st and drawn from the crushed ore stockpile using variable speed apron feeders feeding the SAG mill feed conveyor.

Hydrated lime and cement are added onto the conveyor belt that feeds the SAG mill to regulate the pH in the cyanide leaching circuit and improve metallurgical performance. A new 100 st cement silo will be required for this.

The SAG mill product will discharge onto a wet vibrating screen where the undersize will flow into a common mill sump along with the ball mill product. The screen oversize will report to the pebble crusher to further reduce the critical size material which will then be recycled back to the feed end of the SAG mill.

SAG mill discharge screen undersize and ball mill discharge will return to a common sump where it will be pumped to a set of hydrocyclones. Ball mill No. 2 will operate in closed circuit with the hydrocyclones. Cyclone underflow will be split between the SAG mill feed chute and the ball mill feed chute. Cyclone underflow discharge to the SAG feed chute will require the reconnection of a pre-existing line that was previously disconnected.

The portion of the SAG and ball mill discharge streams that is drawn from the common sump using the existing pump and line will feed the gravity gold recovery circuit, which incorporates a scalping screen where the undersize material feeds a Knelson concentrator. Gravity concentrator tails will be returned to the mill sump along with screen oversize material. Gravity concentrate will be periodically dumped from the concentrator and will report to the intensive cyanidation unit (Acacia Reactor). Leached pregnant solution will then be pumped to the dedicated Acacia electrowinning cells for gold recovery while the tails as mentioned will be returned to the grinding circuit (ball mill sump).

To achieve the required cut size of 80% passing 75 microns the existing 26 in. cyclones will need to be replaced with new 20 in. cyclones. The existing cyclone tub, feed distributor, cyclone feed pump and feed line will not be replaced or modified as the current arrangement, mechanical equipment, and piping has been found to be adequate. Smaller nozzles sizes will be required for the cyclone feed end to avoid replacing the existing knife gate valves.

The cyclone overflow will flow to trash screens to remove grit and wood chips. Screen underflow will report to the pre-leach thickener where flocculant is added to aid in the settling process. Thickener underflow will be pumped to the leach circuit. Due to the reduction in flow, a new thickener underflow pump and line to the grit feed distributor box will be required. In addition, a new line from the thickener feed box and a line to the grit screen distribution box will also be required.

The exiting 24 in. lines will be replaced with new 14 in. lines to maintain the appropriate velocity within the pipe to eliminate any chance of solids settling in the line. Due to the reduced flow rates, it was found that only two leach tanks will be required to provide adequate retention time. However due to the higher-grade material and to maintain the gold absorption kinetics, all six CIP tanks will be required to maximize the absorption of the gold onto the activated carbon. Discharge from the pre-leach thickener along with cyanide addition will be sent to the drop box located within leach tank No.1, however, due to the lower retention time required for Manh Choh ore, a new 14 in. line will be installed to permit some leach tanks to be by-passed and slurry sent directly to leach tanks No. 6 and No. 7.

The slurry from leach tank No. 7 will flow by gravity and split into two streams feeding both CIP tank No. 1 and CIP tank No. 2 simultaneously, thus operating the top end of the circuit in parallel. CIP tank No. 1 will also be able to feed CIP tank No. 2, allowing the tanks to run in series if required. Discharge from both tanks will join and feed CIP tank No. 3, which will cascade downward to feed the rest of the CIP tanks in series. Carbon will be withdrawn from both CIP tanks No. 1 and 2 to feed two new loaded carbon dewatering screens. Fresh and regenerated carbon will still be fed into CIP tank No. 6 as per the current method of operation. Carbon in each tank is transferred counter-currently to the slurry flow until the carbon reaches its maximum gold loading, then it is pumped to the gold elution circuit. Return slurry from the loaded carbon screen underflow will also be split between CIP tanks No.1 and No.2.

Tails from the CIP circuit will then flow by gravity to the tailings thickener which will then pump the slurry to the carbon safety screens to minimize the possibility of loaded carbon exiting the circuit. To improve thickener efficiency a new feedwell will be required. To enhance mixing of the slurry within the feedwell an auto dilution system has been recommended but is not part of the modification to the thickener. A new thickener underflow pump will be required along with a new 12-inch line that will discharge to Safety Screen Distributor.

14.1.2. ELUTION CIRCUIT

The elution circuit is operated on the principle of the Zadra process using two stripping vessels simultaneously. The gold is stripped from carbon using hot, caustic-cyanide solution, which is then sent to the electrowinning cells to precipitate the gold onto the electrowinning cells' cathodes. The sludge from the cathodes is filtered, dried in a securely monitored oven, and melted down to produce doré bars. After stripping, carbon is acid washed or sent to be reactivated in a kiln before returning to the CIP circuit.

Manh Choh ore is approximately 10 times richer in gold content than the Fort Knox ore that is currently being processed. Due to its higher gold content, the ore will require additional carbon to maintain low solution losses. Total carbon transfer from CIP tanks No.1 and No. 2 will total approximately 38 stpd. The slurry and carbon from CIP tanks No.1 and 2 will be sent to two new loaded carbon dewatering screens to wash the pulp off the carbon. As previously mentioned, the screen underflow slurry will be sent back to the head of CIP No.1 and No.2

tanks while the screen oversize (carbon) will be sent to both an existing and new loaded carbon holding tank which will also require a new pump. The new loaded carbon holding tank will have a capacity to hold 12 st of carbon. When the elution columns are ready to be filled, the loaded carbon will be transferred to the elution columns and the stripping cycle will begin.

Currently, the carbon stripping circuit is comprised of two stripping vessels, of which only one operates at any given time, processing the loaded carbon from the CIP and carbon in column (CIC) circuits. While one stripping vessel operates, the other is being filled with loaded carbon and vice versa. The stripping temperature is approximately 270˚F. The stripping vessel is heated to the desired temperature using barren solution from the electrowinning circuit as eluate. The eluate is heated to the target temperature using a 300 HP, 10 million BTU/h, oil-fired heater.

When Manh Choh ore is being processed, to avoid excess accumulation of carbon, two stripping vessels must be used simultaneously. This means that the current heater must be able to provide enough energy to heat both stripping vessels to perform the required number of strips per day. To achieve the required temperature with two elution columns running simultaneously, a new boiler with two additional heat exchangers will be required. As such, each column will have its own dedicated boiler and heat exchangers. Modifications to the elution circuit include a new boiler with two pumps, a new hot water and surge tank with two new pumps, and two new plate and frame heat exchangers. Additional piping to existing lines will also be required to connect to the new heat exchangers and boiler/hot water surge tank.

14.1.3. CYANIDE DESTRUCTION

The cyanide destruction circuit (Figure 14-2) will consist of two tanks located between leach tank No. 6 (23-TK-006) and CIP tank No. 2 (23-TK-010) to treat cyanide tailings generated form the Manh Choh ore. The cyanide destruction circuit will use the SO_2/air process where SO_2 will be generated using sodium metabisulfite (SMBS) and copper sulfate as a catalyst to oxidize and thereby reduce weak acid dissociable cyanide (CN_{WAD}) in the CIP plant tailings stream.

Discharge from the last CIP tank will flow by gravity into the tailings thickener feed box along with the addition of process water from the reclaim water pond to reduce the feed density to the thickener from the CIP tank from 55% wt solids to a lower density. The thickener underflow will then be pumped to the carbon safety screen distributor box which feeds the carbon safety screens. To improve water recovery, overflow clarity and underflow densities, a new feedwell will be installed. It was also recommended to install an auto dilution system to ensure proper mixing of the flocculent with the slurry.

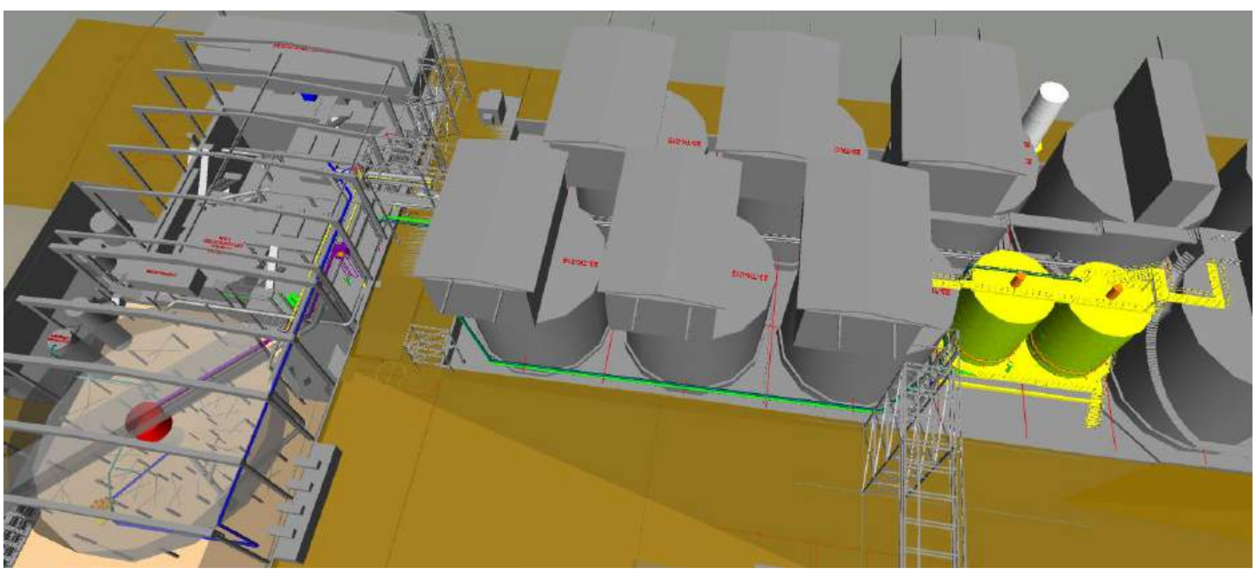
Due to the reduced flow rate, a new thickener underflow pump will be required along with a new smaller 12 in. line. This will run from the thickener underflow cone to the safety screen distribution box. The screen undersize will feed into existing cyanide detox distributor box which will flow into detox tank feed pump box when processing Manh Choh ore. The detox tank feed pump will then pump the slurry to the detox tanks. Slurry will be pumped to the top of the tanks. The tanks will have the flexibility of operating either in series or in parallel with a bypass if required. SMBS and lime will be added to either one of the tanks or both if required. Water injection lines will be tied into the detox tank discharge line and introduced at the suction and discharge of the pump to ensure the line does not sand out. The discharge for the second tank will flow back to the tailings discharge pump box.

The cyanide content of the incoming slurry is expected to be approximately 500 ppm of CN_{WAD}. Cyanide destruction will be performed in the two tanks, using SMBS to generate sulfur dioxide, copper sulfate, and lime. The tanks will be sparged with air. Copper sulfate solution will be added as a catalyst for the reaction. The CN_{WAD} concentration in the CN detox tailings is expected to be approximately 7 ppm. The acid formed during the cyanide destruction reaction will be neutralized with hydrated lime to maintain the pH in the desired range. Three new reagent pumps will be installed for the SMBS and two new reagent pumps for the copper sulfate 25-PP-704/705 along with a new mix tank and a holding tank for the copper sulfate. Copper sulfate is mixed to a density of 15% wt/wt while the SMBS is mixed to a density of 39% wt/vol.

The hydrated lime system mixes hydrated lime with water and will deliver milk of lime (lime slurry) to either or both cyanide destruction tank via two new pumps. Hydrated lime is consumed in the cyanide destruction process and is used to maintain the desired pH of the slurry. Lime is mixed to a solids density of 15% w/w.

The existing decommissioned air compressor will be replaced by a new compressor. The compressor will supply air to both the cyanide detox tanks and to a second air receiver that will be used for the new cyanide ISO Container mixing unit.

FIGURE 14-2 GENERAL ARRANGEMENT OF CN DETOXIFICATION CIRCUIT



14.1.4. ELECTRICAL

The existing Fort Knox operation has sufficient power to supply the modified Fort Knox facility. The Mill Modification will need power distribution to the CN detoxification area and it is anticipated that one new e-house will be required.

There are no additional emergency backup generators included for the Project. The current site backup power plan will provide enough power to provide drain down pumping capacity in the event of a power outage.

14.1.5. CONTROLS

The Mill Modification will need controls for the new equipment which will be integrated into the existing distributed control system (DCS). As such, software modifications to the existing control system will be required.

Each piece of equipment will have a local control station mounted sufficiently close to the equipment to enable a convenient view of its operation. All electrical equipment will have Running/Not Running, Interlocked/Not Interlocked indications on the DCS. Equipment, where applicable, could be run locally or from the DCS system remotely. All electrical equipment will be fed from a motor control center (MCC).

Process control will be achieved by a centralised process control system (PCS). The basic requirements for plant control, including:

- DCS
- Drive Starting
- Instrumentation
- Vendor programmable logic controllers (PLCs)

It will be possible to start, stop, and control most equipment from either the DCS or a local control station. Some equipment packages will be controlled by dedicated vendor supplied PLCs. Operating information from these PLCs will be monitored by the DCS.

Some equipment, such as operating manual valves to switch to standby equipment and floor spillage pump operation, will not be controlled by the DCS.

There will be three modes of drive control or operation:

- Auto: with drive started by a pre-set DCS control
- Manual: with drive started by the operator via DCS
- Local: with drive started by the operator via local controls (on being enabled by the DCS)

Operation in 'Remote' mode will be selected on the appropriate local control station. Equipment will then be controlled from the main control room via the DCS. On changing from 'local' to 'remote' mode, current drive status and controls will remain unchanged, e.g., an operating variable-speed drive will remain operating at the speed set-point achieved when changing from 'local' to 'remote' mode and then immediately be subjected to available process interlocks and control loops.

Software interlocks will be active in 'Remote' mode and inactive in 'Local' mode unless specifically described otherwise. All hardwired interlocks will be active in both 'Remote' and 'Local' modes.

The Local Control mode will be used for maintenance purposes and local testing of individual drives and equipment. All drives will have local stop/start pushbuttons. 'Local Control' will be enabled by the operator via the DCS. In local mode, drives and equipment will be controlled via the local control station and not via the DCS. Wiring from the local control stations will be direct to the MCC.

Each drive will have the facility for a DCS start. When selected on the mimic screen, each drive will show a unique faceplate for that drive.

Sump pumps will utilize level control to automatically start/stop the pump unless specifically described otherwise.

Software interlocks will be inactive in 'Local' mode and active in 'Remote' mode unless specifically described otherwise. All hardwired interlocks will be active in both 'Remote' and 'Local' modes.

Interlocks will be either hard wired or provided by the DCS.

Hard-wired (local) interlocks will be installed for equipment and personnel protection and cannot be overridden. Hard-wired interlocks include motor overloads, conveyor pull wires and emergency stop buttons.

Soft-wired Interlocks (remote), configured in the DCS, will include equipment safety locks and process interlocks installed to stop equipment upstream of a unit which has stopped.

14.1.6. REAGENTS COPPER SULFATE AND SODIUM METBISULFITE

Granular SMBS reagent will be delivered to the site in bulk bags (1.1 st). Batches of 39% wt/vol SMBS will be made in the SBMS mixing tank by adding a controlled amount of raw water. Mixed batches will be transferred to the SBMS storage tank and subsequently dosed to the CN detox circuit. SMBS will be added to the first (and or second) cyanide destruction tank to provide the source of SO_2. Three new SMBS pumps will be installed, two operating with one standby. The reagent addition rate will be controlled to maintain an ore feed ratio. The pumps will operate via a ring main with the return solution going to the storage tank.

Granular copper sulfate will be delivered in 55 lb bags and added to the copper sulfate mixing tank. A controlled volume of raw water will be added to the mix tank to obtain a concentration of 15 % w/w copper sulfate in solution. A new copper sulfate mix tank and agitator will be required along with a new storage tank. Addition of the copper sulfate will be fed directly to pump box cyanide detox feed distributor due to the proximity of the distributor. Two new copper sulfate metering pumps will be required.

WATER

Sources of existing fresh, fire, potable, and process water remain unchanged. Additional water will come from the TMF and be added as dilution water to the tailings thickener feed box, make up water as required, and flush water on the suction and discharge side of the detox discharge pump.

CYANIDE

The cyanide concentration to the leach circuit will be 24% with a consumption rate of 4.1 lbs/st ore when processing Manh Choh ore. The existing feed pumps and line to the leach tanks will not change as the current system is adequate. However, the delivery and mixing of the cyanide due to the larger volumes of cyanide solution required will utilize an ISO Tank system. Cyanide will be brought to site in 20 ft ISO tank containers containing 20 st of solid, one inch sodium cyanide briquettes. In addition to the ISO tank, a storage tank will be required to circulate water from the ISO tank back to the storage tank. Caustic solution will be added to the mix tank, as per the current operating procedure, to prevent the formation of HCN gas.

The existing mix tank will be used as the storage tank for the dissolution process. Water requirement for the complete dissolution of the cyanide requires approximately 14,000 USg. The storage tank will be filled with the desired water quantity and continuously pumped to the ISO tank for approximately five hours at a rate of 47 USgpm (depending on the water temperature). Once it is believed that the cyanide is in solution, the pump is stopped, and air is applied to the ISO tank to purge the remaining solution to the storage tank. Once complete, approximately 264 USg of fresh water will be pumped to the one-inch inlet port on the ISO tank, then purged with air, a second 264 USg of water will be added, then purged with air, followed by a final third flush and air purge. Once the last purge is completed, if no pressure is remaining in the ISO tank, then the hose connections can be safely removed. Once the required solution strength is achieved and the dissolution of cyanide complete, the solution is transferred from the mix tank to the cyanide storage tank. A new additional pump to transfer solution from the mix tank to the ISO tank will be required. The projected cyanide consumption per year is provided in Table 14-1.

TABLE 14-1 CYANIDE CONSUMPTION ST/YEAR

Years	st/year	lb/st ore
2024	606	1.32
2025	1,198	2.18
2026	2,137	3.90
2027	2,698	4.93
2028	242	3.75
	Annual Average	**3.17**

LIME

Hydrated lime will be added to the SAG mill feed conveyor and to the CN detox tanks. The consumption rate of lime at the grinding circuit is 103 st/day and for the CN detox circuit 12.2 st/day. The current lime silo located adjacent to the SAG mill feed conveyor has a total storage capacity of 180 st, therefore, no modifications are required. A new hydrated lime silo with a capacity of 100 st and mixing system will be required for the CN detox area. The lime will be mixed with raw water to generate milk of lime slurry with a solution strength of 15% wt. The Lime vendor package will contain a lime mix tank with an agitator, a lime storage tank with an agitator, two transfer pumps, and two hydrated lime distribution pumps. One of two available fixed speed pumps will deliver lime slurry to either of the detox tanks via a ring main with the excess being continuously returned to either the mix tank or storage tank. This continuous pumping of lime slurry from the agitated tank is to prevent settling of the solids in the pipeline. The hydrated lime silo will be equipped with a dust collector. The lime slurry will be added to either of the cyanide detox tanks using automated control vales to modify and maintain the pH.

CARBON

Carbon will be processed in the existing absorption (CIP) and desorption (Elution) facility. Loaded carbon will be pumped from both CIP tanks No. 1 and No. 2 to two new loaded carbon dewatering screens. The screen oversize will then flow to an existing loaded carbon holding tank which will further pump the carbon to a new carbon holding tank to deal with the increased amount of carbon generated when processing Manh Choh ore. The screen undersize will be pumped back to the CIP tanks No.1 and No. 2. The amount of loaded carbon transferred each day from the CIP circuit will be 38 st. The carbon concentration within the CIP tanks is assumed to remain the same as the processing of Fort Knox ore, at 10 g/L to 17 g/L.

CEMENT

A new 100 st cement silo will be required and will be located near the existing Lime silo adjacent to the SAG mill feed conveyor. The cement silo will be equipped with a dust collector and will screw feed onto the conveyor belt prior to the ore entering the SAG mill.

14.2. PROCESSING PRODUCTION SEQUENCE AND SCHEDULES

Starting in the second half of 2024 to the beginning of 2028, a total of 4.3 million st of Manh Choh ore is expected to be transported to the Fort Knox mineral processing facility. Approximately 900 koz of gold (90.3% LOM recovery) will be produced. Gold is recovered by gravity concentration and CIP process. The gold production schedule is presented in Table 14-2. During the third quarter of the Manh Choh ore processing campaign in 2024, the gold and silver recoveries are reduced by 5% to account for processing ramp-up.

TABLE 14-2 LOM PRODUCTION AND METAL RECOVERY

	2024 Q1	2024 Q2	2024 Q3	2024 Q4	2025 Q1	2025 Q2	2025 Q3	2025 Q4	2026 Q1	2026 Q2	2026 Q3	2026 Q4	2027 Q1	2027 Q2	2027 Q3	2027 Q4	2028 Q1
Tons Transported	-	-	164	218	300	357	369	610	270	273	276	276	270	273	276	276	129
Au Grade, oz/st	-	-	0.34	0.31	0.31	0.19	0.18	0.20	0.15	0.16	0.20	0.37	0.33	0.29	0.26	0.12	0.12
Contained Au, koz	-	-	56.1	67.1	91.5	69.3	65.6	120.3	39.3	43.6	56.1	102.0	87.8	79.2	70.6	33.0	15.4
Recovered Au, koz	-	-	49.5	62.6	85.5	64.7	61.3	112.3	35.8	40.1	51.0	87.9	74.1	68.5	63.1	29.6	13.9
Ag Grade, oz/st	-	-	0.39	0.30	0.36	0.38	0.63	0.54	0.20	0.25	0.17	0.53	0.49	0.37	0.33	0.35	0.35
Contained Ag, koz	-	-	63.6	66.1	107.6	136.2	231.2	330.0	54.9	69.0	45.6	145.7	133.5	100.2	91.5	97.4	45.6
Recovered Ag, koz	-	-	43.6	48.7	78.9	97.1	170.2	239.6	33.0	39.9	27.1	107.2	93.0	66.9	59.4	57.7	27.0

Note. The schedule start date is derived from the FS.

15. INFRASTRUCTURE

15.1. PLANNED INFRASTRUCTURE

To support Project activities at the Manh Choh mine site, the following new or upgraded infrastructure is planned:

- Construct a new "Twin Road" parallel to the existing Tetlin Village Access (TVA) Road to facilitate ore haulage with highway trucks.
- A new Manh Choh Mine Access (MCMA) Road from the TVA Road to the mine site, including several material laydown areas along the route.
- A new highway truck ore load-out facility, including infrastructure for maintenance, truck scale operations, administrative functions, and associated waste and water management facilities.
- North Waste Rock Dump (WRD), North Pit WRD, Main WRD, Overburden and Wet Stockpiles, and Marginal Low-Grade Ore (LGO) Stockpile Pad.
- A new Mine Infrastructure Site, including mine offices, mine maintenance facilities, warehousing facilities, a water treatment plant, and emergency response infrastructure.
- Facilities for re-fuelling, explosives storage and handling, and sewerage.
- New laydown areas, upgraded off-site accommodation facilities, and general buildings.
- Primary mine site power supply consisting of enclosed diesel generators and switchgear with three-phase power distribution via on-surface and underground cable runs.
- Process controls for water and wastewater management, mine dewatering pumps, building systems, and equipment washdown.
- Communications infrastructure for facilities, administration, mine operations and mine maintenance activities, and environmental monitoring.
- Surface water diversion channels and water treatment and retention facilities.
- Two additional water supply wells will be installed to ensure sufficient water is available to manage dust. The first additional well will be in the vicinity of the pits, with the second to be drilled close to the access road near the Alaska Highway. Potable drinking water will be available at fill stations at the upgraded accommodations complex in Tok and will be delivered from the complex to the mine site offices.

To support Project activities at Fort Knox, the following new or upgraded infrastructure is planned:

- Northeast of the existing process plant footprint:
  - A new access road.
  - A new Manh Choh coarse ore stockpile.
  - A new surface water collection and management facility and associated pipelines.

- Process plant modifications (refer to Sections 10 and 14).
- Tailings from Manh Choh ore deposited in the mined out Fort Knox open pit.

Figure 15-1 shows the proposed Project infrastructure at Manh Choh and Figure 15-2 shows infrastructure at Fort Knox.

FIGURE 15-1 SITE GENERAL ARRANGEMENT – MANH CHOH

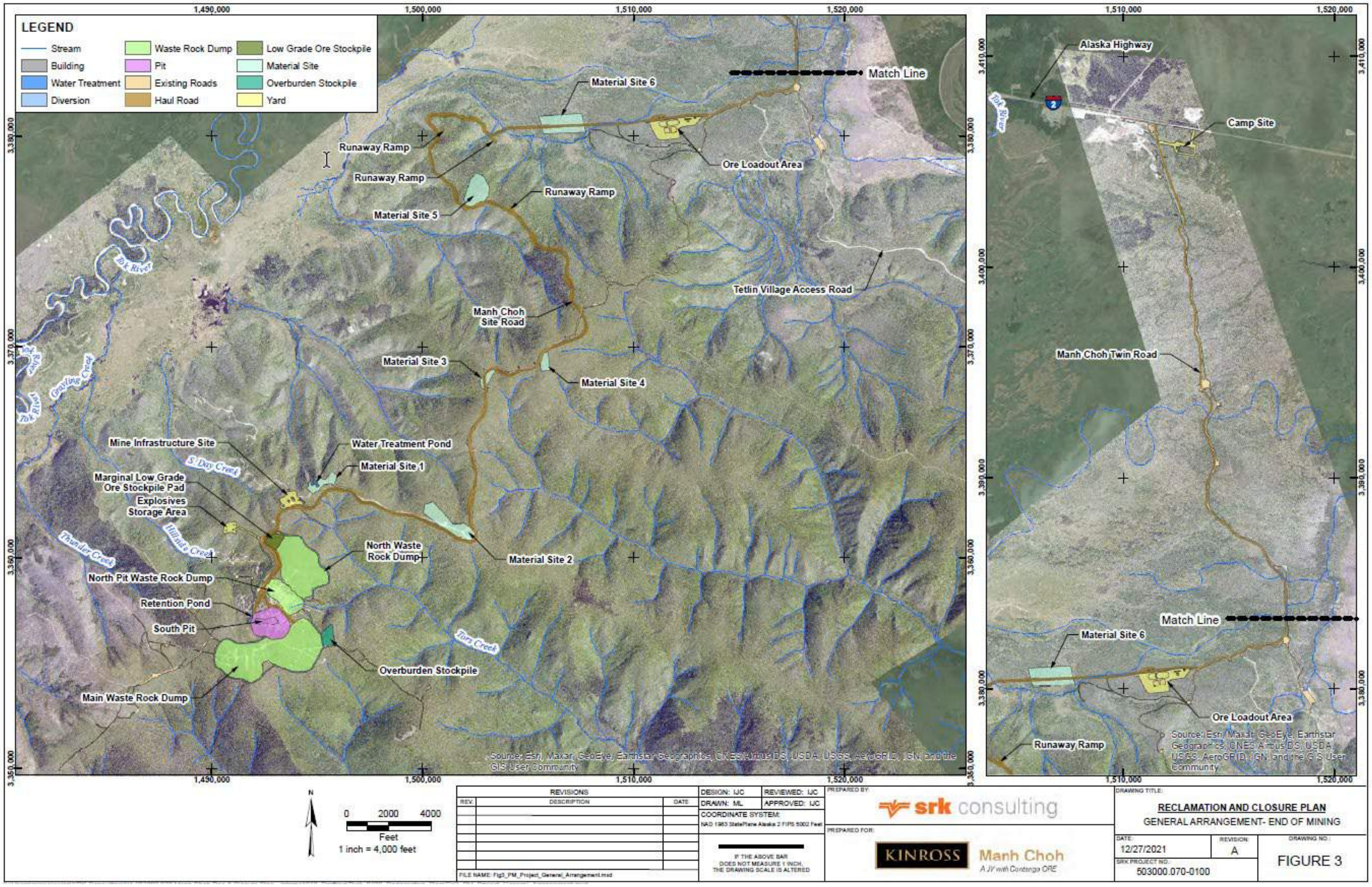


FIGURE 15-2 SITE GENERAL ARRANGEMENT – FORT KNOX

Source: Bantrel, 2022

Note. Not to Scale

15.2. MINE SITE ROADS

Site access roads will be constructed to accommodate 10-ft-wide, highway heavy haul vehicles (118 ft length A-trains) and have been designed for a double-lane roadway top width of 30 ft. Ore from the mine site will be trucked along two main road segments to Alaska Highway 2 and on to Fort Knox for processing.

15.2.1. TWIN ROAD AND TETLIN VILLAGE ACCESS (TVA) ROAD

The Twin Road will be constructed to allow highway ore haul trucks to cross approximately five miles of lowland area between Alaska Highway 2 and the base of the Tetlin Hills. The Twin Road will parallel the TVA Road and keep local village traffic separate from ore haul traffic. The chosen road alignment separates ore haul traffic from Tetlin Village traffic while avoiding residential areas, existing utilities, and wetlands as much as possible.

Road construction material will be sourced from alluvial material mined from borrow pits along the route (flatlands). A minimum of 24 inches of structural fill will be added to create embankments and raise the driving surface above the anticipated flood elevation. Cross-culverts will be installed at key locations and existing culvert placements will be upgraded.

15.2.2. MANH CHOH MINE ACCESS (MCMA) ROAD

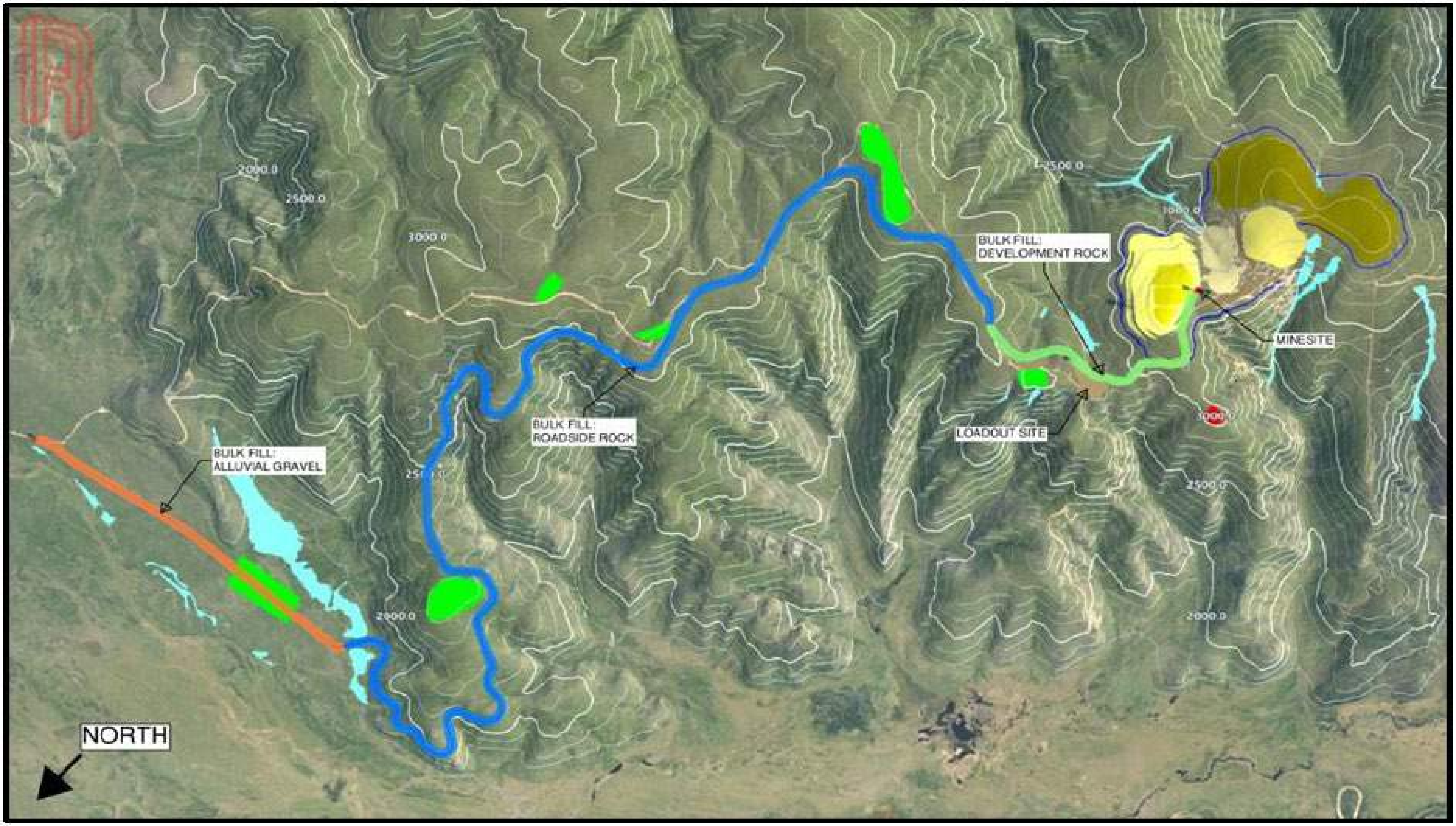
From the Twin Road segment, the route will connect with the Manh Choh Mine Access (MCMA) Road which turns west and climbs the Tetlin Hills for approximately six miles. The MCMA Road traverses along the ridgetop for another six miles to the mine site and the MCN and MCS mining areas (Figure 15-3). The MCMA Road alignment and profile have been developed to optimize cut and fill requirements. Mine site development rock will be used to construct most of the first 1.5 miles of the MCMA Road, starting from the mine site, with the remaining road materials sourced from cut sections and re-distributed to fill sections. Road segments located in flatlands will be sourced from alluvial material mined from borrow pits along the route.

The MCMA Road will include cross-culverts or other appropriate drainage structures installed at surface water crossings. To minimize blockages, culverts will be a minimum of 24 inches to 36 inches in diameter (depending on culvert length) and will be located based on drainage analysis. Aufeis channel drains will be installed to mitigate ice build-up on the road surface and additional drains will be installed if groundwater seeps are detected within the face of any cut section.

15.2.3. MINE SITE ROADS

Mine site roads will be constructed in a manner similar to the construction of the TVA and MCMA roads. Wherever possible, surface water will be encouraged to follow natural drainages and care will be taken during detailed design and construction to minimize impacts to existing water courses.

FIGURE 15-3 MINE ACCESS ROAD



15.2.4. DUST SUPPRESSION

In most months, there will be a shortage of water for dust control. Dust will be controlled by surfacing roads with igneous material crushed near the mine and application of dust suppression water sourced from either Well #2 or from brine disposal. Well water will be applied to dust generating areas when temperatures are favorable. Application of calcium chloride dust suppressant will be considered to lower dust suppression water requirements in the dry season. As there is a lack of water at and around the elevation of the mine site, treated surface run-off water will be used for dust control on the MCMA Road.

15.3. MINE SITE BUILDINGS

15.3.1. GENERAL BUILDINGS

Modular building units will be constructed at a manufacturing facility and transported to the Project area via the Alaska highway system and Project access roads.

15.3.2. MINE SITE SERVICES AND ADMINISTRATION BUILDINGS

PROJECT ACCESS CONTROL

The Mine Site Gatehouse building will be a re-purposed cabin from the recently purchased Westmark Hotel property and will be located beside the intersection of Alaska Highway 2 and the TVA Road. A delivery laydown area will be constructed adjacent to the building to facilitate management of deliveries to the mine site. The building will be occupied by security personnel to control deliveries and access to the Project area. The Mine Site Gatehouse will not require plumbing and will be heated with electric wall heaters or a stand-alone oil heater.

ORE STORAGE AND LOAD-OUT

The ore storage and load-out area will include an uncovered 30 ft x 110 ft x 23 ft weigh scale. Scale construction will include a cast-in-place concrete pit, steel plate ramps, and gravel approaches.

The ore storage area (stockpiles) will be created atop a thick NAG waste pad and an unlined gravel pad constructed from cut and fill of local topography. Surface run-off water will be contained by a perimeter ditch. Where required, truck dumping will occur in lifts and allow loading from the toe of stockpiles with front-end loaders.

A fabric structure will be erected by the ore haulage contractor at the ore storage and load-out area. The foundation will be constructed by the Project. The structure will provide an enclosed, heated zone for highway trucks.

MINE ADMINISTRATION AND TECHNICAL SERVICES

The Mine Administration and Technical Services Building will be a single story, 36 ft x 60 ft, modular structure located within the footprint of the Mine Infrastructure Site. The building will serve as the main mine site office, housing approximately 10 personnel directly involved in overseeing mining and related activities. Building construction will involve three modular units complexed together with a “water car” unit that houses potable water and wastewater tanks for the facility. The complex will have electricity, indoor plumbing, and telecommunication connections. An electrical heating source will be provided to help maintain a balanced electrical load on the facility generators. The complex will include private office spaces, common office work area, kitchenette, storage room, utility room, washrooms, and a radio/technology room.

MINE MAINTENANCE, WAREHOUSING, AND EMERGENCY RESPONSE

Located with the footprint of the Mine Infrastructure Site and adjacent to the mine site ore stockpiles, this building is intended to be used as the primary mine site maintenance facility. The building is sized to facilitate multiple functions and includes:

- Four general maintenance bays, one equipment wash/storage bay, and meeting space for mine maintenance personnel.
- A soft-wall-style warehouse structure with approximately 10,000 ft^2 of heated storage space and 13,000 ft^2 of cold storage space.
- Warehouse laydown yard (approximately 130,000 ft^2).
- One emergency response bay.
- General storage and utilities space.

This multi-function building will be connected to mine site electrical reticulation with power adequate for operating maintenance equipment such as air compressors, welders, and other tools. The building will be ventilated and with large overhead fans and a heating, ventilation, and air conditioning (HVAC) system. Primary heating will be from a radiant (concrete) floor heating system using heating oil or diesel-fired equipment.

The building and associated external infrastructure (e.g., power generation equipment, storage tanks) will be located outside the blast radius and respect minimum required offsets from explosives storage facilities.

EXPLOSIVES STORAGE

Requirements for the storage and handling of blasting agents, high-explosives, and blasting accessories will adhere to the requirements of 27 CFR 555, MSHA, and Bureau of Alcohol, Tobacco, Firearms and Explosives (BATFE) regulations.

The layouts for explosive magazines and storage silos are based on designs implemented at Kinross’ Fort Knox operations. An area southwest of the Mine Infrastructure Site footprint has been selected for siting of the facilities. Final facility locations and designs will be coordinated with the explosives and blasting service provider.

FUEL FACILITIES

Fuel facilities will be installed in the following Project locations:

- Mine Infrastructure Site – two, 30,000 US gal diesel tanks and one 5,000 US gal gasoline tank.

- Ore Storage and Load-out Area – fuel tanks and re-fuelling station to be finalized and supplied by the ore haulage contractor.

All fuel storage tanks will be above ground, double-wall steel tanks, manufactured to meet Steel Tank Institute (STI) F921 construction specifications. All fuel facility locations will include installation of a tertiary containment geo-membrane.

Dispensing and electronic fuel management systems are included with the fuel facilities. The facilities will be manufactured as modular systems and mounted on skids. During construction, bollards or large boulders may be added to increase physical protection.

WATER TREATMENT PLANT

The mine site water treatment plant (WTP) will be a modular-style system constructed within the Mine Infrastructure Site footprint. The WTP will be a surplus unit sourced from Fort Knox (Titan 90 system) and will require seasonal removal of water and shutdown to prevent freeze-up problems. The facility includes a series of pumps, settling and mixing tanks, micro and reverse osmosis filtration, and electronic monitoring equipment to treat mine surface run-off water. WTP consumables will be stored in steel shipping containers and electricity will be supplied by the mine site power generating system. The WTP is planned to be in use for the duration of the Project life, or approximately five years.

15.3.1. ACCOMMODATION FACILITIES

The former Westmark Hotel in Tok will be upgraded to accommodate the planned workforce. Upgraded accommodations will house a total of 176 workers after completion of a 100-room, modular-style expansion. The expansion of the facility includes kitchen and dining facilities, recreation and gym facilities, and a maintenance shop.

15.4. MINE SITE UTILITIES

15.4.1. POWER SUPPLY AND DISTRIBUTION

AP&T is the power/telecom utility servicing the nearby community of Tok. AP&T and will supply grid power from a diesel-fired generation plant to the accommodation facilities at the former Westmark Hotel.

AP&T cannot meet mine site power needs due to a power distribution capacity limit of 1 MW along the TVA Road and the high cost of upgrading existing and extending new power distribution lines. Primary mine site power will thus be supplied from on-site, diesel-fired generators.

MINE SITE GATEHOUSE

A large electrical load is not anticipated at the Mine Site Gatehouse. The building will be powered by a diesel-fired generator.

ORE STORAGE AND LOAD-OUT

The ore storage and load-out facility will be powered by a diesel-fired generator systems supplied by the ore haulage contractor.

MINE SITE

Power for all mine site facilities will be supplied from the Mine Prime Power Generator System (MPPGS) consisting of diesel-fired generators in arctic-grade, skid-mounted enclosures connected to a switchgear enclosure that controls the generators. The MPPGS and related infrastructure will include:

- A prepared site pad, including a grounding electrode grid with extents bounding the complete installation.
- A minimum of three generator enclosures. Each enclosure will incorporate a generator set with fuel tank, a diesel exhaust fluid (DEF) tank, and the auxiliary infrastructure required to make each assembly operate in a stand-alone fashion if required.
- One switchgear enclosure that houses the generator paralleling switchgear with system controls and includes a distribution section with circuit breakers that supply underground distribution feeders to the mine site facilities and equipment.
- An auxiliary enclosure for DEF storage with equipment and piping for automatic transfer of DEF to the generator enclosures.
- Generator fuel storage tanks with piping and related equipment for automatic transfer to the generator enclosures.
- A skid-mounted, step-up transformer that steps up the three-phase, 480 V generator system power to 4,160 V to supply remote dewatering and water management pumps.

Three-phase power will be distributed to the various mine site facilities through an underground cable system at 480/277 V. Each facility serviced will have a dedicated disconnect to allow disconnection of individual facilities without disturbing other facilities.

The electrical load profile will vary seasonally with an estimated maximum of 250 kW during the winter months to a maximum of approximately 900 kW during/after a peak rain event.

MINE SITE BACK-UP POWER

Given the importance of the facilities within the footprint of the Mine Infrastructure Site, two 5,000 kW, diesel-fired generators will be installed near the Mine Administration and Technical Services building (adjacent to critical communications equipment). The back-up generator will start automatically on loss of power in the MPPGS and will support life-safety loads, communications, critical outdoor lighting, and equipment deemed critical to mine site functions.

MINE SITE POWER DISTRIBUTION

Power distribution will be predominately via underground cable runs routed through heavy-wall HDPE piping. Power cable runs will be jacketed Type MC-TEK90, including branches to equipment such as wells, out-buildings, fuel pumping and dispensing, and distribution equipment for site lighting and parking lots equipped with head bolt heater outlets. Surface cable runs will be completed where the exposed cable is not subject to damage.

15.4.2. LIGHTING

GENERAL

To effectively manage operating costs associated with lighting requirements, where practical, all Project lighting will be of the Light Emitting Diode (LED) type.

Facility locations with indoor operations 24 hours per day will require continuous lighting. Indoor operations that follow a predictable schedule may incorporate time-based control with occupancy detection over-ride. Outdoor lighting will be largely photo-electrically controlled with motion/infrared controls where appropriate.

ROADWAYS

Roadway lighting applies to fixed lighting along roadways to enhance productivity and safety. This lighting is expected to largely be pole-mounted with aerial cabling supplying power. Poles will be sited close to roads behind berms or barriers or positioned where impact from equipment and vehicles is not likely. Generally, sharp-cut-off fixtures with integral photoelectric control will be used.

MINING OPERATIONS

Lighting for mining operations will be equipment-mounted, fixed (e.g., long-term roadways), or temporary in nature. Where required, fixed and mobile equipment lighting will be supplemented with portable, diesel-fired floodlight towers.

15.4.3. PROCESS CONTROLS

Apart from controls and monitoring related to mine dewatering pumps, process controls are expected to be limited to packaged equipment with a specific function (e.g., reverse osmosis water treatment, building systems, and equipment for washdown, wastewater management, and building systems). As there are no mineral processing facilities at the Manh Choh mine site, complex process systems are not expected.

15.4.4. COMMUNICATIONS

The Project requires telecommunication and internet services infrastructure for facilities, administration, mining operation and management, environmental and process control/monitoring, geo-positioning support, equipment operation and maintenance, and support for mine radio communications.

MINE SITE GATEHOUSE

The Mine Gatehouse telecommunication needs will be served with public cellular telephone/data service, or mine radio/microwave service compatible with any device that may be brought to the facility.

MINE SITE

Mine site facilities with data requirements will be a minimum of Category 5E standard for both data and telephone communications.

A communications server will be located at the Westmark Hotel accommodations complex and will support telecommunications infrastructure to mine site users. At the server, a switch will support a fiber optic cable connection to a "facility switch" at each mine facility requiring telecommunications services. Other remote facilities will use a wireless Ethernet or microwave link rather than cable.

Outdoor cabled telecommunications infrastructure will be physically routed through separate raceways similar to the outdoor Power Feeder Distribution cabling. Wireless links will be placed and oriented to obtain required performance and reliability. Wireless repeaters and redundant links will be provided where increased reliability justifies the cost and complexity.

Fiber optic cable will be extended to applicable site facilities and required fiber optic connections will be made with KGMA's communications tower. Wi-Fi equipment will be installed and tied into fiber optic connections as required. Mine site contractors will install their own communications equipment in the buildings/facilities they occupy.

Mine facilities without data or telephone requirements will be served with cellular telephone/data service, or mine radio service compatible with any device that brought to the facility.

MINE RADIO COMMUNICATIONS

The mine radio is an industrial system configured and intended for mining use, largely supporting operational and emergency audible/voice communications at all facilities from the camp to all portions of the mine. The mine radio system is a separate system of equipment, cabling, repeaters, and wireless links that are fully functional with, or without the telecommunications infrastructure described above.

ACCOMMODATIONS

The refurbished Westmark Hotel and modular expansion complex will have telecommunication and internet services provided by connections supplied by AP&T.

15.4.5. WATER SUPPLY

POTABLE WATER

Potable water supply for the refurbished Westmark Hotel will be from an existing 110 gpm well. This flow rate is expected to be adequate for the number of personnel that will be housed at this location (100) and will also support an additional 76 personnel that are planned to be housed in new modular accommodations to be constructed on the property.

Potable drinking water will be available at fill stations at the upgraded accommodations complex in Tok and will be brought from the complex to the mine site offices.

PROCESS WATER

At the mine site, Well #2 will be used for supplementary dust suppression and equipment wash water when the surface water collected is insufficient to meet site needs. Well #2 is projected to produce an average of 20 gpm, so two additional wells will be installed to ensure sufficient water is available to manage dust. The first additional well will be in the vicinity of the open pits, with the second well to be drilled close to the access road near the Alaska Highway.

The wash bay at the mine site will use treated surface water. Miscellaneous process water for the various maintenance and administrative facilities is anticipated to be distributed via water truck.

15.4.6. WATER STORAGE AND DISTRIBUTION

An indoor, heated water storage tank has been installed at the mine site for fire suppression.

WATER AND RECYCLE WATER SYSTEMS

Surface water run-off adjacent to mining areas will be captured in pit perimeter ditches. The Mine Site Perimeter Ditch will be sized to handle the 100-year post operational flow. Lined retention basins will be constructed to provide storage for 10-year storm events with overflows to the open pits to contain events larger than the 10-year event.

The treatment system and conveyance piping to the WTP are sized to treat emergency situations over a two-week period (200 gpm). Insulated 4-inch or 6-inch HDPE piping will be installed aboveground except at road crossings. There will be pumps installed in the retention basins to provide flow between those points and the WTP (minimum 31 hp pump in East Retention Basin and minimum 11 hp pump in West Retention Basin).

Mine water from dewatering of the open pits will be sent to the Untreated Water Storage Pond for use in dust control or for filling the MCS Pit with water as it is being reclaimed.

During the MCN Pit and MCS Pit backfilling and reclamation phases, approximately 200 gpm of water will be required fill the pits to reduce the oxidation processes expected to occur within placed waste rock. To satisfy in-pit water requirements, mine site Well #2 will be tested, its well casing lengthened, and will feed water into the untreated water collection pond.

15.4.7. SEWERAGE

The Mine Gatehouse will connect to a conventional septic and leach field system that has adequate separation for source water protection (minimum 200 ft). The guard shack at the mine access road will have a portable washroom facility that can be serviced on a routine basis by a service provider out of Tok. Facilities at the Mine Infrastructure Site will include sewage holding tanks that can be serviced on a routine basis by service providers out of Tok.

Sewage treatment for the refurbished Westmark Hotel consists of two separate systems. The restaurant/lodge and the two-story units are supported by a 10,000 US gal septic tank, combined with about 2,250 ft^2 of leach field. The single-story units are supported by a 4,000 US gal septic tank, combined with about 3,200 ft^2 of leach field.

15.4.8. FIRE SYSTEMS

With the exception of the upgraded Westmark Hotel accommodations complex, Project facilities and major maintenance areas will not have fixed/building fire suppression systems installed, rather fire suppression controls in these areas will consist of those systems already on-board mobile equipment and portable fire extinguishers. Fire extinguishers will be located on the mine site according to local/state regulations.

15.4.9. COMPRESSED AIR SYSTEMS

Fixed and mobile compressed air systems will be required to support mine maintenance activities. The mining contractor will be responsible for supplying and maintaining the required systems as part of executing the mining contract.

15.4.10. MINE SITE AND PIT PERIMETER DITCHES

The Mine Site Perimeter Ditch is sized for a 100-year storm event, with 0.5 ft of freeboard, and a grade of 1% (typical). A 12-ft-wide access road will be constructed adjacent to and along the entire length of the Mine Site Perimeter Ditch and will be lined within 500 ft of wetlands. Surface water run-off adjacent to mining areas will be intercepted in pit perimeter ditches.

15.4.1. RETENTION BASINS

Three retention (settling) basins (one for each of the west, southeast, and northeast ditches) are sized for a 10-year storm event and have a nominal depth of 10 ft. The southeast and northeast basins have overflow weirs toward the MCN Pit. The West Basin overflow weir will permit flow into the MCN Pit once mining has progressed below the elevation of the basin. A 12-ft-wide access road will be constructed adjacent to and along the basin perimeters. All retention basins will be lined as they are all within 500 ft of wetlands.

15.4.1. WATER TREATMENT PLANT

Water treatment will be minimized using water collected in the retention basins for dust suppression. In case of emergency, or if freeboard is depleted, a Titan 90 water plant can be relocated from Fort Knox and installed at Manh Choh. The water plant can treat approximately 200 gpm to remove sediment.

15.4.1. RETENTION BASIN PUMPING AND PIT DEWATERING

Electric pumps will transfer water collected in the West Retention Basin to the Main WRD perimeter ditch and the MCS Pit at a pumping rate of approximately 350 gpm.

To ensure on-going sufficient capacity is available between storm events, a pumping rate of approximately 1,000 gpm is required from the Southeast Retention Basin to the Northeast Retention Basin to the storage basin adjacent to the Water Treatment Plant.

Pit dewatering wells are sized to pump 100 gpm (MCN Pit) and 150 gpm (MCS Pit) and are oversized to handle rain events.

15.5. MINE SITE WASTE DISPOSAL

Waste receptacles will be placed at appropriate waste generation and collection points around the mine site. A service provider out of Tok will remove receptacles for off site disposal.

Sanitary wastewater will be collected using a septic/wastewater collection contractor.

15.6. FORT KNOX INFRASTRUCTURE

- Process plant modifications (as described in Sections 10 and 14).
- A new Manh Choh coarse ore stockpile.
- A new surface water collection and management facility and associated pipelines.
- Tailings from Manh Choh ore deposited in the mined out Fort Knox open pit.

16. MARKET STUDIES

The doré bars produced by Manh Choh will be comprised of approximately 45% to 55% gold and 40% to 50% silver. Approximately 5% of substantially non-deleterious impurities is expected in the doré bars but is not anticipated to have a material adverse effect on payment terms to refiners. A transportation contractor will transport the doré bars from Fort Knox to one or more refineries with which Kinross has existing business relationships. It is expected that the potential refineries will have sufficient capacity to accept the material.

The refiner is responsible for producing gold and silver bars that satisfy the London Bullion Market Association (LBMA) good-delivery standards. To satisfy these standards, the refiner must comply with LBMA regulations and operating practices. If the refiner under contract fails to meet these standards, it is possible to engage a new refiner in a reasonable time frame.

The refineries will electronically transfer the gold and silver ounces contained in the bars that meet good-delivery standards to unallocated accounts held by Peak Gold. Such credited gold and silver ounces will then be apportioned by ownership (70% to KGMA and 30% to Contango) and sold at the applicable spot price to KGMA and Contango. Using business relationships developed with several international banks, KGMA and Contango are responsible for selling their portion of the refined gold and silver externally at prevailing market prices.

16.1. PRODUCT SPECIFICATION

Manh Choh will produce doré bars with a metal content of approximately 45% to 55% gold and 40% to 50% silver, with the balance being various non-deleterious elements totaling approximately 5%. The doré will be shipped to one or more refiners for refining into LBMA good-delivery gold and silver bars.

The presence of deleterious elements can have a significant impact on the pricing and availability of refining services and, in severe cases, prevent the refiners from accepting the product for processing. This impact depends on the nature and quantity of deleterious elements found in the doré. Based on recent metallurgical testing programs, deleterious elements are not foreseen to be a concern for the Project (see Section 10 for more details).

16.2. DEMAND AND SUPPLY FORECASTS

The principal commodity for the Project is gold, which is freely traded, at prices that are widely known. In the opinion of the QP, the prospects for the sale of gold production are virtually assured.

16.3. MARKETING STRATEGY

16.3.1. SINGLE VERSUS MULTIPLE REFINERIES

Third party refiners should have sufficient excess capacity to process the material generated at Manh Choh. However, this capacity can become restricted when third parties send large, unpredictable volumes of metals to the refinery. Depending on the amount of metal produced at Manh Choh, KGMA as manager of the Peak Gold will determine whether the doré will be sent to multiple refineries, or just one refinery. By sending the metal to more than one refinery, Manh Choh spreads refiner credit risk and mitigates operational risks (e.g., shutdowns, strikes, and logistical issues).

Global refinery capacity constraints are not expected to be a concern.

16.3.2. REFINERY PRICING

Refinery pricing is estimated to be set as described below, assuming that the doré composition as described in Section 16.1 is correct. If the doré composition materially differs from this assumption, refining terms can change significantly. Refining contracts are usually for two to three years, and can be extended or cancelled upon 30 days' notice. Refinery pricing is estimated to be as follows:

- Treatment and refining charge: $0.40 per ounce of doré
- Metal return: 99.975% for gold and 99.50% for silver
- Extra charges apply to deleterious elements (not expected to materially impact Manh Choh)
- Out-turn period: 5 business days
- Loco London Swap charges: US$0.10/oz gold
- Financing cost for metal early return: 2.00% annually for approximately 8 to 10 business days

16.3.3. TIME FRAME AND PROCESS

From the time of shipment from Fort Knox, it is expected that the metal will be available for sale in approximately 10 business days.

Once refined, metal is transferred to Peak Gold's unallocated bullion accounts. Peak Gold will then periodically sell these ounces to KGMA and CORE Alaska, LLC per their ownership interests in Peak Gold at spot minus 1.75%. KGMA and Contango are responsible for selling their portion of the refined gold and silver externally at prevailing market prices.

16.4. MARKETING PLAN

16.4.1. CUSTOMERS

Contango will establish appropriate banking relationships with international groups to accommodate purchase and sale agreements for the transfers metal from its bullion accounts to the account of the purchaser.

16.4.2. COMPETITORS

Competitors do not have a significant influence on the price or quality of gold and therefore do not pose any threat to the development of Manh Choh.

16.4.3. PRICING

Gold and silver are financial assets that are actively traded on global exchanges. Prices are set in the open markets and are easily established for the purposes of entering a purchase and sale agreement between Contango and the metal buyers.

16.4.4. PROMOTION

The World Gold Council (WGC) has established a conflict-free gold standard that "provides a mechanism by which gold producers can assess and provide assurance that their gold has been extracted in a manner that does not cause, support or benefit unlawful armed conflict or contribute to serious human rights abuses or breaches of international humanitarian law." As a member of the WGC, KGMA is compliant with the WGC standard, and Manh Choh must also conform to this standard. Therefore, Contango will also conform to this standard. LBMA has established a similar standard, and gold mining companies that comply with WGC's standard are also deemed to comply with LBMA's standard. Refineries are obligated to comply with the LBMA standard to maintain their LBMA accreditation. Therefore, all gold mining companies that send material to these refineries must also comply with the LBMA standard.

16.5. PRODUCT DISTRIBUTION

Transportation is arranged by Kinross Fort Knox and is governed by a contract between Kinross Fort Knox and the carrier. Kinross negotiates the commercial terms with the carriers and Kinross Security works with the carrier to develop standard operating procedures.

The doré is driven in an armored vehicle by the carrier from the site to the carrier's vault in Fairbanks. The doré will then be loaded on a commercial flight at Fairbanks Airport to Anchorage and from Anchorage on another commercial flight to the third party refinery. The estimated pricing is expected to be approximately $4.00/lb of material shipped (including packaging) plus a fixed cost of $2,250 per shipment. These costs are for door-to-door service, including all insurance premiums.

Transportation companies are required to be covered under insurance policies such that the cargo is protected from the time the metal is accepted by the transportation company in the

Fort Knox mine's gold room until the metal enters the refinery. Kinross Fort Knox also independently obtains contingent coverage through its global insurance program, which will provide protection if the carrier coverage is inadequate for any reason.

The ore haulage contract is with Black Gold Transportation, an Alaskan based transportation company based in North Pole, Alaska. KGMA negotiated the contract on behalf of Peak Gold JV.

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

17.1. SUMMARY

Environmental stewardship is a priority for Contango, the Peak Gold JV, and the Manh Choh Project. Contango strives to minimize the environmental footprint and address its environmental (sustainability) responsibilities in a manner that demonstrates its commitment to industry-wide leadership. It was one of the driving factors that led to the formation of a joint venture with KGMA to process high-grade Manh Choh ore at the Kinross Fort Knox facility. KGMA is the manager and operator of the Project and as such broadly follows its corporate approach to managing all aspects of the permitting process, environmental stewardship, baseline monitoring, and reclamation covered in this section.

Contango and Peak Gold comply with applicable laws, regulations, and commitments, which promotes environmental best practices, as stated in the Kinross Safety and Sustainability Policy. Peak Gold believes in being open, fair, and honest in all dealings with the community and government organizations, both locally, regionally and at a federal level.

17.1.1. ENVIRONMENTAL STUDIES

Baseline studies and surveys undertaken for the Project include meteorological, wetlands, geochemical, surface and ground water quality, fish and wildlife, cultural resources, subsistence, visual impacts, noise impacts, reclamation and closure, and socioeconomic.

Impact assessment studies have also been conducted and the results of these are summarized in Section 17.4. The U.S. Army Corps of Engineers (ACOE) will prepare an environmental assessment (EA) for the Project and a wetlands permit was issued in September 2022 as part of the EA.

17.1.2. ENVIRONMENTAL PERMITTING AND MANAGEMENT

The Project is located on land owned by the Native Village of Tetlin and is considered private Native land. None of the Project activities are located within federal, state, or local protected areas.

The environmental information for the Manh Choh Project is based on the baseline environmental reports, Project plans, and permit application documents submitted to regulatory agencies on December 31, 2021. This documentation was subsequently amended in November 2022 and re-submitted to the agencies in January 2023. If Project plans change significantly, permit modification requests will be submitted to the appropriate agency as needed.

17.1.3. ENVIRONMENTAL MANAGEMENT SYSTEM

The Manh Choh facilities will operate under an environmental management system (EMS) that specifies activities to be planned and implemented by the mine's environmental management team. The system will be reviewed and updated as part of the continuous improvement cycle to ensure that the new or altered facilities, infrastructure, processes, and operations do not result in adverse impacts to natural, cultural, or human resources. The EMS will be developed in accordance with the Kinross Corporate Responsibility Management System standards and will be implemented by the FGMI Environmental Department.

17.2. CORPORATE POLICIES

Kinross has a Corporate Safety and Sustainability Policy in place (January 2021) which defines the company's major approaches and objectives in health and safety, environment, and social relations.

In accordance with Kinross standards, all projects will be reviewed to ensure that the design incorporates appropriate health and safety, environmental and social considerations. The design must meet applicable regulatory requirements as well as the objectives and standards outlined in the various discipline design criteria.

Designs will be based on site-specific baseline data. In accordance with Kinross Standard 6.1 Project Planning, Design, Construction and Commissioning, the design will address, at a minimum, liquid management, acid generation, physical stability, and closure, or demonstrate that these are not applicable to the specific project.

17.3. OPERATION AND MANAGEMENT

The Project has an Environmental Department, with full-time staff supported by a Kinross corporate team. The Project's Environmental Manager and supporting team have direct responsibility for ensuring that environmental best practice and the relevant management plans are always followed. The Environmental Department's duties include, but are not limited to:

- reviewing all aspects of environmental management, including contractor performance and any site-specific initiatives directly instigated or managed by the mine (e.g., temporary employment of local people for specific tasks);
- ensuring accountability for the implementation of the management plans;
- performing site inspections and any formal auditing of both mine and contractor responsibilities;
- collating and checking environmental monitoring data;

- providing support for reporting to the relevant authorities, Kinross Corporate and stakeholders.

17.4. ENVIRONMENTAL STUDIES

17.4.1. BASELINE STUDIES

Environmental baseline conditions were established for the Project through a review of existing published data, new studies, and environmental reporting undertaken for the Project.

A summary of the completed environmental and social baseline reports to support the permitting activities for Manh Choh is provided in Table 17-1.

TABLE 17-1 MANH CHOH PROJECT BASELINE SURVEY REPORTS ISSUED

Baseline Report	Date Issued
Manh Choh Project Meteorological Monitoring Program Annual Report	December 2021
Manh Choh Project Preliminary Jurisdictional Determination Report	December 2021
Manh Choh Project Geochemical Baseline Report	December 2021
Manh Choh Project Waste Rock Management Plan	December 2021
Manh Choh Project Hydrogeological Characterization and Groundwater Modeling Summary	December 2021
Manh Choh Project Water Management Plan	December 2021
Manh Choh Project Fish Surveys	December 2021
Manh Choh Project Terrestrial Mammal Occurrence	December 2021
Manh Choh Project Breeding Bird Survey	December 2021
Manh Choh Project Nesting Raptors Survey	December 2021
Manh Choh Project 2021 Cultural Resources Survey and Evaluation	December 2021
Manh Choh Project 2021 Cultural Resources Survey and Evaluation, Section8 Appendix (Confidential Information – Not for Public Distribution)	December 2021
Manh Choh Project Subsistence Data Review	December 2021
Manh Choh Project Visual Simulation Report	December 2021
Manh Choh Project Noise Technical Report	December 2021
Manh Choh Project Noise Technical Report Twin Road Haul Route Analysis Addendum	December 2021
Manh Choh Project Reclamation and Closure Plan	December 2021
Manh Choh Project Socioeconomic Baseline Profile	May 2021
Manh Choh Project Summary – A Regional Socioeconomic Profile and Assessment of Potential Economic Impacts	December 2021

The points below summarize key baseline information for the Project area and surroundings:

- Geology and environmental geochemistry: The majority of the bedrock in the area is a quartz muscovite ± biotite schist (QMS). Waste rock includes portions of material that is potentially acid generating (PAG) and metal leaching (ML). PAG rock, when oxidized by weathering, may form acid which can be harmful to aquatic life. ML rock can leach metal ions which can be harmful to aquatic life.

  Analysis of 96 waste rock samples showed that 83% of all oxide materials are classified as PAG. All types of waste rock show some degree of elevated arsenic relative to a reference value of 10 times average global abundance for shale. Other parameters that were elevated in at least some of the waste rock samples were silver, cadmium, cobalt, copper, lead, and selenium. Highest concentrations were typically reported in the skarns. A waste rock management plan has been developed to manage PAG material and the risk of ML (see section 17.6).

Manh Choh ore has PAG and non-acid generating (NAG) components and will be processed at Fort Knox prior to the onset of PAG conditions. Leachable arsenic was reported in all Manh Choh ore samples.

Pit wall rock masses assessed as being ML or PAG will be covered during mining and reclamation activities. During mining, surface water run-off and pit inflows will be collected and treated via a perimeter ditch collection system and in-pit dewatering infrastructure.

Analysis of the geochemistry of road construction material is on-going as access roads are advanced. At the time of report preparation, no PAG material has been identified nor is it expected based on the geology along the road alignment.

- Air quality: The Project is in the Northern Alaska Intrastate Air Quality Control Region. EPA has designated the Project area as in attainment or unclassifiable for all criteria air pollutants. The closest nonattainment area to the Project is the Fairbanks North Star Borough (FNSB) PM2.5 Nonattainment Area located approximately 155 miles (250 km) to the northwest.

  Existing meteorological and ambient air quality data sources available in proximity to the Project area are limited. Peak Gold established a meteorological station at the mine. The purpose of the Manh Choh Meteorological Monitoring Program is collecting Prevention of Significant Deterioration (PSD) quality surface meteorological data to support engineering and design studies and to use in dispersion modelling for support of air permitting requirements. The meteorological station was also constructed to comply with Kinross EMS Standard 10.6.4.2 requiring sites to have a meteorological station.

- Climate: The Project is in the eastern region of the Southeast Interior climate zone, based on the climate boundary zones identified by the National Oceanic and Atmospheric Administration (NOAA). This continental/subarctic climate zone is characterized by short, warm summers and long, extremely cold winters. The regional climate is highly variable. During the winter ambient temperatures can be low as -65°F and low-level temperature inversions are common. Precipitation in the area generally increases with elevation. The lowest temperatures typically occur during January and February and the highest temperatures typically occur in June and July. This temperature pattern is consistent with the continental and subarctic climate conditions in Interior Alaska.

  Precipitation usually accumulates during the late-spring, summer, and early-fall months. Snowfall typically occurs in the months of September through May. On average, Northway and Tok experience approximately 37.4 in. and 40.8 in. of total snowfall per year, respectively. The annual average precipitation observed at the Northway Airport, Tok No. 1 station, and Tok No. 2 station was 10.64 in., 11.25 in., and 12.27 in., respectively. The mean annual precipitation at the Manh Choh meteorological station was 10.97 in. based on measurements collected during the Project Meteorological Monitoring Program year from November 1, 2020 to October 31, 2021.

- Surface water: Manh Choh is located at a hydrographic divide such that surface water flows away from the site in all directions, discharging into three defined national hydrographic basins, including:
    - NHD 190803020705-Tok River south of Tok River, including Thunder Creek, Grayling Creek, Hillside Creek, South Day Creek, and North Day Creek;
    - Tetlin Lake Catchment NHD 190803020308, including N Black Creek and S Black Creek; and
    - Tetlin Lake Catchment NHD 190803020310-Tetlin Lake, including Eagle Creek.

  Seasonal intermittent stream flow occurs in the catchment headwaters on both sides of the drainage divide. Perennial stream segments start down-gradient of the Project area, at locations of year-round groundwater discharge which are delineated by ice build-up (aufeis) in winter.

  Surface water monitoring data is available from 19 sites around Manh Choh since 2012. Stream discharge is perennial in all catchments. Most stream flows during the low-flow late fall and winter months are assumed to represent baseflows due to the limited precipitation at Manh Choh during this period. Baseflows range between approximately 10 gpm and 100 gpm, depending on location within the catchment.

  Water quality in the headwater streams that drain the Project area is generally good. Constituent concentrations down-gradient of the site are generally low, but higher concentrations are reported in samples taken from the Tok River and Tetlin Lake. Baseline iron, arsenic, and manganese concentrations in Tors Creek exceed Alaska Department of Environmental Conservation (ADEC) guideline values due to the proximity of the mineralized orebody. Baseline sulfate, metals, and total dissolved solids (TDS) concentrations are consistently higher in groundwater than surface water, particularly in the vicinity of the orebody, however, concentrations are not consistently higher than ADEC guideline values. Down-gradient of Manh Choh, water quality of streams reflects the mixing of the mineralized groundwater discharge with runoff from the stream headwaters.

- Wetlands: A wetlands preliminary jurisdictional determination study (PJD) was completed and the report presents the findings of the baseline (current existing conditions) fieldwork for a 6,024-acre study area. This includes the extent of vegetation cover and the wetlands and waters within the Project study area. Wetlands and waters include wetlands, streams, and ponds. The 2021 study area wetland mapping is based on the criteria in the ACOE Wetland Delineation Manual, the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0), and the 2020 National Wetland Plant List. The results of the field verified mapping shows that the majority of the area is uplands; wetlands and waters account for 197.8 acres (3.3%) of the study area. One pond and numerous narrow streams provide the total waters in the study area. Based on current mine planning and access road construction, the Project will impact a total of 5.2 acres of wetlands.

- Fish habitat: The National Hydrography Dataset (NHD) indicates a flowline crossing the Tetlin Village Road. Field inspections revealed that there is no surface water and, as a result, this habitat does not support fish.

  The Project does not include disturbance of fish habitat. Waters flowing from the Tetlin Hills are first-order streams with high gradients.

- Flora and Fauna: None of the species recorded in the Project area are listed as Threatened or Endangered as specified by the U.S. Fish and Wildlife Service (USFWS). There is only one listed endangered plant species in Alaska. It is a small fern (*Polystichum aleuticum)* endemic to the Aleutian Islands which does not occur in the Project area. The fauna studies did not identify any federally or state-listed threatened or endangered species. There are some fauna species and habitat worth noting:
    - The Tetlin Hills are within the breeding range of the Olive-sided Flycatcher, which is designated by the USFWS as a species of conservation concern in Bird Conservation Region 4 (BCR 4; North-western Interior Forest), which encompasses most of Interior Alaska.
    - The Short-eared Owl was not observed but is also a species of conservation concern and may occur in the area.
    - Two Bald Eagle nests were found during the raptor nest survey, both greater than two miles from the Project. The USFWS advises that activities within two miles of Bald Eagle or Golden Eagle nests may require an incidental take permit.
    - Three common raven nests were found and these species are protected under the Migratory Bird Treaty Act (MBTA).
    - No waterfowl nesting habitat was observed in the Project area. Waterfowl nesting habitat is prevalent in the broader region.
    - Approximately 41 species of mammals may occur in eastern Interior Alaska. Of these, moose and caribou are the most important subsistence species. The Project avoided important lowland moose habitat surrounding the Tok River. Individual animals from two caribou herds may be present seasonally. Caribou avoid areas of recent wildfire, which indicates they may naturally avoid the Project. Dall sheep are not known to occur in the Project area.
    - No Project activities (on site and off site) are located within protected areas. The closest protected area is the Tetlin National Wildlife refuge, which is approximately 20 to 30 miles to the east and southeast of the Project.
- Groundwater: Groundwater flow at the site is extremely low because of the dry conditions and limited recharge area. Any groundwater flow that does occur is localized and will percolate mostly through fractures, faults, and related small-scale structures. The limited overburden thickness and low bedrock hydraulic conductivity further reduces recharge; most precipitation runs off the site. Although there is no active permafrost at the site, zones of discontinuous relict bedrock permafrost do occur, and act to further interrupt the movement of groundwater. The small amount of recharge that does occur is related to spring snowmelt. This causes seasonal increases in piezometric levels of 5 ft to 30 ft. The relatively large seasonal fluctuation of groundwater levels is indicative of a low storage groundwater system.

  Groundwater levels were monitored using 14 wells between 2019 and 2021. Groundwater has a wide range of constituent values due to surface recharge sources, connection to fracture porosity, permafrost conditions, and other factors. The regional water table varies by up to 30 ft seasonally, and recharge response is delayed by months. Elevation gradually rises after snowmelt and hits seasonal lows during the winter.

Groundwater quality sampling has occurred since 2016, for a total of 15 wells and one groundwater seep. Water quality of the groundwater seep sampled during the monitoring program is indicative of a natural magnesium-calcium-bicarbonate type water, similar to surface water. Arsenic and sulfate are two key naturally occurring constituents of concern identified which have contrasting behavior in water. Sulfate is conservative, (i.e., is non-reactive and will tend to remain in solution), while arsenic is reactive and can naturally be pulled from solution by sorption and precipitation processes. Comparing these can highlight the different processes in surface water and groundwater. In groundwater, elevated arsenic is consistently associated with elevated sulfate concentrations across the range of wells. In contrast, arsenic is relatively depleted versus sulfate in most surface waters. The contrast between surface and groundwater is interpreted to reflect natural attenuation processes which deplete arsenic from groundwater as it moves down-gradient of Manh Choh, prior to discharging as stream base-flows.

Infiltration testing indicates the upper weathered bedrock is relatively permeable, while the underlying weathered bedrock is seen to be permeable. Infiltrated water is expected to flow through the vadose zone at low rates such that metals will likely attenuate in contact with organic rich shallow soils or weathered bedrock by sorption or reaction processes. The low rates of groundwater inflow to the pits, low bedrock hydraulic conductivity, and deep-water table mean that drawdown is expected to be limited to the local areas of the pit walls.

- Soil: The Project area is generally hilly and steep. Representative soil samples have been collected on Manh Choh as part of the exploration work and baseline studies. Soils were analyzed for a range of geochemical parameters, in particular those elements typically associated with gold mining activities. No evidence exists of soil contamination resulting from previous mining operations.

- Communities: The Project is located on property owned and controlled by the Native Village of Tetlin (Tetlin), an indigenous Upper Tanana Athabascan Native Alaskan community. The village chief and council represent the people and are re-elected every four years, with the most recent election held in 2019.

  Tetlin has a population of less than 200, made up of Upper Tanana Athabascans. The village is unincorporated but is a federally recognized native community, at least 97% native or part Alaska Native, located in the federal Tetlin National Wildlife Refuge. The way of life is traditional, with most people living a subsistence way of life. Alcohol and drugs are prohibited in the community. The village has a native justice system with a tribal court which enforces Tetlin's code of tribal ordinances. There is a volunteer fire department, a public safety officer, and a search and rescue team of about 25 community members. It is connected to the Alaska highway by a 20-mile dirt road which reaches the village of Tok on the main highway where Alaska State Troopers are located.

  Tetlin made the decision decades ago not to organize under the ANCSA, and therefore owns both the surface and subsurface rights to their land. In turn, they cannot participate in or gain any of the economic benefits of belonging to a native corporation, such as a shareholder dividend for tribal members or access to training and education. The average annual household wage in Tetlin is less than $8,000.

  The unincorporated community of Tok serves as the larger community in the area, housing most of the public services such as health care and food services. In 2010, the population was 1,500 – down from a decade prior. Tok residents are a mix of mostly non-native Alaskans, native Alaskans, and people wishing to live a more rural lifestyle. Retired military make up some of the residents. The largest employer is the federal and state government.

In 2020, 106 people lived in Tetlin, 1,187 in Tok, and 6,937 in the entire Southeast Fairbanks Census Area. Over the past decade, the population of Tetlin declined by 21 (17%), while Tok's population declined by 68 (5.4%). These rates of population decline are greater than in the Southeast Fairbanks Census Area overall (1.3%). One active business license is currently issued to a Tetlin address while 188 licenses have been issued to Tok businesses.

- Land use: As previously mentioned, the Project is located on land owned by Tetlin. Tetlin is a federally recognized Native tribe. Tetlin is not associated with any regional Alaska Native Corporation. In general, subsurface rights went to regional Alaska Native Corporations. Due to Tetlin's special status, they have retained ownership of the subsurface mineral rights. Tetlin has had a mineral exploration program in place in the Tetlin Hills since 2008. Tetlin has a community land use plan aimed at the protection, respecting, and utilization of the land.

  The Bureau of Land Management (BLM) database states that all the land surface and subsurface rights in the Tetlin Hills portion of the Project was transferred to the Tetlin Village Corporation circa 1981. The latest planning documents state that there was a land transfer in 1998 from the Tetlin Village Corporation to the Native Village of Tetlin, and the surface and subsurface is currently owned by the Native Village of Tetlin. There are no 17(b) easements in the Tetlin Hills portion of the Project. No land use authorizations are on file with the BLM.

  RS2477 right of ways protect public access to lands. The Tetlin Hills portion of the Project is in the vicinity, but does not impact three RS2477 right of ways:

  - Tok River Road Number 233
  - Tok Dog Mushers Trail Number 1759
  - Slana-Tanana Crossing Number 188

- Heritage: No historic-age buildings or historic sites were found. Seven prehistoric archaeological sites were identified and further evaluated during Phase II testing. Based on the Phase II testing and subsequent data analysis, Higgs Research and Consulting (HRC) is of the opinion that five of the seven sites meet federal archaeological site significance criteria making them eligible for listing on the National Register of Historic Places (NRHP). The five eligible sites retain integrity and important archaeological information relevant to understanding the past land use patterns by prehistoric peoples and the development of Native Alaskan culture in the Upper Tanana River region. Two of the seven sites, in HRC's opinion, lack significance or integrity to meet NRHP eligibility criteria. One of the five eligible sites is located on the highest outcrop within the Project mine area and is the current location of the Manh Choh meteorological (MET) station. At this location, a U.S. Geodetic Survey monument was placed and is associated with an Upper Tanana Athabascan place name. Shovel testing at this multi-component site found both surface and subsurface prehistoric stone tool making material in at least three distinct activity areas. The prehistoric artifacts suggest short-term habitation events and the refurbishing of stone tools while waiting for game to hunt.

The location of the Twin Road, adjacent to the Tetlin Village Road has not been surveyed by a pedestrian survey, due to the recent addition (Winter 2021) of this project element at the request of Tetlin. This survey will be conducted in 2022 and permitted in accordance with the Alaska State Historic Preservation Office (SHPO) requests.

- Noise and vibration: Baseline studies covered the Project area and the highway transportation route to Fort Knox and included 19 ambient noise monitoring locations. This area of analysis was chosen because it represents the area where the Project is most likely to affect potential receivers. This monitoring data formed the basis of the modeling for potential noise impacts.
- Visual environment: A study was conducted to characterize the baseline visual resources in the area. The area of analysis was chosen because it represents the area where the Project is most likely to affect visual resources. The proposed mine is located on Tetlin owned lands, which has no visual resource management categories or regulations. The area is generally natural.

17.4.2. ASSESSMENT OF ENVIRONMENTAL IMPACT

Peak Gold prepared an Environmental Information Document (EID) which presents a summary of the Project, baseline environment and potential impacts. Extensive technical reports have been prepared to support the analysis. This EID directly quotes and summarizes the technical reports, provides supplemental analysis for some categories (i.e., land use), and presents a single distilled narrative of baseline resources and potential impacts. The EID defines the potential impacts as:

- Negligible Impacts: Resource would not be affected, or impacts would not result in a loss of individuals or habitat.
- Minor Impacts: Impacts on resource would be measurable or perceptible and local; however, the overall viability of the resource (i.e., population or subpopulation) would not be affected and without further adverse impacts the population would recover.

Potential effects may include the temporary, short-term, long-term, and permanent impacts to the resource. Short-term effects are changes, such as habitat removal, that end after the completion of construction activities, mine closure, and successful reclamation. Long-term effects consist of changes irrespective of reclamation success. Permanent effects are associated with facilities that permanently alter the resource category.

The impacts definitions are intensity, duration, and context are provided in Table 17-2.

TABLE 17-2 IMPACT DEFINITIONS

Attribute	Term	Description
Intensity (severity or levels of magnitude of an impact)	Negligible	Resource would not be affected, or impacts would not result in a loss of individuals or habitat.
	Minor	Impacts on resource would be measurable or perceptible and local; however, the overall viability of the resource (i.e., population or subpopulation) would not be affected and without further adverse impacts the population would recover.

Attribute	Term	Description
	Moderate	Impacts would be sufficient to cause a change in the resource (e.g., abundance, distribution, quantity, or viability); however, the effect would remain local. The change would be measurable and perceptible, but the negative effects may be reversed.
	Major	Impacts would be substantial, highly noticeable, and may be permanent in their effect on resource without active management.
Duration (the length of time an effect would occur)	Temporary	Impacts would occur during construction activities (i.e., six months to one year) or during maintenance activities.
	Short Term	Impacts would occur for one year or less for a part of the resource (e.g., individual or habitat); five years or less for the resource as a whole.
	Long Term	Impacts would occur for greater than one year for a part of the resource (e.g., individual or habitat); greater than five years for the resource as a whole.
	Permanent	Impacts on the resource would be permanent.
Context (effect(s) of an action must be analyzed within a framework, or within physical or conceptual limits)	Localized	Impacts are confined to a small part of the resource (e.g., population, habitat, or range).
	Regional	Impacts would affect a widespread area of the resource (e.g., suitable habitat or the range of the population or species).

Context means that the effect(s) of an action must be analyzed within a framework, or within physical or conceptual limits. Resource categories: location, type, or size of area affected (e.g., local, regional, national); and affected interests are all elements of context that ultimately determine significance. Duration of effects typically refers to the timeframe, or length of time, that a project's effects would occur relative to specific resources.

Table 17-3 lists the Project's potential impact significance, which ranges from negligible to minor. This table should be read in conjunction with Table 17-4 which describes the impacts in summary format.

TABLE 17-3 IMPACT SUMMARY

Resource	Proposed Action	No Action
Physical and Chemical Environment		
Air Quality	Minor, Long-Term, Localized	No Impact
Climate Change	Negligible, Short-Term, Localized	No Impact
Noise	Negligible, Short-Term, and Localized	No Impact
Visual	Minor, Permanent, and Localized	No Impact
Hazardous Materials	Negligible to Minor, Short-Term, and Localized	No Impact
Geology and Geochemistry	Minor, Permanent, and Localized	No Impact
Permafrost	Negligible, Permanent, Localized	No Impact
Water Resources	Negligible, Long-Term, Localized	No Impact
Soils	Minor, Permanent, Localized	No Impact
Biological Environment		
Wetlands	Negligible, Long-Term, Localized	No Impact
Vegetation	Negligible, Long-Term, Localized	No Impact
Fish	No Impact	No Impact
Birds	Negligible, Long-Term, Localized	No Impact
Wildlife	Negligible, Long-Term, Localized	No Impact
Social and Economic Environment		
Subsistence	Negligible, Long-Term, Localized	No Impact
Cultural Resources	Minor, Permanent, Localized	No Impact
Land Use	Negligible, Temporary, Localized	No Impact
Recreation	Negligible, Temporary, Localized	No Impact
Socioeconomics	Minor, Long-Term, Localized*	Minor, Long-Term, Localized
Environmental Justice	Minor, Long-Term, Localized*	Minor, Long-Term, Localized
Traffic	Minor, Long-Term, Regional	No Impact

Notes: Green – Positive Impact; Red – Negative Impact, White – Negligible or No Impact

* The No Action would negatively impact the socioeconomics and environmental justice populations at Tetlin and Tok. In contract, the Proposed Action will positively impact these resource categories. These positive impacts are currently the only proposal to address the poverty rates at Tetlin, an Alaska Native community.

TABLE 17-4 SUMMARY OF ASSESSED IMPACTS OF THE MANH CHOH PROJECT

Resource Area	Resulting Impact Significance
Air quality	The concentration of air emissions will remain below the assessment level that has been adopted for the protection of human health. Peak Gold will implement an automated warning system for the transport of fugitive dust from the Project. This system informs the operations and environmental management when conditions are present that may present offsite dust transport. Any cumulative impacts to air quality would be negligible. The Project will obtain the required minor air quality permits (minor source specific or general minor air quality permit) as required. As a prerequisite to issuing the required air permits, ADEC would ensure that Project components comply with applicable air quality requirements.
Ecology	The overall long-term impact of the habitat loss on site and the ecology of the area are considered low.

Resource Area	Resulting Impact Significance
Birds, Fish, Wildlife	Past, present, and reasonably foreseeable future actions that could contribute to cumulative effects include transportation, subsistence, recreation, and mineral exploration. Transportation and mineral exploration can develop infrastructure in existing habitat, create noise which causes animals to avoid habitat, and cause direct impacts (e.g., collisions, inadvertent fuel spills). Given the large expanse of fish, bird, and wildlife habitat in the surrounding area, any potential impacts from these activities would be a very small fraction of existing resources. Cumulative impacts for transportation and mineral exploration would be negligible.
Subsistence	Past, present, and reasonably foreseeable future actions that could contribute to cumulative effects include transportation, recreation, and mineral exploration. Transportation and mineral exploration can develop infrastructure which can both increase and decrease the impact to subsistence. Infrastructure would fill natural habitat, decreasing the habitat available to subsistence resources. Infrastructure would also provide greater access for subsistence users to engage in traditional activities. One of the major hindrances to subsistence is movement over the landscape. The positive and negative impact of either of these activities to subsistence is anticipated to be offset by the large amount of subsistence habitat available in the surrounding area. Impacts to subsistence from transportation and mineral exploration is expected to be negligible.
Groundwater	Low significance – existing wells will be monitored to ensure closest users are not impacted by operations. At this stage no dewatering wells are planned and the North and South pits are generally above the groundwater table. Any water encountered will be directed to a sump and managed accordingly. No pit lake assessment was conducted since there will not be a pit lake in either the North or South Pit. The waste rock will be managed in accordance with a Waste Rock Management Plan to manage PAG material. Mining and reclamation will not leave rock permanently exposed within the pit walls for the North and South pits. Rock walls are ML. A groundwater and solute transport model was used to help optimize the closure plan. The model predicts post-closure water elevations in the North Pit can be maintained to keep most of the backfill material above the water table, and any down gradient seepage will be negligible. A program of enhanced filling with water is planned for the South Pit to minimize the time the backfill remains unsaturated. Modelling indicates that virtually all parameters in the down gradient headwaters will be below the ADEC guideline values. The ore is potentially PAG and NAG. The ore will be temporarily stored on site and loaded into trucks for transport to Fort Knox for processing. At Fort Knox, the ore will be blended to form a NAG composite.
Surface water	Low significance and manageable through the storm water pollution prevention plan.
Noise and vibration	Limited disturbance from increased traffic volume is expected. Negligible to low noise or vibration impacts are anticipated beyond the mine site. Mitigation of such impacts along the length of Tetlin Village Road and Twin Road is anticipated.
Soils and land use	Negligible impact on land use during construction and operation is anticipated. Exploration and mining activities are within Tetlin's land use goals.
Traffic	Additional traffic volumes associated with construction and operation phases are anticipated and considered low. Tetlin and Alaska Department of Transportation (ADOT) are being consulted and projects are anticipated to reduce traffic hazards. Past, present, and reasonably foreseeable future actions that could contribute to cumulative effects include transportation and mineral exploration.

Resource Area	Resulting Impact Significance
	The transportation projects are anticipated to have a positive impact on cumulative traffic. The proposed improvements have long been desired by the area communities.
Socioeconomics	Past, present, and reasonably foreseeable future actions (RFFAs) that could contribute to cumulative effects include transportation, recreation, and mineral exploration. Both activities can provide increases in economic activity in the region, from direct sales to indirect activities such as food and lodging. The regional economy is largely based on the transportation network running through the Upper Tanana Valley, and increased spending would improve local incomes. These activities could also have negative socioeconomic effects, including causing strains on social services such as police, fire, health care, housing, and utilities. None of the RFFAs are anticipated to be of a scale large enough to have a negative impact on socioeconomics. The current infrastructure is sized to accommodate these potential activities. Overall, the potential impact to socioeconomics is either negligible or positive.
Social Justice	Past, present, and RFFAs that could contribute to cumulative effects include transportation, recreation, subsistence, and mineral exploration. Tetlin Village and Tok are both environmental justice populations. Positive impacts from the potential cumulative impacts include the addition of jobs, income, and infrastructure to these communities. Recreation and subsistence also improve the quality of life of residents in Tetlin Village and Tok, although in ways more difficult to quantitatively measure. Negative impacts are anticipated to be negligible given the current permitting requirements for transportation and mineral exploration. Tetlin also owns the surface and subsurface rights, and so controls the activities on their land in the Tetlin Hills, further decreasing the potential for a negative impact. Cumulative impacts to environmental justice communities are anticipated to be positive.
Archaeology and cultural heritage	Based on the 2021 mine and infrastructure plans, the Project could impact one NRHP eligible site as described in the baseline (section 17.4.1). The four other NRHP eligible sites should be avoidable during the life of the mine; however, avoidance of all seven prehistoric sites is recommended to prevent any damage to their current condition or integrity until ACOE NRHP eligibility determinations are formalized. Should ACOE agree with HRC's recommendations, then ACOE will need to prepare a Programmatic Agreement (PA) within a consultation framework involving Peak Gold, Tetlin Village (landowner and stakeholder), the State Historic Preservation Officer (SHPO), and other interested parties. The PA will detail treatments to mitigate any potential adverse effects to historic properties that may be caused by the Project. A Phase II Twin Road investigation will be performed during the summer of 2022. Historic significant items and documentation will be provided to Tetlin. A Cultural Heritage Management Plan has been developed to address the Phase III mitigation plan for the NRHP eligible archaeological site TNX-270 (CTA-01) that will be adversely affected by the Project and future discoveries of cultural resources that may be discovered during the Project's construction and operation. Any recoverable artifacts, data, and documentation will be provided to Tetlin.
Landscape and visual	The visual impacts encountered with the Project are minor and reclamation will mitigate visual impacts from the mining site. Any cumulative impacts to visual resources will be negligible.
Waste management	With mitigation and proper management, adverse impacts for waste rock management are considered to be of minor significance.

Resource Area	Resulting Impact Significance
Climate change	Past, present, and reasonably foreseeable future actions that could contribute to cumulative effects with the proposed mine include transportation and mineral exploration. Both activities lead to an increase in air emissions. Air quality permits would be obtained when required, and there are no significant air quality concerns for the area. Any cumulative impacts to air quality would be negligible. The cumulative activities would involve emissions of greenhouse gases from consumption of fuel. The increase in emissions from cumulative impacts would be negligible.

Environmental consequences described are issues-based. This means only the resource categories anticipated to be affected by the Project are included. Remaining resources categories that are not anticipated to be affected or that are not applicable are considered non-issue resources and are summarized in Table 17-5. These resource categories are not included in detailed analysis of the EID.

TABLE 17-5 NON-ISSUE RESOURCE CATEGORIES

Resource	Evaluation
Coastal Resources	The project is not located in or adjacent to any coastal resources.
Wild and Scenic Rivers	There are no designated wild or scenic rivers in the vicinity of the Proposed Action (National Park Service, 2021).
Navigable Waters	No impacts to navigable waters subject to Section 10 of the Rivers and Harbors Act of 1899 are anticipated.
Farmlands	According to the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (USDA, 2021), there are no designated soils of local importance, nor prime or unique farmland within the project area.
Endangered Species Act	The IPaC (Information, Planning, and Consultation System) website was consulted for the project area on May 7, 2021 and it indicated no threatened, endangered, or candidate species or critical habitats for the Proposed Action.

CLIMATE CHANGE IMPACTS

Peak Gold has assessed climate change impacts of its proposed Manh Choh Project within the broader framework of Kinross' corporate climate change strategy (Stantec, 2021a) including:

- Incorporating energy efficiency measures that are economic over the life of mine.
- Implementing a corporate fuel management policy to improve energy efficiency.
- Seeking opportunities with electric power provider, Alaska Power & Telephone, to reduce greenhouse gas (GHG) emissions.
- Working with Tetlin Village to implement community projects with GHG reduction benefits.

In the EID (Stantec 2021a), Peak Gold characterized GHG emissions from Manh Choh to be negligible within a short-term duration. Although the Manh Choh Project GHG emissions will be immaterial in the context of global emissions, KGMA's indirect parent, Kinross, has publicly stated its corporate commitment to work toward the goals of the Paris Agreement with the ultimate objective of achieving net-zero emissions by 2050. In working toward this objective, Kinross is advancing a strategy to include tangible GHG reductions by 2030 based on fuel efficiency and switching to renewable energy where feasible (Boreal Environmental Services 2022).

With respect to climate change effects of the Project on the local environment, it is important to note that GHG emissions from a specific project do not cause localized impacts that can be compared to an ambient air quality standard the way criteria pollutants, such as nitrogen oxides or sulfur dioxide, can be. GHGs, such as carbon dioxide, are ubiquitous in the atmosphere and, therefore, impacts from GHG are global in nature rather than local. Consequently, local climate change impacts from Project GHG emissions will be virtually nonexistent (Boreal Environmental Services 2022).

Climate change adaptation and resiliency are important considerations in Manh Choh mine design even though the proposed mine life is only 4.6 years. Climate change impacts that could affect mines include water stress, e.g., more frequent droughts or severe rainstorms and flooding. Manh Choh would be a low water-usage mine so droughts would not have a significant impact on operations. If more frequent or intense rainstorms occur, the mine is well situated on a hilltop high above the flood plain (Stantec 2021a).

Managing storm water runoff is an important long-term issue. Manh Choh is designed to safely manage a 1 in 100-year storm event, an important aspect of post-closure resiliency. This type of low probability, high impact storm event is predicted to become more frequent with climate change. By designing to low probability events, infrastructure would be inherently resilient to changes in precipitation over the relatively short mine life (Stantec 2021a).

All waste rock storage areas are designed to minimize recharge and to isolate PAG and ML material, and therefore minimize any potential for external discharge from the waste rock over the long term. Any future changes to mean annual rates and seasonal patterns of precipitation and temperature are therefore not expected to change net infiltration or otherwise affect the environmental design intent of the waste rock facilities (Stantec 2021a).

17.5. MANAGEMENT OF IMPACTS

17.5.1. GENERAL

Policies, procedures, and requirements for environmental protection and compliance with regulatory requirements at Manh Choh will be developed once regulatory agency permits, plans, and agreements are approved and issued. These agency documents will provide specific regulatory requirements that will be used for development of Manh Choh's policies and procedures. These policies and procedures will be incorporated into the Manh Choh Environmental Management Plan (EMP).

The EMP will describe the Manh Choh EMS and provide guidance towards meeting the objectives of the Peak Gold Safety and Sustainability Policy. This policy will be aligned with the Kinross Corporate Safety and Sustainability Policy. The EMP will be a tool for ongoing environmental compliance assurance, planning, auditing, and budgeting, with a focus on continuous improvement of the system. The EMP will apply to all aspects of Manh Choh operations, including, but not limited to, mine construction and operations, crushing, maintenance, warehousing, and exploration activities, as well as ancillary facilities (e.g., ore transfer, water management, powder magazine, reverse osmosis water treatment system, etc.). The EMP will describe environmental tasks; list environmental permits, licenses, and authorizations and corresponding obligations; contain inspection and monitoring routines and checklists; and include reporting and environmental management procedures. The EMP is aligned with Kinross Corporate Responsibility Management System (CRMS) Environmental Management System standards. The following sections will be included in the EMP.

- Section 1.0 Introduction
- Section 2.0 Environmental Department
- Section 3.0 General Department Responsibilities
- Section 3.1 Mine Operations
- Section 3.2 Mine Maintenance
- Section 3.3 Crusher
- Section 3.4 Exploration
- Section 3.5 Technical Services
- Section 3.6 Water Management
- Section 3.7 Ore Transfer
- Section 3.8 Personnel Camp
- Section 3.9 Environmental
- Section 4.0 Environmental Obligations
- Section 5.0 Environmental Review
- Section 5.1 Management of Change
- Section 5.2 Corporate Environmental Review
- Section 6.0 Document Retention Policy
- Section 6.1 Document Location
- Section 7.0 Contractor Management
- Section 8.0 Spill Response Procedures
- Section 8.1 State of Alaska Reportable Spills

- Section 8.2 Federal Reportable Spills
- Section 9.0 Permits, Licenses and Authorizations
- Section 10.0 Personnel Training
- Section 10.1 General
- Section 10.2 Hazardous Waste
- Section 10.3 Hazardous Materials Management and Transportation
- Section 10.4 Emergency Response
- Section 10.5 Spill Prevention
- Section 10.6 Storm Water
- Section 11.0 Waste Management
- Section 11.1 Solid Waste
- Section 11.2 Hazardous Waste
- Section 11.3 Universal Waste
- Section 11.4 Waste Minimization
- Section 12.0 Air Quality Management
- Section 12.1 Title I Air Quality Control Minor Permit
- Section 12.2 Air Monitoring
- Section 13.0 Discharge Water
- Section 14.0 Compliance Monitoring
- Section 14.1 Quality Assurance and Quality Control
- Section 15.0 Planned Inspections
- Section 16.0 Aspects Analysis
- Section 17.0 Objectives and Targets
- Section 17.1 Environmental Objectives
- Section 17.2 Performance Indicators
- Section 17.3 Performance Targets

The existing principal documents will be updated and other plans to be prepared for the Project will provide specific instructions for environmental aspects include:

- Manh Choh Safety and Sustainability Policy
- Manh Choh Water Management Plan
- Manh Choh Waste Rock Management Plan
- Manh Choh Solid Waste Management Plan
- Manh Monitoring Plan

- Manh Choh Biological Resources Plan
- Manh Choh Cultural Heritage Plan

17.5.2. OPERATIONS PHASE

This section discusses key management plans specific to the operations phase. These plans have been developed to align with Kinross corporate plans and will continue to be reviewed periodically and updated during the operations phase as required.

AIR QUALITY MANAGEMENT PLAN AND CLIMATE CHANGE

Air quality management at Manh Choh will be in accordance with applicable State of Alaska regulations and the yet to be issued Title I Air Quality Control Minor Permit. An air quality management plan will be developed and implemented once the air permit is issued.

Air monitoring will be conducted in accordance with the air emissions permit and anticipated air quality impacts will be minimal.

Manh Choh will develop fugitive emissions (dust) procedures to reduce emissions from Project operations. Peak Gold will develop and implement an automated warning system for the transport of fugitive dust from the site. This system will inform the operations and environmental management when conditions are present that may indicate offsite dust transport.

GHG emissions are not anticipated to be significant. Environmental personnel will review the contractor's project Safety Data Sheets (SDS) for any GHG maintenance products and recommend that the contractor make a substitution for an acceptable non-GHG containing product. Equipment and structural air conditioning equipment will be maintained by qualified maintenance personnel using GHG recycling equipment.

As discussed in section 17.4.2, climate change adaptation and resiliency are important considerations in mine design. Climate change impacts that could affect mines include water stress, e.g., more frequent droughts or severe rainstorms and flooding. Manh Choh is proposed to be a low water-usage mine so droughts would not have a significant impact on operations. If more frequent or intense rainstorms occur, the mine is well situated on a hilltop high above the flood plain.

CULTURAL HERITAGE MANAGEMENT PLAN

If any significant new discoveries are made within the Project area, the mine will immediately report what was found to the State of Alaska Office of Heritage and Archaeology.

CHEMICALS AND PETROLEUM MANAGEMENT PROCEDURE

Use and handling of chemicals and fuels will be in accordance with the requirements of the ADNR and Alaska Department of Natural Resources (ADEC) including federal and State permit requirements.

Design is a critical element for ensuring the correct management of chemicals and fuels. The design features of each storage option consider aspects of containment, security and safety measures, including:

- Applicable legislation and environmental permit requirements
- Methods of containment and system integrity
- Minimum distances from ignition sources, process areas, occupied buildings, and site boundaries
- Fire resistance, including the effects of fire on the containment system
- Impermeability and resistance to attack from materials stored
- Nature of the product to be stored
- Firefighting systems
- Security and signage
- Ventilation at high and low levels
- Need to segregate incompatible products

CONSUMABLE AND HAZARDOUS MATERIAL TRANSPORTATION

Manh Choh uses the management plans described in this section to manage solid and hazardous waste that provide procedures to Manh Choh employees and contractors for onsite spill response, handling, storing, containerizing, and offsite shipment of solid and hazardous waste.

The Manh Choh Solid Waste Management Plan (SWMP) sets procedures and functional responsibilities for the Resource Conservation Recovery Act's (RCRA) activities at Manh Choh. The SWMP will provide details for managing solid waste, universal waste, and hazardous waste. The SWMP will identify the proper packaging, marking, labelling, and transportation requirements of regulated waste. The SWMP will be updated to provide appropriate training requirements for Project personnel that generate and handle solid waste, universal waste, and hazardous wastes.

The Manh Choh Mine Spill Reporting Procedures & Waste Disposal procedures will be developed and will be the other component to the SWMP. The spill procedures document will be issued to all employees and contractors for proper spill response actions and spill cleanup management. This plan and booklet will address construction and operation phases of the mine, and both will be updated, when necessary, as the Project continues to develop.

The Manh Choh Waste Minimization Plan will be developed and provide guidelines that may be used by mine personnel to reduce the generation of wastes generated at Manh Choh.

INTERNATIONAL CYANIDE MANAGEMENT CODE

No cyanide processes will be used at Manh Choh. Ore will be transported to Fort Knox for processing.

ENERGY USE AND CONSERVATION MEASURES

Manh Choh will generate its electricity from diesel powered generators. The local utility, Alaska Power and Telephone does not have power generation capability to provide power to the Manh Choh mine site. The diesel generators will use EPA Tier 4 engines, which are required to comply with the current federal emission standards for stationary engines.

Manh Choh uses diesel and used oil in its boilers and heaters. Use of these two fuels is monitored routinely for compliance with the Project's Title I Air Quality Permit.

Conservation measures of energy use are evaluated for onsite equipment and projects. The FGMI's Achieving Excellence and management of change programs are examples of evaluation methods.

EMERGENCY PREPAREDNESS PLANS

The Project will have a centralized emergency response team (ERT) to cover all emergencies, with processes and procedures for different emergency scenarios. The emergency response plans will be reviewed and revised as necessary. Examples of the Project's Emergency Response Plan will include:

- Emergency response procedures for initial emergency response and communication, offsite medical treatment, emergency evacuation, emergency notification (offsite and onsite), and incident reporting.
- Emergency response program objectives, preparedness performance responsibilities, emergency team and control center.
- Incident categories and risk assessment.
- Risk control for physical threats and actions, bomb threats, severe weather, hazardous materials, earthquakes, critical injury/fatality, oil spills, and fire.
- Appendices of the Emergency Response Plan include, as examples, mutual aid agreement, security measures and response actions, ERT members, Mine Safety and Health Administration notification script, ERT training, emergency medical supply list, ERT rescue trailer, and support equipment checklist.

BIOLOGICAL RESOURCES PROTECTION PLAN

No protected areas are within the area occupied by the mine.

- The biodiversity action plan will be the Environmental Manager's or appointed representative's responsibility, and will include provisions for:
- Recording and analyzing any notable sightings of any avian or terrestrial fauna, flora and invasive species observed on and off site.
- Routinely checking for bird and animal mortalities at the Project facilities including access roads.
- Establishing habitat and vegetation measures, which potentially may include:
    - pre-construction fauna surveys to verify baseline surveys and address potential new fauna habitation.

- Removing any invasive alien species, including an assessment during and after the eventual closure phase.

HAZARDOUS MATERIALS AND SOLID WASTE MANAGEMENT

Hazardous Materials

Hazardous materials need to be carefully managed to minimize both environmental and occupational health and safety (EHS) risks. Accordingly, a combined EHS approach has been adopted, which covers:

- Collation of SDS information and risk assessment and mitigation actions, including definition of correct emergency response measures for all hazardous materials on site (e.g. chemicals, fuels and lubricants, bottled gases, explosives, and radiological sources).
- Provision of awareness training, information and signage, including updates as appropriate. Personnel will be trained in the safe handling, storage, and disposal of hazardous substances, with particular regard to minimizing possible exposure (e.g., through the use of personal protective equipment).
- Provision and correct use of suitable and sufficient personal protective and decontamination equipment (such as a respirator, goggles, gloves, personal dosimeters, emergency eyewash stations and shower facilities, and spill kits).
- Correct location and design of all storage facilities for hazardous substances and hydrocarbons in a manner that complies with applicable regulations and company and industry best practices.
- Correct operation of all hazardous material storage areas in a safe and secure manner, with restricted access and proper supervision at all times.

Special measures will be implemented for refuelling operations and mining explosives, including routine inspection and maintenance of all hazardous material storage. Explosives and fuel storage areas will be inspected at least weekly if not more often.

Geological Materials Management Plan

The Waste Rock Management Plan (WRMP) plan provides detail on the procedures for characterizing, classifying, and managing waste rock associated with the proposed Manh Choh Project. The first step in developing a WRMP is to characterize the geochemical behavior of the various waste rock material types associated with the Project. This characterization defines the potential for the waste rock material to generate acid or leach deleterious constituents. The characterization is used to develop a classification system that can be used during implementation of a waste rock handling plan that manages waste rock materials for different facilities. Specifically, the WRMP includes:

- A summary of the geochemical characterization programs undertaken to date that define the geochemical behavior of the waste rock.
- The volume of waste rock to be produced according to the current long-range mine plan.
- Waste rock classification according to operational criteria for waste rock management.

- Waste rock placement design and procedures to minimize potential oxidation and solute generation.
- Reclamation and closure activities planned for the waste rock disposal facilities.

The WRMP incorporates acid base accounting (ABA) and solute generation information, and general waste rock volumes and types, in order to optimize the development of waste rock disposal facilities and minimize the potential for constituent releases, while supporting final closure actions.

The Project has proposed a geochemical waste rock classification system which consists of four waste rock management domains for oxide and four domains for transition/sulfide materials according to acid generating and/or metal leaching potential. The material classifications will inform mine planning waste segregation and development of the mine WRMP. Site specific neutralization potential/acid generating potential ratios have been developed for oxide and sulfide material. Thresholds for high and low metal leaching were also developed for oxide and sulfide materials based upon As/S molar ratios. Arsenic is identified as a parameter of concern and the expectation is that arsenic mobility will be different for sulfide and oxide materials due to a difference in mineralogical hosts. The molar ratios were developed using the relationship between As/S in solids and the rate of arsenic leaching indicated by humidity cell tests.

The ore has potentially PAG and NAG components. All ore will be temporarily stored on site and loaded into trucks for transport to Fort Knox for processing. At Fort Knox, the ore will be blended to form a NAG composite. The blended composite may have elevated copper and other metals (e.g., cobalt, copper, molybdenum, and selenium).

Mining and reclamation will not leave rock permanently exposed within the pit walls for both pits. Any waters contacting pit walls have the potential to influence the overall water chemistry and will be treated as needed.

The WRMP will periodically be modified to integrate data from ongoing geochemical studies, mine modeling changes, mine planning, WRD performance monitoring, and changes to the Integrated Waste Management Permit and/or other information.

SPILL PREVENTION AND RESPONSE PLAN

Management of petroleum will comply with the requirements specified 40 CFR Part 112, Oil Pollution Prevention. A Spill Prevention, Control, and Countermeasure Plan (SPCC) will be developed and implemented for the Project. Currently, there is an existing SPCC for the ongoing exploration project which will need revision to comply with mining activities.

The Project will develop and implement a Spill Reporting Procedures and Waste Disposal Plan that will provide Manh Choh and contractor personnel with the procedures for reporting and managing waste from spills of hazardous materials including oil/petroleum, and their reportable quantities. The plan will describe response procedures, notification to supervisors, reporting procedures, facility contacts, waste inventory, and disposal procedures.

All hazardous material containers greater than and equal to 55 gal are stored in secondary containment to avoid spills/releases to the environment. Containment of hazardous materials will be compliant with Kinross' Environmental Management System Standard 10.5, Chemical and Petroleum Management. The current exploration project complies with Standard 10.5.

STORM WATER MANAGEMENT PLAN

During construction of the access road improvements and mine infrastructure for the Project, co-permittee applications (contractor and Peak Gold) as specified by the Alaska Pollutant Discharge Elimination System (APDES) Construction General Permit Number AKR100000 will be submitted to the ADEC. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared and implemented to control storm water during construction activities.

During mining, an APDES storm water discharge authorization application as specified by the APDES Multi-Sector General Permit (MSGP) Number AKR060000 will be submitted to the ADEC, and mining will not begin until an authorization has been approved. It is anticipated that the existing MSGP Authorization Number AKR06GA93 for the Tetlin Project (hard rock exploration) will be amended for the Project mining activities. The existing SWPPP for the Tetlin Project will be amended and implemented for the Project's mining activities.

WATER MANAGEMENT PLAN

A dewatering water management plan has been developed for the existing Manh Choh operations and will be reviewed and updated if necessary.

PERFORMANCE MEASUREMENT AND MONITORING PLAN

The Manh Choh Environmental Monitoring Plan has been developed for the Project and will be reviewed and updated as necessary to accommodate permit requirements. The plan covers pre-operational and operational monitoring, as well as closure monitoring. The main types of monitoring are as follows:

- Geological materials monitoring and characterization for acid generation potential
- Potable water supply monitoring
- Avian and terrestrial wildlife monitoring
- Water quality monitoring
- Wildlife Mortality Reporting

17.5.3. ENVIRONMENTAL MANAGEMENT SYSTEM

The EMS will be developed in accordance with the Kinross Corporate Responsibility Management System and will be implemented by the FGMI Environmental Department. Any new requirements that emerge from new projects and any standards that might be required by international investors and lenders are periodically incorporated into the existing EMS and reviewed regularly.

The overall structure of the EMS will be described in the Manh Choh EMP.

An environmental and occupational health and safety approach will be adopted for contractor management. This approach will ensure that all contractors and any subcontractors, or other organizations or individuals working on their behalf are:

- Fully informed of the mine's environmental policy and environmental management system, and are aware that their compliance will be monitored
- capable of meeting all relevant environmental legislative or regulatory requirements associated with the activity in which they are engaged
- Committed to minimizing negative impacts on the environment by considering potential pollution risks, minimizing waste and resource consumption, and protecting the local environment

The engineering contractor will be responsible for providing specifications for contract documents, including any specific environmental clauses or conditions.

Principal contractors will be responsible for appointing their own EHS representatives. These representatives will be responsible for implementing and updating the contractor's environmental and social management policies and procedures. Where selected contractors do not have environmental policies or standards that meet Peak Gold's requirements, the engineering, procurement, and contractor's environmental manager will impose the Peak Gold environmental procedures as necessary.

17.5.4. PROJECT ALTERNATIVES ANALYSIS

The possibility of milling ore on site at Manh Choh rather than trucking it to Fort Knox for milling was assessed as a Project alternative; however, it was determined that onsite milling at Manh Choh would increase GHG emissions by approximately 18% (Boreal Environmental Services 2022). An onsite diesel power generation plant would also be required for onsite processing emitting not only GHGs but other pollutants as well. In addition, based on an impact analysis of identified wetlands, it is also clear that far more wetlands would be potentially affected with an onsite production alternative – 5.1 acres for the proposed ore transport alternative compared to nearly 45 acres for onsite processing due to the requirement of not only milling infrastructure but also a tailings disposal facility. The onsite processing alternative would have more significant environmental impacts in every regard when compared to the ore transport proposal and is therefore not a reasonable or practical alternative.

17.6. LEGAL REQUIREMENTS AND PERMITTING

17.6.1. ENVIRONMENTAL PERMITTING REGULATORS

Environmental permitting, coordination, fees, and compliance for the Project and mining industry in Alaska is conducted through the following federal and state agencies, departments, divisions, and programs:

- US Army Corps of Engineers (ACOE): Alaska District Regulatory Division; Clean Water Act §404 Permitting (wetlands).

- Alaska Department of Natural Resources (ADNR): Division of Mining, Land and Water, Mining Section, Water Resources Section, Office of History and Archaeology
- Alaska State Historic Preservation Office (SHPO): Office of Project Management & Permitting, Large Project Coordination
- Alaska Department of Environmental Conservation (ADEC): Division of Air Quality, Air Permit Program, Air Compliance Program; Division of Environmental Health, Drinking Water Program, Food Safety & Sanitation Program, Solid Waste Program; Division of Water, Wastewater Discharge Authorization and APDES Program, Mining Section, Engineering Support and Plan Review (septic systems), Storm Water Program, Clean Water Act §401 Certification (wetlands); Division of Spill Prevention and Response
- Alaska Department of Fish and Game (ADF&G): Habitat Section
- Alaska Department of Public Safety (ADPS): Division of Fire and Life Safety

17.6.2. EXISTING ENVIRONMENTAL APPROVALS

The following current permits were issued to Peak Gold and must be regularly updated:

- Clean Water Act §401 Certification of Reasonable Assurance. Issued by ADEC on August 14, 2017 and expires on December 31, 2022.
- Wetlands Fill Permit POA-2023-286. Issued by ACOE on January 5, 2018 and renewed in July, 2022.
- Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity Authorization Number AKR06GA93. Issued by ADEC on May 1, 2020 and expires on March 31, 2025.
- Approved Reclamation Plan, Approval #2626. Issued by ADNR on February 17, 2021 and expires on December 31, 2025.
- Temporary Water Use Authorization (TWUA) F2020-093. Issued by ADNR on February 18, 2021 and expires on December 31, 2025.

17.6.3. PERMITTING STRATEGY

In accordance with the U.S. National Environmental Policy Act (NEPA), the ACOE is required to prepare either an EA or an Environmental Impact Statement (EIS) using environmental baseline surveys and public comments. The ACOE's EA is required by the agency because of the U.S. Clean Water Act (CWA) §404 Wetlands Fill permitting process. The ACOE is the Federal regulatory agency responsible for issuing a §404 Wetlands Fill Permit for the Project.

In September 2022, the Project received a Wetlands Fill Permit under CWA §404, as part of an EA. It appears that the ACOE will prepare an EA based on only 5.2 acres of wetland disturbance and ACOE's public notice for the CWA §404 Wetlands Fill Permit Application on January 13, 2022. Provided that the ACOE follows through with completion of an EA, the permitting timeframe is estimated to take no more than six to nine months to complete.

The EA will identify and rank all environmental risks, their impact, status, and mitigation strategy. Peak Gold submitted an EID and supporting documents with the CWA §404 Wetlands Fill Permit Application. The EID and supporting documents provide the ACOE with environmental information and data needed to prepare an EA. Numerous permits and approvals are also required at the State level. These are being processed concurrently with the federal wetlands permitting process.

Table 17-6 summarizes all key permit applications and plans for the Project site.

TABLE 17-6 RELEVANT PERMITTING STRATEGY AND SCHEDULE SUMMARY

Permit/License/ Government Approval	Description	Issuing Agency	Application Date
CWA §404 Wetlands Fill Permit	The §404 permit is required before any construction and mining activities can occur on wetlands.	ACOE	December 31, 2021 (permit issued July 2022)
CWA §401 Water Quality Certification	The §401 Water Quality Certification approval is required before the §404 permit is issued, and before any construction and mining activities can occur on wetlands.	ADEC	December 31, 2021
Waste Management Permit (WMP)	The WMP is required before any mine construction and mining activities can occur.	ADEC	December 31, 2021
Reclamation and Closure Plan (RCP)	The RCP (including reclamation costs) approval is required before any mine construction and mining activities can occur. The reclamation cost approval is included with RCP approval. The financial assurance document from Peak Gold must also be provided to Alaska after approval of the RCP.	ADNR & ADEC	December 31, 2021
Plan of Operations (POO)	The POO is needed to support the wetlands 404 permitting process, WMP permitting process, the RCP approval process and other Alaska regulatory agency permitting processes. Once permits and plan approvals are issued, the POO meets the approval of the regulatory agencies.	ADNR	December 31, 2021
Water Appropriation Permits	Water rights for Manh Choh must be in place before water can be used for construction and mining activities.	ADNR	December 31, 2021
APDES Effluent Discharge Permit	An APDES discharge permit is required before any mine water discharge from Manh Choh to Waters of the United States (WOTUS).	ADEC	December 31, 2021
Fish Habitat Permit	A Fish Habitat Permit is required before any construction and mining activities occur that may impact fish.	ADF&G	December 31, 2021
Air Emissions Title I Minor Permit	The Air Quality Control Minor Permit is required before regulated stationary emission sources can be constructed and placed into service.	ADEC	December 31, 2021

Permit/License/ Government Approval	Description	Issuing Agency	Application Date
APDES Construction Storm Water Permit	Selected contractor is required to apply for and receive the Construction Storm Water Permit. Peak Gold is a co-permittee and will submit co-permittee application using contractor application information.	ADEC	TBD
APDES Multi-Sector General Storm Water Permit (MSGP)	Before mining operations begin, a Notice of Intent (NOI) Modification to the current MSGP #AKR06GA93 for the Manh Choh exploration activities must be submitted that details the projects change from exploration to mining. This includes revising the Project's SWPPP.	ADEC	December 31, 2022
Camp Septic and Leach Field Construction Permit	Septic and leach field construction authorization is required before construction can begin.	ADEC	December 31, 2021
Camp Water Well Construction Permit	Water well construction authorization is required before the well is drilled and used as a non-transient, non-community water system.	ADEC	December 31, 2021
Camp Food Service Permit	A food service permit for the camp kitchen and cafeteria is required before food can be prepared and served to personnel.	ADEC	TBD
Fuel Island Construction Permit	A construction permit is required before construction of the fuel islands.	ADPS	TBD

17.6.4. OTHER PERMITS AND APPROVALS

Other permits and approvals that may be required for the Project are summarized in Table 17-7.

TABLE 17-7 SUMMARY OF POTENTIAL STATE OF ALASKA PERMIT AND AUTHORIZATION REQUIREMENTS

Sector	Permit Type	Notes
Archaeology and Cultural Heritage	The ACOE has made an Adverse Effect determination regarding the Met Station site TNX-00270 (CTA-01). The §404 application is being coordinated with SHPO and the Advisory Council on Historic Preservation (ACHP). Any comments SHPO may have concerning presently unknown archaeological or historic data that may be lost or destroyed by work under the requested §404 permit will be considered in the ACOE final assessment §404 permit application.	The Met Station site TNX-00270 (CTA-01) will be adversely affected by the Project via establishment of the Main WRSA. Peak Gold intends to excavate the site, salvage the prehistoric items within, and turn them over to the Native Village of Tetlin prior to constructing the WRSA.
Waste Rock Management	The Waste Rock Management Plan approval by ADEC.	The Waste Rock Management Plan is approved by the issuance of the Waste Management Permit by ADEC.
Water Management	The Water Management Plan approval by ADEC.	The Water Management Plan is approved by the issuance of the Waste Management Permit by ADEC.
Monitoring	The Monitoring Plan approval by ADEC.	The Monitoring Plan is approved by the issuance of the Waste Management Permit by ADEC.
Solid Waste Management	The Solid Waste Management Plan approval by ADEC.	The Solid Waste Management Plan is approved by the issuance of the Waste Management Permit by ADEC.

Permit fees are paid through Reimbursable Service Agreements (RSAs) with the State of Alaska. Permits issued through the State of Alaska Departments of Fish and Game, Natural Resources and Environmental Conservation are covered by RSAs.

17.6.5. PERMITTING RISKS

The Project involves activities for a new greenfield mine on Tetlin private land, and most of the concerns and risks associated with the permitting process are understood and can be anticipated.

The Project's principal permitting risk was associated with wetland disturbance and the possibility of triggering an EIS under the NEPA instead of an EA. Based on a proactive effort to minimize Project-related impacts to wetlands, an EIS was not required and a wetlands permit was issued in September 2022 as part of an EA of the Project.

Although not considered material to operating permits, in response to public concerns, the Department of Transportation and Public Facilities has funded an independent corridor analysis to review potential impacts of an increase in traffic along the selected access route. The Fox community sits between Fairbanks and Fort Knox in the final leg of the corridor and is a focus of concern due to traffic increases. Additionally, the single lane Steese highway near Fox has tight curves that have been noted by some community members as being unsafe already, including the closest neighborhood of Cleary Summit. The selected corridor analysis contractor will work with the newly established Transportation Advisory Committee (TAC) that is being led by a consultant. The TAC will make recommendations to the contractor and will help identify areas of concern. More information on this process can be found on the ADOT's website (Tetlin to Fort Knox Corridor, Transportation & Public Facilities, State of Alaska).

17.7. STAKEHOLDER AND COMMUNITY RELATIONS

17.7.1. GOVERNMENT RELATIONS

Responsible management of the state's resources is uniquely embedded in the state constitution and Alaska is generally pro-resource development, relying heavily on North Slope oil royalty revenue to finance the state. Many applicable government officials have expressed support for the Project. Their primary interest is the potential of an economic boost in a region that greatly needs it. With a total of 60 legislators, the Alaska legislature is the smallest bicameral state legislature in the United States. There are 20 senate districts, each represented by a senator serving a four-year term. Each senate district represents two corresponding house districts, each with a representative serving a two-year term.

There is growing pressure in Alaska by some citizens and elected leaders to target the mining industry with an increase in taxation.

In 2008, the mining industry successfully defeated Ballot Measure 4 (BM4) which threatened the future of the Alaskan mining industry. While the measure initially appeared to focus on the large undeveloped Pebble copper/gold deposit, ultimately, BM4 advocates promoted a mining versus salmon and clean water message. If the measure had passed, it might have impacted existing mines and would have limited the development of future resources. The measure failed in a public vote 57%-43%, with the Alaska native corporations providing key support to the industry.

A subsequent ballot initiative threat, 17FSHB, or Stand for Salmon, was defeated in 2018 – 62% against, 38% for. It is widely accepted by the State of Alaska, all industries, and the native corporations that if enacted, the initiative would have stifled permitting of new and existing projects.

17.7.2. NON-GOVERNMENT ORGANIZATIONS AND CIVIL SOCIETY ORGANIZATIONS

Kinross is widely recognized as the leader in responsible mining in Alaska. In recent years, it has made major milestones to further cement its standing as a sustainability-focused operator. It has successfully implemented a robust water treatment program and clean water discharge program, successfully reclaimed the True North mine, which received much recognition from key state officials and leaders and have greatly enhanced our partnership with Trout Unlimited to include a new Alaska Abandoned Mine Reclamation Initiative that started in 2021. This initiative has been recognized nationally as a model of true commitment to investing in natural capital.

Despite efforts at early and transparent community outreach, a group of community members has formed in opposition to the Project's transportation plan, largely citing safety but shifting on occasion to air quality and noise concerns. The group calls itself the Advocates for Safe Alaskan Highways and is led by Gary Wilken, a former state senator, Fairbanks businessman, and former and/or current board member of several statewide pro-development boards and commissions. The group is not supportive of trucking any ore along the highway system, although the plan is legal and requires no special permits. The group has been advocating against the Project with legislators, the Borough Assembly, and the public largely through letters to the editor or social media.

In response to public concerns, the Department of Transportation and Public Facilities has funded an independent corridor analysis to review potential impacts of an increase in corridor traffic. The selected corridor analysis contractor will work with the newly established TAC that is being led by a consultant. The TAC will make recommendations to the contractor and will help identify areas of concern. This group is made up of mine advocates, leadership from Alaska Native villages along the route, other local government representatives, emergency fire and rescue personnel, tourism representatives, local school districts, and government agencies, including the Department of Environmental Conservation, Department of Public Safety, Federal Highway Administration, and Federal Motor Carrier Group. More information on this process, including committee member biographies, corridor analysis details, meeting announcements and notes, and Frequently Asked Questions can be found on the ADOT's website (Tetlin to Fort Knox Corridor, Transportation & Public Facilities, State of Alaska).

17.7.3. BUSINESS ORGANIZATIONS

An early, positive relationship has been established with the Tok Chamber of Commerce, and KGMA continues to maintain regular, proactive contact. The Chamber sponsored a Tok community meeting in December 2020 to provide an opportunity for the site to give a Project update, and they have publicly supported and/or co-hosted community meetings and events since then. This partnership with the Chamber will be critical as KGMA continues to work with them to develop a local business registry and future initiatives, such as local contractor fairs, to support area businesses.

17.7.4. MEDIA

Upon announcement of the Peak Gold acquisition on October 7, 2020, media coverage was far-reaching and included both written and broadcast means. In general, the initial coverage was informational and positive, citing that the Project will "strengthen [Kinross'] medium-term production and cash flow profile" as a result of the Project. Tetlin Chief Michal Sam was quoted as stating, "We look forward to the safe and responsible development of the project and the positive benefits it is expected to generate for our community. We also look forward to further building a relationship with Kinross, a company with a strong track record in Alaska, and are pleased to see further investment plans for the project."

Local media continues to be supportive or neutral regarding the Project, especially the local newspaper (Fairbanks Daily News Miner). In Q1 2022, there was a sharp increase in Letters to the Editor relating to the Project, following a well-attended Fairbanks public meeting. Letters mostly expressed concerns around the ore transportation plan. However, there were also letters in support of the Project, and the newspaper itself expressed its support for the Project. All media related to the Project is tracked and documented in SharePoint.

1.1.1. COMMUNITY VIEWS AND CONCERNS

The Manh Choh community relations team maintains a community and stakeholder database. As previously mentioned, the Project is located on lands leased from the Tetlin Village Council, a traditional Upper Tanana Athabascan community. The village chief and council represent the people and are re-elected every four years, with the most recent election held in 2019.

Interior Alaska continues to be supportive of mining and is cognizant of its mining-rich history. The most recent Council of Alaska Producers (CAP) Public Perception study indicates that 75% of interior Alaska residents support mining, 82% believe that it is crucial that Alaska continues to be a leader in mineral investment, and 91% believe that mining is an important sector to Alaska's economy. However, the continued and growing public opposition to the Pebble project, and other indicators suggest that the support for new mines in Alaska has much decreased in recent years. There is, without question, a growing disconnect between the growing need and demand for minerals and a basic understanding of the importance of extracting minerals domestically, where people and environment-first practices are paramount.

The local area of Tok and surrounding areas, including the Native Village of Tetlin, have expressed support for the Project in numerous engagements, community meetings, public testimony, and in letter form. The local communities see great value in the Project to include hope and opportunities that could be generationally impactful. They also expect that the Project will maximize opportunities for local employment and local business, operate in a safe and environmentally responsible manner, properly maintain the tribal road impacted by increased traffic, and respect the desire to maintain cultural and subsistence ways of life.

The current ore transport plan anticipates that the ore trucks will depart from the Manh Choh mine site and will end at the Fort Knox mill for processing, traveling approximately 240 miles on 90% public roadways along the Alaska, Richardson, and Steese highways. The route will pass through the communities of Tok, Delta Junction, Salcha, North Pole, Fairbanks, and Fox. Two smaller lakeside communities that the corridor will pass by, but not through, are Harding Lake and Birch Lake. Public meetings have been held in communities along the route, either virtually or in-person, to provide information and listen to community concerns.

The Fox community sits between Fairbanks and Fort Knox in the final leg of the corridor and is a focus of concern due to traffic increases. Additionally, the single lane Steese highway near

Fox has tight curves that have been noted by some community members as being unsafe already, including the closest neighborhood of Cleary Summit. When nearby satellite deposit True North was still being mined, some Cleary Summit neighbors were very vocal and oppositional during ore transport on the mine access road. In 2022, the Fort Knox formally established a Community Advisory Committee, comprised of local residents and organizations that are geographically located near the mine and meet quarterly. The group has met multiple times and has held a specific meeting on ore transport to establish open communication and transparency. Many of those group's members have safety concerns about additional commercial traffic along this portion of the corridor.

For those communities concerned about ore transport, however, they have cited concerns including traffic congestion, passing vehicles, school bus stops, bridge infrastructure, adverse weather conditions, impacts on roadways, and cost of maintenance.

Based on the business context, company goals, and through listening to stakeholder groups, the priorities for engagement are:

- Broad local support through jobs, training, educational opportunities, and infrastructure
- Managing expectations and the reality of a short mine life
- Investing in a sustained relationship strategy
- Understanding and mitigating the impact of trucking ore through communities 240 miles from the mine site to Fort Knox
- Communicating with stakeholders who have traffic and safety concerns
- Participating closely with the ADOT's Transportation Advisory Committee/working group and Community Advisory Committees to better understand transportation concerns and explore mitigation solutions
- Supporting the landowner in preparations to manage expected royalty income
- Honoring and respecting Alaska Native traditions, culture, subsistence, and ways of life
- Maintaining access, as it is safe to do so, to the Project site and exploration areas, crossing leased community lands

17.7.5. NEIGHBORING INDIGENOUS COMMUNITIES

There are additional neighboring villages on or near the road system from Delta to Tok, which include the communities of Dot Lake, Healy Lake, Mentasta, Northway, and Tanacross. These villages are like Tetlin in many ways, however, unlike Tetlin, they opted in to ANCSA and benefit from revenue sharing between native corporations embedded in Alaska's unique structure.

The Tetlin Native Corporation is a separate entity, formed at the time when Tetlin village decided not to incorporate.

All villages have a seat on the Tanana Chief's Conference (TCC), the regional native group. TCC works on issues of shared interest and manages services such as healthcare and workforce development and training.

Indigenous representatives are listed on the Manh Choh comprehensive, internal, key community list. This list is updated regularly and reviewed quarterly to reflect any changes in stakeholder sentiment, interest, or influence.

17.7.6. STAKEHOLDER AND COMMUNITY RELATIONS MANAGEMENT PLAN

The goal of the stakeholder and community management strategy is to build and maintain solid, broad support for the Project through specific engagement plans in the key areas of government relations, community relations, media relations and communications. Kinross has a long history of positive community and government relations in interior Alaska.

The stakeholder engagement strategy is the site's integrated approach to building good relationships with its stakeholders. Through the engagement plan, the site interacts with stakeholders on the full range of topics including impacts both positive and negative, resolving complaints or grievances, managing risk, and implementing donations and community projects.

The political climate of Alaska is favorable to mining, and key external stakeholders in the Project include:

- regulatory authorities
- Alaska native tribes and corporations
- national, regional and local government authorities
- Non-Government Organizations (NGOs) and conservation groups
- local communities
- business communities
- media organizations

Within each cluster, key people and groups have been identified and there is continuous stakeholder engagement with each of these groups, targeted at their areas of interest. KGMA has engaged with authorities and community members to discuss the Project and address concerns relative to potential impacts. During 2020 to the second quarter of 2022, the Project engaged with the Tetlin Village Council, Tanana Chiefs through a conference, the Tok Native Association and numerous stakeholders such as the Advocates for Safe Alaskan Highways, Alaska Miner's Association, Alaska Gateway School district, Alaska Resource Education, Greater Fairbanks Chamber of Commerce, Resource Development Council, the Northway, Fox, Mentasta and Delta communities, Fort Knox Community Advisory Committee, and with government departments such as the Department of Transport, Alaska State Troopers, US Forest Service, among others. In addition, many individual community members were regularly engaged.

A community engagement plan has been in place since 2021 and details an estimated consultation schedule for all key stakeholders in alignment with key internal targets such as contractor/employee trainings, baseline studies, newsletters, etc. The plan outlines meeting frequency, purpose, site lead, and resources needed, both internal and external. Documentation of each of these engagements is maintained on the Manh Choh internal SharePoint site, to include (when available) meeting minutes, sign-in sheets, announcements, and photographs.

Communication methods and tools developed include social media channels, distributed newsletters, local news outlets and a project website. The website www.manhchoh.com acts as a hub of information for stakeholders to reference and utilize to connect with the Project team. The site hosts information regarding jobs interest, vendor interest, FAQs, and Project updates. The ADOT also has a website to provide updates and information on the TAC and the third-party Corridor Analysis (Tetlin to Fort Knox Corridor, Transportation & Public Facilities, State of Alaska).

17.8. MINE CLOSURE PLANNING

Mine site reclamation and closure will be performed in accordance with the Manh Choh Project Reclamation and Closure Plan (RCP). The RCP was originally submitted for approval to ADNR and ADEC in December 2021 and was subsequently updated and re-submitted in January 2022. The RCP includes a closure cost estimate prepared using Alaska's Standardized Reclamation Cost Estimator (SRCE) model, which was used for calculating the financial assurance amount (bond) required by ADNR and ADEC. The SRCE model estimated a financial assurance requirement of approximately $63.5 million. Contango's attributable ownership portion of the financial assurance requirement is approximately $19.1 million, or as may be amended in the future. The public comment period for the revised (January 2022) RCP ended March 13, 2023 and approval of the revised RCP is expected approximately May 2023.

17.9. QUALIFIED PERSON'S OPINION ON ENVIRONMENTAL COMPLIANCE, PERMITTING, AND LOCAL INDIVIDUALS OR GROUPS

In the QP's opinion, the current plans related to environmental compliance, permitting, and local individuals or groups are reasonable for this level of study.

18. CAPITAL AND OPERATING COSTS

18.1. CAPITAL COSTS

Table 18-1 provides a summary of the Project capital cost estimate. All capital costs are presented on a 100% JV basis.

TABLE 18-1 SUMMARY OF PROJECT CAPITAL COSTS

WBS	Description	Manh Choh ($M)	Fort Knox Mill Modifications ($M)	Manh Choh + Fort Knox Mill Modifications ($M)
00	General Contracts	-	$2.7	$2.7
20	Mining & Mobile Equipment	$4.7	$2.5	$7.2
30	Site Development	$77.4	$3.2	$80.6
40	Process Facilities	-	$22.2	$22.2
50	Tailings	-	$2.6	$2.6
80	Indirect Capital Costs	$18.8	$12.0	$30.8
89	Contingency & Escalation	$14.0	$6.4	$20.4
Sub-total Initial Capital Costs		**$114.9**	**$51.6**	**$166.5**
Pre-Production General and Administrative (G&A)				$12.9
Administration (JV Management Fee)				$6.4
Highway Ore Transport				$33.6
Pre-Production Capitalized Stripping				$21.4
Total Capital Costs				**$240.8**

18.1.1. DIRECT CAPITAL COSTS

Direct Capital Costs (DCC) cover the costs of primary and ancillary access roads, mine camp, ore stockpile and loadout area, contact and surface water management, water treatment plant, mine facilities, primary power generation, process facilities, tailings, and other enabling infrastructure costs.

The estimate of DCC is quantitative-based and includes all the materials, equipment, supplies, and labor associated with the construction of the permanent facilities. Material takeoffs of quantities were developed from design drawings, developed to a level of definition appropriate to a feasibility study.

DCC are based upon on competitive firm bids or budgetary estimates received from contractors and vendors. All competitive firm bids and budgetary costs were reviewed by KGMA and the Project team before incorporation into the capital cost estimate.

Equipment and material supply cost estimates include shipping and freight costs but no installation costs. Construction and installation cost estimates include all costs for required craft labor, construction equipment, contractor direct supervision, materials, supplies, and supporting costs.

As shown in Table 18-1, total DCC for the Project (100% Peak Gold JV basis) are $82.1 million, excluding contingency. Total DCC for Manh Choh and Fort Knox Mill modifications are $115.3 million, excluding contingency.

18.1.2. INDIRECT CAPITAL COSTS

Indirect Capital Costs (ICC) include Owner's Costs, Engineering and Procurement, Indirect Construction Costs, operations overheads, freight and duties not included in DCC, warehouse inventory, contingency, escalation, and KGMA's Management Reserve allowance. KGMA Management Reserve amounts have been excluded from the Contango-only economic analysis in this report.

As shown in Table 18-1, total ICC for the Project (100% Peak Gold JV basis) are $18.8 million, excluding contingency. Total ICC for Manh Choh and Fort Knox Mill modification are $30.8 million, excluding contingency.

18.1.3. SUSTAINING CAPITAL COSTS

LOM sustaining capital costs for the Project total approximately $75.8 million and include $20.1 million for equipment and machinery and $55.8 million allocated to capitalized waste.

18.1.4. CLOSURE COSTS

The Manh Choh Project Reclamation and Closure Plan (RCP), dated December 2021, includes an estimated closure cost of $63.5 million, which was prepared using the Alaska SRCE model.

18.2. OPERATING COSTS

Project operating costs have been estimated by KGMA either through bottom-up estimating methods or from budgetary quotations. The base date of the operating cost estimate is Q1 2022 and is considered to have an accuracy of ±10%.

The operating cost estimate includes all site-related operating costs associated with mining ore to produce gold bars. The operating cost estimate does not include costs associated with downstream transport, marketing of products, or corporate overheads.

Table 18-2 summarizes LOM average unit operating costs by primary cost category. Operating costs are presented on a 100% Peak Gold JV basis.

TABLE 18-2 LOM UNIT OPERATING COSTS

Operating Cost	Unit	LOM Average Unit Cost
Mining	US$/t mined[1]	5.97
Processing	US$/t milled	52.26
G&A	US$/t milled	18.47
Ore Haul[2]	US$/t milled	63.39

[1] Includes capitalized stripping and includes WTI oil adjustment.
[2] Includes initial cost of highway trucks amortized across mine life and includes fuel cost based on $3.00/gal.

Fuel costs have been estimated assuming a WTI oil price of US$80/bbl, which equates to a fuel price of US$3.26/gallon.

Mining costs are based on competitive bids obtained from contractors and bottom-up estimation of costs such as fuel and explosives consumption. The mining cost is based on a December 2021 contractor quotation and has been escalated by 5% to bring it to the estimate base date.

Processing costs are estimated in accordance with the Toll Milling Agreement framework outlined in the JV agreement.

G&A costs are based on bottom-up estimation methods, competitive bids, and factoring of Fort Knox budgets.

Ore haul costs are based on negotiated contract terms with the selected haulage contractor with highway trucks and fuel supplied by the JV.

19. ECONOMIC ANALYSIS

The economic analysis contained in this TRS is based on Contango's 30% attributable ownership interest in Manh Choh Proven and Probable Mineral Reserves.

Economic assumptions and capital and operating costs in this analysis are based on the Manh Choh FS and FS economic update prepared by KGMA for the Peak Gold JV.

All costs are expressed without allowance for escalation or currency fluctuation in United States dollars (US$) with a H1 2022 cost basis and assume a West Texas Intermediate (WTI) oil price of US$80 per barrel.

The economic analysis is presented in metric units of measure.

A summary of key inputs for the analysis is provided below.

19.1.1. PHYSICALS

- Physicals (mineable ore inventory): Equal to Contango's 30% attributable ownership interest in Manh Choh Probable Mineral Reserves
- Mine life: 4.6 years (between years 2024 and 2028)
- Open pit operations
  - Open pit mine life: 4.6 years
  - Total ore tonnes mined: 1.18 Mt at 7.9 g/t Au and 13.6 g/t Ag
  - Waste tonnes: 13.7 Mt
  - Maximum mining rate: 13,023 tpd (ore and waste) in year 2024
- Processing of Mineral Reserves:
  - Total Ore Feed to Plant: 1.18 Mt
    - Gold grade: 7.9 g/t Au
    - Silver grade: 13.6 g/t Ag
    - Maximum milling rate: 13,200 tpd (ore will be processed on a batch basis approximately four times a year)
  - Contained Metal
    - Gold: 299,143 oz
    - Silver: 515,571 oz
  - Average LOM Plant Recovery
    - Gold 90.3%
    - Silver 69.2%
  - Recovered Metal

- Gold: 269,971 oz
- Silver: 356,819 oz

19.1.2. REVENUE

- Revenue stated in this section of the TRS only considers Contango's 30% interest in Peak Gold JV.
- Revenue is estimated over the LOM based on Contango's corporate guidance prices from January 2023 on a real basis, with a flat long-term price of $1,600/oz Au and $22.00/oz Ag, respectively. The QP considers these prices to be aligned with the current industry standards.
- Payable metals are estimated at 99.9% for gold and 99.0% for silver.
- Refinery charges are estimated to be as follows:
  - Doré transportation shipments: 15,000 oz per shipment.
  - Doré shipment costs: $10,000 per shipment.
  - Refining charges: $5.00/oz Au and $0.50/oz Ag.
- After transportation and refining charges, LOM Net Smelter Returns (NSR) of approximately $437 million.

19.1.3. CAPITAL COSTS

- A summary of the Project capital costs included in the economic analysis is provided in Table 19-1.

TABLE 19-1 PROJECT CAPITAL COSTS

Description	Units	Peak Gold JV (100% basis)	Contango[1] (30% portion)
Initial Capital Costs for Project Construction	$ million	189.4	56.8
Capitalized Waste Development - Initial	$ million	25.9	7.8
Sustaining Capital Costs	$ million	20.1	6.0
Capitalized Waste Development - Sustaining	$ million	55.8	16.7
Salvage Value	$ million	11.5	3.5
Closure/Reclamation Capital	$ million	105.6	31.7

Note:

1. Excludes approximately $52 million in capital costs allocated to Fort Knox (captured in Toll Milling costs).

19.1.4. OPERATING COSTS

- Operating costs summarized below are LOM average values and are based on Contango's 30% interest in the Peak Gold JV.

- Open pit mining: $5.97/t mined (ore and waste)
- Capitalized waste development: ($2.07)/t mined (credit)
- Ore haulage: $63.39/t milled
- Processing (toll milling): $52.26/t milled
- General and Administrative (G&A): $18.47/t milled ($5.5 million per year)
- Total unit operating costs: $183.43/t milled
- LOM total operating costs: $217 million (Contango's 30% interest)
- JV Management fee: In addition to site operating costs, there is a JV Management Fee charged by Peak Gold to the JV partners for running the site and operations. The fee is a percentage charge of applicable Project costs as specified in the JV Agreement. The fee varies between a 3% charge during pre-production and a 2% charge during the operations period. The JV Management Fee for Contango's 30% interest totals approximately $5.4 million over the LOM.

19.1.5. TAXATION AND ROYALTIES

- The Project is subject to the following royalties:
  - Production royalty with the Native Village of Tetlin. When production is achieved, Peak Gold will begin paying the Tetlin Council a production royalty less all advanced royalty payments and the $450,000 "buy up" payment. The current production royalty for gold, silver, platinum, palladium, rhodium, ruthenium, osmium, iridium, or any other precious metals or gems to the Native Village of Tetlin per Lease is:
    - 3.0% NSR royalty on the first four years of full-scale production
    - 4.0% NSR royalty on the fifth, sixth, and seventh years of full-scale production
    - 5.0% NSR royalty on the eighth and subsequent years of full-scale production
- Production royalty to Royal Gold, Inc., comprising:
    - 3.0% NSR royalty on the Lease
    - 28% NSR royalty on silver from the Lease
- The mining industry pays an Alaska corporate income tax of up to 9.4% of income, which is the same for all corporations in the state. The mining industry also pays up to 7% of net profits as an additional mining license tax, which applies to all mining operations, including royalty owners, regardless of size, land status, mineral ownership, or location.
- The QP has relied on Grant Thornton LLP (Contango's tax adviser) for the calculation of income and mining taxes applicable to the economic analysis.

19.1.6. CASH FLOW ANALYSIS

The QP has reviewed the Manh Choh FS financial model (100% Peak Gold JV basis) prepared by KGMA (Kinross Model) and Contango's own unlevered after-tax cash flow model for Contango's 30% interest in the Project (Contango Model).

Project economics in the Contango Model have been evaluated using the discounted cash flow method and considering annual processed tonnages and grade of ore. The QP reviewed the Contango Model and its assumptions for metal prices, metallurgical recoveries, operating costs, refining and transportation charges, and initial and sustaining capital expenditures and finds them to be reasonable.

Annual cash flow model results are presented in Section 19 of the TRS with no allowance for inflation.

At a 5% discount rate, results include a pre-tax and after-tax net present value (NPV) of approximately $49 million and $30 million, respectively. The QP is of the opinion that the application of a 5% discount rate for after-tax cash flow discounting of a precious metals Project in a politically stable region is reasonable and appropriate.

The economic analysis confirms that Contango's 30% interest in Project Mineral Reserves is economically viable at the assumed metal prices.

Undiscounted pre-tax cash flows total approximately $71 million and undiscounted after-tax cash flows total approximately $46 million.

The Project's internal rate of return (IRR) is defined as the discount rate that results in a Project NPV equal to zero. The Project's pre-tax IRR is approximately 31% and the Project's after-tax IRR is approximately 23%.

The World Gold Council Adjusted Operating Cost (AOC) on a Gold Equivalent (AuEq) basis is $899 per AuEq oz. The LOM sustaining capital cost is $218 per AuEq oz, for an All-In Sustaining Cost (AISC) of $1,116 per AuEq oz. Contango's portion of annual gold sales is approximately 58,402oz per year from 2024 to 2028.

Table 19-2 presents a summary of the Contango Model cash flow results.

TABLE 19-2 ANNUAL CASH FLOW MODEL

Commercial Production Timeline in Years		US$ & Metric Units	LOM Avg / Total		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Market Prices																	
Gold Price		US$/oz	**$1,600**	-	1,600	1,600	1,600	1,600	1,600	1,600	1,600	-	-	-	-	-	-
Silver Price		US$/oz	**$22.00**	-	22.00	22.00	22.00	22.00	22.00	22.00	22.00	-	-	-	-	-	-
Physicals																	
Total OP Ore Mined		kt	1,181	-	-	118	216	263	348	235	-	-	-	-	-	-	-
Total OP Operating Waste Mined		kt	7,321	-	-	567	1,773	1,209	3,460	312	-	-	-	-	-	-	-
Total OP Capitalized Waste Mined		kt	6,420	-	-	658	2,764	2,721	277	-	-	-	-	-	-	-	-
Total OP Material Mined		kt	14,921	-	-	1,342	4,753	4,193	4,085	547	-	-	-	-	-	-	-
Waste:Ore Ratio (Total)		W:O	11.64	-	-	10.39	20.96	14.96	10.73	1.33	-	-	-	-	-	-	-
Total Ore Processed		kt	1,181	-	-	-	104	445	298	298	35	-	-	-	-	-	-
Gold Grade, Processed		g/t	7.88	-	-	-	11.05	7.27	7.54	8.47	4.10	-	-	-	-	-	-
Silver Grade, Processed		g/t	13.58	-	-	-	11.63	16.87	9.87	13.24	12.10	-	-	-	-	-	-
Contained Gold, Processed		oz	299,066	-	-	-	36,955	104,031	72,289	81,159	4,631	-	-	-	-	-	-
Contained Silver, Processed		oz	515,480	-	-	-	38,910	241,515	94,559	126,810	13,686	-	-	-	-	-	-
Average Recovery, Gold		%	90.3%	-	-	-	91.0%	93.3%	89.2%	87.0%	89.8%	--	--	--	--	--	--
Average Recovery, Silver		%	69.2%	-	-	-	71.2%	72.8%	65.7%	65.5%	59.3%	--	--	--	--	--	--
Recovered Gold		oz	269,971	-	-	-	33,641	97,101	64,455	70,618	4,157	-	-	-	-	-	-
Recovered Silver		oz	356,819	-	-	-	27,692	175,751	62,164	83,099	8,113	-	-	-	-	-	-
Payable Gold	99.90%	oz	269,702	-	-	-	33,607	97,004	64,390	70,547	4,153	-	-	-	-	-	-
Payable Silver	99.00%	oz	353,250	-	-	-	27,415	173,993	61,543	82,268	8,032	-	-	-	-	-	-
Cash Flow																	
Gold Gross Revenue	98.2%	US$'000s	431,522	-	-	-	53,772	155,206	103,025	112,876	6,644	-	-	-	-	-	-
Silver Gross Revenue	1.8%	US$'000s	7,772	-	-	-	603	3,828	1,354	1,810	177	-	-	-	-	-	-
Gross Revenue Before By-Product Credits	**100.0%**	**US$'000s**	**439,294**	**-**	**-**	**-**	**54,375**	**159,034**	**104,379**	**114,686**	**6,821**	**-**	**-**	**-**	**-**	**-**	**-**
Gold Gross Revenue		US$'000s	431,522	-	-	-	53,772	155,206	103,025	112,876	6,644	-	-	-	-	-	-
Silver Gross Revenue		US$'000s	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Revenue After By-Product Credits		**US$'000s**	**431,522**	**-**	**-**	**-**	**53,772**	**155,206**	**103,025**	**112,876**	**6,644**	**-**	**-**	**-**	**-**	**-**	**-**
OP Mining Cost		US$'000s	(89,148)	-	-	(14,539)	(24,422)	(21,864)	(20,828)	(5,967)	(1,529)	-	-	-	-	-	-
Capitalized Waste & Mine Developmt		US$'000s	30,930	-	-	6,434	12,073	11,371	1,053	-	-	-	-	-	-	-	-
Ore Hauling Cost		US$'000s	(74,828)	-	(203)	(1,673)	(16,572)	(17,831)	(17,836)	(17,878)	(2,835)	-	-	-	-	-	-
Process Cost		US$'000s	(61,694)	-	-	-	(6,192)	(20,774)	(16,576)	(16,257)	(1,896)	-	-	-	-	-	-
G&A Cost		US$'000s	(21,805)	-	-	-	(5,439)	(5,494)	(5,529)	(5,343)	-	-	-	-	-	-	-
Offsite Freight & Refining Cost		US$'000s	(1,946)	-	-	-	(223)	(755)	(438)	(497)	(33)	-	-	-	-	-	-
Royalties		US$'000s	(28,517)	-	(25)	(25)	(3,284)	(10,563)	(6,614)	(7,356)	(524)	(25)	(25)	(25)	(25)	(25)	-
Subtotal Cash Costs Before By-Product Credits		**US$'000s**	**(247,009)**	**-**	**(228)**	**(9,803)**	**(44,059)**	**(65,910)**	**(66,769)**	**(53,297)**	**(6,817)**	**(25)**	**(25)**	**(25)**	**(25)**	**(25)**	**-**
By-Product Credits		US$'000s	7,772	-	-	-	603	3,828	1,354	1,810	177	-	-	-	-	-	-
Total Cash Costs After By-Product Credits		**US$'000s**	**(239,237)**	**-**	**(228)**	**(9,803)**	**(43,456)**	**(62,082)**	**(65,415)**	**(51,487)**	**(6,640)**	**(25)**	**(25)**	**(25)**	**(25)**	**(25)**	**-**
Operating Margin	**44%**	**US$'000s**	**192,285**	**-**	**(228)**	**(9,803)**	**10,316**	**93,124**	**37,610**	**61,388**	**4**	**(25)**	**(25)**	**(25)**	**(25)**	**(25)**	**-**
JV Management Fee		US$'000s	(5,428)	-	-	-	(1,100)	(1,475)	(1,325)	(1,094)	(365)	(20)	(15)	(15)	(13)	(6)	-
EBITDA		**US$'000s**	**186,858**	**-**	**(228)**	**(9,803)**	**9,216**	**91,649**	**36,285**	**60,295**	**(361)**	**(45)**	**(40)**	**(40)**	**(38)**	**(31)**	**-**
Depreciation/Amortization Allowance		US$'000s	(92,636)	-	-	-	(6,756)	(33,865)	(23,556)	(26,589)	(1,872)	-	-	-	-	-	-
Kinross Loan to JV (+/-)		US$'000s	0	-	1,824	4,457	(419)	(1,675)	(1,675)	(1,675)	(837)	-	-	-	-	-	-
Interest Expenses (+/-)		US$'000s	-	-	11	349	(342)	(5)	(5)	(5)	(3)	-	-	-	-	-	-
Earnings Before Taxes		**US$'000s**	**94,221**	**-**	**1,606**	**(4,997)**	**1,700**	**56,105**	**11,050**	**32,026**	**(3,073)**	**(45)**	**(40)**	**(40)**	**(38)**	**(31)**	**-**
Mining Tax		US$'000s	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Income Tax Payable		US$'000s	(25,071)	-	-	-	-	(4,407)	(5,440)	(15,225)	-	-	-	-	-	-	-
Net Income		**US$'000s**	**69,150**	**-**	**1,606**	**(4,997)**	**1,700**	**51,698**	**5,610**	**16,801**	**(3,073)**	**(45)**	**(40)**	**(40)**	**(38)**	**(31)**	**-**
Non-Cash Add Back - Depreciation/Amortization		US$'000s	92,636	-	-	-	6,756	33,865	23,556	26,589	1,872	-	-	-	-	-	-
Working Capital		US$'000s	-	-	(284)	(1,056)	(1,198)	(2,991)	1,952	(608)	2,612	(862)	(18)	-	(8)	2,460	-
Operating Cash Flow		**US$'000s**	**161,787**	**-**	**1,323**	**(6,053)**	**7,258**	**82,572**	**31,117**	**42,782**	**1,412**	**(906)**	**(59)**	**(40)**	**(46)**	**2,429**	**-**
Initial Capital		US$'000s	(56,807)	-	(9,450)	(46,380)	(977)	-	-	-	-	-	-	-	-	-	-
Sustaining Capital		US$'000s	(6,032)	-	-	-	(163)	(3,001)	(1,829)	(748)	(290)	-	-	-	-	-	-
Capitalized Waste Development - Initial		US$'000s	(7,768)	-	-	-	(7,768)	-	-	-	-	-	-	-	-	-	-
Capitalized Waste Development - Sustaining		US$'000s	(16,728)		-	-	(4,305)	(11,371)	(1,053)	-	-	-	-	-	-	-	-
Salvage Value		US$'000s	3,457	-	-	-	-	-	1,131	-	2,326	-	-	-	-	-	-
Closure/Reclamation Capital		US$'000s	(31,677)	-	-	(301)	(991)	(4,010)	(3,190)	(7,995)	(11,668)	(990)	(769)	(769)	(673)	(319)	-
Total Capital		**US$'000s**	**(115,554)**	**-**	**(9,450)**	**(46,681)**	**(14,203)**	**(18,383)**	**(4,940)**	**(8,744)**	**(9,633)**	**(990)**	**(769)**	**(769)**	**(673)**	**(319)**	**-**

Commercial Production Timeline in Years		US$ & Metric Units	LOM Avg / Total		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
LOM Metrics																	
Economic Metrics																	
a) Pre-Tax																	
Free Cash Flow		**US$'000s**	**71,303**	-	(8,127)	(52,734)	(6,945)	68,596	31,617	49,263	(8,221)	(1,896)	(828)	(809)	(720)	2,110	-
Cumulative Free Cash Flow		US$'000s			(8,127)	(60,861)	(67,807)	789	32,405	81,668	73,447	71,551	70,723	69,913	69,194	71,303	71,303
NPV @ 5%	**5.00%**	**US$'000s**	**48,993**														
IRR		**%**	**30.6%**														
b) After-Tax																	
Free Cash Flow		**US$'000s**	**46,232**		(8,127)	(52,734)	(6,945)	64,189	26,177	34,038	(8,221)	(1,896)	(828)	(809)	(720)	2,110	-
Cumulative Free Cash Flow		US$'000s			(8,127)	(60,861)	(67,807)	(3,618)	22,559	56,597	48,376	46,480	45,652	44,842	44,123	46,232	46,232
NPV @ 5%	**5.00%**	**US$'000s**	**29,744**														
IRR		**%**	**22.5%**														

19.1.7. SENSITIVITY ANALYSIS

Project risks can be identified in both economic and non-economic terms. Key economic risks were examined by running cash flow sensitivities on after-tax NPV at a 5% discount rate. The following parameters were examined:

- Gold head grade
- Gold metallurgical recovery
- Gold metal price
- Operating costs
- Capital costs (initial, sustaining, salvage, and closure)

After-tax sensitivities have been calculated for -20% to +20% variations for gold grade, and gold price, -6% to +6% variations for gold recovery, and -5% to +15% for operating costs and capital costs to determine the most sensitive parameter of the Project. The sensitivities are presented in Table 19-3.

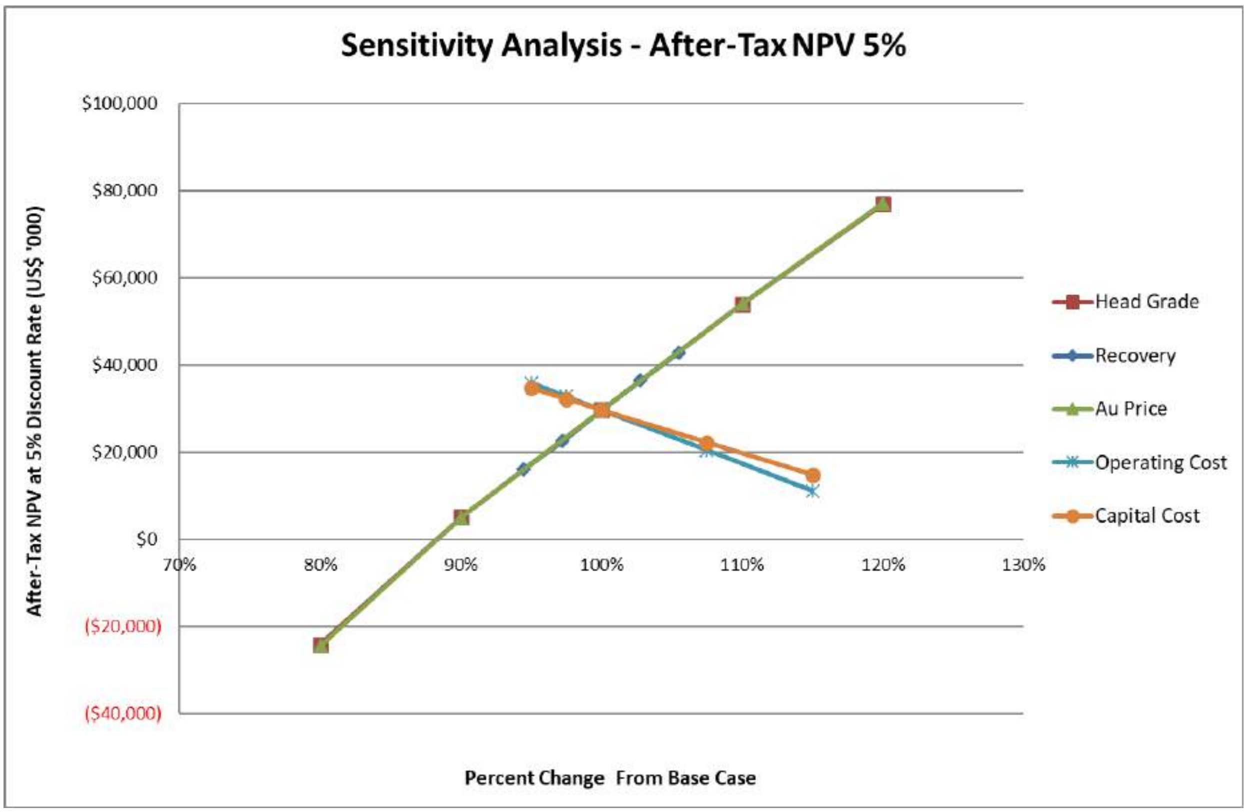
TABLE 19-3 SENSITIVITY ANALYSIS SUMMARY

Variance From Base Case	**Head Grade (g/t Au)**	**NPV at 5% (US$ M)**
-20%	6.30	(24.1)
-10%	7.09	5.2
0%	**7.88**	**29.7**
10%	8.67	54.0
20%	9.46	76.9
Variance From Base Case	**Recovery (% Au)**	**NPV at 5% (US$ M)**
-6%	85.3%	16.2
-3%	87.6%	22.6
0%	**90.3%**	**29.7**
3%	92.8%	36.5
6%	95.1%	42.9
Variance From Base Case	**Metal Prices (US$/oz Au)**	**NPV at 5% (US$ M)**
-20%	$1,280	(24.4)
-10%	$1,440	5.1
0%	**$1,600**	**29.7**
10%	$1,760	54.1
20%	$1,920	77.1

Variance From Base Case	Operating Costs (US$/t)	NPV at 5% (US$ M)
-5%	$174	35.9
-2,5%	$179	32.8
0%	**$183**	**29.7**
7.5%	$197	20.5
15%	$211	11.2
Variance From Base Case	**Capital Costs (US$ 000)**	**NPV at 5% (US$ M)**
-5%	$109,777	34.7
-2,5%	$112,666	32.2
0%	$115,554	29.7
7.5%	$124,221	22.3
15%	$132,888	14.9

A comparison of results for the various sensitivity cases using after-tax NPV at a 5% discount rate are presented in Figure 19-1.

FIGURE 19-1 AFTER-TAX NPV AT 5% SENSITIVITY ANALYSIS



The Project is most sensitive to changes in metal prices, head grade and metallurgical recoveries, followed by operating costs and then capital costs.

20. ADJACENT PROPERTIES

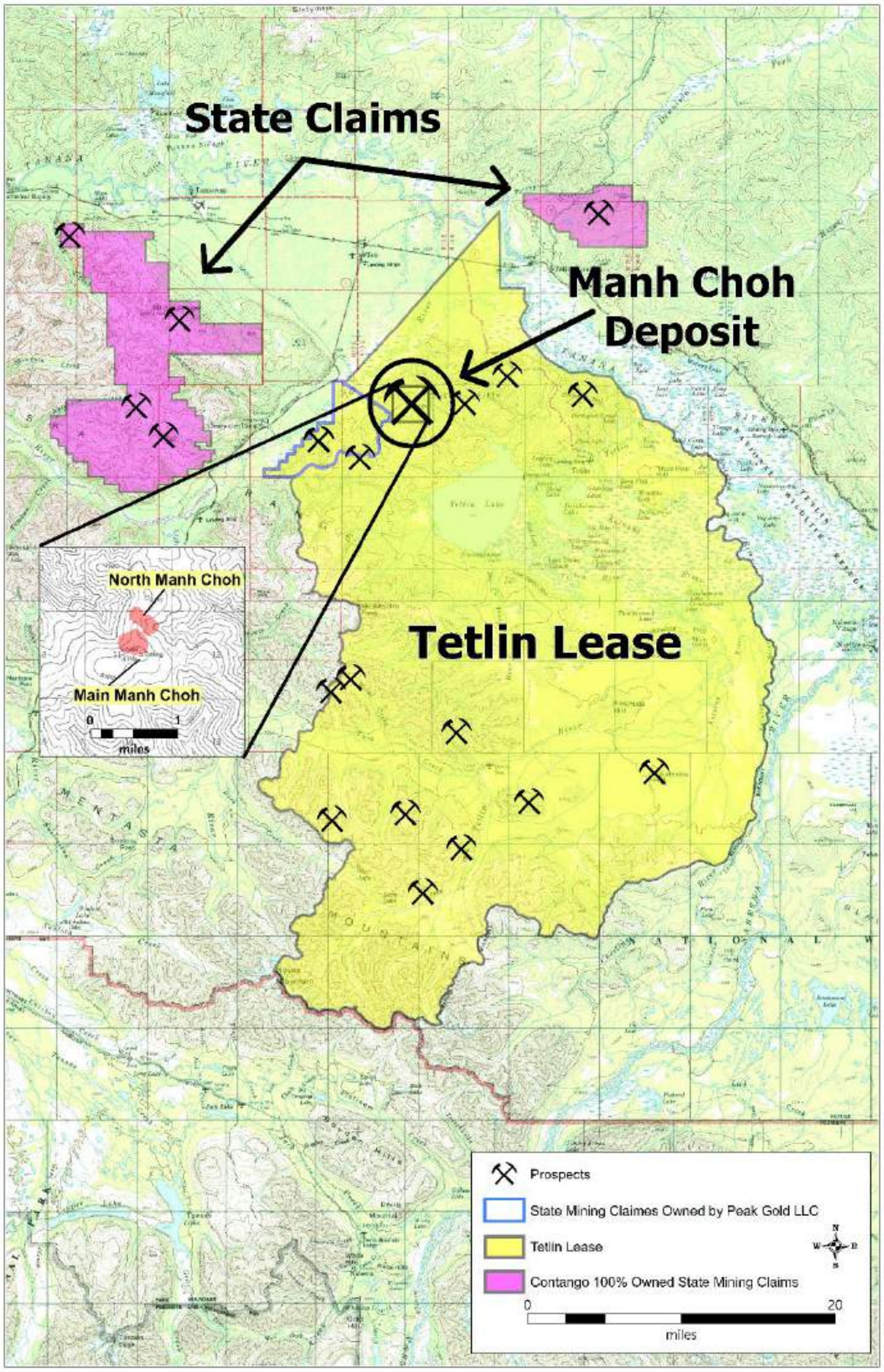
There are three adjacent properties located immediately north and west of the Tetlin Lease; Triple Z, Hona, and Eagle, including the Tok Option Block (Table 20-1, Figure 20-1).

TABLE 20-1 CONTANGO'S 100% OWNED STATE MINING CLAIMS

Property	Location	Commodities	Claims	Acres	Type	Contango Ownership
Triple Z	Eastern Interior	Gold, Copper	95	14,810	State Mining Claims	100%
Hona	Eastern Interior	Gold, Copper	482	74,310	State Mining Claims	100%
Eagle	Eastern Interior	Gold, Copper	396	64,900	State Mining Claims	100%
Tok Option Block	Eastern Interior	Gold, Copper	159	12,890	State Mining Claims	100% now, 30% after option*
Totals			**1,132**	**166,910**		

Note. Peak Gold JV has the option to purchase the Tok Option Block.

FIGURE 20-1 CONTANGO'S 100% OWNED STATE MINING CLAIMS



20.1. TRIPLE Z

The Triple Z claims were staked in 2009 and the claim block expanded in 2011 and again in 2019, and now covers an area of 14,810 acres immediately adjacent to the Alaska Highway to the south and west, and the Taylor Highway to the north and east. The Alaska Resource Data Files (ARDF) indicate that the Triple Z prospect received limited surface exploration in 1970 and Cities Service Minerals Corp. completed three drill holes on the prospect in 1971. No technical details from this work are available in the public domain. Inquiries with Kinross, the assumed current owner of the 1970s work, indicate that these records have not survived.

The area was identified as prospective for porphyry copper-gold-silver-molybdenum mineralization based on regional government sponsored stream sediment sampling. Several dozer trenches were discovered on the west side of the prospect during 2009 field investigations shortly after staking the claims. Eighty-two surface rock and 115 soil samples were collected in 2009. Follow-up auger soil sampling completed between 2009 and 2011 identified a large-scale copper-gold-silver-molybdenum anomaly centered along a low-profile ridge with little to no outcrop. An airborne magnetic and resistivity survey conducted over the area in 2011 showed a coincident magnetic low and resistivity high (classic porphyry signatures) over the geochemically anomalous area. A follow-up IP survey conducted in 2019 across four orthogonal lines outlined multiple IP anomalies broadly coincident with the soil and magnetic/resistivity anomalies.

To date the main targets have not yet been drilled because a land transfer is yet to be completed between the Federal Government (Bureau of Land Management – BLM) and the State of Alaska. This is part of a process that has been ongoing since Statehood. Contango has been working with the State and Federal agencies to prioritize this transfer because of the highly prospective drill-ready target. Drilling was completed in 2012 (before the IP survey) with six core holes drilled to depths ranging from 230 m (755 ft) to 380 m (1,246 ft). Holes 1202 and 1204 encountered several zones of anomalous copper, gold, and silver.

The best results were obtained in hole 1203 which intersected 27.3 m (90 ft) grading 0.129% Cu, 11.5 g/t Ag, and 0.129 g/t Au starting at 275.5 m (902 ft), and 9.3 m (30.5 ft) grading 0.146% Cu, 17.4 g/t Ag, and 0.163 g/t Au starting at 306.3 m (1,005 ft). Holes 1204, 1205, and 1206 contained narrow intervals of anomalous precious metals with lead and zinc – typical mineralization seen in the distal portions of a porphyry system. Once the land transfer is completed, Contango plans to drill this well-defined porphyry copper-gold-silver-molybdenum target.

20.2. HONA

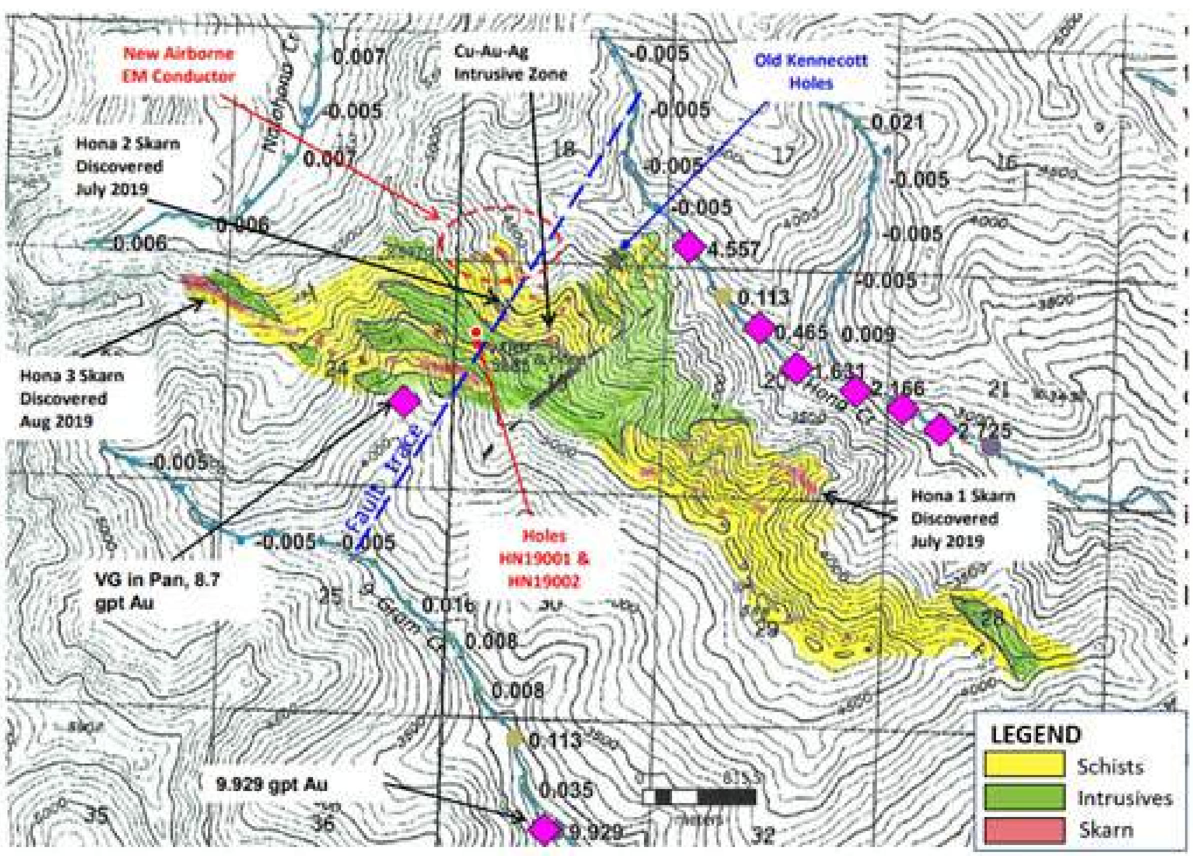
The Hona prospect is located immediately south and west of the Eagle block and there is an arbitrary separation of the two large claim blocks. The Hona block was staked in 2016 and is centered around a series of prospects generally referred to as Hona but also known as the Noah or Natahona prospects. The prospect currently is accessible via helicopter but is within

10 km of the State maintained all-weather Tok Cut-off to Glenn Highway #1. The prospect sits at elevations ranging from 914 MASL (3,000 ft) to 2,036 MASL (6,680 ft) centered on VABM Hona. The prospect was originally identified and drilled by Kennecott Exploration Company (Kennecott) during 1997 and 1998.

Kennecott drill three holes for a total of 885 m (2,904 ft) for which no published results are available. Later follow-up logging demonstrated that the holes intersected narrow high-grade zones of gold and associated metals analyzed by a Niton Portable XRF unit. Follow-up sampling in the area included a regional scale stream sediment and pan concentrate program which outlined several broad areas of anomalous gold and associated pathfinder elements and included some particularly high pan concentrate samples containing 1 g/t Au to 9 g/t Au in multiple samples from upper Hona Creek and 9 Gram Creek. Rock sampling of mineralized skarn areas identified gold rich skarn mineralization with samples containing 4 g/t Au to 14 g/t Au.

Figure 20-2 shows the geology, location of prospects, geophysical surveys, and drilling at Hona.

FIGURE 20-2 HONA GEOLOGY, PROSPECTS, DRILL HOLES AND GEOPHYSICS



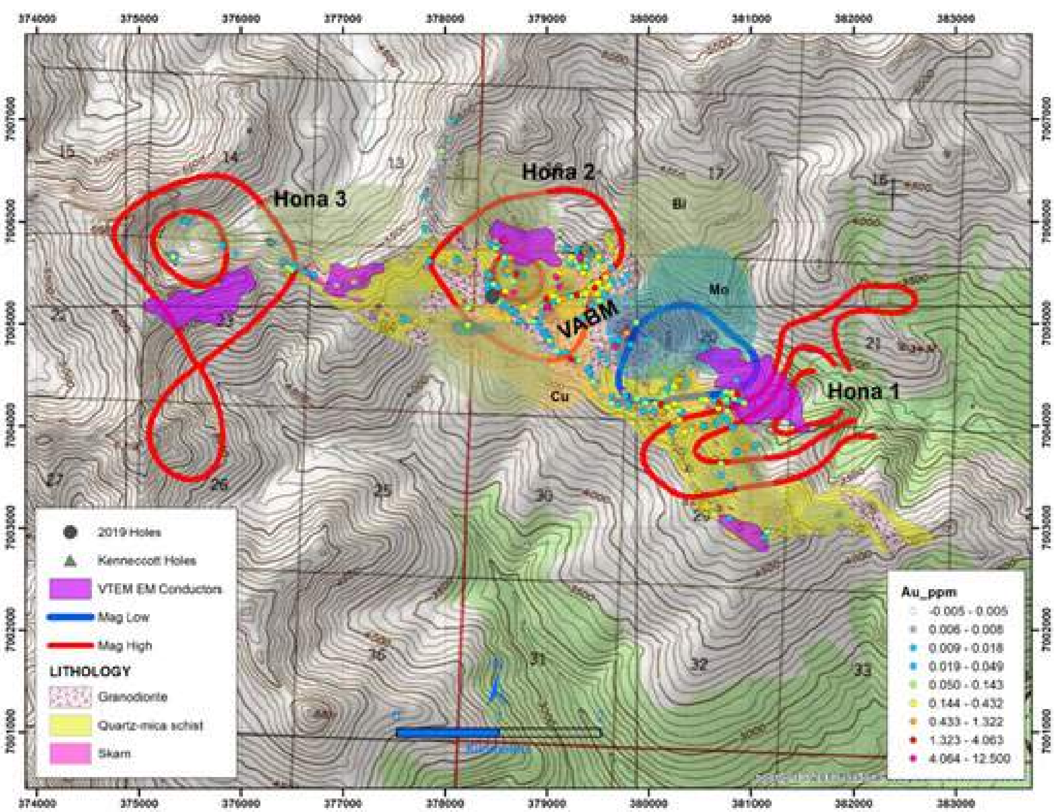
Early in 2017, the Hona prospect and adjacent lands were evaluated using Advanced Spaceborne Thermal Emission and Reflection Radiometer - Short Wave Infrared (ASTER-SWIR) processing and interpretation.

The resulting imagery indicated widespread montmorillonite clay alteration around the Hona prospect area as well as several other areas on the Eagle prospect. In addition, kaolinite clay alteration was concentrated within a phaneritic granodiorite based on field mapping at the Hona prospect. Both kaolinite and montmorillonite are common hydrothermal alteration minerals in porphyry and certain types of gold systems.

A number of geophysical surveys have been flown by government agencies including the most recent in 2016 when the State of Alaska Division of Geological and Geophysical Surveys (DGGS) released public sector magnetic and frequency-domain resistivity surveys over the Hona prospect as well as lands located to the south and west of Hona.

In October 2019, the Peak Gold JV contracted Geotech Ltd. to fly helicopter-supported airborne Magnetics and Versatile Time-Domain Electromagnets (VTEM) surveys over the Hona prospect (Figure 20-3). The total survey size was 1,006 line-km with flight lines oriented N-S at 100 m spacings with E-W tie lines at 1,000 m spacing.

FIGURE 20-3 HONA - COINCIDENT MAG-VTEM WITH GEOCHEMISTRY AND FAVORABLE PORPHYRY/IRG GEOLOGY



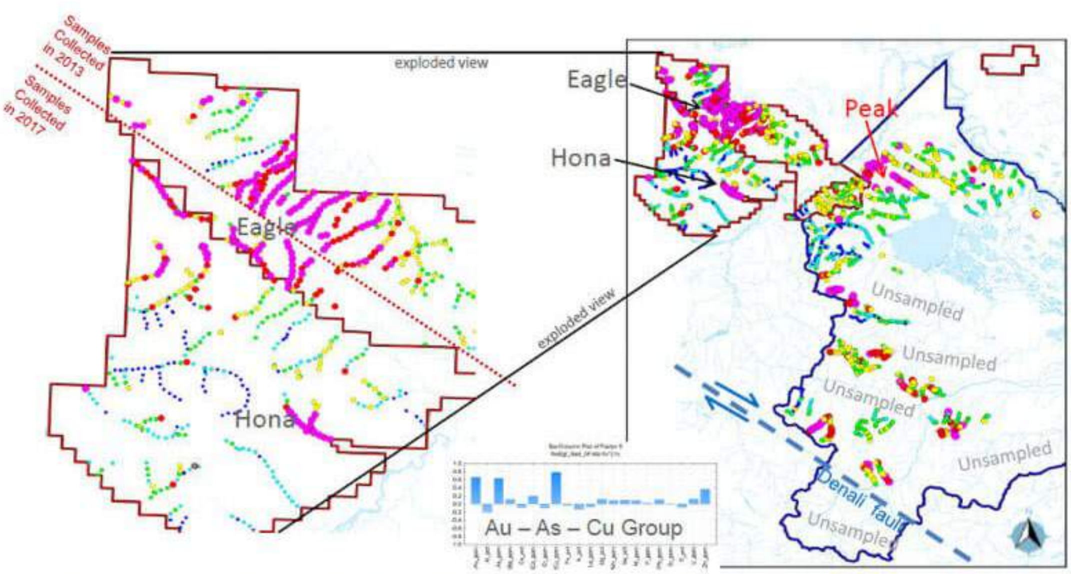
20.3. EAGLE

The 64,900 acre Eagle claim block was staked in 2012 and 2013 to cover favorable Manh Choh stratigraphy mapped along trend by State Geologists. The Eagle block is underlain by similar geology as the northern Tetlin Hills and limited reconnaissance stream sediment and pan concentrate samples collected by Federal government agencies in the 1970s revealed widespread copper and arsenic (a pathfinder element for gold) anomalies within the area now covered by the Eagle claims. Gold was not analyzed for in the original government sampling.

In 2013 a reconnaissance level stream sediment and pan concentrate sampling program was completed over most of the southern part of the Eagle claim block and identified an area over 10 km along a NW corridor where every creek draining the NE slopes of the mountains was strongly anomalous in gold, arsenic, and copper (Figure 20-4). Further sampling along the NW trend showed additional anomalous creeks up towards the Dome prospect, however, far fewer streams were sampled in that area.

Contango intends to complete follow-up field exploration for this early-stage project during the field program which is planned for Eagle, Hona, and Triple Z targets in 2021. The objective of the geologic investigation on the Eagle claim block will focus on identifying drill targets in the highly prospective area between the Eagle and Dome prospects.

FIGURE 20-4   STRONG MULTIPLE-ELEMENT GEOCHEMISTRY ON DOME AND EAGLE TARGET AREAS



Color Scale: Pink denotes strong positive correlation of elements Au-As-Cu while blue denotes weak or negative correlation of elements Au-As-Cu

21. OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is necessary to provide a complete and balanced presentation of the value of the Project to Contango.

22. INTERPRETATION AND CONCLUSIONS

Based on the review of the available information, the QP provides the following conclusions:

22.1. GEOLOGY AND MINERAL RESOURCES

- The northern part of the Project is located in rocks that are highly prospective for mid-Cretaceous intrusive related gold deposits as well as two intersecting belts of mid-Cretaceous to mid-Tertiary porphyry copper-molybdenum-gold deposits and porphyry related distal gold skarn deposits.
- The drilling, sampling, sample preparation, analysis, and data verification procedures meet or exceed industry standard, and are appropriate for the estimation of Mineral Resources.
- As of December 31, 2022, Manh Choh Mineral Resources (100% Peak Gold JV attributable ownership basis) comprise:
  - Indicated Mineral Resources of approximately 845,700 metric tonnes (t) grading 2.4 grams per metric tonne (g/t) gold (Au) and 9.3 g/t silver (Ag) for approximately 65,290 contained ounces (oz) Au and 252,140 contained oz Ag.
  - Inferred Mineral Resources of approximately 21,400 t grading 3.8 g/t Au and 9.2 g/t Ag for approximately 2,570 contained oz Au and 6,290 contained oz Ag.
  - Mineral Resources are reported exclusive of Mineral Reserves.
- As of December 31, 2022, Manh Choh Mineral Resources held by Contango (30% attributable ownership basis) comprise:
  - Indicated Mineral Resources of approximately 253,700 t grading 2.4 g/t Au and 9.3 g/t Ag for approximately 19,590 contained oz Au and 75,640 contained oz Ag.
  - Inferred Mineral Resources of approximately 6,400 t grading 3.8 g/t Au and 9.2 g/t Ag for approximately 770 contained oz Au and 1,890 contained oz Ag.
  - Mineral Resources are reported exclusive of Mineral Reserves.
- The QP is of the opinion that with consideration of the recommendations in this TRS, any issues relating to all relevant technical and economic factors likely to influence the prospect of economic extraction can be resolved with further work.
- The deposits remain open and present exploration potential beyond the current Mineral Resources. As the area is underexplored, there is good potential to delineate additional exploration targets on the Lease.

22.2. MINING AND MINERAL RESERVES

22.2.1. MINE DESIGN

- Pit slope design criteria used to develop the FS pit slope designs are at a PFS level of study/confidence. Stability analyses have not been completed on the final FS pit slope designs.
- A geotechnical stability analysis was completed on the Project's WRSAs and confirmed a low risk of WRSA instability. WRSAs are designed with 3:1 side slopes for ease of final reclamation and are generally located on hilltops where adverse sub-surface conditions and movement are not expected. The northeast walls of MCS may require approximately 33 ft to 50 ft of horizontal depressurization to attain acceptable factors of safety. The extent to which horizontal depressurization is required will need to be confirmed once mining has progressed beyond the elevation of the groundwater table. Due to the overall low-flow groundwater regime, dedicated dewatering wells are not expected to be required.
- A series of pit shells were generated based on varying gold price input factors. The pit shell corresponding to Mineral Reserve prices of $1,300/oz Au and $17/oz Ag was selected as the basis for the ultimate pit design.
- Portions of the detailed pit designs vary significantly from the MCN and MCS pit limits suggested by the ultimate pit shell analysis. This is due to:
  - The degree of accuracy that is possible when modeling complex pit slopes and transitions in a pit shell optimization as compared to completing detailed design.
  - The pit shell optimization over-smooths the influence of in-pit ramps on overall slope angle.
  - The narrower than minimum mining widths that result during pit shell optimization.
  - The degree of accuracy that is possible when allowing the pit shell optimization to achieve the corner design for the northeast wall of MCS.
- Several pit shell sensitivity scenarios were investigated, including sensitivity to metal price, mining cost, transport and processing cost, and slope angles. Generally, there is no material change to the ultimate pit limits for a range of Base Case inputs. This is a result of the high grade, high margin nature of the in-situ mineralization.

22.2.2. OPERATIONS

- Completing extraction in MCN early in the LOM plan is an important Project objective as it:
  - Enables hauling of waste rock from MCS directly into MCN, thereby keeping ex-pit haulage costs to a minimum.
  - Facilitates short hauls in a truck-constrained period of the LOM plan.
  - Serves as a long-term waste storage facility to minimize the size of ex-pit waste stockpiles (WRSAs) that would otherwise require rehandling to meet closure obligations.

- Key mining equipment performance metrics are based on both internal and external benchmarks for similar equipment, are unchanged in all LOM plan time periods, and are used as a measure of maximum productive hours to drive the LOM plan.
- During the Project's operating phase, waste rock swell factors will be investigated to confirm WRSA designs and storage capacity. In the event that additional waste rock storage capacity is required, or MCN in-pit backfill capacity is not available as planned, sections of the Main WRSA may be constructed to greater than 3:1 slopes.
- The Project will require a rigorous grade control program to mitigate mining dilution and ore loss. Program elements will include blasthole sampling in ore and waste blasts, high-precision GPS equipment on loading units, and blast movement monitoring activities.
- The selected highway transport rate (3,000 U.S. short tons per day (stpd) ore) requires that ore stockpiles be maintained to disconnect the variable ex-pit ore mining rate from the ore delivery rate to the Fort Knox process plant. Maintaining a consistent ore delivery rate is important to allow the transport contractor to maintain steady-state operations and for the Project not to incur standby charges.
- The Project's labor strategy will include both shared responsibilities with existing Fort Knox personnel and dedicated Manh Choh labor on rotational schedules. Mine site leadership positions will report to the Fort Knox Mine Manager.

22.2.3. MINERAL RESERVES

- As of December 31, 2022, Manh Choh Mineral Reserves (100% Peak Gold JV attributable ownership basis) comprise Probable Mineral Reserves of approximately 3.94 Mt grading 7.9 g/t Au and 13.6 g/t Ag for approximately 997,143 contained oz Au and 1,718,571 contained oz Ag.
- As of December 31, 2022, Manh Choh Mineral Reserves held by Contango (30% attributable ownership basis) comprise Probable Mineral Reserves of approximately 1.18 Mt grading 7.9 g/t Au and 13.6 g/t Ag for approximately 299,143 contained oz Au and 515,571 contained oz Ag.
- The QP is not aware of any risk factors associated with, or changes to, any aspects of the modifying factors such as mining, metallurgical, infrastructure, permitting, or other relevant factors that could materially affect the Mineral Reserve estimate.

22.3. MINERAL PROCESSING

22.3.1. METALLURGICAL CHARACTERIZATION

- Mineralogy analysis, analyses on cleaner flotation concentrates and tailings, and XRD analysis indicate that the predominant sulfide mineral in the MCS deposit is pyrrhotite while the predominant copper mineral is chalcopyrite. Gold was observed in samples and is predominantly free gold and electrum.
- XRD, QEMSCAN, optical microscopy, SEM equipped with EDS, and chemical analysis found that samples contain moderate (10% to 30%) to major (>30%) pyrrhotite and suggest a gold recovery circuit design having gravity concentration followed by finer grinding for further liberation.

- In 2018, seven metallurgical composites were tested to measure abrasion index, Bond ball mill work index, and rod mill work index. Samples selected were well distributed in both pits. In 2021, four master composites and eight variability composites were tested. The results of this testing demonstrate that all samples are between soft and medium hardness and abrasiveness.
- Two sulfide master composite samples that were sent for SMC testing yielded one sample with medium to soft hardness and the other sample considered to be hard.

22.3.2. METALLURGICAL TESTING

- Results of metallurgical testing programs demonstrate that Manh Choh ore is amenable to being recovered by gravity concentration, flotation, and cyanidation. Both MCS and MCN ores respond well to cyanide leaching, gravity concentration, and flotation.
- Cyanide leaching test work showed that highly reactive sulfide materials in the Manh Choh ores are one of the challenges for economical gold and silver recovery, although adding cement in grinding and leaching with oxygen sparging helps reduce high reagent consumptions.
- In 2014, a series of flotation tests were completed on 13 metallurgical composite samples from the Project. Test results show a direct correlation between the percentage of total sulfur content in the feeds and the gold flotation recoveries and indicates most of the gold in the samples is associated with sulfide minerals.
- In 2019, 22 rougher flotation tests and nine cleaner flotation tests were completed on Manh Choh ore samples, of which four rougher flotation tests and four cleaner flotation tests were assayed for gold content. Test results show a direct correlation for both gold recovery and mass pull with the total sulfur content in the samples. The cleaner tests show that the gold grade in the flotation concentrate can be improved but at the expense of the overall gold recovery.
- Gold recoveries from 51 gravity concentration tests did not show clear correlation between gold head grades and gold recoveries. The average gold recovery from all tests was 25%, however, the recovery variance standard deviation is as high as 20%. The average silver recovery from all tests was 10%.
- In 2021, EGRG tests were completed on four master composites from Manh Choh. Test results show that the maximum gold recovery for Manh Choh ore samples varies between 16.3% and 50.7%.
- The results of the flowsheet options study confirmed that Manh Choh samples respond well to the gravity/flotation/cyanidation flowsheet, however, the overall reagent consumption was higher as compared to whole ore leaching options. Based on the study of the MCS sulfide composite, the savings in NaCN and lime consumption made the whole ore leach the preferred option for the FS.

22.3.3. PROCESS SELECTION AND OPERATIONS

- The existing Fort Knox processing facility will continue to operate with Fort Knox ore on a batch basis along with the Manh Choh ore. The equipment and process as is currently designed will not be modified when processing ore from Fort Knox, however, additional equipment and piping modifications to some areas of the plant will be required for when processing Manh Choh ore.

* The site conditions, operating conditions, and safety parameters are documented and provided for in the design basis. The environmental constraints have been identified and are considered in the design.
* Any adjustments to the FS LOM plan or stockpiling strategy need to be carefully considered relative to the current stockpiling objective, i.e., prioritizing high-grade Fort Knox mill feed early in the life of the Project.
* The QP is of the opinion that the data derived from the Project's metallurgical testing activities is adequate for the purposes of Mineral Resource and Mineral Reserve estimation.

22.4. ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

* The Project is located on land owned and controlled by the Native Village of Tetlin (Tetlin), an indigenous Upper Tanana Athabascan Native Alaskan community. Tetlin owns both the surface and the subsurface rights to their land.
* In accordance with the U.S. NEPA, the U.S. ACOE is required to prepare either an EA or an EIS for the Project using environmental baseline surveys and public comments. Based on a proactive effort to minimize Project-related impacts to wetlands, an EIS was not required and a wetlands permit was issued in September 2022 as part of an EA of the Project.
* Although not considered material to operating permits, in response to public concerns, the Department of Transportation and Public Facilities has funded an independent corridor analysis to review potential impacts of an increase in traffic along the selected access route. The selected corridor analysis contractor will work with the newly established TAC that is being led by a consultant. The TAC will make recommendations to the contractor and will help identify areas of concern.
* Manh Choh ore has both PAG and NAG components. Manh Choh ore will be processed at Fort Knox prior to the onset of PAG conditions.
* Waste rock in the mine site area includes materials that are both PAG and ML.
    * Pit wall rock masses assessed as being ML or PAG will be covered during mining and reclamation activities.
    * During mining, surface water run-off and pit inflows will be collected and treated via a perimeter ditch collection system and in-pit dewatering infrastructure.
    * WRSAs are designed to minimize recharge and to isolate PAG and ML material, thereby minimizing any potential for external discharge from the waste rock over the long term.
* Since 2012, surface water monitoring data has been collected from 19 sites around the Project area. Stream discharge is perennial in all catchments and most stream flows during the low-flow late fall and winter months are assumed to represent baseflows due to the limited precipitation in the Project area during this period. The Project does not include disturbance of fish habitat.
* Groundwater flow in the Project area is extremely low and localized due to dry conditions and limited recharge area. The small amount of recharge that does occur is related to spring snowmelt and the relatively large seasonal fluctuation of groundwater levels is indicative of a low storage groundwater system.

- Low rates of groundwater in-flow to the pits, low bedrock hydraulic conductivity, and a deep water table suggests that drawdown will be limited to the localized areas of the pit walls.
- Manh Choh will be a low water-usage mine and droughts are not expected to have a significant impact on operations. If more frequent or intense rainstorms occur, the mine site is well situated on a hilltop high above the flood plain, is designed to safely manage a 1 in 100-year storm event, and by designing to low probability events, infrastructure becomes inherently resilient to changes in precipitation over the relatively short mine life.
- Water quality is generally good in headwater streams that drain the Project area. Baseline iron, arsenic, and manganese concentrations in Tors Creek exceed ADEC guideline values due to the proximity of the mineralized orebody. Baseline sulfate, metals, and TDS concentrations are consistently higher in groundwater than surface water, particularly in the vicinity of the orebody, however, concentrations are not consistently higher than ADEC guideline values.
- None of the species recorded in the Project area are listed as Threatened or Endangered as specified by the USFWS. There are however some fauna species and habitat worth noting:
    - The Tetlin Hills are within the breeding range of the Olive-sided Flycatcher, which is designated by the USFWS as a species of conservation concern.
    - The Short-eared Owl was not observed but is also a species of conservation concern and may occur in the area.
    - Two Bald Eagle nests were found during the raptor nest survey, both greater than two miles from the Project. The USFWS advises that activities within two miles of Bald Eagle or Golden Eagle nests may require an incidental take permit.
    - Three common raven nests were found and these species are protected under the MBTA.
    - The Project avoided important lowland moose habitat surrounding the Tok River. Individual animals from two caribou herds may be present seasonally. Caribou avoid areas of recent wildfire, which indicates they may naturally avoid the Project.
- No Project activities are located within protected areas. The closest protected area is the Tetlin National Wildlife refuge, which is approximately 20 to 30 miles to the east and southeast of the Project.
- During Project baseline information collection activities, seven prehistoric archaeological sites were identified with five of these sites meeting federal archaeological site significance criteria making them eligible for listing on the NRHP. Based on the Project's 2021 mine and infrastructure plans, the Project could impact one NRHP eligible site while the four other NRHP eligible sites should be avoidable over the course of the LOM.
- A Cultural Heritage Management Plan has been developed to address the mitigation plan for the NRHP eligible archaeological site that will be adversely affected by the Project and future discoveries of cultural resources that may be discovered during the Project's construction and operation.

- The local area of Tok and surrounding areas, including Tetlin, have expressed support for the Project in numerous engagements, community meetings, public testimony, and in letter form. The local communities expect that the Project will maximize opportunities for local employment and local business, operate in a safe and environmentally responsible manner, properly maintain the tribal road impacted by increased traffic, and respect the desire to maintain cultural and subsistence ways of life.
- Mine site reclamation and closure will be performed in accordance with the Manh Choh Project RCP. The RCP was originally submitted for approval to ADNR and ADEC in December 2021 and was subsequently updated and re-submitted in January 2022. The RCP includes a closure cost estimate prepared using Alaska's SRCE model, which was used for calculating the financial assurance amount (bond) required by ADNR and ADEC. The SRCE model estimated a financial assurance requirement of approximately $63.5 million. Contango's attributable ownership portion of the financial assurance requirement is approximately $19.1 million, or as may be amended in the future.
- In the QP's opinion, the current plans related to environmental compliance, permitting, and local individuals or groups are reasonable for this level of study

23. RECOMMENDATIONS

23.1. GEOLOGY AND MINERAL RESOURCES

1. Geologic exploration is on-going in the vicinity of the Manh Choh deposit and new data should be incorporated in the resource area when QA/QC and validation work is complete. Several other holes were drilled in 2021 with results not available at the time of the model estimate.
2. Review second-laboratory and additional QA/QC results pending at the time of the model estimate.
3. Complete additional relogging validation of skarn intensity codes, redox codes, and structural measurements to add additional support to the estimate domains and methodology.
4. Complete additional density measurements in oxide waste areas where sample density could be increased.
5. Carry out additional metal estimates based on geochemical results to support other recovery, geochemical, and metallurgical considerations such as bismuth, lead, and zinc.
6. Complete additional sensitivity work related to simulated gold grade dilution.
7. Carry out a comparison of the grade capping on the 10 ft composites and the variable raw assays.
8. Use Disintegration Analysis for grade capping.
9. To avoid over-estimation of grades in certain areas, review and confirm declustered mean values.
10. Test the variable orientation and estimation in Leapfrog rather than moving the work to Vulcan software.
11. Tabulate and review capped vs. uncapped gold volumetric output (grade and ounces) from the block model by domain.
12. Prior to production, complete an RC grade control program to assess closer spaced grade variability.
13. The QP has reviewed the inputs for the reporting of Mineral Resources and is of the opinion that they are reasonable. The QP recommends that these inputs be reviewed during any future studies.

23.2. MINING AND MINERAL RESERVES

1. Complete additional geotechnical drilling, site investigation, and analysis to further optimize FS mine designs and the operational phase of the Project. Confirm the orientation of critical structures and further inform potentially problematic domains, i.e., the North Domain in MCS and the Northeast Domain in MCN.

2. For optimal wall control, adopt pre-split blasting in all geotechnical domains. Trim blasting may be sufficient for the design sectors identified as having slope stability controlled by discrete faults or fault/shear anisotropy.
3. Horizontal groundwater depressurization may be required in one geotechnical design sector, however, this should be confirmed during the Project's operating phase.
4. At MCS, straight north and east pit walls are designed to meet at a corner to avoid transitioning to a northeast wall orientation that would parallel problematic structures. It is critical that the orientations of the straight north and east pit walls fall outside the range of influence of adversely orientated structures. The orientation of adverse structures at these pit wall locations should be confirmed by further drilling.

23.3. MINERAL PROCESSING

1. Review/evaluate the following potential improvements:
   - Install Auto Dilution for the thickener feed well to decrease the feed solids level prior to flocculation, improving particle setting rates.
   - Acid wash carbon prior to elution. This will improve elution efficiency by removing impurities such as copper, calcium, and magnesium which can impede both the elution step and the later adsorption of gold onto the carbon after it has been returned to the CIP circuit.
   - Complete regeneration of all carbon prior to sending it back to the CIP circuit. This will restore the activity of spent activated carbon by removal of organic absorbates and lower the need to add additional fresh carbon into the circuit.
   - To increase solution flow rates, replace piping to electrowinning circuit.
   - To reduce costs, complete a hydraulic study of slurry flow to evaluate the elimination of smaller inter-tank piping and instead use existing piping.
   - To reduce equipment scaling and improve heat exchange, complete regular cleaning of the heat exchanger and associated lines with sulfamic acid.
   - Evaluate in-line heating of eluate or heating of a portion of the eluate prior to stripping. Either improvement may eliminate the need for an extra heater to heat the elution columns and reduce elution times.

23.4. ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

1. Continue adherence to the existing avoidance plan for all seven identified prehistoric sites to prevent any damage to their current condition or integrity until ACOE NRHP eligibility determinations are formalized.

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25. RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

This TRS has been prepared by SR for Contango. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to SR at the time of preparation of this TRS,
- Assumptions, conditions, and qualifications as set forth in this TRS, and
- Data, reports, and other information supplied by Contango and other third party sources.

It is believed that the basic assumptions are factual and accurate, and that the interpretations are reasonable.

For the purpose of this TRS, SR has relied on ownership information provided by Contango and its partner in the Peak Gold JV, KGMA. SR has not researched property title or mineral rights for the Manh Choh Project as we consider it reasonable to rely on Contango's legal counsel who is responsible for maintaining this information.

The QP has relied on Bartly Kleven, Director of Environmental Affairs at Kinross Fort Knox, who oversees all environmental work for the Peak Gold JV, for the environmental matters in this TRS.

The QP has relied on Grant Thornton LLP (Contango's tax adviser) for the calculation of income and mining taxes applicable to the economic analysis.

The QP has taken all appropriate steps, in their professional opinion, to ensure that the above information from Contango is sound. The QP does not disclaim any responsibility for the TRS. Except for the purposes legislated under US securities laws, any use of this report by any third party is at that party's sole risk.

26. DATE AND SIGNATURE PAGE

This report titled "Technical Report Summary on the Manh Choh Project, Alaska, USA" and dated was prepared and signed by:

(Signed & Sealed) *Sims Resources LLC*

Dated at Missoula, MT
May 12, 2023 Sims Resources LLC