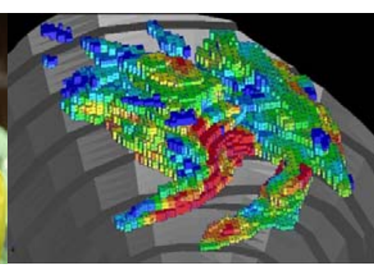
Technical Report

Mineral Resource Estimate Update

Carroll’s Deposit, Ararat Project, Western Victoria, Australia

Effective Date: 26/04/2022

Prepared for: Stavely Minerals Ltd

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Signatures

Author	Michael Millad Principal Geologist/Geostatistician MSc CFSG MAIG	**Signature**	

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1. Executive Summary

Cube Consulting (Cube) was tasked with producing a Mineral Resource Estimate (MRE) update for the Carroll's Cu-Au-Zn-Ag deposit, comprising the Ararat Project (the Project), at the request of Stavely Minerals Ltd (Stavely). Previously the Carroll's deposit was known as the Mt Ararat Project and the name was changed in early 2022. The previous publicly reported MRE was undertaken by Hackman and Associates Pty Ltd in 2015 (Hackman, 2015). The MRE update work was undertaken by Cube from August 2021 to October 2021. No additional data have been collected from the deposit up to the date of this report.

The update request follows the completion of two additional drill holes at depth in the central portion of the deposit since the previous MRE was undertaken (i.e. holes SADD011 and SADD012).

The Carroll's Cu-Au-Zn-Ag deposit is hosted in the Lexington Schist with inter-fingers and structural slivers of the Carrolls Amphibolite in a structurally overturned stratigraphy steeply dipping approximately 65° to 70° to the west.

The drill sample database was validated and eligible holes/samples considered suitable for use in the MRE update were identified and flagged. A single mineralisation/estimation domain was modelled encompassing the high-grade massive sulphide horizon and surrounding lower-grade material out to a nominal grade cut-off of approximately 0.1% Cu. The weathered/oxidised and fresh portions of the mineralisation were found to have different grade statistical characteristics, but no evidence of a hard boundary between the two sub-domains was found. By contrast to previous efforts, the sample grades were weighted by density for grade interpolation – there is a good correlation between density and grade, with the highest grades being associated with the dense massive sulphide horizon in the fresh zone.

Ag, Au, Cu and Zn grade were interpolated using three different methods:

1. Ordinary Kriging (OK) – an industry standard linear geostatistical method.
2. Categorical Indicator Kriging (CIK) – a method that relies on an indicator variable to split the mineralisation into low- and high-grade sub-domains for estimation.
3. Inverse Distance Squared (ID^2) – a simple, non-geostatistical method that weights informing sample values by the inverse of the distance squared between the target block and the sample.

The reported Mineral Resource is from the ID^2 model, which was deemed to best represent the Carroll's grade architecture. The density for the fresh zone was assigned using the same regression equation used to produce density values for weighting of the samples in the fresh zone. In the weathered portion of the mineralisation, an elevation-based equation was used to assign density given the evidence of increasing density with depth.

The Mineral Resource, reported above a 1% Cu cut-off, is tabulated below by classification and oxidation status in Table 1-1. The entire Inferred and Indicated volume falling within the mineralisation wireframe has been reported. Cube's mining engineering department has run a series of Stope Optimisations (SO's) on the fresh material and under some scenarios the majority of the flagged fresh Indicated and Inferred material is captured within the SO's. However, this exercise excluded the oxidised mineralisation. It was therefore decided to include all Inferred and Indicated material in the report, since the oxide material could conceivably have Reasonable Prospects for Eventual Economic Extraction (RPEEE), perhaps in an open pit, and the SO exercise demonstrates that the majority of the fresh Inferred+Indicated material has economic prospects.

Table 1-1 Carroll's Mineral Resource Statement, broken down by classification and oxidation status.

Classification	Oxidation	kt	Ag g/t	Au g/t	Cu %	Zn %	Ag koz	Au koz	Cu kt	Zn kt
Indicated	OXTR	-	-	-	-	-	-	-	-	-
	FRESH	260	5.3	0.5	2.0	0.3	44.3	3.9	5.3	0.8
Inferred	OXTR	131	2.9	0.3	2.1	0.2	12.3	1.3	2.7	0.2
	FRESH	617	6.3	0.4	2.3	0.2	124.7	8.7	14.1	1.4
SUBTOTALS	OXTR	131	2.9	0.3	2.1	0.2	12.3	1.3	2.7	0.2
	FRESH	878	6.0	0.4	2.2	0.3	169.0	12.6	19.3	2.2
GRAND TOTAL		**1009**	**5.6**	**0.4**	**2.2**	**0.2**	**181.3**	**13.9**	**22.0**	**2.4**

Notes:

- Effective date of April 2022.
- Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
- Mineral Resources are reported at a block cut-off grade of 1% Cu.
- Mineral Resources are reported without any explicit RPEEE constraints, but reporting of all flagged Inferred+Indicated material in the model is partially supported by SO studies undertaken on the fresh material.
- Figures may not add up due to rounding.

It is concluded that the Carroll's Cu-Au-Zn-Ag deposit has been successfully re-estimated and validated. The outcomes in terms of the overall reportable resource are not materially different to the previous (2015) model at the reporting cut-off of 1% Cu, except for the Zn grade, which has materially reduced in this update. Cube makes the following recommendations with respect to future work:

- A high resolution and accurate topographic survey should be undertaken. This could be used to resolve any outstanding issues with identified drill collar discrepancies.
- That a smaller range of CRM's are used for any future QAQC analysis and that more field duplicate samples are collected.
- More density data should be collected from reliable current sources, or any future drill programs, with an attempt to obtain some more samples from the weathered zone.
- Twin drill holes should be completed alongside some of the historical drill holes, in order to validate the historical drilling.
- Any actions which could be taken to firm up on the logging of oxidised versus fresh material would be of significant benefit to the Project.

2. Introduction

Cube Consulting (Cube) was tasked with producing a Mineral Resource Estimate (MRE) update for the Carroll's Cu-Au-Zn-Ag deposit, comprising the Ararat Project (the Project), at the request of Stavely Minerals Ltd (Stavely). Previously the Carroll's deposit was known as the Mt Ararat Project and the name was changed in early 2022. The previous publicly reported MRE was undertaken by Hackman and Associates Pty Ltd in 2015 (Hackman, 2015). The MRE update work was undertaken by Cube from August 2021 to October 2021. No additional data have been collected from the deposit up to the date of this report.

The update request follows the completion of two additional drill holes at depth in the central portion of the deposit since the previous MRE was undertaken (i.e. holes SADD011 and SADD012).

Cube undertook the following general tasks as part of the MRE update:

- Re-modelling of the weathering/oxidation surfaces in light of the additional data.
- Re-interpretation of the mineralisation domains for grade estimation.
- Interpolation of copper, gold, zinc and silver grade incorporating the additional drilling.
- Assignment of dry bulk density values.
- Re-classification of the MRE.
- Block model construction and validation.
- Resource reporting and documentation.

This technical report details the work undertaken to complete the MRE update, and documents the results of the work.

2.1. Sources of Information

This technical report for the Carroll's MRE has been based on information provided by Stavely. These data include third party technical reports and relevant published and unpublished third-party information (see references in Section 13).

2.2. Qualifications and Experience

Author	Qualifications, Company
Mike Millad	MSc (Econ. Geol.), CFSG, MAIG Principal Geologist/Geostatistician – Cube Consulting

The Mineral Resource has been compiled by Mr Michael Millad. Mr. Michael Millad is a Director and Principal Geologist/Geostatistician at Cube Consulting, and a Member in good standing of the Australian Institute of Geoscientists (#5799). Mr. Millad has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity that was undertaken to qualify as a Competent Persons, as defined in the JORC (2012) Code.

2.3. Site Visits and Scope of Personal Inspection

Mr. Michael Millad was unable to visit the Carroll's site due to inter-state COVID-19 restrictions.

3. Property Description and Location

3.1. Location and Tenure

The Ararat Project is located approximately 200 km to the west of Melbourne, Victoria and ~7 km to the west-southwest of the regional centre of Ararat (Figure 3-1).

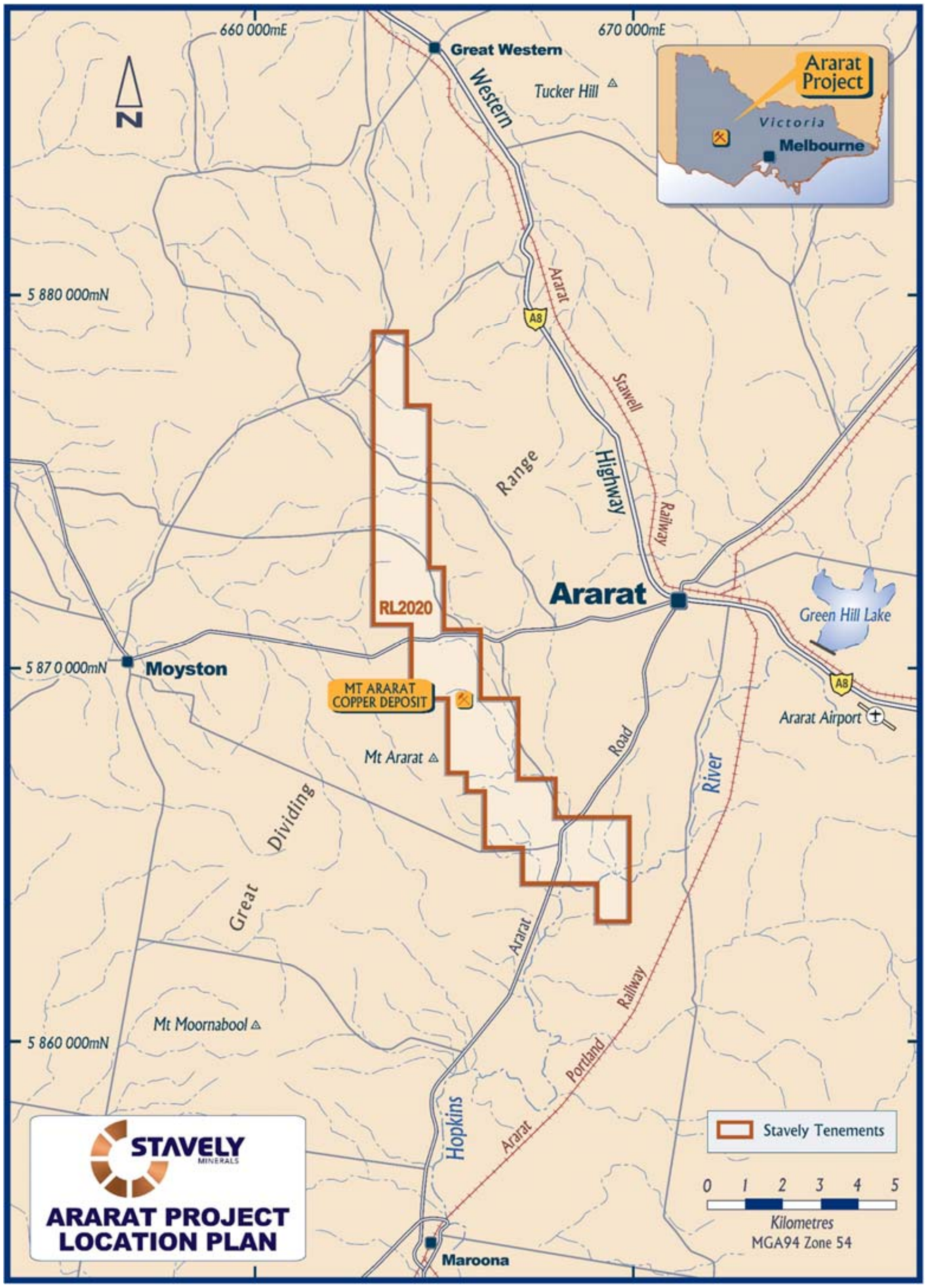

Figure 3-1 Property Location and Tenement Plan – Ararat Project (source: Stavely website).

Carroll's falls within retention licence RL2020, which was granted on 8th May 2020 and is valid for 10 years to 7th May 2030. An application can be made to renew the licence for 10 years beyond 2030, and in exceptional circumstances, a further 10 years could be granted.

The Ararat Project was purchased by Stavely Minerals (formerly Northern Platinum) from BCD Resources Limited in May 2013. Stavely Minerals hold 100% ownership of the Ararat Project Tenements. A Section 31 Deed and a Project Consent Deed has been signed between Stavely Minerals Limited and the Eastern Maar Native Title Claim Group for RL2020.

Apart from a small area which overlaps the Ararat Hills Regional Park (not an area of interest for exploration at this stage) the retention licence is on freehold land.

4. Accessibility, Physiography and Climate

4.1. Accessibility

Access to the Project is excellent, via paved highways, with a port connection and grid power situated nearby. The main township in the study area is Ararat, with a population of approximately 7,800 people. Small townships include Maroona and Rossbridge, and the regions of Denicull Creek, Cathcart, Dobie, Langi Logan and Jackson's Creek (Sandercock, et. al., 2003).

4.2. Physiography and Land Use

The Project lies within the Ararat Hills area to the west of the township of Ararat, falling at the western edge of the Hopkins River catchment. Only small pockets of remnant forests and grassland remain, with much of the area having been cleared for agricultural activity, which dominates the current land use. The Hopkins catchment supports a range of agriculture concerns including prime lamb and beef cattle production, sheep grazing for wool, viticulture, and cereal and oilseed cropping (Sandercock et. al, 2003).

4.3. Climate

The Ararat Project area receives ~580 mm of rain per annum (Table 4-1), with rain falling in most months during the year, but the majority being received in the winter months. The closest weather BoM station with average monthly precipitation data is at Ararat Prison station, situated 11 km away from Carroll's. The nearest BoM station with evaporation data is Longerenong station, located some 87 km away from Carroll's. The elevation and temperature data indicate that all precipitation would fall as rain. The average monthly evaporation exceeds the precipitation in all months except for June, July and August.

Average minimum temperatures vary between 4.8°C (July) and 14°C (February) while average maximum temperatures fall between 11°C (July) and 26.8°C (January), as measured at the township of Ararat (source: Climate-Data.org). Average humidity varies between 49% (January) and 83% (June).

Table 4-1 Average monthly precipitation and evaporation at Ararat Prison Station.

Month	Average Precipitation (mm)	Average Pan Evaporation (mm)
January	39.3	260.4
February	31.1	223.2
March	30.0	176.7
April	41.5	105.0
May	54.9	58.9
June	56.8	36.0
July	62.1	40.3
August	68.0	55.8
September	60.6	84.0
October	55.4	130.2
November	44.4	177.0
December	37.6	235.6
Annual	582.9	1,607.1

5. History

5.1. Pre-Discovery

Gold was discovered in the Ararat area in 1857, precipitating a gold rush and enormous influx of people. Mining was primarily focused on shallow alluvial deposits, but when the surficial deposits were exhausted, deep lead mining was undertaken. Numerous old pits and mine workings therefore occur in the area surrounding Ararat. Following the gold rush, farming enterprises set about clearing the land.

5.2. Previous Exploration

The Carroll's copper deposit was examined by four companies prior to Stavely's involvement, Pennzoil of Australia Ltd. (Pennzoil) in the late 1970's, Centaur Mining and Exploration Limited (Centaur) in the 1980's to 1990's, Newcrest in the early 2000s and Beaconsfield Gold Mines NL (Beaconsfield) during the 2000s. Stavely Minerals (formerly Northern Platinum) purchased the prospect from BCD Resources NL (formerly Beaconsfield Gold Mines NL) in May 2013. All companies except for Newcrest have drilled the Carroll's prospect (Hackman, 2015).

5.3. Previous Mineral Resource

The previous Mineral Resource for Carroll's was estimated in 2015 by Hackman and Associates Pty Ltd, and was reported at a 1.0% Cu cut-off (Table 5-1). No Reasonable Prospects for Eventual Economic Extraction (RPEEE) constraints were applied to the 2015 MRE statement.

Table 5-1 Previous Carroll's Mineral Resource estimate – reported at 0.3g/t Au depleted to 30/06/2019.

Classification	Tonnes: Cu Resource (kt)	Tonnes: Au, Zn, & Ag Resource (kt)	Cu%	Au g/t	Zn%	Ag g/t
Indicated	250	-	2.2	-	-	-
Inferred	1,070	1,320	1.9	0.5	0.4	5.7
TOTAL	**1,320**	**1,320**	**2.0**	**0.5**	**0.4**	**5.7**

Notes:

- Effective date of August 2015.
- Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
- Mineral Resources are reported at a block cut-off grade of 1.0% Cu.
- Mineral Resources are not constrained according to RPEEE criteria and the report is for the total model.
- Figures may not add up due to rounding.

6. Geological Setting and Mineralisation

This section draws on information contained in Hackman (2015) and the Stavely website (www.stavely.com.au).

6.1. Regional and District Geology

The Ararat Project is located on the southwestern margin of the Stawell-Bendigo Zone, which is part of the western Lachlan Fold Belt (Figure 6-1). The Lachlan Fold Belt is comprised of Cambrian age mafic volcanic and pelitic sedimentary units of the Moornambool Metamorphics, which were metamorphosed to greenschist to amphibolite facies during the Silurian period (Figure 6-2). The Moornambool Metamorphic Complex is bounded on the east by the west dipping Coongee Fault and to the west by the Moyston Fault. The Moornambool Metamorphic Complex is predominantly comprised of mafic and quartzo-pelitic schists (eg. Carrolls Amphibolite and Lexington Schist) and their less intensely metamorphosed protoliths are occasionally preserved (e.g. Magdala Metabasalt).

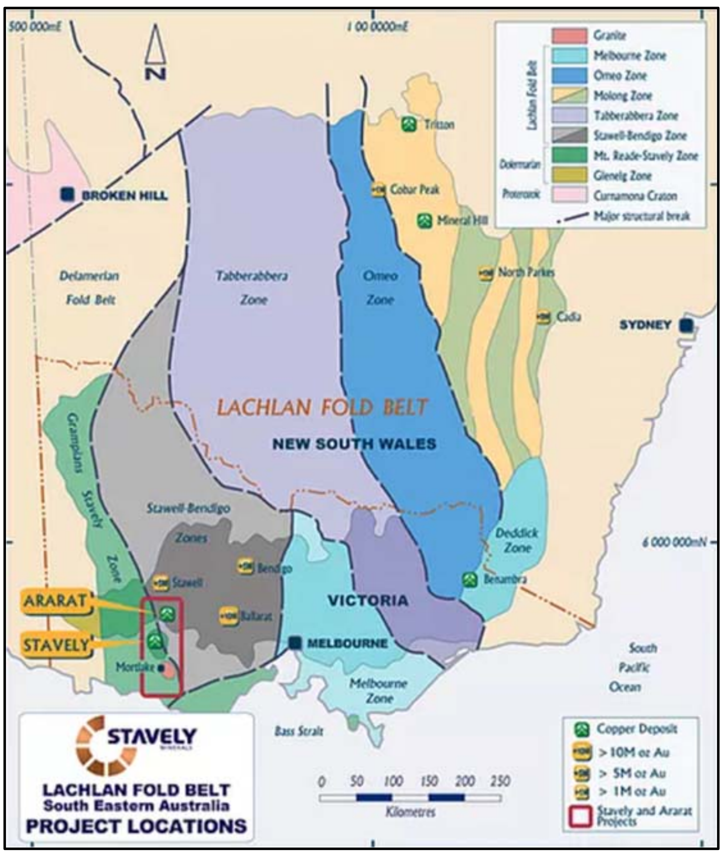

Figure 6-1 Regional geological setting – Carroll's.

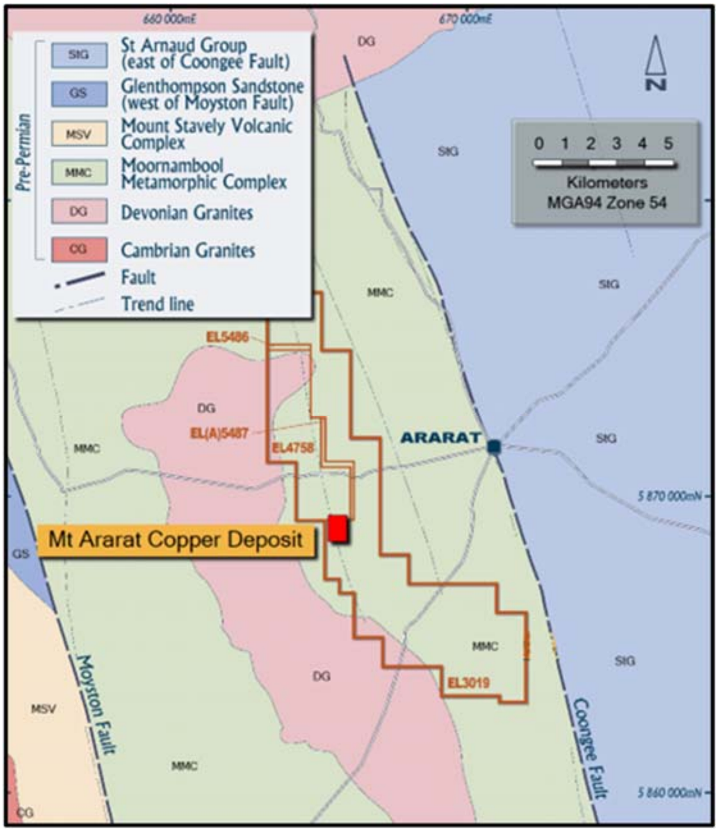

Figure 6-2 District scale geology – Carroll's.

6.2. Deposit Geology and Mineralisation

The Mount Ararat copper deposit lies within a small portion of a much more extensive prospective exhalative horizon on the contact between the Carroll's Amphibolite and the Lexington Schist. Copper-gold-zinc-silver mineralisation is hosted in the Lexington Schist with inter-fingers and structural slivers of the Carroll's Amphibolite in a structurally overturned stratigraphy steeply dipping approximately 65° to 70° to the west.

The identification of multiple gossan horizons and historical copper workings in the field have led to the observation that, rather than a single copper trend along the contact between the Carroll's Amphibolite and the Lexington Schist, there is a 'VMS copper corridor' which may extend up to 1 km in width. This corridor is interpreted to continue for approximately 15 km within the Ararat Project tenements and presents regional reconnaissance exploration opportunities for Stavely Minerals.

The Besshi-style VMS copper-gold-zinc-silver mineralisation has been identified over an 800 m strike extent and 250 m depth extent at Mount Ararat. A core of high-grade massive sulphides, usually only a few metres wide at most, is surrounded by a lower grade halo that is typically a further few metres in width. The total package thickness can range from as little as 1 m to as much as 20 m, but is most commonly between 2 m and 8 m thick. However, the massive sulphide lenses occurring within the package are seldom more than 2 m thick.

6.3. Relative Confidence in Geological Interpretation

The confidence in the geological interpretation is considered to be variable. Within more tightly drilled areas (typically 50 m) the confidence in the continuity of the mineralisation and the massive sulphide horizon in particular is good. However, in more widely drilled areas and in the weathered zone, where drill contamination and supergene effects are more pronounced, the confidence in the geological model is lower.

Alternative interpretations of the mineralisation have been shown to have a significant impact on the MRE. The assumptions of continuity need to be identified and carefully considered in such areas, in order to avoid misrepresenting the mineralised volume. The identification of the orientation component of the mineralisation geometry does not present as large a risk and is better understood.

7. Exploration

The Mount Ararat Copper Deposit was discovered by Pennzoil of Australia Ltd using stream, soil and rock geochemistry followed by drill testing in the late 1970s. The exploration licence then passed to Centaur Mining & Exploration Ltd who undertook further drilling of the deposit, culminating in a Mineral Resource estimate in 1994. Centaur Mining & Exploration went into receivership in 2002 and the license passed to Range River Gold NL.

Newcrest Operations Limited explored the Ararat Project under option from Range River Gold NL and undertook gravity and airborne VTEM surveys.

BCD Metals Pty Ltd optioned the Project from Range River Gold NL in 2009 and full control was granted to BCD Metals when Range River went into voluntary administration in April 2011.

In 2009 BCD Metals drilled 4 diamond holes for a total of 484.7 m, targeting shoot plunges in the primary mineralised zone beneath the oxide zone at the Carroll's Copper Deposit. Six reverse circulation drill holes were drilled by BCD Metals in 2010 at the Carroll's Copper Deposit targeting copper-oxide mineralisation and to retrieve bulk oxide ore samples for metallurgical test work. In 2010, metallurgical test work flotation and mineralogical assessment was undertaken.

Previous exploration is considered to be of good quality.

Stavely Minerals purchased the prospect from BCD Resources NL (formerly Beaconsfield Gold Mines NL) in May 2013. Stavely undertook significant drilling programs in 2014, 2015 that specifically targeted the Carroll's deposit. Most recently, two holes (SADD011 and SADD012) were drilled in February and March 2021 in the central portion of the mineralisation to test the downdip continuity.

8. Drilling and Sampling

8.1. Drill Database

The Carroll's deposit has been sampled using Rotary Air Blast (RAB) drilling, Air Core (AC) drilling, Reverse Circulation (RC) drilling and Diamond (DD) drilling by both the historical operators and Stavely. The RAB and AC samples have been excluded from the mineralisation interpretation and interpolation for this MRE, since these sampling methods are considered to be of insufficient quality for the purpose of resource definition.

A breakdown of all holes provided in the database file "Ararat.mdb" are shown in Table 8-1 (data cut-off date of 3rd August 2021). A copy of this original database was re-named *"Ararat_Cube_03082021.mdb"* for Cube's use in the MRE update.

Table 8-1 Breakdown of holes provided in database "Ararat.mdb".

Hole Type	Period	No. Holes	Metres
RAB	Historical	434	6,399
	Stavely	0	0
AC	Historical	738	24,846
	Stavely	0	0
RC	Historical	118	8,364
	Stavely	15	2,136
RC with DD Tail	Historical	0	0
	Stavely	7	1,882
DD	Historical	83	13,884
	Stavely	12	3,816
Not Recorded (incl. many suspected 1 m auger samples)	Historical	582	1,344
	Stavely	0	0
SUBTOTALS	Historical	1,955	54,837
	Stavely	34	7,834
GRAND TOTAL		**1,989**	**62,671**

Many of the holes listed above do not target the Carroll's deposit specifically, but rather nearby prospects. Only those holes within the Carroll's zone were considered for use in the MRE update, and these were selected using a set of X and Y coordinate constraints as per Table 8-2 (GDA94 – MGA Zone 54S). Once these spatial constraints were applied, and the ineligible hole types were removed, the remaining holes flagged for use in the interpretation and estimation for Carroll's are summarised in Table 8-3.

Table 8-2 GDA94 – MGA Zone 54S coordinate constraints used for the MRE.

X min	664,800
X max	666,000
Y min	5,868,400
Y max	5,870,300

Table 8-3 Breakdown of holes eligible for MRE, as flagged in database "Ararat_Cube_03082021.mdb".

Hole Type	Period	No. Holes	Metres
RC	Historical	28	1,197
	Stavely	7	857
DD	Historical	46	6,689
	Stavely	8	2,327
SUBTOTALS	Historical	74	7,886
	Stavely	15	3,184
GRAND TOTAL		**89**	**11,070**

8.2. Drilling Methods

8.2.1. Historical Drilling

Details of historical drilling methods are sparse, beyond the specification of the general drilling type. It is known that the Centaur RC drilling bit diameter was 130 mm and for Beaconsfield Gold it was 84 mm. Drilling methods used by historical operators are assumed to be in line with industry standards at the time. As previously mentioned, only RC and DD hole types were considered for use in this MRE update.

8.2.2. Stavely Drilling

8.2.2.1. Reverse Circulation Drilling

RC percussion drilling was undertaken using a track mounted rig. The top drive drill used standard 6 m length RC rods (4.0" diameter) and 4" slimline hammer (Sandvik 004) with a 121 mm face sampling RC bit.

8.2.2.2. Diamond Core Drilling

Diamond drilling was conducted using a Sandvik (UDR 1000) truck mounted rig. Diamond drilling was used to produce drill core with an initial diameter of 85 mm (PQ) and subsequently 63.5 mm (HQ).

Diamond drilling was standard double tube. Diamond core was orientated by the Reflex ACT III core orientation tool.

8.3. Sampling Methods

8.3.1. Historical Sampling

There is little detail regarding historical sampling methods. It is known that half-core was sampled by Centaur and Beaconsfield for their DD programs. Centaur recovered RC drill chips using a back-end cross-over sub, but sample splitting and reduction methods are largely unknown. The techniques used by historical operators are assumed to be in line with industry standards at the time.

8.3.2. Stavely Sampling

8.3.2.1. Reverse Circulation Drilling

RC percussion drilling was used to produce a 1 m bulk sample (~25 kg), which was collected in plastic bags and representative 1 m split samples (12.5%, or nominally 3 kg) were collected and placed in a calico bag. The cyclone was cleaned out with compressed air at the end of each hole and periodically during the drilling. The drill cyclone and sample buckets were cleaned between rod changes and after each hole to minimise cross-sample contamination. Booster air pressure was used to keep the samples as dry as possible.

Following visual identification of the 1 m split samples for the mineralised intervals as well as for 5 m of the footwall and 5 m of the hanging wall, samples were selected for laboratory analysis.

8.3.2.2. Diamond Core Drilling

For diamond holes, quarter core was sampled for PQ diameter core and half core was sampled for HQ core. The sample intervals were generally 1 m but in the mineralised zone the intervals ranged from 0.6 m to 1.1 m depending on the width of the geological interval. Core sampling was undertaken on site using a core saw. The holes were selectively sampled, primarily depending on the visual identification of mineralised intervals.

8.4. Drill Logging

8.4.1. Historical Logging

Logging for some historical holes exists in the database. However, no details as to logging procedures are available. Cube has noted that some of the logs appear to be inconsistent – e.g. unrealistically high elevation identification of fresh rock.

8.4.2. Stavely Logging

Geological logging of samples followed Company procedures, based on industry common practice. Qualitative logging of samples included (but was not limited to): lithology, mineralogy, alteration, veining and weathering. Diamond core logging included additional fields such as structure and geotechnical parameters.

Magnetic Susceptibility measurements were taken for each 1 m diamond core interval.

All logging of quantitative elements is based on visual field estimates. Systematic photography of the diamond core in the wet and dry form was completed. Primary logging data were collected using the OCRIS logging template on Panasonic Toughbook laptop computers using lookup codes.

8.5. Drill Surveys

8.5.1. Drill Collar Surveys

- No detailed information regarding historical drill collar surveys are available.
- Drill collar locations were pegged before drilling and surveyed using Garmin handheld GPS to accuracy of +/- 3m. Collar surveying was performed by Stavely Minerals' personnel.
- Subsequent to drilling, the collar locations for the holes have been surveyed using a DGPS.

8.5.2. Downhole Surveys

- No detailed information regarding historical drill downhole surveys are available.
- For the RC drill holes downhole dip surveys were taken at approximately 30 m intervals.
- A downhole gyro survey for the RC holes was conducted by Direct Systems Australia, with data recorded at 10 m intervals. The surveys were conducted using a DS-HA Northseeker tool.
- For the diamond holes, down-hole single shot surveys were conducted by the drilling contractor. Surveys were conducted at approximately every 30 m down-hole.
- Current practice is that all new drill holes are being surveyed using a gyro.

8.6. Sample Recovery

In terms of the historical drilling, the only useful comment that could be found in historical reports was that the drill recovery was lower than usual in the weathered/oxidised zone (Hanson, 1994). There are only a limited number of database records (104) for historical drill recovery, with most of the recovery data recorded being for the Stavely DD holes (1,012) – see Table 8-4.

Table 8-4 Drill sample recovery statistics – Carroll's.

Statistic	Stavely (%rec)	Historical (%rec)
Number	1,012	104
Minimum	23.3	25.0
Maximum	100.0	100.0
Mean	97.6	91.9
Std Dev	7.9	14.8
Coeff Var	0.081	0.161

The following is observed:

- The statistics show that mean drill recovery for the historical holes is lower than for the Stavely holes (Table 8-4; Figure 8-1 and Figure 8-2).
- However, the mean depth of the Stavely holes is much greater than the historical holes (Figure 8-3 and Figure 8-4). Since poor recovery is mostly limited to the upper portions of the deposit

(i.e. above ~300 mRL), the mean statistics are skewed towards lower recovery for the historical holes. Therefore, and because of the relatively small number of historical recovery readings, it is inconclusive whether or not the historical holes suffered more from recovery issues than the Stavely holes.

- It is clear that the worst recovery issues are in the ground above ~300 mRL.

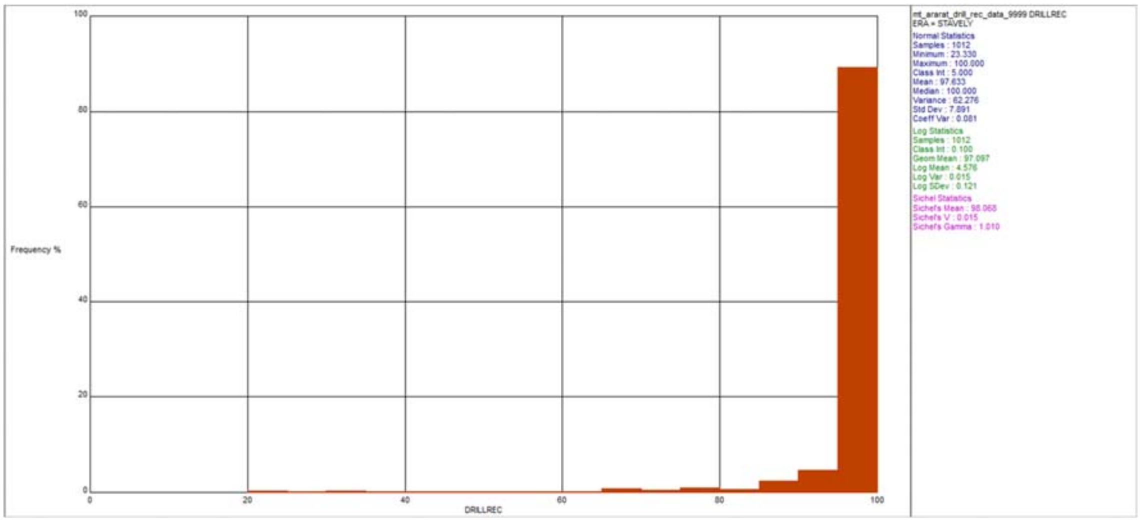

Figure 8-1 DD recovery for the Stavely holes – Carroll's.

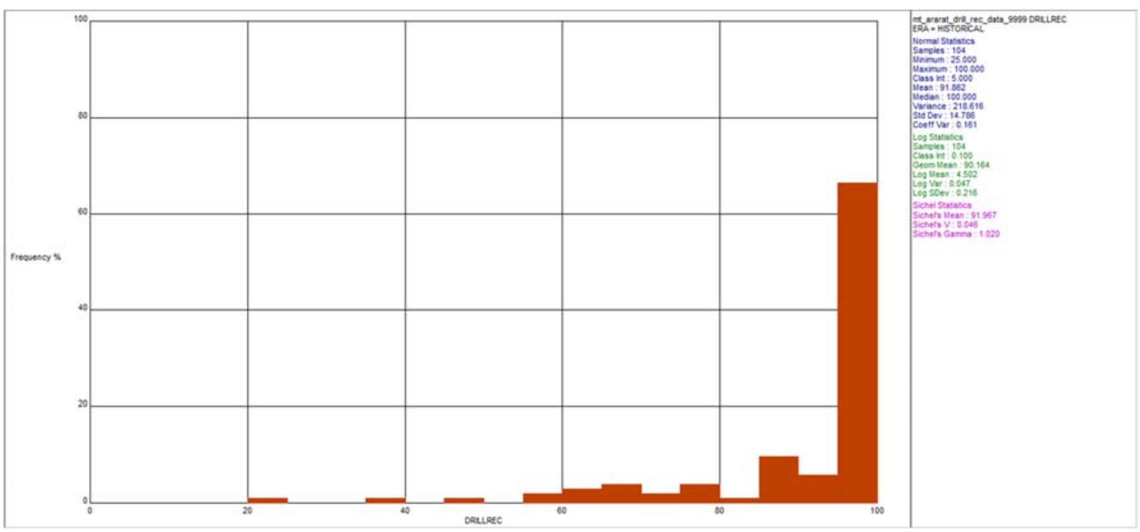

Figure 8-2 DD recovery for some of the historical holes – Carroll's.

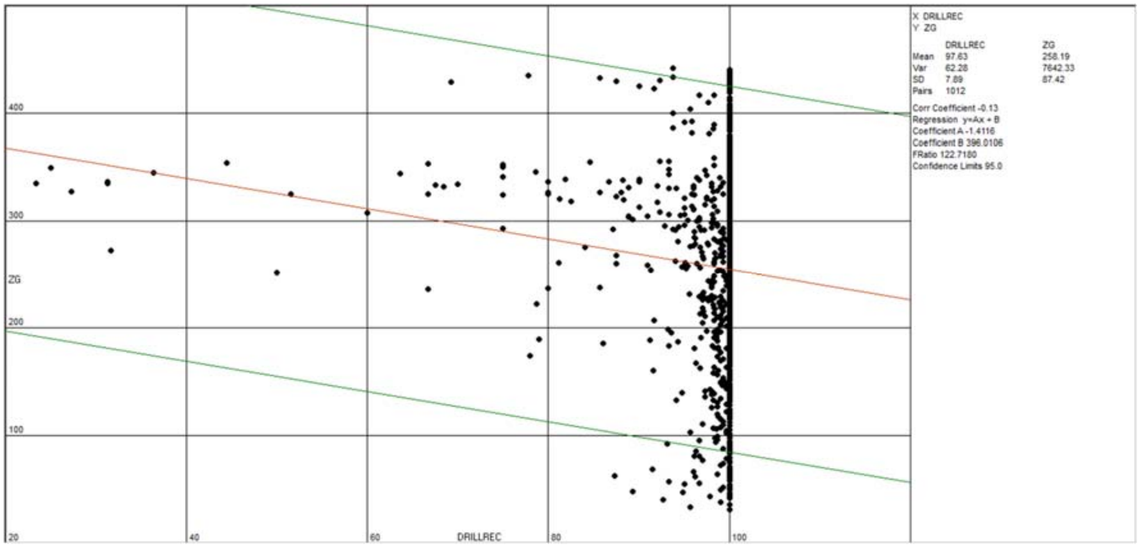

Figure 8-3 Recovery vs elevation for the Stavely DD holes – Carroll’s.

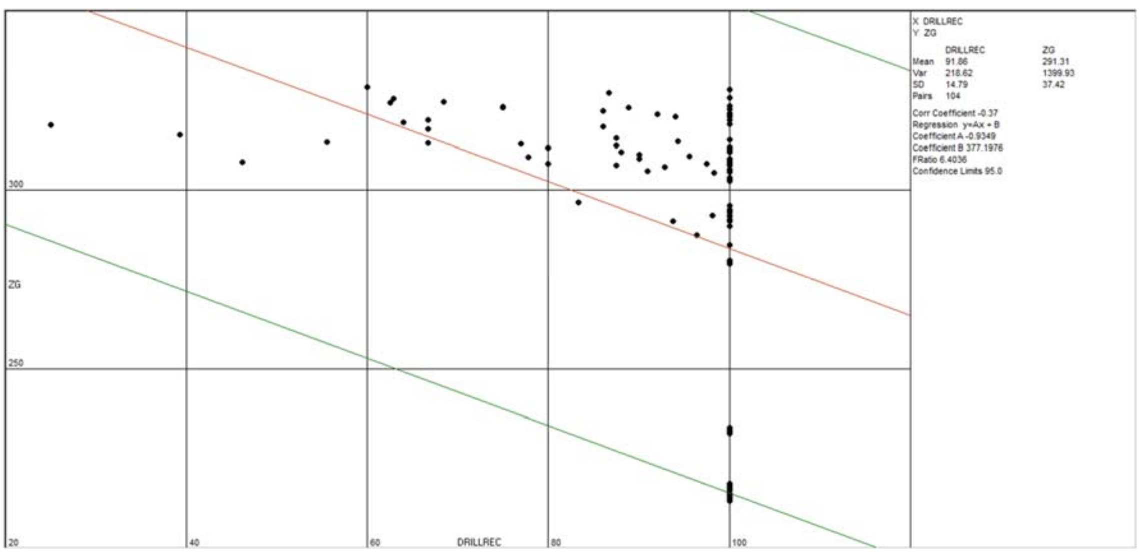

Figure 8-4 Recovery vs elevation for some of the historical DD holes – Carroll’s.

The relationship between Cu and drill recovery shows that the best grades are from samples where recovery was good within the mineralised domain (Figure 8-5). This may be an indication of loss of mineralisation where recovery was poor, but the dataset is relatively small at 123 samples within the mineralised envelope.

The evidence from the recovery data does, however, strongly suggest that the samples in the weathered zone, above ~300 mRL, are of lesser integrity than those below. This important finding has impacted on the resource classification – see Section 12.9.

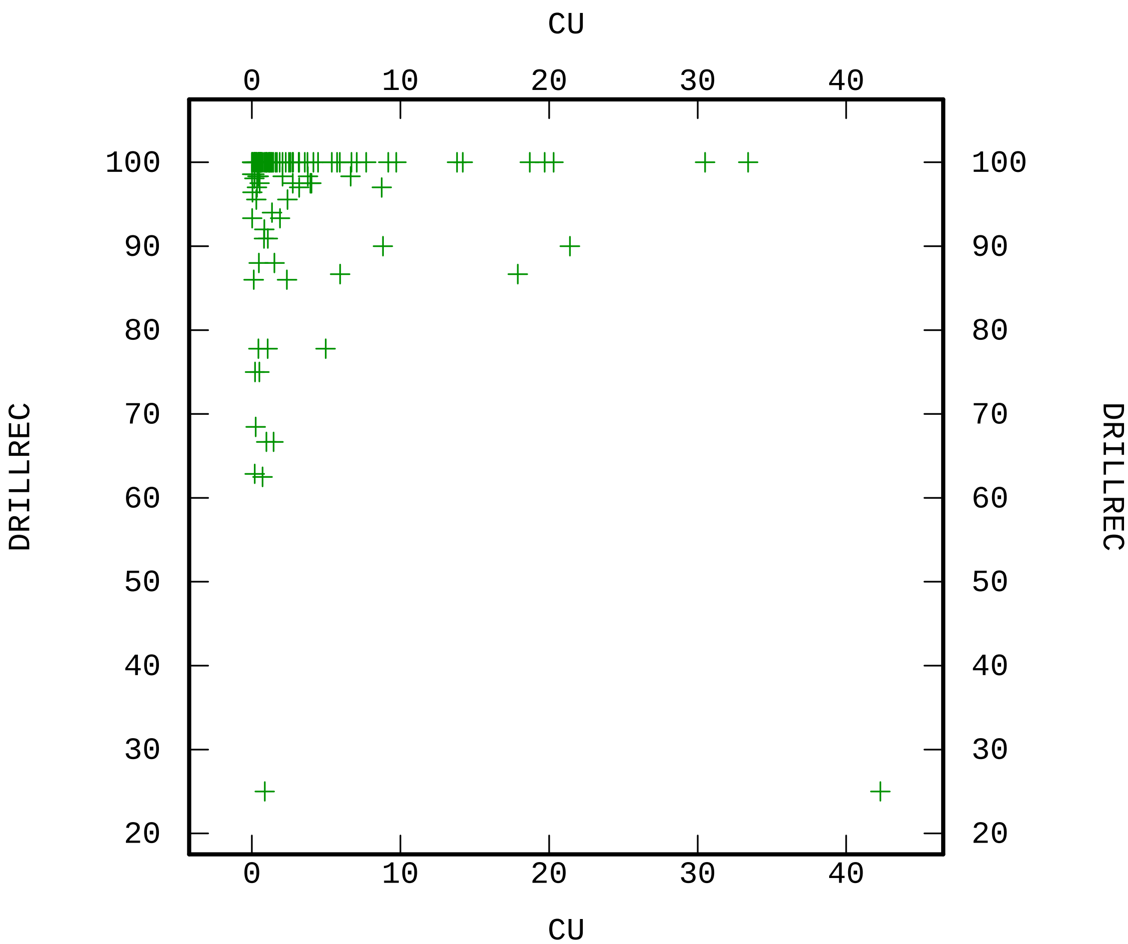

Figure 8-5 Drill recovery versus copper grade – raw assays within the mineralisation – Carroll's.

8.7. Drill Spacing and Orientation

The drill spacing above ~220 mRL is nominally 50 m, but does tighten to ~10 m on some isolated drill lines that have targeted the weathered zone. Below ~220 mRL and to the north and south of the main mineralised body, the drill spacing is wider than 50 m.

The vast majority of the holes drilled are inclined at 50° to 60° towards a bearing of 065° and are therefore optimally oriented and inclined to intercept the west-southwesterly dipping mineralisation. The only notable exceptions to this are the latest DD holes drilled by Stavely, namely SADD011 and SADD012, which are inclined in the opposite direction, intersecting the mineralisation obliquely at depth (Figure 8-6)

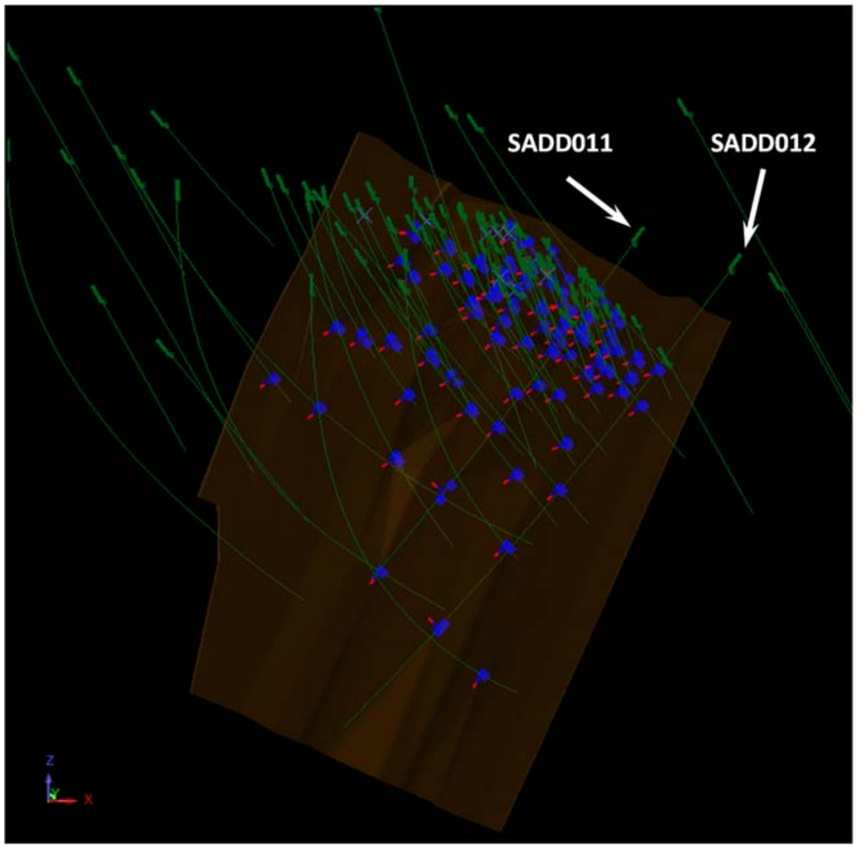

Figure 8-6 Isometric view looking north showing the eligible drill holes used in the MRE, with mineralised domain intercepts shown in blue.

8.8. Sample Security

Samples were delivered in sealed poly-weave bags to the courier in Ararat by Stavely Minerals' personnel. The samples were then couriered to ALS laboratory in Orange, NSW.

9. Sample Preparation and Analysis

9.1. Sample Preparation

9.1.1. Historical Sample Preparation

There is no available information regarding sample preparation methods used for the historical samples.

9.1.2. Stavely Sample Preparation

Laboratory sample preparation for both RC and DD samples at ALS (Orange) involved:

- sample crush to 70% < 2 mm;
- riffle/rotary split off 1 kg, and
- pulverise to >85% passing 75 microns.

9.2. Analytical Methods

9.2.1. Historical Analyses

Limited information is available for historical analyses:

Pennzoil

- A base metal suite was assayed via AAS (digestion not specified) and Au was assayed via fire assay.

Centaur Mining

- MA24 to MA38: A base metal suite was assayed via AAS (digestion not specified) and Au was assayed via fire assay.
- MA39A to MA58: A base metal suite was assayed via AAS (digestion not specified) and Au was assayed via fire assay.
- M94_1 to M94_4: A base metal suite was assayed using 4 acid digest with AAS finish and Au was assayed via fire assay.

Beaconsfield Gold

- ARD001 to ARD004: Assay Lab – Onsite Lab Services. Cu initially by method B101 - AR digest with ICP finish. If higher than 5000ppm then A101 - Ore grade digest (details unknown) with AA finish. Au by PE01S - 25g Fire Assay.
- ARC001 to ARC006: Assay Lab – Onsite Lab Services. Cu initially by method B101 - AR digest ICP finish. If higher than 5000ppm then A101 - Ore grade digest (details unknown) with AA finish. Au by PE01S - 25g Fire Assay

9.2.2. Stavely Analyses

9.2.2.1. Reverse Circulation Drill Samples

The one metre RC drill chip samples from the massive sulphide "ore" zone and 5 m into both the footwall and hanging wall were analysed by multi-element ICP-AES Analysis (Method ME-OG62). A 0.4 g finely pulverized sample was digested in nitric, perchloric and hydrofluoric acids. The digestion mixture is evaporated to incipient dryness (moist salts). The residue is cooled, then leached in concentrated hydrochloric acid and the solution is diluted to a final volume of 100 ml. Final acid concentration is 20%. Elemental concentrations are determined by ICP-AES. An internal standard is used to enhance accuracy and precision of measurement. This technique approaches total dissolution of most minerals and is considered an appropriate assay method for ore grade VMS samples.

The samples were also analysed for gold by Method Au-AA23. This is a standard Fire Assay method with a 30 g charge and flame AAS finish.

9.2.2.2. Diamond Core Drill Samples

The core samples were analysed by multi-element ICP-AES Analysis (Method ME-ICP61). A 0.25 g sample is pre-digested for 10-15 minutes in a mixture of nitric and perchloric acids, then hydrofluoric acid is added and the mixture is evaporated to dense fumes of perchloric (incipient dryness). The residue is leached in a mixture of nitric and hydrochloric acids, the solution is then cooled and diluted to a final volume of 12.5 ml. Elemental concentrations are measured simultaneously by ICP Atomic Emission Spectrometry. This technique approaches total dissolution of most minerals and is considered an appropriate assay method for VMS copper systems.

For samples which returned a Cu assay value in excess of 10,000 ppm (1%) the pulp was re-assayed using Cu-OG62, which has a detection limit of between 0.001 and 40% Cu. This technique is a four-acid digest with ICP-AES or AAS finish.

The samples were also analysed for gold by Method Au-AA23. This is a standard Fire Assay method with a 30 g charge and flame AAS finish.

9.3. Quality Assurance and Quality Control

Cube has reviewed and independently assessed all available QAQC sample data for the Carroll's deposit. No QAQC samples are available for historical drilling, and so the assessment is based on data collected during the tenure of Stavely (i.e. 2014 to 2021).

A detailed report of findings is included in Appendix 1 in the report entitled "QAQC Review, Mt Ararat Project, Period 2014 to 2021". Some 86 CRMs, 48 Blanks, and 7 Field Duplicates were reviewed.

The quality of the assay data was assessed by analysing the Certified Reference Material (CRM or Standards) and duplicate samples in terms of accuracy and precision. The precision analysis determines how closely the results can be repeated, while the accuracy analysis determines how similar the results are to the reported CRM value. The QAQC analysis and subsequent conclusions by Cube are based on a published and peer reviewed paper by Abzalov (2008).

All projects and every assay batch should strive to achieve both high precision and accuracy. It is possible to have good accuracy without good precision or conversely good precision without good accuracy.

Precision analysis is measured primarily by the use of duplicate and replicate assays, whereas accuracy analysis is chiefly measured through the use of the CRMs.

9.3.1. Certified Reference Materials and Blanks

All Blanks and CRMs were reviewed separately by analyte (Cu, Au and Ag). All samples were prepared and analysed at ALS (Orange) from 2014 to 2021. There were sixteen different CRMs and Blanks used during this period, eleven of which contained three or less samples, which is not enough to effectively review. The insertion rate of CRMs and Blanks is around 6%, which is on the low side of what is considered adequate (5-10%). On an elemental basis, the pass rate based on accuracy and precision respectively for the individual CRMs was:

- Gold – Accuracy 8/8 and Precision 7/8
- Silver – Accuracy 6/6 and Precision 3/6
- Copper – Accuracy 7/7 and Precision 6/7

A summary of the results for blanks and CRMs are shown in Table 9-1 through

Table 9-3.Table 9-1 Au CRM and Blank summary for ALS (Orange) – Carroll's deposit.

CRM	No. Samp	Expected Value	Std Dev	Accuracy	Precision	% Passing 3SD	% Bias	Period In Use	Comments
G300-9	3	1.53	0.06	PASS	PASS	100		2014-2021	not enough to review; Precision failure
G303-7	1	6.86	0.3						not enough to review
G904-3	3	13.66	0.62	PASS	PASS	100		2014	not enough to review
OREAS_152a	2	0.116	0.005					2014	not enough to review
OREAS_501b	24	0.248	0.01	PASS	FAIL	66.66		2014	1 failure observed
OREAS_501c	3	0.221	0.007					2021	not enough to review
OREAS_503b	20	0.695	0.021	PASS	PASS	96	-0.69	2014-2016	
OREAS_503d	2	0.666	0.015	PASS	PASS	100	4.37	2018	not enough to review
OREAS_504b	16	1.61	0.037	PASS	PASS	100	0.56	2014-2016	
OREAS_504c	2	1.48	0.045					2021	not enough to review
OREAS_52Pb	5	0.307	0.017	PASS	PASS	100	0.47	2014-2018	
OREAS_53Pb	2	0.623	0.021					2021	not enough to review
OREAS_54Pa	1	2.9	0.11	PASS	PASS	100	2.02	2014	not enough to review
OREAS_604b	1	1.69	0.047					2014	not enough to review
OREAS_605b	1	1.72	0.066					2014	not enough to review
Total	86								
BLANK	48	0.005	0.015	PASS	PASS	100	0	2014-2021	Detection -0.01 and -0.005 graphed together
Total	48								

Table 9-2 Ag CRM and Blank summary for ALS (Orange) – Carroll's deposit.

CRM	No. Samp	Expected Value	Std Dev	Accuracy	Precision	% Passing 3SD	% Bias	Period In Use	Comments
OREAS_501b	21	0.778	0.128	PASS	FAIL	100	-13.70	2014-2016	Failed Precision with >10% negative bias despite 100% between 2SD-3SD
OREAS_501c	3	0.461	0.053	PASS	PASS	100	8.46	2018	not enough to review
OREAS_503b	20	1.54	0.19	PASS	PASS	100	-0.32	2014-2016	
OREAS_503d	2	1.34	0.066					2021	not enough to review
OREAS_504b	16	3.07	0.225	PASS	FAIL	87.5	4.23	2014-2018	Failed Precision with only 87.5% within 2SD- 3SD;2 failures observed
OREAS_504c	2	4.22	0.288					2021	not enough to review
OREAS_604b	1	507	15					2021	not enough to review
OREAS_605b	1	1015	24					2021	not enough to review
OREAS_924	4	1.99	0.195	PASS	FAIL	75	13.07	2014	1 failure observed; Precision test failure
OREAS_933	1	31.0	2.89					2014	not enough to review
Total	71								
BLANK-C	48	0.20		48	PASS	PASS	100		
Total	48								

Table 9-3 Cu CRM and Blank summary for ALS (Orange) – Carroll's deposit.

CRM	No. Samp	Expected Value	Std Dev	Accuracy	Precision	% Passing 3SD	% Bias	Period In Use	Comments
OREAS_111	2	23000	1200					2014	not enough to review
OREAS_152a	2	0.385	0.009					2021	not enough to review
OREAS_501b	24	2600	110	PASS	PASS	100	-0.16	2014-2016	
OREAS_501c	3	2760	80	PASS	PASS	100	-0.48	2018	not enough to review
OREAS_503b	20	5310	230	PASS	PASS	100	-0.18	2014-2016	
OREAS_503d	2	5240	100					2021	not enough to review
OREAS_504b	16	11100	420	PASS	PASS	100	-1.13	2014-2018	
OREAS_504c	1	11100	300					2021	not enough to review
OREAS_52Pb	5	3338	77	PASS	PASS	100	-2.34	2014	
OREAS_53Pb	2	5460	130					2014	not enough to review
OREAS_54Pa	1	15500	200					2014	not enough to review
OREAS_604b	1	21200	360					2021	not enough to review
OREAS_605b	1	50300	1090					2021	not enough to review
OREAS_924	4	5120	280	PASS	PASS	100	3.22	2014	
OREAS_933	1	83700	2500					2014	not enough to review
Total	85								
BLANK	48	0.2		PASS	FAIL			2014-2021	4 fails observed - possible contamination? Not echoed in Au and Ag results?
Total	48								

Crucially, the pass rate for the CRMs in terms of accuracy is good. Too many different CRMs have been used resulting in only a small number being used making useful analysis difficult.

All Blanks despatched for both Au and Ag are considered to have 'passed' the precision and accuracy test. The Cu analysis showed four failed samples which could be the result of contamination although the same issue is not recognisable in the Au and Ag analysis. These are Coarse blanks which are sourced from an unknown material and inserted at a rate of 3%.

9.3.2. Field Duplicates

The results for duplicate samples (original and duplicate) were plotted as Q-Q plots and relative paired difference plots (RPD) – see Appendix 1. Comparison of the duplicate pairs in a Q-Q plot will show if any bias exists within a particular grade range. The RPD plots evaluate the relative differences in percent between pairs and allow for determining the relative precision of samples through the calculation of the Average Coefficient of Variation (ACV) .

There were seven field duplicate samples for RC samples. These were charted and filtered for the mineralised threshold of Au >0.10 g/t. Cu and Ag were not filtered. This has resulted in ACVs being within acceptable range for a sample of this type for all three elements however, there isn't enough samples to effectively reach a meaningful conclusion (Table 9-4).

The 69 laboratory repeat duplicates are mentioned in the 2015 MRE report, but were not made available for this review. Laboratory internal duplicates are not normally included in a review.

There were no DD field duplicate samples available for review.

Table 9-4 Field duplicate summary for ALS (Orange) – Carroll's deposit.

Element	Number	Period In Use	>0.10 Au_ppm Num_Samps	Average Pair Mean Difference	ACV	Asy10%	Asy20%	Asy50%	Comments
Gold	7	2014	5	-25.30	36.9	40	40	60	Not enough samples to effectively review
Silver	7	2014	7	6.90	31.9	28.6	42.9	57.1	Not enough samples to effectively review
Copper	7	2014	7	1.80	23.2	42.9	57.1	85.7	Not enough samples to effectively review

9.3.3. Summary and Recommendations

The following summarises the findings and recommendations of the review:

- There was a lack of detail and insufficient numbers of QAQC samples within the data set to produce a fully informed review. For instance, 'Date_labjob' is required to assist in being able to pinpoint laboratory events over time. For this review the 'date_drilling' was used, which provides a far less informed judgement.
- Too many CRMs have been used, with the result that some have insufficient numbers of QAQC samples to allow for firm conclusions to be reached. That being said, those with sufficient numbers of samples performed reasonably satisfactorily.
- Analyte Methods were not included in the dataset and are also a requirement to establish which CRM values to use as this may alter the pass/fail outcome. For best practise some laboratory jobs and PDFs should ideally be received along with the database for validation purpose as they provide a level of detailed information which is valuable to a QC review.
- It is recommended that QC procedures should be adopted where there is more than one fail within the same batch that re-assay around the failed samples (2) or complete job re-assay (3).

- At ALS (Orange) there were four failed blank samples reported which were surrounded by higher Cu grade assays. This could be a result of contamination within the laboratory or at the point of blank sample preparation, but is most likely the former. These issues have not been satisfactorily resolved and should be proactively raised with the Laboratory on import to have any chance of being able to rectify the issue.
- While the overall rate of duplicates is very low (<1%), it is possible there are other duplicates available for review which were not included in the dataset.
- It is recommended there be more duplicates carried out on a regular basis. Where core is concerned consider using the Coarse rejects as a duplicate. If there can be any duplicate assaying carried out retrospectively this would be highly recommended as the current data available is insufficient to form any meaningful opinion. The duplicates should ideally be instigated by the client on a regular basis and include the insertion of CRM's and Blanks throughout. The laboratory internal duplicates are not an independent check and not normally included in a QC review.

While the four failed Cu blanks appears to be a noteworthy issue, the QAQC results are believed to be sufficiently robust to support the use of the drill assay data for a MRE.

10. Data Verification and Validation

10.1. Data Management

Primary data were collected for drill holes using the OCRIS logging template on Panasonic Toughbook laptop computers using lookup codes. The information was sent to a database consultant for validation and compilation into a SQL database.

10.2. Data Verification

10.2.1. Drill Hole Collar and Downhole Surveys

Historical holes were originally located on two local grids (Hackman, 2015; details unknown). These collar coordinates were then translated and converted to GDA94 - MGA Zone 54S by historical workers, with conversion details unknown.

Stavely holes have been surveyed in GDA94 – MGA Zone 54S and the MRE update has been undertaken in this coordinate system.

Stavely undertook some verification work on two Pennzoil, three Centaur and four Beaconsfield holes with GPS checks showing that these collars are located within 5 to 10 m of their historical records.

Cube has undertaken visual 3D inspection of the hole locations and downhole traces, with reference to the surveyed topography. In addition, the findings of Hackman (2015), whereby a discrepancy between the collar elevations of the Stavely and historical holes was noted, were considered. No major issues with the downhole surveys are suspected, due to the hole traces being visually reasonable. However, the findings of Hackman (2015) were verified with respect to collar elevations, and as a result the Stavely collars, which are generally high relative to the historical data, were draped onto a topographic surface model created by Cube. This topographic surface was created using primarily the historical drill collars. The Stavely drill hole collar adjustments are shown in Table 10-1. A more detailed study of the elevation discrepancy is recommended, which should by necessity involve the generation of a reliable, high resolution and accurate topographic survey.

Table 10-1 Stavely drill hole collar elevation changes.

Hole ID	Elevation Change (m)
SADD004	1.421
SADD003	-20.509
SADD002	-9.411
SADD001	-11.038
SARC009	-6.903
SARC008	-6.393
SARC007	-12.991
SARC006	-11.755
SARC005	-11.803
SARC004	-7.808
SARC001	-4.59

10.2.2. Assay Data

Cube has undertaken a QAQC review for the gold assay data, as previously detailed in Section 9.3. Cube has not independently verified the assay data contained in the database against original records. It is worth noting that the assay sampling has been undertaken on a highly selective basis, with most of the drilled length not having been sampled at all. It is assumed that sampling was only undertaken in intervals where visible sulphide or oxide ore minerals were observed.

10.2.3. Independent Verification Samples

Cube has not collected and submitted independent verification samples for the Carroll's deposit and was unable to send a representative to site because of Covid 19 travel restrictions.

10.2.4. Twinned Holes

No suitable twin holes are available for analysis at Carroll's. Cube would strongly recommend that twinned holes are drilled in key areas within the Life-Of-Mine (LOM) volume, especially against some of the historical holes, in order to provide some robust verification of the historical assay results, but also to compare the RC and DD methods, especially within the weathered zone where some downhole smearing of the RC results is suspected.

10.2.5. Geological Logging

Cube has not independently checked the drill logging.

10.2.6. Topography

A high accuracy and resolution topographic survey is not available for the Carroll's deposit. As previously described, Cube has created a topographic surface based almost entirely on the RC and DD historical hole collars, before draping some higher-lying Stavely collars onto this surface. The surface model created is *"cube_collar_topo_aug21.dtm"*. Cube strongly recommends that an accurate topographic survey is undertaken and that this is compared to the disparate historical and modern Stavely drill collars in order to resolve the observed discrepancies.

10.3. Database Validation

Following data verification, and adjustment of the collar elevations, database validation checks were completed by Cube as follows:

- Sample data exceeding the recorded depth of hole.
- Checking for sample overlaps.
- Reporting missing assay intervals.
- Visual validation of co-ordinates of collar drill holes following adjustments.
- Visual validation of downhole survey data.

No major issues were detected.

11. Domains, Exploratory Data Analysis and Geostatistics

11.1. Data Used for Estimation

As previously discussed in Section 8.1, ineligible and distant drill holes were excluded from consideration for the Carroll's MRE update, leaving the holes listed as per Table 8-3.

The holes used for mineralisation interpretation and interpolation are flagged in the resource estimation database collar table (called *"Collars_Final"* within *"Ararat_Cube_03082021.mdb"*) in a field named *"In_Resource"* – a flag value of 'YES' indicates that the hole was eligible for use in the estimate.

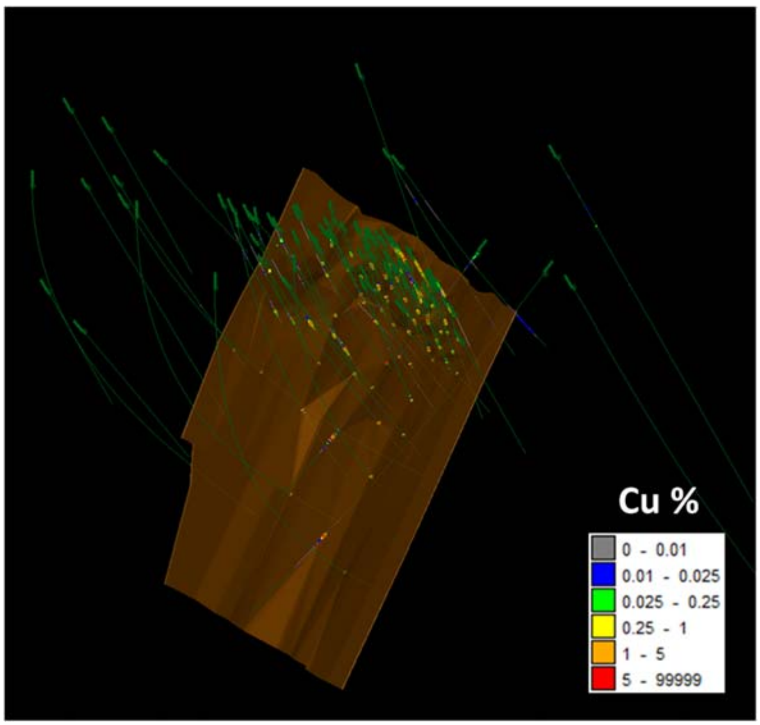

Figure 11-1 Isomteric view looking north, of RC and DD holes considered eligible for use in the Carroll's MRE update.

11.2. Actions on Undefined/Null and Below Detection Limit Samples

Table 11-1 summarises the actions taken by Cube in respect of negative and below detection limit values for copper, gold, zinc and silver grades in the database for estimation purposes. The copper and zinc grades were also converted from units of ppm to weight % during this process.

All null copper values were retained as nulls and therefore assumed to be unsampled intervals, but gold, zinc and silver samples with null values were divided into two types:

- Those samples for which copper was also null were retained as nulls.
- Those samples for which copper had been assayed were assigned values based on a linear regression equation with copper as the explanatory variable. This is discussed in more detail below.

Table 11-1 Actions on undefined/null and below detection limit values for grade.

Variable	No. of Records	Original Value	Replacement Value
Cu	3,563	Null	Null (ignore)
	151	-30 ppm	0.0015%
	12	-10 ppm	0.0005%
	14	-1 ppm	0.00005%
Au	84	Null	Regressed on Cu
	749	Null	Null
	1	-5555	Regressed on Cu
	2,468	-0.02 ppm	0.01 ppm
	4,780	-0.01 ppm	0.005 ppm
	1,093	-0.005 ppm	0.0025 ppm
Zn	3	Null	Regressed on Cu
	3,553	Null	Null
	252	-50 ppm	0.0025%
	49	-2 ppm	0.0001%
	16	-1 ppm	0.00005%
Ag	3,534	Null	Regressed on Cu
	3,557	Null	Null
	3	-2 ppm	1 ppm
	3,677	-1 ppm	0.5 ppm
	2,776	-0.5 ppm	0.25 ppm
	1,533	-0.2 ppm	0.1 ppm
	12	-0.1 ppm	0.05 ppm

The regression equations for Au, Zn and Ag on Cu were based on all available raw assay data in the eligible dataset. The equations used to produce the regressed values are:

$$Au\ (ppm) = 0.277 * Cu(\%)$$

$$Zn\ (\%) = 0.05254 * Cu\ (\%)$$

$$Ag\ (ppm) = 2.375 * Cu\ (\%)$$

Very few values required regression - ~3.5% of eligible samples for Au, ~3% for Ag and ~0.1% for Zn.

11.3. Geology and Mineralisation Domains

11.3.1. Oxidation/Weathering Surface

The previous MRE delineated the weathered, supergene and fresh rock horizons. It is Cube's view that the generally poor quality and inconsistency of the logging data for the oxidation/weathering state of the rock prohibits such a nuanced classification. Instead, it was decided to attempt to separate totally fresh rock from rock that had undergone some degree of weathering. Even so, many holes have logs that are clearly incorrect and these had to be ignored. It was found that, on average, the fresh-weathered dividing surface occurs on or around the 30 mRL elevation. The dividing surface model file is named *"cube_wx_tofr_2021.dtm"* and was produced by manual sectional digitising in Surpac v7.2.

11.3.2. Mineralisation/Estimation Domains

Because of the inconsistency of the logging, especially with respect to the occurrence of massive sulphide, the often very narrow nature of the massive sulphide in the fresh zone, and the significantly mineralised halo surrounding the massive sulphide, it was decided to define a mineralisation domain that encompasses both the massive sulphide lenses and the enveloping halo mineralisation. A log-probability plot of copper grade for all eligible raw assay samples shows that there is a prominent inflexion at ~0.1% Cu (Figure 11-2).

Only a single main lode has been modelled at a nominal cut-off of 0.1% Cu. While there are some minor intercepts of mineralisation outside the main VMS lode, both in the footwall and hangingwall, these are very poorly constrained by the drilling and so no attempt was made to produce estimation domains in those instances. Polygon strings were digitised manually in Surpac v7.2 and then used to produce a closed 3D solid model of the mineralisation envelope. This solid model file is named *"cube_min_aug21.dtm"* and is shown in section view in Figure 11-3 and isometric view in Figure 11-4.

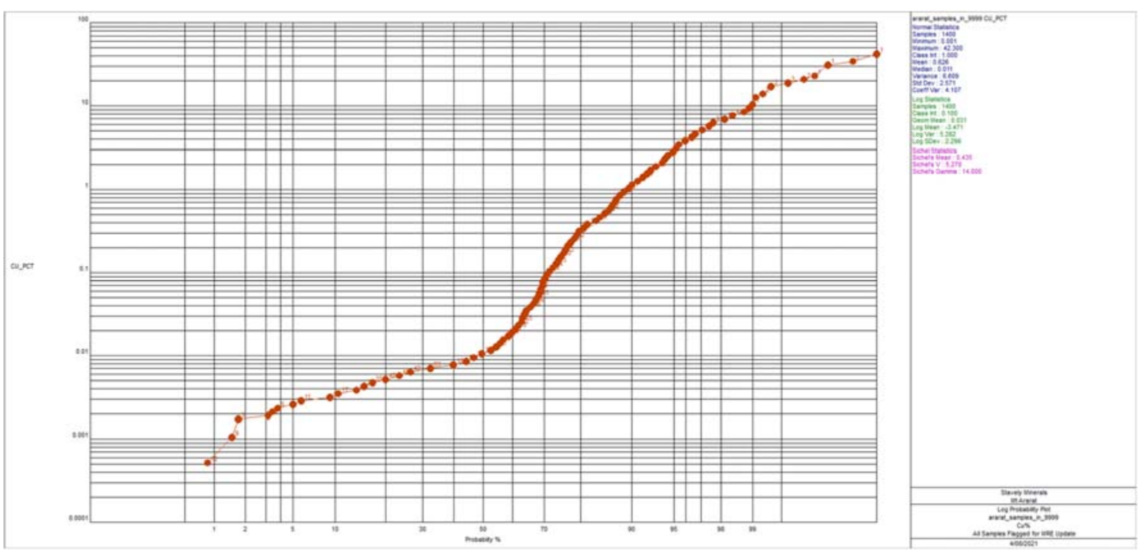

Figure 11-2 Log-probability plot of raw assay Cu grades – all eligible holes and samples.

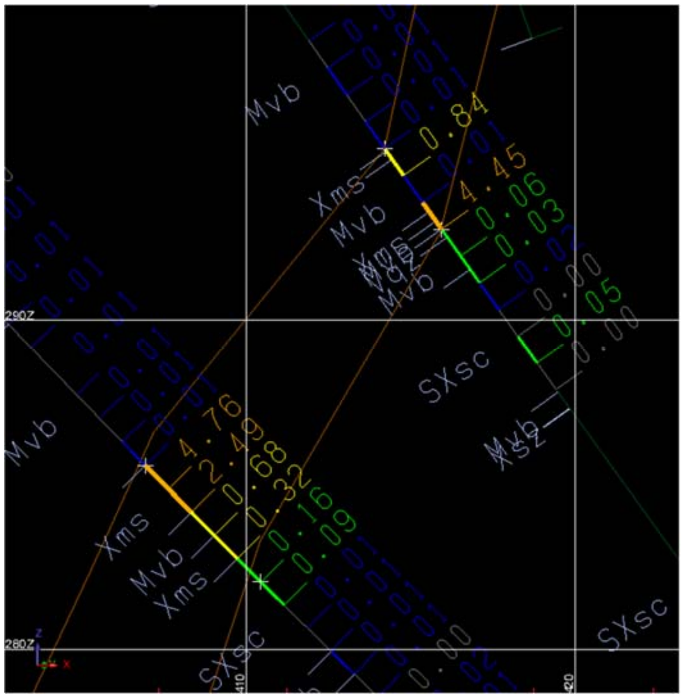

Figure 11-3 Section view looking north – some hole traces with Cu % grade labels to the right and lithology labels to the left – the Xms unit is the massive sulphide.

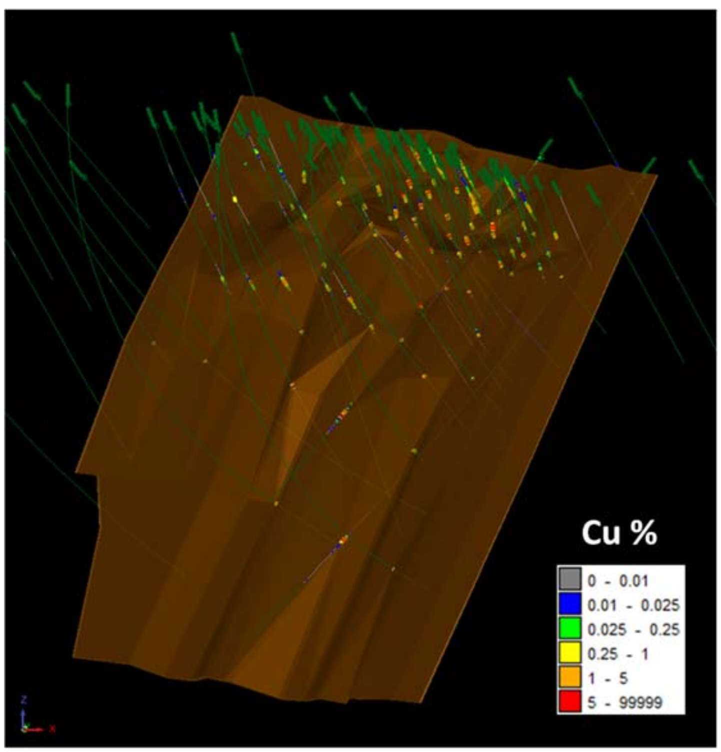

Figure 11-4 Isometric view looking north showing the main lode shape with hole traces coloured by copper grade. The dark green portions of the traces are unsampled.

11.4. Domain Coding and Compositing

11.4.1. Sample Coding

Drill intervals for eligible holes were flagged in the database "*Ararat_Cube_03082021.mdb*" in a table called "*zonecode_2021*" using the estimation domain wireframe in Surpac v7.2. A code of 100 was assigned to the main lode mineralisation/estimation domain. The coding was checked visually to ensure it was free of errors.

11.4.2. Compositing

Compositing for the reported grade interpolation was undertaken using density weighting. Some 34 density readings were available for use in the MRE update, and these were coded by logged lithology, as well by their location with respect to the mineralised domain (i.e. in the mineralised domain or in the 'waste'). A statistical analysis showed that the densities are generally higher within the mineralised domain, but especially and understandably within the massive sulphide lithology inside the mineralised zone. There is consequently a moderate-to-strong relationship between Cu grade and density inside the fresh portion of the mineralised domain (Figure 11-5).

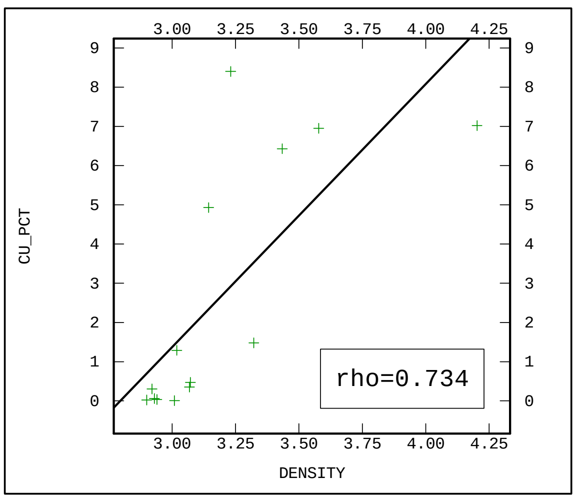

Figure 11-5 Scatter plot showing the relationship between measured density and copper grade for samples falling within the fresh portion of the mineralised domain.

This relationship was used to produce regressed density values for each of the assay samples falling within the fresh portion of the estimation domain, which were then used to weight the samples during compositing. No density weighting of the samples in the weathered portion of the estimation domain was undertaken, as the sulphides that contribute to the density contrast have been destroyed in this environment and also because there is only a single available density sample that falls within the weathered zone, and this sample falls outside of the estimation domain. The regression equation used for the fresh part of the estimation domains is as follows:

$$Density = 0.080387 * Cu(\%) + 2.981059$$

Two composite files were produced – the first having no density weighting applied to any of the samples, and the second having density weighting applied to the fresh samples. The reason for this was to enable assessment of the difference that the density weighting makes.

More than 90% of raw assay samples for all coded assays inside the estimation domain are less than or equal to 1 m in length. A small number are between 1 m and 2 m in length, and a single sample is 3.3 m in length. Given this fact, and that the estimation domain is relatively narrow in some areas (especially the fresh zone), it was decided to composite to a target length of 1 m. More than 90% of the composites ended up being exactly 1 m in length, with the remainder being less than 1 m in length (Figure 11-6).

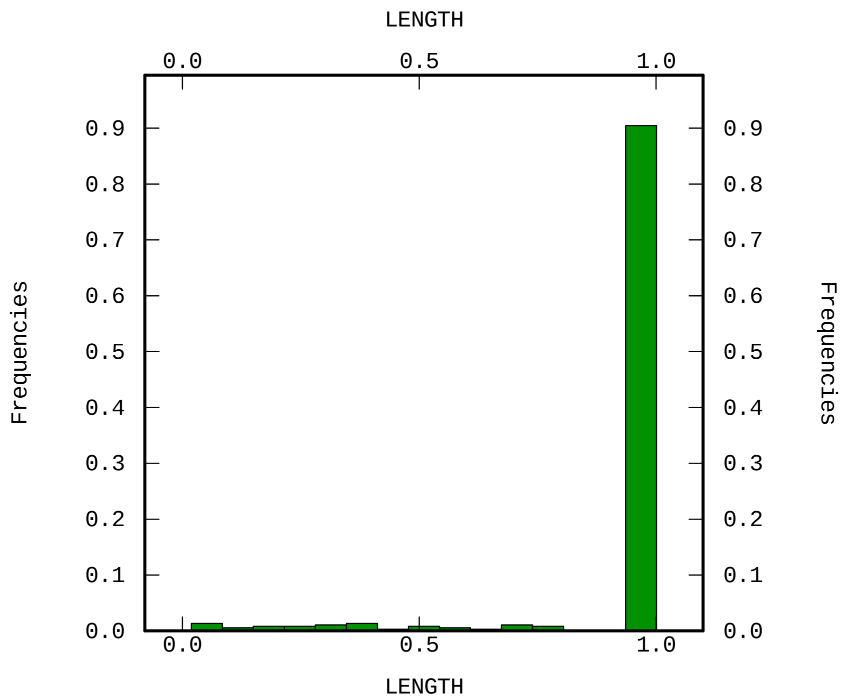

Figure 11-6 Composite sample lengths inside the estimation domain.

Compositing of the drill holes for gold was undertaken as follows using Surpac v7.2:

- The "fixed length" algorithm was used and any composites having less than a 0.25m length were flagged.
- The composites were tagged with the oxidation/weathering code.

Composite length was plotted against the copper composite grade (Figure 11-7). The plot shows a very tight grouping of composite lengths about the 1 m target length, with no obviously significant bias in grade apparent for short or long composites. It was therefore decided to retain all the composites for estimation.

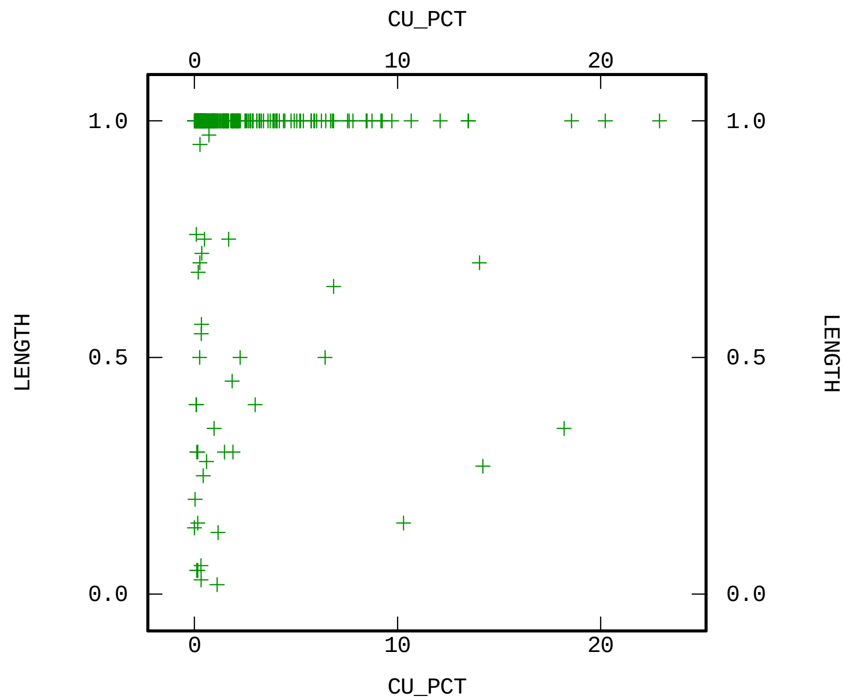

Figure 11-7 Scatter plot of composited copper grade against composite length.

The composite files were imported into Isatis v2018.4 for grade interpolation.

11.5. Exploratory Data Analysis

11.5.1. Oxidation/Weathering Boundary

A boundary test was undertaken on the Cu grade across the modelled weathered-fresh rock boundary. Unfortunately, only a few samples inform this analysis. There is no evidence that there is a sharp transition at the boundary, with the highest-grade values coming from the fresh side of the boundary (Figure 11-8).

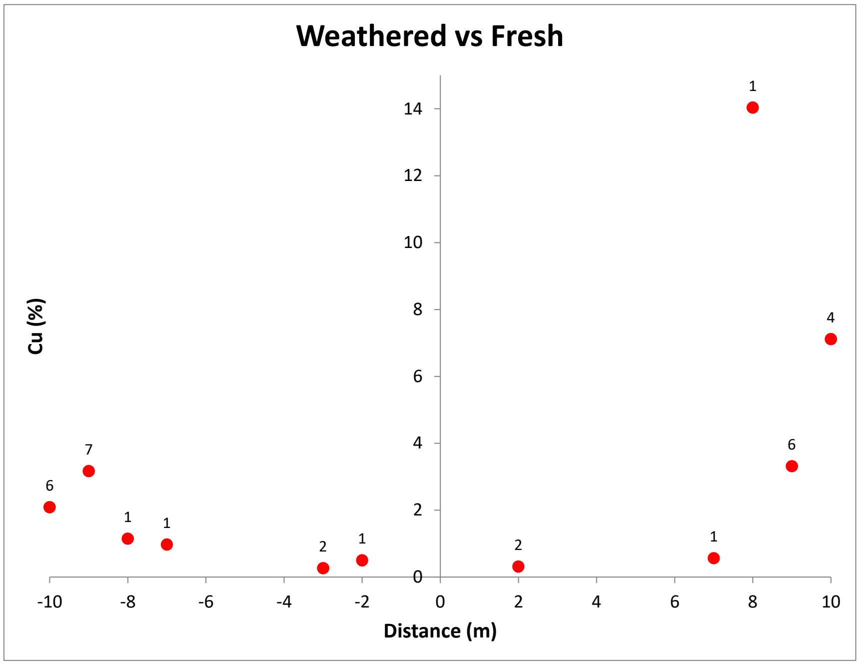

Figure 11-8 Boundary test for Cu% - weathered versus fresh rock.

11.5.2. Basic Statistics

Basic statistics for the composites within the estimation domain are shown in Table 11-2 for values without density weighting, and in Table 11-3 with the composites in the fresh sub-domain weighted for density. Log-probability plots coloured by domain code are displayed in Figure 11-9 through Figure 11-16.

It is immediately apparent that the grade tenor of the fresh rock is higher than the weathered zone. In addition, the weathered zone is significantly broader than the fresh zone, which strongly suggests that the fresh mineralisation has been remobilised in the supergene environment. The grade variability is generally high for all the variables, all of which are positively skewed, and most of the distributions are multi-modal, indicating more than one grade sub-population exists. The density weighting of the fresh samples has raised slightly the mean grade, with the higher-grade samples in the relatively dense massive sulphide receiving a boost.

Table 11-2 Basic Statistics for all 1m composites – no density weighting.

Variable	Sub-domain	N	Min	Max	Mean	Median	Std Dev	CoV
Ag g/t	OXTR	157	0.25	35.72	1.73	0.50	4.05	2.34
	FRESH	220	0.01	86.40	5.15	2.00	9.39	1.82
Au g/t	OXTR	157	0.005	3.64	0.20	0.09	0.45	2.29
	FRESH	220	0.001	12.44	0.50	0.12	1.38	2.75
Cu %	OXTR	157	0.041	22.90	1.30	0.43	2.73	2.10
	FRESH	220	0.00001	18.20	1.95	0.85	2.99	1.53
Zn %	OXTR	157	0.009	1.17	0.12	0.07	0.16	1.30
	FRESH	220	0.00001	4.34	0.33	0.16	0.47	1.45

Table 11-3 Basic Statistics for all 1m composites – density weighting of FRESH samples.

Variable	Sub-domain	N	Min	Max	Mean	Median	Std Dev	CoV
Ag g/t	OXTR	157	0.25	35.72	1.73	0.50	4.05	2.34
	FRESH	220	0.01	109.67	5.39	2.00	10.61	1.97
Au g/t	OXTR	157	0.005	3.64	0.20	0.09	0.45	2.29
	FRESH	220	0.001	13.34	0.53	0.12	1.52	2.85
Cu %	OXTR	157	0.041	22.90	1.30	0.43	2.73	2.10
	FRESH	220	0.00001	20.23	2.04	0.85	3.22	1.58
Zn %	OXTR	157	0.009	1.17	0.12	0.07	0.16	1.30
	FRESH	220	0.00001	4.34	0.33	0.16	0.47	1.44

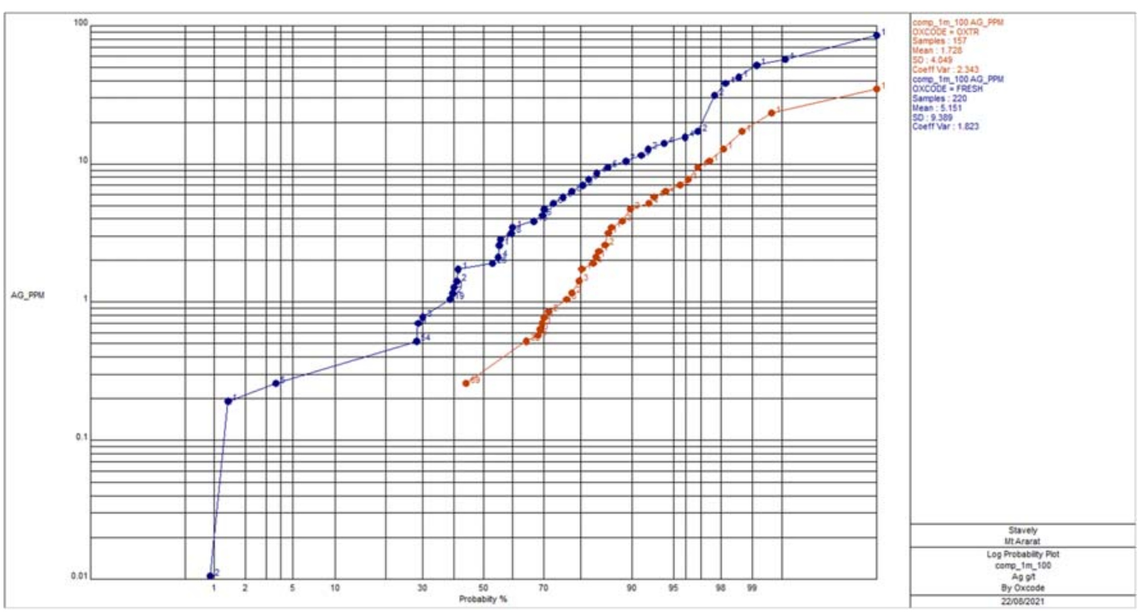

Figure 11-9 Log-probability plots - 1m composites – Ag g/t – no density weighting – split by weathering.

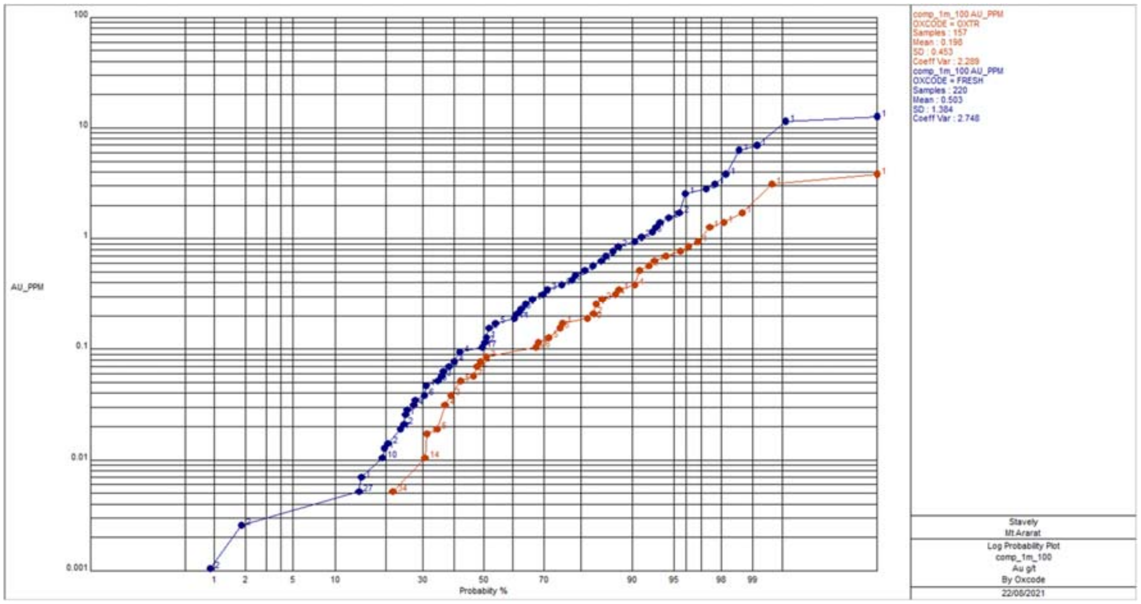

Figure 11-10 Log-probability plots - 1m composites – Au g/t – no density weighting – split by weathering.

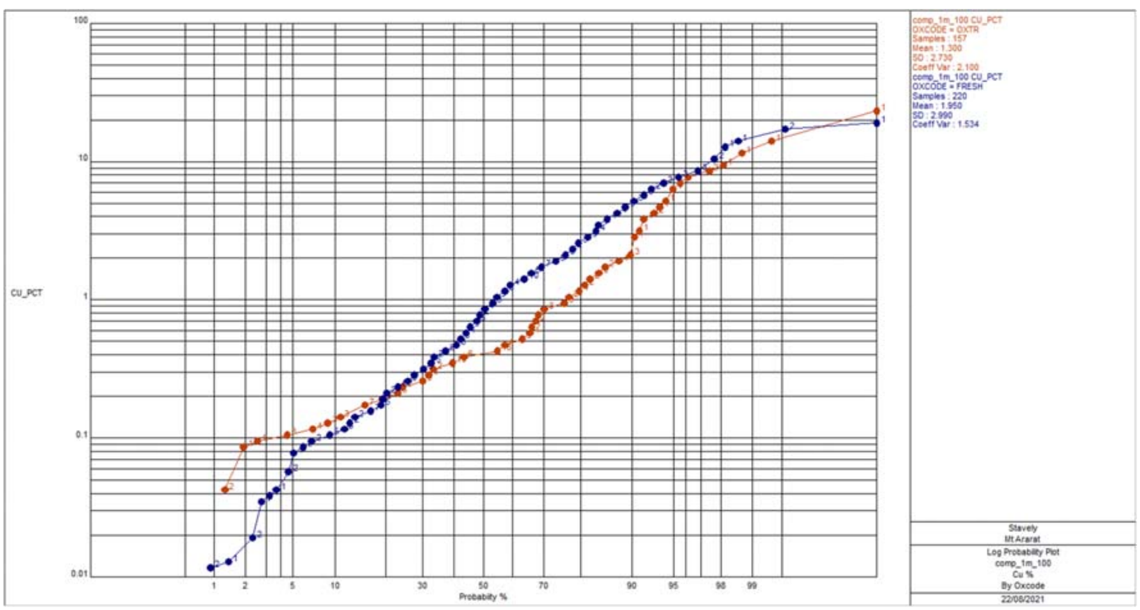

Figure 11-11 Log-probability plots - 1m composites – Cu% – no density weighting – split by weathering.

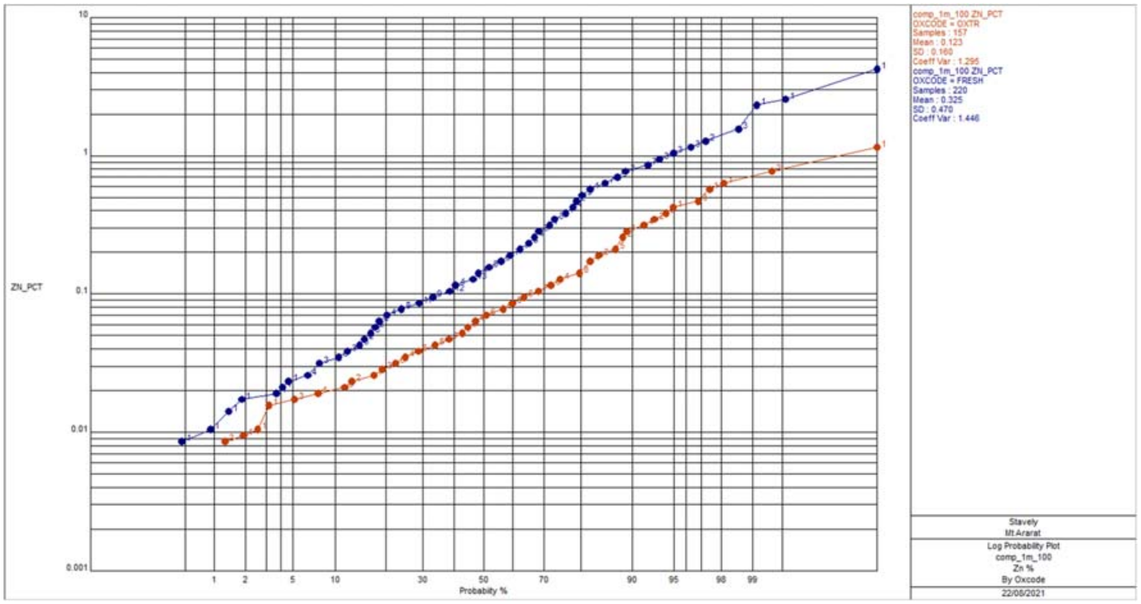

Figure 11-12 Log-probability plots - 1m composites – Zn% – no density weighting – split by weathering.

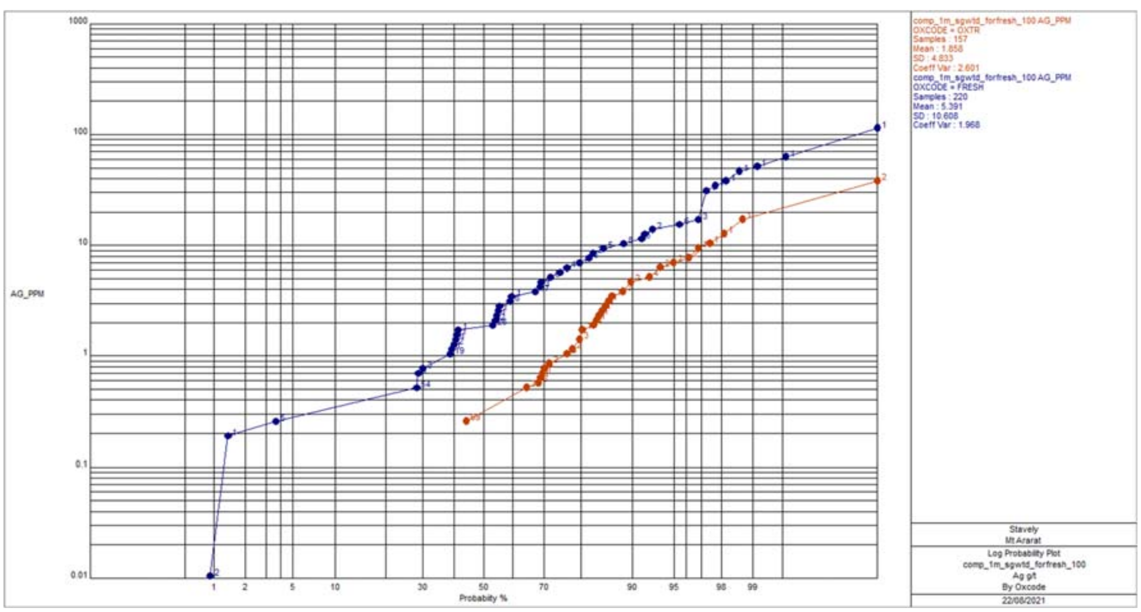

Figure 11-13 Log-probability plots - 1m composites – Ag g/t – fresh density weighted – split by weathering.

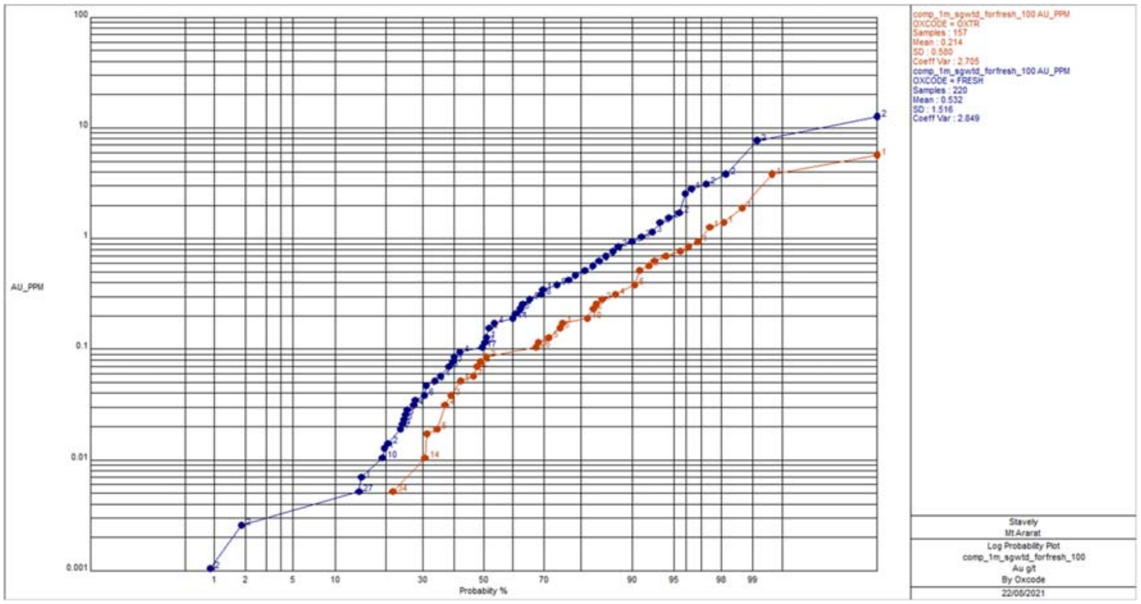

Figure 11-14 Log-probability plots - 1m composites – Au g/t – fresh density weighted – split by weathering.

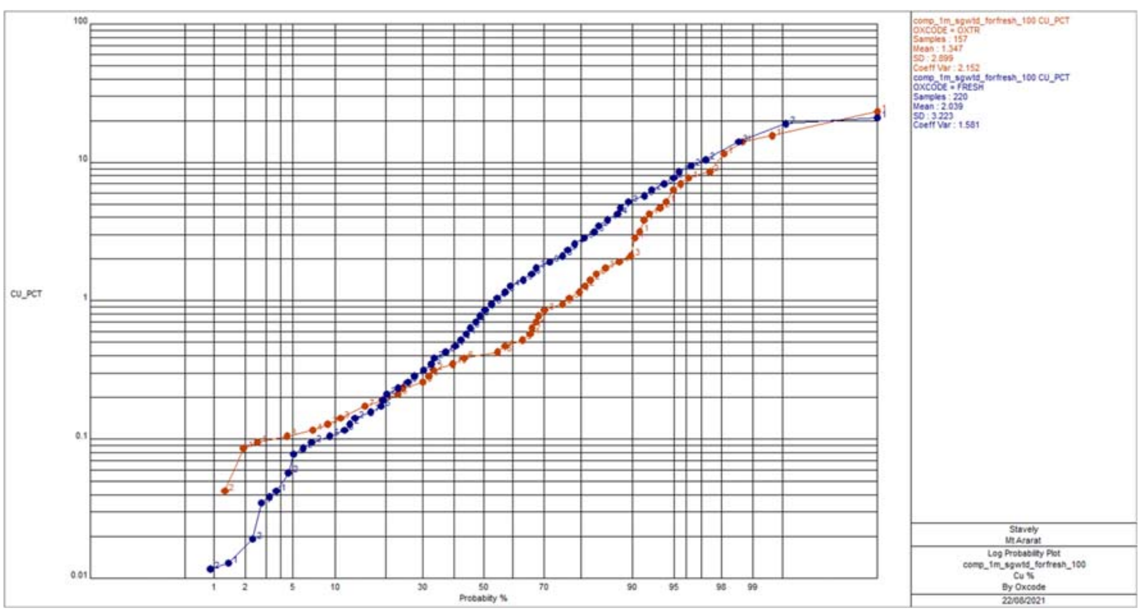

Figure 11-15 Log-probability plots - 1m composites – Cu% – fresh density weighted – split by weathering.

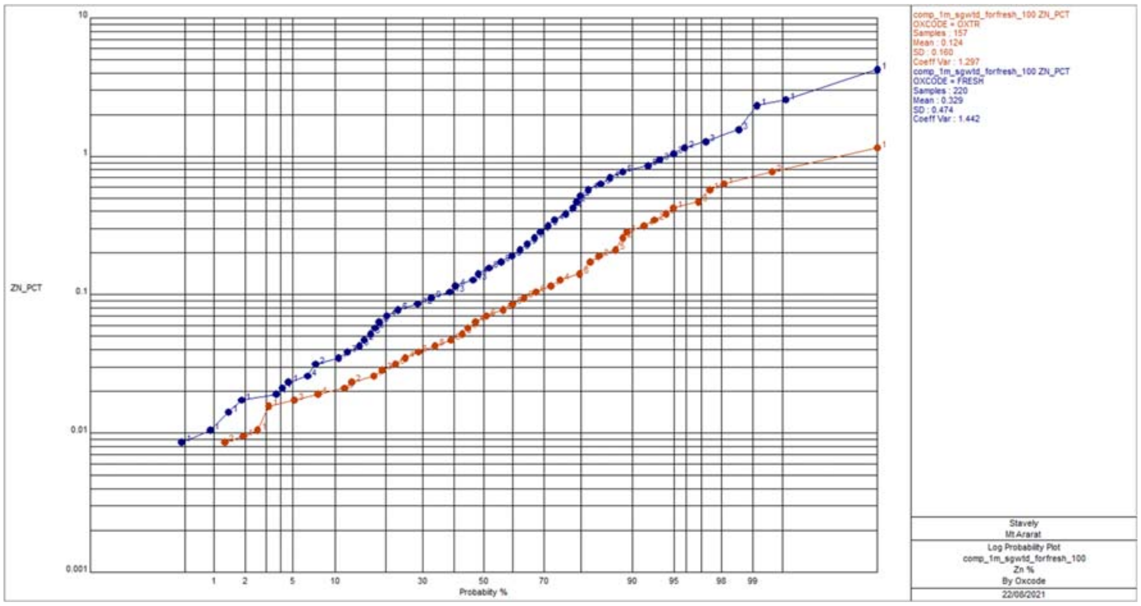

Figure 11-16 Log-probability plots - 1m composites – Zn% – fresh density weighted – split by weathering.

11.6. Interpolation Approach

Three distinct sets of interpolation runs were undertaken for grade estimation:

1. **Ordinary Kriging (OK) Estimates** – OK was used to interpolate Ag, Au, Cu and Zn grades.
2. **Inverse Distance Squared (ID^2) Estimates** – ID^2 interpolation, although theoretically not as geostatistically robust as OK or CIK, is a simple method that is typically less smoothing than an OK estimate, and so can produce reasonable results for high variance situations.
3. **Categorical Indicator Kriging (CIK) Estimates** – CIK was used to interpolate Ag, Au, Cu and Zn grades using the following general approach:
    a. A grade threshold was picked for each variable, based on inflexion points in the grade histograms, which are believed to represent the boundary between lower- and higher-grade sub-populations.
    b. An indicator variable was defined at the chosen threshold, and then OK was used to estimate this indicator variable into 0.625 mE × 2.5 mN × 2.5 mRL sub-blocks of the final 2.5 mE × 10 mN × 10 mRL parent blocks.
    c. Any blocks with an indicator OK estimate greater than 0.35 was flagged as 'high-grade' (termed the 'BZ' sub-domain) while the remainder of the blocks were designated as 'low-grade' (termed the 'MZ' sub-domain). The composite samples were then back-flagged as low- or high-grade based on their proximity to the low- or high-grade sub-blocks. This indicator OK threshold was determined visually and iteratively by comparison to the other estimators.
    d. Each grade variable was estimated independently in the MZ and BZ grade zones using OK into the sub-blocks.
    e. The low and high-grade sub-block estimates were finally re-blocked into the parent block size of 2.5 mE × 10 mN × 10 mRL for reporting.

f. While different variogram models were used for the OK and CIK, some key search parameters were retained so as not to produce too many points of difference between the OK and CIK method. The most notable example of this is the search radius ratios of 4:4:1 for the major:semi:minor axes and the use of the same rotation parameters for variogram/search in the OK, CIK and ID^2 runs.

The CIK and ID^2 are considered better suited to the highly variable grades at Carroll's than the OK, with the latter being prone to producing over-smoothed estimates for positively skewed, high variance variables. The final grade attribute reported for this MRE was the ID^2, and the reasons for this are discussed in Section 12.8.3.

The OK and ID^2 interpolations were run with and without the density weighting in the fresh zone, while the CIK was run only with the density weighted data set.

11.7. Grade Capping

Grade caps were chosen based on the following criteria:

- Examination of the distribution plot for each grade variable, noting the point at which the upper tail of the distribution loses support.
- By visual examination of the position of outlier values relative to surrounding samples.

The grade caps and relevant statistics are listed in Table 11-4 for the composites with no density weighting and in Table 11-5 for those with the fresh samples density weighted.

Table 11-4 Grade caps chosen based on 1 m composites – no density weighting.

Variable	Sub-domain	Top Cut	No. Cut	Uncut Mean	Cut Mean	%Red Mean	Uncut CoV	Cut CoV	%Red CoV
Ag g/t	OXTR	30	1	1.73	1.69	-2.1%	2.34	2.22	-5.2%
	FRESH	60	1	5.15	5.03	-2.3%	1.82	1.68	-7.6%
Au g/t	OXTR	2.5	2	0.20	0.19	-6.1%	2.29	1.99	-13.0%
	FRESH	8	2	0.50	0.47	-7.2%	2.75	2.36	-14.2%
Cu %	OXTR	12	3	1.30	1.22	-6.1%	2.10	1.83	-13.1%
	FRESH	15	3	1.95	1.92	-1.6%	1.53	1.48	-3.8%
Zn %	OXTR	0.8	1	0.12	0.12	-1.6%	1.30	1.21	-6.6%
	FRESH	2	3	0.33	0.31	-4.6%	1.45	1.22	-15.6%

Table 11-5 Grade caps chosen based on 1 m composites – fresh samples density weighted.

Variable	Sub-domain	Top Cut	No. Cut	Uncut Mean	Cut Mean	%Red Mean	Uncut CoV	Cut CoV	%Red CoV
Ag g/t	OXTR	30	1	1.73	1.69	-2.1%	2.34	2.22	-5.2%
	FRESH	70	1	5.39	5.21	-3.4%	1.97	1.74	-11.7%
Au g/t	OXTR	2.5	2	0.20	0.19	-6.1%	2.29	1.99	-13.0%
	FRESH	6	4	0.53	0.45	-15.0%	2.85	2.13	-25.3%
Cu %	OXTR	12	3	1.30	1.22	-6.1%	2.10	1.83	-13.1%
	FRESH	20	1	2.04	2.04	0.0%	1.58	1.58	-0.1%
Zn %	OXTR	0.8	1	0.12	0.12	-1.6%	1.30	1.21	-6.6%
	FRESH	2	3	0.33	0.31	-4.6%	1.44	1.22	-15.3%

11.8. Variography

Variogram models for the OK and CIK estimation were produced. The grade variables for OK were modelled separately for the weathered and fresh sub-domains (Table 11-6). A Gaussian transform and back-transform process was used to produce the OK grade variograms. For the CIK grade interpolation process, the indicator variables used to produce the MZ-BZ sub-domain split were modelled by weathering type (Table 11-7), but the MZ and BZ grade variables were not split by weathering (Table 11-8). The MZ and BZ grade variables were again modelled using a Gaussian transform and back-transform process. In all cases, an Isatis Geological Plane convention rotation of A=155, +X=65 and -Z=0 was used.

Table 11-6 Variogram model parameters for OK grade estimation – sills shown normalised to 100%.

Variable- Subdomain	Nugget	Spherical 1				Spherical 2			
		sill	major (m)	semi (m)	minor (m)	sill	major (m)	semi (m)	minor (m)
Ag - Weathered	19.7%	44.9%	6	6	3	35.5%	18	18	7
Au - Weathered	19.2%	44.4%	6	6	1.5	36.4%	18	18	4.5
Cu - Weathered	21.4%	43.2%	6	6	3	35.4%	18	18	7
Zn - Weathered	16.4%	44.0%	7	7	3	39.5%	19	19	8
Ag - Fresh	18.2%	41.1%	7	7	3	40.6%	27	27	8
Au - Fresh	21.2%	49.8%	5	5	3	29.0%	20	20	7.5
Cu - Fresh	16.5%	53.5%	5.5	5.5	3.5	30.0%	19	19	8
Zn - Fresh	16.3%	52.1%	5.5	5.5	3.5	31.6%	19	19	8

Table 11-7 Variogram model parameters for OK grade indicator variables used in the first step of the CIK interpolation process – sills shown normalised to 100%.

Indicator Variable- Subdomain	Nugget	Spherical 1				Spherical 2			
		sill	major (m)	semi (m)	minor (m)	sill	major (m)	semi (m)	minor (m)
Ag @ 4 g/t - Weathered	19.8%	29.7%	7	7	4	50.5%	25	25	7
Au @ 0.3 g/t - Weathered	25.6%	35.9%	6	6	3	38.5%	20	20	5
Cu @ 2% - Weathered	29.6%	35.5%	7	7	3	34.9%	20	20	6
Zn @ 0.15% - Weathered	25.3%	25.3%	6	6	3	49.4%	20	20	5
Ag @ 4 g/t - Fresh	24.9%	44.8%	12	12	3	30.3%	65	65	7
Au @ 0.3 g/t - Fresh	35.9%	46.2%	12	12	3	17.9%	50	50	6
Cu @ 2% - Fresh	29.6%	44.4%	10	10	3	26.0%	25	25	5
Zn @ 0.15% - Fresh	27.7%	34.0%	10	10	3	38.3%	25	25	5

Table 11-8 Variogram model parameters for OK grade MZ and BZ variables used in the second step of the CIK interpolation process – sills shown normalised to 100%.

Variable- Subdomain	Nugget	Spherical 1				Spherical 2			
		sill	major (m)	semi (m)	minor (m)	sill	major (m)	semi (m)	minor (m)
Ag - BZ	17.3%	37.0%	9.2	9.2	2.3	45.7%	42.2	42.2	4.9
Ag - MZ	28.3%	34.0%	7.2	7.2	3.9	37.7%	31.3	31.3	10.9
Au - BZ	18.6%	34.1%	6.4	6.4	1.5	47.3%	16.7	16.7	3.8
Au - MZ	33.4%	34.1%	6.8	6.8	3.4	32.5%	30	30	9
Cu - BZ	12.9%	32.6%	7.4	7.4	1.8	54.5%	17.7	17.7	3.9
Cu - MZ	29.2%	46.4%	6	6	3.9	24.4%	28.8	28.8	9.6
Zn - BZ	13.0%	34.1%	9.7	9.7	2.6	52.9%	43.7	43.7	5
Zn - MZ	18.7%	49.0%	7.8	7.8	4.8	32.2%	44.6	44.6	10

Th variography reveals a distinct anisotropy between the major/semi-major plane, which is parallel to the plane of the massive sulphide lode, and the minor direction perpendicular to this plane. No preferential plunge was detected within the major/semi-major plane hence the same range was modelled for the major and semi-major axes. Nugget effects are generally low-to-moderate while variogram ranges are between 19 m and 29 m for Cu. Variogram plots are included in Appendix 2.

12. Block Modelling

12.1. Block Model Definition

The final block model for Carroll's was created in Surpac v7.2 (.mdl) format, although the grade interpolation work was undertaken in Isatis v2018.4. The block model definition is shown in Table 12-1, and the listing of attributes included in the model is shown in Table 12-2.

The ultimate estimation block size was set at 2.5 mE × 10 mN × 10 mRL (local grid). The criteria considered for the determination of the block size were as follows:

- Ore body geometry – since the model encompasses roughly north-south striking ore body, an elongated dimension (in plan) was selected.
- Practical mining considerations – realistically, it was determined that mining selectivity was unlikely at a scale less than the chosen block size and shape.
- Data spacing – in some areas, the drilling is as tight as 25 m.

Table 12-1 Block model definition for the Carroll's model ('ararat_aug21.mdl').

Parameter	Easting	Northing	Elevation
Minimum Coordinates	665,100	5,868,800	0
Maximum Coordinates	665,700	5,869,700	400
User Block Size	2.5	10	10
Min. Block Size	0.625	2.5	2.5
Rotation	0	0	0

Table 12-2 List of Attributes Included in the block model

Attribute Name	Type	Decimals	Background	Description
cik_ag_ppm	Real	5	0.00001	categorical indicator kriged silver grade - ppm
cik_au_ppm	Real	5	0.00001	categorical indicator kriged gold grade - ppm
cik_cu_pct	Real	5	0.00001	categorical indicator kriged copper grade - %
cik_zn_pct	Real	5	0.00001	categorical indicator kriged zinc grade - %
cu_zn_ratio	Real	5	-99	id2 cu grade divided by id2 zn grade
density	Real	2	0	insitu dry density - t/m3
depl	Integer	-	2	depletion: 0=air; 1=mined; 2=insitu
domain	Integer	-	999	estimation/mineralisation domain code: 999=waste; 100=mineralisation
id2_ag_ppm	Real	5	0.00001	id2 silver grade - ppm
id2_au_ppm	Real	5	0.00001	id2 gold grade - ppm
id2_cu_pct	Real	5	0.00001	id2 copper grade - %
id2_zn_pct	Real	5	0.00001	id2 zinc grade - %
ok_ag_ppm	Real	5	0.00001	ordinary kriged silver grade - ppm
ok_au_ppm	Real	5	0.00001	ordinary kriged gold grade - ppm
ok_avd	Real	3	-99	ok average distance to nearest sample
ok_cu_pct	Real	5	0.00001	ordinary kriged copper grade - %
ok_ns	Real	3	-99	ok number of samples
ok_sor	Real	3	-99	ok slope of regression
ok_zn_pct	Real	5	0.00001	ordinary kriged zinc grade - %
rescat	Integer	-	4	classification: 1=meas; 2=ind; 3=inf; 4=unclass
wx	Integer	-	2	weathering: 0=air; 1=weathered; 2=fresh

12.2. Ordinary Kriging Grade Interpolation

The OK grade interpolation was undertaken using a soft boundary between the weathered and fresh zones. The primary OK run used the data set with the fresh composites density weighted, but a second set of runs without density weighting was run for comparative purposes. The OK grade interpolation was undertaken directly into the 2.5 mE × 10 mN × 10 mRL parent blocks. The two-pass search parameters used are listed in Table 12-3. An Isatis Geological Plane convention rotation of A=155, +X=65 and -Z=0 was used throughout. The first pass allowed for a more local influence to be imparted to the grade estimates, with a search radius just a bit greater than the ~50 m drill spacing that characterises much of the lode. The second pass search radii were chosen so as to fill all blocks with grade estimates.

Table 12-3 OK search parameters for grade.

Sub-domain	Pass	Search Radii (m)			No. Samples		No. Sectors
		major	semi	minor	min	max/sector	
Weathered	1	60	60	15	6	4	4
	2	180	180	45	6	4	4
Fresh	1	60	60	15	6	4	4
	2	360	360	90	6	4	4

Distance limiting parameters as per Table 12-4 were used in the OK estimates. The high-grade threshold was chosen to represent the far upper tail grade sub-population and to limit the propagation of these outlier grade values beyond 30 m, which is roughly half of the average data spacing across much of the lode, as well as being half of the size of the first pass search neighbourhood. The chosen thresholds are lower than the overall grade caps applied (see Section 11.7) and therefore represent an additional risk mitigation measure.

Table 12-4 High grade distance limiting parameters for OK and ID^2 grade interpolation.

Variable	Sub-domain	HG Threshold	Distance Limit (m)
Ag g/t	Weathered	18	30
	Fresh	18	
Au g/t	Weathered	1	
	Fresh	2	
Cu %	Weathered	9	
	Fresh	9	
Zn %	Weathered	0.5	
	Fresh	0.5	

12.3. Categorical Indicator Kriging Grade Interpolation

12.3.1. Grade Indicator Ordinary Kriging

OK interpolation of the grade indicator was undertaken at 0.625 mE × 2.5 mN × 2.5 mRL sub-block nodes using the indicator grade thresholds shown in Table 12-5 and the search parameters summarised in Table 12-6. Only the density weighted data were used, as the complexity of the CIK process prohibited also running a check using no density weighting. Only a single pass was used to interpolate the indicator. A soft boundary was used between the weathered and fresh sub-domains. An Isatis Geological Plane convention rotation of A=155, +X=65 and -Z=0 was used throughout.

Table 12-5 Indicator grade thresholds used for the CIK interpolation process.

Variable	Indicator Threshold
Ag g/t	4
Au g/t	0.3
Cu %	2
Zn %	0.15

Table 12-6 Grade indicator interpolation search parameters.

Sub-domain	Search Radii (m)			No. Samples		No. Sectors
	major	semi	minor	min	max/sector	
Weathered	180	180	45	6	6	4
Fresh	360	360	90	6	6	4

As previously mentioned, the nodes were split into MZ and BZ sub-domains using a kriged indicator threshold of 0.35 (i.e. BZ blocks where kriged indicator value is >= 0.35), and the composite sample file was also back-flagged with the sub-domained blocks into MZ or BZ sub-populations in preparation for the MZ and BZ grade interpolation, using proximity to the MZ and BZ nodes.

12.3.2. MZ and BZ Grade Ordinary Kriging

The MZ and BZ grades were interpolated using OK at the sub-block nodes. High-grade distance limiting parameters were used for the MZ interpolation only as the limiting effect of the indicator-based process was observed to be sufficiently limiting the spread of high-grade in the BZ volume (Table 12-7). BZ and MZ search parameters are summarised in Table 12-8 and Table 12-9, respectively.

Table 12-7 High grade distance limiting parameters for OK MZ grade interpolation.

Variable	Sub-domain	HG Threshold	Distance Limit (m)
Ag g/t	Weathered	18	60
	Fresh	18	
Au g/t	Weathered	1	
	Fresh	2	
Cu %	Weathered	9	
	Fresh	9	
Zn %	Weathered	0.5	
	Fresh	0.5	

Table 12-8 BZ grade sub-population interpolation search parameters.

Variable	Sub-domain	Search Radii (m)			No. Samples		No. Sectors
		major	semi	minor	min	max/sector	
Ag g/t (BZ)	Weathered	200	200	50	4	8	1
	Fresh	320	320	80	4	8	1
Au g/t (BZ)	Weathered	200	200	50	4	8	1
	Fresh	280	280	70	4	8	1
Cu % (BZ)	Weathered	60	60	15	4	8	1
	Fresh	280	280	70	4	8	1
Zn % (BZ)	Weathered	180	180	45	4	8	1
	Fresh	360	360	90	4	8	1

Table 12-9 MZ grade sub-population interpolation search parameters.

Variable	Sub-domain	Search Radii (m)			No. Samples		No. Sectors
		major	semi	minor	min	max/sector	
Ag g/t (BZ)	Weathered	180	180	45	4	3	4
	Fresh	360	360	90	4	3	4
Au g/t (BZ)	Weathered	180	180	45	4	3	4
	Fresh	320	320	80	4	3	4
Cu % (BZ)	Weathered	180	180	45	4	3	4
	Fresh	320	320	80	4	3	4
Zn % (BZ)	Weathered	180	180	45	4	3	4
	Fresh	360	360	90	4	3	4

12.3.3. Final CIK Block Grade

The final CIK block grade in the 2.5 mE x 10 mN x 10 mRL parent blocks was produced by averaging the MZ and BZ sub-block grades falling within each parent cell. Hence the final CIK parent block estimates represent a volume-weighted mean (i.e. reblocking) of the constituent MZ and BZ grade estimates.

12.4. Inverse Distance Squared Grade Interpolation

The ID^2 grade interpolation was undertaken using a soft boundary between the weathered and fresh zones. The primary ID^2 run used the data set with the fresh composites density weighted, but a second set of runs without density weighting was run for comparative purposes. The ID^2 grade interpolation was undertaken directly into the 2.5 mE × 10 mN × 10 mRL parent blocks. The two-pass search parameters used are listed in Table 12-10. An Isatis Geological Plane convention rotation of A=155, +X=65 and -Z=0 was used throughout. The first pass allowed for a more local influence to be imparted to the grade estimates, with a search radius just a bit greater than the ~50 m drill spacing that characterises much of the lode. The second pass search radii were chosen so as to fill all blocks with grade estimates. Distance limiting parameters as per Table 12-4 were used in the ID^2 estimates.

Table 12-10 ID^2 search parameters for grade.

Sub-domain	Pass	Search Radii (m)			No. Samples		No. Sectors
		major	semi	minor	min	max/sector	
Weathered	1	60	60	15	6	4	4
	2	180	180	45	6	4	4
Fresh	1	60	60	15	6	4	4
	2	360	360	90	6	4	4

12.5. Oxidation/Weathering

Oxidation/weathering state was assigned using the relevant wireframe solid and surface models, as listed in Table 12-11. The attribute 'wx' in the model was flagged.

Table 12-11 Assignment of the oxidation/weathering code in attribute 'wx'.

Assigned to	Description	Wireframe Assignment Logic
0	Air	*Above* 'cube_collar_topo_aug21.dtm'
1	Weathered	*Above* 'cube_wx_tofr_2021.dtm' AND *Below* 'cube_collar_topo_aug21.dtm'
2	Fresh	*Below* 'cube_wx_tofr_2021.dtm'

12.6. Density

A total of 34 bulk density measurements were provided to Cube, based on core samples, and were analysed using the Archimedean/water immersion technique. The measurements were statistically analysed by lithology, mineralisation domain and weathering state, but this process was hampered by the relatively few available samples (1) in the weathered 'waste' zone , fresh mineralisation domain (21) and total 'waste' zone (13). There are no available samples in the weathered mineralised zone. It is, however, clear that the massive sulphide has a high density, with six samples averaging 3.66 t/m^3. For this reason, the previously discussed density weighting of fresh assay samples was undertaken for grade interpolation. The same regression equation used to produce the density per sample for weighting was used to assign density values to blocks within the fresh portion of the mineralised domain:

$$Density = 0.080387 * Cu(\%) + 2.981059$$

An attempt was made to interpolate the density in the fresh mineralised zone using the regressed sample density values, but a final decision was taken to use instead the regression on the estimated Cu grade in order to ensure consistency between the Cu and density. Since the final MRE has been reported from the ID^2 estimate, it is the ID^2 block Cu grade estimates that were used for the density regression.

Since the weathered portion of the mineralisation domain has seen destruction of the dense sulphide minerals and is probably not too dissimilar to the surrounding 'waste' zone in terms of density, it was decided to make use of the 13 samples from the 'waste' zone to produce a regression equation based on elevation (Figure 12-1). There is a fairly robust relationship between the elevation and density, although one would expect to find a much more complicated relationship involving lithological variability if more samples were available. The regression equation, shown below, was used to assign block densities to the weathered portion of the mineralisation/estimation domain.

$$Density = -0.003455 * Z + 3.851120$$

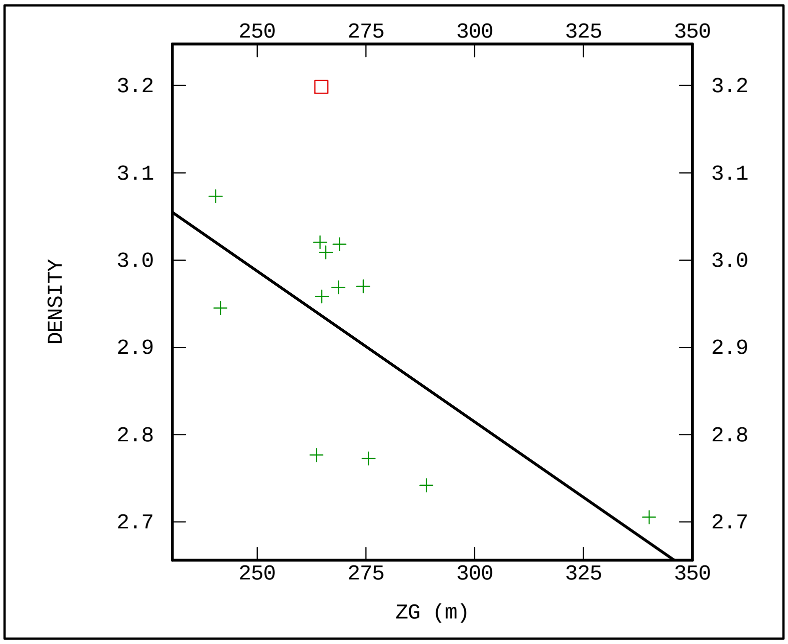

Figure 12-1 Scatter plot of density vs elevation (Z) for samples outside of the mineralised zone.

A background density value of 2.7 t/m^3 was assigned to all blocks falling outside of the mineralised zone on the assumption that most of this rock is metasedimentary in nature.

The density estimate for Carroll's is considered to be of relatively low confidence due to the paucity of data. Cube strongly recommends that Stavely undertakes a program to collect additional density measurements

12.7. Mining Depletion

No mining has been undertaken at Carroll's to date. The block model was depleted using the topographic surface modelled using the drill collars. The block model attribute coded for depletion is called 'depl' and has been coded according to Table 12-12, using an appropriate priority sequence.

Table 12-12 Depletion codes.

Assigned to 'depl'	Description	Wireframe Assignment Logic
0	Air	*Above* 'cube_collar_topo_aug21.dtm'
1	Mined	*No mined material – no blocks flagged as Mined*
2	Insitu	*Below* 'cube_collar_topo_aug21.dtm'

12.8. Mineral Resource Estimate Validation

Mineral resource estimate validation, for the grade estimates based on the density weighted data, has been undertaken by the following means:

- Global statistical comparisons of mean estimated block grades to mean composite grades.
- Using swath plots to compare estimated block grades to the informing composite grades.
- By visual validation, both in cross-section and 3D isometric views, of the estimated block grades overlaid on drill assay data.

12.8.1. Global Statistical Comparisons

Global comparisons of mean estimated block grades to informing composite mean grades are shown in Table 12-13. Differences between the composite and estimated values can partly be explained by:

- Declustering effects;
- The effect of poorly informed volumes, which can result in global biases being produced in the block estimates, and
- The use of distance limiting in the ID^2 and OK estimates, which tend to result in block estimates that are somewhat lower than the informing samples. The best example of this is the Zn variable, where the distance limiting in the ID^2 and OK has had a strong impact.

However, in addition to the above effects, the particular characteristics of the various interpolators have played a role in producing differences between the various estimates and between the estimates and the informing composites. The CIK for instance, has produced the highest global grades for the Ag, Au and Zn, not only because it doesn't apply high grade distance limiting, but also because it produces proportionately larger patches of higher grade 'BZ' material than the other two interpolators. However, this is not the case for the Cu, where the ID^2 has produced the highest global grade. Being by far the most important economic element, the Cu difference is therefore important and is examined in more detail in Section 12.8.3 below.

Table 12-13 Global validation statistics.

Variable	Variable	N	Min	Max	Mean	Variance
Ag g/t	Composites (undecl.)	377	0.01	70.00	3.75	56.42
	Composites (decl.)	377	0.01	70.00	4.72	50.03
	CIK	186,001	0.19	33.82	4.79	15.15
	ID^2	186,001	0.02	34.68	4.30	9.02
	OK	186,001	0.25	20.89	4.02	5.07
Au g/t	Composites (undecl.)	377	0.001	6.00	0.34	0.61
	Composites (decl.)	377	0.001	6.00	0.36	0.50
	CIK	186,001	0.007	2.86	0.40	0.18
	ID^2	186,001	0.001	4.15	0.32	0.09
	OK	186,001	0.008	2.39	0.28	0.03
Cu %	Composites (undecl.)	377	0.00001	18.00	1.69	7.98
	Composites (decl.)	377	0.00001	18.00	1.75	7.73
	CIK	186,001	0.132	7.90	1.32	1.49
	ID^2	186,001	0.001	10.70	1.44	1.13
	OK	186,001	0.172	5.52	1.31	0.60
Zn %	Composites (undecl.)	377	0.00001	2.00	0.23	0.10
	Composites (decl.)	377	0.00001	2.00	0.30	0.17
	CIK	186,001	0.008	1.06	0.38	0.07
	ID^2	186,001	0.000	1.20	0.18	0.02
	OK	186,001	0.018	0.63	0.15	0.01

12.8.2. Swath Plots

Swath plots were generated for the grade estimates by northing and elevation slice. An example is shown in Figure 12-2. The full suite of swath plots is included in Appendix 3.

The estimated block grades are generally observed to correspond well to the sample data, especially the declustered data. In those domains where distance-limiting has been applied, the estimates are observed to sometimes be of lower grade than the informing composites, as expected and this is especially true for Zn north of 5,869,200 mN. In this area, high grade Zn samples at the edge of the drilling pattern have been unduly propagated out to the edge of the mineralisation domain in the CIK estimate, which did not use distance limiting. Distance limiting is therefore required and has a large impact especially on the Zn estimates.

In general, the swath plots show that the grade patterns are honoured, and relative agreement is therefore good. It is therefore concluded that the estimates are a faithful representation of the informing data at the semi-local scale.

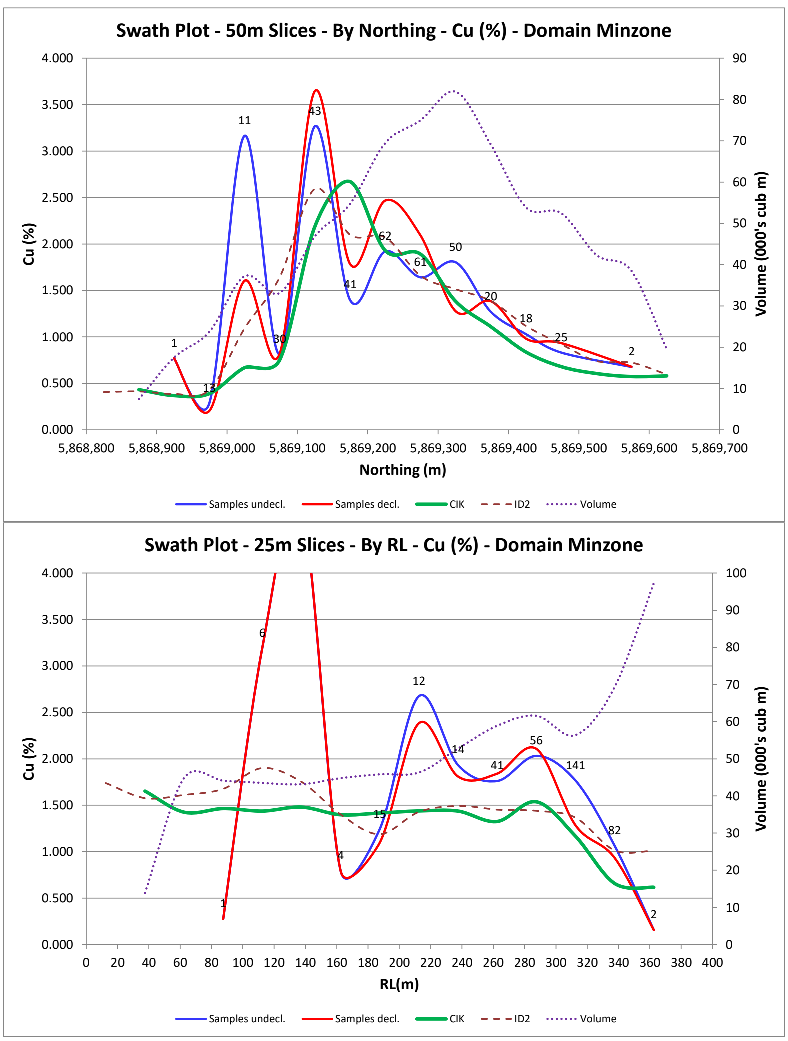

Figure 12-2 Example swath plots – CIK and ID² Cu estimates versus input composite grades.

12.8.3. Visual Validation

Visual inspection of the estimates was undertaken in cross-section and 3D isometric views. The estimated block grades were compared to both raw drill assay data and composite samples. A series of illustrative long section views are shown in Figure 12-3 through Figure 12-6. Areas of specific interest are circled with stippled white lines.

The following observations and comments are made:

- All three of the grade interpolators have clearly honoured the informing composite data in areas other than those where grade has been extrapolated (these are discussed below). The local response to the informing data, does, however, vary significantly amongst the three interpolation approaches.
- The OK model is clearly the smoothest of the three, and even though it honours the sample data, it does not respond well to local changes in sample grade. Given the high-grade variability, as pointed out and discussed in Sections 11.5 and 11.6. From the outset, the straight OK method was not considered to be optimal and the visual validation confirms this.
- The lack of high-grade distance limiting in the CIK has resulted in high-grade samples situated at the edge of the drill pattern and in relatively poorly informed areas being unduly propagated (see highlighted areas in Figure 12-3, Figure 12-4 and Figure 12-6). Distance limiting was tested in the CIK method, but when combined with the BZ volume limiting effect of the indicator approach, was found to be far too punitive on the resource. Although some these areas are of low confidence, many of them not even qualifying as a reportable resource, the CIK method does not appear to produce optimal results.
- When considering the most important of the elements modelled, namely Cu, there are some areas situated well within the bounds of the drill pattern, where the CIK appears to be overly punitive at the local scale and one such area is highlighted in Figure 12-5. Both the OK and ID^2 models, even with high-grade distance limiting applied, produce higher grade blocks in this area, where the informing samples suggest that higher grades do in fact exist. For this reason, and the other reasons discussed above, the ID^2 model was eventually favoured over both the OK and CIK models for official reporting of the Mineral Resource. The ID^2 model does not suffer from the extrapolation issues highlighted by the CIK, and is deemed to react better than both OK and CIK models at the local scale. The ID^2 model is observed to validate well against the informing data.

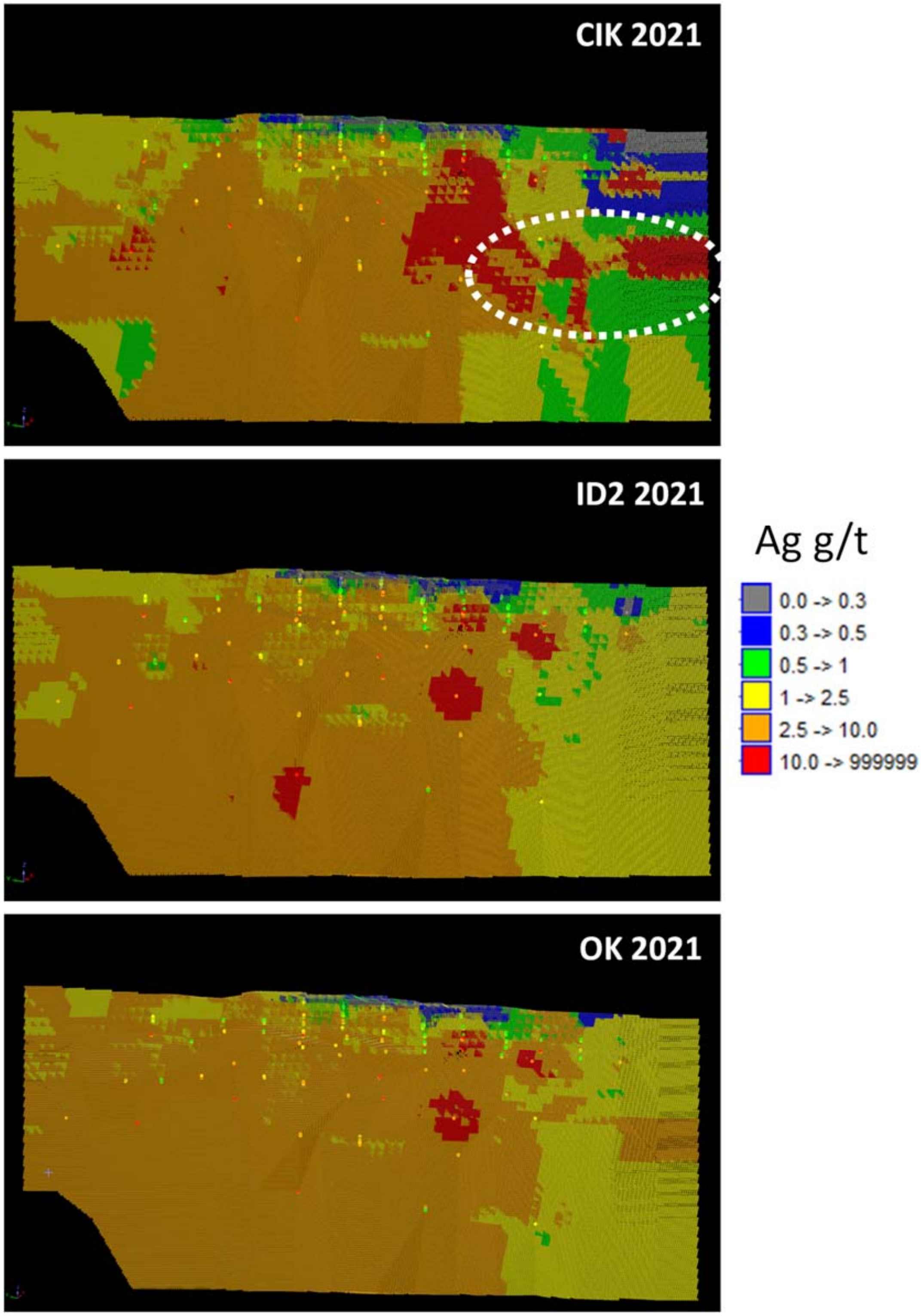

Figure 12-3 Long section view of Ag g/t block estimates, looking northeast, and informing composite sample data.

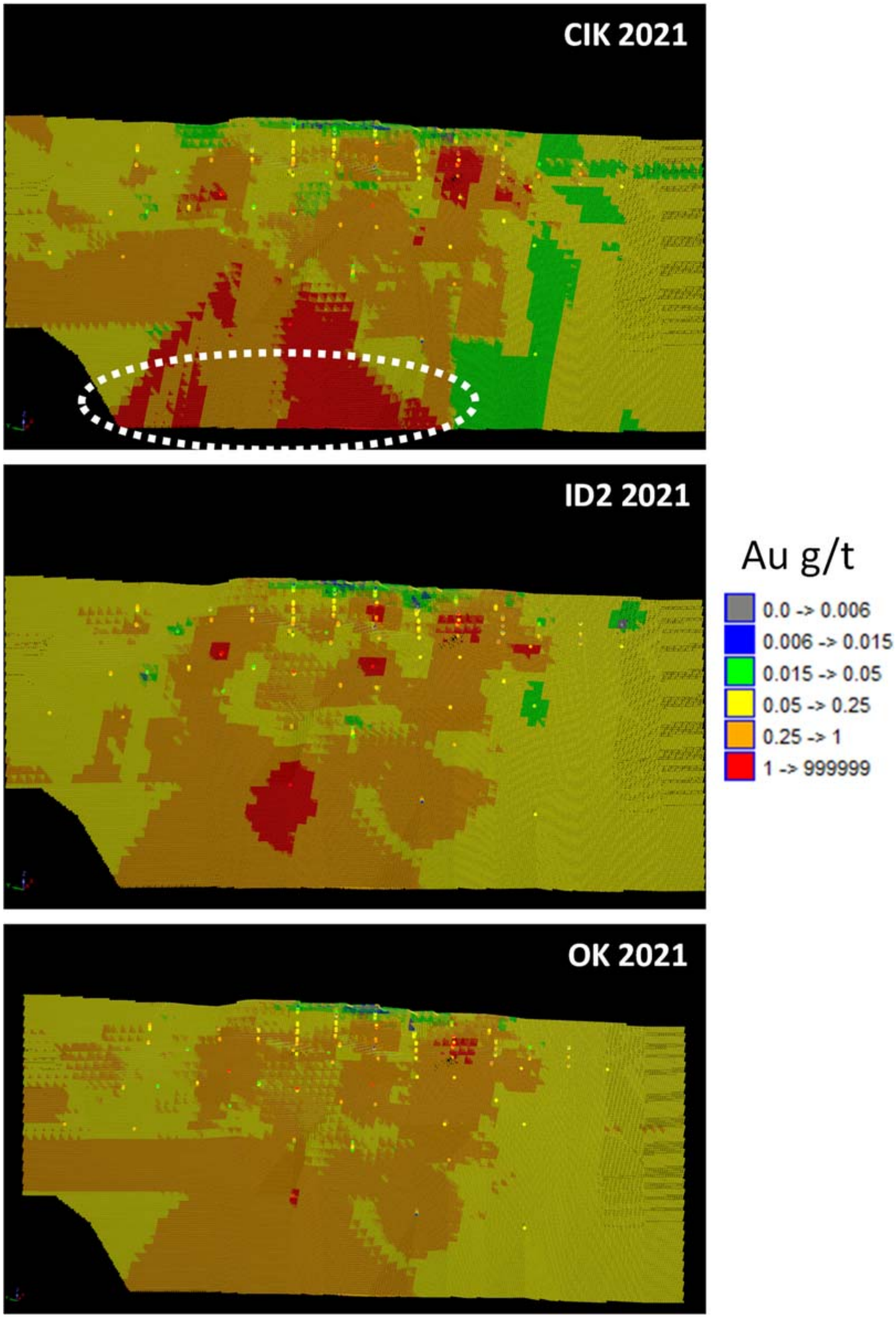

Figure 12-4 Long section view of Au g/t block estimates, looking northeast, and informing composite sample data.

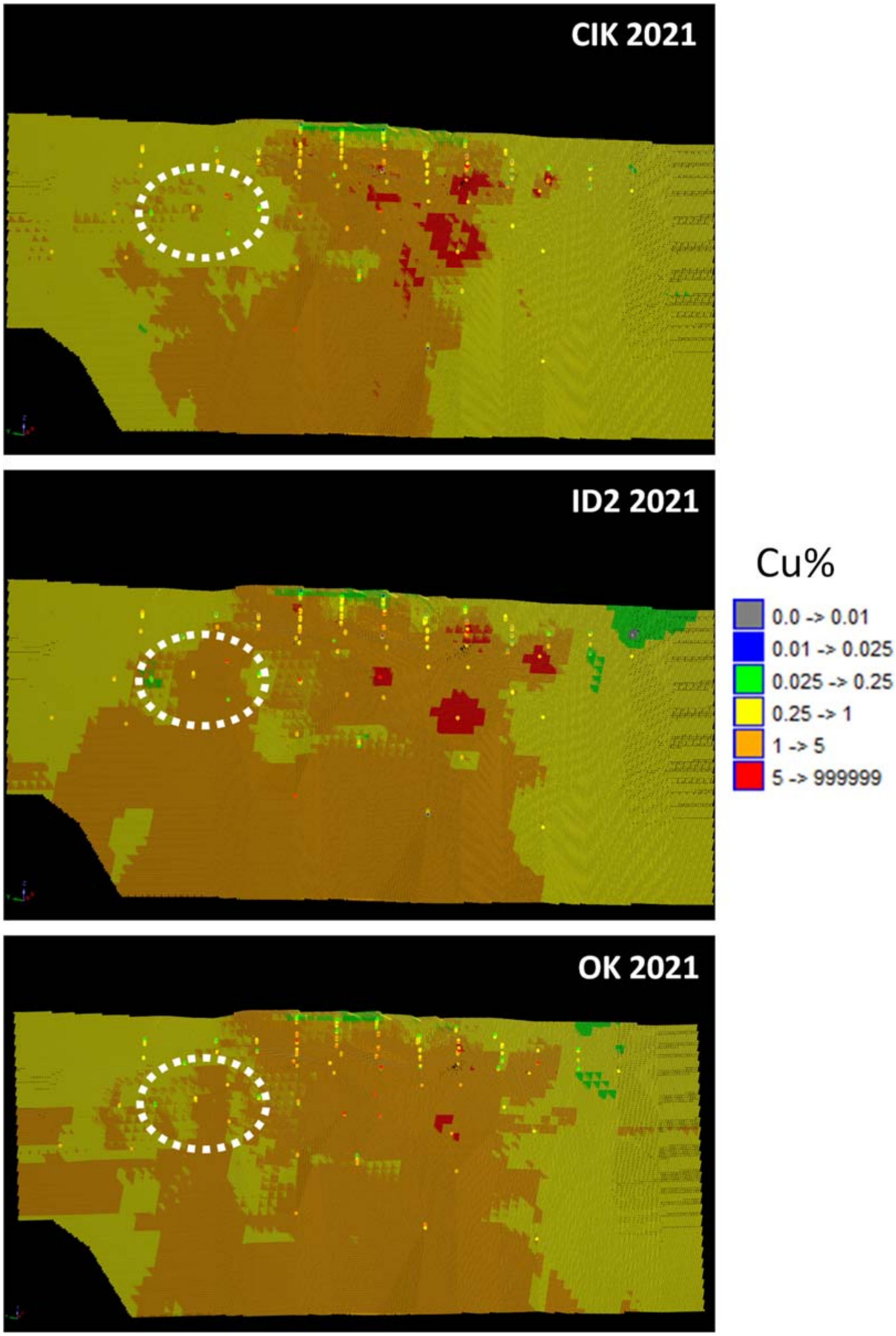

Figure 12-5 Long section view of Cu % block estimates, looking northeast, and informing composite sample data.

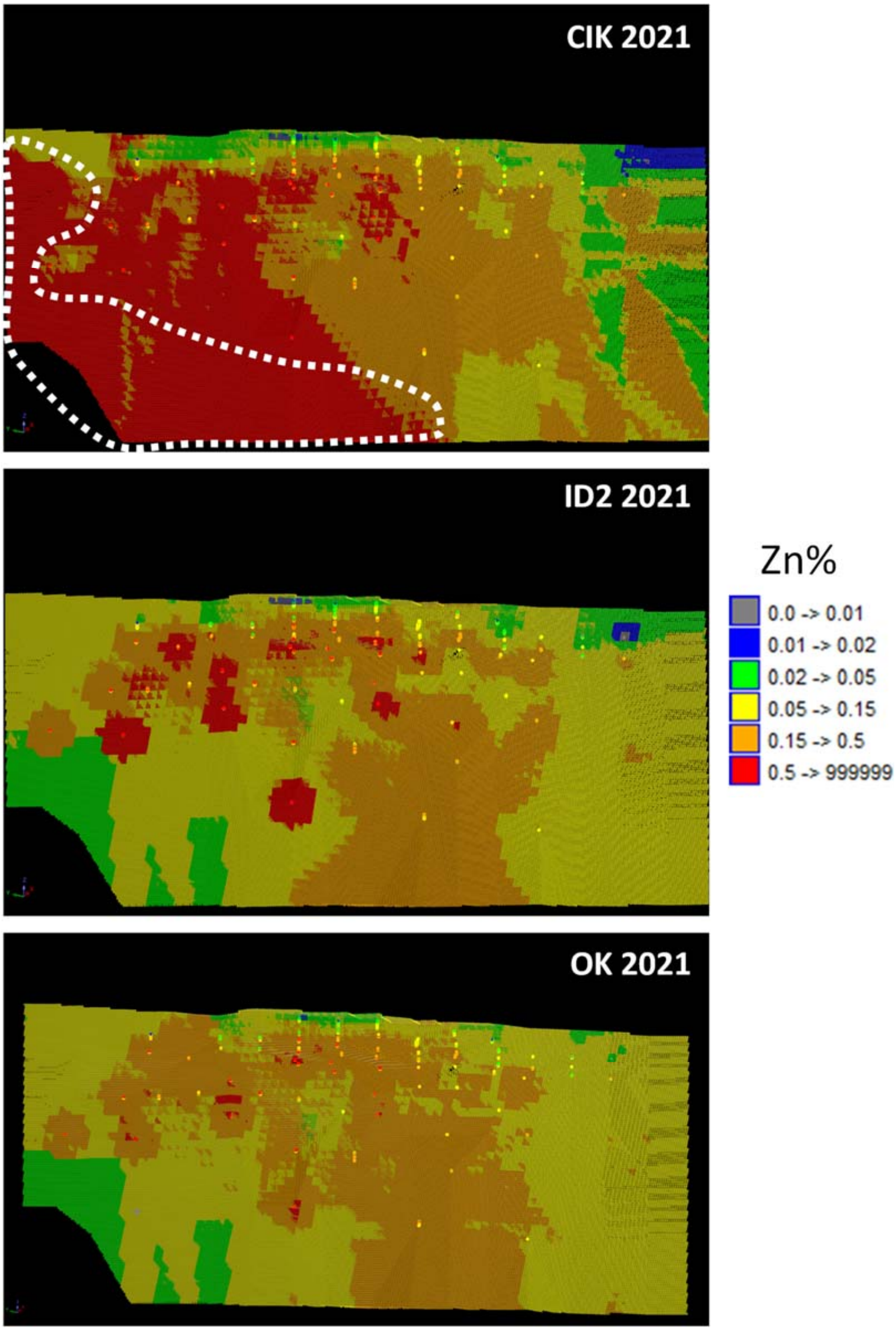

Figure 12-6 Long section view of Zn % block estimates, looking northeast, and informing composite sample data.

12.9. Effect of Density Weighting of Samples

Grade, tonnage and metal curves for the total model were produced for the OK and ID^2 models, showing the impact of using the input data without density weighting in the fresh zone against the result of using the density weighted data (Figure 12-7). It is clear that the global impact on the grade-tonnage relationship is relatively minor and immaterial. The local density contrasts are, however, relatively high and so it is considered important for the sake of local estimation accuracy to use the density weighted estimates.

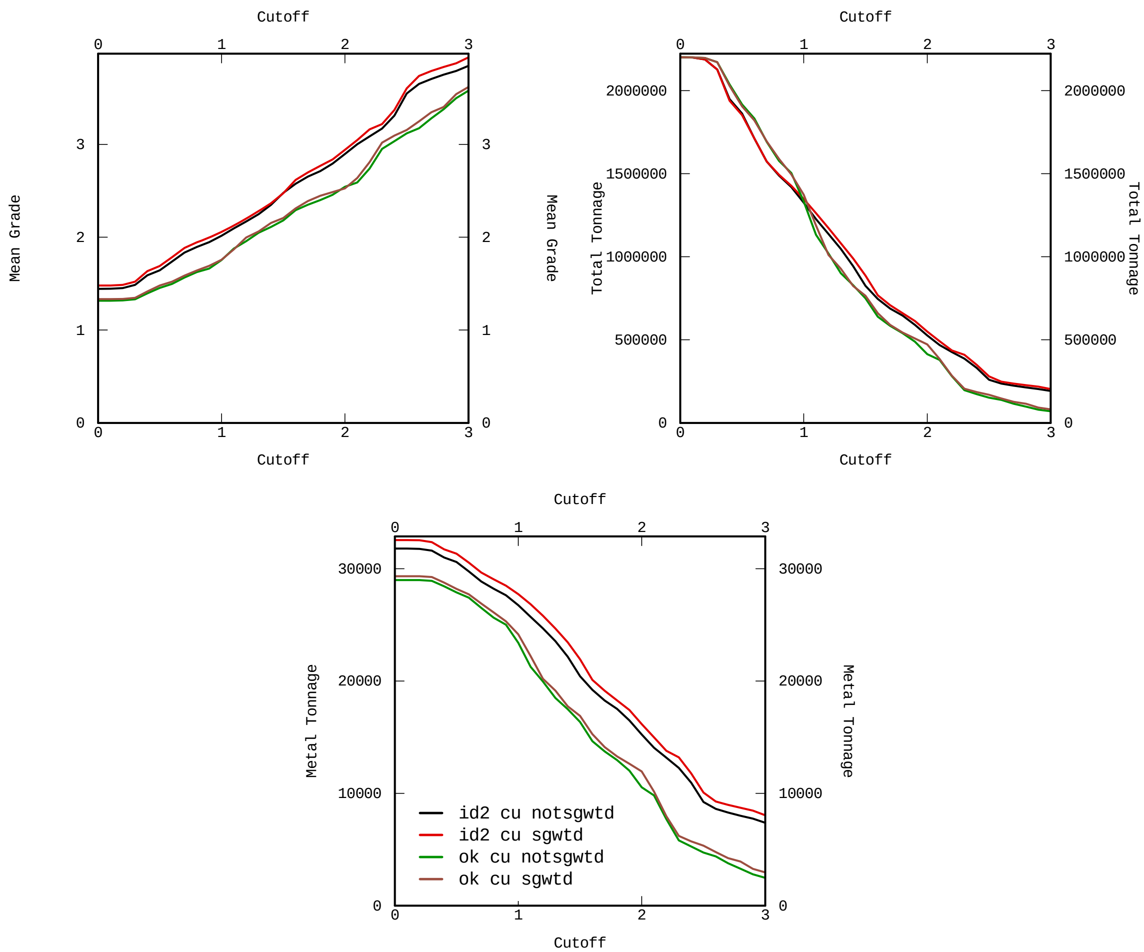

Figure 12-7 Grade, tonnage and metal curves for the ID^2 and OK estimates, implemented both with and without density weighting of the fresh samples.

12.10. Mineral Resource Estimate Classification

The Carroll's Mineral Resource has been classified and reported in accordance with the 2012 JORC Australasian Code for Reporting of Mineral Resources and Ore Reserves (JORC Code).

Cube considers the following points to be material in the classification of the Carroll's Mineral Resource:

- **Database integrity** – The historical drill data account for good deal of the volume and grade estimate and these are of significantly lower confidence than the Stavely drill data for a number of reasons, including a lack of information on the methods used, the absence of any confirmatory modern twin holes, and an absence of QAQC data.
- **Geological and mineralisation interpretation** – The geology of the Carroll's deposit is well understood and relatively straightforward, as is the identification and delineation of the mineralisation, which is consistently confined to the planar lode horizon that dips steeply to the west. The massive sulphide that forms the core of the mineralised body is reliably continuous and present in almost every hole drilled through the ore zone. While there is some scope for variation based on the particular interpretation criteria that could be applied to the mineralised zone, this is not excessive. The weathering has been unreliably logged, which does detract somewhat from the confidence in the geology.
- **Drill hole spacing and sampling density** – Mineralisation interpretations are based on a variable drill hole spacing, being as tight as 20 m in the shallower part of the deposit, ~50 m through the mid-depth section and wider than 50 m elsewhere. The grade variography does, however, show that the grade continuity is generally 30 m or less. Another point worth noting is that there is some evidence of smearing in the RC holes in the weathered zone, making the weathered zone grade estimate of lower confidence.
- **Estimation method** - Cube has undertaken three separate interpolations of the grades, using CIK, OK and ID^2 methods. These have been thoroughly validated and comparatively assessed, with the conclusion that the ID^2 model is the best representation of the Carroll's Mineral Resource.

It is Cube's conclusion that the Carroll's mineralisation is sufficiently drilled to allow classification. As with any non-rigidly defined classification there will always be some blocks within categories that depart from defined criteria. It is Cube's view that the final outcome must reflect a practical combination of geological knowledge, operational experience and estimation quality parameters that may be more numerical in nature. This approach to classification aims to avoid creating a complex, numerically-derived 'mosaic'. Cube has considered all criteria and has classified the resource as Indicated or Inferred.

Indicated Mineral Resource is defined below the weathered/fresh surface in areas covered by 50 m or tighter drilling (Figure 12-8). This differs somewhat from the approach taken in the 2015 MRE, where the Indicated volume allowed for drill spacing wider than 50 m, but favoured the modern Stavely drilling (Figure 12-8). The Inferred mineral resource is defined in the weathered zone, and in peripheral areas and where the drill density is greater than 50 m × 50 m spacing, and extends out to the limit of the drill pattern.

It should be noted that it is the author's opinion that the Indicated resources fall at the bottom end of the confidence scale for this broad category, and that the project would still benefit from some additional infill drilling in parts of the Indicated volume

The Mineral Resource estimate appropriately reflects the Competent Persons' view of the deposit.

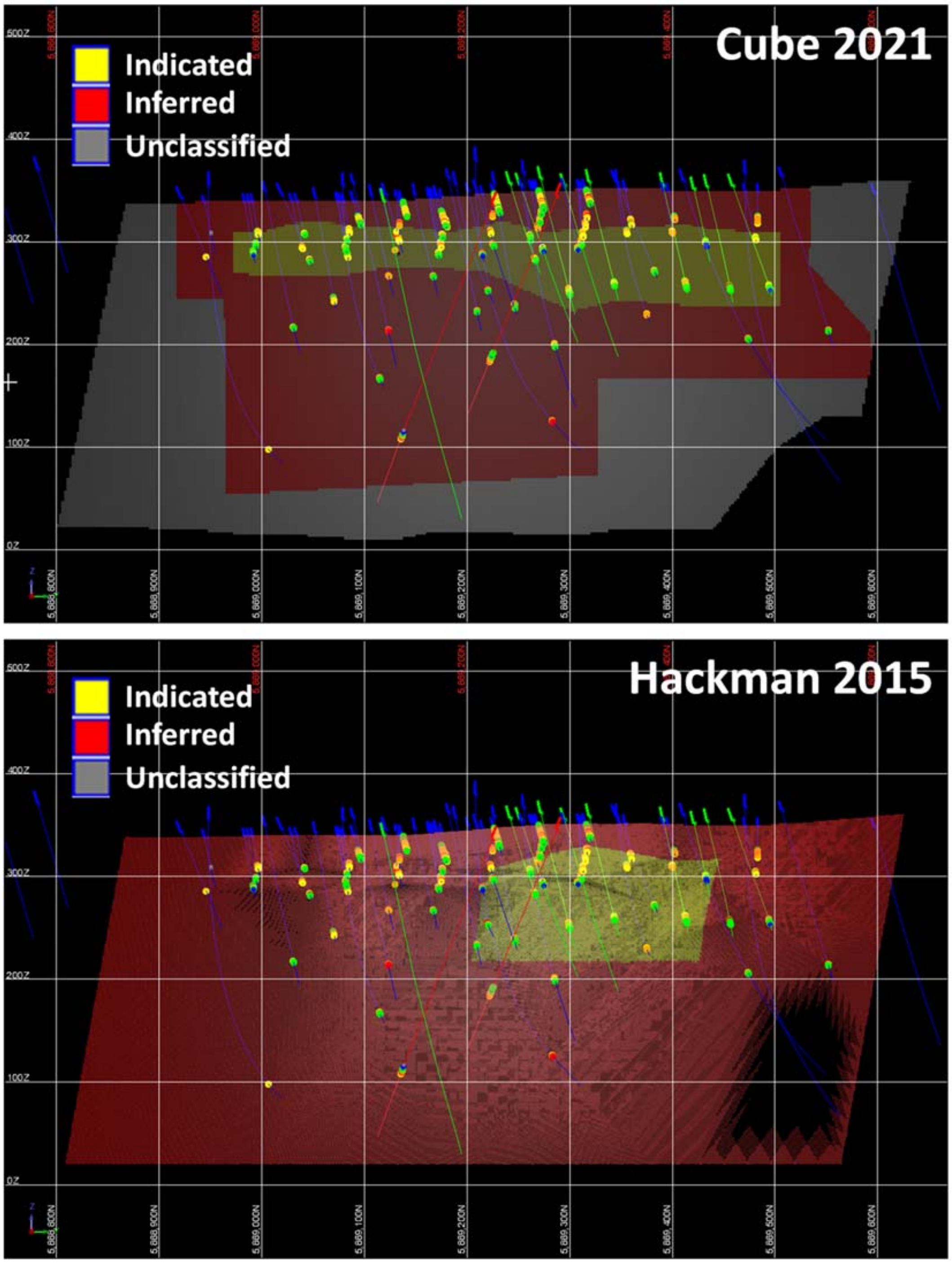

Figure 12-8 Long section looking west – Carroll's classification (current and previous). Historical holes in blue, Stavely drilling to 2020 in green and the two new 2021 Stavely holes in red.

12.11. Mineral Resource Statement

The Mineral Resource, reported above a 1% Cu cut-off, is tabulated below by classification and oxidation status in Table 12-14. The entire Inferred and Indicated volume falling within the mineralisation wireframe has been reported. Cube's mining engineering department has run a series of Stope Optimisations (SO's) on the fresh material and under some scenarios the majority of the flagged fresh Indicated and Inferred material is captured within the SO's. However, this exercise excluded the oxidised mineralisation. It was therefore decided to include all Inferred and Indicated material in the report, since the oxide material could conceivably have Reasonable Prospects for Eventual Economic Extraction (RPEEE), perhaps in an open pit, and the SO exercise demonstrates that the majority of the fresh Inferred+Indicated material has economic prospects.

Table 12-14 Carroll's Mineral Resource Statement, broken down by classification and oxidation status.

Classification	Oxidation	kt	Ag g/t	Au g/t	Cu %	Zn %	Ag koz	Au koz	Cu kt	Zn kt
Indicated	OXTR	-	-	-	-	-	-	-	-	-
	FRESH	260	5.3	0.5	2.0	0.3	44.3	3.9	5.3	0.8
Inferred	OXTR	131	2.9	0.3	2.1	0.2	12.3	1.3	2.7	0.2
	FRESH	617	6.3	0.4	2.3	0.2	124.7	8.7	14.1	1.4
SUBTOTALS	OXTR	131	2.9	0.3	2.1	0.2	12.3	1.3	2.7	0.2
	FRESH	878	6.0	0.4	2.2	0.3	169.0	12.6	19.3	2.2
GRAND TOTAL		**1009**	**5.6**	**0.4**	**2.2**	**0.2**	**181.3**	**13.9**	**22.0**	**2.4**

Notes:

- Effective date of September 2021.
- Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The estimate of Mineral Resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.
- Mineral Resources are reported at a block cut-off grade of 1% Cu.
- Mineral Resources are reported without any explicit RPEEE constraints, but reporting of all flagged Inferred+Indicated material in the model is partially supported by SO studies undertaken on the fresh material.
- Figures may not add up due to rounding.

Plots of the resource tonnes and grade per northing and vertical slice (for copper) are in Appendix 4 and Sections 1 to 3 of JORC (2012) Table 1 are included in Appendix 5.

12.12. Comparison to Previous Mineral Resource Estimate

The model comparison between the 2015 and 2021 ID^2 models is shown in Table 12-15, reported at a cut-off of 1 % Cu. Snapshots comparing the estimates per variable are in Figure 12-9 through Figure 12-12.

With the exception of Zn, the total model 2021 figures are similar to the reported 2015 figures. The difference between the Zn estimates is due to the extent to which the respective modelling approaches have allowed the high-grade Zn sample values around the northern periphery of the lode to propagate (see Figure 12-12).

In 2015 the total model was reported as the Mineral Resource, as per Table 12-15, while in this update the MRE will be reported as the total Inferred and Indicated material. Since the Inferred volume has retreated back to the approximate extent of the drilling, instead of being allowed to extend out to the limit of the mineralisation wireframe as per 2015, the reportable resource has consequently reduced.

The grade, tonnage and metal curves for copper for the total model (Figure 12-13 and Figure 12-14) show that the global tonnage has increased significantly because of the fact that the 2021 mineralisation wireframe is more broadly defined than the 2015 wireframe (i.e. 2021 model has used a lower cut-off grade for delineation). The curves are similar between approximately 0.9% Cu and 1.6% Cu, but the 2021 model is somewhat more variable, as also visible in the long section plots, and hence predicts more metal at high cut-off grades.

Table 12-15 Total model comparison at a copper cut-off of 1 % Cu.

	ID^2 2021 (Cube)					ID^2 2015 (Hackman)		
	Indicated	**Inferred**	**Unclassified**	**TOTAL Inf+Ind**	**TOTAL Model**	**Indicated**	**Inferred**	**TOTAL**
kt	260	748	340	**1,009**	**1,348**	245	1,073	**1,318**
Cu %	2.02	2.24	1.68	**2.18**	**2.06**	2.22	1.91	**1.97**
Ag g/t	5.29	5.69	6.59	**5.59**	**5.84**	5.38	5.73	**5.67**
Au g/t	0.47	0.41	0.47	**0.43**	**0.44**	0.39	0.47	**0.45**
Zn %	0.31	0.22	0.12	**0.24**	**0.21**	0.41	0.36	**0.37**
Cu kt	5.3	16.8	5.7	**22.0**	**27.7**	5.4	20.5	**25.9**
Ag koz	44.3	137.0	72.0	**181.3**	**253.3**	42.4	197.8	**240.2**
Au koz	3.9	10.0	5.2	**13.9**	**19.0**	3.0	16.2	**19.3**
Zn kt	0.8	1.6	0.4	**2.5**	**2.9**	1.0	3.9	**4.9**

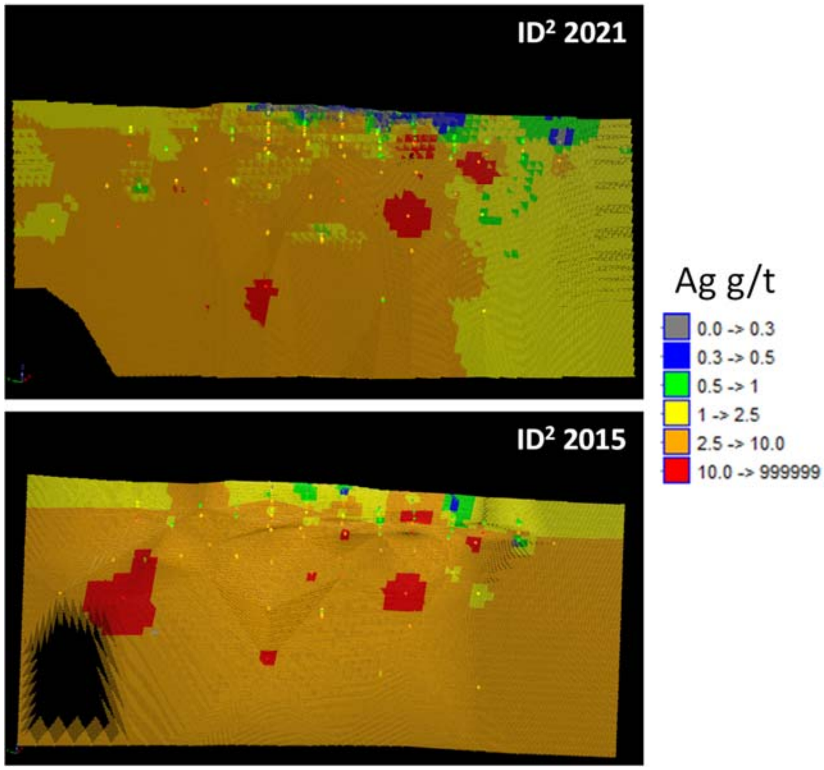

Figure 12-9 Long section view looking northeast – Ag g/t block estimates – 2015 vs 2021 ID² models.

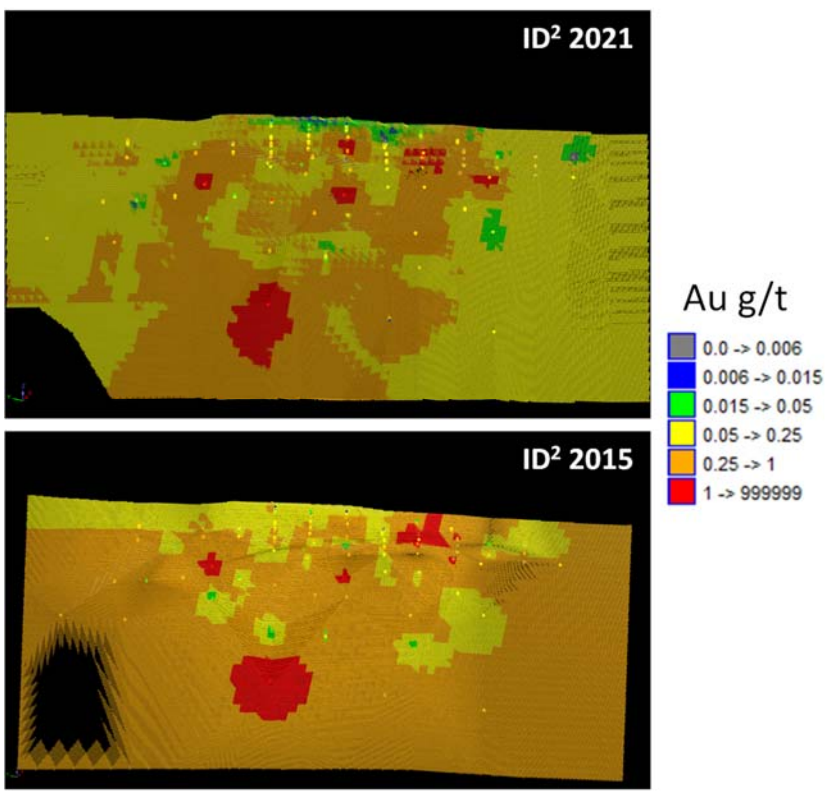

Figure 12-10 Long section view looking northeast – Au g/t block estimates – 2015 vs 2021 ID² models.

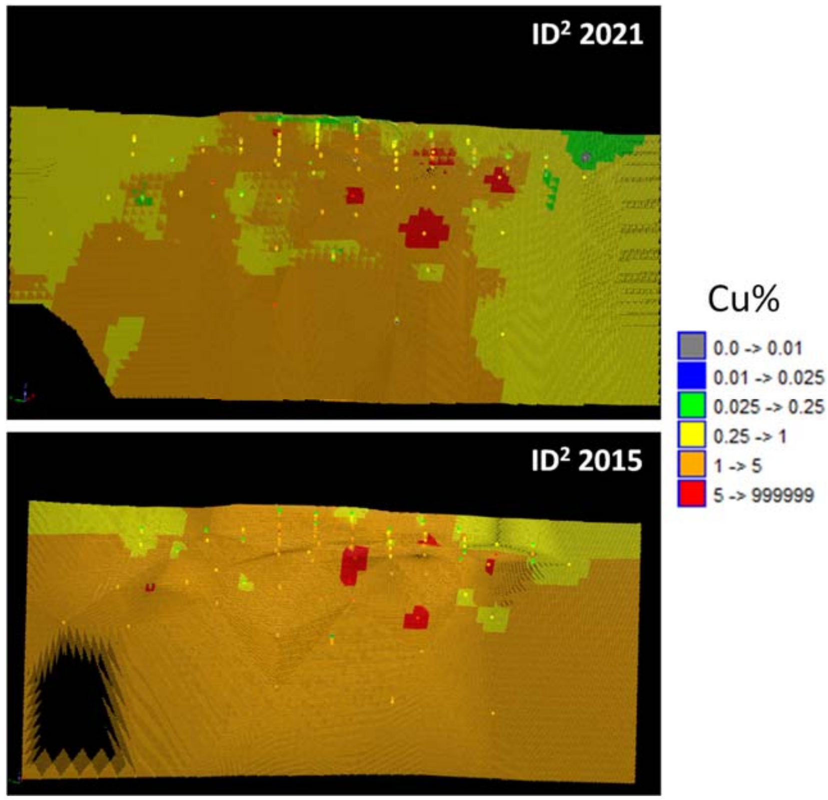

Figure 12-11 Long section view looking northeast – Cu % block estimates – 2015 vs 2021 ID^2 models.

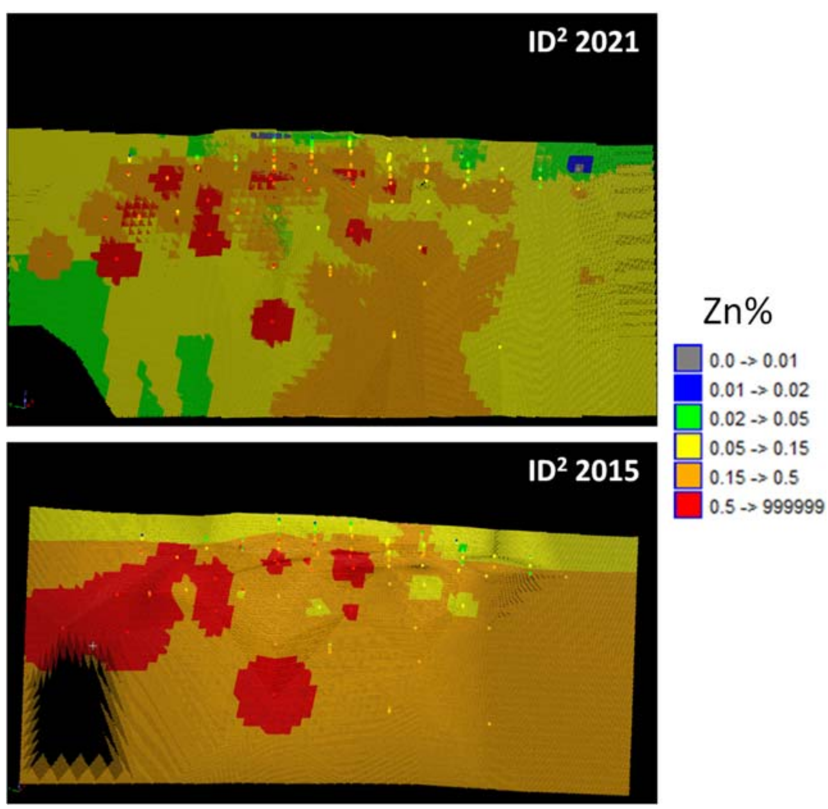

Figure 12-12 Long section view looking northeast – Zn % block estimates – 2015 vs 2021 ID^2 models.

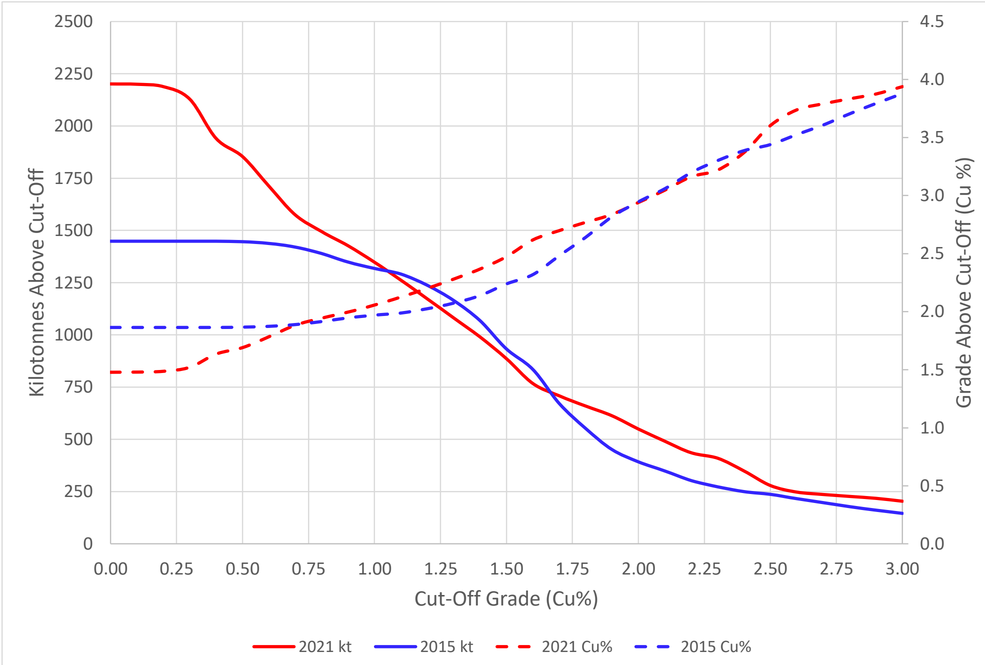

Figure 12-13 Grade and tonnage curves for the total model - 2015 and 2021 ID^2 estimates – copper.

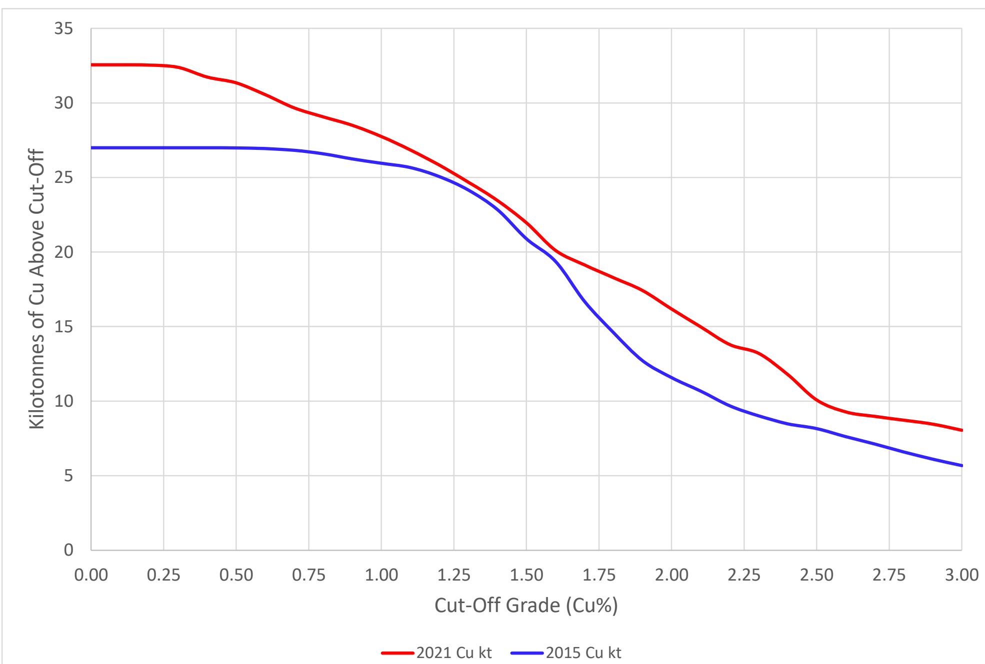

Figure 12-14 Copper metal curves for the total model - 2015 and 2021 ID^2 estimates.

13. Conclusions and Recommendations

The Carroll's Cu-Au-Zn-Ag deposit has been successfully re-estimated and validated. The outcomes in terms of the overall reportable resource are not materially different to the previous (2015) model at the reporting cut-off of 1% Cu, except for the Zn grade, which has materially reduced in this update. Cube makes the following recommendations with respect to future work:

- A high resolution and accurate topographic survey should be undertaken. This could be used to resolve any outstanding issues with identified drill collar discrepancies.
- That a smaller range of CRM's are used for any future QAQC analysis and that more field duplicate samples are collected.
- More density data should be collected from reliable current sources, or any future drill programs, with an attempt to obtain some more samples from the weathered zone.
- Twin drill holes should be completed alongside some of the historical drill holes, in order to validate the historical drilling.
- Any actions which could be taken to firm up on the logging of oxidised versus fresh material would be of significant benefit to the Project.

14. References

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Appendix 1

QAQC Report

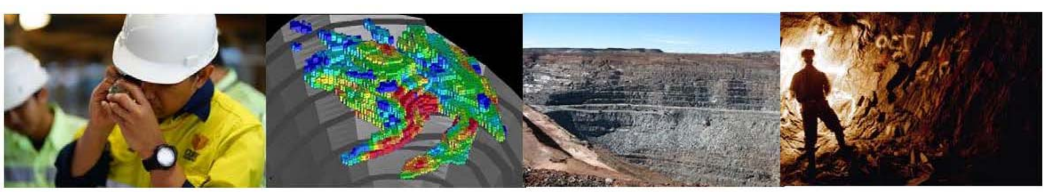
QAQC Review

Mt Ararat Project

November 2017 to June 2021

Effective Date: 20/09/2021

Prepared for: Stavely Minerals



Cube Project: 2021_120

+61 8 9442 2111 | 1111 Hay St, West Perth WA 6005 | www.cubeconsulting.com

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1. Executive Summary

- An analysis was conducted on data collected from June 2014 to March 2021. Assay data exists previous to this date however there is no associated QC data.
- The laboratory used during this period was:
  - ALS – Orange (May 2014 – June 2021)
- The database contained 134 individual CRMs and Blanks, after 10 were excluded for varying reasons.
- There were sixteen different CRMs and Blanks used during this period, eleven of which contained 3 or less samples which is not enough to effectively review. The insertion rate of CRMs and Blanks is around 6%, which is considered low, acceptable limits being (5-10%). On an element basis, the pass rate based on accuracy and precision respectively for the individual CRMs was:
  - Gold – Accuracy 8/8 and Precision 7/8
  - Silver – Accuracy 6/6 and Precision 3/6
  - Copper – Accuracy 7/7 and Precision 6/7
- All Blanks despatched for both Gold and Silver are considered to have 'passed' the precision and accuracy test. The Copper analysis showed 4 failed samples which could be the result of contamination although the same issue is not recognisable in Gold and Silver analysis. These are Coarse blanks which are sourced from an unknown material and inserted at a rate of 3%.
- There are no pulp duplicates included in this review
- There are no coarse duplicates included in this review
- Pulp grind checks are included in the dataset and have been reviewed as they assist in identifying if particle size variation appears to be an issue – the data reviewed reasonably well.

2. Introduction

Cube has reviewed and independently assessed all available QAQC sample data which was collected from June 2014 to March 2021 at the Mt Ararat Project.

All gold assay values are reported in ppm and values less than the lower detection limit have been replaced with a value of half the detection limit.

All silver assay values are reported in ppm and values less than the lower detection limit have been replaced with a value of half the detection limit.

All copper assay values are reported in ppm and values less than the lower detection limit have been replaced with a value of half the detection limit.

The quality of the assay data was assessed by analysing the Certified Reference Material (CRM or Standards) and duplicate samples in terms of accuracy and precision. The precision analysis determines how closely the results can be repeated, while the accuracy analysis determines how similar the results are to the reported CRM value.

All projects and every assay batch should strive to achieve both high precision and accuracy. It is possible to have good accuracy without good precision or conversely good precision without good accuracy as shown in Figure 2-1. Precision analysis is measured by the use of duplicate and replicate assays, whereas accuracy analysis is measured through the use of CRMs.

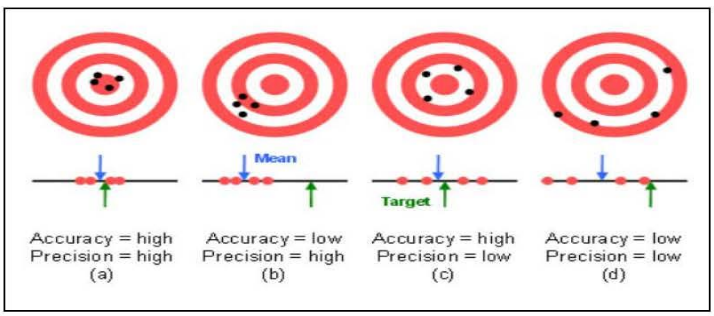


Figure 2-1 Accuracy and Precision Concept

The assay laboratory and analytical techniques utilised by the Mt Ararat Project were not supplied – this data was sourced from the 2015 Resource report:

- ALS Orange - was the primary assay laboratory for sample preparation and assaying during May 2014 – June 2016.

Table 2-1 Analytical Techniques

Laboratory ID	Method	Description	Instrument	Analyte ppm	Location	Aliquot size
ALS Orange	Au_AA23	Au by Fire Assay and AAS	AAS	Au	NSW	30g
ALS Orange	Au_AA25	Au by Fire Assay and AAS	AAS	Au	NSW	30g
ALS Orange	ME-ICP61	4 Acid digest with ICP_AES finish	ICP	Ag	NSW	25g
ALS Orange	ME-ICP61	4 Acid digest with ICP_AES finish	ICP	Cu	NSW	25g
ALS Orange	ME_OG62	4 Acid digest with ICP_AES finish	AAS	Cu	NSW	4g

- Table 2-2 shows the total number of QC samples and insertion rates split by Year. A number of collars contained no date – these were coded Unknown.

Table 2-2 Summary of QC sample statistics

Hole_Type	Year	CRM or Blank	DUP	Original_Samples	Insertion%
DD	Unknown			1679	0
DD	1975			22	
DD	1976			7	
DD	1977			3	
DD	1983			59	
DD	1984			16	
DD	1994			92	
DD	2007			672	
DD	2009			112	
DD	2014	13		265	5
DD	2015	15		316	5
DD	2018	7		91	8
DD	2021	11		175	6
Total				847	
RC	Unknown			2200	0
RC	1985			125	
RC	1993			140	
RC	2006			4	
RC	2010			160	
RC	2014	45	7	811	6
RC	2015			0	
RC	2016	4		87	5
Total				898	
RC/DD	2014	22		399	6
RC/DD	2015	12		221	5
RC/DD	2016	5		155	3
Total				775	
Total		**134**		**2,520**	**5% (avg)**

3. Certified Reference Material (CRMs) and Blanks

3.1. Introduction

Cube has reviewed the QAQC protocols and control assays as supplied (i.e., CRM samples and field duplicates) for all sample data analysed at the Mt Ararat Project from June 2014 to March 2021.

The QC analysis and subsequent conclusions by Cube are based on a paper by Abzalov (Abzalov, 2011).

The evaluation comprises of analytical data for 847 DDH samples (12 DDH drillholes); 898 RC samples (14 RC drillholes) and 775 RC/DD samples (7 RC/DD drillholes) resulting in approximately 2,520 samples including 86 CRMs, 48 Blank values and 7 field duplicate samples, which were submitted to the primary laboratory.

For the CRMs, a number were removed from the analysis. This included:

- No assays (11).

A more detailed breakdown of the number of CRMs and blanks submitted and their performance is shown in Table 3-1, Table 3-2 and Table 3-3.

A table listing individual sample CRMs that are considered to be failures (2 Au; 3 Ag and 4 Cu failing 3SD) are tabulated in Appendix 5.

Control charts for the primary laboratory used ALS (Orange), for CRMs that are considered as 'failed', (Failure of Accuracy and/or Precision tests) can be found in Section 3.2. Control charts for all CRMs can be found in Appendix 1.

Table 3-1 ALS (Orange) Gold CRM and Blank summary 2014-2021

Laboratory	CRM	EVal	StdDev	NumSamp	Accuracy	Precision	%Passing3SD	%Bias	PeriodInUse	Comments
ALS_Orange	BLANK-C	0.005	0.015	48	PASS	PASS	100		2014-2021	Detection -0.01 and -0.005 graphed together
				48						
ALS_Orange	G300-9	1.53	0.06	3	PASS	PASS	100		2014	not enough to review; Precision failure
ALS_Orange	G303-7	6.86	0.3	1					2014	not enough to review
ALS_Orange	G904-3	13.66	0.62	3	PASS	FAIL	66.66		2014	not enough to review
ALS_Orange	OREAS_152a	0.116	0.005	2					2021	not enough to review
ALS_Orange	OREAS_501b	0.248	0.01	24	PASS	PASS	96	-0.69	2014-2016	1 failure observed
ALS_Orange	OREAS_501c	0.221	0.007	3	PASS	PASS	100	4.37	2018	not enough to review
ALS_Orange	OREAS_503b	0.695	0.021	20	PASS	PASS	100	0.56	2014-2016	
ALS_Orange	OREAS_503d	0.666	0.015	2					2021	not enough to review
ALS_Orange	OREAS_504b	1.61	0.037	16	PASS	PASS	100	0.47	2014-2018	
ALS_Orange	OREAS_504c	1.48	0.045	2					2021	not enough to review
ALS_Orange	OREAS_52Pb	0.307	0.017	5	PASS	PASS	100	2.02	2014	
ALS_Orange	OREAS_53Pb	0.623	0.021	2					2014	not enough to review
ALS_Orange	OREAS_54Pa	2.9	0.11	1					2014	not enough to review
ALS_Orange	OREAS_604b	1.69	0.047	1					2021	not enough to review
ALS_Orange	OREAS_605b	1.72	0.066	1					2021	not enough to review
				86						

Table 3-2 ALS (Orange) Silver CRM and Blank summary 2014-2021

Laboratory	CRM	EVal	StdDev	NumSamp	Accuracy	Precision	%Passing3SD	%Bias	PeriodInUse	Comments
ALS_Orange	BLANK-C	0.20		48	PASS	PASS	100		2014-2021	
				48						
ALS_Orange	OREAS_501b	0.778	0.128	21	PASS	FAIL	100	-13.70	2014-2016	Failed Precision with >10% negative bias despite 100% between 2SD-3SD
ALS_Orange	OREAS_501c	0.461	0.053	3	PASS	PASS	100	8.46	2018	not enough to review
ALS_Orange	OREAS_503b	1.54	0.19	20	PASS	PASS	100	-0.32	2014-2016	not enough to review
ALS_Orange	OREAS_503d	1.34	0.066	2					2021	not enough to review
ALS_Orange	OREAS_504b	3.07	0.225	16	PASS	FAIL	87.5	4.23	2014-2018	Failed Precision with only 87.5% within 2SD-3SD;2 failures observed
ALS_Orange	OREAS_504c	4.22	0.288	2					2021	not enough to review
ALS_Orange	OREAS_604b	507	15	1					2021	not enough to review
ALS_Orange	OREAS_605b	1015	24	1					2021	not enough to review
ALS_Orange	OREAS_924	1.99	0.195	4	PASS	FAIL	75	13.07	2014	1 failure observed; Precision test failure
ALS_Orange	OREAS_933	31.0	2.89	1					2014	not enough to review
				71						

Table 3-3 ALS (Orange) Copper CRM and Blank summary 2014-2021

Laboratory	CRM	EVal	StdDev	NumSamp	Accuracy	Precision	%Passing3SD	%Bias	PeriodInUse	Comments
ALS_Orange	BLANK-C	0.20		48	PASS	FAIL			2014-2021	4 fails observed - possible contamination?
				48						
ALS_Orange	OREAS_111	23000	1200	2					2014	not enough to review
ALS_Orange	OREAS_152a	0.385	0.009	2					2021	not enough to review
ALS_Orange	OREAS_501b	2600	110	24	PASS	PASS	100	-0.16	2014-2016	
ALS_Orange	OREAS_501c	2760	80	3	PASS	PASS	100	-0.48	2018	not enough to review

Laboratory	CRM	EVal	StdDev	NumSamp	Accuracy	Precision	%Passing3SD	%Bias	PeriodInUse	Comments
ALS_Orange	OREAS_503b	5310	230	20	PASS	PASS	100	-0.18	2014-2016	
ALS_Orange	OREAS_503d	5240	100	2					2021	not enough to review
ALS_Orange	OREAS_504b	11100	420	16	PASS	PASS	100	-1.13	2014-2018	
ALS_Orange	OREAS_504c	11100	300	1					2021	not enough to review
ALS_Orange	OREAS_52Pb	3338	77	5	PASS	PASS	100	-2.34	2014	
ALS_Orange	OREAS_53Pb	5460	130	2					2014	not enough to review
ALS_Orange	OREAS_54Pa	15500	200	1					2014	not enough to review
ALS_Orange	OREAS_604b	21200	360	1					2021	not enough to review
ALS_Orange	OREAS_605b	50300	1090	1					2021	not enough to review
ALS_Orange	OREAS_924	5120	280	4	PASS	PASS	100	3.22	2014	
ALS_Orange	OREAS_933	83700	2500	1					2014	not enough to review
				85						

3.2. ALS Orange (2014 – 2021) CRM failures.

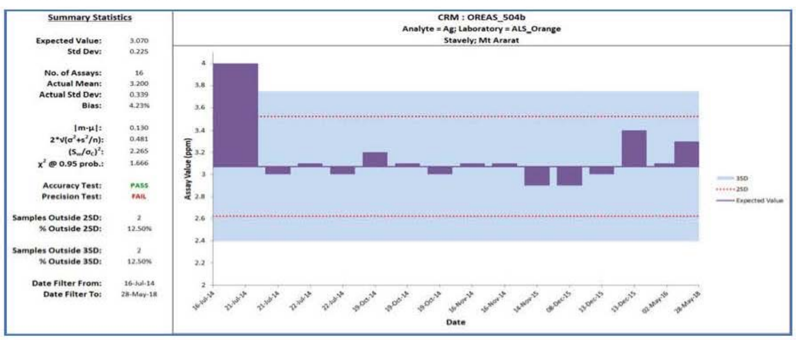
The ALS (Orange) laboratory was utilised during June 2014 to March 2021 resulting in:

Au CRMs and Blanks 4 passing both accuracy and precision tests;

Ag CRMs 3 accuracy passes and 3 precision failures with Blanks passing;

Cu CRMs 5 accuracy passes with a Blanks failure. The control charts for failed CRMs are shown in Figure 3-1 through to Figure 3-4.

Figure 3-1 OREAS_501b Silver; Negative bias -11.63% (precision test fail)



Stavely Minerals
Mt Ararat Project, November 2017 to June 2021

Figure 3-2 OREAS504b Silver – Two fails observed (precision failure)

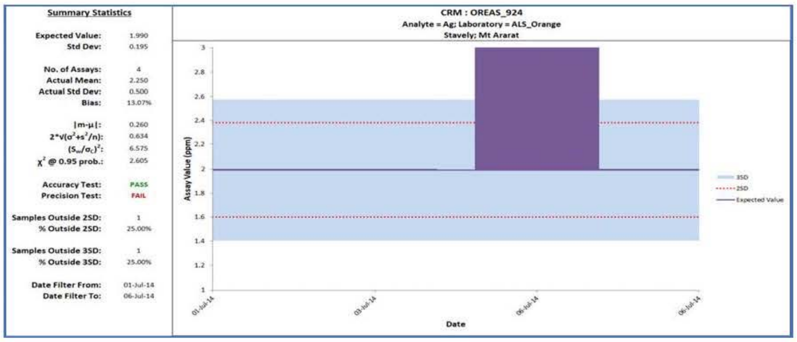


Figure 3-3 OREAS_924 Silver – One failure observed (precision failure)

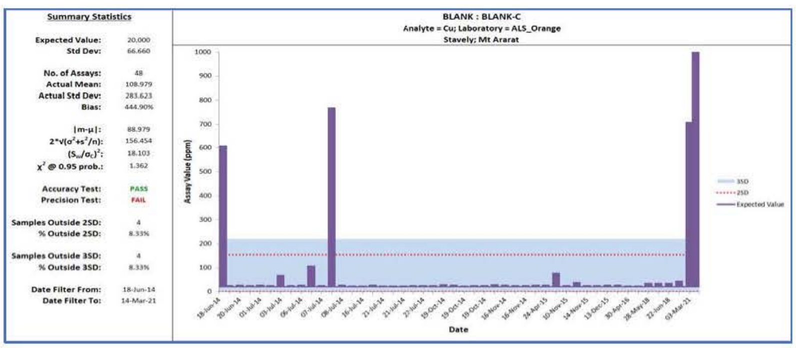


Figure 3-4 Blank-C Copper – four failures observed, possible contamination issue (precision failure)

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4. Duplicates

4.1. Introduction

The results for duplicate samples are analysed by plotting Q-Q, scatter and relative paired difference plots (RPD). Comparison of the duplicate pairs in a Q-Q plot will show if any bias exists within a particular grade range. The RPD plots evaluate the relative differences in percent between pairs and allow for determining the relative precision of samples through the calculation of the average coefficient of variation (ACV). The calculation of the ACV was set to consider only values >0.1 ppm Au, which is considered to be the threshold for mineralised material. These types of charts also allow for the visualisation of any bias or trends. The results of this analysis are tabulated in Table 4-1 and the plots are displayed in Appendix 2 though to Appendix 4.

Stavely Minerals
Mt Ararat Project, November 2017 to June 2021

Table 4-1 Summary of duplicate analysis

Description	QC Type	Hole Type	Laboratory	Number Samples	PeriodInUse	>0.10Au_ppm Num_Samps	Average Pair Mean Difference	ACV	Asy10%	Asy20%	Asy50%	Comments
Gold	RC Field Dup	RC	ALS_Orange	7	2014	5	-25.30	36.9	40	40	60	Not enough samples to effectively review
Silver	RC Field Dup	RC	ALS_Orange	7	2014	7	6.90	31.9	28.6	42.9	57.1	Not enough samples to effectively review
Copper	RC Field Dup	RC	ALS_Orange	7	2014	7	1.80	23.2	42.9	57.1	85.7	Not enough samples to effectively review

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4.2. Field Duplicates

There were 7 field duplicate samples for RC samples. These were charted and filtered for the mineralised threshold of Au >0.10 g/t. Cu and Ag were not filtered. This has resulted in ACVs being within acceptable range for a sample of this type for all three elements however, there isn't enough samples to effectively review or reach a meaningful conclusion.

The 69 lab repeat duplicates are mentioned in the 2015 Resource report which were not made available for review in this dataset, and laboratory internal duplicates are not normally included in a review.

There were no field duplicate samples available for review for DDH samples in the dataset.

It must be noted that field duplicates are not a true measure of laboratory performance due to the inherent error within field sampling equipment and the nature of the gold mineralisation. Therefore, the analysis of field duplicates must be treated with caution.

RMPD, scatter and Q-Q plots for this analysis can be found in Appendix 2.

4.3. Coarse Reject Duplicates

There were no Coarse Reject duplicates available for review in the dataset

4.4. Umpire Duplicates

There were no umpire duplicates available for review in the dataset

4.5. Pulp Repeats

There were no pulp repeats available for review in the dataset

4.6. Screen Fire Assays

There were no screen fire assay comparisons available for review in the dataset

5. Summary and Recommendations

- There was a lack of detail within the dataset which is needed to assist in an informed review, Date_labjob completed is required to assist in being able to pinpoint lab events over time, for this review the date_drilling completed was used which provides a far less informed judgement.
- Analyte Methods were not included in the dataset and are also a requirement to establish which CRM values to use as this may alter the pass/fail outcome. For best practise some laboratory jobs and PDFs should ideally be received along with the database for validation purpose as they provide a level of detailed information which is valuable to a QC review.
- It is recommended that QC procedures should be adopted where there is more than one fail within the same batch that re-assay around the failed samples (2) or complete job re-assay (3).
- At ALS (Orange) there were four failed blank samples reported which were surrounded by higher Cu grade assays. This could be a result of contamination within the laboratory or at the point of blank sample preparation, but is most likely the former. These issues have not been satisfactorily resolved and should be proactively raised with the Laboratory on import to have any chance of being able to rectify the issue.
- While the overall rate of duplicates is very low (<1%), it is possible there are other duplicates available for review which were not included in the dataset.
- It is recommended there be more duplicates carried out on a regular basis. Where core is concerned consider using the Coarse rejects as a duplicate. If there can be any duplicate assaying carried out retrospectively this would be highly recommended as the current data available is insufficient to form any meaningful opinion. The duplicates should ideally be instigated by the client on a regular basis and include the insertion of CRM's and Blanks throughout. The laboratory internal duplicates are not an independent check and not normally included in a QC review.

Table 5-1 Recommend insertion rate for QC samples

Control Sample Type	Purpose	% of samples
CRM	Accuracy and precision of analytical technique	5
Preparation blank	Check Sample contamination in sample preparation	5
Field duplicates (RC only)	Measures entire sampling error	5-10
Coarse Reject Duplicates	Monitor adequacy of sample preparation	
Grind Checks	Monitor sample preparation particle size	1
Umpire Pulp Duplicates	Assess primary laboratory for assay bias and precision	3-5
Pulp Repeats	Measure of precision	3-5
	TOTAL	17 - 26

6. References

Abzalov, M. (2011). *Sampling Errors and Control of Assay Data Quality in Exploration and Mining Geology*. Retrieved from www.intechopen.com/books: www.intechopen.com/books

Accuracy Test – involved the comparison of the arithmetic mean of the replicate analysis of the CRM (m) against its certified mean (μ), and if the following condition is satisfied then the analytical results are considered acceptable with regard to accuracy:

$$|\mathrm{m} - \mu| \leq 2\sigma_L$$

σ_L = is the standard deviation of the replicate analyses of the CRM

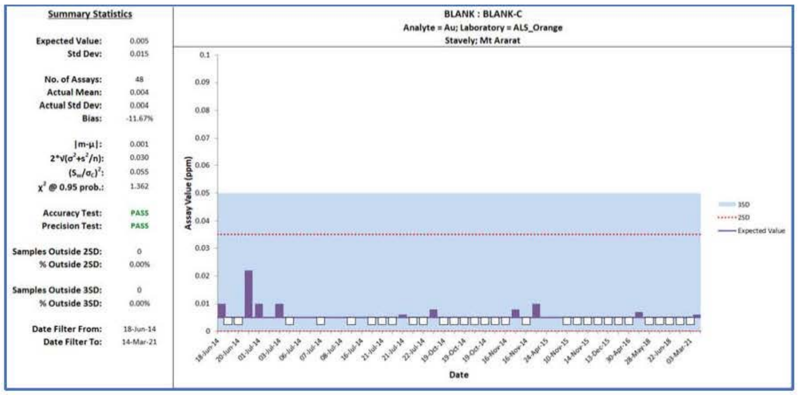
Precision Test (*Chi Square*) – involves the comparison of the estimated standard deviation of the replicate assays against the CRM deviation, and if the following condition is satisfied then the analytical precision is considered acceptable;

$$\left(\frac{S_w}{\sigma_c}\right)^2 \leq \frac{X^2_{(n-1)0.95}}{n-1}$$

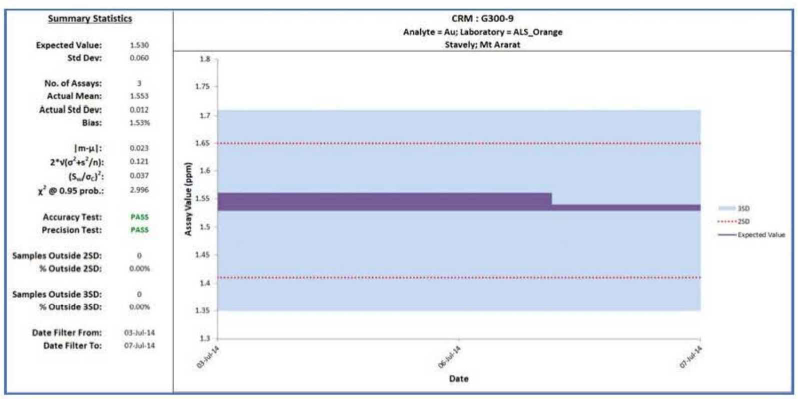
S_w = is the standard deviation of the replicate analyses of the CRM
σ_C = is the certified value of the CRM standard deviation
$X^2_{(n-1)0.95}$ = is the critical value of the 0.95 quartile of the X^2 distribution at $(n-1)$ degrees of freedom
n = is the number of replicate assays of the CRM

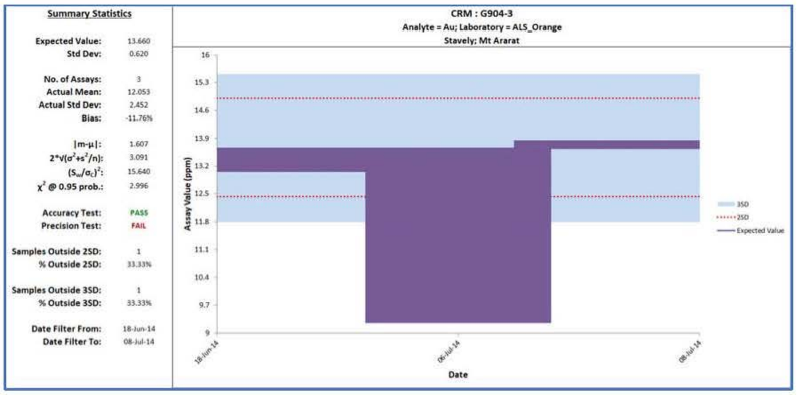
Appendix 1

All control charts for Gold CRMs/blanks – ALS Orange

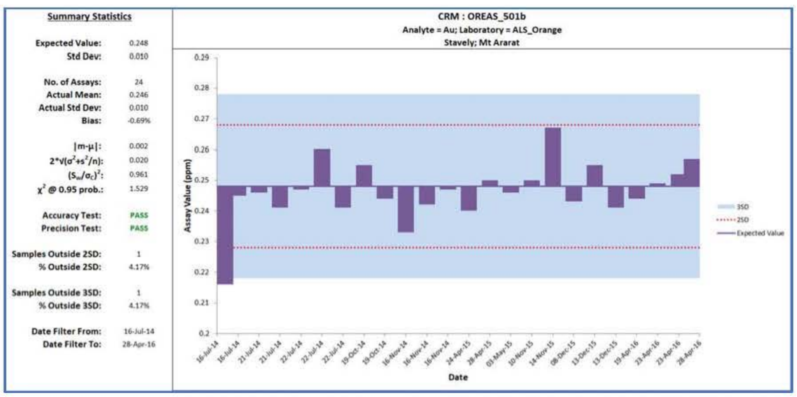


- Au detection limits -0.01 reset to 0.005 and -0.005 reported to 0.0025 but graphed together.





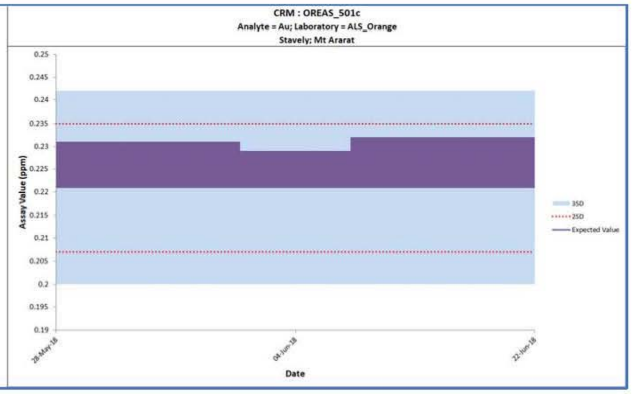
- 1 failure observed – not enough samples to effectively review



- 1 failure observed

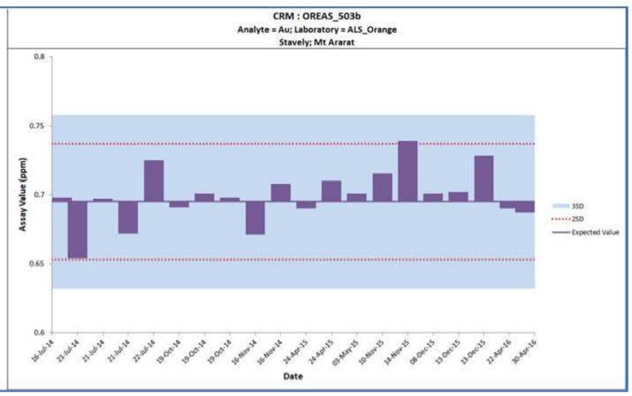
Summary Statistics

Expected Value:	0.221
Std Dev:	0.007
No. of Assays:	3
Actual Mean:	0.231
Actual Std Dev:	0.002
Bias:	4.37%
$\lvert m-\mu \rvert$:	0.010
$2*\sqrt{(\sigma^2+s^2/n)}$:	0.014
$(S_w/\sigma_C)^2$:	0.048
χ^2 @ 0.95 prob.:	2.996
Accuracy Test:	PASS
Precision Test:	PASS
Samples Outside 2SD:	0
% Outside 2SD:	0.00%
Samples Outside 3SD:	0
% Outside 3SD:	0.00%
Date Filter From:	28-May-18
Date Filter To:	22-Jun-18



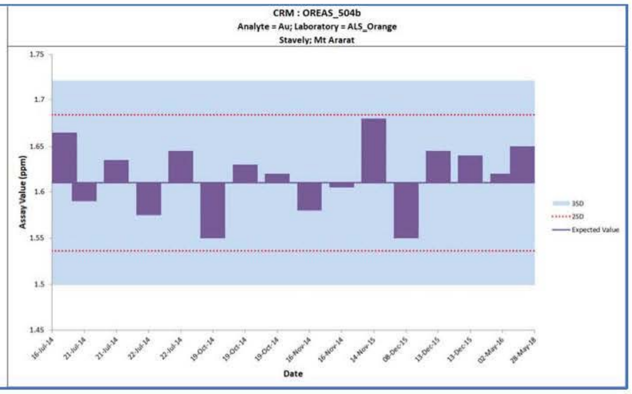
Summary Statistics

Expected Value:	0.695
Std Dev:	0.021
No. of Assays:	20
Actual Mean:	0.699
Actual Std Dev:	0.020
Bias:	0.56%
$\lvert m-\mu \rvert$:	0.004
$2*\sqrt{(\sigma^2+s^2/n)}$:	0.043
$(S_w/\sigma_C)^2$:	0.896
χ^2 @ 0.95 prob.:	1.587
Accuracy Test:	PASS
Precision Test:	PASS
Samples Outside 2SD:	1
% Outside 2SD:	5.00%
Samples Outside 3SD:	0
% Outside 3SD:	0.00%
Date Filter From:	16-Jul-14
Date Filter To:	30-Apr-16



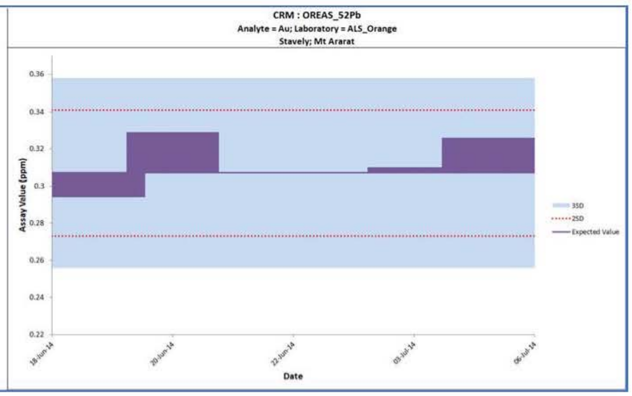
Summary Statistics

Expected Value:	1.610
Std Dev:	0.037
No. of Assays:	16
Actual Mean:	1.618
Actual Std Dev:	0.039
Bias:	0.47%
$\lvert m-\mu \rvert$:	0.007
$2*\sqrt{(\sigma^2+s^2/n)}$:	0.077
$(S_w/\sigma_C)^2$:	1.118
χ^2 @ 0.95 prob.:	1.666
Accuracy Test:	PASS
Precision Test:	PASS
Samples Outside 2SD:	0
% Outside 2SD:	0.00%
Samples Outside 3SD:	0
% Outside 3SD:	0.00%
Date Filter From:	16-Jul-14
Date Filter To:	28-May-18

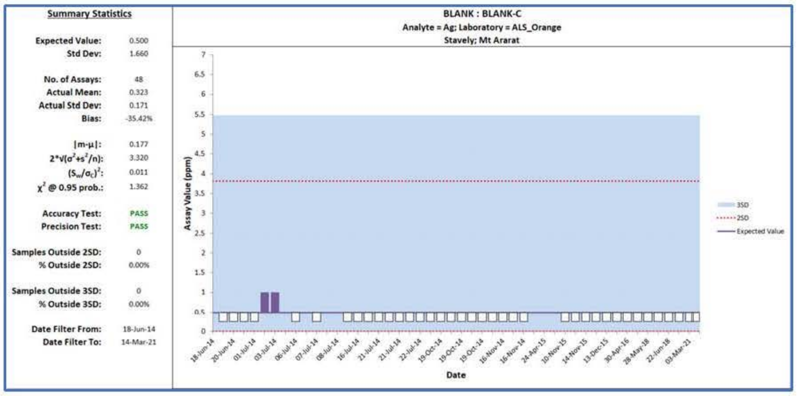


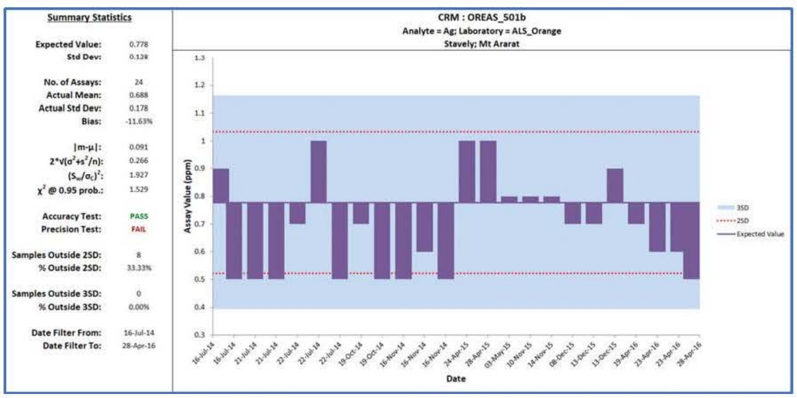
Summary Statistics

Expected Value:	0.307
Std Dev:	0.017
No. of Assays:	5
Actual Mean:	0.313
Actual Std Dev:	0.014
Bias:	2.02%
$\lvert m-\mu \rvert$:	0.006
$2*\sqrt{(\sigma^2+s^2/n)}$:	0.036
$(S_w/\sigma_C)^2$:	0.719
χ^2 @ 0.95 prob.:	2.372
Accuracy Test:	PASS
Precision Test:	PASS
Samples Outside 2SD:	0
% Outside 2SD:	0.00%
Samples Outside 3SD:	0
% Outside 3SD:	0.00%
Date Filter From:	18-Jun-14
Date Filter To:	06-Jul-14



All control charts for Silver CRMs/blanks – ALS Orange

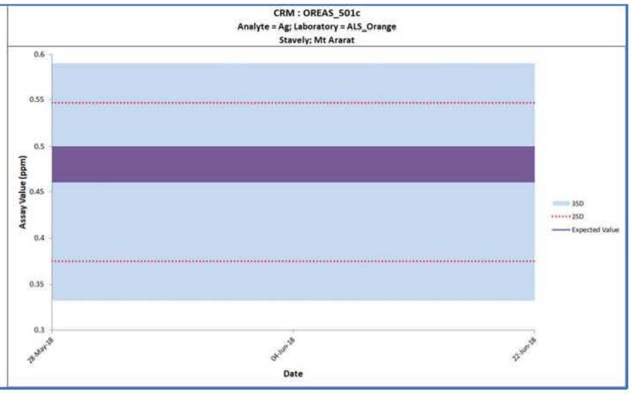




- Precision failure; Close to detection; Reset values -0.5 to 0.5 (not half = 0.25 which fails 3 values).-11.63% negative bias.

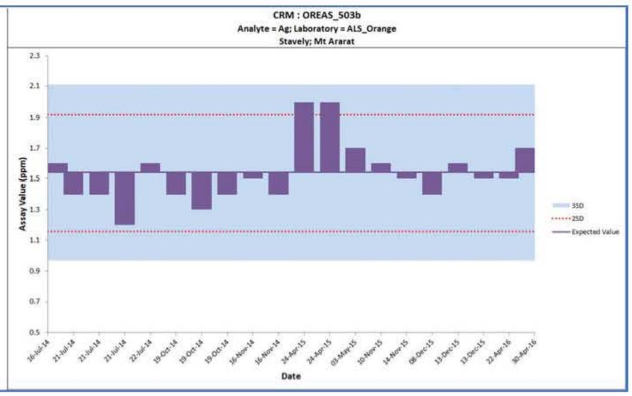
Summary Statistics

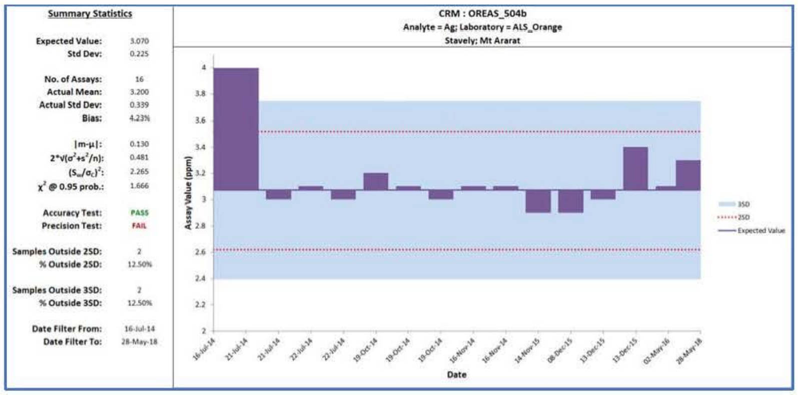
Expected Value:	0.461
Std Dev:	0.043
No. of Assays:	3
Actual Mean:	0.500
Actual Std Dev:	0.000
Bias:	8.46%
$\lvert m-\mu \rvert$:	0.039
$2*\sqrt{(\sigma^2+s^2/n)}$:	0.086
$(S_w/\sigma_C)^2$:	0.000
χ^2 @ 0.95 prob.:	2.996
Accuracy Test:	PASS
Precision Test:	PASS
Samples Outside 2SD:	0
% Outside 2SD:	0.00%
Samples Outside 3SD:	0
% Outside 3SD:	0.00%
Date Filter From:	28-May-18
Date Filter To:	22-Jun-18



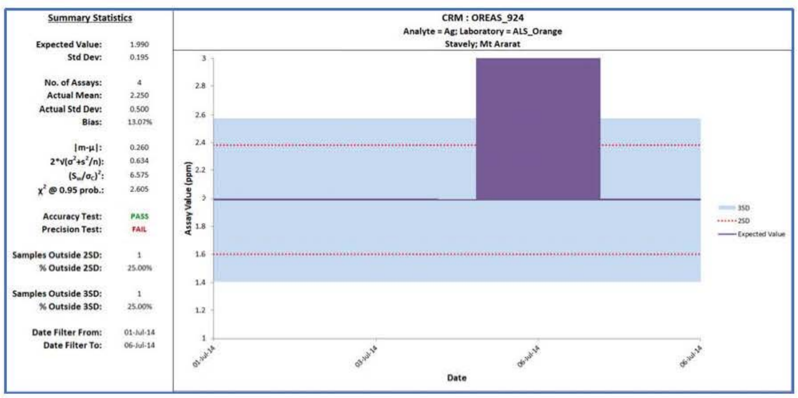
Summary Statistics

Expected Value:	1.540
Std Dev:	0.190
No. of Assays:	20
Actual Mean:	1.535
Actual Std Dev:	0.203
Bias:	-0.32%
$\lvert m-\mu \rvert$:	0.005
$2*\sqrt{(\sigma^2+s^2/n)}$:	0.391
$(S_w/\sigma_C)^2$:	1.145
χ^2 @ 0.95 prob.:	1.587
Accuracy Test:	PASS
Precision Test:	PASS
Samples Outside 2SD:	2
% Outside 2SD:	10.00%
Samples Outside 3SD:	0
% Outside 3SD:	0.00%
Date Filter From:	16-Jul-14
Date Filter To:	30-Apr-16



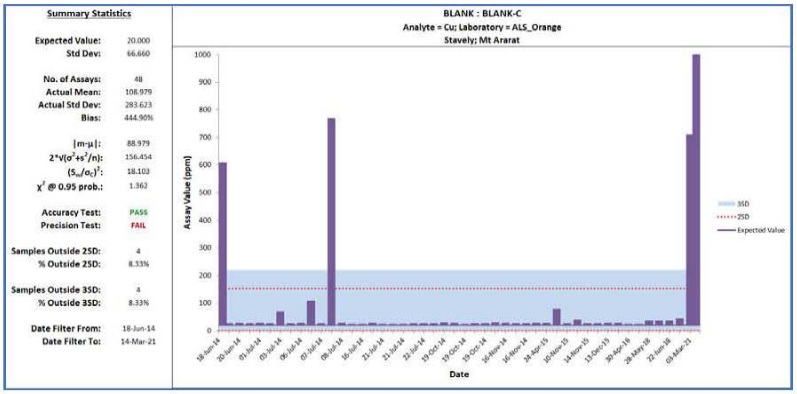


- 2 failures observed; Precision test failure

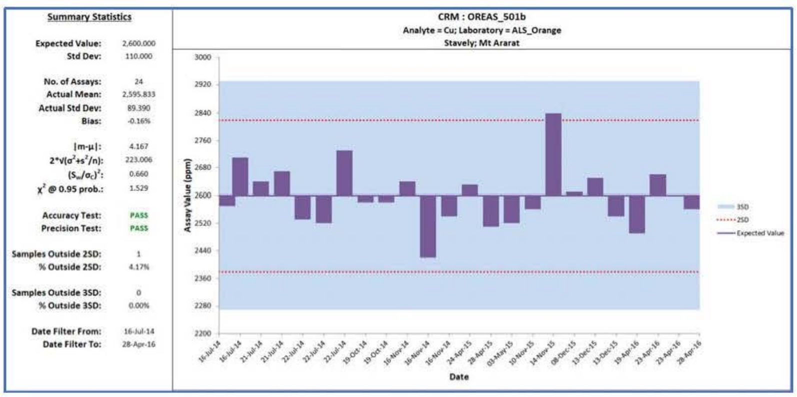


- 1 failure observed; Precision test failure

All control charts for Copper CRMs/blanks – ALS Orange

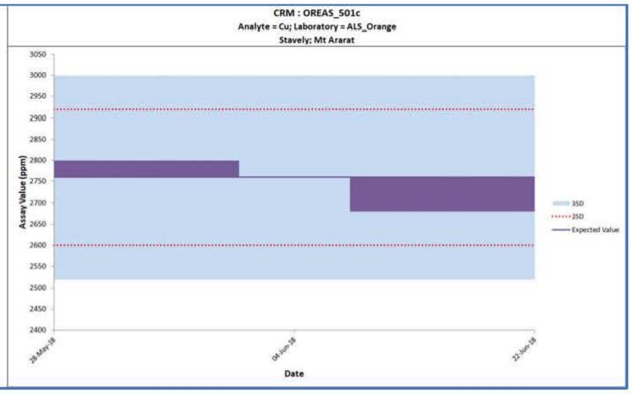


- 20ppm lower level detection limit; 4 failures observed; Precision test failure.



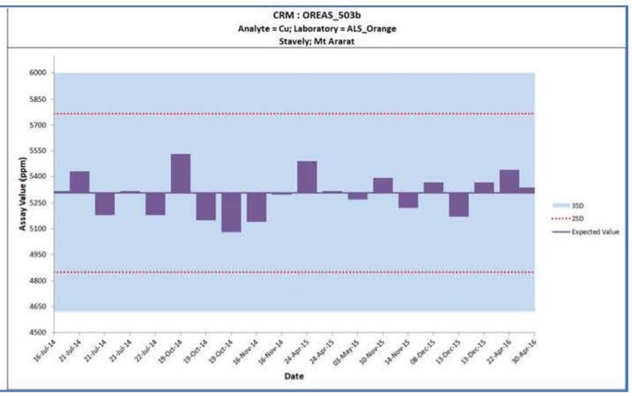
Summary Statistics

Expected Value:	2,760.000
Std Dev:	80.000
No. of Assays:	3
Actual Mean:	2,746.667
Actual Std Dev:	61.101
Bias:	-0.48%
$\lvert m-\mu \rvert$:	13.333
$2*\sqrt{(\sigma^2+s^2/n)}$:	174.865
$(S_w/\sigma_C)^2$:	0.583
χ^2 @ 0.95 prob.:	2.996
Accuracy Test:	PASS
Precision Test:	PASS
Samples Outside 2SD:	0
% Outside 2SD:	0.00%
Samples Outside 3SD:	0
% Outside 3SD:	0.00%
Date Filter From:	28-May-18
Date Filter To:	22-Jun-18



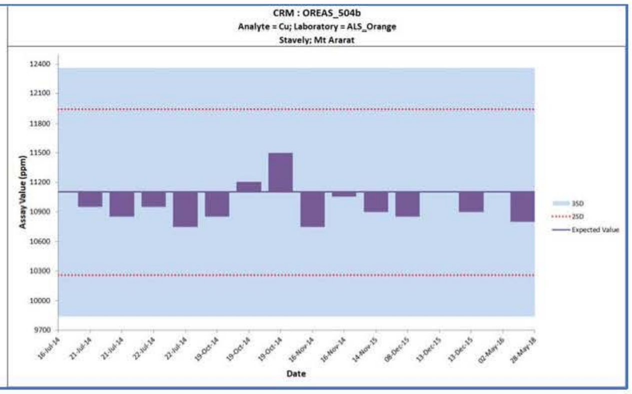
Summary Statistics

Expected Value:	5,310.000
Std Dev:	230.000
No. of Assays:	20
Actual Mean:	5,300.500
Actual Std Dev:	124.751
Bias:	-0.18%
$\lvert m-\mu \rvert$:	9.500
$2*\sqrt{(\sigma^2+s^2/n)}$:	463.371
$(S_w/\sigma_C)^2$:	0.294
χ^2 @ 0.95 prob.:	1.587
Accuracy Test:	PASS
Precision Test:	PASS
Samples Outside 2SD:	0
% Outside 2SD:	0.00%
Samples Outside 3SD:	0
% Outside 3SD:	0.00%
Date Filter From:	16-Jul-14
Date Filter To:	30-Apr-16



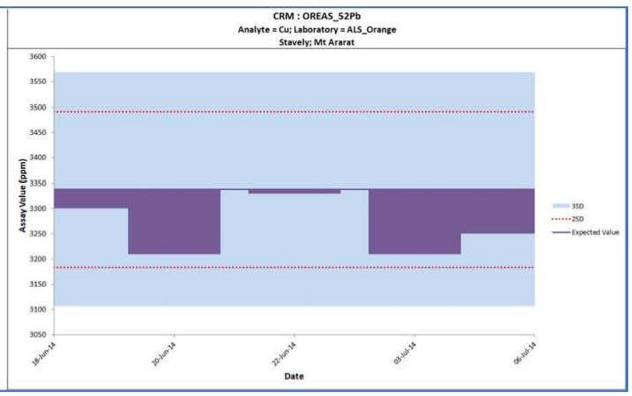
Summary Statistics

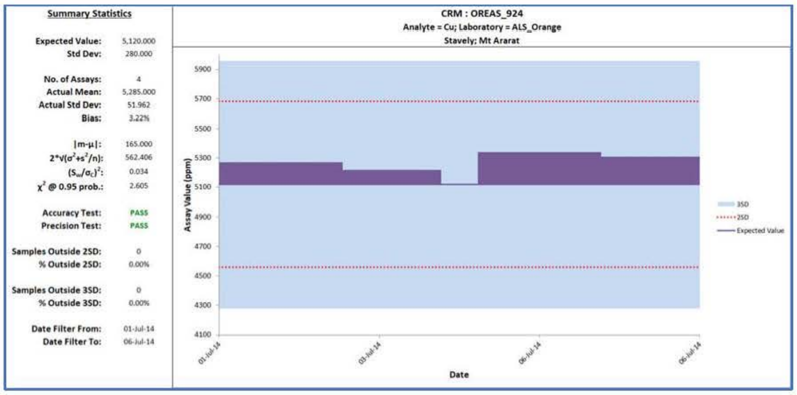
Expected Value:	11,100.000
Std Dev:	420.000
No. of Assays:	16
Actual Mean:	10,975.000
Actual Std Dev:	194.936
Bias:	-1.13%
$\lvert m-\mu \rvert$:	125.000
$2*\sqrt{(\sigma^2+s^2/n)}$:	845.636
$(S_w/\sigma_C)^2$:	0.215
χ^2 @ 0.95 prob.:	1.666
Accuracy Test:	PASS
Precision Test:	PASS
Samples Outside 2SD:	0
% Outside 2SD:	0.00%
Samples Outside 3SD:	0
% Outside 3SD:	0.00%
Date Filter From:	16-Jul-14
Date Filter To:	28-May-18



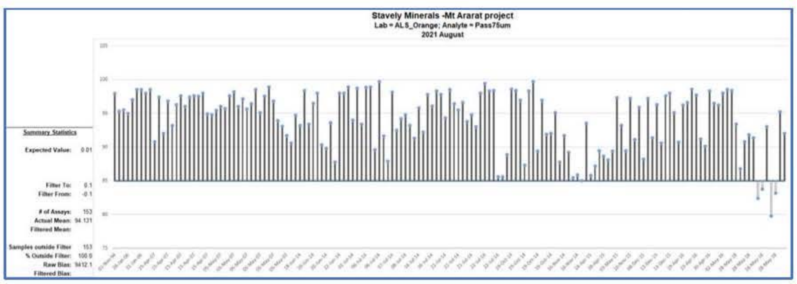
Summary Statistics

Expected Value:	3,338.000
Std Dev:	77.000
No. of Assays:	5
Actual Mean:	3,260.000
Actual Std Dev:	53.852
Bias:	-2.34%
$\lvert m-\mu \rvert$:	78.000
$2*\sqrt{(\sigma^2+s^2/n)}$:	161.357
$(S_w/\sigma_C)^2$:	0.489
χ^2 @ 0.95 prob.:	2.372
Accuracy Test:	PASS
Precision Test:	PASS
Samples Outside 2SD:	0
% Outside 2SD:	0.00%
Samples Outside 3SD:	0
% Outside 3SD:	0.00%
Date Filter From:	18-Jun-14
Date Filter To:	06-Jul-14





Control charts for Grind size – ALS Orange



- 2 results removed from dataset – incorrect calculation – further investigation required – listed in table below.
- Date drilled was also used in this graph instead of the preferred date completed (labjob) by laboratory.
- The grinding tests show that ALS Orange has achieved 85% sample passing -75micon

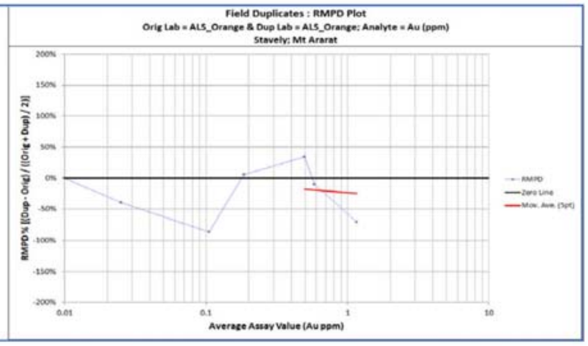
DataSet	SampleID	Hole_ID	mFrom	mTo	Sample_Type	Sample_Method	Au_Batch_No	p75um
Ararat	RT174069	ACAR174	66	69	Orig	AC_Spear	6AD0447	1.5
Ararat	RT177024	ACAR177	21	24	Orig	AC_Spear	6AD0447	2

Appendix 2

Field Duplicate RC Control Charts – ALS Orange (Gold)

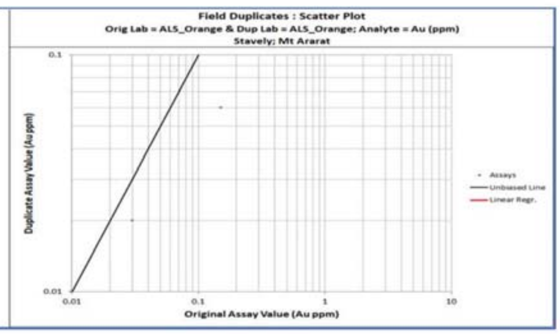
Summary Statistics

No. of Assays:	7
Original Max:	1.56
Duplicate Max:	0.75
No. Assays within 10%:	3
No. Assays within 20%:	3
No. Assays within 50%:	5
% Assays within 10%:	42.9%
% Assays within 20%:	42.9%
% Assays within 50%:	71.4%
Average RMPD%:	-23.8%
Absolute Average RMPD%:	46.6%
Average CV%:	32.9%
Filter Values From:	0.01
Filter Values To:	1.155



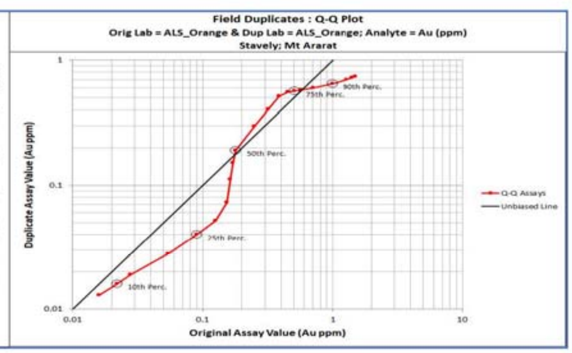
Summary Statistics

No. of Assays:	7
Original Min:	0.0100
Duplicate Min:	0.0100
Original Max:	1.56
Duplicate Max:	0.75
Original Mean:	0.421
Duplicate Mean:	0.309
Average Difference %:	-26.8%
Correlation Coefficient:	0.87
Slope:	1.52
Intercept:	-0.05



Summary Statistics

No. of Assays:		7
10th Perc.	Orig:	0.0220
	Dupl:	0.0160
25th Perc.	Orig:	0.093
	Dupl:	0.052
50th Perc.	Orig:	0.183
	Dupl:	0.193
75th Perc.	Orig:	0.513
	Dupl:	0.565
90th Perc.	Orig:	0.993
	Dupl:	0.648
Correlation Coefficient:		0.87
Slope:		1.52
Intercept:		-0.05



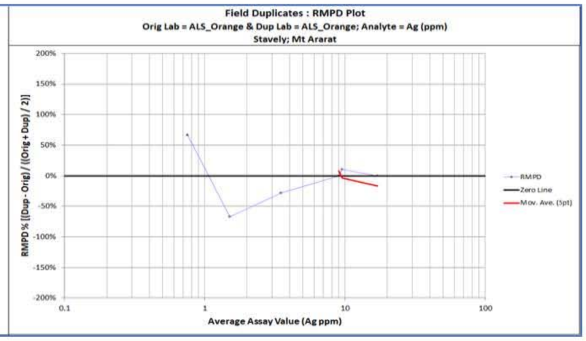
- ACV = 32.9% which is within acceptable range for an RC duplicate; Correlation is exaggerated in Q-Q plot; Not enough samples to effectively review.

Stavely Minerals
Mt Ararat Project, November 2017 to June 2021

Field Duplicate RC Control Charts – ALS Orange (Silver)

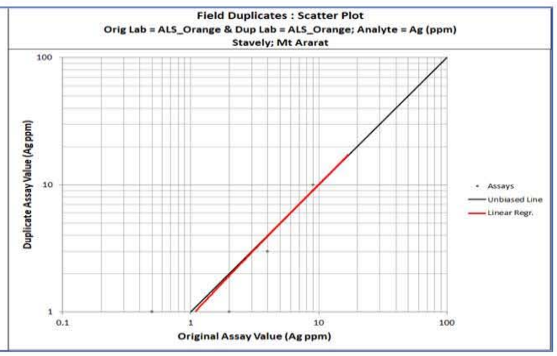
Summary Statistics

No. of Assays:	7
Original Max:	17.00
Duplicate Max:	17.00
No. Assays within 10%:	2
No. Assays within 20%:	3
No. Assays within 50%:	4
% Assays within 10%:	28.6%
% Assays within 20%:	42.9%
% Assays within 50%:	57.1%
Average RMPD%:	6.9%
Absolute Average RMPD%:	45.1%
Average CV%:	31.9%
Filter Values From:	0.75
Filter Values To:	17



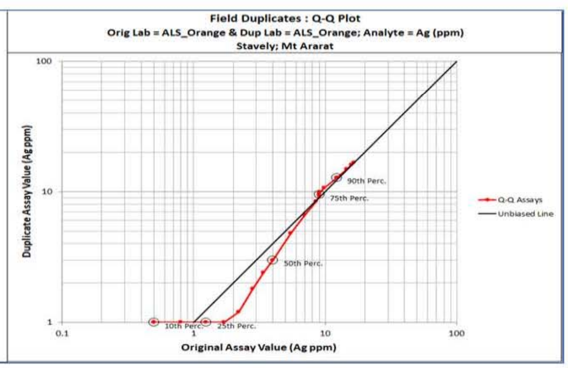
Summary Statistics

No. of Assays:	7
Original Min:	0.5000
Duplicate Min:	1.0000
Original Max:	17.00
Duplicate Max:	17.00
Original Mean:	6.000
Duplicate Mean:	6.000
Average Difference %:	0.0%
Correlation Coefficient:	0.99
Slope:	0.97
Intercept:	0.18



Summary Statistics

No. of Assays:		7
10th Perc.	Orig:	0.5000
	Dupl:	1.0000
25th Perc.	Orig:	1.250
	Dupl:	1.000
50th Perc.	Orig:	4.000
	Dupl:	3.000
75th Perc.	Orig:	9.000
	Dupl:	9.500
90th Perc.	Orig:	12.200
	Dupl:	12.800
Correlation Coefficient:		0.99
Slope:		0.97
Intercept:		0.18



- ACV = 31.9% which is within acceptable range – Not enough samples to effectively review.

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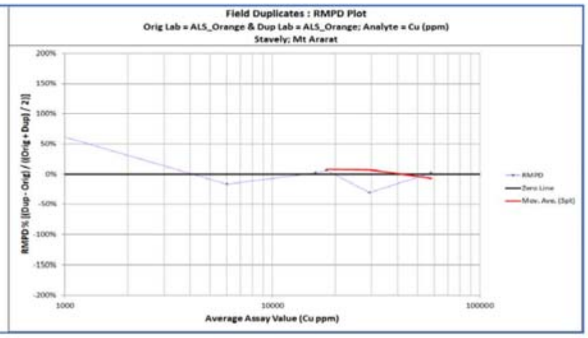
Field Duplicate RC Control Charts – ALS Orange (Copper)

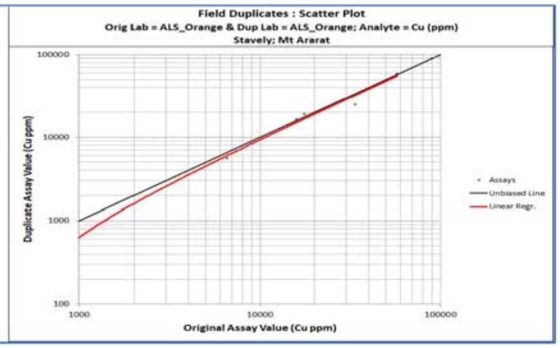
Summary Statistics

No. of Assays:	7
Original Max:	57,600.00
Duplicate Max:	58,900.00
No. Assays within 10%:	3
No. Assays within 20%:	4
No. Assays within 50%:	6
% Assays within 10%:	42.9%
% Assays within 20%:	57.1%
% Assays within 50%:	85.7%
Average RMPD%:	1.8%
Absolute Average RMPD%:	32.8%
Average CV%:	23.2%
Filter Values From:	115
Filter Values To:	58250



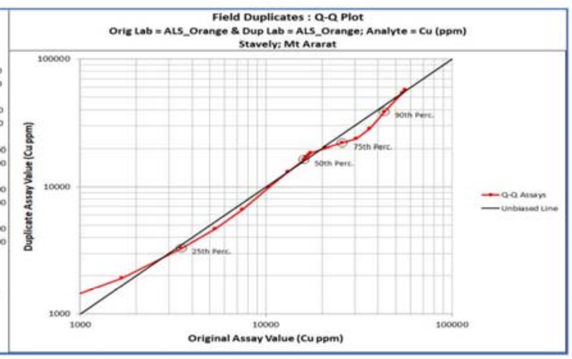
Summary Statistics

No. of Assays:	7
Original Min:	130.0000
Duplicate Min:	100.0000
Original Max:	57,600.00
Duplicate Max:	58,900.00
Original Mean:	18,892.857
Duplicate Mean:	17,938.571
Average Difference %:	-5.1%
Correlation Coefficient:	0.98
Slope:	1.00
Intercept:	916.37



Summary Statistics

No. of Assays:		7
10th Perc.	Orig:	328.0000
	Dupl:	646.0000
25th Perc.	Orig:	3,510.000
	Dupl:	4,650.000
50th Perc.	Orig:	16,000.000
	Dupl:	16,300.000
75th Perc.	Orig:	25,750.000
	Dupl:	21,850.000
90th Perc.	Orig:	43,380.000
	Dupl:	38,500.000
Correlation Coefficient:		0.98
Slope:		1.00
Intercept:		916.37



- CV = 23.2% which is within acceptable range – Not enough samples to effectively review.

Appendix 5 – Data issues

Stavely Minerals
Mt Ararat Project, November 2017 to June 2021

4 Copper values reported for Blank-C which may be the result of contamination between samples which is not evident in Gold or Silver values.										
Hole_ID	mFrom	mTo	SampleID	Sample_Type	Sample_Method	Au_ppm	Ag_ppm	Cu_ppm	Field1	date_drilled
SARC001	95	96	ARA10029	CHIPS	CONE	0.01	-1	890	OR14090053	18/06/2014
SARC001	0	0	ARA10030	BLANK-C		0.01	-1	610	OR14090053	18/06/2014
SARC001	96	97	ARA10031	CHIPS	CONE	0.006	-0.5	55	OR14090053	18/06/2014
SARC008	114	115	ARA10473	CHIPS	CONE	0.01	-1	1390	OR14090053	7/07/2014
SARC008	115	116	ARA10474	CHIPS	CONE	-0.01	-1	1630	OR14090053	7/07/2014
SARC008	0	0	ARA10475	BLANK-C		-0.01	-1	770	OR14090053	7/07/2014
SADD011	189	190	SVY67297	HCORE	CUTCORE	-0.005	-0.5	25	AD21072063	3/03/2021
SADD011	0	0	SVY67298	BLANK-C		-0.005	-0.5	46	AD21072063	3/03/2021
SADD011	190	191	SVY67299	HCORE	CUTCORE	-0.005	-0.5	36	AD21072063	3/03/2021
SADD011	209	210.1	SVY67320	HCORE	CUTCORE	0.486	9.2	67000	AD21072063	3/03/2021
SADD011	0	0	SVY67321	BLANK-C		-0.005	-0.5	710	AD21072063	3/03/2021
SADD011	210.1	211	SVY67322	HCORE	CUTCORE	-0.005	-0.5	212	AD21072063	3/03/2021
SADD012	304	304.9	SVY69139	HCORE	CUTCORE	0.03	0.8	6260	AD21105137	14/03/2021
SADD012	0	0	SVY69140	BLANK-C		0.006	-0.5	1680	AD21105137	14/03/2021
SADD012	304.9	306	SVY69141	HCORE	CUTCORE	0.007	0.5	5400	AD21105137	14/03/2021

CRM failures identified – minor failures apart from Cu which may be the result of contamination.													
Element	Company	Project	HOLE_ID	HOLE_TYPE	SAMP_ID	x	ASSAY	LAB_JOB_NO	DATE	STD_ID	EXP_VALUE	STD_DEV	LABORATORY
Au	Stavely	Ararat	SARC007	RC	ARA10407		9.26	OR14090053	06-Jul-14	G904-3	13.66	0.62	ALS_Orange
Au	Stavely	Ararat	SARC010	RC	ARA10562		0.216	OR14155717	16-Jul-14	OREAS_501b	0.248	0.01	ALS_Orange
Ag	Stavely	Ararat	SARC010	RC	ARA10609		4	OR14155717	16-Jul-14	OREAS_504b	3.07	0.225	ALS_Orange
Ag	Stavely	Ararat	SARC011	RC	ARA10693		4	OR14155717	21-Jul-14	OREAS_504b	3.07	0.225	ALS_Orange
Ag	Stavely	Ararat	SARC006	RC	ARA10353		3	OR14090053	06-Jul-14	OREAS_924	1.99	0.195	ALS_Orange
Cu	Stavely	Ararat	SARC001	RC	ARA10030		610	OR14090053	18-Jun-14	BLANK-C	20	66.66	ALS_Orange
Cu	Stavely	Ararat	SARC008	RC	ARA10475		770	OR14090053	07-Jul-14	BLANK-C	20	66.66	ALS_Orange
Cu	Stavely	Ararat	SADD011	DD	SVY67321		710	AD21072063	03-Mar-21	BLANK-C	20	66.66	ALS_Orange
Cu	Stavely	Ararat	SADD012	DD	SVY69140		1680	AD21105137	14-Mar-21	BLANK-C	20	66.66	ALS_Orange

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Standards where no Au _ppm excluded from review						
year	Hole_ID	SampleID	StandardID	Au_ppm	Ag_ppm	Cu_ppm
2014	SARC001	ARA10020	OREAS_111		10	23900
2014	SARC009	ARA10503	OREAS_111		10	23800
2021	SADD012	SVY69130	OREAS_152a	-5555	0.7	3860
2015	SADD003	ARA13136	OREAS_504b			
2014	SARC004	ARA10248	OREAS_924		2	5270
2014	SARC005	ARA10290	OREAS_924		2	5220
2014	SARC007	ARA10399	OREAS_924		2	5340
2014	SARC006	ARA10353	OREAS_924		3	5310
2014	SARC008	ARA10463	OREAS_933		28	81400

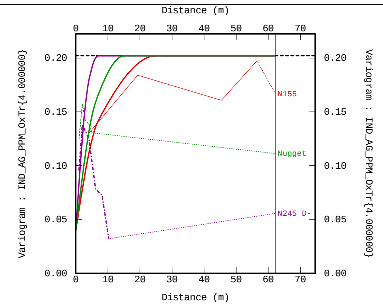
Standards where no Ag _ppm excluded from review						
year	Hole_ID	SampleID	StandardID	Au_ppm	Ag_ppm	Cu_ppm
2014	SARC005	ARA10301	G300-9	1.56		
2014	SARC006	ARA10345	G300-9	1.56		
2014	SARC008	ARA10469	G300-9	1.54		
2014	SARC004	ARA10242	G303-7	7.1		
2014	SARC001	ARA10025	G904-3	13.05		
2014	SARC007	ARA10407	G904-3	9.26		
2014	SARC009	ARA10495	G904-3	13.85		
2015	SADD003	ARA13136	OREAS_504b			

Standards where no Cu _ppm excluded from review						
year	Hole_ID	SampleID	StandardID	Au_ppm	Ag_ppm	Cu_ppm
2014	SARC005	ARA10301	G300-9	1.56		
2014	SARC006	ARA10345	G300-9	1.56		
2014	SARC008	ARA10469	G300-9	1.54		
2014	SARC004	ARA10242	G303-7	7.1		
2014	SARC001	ARA10025	G904-3	13.05		
2014	SARC007	ARA10407	G904-3	9.26		
2014	SARC009	ARA10495	G904-3	13.85		
2015	SADD003	ARA13136	OREAS_504b			
2021	SADD011	SVY67278	OREAS_504c	1.46	4.2	-5555

Appendix 2

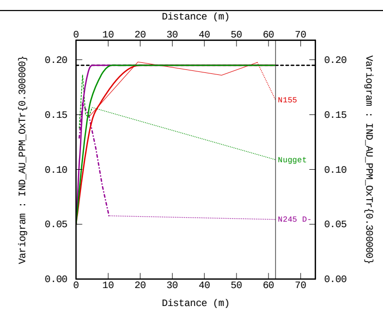
Variogram Plots

Indicator Variograms – Weathered Sub-domain



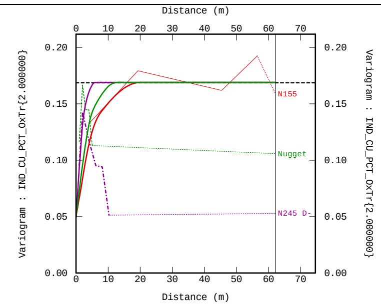
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr                                    mikem
- Variable #1 : IND_AG_PPM_OxTr{4.000000}                            Aug 23 2021   11:59:51
Variogram : in 3 direction(s)                                        Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  20.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  8.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 6 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 6 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.04
S2  - Spherical - Range = 4.00000m, Sill =       0.06
      Directional Scales = (        7.00000m,        7.00000m,        4.00000m)
S3  - Spherical - Range = 7.00000m, Sill =      0.102
      Directional Scales = (       25.00000m,       25.00000m,        7.00000m)
```



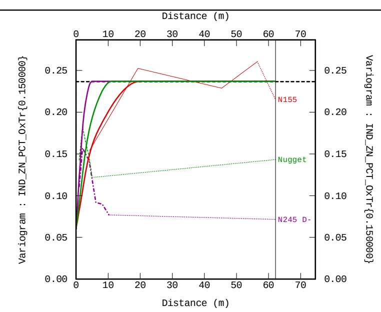
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr                                    mikem
- Variable #1 : IND_AU_PPM_OxTr{0.300000}                            Aug 23 2021   12:02:19
Variogram : in 3 direction(s)                                        Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  20.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  8.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 6 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 6 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.05
S2  - Spherical - Range = 3.00000m, Sill =       0.07
      Directional Scales = (        6.00000m,        6.00000m,        3.00000m)
S3  - Spherical - Range = 5.00000m, Sill =      0.075
      Directional Scales = (       20.00000m,       20.00000m,        5.00000m)
```



Isatis

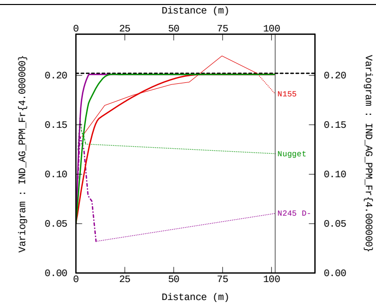
```
Data/comp_1m_final_combi_sgwtd_fr                                   mikem
- Variable #1 : IND_CU_PCT_OxTr{2.000000}                  Aug 23 2021   12:03:47
Variogram : in 3 direction(s)                              Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  20.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  8.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 6 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 6 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.05
S2  - Spherical - Range = 3.00000m, Sill =       0.06
      Directional Scales = (        7.00000m,        7.00000m,        3.00000m)
S3  - Spherical - Range = 6.00000m, Sill =      0.059
      Directional Scales = (       20.00000m,       20.00000m,        6.00000m)
```



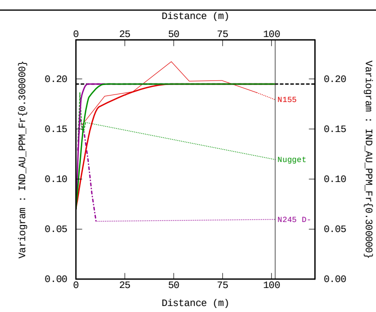
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr                                   mikem
- Variable #1 : IND_ZN_PCT_OxTr{0.150000}                  Aug 23 2021   12:06:13
Variogram : in 3 direction(s)                              Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  20.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  8.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 6 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 6 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.06
S2  - Spherical - Range = 3.00000m, Sill =       0.06
      Directional Scales = (        6.00000m,        6.00000m,        3.00000m)
S3  - Spherical - Range = 5.00000m, Sill =      0.117
      Directional Scales = (       20.00000m,       20.00000m,        5.00000m)
```

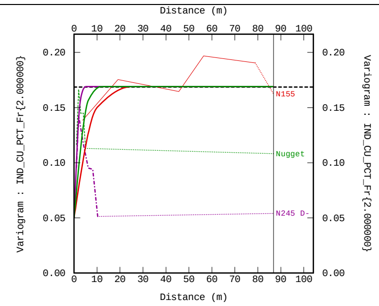
Indicator Variograms – Fresh Sub-domain




```
Isatis
Data/comp_1m_final_combi_sgwtd_fr                                   mikem
- Variable #1 : IND_AG_PPM_Fr{4.000000}                             Aug 23 2021   12:08:03
Variogram : in 3 direction(s)                                       Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  15.00000m, Count = 7 lags, Tolerance = 50.00%
      Vertical Slicing =  5.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 6 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 6 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.05
S2  - Spherical - Range = 3.00000m, Sill =       0.09
      Directional Scales = (       12.00000m,       12.00000m,        3.00000m)
S3  - Spherical - Range = 7.00000m, Sill =      0.061
      Directional Scales = (       65.00000m,       65.00000m,        7.00000m)
```

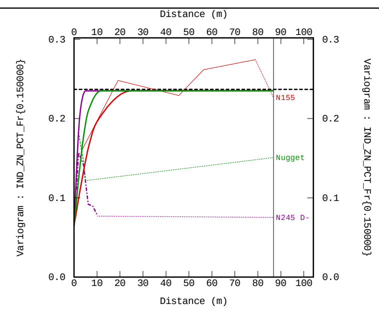



```
Isatis
Data/comp_1m_final_combi_sgwtd_fr                                   mikem
- Variable #1 : IND_AU_PPM_Fr{0.300000}                             Aug 23 2021   12:08:59
Variogram : in 3 direction(s)                                       Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  15.00000m, Count = 7 lags, Tolerance = 50.00%
      Vertical Slicing =  5.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 6 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 6 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.07
S2  - Spherical - Range = 3.00000m, Sill =       0.09
      Directional Scales = (       12.00000m,       12.00000m,        3.00000m)
S3  - Spherical - Range = 6.00000m, Sill =      0.035
      Directional Scales = (       50.00000m,       50.00000m,        6.00000m)
```



Isatis

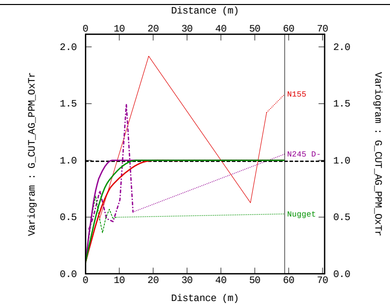
```
Data/comp_1m_final_combi_sgwtd_fr                                    mikem
- Variable #1 : IND_CU_PCT_Fr{2.000000}                     Aug 23 2021   12:10:57
Variogram : in 3 direction(s)                               Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  20.00000m, Count = 5 lags, Tolerance = 50.00%
      Vertical Slicing =  5.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 6 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 6 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.05
S2  - Spherical - Range = 3.00000m, Sill =      0.075
      Directional Scales = (       10.00000m,       10.00000m,        3.00000m)
S3  - Spherical - Range = 5.00000m, Sill =      0.044
      Directional Scales = (       25.00000m,       25.00000m,        5.00000m)
```



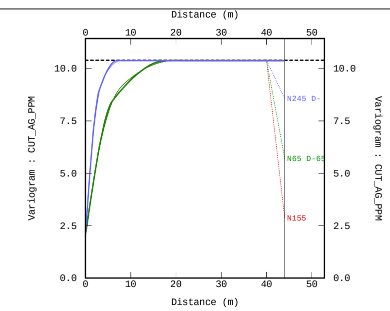
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr                                    mikem
- Variable #1 : IND_ZN_PCT_Fr{0.150000}                     Aug 23 2021   12:12:12
Variogram : in 3 direction(s)                               Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  20.00000m, Count = 5 lags, Tolerance = 50.00%
      Vertical Slicing =  5.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 6 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 6 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =      0.065
S2  - Spherical - Range = 3.00000m, Sill =       0.08
      Directional Scales = (       10.00000m,       10.00000m,        3.00000m)
S3  - Spherical - Range = 5.00000m, Sill =       0.09
      Directional Scales = (       25.00000m,       25.00000m,        5.00000m)
```

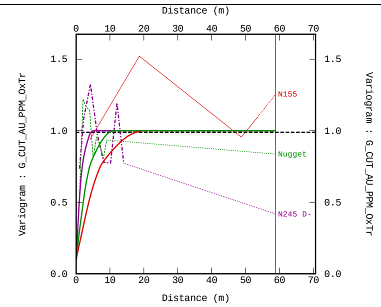
Gaussian and Back-Transformed Variograms by Grade Element – Weathered Sub-domain




```
Data/comp_1m_final_combi_sgwtd_fr(sel OxTr)                    mikem
- Variable #1 : G_CUT_AG_PPM_OxTr                              Aug 16 2021   14:58:29
Variogram : in 3 direction(s)                                  Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  20.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  6.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 8 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 10 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =        0.1
S2  - Spherical - Range = 4.00000m, Sill =        0.4
      Directional Scales = (        8.00000m,        8.00000m,        4.00000m)
S3  - Spherical - Range = 8.00000m, Sill =        0.5
      Directional Scales = (       20.00000m,       20.00000m,        8.00000m)
```

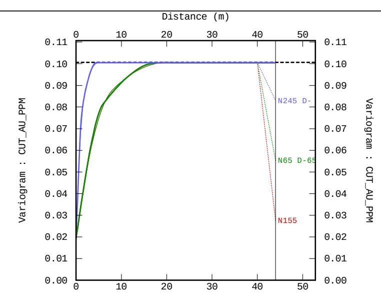



```
Data/comp_1m_final_combi_sgwtd_fr(sel OxTr)                    mikem
- Variable #1 : CUT_AG_PPM                                     Aug 16 2021   16:39:51
Variogram : in 3 direction(s)                                  Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 80 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 80 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 80 lags
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       2.04
S2  - Spherical - Range = 3.00000m, Sill =       4.66
      Directional Scales = (        6.00000m,        6.00000m,        3.00000m)
S3  - Spherical - Range = 7.00000m, Sill =       3.68
      Directional Scales = (       18.00000m,       18.00000m,        7.00000m)
```



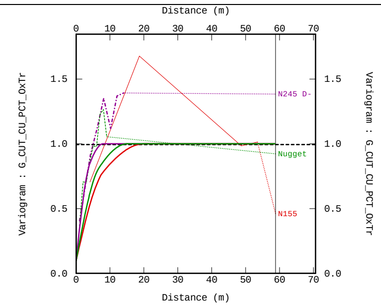
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr(sel OxTr)                                mikem
- Variable #1 : G_CUT_AU_PPM_OxTr                                    Aug 16 2021   15:37:57
Variogram : in 3 direction(s)                                        Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  20.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  6.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 8 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 10 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =        0.1
S2  - Spherical - Range = 2.00000m, Sill =        0.4
      Directional Scales = (        8.00000m,        8.00000m,        2.00000m)
S3  - Spherical - Range = 5.00000m, Sill =        0.5
      Directional Scales = (       20.00000m,       20.00000m,        5.00000m)
```

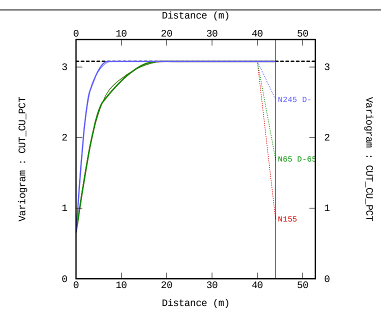


Isatis

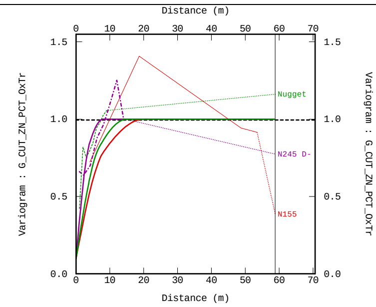
```
Data/comp_1m_final_combi_sgwtd_fr(sel OxTr)                                mikem
- Variable #1 : CUT_AU_PPM                                           Aug 16 2021   16:42:44
Variogram : in 3 direction(s)                                        Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 80 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 80 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 80 lags
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =     0.0193
S2  - Spherical - Range = 1.50000m, Sill =     0.0446
      Directional Scales = (        6.00000m,        6.00000m,        1.50000m)
S3  - Spherical - Range = 4.50000m, Sill =     0.0366
      Directional Scales = (       18.00000m,       18.00000m,        4.50000m)
```




```
Data/comp_1m_final_combi_sgwtd_fr(sel OxTr)                                mikem
- Variable #1 : G_CUT_CU_PCT_OxTr                                  Aug 16 2021   15:38:43
Variogram : in 3 direction(s)                                      Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  20.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  6.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 8 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 10 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =        0.1
S2  - Spherical - Range = 4.00000m, Sill =        0.4
      Directional Scales = (        8.00000m,        8.00000m,        4.00000m)
S3  - Spherical - Range = 8.00000m, Sill =        0.5
      Directional Scales = (       20.00000m,       20.00000m,        8.00000m)
```

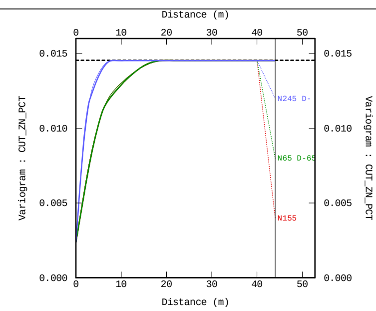



```
Data/comp_1m_final_combi_sgwtd_fr(sel OxTr)                                mikem
- Variable #1 : CUT_CU_PCT                                         Aug 16 2021   16:46:00
Variogram : in 3 direction(s)                                      Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 80 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 80 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 80 lags
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =      0.659
S2  - Spherical - Range = 3.00000m, Sill =       1.33
      Directional Scales = (        6.00000m,        6.00000m,        3.00000m)
S3  - Spherical - Range = 7.00000m, Sill =       1.09
      Directional Scales = (       18.00000m,       18.00000m,        7.00000m)
```



Isatis

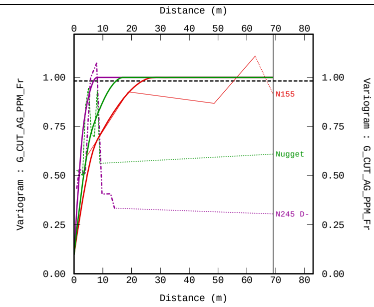
```
Data/comp_1m_final_combi_sgwtd_fr(sel OxTr)                              mikem
- Variable #1 : G_CUT_ZN_PCT_OxTr                                        Aug 16 2021   15:45:24
Variogram : in 3 direction(s)                                            Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  20.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  6.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 8 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 10 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =        0.1
S2  - Spherical - Range = 4.00000m, Sill =        0.4
      Directional Scales = (        8.00000m,        8.00000m,        4.00000m)
S3  - Spherical - Range = 8.00000m, Sill =        0.5
      Directional Scales = (       20.00000m,       20.00000m,        8.00000m)
```



Isatis

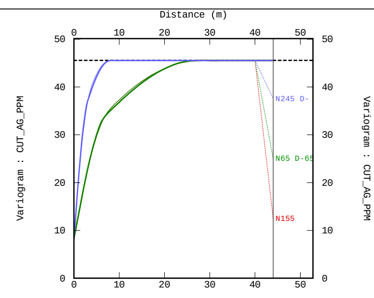
```
Data/comp_1m_final_combi_sgwtd_fr(sel OxTr)                              mikem
- Variable #1 : CUT_ZN_PCT                                               Aug 16 2021   16:49:31
Variogram : in 3 direction(s)                                            Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 80 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 80 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 80 lags
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =     0.00239
S2  - Spherical - Range = 3.00000m, Sill =     0.0064
      Directional Scales = (        7.00000m,        7.00000m,        3.00000m)
S3  - Spherical - Range = 8.00000m, Sill =    0.00574
      Directional Scales = (       19.00000m,       19.00000m,        8.00000m)
```

Gaussian and Back-Transformed Variograms by Grade Element – Fresh Sub-domain



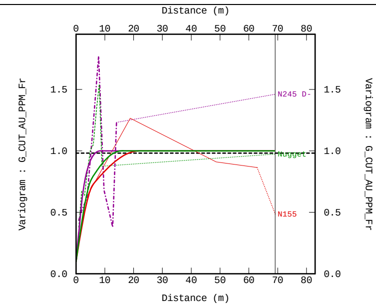
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr(sel Fr)                                   mikem
- Variable #1 : G_CUT_AG_PPM_Fr                                    Aug 16 2021   15:57:28
Variogram : in 3 direction(s)                                      Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  22.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  8.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 8 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 10 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.1
S2  - Spherical - Range = 4.00000m, Sill =      0.35
      Directional Scales = (        8.00000m,        8.00000m,        4.00000m)
S3  - Spherical - Range = 8.00000m, Sill =      0.55
      Directional Scales = (       28.00000m,       28.00000m,        8.00000m)
```



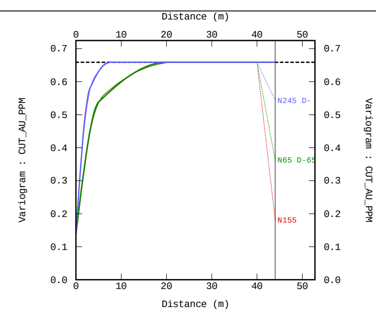
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr(sel Fr)                                   mikem
- Variable #1 : CUT_AG_PPM                                         Aug 16 2021   16:55:25
Variogram : in 3 direction(s)                                      Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 80 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 80 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 80 lags
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       8.3
S2  - Spherical - Range = 3.00000m, Sill =     18.73
      Directional Scales = (        7.00000m,        7.00000m,        3.00000m)
S3  - Spherical - Range = 8.00000m, Sill =     18.51
      Directional Scales = (       27.00000m,       27.00000m,        8.00000m)
```



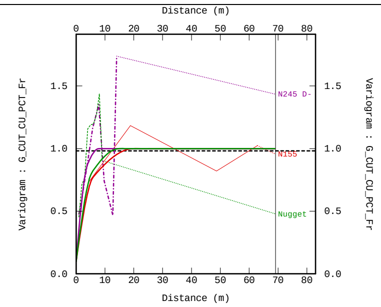
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr(sel Fr)                          mikem
- Variable #1 : G_CUT_AU_PPM_Fr                          Aug 16 2021   16:00:53
Variogram : in 3 direction(s)                            Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  22.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  8.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 8 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 10 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =        0.1
S2  - Spherical - Range = 4.00000m, Sill =       0.45
      Directional Scales = (        6.00000m,        6.00000m,        4.00000m)
S3  - Spherical - Range = 8.00000m, Sill =       0.45
      Directional Scales = (       22.00000m,       22.00000m,        8.00000m)
```



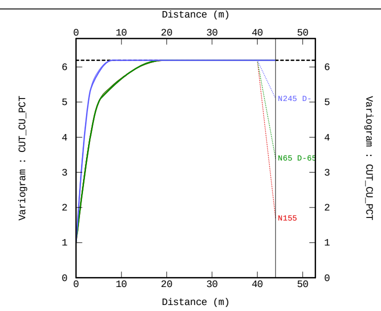
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr(sel Fr)                          mikem
- Variable #1 : CUT_AU_PPM                               Aug 16 2021   16:56:30
Variogram : in 3 direction(s)                            Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 80 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 80 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 80 lags
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.14
S2  - Spherical - Range = 3.00000m, Sill =      0.328
      Directional Scales = (        5.00000m,        5.00000m,        3.00000m)
S3  - Spherical - Range = 7.50000m, Sill =      0.191
      Directional Scales = (       20.00000m,       20.00000m,        7.50000m)
```



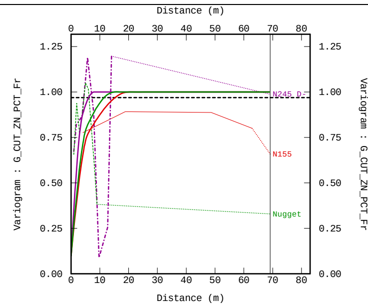
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr(sel Fr)                          mikem
- Variable #1 : G_CUT_CU_PCT_Fr                                    Aug 16 2021   16:07:21
Variogram : in 3 direction(s)                                      Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  22.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  8.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 8 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 10 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =        0.1
S2  - Spherical - Range = 4.00000m, Sill =        0.5
      Directional Scales = (        6.00000m,        6.00000m,        4.00000m)
S3  - Spherical - Range = 8.00000m, Sill =        0.4
      Directional Scales = (       20.00000m,       20.00000m,        8.00000m)
```



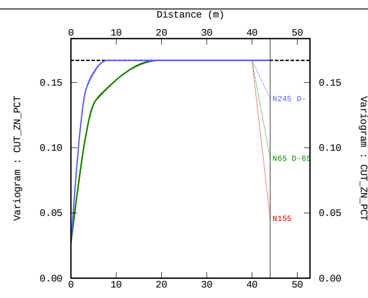
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr(sel Fr)                          mikem
- Variable #1 : CUT_CU_PCT                                         Aug 16 2021   16:57:50
Variogram : in 3 direction(s)                                      Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 80 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 80 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 80 lags
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       1.02
S2  - Spherical - Range = 3.50000m, Sill =       3.31
      Directional Scales = (        5.50000m,        5.50000m,        3.50000m)
S3  - Spherical - Range = 8.00000m, Sill =       1.86
      Directional Scales = (       19.00000m,       19.00000m,        8.00000m)
```



Isatis

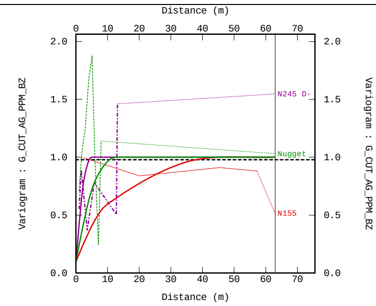
```
Data/comp_1m_final_combi_sgwtd_fr(sel Fr)                              mikem
- Variable #1 : G_CUT_ZN_PCT_Fr                            Aug 16 2021   16:08:05
Variogram : in 3 direction(s)                              Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  22.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  8.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 8 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 10 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =        0.1
S2  - Spherical - Range = 4.00000m, Sill =        0.5
      Directional Scales = (        6.00000m,        6.00000m,        4.00000m)
S3  - Spherical - Range = 8.00000m, Sill =        0.4
      Directional Scales = (       20.00000m,       20.00000m,        8.00000m)
```



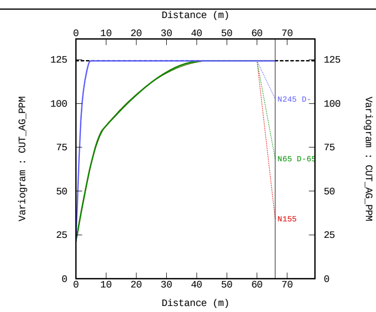
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr(sel Fr)                              mikem
- Variable #1 : CUT_ZN_PCT                                 Aug 16 2021   16:58:51
Variogram : in 3 direction(s)                              Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 80 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 80 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 80 lags
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =     0.0272
S2  - Spherical - Range = 3.50000m, Sill =      0.087
      Directional Scales = (        5.50000m,        5.50000m,        3.50000m)
S3  - Spherical - Range = 8.00000m, Sill =     0.0527
      Directional Scales = (       19.00000m,       19.00000m,        8.00000m)
```

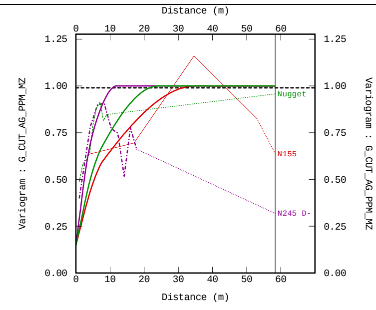
Gaussian and Back-Transformed Variograms by Grade Element – BZ & MZ Sub-domains



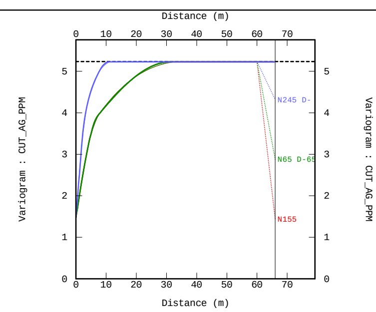

```
Data/comp_1m_final_combi_sgwtd_fr(sel AG_PPM BZ)                    mikem
- Variable #1 : G_CUT_AG_PPM_BZ                                     Aug 23 2021    15:07:50
Variogram : in 3 direction(s)                                       Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  20.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  5.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 8 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 10 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.1
S2  - Spherical - Range = 3.00000m, Sill =       0.3
      Directional Scales = (       10.00000m,       10.00000m,        3.00000m)
S3  - Spherical - Range = 5.00000m, Sill =       0.6
      Directional Scales = (       45.00000m,       45.00000m,        5.00000m)
```



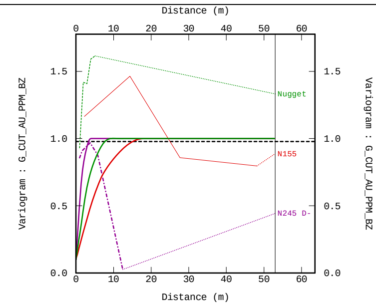

```
Data/comp_1m_final_combi_sgwtd_fr(sel AG_PPM BZ)                    mikem
- Variable #1 : CUT_AG_PPM                                          Aug 23 2021    15:16:55
Variogram : in 3 direction(s)                                       Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 120 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 120 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 120 lags
Model : 3 basic structure(s)
S1  - Nugget effect, Sill =      21.51
S2  - Spherical - Range = 9.15095m, Sill =      46.02
      Directional Scales = (        9.15095m,        9.15095m,        2.26141m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S3  - Spherical - Range = 42.24999m, Sill =      56.82
      Directional Scales = (       42.24999m,       42.24999m,        4.89390m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
```



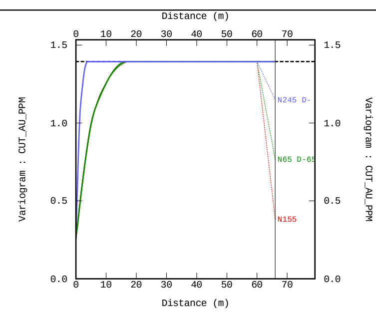

```
Data/comp_1m_final_combi_sgwtd_fr(sel AG_PPM MZ)                    mikem
- Variable #1 : G_CUT_AG_PPM_MZ                                     Aug 23 2021   15:09:47
Variogram : in 3 direction(s)                                       Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  18.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  5.00000m
D2  : N245 D-25
      Angular tolerance =  45.00
      Lag =  2.00000m, Count = 10 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 10 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.15
S2  - Spherical - Range = 5.00000m, Sill =       0.25
      Directional Scales = (        8.00000m,        8.00000m,        5.00000m)
S3  - Spherical - Range = 12.00000m, Sill =       0.6
      Directional Scales = (       35.00000m,       35.00000m,       12.00000m)
```



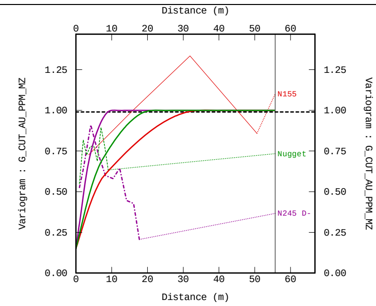

```
Data/comp_1m_final_combi_sgwtd_fr(sel AG_PPM MZ)                    mikem
- Variable #1 : CUT_AG_PPM                                          Aug 23 2021   15:17:24
Variogram : in 3 direction(s)                                       Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 120 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 120 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 120 lags
Model : 3 basic structure(s)
S1  - Nugget effect, Sill =       1.48
S2  - Spherical - Range = 7.22639m, Sill =      1.779
      Directional Scales = (        7.22639m,        7.22639m,        3.89328m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S3  - Spherical - Range = 31.26182m, Sill =      1.971
      Directional Scales = (       31.26182m,       31.26182m,       10.90522m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
```




```
Data/comp_1m_final_combi_sgwtd_fr(sel AU_PPM BZ)                          mikem
- Variable #1 : G_CUT_AU_PPM_BZ                                           Aug 23 2021   15:10:34
Variogram : in 3 direction(s)                                             Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  15.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  5.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 8 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 6 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =        0.1
S2  - Spherical - Range = 2.00000m, Sill =        0.3
      Directional Scales = (        8.00000m,        8.00000m,        2.00000m)
S3  - Spherical - Range = 4.00000m, Sill =        0.6
      Directional Scales = (       18.00000m,       18.00000m,        4.00000m)
```

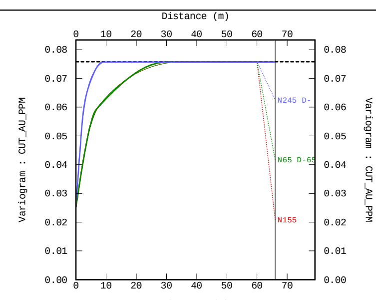



```
Data/comp_1m_final_combi_sgwtd_fr(sel AU_PPM BZ)                          mikem
- Variable #1 : CUT_AU_PPM                                                Aug 23 2021   15:17:53
Variogram : in 3 direction(s)                                             Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 120 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 120 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 120 lags
Model : 3 basic structure(s)
S1  - Nugget effect, Sill =     0.2585
S2  - Spherical - Range = 6.36531m, Sill =     0.4756
      Directional Scales = (        6.36531m,        6.36531m,        1.53506m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S3  - Spherical - Range = 16.72734m, Sill =     0.6596
      Directional Scales = (       16.72734m,       16.72734m,        3.76809m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
```



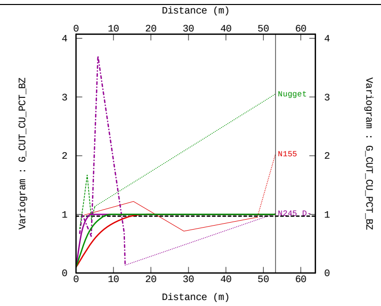
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr(sel AU_PPM MZ)                                  mikem
- Variable #1 : G_CUT_AU_PPM_MZ                                          Aug 23 2021   15:11:33
Variogram : in 3 direction(s)                                            Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  16.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  8.00000m
D2  : N245 D-25
      Angular tolerance =  45.00
      Lag =  2.00000m, Count = 10 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 10 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.15
S2  - Spherical - Range = 5.00000m, Sill =       0.25
      Directional Scales = (        8.00000m,        8.00000m,        5.00000m)
S3  - Spherical - Range = 10.00000m, Sill =        0.6
      Directional Scales = (       35.00000m,       35.00000m,       10.00000m)
```

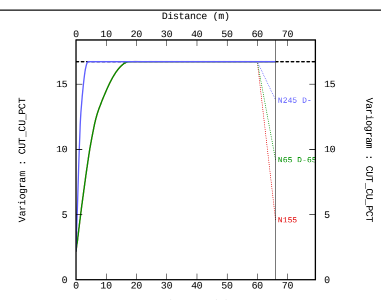


Isatis

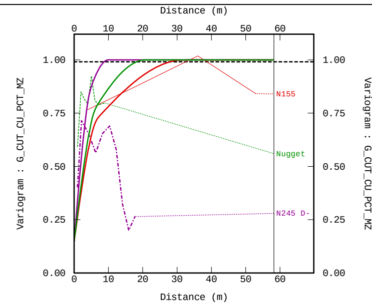
```
Data/comp_1m_final_combi_sgwtd_fr(sel AU_PPM MZ)                                  mikem
- Variable #1 : CUT_AU_PPM                                               Aug 23 2021   15:18:29
Variogram : in 3 direction(s)                                            Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 120 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 120 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 120 lags
Model : 3 basic structure(s)
S1  - Nugget effect, Sill =    0.02532
S2  - Spherical - Range = 6.83941m, Sill =     0.0258
      Directional Scales = (        6.83941m,        6.83941m,        3.36778m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S3  - Spherical - Range = 30.01631m, Sill =    0.02457
      Directional Scales = (       30.01631m,       30.01631m,        9.00100m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
```




```
Data/comp_1m_final_combi_sgwtd_fr(sel CU_PCT BZ)                    mikem
- Variable #1 : G_CUT_CU_PCT_BZ                                     Aug 23 2021   15:12:03
Variogram : in 3 direction(s)                                       Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  15.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  5.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 8 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 6 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.1
S2  - Spherical - Range = 2.00000m, Sill =       0.3
      Directional Scales = (       8.00000m,        8.00000m,        2.00000m)
S3  - Spherical - Range = 4.00000m, Sill =       0.6
      Directional Scales = (      18.00000m,       18.00000m,        4.00000m)
```

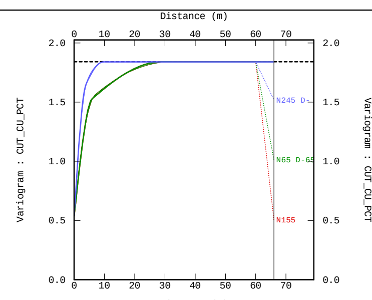



```
Data/comp_1m_final_combi_sgwtd_fr(sel CU_PCT BZ)                    mikem
- Variable #1 : CUT_CU_PCT                                          Aug 23 2021   15:19:37
Variogram : in 3 direction(s)                                       Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 120 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 120 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 120 lags
Model : 3 basic structure(s)
S1  - Nugget effect, Sill =      2.165
S2  - Spherical - Range = 7.38655m, Sill =      5.446
      Directional Scales = (       7.38655m,        7.38655m,        1.81984m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S3  - Spherical - Range = 17.67403m, Sill =      9.111
      Directional Scales = (      17.67403m,       17.67403m,        3.92951m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
```



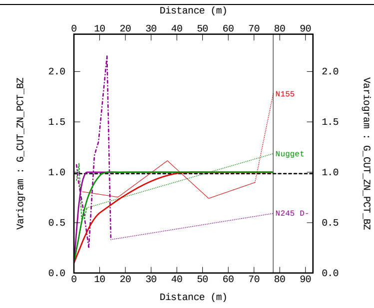
Isatis

```
Data/comp_1m_final_combi_sgwtd_fr(sel CU_PCT MZ)                         mikem
- Variable #1 : G_CUT_CU_PCT_MZ                                          Aug 23 2021   15:12:42
Variogram : in 3 direction(s)                                            Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  18.00000m, Count = 4 lags, Tolerance = 50.00%
      Vertical Slicing =  8.00000m
D2  : N245 D-25
      Angular tolerance =  45.00
      Lag =  2.00000m, Count = 10 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 10 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.15
S2  - Spherical - Range = 5.00000m, Sill =       0.45
      Directional Scales = (        7.00000m,        7.00000m,        5.00000m)
S3  - Spherical - Range = 10.00000m, Sill =        0.4
      Directional Scales = (       32.00000m,       32.00000m,       10.00000m)
```

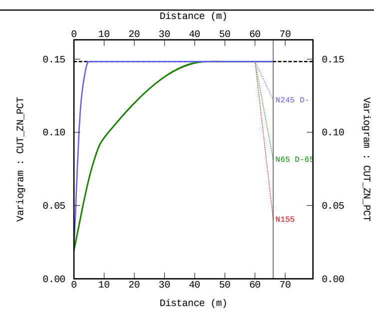


Isatis

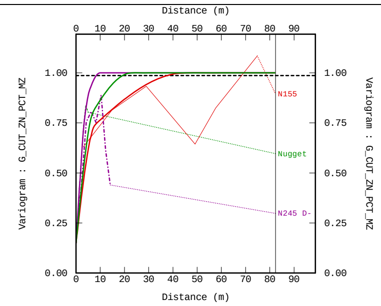
```
Data/comp_1m_final_combi_sgwtd_fr(sel CU_PCT MZ)                         mikem
- Variable #1 : CUT_CU_PCT                                               Aug 23 2021   15:20:10
Variogram : in 3 direction(s)                                            Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 120 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 120 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 120 lags
Model : 3 basic structure(s)
S1  - Nugget effect, Sill =     0.5368
S2  - Spherical - Range = 5.98491m, Sill =     0.8549
      Directional Scales = (        5.98491m,        5.98491m,        3.87927m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S3  - Spherical - Range = 28.79251m, Sill =     0.4489
      Directional Scales = (       28.79251m,       28.79251m,        9.63851m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
```




```
Data/comp_1m_final_combi_sgwtd_fr(sel ZN_PCT BZ)                mikem
- Variable #1 : G_CUT_ZN_PCT_BZ                                 Aug 23 2021   15:13:22
Variogram : in 3 direction(s)                                   Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  18.00000m, Count = 5 lags, Tolerance = 50.00%
      Vertical Slicing =  5.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 8 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 6 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.1
S2  - Spherical - Range = 3.00000m, Sill =       0.3
      Directional Scales = (       10.00000m,       10.00000m,        3.00000m)
S3  - Spherical - Range = 5.00000m, Sill =       0.6
      Directional Scales = (       45.00000m,       45.00000m,        5.00000m)
```

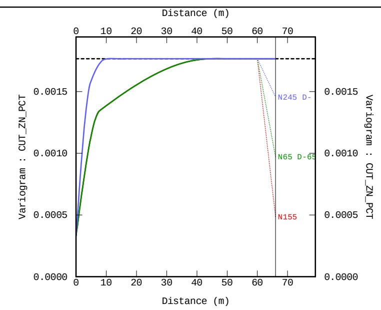



```
Data/comp_1m_final_combi_sgwtd_fr(sel ZN_PCT BZ)                mikem
- Variable #1 : CUT_ZN_PCT                                      Aug 23 2021   15:20:48
Variogram : in 3 direction(s)                                   Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 120 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 120 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 120 lags
Model : 3 basic structure(s)
S1  - Nugget effect, Sill =    0.01933
S2  - Spherical - Range = 9.68962m, Sill =    0.05061
      Directional Scales = (        9.68962m,        9.68962m,        2.59238m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S3  - Spherical - Range = 43.74147m, Sill =    0.07837
      Directional Scales = (       43.74147m,       43.74147m,        4.95873m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
```



Isatis

```
Data/comp_1m_final_combi_sgwtd_fr(sel ZN_PCT MZ)                    mikem
- Variable #1 : G_CUT_ZN_PCT_MZ                        Aug 23 2021   15:14:17
Variogram : in 3 direction(s)                          Mt_Ararat_MRE_2021_120
D1  : N155
      Angular tolerance =  90.00
      Lag =  15.00000m, Count = 6 lags, Tolerance = 50.00%
      Vertical Slicing =  5.00000m
D2  : N245 D-25
      Angular tolerance =  55.00
      Lag =  2.00000m, Count = 8 lags, Tolerance = 50.00%
D3  : Nugget
      Angular tolerance =  90.00
      Lag =  1.00000m, Count = 6 lags, Tolerance = 50.00%
Model : 3 basic structure(s)
Global rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S1  - Nugget effect, Sill =       0.15
S2  - Spherical - Range = 5.00000m, Sill =        0.5
      Directional Scales = (        8.00000m,        8.00000m,        5.00000m)
S3  - Spherical - Range = 10.00000m, Sill =       0.35
      Directional Scales = (       45.00000m,       45.00000m,       10.00000m)
```

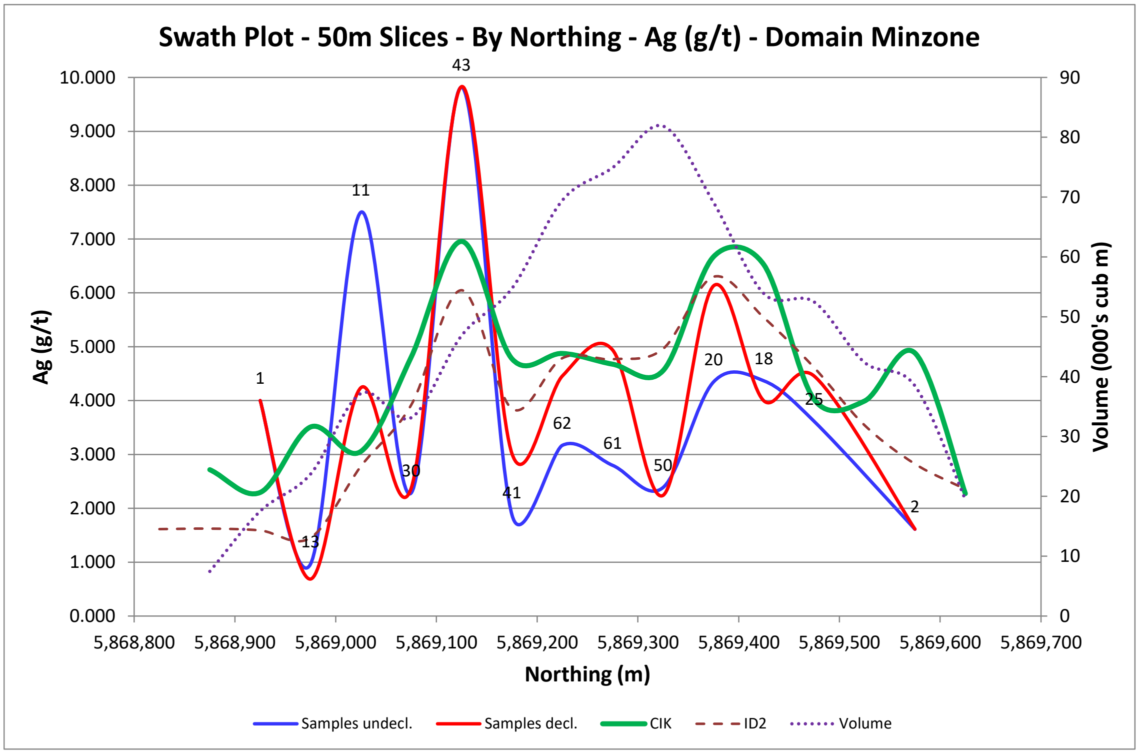


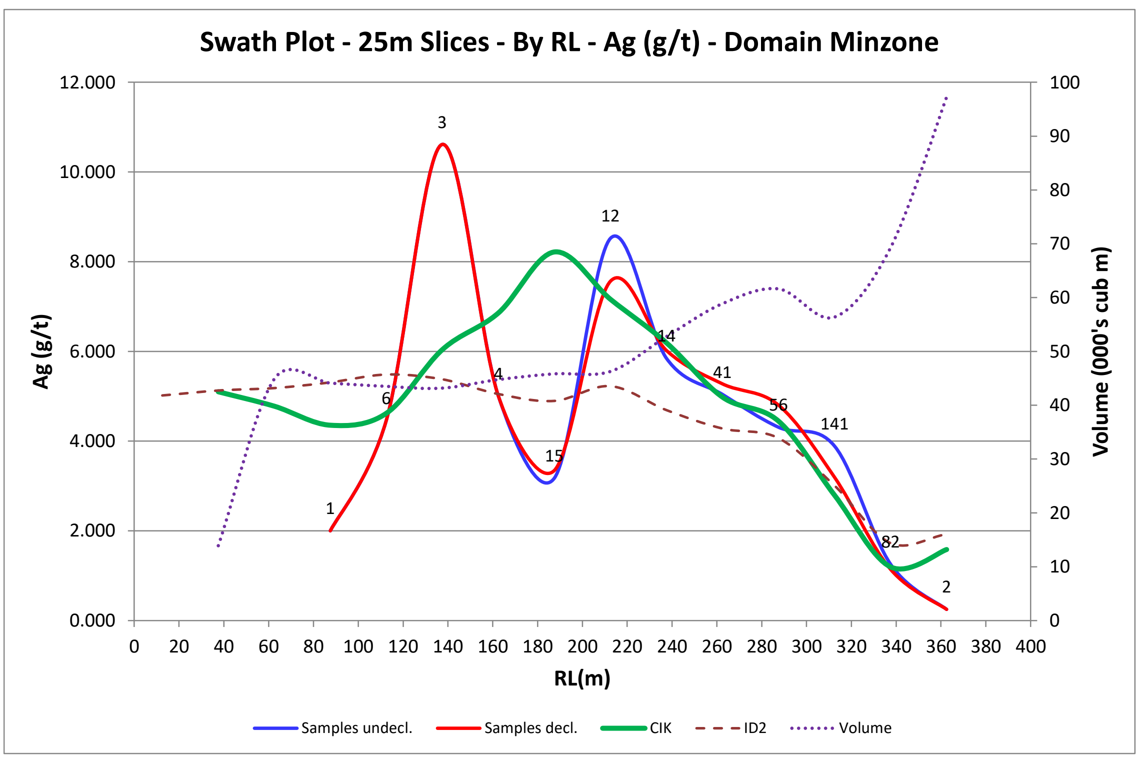
Isatis

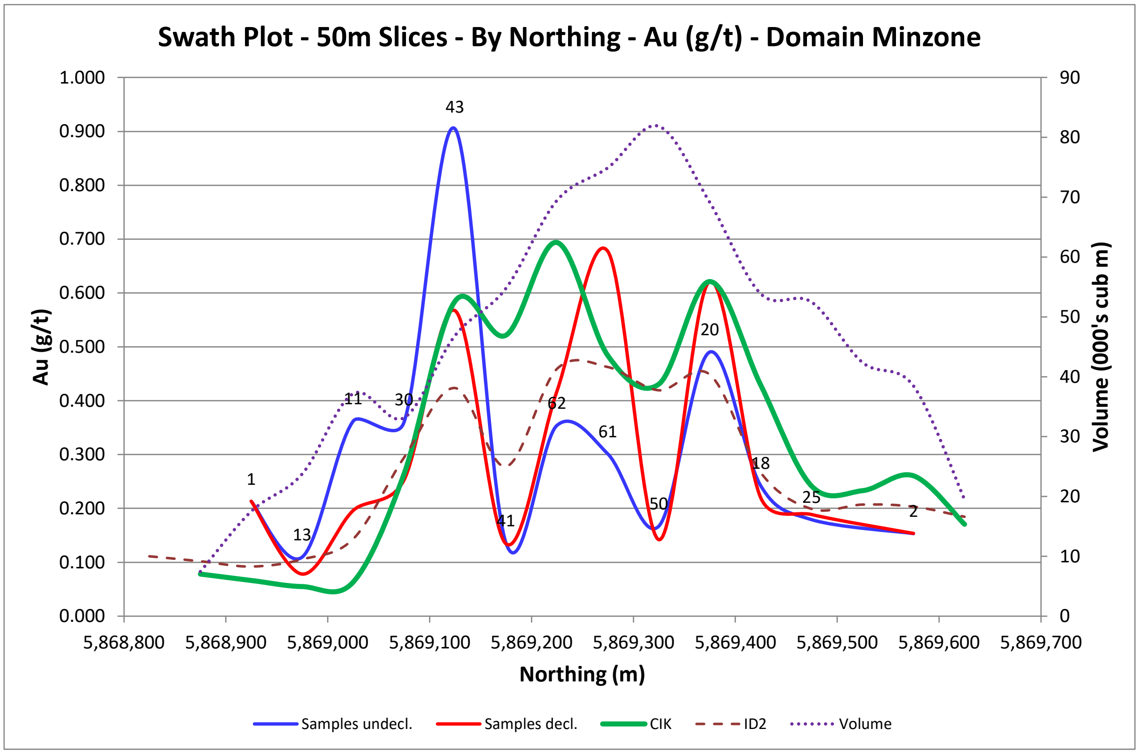
```
Data/comp_1m_final_combi_sgwtd_fr(sel ZN_PCT MZ)                    mikem
- Variable #1 : CUT_ZN_PCT                             Aug 23 2021   15:21:17
Variogram : in 3 direction(s)                          Mt_Ararat_MRE_2021_120
D1  : N155
      Lag =  0.50000m, Count = 120 lags
D2  : N65 D-65
      Lag =  0.50000m, Count = 120 lags
D3  : N245 D-25
      Lag =  0.50000m, Count = 120 lags
Model : 3 basic structure(s)
S1  - Nugget effect, Sill =  0.0003311
S2  - Spherical - Range = 7.83460m, Sill =  0.0008663
      Directional Scales = (        7.83460m,        7.83460m,        4.82733m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
S3  - Spherical - Range = 44.60491m, Sill =  0.0005686
      Directional Scales = (       44.60491m,       44.60491m,       10.00243m)
      Rotation = Azimuth=N155.00 Dip=65.00 (Geologist Plane)
```

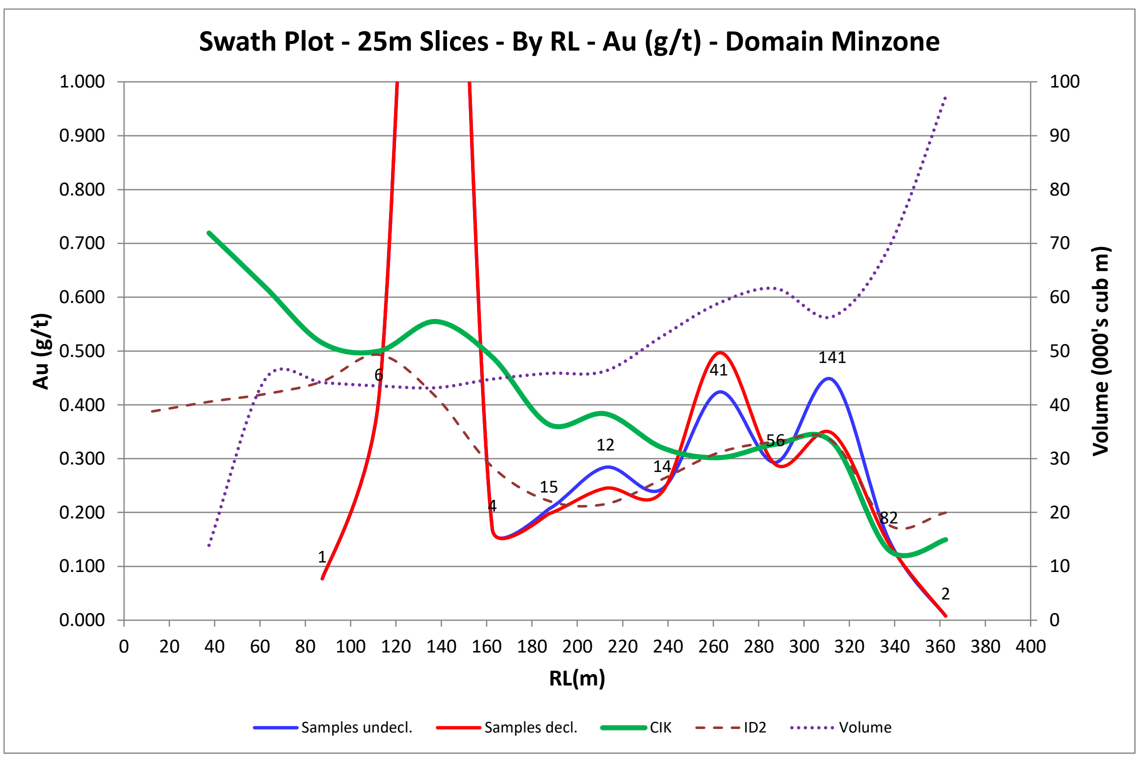
Appendix 3

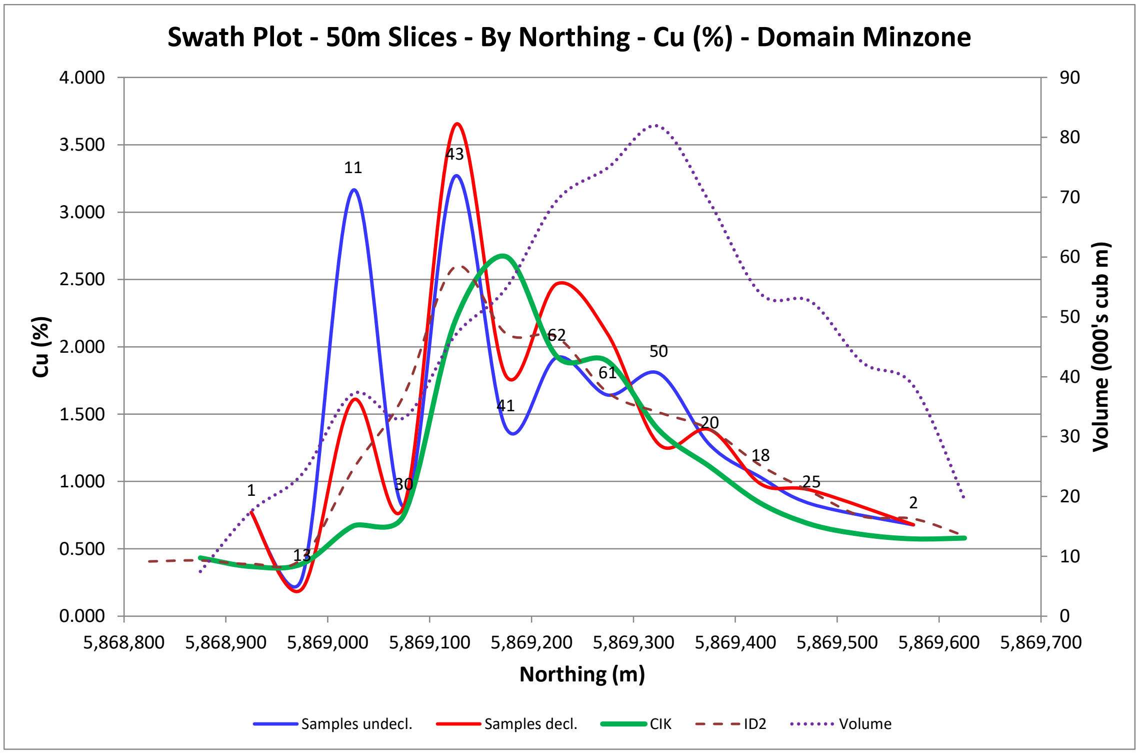
Swath Plots

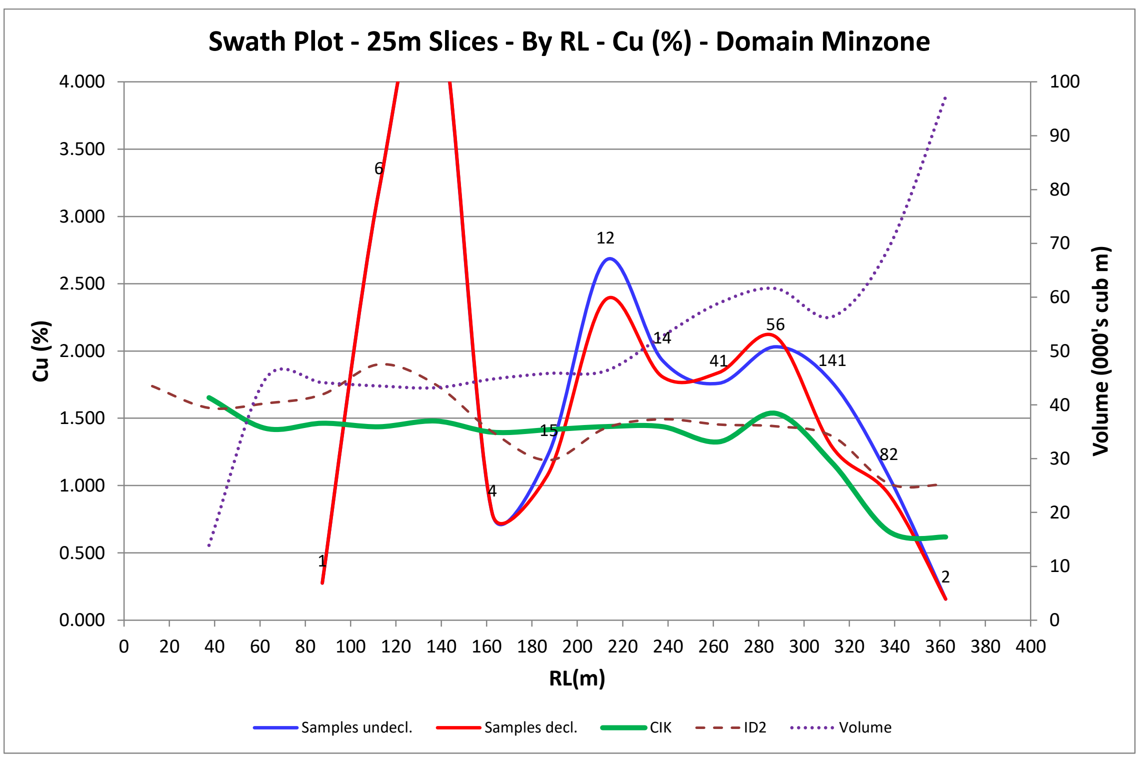


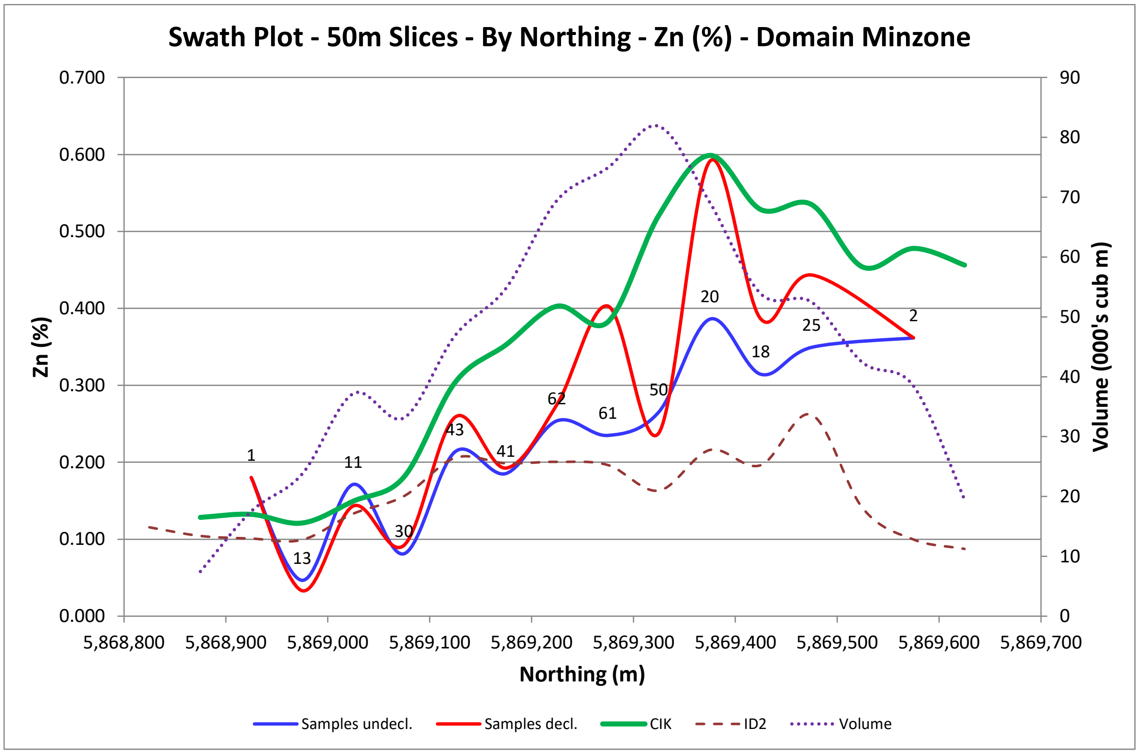


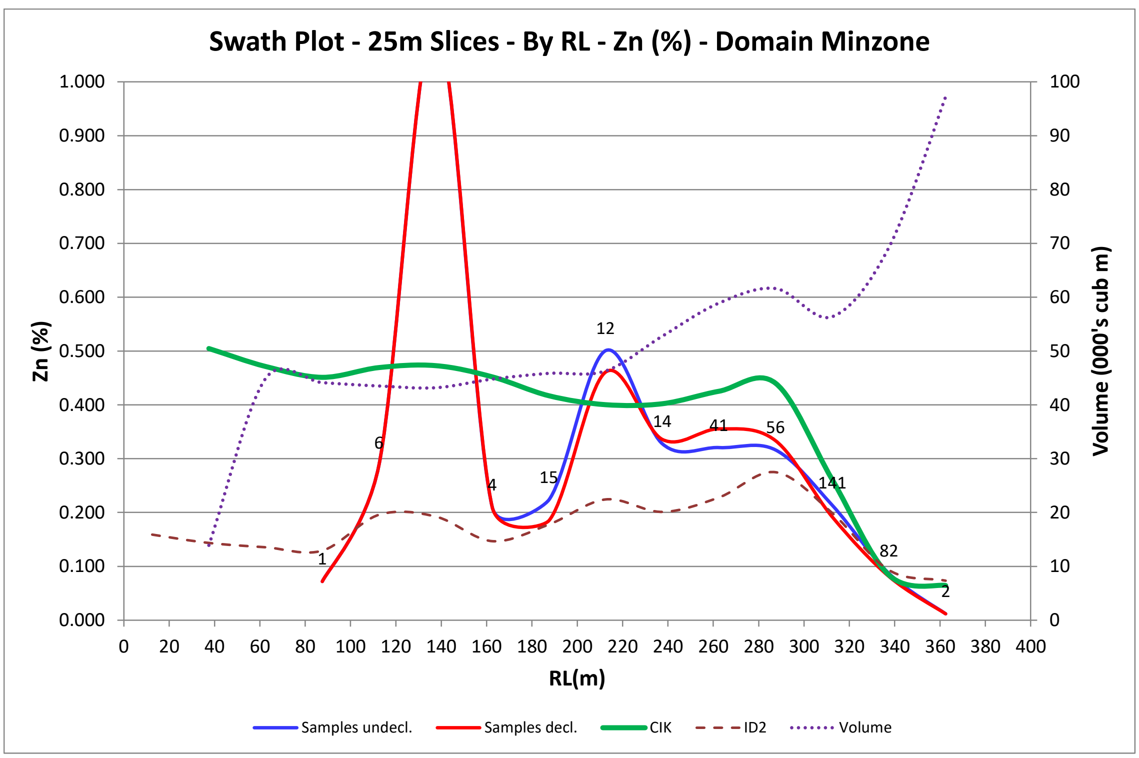

Swath Plot - 50m Slices - By Northing - Au (g/t) - Domain Minzone
Au (g/t)
Volume (000's cub m)
Northing (m)
Samples undecl.
Samples decl.
CIK
ID2
Volume

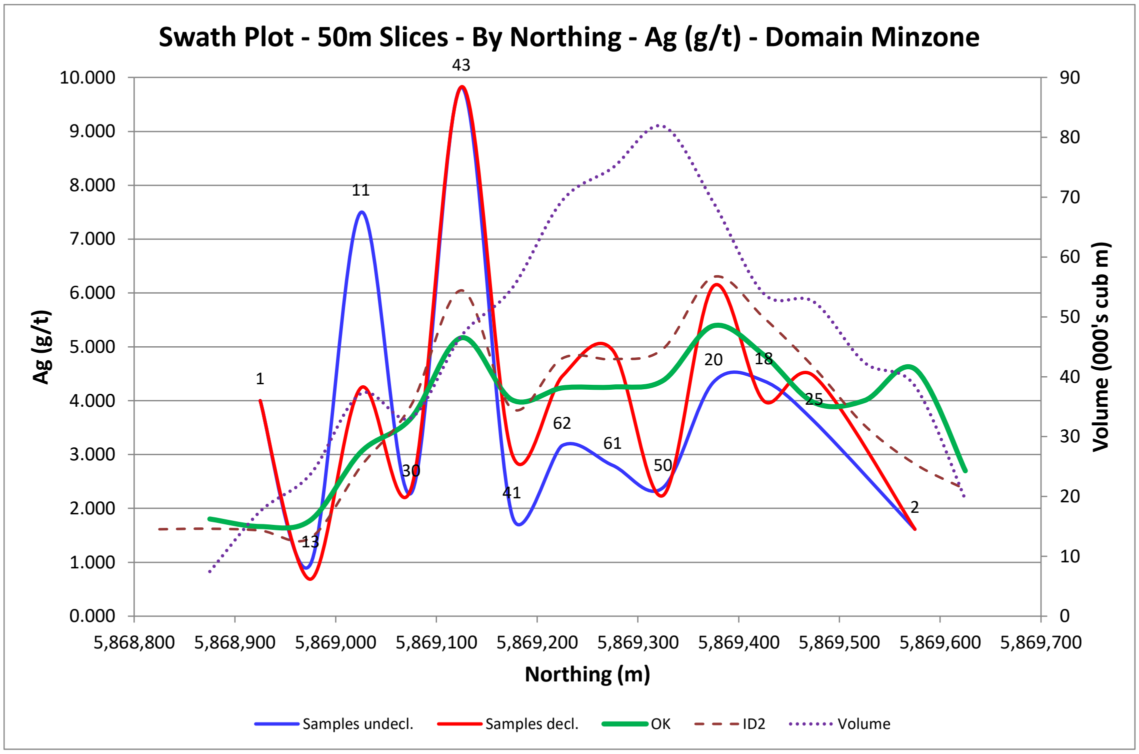

Swath Plot - 25m Slices - By RL - Au (g/t) - Domain Minzone
Au (g/t)
Volume (000's cub m)
RL(m)
Samples undecl.
Samples decl.
CIK
ID2
Volume

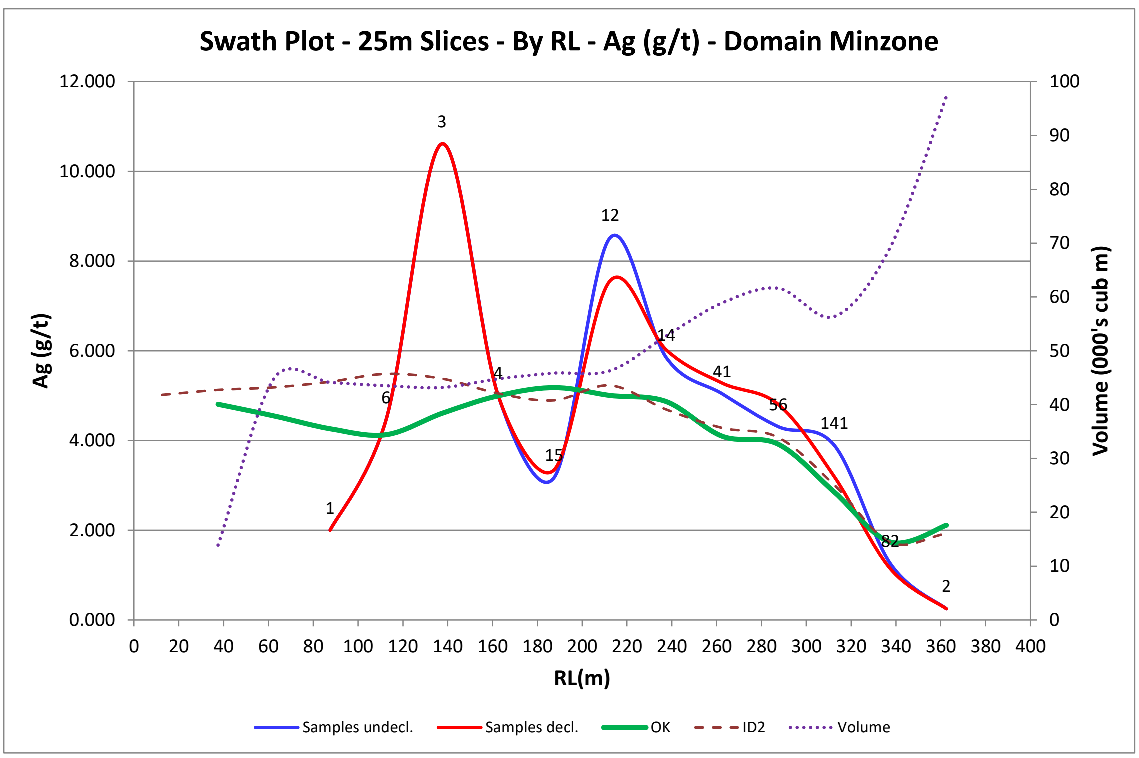

Swath Plot - 50m Slices - By Northing - Cu (%) - Domain Minzone
Cu (%)
Volume (000's cub m)
Northing (m)
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
90
80
70
60
50
40
30
20
10
0
5,868,800
5,868,900
5,869,000
5,869,100
5,869,200
5,869,300
5,869,400
5,869,500
5,869,600
5,869,700
1
13
11
30
43
41
62
61
50
20
18
25
2
Samples undecl.
Samples decl.
CIK
ID2
Volume

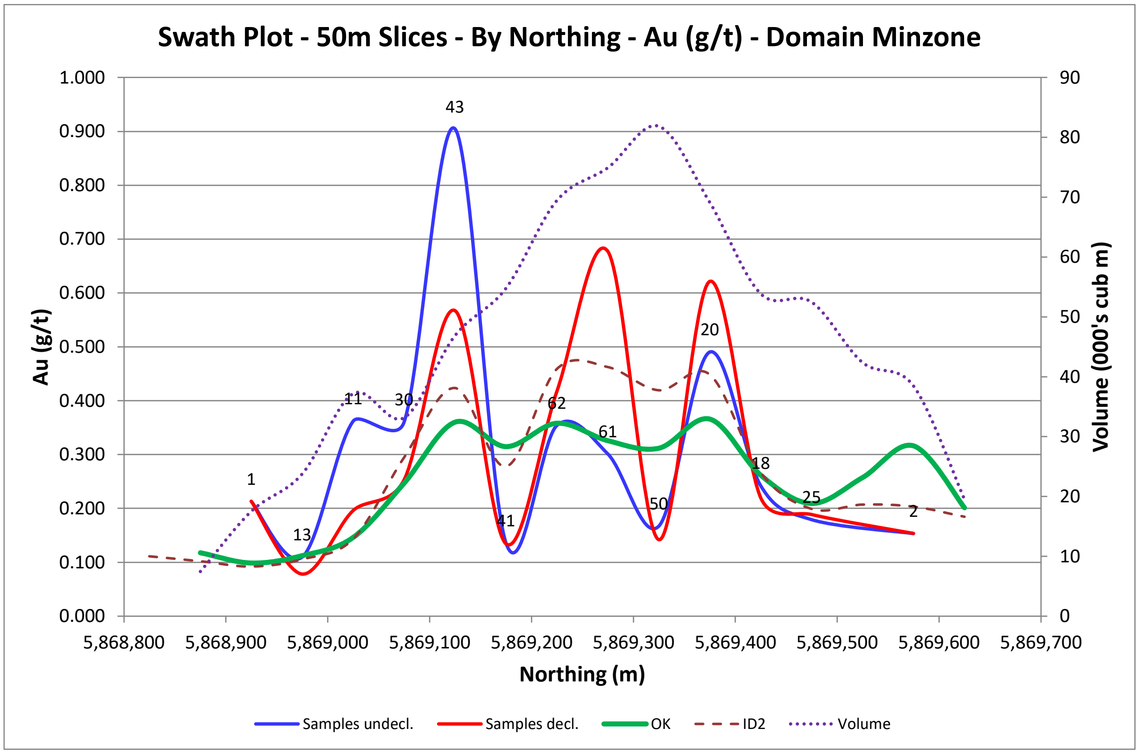

Swath Plot - 25m Slices - By RL - Cu (%) - Domain Minzone
Cu (%)
Volume (000's cub m)
RL(m)
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
100
90
80
70
60
50
40
30
20
10
0
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
1
6
4
15
12
14
41
56
141
82
2
Samples undecl.
Samples decl.
CIK
ID2
Volume

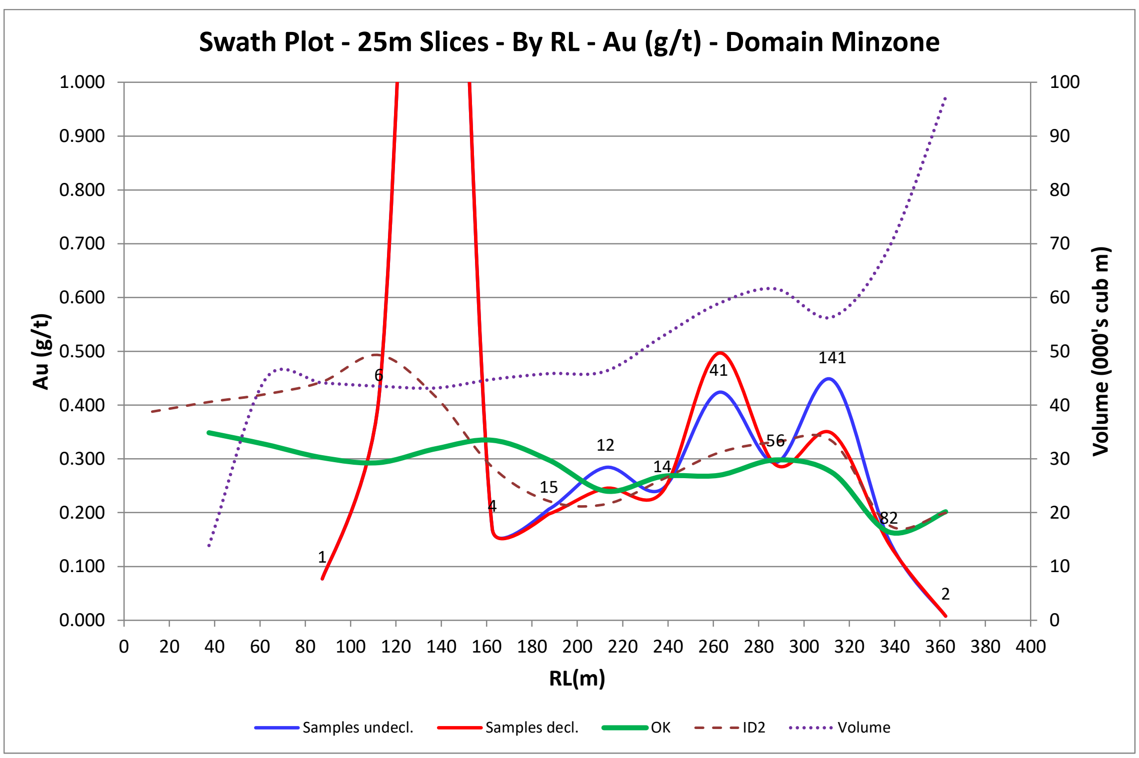

Swath Plot - 50m Slices - By Northing - Zn (%) - Domain Minzone
Zn (%)
Volume (000's cub m)
Northing (m)
0.000
0.100
0.200
0.300
0.400
0.500
0.600
0.700
0
10
20
30
40
50
60
70
80
90
5,868,800
5,868,900
5,869,000
5,869,100
5,869,200
5,869,300
5,869,400
5,869,500
5,869,600
5,869,700
1
13
11
30
43
41
62
61
50
20
18
25
2
Samples undecl.
Samples decl.
CIK
ID2
Volume

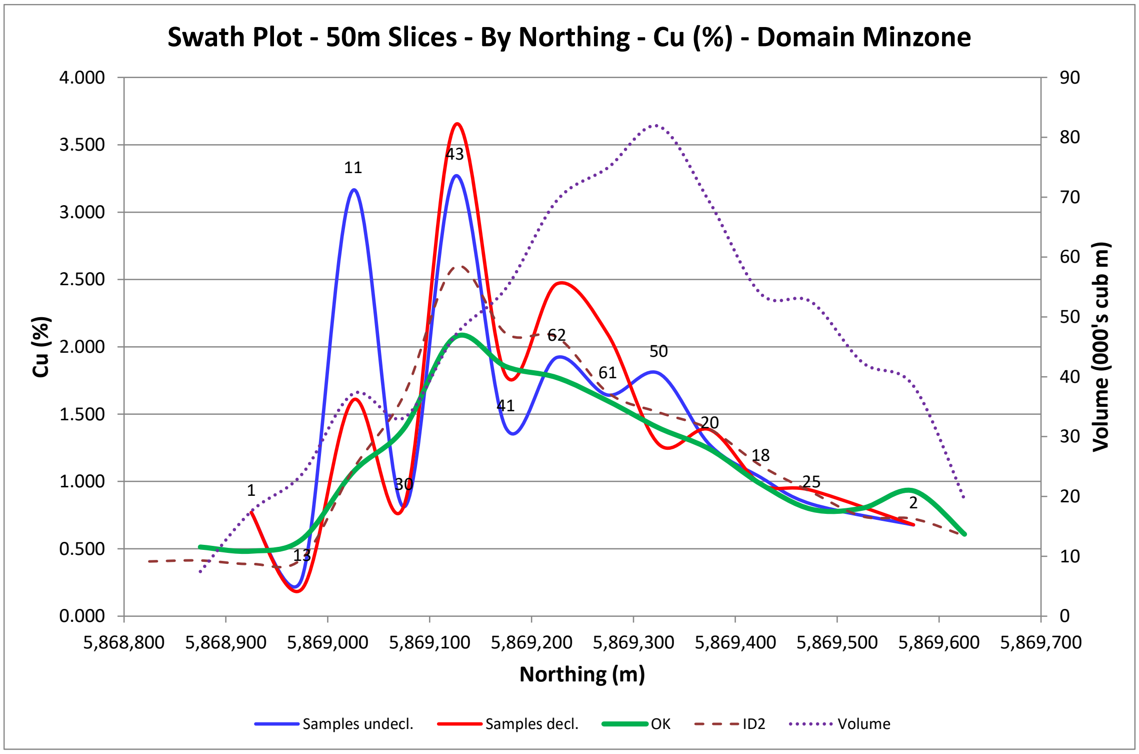

Swath Plot - 25m Slices - By RL - Zn (%) - Domain Minzone
Zn (%)
Volume (000's cub m)
RL(m)
0.000
0.100
0.200
0.300
0.400
0.500
0.600
0.700
0.800
0.900
1.000
0
10
20
30
40
50
60
70
80
90
100
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
1
6
4
15
12
14
41
56
141
82
2
Samples undecl.
Samples decl.
CIK
ID2
Volume

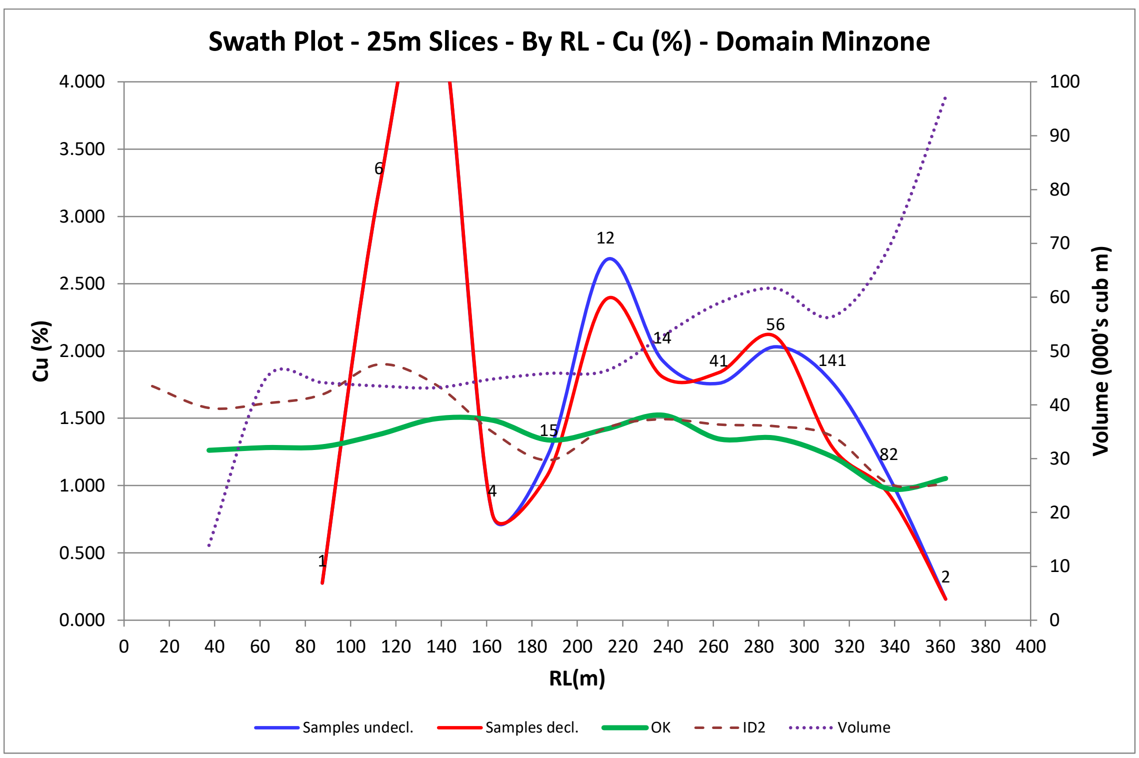

Swath Plot - 50m Slices - By Northing - Ag (g/t) - Domain Minzone
Ag (g/t)
Volume (000's cub m)
Northing (m)
0.000
1.000
2.000
3.000
4.000
5.000
6.000
7.000
8.000
9.000
10.000
0
10
20
30
40
50
60
70
80
90
5,868,800
5,868,900
5,869,000
5,869,100
5,869,200
5,869,300
5,869,400
5,869,500
5,869,600
5,869,700
1
13
11
30
43
41
62
61
50
20
18
25
2
Samples undecl.
Samples decl.
OK
ID2
Volume

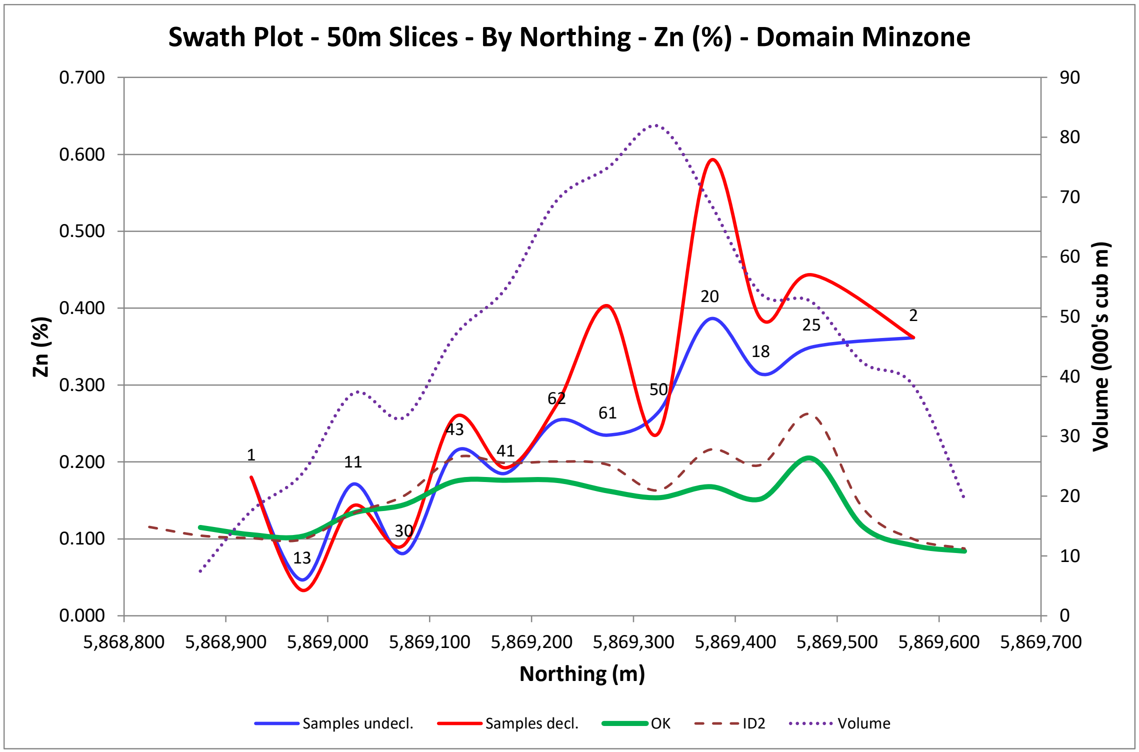

Swath Plot - 25m Slices - By RL - Ag (g/t) - Domain Minzone
Ag (g/t)
Volume (000's cub m)
RL(m)
0.000
2.000
4.000
6.000
8.000
10.000
12.000
0
10
20
30
40
50
60
70
80
90
100
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
1
6
3
4
15
12
14
41
56
141
82
2
Samples undecl.
Samples decl.
OK
ID2
Volume

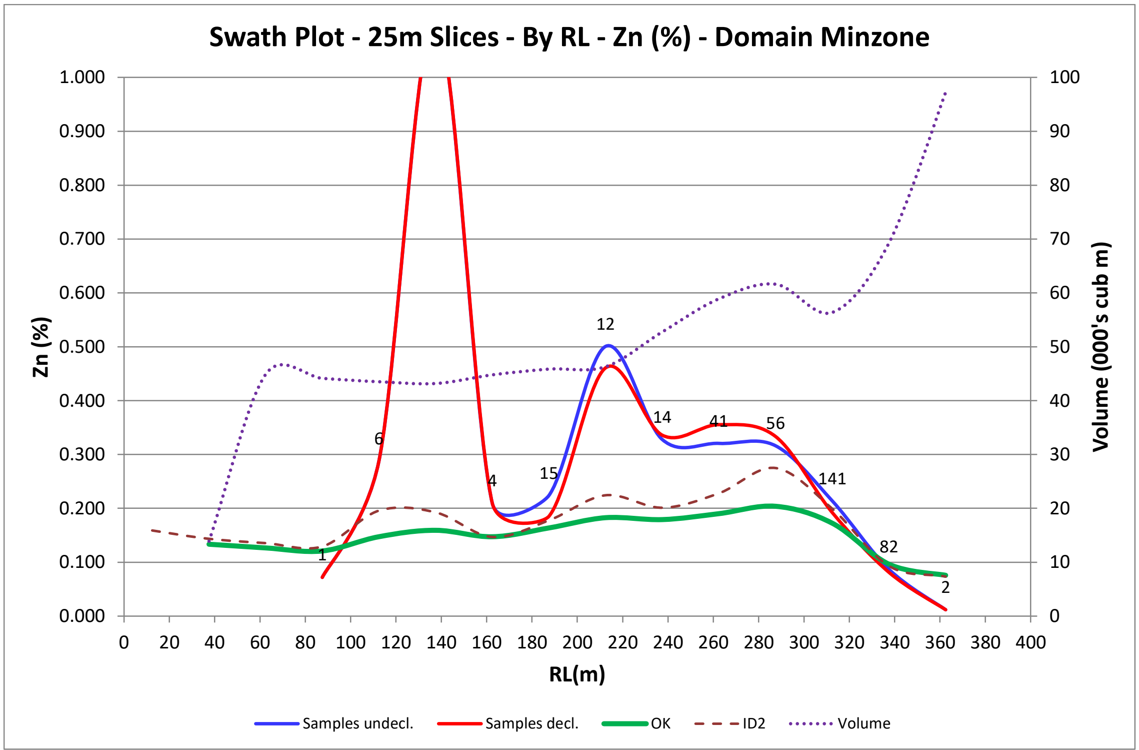

Swath Plot - 50m Slices - By Northing - Au (g/t) - Domain Minzone
Au (g/t)
Volume (000's cub m)
Northing (m)
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
90
80
70
60
50
40
30
20
10
0
5,868,800
5,868,900
5,869,000
5,869,100
5,869,200
5,869,300
5,869,400
5,869,500
5,869,600
5,869,700
1
13
11
30
43
41
62
61
50
20
18
25
2
Samples undecl.
Samples decl.
OK
ID2
Volume


Swath Plot - 25m Slices - By RL - Au (g/t) - Domain Minzone
Au (g/t)
Volume (000's cub m)
RL(m)
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
100
90
80
70
60
50
40
30
20
10
0
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
1
6
4
15
12
14
41
56
141
82
2
Samples undecl.
Samples decl.
OK
ID2
Volume


Swath Plot - 50m Slices - By Northing - Cu (%) - Domain Minzone
Cu (%)
Volume (000's cub m)
Northing (m)
Samples undecl.
Samples decl.
OK
ID2
Volume

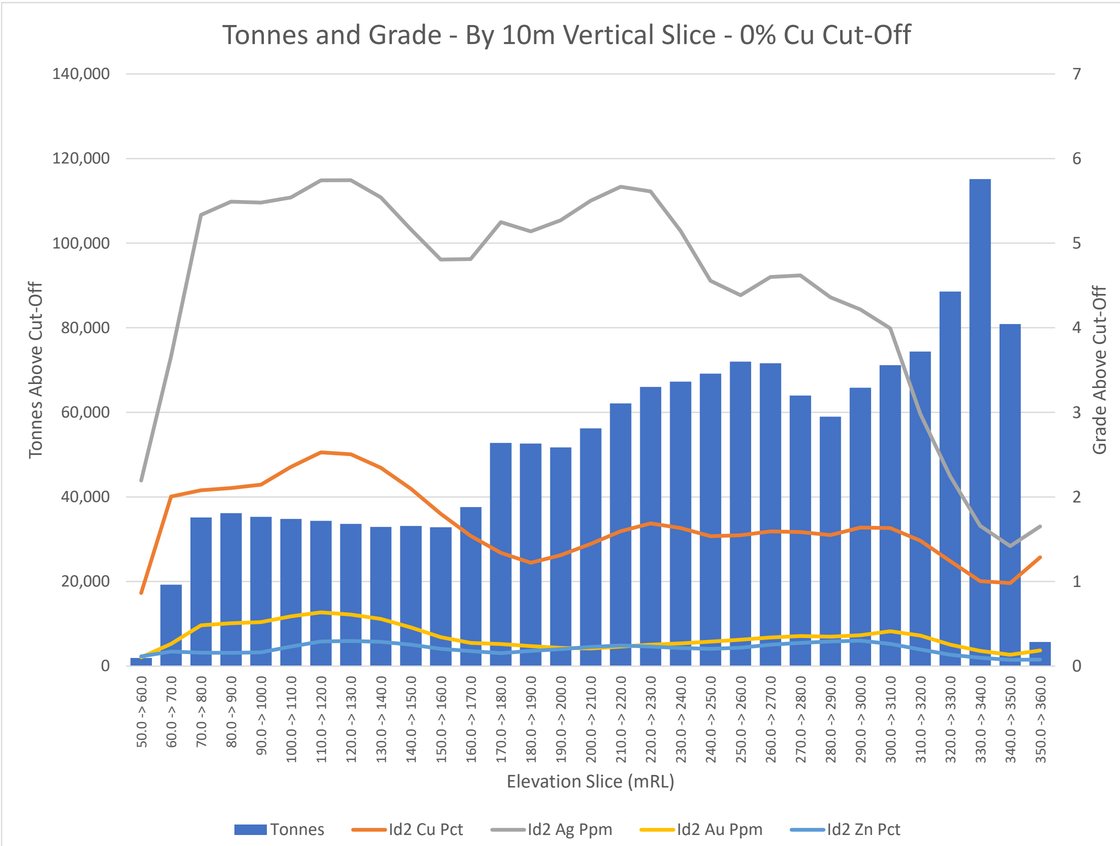

Swath Plot - 25m Slices - By RL - Cu (%) - Domain Minzone
Cu (%)
Volume (000's cub m)
RL(m)
Samples undecl.
Samples decl.
OK
ID2
Volume

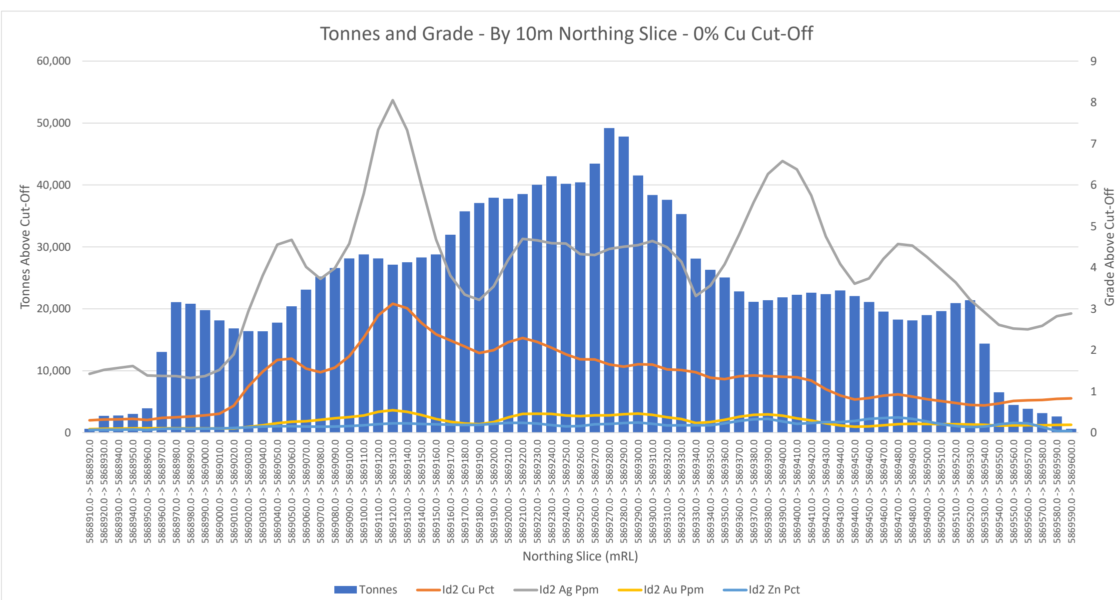

Swath Plot - 50m Slices - By Northing - Zn (%) - Domain Minzone
Zn (%)
Volume (000's cub m)
Northing (m)
0.000
0.100
0.200
0.300
0.400
0.500
0.600
0.700
0
10
20
30
40
50
60
70
80
90
5,868,800
5,868,900
5,869,000
5,869,100
5,869,200
5,869,300
5,869,400
5,869,500
5,869,600
5,869,700
1
13
11
30
43
41
62
61
50
20
18
25
2
Samples undecl.
Samples decl.
OK
ID2
Volume

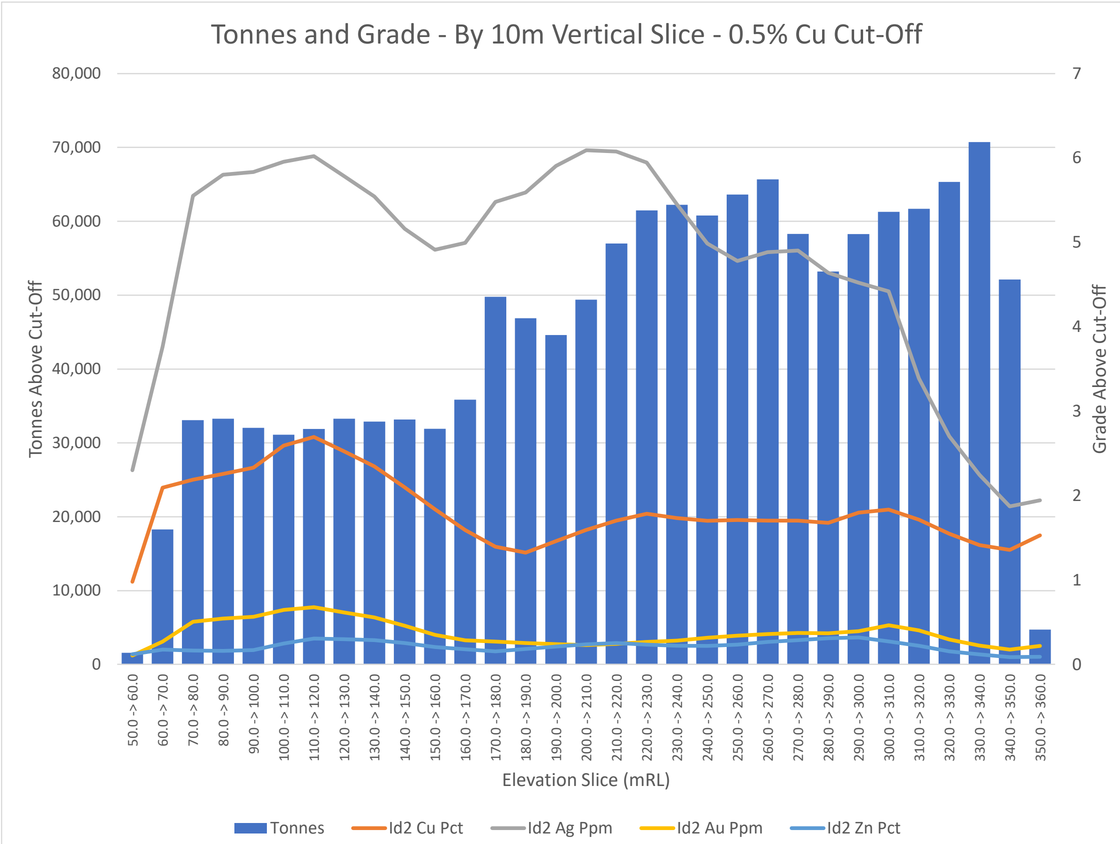

Swath Plot - 25m Slices - By RL - Zn (%) - Domain Minzone
Zn (%)
Volume (000's cub m)
RL(m)
0.000
0.100
0.200
0.300
0.400
0.500
0.600
0.700
0.800
0.900
1.000
0
10
20
30
40
50
60
70
80
90
100
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
1
6
4
15
12
14
41
56
141
82
2
Samples undecl.
Samples decl.
OK
ID2
Volume

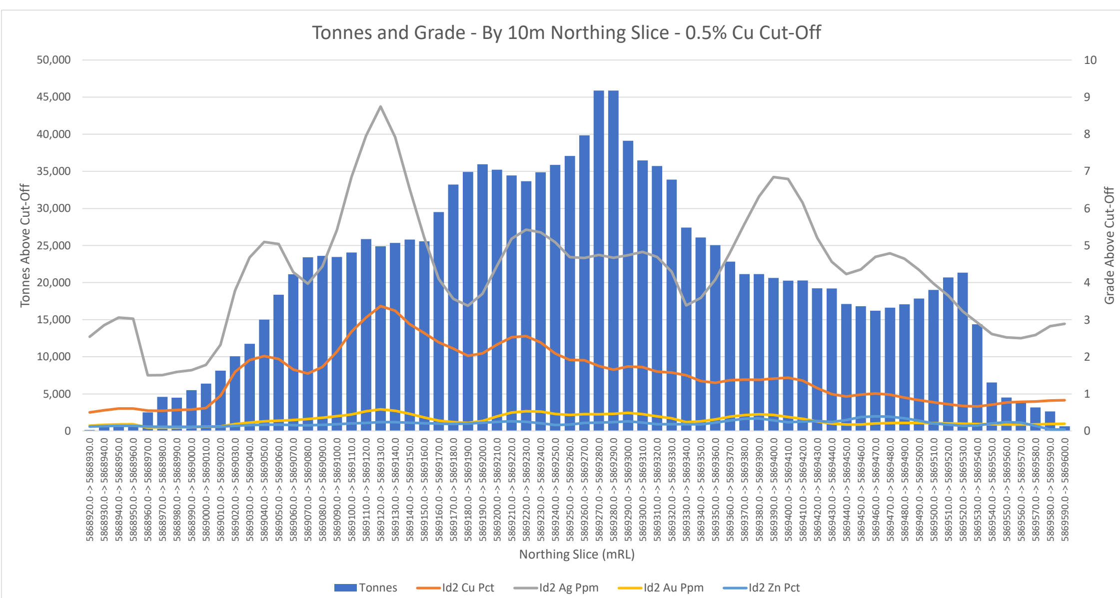
Appendix 4

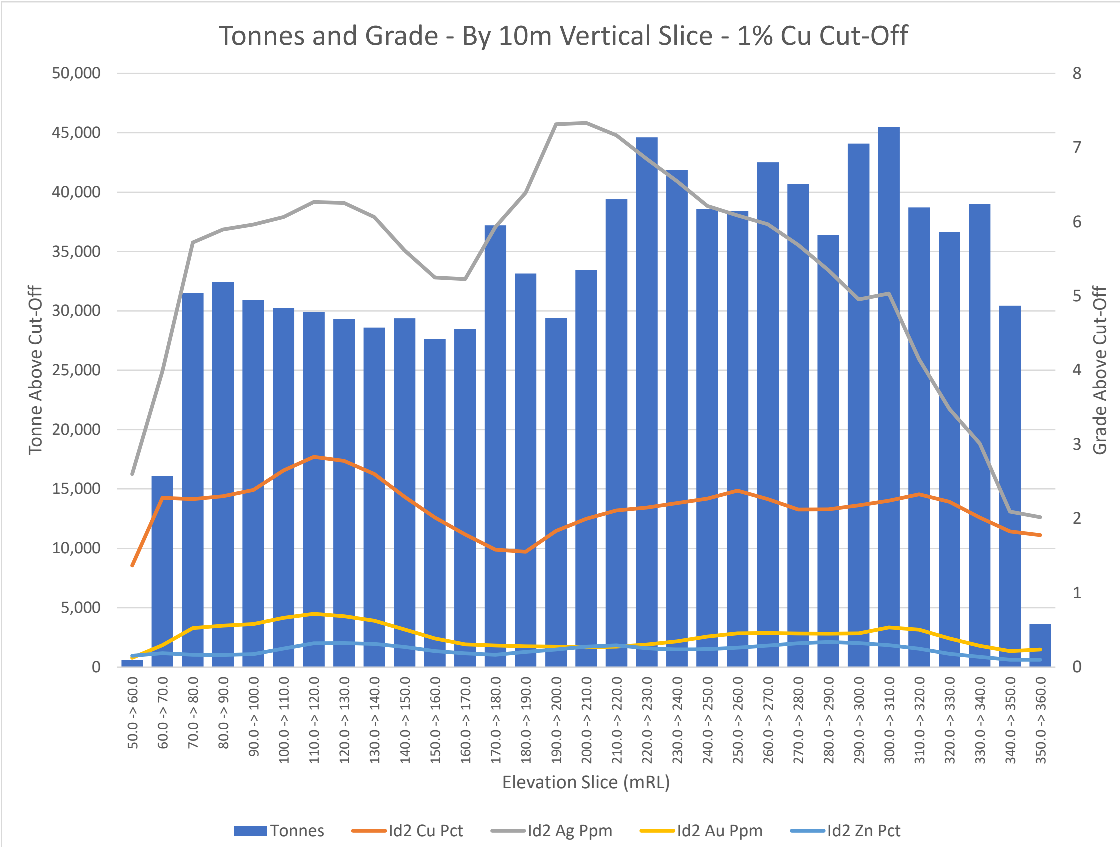
Grade and Tonnes Plots for Copper per Northing and Vertical Slice

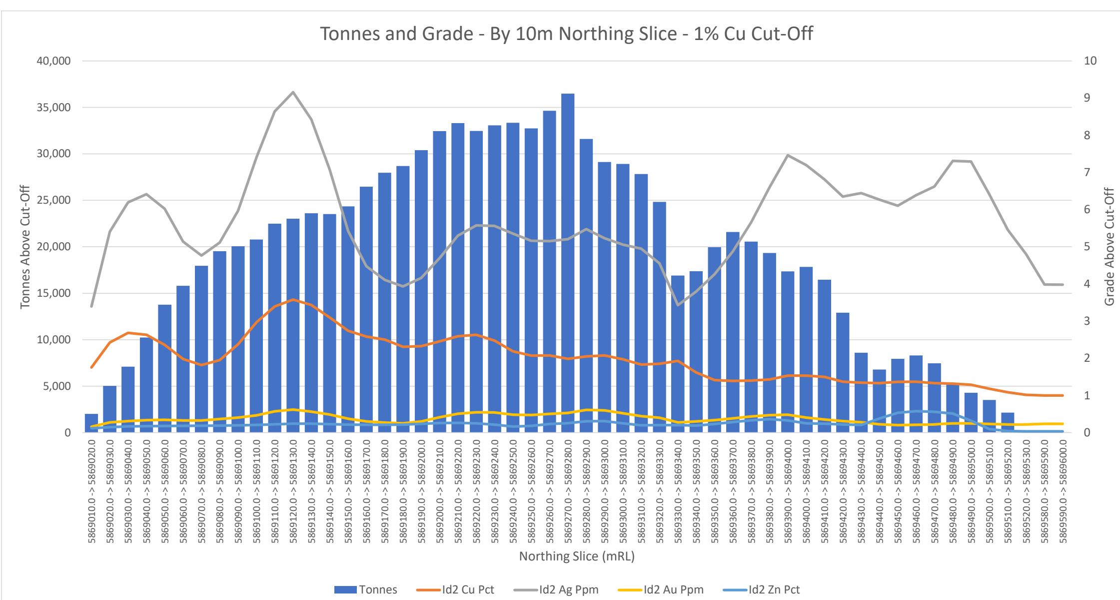





Tonnes and Grade - By 10m Vertical Slice - 0.5% Cu Cut-Off
Tonnes Above Cut-Off
0
10,000
20,000
30,000
40,000
50,000
60,000
70,000
80,000
Grade Above Cut-Off
0
1
2
3
4
5
6
7
50.0 -> 60.0
60.0 -> 70.0
70.0 -> 80.0
80.0 -> 90.0
90.0 -> 100.0
100.0 -> 110.0
110.0 -> 120.0
120.0 -> 130.0
130.0 -> 140.0
140.0 -> 150.0
150.0 -> 160.0
160.0 -> 170.0
170.0 -> 180.0
180.0 -> 190.0
190.0 -> 200.0
200.0 -> 210.0
210.0 -> 220.0
220.0 -> 230.0
230.0 -> 240.0
240.0 -> 250.0
250.0 -> 260.0
260.0 -> 270.0
270.0 -> 280.0
280.0 -> 290.0
290.0 -> 300.0
300.0 -> 310.0
310.0 -> 320.0
320.0 -> 330.0
330.0 -> 340.0
340.0 -> 350.0
350.0 -> 360.0
Elevation Slice (mRL)
Tonnes
Id2 Cu Pct
Id2 Ag Ppm
Id2 Au Ppm
Id2 Zn Pct


Tonnes and Grade - By 10m Northing Slice - 0.5% Cu Cut-Off
Tonnes Above Cut-Off
0
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000
Grade Above Cut-Off
0
1
2
3
4
5
6
7
8
9
10
Northing Slice (mRL)
Tonnes
Id2 Cu Pct
Id2 Ag Ppm
Id2 Au Ppm
Id2 Zn Pct


Tonnes and Grade - By 10m Vertical Slice - 1% Cu Cut-Off
Tonne Above Cut-Off
Grade Above Cut-Off
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
8
7
6
5
4
3
2
1
0
50.0 -> 60.0
60.0 -> 70.0
70.0 -> 80.0
80.0 -> 90.0
90.0 -> 100.0
100.0 -> 110.0
110.0 -> 120.0
120.0 -> 130.0
130.0 -> 140.0
140.0 -> 150.0
150.0 -> 160.0
160.0 -> 170.0
170.0 -> 180.0
180.0 -> 190.0
190.0 -> 200.0
200.0 -> 210.0
210.0 -> 220.0
220.0 -> 230.0
230.0 -> 240.0
240.0 -> 250.0
250.0 -> 260.0
260.0 -> 270.0
270.0 -> 280.0
280.0 -> 290.0
290.0 -> 300.0
300.0 -> 310.0
310.0 -> 320.0
320.0 -> 330.0
330.0 -> 340.0
340.0 -> 350.0
350.0 -> 360.0
Elevation Slice (mRL)
Tonnes
Id2 Cu Pct
Id2 Ag Ppm
Id2 Au Ppm
Id2 Zn Pct


Tonnes and Grade - By 10m Northing Slice - 1% Cu Cut-Off
Tonnes Above Cut-Off
Grade Above Cut-Off
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
10
9
8
7
6
5
4
3
2
1
0
Northing Slice (mRL)
Tonnes
Id2 Cu Pct
Id2 Ag Ppm
Id2 Au Ppm
Id2 Zn Pct

Appendix 5

JORC (2012) Table 1 Sections 1 to 3

JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*	**Stavely Minerals' Drilling** For diamond core (DD) holes, quarter core is sampled for PQ diameter core and half core is sampled for HQ core. The sample intervals were generally 1m but in the mineralised zone the intervals ranged from 0.6m to 1.1m. Reverse circulation (RC) percussion drilling was used to produce a 1 m bulk sample (~25 kg), which was collected in plastic bags and representative 1 m split samples (12.5%, or nominally 3 kg) were collected and placed in a calico bag. Following visual identification and sampling of the mineralised interval, some 5 m of the footwall and 5 m of the hanging wall were sampled for laboratory analysis. **Historical Drilling** Pennzoil (PENZ): Half-core samples were taken from core showing visible mineralisation. Centaur Mining: MA24 to MA38: Half-core samples were taken from core showing visible mineralisation. Sample reduction process unknown. MA39A to MA58: 130mm RC chips from drilling configuration utilising back-end cross-over sub to return sample. Sample collection by splitting (details unknown) and sample reduction process unknown. M94_1 to M94_4: Half-core samples were taken from core showing visible mineralisation. Sample reduction process unknown. Beaconsfield Gold: ARD001 to ARD004: diamond drilling – sampling method and reduction unknown. ARC001 to ARC006: 84mm RC chips. Sample collected by passing through 3-tiered riffle splitter. Sample reduction process unknown.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any	**Stavely Minerals' DD** Sample representivity was ensured by a combination of Company Procedures regarding quality control (QC) and

Criteria	JORC Code explanation	Commentary
	measurement tools or systems used.	quality assurance/ testing (QA). Certified standards and blanks were inserted into the assay batches. **Historical Drilling** No information available.
	Aspects of the determination of mineralisation that are Material to the Public Report - In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	**Stavely Minerals' Drilling** Drill sampling techniques are considered industry standard for the Stavely work programme. For diamond holes, quarter core was sampled for PQ diameter core and half core was sampled for HQ core. The sample intervals were generally 1 m but in the mineralised zone the intervals ranged from 0.6 m to 1.1 m depending on the width of the geological interval. Core sampling was undertaken on site using a core saw. The holes were selectively sampled, primarily depending on the visual identification of mineralised intervals. The core samples were analysed by multi-element ICP-AES Analysis (Method ME-ICP61) for Cu, Zn and Ag. For samples which returned a Cu assay value in excess of 10,000 ppm (1%) the pulp was re-assayed using Cu-OG62, which has a detection limit of between 0.001 and 40% Cu. This technique is a four- acid digest with ICP-AES or AAS finish. The DD samples were also analysed for gold by Method Au-AA23 based on a 30g charge and flame AAS finish. The one metre RC drill chip samples from the massive sulphide "ore" zone and 5 m into both the foot and hanging wall were analysed by multi-element ICP-AES Analysis (Method ME-OG62) for Cu, Zn and Ag. The samples were also analysed for gold by Method Au-AA23.
Drilling techniques	*Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	**Stavely Minerals' DD** DD was used to produce drill core with a diameter of 85mm (PQ) from surface then was switched to 63.5mm (HQ) down the hole. DD was standard tube. DD core was orientated by the Reflex ACT III core orientation tool. **CARROLL'S VMS RESOURCE ESTIMATE** Only Drilling details for the Carroll's resource drill hole dataset:

Hole Type	Period	No. Holes	Metres
RC	Historical	28	1,197
	Stavely	7	857
DD	Historical	46	6,689
	Stavely	8	2,327
SUBTOTALS	Historical	74	7,886
	Stavely	15	3,184
GRAND TOTAL		89	11,070

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td rowspan="3">Drill sample recovery</td><td>Method of recording and assessing core and chip sample recoveries and results assessed.</td><td>Stavely DD core recoveries were logged and recorded in the database. Only a small number of records are available for historical drilling. The recovery statistics are summarised below:

<table><tr><th>Statistic</th><th>Stavely (%rec)</th><th>Historical (%rec)</th></tr><tr><td>Number</td><td>1,012</td><td>104</td></tr><tr><td>Minimum</td><td>23.3</td><td>25.0</td></tr><tr><td>Maximum</td><td>100.0</td><td>100.0</td></tr><tr><td>Mean</td><td>97.6</td><td>91.9</td></tr><tr><td>Std Dev</td><td>7.9</td><td>14.8</td></tr><tr><td>Coeff Var</td><td>0.081</td><td>0.161</td></tr></table>
Historic reports state that diamond holes had relatively low core recoveries in the weathered and oxidised mineralised zone. The same observation is made for the Stavely drilling.</td></tr>
<tr><td>Measures taken to maximise sample recovery and ensure representative nature of the samples.</td><td>Stavely Minerals' DD
Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the driller.</td></tr>
<tr><td>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</td><td>Stavely Minerals' DD
A comparison of copper grade against recovery shows that the samples with poor recovery are mostly of lower grade – most samples with poor recovery are from the oxidised zone. However, the sample size analysed is only 123 samples, and the lower recovery in the oxidised zone may be correlated to naturally lower grades in that part of the deposit, which has clearly undergone supergene modification. It is therefore inconclusive whether or not sample recovery has impacted on assayed grade in the oxidised zone. Recovery is excellent in fresh rock and therefore sample bias is extremely unlikely in the fresh zone.</td></tr>
<tr><td>Logging</td><td>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</td><td>Stavely Minerals' Drilling
Geological logging of samples following Company and industry common practice. Qualitative logging of samples including (but not limited to); lithology, mineralogy, alteration, veining and weathering. DD core logging included additional fields such as structure and geotechnical parameters.
Magnetic Susceptibility measurements were taken for each 1m diamond core interval.
The quality of core from the new holes SADD011 and SADD012 was good and consequently the confidence in the orientations is high and structural measurements could be taken.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
		Historical drilling All holes were geologically logged. **CARROLL'S VMS RESOURCE ESTIMATE** Lithological drill logs utilised.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	**Stavely Minerals' Drilling** Logging is largely qualitative, based on visual field estimates. Systematic photography of the diamond core in the wet and dry form was completed. **Historical Drilling** All logging is qualitative, based on visual field estimates.
	The total length and percentage of the relevant intersections logged.	**Stavely Minerals' Drilling** Detailed logging, with digital capture was conducted for 100% of the drilling by Stavely's on-site geologist at the Company's core shed near Glenthompson.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	**Stavely Minerals' DD** Quarter core for the PQ diameter diamond core and half core for the HQ diameter core was sampled on site using a core saw. Laboratory sample preparation for DD samples at ALS (Orange) involved: • sample crush to 70% < 2 mm; • riffle/rotary split off 1 kg, and • pulverise to >85% passing 75 microns. **Historical Drilling** Pennzoil: Half-core samples were taken from core showing visible mineralisation. Centaur Mining: MA24 to MA38: Half-core samples were taken from core showing visible mineralisation. Sample reduction process unknown. MA39A to MA58: 130mm RC chips from drilling configuration utilising back-end cross-over sub to return sample. Sample collection by splitting (details unknown) and sample reduction process unknown. M94_1 to M94_4: Half-core samples were taken from core showing visible mineralisation. Sample reduction process unknown. Beaconsfield Gold: ARD001 to ARD004: diamond drilling – sampling method and reduction unknown. ARC001 to ARC006: 84mm RC chips. Sample collected by passing through 3-tiered riffle splitter.

Criteria	JORC Code explanation	Commentary
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	Stavely RC percussion drilling was used to produce a 1m bulk sample (~25 kg), which was collected in plastic bags and representative 1m split samples (12.5%, or nominally 3 kg) were collected and placed in a calico bag.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Company procedures were followed to ensure sub-sampling adequacy and consistency. These included (but were not limited to), daily work place inspections of sampling equipment and practices.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	**Stavely Minerals' Diamond Drilling** Blanks, CRMS and field duplicates are submitted with the samples to the laboratory as part of the quality control procedures.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.	**Stavely Minerals' Diamond Drilling** Field duplicate sampling has bene undertaken but there are too few results for conclusive results at this stage
	Whether sample sizes are appropriate to the grain size of the material being sampled.	**Stavely Minerals' Drilling** The sample sizes are considered to be appropriate to correctly represent the sought mineralisation.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	**Stavely Minerals' Drilling** The core samples were analysed by multielement ICPAES Analysis - Method ME-ICP61. A 0.25g sample is pre-digested for 10-15 minutes in a mixture of nitric and perchloric acids, then hydrofluoric acid is added and the mixture is evaporated to dense fumes of perchloric (incipient dryness). The residue is leached in a mixture of nitric and hydrochloric acids, the solution is then cooled and diluted to a final volume of 12.5mls. Elemental concentrations are measured simultaneously by ICP Atomic Emission Spectrometry. This technique approaches total dissolution of most minerals and is considered an appropriate assay method for porphyry copper-gold systems. For samples which returned a Cu assay value in excess of 10,000ppm (1%) the pulp was re-assayed using Cu-OG62 which has a detection limit of between 0.001 and 40% Cu. This technique is a four acid digest with ICP-AES or AAS finish. The core samples were also analysed for gold using Method Au-AA23. Up to a 30g sample is fused at

Criteria	JORC Code explanation	Commentary
		approximately 1,100°C with alkaline fluxes including lead oxide. During the fusion process lead oxide is reduced to molten lead which acts as a collector for gold. When the fused mass is cooled the lead separates from the impurities (slag) and is placed in a cupel in a furnace at approximately 900°C. The lead oxidizes to lead oxide, being absorbed by the cupel, leaving a bead (prill) of gold, silver (which is added as a collector) and other precious metals. The prill is dissolved in aqua regia with a reduced final volume. Gold content is determined by flame AAS using matrix matched standards. For samples which are difficult to fuse a reduced charge may be used to yield full recovery of gold. This technique approaches total dissolution of most minerals and is considered an appropriate assay method for detecting gold mineralisation. The one metre RC drill chip samples from the massive sulphide "ore" zone and 5 m into both the foot and hanging wall were analysed by multi-element ICP-AES Analysis (Method ME-OG62). A 0.4 g finely pulverized sample was digested in nitric, perchloric and hydrofluoric acids. The digestion mixture is evaporated to incipient dryness (moist salts). The residue is cooled, then leached in concentrated hydrochloric acid and the solution is diluted to a final volume of 100 ml. Final acid concentration is 20%. Elemental concentrations are determined by ICP-AES. An internal standard is used to enhance accuracy and precision of measurement. This technique approaches total dissolution of most minerals and is considered an appropriate assay method for ore grade VMS samples. The samples were also analysed for gold by Method Au-AA23. This is a standard Fire Assay method with a 30 g charge and flame AAS finish. **Historical Drilling** Pennzoil: A base metal suite was assayed via AAS (digestion not specified) and Au was assayed via fire assay. Centaur Mining: MA24 to MA38: A base metal suite was assayed via AAS (digestion not specified) and Au was assayed via fire assay. MA39A to MA58: A base metal suite was assayed via AAS (digestion not specified) and Au was assayed via fire assay. M94_1 to M94_4: A base metal suite was assayed 4 acid digest with AAS finish and Au was assayed via fire assay. Beaconsfield Gold: ARD001 to ARD004: Assay Lab – Onsite Lab Services. Cu initially by method B101 - AR digest ICP finish. If higher

Criteria	JORC Code explanation	Commentary
		than 5000ppm then A101 - Ore grade digest (details unknown) with AA finish. Au by PE01S - 25g Fire Assay. ARC001 to ARC006: Assay Lab – Onsite Lab Services. Cu initially by method B101 - AR digest ICP finish. If higher than 5000ppm then A101 - Ore grade digest (details unknown) with AA finish. Au by PE01S - 25g Fire Assay. No quality control samples submitted with any routine samples
	For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No results have been reported using geophysical tools, spectrometers, handheld XRF instruments, etc.
	Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	**Stavely Minerals' Drilling** Laboratory QAQC involved the submission of standards and blanks. For each 20 samples, either a Certified Reference Material (CRM) standard or a blank was submitted. The analytical laboratory also provide their own routine quality controls within their own practices. The results from their own validations were provided to Stavely Minerals. Results from the CRM standards and the blanks gives confidence in the accuracy and precision of the assay data returned from ALS.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	**Stavely Minerals' Drilling** Stavely Minerals' Managing Director, the Technical Director or the Geology Manager – Victoria have visually verified significant intersections in the core.
	The use of twinned holes.	**Stavely Minerals' Drilling** No twinned holes have been drilled.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	**Stavely Minerals' Drilling** Primary data was collected for drill holes using the OCRIS logging template on Panasonic Toughbook laptop computers using lookup codes. The information was sent to a database consultant for validation and compilation into a SQL database. **Historical Drilling** No details provided for historical drilling.
	Discuss any adjustment to assay data.	**Stavely Minerals' Drilling**

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>
Actions on undefined/null and below detection limit values are listed below:
<table>
<tr><th>Variable</th><th>No. of Records</th><th>Original Value</th><th>Replacement Value</th></tr>
<tr><td rowspan="4">Cu</td><td>3,563</td><td>Null</td><td>Null (ignore)</td></tr>
<tr><td>151</td><td>-30 ppm</td><td>0.0015%</td></tr>
<tr><td>12</td><td>-10 ppm</td><td>0.0005%</td></tr>
<tr><td>14</td><td>-1 ppm</td><td>0.00005%</td></tr>
<tr><td rowspan="6">Au</td><td>84</td><td>Null</td><td>Regressed on Cu</td></tr>
<tr><td>749</td><td>Null</td><td>Null</td></tr>
<tr><td>1</td><td>-5555</td><td>Regressed on Cu</td></tr>
<tr><td>2,468</td><td>-0.02 ppm</td><td>0.01 ppm</td></tr>
<tr><td>4,780</td><td>-0.01 ppm</td><td>0.005 ppm</td></tr>
<tr><td>1,093</td><td>-0.005 ppm</td><td>0.0025 ppm</td></tr>
<tr><td rowspan="5">Zn</td><td>3</td><td>Null</td><td>Regressed on Cu</td></tr>
<tr><td>3,553</td><td>Null</td><td>Null</td></tr>
<tr><td>252</td><td>-50 ppm</td><td>0.0025%</td></tr>
<tr><td>49</td><td>-2 ppm</td><td>0.0001%</td></tr>
<tr><td>16</td><td>-1 ppm</td><td>0.00005%</td></tr>
<tr><td rowspan="7">Ag</td><td>3,534</td><td>Null</td><td>Regressed on Cu</td></tr>
<tr><td>3,557</td><td>Null</td><td>Null</td></tr>
<tr><td>3</td><td>-2 ppm</td><td>1 ppm</td></tr>
<tr><td>3,677</td><td>-1 ppm</td><td>0.5 ppm</td></tr>
<tr><td>2,776</td><td>-0.5 ppm</td><td>0.25 ppm</td></tr>
<tr><td>1,533</td><td>-0.2 ppm</td><td>0.1 ppm</td></tr>
<tr><td>12</td><td>-0.1 ppm</td><td>0.05 ppm</td></tr>
</table>
All null copper values were retained as nulls and therefore assumed to be unsampled intervals, but gold, zinc and silver samples with null values were divided into two types:
• Those samples for which copper was also null were retained as nulls.
• Those samples for which copper had been assayed were assigned values based on a linear regression equation with copper as the explanatory variable. The regression equations for Au, Zn and Ag on Cu were based on all available raw assay data in the eligible dataset. The equations used to produce the regressed values are:
$Au\ (ppm) = 0.277 * Cu(\%)$
$Zn\ (\%) = 0.05254 * Cu\ (\%)$
$Ag\ (ppm) = 2.375 * Cu\ (\%)$
Very few values required regression - ~3.5% of eligible samples for Au, ~3% for Ag and ~0.1% for Zn.
</td></tr>
<tr><td>Location of data points</td><td>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</td><td>
Stavely Minerals' Drilling
Drill collar locations were pegged before drilling and surveyed using Garmin handheld GPS to accuracy of +/-3m. Collar surveying was performed by Stavely Minerals' personnel. Subsequent to drilling, the collar locations for the holes have been surveyed using a DGPS.
For the diamond holes, down-hole single shot surveys were conducted by the drilling contractor. Surveys were
</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
		conducted at approximately every 30m down-hole. All current drill holes are being surveyed using a gyro. **Historical Drilling** No details provided for drill collar locations for historical drilling. **CARROLL'S VMS RESOURCE ESTIMATE** Drill holes originally located according to two local grids (details unknown). Collar coordinates were converted to GDA94 zone 54S by historic workers. Conversion details are unknown. The estimate is undertaken using the supplied GDA94 54S grid references. GPS checking of 2 Pennzoil, 3 Centaur Mining and 4 Beaconsfield Gold hole collar locations show holes located with acceptable accuracy for reporting of Inferred Resources.
	Specification of the grid system used.	The grid system used is GDA94, zone 54.
	Quality and adequacy of topographic control.	The topographic surface model used in the resource update was based on historical and some Stavely drill collars. A few Stavely drill collars were adjusted to conform with this surface due to a discrepancy with nearby historical collars. A high resolution topographic survey has been recommended, which should also allow for the resolution of any drill collar discrepancies.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Ranges from ~20m to greater than 50m, dependant upon exact location.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	**Stavely Minerals' Drilling** The drilling for the copper mineralisation is considered appropriate for Mineral Resource or Ore Reserve Estimations. **CARROLL'S VMS RESOURCE ESTIMATE** Within the central 500m of mineralisation (strike length): Oxide mineralisation – drill tested on 50m or tighter centred section lines Primary/Fresh mineralisation – more sparsely tested by 50m or wider spaced drilling. Other areas and mineralisation extent tested by 8 holes
	Whether sample compositing has been applied.	No sample compositing has been applied for assaying, but raw assays haven composited to 1m for grade interpolation.
Orientation of data in relation to	*Whether the orientation of sampling achieves unbiased sampling of possible*	The drill spacing above ~220mRL is nominally 50m, but does tighten to ~10m on some isolated drill lines that have targeted the weathered zone. Below ~220mRL and to the

Criteria	JORC Code explanation	Commentary
geological structure	*structures and the extent to which this is known, considering the deposit type.*	north and south of the main mineralised body, the drill spacing is wider than 50m. The vast majority of the holes drilled are inclined at 50° to 60° towards a bearing of 065° and are therefore optimally oriented and inclined to intercept the west-southwesterly dipping mineralisation. The only notable exceptions to this are the latest DD holes drilled by Stavely, namely SADD011 and SADD012, which are inclined in the opposite direction, intersecting the mineralisation obliquely at depth
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	Most holes are drilled in a near-optimal orientation and so no significant bias is suspected.
Sample security	*The measures taken to ensure sample security.*	**Stavely Minerals' Drilling** Samples were delivered in sealed poly-weave bags to the courier in Ararat by Stavely Minerals' personnel. The samples were then couriered to ALS laboratory in Orange, NSW. **Historical Drilling** No available data to assess security.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	**Stavely Minerals' Drilling** No audits or reviews of the data management system have been carried out. **Historical Drilling** GPS checking of 9 hole collar locations. Basic checking of data integrity.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships,*	**Ararat Project** The diamond drilling at Carroll's is located on RL2020 (previously EL4758 and EL3019). Mineralisation at Carroll's on the Ararat Project is situated within RL2020.

Criteria	JORC Code explanation	Commentary
	overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Ararat Project was purchased by Stavely Minerals (formerly Northern Platinum) from BCD Resources Limited in May 2013. Stavely Minerals hold 100% ownership of the Ararat Project Tenements. A Section 31 Deed and a Project Consent Deed has been signed between Stavely Minerals Limited and the Eastern Maar Native Title Claim Group for RL2020. Apart from a small area which overlaps the Ararat Hills Regional Park (not an area of interest for exploration at this stage) the retention licence is on freehold land.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	**Ararat Project** RL2020 was granted on 8 May 2020 for a term of 10 years. The tenement is in good standing and no known impediments exist.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	**CARROLL'S VMS DEPOSIT** The Carroll's Copper Deposit was discovered by Pennzoil of Australia Ltd using stream, soil and rock geochemistry followed by drill testing in the late 1970s. The exploration licence then passed to Centaur Mining & Exploration Ltd who undertook further drilling of the deposit, culminating in a Mineral Resource estimate in 1994. Centaur Mining & Exploration went into receivership in 2002 and the license passed to Range River Gold NL. Newcrest Operations Limited explored the Ararat Project under option from Range River Gold NL and undertook gravity and airborne VTEM surveys. BCD Metals Pty Ltd optioned the Project from Range River Gold NL in 2009 and full control was granted to BCD Metals when Range River went into voluntary administration in April 2011. In 2009 BCD Metals drilled 4 diamond holes for a total of 484.7m, targeting shoot plunges in the primary mineralised zone beneath the oxide zone at the Carroll's Copper Deposit. Six reverse circulation drill holes were drilled by BCD Metals in 2010 at the Carroll's Copper Deposit targeting copper-oxide mineralisation and to retrieve bulk oxide ore samples for metallurgical test work. In 2010, metallurgical test work flotation and mineralogical assessment was undertaken. Previous exploration is considered to be of good quality. **CARROLL'S VMS RESOURCE ESTIMATE** Pennzoil: 12 holes drilled into mineralisation. Centaur Mining: 38 holes drilled into mineralisation. Beaconsfield Gold: 10 holes drilled into mineralisation

Criteria	JORC Code explanation	Commentary
		Stavely Minerals: GPS checking of 9 hole collar locations
Geology	*Deposit type, geological setting and style of mineralisation.*	**CARROLL'S VMS DEPOSIT** The Carroll's VMS deposit is associated with the Cambrian volcanogenics and tholeiitic basalts of the metamorphosed Magdala Volcanics. The Carroll's VMS is a "Besshi" type volcanic massive sulphide (VMS) mineralisation which resulted "from the exhalation of sulphides onto the sea floor". VMS deposits are typically polymetallic massive sulphide deposits formed at or near the sea floor during submarine hydrothermal activity. They can contain stratiform to strata-bound concentrations of copper, zinc, lead, gold and silver, depending on the geological setting of the deposits, and often form clusters of deposits. Those formed in dominantly basalt sequences in back-arc tectonic settings tend to be copper- and zinc-rich and are often referred to as "Besshi" type. **CARROLL'S VMS RESOURCE ESTIMATE** Steeply westerly dipping, single planar massive sulphide horizon (historically described as VMS).
Drill hole Information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.*	All exploration results have previously been reported by Stavely Minerals.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No material drill hole information has been excluded.

Criteria	JORC Code explanation	Commentary
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.*	Exploration results are not being reported. Not applicable as a Mineral Resource is being reported. Metal equivalent values have not been used. Assays composited to 1m intervals for resource estimate.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	**Stavely Minerals' Drilling** In reporting exploration results, length weighted averages are used for any non-uniform intersection sample lengths. Length weighted average is (sum product of interval x corresponding interval grade %) divided by sum of interval length.
	The assumptions used for any reporting of metal equivalent values should be clearly stated	No metal equivalent values are used for reporting exploration results.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*	Drilling was orientated in a WSW direction (230°) for holes SADD011 and SADD012 and are oblique to the known VMS mineralisation - therefore the copper-gold-zinc intercepts are considered greater than the true widths of mineralisation in the case of these two holes. The remainder of the holes, making up the vast majority of holes used for resource estimation, are oriented near-optimally and down hole lengths therefore approximate true width.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	Relevant diagrams have been included within the Mineral Resource report main body of text.
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable,*	Exploration results are not being reported.

Criteria	JORC Code explanation	Commentary
	representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	Relevant data have been included within the Mineral Resource report main body of text.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	Further follow-up diamond drilling has been planned to test the depth extent of the mineralisation at the Carroll's VMS deposit.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Relational and spatial integrity assessed and considered acceptable. The CP has verified the findings of Hackman (2015) with respect to a discrepancy between some Stavely and historical drill hole collar elevations. This is detailed in the Mineral Resource report, along with the actions taken, and the recommendation is that a high-resolution topographic

Criteria	JORC Code explanation	Commentary
	Data validation procedures used.	survey is undertaken to both provide for an accurate surface model and resolve the collar discrepancy. A QAQC review has been undertaken for Stavely sampling. A number of validation checks have also been undertaken: • Sample data exceeding the recorded depth of hole. • Checking for sample overlaps. • Reporting missing assay intervals. • Visual validation of co-ordinates of collar drill holes following adjustments. • Visual validation of downhole survey data. **Historical Drilling** Data management protocols and provenance unknown for historical drilling. Limited cross checks with paper records of drill hole and assay data for historical drilling. Field verification of 9 hole collar locations.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* *If no site visits have been undertaken indicate why this is the case.*	Not undertaken by CP due to COVID 19 travel restrictions. Stavely Minerals' personnel verify existence of core. CP has viewed photos of drill core with mineralisation taken by Stavely Minerals' Personnel.
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* *Nature of the data used and of any assumptions made.* *The effect, if any, of alternative interpretations on Mineral Resource estimation.* *The use of geology in guiding and controlling Mineral Resource estimation.* *The factors affecting continuity both of grade and geology.*	Single planar mineralised massive sulphide and weathered body interpreted and modelled for grade interpolation. Oxide state modelled and utilised for generation and reporting of resource estimate.
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan*	Massive sulphide mineralisation extends for a strike length of 830 m (towards 335deg), vertically for 350 m and ranges mostly between 1 m and 3 m thick. The broader package inclusive of disseminated and stringer mineralisation

Criteria	JORC Code explanation	Commentary
	width, and depth below surface to the upper and lower limits of the Mineral Resource.	extends several metres either side of the massive sulphide horizon. The mineralisation is modelled up to 16m thick in the upper, weathered zone (this may be real, due to supergene actions or introduced due to the suspected wet/difficult RC drilling conditions or a combination of both). A nominal grade cut-off of 0.1% Cu was applied to guide the delineation of the mineralisation/estimation domain. The block model and grade estimate encompasses the extent of the mineralisation.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* *The assumptions made regarding recovery of by-products.* *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* *Any assumptions behind modelling of selective mining*	Copper, gold, silver and zinc grades were interpolated into a block model with parent blocks of 2.5 mE x 10 mN x 10 mRL. Sub-blocks of 0.625 mE x 2.5 mN x 2.5 mRL were used to accurately model the volume of the mineralisation and other features. 1m composite intervals were utilised for grade interpolation, and these were weighted by density due to the strong correlation between density and grade (dense massive sulphides typically represent high-grade material). Modest grade caps were applied to each of the four grade variables in order to mitigate against the undue spread of outlier grade values. A two-pass Inverse Distance Squared (ID^2) interpolator was ultimately chosen for reporting of the resource, but Ordinary Kriging (OK) and Categorical Indicator Kriging (CIK) estimates were also run as candidates and all three methods were carefully compared before the final selection of the ID^2 method was made. In the first ID^2 pass, a sample search distance within the plane of mineralisation (i.e. the major/semi-major plane) was set at 60 m, with 15 m in the perpendicular minor direction. This is designed to allow for more local influence in the block estimates for the first pass. The second pass utilised a major/semi search radius of 180 m in the weathered and 360 m in the fresh part of the estimation domain, in order to fill all blocks with grade estimates. A minimum of 6 and maximum of 16 samples were allowed for grade interpolation for all four elemental variables. The search neighbourhood was divided into four quadrants with a maximum of 4 samples per quadrant allowed in order to ensure a spatial spread of informing samples, and to limit the number of samples sourced from any single drill hole. Anisotropic distances were used in the search for sample selection. A set of modest high-grade distance limiting parameters were set to prevent the propagation of upper tail grades into poorly informed areas as laid out below:

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>units.
Any assumptions about correlation between variables.
Description of how the geological interpretation was used to control the resource estimates.
Discussion of basis for using or not using grade cutting or capping.
The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</td><td><table>
<tr><th>Variable</th><th>Sub-domain</th><th>HG Threshold</th><th>Distance Limit (m)</th></tr>
<tr><td rowspan="2">Ag g/t</td><td>Weathered</td><td>18</td><td rowspan="8">30</td></tr>
<tr><td>Fresh</td><td>18</td></tr>
<tr><td rowspan="2">Au g/t</td><td>Weathered</td><td>1</td></tr>
<tr><td>Fresh</td><td>2</td></tr>
<tr><td rowspan="2">Cu %</td><td>Weathered</td><td>9</td></tr>
<tr><td>Fresh</td><td>9</td></tr>
<tr><td rowspan="2">Zn %</td><td>Weathered</td><td>0.5</td></tr>
<tr><td>Fresh</td><td>0.5</td></tr>
</table>
Mineral resource estimate validation, for the grade estimates, has been undertaken by the following means:
• Global statistical comparisons of mean estimated block grades to mean composite grades.
• Using swath plots to compare estimated block grades to the informing composite grades.
• By visual validation, both in cross-section and 3D isometric views, of the estimated block grades overlaid on drill assay data.</td></tr>
<tr><td>Moisture</td><td>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content</td><td>Tonnage and density is estimated on a dry basis.</td></tr>
<tr><td>Cut-off parameters</td><td>The basis of the adopted cut-off grade(s) or quality parameters applied.</td><td>The Mineral Resource is reported a grade cut-off of 1.0% Cu by oxidation state.</td></tr>
<tr><td>Mining factors or assumptions</td><td>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</td><td>Underground methods of extraction for the fresh component of the mineralisation have been considered using Stop Optimisation studies. While the oxide portion of the resource has not had any mining studies undertaken, it is considered a possibility that it could be extracted by open pit mining methods.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Burnie Research Laboratory undertook flotation testing of Carroll's oxide and sulphide ore types on behalf of BCD Resources Ltd in 2010. The summary pf findings is presented verbatim below: *"Two copper ore types (Oxide and Sulphide) were received for preliminary flotation and mineralogical assessments. Analyses indicate composite grades of 1.0% Cu, 1.0 ppm Au for the Oxide and 2.8% Cu and 2.7 ppm Au for the Sulphide composites respectively.* *Mineralogical assessment of the Oxide composite indicate copper oxides of malachite /azurite contain some 55% of copper with the remaining copper in iron oxides, clays and mica. Oxide composite gold analyses indicate that gold is quite coarse.* *Sulphide ore contains a simple gangue suite of quartz and amphiboles with minor pyrite, sphalerite and pyrrhotite. Copper is exclusively present in chalcopyrite.* *Oxide copper flotation was performed with conventional sulphide activation and xanthate and yielded around 35% copper recovery to a 34% copper grade concentrate. Remaining copper is mainly resident in goethite. Further assessment of cleaning routines should improve recovery to around 50%. Gold is also recovered and reported to concentrate at around 50ppm at 85% recovery from feed. ICP analyses of concentrate do not indicate any smelter penalty constituents.* *Sulphide ore copper flotation response was excellent with conventional roughing, rougher regrind and cleaning. A primary grind of 75 µm, dithiocarbamate collector and organic pyrite depression in cleaning yields a 27% Cu grade concentrate at 89% overall recovery. Gold is also recovered to concentrate at 20 ppm and 85% recovery. ICP analyses of concentrate do not indicate any penalty constituents."*
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential*	A scoping level study for underground mining of the Carroll's deposit has recently been completed using the updated resource model (work undertaken by Entech Mining Consultants – November 2021). The following statements in the Entech report are germane: *"The mine plan is at a scoping study level of analysis. Further work will be required on increasing the confidence of inputs to the mine plan, including:* • *Geotechnical analysis,* • *Hydrogeological analysis,*

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	environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	• *Input into boxcut location, design, and size constraints,* • ***Waste rock management and dump size constraints, and*** • *Confirmation of marketing and metallurgical inputs for cut-off grade determination.* *The MRE indicates that the orebody is located close to the surface**. Stavely indicated that an open pit option analysis was not required due to concerns regarding surface disturbance footprints.** However, the boxcut could be relocated to capture some of the ore material located in the weathered zone that was excluded in this analysis."* Studies around environmental impacts are therefore at an early, scoping level stage.
Bulk density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	A regression equation of density on copper grade was used both to produce the density weights for samples in the fresh zone and to assign density values to individual fresh blocks in the estimation domain based on their estimated ID^2 copper grade. An elevation-based regression equation was used in the oxidised mineralised zone. A constant value of 2.7t/m³ was assigned to rock outside of the mineralised domain.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.* *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of*	The estimate is classified as Indicated and Inferred under the JORC Code (2012 Edition). The absence of QA/QC for historical data, the probable issues of downhole contamination and poor recovery in the oxidised zone have meant that Indicated resources were only defined in the fresh zone where the drill spacing is 50 m or tighter. The Inferred resource is only extended out to the limit of the drill pattern, with the volume previously reported as Inferred beyond the drilling now not considered to be Mineral Resources.

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	geology and metal values, quality, quantity and distribution of the data). *Whether the result appropriately reflects the Competent Person's view of the deposit.*	
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	No Audit or Review of estimate undertaken.
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	Not undertaken other than that stated under the classification section.