NI 43-101 Technical Report for the Kwanika Project Resource Estimate Update 2019

Near Fort St. James, British Columbia, Canada
Centred at 55’ 31’ N and 125’ 20’ W

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Submitted to:
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1 Summary

Kwanika Copper Corp. (KCC) is a mineral exploration company based in Vancouver, B.C. KCC is jointly owned by Posco International Corporation (Posco) (35%) and Serengeti Resources Inc. (Serengeti) (65%). The Kwanika Project (the Project) involves the development of a copper-gold-silver-molybdenum deposit located near Fort St. James, British Columbia, Canada. The project has two primary mineralized deposits, referred to as the Central Zone (Cu-Au-Ag deposit) and the South Zone (Cu-Au-Ag-Mo deposit).

This National Instrument 43-101 (NI43-101) Technical Report on the Project is an updated Resource Estimate for the Central Zone with a re-statement of the previous Resource Estimate for the South Zone of the Project. The Central Zone Resource update is based on additional drilling in 2018 and re-interpretation of the geology. The South Zone is re-stated here as there has been no new work done on the South Zone deposit since 2016. A Preliminary Feasibility Study (PFS) is currently in progress for the Central Zone. Results of this PFS are expected to be public in the third quarter of 2019.

MMTS has prepared this report which is based on work produced by the following independent consultants:

- Moose Mountain Technical Services (MMTS)
- SRK Consulting (Canada) Inc. (SRK)

The Resource Estimates for the Central Zone has been completed by Sue Bird, P.Eng of MMTS and for the South Zone by Marek Nowak, P.Eng of SRK, as independent Qualified Persons for the geological resources presented in this Technical Report.

Mr. Tracey Meintjes, P.Eng., of MMTS is the independent Qualified Person for matters relating to mineral processing, and metallurgical testing.

The Resource Estimate is based on exploration and internal Serengeti Resources Inc. and Kwanika Copper Corporation (KCC) studies and outside consultant studies since 2004.

All dollar figures presented in this report are stated in Canadian dollars unless otherwise specified.

The Mineral Resource Estimate for the Central Zone is summarized in Table 1-1, with sensitivity to cutoff at select grades provided in Table 1-2. The Resource Estimate for the South Zone is provided in Table 1-3, with the sensitivity of the South Zone Resource to cutoff grade summarized in Table 1-4. The base case copper equivalent (CuEq) cutoffs are highlighted in the sensitivity tables.

MMTS and SRK are not aware of any current environmental, permitting, legal, title, taxation, socio-economic, marketing, political factors, that could materially affect the Mineral Resource Estimate. Factors that may affect the estimates include: metal price assumptions, changes in interpretations of mineralization geometry and continuity of mineralization zones, changes to kriging assumptions, metallurgical recovery assumptions, operating cost assumptions, delays or other issues in reaching agreements with local or regulatory authorities and stakeholders, and changes in land tenure requirements or in permitting requirement or in eventual acquisition of surface rights that may be required for an eventual mining operation.

Table 1-1: Mineral Resource Statement - Central Zone - Total Pit and Underground Resource, effective date: December 14, 2018

Pit-Constrained									
Classification	Cutoff (CuEq%)	Quantity (Mt)	In situ Grade				In situ Contained metal		
			CuEq (%)	Cu (%)	Au (g/t)	Ag (g/t)	Cu (Mlbs)	Au (koz)	Ag (koz)
Measured	0.13%	24.2	0.51	0.34	0.33	1.07	179	254	833
Indicated		80.4	0.30	0.20	0.18	0.69	360	454	1,784
Total M+I		104.6	0.35	0.23	0.21	0.78	540	708	2,617
Inferred		5.7	0.23	0.16	0.13	0.65	20	25	119
Underground									
Classification	Confining Shape Basis (CuEq%)	Quantity (Mt)	In situ Grade				In situ Contained metal		
			CuEq (%)	Cu (%)	Au (g/t)	Ag (g/t)	Cu (Mlbs)	Au (koz)	Ag (koz)
Measured	0.27% confining shape -	18.7	0.58	0.36	0.40	1.15	151	239	692
Indicated		100.2	0.44	0.29	0.27	0.92	634	884	2,964
Total M+I		118.9	0.46	0.30	0.29	0.96	784	1,123	3,656
Inferred		84.7	0.27	0.17	0.18	0.60	319	480	1,634
Combined Pit and Underground									
Classification	Cutoff (CuEq%)	Quantity (Mt)	In situ Grade				In situ Contained metal		
			CuEq (%)	Cu (%)	Au (g/t)	Ag (g/t)	Cu (Mlbs)	Au (koz)	Ag (koz)
Measured	0.13%-open pit, and 0.27% ug	42.9	0.54	0.35	0.36	1.10	330	493	1,525
Indicated		180.6	0.38	0.25	0.23	0.82	994	1,338	4,748
Total M+I		223.6	0.41	0.27	0.25	0.87	1,324	1,831	6,273
Inferred		90.4	0.26	0.17	0.17	0.60	339	504	1,753

Central Zone Resource Notes

- The CuEq cutoffs are based on prices of US$3.25/lb of copper, US$1,350/oz of gold, US$17/oz of silver and assumed recoveries of 91% for copper, 75% for gold, 75% for silver.
- Copper equivalents (CuEq) values are calculated using the formula below based on the above metal prices and recoveries. They include smelter terms and a $US:$CAD exchange rate of 0.77 which results in the following equation.
- CuEq = Cu% + ((Auoz*CAD$1620.77*75%) + (Agoz*CAD$18.79 *75%)) / (CAD$3.71*91%*22.0462)

Table 1-2: Sensitivity Analysis of the Resource Estimate - Central Zone, effective date: December 14, 2018

Measured+Indicated Pit Resource Sensitivity and Underground Material within PFS Confining shapes										
Pit-Constrained Sensitivity Analysis at Various Cutoff Grades										
Classification	Cutoff (CuEq%)	Quantity (Mt)	In situ Grade				In situ Contained Metal			
			CuEq%	Cu %	Au (g/t)	Ag (g/t)	Cu (Mlbs)	Au (koz)	Ag (koz)
Total M+I	0.13%	104.6	0.35	0.23	0.21	0.78	540	708	2,617
	0.25%	63.2	0.45	0.30	0.27	0.89	424	546	1808
	0.40%	24.4	0.67	0.45	0.41	1.26	244	318	991
Underground Sensitivity Analysis within 0.40% CuEq Confining Shape										
Total M+I	0.27% confining shape	118.9	0.46	0.30	0.29	0.96	784	1,123	3,656
	0.4% confining shape	64.0	0.62	0.39	0.43	1.23	550	884	2,520

Central Zone Resource Notes

- The CuEq cutoffs are based on prices of US$3.25/lb of copper, US$1,350/oz of gold, US$17/oz of silver and assumed recoveries of 91% for copper, 75% for gold, 75% for silver.
- Copper equivalents (CuEq) values are calculated using the formula below based on the above metal prices and recoveries. They include smelter terms and a $US:$CAD exchange rate of 0.77 which results in the following equation.
- CuEq = Cu% + ((Auoz*CAD$1620.77*75%) + (Agoz*CAD$18.79 *75%)) / (CAD$3.71*91%*22.0462)

Table 1-3: Mineral Resource Statement - South Zone, effective date: October 14, 2016

Category	Cutoff	Quantity	In situ Grade				In situ Contained Metal			
	CuEq (%)	(x1000 Tonnes)	Cu (%)	Au (g/t)	Ag (g/t)	Mo (%)	Cu (000's lb)	Au (000's oz)	Ag (000's oz)	Mo (000's lb)
Inferred	0.13%	33,300	0.26	0.08	1.64	0.01	191,400	80	1,760	7,470

South Zone Resource Notes

- The CuEq cutoff is based on prices of US$3.00/lb of copper, US$1,300/oz of gold, US$20/oz of silver and assumed recoveries of 89% for copper, 70% for gold, 75% for silver and 60% for molybdenum.
- Copper equivalents (CuEq) values are calculated using the formula below based on the above metal prices and recoveries.
- CuEq = Cu% + Au(g/t)*0.497 + Ag(g/t)*0.00813 + Mo(%)*2.02247

Table 1-4: Sensitivity Analysis of the Resource Estimate - South Zone, effective date: October 14, 2016

Category	Cutoff CuEq (%)	Quantity (x1000 Tonnes)	IN situ Grade				In situ Contained Metal			
			Cu (%)	Au (g/t)	Ag (g/t)	Mo (%)	Cu (000's lb)	Au (000's oz)	Ag (000's oz)	Mo (000's lb)
Inferred	0.70	100	0.59	0.18	3.23	0.02	1,400	0	10	50
	0.60	500	0.52	0.14	2.95	0.02	6,200	0	50	230
	0.50	2,400	0.45	0.11	2.70	0.02	23,600	10	200	910
	0.40	7,700	0.38	0.09	2.29	0.02	64,800	20	570	2,710
	0.35	13,100	0.35	0.09	2.09	0.01	99,800	40	880	4,120
	0.27	23,800	0.30	0.08	1.84	0.01	156,600	60	1,410	6,200
	0.20	30,500	0.27	0.08	1.71	0.01	183,600	80	1,670	7,180
	0.13	33,300	0.26	0.08	1.64	0.01	191,400	80	1,760	7,470
	0.10	33,800	0.26	0.08	1.63	0.01	192,400	80	1,770	7,540

South Zone Resource Notes

- The CuEq cutoff is based on prices of US$3.00/lb of copper, US$1,300/oz of gold, US$20/oz of silver and assumed recoveries of 89% for copper, 70% for gold, 75% for silver and 60% for molybdenum.
- Copper equivalents (CuEq) values are calculated using the formula below based on the above metal prices and recoveries.
- CuEq = Cu% + Au(g/t)*0.497 + Ag(g/t)*0.00813 + Mo(%)*2.02247

1.1 Conclusions

- The Kwanika deposit contains a Cu-Au-Ag deposit in the Central Zone and a Cu-Au-Ag-Mo deposit in the South Zone. Both the Central and South Zones have near surface mineralization that is amenable to open pit mining.
- The Central Zone has additional higher grade mineralization at depth that is amenable to underground block caving. The Central zone open pit and underground deposits are currently undergoing a pre-feasibility study.
- Both deposits are responsive to conventional milling consisting of flotation concentration.

1.1.1 Geology and Resource Modeling

- MMTS and SRK consider that the mineral resources for the Kwanika Project are appropriately reported.
- The Central Zone is reported at 0.13% copper equivalent cutoff grade for near surface mineralization and 0.27% copper equivalent confining shape used for potential underground mining by a block caving method. The South Zone is reported at 0.13% copper equivalent for open pit resources.
- MMTS and SRK are not aware of any potential significant risks and uncertainties that could affect the reliability or confidence on the reported resource other than the usual risks associated with exploration projects, as detailed in the Resource section.

1.1.2 Metallurgy

- Limited metallurgical test work carried out on the Central Zone deposit indicates mineralization responds well to a process consisting of conventional multi-stage flotation and a typical process design for copper porphyry in British Columbia is in order.

- A copper recovery of 91%, with gold and silver recovery of 75% has been estimated to a concentrate grading 24% copper. Processing operating costs are bench marked to similar mills in the area.
- No metallurgical test work has been conducted on the South deposit so typical recoveries have been assumed.
- A mill throughput of 15,000 tonnes per day is proposed for the Project.

1.1.3 Regulatory, Environment, and Permitting

- The Project lies within an area designated for multiple land uses, including mining.
- Provincial and Federal Environmental Assessments and Certificates will be required due to the nature and scope of the Project.
- The project will need to demonstrate the ability to manage for ARD concerns during and following mining. Significant environmental issues such as fish stream diversions; ARD potential and wildlife habitat are expected to be manageable.
- Reclamation of all site disturbances is expected to be completed within industry norms.

1.2 Opportunities

The recommendations outlined in the following section address the opportunities for infill and exploration drilling within the Central and South Zone deposits.

In addition, there are opportunities to identify additional mineralized centers on the Kwanika property along the northwest-southeast trend of anomalous geophysical surveys and mineralization. The trend extends for a known strike length of approximately 5.5km from the Central Zone southward to the South Zone. South of the South Zone several chargeability anomalies have been identified over a strike length of approximately 23km along this trend, and within the Kwanika claims.

1.3 Recommendations

The Kwanika project is currently undergoing a Prefeasibility level study (PFS) based on the resources presented in this report. Therefore, the recommendations included here are only for drilling and resource updates.

1.3.1 Drilling

It is recommended to continue drilling of both the Central Zone and the South Zone. This could potentially extend and upgrade the resource for future mining studies. Additional drilling for geotechnical and metallurgical information is also recommended.

1.3.1.1 Exploration Drilling

A drill program is proposed to upgrade the South Zone resource and to potentially extend the current Central Zone resource. All costs related to the exploration program are included in the exploration cost estimate. This included, drilling, mobilization, camp, crew transport, logging, and assay charges estimated at $225/m all-in.

It is recommended to drill into the potential high grade area below the current block cave shape in the Central Zone. Currently the resource below 425m elevation is considered Inferred with grades above those necessary for block cave mining. Therefore, drilling to upgrade and extend this mineralization for potential addition to a block cave mining scenario is highly recommended.

The South Zone material is currently all Inferred due to the 100m drill spacing. Infill drilling could upgrade the majority of the deposit for inclusion in a PFS or FS to extend mine life and provide mill feed during ramp up and/or ramp down of the block cave.

1.3.1.2 Geotechnical Drilling

Additional geotechnical drilling will provide information for the open pit resource particularly in the north of the Central Zone, as well as at depth below the current block cave shape. It is therefore recommended that exploration and infill drilling also include a geotechnical component to collect orientation, rock mass strength and major structural data necessary for further geotechnical studies.

1.3.2 Resource Estimate Updates

It is recommended to update the Central and South Zone Resource Estimates based on additional drilling and geologic studies. This will provide further input to the ongoing Preliminary Feasibility Study, or other future studies.

1.4 Technical Summary

1.4.1 Property Description and Location

The Kwanika property in north central British Columbia is situated in the Omineca Mining Division, approximately 140km northwest (approximately 200km by road) of Fort St. James, located on NTS map sheets 93N06 and 93N11, at latitude 55º31' N and longitude 125º20' W. The property is accessible year-round by four-wheel-drive vehicle, provided there is active snow removal in winter.

1.4.2 Property Ownership

The Kwanika property consists of 61 contiguous unpatented mineral claims covering an area of 25,928.2 hectares, and is solely owned by Kwanika Copper Corp., a private company jointly owned by Serengeti Resources Inc. (65%) and Posco International Corp. (35%). It is not subject to any royalties or other outstanding liabilities.

1.5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

The Kwanika Property is located approximately 75km to the southwest of the Kemess power line, and CN Rail maintains an active rail line to Fort St. James. The Kwanika Project is also in close proximity to the well-serviced communities of Prince George, Smithers, Fort St. James, and Mackenzie. Access to the Kwanika Property from Fort St. James is via the all-weather Leo Creek and Driftwood forest service roads (FSR) and the Fall-Tsayta FSR, an aggregate distance of 195km. Other access infrastructure on the Kwanika Property consists of gravel logging roads and several km of excavated trails. There is sufficient water available in the immediate vicinity of the property to support both exploration and potential mining activities.

KCC has developed a beneficial relationship with the local Takla Nation and there has been community support for the Kwanika Project and the potential employment that it would provide. KCC signed an exploration agreement with Takla Nation dated May 25th, 2018.

The average temperature for this area is 3.1°C, with a peak average monthly temperature of 21.9°C in July and an average monthly low of -15.8°C in January. The region receives an average of 295 millimeters of rainfall and 192 centimeters of snowfall annually, with 138 days per year where precipitation exceeds 0.2 millimeters. The Kwanika property is snow-covered from late October to April or May.

1.6 History

Exploration on the Kwanika property dates back to the 1930's and 40's. Copper mineralization was first recognized along Kwanika Creek in 1964 by Hogan Mines. Between 1966 and 1976, exploration was carried out that included geological, geochemical, and geophysical surveys that resulted in an aggregate of 5,700m of percussion and diamond drilling. In 1976, a Mineral Resource estimate for the main (currently referred to as the South Zone) deposit was published.

Between 1981 and 1989, different operators (Placer Developments Ltd., Aume Resources Ltd. and Daren Resources Ltd., Eastfield Resources Ltd.), conducted geochemical surveys and sampled rock outcrops, as well as IP and drilling. The claims were allowed to lapse and, in 1995, the property was re-staked by Discovery Consultants ("Discovery") who conducted additional heavy mineral stream sediment and rock sampling. No more work was done until Serengeti staked the property starting in 2004.

1.7 Geological Setting and Mineralization

1.7.1 Geology

The Kwanika property lies in the northern part of the Upper Triassic to Lower Jurassic Quesnellia Terrane ("Quesnel Trough") which comprises a belt of Lower Mesozoic volcanic rocks and intrusions lying between highly deformed Proterozoic and Paleozoic strata to the east and deformed Upper Paleozoic strata to the west. The Quesnel Trough is the host of numerous alkalic and calc-alkalic porphyry copper-gold deposits within British Columbia. In the area around the Kwanika property, Quesnellia is bounded by the Pinchi fault on the west and by the Manson fault on the east.

The Kwanika Project consists of two mineralized areas: Central Zone and South Zone. In the Central Zone the most economically significant intrusive body is a north-northeast trending monzonite stock that dips shallowly to steeply to the west. The intrusion has a strike length of nearly 1.3km and a thickness of 50m to 350m. The higher grade copper-gold mineralization in the Central Zone is dominantly hosted within, and immediately adjacent to, the monzonite intrusive. Monzonite has also been intersected at depth in the western and southwestern parts of the Central Zone and is thought to connect to the sill-like body in the central part of the deposit, suggesting the possibility of deep Central Zone mineralization.

The South Zone occurs within a fault bounded sequence of strongly altered intrusive rocks of alkalic to intermediate composition. The host lithologies occur within a north-south trending structural corridor. This structural corridor is bounded by the West Fault to the west and by a similar fault zone termed the East Fault along the eastern boundary of the corridor. Coincident chargeability and resistivity anomalies form a geophysical domain that represents the fault-bounded South Zone corridor. This variably mineralized domain is 2,900m long and up to 500m wide.

1.7.2 Mineralization

Copper and gold mineralization in the Central Zone at Kwanika occurs primarily in potassically and sericite-carbonate altered lithologies. Alteration and mineralization grade outwards from a strong to intensely potassically altered, strongly mineralized core zone to a variably propylitically altered, weakly mineralized periphery. Hypogene mineralization is controlled by several generations of quartz + sulphide veining, with the highest copper and gold grades occurring in areas of quartz stockwork. A supergene enrichment blanket has been superimposed on the upper surface of the hypogene mineralization in the Central Zone.

The South Zone is characterized by porphyry style copper + gold + molybdenum + silver mineralization within monzonite, quartz monzonite, and monzodiorite with primary mineralization comprised of fine to coarse grained chalcopyrite disseminations and molybdenite mineralization along fractures and quartz selvages and, less commonly, disseminated blebs associated with pyrite and chalcopyrite. Enrichment is associated with brecciated zones that have undergone secondary K-feldspar flooding and/or intense pyrite + chlorite + silica alteration.

1.8 Deposit Type

The Central Zone deposit is similar in characteristics to both the classic alkali porphyries in that the mineralization is associated with an intrusive complex of alkali-feldspar-saturated monzonite and the calc-alkalic porphyry type deposits in that the mineralization is associated with strong quartz stockwork. The South Zone deposit is a structurally controlled porphyry deposit with quartz monzonitic to quartz monzodioritic host lithologies.

1.9 Exploration

- 2005: Serengeti conducted a 530 line-km airborne magnetic/radiometric survey on the Kwanika and Germansen properties
- 2006: Serengeti conducted several ground-based IP surveys in the vicinity of the Central and South Zone deposits. The results outlined a significant IP signature over the Kwanika South deposit as well as a continuation of this IP anomaly into a large, covered area to the north-northwest.
- 2007: Serengeti carried out a regional airborne magnetic and electromagnetic (EM) survey. The results yielded by the survey identified multiple high magnetic/low resistivity anomalies throughout the property, which outline a general north-northwest trend coincident with South Zone and Central Zone deposit areas.
- Baseline environmental studies were initiated on the Kwanika property.
- 2008: Pole-dipole IP surveys were conducted from south of the two known deposits to the southern boundary of the Kwanika property.
- 2009: A drilling program established an exploration model for a structurally controlled porphyry deposit in the South Zone area. Analysis and reinterpretation of geophysical and geological data suggested that potential existed for a structurally bounded domain of mineralization measuring up to 2,900m x 500m.
- 2016: A LIDAR survey was flown over the Central and South Zones of the Kwanika project.

Between July 2006 and September 2018, Kwanika Copper Corp. (KCC) has drilled 81,942m in 195 drillholes in the resource areas. Initial indications of mineralization were identified at Central Zone in hole K-06-04 during the first drill program in the summer of 2006 and the actual discovery hole, K-06-09, drilled later the same year.

1.10 Sample Preparation, Analyses and Security

KCC has implemented typical industry procedures for all aspects of the drilling, collar and down hole surveying, core description and sampling, sample preparation and assaying. Sample intervals were based on contacts between lithology, alteration, structural features and mineralogy, up to a maximum of two metres, with the majority of samples taken at two metres long. Mineralized core was split on-site using two diamond saws, while select, lower grade core early in the program was split using a hydraulic blade splitter.

Samples were transported via truck by a local third party expediting and freight company. To ensure that samples were not tampered with during transport to the laboratory, the number of each security tag and its associated rice sack number were recorded by the geologist at the Kwanika site. A list of each bag and its unique security tag number was forwarded to GDL/ACME/ACT, which then confirmed that each security tag matched its correct rice sack.

From 2006 to 2009 all assays from the Kwanika Project were sent to Global Discovery Labs ("GDL") in Vancouver, British Columbia. GDL did not have ISO accreditation but did participate in the Proficiency Testing Program for Mineral Analysis Laboratories (PTP-MAL). PTP-MAL is an ISO 9001:2000 accredited program that is operated by the Canadian Certified Reference Materials Project (CCRMP), and meets recognized international standards for proficiency testing providers. From 2010 to 2012, sampling was carried out by Acme Labs which held ISO 9001 accreditation during this time. During the 2016 drilling program, Activation Labs of Kamloops, British Columbia was used to carry out assaying for the Kwanika project. Activation Labs is ISO 17025 accredited laboratory. During the 2018 drilling program, Bureau Veritas Minerals Labs in Vancouver, British Columbia which is ISO 9001:2015 and 17025 accredited was used to carry out assaying for the Kwanika project.

1.11 Data Verification

KCC has conducted an independent Quality Assurance/Quality Control (QA/QC) sampling program on the Kwanika Project. QA/QC samples were included in the sample stream for both the Central and South zones. MMTS has compiled and reviewed the database and the results of the QA/QC sample program, which includes blanks, standard reference material, field duplicates and check assays

MMTS has validated the collar, survey, and assay data for the Central and SRK has done this validation for the South Zones. SRK migrated all collars in the resource areas to a more accurate elevation using a high-resolution Lidar scan. SRK visually reviewed the downhole surveys to confirm that they were reasonable. In addition, MMTS compared assay database to the original assay certificates for approximately 1% of the data. The entire database of assay values has been validated with the electronic lab data and only minor errors were found.

1.12 Mineral Processing and Metallurgical Testing

Copper-Gold mineralization in Kwanika has been identified as two main zones, Central Zone, and South Zone. Serengeti has conducted preliminary metallurgical testing on samples from the Central Zone. Metallurgical testing of the South Zone has not been conducted.

Exploratory metallurgical test work conducted in 2008 and 2009 demonstrates that a conventional multistage copper flotation circuit can produce a sellable copper concentrate. A copper recovery of 91% and gold recovery of 75% to a concentrate with 24% copper was assumed for the PEA. These assumptions are preliminary and may vary with future test work.

1.13 Mineral Resource Estimate

MMTS estimated copper, gold and silver resources for the Central Zone. SRK estimated copper, gold, silver and molybdenum resources for the South Zone. The Resource Estimates are based on drilling since 2006 as summarized in the Table below.

Table 1-5: Summary of Diamond Drillholes used in the Resource Estimation

Zone	Drill Type	Number of Drillholes	Total Metres Drilled	Number of Drill Samples
Central	Core	137	63,983.69	25,375
South	Core	58	17,958.55	7,766
Total	**Core**	**195**	**81,942.24**	**33,141**

The Central Zone was estimated in five domains limited to a volume defined by a 0.1% copper equivalent (CuEq) grade shell. The South Zone was estimated in two domains limited to a volume defined by a 0.07% copper equivalent grade shell.

MMTS and SRK are of the opinion that the block model resource estimate and resource classification reported herein represent a reasonable estimation of the global mineral resources on the Kwanika Property. The mineral resources presented herein have been estimated in conformity with generally accepted CIM guidelines (CIM, 2014) and are reported in accordance with Canadian Securities Administrators (CSA) National Instrument 43-101 (CSA, 2016). Mineral resources are not mineral reserves and do not have demonstrated economic viability.

The "reasonable prospects for eventual economic extraction" requirement for a mineral resource generally implies that the quantity and grade estimates meet certain economic thresholds, and that the mineral resources are reported at an appropriate cutoff grade taking into account extraction scenarios and processing recoveries. To demonstrate the reasonable prospect of eventual economic extraction, MMTS and SRK constrained the overall mineral resource with pit optimization software using the parameters shown in Table 1-6 for the Central Zone and in Table 1-7 for the South Zone.

Table 1-6: Open Pit and Underground Parameters for Resource Estimation – Central Zone

Input Parameters	Cu	Au	Ag	Mo
Metal price (US dollars)	$3.25/lb	$1350/oz	$17/oz	NA
Net Smelter Prices (Canadian dollars)	$3.714/lb	$52.109/oz	$0.604/oz	NA
Metallurgical Recoveries	91%	75%	75%	NA
Exchange Rate $US:$CAD	0.77			
Open pit mining cost - Plant feed and Waste (Canadian dollars)	$2/t mined			
Incremental Mining Cost / bench (Canadian dollars)	$0.05/t mined			
Underground Mining Cost (Canadian dollars)	$17/t mined			
G&A costs, Processing, Water treatment and Tailings Placement (Canadian dollars)	$11.30/t milled			
Overall Slope Angle (degrees)	45			

Table 1-7: Open Pit Parameters for Resource Estimation Constraint – South Zone

Input for Pit Optimization	Cu	Au	Ag	Mo
Metal price (US dollars)	$3/lb	$1300/oz	$20/oz	$9/lb
Metallurgical Recoveries	89%	70%	75%	60%
Open pit mining cost - Plant feed and Waste (Canadian dollars)	$2/t mined			
G&A costs, Processing, Water treatment and Tailings Placement (Canadian dollars)	$10/t milled			
Mining Loss	5%			
Dilution	2%			
Overall Slope Angle (degrees)	45			

The results of the pit optimizations have been used as a guide to assist in the preparation of a mineral resource statement and to select an appropriate resource reporting cutoff grade. The Kwanika Central Zone also has an underground resource that has been constrained by a "reasonable prospects for economic extraction" shape. This shape accounts for a higher underground cutoff grade, a reasonable cave height and reasonable minimal lateral extents, and for the continuity of grade underground.

1.14 Recovery Methods

A conventional copper-gold flotation process is assumed for the Kwanika project including crushing, grinding, and multi-stage froth flotation to produce a copper-gold concentrate.

1.15 Environmental Studies, Permitting and Community Impact

1.15.1 Regulatory Framework

This aspect of the project is being addressed in a PFS currently in progress.

1.15.2 Programs Already in Progress

In support of the exploration programs, KCC has been in consultation with the local Takla Nation, providing jobs as well as starting base line environmental, archeological, weather and water studies including a project specific Valued Ecosystem Component (VEC) study. AIP Exploration Agreement has been signed with Takla Nation.

1.16 Adjacent Properties

1.16.1 Regional

The Quesnel Trough hosts several other porphyry copper ± gold mines and significant deposits including the Mount Polley, Mt. Milligan and Copper Mountain open-pit mines, and the New Afton underground block-cave mine.

1.16.2 Local District

The adjacent Stardust claims, owned by Sun Metals Corporation, are located immediately to the north of the Kwanika property. The Stardust property has been the subject of exploration for more than fifteen years on various precious and base metal vein and skarn occurrences and contains an Indicated and Inferred copper-gold Mineral Resource known as the Canyon Creek Zone. The other significant prospect in the general vicinity of Kwanika is the Lorraine porphyry copper-gold property jointly controlled by Teck Corporation and Sun Metals Corp. which contains an Indicated and Inferred Mineral Resource in two deposits.

1.17 Infrastructure

Additional planning and geotechnical studies for the surface facilities and structure on the site are ongoing as part of the Preliminary Feasibility Study. This will include site layout optimization, geotechnical investigation for foundations, sources of fill and construction materials, and water management facilities.

The Tailings Storage Facility (TSF), geotechnical, and water management investigations need to consider the requirements of the BC regulations, alternatives assessments, ARD/Metal Leaching issues, and a site wide water balance.

2 Introduction

Kwanika Copper Corporation's Kwanika Project (the Project) involves the development of a copper-gold deposit located 195 kilometres by road from Fort St. James, British Columbia, Canada.

This National Instrument 43-101 (NI 43-101) technical report on the updated Kwanika resource estimate has been prepared by Moose Mountain Technical Services (MMTS) and is based on work produced by the following independent consultants:

- Moose Mountain Technical Services (MMTS)
- SRK Consulting (Canada) Inc.

The current updated Central Zone resource estimate was completed by Moose Mountain Technical Services (MMTS) of Cranbrook, British Columbia under the direction of Sue Bird, P. Eng., an independent Qualified Person as defined by NI 43-101. Sue Bird, P. Eng. completed a site visit to the Kwanika property from July 13 – 16, 2018 and reviewed and advised the geological modeling input to the current study.

The South Zone resource estimate was completed in 2016 by SRK Consulting (Canada) Inc., of Vancouver, British Columbia under the direction of Marek Nowak, P. Eng., an independent Qualified Person as defined by NI 43-101.

Tracey Meintjes, P. Eng., of MMTS is the QP for matters relating to mineral processing, mineral processing capital, mineral processing operating costs, and metallurgical testing.

The Resource Estimate is based on exploration and internal Serengeti and KCC studies as well as outside consultant work done since 2005.

3 Reliance on Other Experts

Not applicable.

4 Property Location and Description

The Kwanika property is located in north central British Columbia, in the Omineca Mining Division, approximately 140km northwest (approximately 195km by road) of Fort St. James (Figure 4-1). The project area is on NTS map sheets 93N06 and 93N11, at latitude 55º30' N and longitude 125º18' W.

4.1 Mineral Tenure

The Kwanika property consists of 61 unpatented mineral claims covering an area of 25,928.17 hectares and is solely owned by Kwanika Copper Corp., a private company jointly owned by Serengeti Resources Inc. (65%) and Posco International Corp. (35%). The property is not subject to any royalties or other outstanding liabilities.

Table 4-1 lists the claims for the Kwanika Project area and Figure 4-2 shows the claim map. The resource outlined in this report is contained within claims 501733, 514432, 514433, and 502953.

The Kwanika property is not subject to any known environmental liabilities and all required exploration permits have been obtained and are in good standing.

Figure 4-1: Kwanika Property Location Map

Table 4-1: Mineral Tenure Information for the Kwanika Project

Tenure #	Claim Name	Hectares	Expiry Date	NTS	Record Date	Mining Division	Owner
501129	GER	458.017	26-Jan-2020	093N055	12-Jan-2005	OMENICA	KCC
501190	GER 1	457.821	26-Jan-2020	093N055	12-Jan-2005	OMENICA	KCC
501733	KWANIKA 1	457.642	04-Dec-2027	093N054	12-Jan-2005	OMENICA	KCC
502953	KWANIKA 4	73.296	04-Dec-2027	093N054	13-Jan-2005	OMENICA	KCC
505271		458.168	04-Dec-2027	093N044	31-Jan-2005	OMENICA	KCC
505277	KWANIKA 5	458.450	04-Dec-2027	093N044	31-Jan-2005	OMENICA	KCC
506007	KWANIKA 7	458.624	04-Dec-2027	093N044	6-Feb-2005	OMENICA	KCC
514432		439.522	19-Nov-2027	093N054	19-Nov-2004	OMENICA	KCC
514433		403.038	19-Nov-2027	093N054	19-Nov-2004	OMENICA	KCC
514455	KWANIKA 8	18.316	13-Jun-2027	093N054	13-Jun-2005	OMENICA	KCC
546495	Kwanika 9	458.767	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546496	Kwanika 10	458.884	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546497	Kwanika 11	458.982	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546498		459.078	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546500	Kwanika 13	459.184	04-Dec-2027	093N034,044	4-Dec-2006	OMENICA	KCC
546501	Kwanika 14	459.285	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546502	Kwanika 15	459.394	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546503	Kwanika 16	459.506	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546507		459.650	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546508	Kwanika 18	459.810	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546509	Kwanika 19	460.016	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546510	Kwanika 20	460.215	04-Dec-2027	093N034,035	4-Dec-2006	OMENICA	KCC
546511	Kwanika 21	460.385	04-Dec-2027	093N034,035	4-Dec-2006	OMENICA	KCC
546512	Kwanika 22	18.422	04-Dec-2027	093N024	4-Dec-2006	OMENICA	KCC
546553	Kwanika 24	18.329	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546554	Kwanika 25	36.661	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546555	Kwanika 26	36.670	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546556	Kwanika 27	55.032	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546557	Kwanika 28	36.697	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
546558	Kwanika 29	18.352	04-Dec-2027	093N044	4-Dec-2006	OMENICA	KCC
1061675	KWANIKA CREEK E	1,098.450	09-Jul-2019	093N	9-Jul-2018	OMENICA	KCC
1061676	KWANIKA CREEK W	677.680	09-Jul-2019	093N	9-Jul-2018	OMENICA	KCC
997183	KWANIKA EAST 1	457.070	26-Jan-2020	093N	14-Jun-2012	OMENICA	KCC
997222	KWANIKA EAST 2	438.814	26-Jan-2020	093N	14-Jun-2012	OMENICA	KCC
997242	KWANIKA EAST 3	457.315	26-Jan-2020	093N	14-Jun-2012	OMENICA	KCC
997247	KWANIKA EAST 4	384.143	26-Jan-2020	093N	14-Jun-2012	OMENICA	KCC
997262	KWANIKA EAST 5	457.069	26-Jan-2020	093N	14-Jun-2012	OMENICA	KCC
997322	KWANIKA EAST 6	274.244	26-Jan-2020	093N	14-Jun-2012	OMENICA	KCC
997342	KWANIKA EAST 7	365.831	26-Jan-2020	093N	14-Jun-2012	OMENICA	KCC

Tenure #	Claim Name	Hectares	Expiry Date	NTS	Record Date	Mining Division	Owner
1031342	KGV	530.915	26-Jan-2020	093N	3-Oct-2014	OMENICA	KCC
1018214	ROTTACKER	1,784.532	26-Jan-2020	093N	02-Apr-2013	OMENICA	KCC
1018215	ROTTACKER	294.129	26-Jan-2020	093N	02-Apr-2013	OMENICA	KCC
1044440	KGV	457.996	26-Jan-2020	093N	30-May-2016	OMENICA	KCC
1018213	SMOKE	1,810.804	26-Jan-2020	093N	02-Apr-2013	OMENICA	KCC
1018949	SMOKE 2	658.291	26-Jan-2020	093N	29-Apr-2013	OMENICA	KCC
501134	VAL 6	458.385	26-Jan-2020	093N046	12-Jan-2005	OMENICA	KCC
501250	VAL 7	458.378	26-Jan-2020	093N046	12-Jan-2005	OMENICA	KCC
501521	VAL 8	440.233	26-Jan-2020	093N046	12-Jan-2005	OMENICA	KCC
502038	VAL 11	183.350	26-Jan-2020	093N046	12-Jan-2005	OMENICA	KCC
502129	VAL 12	458.443	26-Jan-2020	093N045	12-Jan-2005	OMENICA	KCC
502168	VAL 13	440.375	26-Jan-2020	093N046	12-Jan-2005	OMENICA	KCC
502196	VAL 14	293.507	26-Jan-2020	093N045	12-Jan-2005	OMENICA	KCC
502227	VAL 15	275.234	26-Jan-2020	093N045	12-Jan-2005	OMENICA	KCC
514447		458.390	26-Jan-2020	093N045	15-Nov-2004	OMENICA	KCC
514448		458.388	26-Jan-2020	093N045	15-Nov-2004	OMENICA	KCC
514449		274.935	26-Jan-2020	093N045	15-Nov-2004	OMENICA	KCC
514450		458.061	26-Jan-2020	093N045/055	19-Nov-2004	OMENICA	KCC
514451		513.050	26-Jan-2020	093N045/055	18-Nov-2004	OMENICA	KCC
959209	VAL 16	385.257	26-Jan-2020	093N	12-Mar-2012	OMENICA	KCC
959229	VAL 17	330.345	26-Jan-2020	093N	12-Mar-2012	OMENICA	KCC
1012554	VAL 18	18.341	26-Jan-2020	093N	4-Sep-2012	OMENICA	KCC
claims	61	25,928.166					

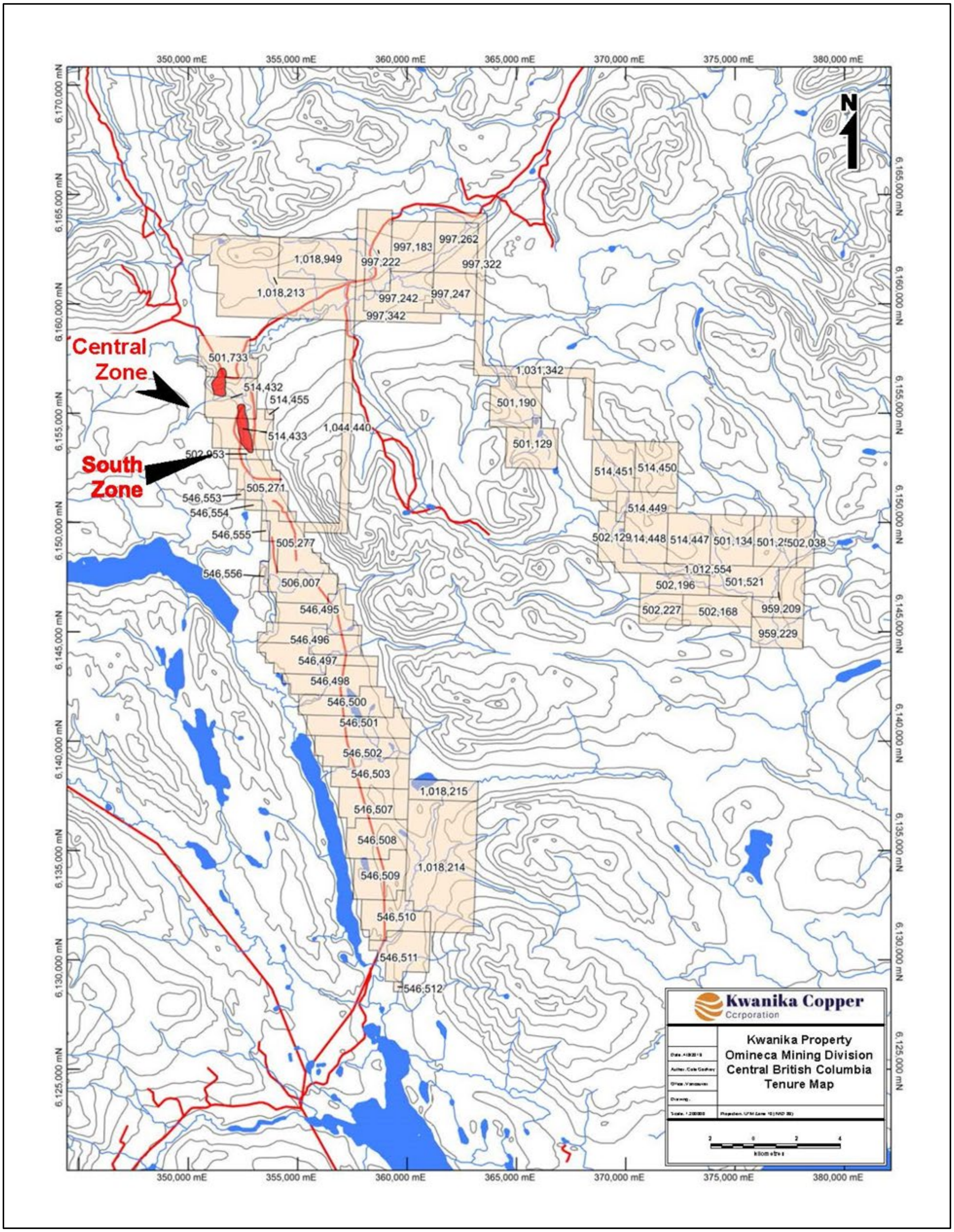


Figure 4-2: Kwanika Claim Map

4.2 Underlying Agreements

The Kwanika property is controlled by Kwanika Copper Corporation ("KCC"), a private company jointly owned by Serengeti Resources Inc. (65%) and Posco International Corp. (35%). Serengeti and Posco signed a binding share subscription agreement and settled the terms of the definitive shareholders joint venture agreement and the agreement was announced October 26, 2017. KCC signed a current Exploration Agreement with the Takla Nation in 2018.

4.3 Permits and Authorization

Exploration on the property is authorized by the British Columbia Ministry of Energy and Mines by permit number MX-13-113, most recently dated January 18, 2016 and covers the period through December 31, 2019.

4.4 Environmental Considerations

Serengeti completed a Valued Ecosystem Component study for the Project in 2008 with input from the Takla Nation.

4.5 Mining Rights in British Columbia

Subject to British Columbia law, Kwanika Copper Corp. as valid mineral tenure holder has the sole and pre-emptive right to apply for mining rights on the Kwanika property.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Accessibility

The Kwanika Property is located 140km northeast of Fort St. James in north central British Columbia. It is accessible by the well-maintained, all-weather Leo Creek Forest Service Road (FSR) and Driftwood FSR (Figure 5-1). The Driftwood FSR services the nearby town of Takla Landing and is maintained year-round by the British Columbia Forestry Service to within 29km of the site. The final 29km of access is via the Fall-Tsayta FSR which is suitable for passage of four-wheel-drive vehicles in all seasons (pending snow removal) and has been maintained seasonally by Serengeti since the fall of 2006. The road is snow-free from May to October. Serengeti has developed and expanded a network of pre-existing exploration trails covering the northern end of the property.

5.2 Climate

The average temperature for this area (based on data from Fort St. James) is 3.1°C, with a peak average monthly temperature of 21.9°C in July and an average monthly low of -15.8°C in January. The region receives an average of 295 millimeters of rainfall and 192 centimeters of snowfall annually, with 138 days per year where precipitation exceeds 0.2 millimeters. The Kwanika property is snow-covered from late October to May.

5.3 Local Resources and Infrastructure

The Kwanika Project is in close proximity to the well-serviced communities of Prince George, Smithers, Mackenzie, and Fort St. James. These established centers can provide skilled labor for mine construction and operation and are presently a source of an extensive workforce pool for exploration. The property is 200km by road from the Mt. Milligan mine which started production in 2014.

KCC reports that it has developed a beneficial association with the local Takla Nation, and that there is general community support for the Kwanika Project and the potential employment that it would provide.

5.4 Physiography

The property occupies a broad, till-blanketed valley which ranges in elevation from 900m to 1,200m. The local topography is gently to moderately sloping, with sparse bedrock exposure (Figure 5-2). The only observable rock outcrops on the property are along the meandering Kwanika Creek, where fluvial processes have locally eroded the till blanket.

Kwanika Creek lies east of the Pacific divide, draining southward into the Nation Lakes chain, and eventually into the Arctic Ocean. The property is moderately forested with spruce and lodgepole pine, broadleaf deciduous trees and shrubs, such as alder, birch and aspen, and underlying lichen and mosses. The extent of the property is sufficient to support a mining operation with a potential of power supply from the Kemess power line 75km to the Kwanika Project site.

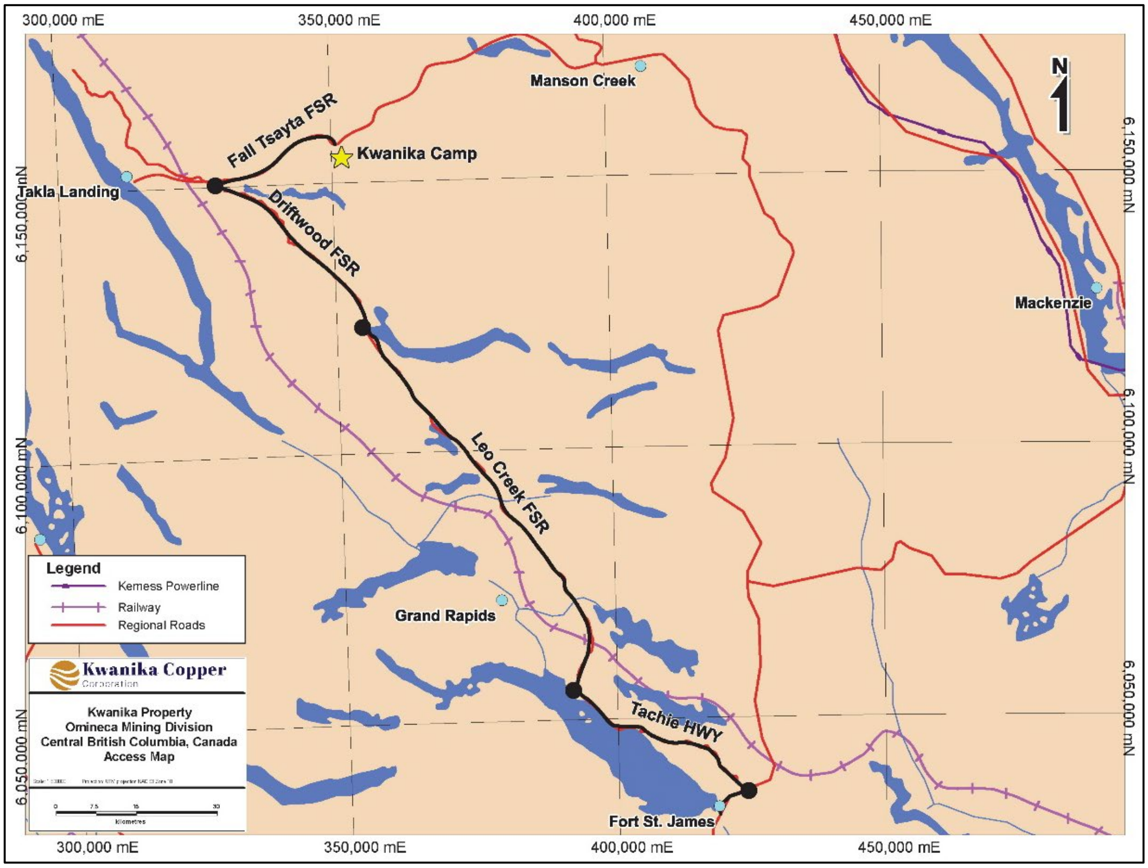


Figure 5-1: **Project Access Map**

Figure 5-2: **Picture of the Kwanika Property**

6 History

The first exploration on the Kwanika property occurred in the 1930s and 1940s following the discovery of mercury at Pinchi Lake. Initial exploration concentrated on prospecting for mercury mineralization along the Pinchi fault and for placer gold in Kwanika Creek.

Copper mineralization was first recognized along Kwanika Creek by prospectors Almond and Thurber in 1964. A. Hodgson and G. Bleiler were first to stake the property for Hogan Mines Ltd. (Hogan) in 1965. During that year, Hogan conducted a small X-ray drilling program (27.4m) as well as a trenching and geochemical program (Macdonald, 1965; Buskas, Garrett & Morton, 1989). Geochemical results of a typical exposure yielded 0.25% Cu and 0.01% MoS2 over 3.4m. More copper mineralized samples yielded 0.94% Cu and 0.01% MoS2 over 2.3m.

The property was subsequently optioned to Canex Aerial Exploration Ltd. (Canex) in 1966 (Pentland, 1966; Sawyer 1969). Canex's work included geological, geochemical (sediment and water, parameters not defined) and magnetic/induced polarization (IP) surveys on a 67.6km cut grid, as well as drilling eleven diamond drillholes (856m). The geophysics identified an IP anomaly coincident with mineralized outcrops along Kwanika Creek. Drilling confirmed that this IP anomaly was caused by sulphide mineralization that comprised up to 5% of the rock mass. A second IP anomaly with a coincident 300 gamma magnetic response and a frequency effect of 3% was also identified to the west of Kwanika Creek. It remained untested as it was thought to be located in a sedimentary environment and within the Pinchi fault zone.

The Canex option was terminated and the property was acquired by Great Plains Development Company of Canada ("Great Plains") in 1969. Great Plains conducted a magnetic survey and drilled seven diamond drillholes (1,320m) to test the previously identified IP and magnetic low anomalies (Sawyer, 1969; Buskas, Garrett & Morton, 1989). Results for drillholes DDH# B-1, B-2, and B-4 showed the best copper mineralization at the bottom of the holes, with 0.10% Cu to 0.21% Cu in the top 45m to 0.21% Cu to 0.41% Cu at 91m to 101m. The drilling program outlined an area about 490m by 300m of low grade copper mineralization, grading approximately 0.20% Cu. No gold analysis was done and molybdenum was analyzed only in selected sections.

In 1972, Bow River Resources Ltd. ("Bow River") mapped the property and drilled six percussion holes for a total of 549m, (Buskas, Garrett & Morton, 1989). An analysis of the drillhole logs reveals 0.15% Cu to 0.17% Cu over the full length of three holes (9m to 91m depth).

Pechiney Developments Ltd. ("Pechiney") optioned the property in 1973 and conducted a 64.4km grid IP and resistivity survey (Hallof & Goudie, 1973). When the results were interpreted with previous drillhole data, it was determined that the best copper grades corresponded to anomalies with frequency effects over 3% and resistivities over 100 ohm-m. In 1974, Pechiney conducted a 30 hole, 2,993m percussion drilling program (Guelpa, 1974); however, assay results for this work are not available.

In 1981, Placer Developments Ltd. conducted a geochemical survey further south which consisted of 35 soil samples and 16 rock samples (Bulmer, 1981). Soil samples were collected from a grid with 100m sampling interval and a line spacing of 200m. Rock samples were collected from outcrops on the soil grid as well as along Kwanika Creek. The survey identified anomalous copper (up to 2,520ppm), molybdenum (up to 730ppm) and mercury (up to 90 ppb) values occurring within cataclastized granite along Kwanika Creek, near the Pinchi fault.

In 1983, Aume Resources Ltd. conducted a geochemical survey at the northern end of the Kwanika property to investigate the gold content of mercury mineralization associated with the Pinchi fault (Culbert, 1983). The survey consisted of 43 soil samples, 37 stream sediment samples and 12 rock samples, which were collected during line traverses and included samples collected outside the property boundaries. Assay results supported the high concentration of mercury associated with the Pinchi fault (up to 6,400 ppb), however, Au and Ag values were not anomalous.

In 1986, Daren Resources Ltd. conducted a geochemical survey in the northwest corner of the Kwanika property, which included work on the northwestern and western periphery of the property (Christoffersen, 1986). The regional survey consisted of 96 soil samples, 14 silt samples, and 15 rock samples. The results obtained from this survey confirmed previously identified low order gold, silver, and arsenic anomalies, with the best sample grading 275ppb Au, 58ppm As, and 1.1ppm Ag.

In 1989, W. Halleran staked the Swan property, located in the northern portion of the Kwanika claims at 55°30'N, 125°19'W (Carpenter, 1999), on ground previously abandoned by Bow River. Halleran was able to demonstrate the association of gold with the copper mineralization and subsequently optioned the property to Eastfield Resources Ltd. (Eastfield) (Buskas, Garrett & Morton, 1989). During 1989, Eastfield conducted an extensive exploration program which consisted of cutting 22.6km of grid lines, a geochemical survey (55 soils at 50m intervals, 143 stream sediments on Kwanika Creek tributaries and 162 rock samples), and a 23.3km IP survey. Work conducted during this period also consisted of geological mapping, prospecting and resampling historical core. Results from the geochemical survey indicated that the highest and most consistent copper-gold anomalies were restricted to the North copper zone (values up to 9,462ppm Cu and up to 1,227ppb Au). A comprehensive analysis of the geophysical chargeability results in conjunction with geochemical, drillhole and geological surveying data yielded six targets for future exploration which extended throughout the property. Furthermore, it was determined that the best copper mineralization was not always associated with the strongest sulphide mineralization, suggesting that significant copper mineralization may be associated with less intense IP anomalies.

Eastfield also carried out a small drilling program in 1991 consisting of four diamond drillholes, totaling 549m (Morton, 1991). The program intended to test geophysical targets to the north and west of the Pechiney 1974 percussion holes. The drilling program failed to identify new zones of significant mineralization.

Discovery Consultants ("Discovery") re-staked the Swan property and continued exploration in 1995 with a limited heavy mineral stream sediment (two samples) and rock (15 samples) geochemical program (Carpenter, 1996). The heavy mineral stream sediment samples from the west edge of the property yielded anomalous gold values of 3,180ppb and 4,580ppb, while the rock samples had values up to 73ppb Au and 2,607ppm Cu. In 1999, Discovery obtained an additional three heavy mineral stream sediment samples from the east side of the property which yielded anomalous gold values of 7,450ppb and 1,730ppb (Carpenter, 1999).

A historical Mineral Resource estimate for what is currently referred to as the South Zone deposit was produced in 1976. The estimate stated a Mineral Resource of 36Mt grading 0.20% Cu (Pilcher and McDougall, 1976). No mention was made of the source of this estimate or how it was done, however, Serengeti was able to obtain a similar result using the same dataset and a polygonal method. Note that this is an historical estimate as defined in NI 43-101. The historical estimate doesn't use mineral resource categories as outlined in NI 43-101. The estimate is only referenced for historical completeness and it should not be relied upon as it is superseded by the mineral resource estimates presented in Section 14 of this report.

No further work was done on the property until Serengeti acquired it in 2004. Subsequent work carried out is described in Section 9, Exploration.

7 Geological Setting and Mineralization

The following description of the regional tectonic and structural setting of Kwanika is taken from Osatenko *et al.*, *in press.*

7.1 Regional Geology

The Kwanika porphyry deposits are located at the western margin of the Quesnel terrane (“Quesnellia”). Quesnellia is a Late Paleozoic to Early Jurassic island arc that hosts numerous alkalic and calc-alkalic porphyry Cu ± Au-Mo-Ag deposits, and which extends north from the British Columbia-Washington State border for more than 1,000km (Logan and Mihalynuk, 2014). This terrane formed adjacent to ancestral North America in response to eastward-dipping subduction of the Tethyan oceanic Cache Creek terrane (Mortimer, 1987).

The Quesnel terrane is mainly composed of Late Triassic to Early Jurassic island arc-derived volcanic, sedimentary and plutonic rocks of the Nicola (southern British Columbia) and Takla (northern British Columbia) Groups that developed above an eastward-dipping subduction zone (Mortimer, 1987; Monger and Price, 2000). In southern British Columbia, eastward migration of Mesozoic arc magmatism led to the growth of three temporally-distinct, north-trending plutonic belts characterized by rocks of Late Triassic age in the west, through Late Triassic to Early Jurassic, and finally to Early Jurassic in the east. Associated with these plutonic belts are distinctive episodes of calc-alkalic Cu-Mo, alkalic Cu-Au, and calc-alkalic Cu-Mo porphyry metallogenic events responsible for the formation of the Highland Valley, New Afton/Ajax and Brenda deposits respectively (Logan and Mihalynuk, 2014). This trend continues to the north with the calc-alkalic Gibraltar deposit on the west, the alkalic Mount Polley deposit in the center and the calc-alkalic Woodjam Southeast deposit on the east.

At the present latitude of Kwanika, the Quesnel terrane is separated from the Proterozoic and Paleozoic carbonate and siliciclastic rocks of the Cassiar terrane, part of the ancestral North American continental margin to the east, by Late Paleozoic chert, argillite and basalt of the Slide Mountain terrane, remnants of a Late Paleozoic marginal basin (Ferri, 1997). To the west, the Quesnel terrane is faulted against Paleozoic to Mesozoic chert, argillite, limestone and basalt of the Cache Creek terrane. The Manson-McLeod fault system separates the Quesnel terrane from the Slide Mountain terrane to the east, and the Pinchi fault separates the Quesnel terrane from Cache Creek terrane to the west. These terrane bounding structures record protracted and complex displacement histories culminating in prominent dextral strike-slip motion during the Cretaceous-early Tertiary (Gabrielse, 1985).

In the Kwanika area the Quesnel terrane consists of Late Paleozoic island arc volcanic and sedimentary rocks of the Lay Range assemblage (Ferri, 1997), Late Triassic volcanic and sedimentary rocks of the Takla Group (Monger, 1977) and Early Jurassic volcanic and sedimentary rocks of the Chuchi Lake and Twin Creek successions (Nelson and Bellefontaine, 1996). These rocks are cut by several suites of Late Triassic, Early Jurassic and Middle Jurassic plutons of the Hogem Suite (Garnett; 1978; Woodsworth et al., 1991). Unlike the discrete plutonic belts in southern British Columbia, these magmatic episodes are spatially transposed onto one another resulting in a 200km by 25km north-northwest-trending composite plutonic body called the Hogem batholith (Logan *et al*., 2010). Most phases of the Hogem batholith contain Cu-Au mineralization. However, significant mineralization is related to small, satellite intrusions (for example at Cat Mtn., a Late Triassic monzonite; at Lorraine, an Early Jurassic Duckling Creek Syenite Complex; at Mt. Milligan, an Early Jurassic MBX and Southern Star stocks; at Col; a Chuchi Lake syenite body and at Kwanika, Early Jurassic quartz monzonite). The Hogem batholith includes both calc-alkalic and alkalic suites as well as Alaskan-type ultramafic-mafic intrusions (Garnett, 1978; Mortenson et al., 1995; Nixon et al., 1997; Nixon and Peatfield, 2003; Jago et al., 2014).

Progressive subduction of Cache Creek led to amalgamation of the Stikine and Quesnel terranes, separated by relics of Cache Creek oceanic basin and formation of the Intermontane arc complex (Mihalynuk et al., 1999). Final terrane accretion to the North American margin occurred by the mid-Jurassic (Nixon et al., 1997; Nelson et al., 2013). Post-accretion Cretaceous granites host local uneconomic occurrences of Cu and Mo (Garnett, 1978). However, these intrusions were generated and emplaced well after east-dipping subduction beneath the Quesnel terrane had ceased. Garnett (1978) separated the Hogem Batholith into three major intrusive phases based on both age and lithology (Table 7-1).

Table 7-1: Regional Geologic Setting

Division of Hogem Batholith Intrusive Suite		
Intrusive Phase	**Phase Divisions**	**Rock Varieties**
PHASE III: Lower Cretaceous		Leucocratic Granite, Alaskite
PHASE II: Mid to Lower Jurassic	Chuchi syenite Duckling Creek Syenite Complex	Leucocratic Syenite, Quartz Syenite Leucocratic Syenite Foliated Syenite
PHASE I: Lower Jurassic to Upper Triassic	Hogem Granodiorite Hogem Basic Suite	Granodiorite, Quartz Monzonite, minor Tonalite, Quartz Diorite, Quartz Monzonite, Granite Monzonite to Quartz Monzonite Monzodiorite to Quartz Monzodiorite Nation Lakes Plagioclase Porphyry Monzonite Monzodiorite Diorite, minor Gabbro, Pyroxenite, Hornblendite

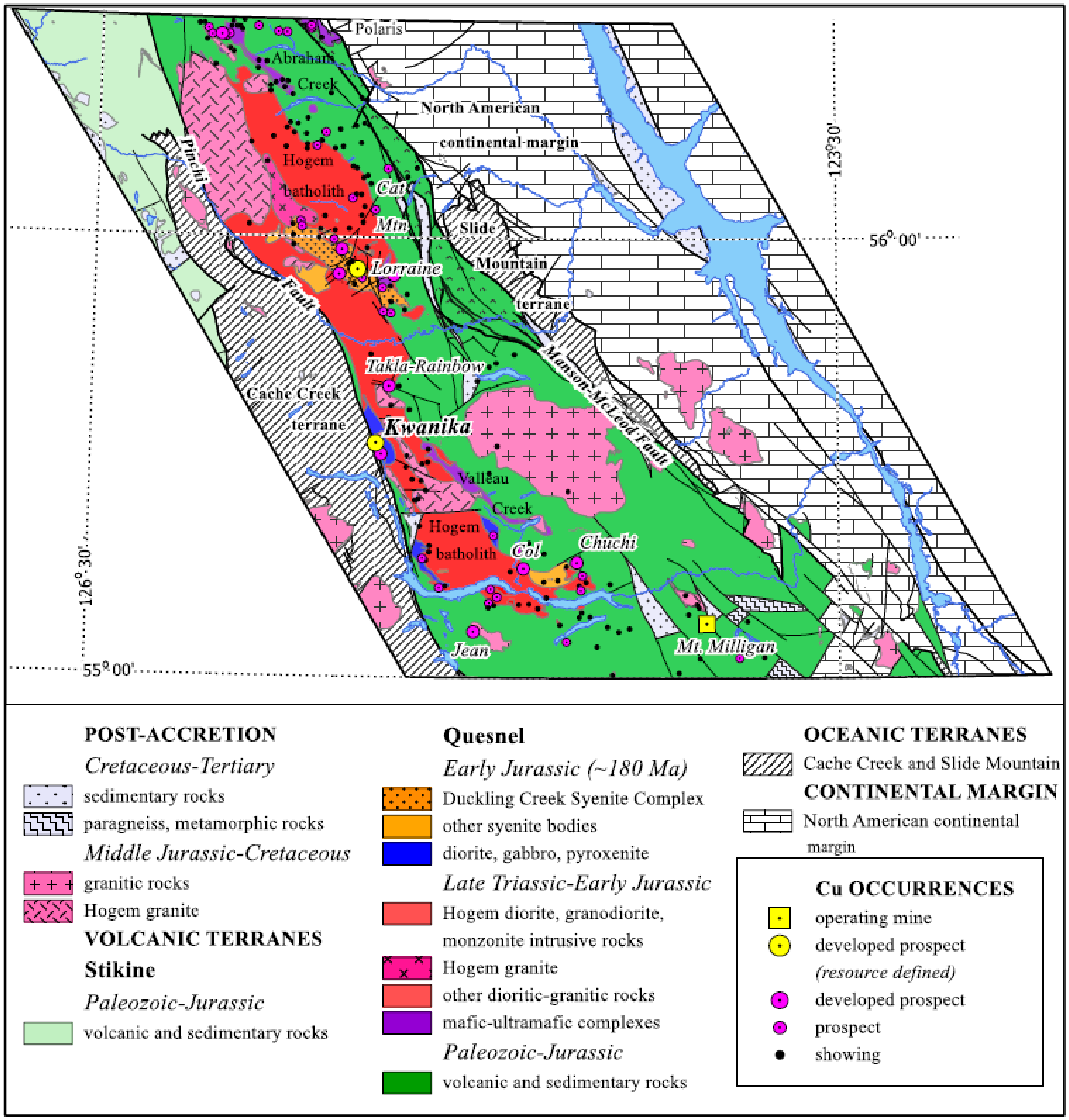


Figure 7-1: Regional Geology

7.2 Property Geology

The Kwanika Project consists of two mineralized areas: the Central Zone and the South Zone. The geology and alteration for each zone are described independently. Figure 7-2 shows the interpreted geology around the Central and South zones.

Mineralization in the Central and South Zones at Kwanika occurs in the Quesnel Terrane, immediately east of its faulted contact against the Cache Creek Terrane and is associated with intrusive phases of the Hogem batholith. The mineralization is mostly covered by glacial sediments that average 25m to 35m in thickness and, as such, bedrock geology is deduced from drill core and the few outcrops along Kwanika Creek in the South Zone.

7.2.1 Central Zone

The Central Zone is 1,400m long by 400m wide and extends more than 700m below surface where it is open to depth on many drill sections. It is down-faulted on the west along the Central fault and then cut off by the Pinchi fault further west. Mineralization is mainly hosted by a shallow to steeply-dipping plug and dyke complex of quartz monzonite porphyry. The quartz monzonite porphyry intruded Takla Group andesitic rocks in the west and pre-mineral quartz monzodiorite-diorite intrusions in the east. These rocks are, in part, non-conformably overlain in the west by Early Cretaceous sedimentary rocks preserved within a west-dipping half-graben.

East of the Central Fault, the Central Zone is comprised of a vertical to steeply-dipping quartz monzonite porphyry with similarly steeply-dipping grade contours and alteration shells. West of the Central Fault, the quartz monzonite porphyry, grade contours and alteration shell contacts are shallowly to moderately- dipping to the west.

The Cache Creek Terrane rocks are the oldest rocks near the Central Zone and occur west of the Pinchi fault. This area is covered but three kilometers to the south along the projection of the Pinchi fault Garnett (1978) mapped limestone and gabbro/serpentinite. Inclined drilling west of the Central Zone encountered the vertically-dipping Pinchi fault zone in two drill holes. It is about 80m wide and contains strongly sheared sandstone and siltstone, clay-altered hematitic tectonic breccias and sheared andesite believed to be Takla Group. An ultramafic rock, intersected in the upper part of drill hole K-115, is part of the Cache Creek Terrane, and marks the western boundary of the Pinchi fault. It is sheared and fine to medium grained with 50% olivine, 25% feldspar and 25% pyroxene.

The oldest rocks east of the Pinchi fault consist of dark green andesite of the Takla Group that are mostly fine-grained flows and tuffs with local flow breccias. Andesites host mineralization only adjacent to contacts with quartz monzonite porphyry, and typically have lower Cu and Au grades than mineralization within the porphyry. The quartz monzodiorite-diorite body is the oldest and largest intrusive phase in the Central Zone area. It lies to the east and below the quartz monzonite porphyry, and is intruded by quartz monzonite dykes. Quartz monzodiorites are pale gray to greenish grey, medium-grained and equigranular, whereas diorites are black and range from microcrystalline to medium-grained. Both are composed primarily of plagioclase and hornblende with local coarse aggregates of magnetite and lesser amounts of biotite, K-feldspar and quartz. This unit is an important host to mineralization.

Andesitic volcanic and quartz monzodiorite-diorite rocks are intruded by two phases of quartz monzonite, a porphyritic variety in the north and an equigranular variety in the south. The quartz monzonite porphyry hosts the highest grade mineralization, and its porphyritic texture is best recognized on the less altered eastern edge of the deposit. In areas where the potassic alteration is strongest, plagioclase phenocrysts have a corroded appearance and look like grains of rice. The porphyries are typically cream to pale orange and contain 40% to 50% plagioclase phenocrysts (<1 mm to 2 mm long) in a fine grained matrix of K-feldspar, quartz, biotite and hornblende with accessory magnetite, rutile, zircon and apatite.

The equigranular quartz monzonite is a medium-grained, slightly pinkish rock composed of plagioclase, K-feldspar, quartz, biotite and hornblende with accessory magnetite, rutile, titanite and apatite. Late-mineral to post-mineral dykes are the youngest intrusive rocks and include feldspar porphyry, aphanitic dacite, biotite-hornblende diorite, biotite-pyroxenite and Tertiary andesite. These dykes are in sharp to locally faulted contacts with most units, and are most common in the central upper part of the deposit. They are interpreted to be sub-vertical to steeply west-dipping to the east of the Central fault and shallow-dipping to the west. Most of these dykes have a rue thickness of less than 2m.

Quesnel Terrane intrusive and volcanic rocks east of the Pinchi fault have been eroded, down-dropped and overlain by Early Cretaceous clastic sedimentary rocks which are preserved in a half-graben that covers the western part of the Central Zone and preserves an Early Cretaceous or older supergene blanket. The sedimentary basin extends about 1.5km north of the Central Zone, and more than 4km to the south where it tapers to a thickness of 20m. These rocks dip moderately to the west and attain a maximum thickness of 435m adjacent to the vertical Pinchi fault. The sedimentary rocks are thickly bedded, and consist of three units. Directly a thin hematitic basal breccia at the nonconformity. The second unit is a polymictic conglomerate with clasts of sandstone, siltstone, and unidentified volcanic and intrusive rocks. This is capped by the third unit of mixed sandstone and conglomerate.

A sample of pyritic siltstone collected from 327.3m to 327.5m in drill hole K-55 was submitted for palynological analysis with results showing the presence of spores, gymnosperm pollen (no angiosperm pollen) and terrestrial plant material (Sweet, 2009). This is indicative of deposition of these sediments in a non-marine environment during the Early Cretaceous, Valanginian to Early Albian. Similar aged, fault-bounded sedimentary rocks in the region are correlated with the Uslika Group (Ferri et al., 2001).

7.2.1.1 Central Zone Alteration and Mineralization

Hydrothermal alteration in the Central Zone comprises an inner potassic core surrounded by an outer potassic shell with a peripheral propylitic zone, all of which are overprinted by patchy sericite alteration. The inner potassic zone consists of creamy to pale pink secondary K-feldspar with minor albite, whereas the outer potassic zone comprises pink to red secondary K-feldspar with minor hydrothermal biotite, tourmaline, gypsum/anhydrite and magnetite veinlets. The inner potassic zone was originally logged as albite alteration, but later K-feldspar staining of core revealed that most of the inferred albite is actually secondary K-feldspar. Within both potassic zones there are small patches of less altered rock characterized by sericite-altered plagioclase and chlorite-altered biotite and hornblende. Rare, narrow, dyke-like bodies of hydrothermal breccia occur within 150m of the sub-cropping bedrock surface in the central part of the Zone. This consists of highly silicified quartz monzonite fragments (< 1cm to >6cm long), that are rotated and rounded in a matrix of quartz, pyrite, chalcopyrite and tourmaline.

The inner potassic core which is closely associated with the quartz monzonite porphyry is texturally-destructive and in relatively sharp contact with the outer potassic shell. Veins and fracture fillings of creamy to pale pink secondary K-feldspar cut the outer potassic zone. The inner potassic zone hosts the highest Cu and Au grades (0.86% Cu equivalent), and also has the highest Au:(Au+Cu) ratio (0.60, defined as Au(g/t):(Au(g/t)+Cu (%)) in comparison to the 0.46 average ratio for the entire Central Zone). Mineralization consists of disseminated pyrite (1% to 2%) and chalcopyrite>bornite hosted by a stockwork of 5% to 15% quartz veinlets and, to a lesser extent, by disseminations in altered wall rocks. Mineralized veinlets are typically 0.5cm to 1m in width and occur in at least two generations. Bornite typically replaces chalcopyrite.

The outer potassic shell is considerably more extensive than the inner potassic zone with the inner part showing intense, texturally-destructive secondary K-feldspar alteration grading outward to a zone of quartz veinlets with secondary K-feldspar envelopes and secondary K-feldspar veinlets. Hydrothermal biotite is more common below the 450m RL and in the peripheral part of this zone. This alteration is developed in quartz monzonite porphyry, quartz monzodiorite-diorite and andesite. As in the inner potassic zone, pyrite (1% to 4%) and chalcopyrite>>bornite occurs in a stockwork of 3% to 5% quartz veinlets as well as disseminations in the altered wall rocks. Very rare molybdenite is present as disseminations in quartz veinlets with pyrite, but it was not observed cutting the Au-Cu mineralization. Native Au was not observed in drill core but was recognized in a polished section where it occurs as inclusions in bornite, the largest particle was 41 microns long.

Propylitic alteration occurs in a 100m wide annular zone around the potassic zones but expands to about 300m wide on the west side of the deposit. It is also present deep beneath the quartz monzonite porphyry body in the southern part of the Central Zone. This alteration assemblage comprises chlorite and epidote, with minor sericite and calcite, 1 % to 2 % pyrite and trace chalcopyrite. Propylitic alteration affects all rock types in the Central Zone area but is best developed in the andesitic volcanic and dioritic intrusive rocks.

The mineralized system at the Central Zone is overprinted by pale green sericite alteration that occurs in irregular-shaped zones. The sericite is devoid of Cu mineralization. Post-mineral iron and magnesium carbonates veinlets (siderite, magnesite and ankerite) and calcite veinlets cut the mineralized quartz veinlets.

7.2.1.2 Supergene Mineralization

A supergene blanket of at least Early Cretaceous age has been superimposed on the upper western part of the Central Zone and is preserved beneath the Early Cretaceous sedimentary rocks. It varies in thickness from 3m to 70m due to the influence of local structures for 200m north-south and east-west for up to a maximum 400m. The supergene blanket consists of an upper oxide zone of strongly hematitic rocks with disseminations and thin veinlets of native copper, underlain by a sulfide zone of chalcocite and minor covellite mineralization. The chalcocite zone is often associated with fine-grained, creamy illite or sericite with the chalcocite occurring in fractures, in the matrix of quartz breccias and replacing pyrite, chalcopyrite and bornite.

The native copper zone is about 250m long × 250m wide × 20m thick (range 1m to 45m) and the chalcocite zone is about 370m long × 150m wide × 18m thick (range 2m to 50 m).

7.2.2 South Zone

The South Zone is 2,200m long by about 330m wide, and locally extends more than 600m below the surface. The highest copper grades occur in a steeply-dipping, 800m long tabular body in the northwest corner of the Zone, with an upper part extending to the east. It is ovoid in plan and is confined to a northerly trending fault-bound corridor. The western limit to the South Zone is defined by the West fault zone, which widens from 3m to 5m near the surface to a 75m wide crushed zone at depth that dips steeply to the west. The east side of the South Zone is not well-delineated, due to limited drilling. However, resistivity and chargeability highs mark the location of the steeply-dipping East fault. It was intersected over 2m by drill hole K-10-155 within a broad zone of sericite alteration.

The pre-mineral quartz monzodiorite-diorite intrusions that occupy the eastern portion of the Central Zone also occur immediately east of the East fault in the South Zone. This intrusion is cut by porphyritic quartz monzonite and equigranular quartz monzonite. The porphyritic quartz monzonite is composed of plagioclase, K-feldspar, quartz phenocrysts, hornblende and biotite with accessory magnetite, apatite, titanite and rutile.

Mineralization at the South Zone is largely hosted by an equigranular quartz monzonite intrusion, which may be slightly younger than the dated porphyritic quartz monzonite based on a 3Ma younger Re-Os age of molybdenite from the South Zone. Much less quartz monzonite porphyry and quartz monzodiorite are present. The equigranular quartz monzonite is medium-grained, and contains plagioclase, K-feldspar, quartz, hornblende and biotite with accessory magnetite, apatite, titanite and zircon. These porphyries are similar to those in the Central Zone and are probably narrow dykes. The rice grain textures common in the Central Zone are not recognized in the South Zone. Most of the petrographic samples studied indicate an episode of strong brittle deformation manifested by crackle breccias (fragmentation but no rotation).

The South Zone intrusive rocks are cut by sericite-altered and K-feldspar-altered quartz monzonite dykes thought to be late-mineral in age and post-mineral dykes of primarily andesite. These dykes display sharp to locally faulted contacts with the altered quartz monzonite and typically have a true thickness of less than 2m.

7.2.2.1 South Zone Alteration and Mineralization

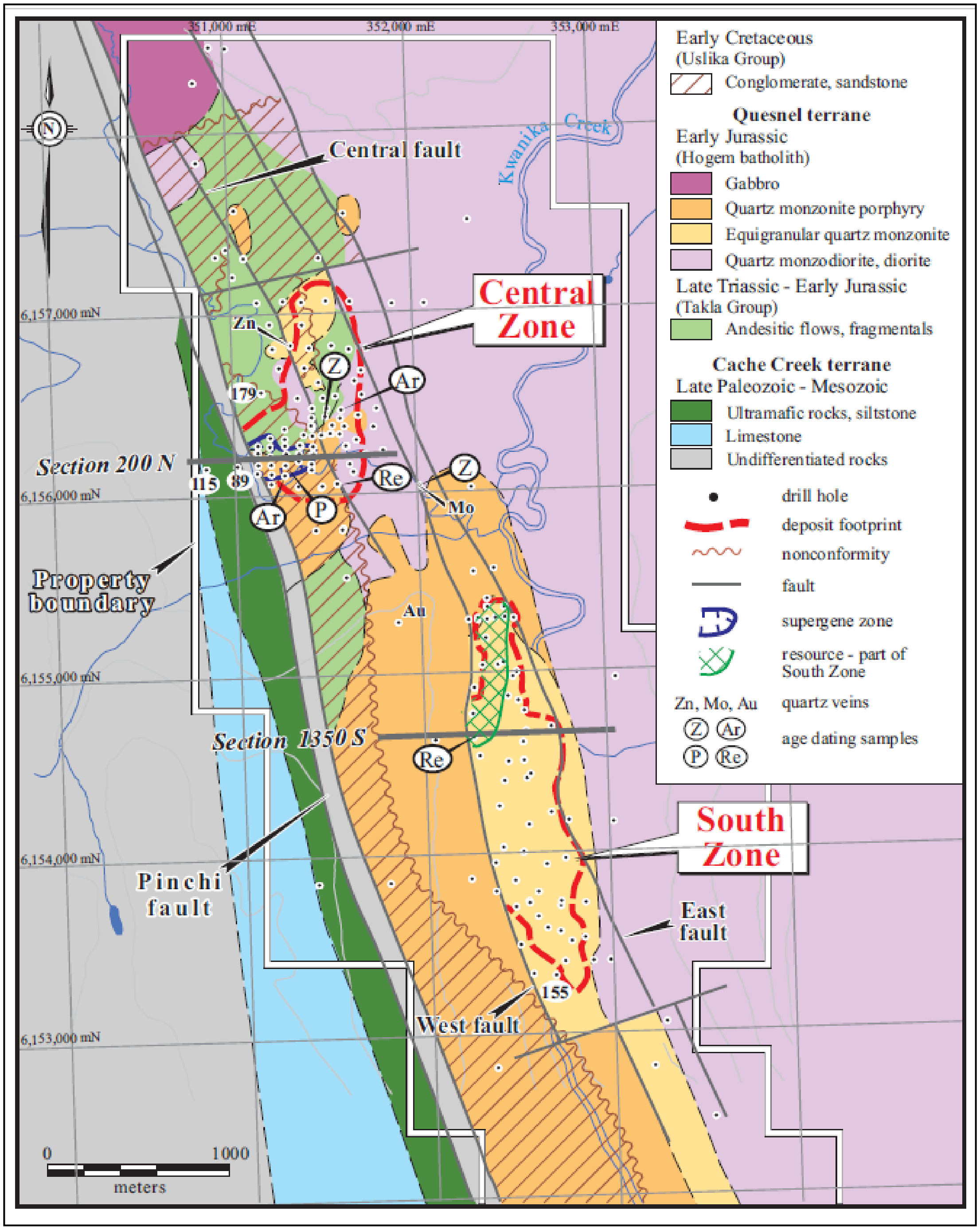
Potassic alteration, mainly in the form of red to orange secondary K-feldspar, is widespread throughout the South Zone. It occurs commonly as pervasive, often texturally-destructive, secondary K-feldspar flooding. Secondary K-feldspar also occurs in envelopes around rare quartz veinlets and fractures. The potassic zone has been brecciated and replaced by zones of fine-grained quartz. Sericite alteration occurs as fine to coarse patches replacing feldspars. Overprinting the potassic and quartz alteration zones are irregularly-shaped zones of an iron-rich assemblage of chlorite, quartz and pyrite with minor hydrothermal biotite. This alteration is typically texturally-destructive. A minor, poorly-defined zone of propylitic alteration surrounds the potassic zone and is composed of epidote and hematite occurring as fracture infills, chlorite replacement of hornblende and biotite, carbonate veining and late stage quartz veinlets.

Fine to medium-grained disseminations of pyrite and chalcopyrite (with minor molybdenite) occur along micro-fractures and as disseminations within the fine-grained quartz replaced zones cutting the potassic-altered quartz monzonite. They also occur as disseminations in the iron-rich alteration assemblage. The disseminated type of mineralization is cut by rare quartz veinlets containing pyrite and chalcopyrite with fine-grained molybdenite selvages. Molybdenite also occurs in fractures. Pyrite (about 2.5 % to 3.5 %) is ubiquitous in the mineralized zone and occurs as fine to coarse grained anhedral to euhedral crystals. Very minor amounts of sphalerite, galena, hypogene chalcocite, tetrahedrite, bornite and enargite occur mainly in the northern half of the South Zone. In polished thin sections chalcopyrite boundary relationships with sphalerite, hypogene chalcocite and enargite suggest that they are contemporaneous.

There is no significant supergene mineralization in the South Zone. This is because the mineralization was high-standing during the Early Cretaceous and eroded into the basin as demonstrated by the large blocks of altered/mineralized rocks entrained in the Early Cretaceous sedimentary rocks.

7.2.3 Property Structure

On a property scale, four major NNW oriented fault structures have been identified largely from drillhole data; the Central Fault, West Kwanika fault, the East Kwanika fault and the Pinchi fault. These faults are interpreted to display a variable amount of dip slip (generally west side down) and strike slip movement. The plan map of Figure 7-2 illustrates the fault associated with both the Central and South Zone at Kwanika.



(Source: Serengeti 2019)

Figure 7-2: Local Property Geology

The most persistent structural feature within the Central Zone is a steep west-dipping, NNW oriented fault referred to as the Central Fault. It separates an eastern domain characterized by upright-oriented lithological contacts and grade distribution boundaries from a western domain characterized by sub-horizontal orientation of lithologies and grade boundaries. This same fault locally over-steepens the unconformity at the eastern limit of the Cretaceous basin which overlies and preserved (from removal by glaciation) the supergene copper zone present locally at the upper surface of the Central zone. The sub-vertically dipping Pinchi fault lying near the west property boundary truncates the Central Zone between 500 and 750 meters below surface, with rocks of the Cache Creek Terrane lying to the west of it.

In the South Zone, the most laterally persistent planar feature is the West fault which bounds the west side of the South mineralized zone and extends to and beyond the north property limit. It is possible that the South and Central Zones were once part of one large mineralized system, offset dextrally along this structure, although this has not been conclusively demonstrated. The East fault is interpreted to bound the east side of the South zone and has also been traced to the north where it may form the eastern limit of a sub-basin of Cretaceous sedimentary rocks, located near the north end of the property.

8 Deposit Types

Porphyry copper-gold deposits in British Columbia occur in both the Quesnel and Stikine Terranes and in post-accretionary settings. They are classified into three types: Alkalic, Transitional and Calc-Alkalic, based on the composition of the host rocks, Cu:Au metal ratios, alteration types, and presence or absence of quartz stockworks. Each of the three types of porphyry copper-gold deposits is represented in British Columbia by at least one very significant deposit (Figure 8-1).

The Central Zone deposit is similar to the classic alkali porphyry model in that the mineralization is associated with an intrusive complex of alkali-feldspar-saturated monzonite. However, the deposit differs from that alkali porphyry model, being associated with strong quartz stockwork. In this regard, it is similar to the calc-alkalic porphyry type deposits. Therefore, in the opinion of Serengeti geologists, the Central Zone deposit may in fact be transitional in nature between alkalic and calc-alkalic types.

The South Zone deposit is a structurally controlled porphyry deposit. Host lithologies are quartz monzonitic to quartz monzodioritic in composition. Thin section analysis has determined that copper-gold-silver-molybdenite mineralization is associated with zones of brittle deformation that have been inundated by intense K-spar ± silica flooding. The structures that bound the deposit to the east and to the west are interpreted to be both the causes of this brittle deformation and the conduits for fluid flow.

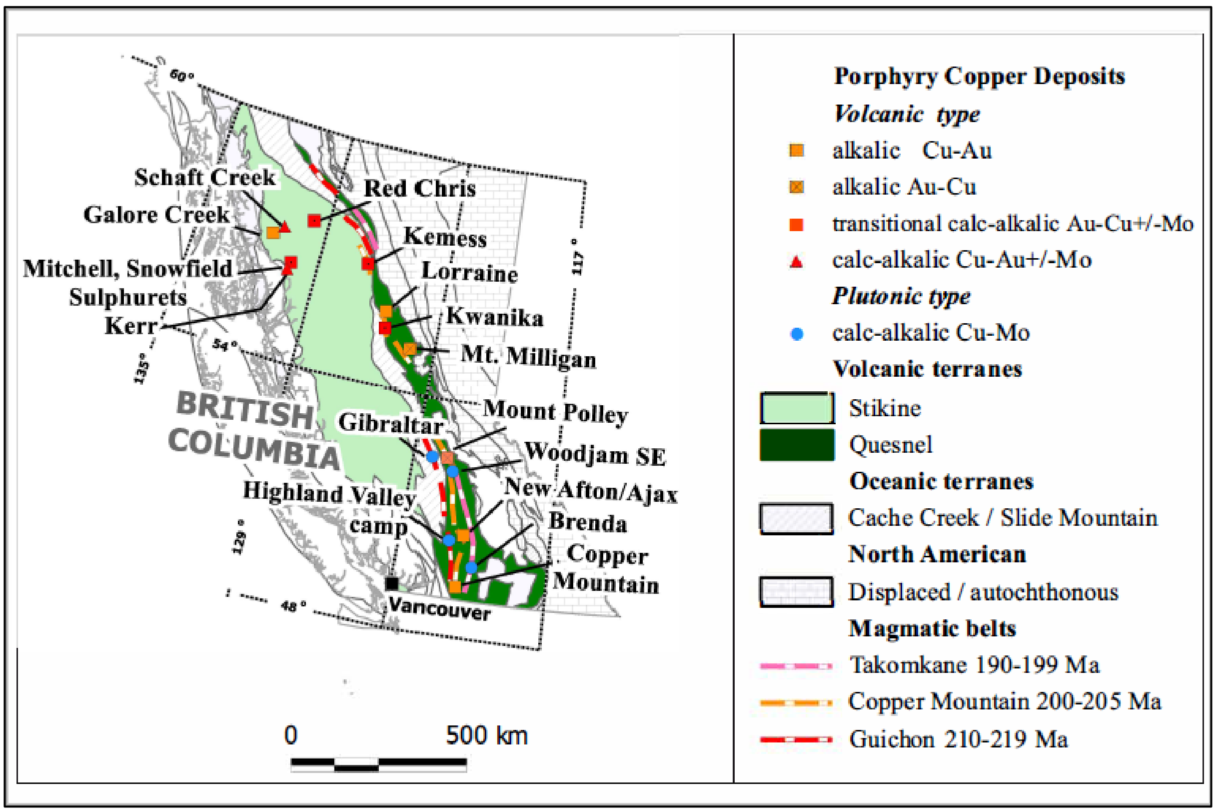


Figure 8-1: Porphyry Deposits in British Columbia

9 Exploration

In 2005, Serengeti conducted a 530km airborne magnetic/radiometric survey and collected eleven rock samples on the Kwanika and Germansen properties to assist in porphyry target identification (Osatenko, 2005). The airborne survey identified a small magnetic anomaly on the east side of the known porphyry copper-gold deposit, with similar anomalies trending to the north-northwest of the deposit, as well as to the south. Six of these anomalies are associated with weak K/Th anomalies, which are often associated with porphyry copper-gold deposits. The copper, gold, and molybdenum values in rock samples associated with the deposit outcrops along Kwanika Creek ranged from 507ppm to 10,740ppm Cu, 22ppb to 416ppb Au, and 2ppm to 533ppm Mo.

During 2006 and 2007, Peter E. Walcott and Associates Geophysics (“Walcott”) was engaged by Serengeti to carry out several ground-based IP surveys in the vicinity of the Central and South Zone deposits. In 2006, Serengeti conducted a magnetic and IP survey over 26.9km of geophysical lines. The results outlined a significant IP signature over the Kwanika deposit as well as a continuation of this IP anomaly into a large, covered area to the north-northwest.

The following year, Serengeti carried out a regional airborne magnetic and electromagnetic (EM) survey, totaling 320 line-km, over the Kwanika property (Figure 9-1). The purpose of the survey was to detect zones of conductive sulphide mineralization, to outline any porphyry-style intrusive complexes, and to provide information that could be used to map the geology and structure of the survey areas. The results yielded by the survey identified multiple high magnetic/low resistivity anomalies throughout the property, which outline a general north-northwest trend coincident with South Zone and Central Zone deposit areas.

The IP work has included 50m, 100m, and 200m dipole spacing’s in surveys carried out over 22 lines, covering 87.5 line-km (Figure 9-2). The results of the various surveys have outlined an area of anomalous chargeability (i.e., greater than 12mV/V) over an area measuring 5.5km long by 300m to 500m wide in the northern section of the Kwanika property. The shape of this anomaly is directly coincident with the outline of the currently known, near surface (i.e., within approximately 200m) copper-gold ± molybdenite mineralization in the Central and South Zone deposits. Drilling by Serengeti and earlier operators has shown that strong chargeability anomalies (i.e., greater than 20 mV/V) are commonly coincident with zones of higher grade, near-surface copper-gold ± molybdenite mineralization.

In 2007, selected baseline environmental studies were initiated on the Kwanika property by Ecofor Consulting Ltd. This phase of work was concluded in November 2008 and included measuring stream discharge levels, water quality, and other pertinent hydrological data.

In the summer and fall of 2008, Walcott was contracted to conduct 70 line-km of 100m spaced dipole IP surveys over 22 lines from south of the two known deposits to the southern boundary of the Kwanika property, a north-south distance of approximately 23km. Several chargeability anomalies have been identified by the IP surveys and will be the basis for further investigation of the southern section of the Kwanika property.

The 2009 drilling program established an exploration model for a structurally controlled porphyry deposit in the South Zone area. Analysis and reinterpretation of geophysical and geological data suggested that potential existed for a structurally bounded domain of mineralization measuring up to

2,900m x 500m. This favorable structural setting was coincident with a +12mV/V chargeability anomaly. Past exploration at Kwanika has demonstrated a strong correlation between chargeability anomalies and copper mineralization.

In August of 2016 Serengeti contracted McElhanney to fly a LIDAR survey over the Central and South Zones of the Kwanika project. The resulting data was used to create a high resolution topographic surface.

Following a Resource Estimate in 2016 and a Preliminary Economic Assessment in 2017, KCC continued exploration by updating the geologic interpretation, and commencing an extensive drill program on the Central Zone, as detailed in the next section.

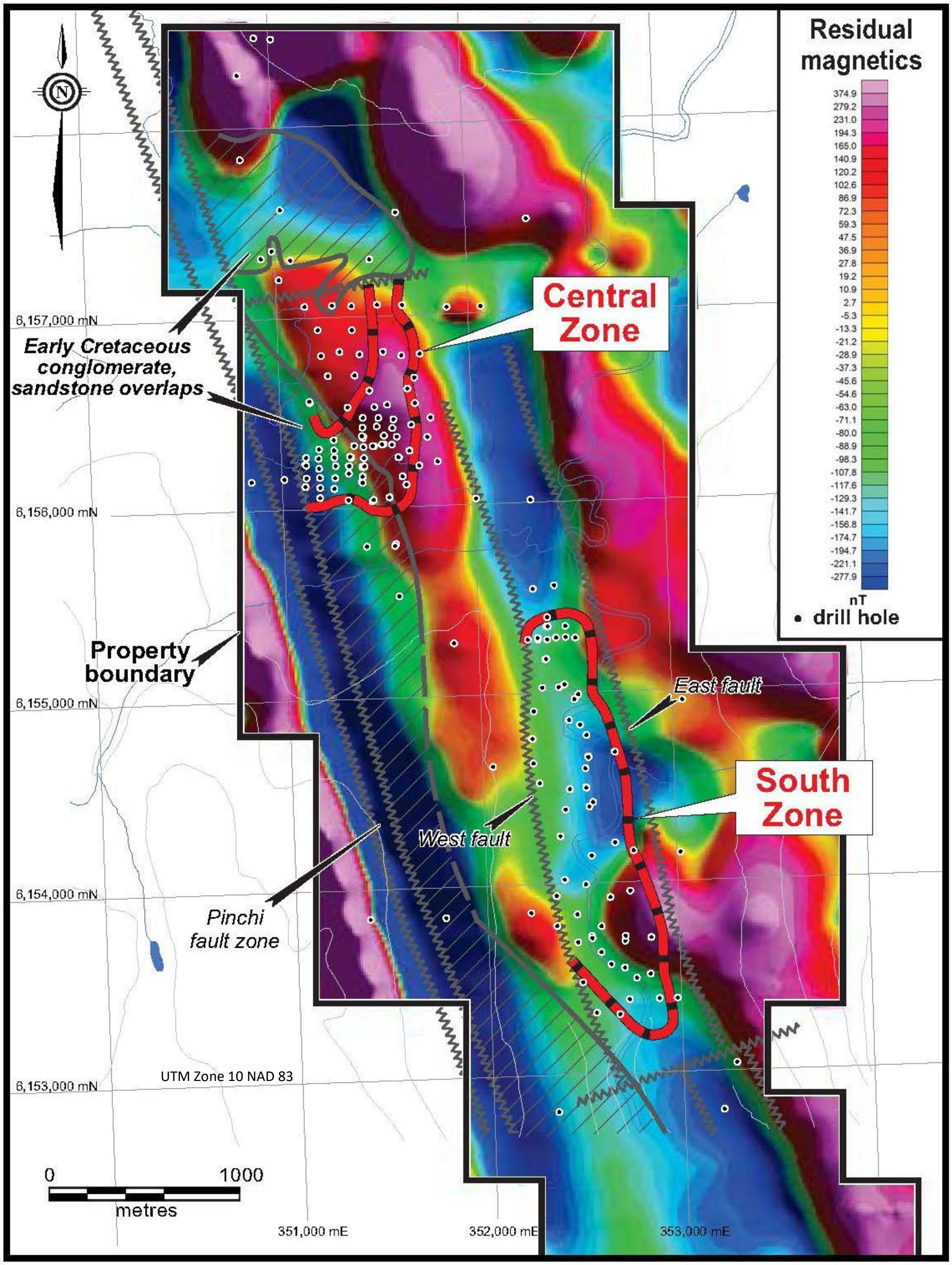


Figure 9-1: Map of the Residual Magnetics

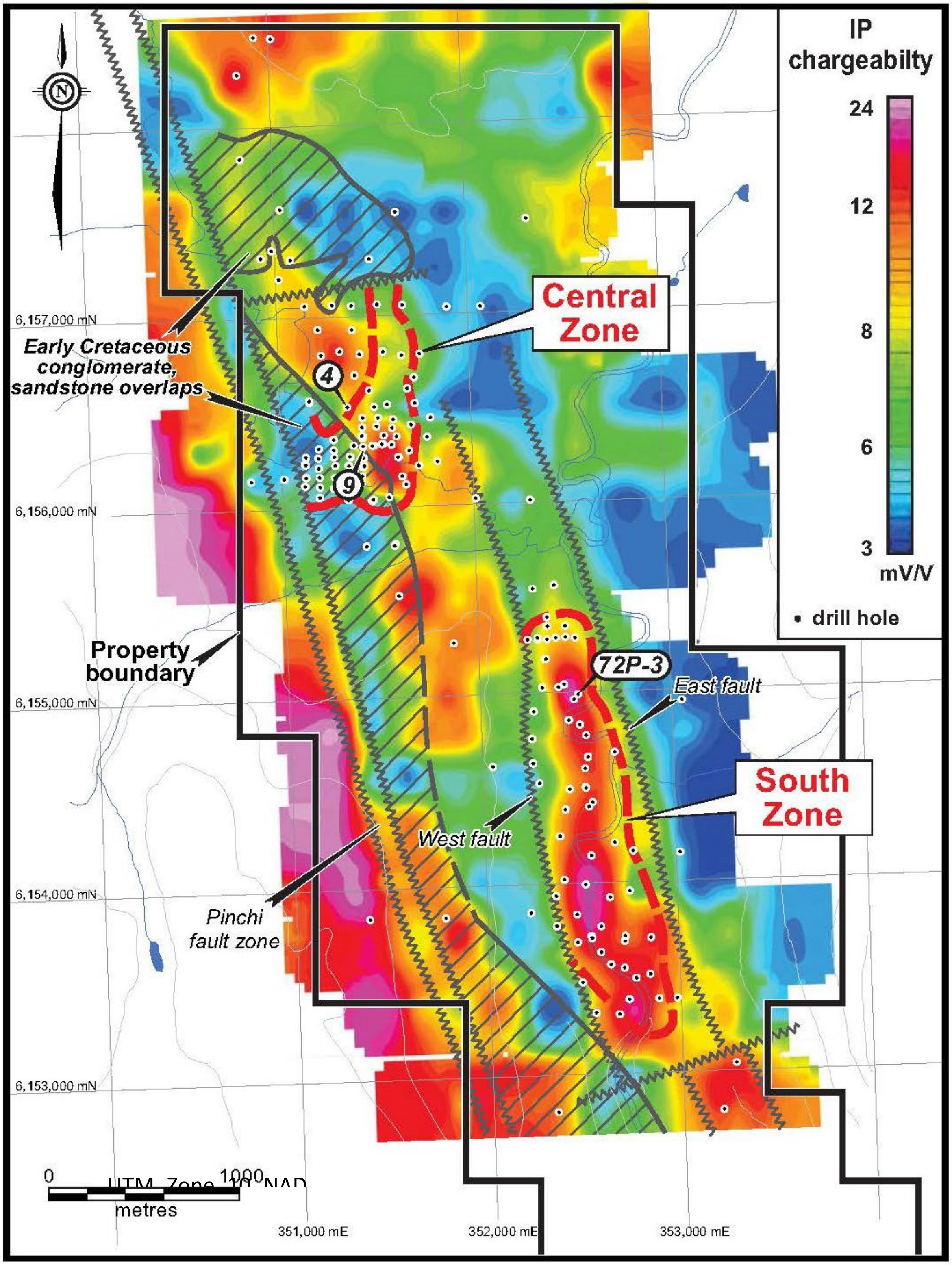


Figure 9-2: **Map of the IP Chargeability**

10 Drilling

In the resource area, a total of 81,942m of diamond drilling in 195 holes was carried out on the Kwanika property from July 2006 to September 2018. Drilling on the Central Zone totaled 64,865m in 137 holes, while drilling at the South Zone totaled 17,958m in 58 holes. There is one additional exploration hole outside of the resource area that is far to the south and not included in the summary. The results of this drilling have achieved three main goals:

- Delineated, Measured, Indicated and Inferred Mineral Resources on the Central Zone deposit, which was initially discovered by Serengeti in late 2006;
- delineated an Inferred Mineral Resource on the South Zone deposit; and
- tested several geophysical anomalies on the Kwanika property to explore for possible extensions of the Central Zone deposit.

All but the first five drillholes were surveyed for downhole azimuth and dip using a Reflex EZ-shot generally at 50-60m intervals, or in the case of the 2018 drill program, a Reflex Gyro at 10m intervals, either during drilling or upon completion. For all programs from 2006 – 2010 and 2018, All North Consultants Limited was contracted to carry out a differential GPS (DGPS) survey of the drillhole collar locations on the Kwanika property Drilling from 2011-2012 were surveyed using handheld GPS units and drilling collars from 2016 were surveyed using a Reflex APS GPS unit. Drill collar orientations were determined using a Reflex TN-14 Gyrocompass during the 2018 program.

A LIDAR survey flown in 2016 has been used to verify all collar elevations. SRK compared the drillhole collar elevations to the new 2016 LIDAR surface topography and found that the elevations for some of the holes were not in agreement with the high accuracy surface. SRK adjusted all collars to conform to the 2016 LIDAR topography. The collars were only modified near the resource areas.

All drill core was logged for geological and geotechnical characteristics (geotechnical logging included rock quality designation (RQD), magnetic susceptibility, and specific gravity), and was photographed, sampled, and split by diamond saw or core splitter. The majority of drill core collected by Serengeti on the Kwanika property was NQ (4.76 cm) size. In rare cases, BQ size (3.64 cm dia.) core was drilled when core size had to be reduced due to ground conditions. HQ and HQ3 size (6.35 cm dia.) core was drilled for geotechnical drilling in the 2018 drilling campaign and at the top of several holes that were collared in the sedimentary basin in the Central Zone as well as for deep drilling in the 2016 drilling campaign.

MMTS inspected the core logging facility at the Kwanika camp in 2018 and reviewed the core handling procedures and considers them to be reasonable and consistent with common industry practice. The drilling was observed to be well-managed, using equipment appropriate for the Project. The core is currently stored in conex bins or cross-piled at the Kwanika camp. Figure 10-1 and Figure 10-2 are plan maps illustrating the drilling in the Central and South zones respectively.

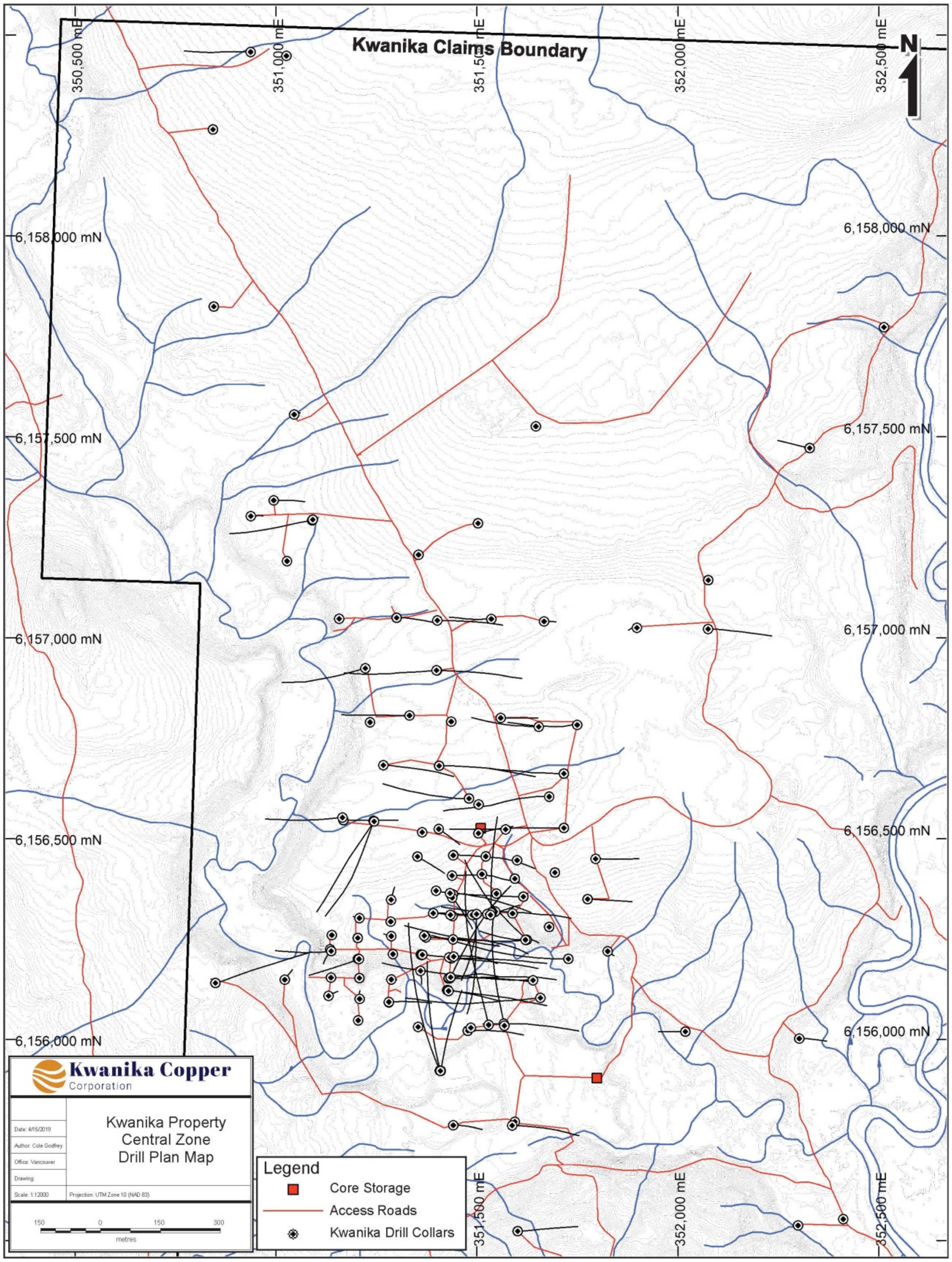


Figure 10-1: Plan Map of Central Zone Drilling

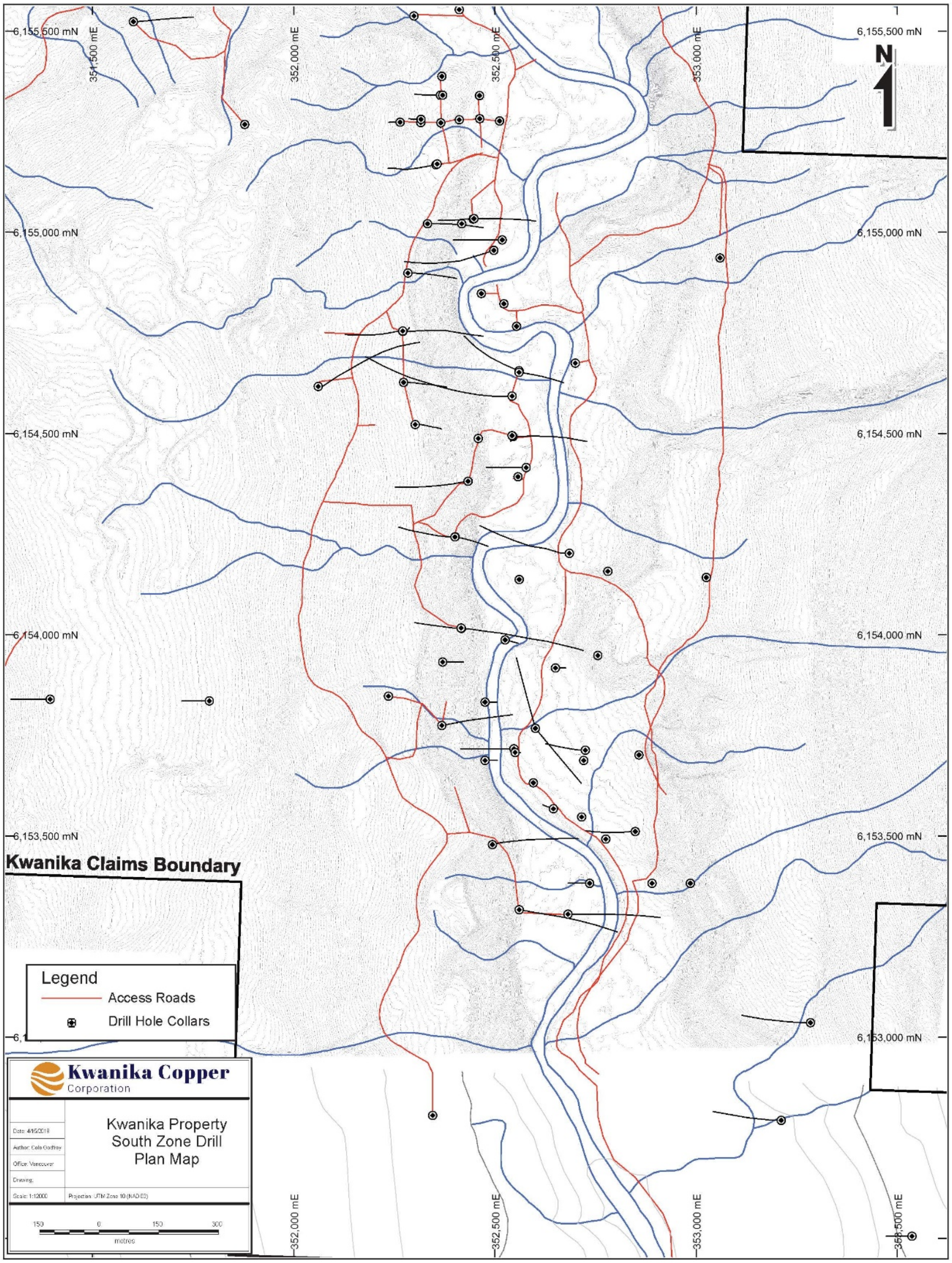


Figure 10-2: Plan Map of South Zone Drilling

10.1 Historical Drilling

The South Zone area at Kwanika was drill tested during the period 1965-1991 by 30 historical diamond and percussion drillholes. The historic data are not included in this data compilation and Resource Estimate. Serengeti has confirmed and expanded this mineralized zone with drilling that replaces the historic data. The historic drillholes prior to 2006 are discussed in the History section and are not included in the resource estimation for the South Zone.

10.2 Serengeti Diamond Drilling Campaigns

10.2.1 Phase I

In the summer of 2006 five diamond drillholes (K-06-01 to K-06-05, 659.6m) were drilled to follow up on an IP anomaly. These holes confirmed the copper grade of the previously known mineralization and identified a new zone some distance to the north of the South Zone.

10.2.2 Phase II

In November and December 2006, five diamond drillholes (1,214 7m) were drilled in the vicinity of hole K-06-04, resulting in the discovery hole for the Central Zone, K-06-09 (0.69% Cu and 0.54g/t Au over 111m).

10.2.3 Phase III

Subsequent to the discovery of the Central Zone deposit in the fall 2006/winter 2007, Serengeti initiated the third phase of the diamond drill program to define the new deposit. An all-weather, 30-man camp was constructed in March 2007. Coast Mountain Geological Ltd. (CMG), a Vancouver-based geological consulting firm, was contracted to manage the drill project. Diamond drilling was carried out by Cyr Drilling International Ltd. of Winnipeg, Manitoba.

The Phase III drill program on the Kwanika property was conducted from March 2007 to August 2008. During this period, a total of 113 diamond drillholes, with an aggregate length of 53,646.3m, were drilled on the property. These drillholes were primarily designed to delineate the mineralization in the Central Zone, explore the South Zone, as well as to test geophysical anomalies and possible extensions to the Central Zone mineralization.

Examples of significant drill intersections encountered in this phase of Central Zone drilling include K-07-15 (0.60% Cu and 0.72 g/t Au over 328m) and K-08-113 (0.76% Cu and 1.39g/t Au over 279m). The significant grades and widths of copper and gold mineralization encountered confirmed the existence of a previously unknown porphyry copper-gold deposit.

The South Zone drilling campaign during 2007 and 2008 comprised 16 diamond drillholes for an aggregate length of 4,935.4m. Several holes in the South Zone encountered a strongly mineralized copper-gold-molybdenite-silver porphyry system that had not been fully recognized by past exploration Examples of drill intersections include K-08-110 (0.27% Cu, 0.24g/t Au, and 0.007% Mo over 240m) and K-08-116 (0.39% Cu, 0.10g/t Au, and 0.013% Mo over 114m).

10.2.4 Phase IV

This phase of drilling was conducted from June to September 2009. During this period, a total of 17 diamond drillholes were completed on the property with an aggregate length of 6,249.1m. This phase of exploration was primarily designed to follow up several encouraging intersections obtained during 2008 drilling in the underexplored South Zone area. Significant drill intersections encountered included:

K-09-124 (0.41% Cu, 0.05g/t Au, and 0.019% Mo over 212m)
K-09-126 (0.51% Cu, 0.14g/t Au, and 0.024% Mo over 150m)

Drilling was successful in delineating and expanding a copper-gold-molybdenite-silver resource in the South Zone.

10.2.5 Phase V

The Phase V drill program on the Kwanika property was conducted from June to August 2010. During this period, a total of 28 diamond drillholes were completed on the property with an aggregate length of 7,619m. This phase of exploration consisted of step-out drilling intended to expand the existing South Zone resource reported in March 2010. A series of in-fill drillholes were also completed in order to gain further understanding of the mineralization associated with the West Fault. The Phase V drilling was successful in both expanding the mineralized envelope to the north of the historical resource area of the South Zone deposit and adding important geological information to the exploration model.

10.2.6 Phase VI

From June to July of 2011 a total of 5 drillholes were completed with an aggregate length of 1,724m. This phase of exploration was carried out to test IP-chargeability and Ah-horizon soil exploration targets to the east and northeast of the Central Zone.

10.2.7 Phase VII

The Phase VII drilling program was completed in August to September of 2012. During this period, a total of 4 drillholes were completed to an aggregate length of 1,494m. Holes K-12-174 to K-12-176 tested IP-chargeability targets to the north of the Central Zone deposit. One additional drillhole was drilled at the south end of the property to test a deep IP-chargeability anomaly. Three line km of IP was also completed in 2012 to test the existence of a chargeability anomaly to the east of the Central Zone resource area.

10.2.8 Phase VIII

This drilling campaign took place from July to August of 2016 during a joint exploration program funded by Daewoo Minerals Canada Corporation. A total of three deep drillholes where completed with an aggregate length of 2,445m to test the deep roots of the Central Zone as well as an IP-chargeability anomaly to the north of the Central Zone. Hole K-16-177 penetrated the Central Zone producing significant results within the deposit. Highlights included:

- K-16-177 (0.79% Cu, 0.91g/t Au over 385m)

K-16-179 tested the northern deep extent of the Central Zone and showed significant grade at depth indicating the potential for further deep exploration. K-16-178 tested the northern deep chargeability anomaly and intersected significant lengths of highly altered andesite with moderate mineralization.

10.2.9 Phase IX

This drilling campaign took place from June to September of 2018. A total of 21 drillholes were completed with a total length of 7,411m to support detailed mine design and resource upgrading at the Kwanika Central Zone. Drill core was oriented with a Reflex ACT III tool and retrieved with split-tube core barrels to enable comprehensive geotechnical data capture for detailed underground and open-pit mine engineering design. Included in the 2018 drill program were three holes to test foundation characteristics for potential tailings storage facility ("TSF") options (drillholes K-TSF-01, -02, -03). Additionally, down-hole hydraulic testing was completed, and vibrating wire piezometers and monitoring wells were installed in nine of the twenty-one drill holes to gather hydrogeological data. Holes K-18-180 to K-18-183 and K-18-187 penetrated the Central Zone producing significant results within the deposit. Highlights included:

- K-18-180 (0.64% Cu, 0.80g/t Au over 514m)
- K-18-181 (0.52% Cu, 0.37g/t Au over 439m)
- K-18-182 (0.66% Cu, 0.80g/t Au over 500m)
- K-18-183 (0.45% Cu, 0.73g/t Au over 312m)
- K-18-187 (0.59% Cu, 0.66g/t Au over 226m)

11 Sample Preparation, Analyses and Security

11.1 Core Logging

The drill programs at the Kwanika property were managed by Coast Mountain Geological (CMG) from 2006 to 2008 and by Serengeti staff from 2009 to 2018. The methodology for core handling and sampling, since 2006, is described below.

The core was transported from the drills to the camp at each drilling shift change, once in the morning and once in the evening. Each morning, the core drilled during the previous day was quick-logged by a geologist. The quick log involved a brief description of lithology, alteration, and mineralogy, as well as a description of any significant structural characteristics. A copper grade based on visual approximations of mineralization was assigned to each interval, where:

- grade 0 indicated <0.1% Cu,
- grade 1 indicated 0.1% Cu to 0.25% Cu,
- grade 2 indicated 0.25% Cu to 0.5% Cu, and
- grade 3 indicated >0.5% Cu.

From February 2008 to September 2018, a Niton handheld X-ray fluorescence (XRF) tool was used to aid in the initial grade estimation.

Once quick-logged, the core was stacked on-site pending detailed logging. The logging included a detailed description of the lithology, alteration, structural features, and mineralogy. Sample intervals were divided based on contacts between these characteristics, to a maximum of two metres. The overlying sediments, encountered at the top of many of the holes drilled in the Central Zone, was not sampled unless copper mineralization was observed. Once the sampled intervals were established, each interval was assigned a unique sample number. Alternating blanks, reference standards, and core duplicates were inserted every 15 samples until 2016 drilling program. For 2018 drilling program certified reference materials, field duplicates and blanks, were inserted into the stream of drillcore samples submitted or assay for a sampling rate of approximately 20%. Each sample was identified with a three part tag. One tag was kept in the camp library for reference. The other two tags were stapled to the base of the core box with a written metal tag at the start of the corresponding interval. Mineralized core was split on-site using two diamond saws, while select, lower grade core was split using a blade splitter.

Geotechnicians determined the recovery, rock quality designation (RQD), specific gravity, magnetic susceptibility and conductivity of the rock

The magnetic susceptibility and conductivity was determined using a multi-parameter probe. A reading was taken every 1.5m directly on the core surface. Recovery and RQD was completed for the full length of the holes, while specific gravity and magnetic susceptibility were measured only for sampled intervals.

Structure related geotechnical data, was gathered from 2018 drill core. Drill core was oriented and retrieved with triple-tube core barrels to enable comprehensive geotechnical data capture for detailed underground and open-pit mine engineering design.

11.2 Core Sampling

After logging, the core was split under the supervision of project geologists. Two diamond core saws and a hydraulic splitter were used to split the core. Most samples were taken with the saws, however, in zones observed by the geologists to be low grade, the splitter was used early on the drilling by Serengeti. The diamond core saws used clean, uncirculated water to aid in cutting, and were cleaned regularly to avoid contamination. The mechanical splitter was cleaned thoroughly after each sample was split.

Once split, half of the core was left in the core box for reference, and the other half was sent for analysis. Samples were placed in labelled plastic bags with the corresponding sample tag and sealed with zip ties. The standards and blanks were also put in a labelled plastic bag with a sample tag. These plastic bags were placed in numbered rice sacks, which were sealed by heavy duty zip ties and given a numbered tamper-proof security tag.

Samples were transported via truck by a local third party expediting and freight company. To ensure that samples were not tampered with during transport to the laboratory, the number of each security tag and its associated rice sack number were recorded by the geologist at the Kwanika site. A list of each bag and its unique security tag number was forwarded to GDL/ACME/ACT/BV, which then confirmed that each security tag matched its correct rice sack.

11.3 Core Preparation and Analysis

11.3.1 Sampling by Global Discovery Labs (2006 - June of 2009)

From 2006 to 2009 all assays from the Kwanika Project were sent to Global Discovery Labs (GDL) in Vancouver, British Columbia. GDL did not have ISO accreditation but did participate in the Proficiency Testing Program for Mineral Analysis Laboratories (PTP-MAL). PTP-MAL is an ISO 9001:2000 accredited program that is operated by the Canadian Certified Reference Materials Project (CCRMP), and meets recognized international standards for proficiency testing providers.

Samples sent to Global Discovery Labs were passed through a two stage crushing process reducing the material to 90% minus 2mm in size. The crushed material was split in a Jones Riffle to a subsample measuring 250g to 300g. The samples were pulverized in a ring-and-puck mill to 95% passing a 150 mesh screen.

The shipped samples were divided into two groups: samples with an assumed grade less than 0.2% Cu and samples with an assumed grade of greater than 0.2% Cu, as determined by the Project geologist. All samples were subject to aqua regia digestion and then run for 28 elements using Inductively Coupled Plasma (ICP) spectrometry (Package ICP-OES). Samples with greater than 2,000 ppm Cu or 100 ppb Au were rerun for Au, Cu, Pb, Zn and Fe by Atomic Absorption (AA). Dissolution of the samples for the base metal determinations was done using aqua regia, while for the gold it was aqua regia followed by 2, 6-Dimethyl-4-heptanone.

Samples assaying greater than 0.2g/t Au in the ICP or AA analyses were rerun using fire assay and AA finish. These assays were carried out on a 30g (one assay-ton) aliquot.

11.3.2 Sampling by Acme Labs (July of 2009 - 2012)

From 2009 to 2012, sampling was carried out by Acme Labs which acquired GDL in July of 2009. Acme Laboratories held ISO 9001 accreditation during this time. The assay prep and processing remained the same from 2009-2012 after Acme took over GDL. Refer to section 11.3.1.

11.3.3 Sampling by Activation Labs (2016)

During the 2016 drilling program, Activation Labs of Kamloops, British Columbia was used to carry out assaying of the Kwanika project. Activation Labs is an ISO 17025 accredited laboratory.

Once samples were received at the lab they were weighed, and then crushed up to 90% passing 10 mesh, riffle split (250 g) and then pulverized to 95% passing minus 150 mesh including cleaning of the pulveriser bowl after each sample. Prepared samples were assayed for a suite of 38 elements including Selenium by aqua regia digestions and Inductive Coupled Plasma (ICP) spectrometry. All Au analysis was carried out by 30 g fire assay and Atomic Absorption.

Samples greater than 2500ppm Cu were rerun by assay grade aqua-regia digestion and ICP spectrometry. Au results greater than 3.0g/t were rerun by 30g Fire Assay and a gravimetric finish.

11.3.4 Sampling by Bureau Veritas Labs (2018)

During the 2018 drilling campaign, Bureau Veritas Mineral Laboratories (BV) out of Vancouver, British Colombia was used to carry out the assaying of the Kwanika project. Bureau Veritas is an ISO 17025 accredited laboratory.

At BV all rock samples were crushed, to 70% passing 2 mm, then split to 250 gm samples and pulverized up to 85% passing 200 mesh. Split samples were assayed for Au using Fire Assay fusion with AAS finish and using Aqua Regia with ICP- ES/MS for 34 element analyses.

11.4 Specific Gravity Data

Specific gravity data was collected using whole core measurements carried out onsite before core was sent for assay. This was done using a water immersion method. The data was recorded in a density log within the drilling template. Specific gravity has been collected since the 2007 drill program.

The specific gravity was determined by taking every fourth sample and first determining the weight of that sample in air and then the weight of the sample in water. The volume of the sample was determined by subtracting its weight in air from its weight in water. Specific gravity was found by dividing the sample's weight in air by its volume. A wax coating was not necessary for the core at Kwanika as it is not vuggy or particularly porous.

11.5 Quality Assurance and Quality Control Programs

An independent assay QA/QC program has been in place throughout the drilling campaigns carried out by Serengeti. Control samples were inserted at a rate of two commercial Certified Reference Materials (CRMs), one blank, and one duplicate for every 60 core samples (for a frequency of one QA/QC sample for each 15 core samples). Serengeti used CRMs prepared by CDN Resource Labs Ltd. (CDN) of Langley, BC. One standard, CGS-18, the manufacturer has not fully certified the Au assay, and this standard is deemed "Provisional". CDN warns that provisional standards cannot be used to monitor accuracy with a high degree of certainty.

Blank material comprised packets of pulverized barren material, similar to the standards.

Duplicates were produced by Serengeti at the Kwanika property by cutting the initial core sample interval in half and leaving one half in the core box. The half that was to be sent to the laboratory for analyses was then quartered by cutting each piece in half again and putting one side of the core in one sample bag and the other side of the core in a separate sample bag.

11.6 MMTS Comments

In the opinion of MMTS the sampling preparation, security and analytical procedures used by Serengeti are consistent with generally accepted industry best practices and are therefore adequate.

12 Data Verification

Serengeti has conducted an independent QA/QC sampling program on the Kwanika Project. QA/QC samples were included in the sample stream for both the Central and South zones. For 2006-2016 drilling, SRK compiled and reviewed the database and the results of the QA/QC sample program. A total of 100% of the resource database was validated against assay certificates provided by the lab. The QA/QC samples include blanks, standard reference material, and field duplicates. The previous work by SRK was reviewed by MMTS and found to be in conformance with standard practices. The 2018 drilling was compiled by Serengeti, validated against assay certificates and analyzed by MMTS.

12.1 Verification of 2018 Central Zone Drilling by MMTS

12.1.1 Site visit

Sue Bird, P. Eng., conducted a site visit from July 13-16, 2018 and reviewed and advised the geological modeling input to the current study.

12.1.2 Database Validation

The assay database was validated by comparing 1% of values in the database against pdf certificate values. No errors were found. Collar locations and orientations have been validated during the site visit by noting the location of the drills relative to existing collars.

12.1.3 Verifications of Analytical Quality Control Data

A total of 804 QA/QC samples comprising certified reference materials, field duplicates and blanks were inserted into the stream of drillcore samples submitted or assay for a sampling rate of approximately 20%, in conformance with current industry standards. The results of these assays are discussed here.

12.1.3.1 2018 Central Zone Standards

Seven different reference materials were obtained from CDN Resource Laboratories and inserted into the sample stream. The material names and expected values for Cu and Au are given in Table 12-1. Early on, problems were identified with the assay value results for material CDN-CGS-23 and use of this material was discontinued.

Table 12-1: 2018 Central Zone Drilling Reference Materials Expected Values

Reference Material	Cu(%)	Au (g/t)
CDN-CGS-23	0.182	0.218
CDN-CM-26	0.249	0.372
CDN-CM-29	0.734	0.72
CDN-CM-38	0.681	0.942
CDN-CM-40	0.561	1.31
CDN-CM-42	0.529	0.576
CDN-CM-43	0.233	0.309

Process control charts showing the Cu assay values of the standards are presented in Figures 12-1 through 12-6. These figures show very good results for CDN-CGS-25, CDN-CGS-29, CDN-CGS-38, and CDN-CGS-43, with all values within the +/-2 standard deviation warning limits and mean values close to the expected values. CDN-CGS-42 has one value far exceeding the high range which could be mislabeling, and one values outside of the warning limit which is not unusual. The mean value for the assays is very close to the expected value; overall the results for CDN-CGS-42 are acceptable for Cu. CDN-CGS-40 is not acceptable as there are multiple values far higher than the +3 standard deviation range, so many that the mean plots outside of this range. Because there is no problem with the other standards for Cu, this is thought to be a problem of the standard itself and not with the laboratory.

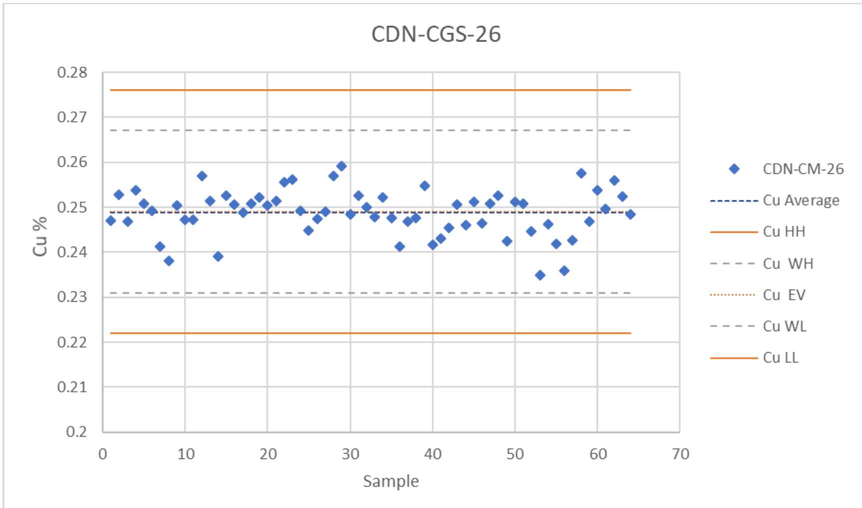


Figure 12-1: Process Control Chart for CDN-CGS-26 Cu

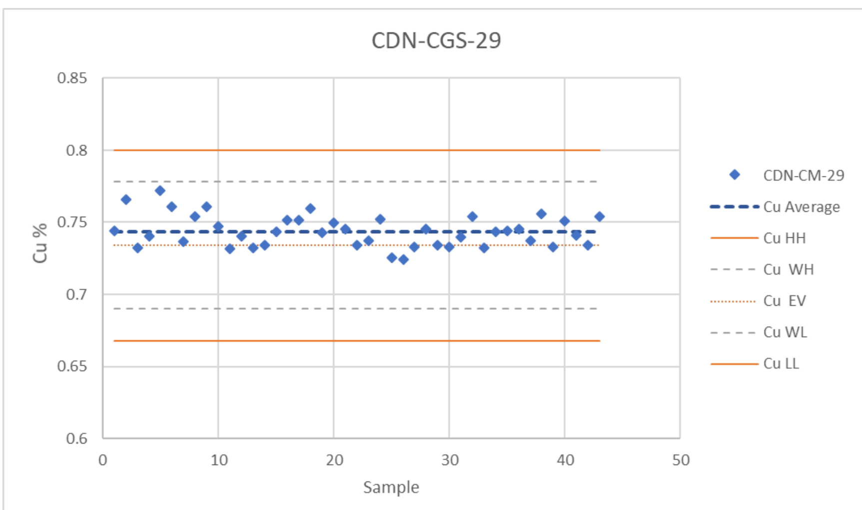


Figure 12-2: Process Control Chart for CDN-CGS-29 Cu

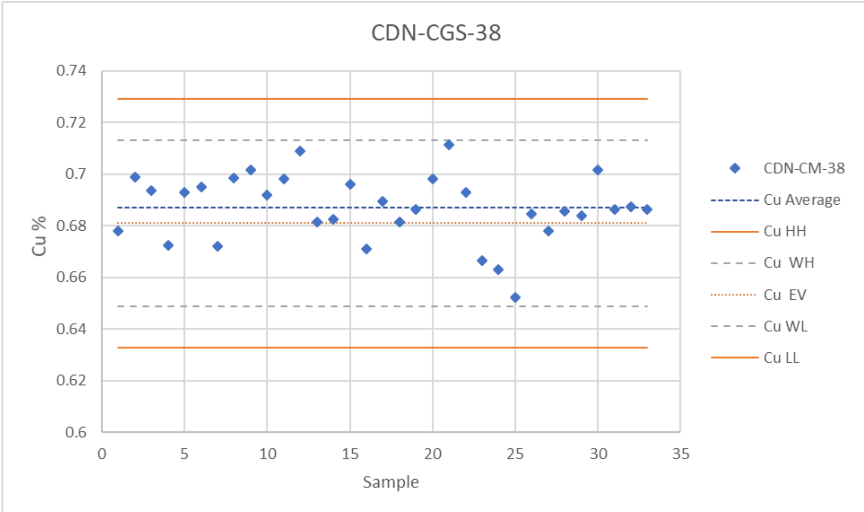


Figure 12-3: **Process Control Chart for CDN-CGS-38 Cu**

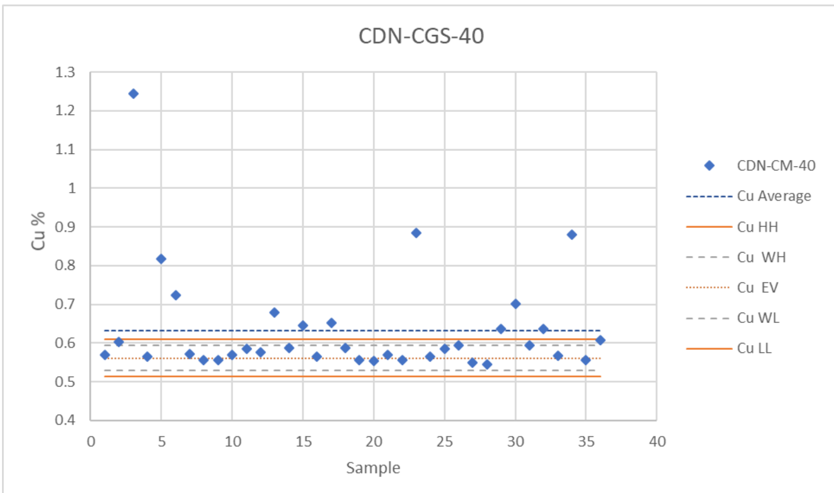


Figure 12-4: **Process Control Chart for CDN-CGS-40 Cu**

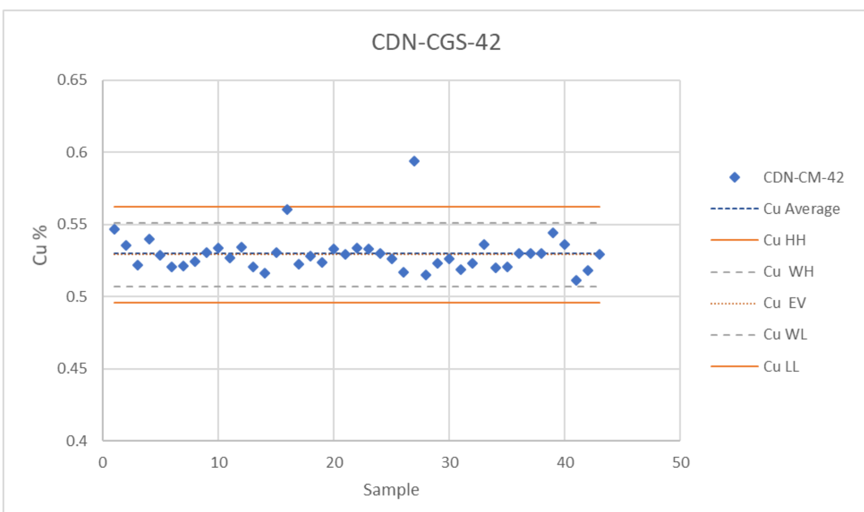


Figure 12-5: **Process Control Chart for CDN-CGS-42 Cu**

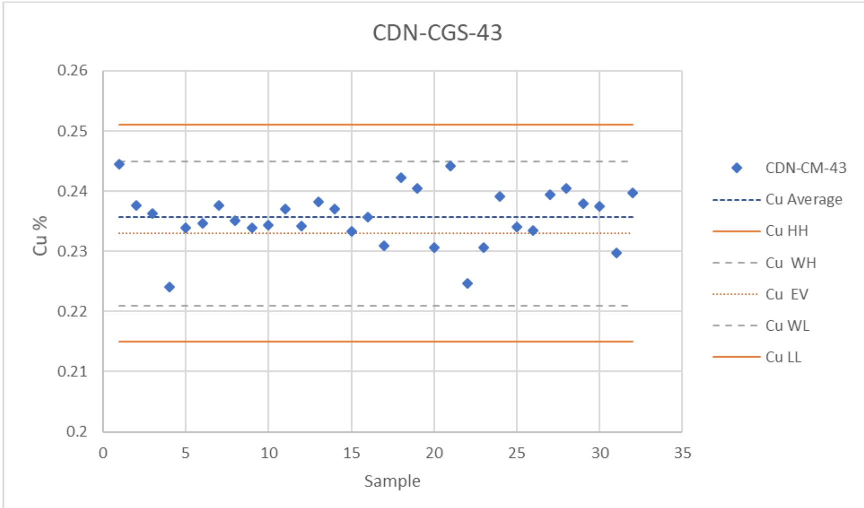


Figure 12-6: Process Control Chart for CDN-CGS-43 Cu

Process control charts showing the Au assay values of the standards are presented in Figures 12-7 through 12-12. Assays of all six reference materials give mean values close to the expected value and all show multiple values outside of the warning limits. Five of the six reference materials have one or two, but not more, values outside of the acceptable range. These results are considered acceptable.

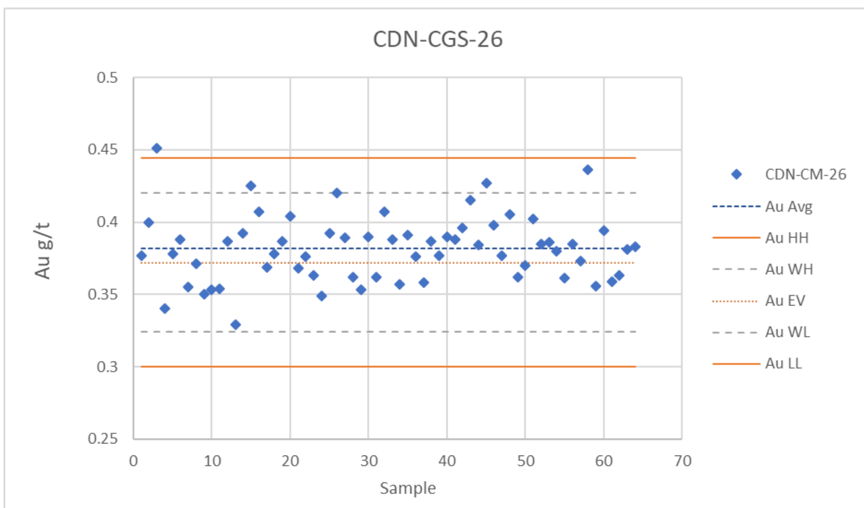


Figure 12-7: Process Control Chart for CDN-CGS-26 Au

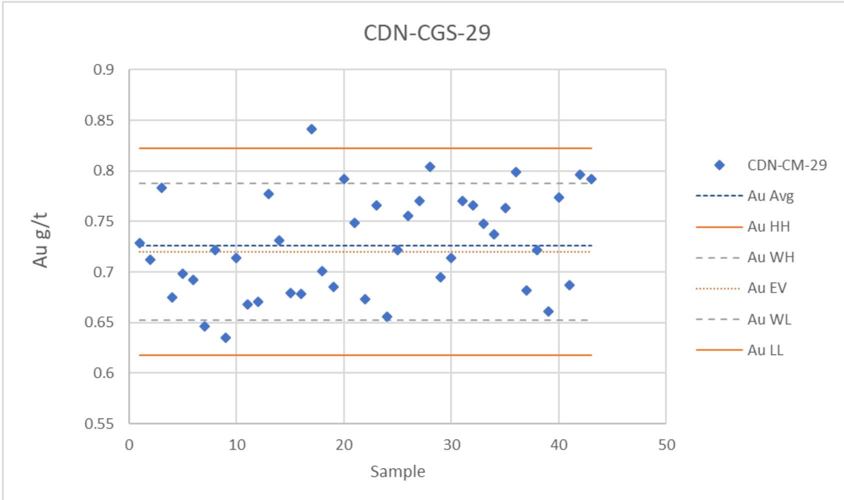


Figure 12-8: Process Control Chart for CDN-CGS-29 Au

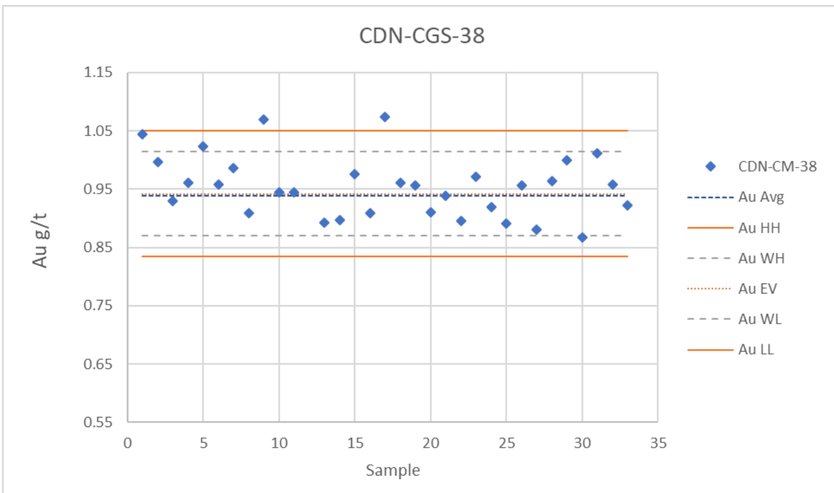


Figure 12-9: Process Control Chart for CDN-CGS-38 Au

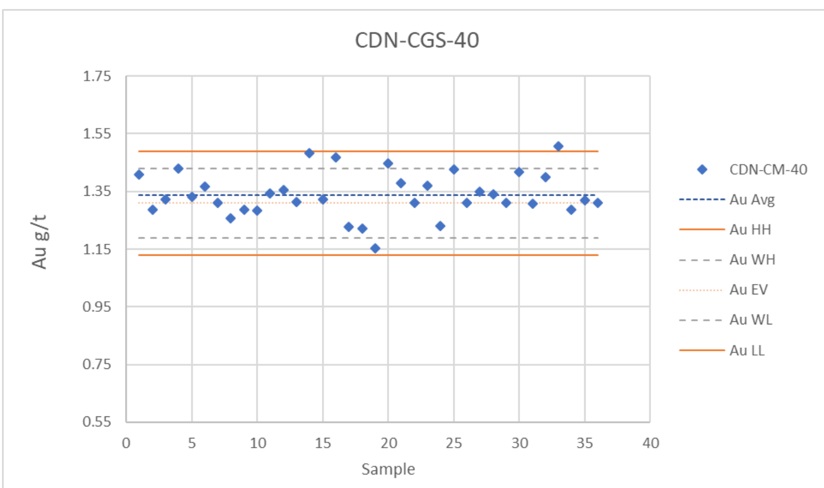


Figure 12-10: Process Control Chart for CDN-CGS-40 Au

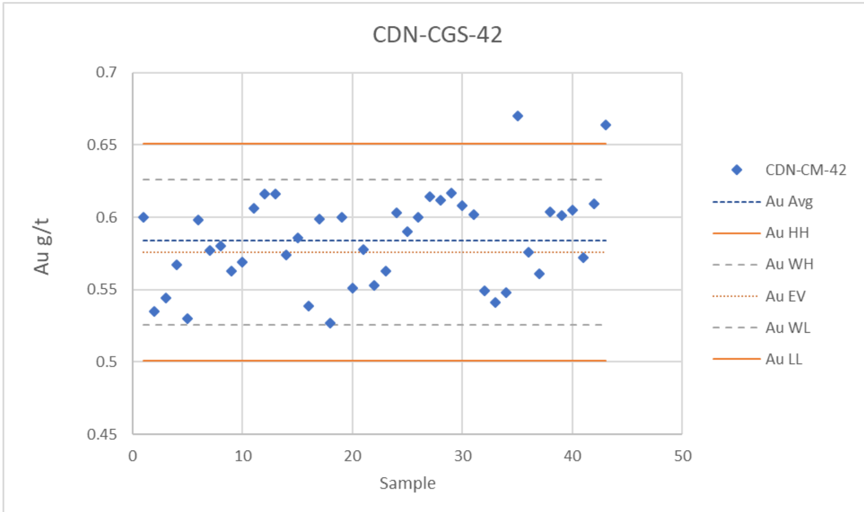


Figure 12-11: Process Control Chart for CDN-CGS-42 Au

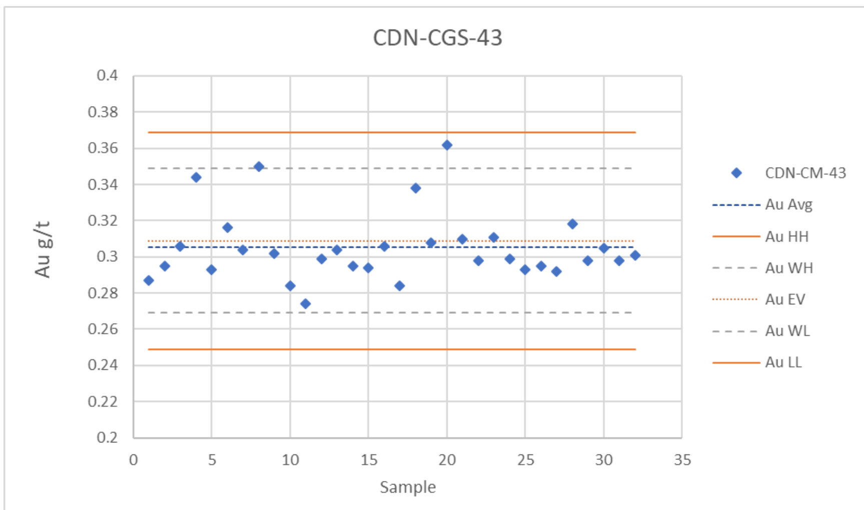


Figure 12-12: Process Control Chart for CDN-CGS-43 Au

12.1.3.2 2018 Central Zone Field Duplicates

Two hundred and sixty-five pairs of quarter core were inserted into the sample stream as field duplicates. The analyses of the results are presented here. The scatter plot of paired Cu values is given in Figure 12-13. It is seen that the values correlate well and approximate a 1:1 line. Paired values are normally compared by half the average relative difference (HARD) and field duplicates are expected to show that no more than 30% exceed 10% HARD. It is seen on the ranked HARD plot in Figure 12-14 that these field duplicates meet this criterion for Cu.

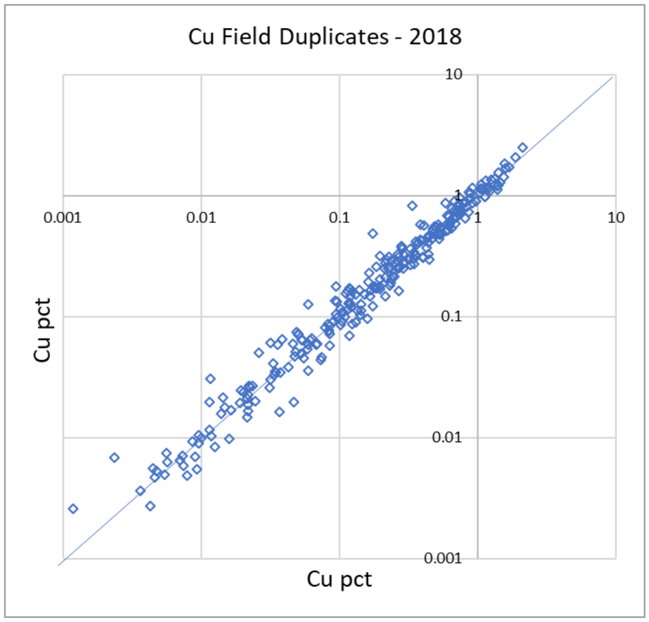


Figure 12-13: Scatter Plot of Cu Field Duplicates - 2018

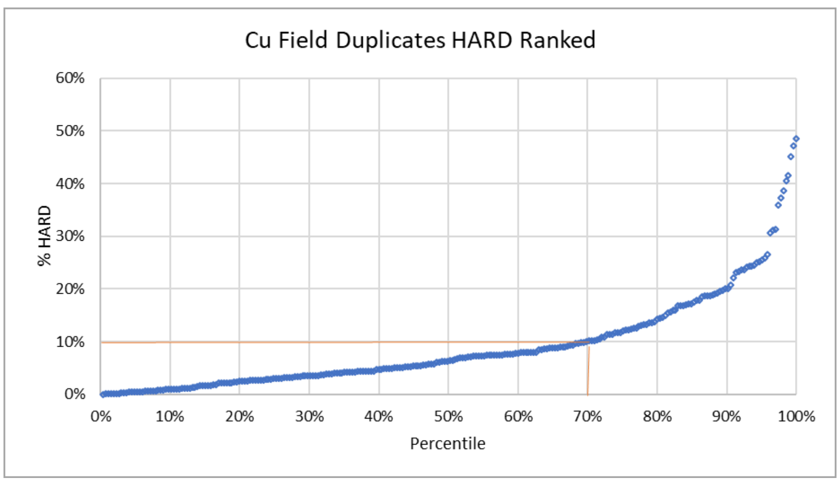


Figure 12-14: Ranked HARD values Cu Field Duplicates - 2018

A scatter plot of Au values is given in Figure 12-15 illustrating that the paired values correlate fairly well along a 1:1 slope. The ranked HARD values plotted in Figure 12-16 show that the Au field duplicate values nearly meet the 70% below 10% HARD.

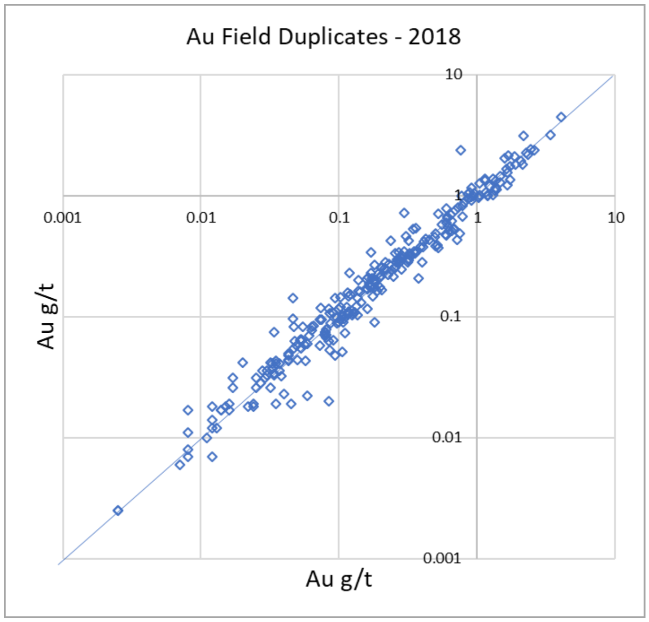


Figure 12-15: Scatter Plot of Au Field Duplicates - 2018

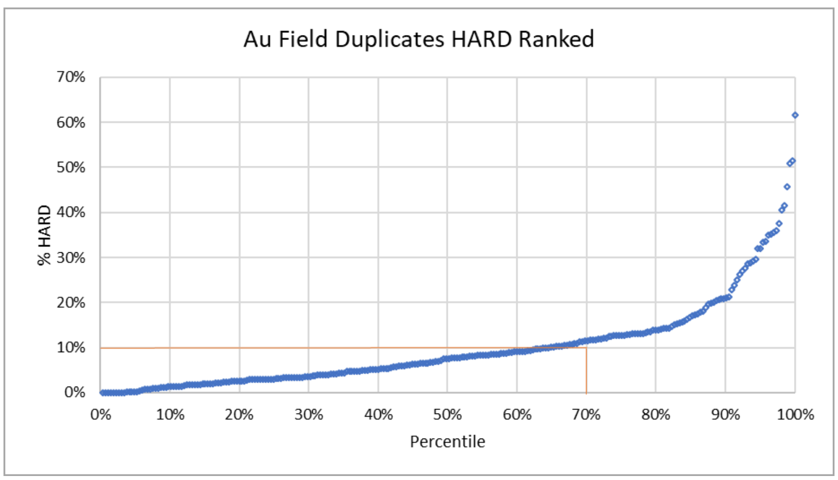


Figure 12-16: Ranked HARD values Au Field Duplicates - 2018

12.1.3.3 Analysis of Blanks

Two hundred and sixty-one samples of granitic material CDN-BL-10, certified as a blank was randomly inserted into the sample stream. The results of the Au assays of these blank samples are given in Figure 12-17. It is shown that only one value exceeds 5 times the detection limit of 0.005 ppm and no samples exceed 10 times the detection limit. This result indicates the lab has good procedures limiting contamination in the gold assay process.

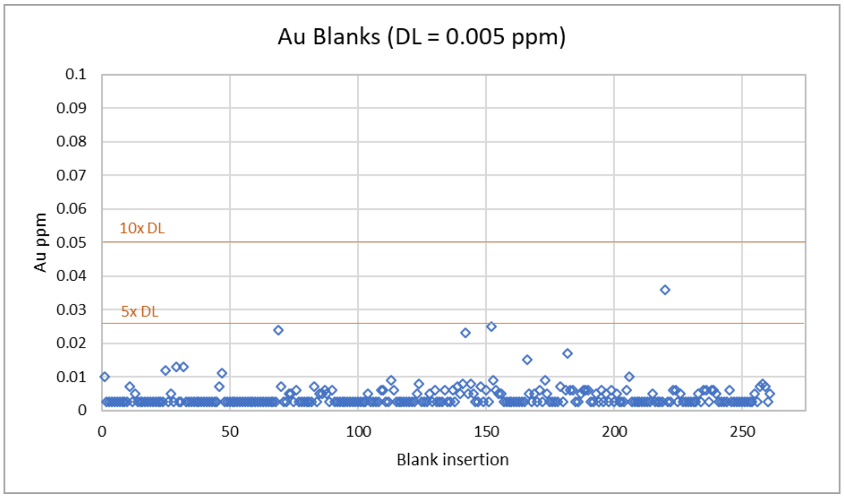


Figure 12-17: Assays of Blank Samples (Au) - 2018

The same samples assayed for Cu was more complicated. The blank inserted was not certified as a Cu blank. As such, these Cu assay values are typically in the 100 ppm range, well in excess of even 100 times the detection limit of 0.5 ppm, but still well below values considered for the Resource Estimate. The assay results of blanks inserted by the lab itself are given in Figure 12-18 and indicate very little contamination.

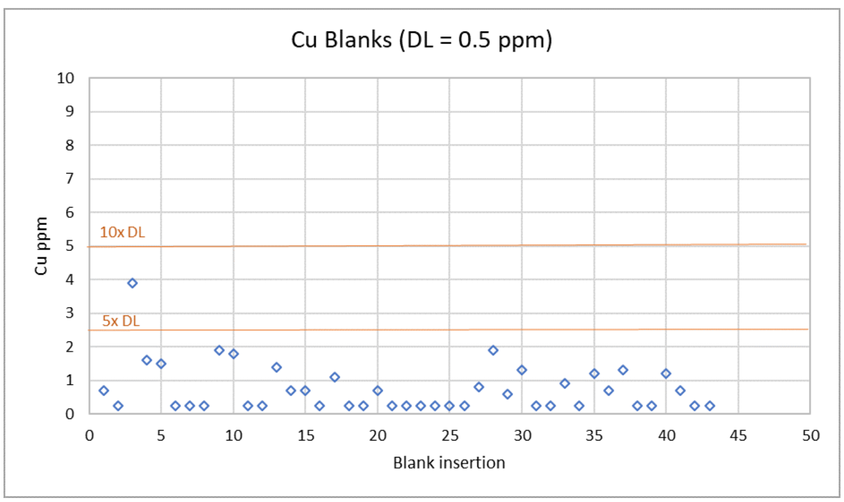


Figure 12-18: Assays of Blank Samples (Cu) - 2018

12.1.3.4 2018 Drilling QA/QC Summary

The analysis of standards, duplicates and blanks inspires reasonable confidence in the validity of the 2018 drilling assay data.

12.2 Check Assays – Central and South Zone

A set of 220 check assay samples were processed at ALS laboratory in Vancouver, BC in February 2019. These assay values provided in a database were checked against the laboratory certificate and no errors were found. These values were compared against the assay values reported by BV and these analyses are presented below. These results indicate confidence in the BV assays as demonstrated by reasonable correlation to a third party laboratory.

Fifteen samples of five different prepared standard materials were included in the check assay submittals. All samples except for one had assay values that fell within the +/- 2 SD from the expected value for both Cu and Au. The one sample that fell outside of this range, was a sample of CDN-CM-40, which had previously been identified as being problematic due to multiple assays by BV out of range, especially for Cu.

The result of the blindly inserted blank material is similar to the BV results; no assays over the detection limit for Au and assays not exceeding 0.01% for Cu.

Of course, the most important comparison between the two laboratories is the paired comparisons of assay values. Figure 12-19 gives a scatter plot of Au values displaying good correlation between the two laboratories. Additionally Figure 12-20 shows that the ranked HARD values have more than 90% with less than 10% HARD.

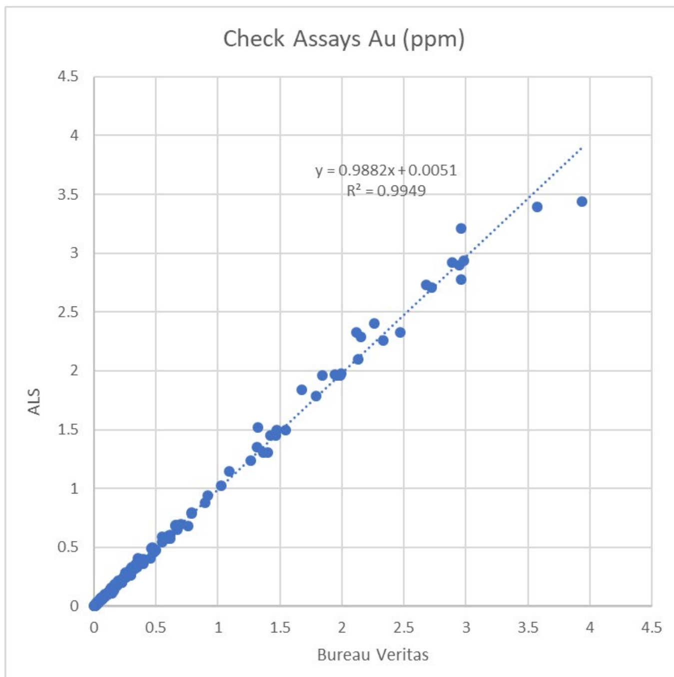


Figure 12-19: Scatter Plot of Check Assays ALS vs. BV, Au - 2018

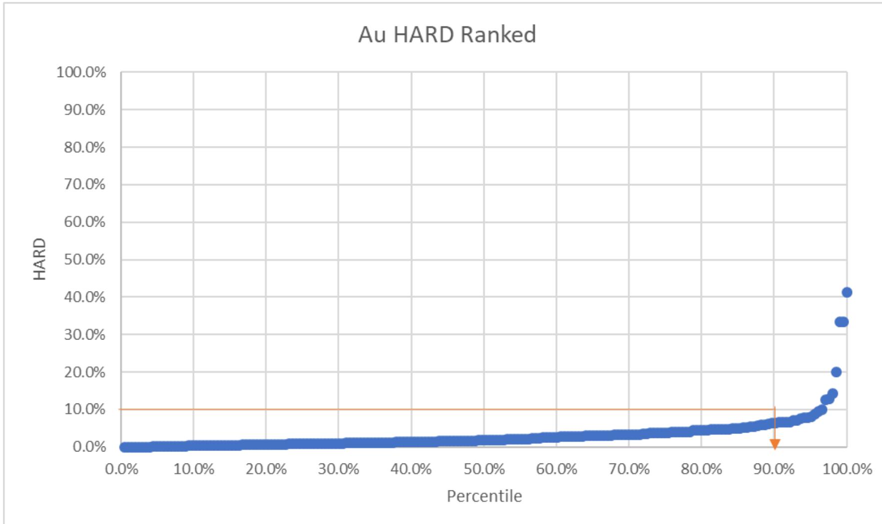


Figure 12-20: Ranked HARD Values Check Assays ALS vs. BV, Au - 2018

A scatter plot of paired Cu values is given in Figure 12-21, again showing good correlation. The ranked HARD values in Figure 12-22 for Cu also indicate greater than 90% having less than 10% HARD.

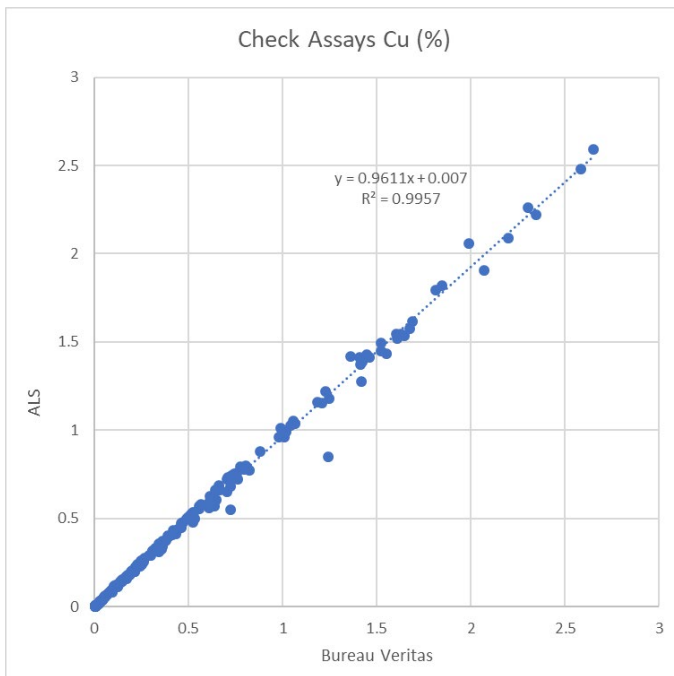


Figure 12-21: Scatter Plot of Check Assays, ALS vs. BV, Cu - 2018

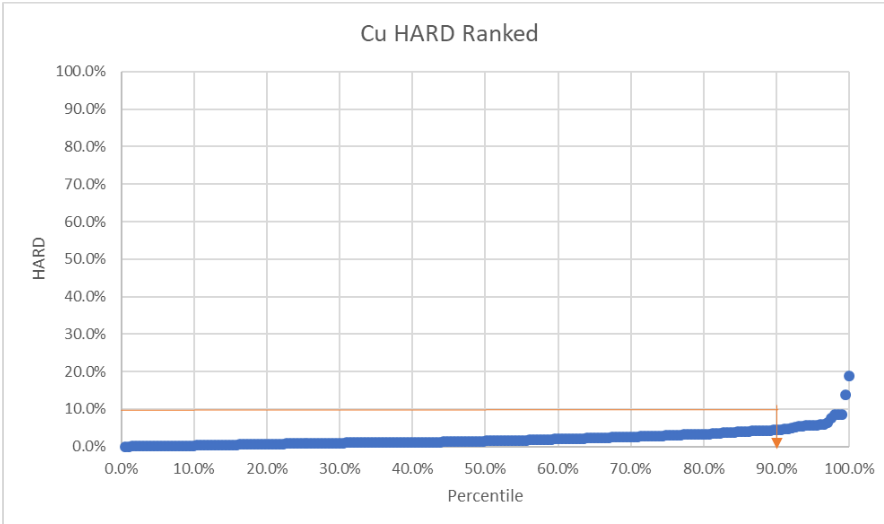


Figure 12-22: Ranked HARD Values Check Assays ALS vs. BV, Cu - 2018

12.3 Verifications of 2006-2016 Assay Data

12.3.1 Database Validation

The collar, survey, and assay data for both the Central and South zones. Nearly all of the drillholes were surveyed with high accuracy equipment. When compared to the historic topography surface, the drillholes often fell below the surface. This is attributed to elevation errors in the previously generated “tree-top” photogrammetric basemap used to create the historic topographic surface. To rectify this, a LIDAR survey was flown in September 2016 and the collars were migrated to the new LIDAR surface to obtain more accurate elevation values. The drillhole traces were visually checked to validate the downhole surveys.

The assay database was compared against the assay certificates. The assay certificates from 2006 to 2015 were provided by Bureau Veritas and for the 2016 assays from Activation Laboratories. Bureau Veritas has had three owners; the lab was originally Teck Global Discovery Labs, then Acme Labs, and finally Bureau Veritas Labs. QA/QC samples were included during all years of drilling, from 2006 to 2016. The entire assay database has been compared to the electronic files from the lab with only minor transcription errors were found. All errors were corrected in the assay database before use for the Resource Estimate.

12.3.2 Verifications of Analytical Quality Control Data

QA/QC samples were incorporated into the sample stream in the field. QA/QC samples were included as blanks, standard reference material, and field duplicates. Blank and standard reference materials were provided by CDN Resources Laboratories Inc. Field duplicates represented quartered core samples. Standard CDN-CSG-18 has been removed from the QA/QC analysis. The results from the lab are reported as the same number for a large portion of the samples. RPA discusses this standard in the 2009 NI 43-101 report and was able to correct it with the lab as it appears to be a data entry error (Rennie, 2009). Therefore, this standard has been removed from the QA/QC analysis for this review.

12.4 Central Zone 2006-2016 Drilling

Table 12-2 shows a summary of the QA/QC samples for drilling prior to 2018. The samples were inserted into the sample stream at approximately 1 in every 35 assays.

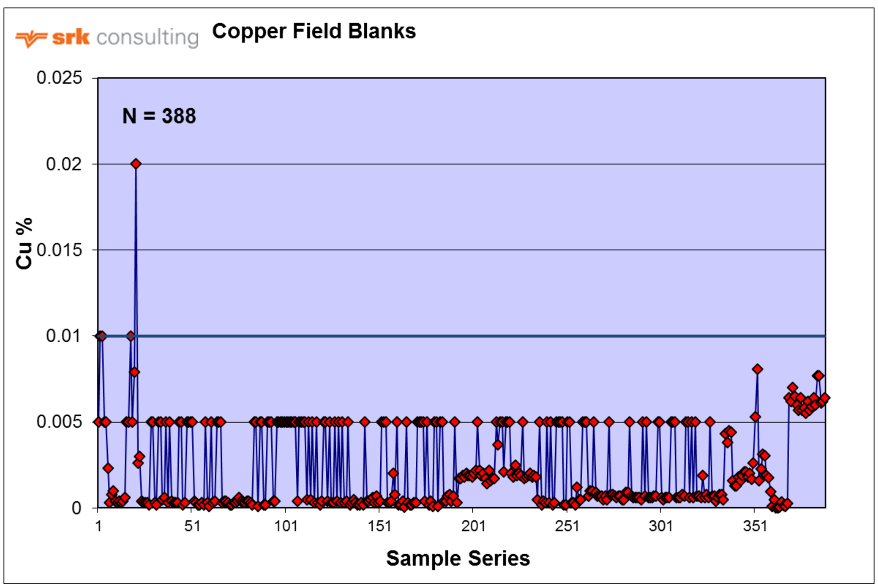
Table 12-2: Central Zone QA/QC Sampling Summary for 2006-2016

Sampling Program	Count	(%)
Sample Count	21,445	
Field Blanks	388	2%
Standard Samples	668	3%
Field Duplicates	377	2%
Total QC Samples	**1,433**	**7%**

12.4.1 Blanks: 2006-2016

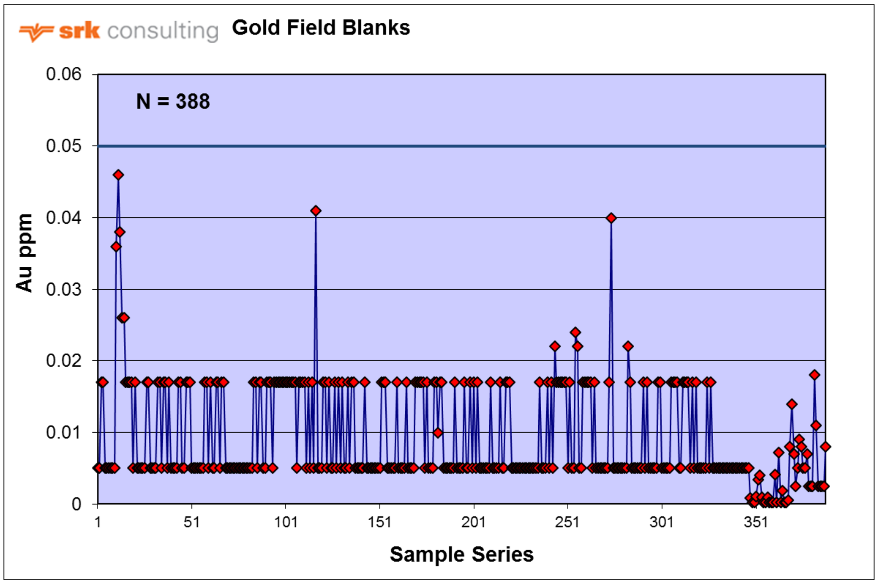
A total of 388 field blanks were included in the QA/QC samples from 2006 to 2016. The blank material is a pre-crushed prepackaged blank from CDN Resources Laboratories Inc. Blanks perform very well and there is only one sample for copper returning a value greater than five times the detection limit. Gold and silver do not have any failures.

The blank sample performance is acceptable. Figure 12-23 and Figure 12-24 show the copper and gold blank charts.



(Source: SRK 2016)

Figure 12-23: Copper Blanks for Central Zone – 2006-2016



(Source: SRK 2016)

Figure 12-24: Gold Blanks for Central Zone – 2006-2016

12.4.2 Standards: Central Zone - 2006-2016

A total of 668 standard reference material samples were included in the QA/QC samples from 2006 to 2016. The standards are prepackaged envelopes of pulverized material from CDN Resource Laboratories Ltd. Of the nine standards utilized, three have more than 20 samples. Only standards with more than fifteen samples will be discussed in this report. Table 12-3 summarizes the standards used from 2006-2016. Silver does not represent a significant portion of the resource and has not been reviewed in detail. All standard charts are provided in Appendix A to the 2016 SRK Resource Report referenced herein. As an example, Figure 12-25 and Figure 12-26 show the results for CDN-CSG-11 for copper and gold.

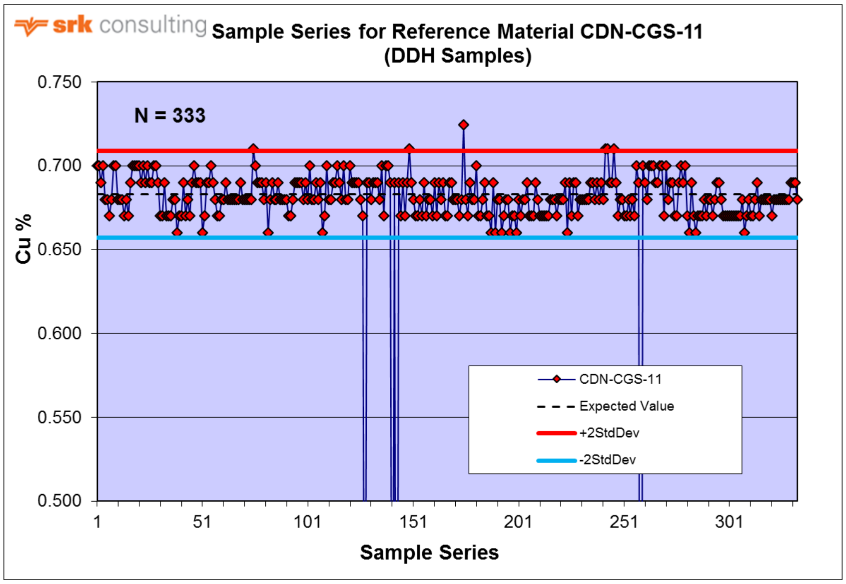
Table 12-3: Standard Reference Material Samples for Central Zone – 2006-2016

Standards	Count
CDN-CGS-11	333
CDN-CGS-12	260
CDN-CGS-15	7
CDN-CGS-22	10
CDN-CGS-23	4
CDN-CM-23	21
CDN-CM-36	16
CDN-CM-5	13
CDN-CM-7	4

Standards CDN-CSG-11 and CDN-CSG-12 performed well for copper with only 3% of the samples falling outside of two standard deviations of the expected value and failing. Standard CDN-CM-23 performed very well for copper with no samples failing. Failed samples were not re-analyzed or reviewed for mislabeled labeled samples.

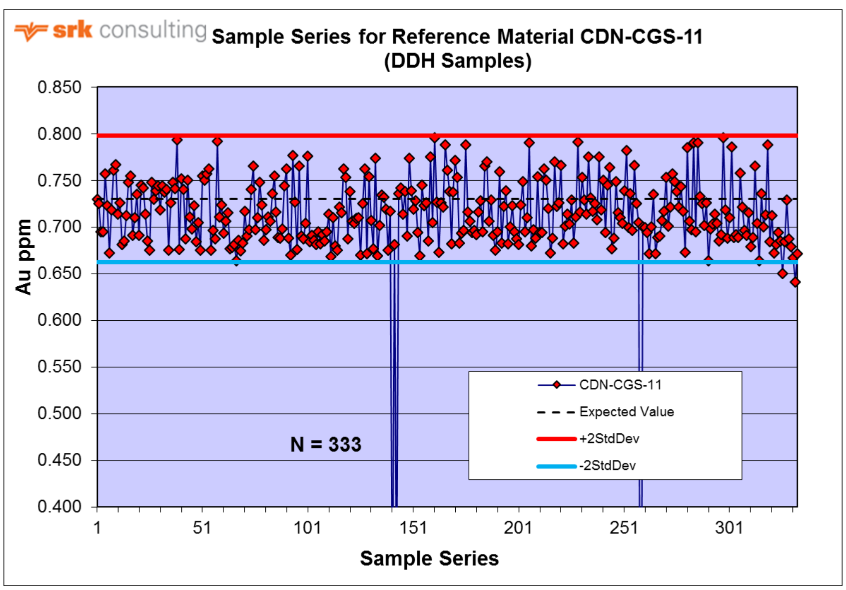
Standards CDN-CSG-11, CDN-CSG-12, and CDN-CM-23 all performed very well for gold with 5% or less of the samples falling outside of two standard deviations of the expected value and 2% or less of the samples outside of three standard deviations.

The standard sample performance is acceptable.



(Source: SRK 2016)

Figure 12-25: Standard CDN-CGS-11 for Copper for Central Zone – 2006-2016



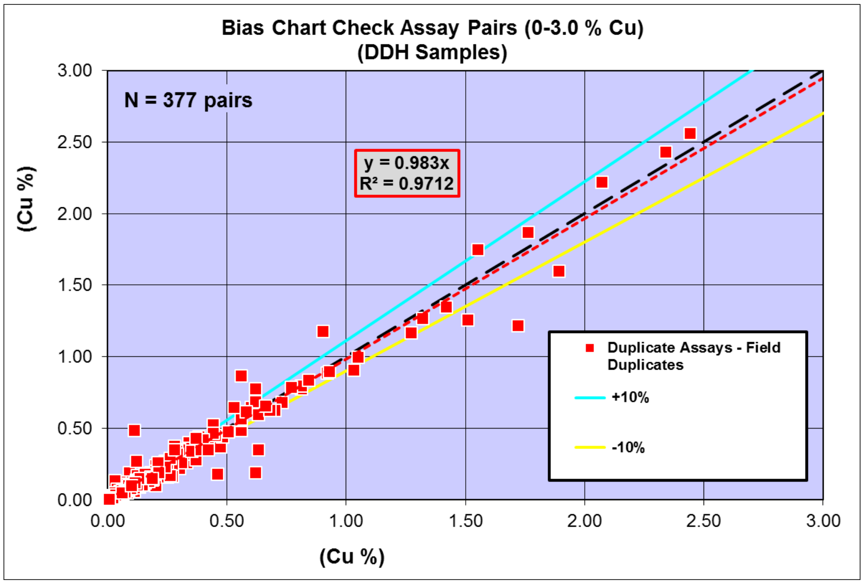
(Source: SRK 2016)

Figure 12-26: Standard CDN-CGS-11 for Gold for Central Zone – 2006-2016

12.4.3 Field Duplicates: Central Zone - 2006-2016

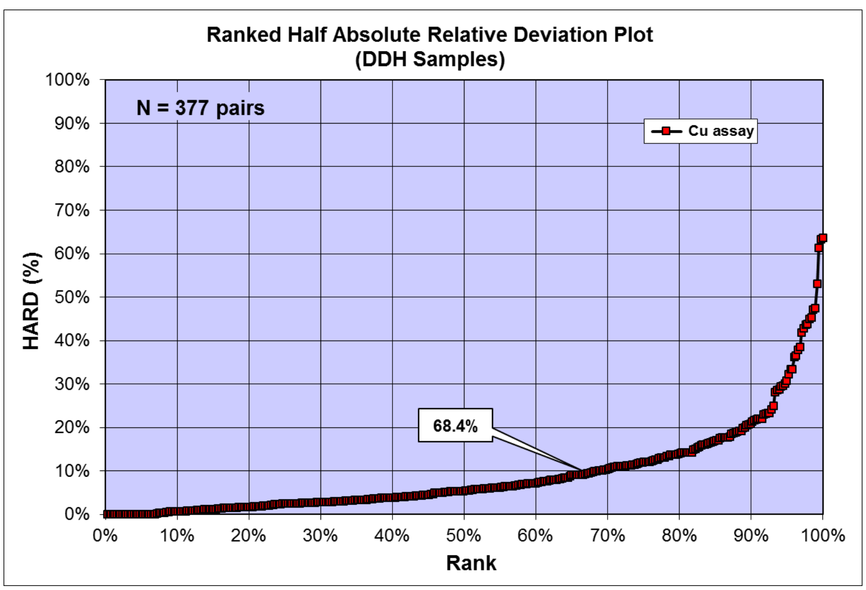
Serengeti sent field duplicates to the lab as part of the QA/QC sample procedure for drilling from 2006 through 2016. The field duplicates are quarter core sawn samples. Figure 12-27 through Figure 12-30 show the paired data for copper and gold respectively. For copper nearly 70% of the duplicates are within 10% of the original assay result. For gold nearly 65% are within 10%.

The field duplicate sample performance is acceptable.



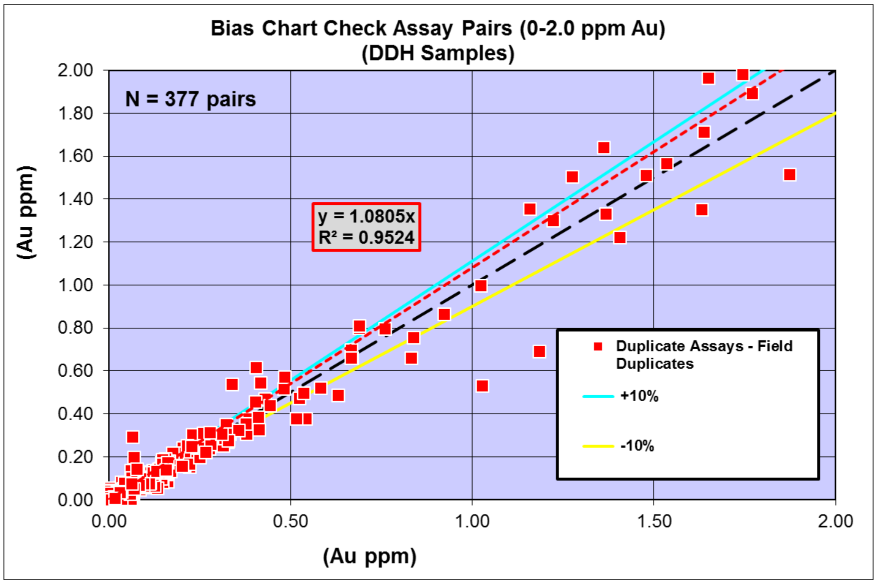
(Source: SRK 2016)

Figure 12-27: Scatterplot of Cu Field Duplicates for Central Zone – 2006-2016



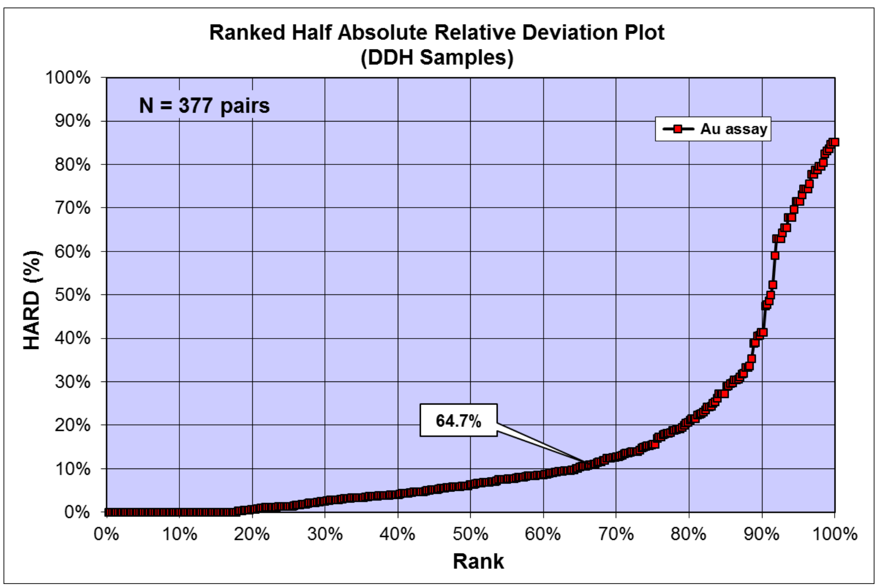
(Source: SRK 2016)

Figure 12-28: Ranked HARD Values - Cu Field Duplicates for Central Zone - 2006-2016



(Source: SRK 2016)

Figure 12-29: Scatterplot of Au Field Duplicates for Central Zone – 2006-2016



(Source: SRK 2016)

Figure 12-30: Ranked HARD Values for Central Zone - Au Field Duplicates 2006-2016

12.5 South Zone 2006-2016 Drilling

The QA/QC samples consist of blanks, standards, and duplicates. Table 12-4 shows a summary of the QA/QC samples. The samples were inserted into the sample stream at approximately 1 in every 35 assays.

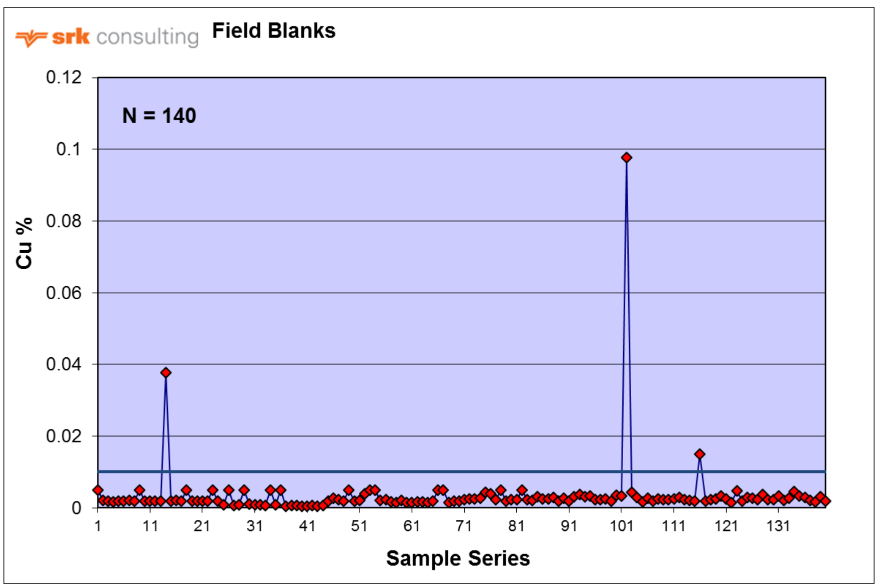
The 2011 RPA report describes an umpire sample program from 2010 to 2011 (Rennie, 2011). The samples were sent to ALS laboratories. SRK does not have all of the source data to review the umpire samples independently and has not included it in this report.

Table 12-4: South Zone QA/QC Sample Summary

Sampling Program	Count	(%)
Sample Count	8,065	
Field Blanks	140	2%
Standard Samples	198	3%
Field Duplicates	139	2%
Total QC Samples	477	6%

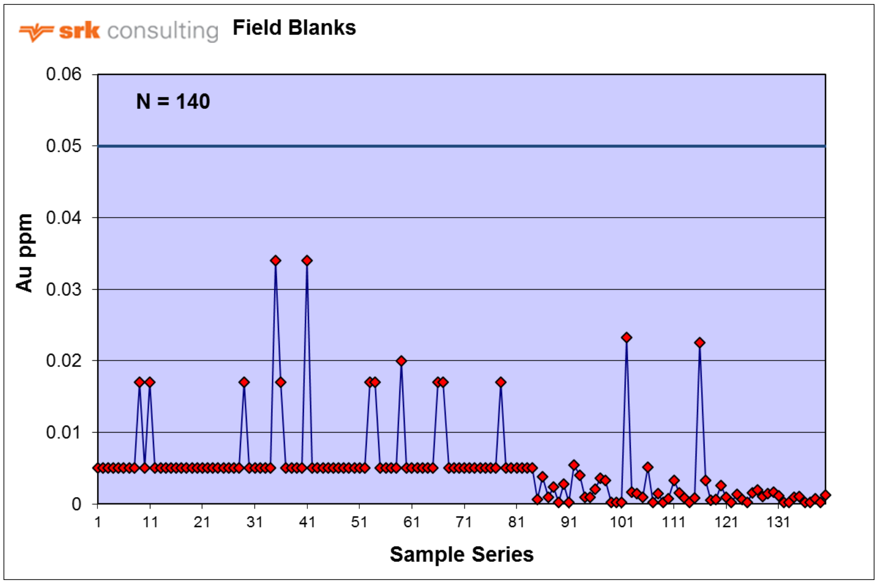
12.5.1 Blanks – South Zone

A total of 140 field blanks were included in the QA/QC samples from 2008 to 2016. The blank material is a pre-crushed prepackaged blank from CDN Resources Laboratories Inc. Blanks perform very well overall. There are only three copper assays returning values above five times the detection limit. Gold and silver do not have any failures. Molybdenum has two samples failing. Figure 12-31 and Figure 12-32 illustrate the copper and gold blank charts for the South Zone drilling.



(Source: SRK 2016)

Figure 12-31: Copper Blanks – South Zone



(Source: SRK 2016)

Figure 12-32: Gold Blanks – South Zone

12.5.2 Standards – South Zone

A total of 198 standard reference material samples were included in the QA/QC samples from 2008 to 2016. The standards are prepackaged envelopes of pulverized material from CDN Resource Laboratories Ltd. All standard charts are provided in Appendix A to the SRK 2016 Resource Report referenced herein. Figure 12-33 and Figure 12-34 are the results for CDN-CSG-11 for copper and gold. Table 12-5 summarizes the standards used. Silver and molybdenum are not a significant portion of the resource and have not been reviewed in detail.

Table 12-5: Standard Reference Material Samples

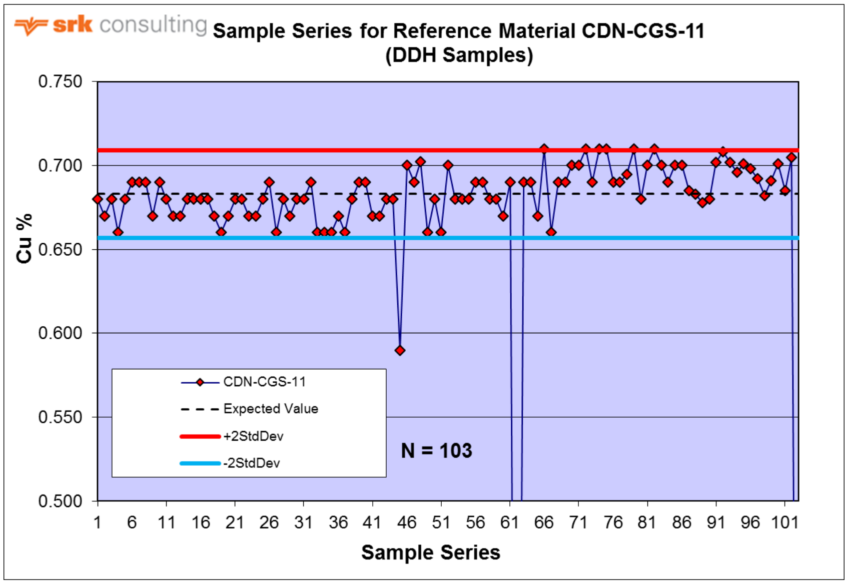
Standards	Count
CDN-CGS-11	103
CDN-CGS-12	20
CDN-CGS-23	36
CDN-CM-7	39

Standard CDN-CSG-11 and CDN-CM-7 perform well for copper with only 3% of the samples outside of two standard deviations from the expected value. Standard CDN-CSG-12 also performed acceptably with 5% of the samples falling outside of two standard deviations.

Standard CDN-CGS-23 did not perform well for copper with 39% of the samples falling outside of two standard deviations of the expected value. This sample overall reports lower than expected values.

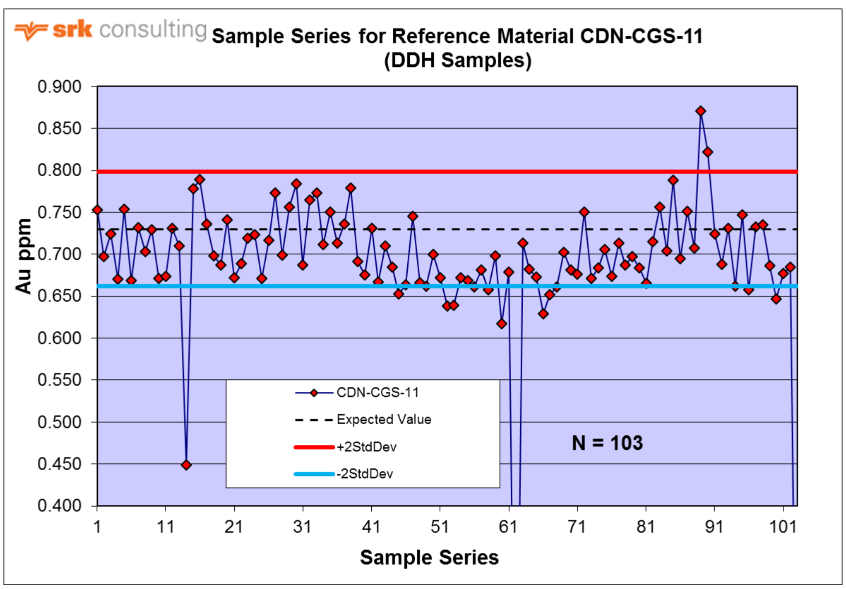
For gold, standards CDN-CSG-11 and CDN-CSG-12 performed very well with 5% or less of the samples falling outside of three standard deviations of the expected value. Standards CDN-CGS-23 and CDN-CM-7 had more samples with assays outside of three standard deviations, with 6% and 10% respectively.

The standard sample performance is acceptable.



(Source: SRK 2016)

Figure 12-33: Standard CDN-CGS-11 for Copper – South Zone



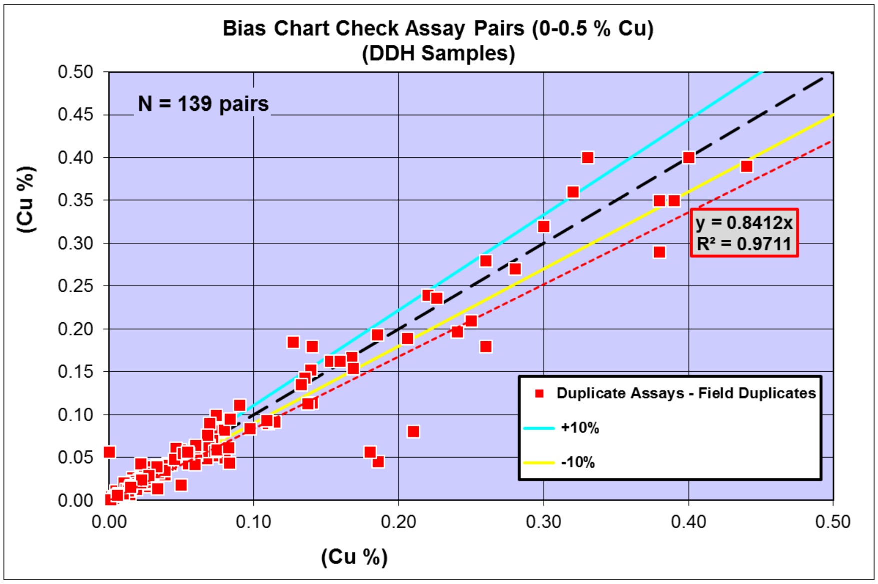
(Source: SRK 2016)

Figure 12-34: Standard CDN-CGS-11 for Gold – South Zone

12.5.3 Field Duplicates – South Zone

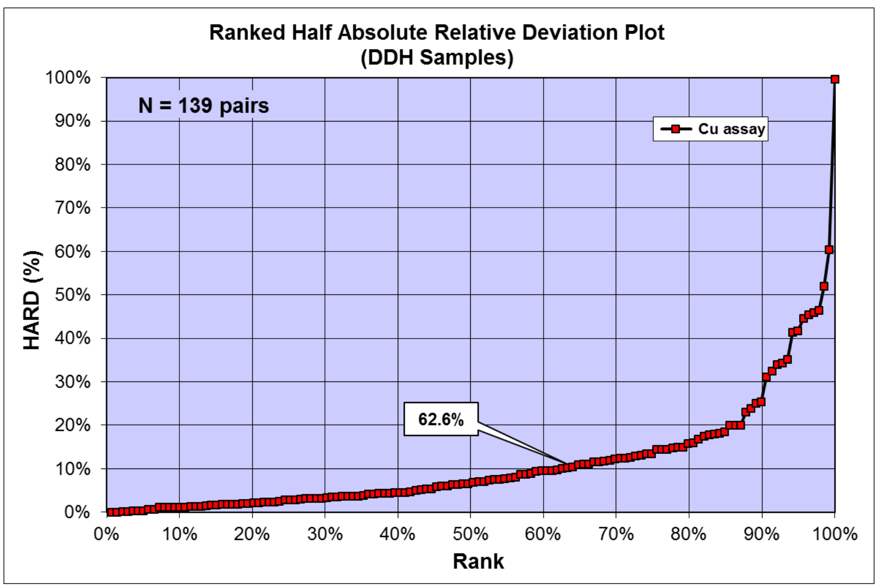
The field duplicates are quarter core sawn samples. Figure 12-35 through Figure 12-38 show the paired data for copper and gold. For copper approximately 60% of the duplicates are within 10% of the original assay result. For gold nearly 65% are within 10%.

The field duplicate sample performance is acceptable.



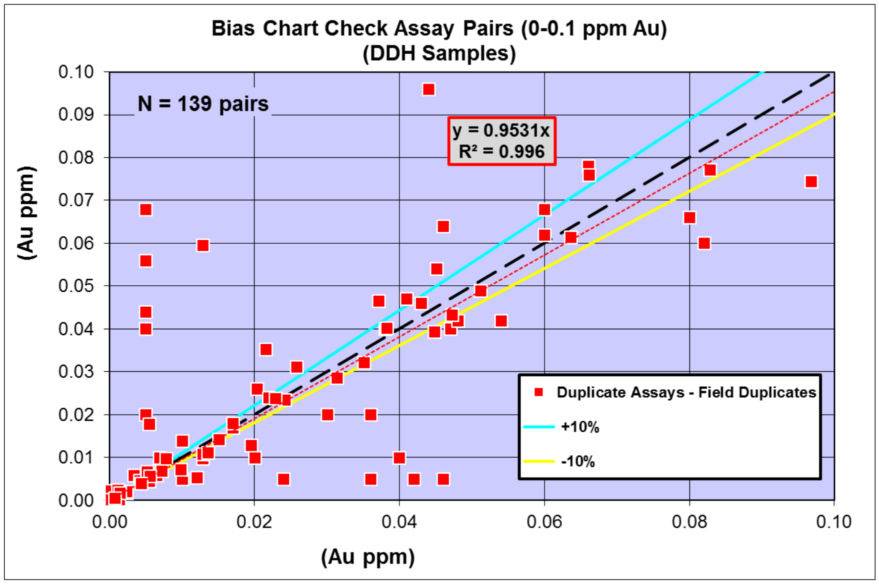
(Source: SRK 2016)

Figure 12-35: Scatterplot of Cu Field Duplicates – South Zone



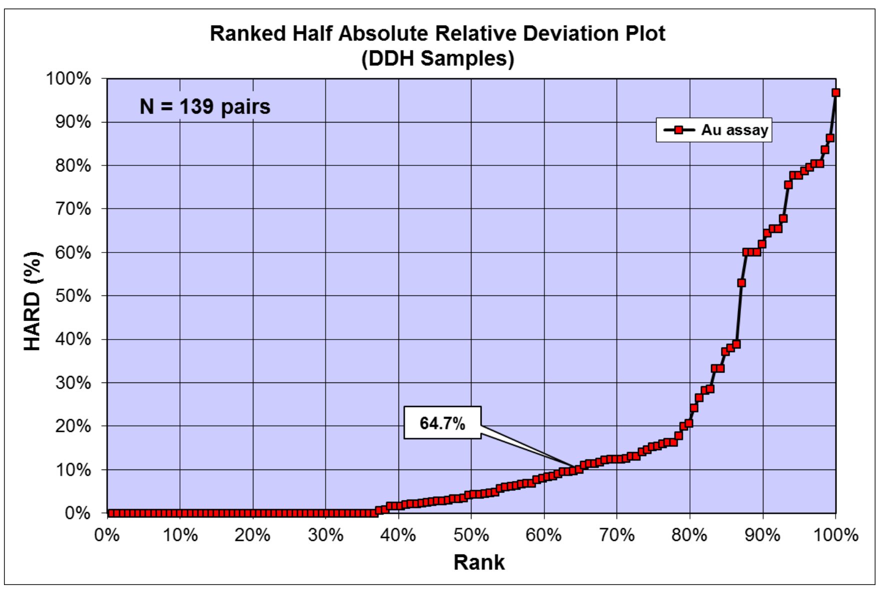
(Source: SRK 2016)

Figure 12-36: Ranked HARD Values - Cu Field Duplicates



(Source: SRK 2016)

Figure 12-37: Scatterplot of Au Field Duplicates – South



(Source: SRK 2016)

Figure 12-38: Ranked HARD Values - Au Field Duplicates

13 Mineral Processing and Metallurgical Testing

Copper-gold mineralization in Kwanika has been identified as two main zones, Central Zone, and South Zone. Serengeti conducted preliminary metallurgical testing on samples from the Central Zone. Metallurgical testing of the South Zone has not been conducted.

An exploratory metallurgical test program was commenced on November 3, 2008 with SGS Metallurgical Services Ltd. (SGS). A total of 52 samples of quartered drillcore and aggregate weighing 186kg were collected by Serengeti personnel from the Central Zone and sent to SGS where equal amounts of each sample were used to construct a 120kg master composite, with the remaining material being stored for later testing. The master composite sample assayed 0.66% Cu and 0.76g/t Au.

The Central Zone test work included chemical and mineralogical analyses, Bond Ball Work Index testing, gravity concentration, batch rougher and cleaner flotation tests, and a locked cycle flotation test. Eleven batch flotation tests included five rougher tests, and six cleaner tests. Primary grind P80 ranged from 133m to 75m and regrind P80 ranged from 32m to 20m. Highlights from the Central Zone test work include the following:

- Copper mineralization is mostly chalcopyrite, with minor content of bornite, other copper sulphides, and very locally native copper
- Mineralization is finely disseminated
- Gold appears to be associated with sulphides including copper species and pyrite.
- Bond Work Index is approximately 16kWh/tonne.

The 2008 exploratory metallurgical test work concludes that a conventional concentration process with a primary grind of 80% passing 75µm, and regrinding of the rougher concentrate to 80% passing 26µm before feeding a three-stage cleaning flotation circuit could recover 88.5% Cu, and 65.2% Au with a concentrate grade of 27.7%Cu, and 20.9g/t Au. The final copper concentrate was found to be very clean, and the content of penalty elements such as As, Bi, Sb, and Hg is very low. Cleaner flotation tests demonstrate that a reduction of concentrate grade to 24% would significantly increase copper and gold recovery.

Examination of mass pull, grind size data from the 2008 exploratory test work showed that additional mass pull and grinding would significantly improve copper and gold recoveries.

Follow-up regrind and scavenger flotation test conducted on rougher tails conducted by SGS in April 2009 achieved a copper recovery of 94.7% and gold recovery of 82.9%. A copper recovery of 91% and gold recovery of 75% is estimated after accounting for losses in the cleaner circuit to produce a concentrate grade of 24% Copper.

The metallurgical test work is considered exploratory and indicative of potential recoveries. The composite samples were taken from a limited area within the Central Zone and therefore are not likely to be representative of the entire deposit. No test work has been carried out on the South Zone. The presence of micas could impact flotation cleaning, and the presence of clays could result in performance variability. These will be evaluated in future testwork.

The master composite sample has higher grades than the average PEA mine plan mill feed grades (MMTS, 2017). It is assumed that any recovery reduction in future test work associated with a reduction of head grade will be offset by recovery improvements from a more detailed process test work program.

Table 13-1 shows the metallurgical recovery assumptions used for the PEA. These assumptions are preliminary and will vary with future test work.

Table 13-1: Kwanika Process Recovery Assumptions

Parameter	Central Zone and UG Recovery	South Zone and Low-Grade Stockpile Recovery
Copper Recovery	91%	89%
Gold Recovery	75%	70%
Silver Recovery	75%	75%
Copper Concentrate	24% Cu	24% Cu

There are no known processing factors or deleterious elements that could have a significant effect on potential economic extraction.

14 Mineral Resource Estimate

14.1 Introduction

The Mineral Resource Statement presented herein represents the copper, gold, silver, and molybdenum mineral resource evaluation prepared for the Kwanika Project in accordance with updated Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards (CIM 2014). The current updated Central Zone resource estimate was completed by Moose Mountain Technical Services (MMTS) of Cranbrook, British Columbia under the direction of Sue Bird, P. Eng. (EGBC #25007), an independent Qualified Person as defined by NI 43-101. Sue Bird completed a site visit to the Kwanika property from July 13 – 16, 2018 and reviewed and advised the geological modeling input to the current study.

The South Zone resource estimate was completed in 2016 by SRK Consulting (Canada) Inc., of Vancouver, British Columbia under the direction of Marek Nowak P. Eng., an independent Qualified Person as defined by NI 43-101.

The Mineral Resource Estimate for the Central Zone is summarized in Table 14-1, with sensitivity to cutoff at select grades provided in Table 14-2. The Resource Estimate for the South Zone is provided in Table 14-3.

MMTS and SRK are not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, that could materially affect the Mineral Resource Estimate.

Factors that may affect the estimates include: metal price assumptions, changes in interpretations of mineralization geometry and continuity of mineralization zones, changes to kriging assumptions, metallurgical recovery assumptions, operating cost assumptions, delays or other issues in reaching agreements with local or regulatory authorities and stakeholders, and changes in land tenure requirements or in permitting requirement.

Table 14-1: Mineral Resource Statement, Central Zone, effective date: December 14, 2018

Summary of Total Pit and Underground Resource - Kwanika Central (effective date: December 14, 2018)									
Pit-Constrained									
Classification	**Cutoff (CuEq%)**	**Quantity (Mt)**	**In situ Grade**				**In situ Contained metal**		
			CuEq (%)	**Cu (%)**	**Au (g/t)**	**Ag (g/t)**	**Cu (Mlbs)**	**Au (koz)**	**Ag (koz)**
Measured	0.13%	24.2	0.51	0.34	0.33	1.07	179	254	833
Indicated		80.4	0.30	0.20	0.18	0.69	360	454	1,784
Total M+I		104.6	0.35	0.23	0.21	0.78	540	708	2,617
Inferred		5.7	0.23	0.16	0.13	0.65	20	25	119
Underground									
Classification	**Confining Shape Basis (CuEq%)**	**Quantity (Mt)**	**In situ Grade**				**In situ Contained metal**		
			CuEq (%)	**Cu (%)**	**Au (g/t)**	**Ag (g/t)**	**Cu (Mlbs)**	**Au (koz)**	**Ag (koz)**
Measured	0.27% confining shape -	18.7	0.58	0.36	0.40	1.15	151	239	692
Indicated		100.2	0.44	0.29	0.27	0.92	634	884	2,964
Total M+I		118.9	0.46	0.30	0.29	0.96	784	1,123	3,656
Inferred		84.7	0.27	0.17	0.18	0.60	319	480	1,634
Combined Pit and Underground									
Classification	**Cutoff (CuEq%)**	**Quantity (Mt)**	**In situ Grade**				**In situ Contained metal**		
			CuEq (%)	**Cu (%)**	**Au (g/t)**	**Ag (g/t)**	**Cu (Mlbs)**	**Au (koz)**	**Ag (koz)**
Measured	0.13%-open pit, and 0.27% ug	42.9	0.54	0.35	0.36	1.10	330	493	1,525
Indicated		180.6	0.38	0.25	0.23	0.82	994	1,338	4,748
Total M+I		223.6	0.41	0.27	0.25	0.87	1,324	1,831	6,273
Inferred		90.4	0.26	0.17	0.17	0.60	339	504	1,753

Central Zone Resource Notes

- The CuEq cutoffs are based on prices of US$3.25/lb of copper, US$1,350/oz of gold, US$17/oz of silver and assumed recoveries of 91% for copper, 75% for gold, 75% for silver.
- Copper equivalents (CuEq) values are calculated using the formula below based on the above metal prices and recoveries. They include smelter terms and a $US:$CAD exchange rate of 0.77 which results in the following equation.
- CuEq = Cu% + ((Auoz*CAD$1620.77*75%) + (Agoz*CAD$18.79 *75%)) / (CAD$3.71*91%*22.0462)

Table 14-2: Sensitivity Analysis, Central Zone, effective date: December 14, 2018

Measured+Indicated Pit Resource Sensitivity and Underground Material within PFS Confining shapes										
Pit-Constrained Sensitivity Analysis at Various Cutoff Grades										
Classification	Cutoff (CuEq%)	Quantity (Mt)	In situ Grade				In situ Contained Metal			
			CuEq%	Cu %	Au (g/t)	Ag (g/t)	Cu (Mlbs)	Au (koz)	Ag (koz)
Total M+I	0.13%	104.6	0.35	0.23	0.21	0.78	540	708	2,617
	0.25%	63.2	0.45	0.30	0.27	0.89	424	546	1808
	0.40%	24.4	0.67	0.45	0.41	1.26	244	318	991
Underground Sensitivity Analysis within 0.40% CuEq Confining Shape										
Total M+I	0.27% confining shape	118.9	0.46	0.30	0.29	0.96	784	1,123	3,656
	0.4% confining shape	64.0	0.62	0.39	0.43	1.23	550	884	2,520

Central Zone Resource Notes

- The CuEq cutoffs are based on prices of US$3.25/lb of copper, US$1,350/oz of gold, US$17/oz of silver and assumed recoveries of 91% for copper, 75% for gold, 75% for silver.
- Copper equivalents (CuEq) values are calculated using the formula below based on the above metal prices and recoveries. They include smelter terms and a $US:$CAD exchange rate of 0.77 which results in the following equation.
- CuEq = Cu% + ((Auoz*CAD$1620.77*75%) + (Agoz*CAD$18.79 *75%)) / (CAD$3.71*91%*22.0462)

Table 14-3: Mineral Resource Statement, South Zone, effective date October 14, 2016

Category	Cutoff	Quantity	In situ Grade				In situ Contained Metal			
	CuEq (%)	(x1000 Tonnes)	Cu (%)	Au (g/t)	Ag (g/t)	Mo (%)	Cu (000's lb)	Au (000's oz)	Ag (000's oz)	Mo (000's lb)
Inferred	0.13	33,300	0.26	0.08	1.64	0.01	191,400	80	1,760	7,470

South Zone Resource Notes

- The CuEq cutoff is based on prices of US$3.00/lb of copper, US$1,300/oz of gold, US$20/oz of silver and assumed recoveries of 89% for copper, 70% for gold, 75% for silver and 60% for molybdenum.
- Copper equivalents (CuEq) values are calculated using the formula below based on the above metal prices and recoveries.
- CuEq = Cu% + Au(g/t)*0.497 + Ag(g/t)*0.00813 + Mo(%)*2.02247

This section describes the resource estimation methodology and summarizes the key assumptions. In the opinions of MMTS and SRK, the resource evaluation reported herein is a reasonable representation of the copper-gold-silver-molybdenum mineral resources found on the Kwanika Project at the current level of sampling. The mineral resources have been estimated in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines (CIM, 2014) and are reported in accordance with the Canadian Securities Administrators' National Instrument 43-101 (CSA, 2018). Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserve.

The database used to estimate the Kwanika Project mineral resources was audited by MMTS and SRK. Both of whom are of the opinion that the current drilling information is sufficiently reliable to interpret with confidence the boundaries for copper-gold-silver-molybdenum mineralization and that the assay data are sufficiently reliable to support mineral resource estimation.

The Central Zone resource model has been created using a combination of MineSight^{TM} Implicit Modelling and Leapfrog Geo$^{TM.}$ with MineSight used for all statistical analysis and the block model.

For the South Zone modelling, Leapfrog Geo^{TM} 3.1.1 was used to construct the geological solids and GEOVIA GEMS^{TM}, was used to prepare assay data for geostatistical analysis, construct the block model, estimate metal grades and tabulate mineral resources. Statistical analysis was completed in non-commercial software and in SAGE for variography analysis.

14.2 Resource Estimation Procedures

The resource evaluation methodology involved the following procedures:

- Database compilation and verification;
- Construction of wireframe models for the lithologies and major faults;
- Construction of boundaries of the mineralization;
- Definition of resource domains;
- Data conditioning (compositing and capping) for geostatistical analysis and variography;
- Block modelling and grade interpolation;
- Resource classification and validation;
- Assessment of "reasonable prospects for economic extraction" and selection of appropriate cutoff grades; and
- Preparation of the Mineral Resource Statement.

14.3 Resource Database

The Kwanika Project database used for the resource estimation comprises descriptive and assaying information for exploration drilling conducted by KCC and Serengeti from 2006 to 2018. The resource block models for the Central and South deposits are based on 195 drillholes with 137 drillholes located in the Central Zone and 58 drillholes located in the South Zone. Table 14-4 provides a summary of the database used for the resource estimation.

Table 14-4: Exploration Data Used for Resource Estimation

Zone	Drill Type	Number of Drillholes	Total Metres Drilled	Number of Drill Samples
Central	Core	137	63,983.69	25,375
South	Core	58	17,958.55	7,766
Total	**Core**	**195**	**81,942.24**	**33,141**

14.4 Geologic Modelling

14.4.1 Topographic Surfaces

A bare earth Lidar survey was flown over the property in September of 2016. A surface was created from the Lidar data points provided by McElhanney for both the Central and South zones. These surfaces were triangulated using all points for each zone. The collar data was pressed onto these high resolution surfaces.

A 5m resolution surface was interpolated to create a lower resolution surface for use in clipping the 3D models and informing the block models for the Central and South zones.

14.4.2 Central Zone Geologic Model

14.4.2.1 Lithology and Fault Solids Modelling – Central Zone

Updated geologic interpretation was done in 2018 by KCC and reviewed by MMTS for use in the resource model. The geologic interpretation was then used by MMTS to create mineralization shapes for copper and separately for Au-Ag mineralization. Based on the updated drilling and on refinement of previous interpretations, the solids and surfaces created for the Central Zone modelling include:

- The regional Pinchi Fault bounding mineralization to the west
- The Central Fault which controls mineralization orientation within the deposit
- Lithologies including: diorite, monzonite, monzodiorite, the Takla Group andesites, the sedimentary basin (with sub-groups within the sediments), the Cache Creek Group, and barren dykes
- Alteration zones
- The bottom of the Overburden

Figures 14-1 illustrates a three-dimensional view of the main lithology components used in Resource modelling, with Figure 14-2 showing a E-W sectional views of all the main lithology units.

The lithologic model aided in the creation of the domains used in resource modelling. The dykes however, were not modelled explicitly because it was determined that the true thickness of the post-mineral dykes is less than the minimum thickness separable during mining of approximately 2m. Therefore, the dykes are included within the modelled mineralization domains as internal dilution. Furthermore, the oxides have not been explicitly modelled because it has been determined that they are not volumetrically significant and will have minimal effect on the overall metallurgical recoveries.

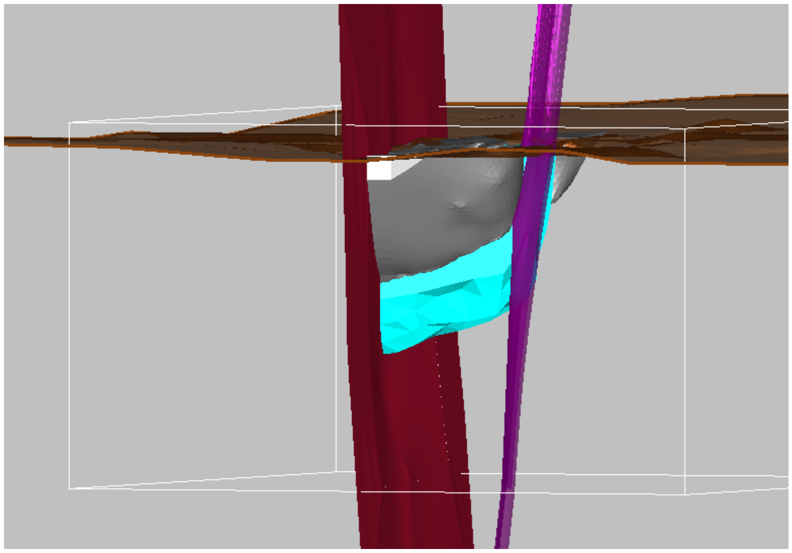


Figure 14-1: Lithology used in Resource Modelling: Bottom of the overburden (brown), sediments (grey), and the Pinchi Fault (red), Central Fault (magenta) and Alteration (cyan). 3D view looking northwest

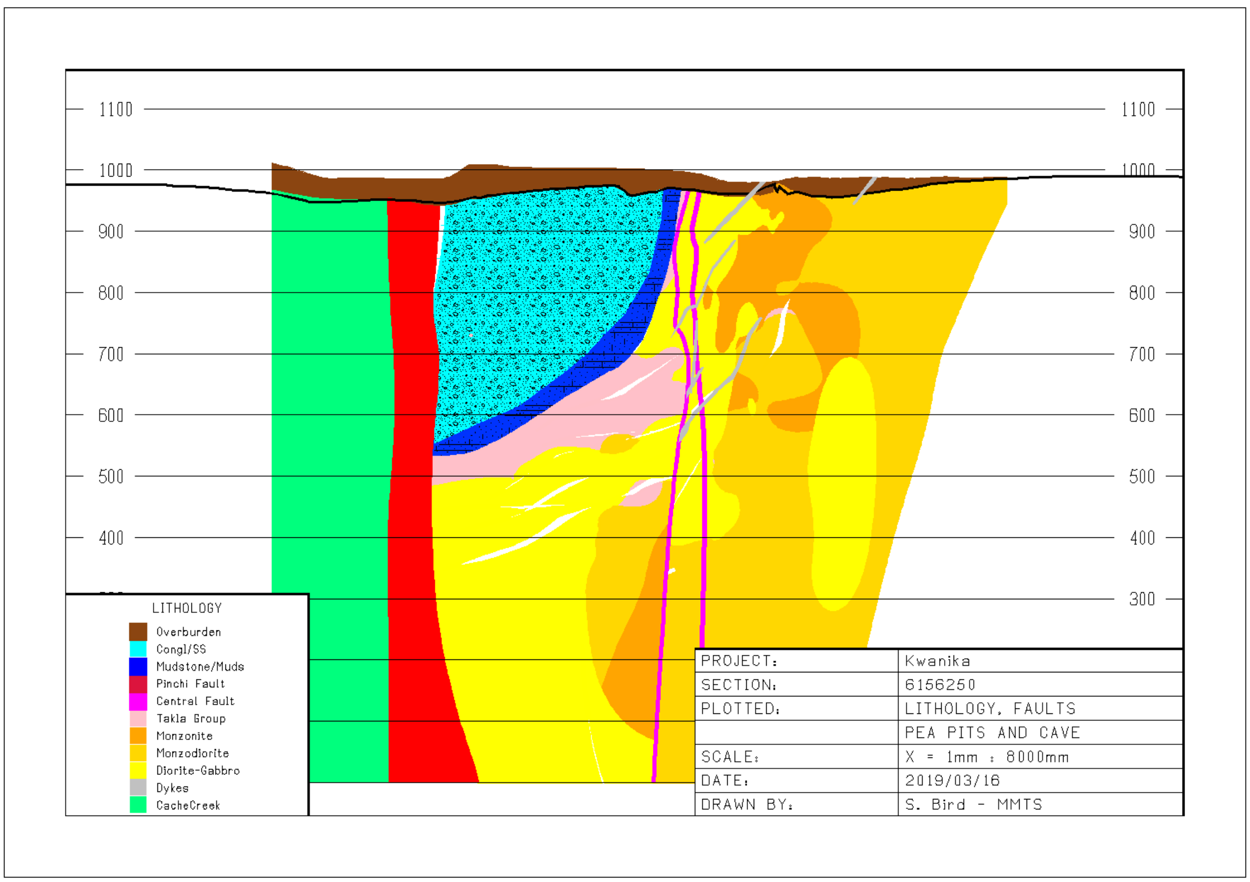


Figure 14-2: Lithology used in Resource Modelling – Section 6156250N

14.4.3 Estimation Domains – Central Zone

The domains used in the resource estimation have been created using the lithology and alteration shapes to guide in directions of mineralization and creation of a gradeshell at 0.1% Cu and another gradeshell at 0.1g/t Au. These gradeshlells have been created using MineSight's Implicit Modelling routine. They have then been modified to remove areas within the encompassing solid which are below the cutoff grade and of significant volume to be considered potentially removable both from an open pit mining and an underground mining perspective. Figures 14-3 and 14-4 illustrated 3d views of the gradeshells for Cu and Au respectively.

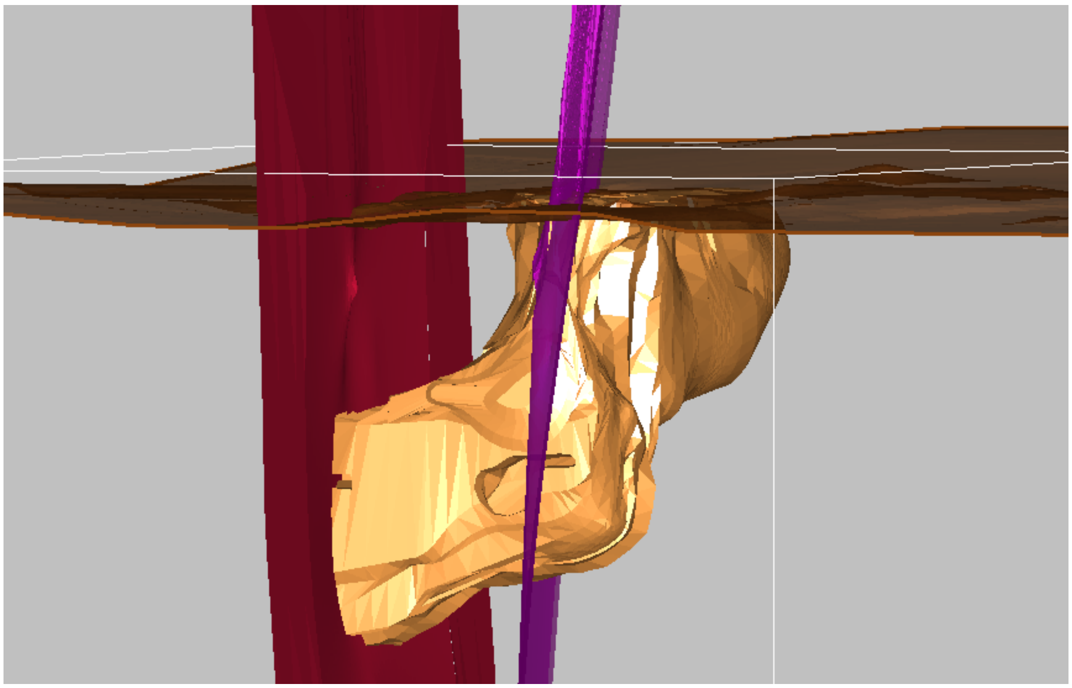


Figure 14-3: Copper Grade Shell at Cu=0.1% (golden) with the Pinchi Fault (red), Central Fault (magenta and Bottom of Overburden (brown) - 3D View Looking North East

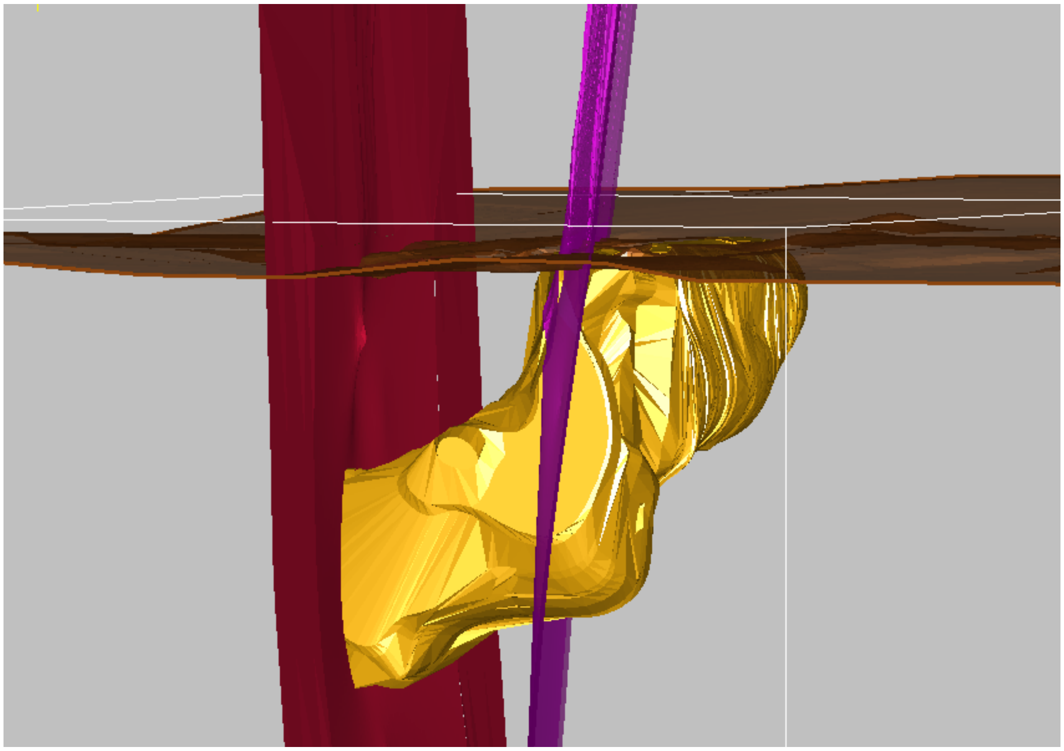
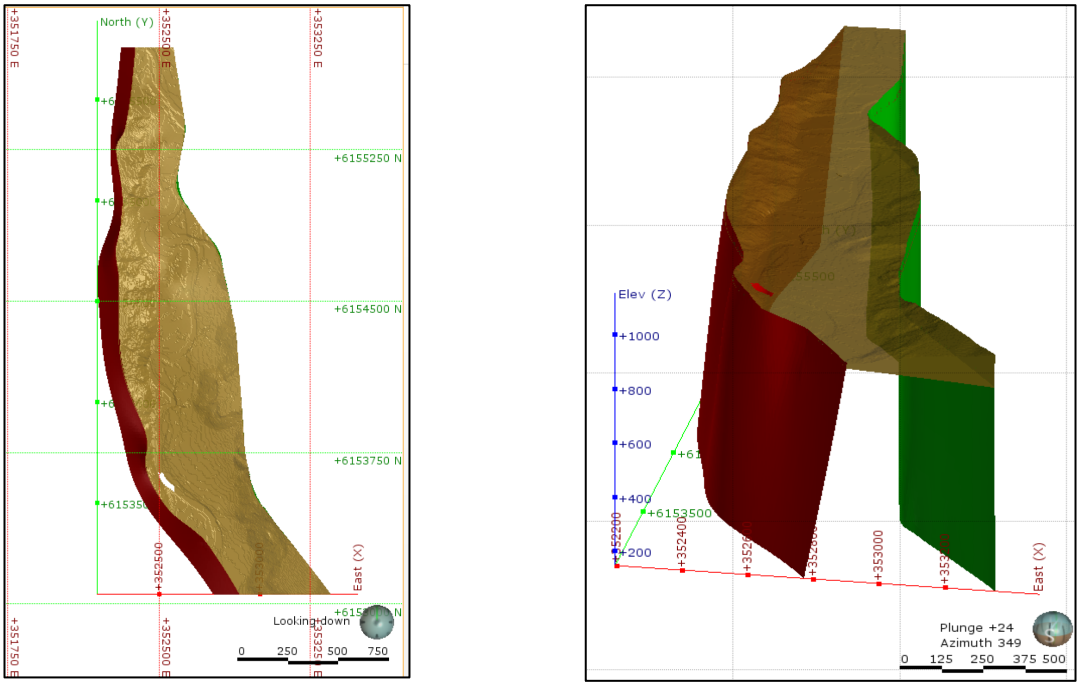


Figure 14-4: Gold Grade Shells at Au=0.1gpt (golden) with the Pinchi Fault (red), Central Fault (magenta) and Bottom of Overburden (brown) - 3D View Looking North East

14.4.4 South Zone Geologic Model

The South Zone contains a mix of dominantly monzonite and monzodiorite lithologies which are approximately bound by the West Fault. The grade appears to be structurally controlled and not bound by lithology or alteration. There is no clear correlation between grade and alteration, fracturing, or veining. The control of mineralization is not well understood in the South Zone.

The faults and the overburden were modeled for the South Zone. The West Fault was modelled as dipping steeply to the west based on logged fault interceptions. The East Fault was modelled from geophysical interpretation and drilling from outside the modelled area.

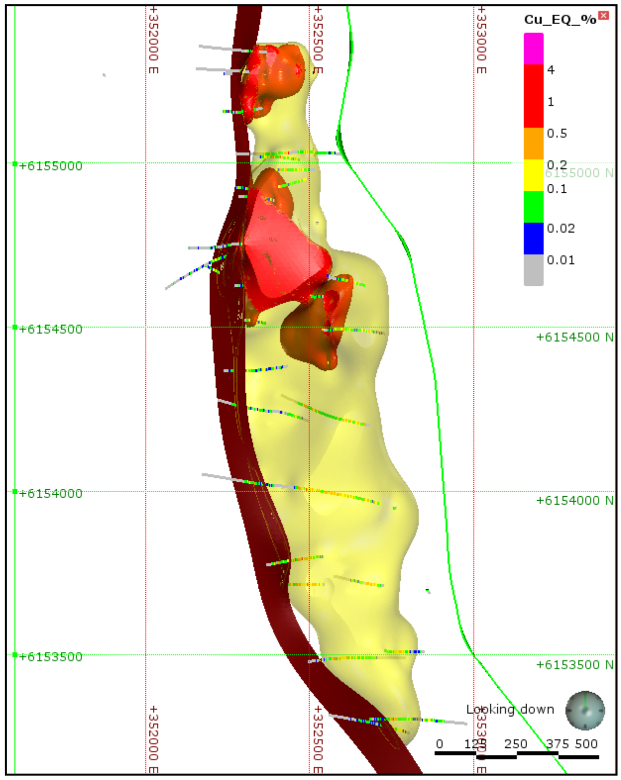


(Source: SRK 2016)

Figure 14-5: South Zone: West Fault (red) and East Fault (green) with overburden (brown) / Plan view looking down and 3D view looking northwest

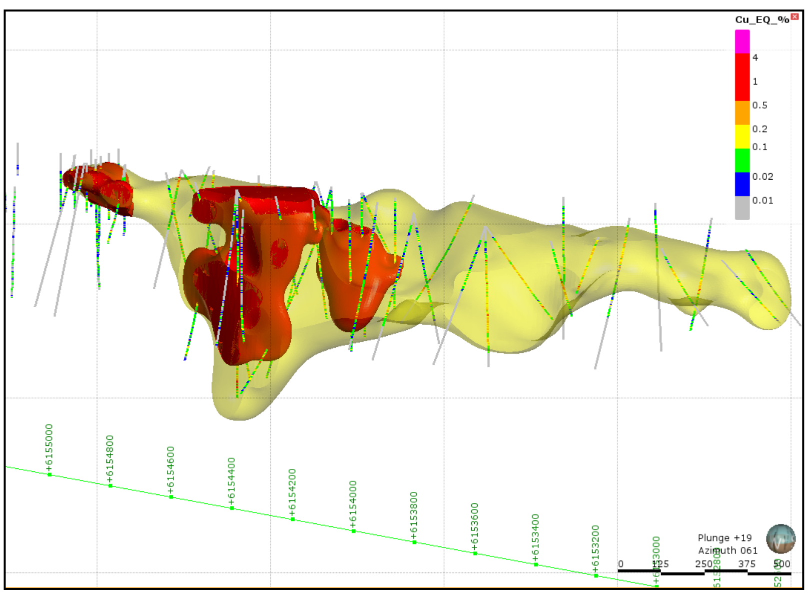
14.4.5 Estimation Domains – South Zone

The South Zone mineralization is not well understood but tends to follow the eastern side of the West Fault. Two grade shell models were designed in Leapfrog Geo™ 3.1.1. The grade shells were modeled at different copper equivalent grades. The copper equivalent is based on $1,130/oz gold and $2.77/lb copper. Silver and molybdenum are not significant portions of the deposit and were excluded from the design of the shells. The models represent a high grade domain of 0.2% CuEq and a low grade shell at 0.07% CuEq. The models incorporate internal dilution and are based on 5m composites. The high grade domain was influenced with a structural trend following the West Fault with an area of flattening in the north end of the deposit. This structural trend was based on a simplified surface which followed the West Fault. The shells were based on indicator interpolants using 5m composites. The final shells were modeled by selecting drillhole assay intervals on section for a continuous solid which enveloped the target grade. They were modeled as geological solids in leapfrog and clipped against each other so the higher grade solids would not extend beyond the lower grade shell. The grade shells were clipped to the overburden and the West Fault. The final clipped grade shells were used as estimation domains. Figure 14-6 and Figure 14-7 show the final estimation domain solids for the South Zone.



(Source: SRK 2016)

Figure 14-6: South Zone Estimation Domains between the West Fault (dark red) and the East Fault (green). CuEq shells 0.07% CuEq (yellow) and 0.2% CuEq (red) / Plan view looking down



(Source: SRK 2016)

Figure 14-7: South Zone Estimation Domains, CuEq 0.07% CuEq (yellow) and 0.2% (red). 3D view looking northeast.

14.5 Central Zone Modelling

14.5.1 Database and Assumptions of the Resource Estimate – Central Zone

The database for the Central Zone at Kwanika resource estimate consists of 143 diamond drill holes with a total of 65,695m of drilling and 24,761 sample intervals. Figure 14-8 illustrates a plan view of all the Central Zone drillholes, with the block model boundary in purple.

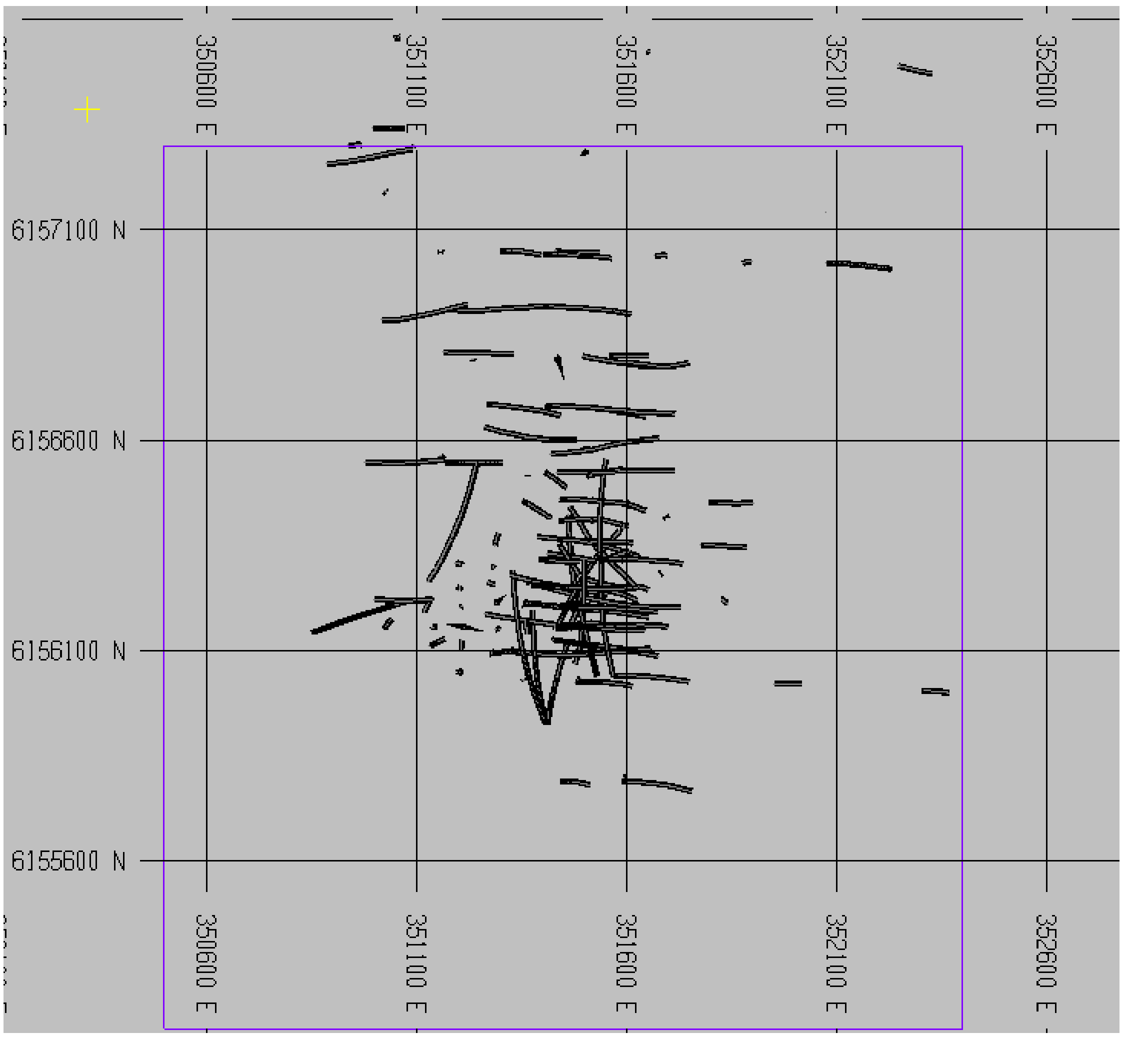


Figure 14-8: Plan View of Drillholes within the Model – Central Zone

14.5.2 Assay Statistics, Capping and Compositing – Central Zone

Capping of high grade outliers has been done prior to compositing of the Central Zone assay data. Cumulative Probability Plots (CPPs) have been used to determine that the grade distribution is generally lognormal within the grades defined by the gradeshell cutoff, as indicated by the linearity of the CPP plot on a log-log scale. The deviation from the linearity at high grades is used to help determine an appropriate value for capping of the assays. Assay values above the capped value are given the capped grade as summarized in Table 14-5. The CPPs used to determine the capping values are illustrated in Figure 14-9 through 14-11 for Cu, Au, and Ag respectively.

Table 14-5: Capping - Central Zone

DOMAIN	DESCRIPTION	Cu (%)	Au (g/t)	Ag (g/t)
		Cap	Cap	Cap
1 thru 5	Beneath Sed. Basin	6	7	35
6	East of Central	4	6	35
7	Outside Mineralized domains	na	na	na

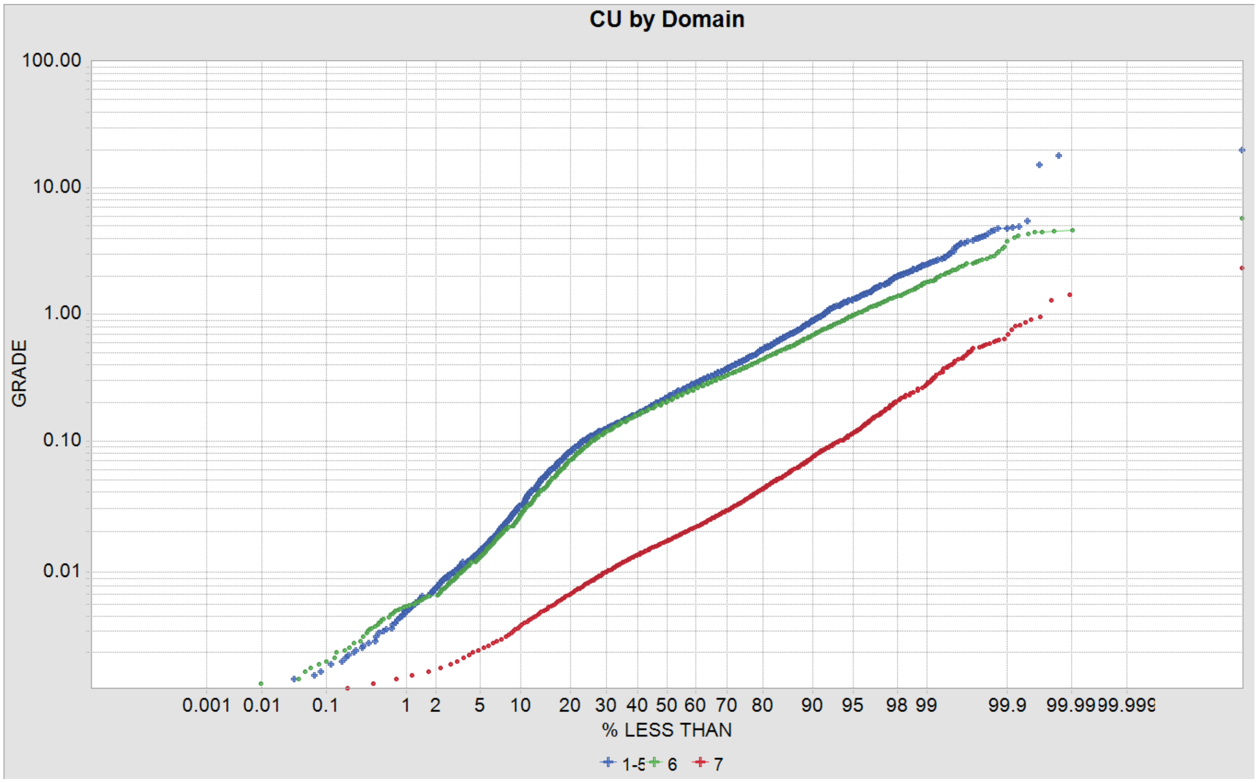


Figure 14-9: CPP of the Cu Grade Distribution by Domain

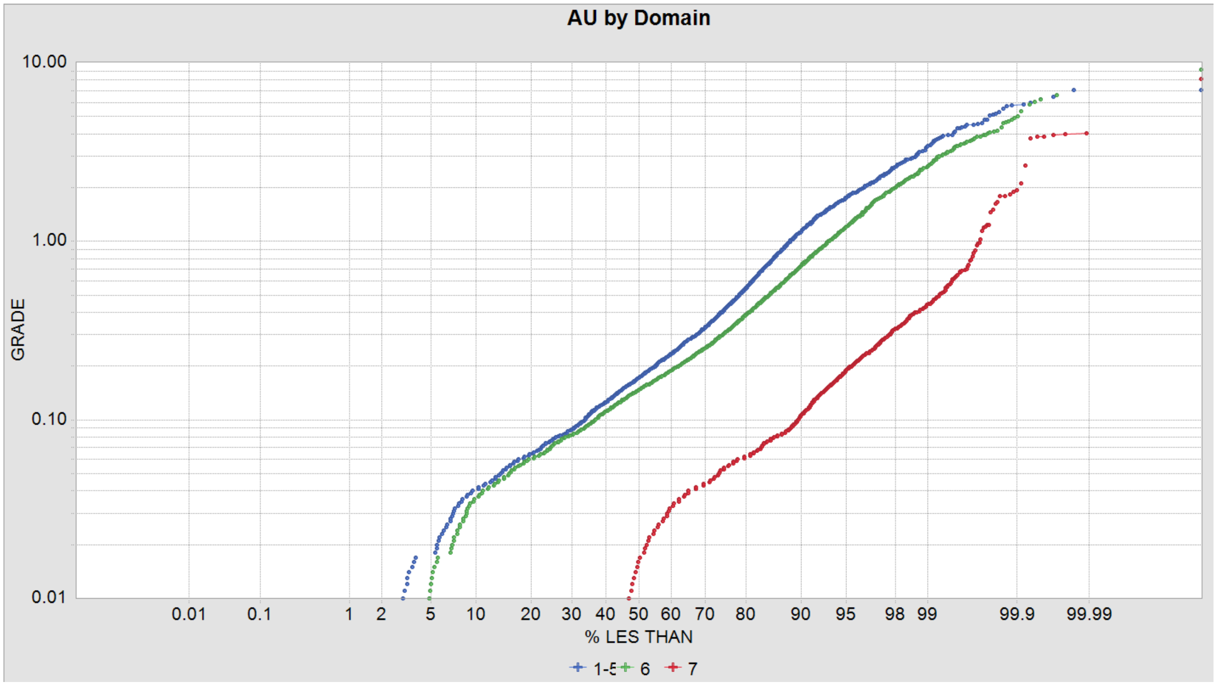


Figure 14-10: CPP of the Au Grade Distribution by Domain

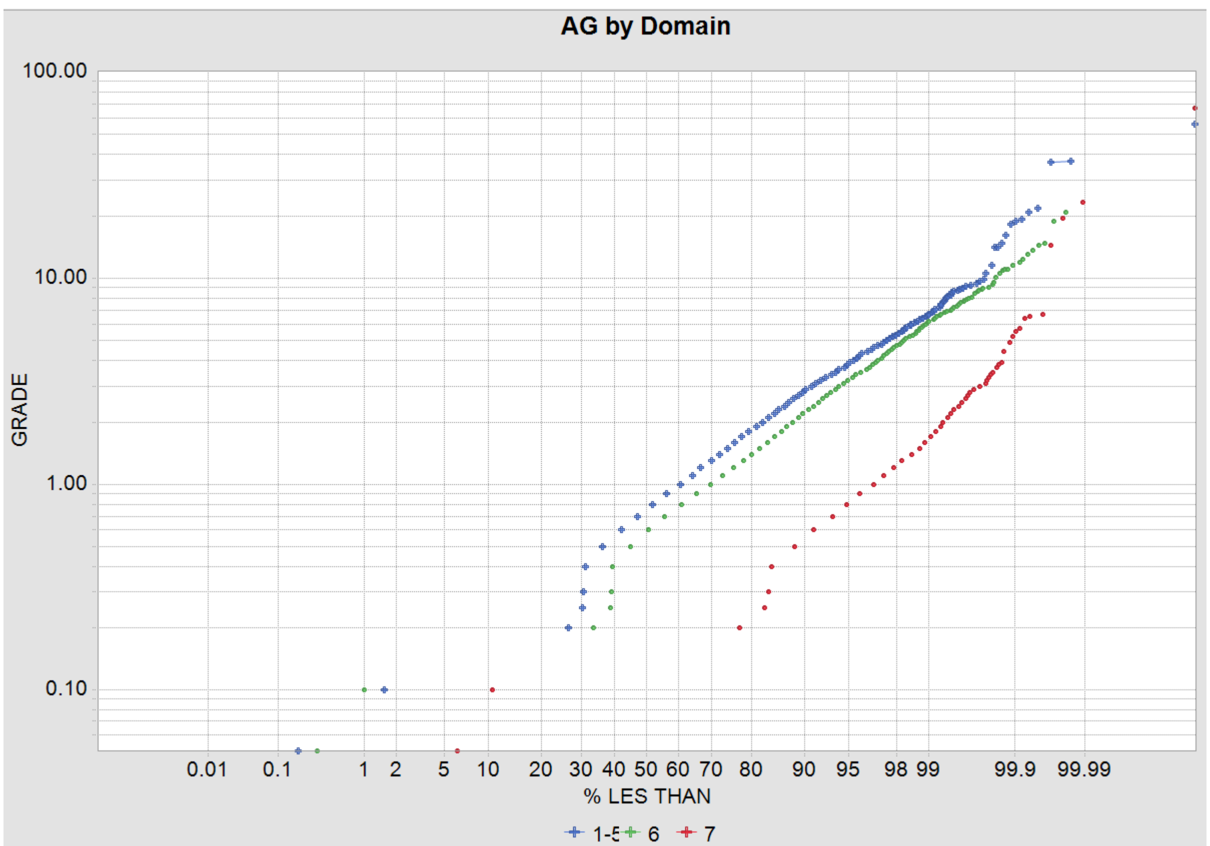


Figure 14-11: CPP of the Ag Grade Distribution by Domain

Compositing has been done on 5m fixed lengths, honoring the domain boundaries. Therefore, there is a separate composite file for the Cu interpolations, and the Au-Ag interpolations. To ensure compositing was correctly conducted, the length weighted mean grades were compared between the composites and original assay data. The Table below summarizes the composite statistics and compares the grade values between composites and assays for all grade items and domains, illustrating that the weighed mean grades are the same for assays and composites in each case.

Table 14-6: Summary of Assay and Composite Statistics by Domain

Source	Parameter	Grade Item and Domain(s)								
		CU-1-5	CU-6	CU-7	AU-1-5	AU-6	AU-7	AG-1-5	AG-6	AG-7
Assays	Num Samples	6088	10304	9255	6207	10975	8315	6207	1097 5	8466
	Wtd. Mean Grade	0.3683	0.2963	0.0313	0.4088	0.2884	0.0364	1.187	0.918	0.326
	Weighted SD	0.4977	0.3483	0.0579	0.6717	0.4964	0.0884	1.672	1.31	0.57
	Weighted CV	1.3516	1.1755	1.8484	1.643	1.7211	2.4305	1.409	1.428	1.745
Composite s	Num Samples	2056	3435	3455	2089	3667	3116	2089	3667	3198
	Wtd. Mean Grade	0.3682	0.2963	0.0313	0.4088	0.2884	0.0364	1.19	0.92	0.33
	Weighted SD	0.4345	0.3057	0.049	0.5978	0.4318	0.0584	1.34	1.15	0.45
	Weighted CV	1.1799	1.0318	1.5646	1.4621	1.497	1.6054	1.13	1.25	1.37
Difference (%)		0.0%	0%	0%	0%	0%	0%	0%	0%	1%

14.5.3 Variography – Central Zone

Correlograms have been used to determine appropriate search distances and the anisotropy of the grade distributions. In all cases correlograms have been used and spherical models were fit to the experimental data. The variogram parameters for the Cu, Au and Ag models within each domain are summarized in the Tables 14-7 through 14-9 for Cu, Au and Ag respectively. An example of the correlograms for the major and minor axes of Cu in domains 1 through 5 (west of the Central Fault) is provided in Figure 14-12.

Table 14-7: Central Zone Variogram Parameters - Cu

Domain	Description	Rotation (GSLIB-MS)		Axis	Total Range (m)	Nugget	Sill1	Sill2	Sill3	Range 1 (m)	Range 2 (m)	Range 3 (m)
1	**WEST OF CENTRAL FAULT within GRADESHELLS**	ROT	270	**Major**	530	0.2	0.4	0.4		50	530	
		DIPN	-10	**Minor**	150					50	150	
		DIPE	30	**Vert**	150					40	150	
2		ROT	270	**Major**	530	0.2	0.4	0.4		50	530	
		DIPN	-25	**Minor**	150					50	150	
		DIPE	30	**Vert**	150					40	150	
3		ROT	270	**Major**	530	0.2	0.4	0.4		50	530	
		DIPN	-40	**Minor**	150					50	150	
		DIPE	30	**Vert**	150					40	150	
4		ROT	270	**Major**	530	0.2	0.4	0.4		50	530	
		DIPN	-50	**Minor**	150					50	150	
		DIPE	30	**Vert**	150					40	150	
5		ROT	270	**Major**	530	0.2	0.4	0.4		50	530	
		DIPN	-75	**Minor**	150					50	150	
		DIPE	30	**Vert**	150					40	150	
6	**EAST OF CENTRAL within GRADESHELLS**	ROT	170	**Major**	540	0.2	0.3	0.4	0.1	40	400	540
		DIPN	-60	**Minor**	550					80	240	550
		DIPE	-60	**Vert**	200					50	120	200
7	**OUTSIDE GRADESHELLS**	ROT	170	**Major**	540	0.2	0.4	0.4	0.1	40	400	540
		DIPN	-60	**Minor**	550					80	240	550
		DIPE	-60	**Vert**	200					50	120	200

Table 14-8: Central Zone Variogram Parameters - Au

Domain	Description	Rotation (GSLIB-MS)		Axis	Total Range (m)	Nugget	Sill1	Sill2	Sill3	Range 1 (m)	Range 2 (m)	Range 3 (m)
1	WEST OF CENTRAL FAULT within GRADESHELLS	ROT	300	Major	330	0.2	0.55	0.25		70	330	
		DIPN	-40	Minor	200					25	200	
		DIPE	-30	Vert	100					50	100	
2		ROT	300	Major	330	0.2	0.55	0.25		70	330	
		DIPN	-40	Minor	200					25	200	
		DIPE	-30	Vert	100					50	100	
3		ROT	300	Major	330	0.2	0.55	0.25		70	330	
		DIPN	-40	Minor	200					25	200	
		DIPE	-30	Vert	100					50	100	
4		ROT	300	Major	330	0.2	0.55	0.25		70	330	
		DIPN	-50	Minor	200					25	200	
		DIPE	-30	Vert	100					50	100	
5		ROT	300	Major	330	0.2	0.55	0.25		70	330	
		DIPN	-75	Minor	200					25	200	
		DIPE	-30	Vert	100					50	100	
6	EAST OF CENTRAL within GRADESHELLS	ROT	170	Major	400	0.2	0.45	0.35		65	400	
		DIPN	-75	Minor	280					60	280	
		DIPE	55	Vert	100					50	100	
7	OUTSIDE GRADESHELLS	ROT	170	Major	400	0.2	0.45	0.35		65	400	
		DIPN	-75	Minor	280					60	280	
		DIPE	55	Vert	100					50	100	

Table 14-9: Central Zone Variogram Parameters - Ag

Description	Rotation (GSLIB-MS)		Axis	Total Range (m)	Nugget	Sill1	Sill2	Sill3	Range 1 (m)	Range 2 (m)	Range 3 (m)
WEST OF CENTRAL FAULT within GRADESHELLS	ROT	300	**Major**	250	0.3	0.4	0.3		40	250	
	DIPN	-40	**Minor**	180					70	180	
	DIPE	-30	**Vert**	120					60	120	
	ROT	300	**Major**	330	0.3	0.4	0.3		40	250	
	DIPN	-40	**Minor**	180					70	180	
	DIPE	-30	**Vert**	120					60	120	
	ROT	300	**Major**	330	0.3	0.4	0.3		40	250	
	DIPN	-40	**Minor**	180					70	180	
	DIPE	-30	**Vert**	120					60	120	
	ROT	300	**Major**	330	0.3	0.4	0.3		40	250	
	DIPN	-50	**Minor**	180					70	180	
	DIPE	-30	**Vert**	120					60	120	
	ROT	300	**Major**	330	0.3	0.4	0.3		40	250	
	DIPN	-75	**Minor**	180					70	180	
	DIPE	-30	**Vert**	120					60	120	
EAST OF CENTRAL within GRADESHELLS	ROT	170	**Major**	360	0.3	0.3	0.4		80	360	
	DIPN	-75	**Minor**	300					60	300	
	DIPE	55	**Vert**	100					30	100	
OUTSIDE GRADESHELLS	ROT	170	**Major**	360	0.3	0.3	0.4		80	360	
	DIPN	-75	**Minor**	300					60	300	
	DIPE	55	**Vert**	100					30	100	

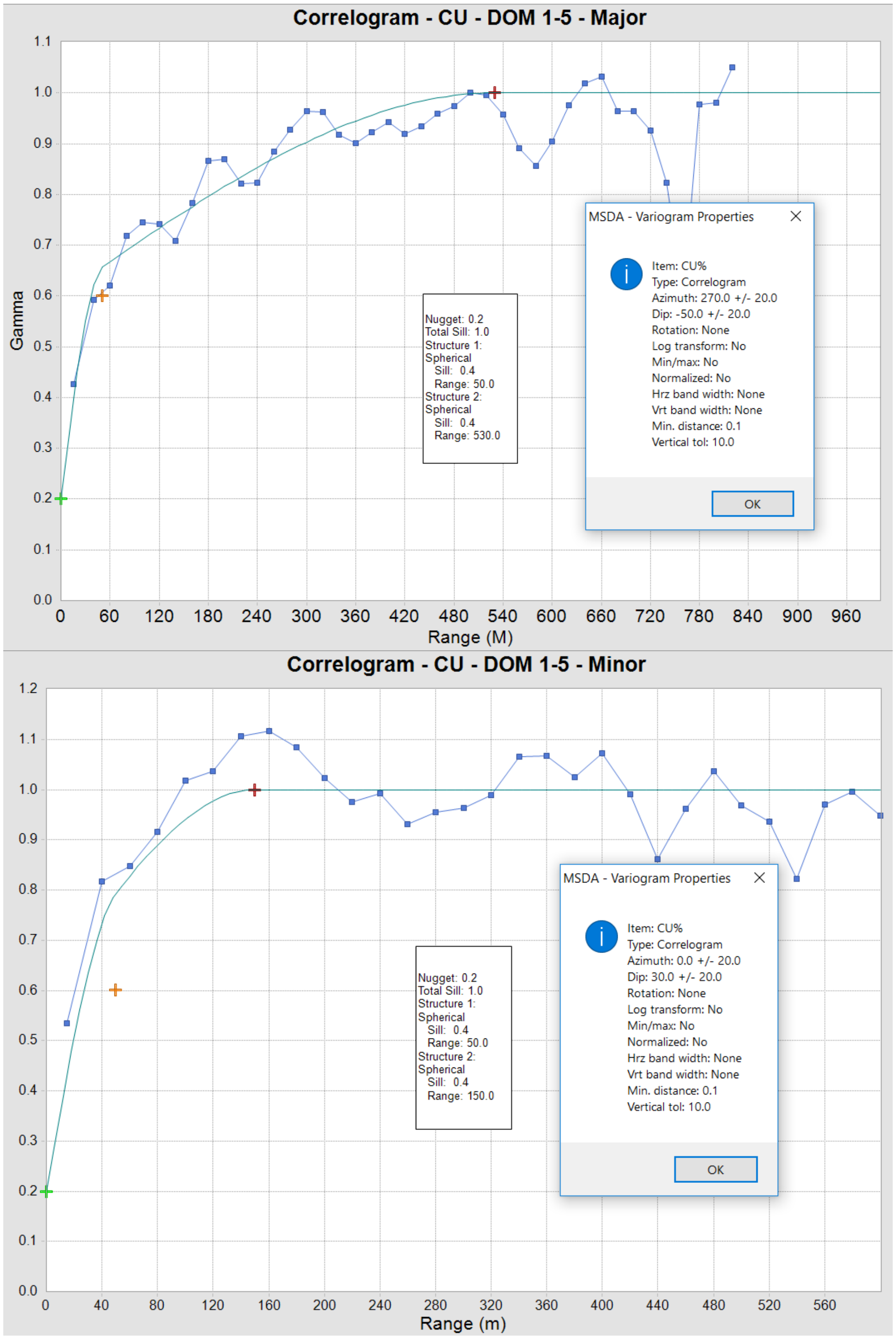


Figure 14-12: Variography for Cu – Domains 1-5 – Major and Minor Axes

14.5.4 Block Model – Central Zone

The Central Kwanika block model extents are summarized in the Table below. The block model is considered a multiple percent block model allowing up to two domains and their corresponding percentage within each block. The final block grade is a weighted average of the grades for each domain within the block.

Table 14-10: Kwanika Central Block Model Extents

DIRECTION	MINIMUM	MAXIMUM	BLOCK SIZE	# BLOCKS
EASTING	350500	352400	10	190
NORTHING	6155200	6157300	10	210
ELEVATION	0	1050	10	105

14.5.5 Interpolation Parameters – Central Zone

Interpolation has been done using Ordinary Kriging (OK) to estimate the grades of Cu and Au within the mineralized domains. The interpolation is completed in 4 passes with each pass at a greater distance to ensure that well informed blocks use only adjacent data. Search parameters are based on the variography and are summarized in Tables 14-11 through 14-13 for Cu, Au and Ag respectively. The sample selection criteria varied by pass as well, with the parameters used summarized in Table 14-14.

Table 14-11: Summary of Search Distances and Anisotropy - Cu

Domain	Rot	Dist1 (m)	Dist2 (m)	Dist3 (m)	Dist4 (m)
	270	50	212	477	636
1	-10	37.5	60	135	180
	30	37.5	60	135	180
	270	50	212	477	636
2	-25	37.5	60	135	180
	30	37.5	60	135	180
	270	50	212	477	636
3	-40	37.5	60	135	180
	30	37.5	60	135	180
	270	50	212	477	636
4	-50	37.5	60	135	180
	30	37.5	60	135	180
	270	50	212	477	636
5	-75	37.5	60	135	180
	30	37.5	60	135	180
	170	40	216	486	648
6	-60	80	220	360	660
	-60	50	80	180	240
	170	40	216	486	648
7	-60	80	220	360	660
	-60	50	80	180	240

Table 14-12: Summary of Search Distances and Anisotropy – Au

Domain	Rot	Dist1 (m)	Dist2 (m)	Dist3 (m)	Dist4 (m)
1	270 -40 -30	70 25 25	132 80 40	297 180 90	636 180 180
2	300 -40 -30	70 25 25	132 80 40	297 180 90	636 180 180
3	300 -40 -30	70 25 25	132 80 40	297 180 90	636 180 180
4	300 -50 -30	70 25 25	132 80 40	297 180 90	636 180 180
5	300 -75 -30	70 25 25	132 80 40	297 180 90	636 180 180
6	170 -75 55	65 60 25	160 112 40	360 252 90	648 660 240
7	170 -75 55	65 60 25	160 112 40	360 252 90	648 660 240

Table 14-13: Summary of Search Distances and Anisotropy - Ag

Domain	Rot	Dist1 (m)	Dist2 (m)	Dist3 (m)	Dist4 (m)
1	270 -40 -30	40 45 30	100 72 48	225 162 108	636 180 180
2	300 -40 -30	40 45 30	132 72 48	297 162 108	636 180 180
3	300 -40 -30	40 45 30	132 72 48	297 162 108	636 180 180
4	300 -50 -30	40 45 30	132 72 48	297 162 108	636 180 180
5	300 -75 -30	40 45 30	132 72 48	297 162 108	636 180 180
6	170 -75 55	80 60 25	144 120 40	324 270 90	648 660 240
7	170 -75 55	80 60 25	144 120 40	324 270 90	648 660 240

Table 14-14: Sample Selection Criteria for Cu, Au, and Ag Interpolations

Search Parameters		Search Pass			
		Pass 1	Pass 2	Pass 3	Pass 4
Sample Selection Criteria	Min. # Comps	4	4	4	4
	Max. # Comps	8	6	8	8
	Max. # Comps/DH	2	2	2	2
	Quadrant Restriction Type	Split Quadrant	Quadrant	Split Quadrant	None
	Max. # / Quadrant	2	2	2	na

14.5.6 Classification – Central Zone

Classification of the resource is according to the definitions in National Instrument 43-101 (CIM, 2014). Classification distances and samples have been calculated for both the Cu and Au domains, with final values used if either matched the criteria below.

Table 14-15: Classification Parameters – Central Zone

Class	Criteria	Qualifier	Criteria
Measured	Avg. Distance to the closest 2 drillholes < = 40m	and	South of 615640N
Indicated	Avg. Distance to the closest 2 drillholes < = 150m	or	closest hole <=10m and Number of Drillholes >2
Inferred	all other interpolated blocks	and	and all blocks below 420m elevation

14.5.7 Specific Gravity – Central Zone

The specific gravity is based on 555 samples in the mineralized domains and 750 samples in the non-mineralized domains. The values used are summarized in the Table below.

Table 14-16: Specific Gravity Values – Central Zone

Domains	sg
Mineralized Domains	2.74
Un-mineralized Domains	2.71
Overburden	2.20

14.5.8 Block Model Validation – Central Zone

Block model validation has been completed by a review and comparison of the mean grades for both the inverse distance cubed (ID3) and the ordinary kriging (OK) interpolations in each domain, with those of the de-clustered composite data (Nearest Neighbour interpolation). Grade-tonnage curve comparisons are used to ensure that an appropriate amount of smoothing is applied to the model. The Grade-Tonnage curves compare the interpolated grades with the NN interpolation which has been corrected for the Volume-Variance effect by the Indirect Lognormal Correction (ILC) method. These grades are referred to in the G-T curves as CUNNC and AUNNC.

Further validation includes comparisons of swath plots and visual comparisons of the modelled grades with the original assay data in section and in plan.

Table 14-17 summarizes the comparison of grades by Domain for the Measured + Indicated material. This comparison shows good correlation with the data with differences in grades of less than 3%. This indicates no global bias of the modeled grades for the Central Zone.

Table 14-17: Comparison of OK interpolated Grades and de-clustered Composite (NN mean Grades)

PARAMETER	AUNN-1-6 (g/t)	AUK-1-6 (g/t)	CUNN-1-6 (%)	CUK-1-6 (%)
Num Samples	141,848	141,848	148,727	148,727
Num Missing Samples	0	0	0	0
Min	0.001	0.001	0	0
Max	5.425	3.908	9.163	3.292
Weighted mean	0.205	0.211	0.208	0.210
Weighted CV	1.370	1.061	1.083	0.849
DIFFERENCE (%)		**1-AUNN/AUK**		**1-CUNN/CUK**
WTD. MEAN		2.7%		1.0%
CV		-29.1%		-27.5%

Figures 14-13 and 14-14 below illustrated the Grade-Tonnage curve comparisons for Cu and Au respectively. These illustrate that the OK interpolation (CUK and AUK curves) have mean grades above a range of cutoffs that are just below the CUNNC and AUNNC, therefore indicating that an appropriate amount of smoothing, or internal dilution is within the model.

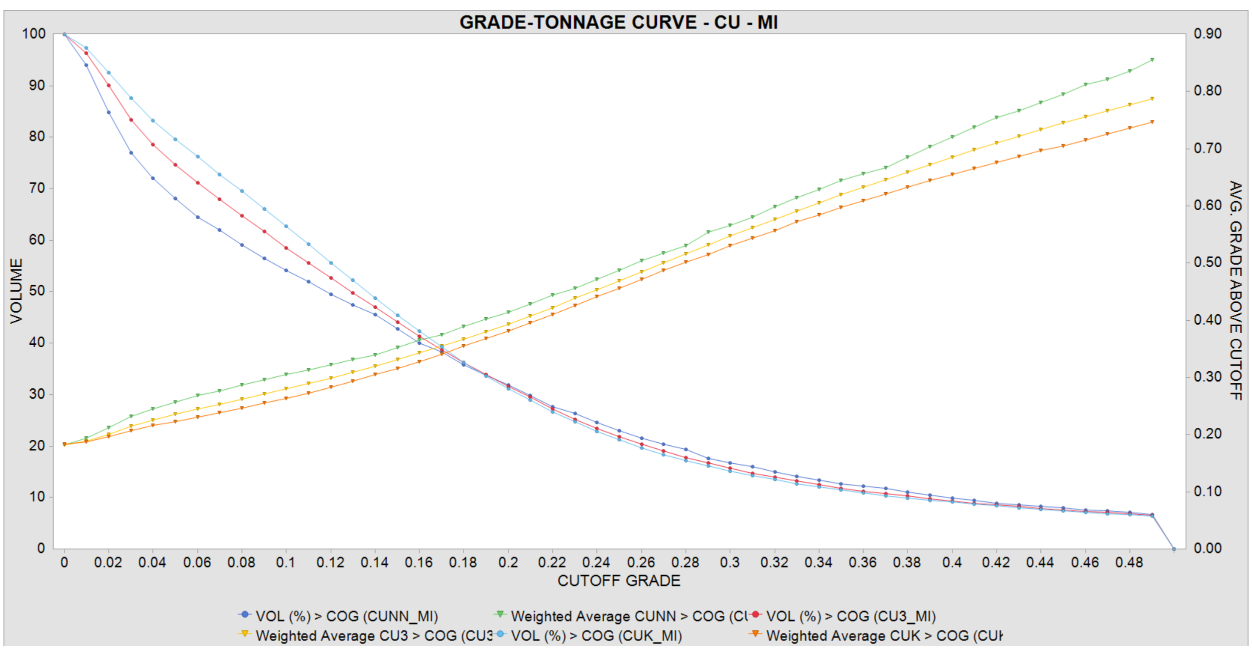


Figure 14-13: Grade-Tonnage Curve Comparisons for Cu

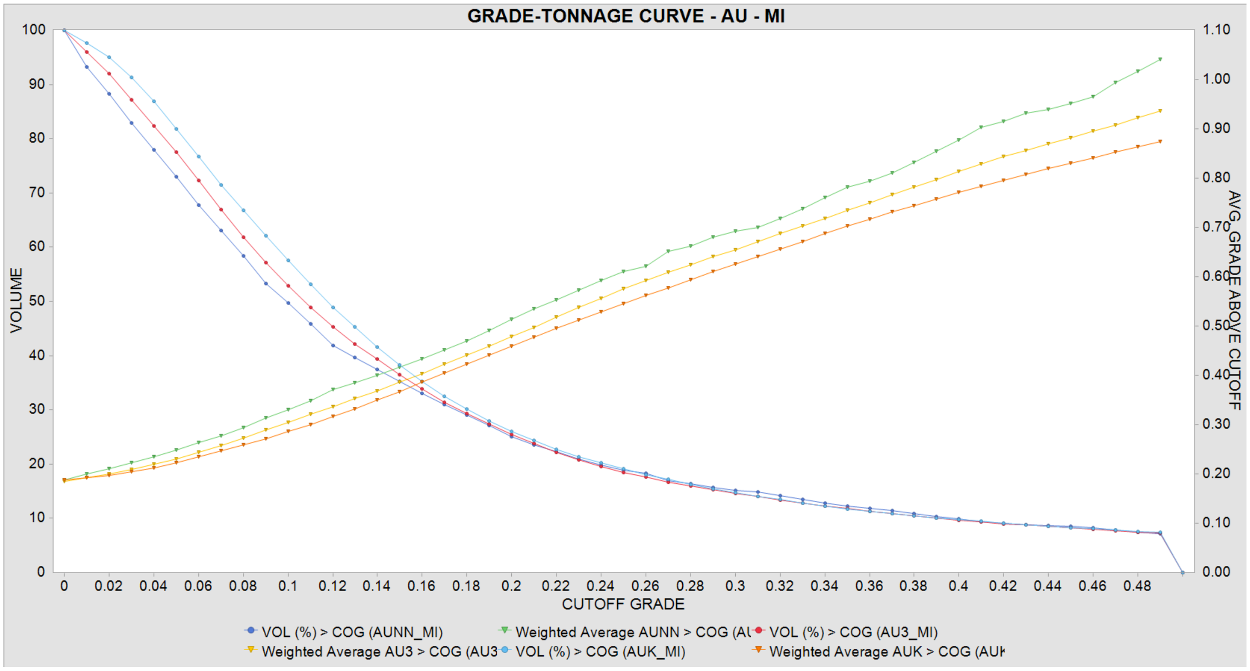


Figure 14-14: Grade-Tonnage Curve Comparisons for Au

Swath plots of each area for Cu and Au illustrate good correlation of the OK interpolated grades to the data (NN model). Figures 14-15 and 14-16 are swath plots for the Cu and Au respectively, in both the Northing and Easting directions. The plots shown are for Cu-OK (green), Cu-id3 (red) and Cu-NN (yellow) with all three showing similar grade trends across the deposit and no major deviations in mean grades.

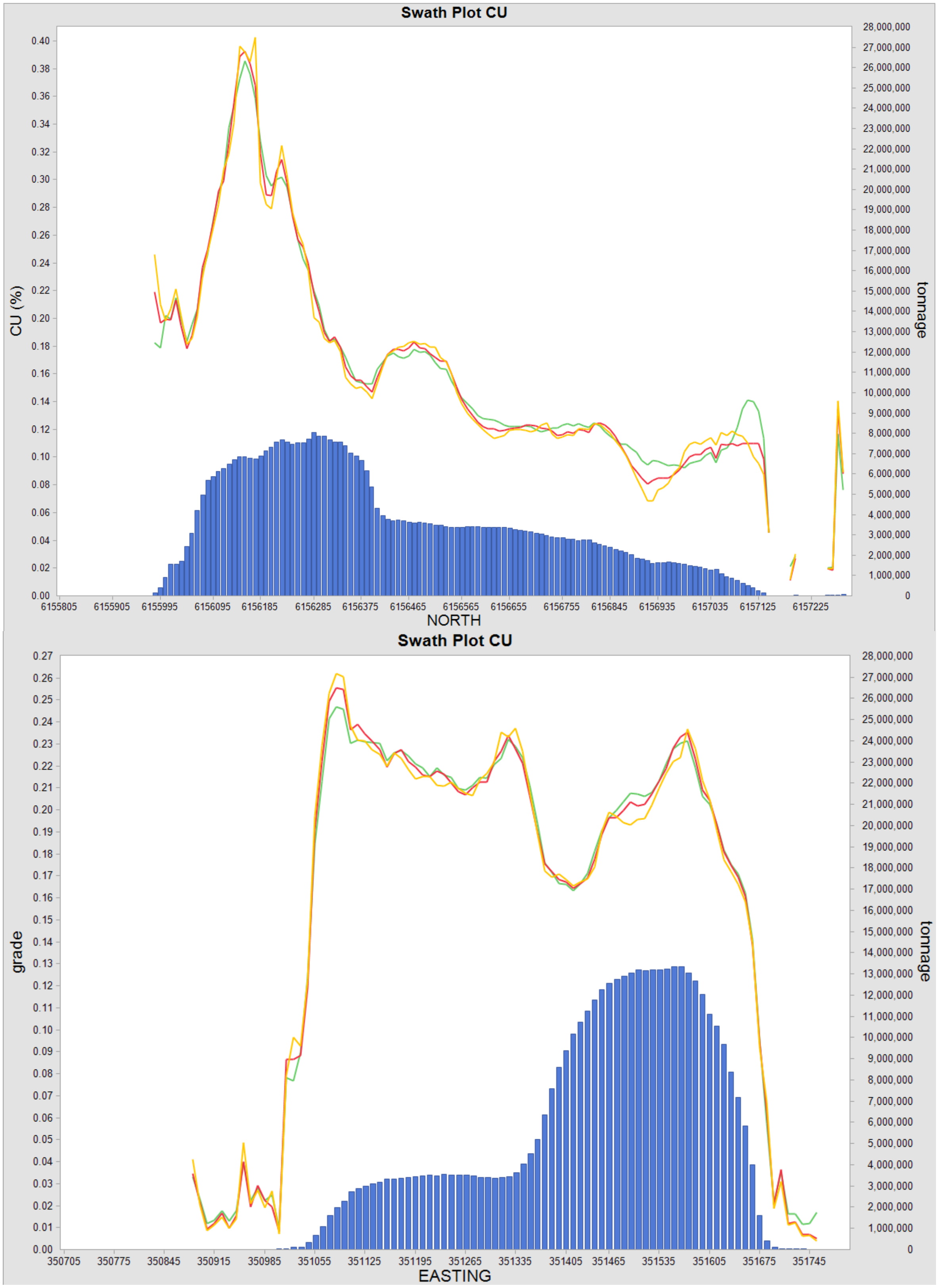


Figure 14-15: Swath Plots for Cu – MI Classification – Central Zone

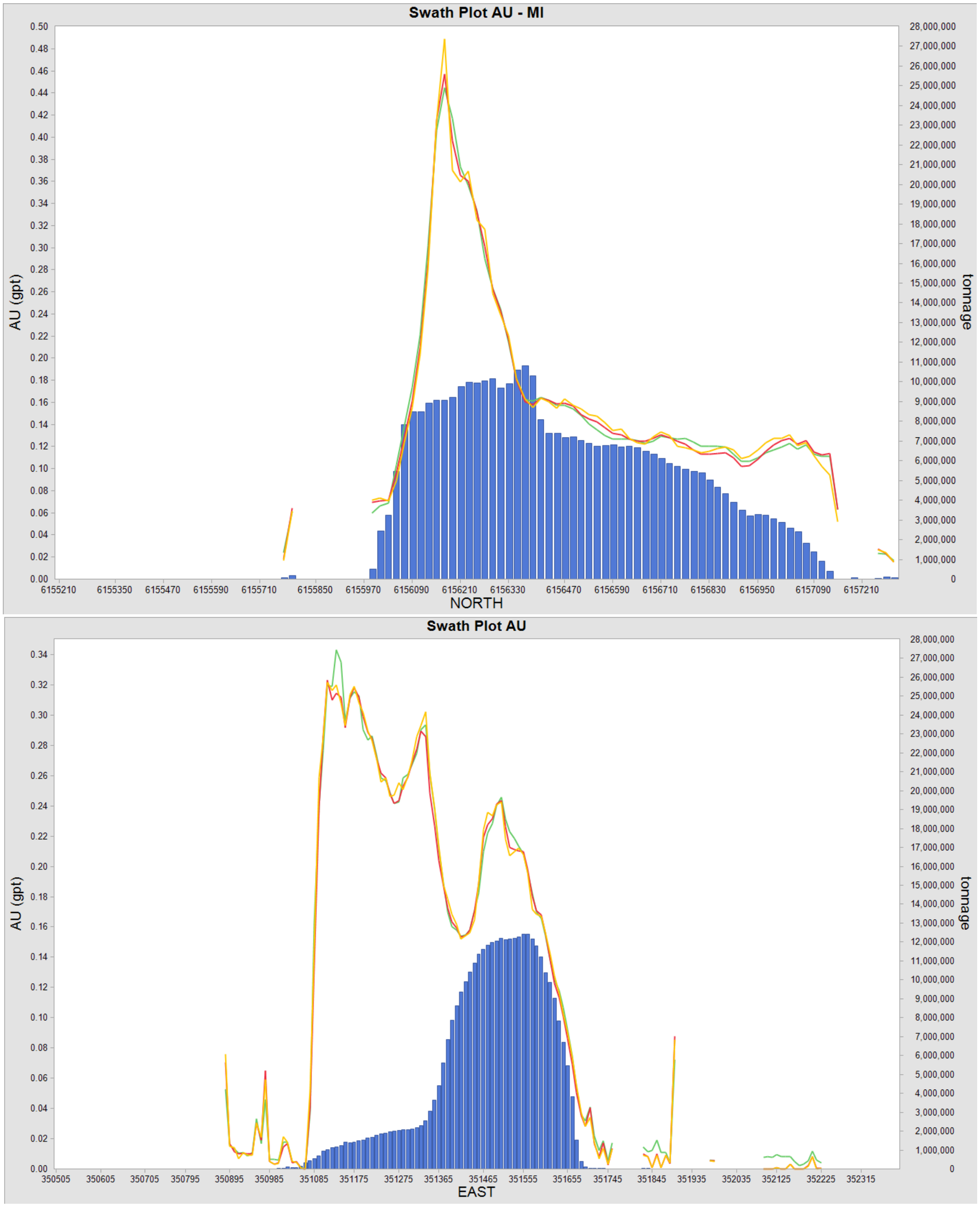


Figure 14-16: Swath Plots for Au – MI Classification – Central Zone

Visual validation is completed by comparing the OK modelled grades to the assay data in section and in plans. Figures 14-17 and 14-18 are example sections of the Central Zone comparing the block model grades to the assay grades. The sections also illustrate the Lerchs-Grossman open pit shape and the underground confining shape at 0.27% CuEq used to confine the resource, as discussed below.

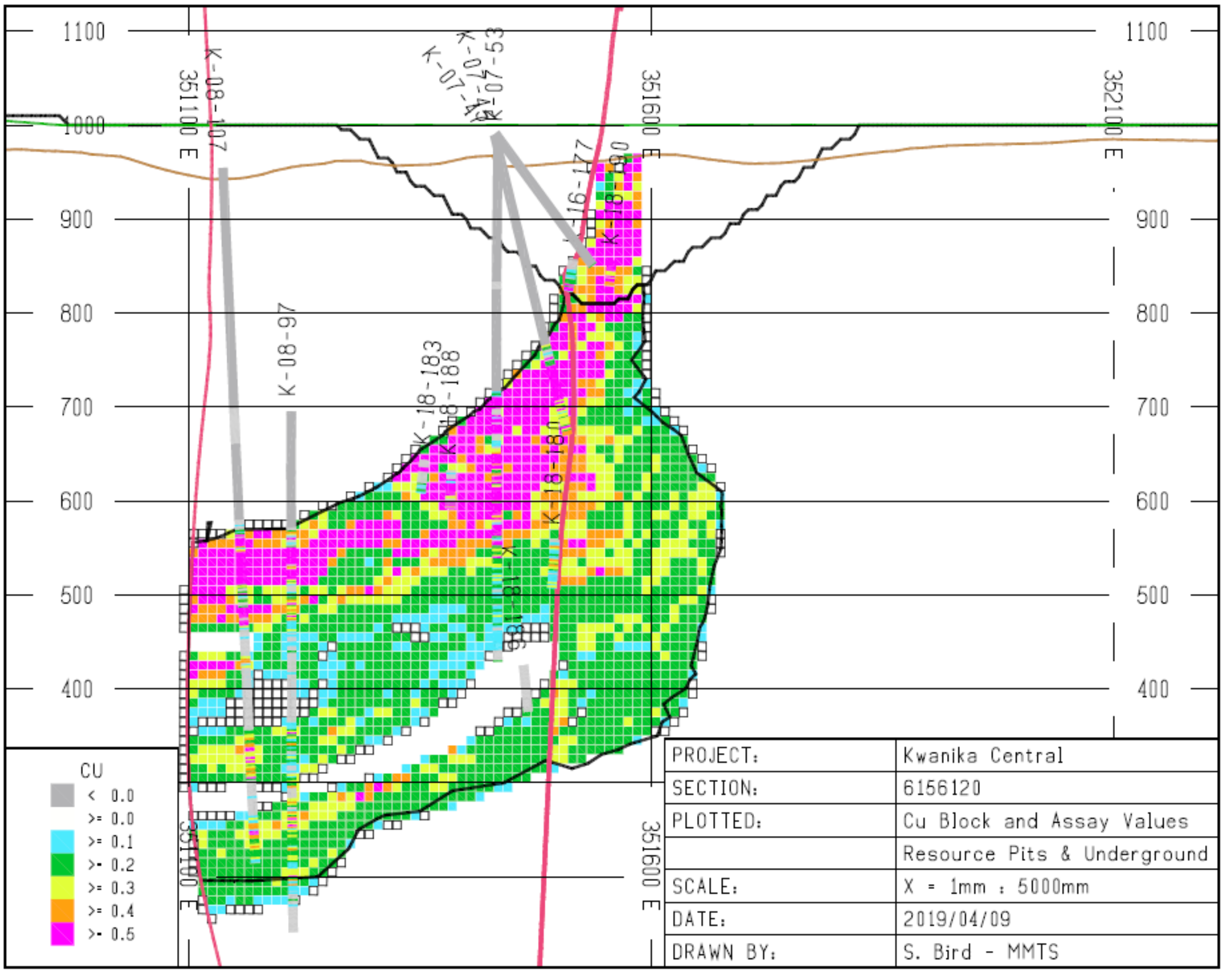


Figure 14-17: Section of Block Model and Assay Grades for Cu – 6156120 North

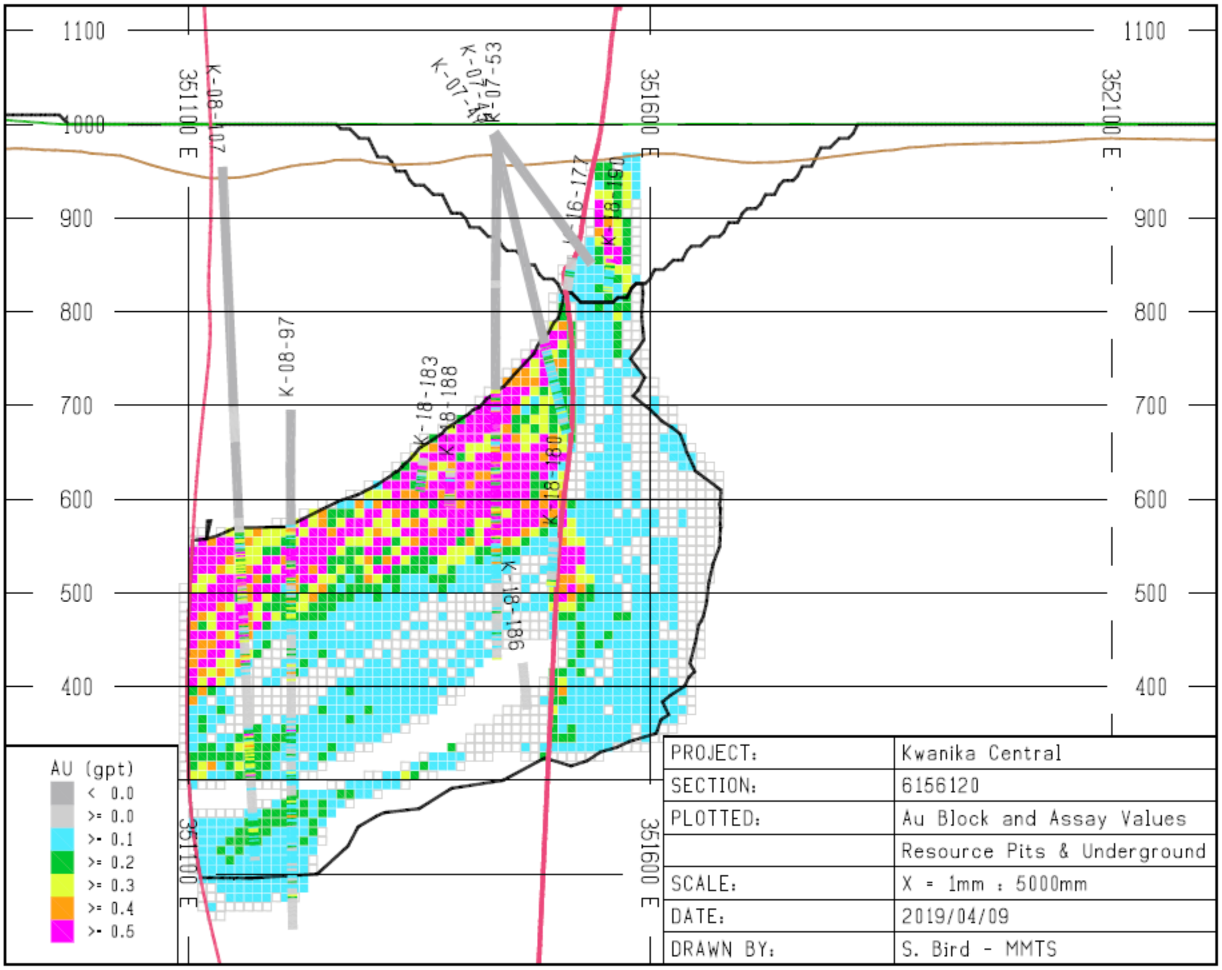


Figure 14-18: Section of Block Model and Assay Grades for Au – 6156120 North

14.5.9 Reasonable Prospects Pit and Underground Shapes

To determine the resource it is necessary to determine the volume with a "reasonable prospects for eventual economic extraction" (CIM, 2014) a Lerchs-Grossman pit has been used with some judgement on cave height to create a resource pit. The underground shape has been created as a continuous volume of rock with a cutoff above 0.27% CuEq. A separate confining shape was created at 0.4% CuEq to determine sensitivity of the underground resource to the cutoff grade. All material within each shape has been reported for the underground Resource Estimate.

The metal prices, Net Smelter Prices (NSPs), metallurgical recoveries, costs and other parameters used in the Lerchs-Grossman pit optimization are provided in the Table below. NSPs are calculated using the same smelter terms as had been done for the PEA (MMTS, 2017).

Table 14-18: Open Pit and Underground Parameters for Resource Estimation – Central Zone

Input for Pit Optimization	Cu	Au	Ag	Mo
Metal price (US dollars)	$3.25/lb	$1350/oz	$17/oz	NA
Net Smelter Prices (Canadian dollars)	$3.714/lb	$52.109/oz	$0.604/oz	NA
Metallurgical Recoveries	91%	75%	75%	NA
Exchange Rate $US:$CAD	0.77			
Open pit mining cost - Plant feed and Waste (Canadian dollars)	$2/t mined			
Incremental Mining Cost / bench (Canadian dollars)	$0.05/t mined			
Underground Mining Cost (Canadian dollars)	$17/t mined			
G&A costs, Processing, Water treatment and Tailings Placement (Canadian dollars)	$11.30/t milled			
Overall Slope Angle (degrees)	45			

The reader is cautioned that the results from the pit optimization are used solely for testing the "reasonable prospects for eventual economic extraction" by an open pit and do not represent an attempt to estimate mineral reserves.

The Figure below illustrates the resource pit and underground shape used to for the base case "reasonable prospects of eventual economic extraction" and confines the Central Zone resource.

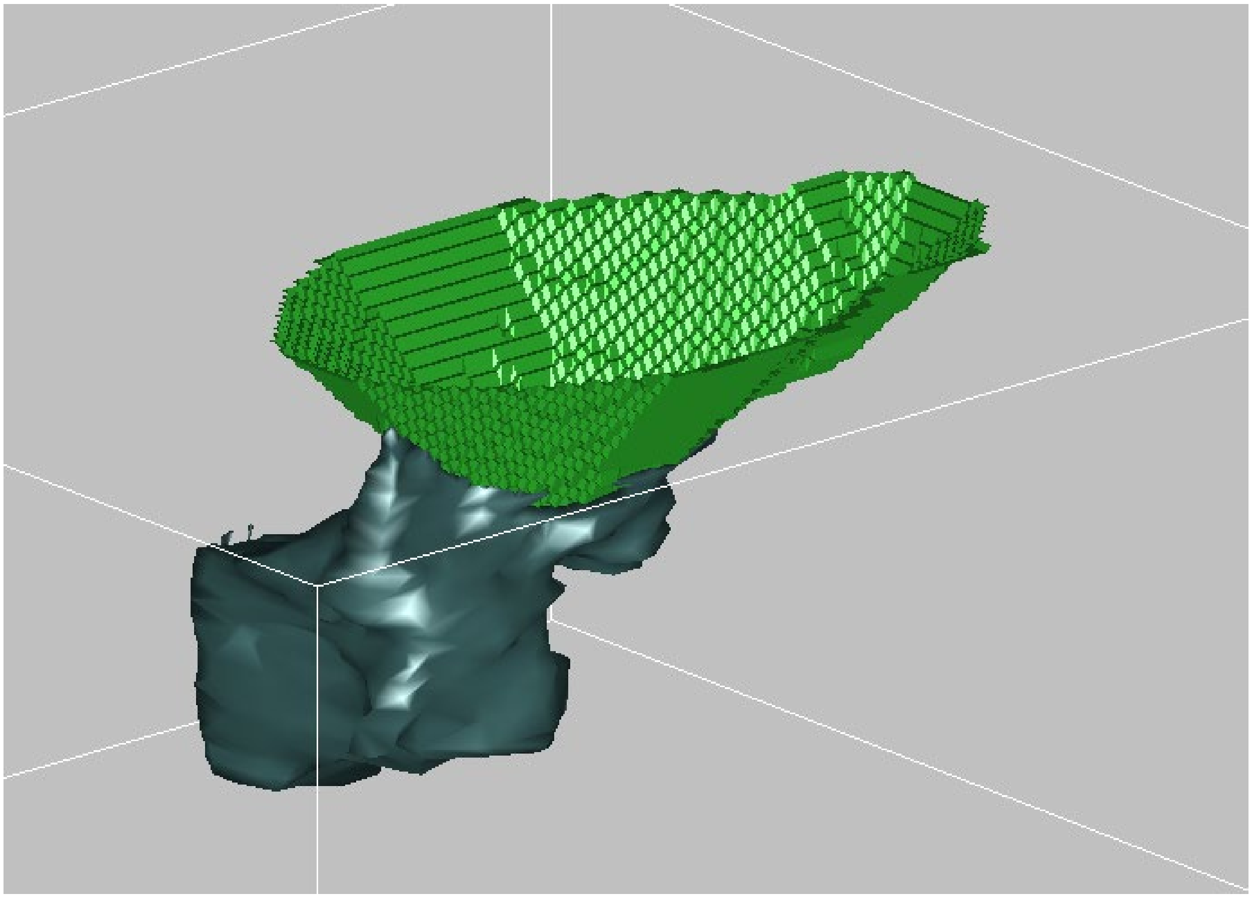


Figure 14-19: 3D view looking N310E of the Resource Pit and Underground Shape

14.6 South Zone Modelling

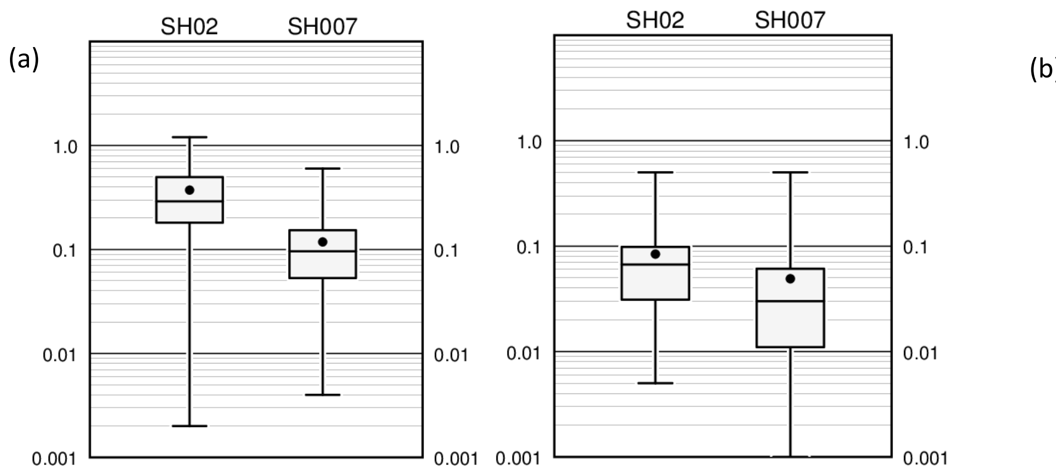
14.6.1 Assays and Compositing – South Zone

For the resource estimation, the assays were composited to 3m intervals, separately within each grade shell. Only composites longer than 1m were used in the estimation process. Composite assay grades were capped as presented in Table 14-19.

Table 14-19: South Zone: Capped composites

Metal	Estimation Domain	Max Composite Assay (%)	Number of Data	Capped Value	Num Capped
Cu	SH02	2.01	704	1.20	10
	SH007	1.31	2128	0.60	17
Au	SH02	5.45	704	0.50	5
	SH007	1.64	2128	0.50	20
Ag	SH02	12.6	704	8.00	7
	SH007	17.6	2128	4.00	26
Mo	SH02	0.210	704	0.08	5
	SH007	0.153	2128	0.06	8

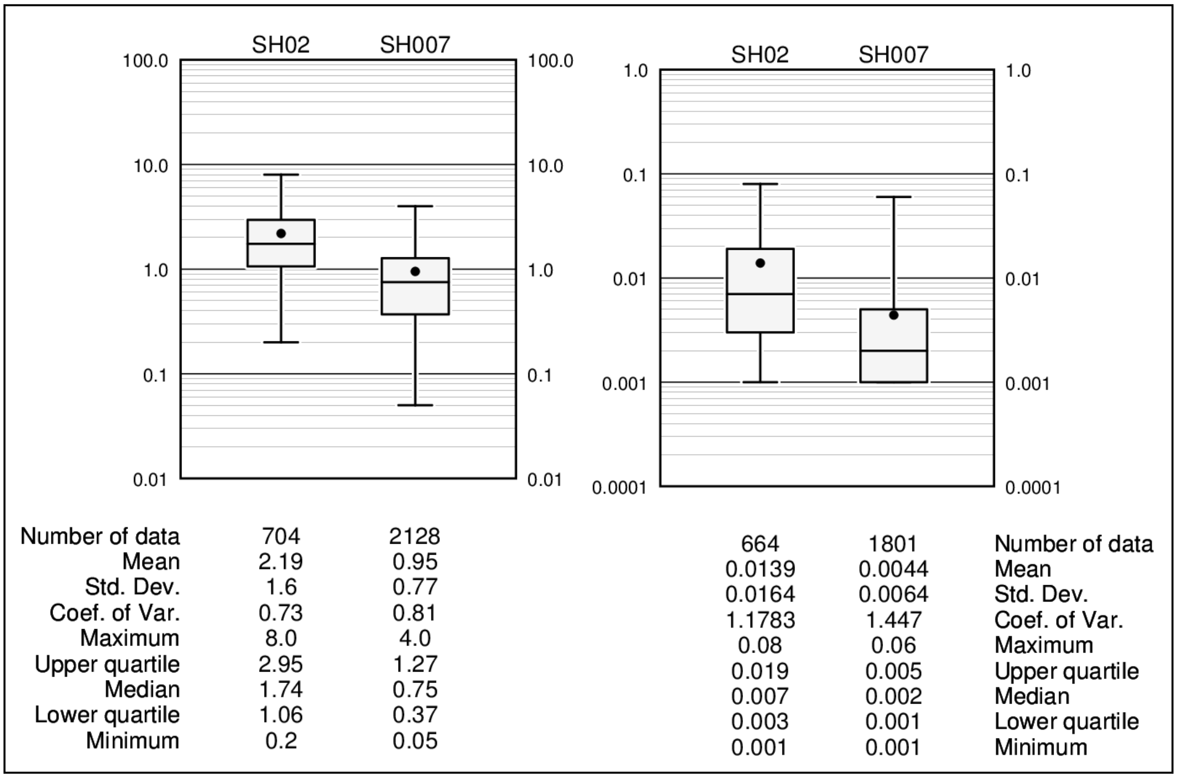
Statistics of polygonally declustered 3m composite capped grades for copper, gold, silver and molybdenum are presented in Figure 14-20 and Figure 14-21.



	(a) SH02	(a) SH007	(b) SH02	(b) SH007
Number of data	704	2128	704	2128
Mean	0.372	0.118	0.084	0.049
Std. Dev.	0.269	0.091	0.085	0.07
Coef. of Var.	0.724	0.772	1.002	1.41
Maximum	1.2	0.6	0.5	0.5
Upper quartile	0.495	0.153	0.098	0.061
Median	0.29	0.096	0.067	0.03
Lower quartile	0.181	0.053	0.031	0.011
Minimum	0.002	0.004	0.005	0.001

(Source: SRK, 2016)

Figure 14-20: Basic Statistics for Declustered (A) Copper (%) And (B) Gold (G/T) Composite Assays in the South Zone Estimation Domains



(Source: SRK, 2016)

Figure 14-21: Basic Statistics for Declustered (A) Silver (G/T) and (B) Molybdenum (%) Composite Assays in the South Zone Estimation Domains

14.6.2 Variography - South Zone

Correlogram models were designed for copper and gold from composited assay located within both the higher grade and low grade domains. Directional correlograms, supported by correlogram maps were used to model grade continuities (Table 14-20).

Table 14-20: Correlograms of Copper and Gold Grades – South Zone

Metal	Nugget C_0	Sill C_1 and C_2	Gemcom Rotations (RRR rule)			Ranges a_1, a_2		
			around Z	around Y	around Z	X-Rot	Y-Rot	Z-Rot
Copper	0.15	0.30	-30	0	0	25	25	15
		0.55				85	344	180
Gold	0.25	0.60	45	25	0	100	15	25
		0.15				450	280	300

14.6.3 Specific Gravity – South Zone

A total of 1,141 specific gravity (sg) determinations are present in the South Zone with 574 being located in the resource domains. The average SG values are very similar in both higher and low grade domains with 2.66 in the higher-grade area and 2.68 in the lower grade area. SRK elected to estimate block SG using the inverse distance squared interpolation method.

14.6.4 Block Model and Grade Estimation Methodology – South Zone

Resource estimation was completed in the South Zone with the block model geometry and extents as presented in Table 14-20.

Table 14-20: South Zone: Block Model Extents

Description	Easting	Northing	Elevation
	X (m)	Y (m)	Z (m)
Block Model Origin (Lower left corner)	350,800	6,155,500	180
Block Dimension	10	10	10
Number of Blocks	172	252	92

The resource estimation methodology was based on the following:

- Before compositing a few very extreme values were capped and any missing assays were assigned 0.0 grades.
- Assays were composited to 3.0m lengths and capped.
- Ordinary kriging was applied for copper, gold and silver. Based on high correlation between copper and silver, silver was estimated with copper variogram models. Molybdenum was estimated using inverse distance squared interpolation.
- Blocks in the 0.2% CuEq shell were estimated from composites within the shell and from composites located within 50m distance from the shell (buffer zone).
- Blocks in the buffer zone were estimated from all data.
- Blocks in the 0.07% CuEq shell were estimated from data located in the shell and from data located in the buffer area.
- Specific gravity was estimated by inverse distance squared interpolation method.

Resource estimation parameters in the South Zone are presented in Table 14-21.

Table 14-21: South Zone: Estimation Parameters

Metal	Min Sample	Max Sample	Max per hole	Gemcom Rotations (RRR rule)			Radii		
				around Z	around Y	around Z	X-Rot	Y-Rot	Z-Rot
Cu	6	24	6	-30	0	0	150	350	200
Au	6	24	6	45	25	0	350	200	200
Ag	6	24	6	-30	0	0	150	350	200
Mo	6	24	6	-30	0	0	150	350	200

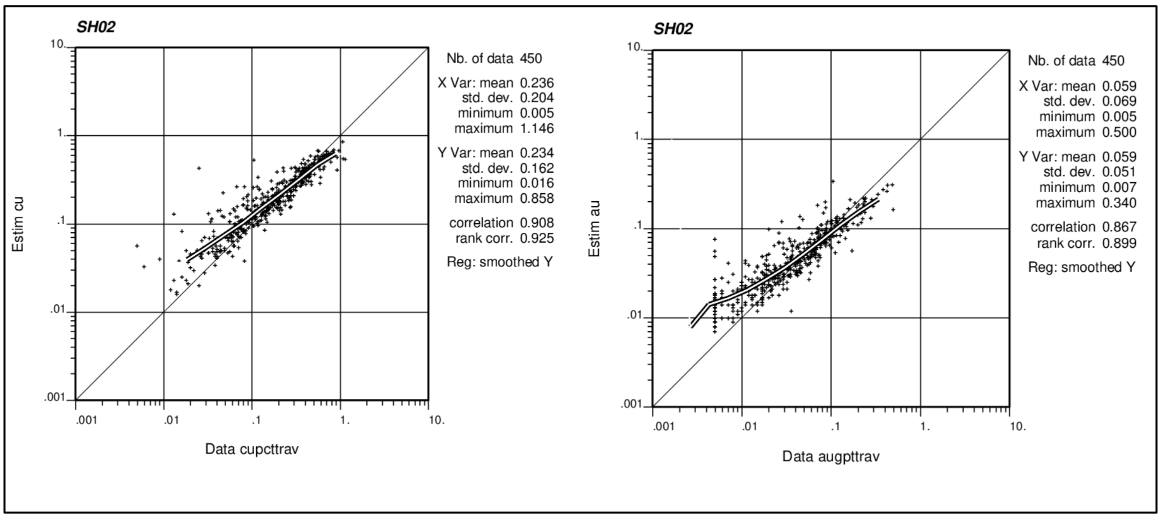
14.6.5 Model Validation and Sensitivity – South Zone

All estimated domains in the South zone were validated by completing a series of visual inspections and by:

- Comparison of local “well-informed” block grades with composites contained within those blocks.
- Comparison of average assay grades with average block estimates along different directions – swath plots.

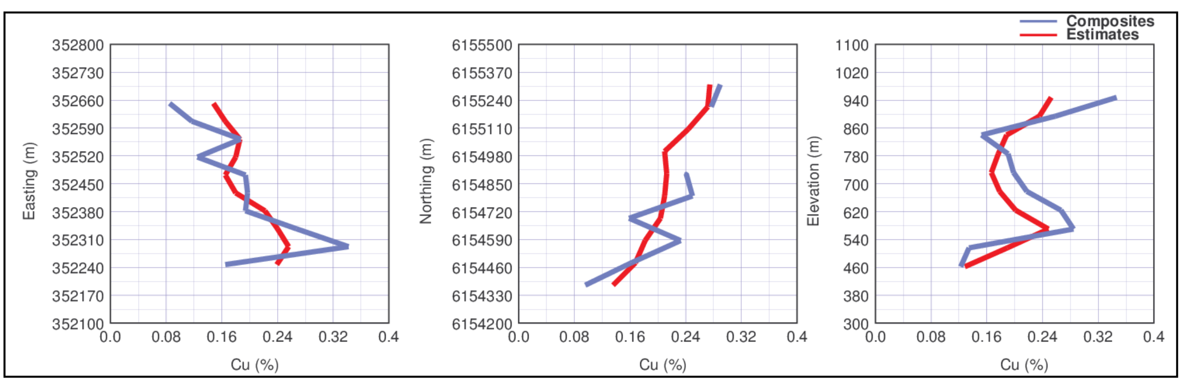
Figure 14-22 shows a comparison of estimated copper and gold block grades with drillhole assay composite data contained within those blocks in the higher grade 0.2% CuEq domain. On average, the estimated blocks are very similar to the actual data. Note very little scatter around the x = y line. This indicates that estimated block grades are quite variable and not over smoothed. Similar results were noted in other estimation domains and for other metals.

In another check, average composite grades and average block estimates were compared along different directions. This involved calculating de-clustered average composite grades and comparison with average block estimates along east-west, north-south, and horizontal swaths. Figure 14-23 shows the swath plots for copper in the higher grade area. Note that the block estimated grades are quite similar to the declustered data. Similar results were shown for other metals. Overall, the validation shows that current resource estimates are a good reflection of drillhole assay data.



(Source: SRK, 2016)

Figure 14-22: Comparison of Copper and Gold Block Estimates with Borehole Assay Data Contained within Blocks in the 0.2% CuEq Domain



(Source: SRK, 2016)

Figure 14-23: Declustered Average Copper Composite Grades Compared to Copper Block Estimates in the Higher Grade Area

14.6.6 Mineral Resource Classification – South Zone

Block model quantities and grade estimates for the Kwanika Project were classified according to the CIM Definition Standards for Mineral Resources and Mineral Reserves (May, 2014) by Marek Nowak, PEng. (EGBC #16985), an appropriate independent qualified person for the purpose of National Instrument 43-101.

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

SRK is satisfied that the geological modelling honours the current geological information and knowledge. The location of the samples and the assay data are sufficiently reliable to support resource evaluation. The sampling information was acquired by core drilling on sections spaced at approximately 100m for the South Zone. Considering the large 100-200m spacing between drill holes, all estimated block grades in the South Zone have been assigned to Inferred category

14.6.7 Reasonable Prospects Pit – South Zone

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

"A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling."

To determine the quantities of material offering "reasonable prospects for eventual economic extraction" by an open pit, SRK used a Whittle pit optimizer and reasonable mining assumptions to evaluate the proportions of the block models that could be "reasonably expected" to be mined from an open pit. The results are used as a guide to assist in the preparation of a mineral resource statement and to select an appropriate resource reporting cutoff grade (Table 14-22).

Table 14-22: Whittle™ Optimization Parameters for Resource Estimation Constraint – South Zone

Input for Pit Optimization	Cu	Au	Ag	Mo
Metal Price (US dollars)	\$3/lb	1300/oz	\$20/oz	\$9/lb
Open Pit Mining Cost - Plant feed and Waste (Canadian dollars)	\$2/t mined			
G&A costs, Processing, Water treatment and Tailings Placement (Canadian dollars)	\$10/t milled			
Mining Loss	5%			
Dilution	2%			
Metal Recoveries	89%	70%	75%	60%
Overall Slope Angle (degrees)	45			

Table 14-23: Mineral Resource Statement*, South Zone, effective date October 14, 2016

Category	Cutoff	Quantity	In situ Grade				In situ Contained Metal			
	CuEq (%)	(x1000 Tonnes)	Cu (%)	Au (g/t)	Ag (g/t)	Mo (%)	Cu (000's lb)	Au (000's oz)	Ag (000's oz)	Mo (000's lb)
Inferred	0.13%	33,300	0.26	0.08	1.64	0.01	191,400	80	1,760	7,470

South Zone Resource Notes

- The Cu Eq cutoff is 0.13%. This is based on prices of US$3.00/lb of copper, US$1,300/oz of gold, US$20/oz of silver and assumed recoveries of 89% for copper, 70% for gold, 75% for silver and 60% for molybdenum.
- Copper equivalents (CuEq) values are calculated using the formula below based on the above metal prices and recoveries.
- CuEq = Cu% + Au(g/t)*0.497 + Ag(g/t)*0.00813 + Mo(%)*2.02247

The reader is cautioned that the results from the pit optimization are used solely for testing the "reasonable prospects for eventual economic extraction" by an open pit and do not represent an attempt to estimate mineral reserves.

Table 14-23 presents the Inferred open pit resources in the South Zone within the Whittle shell at 0.13% copper equivalent cutoff. Figure 14-24 and Figure 14-25 show a designed Whittle shell within which the resources have been reported for the South Zone.

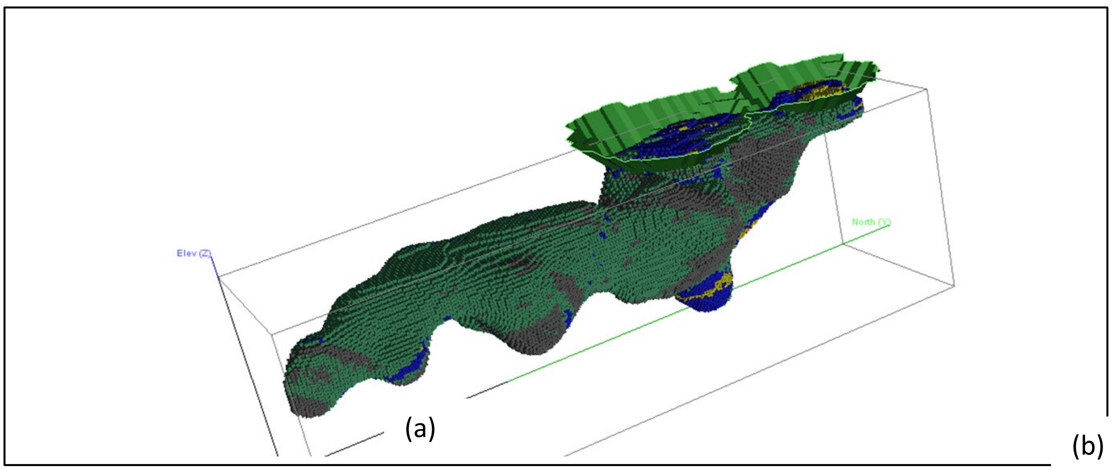


Figure 14-24: South Zone: North-west View of the Whittle shell

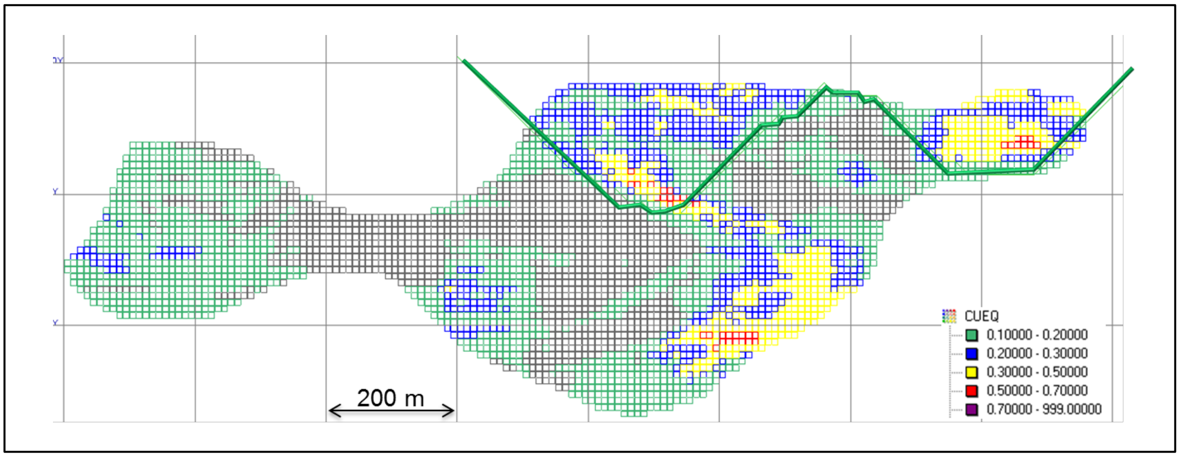


Figure 14-25: South Zone: North-south 352,390E section of the Whittle Shell and Estimated Copper Equivalent Block Grades

14.6.8 Grade Sensitivity Analysis – South Zone

The mineral resources at the Kwanika Property are sensitive to the selection of the reporting cutoff grade. To illustrate this sensitivity, the block model quantities and grade estimates are presented at various cutoffs in Table 14-24 for the South Zone and illustrated in Figure 14-26.

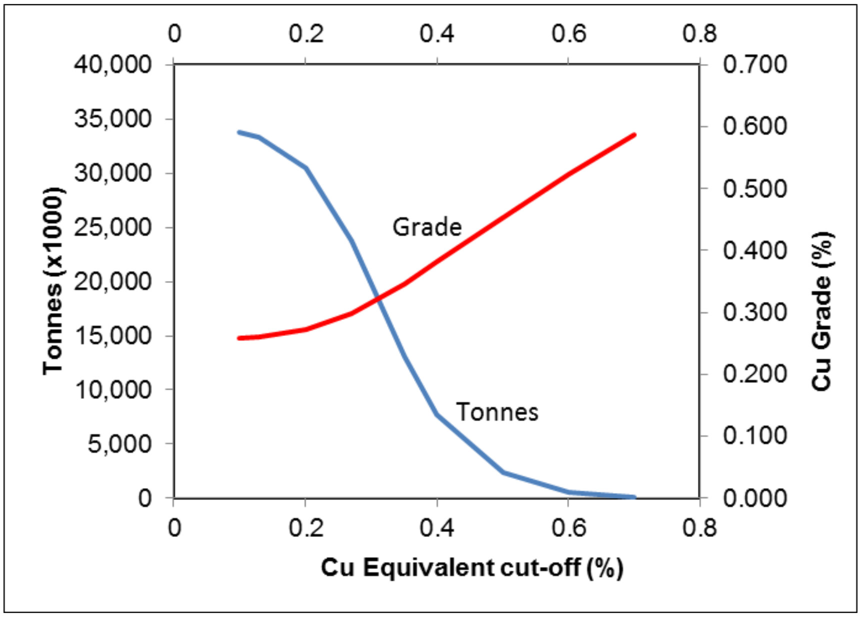
The reader is cautioned that the figures presented in this table should not be misconstrued with a Mineral Resource Statement. The figures are only presented to show the sensitivity of the block model estimates to the selection of cutoff grade.

Table 14-24: South Zone Block Model Quantities and Grade Estimates* on the Kwanika Property at various copper equivalent cutoff grades within a designed Whittle shell

Category	Cutoff	Quantity	In situ Grade				In situ Contained Metal			
	CuEq (%)	(x1000 Tonnes)	Cu (%)	Au (g/t)	Ag (g/t)	Mo (%)	Cu (000's lb)	Au (000's oz)	Ag (000's oz)	Mo (000's lb)
Inferred	0.70	100	0.59	0.18	3.23	0.02	1,400	0	10	50
	0.60	500	0.52	0.14	2.95	0.02	6,200	0	50	230
	0.50	2,400	0.45	0.11	2.70	0.02	23,600	10	200	910
	0.40	7,700	0.38	0.09	2.29	0.02	64,800	20	570	2,710
	0.35	13,100	0.35	0.09	2.09	0.01	99,800	40	880	4,120
	0.27	23,800	0.30	0.08	1.84	0.01	156,600	60	1,410	6,200
	0.20	30,500	0.27	0.08	1.71	0.01	183,600	80	1,670	7,180
	0.13	33,300	0.26	0.08	1.64	0.01	191,400	80	1,760	7,470
	0.10	33,800	0.26	0.08	1.63	0.01	192,400	80	1,770	7,540

South Zone Resource Notes

- The Cu Eq cutoff is 0.13%. This is based on prices of US$3.00/lb of copper, US$1,300/oz of gold, US$20/oz of silver and assumed recoveries of 89% for copper, 70% for gold, 75% for silver and 60% for molybdenum.
- Copper equivalents (CuEq) values are calculated using the formula below based on the above metal prices and recoveries. CuEq = Cu% + Au(g/t)*0.497 + Ag(g/t)*0.00813 + Mo(%)*2.02247



(Source: SRK, 2016)

Figure 14-26 South Zone Inferred Category Grade Tonnage Curves

15 Mineral Reserve Estimates

The current study is at a resource level and therefore there are currently no Mineral Reserves estimated for the Kwanika Project. This subject is being addressed in a Pre-Feasibility Study currently in progress.

16 Mining Methods

This subject is being addressed in a Pre-Feasibility Study currently in progress.

17 Recovery Methods

This subject is being addressed in a Pre-Feasibility Study currently in progress.

18 Project Infrastructure

This subject is being addressed in a Pre-Feasibility Study currently in progress.

19 Market Studies and Contracts

This subject is being addressed in a Pre-Feasibility Study currently in progress.

20 Environmental Studies, Permitting and Social or Community Impact

This subject is being addressed in a Pre-Feasibility Study currently in progress.

21 Capital and Operating Cost Estimates

This subject is being addressed in a Pre-Feasibility Study currently in progress.

22 Economic Analysis

This subject is being addressed in a Pre-Feasibility Study currently in progress.

23 Adjacent Properties

23.1 Regional

The Quesnel Trough is the host to several other porphyry copper ± gold mines and significant deposits. These deposits include: the Mount Polley Mine, the former Kemess Mine and its related infrastructure located north of Kwanika, and the Mount Milligan Mine located approximately 85km south of Kwanika.

23.2 Local District

The adjacent Stardust claims, owned by Sun Metals Corporation, are located immediately to the north and west of the Kwanika property. The Stardust property has been the subject of exploration for more than fifteen years on various precious and base metal vein and skarn occurrences and contains a small Indicated and Inferred copper-gold Mineral Resource known as the Canyon Creek Zone. The other significant prospect in the general vicinity of Kwanika is the Lorraine porphyry copper-gold property jointly controlled by Teck Corporation and Sun Metals Corporation which contains a modest, Indicated and Inferred Mineral Resource in two deposits.

24 Other Relevant Data and Information

MMTS has relied upon Serengeti to provide information regarding the existence and extent of any environmental, legal, regulatory or First Nations restrictions or obligations to which the Project is subject.

25 Interpretations and Conclusions

The Kwanika deposit represents a copper-gold-silver deposit that is amenable to open pit and underground block caving and conventional milling consisting of flotation concentration.

25.1 Geology and Resource Modeling

MMTS and SRK make the following conclusions:

- Drilling, core handling and sampling and security protocols were appropriate and samples should be representative of the mineralization.
- Conventional assaying techniques have been used, sample QA/QC protocols were adequate and checks at a secondary laboratory were consistent with the primary laboratory results.

In the Central Zone MMTS has modelled estimation domains as grade shells supported by lithology and alteration. In general, the high grade estimation domain correlates well to the monzonite, increased zone of veining, inner potassic alteration, and chalcopyrite mineralization. The final estimation domains were restricted by the Pinchi fault, the overlying unconformable sedimentary package and the overburden.

In the South Zone the grade appears to be structurally controlled and is not bound by lithology or alteration. Estimation domains represent grade shells limited by the West Fault.

A typical capping procedure has been applied for both the Central and South zone models.

Geostatistical analysis and variography have been used to determine the appropriate search parameters for interpolation of all grades in the block models.

After validation and classification, MMTS and SRK consider that the mineral resources for the Kwanika Project are appropriately reported. The Central Zone base case Resource Estimate is reported at 0.13% copper equivalent cutoff grade for near surface mineralization and within a 0.27% copper equivalent confining shape for potential underground mining by block caving method. The South Zone is reported at 0.13% copper equivalent cutoff grade for open pit resources.

MMTS and SRK are not aware of any potential significant risks and uncertainties that could affect the reliability or confidence on the reported resource.

25.2 Metallurgy

The exploratory metallurgical test work carried out on samples from the Kwanika central deposit indicates mineralization responds well to a process consisting of conventional multi-stage flotation. A copper recovery of 91%, with gold and silver gold recovery of 75% has been estimated to a concentrate grading 24% copper.

Metallurgical test work on the Central Zone has been preliminary in scope, and no metallurgical test work has been conducted on the South Zone.

A mill throughput in the order of 15,000 tonnes per day is proposed for the basis of cost estimates.

25.3 Regulatory, Environment, and Permitting

Based on the scoping level project defined by the prior PEA study (MMTS, 2017), the knowledge of land use expectations, and the regulatory process in British Columbia, there is nothing that has come to light that is not a normal part of a proposed mining operation. At this time, MMTS is not aware of any constraints in this regard that may prevent the Mineral Resources at Kwanika from being exploited.

The Project lies within an area designated in 1999 for multiple land uses, including mining. Details of current land use plans require confirmation and updating. Provincial and Federal Environmental Assessments and Certificates will be required due to the nature and scope of the Project.

Pending further work on ARD potential, the Project will need to demonstrate the ability to manage for ARD concerns during and following mining.

Significant environmental issues such as fish stream diversions; ARD potential and wildlife habitat are expected to be manageable.

Reclamation of all site disturbances is expected to be completed within industry norms.

25.4 Opportunities

The recommendations outlined in the following section address the opportunities for infill and exploration drilling within the Central and South Zone deposits.

In addition, there are opportunities to identify additional mineralized centers on the Kwanika property along the northwest-southeast trend of anomalous geophysical surveys and mineralization. The trend extends for a known strike length of approximately 5.5km from the Central Zone southward to the South Zone. South of the South Zone several chargeability anomalies have been identified over a strike length of approximately 23km along this trend, and within the Kwanika claims.

26 Recommendations

The Kwanika project is currently undergoing a Prefeasibility level study (PFS) based on the resources presented in this report. Therefore, these recommendations include only drilling and resource updates.

26.1 Drilling

It is recommended to continue drilling of both the Central Zone and the South Zone. This could potentially extend and upgrade the resource for future mining studies. Additional drilling for geotechnical and metallurgical information is also recommended.

26.1.1 Exploration Drilling

A drill program is proposed to upgrade the South zone resource and to potentially extend the current Central zone resource. All costs related to the exploration program are included in the exploration cost estimate. This included, drilling, mobilization, camp, crew transport, logging, and assay charges estimated at $225/m all-in.

It is recommended to drill into the potential high grade area below the current block cave shape in the Central Zone. Currently the resource below 425m elevation is considered Inferred but the grades are above those necessary for block cave mining. Therefore, drilling to upgrade and extend this mineralization for potential addition to a block cave mining scenario is highly recommended.

The South Zone material is currently all Inferred due to the 100m drill spacing. Infill drilling could upgrade the majority of the deposit for inclusion in a PFS or FS to extend mine life and provide mill feed during ramp up and/or ramp down of the block cave.

26.1.2 Geotechnical Drilling

Additional geotechnical drilling will provide information for the open pit resource particularly in the north of the Central Zone, as well as at depth below the current block cave shape. It is therefore recommended that exploration and infill drilling also include a geotechnical component to collect orientation, rock mass strength and major structural data necessary for further geotechnical studies.

26.1.3 Cost Estimate of Drilling and Resource Updates

The cost estimate for drilling recommendation as discussed above is summarized in Table 26-1.

Table 26-1: Recommendations for Drilling

Recommendations and Future Study Costs:		
Exploration and Infill Drilling	Central Zone	$2,500,000
Infill Drilling	South Zone	$1,500,000
Geologic Interpretation Updates	Central and South	$50,000
Geology and Resource Model Updates	Central and South Zones	$100,000
Geotechnical Drilling	Geotech	$1,000,000
Total		**$5,150,000**

26.2 Metallurgy

It is recommended that metallurgical testwork be performed on samples with special and grades variability to optimize process design criteria and determine the expected metallurgical performance. The variability test work is expected to cost $400,000.

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Certificates of Qualified Persons

Certificates are included in this section for the following Qualified Persons:

- Sue Bird (P. Eng), Moose Mountain Technical Services
- Marek Nowak (P.Eng), SRK Consulting
- Tracey Meintjes (P. Eng.), Moose Mountain Technical Services

CERTIFICATE OF QUALIFIED PERSON

I, Sue Bird, P.Eng. do hereby certify that:

1) I am a Geological and Mining Engineer with Moose Mountain Technical Services, with a business address of #210 1510 2nd St North Cranbrook BC, V1C 3L2
2) This certificate applies to the technical report titled "NI 43-101 Technical Report for the Kwanika Project – Resource Estimate update 2019" that has an effective date of 14 December, 2018 (the "technical report"). I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public.
3) I am a Professional Engineer in the Province of British Columbia. (#25007). I graduated with a Geologic Engineering degree (B.Sc.) from the Queen's University in 1989 and a M.Sc. in Mining from Queen's University in 1993.
4) I have worked as an engineering geologist for over 25 years since my graduation from university. I have worked on precious metals, base metals and coal mining projects, including mine operations and evaluations.
5) As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43–101 Standards of Disclosure for Mineral Projects (NI 43–101).
6) I visited the Kwanika Property from July 13- July 16, 2018.
7) I am responsible for Sections 4-12, Section 14 and portions relevant to Geology, QAQC and Resource Estimation of Sections 1, and 25-27 of the technical report.
8) I am independent of Serengeti Resource Inc., Posco International Corp. and, Kwanika Copper Corporation as independence is described by Section 1.5 of NI 43–101.
9) I have not previously co-authored reports on the Kwanika Project.
10) I have read NI 43–101 and the sections of the technical report for which I am responsible have been prepared in compliance with that Instrument.
11) As of the effective date of the technical report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make those sections of the technical report not misleading.

Dated the 17th day of April 2019

"ORIGINAL SIGNED AND SEALED"

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Signature of Qualified Person
Sue Bird, P.Eng

CERTIFICATE OF QUALIFIED PERSON

I, Marek Nowak, residing in Port Coquitlam, BC do hereby certify that:

1) I am a Principal Geostatistician with the firm of SRK Consulting (Canada) Inc. ("SRK") with an office at Suite 2200-1066 West Hastings Street, Vancouver, BC, Canada;
2) I have a Master of Science degree from the University of Mining and Metallurgy, Cracow, Poland, and a Master of Science degree from the University of British Columbia, Vancouver, Canada. I have over 30 years of experience in the mining industry, as a mining engineer (in Poland), geologist and geostatistician (in Canada). I specialize in natural resource evaluation and risk assessment using a variety of geostatistical techniques. I have co-authored several independent technical reports on base and precious metals exploration and mining projects in Canada, and United States;
3) I am a Professional Engineer registered with the Engineers and Geoscientists of British Columbia [Member ID: 119958];
4) I have not visited the subject property.
5) I have read the definition of "qualified person" set out in National Instrument 43-101 and certify that by virtue of my education, affiliation to a professional association and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of National Instrument 43-101 and this technical report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1;
6) As a qualified person, I am independent of the issuer as defined in Section 1.5 of National Instrument 43-101;
7) I am the co-author of this report and responsible for Section 14.4.4, 14.6, 14.7 and accept professional responsibility for those sections of this technical report;
8) I was a co-author of a previous NI 43-101 report from December 2016;
9) I am independent of Serengeti Resource Inc., Posco International Corp. and, Kwanika Copper Corporation as independence is described by Section 1.5 of NI 43–101;
10) I have read National Instrument 43-101 and confirm that this technical report has been prepared in compliance therewith;
11) I have not received, nor do I expect to receive, any interest, directly or indirectly, in the Kwanika project; or securities of Serengeti Resources Inc.; and
12) That, at the effective date of the technical report, to the best of my knowledge, information and belief, the sections of the technical report for which I am responsible contain all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated the 17th day of April 2019

"ORIGINAL SIGNED AND SEALED"

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Signature of Qualified Person

Marek Nowak, P.Eng

CERTIFICATE OF QUALIFIED PERSON

I, Tracey Meintjes, P.Eng., of Vancouver B.C. do hereby certify that:

1) I am a Metallurgical Engineer with Moose Mountain Technical Services with a business address at 1975 1st Avenue South, Cranbrook, BC, V1C 6Y3.
2) This certificate applies to the technical report entitled "NI 43-101 Technical Report for the Kwanika Project – Resource Estimate update 2019" dated 17 April 2019 (the "Technical Report").
3) I am a graduate of the Technikon Witwatersrand, (NHD Extraction Metallurgy – 1996)
4) I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia (#37018).
5) My relevant experience includes metallurgy and process engineering, and mine planning in South Africa and North America. My experience includes both operations and metallurgical process development including base metals, precious metals, industrial minerals, coal, uranium and rare earth metals. My precious metals experience includes both operations and metallurgical process development. I have been working in my profession continuously since 1996.
6) I am a "Qualified Person" for the purposes of National Instrument 43-101 (the "Instrument").
7) I have not visited the Property.
8) I am responsible for Sections 13 and 17 of the Technical Report.
9) I am independent of Serengeti Resource Inc., Posco International Corp. and, Kwanika Copper Corporation as independence is described by Section 1.5 of NI 43–101.
10) I have had no prior involvement with the New Polaris project prior to the Technical Report.
11) I have read the Instrument and the Technical Report has been prepared in compliance with the Instrument.
12) As of the date of this certificate, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated the 17th day of April 2019

"ORIGINAL SIGNED AND SEALED"

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Signature of Qualified Person
Tracey D. Meintjes, P.Eng.