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ASX Announcement
3rd March 2021

King Vol Mineral Resource Estimate

Consolidated Tin Mines Limited (**ASX:CSD**) (**CSD or the Company**) is pleased to announce that SRK Consulting (Australasia) Pty Ltd (SRK) has now completed a new Mineral Resource Estimate on the King Vol Project .

The January 2021 King Vol Mineral Resource estimate has been classified in accordance with the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code, 2012 edition).

The 2021 Mineral Resources have been reported above a 3% Zn cut-off grade which is consistent with previous Mineral Resource estimates and includes underground development and stope mining depletion until 10 March 2020. In contrast, a 3.5%Zn cut-off grade is currently used to differentiate between ore and waste in the King Vol underground operation. SRK is of the opinion that all the classified Mineral Resources above 3% Zn cut-off would have reasonable prospects of eventual economic extraction using the current long hole open stoping mining method.

A summary of the 2021 King Vol Mineral Resources is presented in the table below showing potentially economic elements Zn, Pb, Cu ,Ag and deleterious elements(As, Cd and Fe), depleted at 10 March 2020, and the full report is attached as an appendix.

King Vol Mineral Resources >3% Zn cut-off as depleted at 10 March 2020

Classification	Tonnes	Zn (%)	Pb (%)	Cu (%)	Ag (PPM)	As* (PPM)	Cd* (PPM)	Fe* (%)	Density (t/m3)
Measured									
Indicated	780,000	11.6	0.71	0.57	28.2	1,700	455	10.9	3.18
Inferred	1,890,000	8.2	0.64	0.43	24.1	1,538	350	10.2	3.09
Total	2,670,000	9.2	0.66	0.47	25.3	1,586	381	10.4	3.12

*As, Cd and Fe are deleterious elements considered in the Reasonable Prospects for Eventual Economic Extraction criteria applied

Summary of King Vol Mineral Resource material information

Geology and Mineralisation

The King Vol deposit is a polymetallic (Zn, Pb, Cu and Ag) skarn deposit occurring as steeply west-dipping tabular lenses, located on sheared contacts between sediments and carbonate rocks of the Chillagoe Formation. A distinctive though internally complex 'Mine Sequence' stratigraphy has been firmly established from drilling and mapping. It comprises, from east to west (oldest to youngest), the Far Eastern Chert Unit (FECHET), the Footwall Mixed Unit (SIS), the Eastern Chert Unit (ECHT), the Interbedded Siltstones and Sandstones Unit (ISH), the Eastern Limestone Unit (ELST), the Arkose Unit (ARK) and the Western Limestone Unit (WLST).

Traditionally the sulphide lenses or lodes at King Vol were interpreted as being localised along fracture/shear zones developed along major lithological contacts, with variable amounts of skarn alteration the mineralisation. The structurally controlled ore lenses are typically thin and tabular, ranging in thicknesses between 1 m and 4 m, but locally exceeding 12 m. There is a high degree of pinching and swelling along strike and down dip. The lode along the contact between the ELST Unit and the ISH Unit is the most persistent, with a delineated strike extent of approximately 400 m and a dip extent of approximately 800 m.

The sulphide assemblages are variable combinations of sphalerite (Sph) (pale honey to brown to black, very rare white), chalcopyrite (Cpy), galena (Gal), pyrite (Py), marcasite, with locally appreciable pyrrhotite and arsenopyrite. Some of the high-grade zinc massive sulphide lenses are overwhelmingly sphalerite with very little other sulphides.

Data acquisition including drilling, sampling, assaying and QAQC

The 2020 Mineral Resource estimate was prepared using data acquired from reverse circulation (RC), diamond drill core (DDH), reverse circulation drillholes with diamond drillhole tails (RCD) and underground diamond core (UGDD) from drilling programmes conducted between 1989 and 2019 (Approximately 87% of the drillhole data has been collected since 1999 when Kagara acquired the project.

Face mapping and sampling data from underground development drives and drillhole logging and sludge sampling from long-hole open stope drilling have also been used to update each of the mineralisation models but have not been used in the grade estimates. Face samples from the development drives and sludge samples from the long-holes were analysed at the onsite laboratory and are used to identify localised ore and waste contacts in development drives and production stopes and grade control estimates; however, both sampling methods are often prone to sample bias and/or cross-sample contamination.

SRK was supplied with an export from Auctus's MinRep data management software which links to a DataShed SQL database backend.

Several different sample lengths have been used during the various drilling programs. Sample lengths from within the Ore Zones range from 0.1 m to 7.6 m with approximately 65% of the samples ≤1 m in length and 90% of the samples ≤2 m in length. Approximately 98% of the mineralised DDH samples submitted were from half (93%) or quarter (6%) cut NQ- or LTK60-sized diamond core. Approximately 51% of the mineralised RC samples were collected using a three-tier riffle splitter with the rest collected using a spear or from grab sampling. Remnant DD core is stored in core trays and remnant RC chips are stored in trays for future reference either on site or at the coreshed/ logging facility in Chillagoe.

Various laboratories have been used to prepare, sub-sample and analyse the King Vol samples. SRK notes that ALS, Analabs, Ammtec, Intertek and SGS are all independent commercial laboratories that have National Association of Testing Authorities (NATA) accreditation. A summary is as below;

- 1989-1992: Analabs in Cairns – analysed for Cu, Pb, Zn and Ag using a perchloric, nitric acid digest with an AAS finish
- 1999-2011: ALS or SGS Laboratories in Townsville – analysed for Cu, Pb, Zn and Ag using acid digest with either an AAS or ICP finish and Au analysis using 50 g fire assay. From 2006 onwards, the assaying also included analysis for As, Sb, Bi, Mo, Co, Ni, Cr, Cd and S.
- 2015-2016: ALS Laboratory in Townsville – analysed for Cu, Pb, An, Ag As, Sb, Bi, Mo, Co, Ni, Cr, Cd and S using a multi-acid digest with and ICP-AES finish.
- 2016-present: Surface exploration samples were sent to ALS laboratory in Townsville (2016–2017) or Intertek laboratory (2018–2019) – analysed for Zn, Cu, Ag, Pb, As, Bi, Ca, Cd, Co, Fe,

K, Mo, S, Sb, Sn and Te using a four-acid digestion followed by ICP-OES, whereas Au was assayed using a fire assay with a lead flux and an AAS finish.

- 2018present: Underground diamond drill samples were sent to Auctus's Chillagoe onsite laboratory – analysed for Zn, Cu, Ag, Pb, As, Cd, Fe, Sb using MP-AES and Au using a fire assay with a lead flux and an AAS finish.

QA/QC sampling includes the regular insertion of CRM samples and blank samples into the RC and diamond drillhole sampling streams. QA/QC samples results show no apparent assaying bias or sample preparation contamination. Two rounds of umpire laboratory testing have been completed in 2014 and 2019 with results showing no assaying bias between laboratories.

Nominal drill spacing varies from 25 mN × 25 mRL to greater than 100 mN × 100 mRL throughout the deposit. Some high areas have been drilled down to 12.5 m centres. The data distribution throughout the King Vol deposit are sufficient to demonstrate geological continuity and global grade continuity within the mineralised domains and appropriate to use for Mineral Resource estimation to define Indicated or Inferred Mineral Resources. Drillhole samples were composited to 1 m intervals for Mineral Resource estimation.

Mineralisation Modelling and Estimation

The geological models have been constructed using information from drillhole logging and underground backs mapping and include lithological domains, mineralisation domains (lenses), a basic structural model including identified fault planes and an oxide weathering domain. The mineralised lenses have a complex morphology. They pinch and swell and are anastomosing along strike and up dip and down dip and they are often offset by cross-cutting structures.

Grade variables for Zn, Pb, Cu and Ag, deleterious variables for As, Cd and Fe, and density were estimated into the King Vol Mineral Resource estimate. Variables within the aoz, aboz, skeoz, skwoz, boz and coz lenses were estimated using Ordinary Kriging interpolation. Variables within the ishoz, ab_pipe, ark_hw, ark_min1, ark_min2 and ark_min3 lenses which had low sample counts were interpolated using Inverse Distance to the power two interpolation.

Top-cuts were applied to high-grade outliers within each estimation domain that were identified during exploratory data analysis. The King Vol Mineral Resource estimate has been checked against grade control face sampling and the current King Vol grade control estimate. No assumptions have been made regarding the recovery of by-products. The estimation block size used was 5 mX × 10mY × 10 mRL which is approximately half the drillhole spacing of 25 mY × 25 mRL. The estimation was completed in three or four passes with searches ranging from 25 m, 50 m, 150 m 250 m and 1,000 m. Selective mining units have been assumed to be similar to the estimation block size to match underground long-hole open stoping with stope panels being 5–10 m wide, 20 m high and 20–60 m long. None of varies are correlated except for Zn and Cd.

The King Vol Mineral Resource estimate has undergone serval validation checks for each grade variable and density: Visual validation against resource drillholes and grade control face sampling. Global statistical comparison between length-weighted composite samples and volume-weighted estimated blocks.Swath plot validations between composite samples and estimated blocks. A review of the number of blocks estimated per domain.

The King Vol Mineral Resource estimate has been estimated on a dry basis using dry bulk density values.

Classification and reporting

A cut-off grade of 3% Zn has been used for Mineral Resource reporting. This cut-off is consistent with previous Mineral Resource estimates and the current ore/waste cut-off of 3.5% Zn used in the King Vol underground operation. The King Vol deposit is mined as an underground operation. Development levels are spaced approximately every 20 m, with drive dimensions of approximately 4.5 m wide × 4.5 m high and 3 m in depth. Open stope panels are approximately 5-10 m wide, 20 m high and 20–60 m long.

Ore is processed through the company's Mungana Processing Facility. The fresh ore material from the King Vol underground is considered suitable for processing via flotation-style concentrating. The oxide and transitional mineralisation types are difficult to process as they are very fine and contain clays that cause issues in the plant's flotation cells and the tailing thickener. The oxide and transitional mineralisation has not been classified as Mineral Resource.

Sampling methodology, assaying methodology and quality, confidence in the geological model, estimation performance and metallurgical recovery were all taken into consideration when classifying the King Vol Mineral Resources. The Competent Person considers that drill spacing and confidence in the geological modelling have the largest impact on the confidence of the Mineral Resource estimate.

The Competent Person is of the opinion that the King Vol Mineral Resource estimate represents an appropriate global estimate that reproduces the overall grade trends seen in the drillhole composite data. The King Vol Mineral Resources were therefore classified as either Indicated or Inferred. Oxide mineralisation cannot currently be processed and was therefore not classified as Mineral Resources.

Mineralisation within the ark_hw, ark_min1, ark_min2 and ark_min3 lenses and mineralisation below the 500 mRL level (approximately 450–500 m below the original topographic surface) has not been classified as Mineral Resources as the mineralisation is not well supported by drilling and the continuity is considered uncertain.

Competent Person's Statement

"The information in this report that relates to Mineral Resources is based on information compiled by Mr Michael Lowry who is a member of the Australasian Institute of Mining and Metallurgy and is employed by SRK Consulting (Australasia) Pty Ltd. Mr Lowry has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Lowry consents to the inclusion in the report of the matters based on his information in the form and context in which it appears".

This ASX release was authorised for and on behalf of the CSD Board by:

Ralph De Lacey, Managing Director

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Appendix – Full Report

King Vol Mineral Resource Estimate

Report prepared for

Report prepared by

SRK Consulting (Australasia) Pty Ltd

CSD002

January 2021

King Vol Mineral Resource Estimate

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January 2021

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Executive Summary

Consolidated Tin Mines Limited (CSD) engaged SRK Consulting (Australasia) Pty Ltd (SRK) to undertake a site visit and produce an independent Mineral Resource estimate for the King Vol polymetallic – zinc (Zn), lead (Pb), copper (Cu) and silver (Ag) – deposit owned by Auctus Resources Pty Limited (Auctus). Auctus was placed into Voluntary Administration on 20 March 2020. Underground mining also ceased on this date.

SRK personnel conducted site visits to Auctus's Mungana Project located near the township of Chillagoe in northeastern Queensland in January and March 2020. The site visits included inspections of diamond drill core from the King Vol deposit, visits to the King Vol underground mine, the gathering of project data and deposit information from site personnel and a quality assessment of the King Vol data.

SRK subsequently produced an independent Mineral Resource estimate for the King Vol deposit. The estimate is based on updated geological, structural, weathering and mineralisation models that have been developed since late 2019 by Auctus's geological personnel and external consultants, and an updated drillhole dataset which includes an additional 103 drillholes for 16,973 m since the previous Mineral Resource estimate which was completed in April 2016.

The 2020 King Vol Mineral Resource estimate has been classified in accordance with the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code, 2012 edition). SRK is of the opinion that drill spacing and confidence in the geological modelling have the largest impact on uncertainty throughout the model and therefore they form the basis of the Mineral Resources classification scheme.

The 2020 Mineral Resources have been reported above a 3% Zn cut-off grade which is consistent with previous Mineral Resource estimates and includes underground development and stope mining depletion until 10 March 2020. In contrast, a 3.5% Zn cut-off grade is currently used to differentiate between ore and waste in the King Vol underground operation. SRK is of the opinion that all the classified Mineral Resources above a 3% Zn cut-off would have reasonable prospects of eventual economic extraction using the current long-hole open stoping mining method.

A summary of the 2020 King Vol Mineral Resources is presented in Table ES-1.

Table ES-1: King Vol Mineral Resources ≥3% Zn cut-off as at 10 March 2020

Classification	Tonnes	Zn (%)	Pb (%)	Cu (%)	Ag (ppm)	As (ppm)	Cd (ppm)	Fe (%)	Density (t/m^3)
Measured									
Indicated	780,000	11.6	0.71	0.57	28.2	1,700	455	10.9	3.18
Inferred	1,890,000	8.2	0.64	0.43	24.1	1,538	350	10.2	3.09
Total	2,670,000	9.2	0.66	0.47	25.3	1,586	381	10.4	3.12

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Disclaimer

The opinions expressed in this Report have been based on the information supplied to SRK Consulting (Australasia) Pty Ltd (SRK) by Consolidated Tin Mines Limited (CSD) and Auctus Resources Pty Limited (Auctus). The opinions in this Report are provided in response to a specific request from Consolidated and Auctus to do so. SRK has exercised all due care in reviewing the supplied information. While SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this Report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

List of Abbreviations

Ag	silver
As	arsenic
Au	gold
Bi	bismuth
Cd	cadmium
Co	cobalt
Cr	chromium
Cu	COPPER
DDH	diamond drillhole
IP	induced polarisation
Mo	molybdenum
DTM	digital terrain model
Ni	nickel
Pb	lead
RC	reverse circulation drillhole
RCD	reverse circulation drillhole with a diamond drill tail
RL	reduced level elevations with reference to a common assumed datum
S	sulphur
Sb	antimony
UTM	Universal Transverse Mercator
UGDDH	underground diamond drillhole
Zn	zinc

1 Introduction and Scope of Report

The King Vol polymetallic – zinc (Zn), lead (Pb), copper (Cu) and silver (Ag) – deposit was being developed by Auctus Resources Pty Limited (Auctus), a wholly owned subsidiary of Auctus Minerals Pty Ltd, a private Australian company backed by Denham Capital, a US based private equity firm. Auctus was placed into Voluntary Administration on 20 March 2020. Underground mining also ceased on this date.

The deposit is part of Auctus's Mungana Project located near the township of Chillagoe in northeastern Queensland (Figure 2 1).

King Vol has been in operation since 2018, following the completion of Mineral Resource and Ore Reserve studies by external consultants, International Resource Solutions Pty Ltd and Entech Pty Ltd, respectively, in 2016. Narrow high-grade ore lenses are extracted using long-hole open stope underground mining methods and are then trucked to surface to supply the Mungana Processing Facility located approximately 38 km to the southeast.

SRK conducted a review of the Mungana Project's Mineral Resource models in December 2019 on the behalf of Consolidated Tin Mines Limited (CSD).

SRK noted the following material issues with the 2016 King Vol Mineral Resource estimate:

- The mineralisation wireframe models are overstated when compared to the local geology. The models do not consider the deposit geology, multiple deformation, mineralisation and intrusive features that introduce complex geometric and mineralogical trends.
- The estimation parameters used result in overstate grades locally and globally.
- Reconciliation of the Probable Ore Reserves to production shows 55% less tonnage and 23% lower zinc grades (representing 65% lower zinc metal) mined.

SRK made the following recommendations to address the identified material issues:

1 Update the King Vol geological model and Mineral Resource estimate using additional recent underground diamond drillholes and geological mapping from development drives.

2 Conduct a sensitivity analysis using a refined set of estimation parameters, including distance restrictions for higher-grade outlier samples to further assess risk associated with the 2016 model.

3 Review the 2016 bulk density estimation.

4 Consider direct quality control/ quality assurance (QA/QC) data, which only represents 5% of the historical data is an undetermined risk during Mineral Resource classification, as bias cannot be directly assessed.

SRK was consequently engaged in March 2020 by CSD to produce an updated Mineral Resource estimate for the King Vol deposit.

1.1 Site visits

Jacinta Williams, Senior Resource Geologist from SRK's office in Perth, visited the King Vol site on 17 January 2020. Ms Williams's visit was to support an Independent Technical Review completed by SRK of the assets of Auctus and Consolidated Tin Mines Limited (Consolidated). The purpose of the visit was to identify any fatal flaws related to the geological data collection, geological modelling and Mineral Resources estimates for each of the Auctus and Consolidated deposits, including King Vol.

Another Senior Resource Geologist also from SRK's office in Perth, visited the King Vol site between 9 March and 13 March 2020. The purpose of this visit was to garner additional project data and information from site personnel and conduct a quality assessment of the data informing the Mineral Resource estimate.

Ms Williams has inspected diamond drill core from the King Vol deposit and has visited the King Vol underground development drives with key Auctus site personnel during site visits.

1.2 Use of mine grid references

Throughout this report where the text refers to directions, for example, north, east and northwest, the authors are referring to the King Vol mine grid north, mine grid east and mine grid northwest. Additionally, reference to hole azimuth directions are relative to the King Vol mine grid.

Section 5.2 has additional information regarding the transformation between Universal Transverse Mercator (UTM) coordinates and the King Vol mine grid.

2 Location and Access

The King Vol polymetallic deposit is part of Auctus's Mungana Project and is located 38 km north of Chillagoe, and approximately 200 km inland from Cairns in northern Queensland (Figure 2-1). The road from Chillagoe to the project area is partly sealed and may be closed at some river crossings during wet season. From Chillagoe, the major regional centre of Cairns, on the coast, is reached via Mareeba along sealed roads which may be temporarily closed during the wet season. The area comprises low relief, rolling hill country with native savannah vegetation.

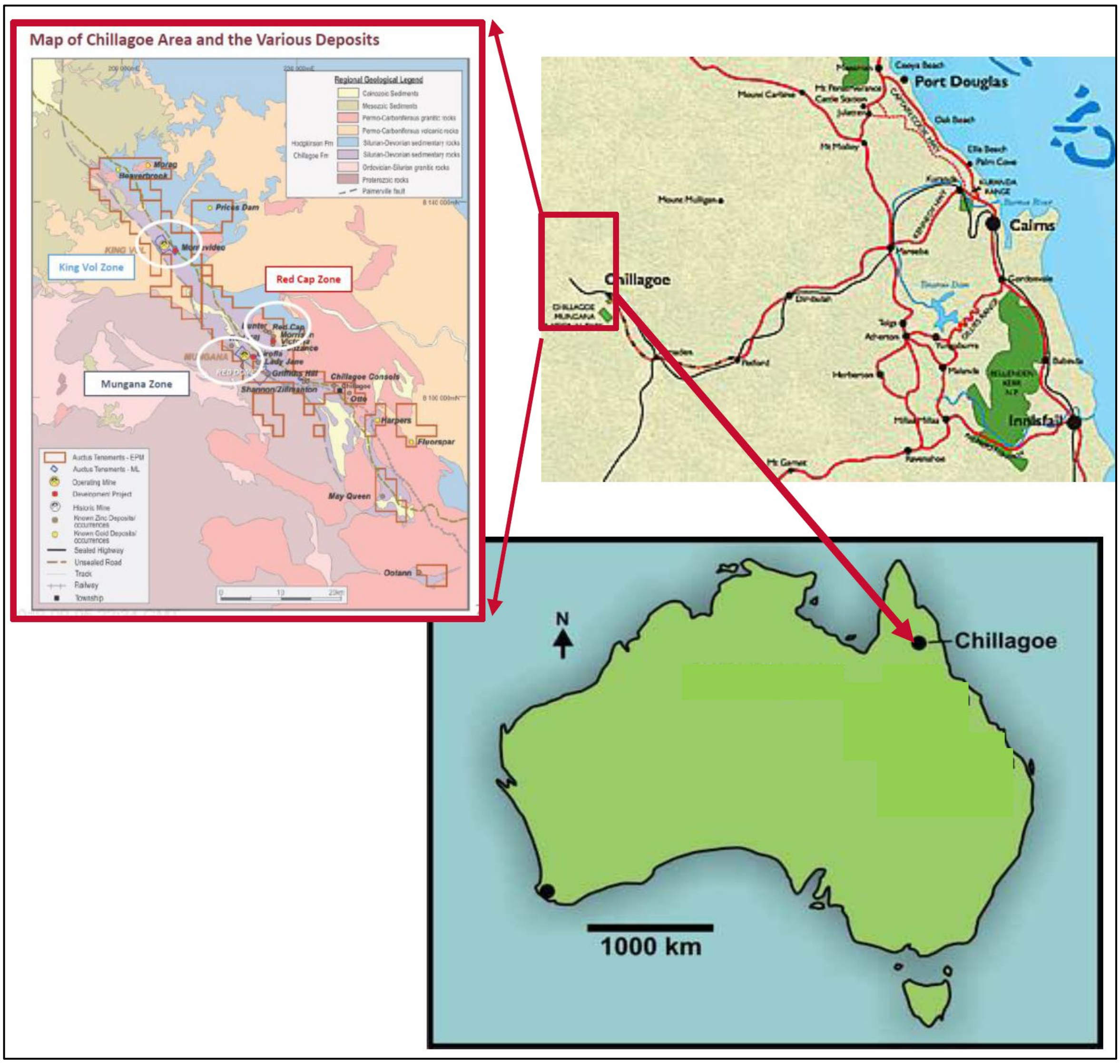


Figure 2-1: Location of Auctus Mineral Limited's operations

Source: Xstract Technical Review, Nov 2019

3 King Vol Project History

The King Vol deposit was first mined in 1922 from shallow underground workings. Records from the Chillagoe Smelters show small parcels of oxide ore being treated for lead, silver and copper up until mid-1925. The records indicate that about 2,200 tonnes of ore was produced before the mine ceased operating in 1925 due to issues with groundwater.

Modern exploration in the King Vol area recommenced in the late 1960s, with Aztec Mining Company Ltd gaining control of the King Vol prospect in 1986. In conjunction with joint venture partners, BP Minerals Ltd (BP) and Australian Ore and Minerals Ltd (AOM), Aztec conducted regional soil and stream sediment sampling, induced polarisation (IP) and ground magnetic geophysical surveys over the King Vol area, regional- and prospect-scale mapping and costeaning. In 1988, an initial drilling program of 11-hole shallow reverse circulation (RC) holes into the gossan zone was conducted over the prospect. Each of the drillholes intersected anomalous zones of zinc, lead, copper and silver. In late 1989, Aztec completed two diamond drillholes (DDH) to test for primary mineralisation, and intersected zinc-rich massive sulphides below the weathering horizon. Aztec then completed a further 29 drillholes.

In 1992, Perilya purchased the project and drilled six DDH before focusing its exploration efforts elsewhere.

Kagara Ltd acquired the project in 1998 and commenced drilling in 1999. Over the next 12 years, Kagara carried out extensive drilling, defining the bulk of the King Vol resource and announced a maiden Mineral Resource to the Australian Stock Exchange (ASX) on 9 February 2012, consisting of:

- Indicated Mineral Resources of 900,000 Mt grading at 16% Zn, 0.9% Pb, 0.9% Cu and 42 g/t Ag
- Inferred Mineral Resources of 1,860,000 Mt grading at 9.9% Zn, 0.4% Pb, 0.6% Cu and 24 g/t Ag.

Mungana Goldmines Ltd (later Atherton Resources Ltd) purchased the project from the liquidators of Kagara in 2014. In 2015, Atherton Resources conducted a scoping study on mining of the King Vol deposit following an extensive drill program.

Auctus Resources Ltd acquired Atherton Resources in late 2015. Following the acquisition, an updated Mineral Resource estimate was completed by International Resource Solutions Pty Ltd, which was followed by an Ore Reserves study completed by Entech Pty Ltd. Auctus then completed a Bankable Feasibility Study for the King Vol deposit in 2017 whereby the deposit would be mined as an underground operation using a top-down open stoping and pillar method. Auctus started developing the King Vol mining infrastructure in 2017, with production commencing in 2018. Auctus was placed in administration and Underground mining ceased on 20 March 2020.

4 Geological Setting and Mineralisation

The King Vol regional geology and mineralisation description was recently summarised by Auctus's Geology Manager, in a Partial Relinquishment Report – EPM 25875, submitted to the Queensland Department of Natural Resources and Mines on 10 August 2018. The following description of the King Vol geological setting has been adapted from that report.

4.1 Regional geology

King Vol is in the Chillagoe Formation to the east of the Palmerville Fault, a major structural discontinuity in North Queensland that is the surface expression of the Tasman Line. The fault separates the middle Proterozoic metamorphic and meta-igneous rocks of the Yambo and Dargalong provinces to the west from the multiply deformed relatively low metamorphic grade Siluro-Devonian Chillagoe Formation sequences of the Hodgkinson Province to the east.

The Chillagoe Formation occupies a 2–10 km wide northwesterly trending belt that extends for over 150 km from Mount Garnet in the southeast to 70 km northwest of Chillagoe where the belt, and the bounding Palmerville Fault, changes to a northerly trend and extends for a further 120 km. Locally, this major flexure is referred to as the 'Big Bend'. The Chillagoe Formation comprises units of limestone, sandstone, siltstone, chert, basalt and conglomerate, with a cumulative thickness of approximately 1 km. Each is found in varying proportions throughout the sequence, but limestone and mafic lavas are dominant (Figure 4-1).

Extensive thrust faulting during the Late Devonian to Mid-Carboniferous resulted in significant structural thickening of the formation. In the Mungana to Red Cap area, at least 12 thrust-induced stratigraphic repetitions have been identified. The steeply dipping thrust faults trend northwesterly, sub-parallel to the stratigraphy and the Palmerville Fault. Brecciation of the limestone is widespread and postulated to be a result of faulting.

Igneous activity in the Late Carboniferous to Early Permian resulted in the widespread intrusion of granitic rocks, the extrusion of felsic volcanic rocks and the localised emplacement of high-level, rhyolitic porphyry stocks in the Chillagoe region. Much of the Chillagoe Formation has been removed by granitic plutons between Almaden, 30 km southeast of Chillagoe, and Mount Garnet.

Extensive Late Jurassic to Early Cretaceous-age sediments of the Gilbert River Formation cover the basement rocks in the Big Bend area at the northwestern end of the combined tenement package held by Auctus.

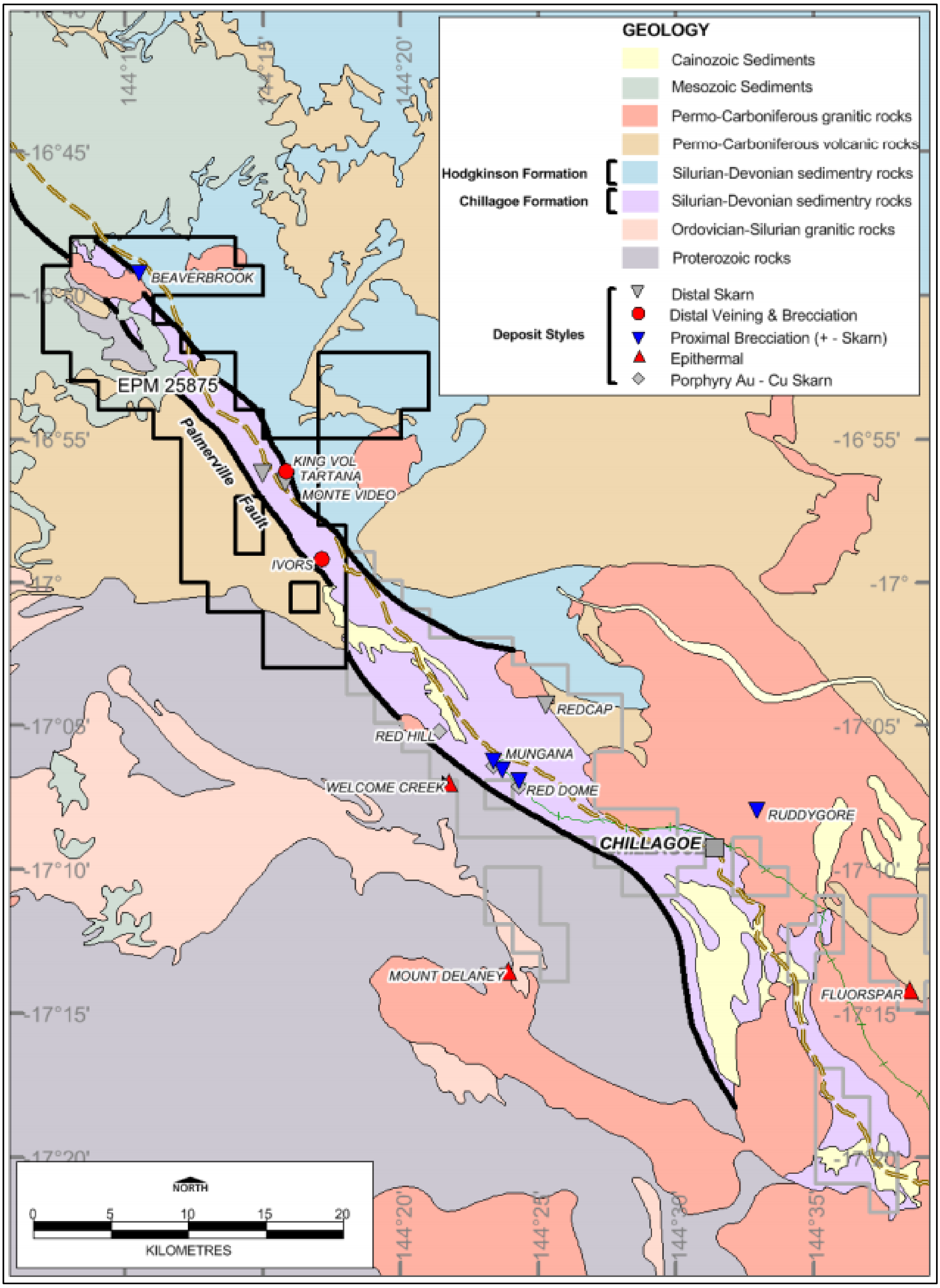


Figure 4-1: Regional geology and deposit styles

Source: Auctus Resources

4.2 Regional mineralisation

As shown in Figure 4-1 and Figure 4-2, there is a wide diversity of commodities and mineralisation styles within the Chillagoe Formation. Most of the mineralisation in the district appears to have a genetic link with Permo-Carboniferous magmatism related to the O'Briens Creek and/or Ootan Granitic Supersuites (circa 310–325 Ma).

Some of these intrusion-related styles include:

- Distal skarn (King Vol, Montevideo, Red Cap)
- Distal veining and brecciation (King Vol, Ivors, Tartana)
- Proximal brecciation and veining which may include skarn (Red Dome, Girofla, Mungana, Beaverbrook, Ruddygore), epithermal (Fluorspar, Mount Delaney, Welcome Creek), and porphyry gold-copper skarn (Red Dome, Mungana, Red Hill).

Many of these deposits show evidence for telescoped multi-episode activation–reactivation and uplift-erosion cycles.

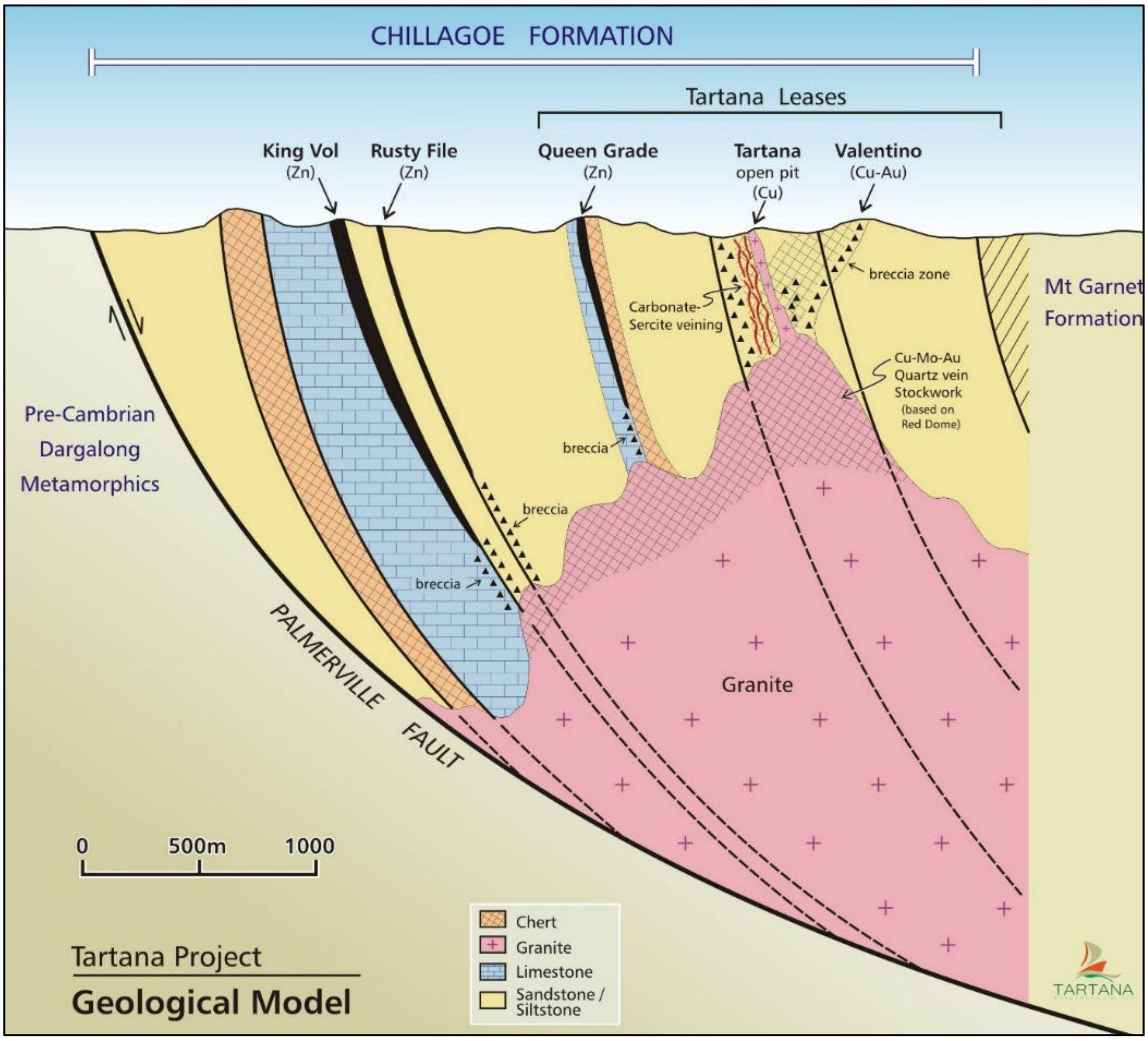


Figure 4-2: Mineralisation styles adjacent to King Vol

Source: Tartana Resources website

4.3 Deposit geology

A description of the Mine Sequence lithologies was detailed in Auctus's 'Mungana Project Bankable Feasibility Study', dated January 2018 ('the MPBFS study') Part 7 Geological Setting and is reproduced below. The figures used throughout this section and the information in the Structural Development sub-section are from work by CSA Global(CSA), which was commissioned by Auctus in 2019. CSA updated the King Vol wireframes for the major stratigraphic units, fault/ shear zones, and mineralisation domains after spending several days underground structural mapping at King Vol.

SRK considers the understanding of the factors effecting the continuity of the geology and mineralisation (grade) at King Vol has changed considerably since the previous 2016 Mineral Resource update. SRK has therefore provided a detailed description of the geology and mineralisation based on discussions with key Auctus onsite staff and a review of recent technical studies, particularly those of CSA (2019a and 2019b).

4.3.1 Host lithology

A distinctive though internally complex 'Mine Sequence' stratigraphy has been firmly established from drilling and mapping. It comprises, from east to west (oldest to youngest), the Far Eastern Chert Unit (FECHET), the Footwall Mixed Unit (SIS), the Eastern Chert Unit (ECHT), the Interbedded Siltstones and Sandstones Unit (ISH), the Eastern Limestone Unit (ELST), the Arkose Unit (ARK) and the Western Limestone Unit (WLST) (Figure 4-3).

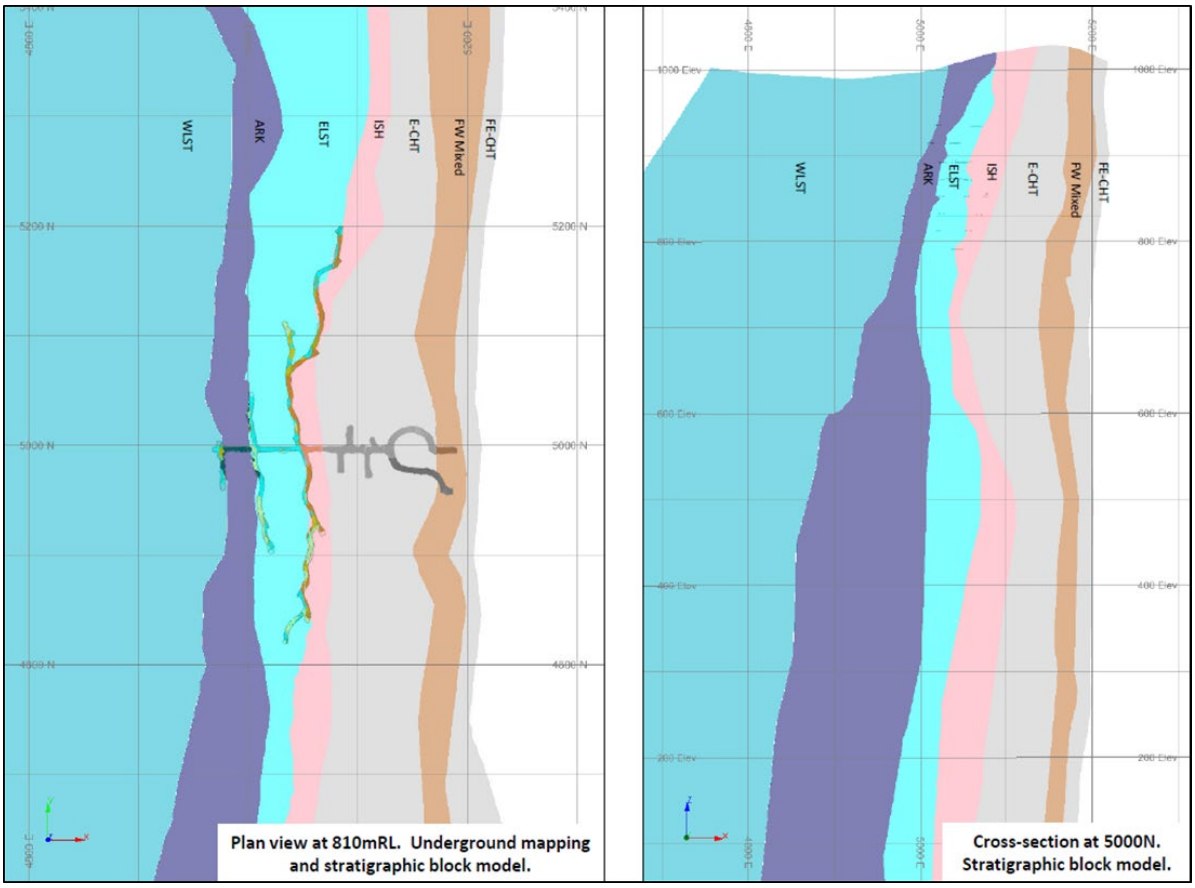


Figure 4-3: King Vol host rocks

Source: CSA Global (2019a)

Eastern Chert Unit (ECHET)

The Eastern Chert Unit contains pale grey, massive to thin bedded, typically highly fractured chert underlying the footwall sediments. The thickness of the unit is at least 75 m based on the three holes collared on the footwall during the 2015 drilling program. Prior to this, the thickness was largely unknown, as most of the drillholes from the west were usually terminated when the chert had been reached. Contacts with the ISH Unit are variable. Usually they are sharp with only local brecciation over a metre or so, but some interdigitation of chert with ISH sediments over several metres may be tectonic in origin.

Interbedded Siltstones and Sandstones Unit (ISH)

The ISH Unit sediments generally comprise moderately to highly foliated and tectonically disrupted pale to medium grey thinly interbedded siltstones and sandstones, which locally become dark grey due to a graphitic component. Small bodies of mafic volcanics have also been noted in several holes. Towards the southern end of the prospect (south of 4850N), parts of the ISH Unit become coarser grained and arkosic – very similar in appearance to the rocks of the Arkose Unit.

The unit varies considerably in thickness from a minimum of about 1 m over the top 100 m on section 5100N, to a maximum of 50–60 m on section 4850N and the upper reaches of section 4800N. This variation in thickness is ascribed to stratigraphic lensing and faulting.

Eastern Limestone Unit (ELST)

The Eastern Limestone Unit ranges in thickness along from about at 100 m at the surface in the north decreasing to almost disappearing at surface in the south, although the limestone down dip can increase to widths greater than 30 m and depths greater than 100 m. The reduction in thickness was previously ascribed to pre-mineralisation faulting, although it also appears likely that there is some stratigraphic lensing out.

The limestone is typically pale to medium grey, weakly (and very locally strongly) graphitic, locally silty and bedded, and nearly always foliated, often strongly so. The foliation and bedding are difficult to distinguish and are coincident to nearly coincident. The eastern contact with the ISH Unit is commonly obscured by intense skarn alteration and mineralisation but, where observed, the limestone is usually strongly mylonitic. Interleaving of limestone with the ISH sediments is often seen over several metres. This appears to pre-date alteration and mineralisation and is probably tectonic in origin, although there may also be a component of intraformational breccia development.

South of 4850N, sill-like bodies of mafic volcanics up to 15 m in width are a diagnostic component of the Eastern Limestone Unit.

Arkose Unit (ARK)

The Arkose Unit varies considerably in thickness, from a maximum of about 60 m on section 5150N down to about 10 m on section 4850N (KVP051). It also varies considerably in character from one drill section to another, seemingly with rapid facies changes. As the name suggests, the dominant rock type on most drill sections is thickly bedded to massive coarse-grained arkosic sandstone. Thinly bedded sandstones and siltstones are less dominant but nonetheless common, especially towards the south. These are rhythmically bedded in places, similar to the sometimes called but poorly documented ‘inch cherts’ often seen elsewhere in the Chillagoe Formation (e.g. Red Dome, Mungana, Ivors).

The western contact of the Arkose Unit with the Western Limestone Unit is highly variable. Abundant structural dislocation is often observed, yet there is sometimes also a gradational aspect to the contact, with limy silts and muds passing eastwards almost imperceptibly into siliciclastic silts and muds with very little other visible change.

The eastern contact of the Arkose Unit with underlying Eastern Limestone Unit is commonly obscured by intense skarn alteration but, where observed, appears to be faulted. Local interleaving of arkose with limestone adjacent to this contact is interpreted as having a tectonic origin.

Western Limestone (WLST)

The Western Limestone Unit is nominally 160 m thick and continues westwards beyond the limits of the drilled area. Its western limit is tentatively interpreted as a thrust fault, as evidenced by a chert breccia zone intersected in several of the westernmost collared holes.

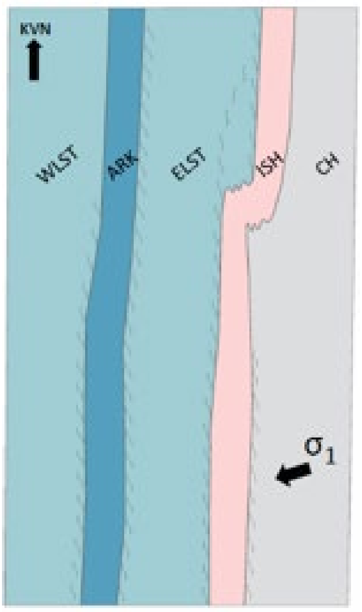
Limestone comprises roughly 60% of the unit and varies from weakly graphitic and massive to highly graphitic, silty and thinly bedded. Intermediate to mafic volcanics occur as thinly bedded volcaniclastics, massive to brecciated flows and possible sills. Individual mafic units are commonly composite, with volcaniclastics overlying the massive flows. They are up to 20 m thick and, on section 5100N, can be traced down dip for over 250 m. Locally observed peperite along contacts indicates subaqueous extrusion onto, and possible intrusion into, wet sediments.

A lens of limestone conglomerate 5–20 m thick occupies the eastern margin of the Western Limestone Unit between 5100N and 5300N. It crops out in the King Vol West area near 4850E/ 5200N and has been tracked down dip for 300 m on section 5100N. Because of its restricted strike length, it is considered a sub-unit of the Western Limestone Unit. The conglomerate is typically matrix supported and comprises pebble- and cobble-sized igneous, sedimentary (dominantly arkose) and chert clasts in a limestone matrix. Its contacts with other rocks of the Western Limestone Unit and with the underlying Arkose Unit are thought to be conformable.

4.3.2 Structural development

This section is based on two figures from the PowerPoint presentation ‘King Vol Mine Structural Geology Review – Follow Up (Rpt No R199.2019)’ prepared by CSA Global. The CSA interpretation of the development of the structure and timing of mineralisation is presented below.

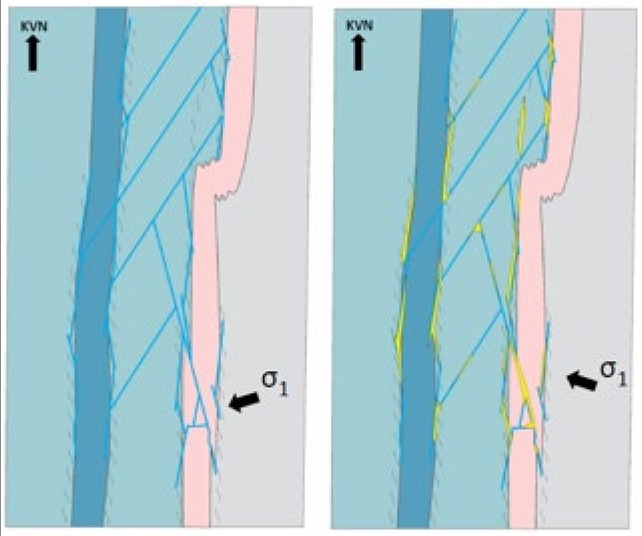
Stage 1



Schematic geology in plan view early in the structural development of the King Vol deposit. Foliation/ shear zone development occurs during east–west shortening at major stratigraphic contacts due to competency contrast.

Complexity of the ISH fold zone suggests that this feature has been re-worked during the subsequent deformation.

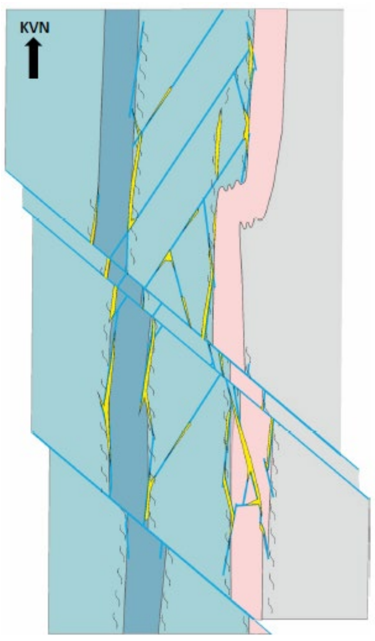
Stage 2/3



Fault development is critical for access of hydrothermal fluid to the structural and stratigraphic traps sites. At King Vol, NNE and NNW fault orientations appear coeval and both can be mineralised. Intersections of these structures are key localities for wider high-tenor mineralisation. Although these fault networks approximate the stratigraphic boundaries, they do not consistently honour them.

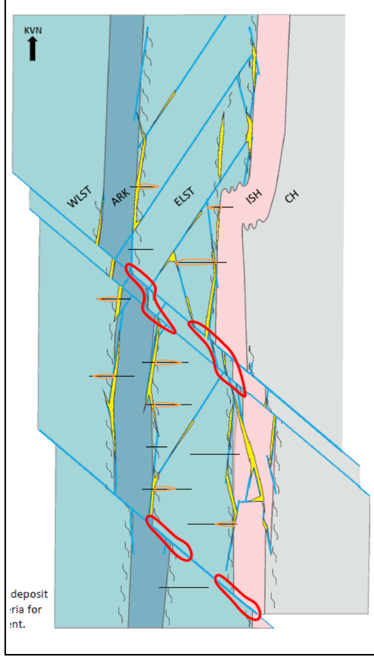
There is evidence of sinistral reactivation of structure during hydrothermal mineralisation introduction.

Stage 4



Young NW striking faults cross-cut the earlier mineralisation-associated faults and shear zones; and displacement comprises sinistral movement. These young faults and east–west joints/fractures (shown below) are conduits for surface water and implicated in dissolution cavity development.

Stage 5



Development of steep east–west faults/ joints (black) are constrained in distribution proximal to east and west contacts of the limestone units. Where these structures occur proximal to mineralisation and within the limestone unit (only), smaller-scale but laterally persistent dissolution caves are recognised (orange polygons).

Intersection of NW/NNW striking faults (zones) with the limestone units (likely near sulphide mineralisation) will have increased potential for significant natural dissolution-related cave development (red polygons). These faults are young and form a zone of multiple surfaces and likely higher density fracturing, thereby increasing secondary permeability. Access to acid-forming sulphide mineralisation is still required.

Figure 4-4: Structural development at King Vol

Source: Adapted from CSA Global (2019a)

4.3.3 Alteration

Weak to intense prograde skarn alteration is widespread but it is generally most intense along or adjacent to lithological contacts. It is characterised by varying proportions of fine- to coarse-grained mostly green garnet and mid to dark green pyroxene. Wollastonite-quartz-calcite skarn occurs locally, most commonly adjacent to the contact between the ELST Unit and ISH Unit. Most of the prograde skarn has been weakly to highly altered to retrograde phases.

The introduction of sulphides occurred during a replacive, post-skarn, retrograde stage that was accompanied by variable combinations of calcite, brown carbonate, chlorite, amphibole, epidote and hematite. The retrograde event included alteration of garnet to calcite/ carbonate-hematite and alteration of pyroxene to calcite/ carbonate–chlorite–amphibole–epidote–hematite. Intense retrograde alteration of prograde skarn locally produces wrigglite textures with alternating mamillary-textured laminae of any of calcite-amphibole-hematite and arsenopyrite.

Retrograde alteration phases and attendant sulphides sometimes occur without skarn. Auctus reports that some of the best sulphide zones have developed as replacements entirely within limestone. Where this occurs, the limestone is typically bleached and recrystallised to marble over one to several metres and is partly replaced by brown carbonate (possibly ankerite/ siderite) adjacent to the sulphides. Where sulphides replace non-limy units without skarn, usually as minor disseminations and stockworks, they are attended by pervasive silica-carbonate-chlorite alteration.

4.3.4 Weathering

Auctus's Standard Operating Procedure for diamond core logging included the following description for discriminating between progressive stages of weathering.

Weathering is the result of exposure to, and infiltration by, surface agents (i.e. surface water, ice, air, freeze-thaw cycles, organic activity, etc.) and is limited by proximity to the ground surface. Weathering is a relatively recent geologic process affecting the rock mass.

1 Very Weakly weathered: Fresh: no oxidation or weathering of rock components.

2 Weakly weathered: Bulk of rock fresh; weak patchy iron-oxide staining and/or weathering of silicates to clay; fractures typically weakly to highly iron-oxide coated; sulphides very locally weakly oxidized along or adjacent to fractures. No visible sign of rock material weathering.

3 Moderately weathered: Rock fabric intact, primary mineral mostly identifiable; moderate pervasive iron oxide staining, silicates weathered to clay; fractures typically oxidised; sulphides partly oxidised, often with oxidised rims. Less than 50% of rock material is decomposed and/or disintegrated to a soil, fresh or discoloured rock is represented either as a discontinuous framework or as corestones.

4 Highly weathered: Rock fabric largely intact, primary minerals highly modified; highly iron oxide stained; silicates weathered to clay, carbonates commonly leached; sulphides almost completely oxidised. More than 50% of the rock material is decomposed and/or disintegrated to a soil, fresh or discoloured rock is present either as a discontinuous framework or as corestones.

5 Extremely Weathered: Rock fabric highly modified or destroyed; intense iron-oxide staining and coatings and/or complete weathering of silicates to clay and/or intense leaching of soluble mineral phases; transitional to soil. 100% of rock material is decomposed and/or disintegrated to soil, the mass structure and material.

The names and descriptions of the weathering surfaces provided to SRK are:

- Base of complete oxidation (BOCO). Limited updates during mining (kv_bocodtm_2017dtm)
- Top of fresh rock (TOFR). Limited updates during mining (kv_tofrdtm_2017.dtm)

- Sulphur oxidation (SULFOX). Oxidation surface developed by Ian Hodkinson using a zinc/sulphur ratio to indicate the change between oxide zinc mineralisation and sulphide mineralisation in the upper areas (ih_ox.dtm).

The three weathering surfaces are displayed in Figure 4-5. SRK understands that the ih_ox.dtm surface was used when mining started to better delineate the sulphide ore material which recovered better through the Mungana Processing Plant. SRK has slightly modified and extended this file, and renamed it to SULFOX.dtm, to cover the full extents of the Mineral Resource estimate.

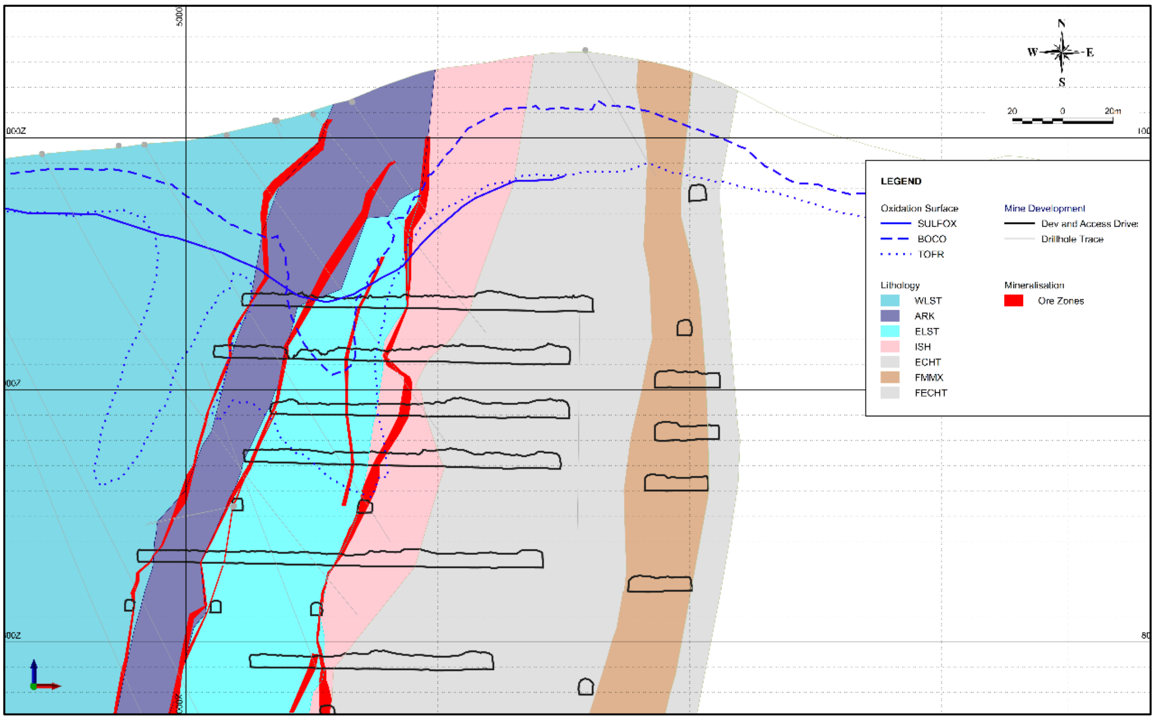


Figure 4-5: King Vol weathering surfaces (cross section 4,956N)

Source: SRK

4.4 Deposit mineralisation

The main surface expression of the King Vol mineralisation is a 20–30 m wide gossanous breccia body that outcrops over a strike length of approximately 400 m (4850N–5250N) along the western flank of a 30 m high, northerly trending chert ridge. It narrows and dissipates into minor poorly outcropping zones south of about 4850N.

Other than the gossanous breccia, the chert ridge, arkose and some limestone, rock exposure in the central resource area is generally poor. The only other outcrop is in the northwest part of the central resource area, where some locally restricted limestone conglomerate surrounds several small bodies of gossanous breccia referred to as the King Vol West zone. Mafic volcanics, skarn and massive sulphide mineralisation are totally recessive. Where observed, most of the sequence strikes slightly east of grid north and dips steeply to the west. Much of it is highly foliated, with local evidence of shearing. Skarn alteration and mineralisation overprint these deformation fabrics.

Traditionally the sulphide lenses or lodes at King Vol were interpreted as being localised along fracture/shear zones developed along major lithological contacts, with variable amounts of skarn alteration the mineralisation. The structurally controlled ore lenses are typically thin and tabular, ranging in thicknesses between 1 m and 4 m, but locally exceeding 12 m. There is a high degree of pinching and swelling along strike and down dip. The lode along the contact between the ELST Unit and the ISH Unit is the most persistent, with a delineated strike extent of approximately 400 m and a dip extent of approximately 800 m. Prior to CSA's work, mineralisation intersected by drilling away from the contact zones was interpreted as sub-parallel splays conformable to the nearby contact.

The sulphide assemblages are variable combinations of sphalerite (Sph) (pale honey to brown to black, very rare white), chalcopyrite (Cpy), galena (Gal), pyrite (Py), marcasite, with locally appreciable pyrrhotite and arsenopyrite. Some of the high-grade zinc massive sulphide lenses are overwhelmingly sphalerite with very little other sulphides.

The sulphide lode names used below have been updated from names used in the Mungana Project Bankable Feasibility Study to be consistent with nomenclature adopted by Auctus after the work of CSA in 2019. The descriptions of the controlling structures and the names for each lode (Figure 4-6) are from the work by CSA (2019b).

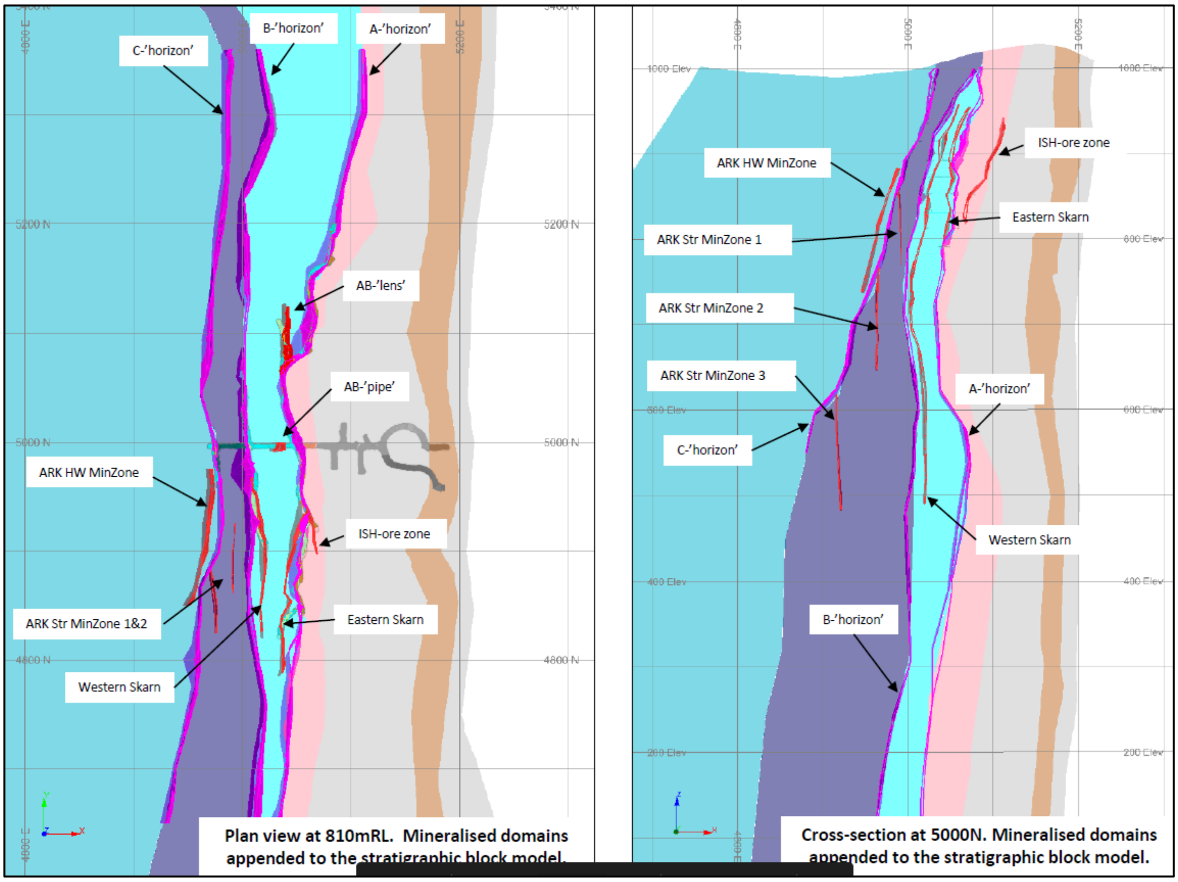


Figure 4-6: King Vol ore zones

Source: CSA Global (2019a)

As illustrated in Figure 4-4, CSA observed that the mineralisation and structure commonly deviate from the contact positions. Some of this is due to the network of faults and bends in faults. Early skarn alteration likely complicates the structural framework, as younger structure is likely to exploit skarn contacts as well as primary stratigraphic contacts.

In general, CSA also observed that wider mineralisation (>1 m) lodes at King Vol occur in lensoidal shoots with strike extents less than approximately 20 m, based on his underground observations and qualitative review of Auctus's underground geological mapping.

The following mineralisation settings have been identified at King Vol:

- Structurally deformed stratigraphic trap sites as lenses along the main contacts (aoz, boz, coz)
- Structurally controlled domains adjacent and between the main stratigraphic contacts as lenses (skeoz, skwoz, aboz, ishoz, ark_hw)
- Imbricated fault surfaces within the arkose as lenses (ark_min1, ark_min2, ark_min3)
- Intersection of NNE and NNW faults within the ELST as a pipe (ab_pipe).

ISH Ore Zone (ishoz)

The ishoz occurs proximal to the A-horizon where the NNW trending ISH structure transgresses the ISH Unit. Stage 2/3 in Figure 4-4 shows the significant lateral continuity of the ISH structure as it continues through the ISH Unit to the fault-intersection mineralisation (skeoz, skwoz, and ab_pipe) in the ELST Unit. The ishoz lens has limited depth extent and has been mined out above the 800 mRL level.

A-horizon Ore Zone (aoz)

The aoz contains the bulk of the ore-grade mineralisation and is typically zinc rich, with appreciable copper and low lead content. It consists of a single tabular sulphide body emplaced along the ELST/ ISH contact. Sphalerite is the most common sulphide mineral present and can occur with higher iron content in the form of marmatite. Copper is generally in the form of chalcopyrite and the minor amount of lead is present as galena. CSA has identified higher grade and wider mineralisation associated with steeply pitching bends in the ISH/ ELST contact.

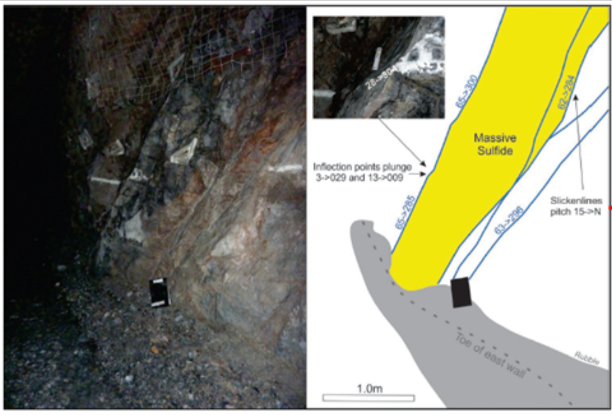
The complex form of the aoz mineralisation (bright yellow colour) is shown in the northern lodes depicted in Figure 4-7. Auctus's backs mapping of the ISH (pale pink) and WLST (pale blue/ green) contact is also shown. In Figure 4-8, CSA describes the aoz sulphide lens as structurally bounded and comprising an internal zonation from Py-Cpy to Sph-Py-Cpy to Sph on the wings. Previously the aoz was named the Eastern Mineralised Contact Zone (EMCZ) in older Auctus reports.

AB Lens Ore Zone (aboz)

The aboz occurs at the ISH fold as a dilational breccia along an early shear zone. Figure 4-8 shows the location of the aboz as the bright yellow coloured lens in the northwest associated with pale yellow coloured skarn alteration within the ELST Unit. The bright yellow coloured mineralisation in the northeast is the aoz.

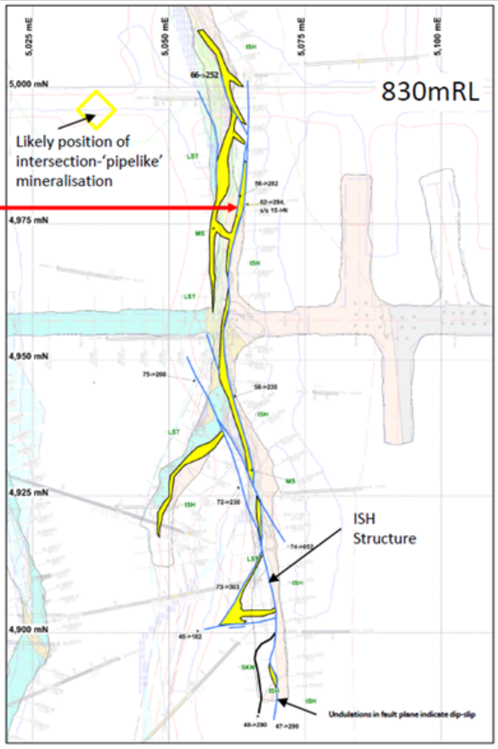
Eastern and Western Skarn Ore Zones (skeoz and skwoz)

The skeoz and skwoz comprise several lenses of sulphide that are associated the NNE and NNW faults and the contact with areas of increased skarn alteration which occur entirely within the ELST Unit. They generally occur 10–25 m from the contact with the ISH or ARK units. The sulphide mineral assemblage is the same as the aoz. The lenses occur where the ELST Unit thins towards the south of the mine. These lenses are of limited strike extent, with higher grades and wider widths formed where they converge with the aoz or boz. The skeoz and skwoz were previously named the Eastern Mineralised Replacement Zone (EMRZ) in Auctus reports.



Photograph and sketch looking NNE, 830A-Nth drive.
Fault-bounded massive sulphide with strike-slip indicators from fault undulations and slickenlines.

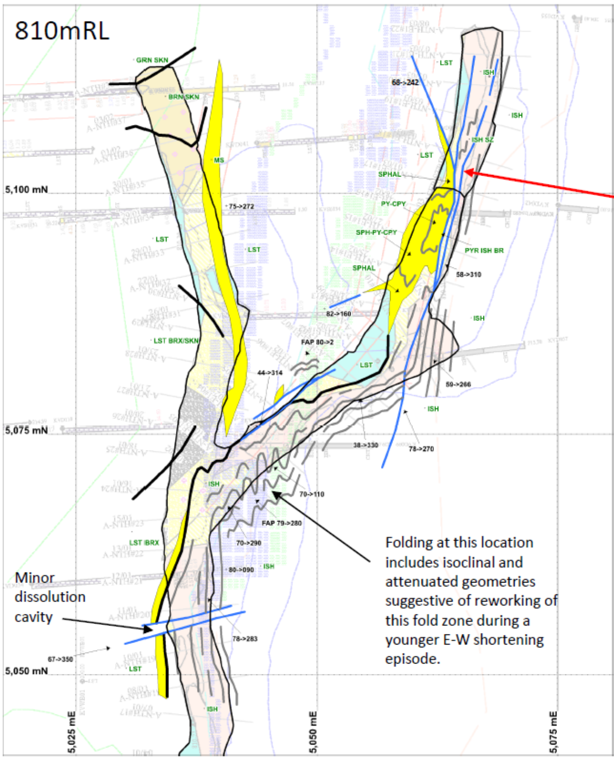
- Movement indicators related to mineralisation are ambiguous. Both dextral and sinistral dilation bends and jogs are apparent.
- Linking mineralisation in the north of the map (right) is suggestive of sinistral movement whereas the right-lateral bend appears to have dilated during dextral movement.
- The apparent dextral control is considered an artefact of minor reverse movement and sinistral reactivation of the structures synchronous with hydrothermal activity is inferred.



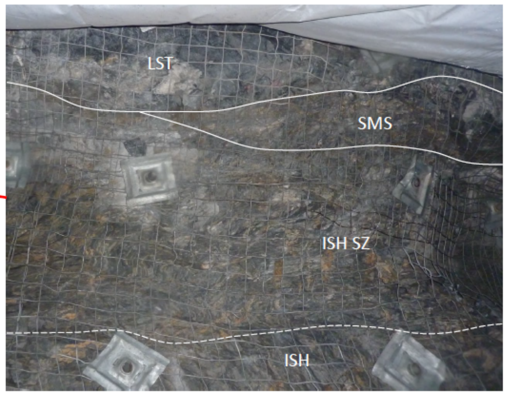
Southern end of the 830mRL level.
Mapping appended to the existing Auctus backs mapping.

Figure 4-7: Movement indicators on the aoz

Source: CSA Global (2019b)



Northern end of the 810mRL level.
Mapping appended to the existing Auctus backs mapping.



Photograph looking up at backs. Top of image is west, bottom is east.
See text below for discussion.

- Above, the ISH contact is distinctly deformed (shear zone in this locality, breccia in the footwall of the sulphide lens to the immediate south) with an apparent dextral movement sense. The ISH BRX/SZ becomes pyrite mineralised in the footwall of the sulphide lens.
- The sulphide lens is structurally bounded and comprises an internal zonation from Py-Cpy to Sph-Py-Cpy to Sph on the wings.
- The western sulphide lens (as mapped on 890mRL level – Murphy (2018)) occurs as an extensional vein/breccia exploiting the earlier ductile fabric.

Figure 4-8: Mineralisation proximal to the 'ISH fold'

Source: CSA Global (2019b)

B-horizon Ore Zone (boz)

The boz cccurs on the contact between the Arkose Unit and the Eastern Limestone Unit. CSA has associated high-grade mineralisation with the intersection of NNE and NNW faults with the boz. The boz was previously named the Western Mineralised Zone (WMZ) in Auctus reports.

C-horizon Ore Zone (coz)

The coz mineralisation is most evident from 4900N to 5000N along and adjacent to the WLST/ ARK contact. It comprises sporadic moderate and high-grade zinc-lead mineralisation. CSA identified areas of structural complexity along the coz where the mineralisation does not conform to the contact (Figure 4-9). CSA interpreted that the higher grade and wider mineralisation areas within the coz are likely to be associated with the intersection of the contact and earlier imbricated faults in the Arkose Unit. The coz was previously named the King Vol Zone (KVZ) in Auctus reports.

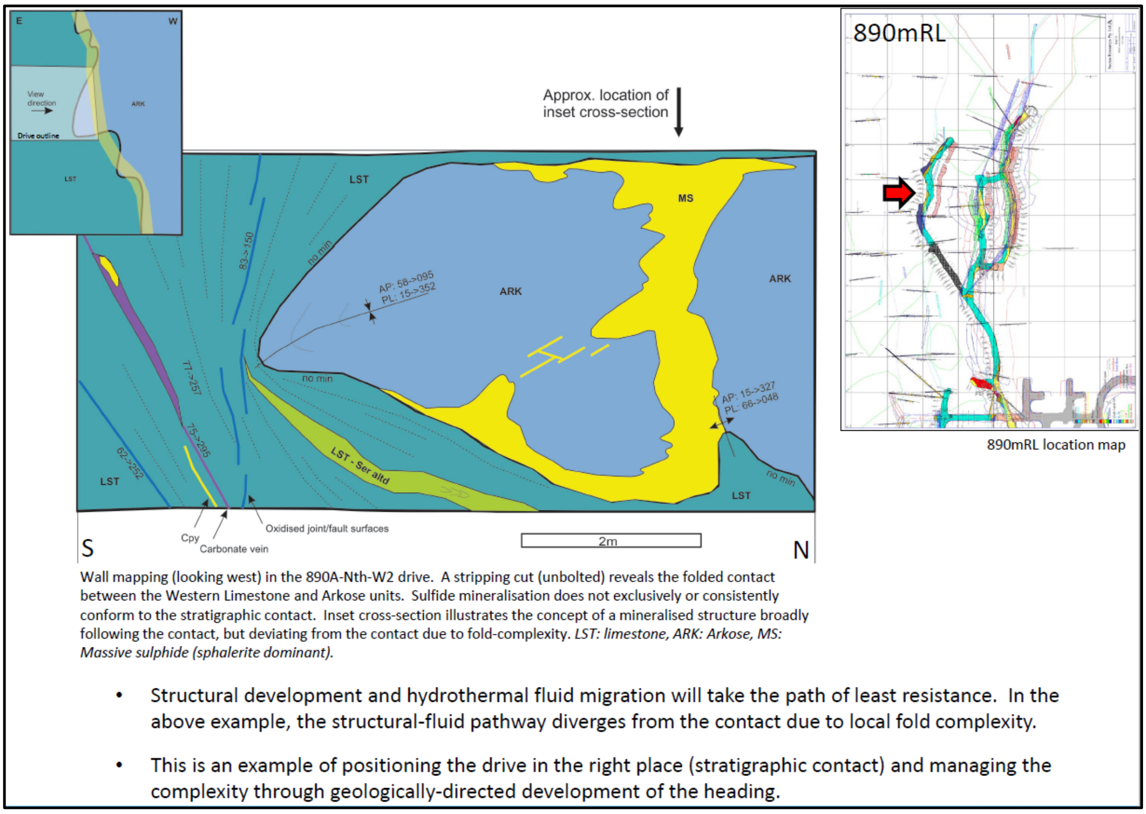


Figure 4-9: Irregularities in the coz setting

Source: CSA Global (2019b)

A-B Pipe (ab_pipe)

The ab_pipe massive sulphide mineralisation occurs as a discrete intersection between an NNE trending fault and the NNW trending ISH structure within the ELST Unit. CSA mapped this pipe-like massive sulphide mineralisation on the 810 RL (Figure 4-10), 850 RL (Figure 4-11) and 910 RL levels. The interpreted position of the ab_pipe on the 830 RL level is shown in Figure 4-7. This localisation has formed significant mineralisation where it has been mined and CSA suggests that other pipe-like massive sulphide bodies may be present in the ELST Unit where the ISH structure intersects with other NNE faults.

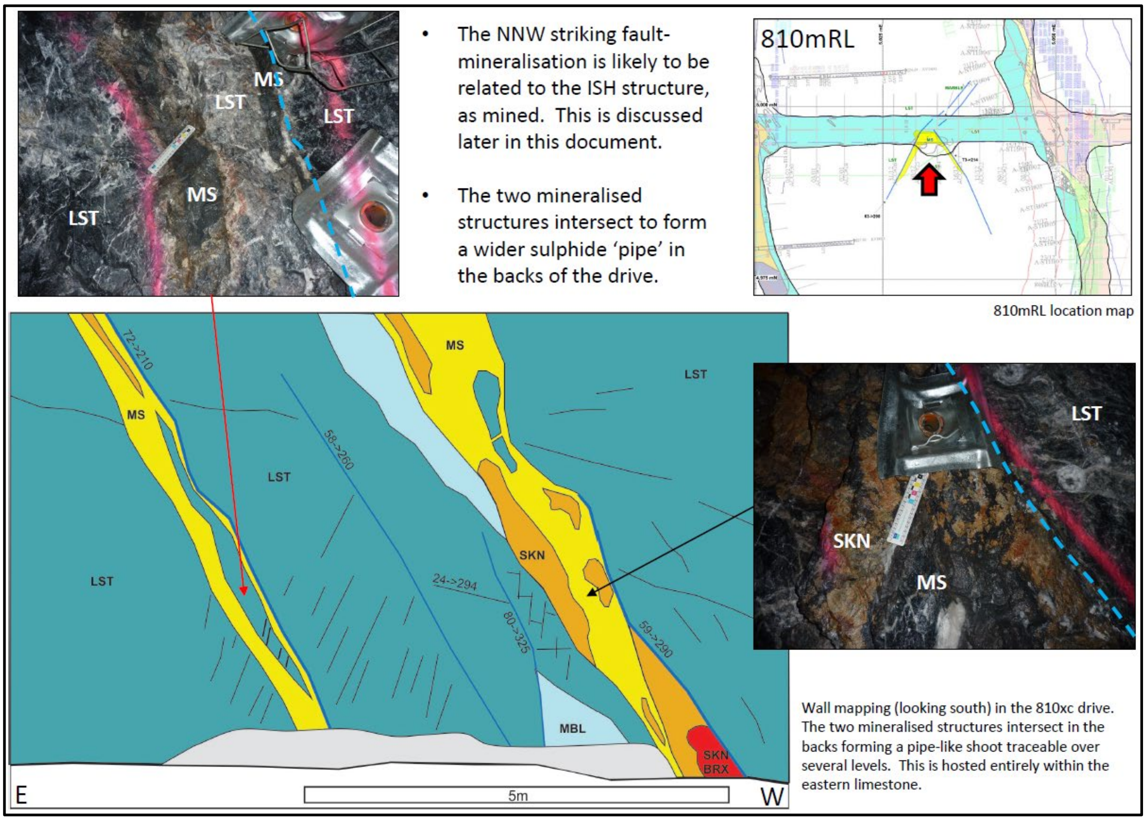


Figure 4-10: AB pipe mineralisation

Source: CSA Global (2019b)

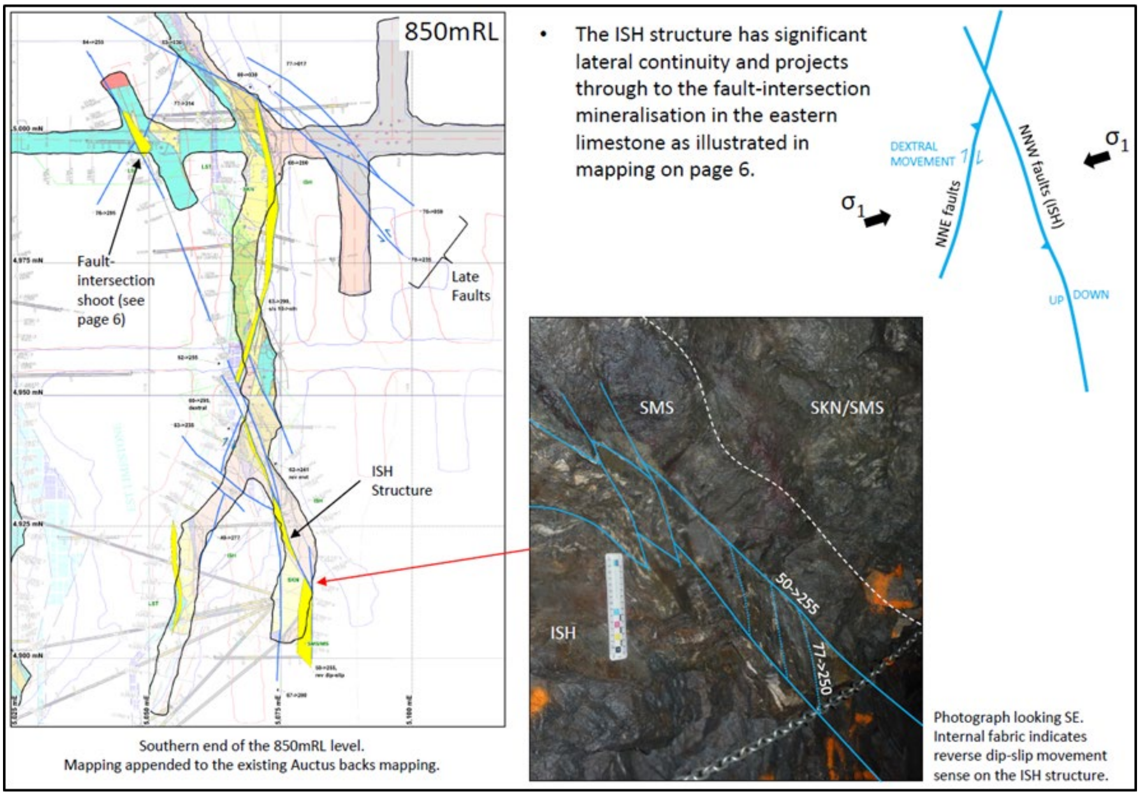


Figure 4-11: Lateral continuity of the ISH structure

Source: CSA Global (2019b)

Arksose Hangingwall Ore Zone (ark_hw)

CSA has interpreted this discrete lens as an apparent embayment (deformation related) in the hangingwall of the Arkose Unit.

Arkose 1, 2 and 3 Ore Zones (ark_min1, ark_min2, ark_min3)

The thickening of the Arkose Unit is interpreted as a result of imbricate thrust stacking. These early structures are subsequently mineralised.

Other: Cavity fill and cavities

Recent cavity fill is extensive over the King Vol deposit where broad low-grade oxide mineralisation is present in the top 100 m. The cavities range from centimetres to a few metres wide. Dissolution of limestone is most pronounced along all contacts with the other major units. Infill is typically very clay rich, with varying proportions of highly weathered arkose, skarn, gossan and chert clasts. It usually carries highly anomalous zinc, copper and lead, and, locally, spectacular silver grades (up to 795 ppm over 1 m from 68 m depth in KVP034). Dissolution of limestone can be directly attributable to weathering of sulphides.

5 Project Data and Validation

The 2020 Mineral Resource estimate was prepared using data acquired from reverse circulation (RC), diamond drill core (DDH), reverse circulation drillholes with diamond drillhole tails (RCD) and underground diamond core (UGDD) from drilling programmes conducted between 1989 and 2019 (Table 5-1). Approximately 87% of the drillhole data has been collected since 1999 when Kagara acquired the project.

Table 5-1: King Vol drilling summary

Company	Year	DD		RCD		RC		UGDD		Total	
		Number of holes	Total metres	Number of holes	Total metres	Number of holes	Total metres	Number of holes	Total metres	Number of holes	Total metres
BP	1989					11	522.0			11	522.0
Aztec	1990			11	3,226.9	10	1,024.0			21	4,250.9
	1991			7	2,346.3					7	2,346.3
	Subtotal	0	0.0	18	5,573.2	10	1,024.0	0	0.0	28	6,597.2
Perilya	1992			6	1,795.0					6	1,795.0
Kagara	1999			2	756.3					2	756.3
	2001	1	252.2	11	2,762.8	27	3,055.0			39	6,070.0
	2002	6	1,081.2			4	435.0			10	1,516.2
	2006	18	6,550.8			1	114.0			19	6,664.8
	2011	64	21,359.2			15	2,754.0			79	24,113.2
	2015					1	135.0			1	135.0
	Subtotal	89	29,243.4	13	3,519.1	48	6,493.0	0	0.0	150	39,255.5
Atherton	2015	20	8,138.1	3	593.2	6	727.0			29	9,458.3
	2016					4	299.0			4	299.0
	Subtotal	20	8,138.1	3	593.2	10	1,026.0	0	0.0	33	9,757.3
Auctus	2016	14	2,816.2			1	35.0			15	2,851.2
	2017	2	151.9	7	1,471.4	21	1,802.0			30	3,425.3
	2018	2	1,192.2	15	5,638.2			24	1773.4	41	8,603.8
	2019							27	4579.6	27	4,579.6
	Subtotal	18	4,160.3	22	7,109.5	22	1,837.0	51	6353.0	113	19,459.9
Total		**127**	**41,541.8**	**62**	**18,590.0**	**101**	**10,902.0**	**51**	**6353.0**	**341**	**77,386.9**

Face mapping and sampling data from underground development drives and drillhole logging and sludge sampling from long-hole open stope drilling have also been used to update each of the mineralisation models but have not been used in the grade estimates (Table 5-2). Face samples from the development drives and sludge samples from the long-holes were analysed at the onsite laboratory and are used to identify localised ore and waste contacts in development drives and production stopes and grade control estimates; however, both sampling methods are often prone to sample bias and/or cross-sample contamination.

Table 5-2: Summary of additional sampling (not used in Mineral Resource estimate update)

Year	Face		Sludge	
	Number of holes	Total metres	Number of holes	Total metres
2017			21	374.7
2018			72	1,624.4
2019	193	987.4	198	3,984.9
2020	24	99.9	36	525.6
Total	**217**	**1,087.3**	**327**	**6,509.6**

SRK has compiled the technical details of the King Vol data collection programs using the following sources of information:

- Auctus's 'Mungana Project Bankable Feasibility Study', dated January 2018 ('the MPBFS study')
- 2016 Mineral Resource estimate complete by external consultants International Resource Solutions Pty Ltd ('the IRS Mineral Resource estimate')
- Auctus's Standard Operating Procedures (SOPs), which SRK understand have remained consistent since Kagara was progressing the project:
  - 03 Percussion (RC) Sampling
  - 04 Drill Core Bulk Density Measurements
  - 07 Basic Geotechnical Logging Procedure
  - 08 Core Orientation and Metre Mark Up
  - 12 Core Cutting and Sampling Procedure.

SRK note that there are no Auctus SOPs to control how sample and drillhole location data are collected and validated. Auctus comments in it 2018 MPBFS study that it relied on the professionalism of the operators, at the time, to collect 'industry standard' data.

SRK was supplied with an export from Auctus's MinRep data management software which links to a DataShed SQL database backend. The file, AllDHData_KingVol202003061129.accdb ('the KV Database') contained metadata and comment fields that are not exported to the standard 'Surpac Database' used by the King Vol exploration and mine geologists. SRK also had extensive personal communications with Auctus staff. The information SRK presents in the sections below is only that which is pertinent to SRK being able to make a quality assessment of the data used to inform the Mineral Resource estimate update.

5.1 Drill programs and primary sampling

Drilling programs have been conducted at King Vol by various companies since 1989. Surface RC, DDH and RCD drillholes were typically drilled with a dip of -60˚ towards the east (King Vol mine grid) intersecting the mineralisation at right angles (Figure 5-1). UGDD holes were drilled from underground drill platforms at a variety of angles towards the west (or from the mining footwall through the mining hangingwall). Due to the limited location of the various drill platforms, some of the UGDD holes intersect the mineralisation more obliquely.

The drillhole spacing in areas directly adjacent to the current underground workings is approximately 25 mN × 25 mRL and opens up to greater than 100 mN × 100 mRL to the north, south and west.

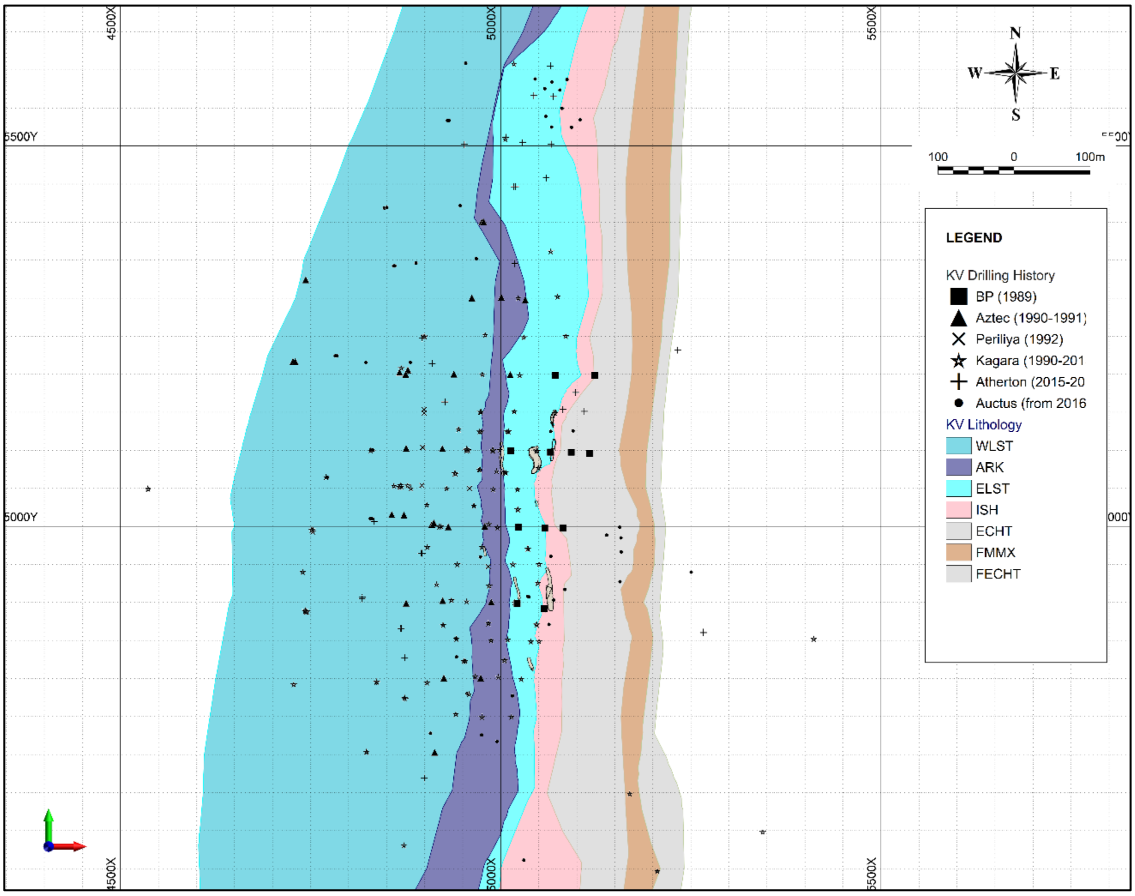


Figure 5-1: Drillhole location plan over lithology and stope development on 830 RL level

BP Minerals drilling: 1989

The first RC drillholes into the King Vol deposit targeted the brecciated gossan of the aoz along the ELST/ISH contact. Drillholes KVP001 to KVP011 had depths between 29 m to 60 m. Difficult drilling conditions were reported, with broken ground and cavities causing four of the holes being stopped prior to target. The KV database listed the drilling contractor as Rockdril C and the drill rig as Hammertrak. BP Minerals drilled 11 holes for 522 m.

Aztec drilling: 1990–1991

Aztec completed 10 RC and 18 RCD drillholes to target deeper primary mineralisation. Rockdril C completed the 10 RC holes using a Rotomac drill rig whereas the 18 RCD holes were completed by various drilling companies using either a Warman 650 or Warman 1000 drill rig. The RCD holes had a 5.5” RC collar and NQ-sized diamond tail.

Perilya drilling: 1992

The six RCD holes completed by Perilya had a 5.5” RC collar and NQ-sized diamond tail.

Kagara drilling: 1999–2015

Kagara commissioned over half of the half of the drill metres completed at King Vol with nearly one third of the total drill metres completed in 2011. Eight companies had a variety of drill rigs operating on site during these programs, with most of the drilling undertaken by Drill Torq and DDH1. Most of the diamond drilling was NQ2-sized core; however, the RCD holes had an HQ-sized pre-collar and HQ-sized diamond tail. RC drillholes were completed using 5.25’ hammer.

Atherton drilling: 2015–2016

DDH and RCD diamond tails were NQ2-sized diamond core with RCD holes pre-collared using HQ3-sized rods. RC drillholes were completed using a 5.5’ hammer on a multi-purpose UDR1200 rig.

Auctus drilling: 2016–present

The UGDD drilling was completed by HRM using two drilling rigs; DD32_LM30SS generating LTK60-sized core and Rig33_LM90 generating NQ2-sized core. The RC and diamond core drilling from surface were completed by AED using a variety of drill rigs. The diamond core was NQ2 size with either a 5.5” RC or HQ3-sized pre-collar.

5.2 Surveying control

Aztec established a local mine grid across the King Vol deposit that was offset 51.5° east of magnetic north. This mine grid was aligned so that the strike of the main mineralised lodes is approximately north–south.

5.2.1 Drillhole location

In 2002 Kagara engaged Brazier Motti, licensed surveyors from Cairns to re-survey all the historical drillholes collars (KVD001–KVD048 and KVP001–KVP051) using a total station survey. Of the 99 drillholes, 29 could not be located at that time.

Drillholes completed between 2002 and 2006 were surveyed by Brazier Motti (Cairns), or Stan Lowe Surveying of Cooktown. In 2006, Stan Lowe Surveying devised a grid transformation for the King Vol local grid to MGA94. This allowed Kagara to check the local co-ordinates of the older holes transferred to MGA94 against the surveyed co-ordinates provided by Brazier Motti. The accuracy of the transformed local co-ordinates versus the Brazier Motti surveys gave Kagara have a high level of confidence in the position of the 29 collars that it could not locate.

In 2015, all historical collar locations for holes completed between 1989 and 2007 were re-surveyed by licensed surveyors using a differential GPS.

For holes drilled between 2007 and 2012, collar locations were picked-up by Kagara staff surveyors using a Trimble RTK GPS unit, or using a Trimble S6 Total Station once survey control was established.

The drillholes completed in the 2015 drill program were surveyed by Stan Lowe Surveying using a differential GPS.

Recent drillholes from surface have been surveyed by the Auctus staff surveyors.

All collar locations were recorded in the Auctus SQL database. Since 2016, collars have been surveyed by Auctus surveyors using RTK GPS or Total Station (Table 5-3).

Table 5-3: King Vol collar survey methods

Drillhole type	Collar survey type	Number of surveys
DDH	Estimate	2
	GPS	1
	RTK GPS	74
	Total Station	42
	Total Station?	8
RC	Estimate	1
	GPS	1
	RTK GPS	33
	Total Station	64
	Unknown	2
RCD	Estimate	1
	RTK GPS	18
	Total Station	41
	Unknown	2
UGDD	Setout	1
	Total Station	50

SRK validated the King Vol drillholes that collared from the surface against the topographic surface. Of the 290 collars checked, 22 had elevations that were greater than +/-1.0 m from the supplied topographic surface elevation (Table 5-4). Auctus confirmed the collar locations for these drillholes were correct, with differences attributed to drill pad preparation.

Table 5-4: Primary sampling size and method

Hole ID	Easting (m)	Northing (m)	RL (m)	Topography RL (m)	*RL Difference*	*Action*
KVD011	4875.00	5200.00	1010.00	1006.56	-3.44	checked
KVP091	5037.00	4907.19	1002.75	1005.74	2.98	checked
KVP093	4888.62	5346.20	1004.63	1001.87	-2.76	checked
KVP088	5035.51	4907.92	1002.74	1005.21	2.46	checked
KVD162	5030.52	4561.20	990.73	988.57	-2.15	checked
KVP087	5069.65	4903.16	1013.73	1015.77	2.03	checked
KVP103	5087.10	5587.41	990.44	988.62	-1.82	checked
KVP001	5056.99	4891.99	1009.11	1010.76	1.65	checked
KVP083	5109.94	5151.23	1023.00	1024.51	1.51	checked
KVP084	5081.75	5153.85	1018.30	1019.80	1.50	checked
KVP048	5056.53	4890.69	1008.97	1010.41	1.44	checked
KVP086	5065.94	4960.64	1014.20	1015.63	1.43	checked
KVP089	5084.32	4917.18	1019.47	1020.81	1.35	checked
KVP002	5021.57	4898.96	1000.45	1001.64	1.19	checked
KVP043	5023.02	5000.15	1003.81	1005.00	1.19	checked
KVP058	5211.13	4322.40	1006.82	1005.65	-1.17	checked
KVP090	5063.47	4871.03	1010.23	1011.39	1.16	checked
KVP050	5050.39	4848.74	1005.95	1007.08	1.13	checked
KVGT008	5250.45	4939.84	1000.91	1002.00	1.10	checked
KVP045	5050.44	4950.29	1009.32	1010.36	1.04	checked
KVD093	5022.76	5022.36	1004.74	1005.76	1.02	checked
KVP005	5023.44	4998.94	1004.04	1005.05	1.01	checked

5.2.2 Downhole surveying

All drillholes have been surveyed using by industry standard methods since the commencement of drilling on the project (Table 5-5). Early holes used the Eastman single-shot camera, and the original discs are still available. In 2006, Kagara examined all the downhole survey discs and adjusted any spurious readings. Most of these were in RC holes or pre-collars from shots taken within the steel rods. Dummy azimuths were inserted where appropriate. From KVD032 onwards, stainless steel rods were used, and the single shots appear to be more reliable. Kagara used an ER single-shot digital camera for the 2004 and 2006 drill programs (holes KVD055–KVD071). A digital multi-shot camera was used in the 2011 and 2015 drilling programs.

Table 5-5: King Vol down hole survey methods

Drillhole type	Downhole survey type	Number of surveys
DDH	Eastman single-shot	7
	ER Simple Shot	19
	ER Simple Shot/Eastman single-shot	1
	ER Simple Shot/Ranger explorer multi-shot	2
	Gyro	2
	None	3
	Pathfinder multi-shot	3
	Ranger camera - unknown model	6
	Ranger explorer multi-shot	60
	Reflex single-shot tool	3
	Relfex multi-shot tool	1
	Unknown method	20
RC	Eastman single-shot	50
	None	24
	Reflex digital camera	1
	Unknown method	26
RCD	Digital camera	2
	Eastman single-shot	36
	Estimated azimuth, Eastman single-shot for dip	1
	Gyro	2
	None	1
	Reflex camera - unknown model	2
	Reflex digital camera	4
	Reflex EZ-Trac	4
	Reflex Gyro	7
	Unknown method	3
UGDD	None	2
	Reflex EZ-Trac	49

Auctus estimates that between 10 and 15 drillhole breakthroughs (J Cullen, 24 March 2020, personal communication) could be surveyed underground to provide an indication of the accuracy of the downhole survey data. At the time of this report four underground pickups of the breakthoughs had been entered in Auctus’s Breakthrough Register and the plan and vertical separations calculated (Table 5-6).

Table 5-6: King Vol drillhole breakthrough register

Hole No.	Slope distance	Plan distance	Vertical distance	Level	Depth downhole	Drill campaign	Drilled from
KVUD048	0.714	0.703	-0.029	690	128.4	Auctus UGDD 2019	SP11
KVD013	1.127	0.334	0.678	690	347.0	Aztec DD 1991	Surface
KVP042	1.123	1.12	-0.131	910	104.1	Kagara RC 2001	Surface
KVD027	1.123	1.031	0.099	910	93.0	Perilya DD 1992	Surface

5.2.3 Topographic survey

In December 2005, AAMHatch Pty Limited (AAM) flew aerial photography over King Vol to obtain a detailed topographic surface. AAM produced digital terrain model (DTM) surface and contours with data accuracies as shown in Table 5-7. AAM noted the DTM and contours were intended for use in planning and conceptual design at a scale of greater than 1:5,000.

Table 5-7: King Vol topographic survey accuracy

Item	Measured point	Derived point	Basis of estimation
Ground control	0.05 m		Survey methodology used
Horizontal data	0.25 m	0.40 m	Project design
Vertical data	0.15 m	0.25 m	Project design

Source: AAM

5.3 Laboratory sample preparation, assaying and QA/QC

Several different sample lengths have been used during the various drilling programs. Sample lengths from within the Ore Zones range from 0.1 m to 7.6 m with approximately 65% of the samples ≤1 m in length and 90% of the samples ≤2 m in length.

Sampling information for the mineralised samples intervals are summarised in Table 5-8. Approximately 98% of the mineralised DDH samples submitted were from half (93%) or quarter (6%) cut NQ- or LTK60-sized diamond core. Approximately 51% of the mineralised RC samples were collected using a three-tier riffle splitter with the rest collected using a spear or from grab sampling.

Remnant DD core is stored in core trays and remnant RC chips are stored in trays for future reference either on site or at the coreshed/ logging facility in Chillagoe.

Various laboratories have been used to prepare, sub-sample and analyse the King Vol samples. The laboratories and assaying methods used that were stated in the 2018 Mungana Project Bankable Feasibility Study report - Part 11 Sampling Method, are summarised in Table 5-9.

SRK notes that there are inconsistencies between the text descriptions of the various laboratory sample preparation and analysis as documented in the Bankable Feasibility Study report - Part 11 and metadata stored in the King Vol database (Table 5-10). SRK was unable to resolve these inconsistencies and was therefore unable to assess any bias between the laboratory methods for the submitted samples. SRK does not consider the inconsistencies are a material concern.

SRK notes that ALS, Analabs, Ammtec, Intertek and SGS are all independent commercial laboratories that have National Association of Testing Authorities (NATA) accreditation.

Table 5-8: King Vol – mineralised intervals - primary sampling method and size

Company	Primary sample size	DDH core sampling method			RC chip sampling method			Total
		Cut core	Fillet	Grind	Splitter	Spear	Grab	
BP Minerals	Chips (unknown)					39		**39**
Aztec	Chips (unknown)					7		**7**
	NQ core (¼)	9	8	5				**22**
	NQ core (½)	110						**110**
Perilya	Chips (1/8)				9			**9**
	NQ core (¼)	3	3					**6**
	NQ core (½)	18						**18**
Kagara	Chips (1/8)				83	14	7	**104**
	Chips (unknown)				1	62	40	**103**
	NQ core (¼)	60						**60**
	NQ core (1/3)	2						**2**
	NQ core (½)	458						**458**
Atherton	Chips (1/8)				30			**30**
	NQ core (½)	184						**184**
Auctus	Chips (1/8)				56			**56**
	NQ core (½)	90						**90**
	LTK60 core (½)	250						**250**
Total		**1,184**	**11**	**5**	**179**	**122**	**47**	**1,548**

Table 5-9: King Vol – assay laboratories and assaying method

Company	Primary laboratory			Check laboratory		
	Laboratory		Method	Laboratory		Method
BP Minerals	BP	Perth	BM mixed acid ICP			
Aztec	Analabs	Cairns	GA101, GA104	Analabs	Perth	406
				ALS	Brisbane	A101, A030-2
Perilya	Analabs	Cairns	GA101, GA104, GA107			
Kagara	ALS	Townsville	ME-ICP61			
	SGS	Townsville	Unknown	ALS	Townsville	ME-ICP61
	Ammtec	Unknown	S032, I101-ICP0ES, I245-ICP ore			
Atherton	ALS	Townsville	ME-MS61, OG62, IR08			
Auctus	ALS	Townsville	ME-ICP61			
	Auctus	Chillagoe	MP-AES	ALS	Townsville	ME-ICP61
	Intertek	Unknown	SP13, 4A/OE33, CSA02			

Source: Mungana Project Bankable Feasibility Study report - Part 11 Sampling Method

Table 5-10: King Vol – assay laboratories and assaying method

Company	Laboratory		Primary Samples
BP Minerals	BP	Perth	Au ARD AAS, BM mixed acid ICP
Aztec	Analabs	Cairns	Cu Pb Zn Ag As-GA101
			Cu Pb Zn Ag As-GA101 GA104 GA107
			Cu Pb Zn Ag As-GA101 GA107
			Cu Pb Zn Ag As-GA101, Ag-GA107
Perilya	Analabs	Cairns	Cu Pb An Ag As-GA101, Zn-GA104
			Cu Pb Zn Ag As Bi Mo-GA101, Au-GG309, Sn W-GA401
			Cu Pb Zn Ag As-GA101
			Cu Pb Zn Ag As-GA101 GA104 GA107
			Cu Pb Zn Ag As-GA101, Pb-GA104, Ag-GA107
	Unknown (12)	Unknown	Unknown – assumed to be Analabs in Cairns
Kagara	ALS	Townsville	Unknown
	AMMTEC	Unknown	Unknown
	Analabs	Townsville	S032, I101-ICP0ES, I245-ICP ore
	Kagara	Chillagoe	MP-AES
	SGS	Townsville	Unknown
	Unknown (2626)	Unknown	XRF sample analysis
Atherton	ALS	Townsville	ME-ICP61/Au-AA25
			ME-ICP61
Auctus	ALS	Townsville	ME-ICP61/Au-AA25
			ME-ICP61/Au-AA26
			ME-ICP61+Sn
			ME-ICP61+Sn/Au-AA25
	Intertek	Unknown	ME-ICP61+Sn
			SP13, 4A/OE33
			SP13, 4A/OE33, CSA02, FA25AA
	Auctus	Chillagoe	AES
			MP-AES
			MP-AES, Au-AAS

BP Minerals 1989

Samples were sent to the BP Minerals's laboratory in Perth. There is no record of the sample preparation method. Analysis of copper, lead, zinc and silver were carried out by inductively coupled plasma (ICP) mixed acid digest, while gold was analysed by aqua regia digest.

Aztec and Perilya 1990–1992

Samples generated by Aztec and Perilya were sent to Analabs in Cairns for sample preparation and analysis. There is no record of the sample preparation method on the result sheets available from Analabs; however, based on information from later years it is reasonable to assume that the core samples submitted were generally less than 3 kg, and they would have been dried, then crushed through a jaw crusher. Diamond and RC samples would then have been ground in a ring grinder to a nominal 75 µm size.

Analysis of copper, lead, zinc and silver were carried out by method GA101, which was a perchloric, nitric acid digest with an atomic absorption spectroscopy (AAS) finish. This method had lower detection limits of Cu (4 ppm), Pb (5 ppm), Zn (4 ppm), Ag (2 ppm) and As (100 ppm) recorded in documentation. For samples where copper, lead, zinc and or arsenic values were above 10,000 ppm, the sample was re-assayed by method GA104, an ore grade acid digest with AAS finish which has lower detection limits of 0.005% for copper, lead, zinc and 1 ppm for silver.

If the Perilya samples had silver grades above 20 ppm, the samples were re-assayed by method GA107, an ore-grade perchloric, nitric acid digest with an AAS finish, with the addition of ammonium acetate.

Aztec sent pulps from KVD006 to ALS Brisbane for check assays on the high-grade zinc samples. The ALS results were analysed by method A101, an unknown acid digest and AAS finish. The results were consistently lower than the original Analabs results. ALS re-analysed the pulps by method A030-2, a perchloric acid digest and AAS finish, which brought the results much closer to the original. Aztec also sent the samples across to Analabs in Perth for zinc analysis by method 406, glass fusion followed by x-ray fluorescence (XRF). These results were consistently lower than the originals, but higher than the ALS A101 method. No final conclusions could be made on the best method of analysis for the high zinc grades.

Very little work was done by Aztec on elements other than copper, lead, zinc and silver. Some high-grade copper and zinc samples in KVD006 were assayed for gold by method 329, a 30 g aqua regia digest. In the first diamond drilling program, Aztec also assayed selected samples for iron, zinc, antimony and arsenic by method 406 (XRF), cadmium and bismuth by method I104 (acid digest and AAS finish) and mercury by method 122 (whole vapour digest).

Kagara 1999–2015

Samples generated by Kagara were sent to several laboratories for sample preparation and analysis between 1999 and 2015.

Samples were sent to ALS laboratories in Townsville in 1999 and 2001. Sample preparation included crushing and pulverising the whole sample, such that >85% of the sample was <75 µm, before splitting off the portion for analytical determinations. In 1999, samples were assayed for copper, lead, zinc and silver by method G001, a perchloric acid digest, with an AAS finish, and for arsenic by method G003, also a perchloric acid digest, with an AAS finish. Samples were analysed for gold by fire assay method PM209, using a 50 g charge, aqua regia digest and AAS finish. Samples with >1% Cu, Pb or Zn, or >25 ppm Ag, were re-assayed by method GA101, a two-acid aqua regia digest with an AAS finish.

In 2001 samples were assayed for copper, lead, zinc, silver and arsenic using methods IC581 (for routine copper, lead, zinc, silver and arsenic analyses – aqua regia (nitric acid + hydrochloric acid) digest with ICP-AES finish, AI01 and for high grade (+1%) Cu, Pb, Zn and +30 ppm Ag – three acid digest (hydrochloric + nitric + perchloric acids) with AAS finish) and PM209 (for gold analyses – 50 g charge, lead collection, acid digest and AAS finish).

Samples were sent to Analabs laboratory in Townsville in 2001 and 2002. Analabs was subsequently acquired by SGS and samples were then sent to the rebadged laboratory in Townsville in 2004, 2006 and 2011.

Sample preparation included crushing and pulverising the whole sample, such that >85% of the sample was <75 µm, before splitting off the portion for analytical determinations.

Between 2001 and 2004, samples were routinely assayed for copper, lead, zinc, silver and arsenic using method GA101, which involved a perchloric acid digest with an ICP-OES (inductively coupled plasma-optical emission spectrometry) finish. Samples that produced strongly elevated values (>1%

Cu, Pb, Zn, As, >30 ppm Ag) were re-assayed for the elevated elements using method I245, which involved a triple-acid digest (hydrochloric-nitric-perchloric) with ICP-OES finish. Samples were also assayed for gold using method F650, which involved an acid digest and AAS determination. Checks were run on several samples, either by re-reading the digest or re-sampling the pulp. Results of these checks are presented in the database as Au(2) and Au(3), respectively.

Between 2006 and 2008 samples were routinely assayed for Cu, Pb, Zn, Ag, As, Sb, Bi, Mo, Co, Ni, and Cr using method ICP21R (perchloric acid digest, ICP-OES finish). Samples with high silver and base metal values were re-assayed using a triple-acid (hydrochloric-nitric-perchloric) digest, and either ICP (SGS Method ICP23Q) or AAS (Method AAS22D). One small batch of samples was also assayed for antimony, tin and tungsten by pressed pellet (5 g) XRF, SGS Method XRF5V. Gold was analysed by fire assay, with lead collection from a 50 g charge, acid digest and AAS finish (SGS Method FAA505). A similar suite of elements as described for the soils was analysed by SGS Method ICP21R. During the 2008 assaying a second scoop of pulp was taken every 20th sample for gold checks.

In 2011, samples were routinely assayed for Cu, Pb, Zn, Ag, As, Mo, Bi, Co, Ni, Cr, Cd, S and Au using the same assay methods employed in 2006–2008. After the receipt of preliminary results, selective samples were further assayed for antimony, tin, tungsten and tellurium by SGS Method IMS40Q, and specific gravity (SG) was determined by air pycnometer, SGS Method PHY03V.

Atherton 2015–2016

Samples generated Atherton were all sent to ALS laboratories in Townsville. Sample preparation involved drying, crushing to 5–6 mm and, if necessary, riffle splitting this material to 2.5–3 kg with 75% passing 6 mm. The sample was then pulverised in an LM5 bowl pulveriser, such that >85% of the sample was -75 µm size.

An initial 14-element standard analysis was carried out, with ore-grade analysis of zinc, copper, silver and lead at designated levels. The multi-acid digestion with hydrofluoric acid (HF), ICP-AES (inductively coupled plasma-atomic emission spectroscopy) and ICP-MS (inductively coupled plasma-mass spectroscopy) analysis (ME-MS61) was used to determine the 14 elements – Ag (0.01), Sb (0.05), As (0.2), Bi (0.01), Cd (0.02), Mo (0.05), Co (0.1), Cr (1), Ni (0.2), Cu (0.2), Pb (0.5), W (0.1), Zn (2) and S (0.01%). 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 25 mL. Elemental concentrations are measured using ICP-AES and ICP-MS.

Samples with results above the upper detection limits were re-assayed by various means as follows:

- Cu, Zn, As and Pb >10,000 ppm and Ag >100 ppm – by method OG62 by four-acid digest methods with ICPAES analysis
- Sulphur >10% – by method IR08
- Total sulphur – by LECO furnace and infrared spectroscopy.

Auctus from 2016

Auctus sent its exploration samples to ALS laboratory in Townsville for analysis in 2016 and 2017 before switching laboratories and sending its exploration samples to Intertek laboratory (unknown location) in 2018 and 2019. All the underground diamond drillhole samples completed in 2018 and 2019 were sent to Auctus's Chillagoe onsite laboratory for analysis, with selected check samples sent to ALS laboratories in Townsville.

The preparation and analysis techniques used at ALS in Townsville were identical to the techniques used for the Atherton samples analysed in 2015 and 2016, with addition of tin assays for some samples.

There is no record of the sample preparation techniques used at the Intertek or Chillagoe laboratories, although SRK assumes they were similar to the ALS methodology.

Samples submitted to Intertek were routinely assayed for Zn, Cu, Ag, Pb, As, Bi, Ca, Cd, Co, Fe, K, Mo, S, Sb, Sn and Te using a four-acid digestion followed by ICP-OES, while gold was assayed using a fire assay with a lead flux and an AAS finish.

Samples submitted to the Auctus's Chillagoe onsite laboratory were regular assayed for Zn, Cu, Ag, Pb, As, Cd, Fe, Sb using Microwave Plasma Atomic Emission Spectroscopy (MP-AES) and gold assay was done using a fire assay with a lead flux and an AAS finish.

5.4 Sample quality assurance, quality control

The descriptions of the QA/QC procedures adopted at King Vol, given below, are taken from Auctus's Part 11 Sampling Method, and Part 12 Data Verification reports that are part of the 2018 MPBFS study. Auctus's Standard Operating Procedures (SOPs) do not include instructions on monitoring or maximising sample recovery or representivity for each drilling technique. Auctus comments in its 2018 MPBFS study that it was reliant on the professionalism of the operators, at the time, to collect 'industry standard' data. SRK recommends amending drill sampling SOPs (No 3 and No 12) to include instructions on monitoring, quantitative measuring and maximising sample representivity (recovery) for the various drilling techniques.

5.4.1 Sample recovery

Sample recoveries have been recorded for 62% of the DDH drillholes and 92% of the UGDD holes in the King Vol geological database. Sample recoveries appear to be appropriate, with 97% of the measured intervals recording a core recovery greater than 95% (Table 5-11); however, SRK could not validate the core recovery data as the 'length of the recovered core' was not populated in the database.

SRK could not assess the representivity of the RC sampling as no sample recovery data were recorded in the database. SRK notes that the RC drilling is generally shallow and samples from these holes comprise a minor portion of the King Vol estimation dataset. SRK is of the opinion that any issues with RC sample representivity would not have a material impact the Mineral Resource estimate; however, SRK recommends that both RC and diamond core sample recovery data be collected for each sampling interval and recorded in the geological database for all future drill programs.

Table 5-11: Diamond core sample recovery data

Sample recovery	Recovery (DDH)		Recovery (UGDD)	
	Number of readings	Percentage of total readings	Number of readings	Percentage of total readings
Absent	304	-	20	
0-25% (Very poor)	3	0%	-	-
25-50% (Poor)	2	0%	-	-
50-75% (Fair)	7	1%	3	2%
75-95% (Good)	11	2%	1	1%
95-100% (Excellent)	668	97%	226	97%
Total	**691**	**100%**	**230**	**100%**

5.4.2 Certified reference materials and blank sample analysis

No certified reference materials (CRMs) or blanks were submitted prior to 2001.

Kagara started inserting three base metal CRMs into the sample stream in 2001 and 2002. The CRMs were sourced from Gannet Holdings and named STOCK, BM69 and BM70; however, no certificates for the CRMs are available. Kagara analysed the CRM assay results by comparing them to each CRM's mean values and reported that they were 'acceptable albeit with Zn and Ag on the somewhat high side'.

Between 2006 and 2008, Kagara used a custom CRM manufactured by Gannet Holdings named KAG-1. Kagara diluted this CRM by a half and a quarter, respectively, to form two other standards, KAG-2 and KAG-3. Although no standard deviation is available for KAG-2 and KAG-3, Kagara reported that approximately 90% of the analysis for these material falls within ±10% of the mean grades. Only five analyses for the original CRM, KAG-1, were completed.

In 2011, Kagara used three different CRMs – KABM07-1 (unknown source) and OREAS36 and OREAS134a source from OREAS Pty Ltd. The standards performed poorly and all 2011 King Vol samples were subsequently re-assayed in 2014.

In 2014, Kagara introduced a new set of two CRMs and a blank sample sourced from OREAS Pty Ltd (CRMs OREAS131b, OREAS133b and blank OREAS22e). Two additional CRMs and another blank sample sourced from OREAS Pty Ltd CRMs were added between 2015 and 2019 by Atherton and Auctus (Table 5-12).

Table 5-12: Certified reference material samples and blank samples (blue) used at King Vol (2011 to 2019)

Laboratory	Year	Certified reference material									
		OREAS 131b	OREAS 133b	OREAS 135	OREAS 22e	OREAS 22d	OREAS 603	OREAS 622	OREAS 134a	OREAS 36	Unknown Blank
SGS	2011								19	63	
ALS	2014	22	21		23						
	2015	4	5			12					
	2016	8	4			13					
	2017	44	46		23	38					
	2018	16	16			16		3			
Intertek	2019	15	6	6	24		4	5			
Chillagoe	2017	9	10			12					
	2018	36	39		25	23		4			
	2019	3	25	37	3						56
Total	**Number**	**157**	**172**	**43**	**98**	**114**	**4**	**12**	**19**	**63**	**56**
	Percentage of total	**21%**	**23%**	**6%**	**13%**	**15%**	**1%**	**2%**	**3%**	**9%**	**8%**

Table 5-13: Certified values of the certified reference material used at King Vol (2011 to 2019)

Element	Certified Values	Certified values (four-acid digest)								
		OREAS 131b	OREAS 133b	OREAS 135	OREAS 22e	OREAS 22d	OREAS 603	OREAS 622	OREAS 134a	OREAS 36
Zn %	Mean	3.04	11.35	2.8			0.92	10.24	17.27	4.23
	SD	0.119	0.347	0.067			0.031	0.182	0.22	0.06
Pb %	Mean	1.88	5.07	1.7			0.1908	2.21	12.79	0.579
	SD	0.086	0.75	0.052			0.01248	0.067	0.24	0.013
Cu %	Mean	0.0216	0.032	0.0278			1	0.486	0.1291	0.0151
	SD	0.0011	0.0014	0.0014			0.034	0.08	0.0029	0.0005
Zn ppm	Mean				4.33	6.7				
	SD				1.47	1.31				
Pb ppm	Mean				0.05	0.72				
	SD				0.05	0.26				
Cu ppm	Mean				7.97	9.23				
	SD				0.75	1.34				

SRK has reviewed the results for CRMs OREAS 36, 131b and 133b and blank samples 22d and 22e and notes the following:

- OREAS 36 (Figure 5-2) is a mineralised grade CRM with 63 samples submitted to SGS in 2011. A high proportion of the zinc, lead and copper grade results are outside of the ±2SD (2 standard deviations) control boundaries. There appears to be a high number of mislabelling of this CRM number in the sample ledgers imported into the King Vol database, which could account for some of the poor results. Kagara only used this CRM in only one drilling program; therefore, SRK cannot compare its poor performance at SGS to other laboratories with differing digest and determination methods.

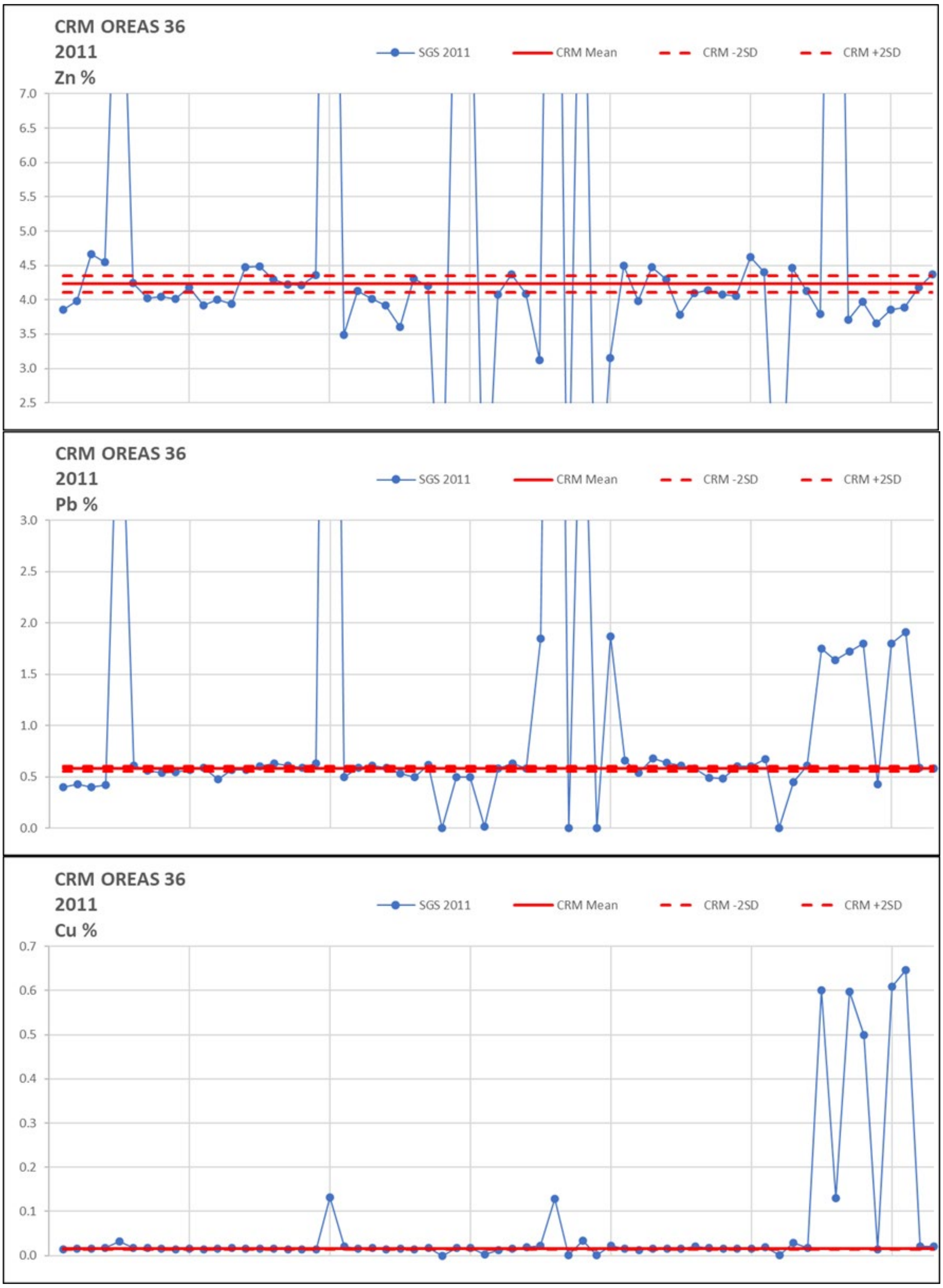


Figure 5-2: King Vol CRM 36 – Zn, Pb and Cu analysis – SGS (2011)

- OREAS 131b (Figure 5-3) is a mineralised grade CRM with 157 samples submitted in every program since 2014. Generally, the zinc, lead and copper grade determinations from all three laboratories over the nine drill programs have performed well. There is a possible mislabel of a CRM by the Chillagoe (Mungana) laboratory in both 2017 and 2019. The out-of-control copper grade results for the Chillagoe (Mungana) laboratory appear to reflect the higher lower detection limit of the MP-AES determination method used at this laboratory. The out-of-control zinc grades results from the 2014 ALS re-assay program are appear to be problematic; however, the copper and lead grade results are in control. There is a possibility that the silver and lead grade results are copied and pasted into the wrong columns in the supplied spreadsheet.

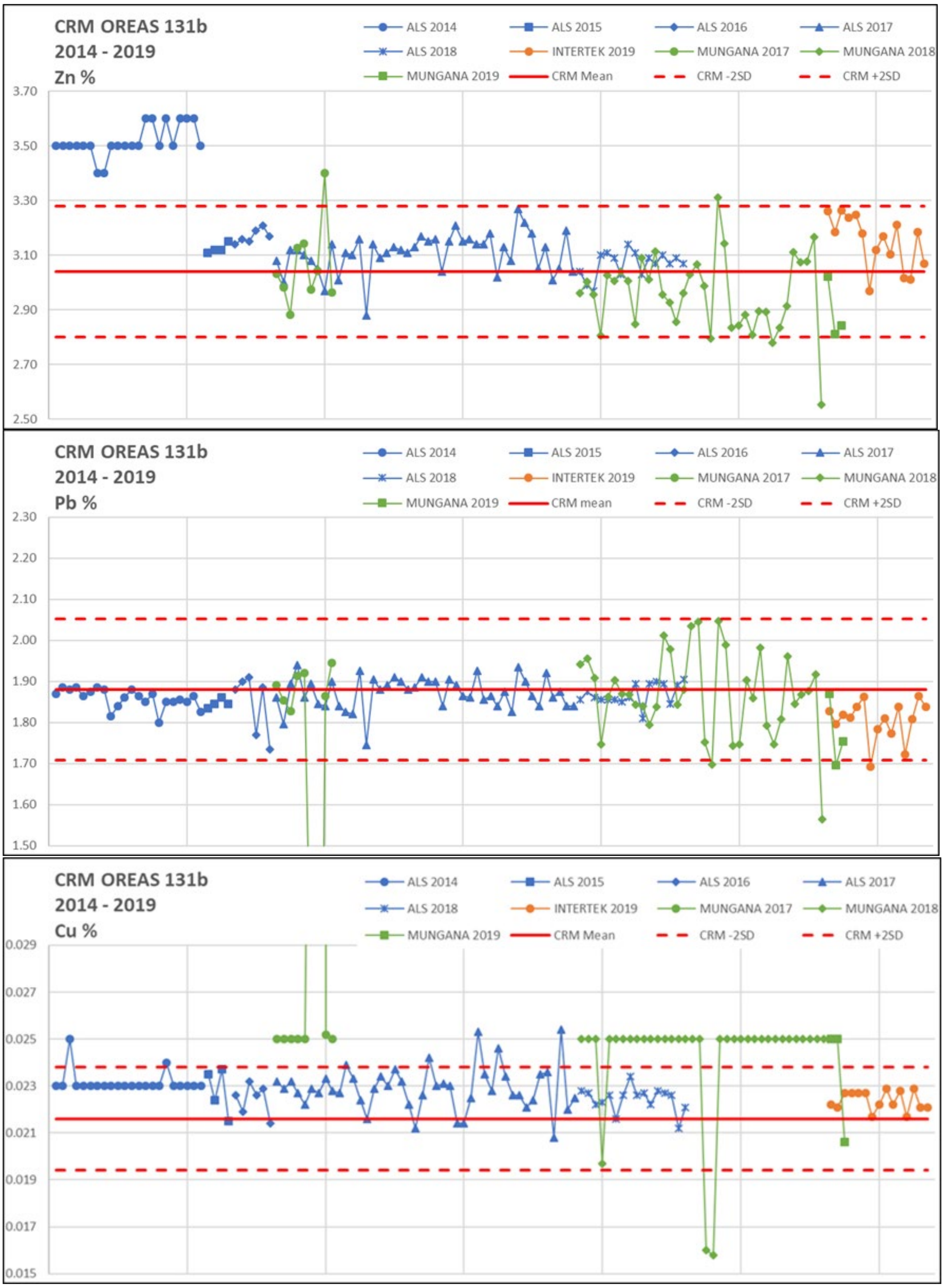


Figure 5-3: King Vol CRM OREAS 131b – Zn, Pb and Cu analysis – 2014–2019

- OREAS 133b (Figure 5-4) is a mineralised grade CRM with 172 samples submitted in most programs since 2014. Generally, the zinc, lead and copper grade determinations from all three laboratories over the nine drill programs have performed well. The out-of-control copper grade determinations from the Chillagoe (Mungana) laboratory at the lower detection limit most likely reflect the coarseness at which the data report at these low determinations.

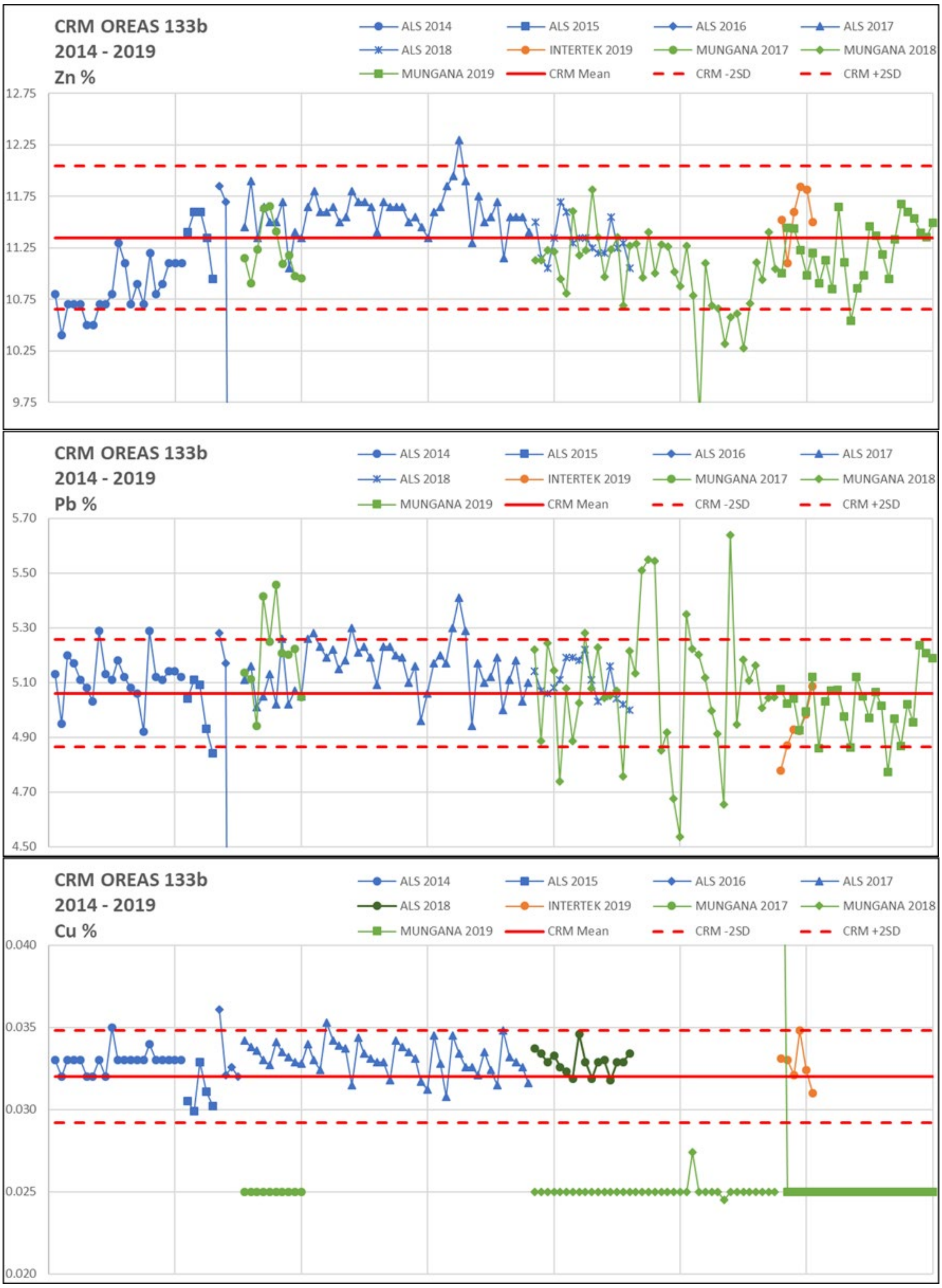


Figure 5-4: King Vol CRM OREAS 133b – Zn, Pb and Cu analysis – 2014–2019

- OREAS 22d and 22d (Figure 5-5 and Figure 5-6) are blank samples that were submitted 98 and 114 times, respectively, in every program since 2014. In general, these blanks performed well, indicating that the sub-sampling process at the laboratories did not contaminate the sample with any appreciable amounts of zinc, lead or copper. Out-of-control determinations from the Chillagoe (Mungana) laboratory appear to be at the lower detection limit of the determination method used at the laboratory.

Figure 5-5: King Vol blank sample OREAS 22d – Zn, Pb and Cu analysis – 2014–2019

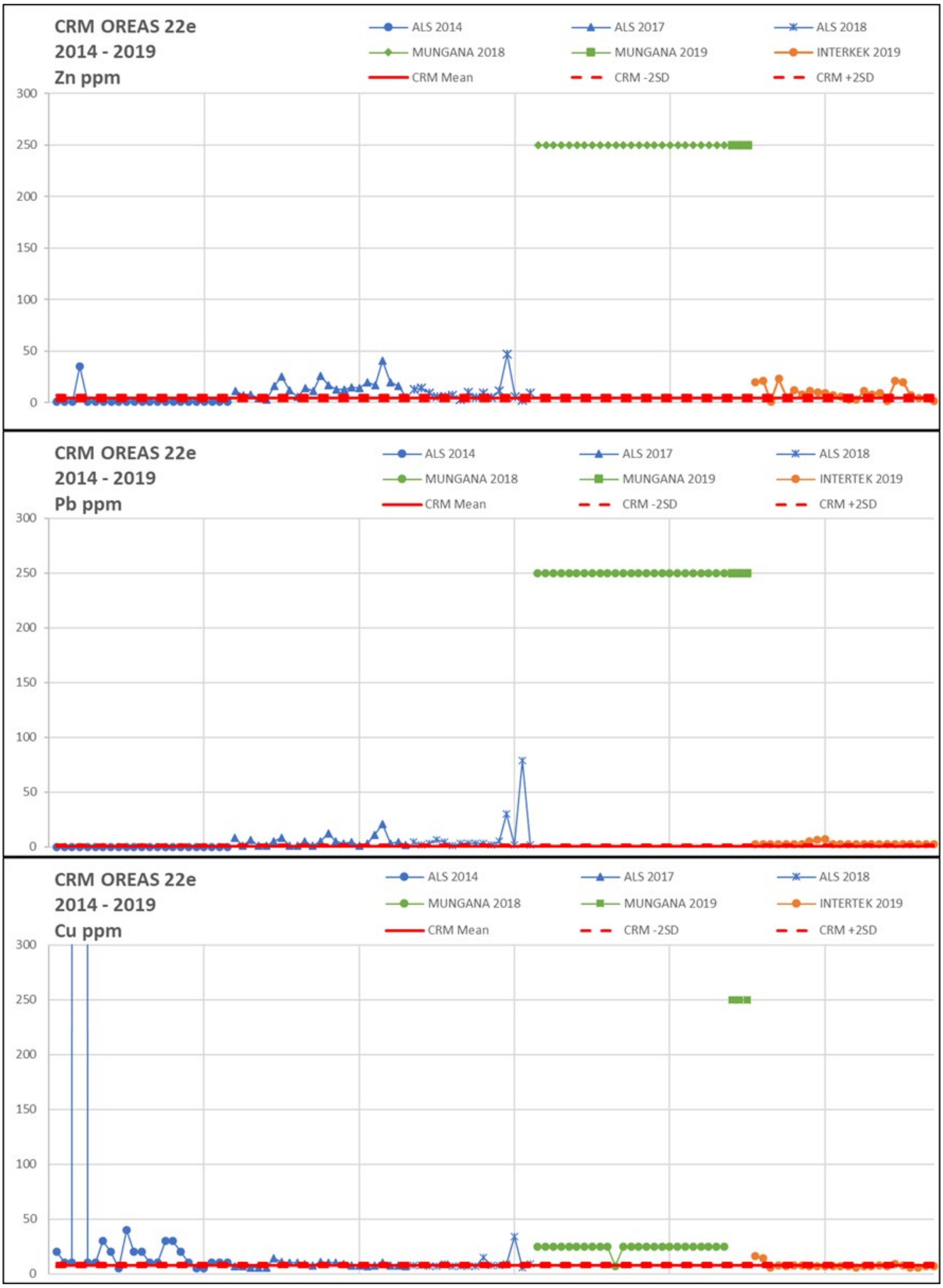


Figure 5-6: King Vol blank sample OREAS 22e – Zn, Pb and Cu analysis – 2014–2019

5.4.3 Field duplicate samples

Auctus stated that the 'use of duplicate samples has been limited to some of the early RC drilling and some re-assaying of pulps. Duplicate sampling of core has never been included as part of the QA/QC process at King Vol.'

In 2001, Kagara carried out a duplicate sampling program for RC drilling with the samples sent to ALS in Townsville. A total of 67 out of the 908 RC samples were duplicates (approximately 1 in 13.5 samples) collected from composited spear sample intervals (47 duplicates), riffle-split sample intervals (15 duplicates) or composited grab sample intervals (5 duplicates).

Composited spear and riffle-split samples were duplicated by collecting a 6 kg sub-sample and passing this through a 50:50 riffle splitter. Duplicate grab samples use the sample collection process as the original sample. Excluding the grab samples from the population, the following scatter diagrams show a fair to excellent correlation between duplicates for each element analysed. SRK notes that these results are in the King Vol database, but that all samples have a zinc grade below the King Vol mineralisation cut-off grade of 3% (30,000 ppm) Zn.

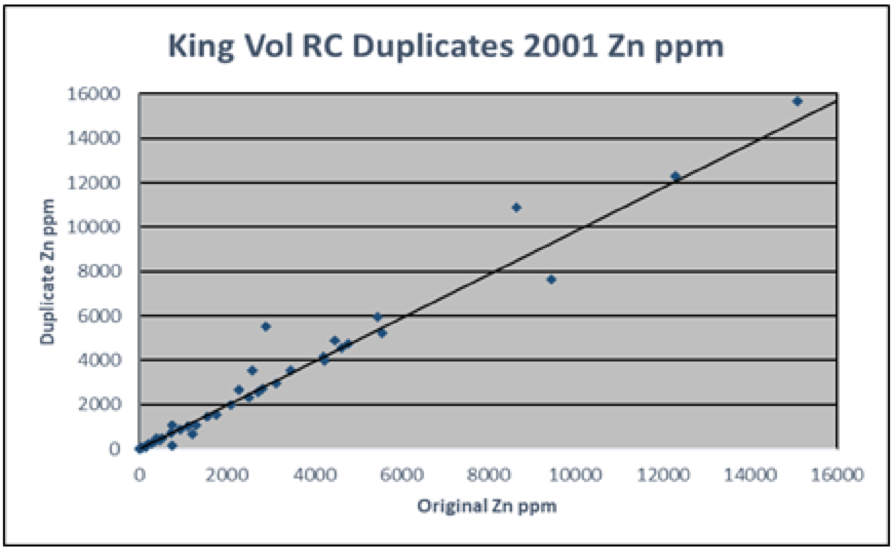


Figure 5-7: 2001 King Vol RC field duplicates – Zn ppm

Source: Auctus Part 11 of the 2018 MPBFS study

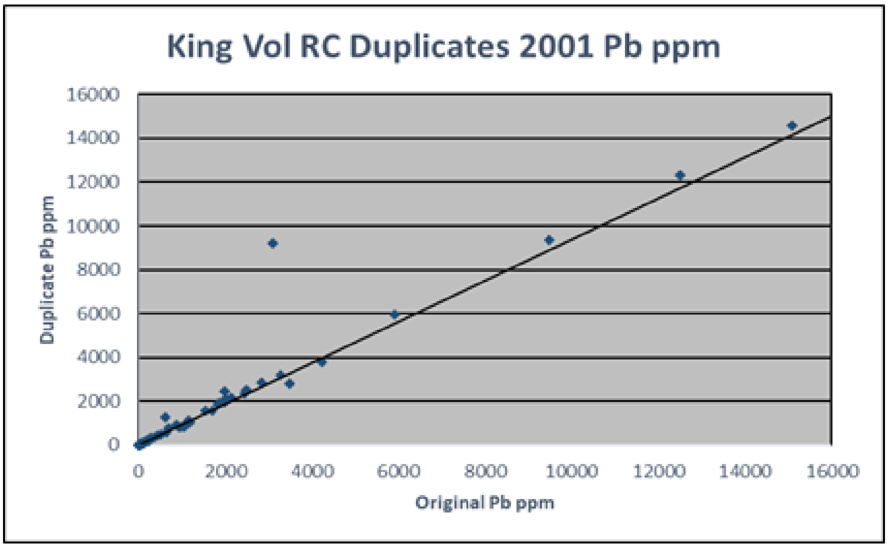


Figure 5-8: 2001 King Vol RC field duplicates – Pb ppm

Source: Auctus Part 11 of the 2018 MPBFS study

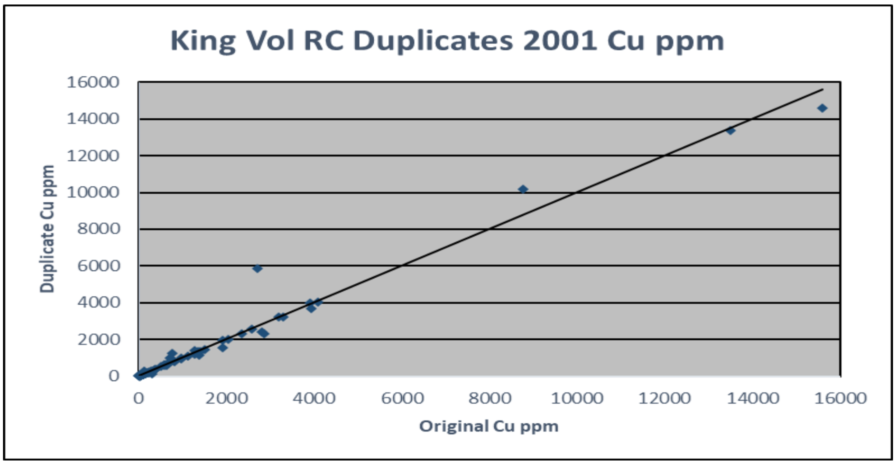


Figure 5-9: 2001 King Vol RC field duplicates – Cu ppm

Source: Auctus Part 11 of the 2018 MPBFS study

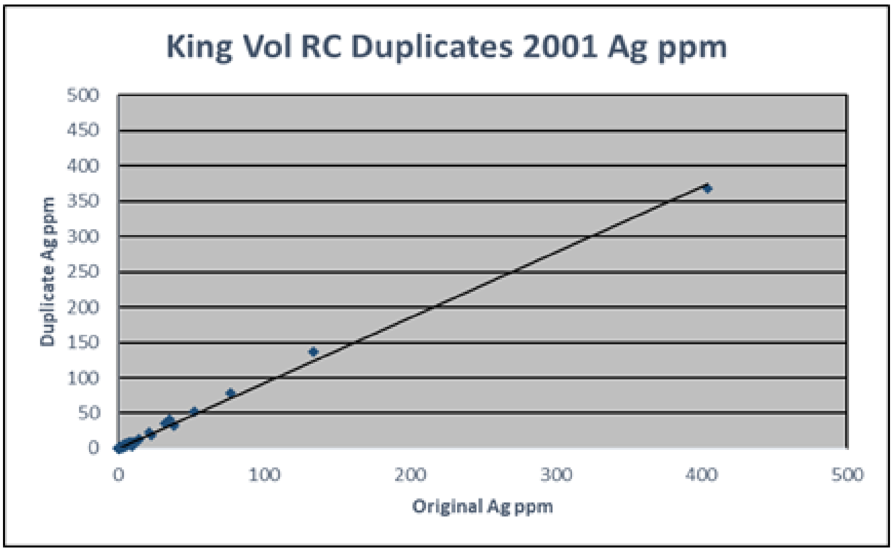


Figure 5-10: 2001 King Vol RC field duplicates – Cu ppm

Source: Auctus Part 11 of the 2018 MPBFS study

5.4.4 2014 sample pulp re-assaying

In 2014, prompted by poor CRM results, Kagara used ALS (Townsville) to re-assay the pulps of samples initially sent to SGS (Townsville) in 2011. SRK has reviewed the assay results from both laboratories and notes the following:

- The two laboratories used different digests to prepare the samples for analysis and SRK assumes the analytical machine calibrations at each laboratory were different.
- Zinc grade results from ALS appear to have an 8.88% bias, though it is more prominent where the original grade is less than 1% (Figure 5-11). Overall, the precision between the two laboratories is noticeably better, when the paired mean grade is greater than 1%. The SGS re-digest samples have an initial grade greater than 1% with a four-acid digest which is similar to that used by ALS. The pairs that have very poor precision do not have a consistent pattern of one laboratory returning higher grades than the other.

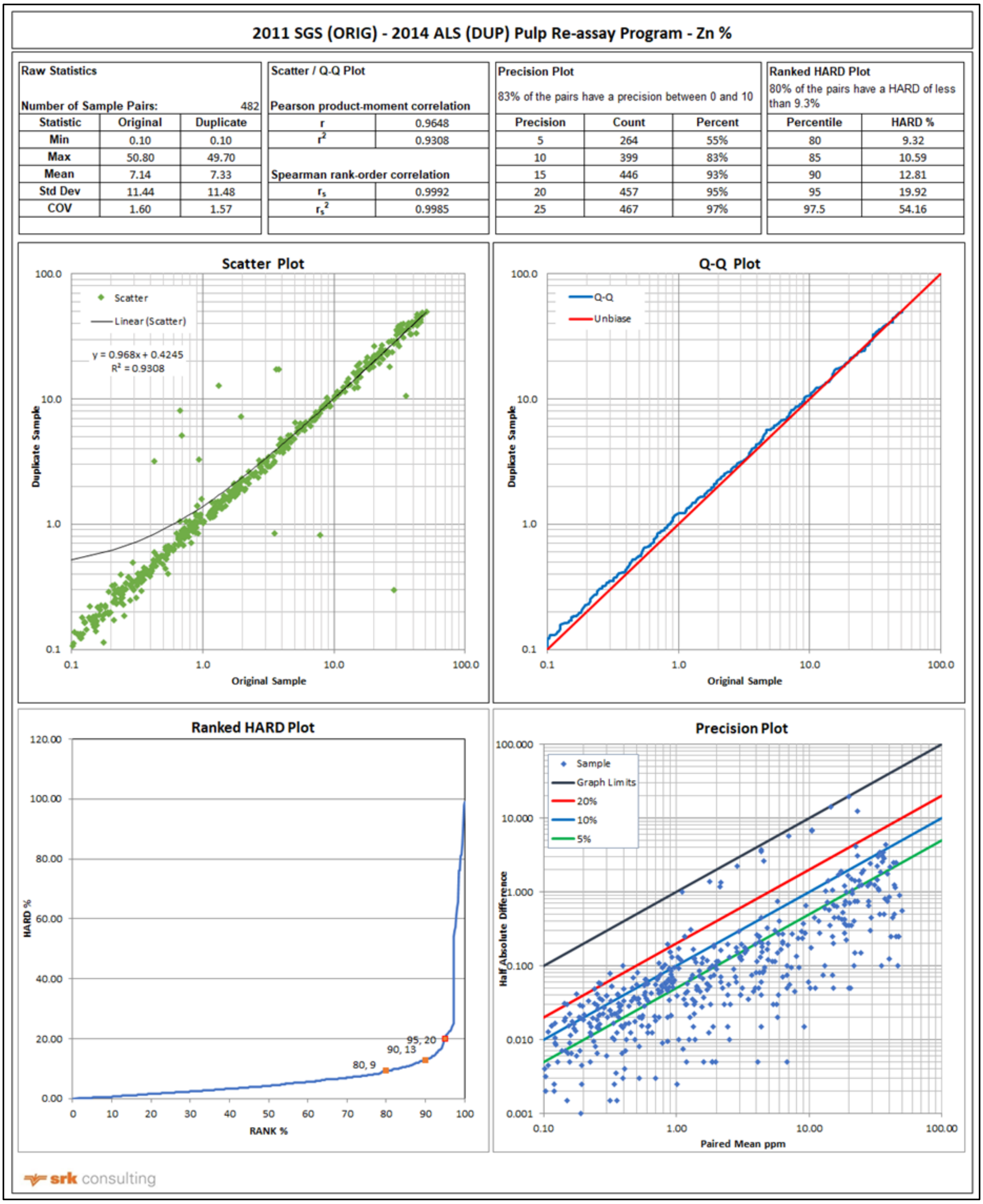


Figure 5-11: 2011 SGS – 2014 ALS pulp re-assay program – Zn%

- The comparison of copper grade between the two laboratories is appropriate for copper grades greater than 0.1% (Figure 5-12). The Q-Q plot shows the bias switching at approximately 1.5%, with ALS grades higher than SGS grades when the grade is above than 1% Cu. Overall, the precision is consistent across the grade range, with 90% of the samples having a precision inside 10%.

2011 SGS (ORIG) - 2014 ALS (DUP) Pulp Re-assay Program - Cu%

Raw Statistics

Number of Sample Pairs: 193

Statistic	Original	Duplicate
Min	0.10	0.10
Max	5.27	5.00
Mean	0.75	0.73
Std Dev	0.89	0.82
COV	1.19	1.13

Scatter / Q-Q Plot

Pearson product-moment correlation	
r	0.9916
r^2	0.9833

Spearman rank-order correlation	
r_s	0.9984
r_s^2	0.9968

Precision Plot

91% of the pairs have a precision between 0 and 10

Precision	Count	Percent
5	136	70%
10	175	91%
15	188	97%
20	191	99%
25	192	99%

Ranked HARD Plot

80% of the pairs have a HARD of less than 6.4%

Percentile	HARD %
80	6.42
85	7.93
90	9.09
95	12.02
97.5	13.51

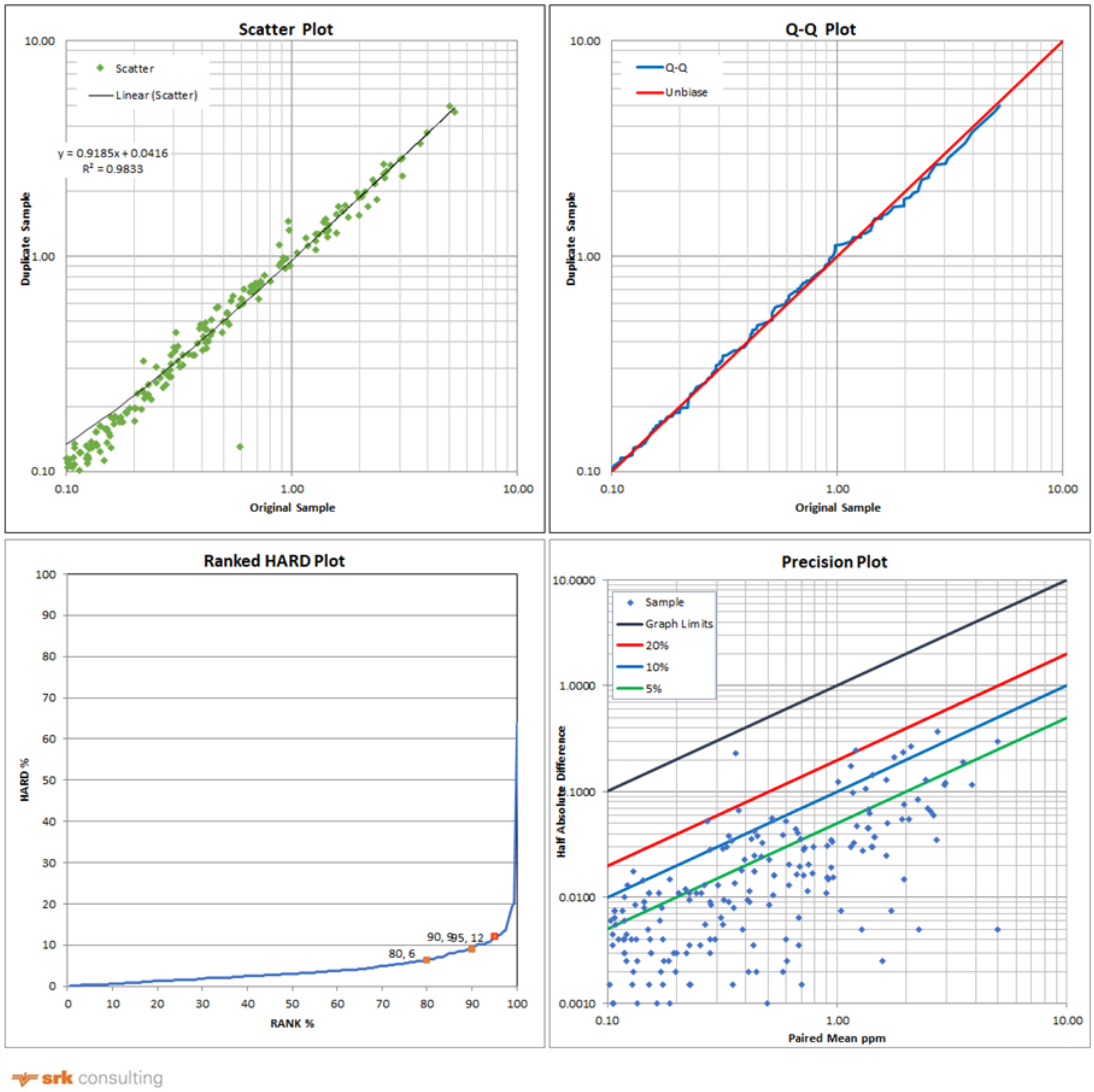


Figure 5-12: 2011 SGS – 2014 ALS pulp re-assay program – Cu %

- Two poorly performing sample pairs with a mean grade near 7% Pb skew the statistics (Figure 5-13). Otherwise, the Pb% results would be is similar to the copper grade results.

2011 SGS (ORIG) - 2014 ALS (DUP) Pulp Re-assay Program - Pb%

Raw Statistics

Number of Sample Pairs: 229

Statistic	Original	Duplicate
Min	0.10	0.10
Max	20.60	20.70
Mean	1.30	1.40
Std Dev	2.86	2.98
COV	2.19	2.13

Scatter / Q-Q Plot

Pearson product-moment correlation	
r	0.9277
r^2	0.8607
Spearman rank-order correlation	
r_s	0.9932
r_s^2	0.9865

Precision Plot

90% of the pairs have a precision between 0 and 10

Precision	Count	Percent
5	145	63%
10	205	90%
15	217	95%
20	220	96%
25	223	97%

Ranked HARD Plot

80% of the pairs have a HARD of less than 7.3%

Percentile	HARD %
80	7.30
85	8.46
90	10.72
95	14.39
97.5	22.67

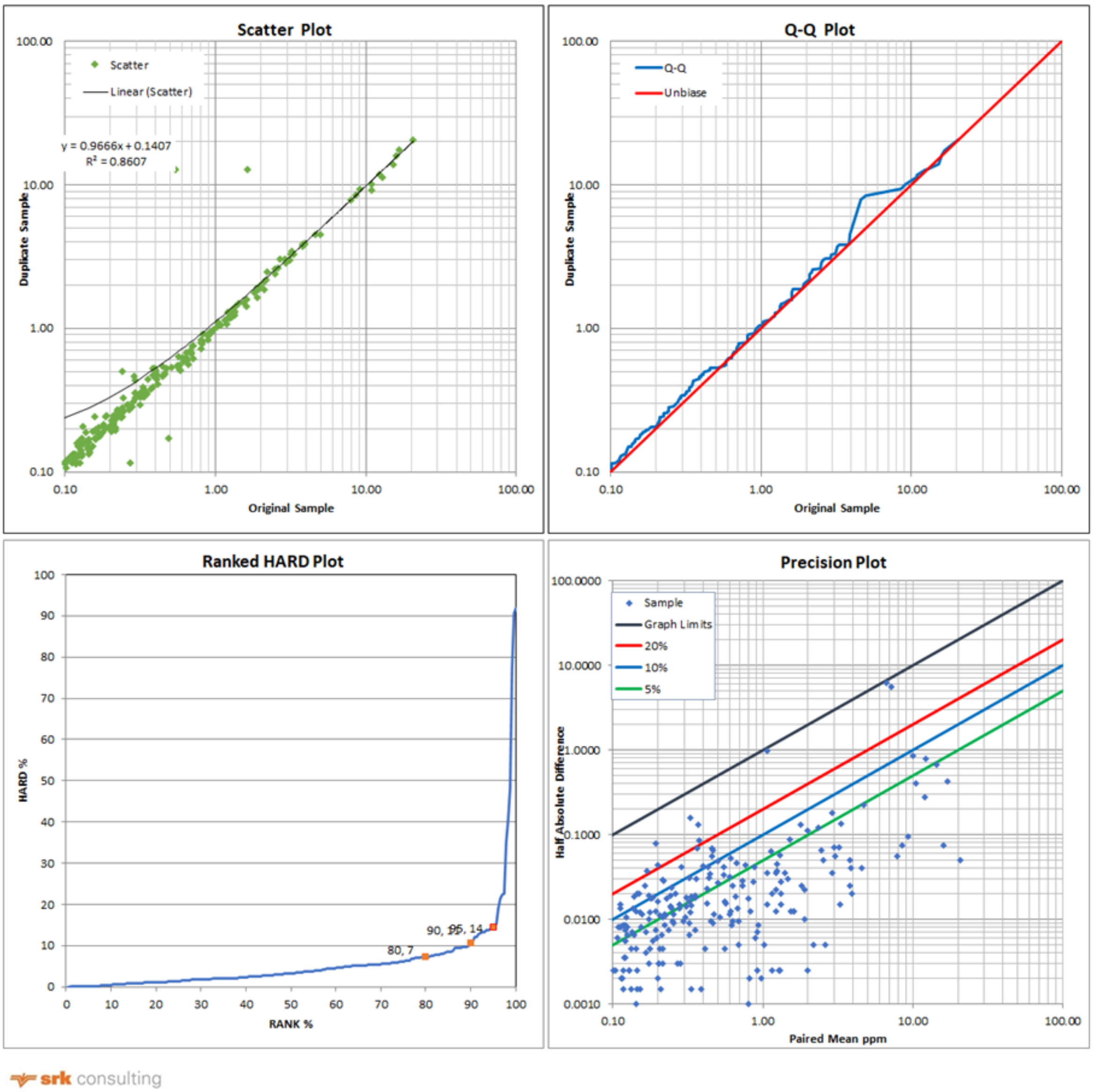


Figure 5-13: 2011 SGS – 2014 ALS pulp re-assay program – Cu%

SRK is of the opinion that the assay results from the two laboratories compare favourably and that incorrect record keeping or mislabelling could be the cause of the poor CRM results sent to SGS (Townsville) in 2011. Auctus has communicated that the 2014 re-assayed values reside in the King Vol geological database.

5.4.5 2019 umpire laboratory checks

In 2019, Auctus submitted 27 pulp samples from underground diamond drillholes that had originally been analysed at Auctus's Chillagoe (Mungana) onsite laboratory for umpire analysis at Intertek. Excluding samples with grades near the 250 ppm lower detection limit for each element, the two laboratories results compare very well.

Mungana Laboratory Pulp Check Assay Program with Intertek- 2019 - Zn %

Raw Statistics

Number of Sample Pairs: 37

Statistic	Original	Duplicate
Min	0.03	0.01
Max	41.49	40.32
Mean	5.34	5.41
Std Dev	10.98	11.08
COV	2.06	2.05

Scatter / Q-Q Plot

Pearson product-moment correlation	
r	0.9992
r^2	0.9984

Spearman rank-order correlation	
r_s	0.9992
r_s^2	0.9984

Precision Plot

81% of the pairs have a precision between 0 and 10

Precision	Count	Percent
5	24	65%
10	30	81%
15	30	81%
20	32	86%
25	34	92%

Ranked HARD Plot

80% of the pairs have a HARD of less than 7.7%

Percentile	HARD %
80	7.70
85	16.09
90	20.13
95	25.93
97.5	31.03

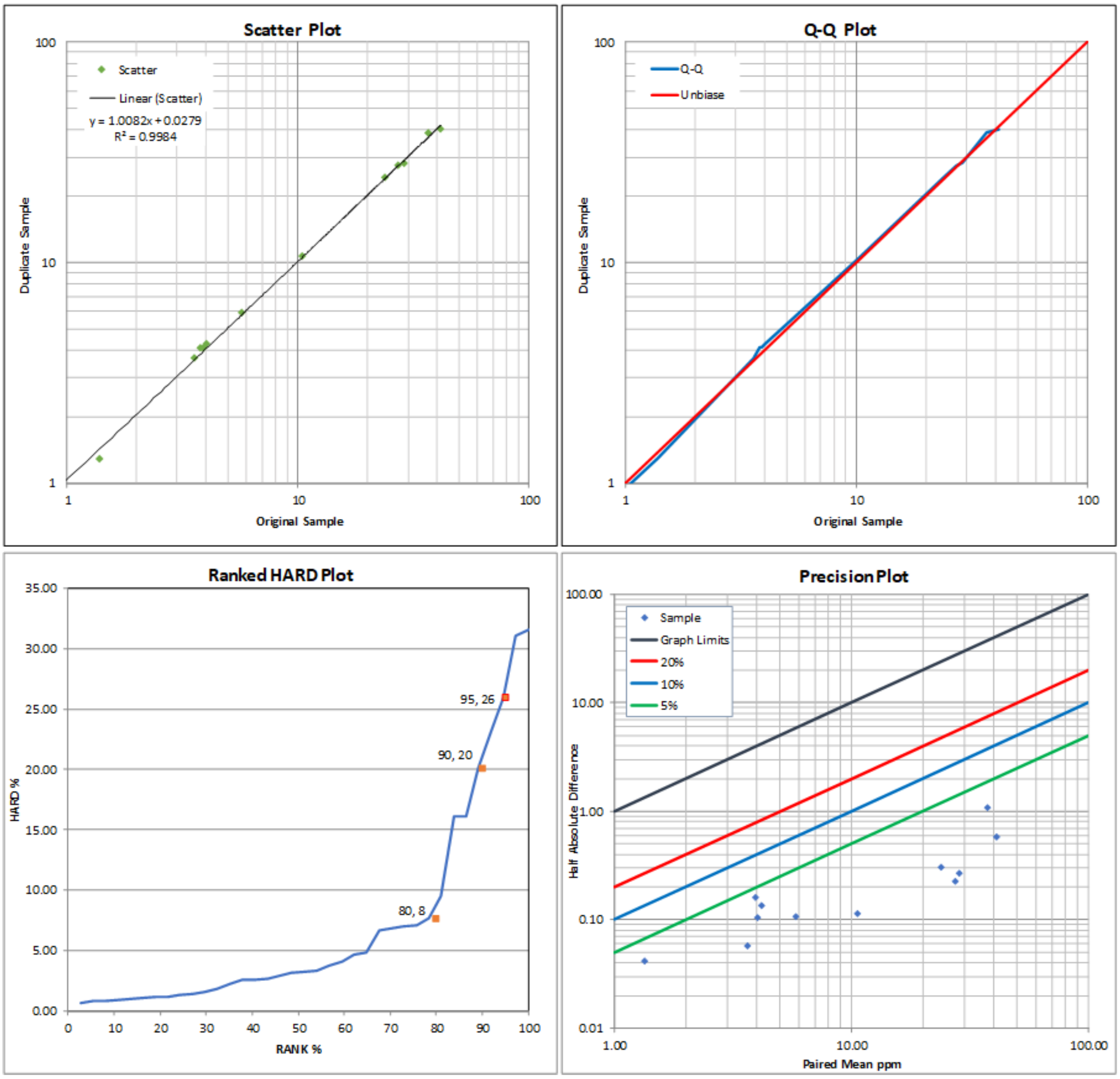


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Figure 5-14: Chillagoe (Mungana) laboratory pulp check assay program with Intertek – 2019 – Zn%

Mungana Laboratory Pulp Check Assay Program with Intertek- 2019 - Pb%

Raw Statistics

Number of Sample Pairs: 37

Statistic	Original	Duplicate
Min	0.03	0.00
Max	2.98	2.81
Mean	0.20	0.19
Std Dev	0.55	0.53
COV	2.75	2.83

Scatter / Q-Q Plot

Pearson product-moment correlation

r	0.9995
r^2	0.9989

Spearman rank-order correlation

r_s	0.9995
r_s^2	0.9991

Precision Plot

38% of the pairs have a precision between 0 and 10

Precision	Count	Percent
5	10	27%
10	14	38%
15	15	41%
20	17	46%
25	18	49%

Ranked HARD Plot

80% of the pairs have a HARD of less than 76.1%

Percentile	HARD %
80	76.06
85	82.48
90	86.57
95	90.11
97.5	95.31

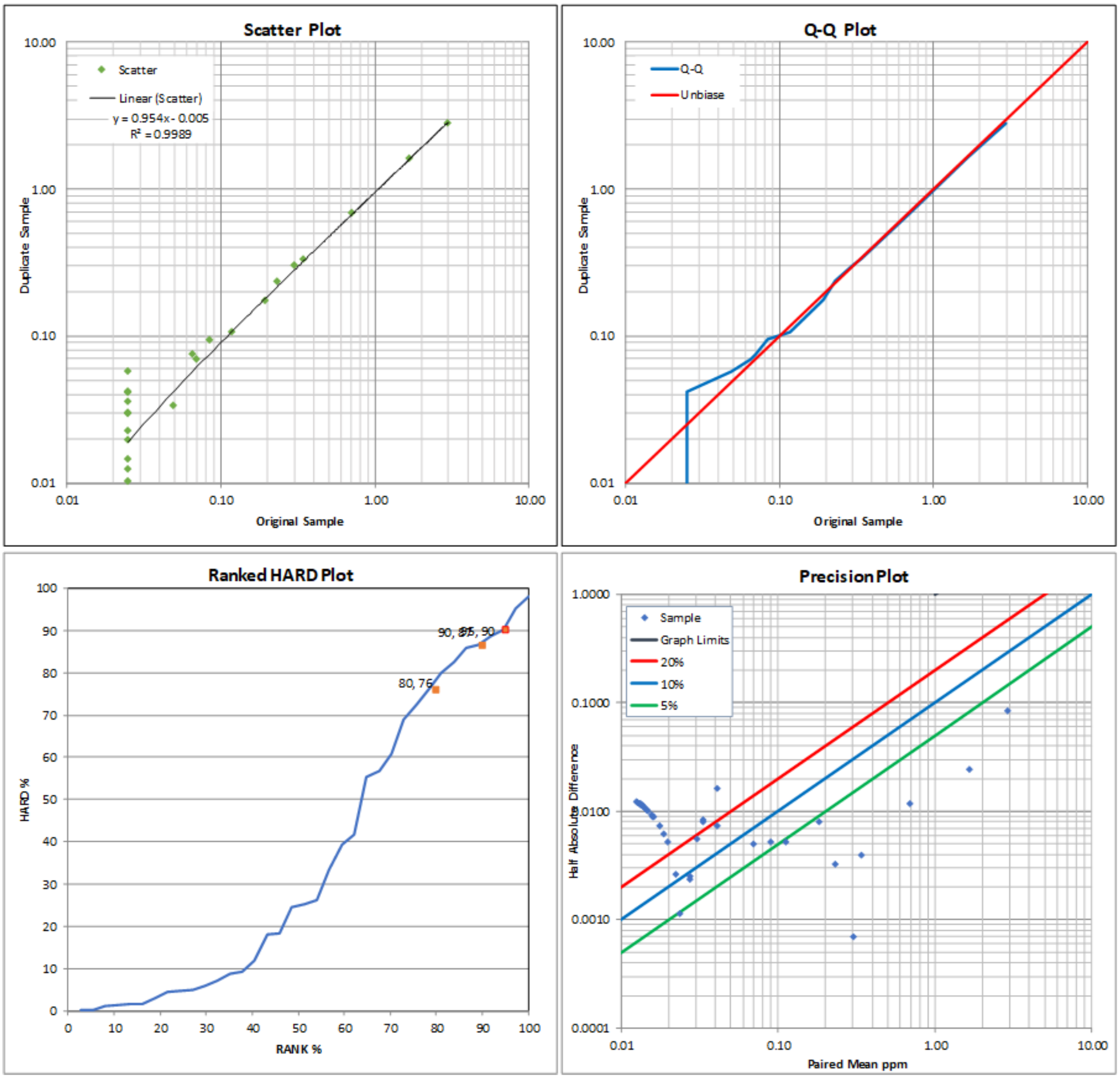

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Figure 5-15: Chillagoe (Mungana) laboratory pulp check assay program with Intertek – 2019 – Pb%

Mungana Laboratory Pulp Check Assay Program with Intertek- 2019 - Cu%

Raw Statistics

Number of Sample Pairs 37

Statistic	Original	Duplicate
Min	0.03	0.00
Max	3.06	3.06
Mean	0.22	0.23
Std Dev	0.56	0.57
COV	2.50	2.47

Scatter / Q-Q Plot

Pearson product-moment correlation

r	0.9976
r^2	0.9952

Spearman rank-order correlation

r_s	0.9976
r_s^2	0.9952

Precision Plot

46% of the pairs have a precision between 0 and 10

Precision	Count	Percent
5	16	43%
10	17	46%
15	17	46%
20	19	51%
25	19	51%

Ranked HARD Plot

80% of the pairs have a HARD of less than 51.5%

Percentile	HARD %
80	51.52
85	64.47
90	67.79
95	84.50
97.5	85.19

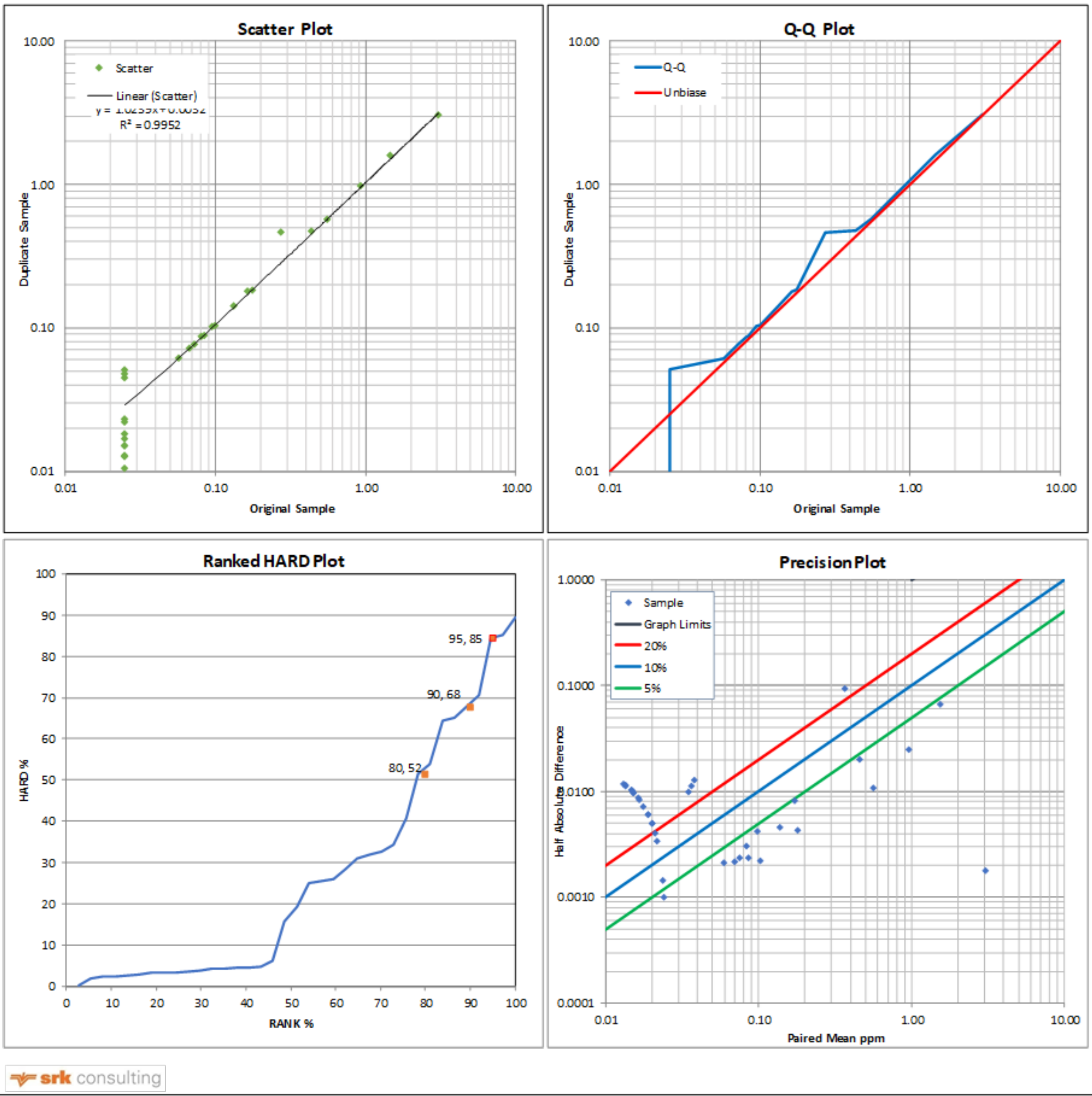


Figure 5-16: Chillagoe (Mungana) laboratory pulp check assay program with Intertek – 2019 – Cu%

5.4.6 SRK's QA/QC conclusions

The QA/QC programs conducted since 2001, while not extensive, show no material bias for the reported assays and SRK considers the data are of sufficient quality to be used in the Mineral Resource estimate. SRK recommends updating the QA/QC process to include:

- Regular drillhole collar re-surveying (minimum of 5% re-surveys)
- Regular drillhole downhole re-survey (minimum of 5% re-surveys)

- Collect field duplicate samples from both RC and diamond core at a rate of 1:20. The RC field duplicates should be collected using the same method as the primary sample. SRK also recommends that diamond core duplicates be taken at a rate of 1:20. The duplicate sample can be either half or quarter core, but should match the primary sample.
- Insert CRM and blank samples for both RC and diamond core at a rate of 1:20.
- Conduct regular reviews of laboratory QA/QC results (laboratory duplicates, CRMs and blanks).
- Continue umpire laboratory testing.

5.5 In situ bulk density

In situ bulk density data have been collected from diamond drill core samples over drilling programs conducted between 1990 and 2019. Density measurements were taken uncut core or half or quarter cut core from intervals ranging from 0.05 m to 3 m as either representative samples from within a sample interval or from the entire sample interval. Most of the samples were analysed using the Archimedes principle (mass of the sample in air divided by the difference between the mass of the sample in air and the mass of the sample in water); however, Kagara started to use an air pycnometer method at the SGS laboratory (PHY03V) as well as the Archimedes method from 2006 to 2011. The final 2020 King Vol density dataset only includes samples analysed by the Archimedes method and includes a total of 3,125 samples have been collected from a range of the deposits rock types in both waste and mineralised domains (Table 5-14).

Table 5-14: King Vol in situ bulk density sampling

Company	Year	Number of samples	Sample length (m)		
			Total	Minimum	Maximum
Aztech	1990	94	84.97	0.33	1.69
	1991	68	56.70	0.12	2.18
Perilya	1992	190	171.75	0.15	2.42
Kagara	2001	396	339.36	0.18	2.00
	2002	7	6.20	0.46	1.58
	2006	114	135.52	0.14	2.90
	2011	241	370.36	0.10	3.00
Atherton	2015	1,031	955.60	0.05	1.40
Auctus	2016	365	253.86	0.17	1.00
	2018	64	53.61	0.12	1.65
	2019	555	436.86	0.06	1.70
Total		**3,125**	**2,864.79**		

5.6 Drillhole logging

Drillhole logging is entered into an MS Excel spreadsheet template (‘MinRep_DataEntry.xlsx’) for each individual drillhole. Data are entered into the spreadsheet under a number of tabs (Collar, Metadata, Survey, Magsus, Structure, Geotech, Density, XRF and Sampling) by geological staff as they are collected. The data entry cells have associated look-up codes to help ensure correct data entry.

Sampling data are also entered into a separate spreadsheet named ‘Sample Ledger YYYY.xlsx’ that records the sampling intervals, dates, submission numbers and despatch dates.

Once completed the drillhole logs are uploaded into the Auctus geological database and the project geologist completes a drillhole completion report to record any zones of significant mineralisation, drilling complications, and comparison with surrounding drillholes, as well as recommendations for further work.

5.7 Geological database

Auctus stores the data collected from the drilling programs in a DataShed SQL database back-end. Auctus's geological staff import and export data into the DataShed SQL database back-end using a customised MinRep interface. Auctus's staff demonstrated the import procedure during SRK's site visits by copying data from the Excel spreadsheets and pasting into data loading tables in the MinRep interface. SRK did not review subsequent data validation processes, if any, using the MinRep interface. However, the exporting process could not be customised by site personnel to export specific datasets into MS Access databases.

Based on time-stamps, the King Vol data were bulk imported into the geological database between 9 and 13 August 2018. The data import does not appear to be via a standard DataShed interface as the expected metadata are not present in some fields. On inspecting the King Vol data, SRK noted that there was conflicting, or inconsistent with summary data presented in the 2018 MGBFS study. SRK is aware that Auctus has recently spent considerable time validating the data in the King Vol geological database and has compiled an extensive and well-organised digital copy of the historical logging, sample ledgers and assay results. However, site personnel do not currently have the experience or access to the backend of the King Vol database to validate whether the data and its associated metadata are stored appropriately.

SRK recommends that Auctus invests in an industry-standard geological database front-end that can collect standardised logging data digitally (via laptops or tough books) and capture data more seamlessly from other sources (such as mobile XRF, downhole survey data and assay results) and manage data exports. In addition, a database specialist who is experienced with the DataShed database back-end should undertake an audit of the King Vol data. The audit should include a review of the MinRep import/ export routines to check if they correctly capture the metadata for each analyte and subsequently export the best ‘Rank1’ result for each analyte.

6 Geological Modelling

Auctus's understanding of the King Vol deposits lithology, structural geology framework and mineralisation has changed considerably since the previous 2016 Mineral Resource estimate. In late 2019, Auctus site personnel and external consultants, CSA Global, undertook considerable updates of the lithology and mineralisation wireframes incorporating the structural framework proposed by CSA (2019a & 2019b), the additional drilling completed since 2016 including all of the underground diamond drilling and detailed underground backs mapping completed by Auctus personnel since underground development began in 2018. Auctus's mine geology staff have subsequently completed regular updates to the mineralisation models, incorporating additional backs and wall mapping from underground development drives. Auctus supplied the wireframes to SRK in Vulcan and Datamine formats. SRK has imported the wireframes in Vulcan software and adjusted the file names (Table 6-1).

Table 6-1: King Vol wireframes

Original Filename	SRK Filename	Author	Currency
Lithology			
FECHT_SOLID_20190513tr/pt.dm	strat_FECHT_SOLID_20190513.00t	CSA Global	May-19
FW_MIXED_SOLID_20190513tr/pt.dm	strat_FW_MIXED_SOLID_20190513.00t	CSA Global	May-19
ECHT_SOLID_20190513tr/pt.dm	strat_ECHT_SOLID_20190513.00t	CSA Global	May-19
ISH_SOLID_patched_20190521tr/pt.dm	strat_ISH_SOLID_patched_20190521.00t	CSA Global	May-19
ELST_SOLID_patched_20190521tr/pt.dm	strat_ELST_SOLID_patched_20190521.00t	CSA Global	May-19
ark_solid_20190508tr/pt.dm	strat_ark_solid_20190508.00t	CSA Global	May-19
wlst_solid_20190510tr/pt.dm	strat_wlst_solid_20190510.00t	CSA Global	May-19
Mineralisation			
ishoz.00t	min1_ishoz.00t	Auctus	Feb-20
aoz_2020_13_03.00t	min2_aoz_202003.00t	Auctus	Mar-20
aboz.00t	min3_aboz_202002.00t	Auctus	Feb-20
skeoz.00t	min4_skeoz_202002.00t	Auctus	Feb-20
skwoz.00t	min5_skwoz_202002.00t	Auctus	Feb-20
boz.00t	min6_boz_202002.00t	Auctus	Feb-20
coz.00t	min7_coz_202002.00t	Auctus	Feb-20
ab_pipe_solid_20190529tr/pt.dm	ab_pipe_solid_20190529dm.00t	CSA Global	May-19
ark_structure_minzone_1_20190524tr/pt.dm	ark_structure_minzone_1_20190524dm.00t	CSA Global	May-19
ark_structure_minzone_2_20190524tr/pt.dm	ark_structure_minzone_2_20190524dm.00t	CSA Global	May-19
ark_structure_minzone_3_20190524tr/pt.dm	ark_structure_minzone_3_20190524dm.00t	CSA Global	May-19
ark_hwminzonetr/pt.dm	ark_hwminzonedm.00t	CSA Global	May-19
Weathering			
kv_tofrdtm_2017.dtm		Auctus	Oct-17
kv_bocodtm_2017.dtm	weath__ox_202003.00t	Auctus	Oct-17
ih_ox.dtm		Auctus	Oct-17
Topography			
kv190708_rotcontcleaned.dtm	topo_kvol_190708.00t	AAM Hatch	Aug-08
Mine Depletion			
cms-overall.dtm	kvol_stope_deplete.00t	Auctus	Jan-20
kv_development_solid_10_03_2020	kv_development_solid_10_03_2020.00t	Auctus	Mar-20

The current set of King Vol weathering models were updated by Auctus in 2017; however, they do not cover the whole deposit area. After consultation with Auctus, SRK decided to extend the top of fresh rock (TOFR) wireframe using all the available drillhole data and then code the material above this surface as 'oxide'. This interpretation is based on operational experience which has shown that mineralisation within the weathering zone has proven to be difficult to process as it is very fine and contains clays that cause issues in the plant's flotation cells and the tailing thickener (Figure 6-1). The oxide weathering surface is variable, with deeper zones of weathering occurring along lithological contacts and/or major structures (Figure 6-2).

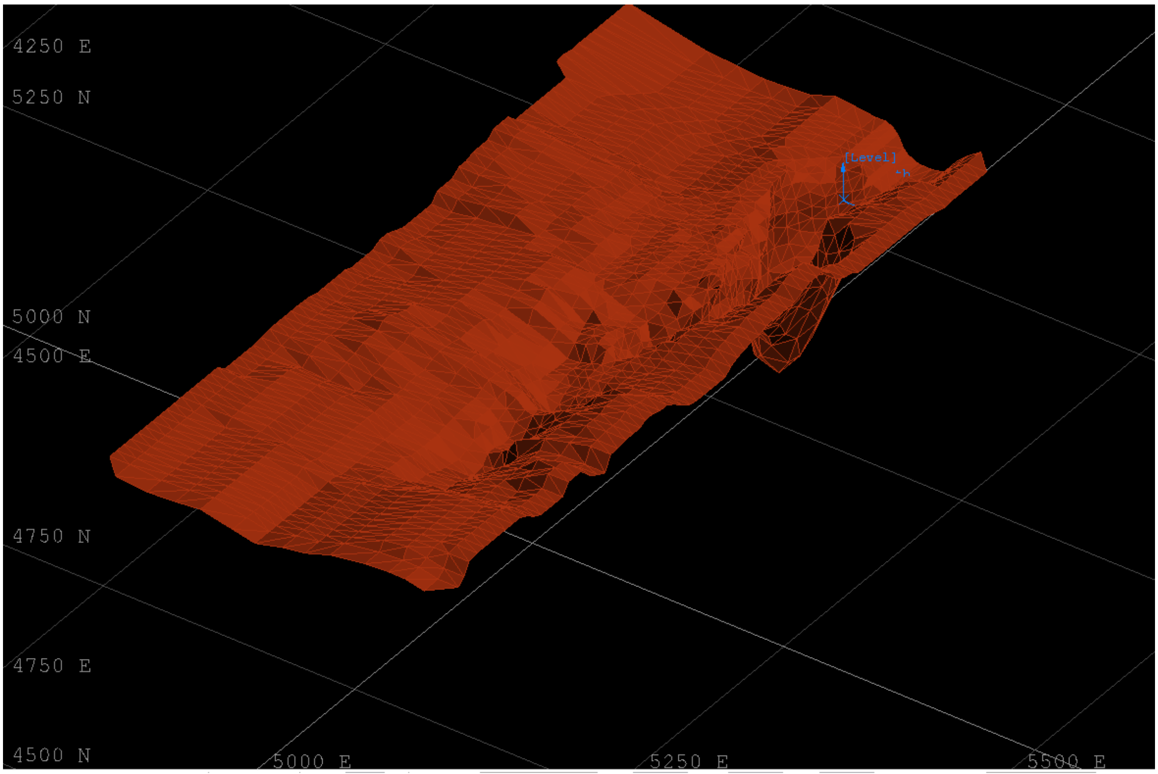


Figure 6-1: King Vol oxide wireframe - weath__ox_202003.00t

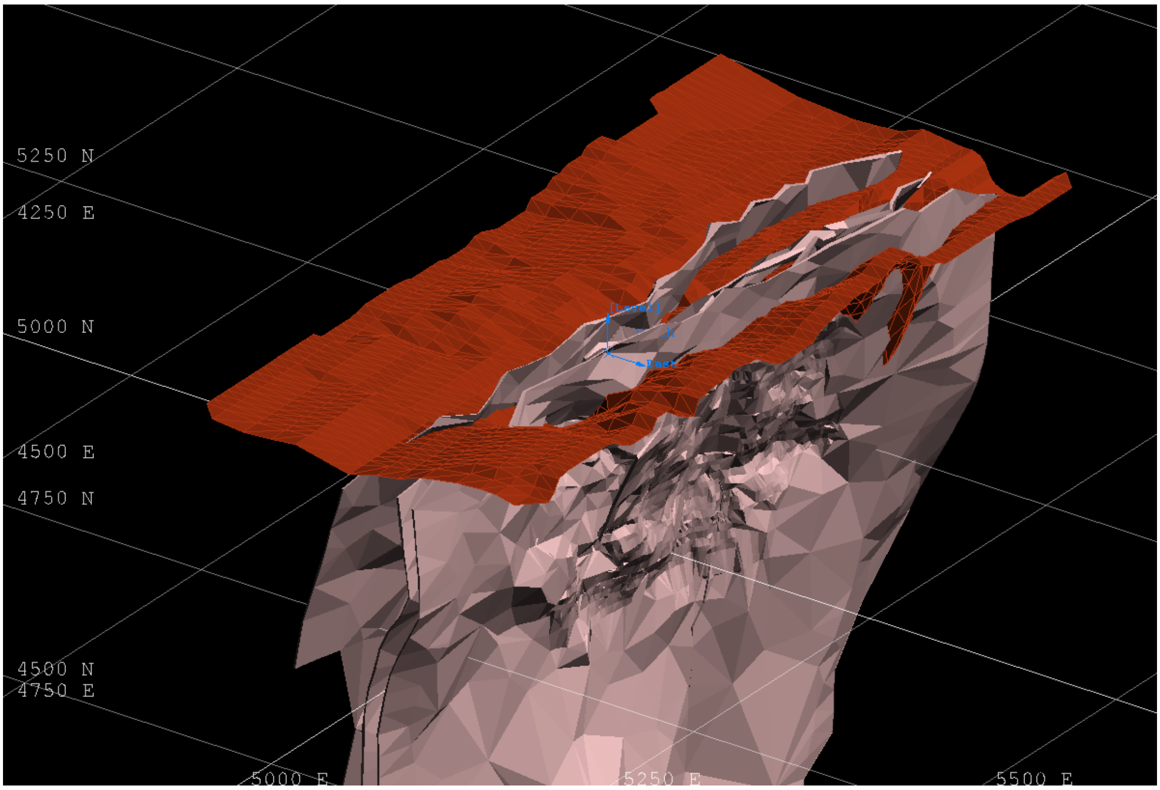


Figure 6-2: King Vol oxide wireframe and mineralised models (pink)

During SRK's site visits, SRK was able to validate the new understanding of the key mineralisation lenses and significant grade intercepts against the physical locations underground and/or with the drill core. SRK is confident that the recent updates to the wireframing of each ore zone reflect the appropriate structural trend as identified by CSA. Auctus's Senior Mine Geologist, J Cullen, stated the following factors have been considered when updating the King Vol mineralisation wireframes:

- The major north trending ore zones (aoz, boz and coz) pinch and swell along strike and down dip but are continuous over considerable strike and depth extents (Figure 6-3).
- The wider (>1 m) ore zones have a limited strike extent of less than 20 m.
- The major ore zones deviated from their contact positions or are offset where they intersect NNE or NNW structures.
- The minor ore zones (ab-pipe, ark_min1, ark_min2, ark_min2, ark_hw) have limited strike extent and, in some cases, limited depth extent due to their association with NNE or NNW structures or earlier skarn alteration.
- The models include areas of internal dilution.

SRK would also recommend completing a three-dimensional structural geology model based on CSA's 2019 modelling work and incorporate it into future grade control and Mineral Resource model updates. This should include updates to the lithology and mineralisation models

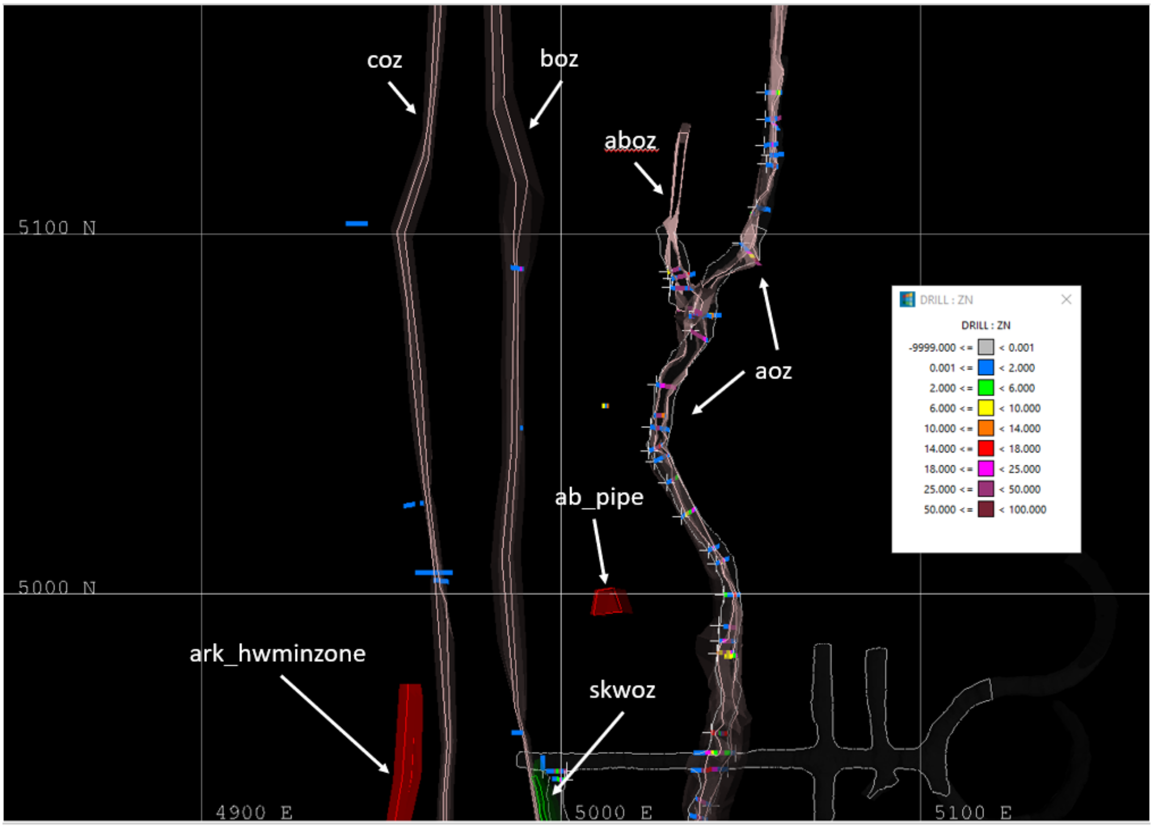


Figure 6-3: Pan view of 750 mRL development level

SRK is of the opinion that the current King Vol lithology and mineralisation models and the updated oxide model reflect the current geological understanding of the King Vol deposit and are fit to use for Mineral Resource estimation.

7 Exploratory Data Analysis

7.1 Data flagging

Drillhole samples were flagged for five domain variables (‘*Lith’*, ‘*Geozone’*, ‘*Min*’, ‘*Minzone*’ and ‘*Weath*’) in the drillhole database *kvol_res_2020.kvol.isis* using the King Vol lithological, mineralisation and weathering geological models (Table 7-1 to Table 7-3). The flagging routine coded samples which had an interval centroid either falling within each lithology or mineralisation solid, or above the oxide weathering surface. The drillhole flagged was validated visually against each wireframe solid/surface prior to exploratory data analysis and estimation.

Table 7-1: Lithology domain coding

Orientation	LITH	GEOZONE	Description	Model Wireframe
	fechet	8100	far eastern chert - not in the block model	strat_FECHT_SOLID_20190513.00t
East	ssl	7200	siltstones, sandstones - no mineralisation	strat_FW_MIXED_SOLID_20190513.00t
	echet	8200	eastern chert - no mineralisation	strat_ECHT_SOLID_20190513.00t
to	ish	7300	interbedded siltstones and sandstones	strat_ISH_SOLID_patched_20190521.00t
	elst	6100	eastern limestone	strat_ELST_SOLID_patched_20190521.00t
West	ark	7100	arkose unit	strat_ark_solid_20190508.00t
	wlst	6200	western limestone	strat_wlst_solid_20190510.00t

Table 7-2: Mineralisation domain coding

Orientation	MIN	MINZONE	Model Wireframe
	ishoz	10	min1_ishoz.00t
	aoz	20	min2_aoz_202003.00t
East	aboz	30	min3_aboz_202002.00t
	skeoz	40	min4_skeoz_202002.00t
	skwoz	50	min5_skwoz_202002.00t
to	boz	60	min6_boz_202002.00t
	coz	70	min7_coz_202002.00t
	ab_pipe	80	ab_pipe_solid_20190529dm.00t
	ark_hw	90	ark_hwminzonedm.00t
West	ark_min1	100	ark_structure_minzone_1_20190524dm.00t
	ark_min2	110	ark_structure_minzone_2_20190524dm.00t
	ark_min3	120	ark_structure_minzone_3_20190524dm.00t

Table 7-3: Weathering domain coding

WEATH	Description	Model Wireframe
0	Fresh - transitional	weath_ox_202003.00t
2	Oxide	

7.2 Global statistics and domaining

Descriptive statistics for economic variables (zinc, lead, copper and silver), deleterious variables (arsenic, cadmium and iron) and density are presented in Table 7-4.

Zinc, lead, copper and silver, arsenic and cadmium all have positively skewed populations with high coefficients of variation indicating highly variable, ‘nuggety’ grade populations. Iron also has a positively skewed population but has a low coefficient of variation, whereas density has an approximate Gaussian population and a very low coefficient of variation. There is poor correlation between the various grade variables except for zinc and cadmium (Table 7-5).

Table 7-4: Global length-weighted statistics for grade variable, density and sample length

Variable	Zn (%)	Pb (%)	Cu (%)	Ag (ppm)	As (ppm)	Cd (ppm)	Fe (%)	Assay sample length (m)	Density (t/m^3)	Density sample length (m)
Number of samples	11,686	11,129	11,215	8,917	10,934	5,379	3,273	11,765	2,928	2,928
Minimum	0.00	0.00	0.00	0.005	1.00	0.00	0.01	0.10	1.96	0.05
Maximum	60.70	27	14.4	1,070.0	243,000.0	3,249.0	51	79	4.67	3.00
Mean	**1.36**	**0.23**	**0.12**	**8.77**	**1,146.37**	**76.00**	**9.76**	**1.0**	**2.96**	**0.91**
Std Dev	4.83	0.89	0.44	33.13	4,855.90	239.00	7.88	1.0	0.32	0.40
CV	**3.54**	**3.84**	**3.77**	**3.78**	**4.24**	**3.00**	**0.81**	**1.0**	**0.11**	**0.44**
Variance	23.30	0.8	0.19	1,097.66	23,579,752	56,930.00	62.08	2.0	0.10	0.16
Skewness	6.78	12.83	11.00	15.02	11.86	6.00	1.29	24.0	1.06	0.98
25%	0.03	0.01	0.01	0.5	26.0	3.0	3.61	1.0	2.72	1.00
50% (median)	0.13	0.03	0.02	2.0	117.0	10.0	7.52	1.0	2.85	1.00
75%	0.67	0.14	0.07	6.5	604.0	35.0	3.61	1.0	3.15	1.00

Table 7-5: Grade carriable correlation matrix

	Zn	Pb	Cu	Ag	As	Cd	Fe
Zn		0.232	0.491	0.262	0.211	0.921	0.137
Pb	0.232		0.262	0.632	0.102	0.218	0.198
Cu	0.491	0.262		0.522	0.155	0.481	0.200
Ag	0.262	0.632	0.522		0.111	0.255	0.131
As	0.211	0.102	0.155	0.111		0.226	0.141
Cd	0.921	0.218	0.481	0.255	0.226		0.115
Fe	0.137	0.198	0.200	0.131	0.141	0.115	

Mineralisation is associated with certain lithologies, namely the ‘ish’, ‘elst’, ‘ark’ and ‘wlst’ domains, and occurs within either contact zones (aoz, aboz, boz and coz domains), skarn zones (skeoz and skwoz domains) and/or structurally controlled dilation zones (ab_pipe, ark_hw, ark_min1, ark_min2 and ark_min3 domains). The mineralisation domains, while still highly variable, show the best stationarity while also maintaining a viable number of samples for statistical analysis and Mineral Resource estimation (Figure 7-1 to Figure 7-9). The mineralised domains are also supported by underground mapping and grade control face sampling and were therefore used for detailed statistical analysis and Mineral Resource estimation.

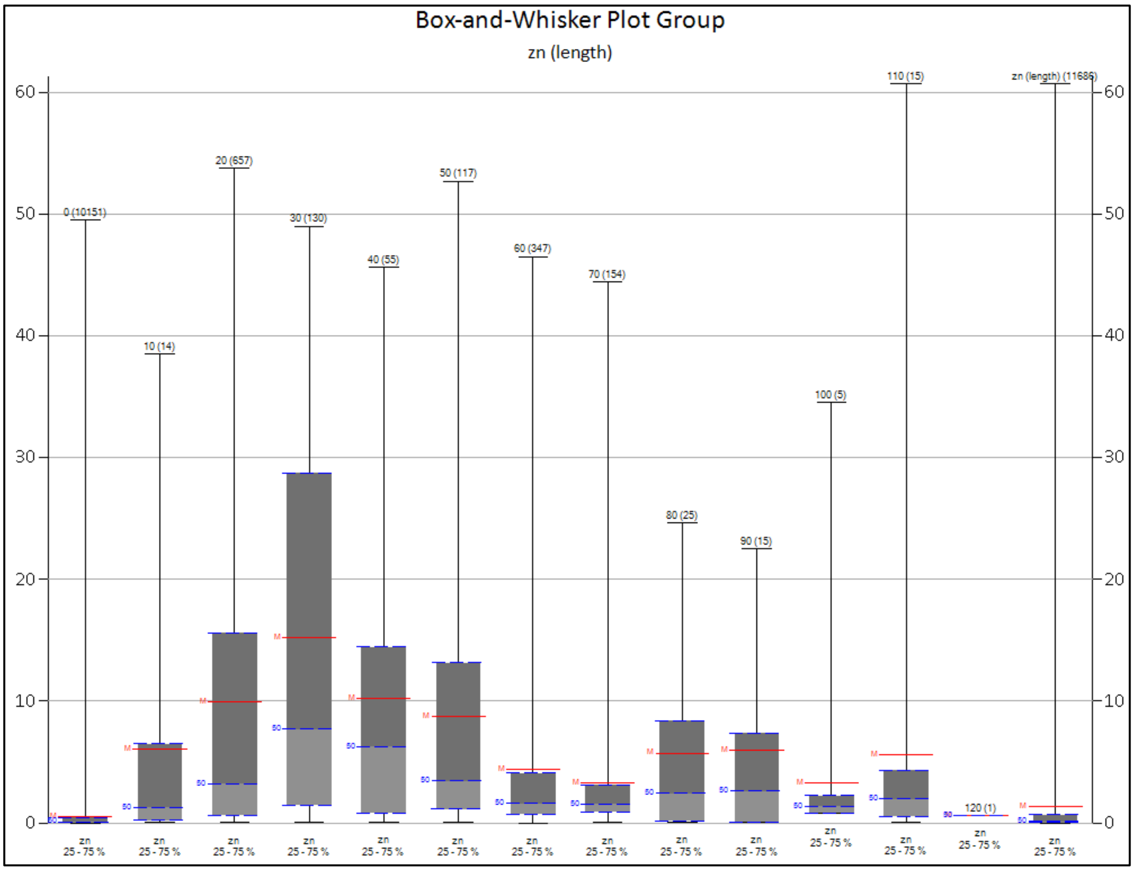


Figure 7-1: Zinc grade box-and-whisker plot broken down by mineralisation domain

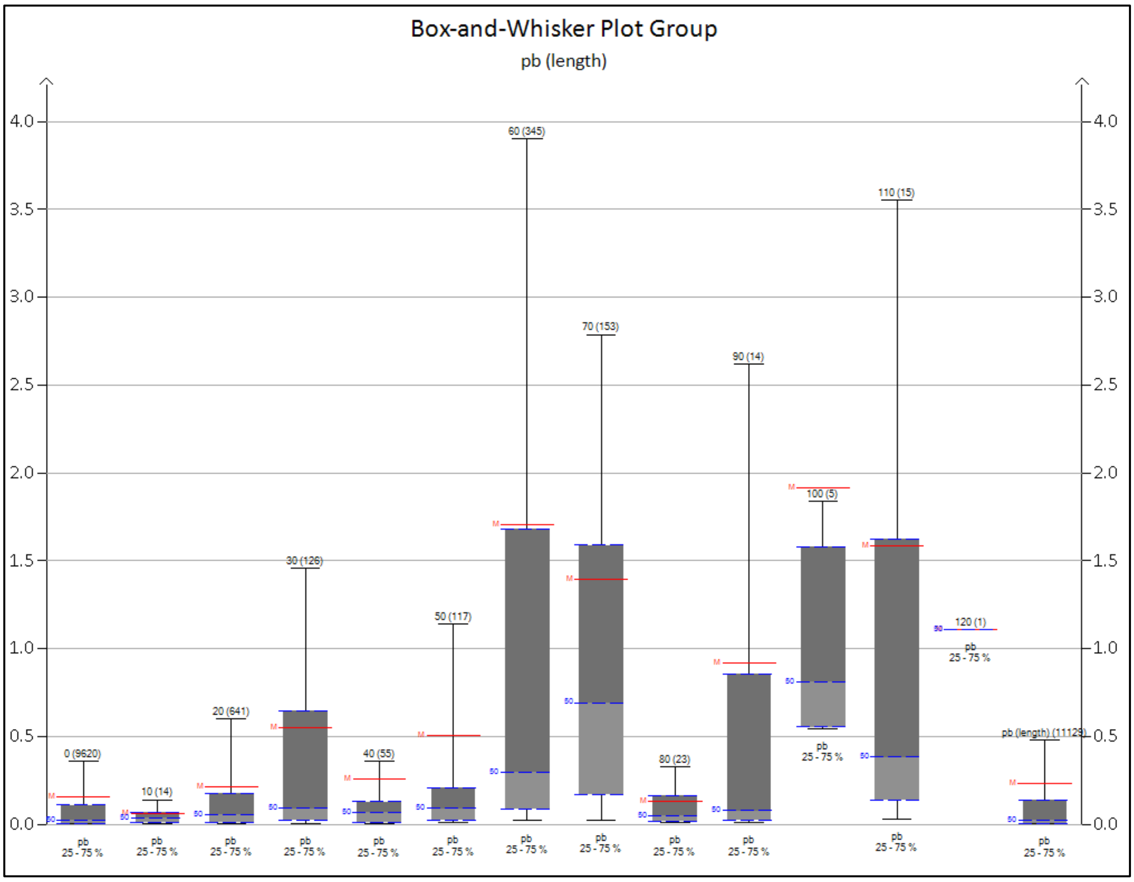


Figure 7-2: Lead grade box-and-whisker plot broken down by mineralisation domain

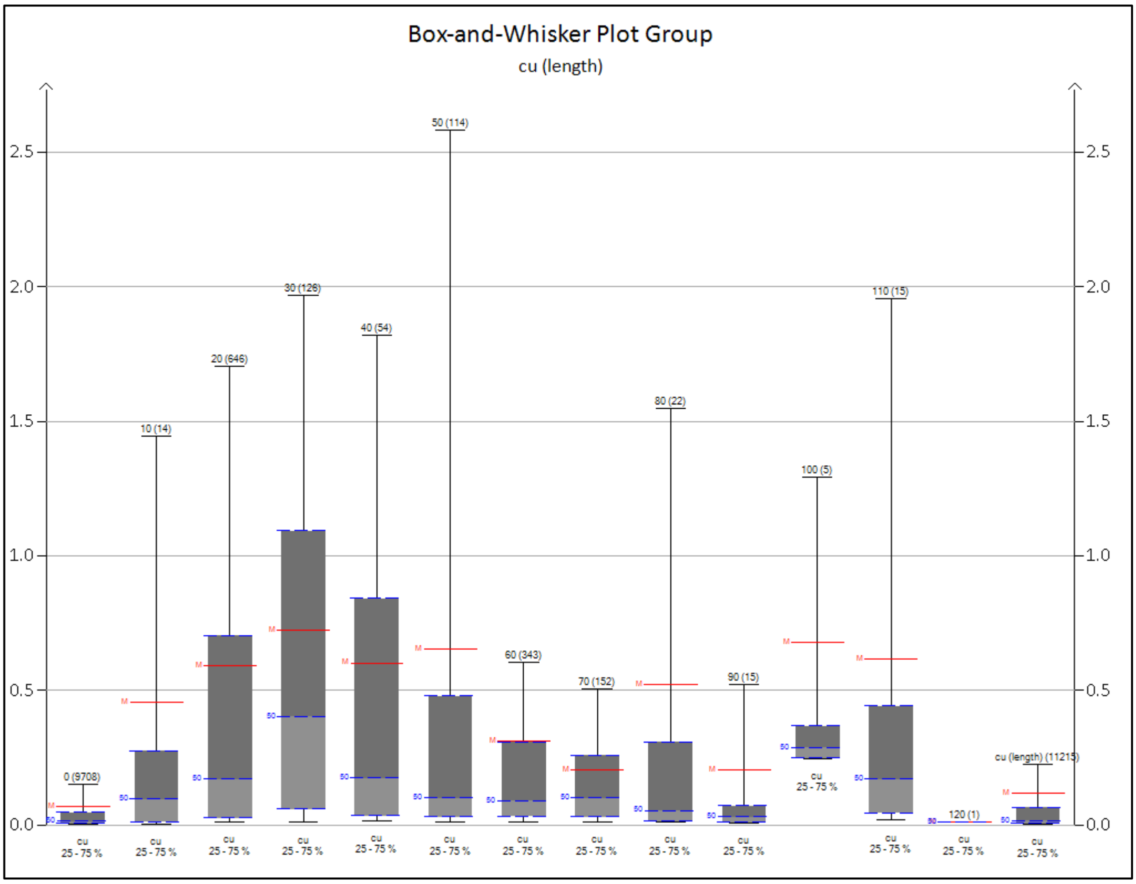


Figure 7-3: Copper grade box-and-whisker plot broken down by mineralisation domain

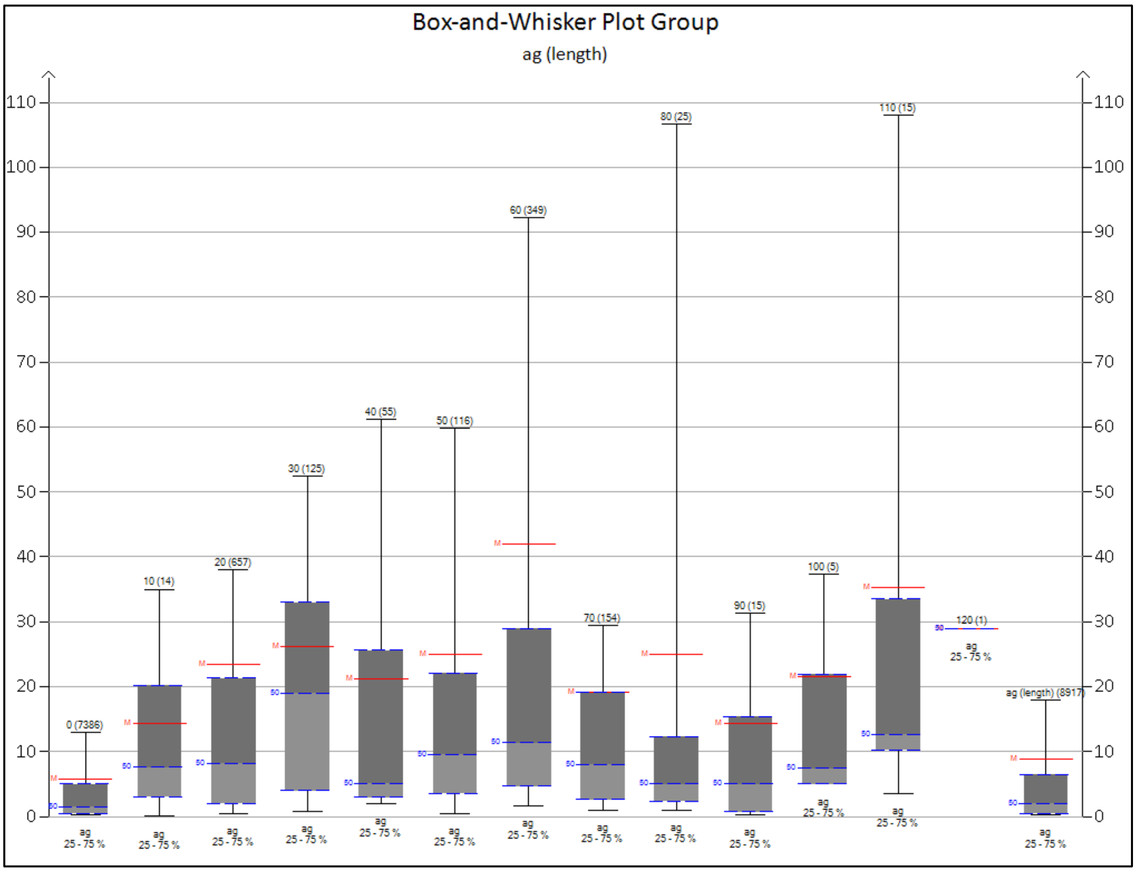


Figure 7-4: Silver grade box-and-whisker plot broken down by mineralisation domain

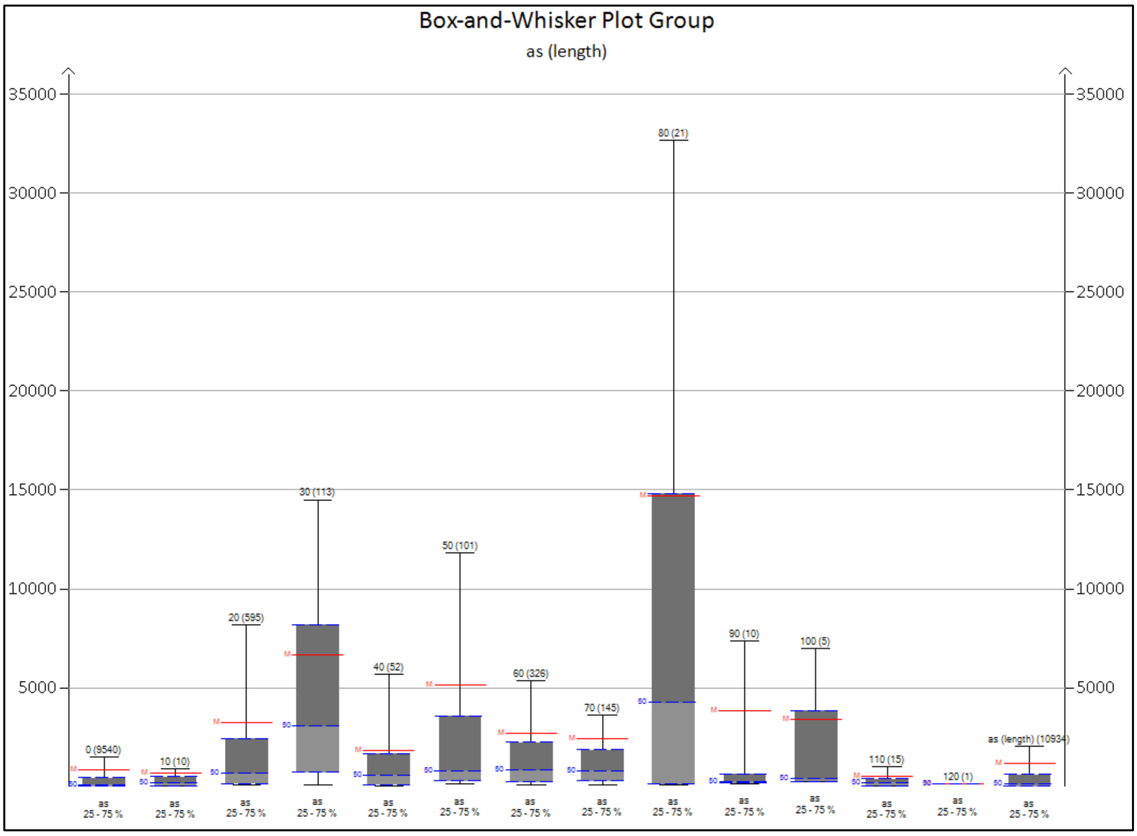


Figure 7-5: Arsenic grade box-and-whisker plot broken down by mineralisation domain

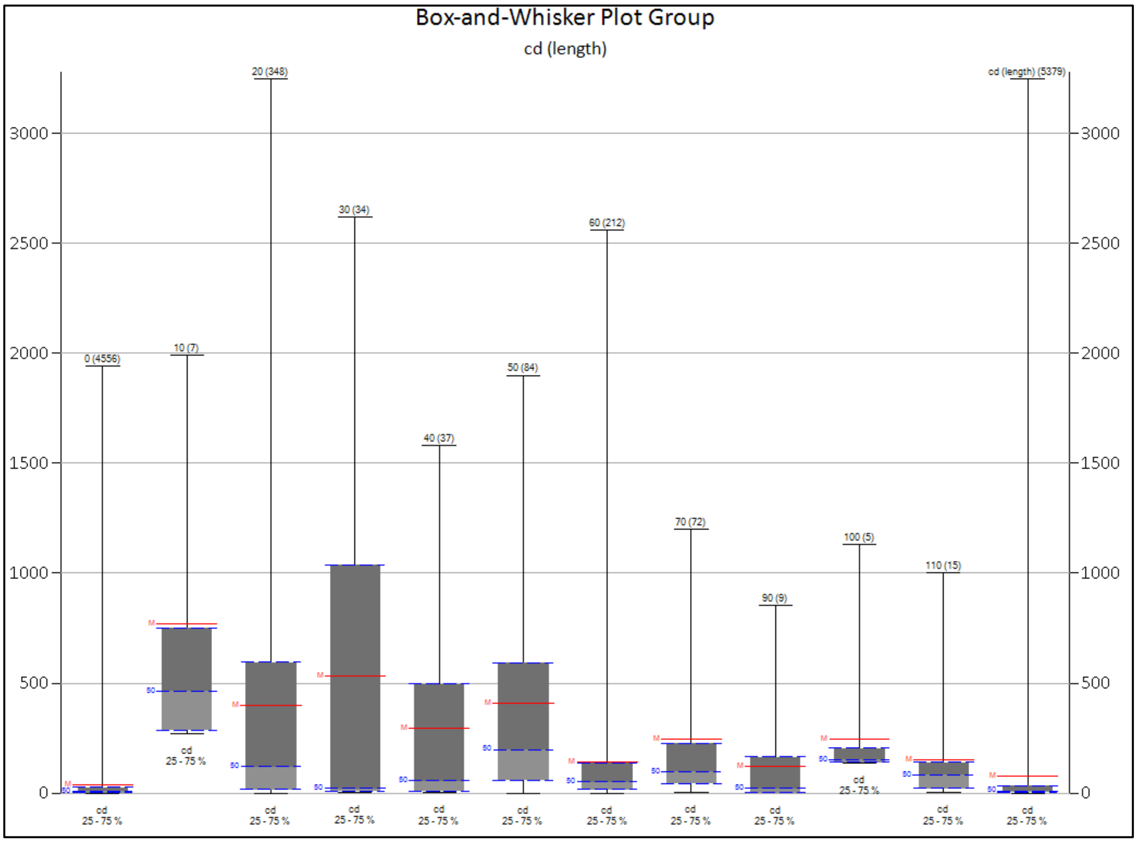


Figure 7-6: Cadmium grade box-and-whisker plot broken down by mineralisation domain

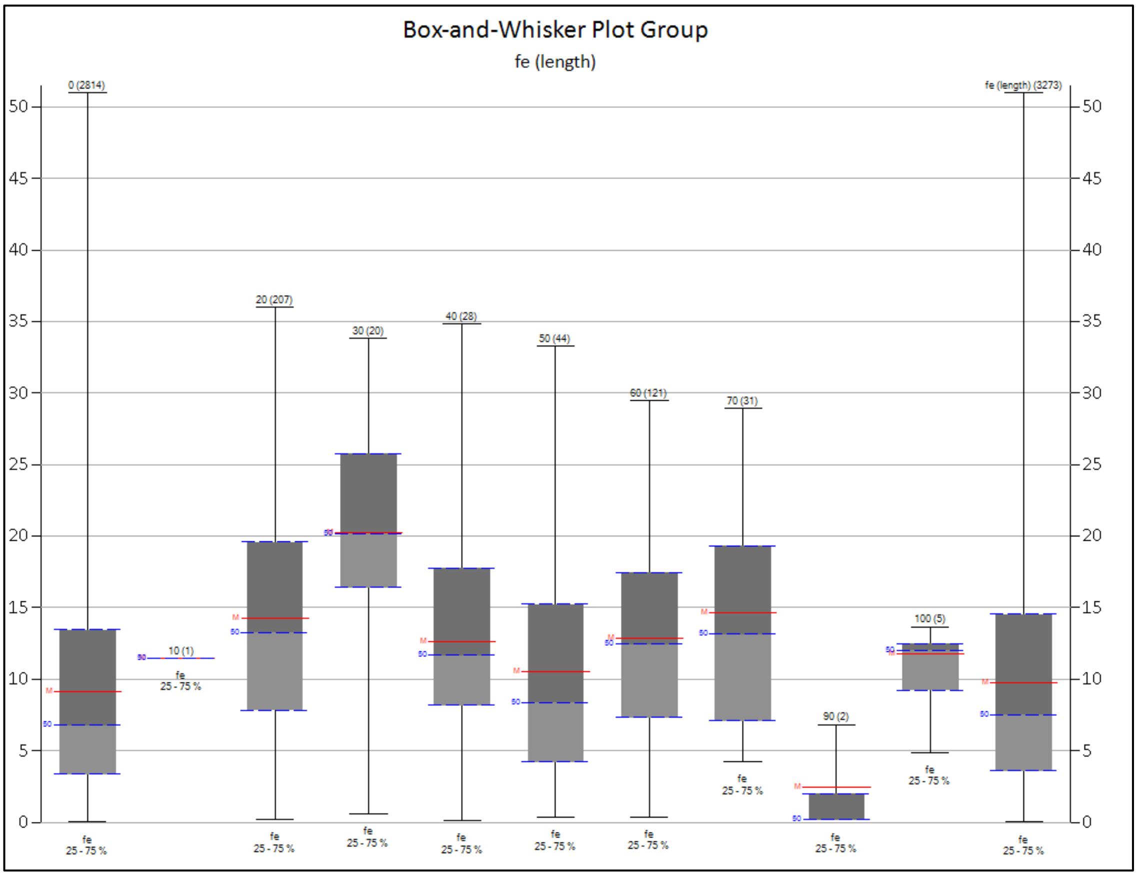


Figure 7-7: Iron grade box-and-whisker plot broken down by mineralisation domain

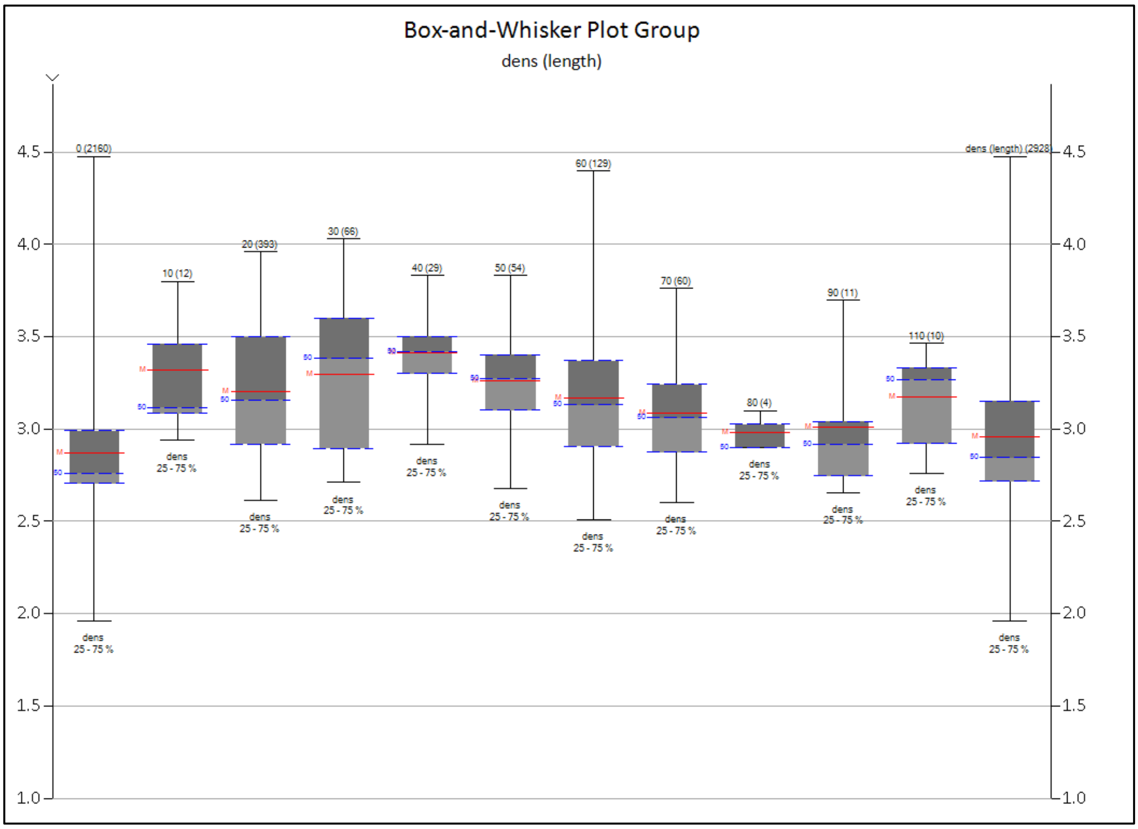


Figure 7-8: Density box-and-whisker plot broken down by mineralisation domain

7.3 Sample compositing

Several different sample lengths have been used during the various drilling programs. Mineralised samples range from 0.1 m to 7.6 m with approximately 65% of the samples ≤1 m in length and 90% of the samples ≤2 m in length (Figure 7-9). Waste samples range from 0.12 m to 79 m with approximately 70% of the samples ≤1 m in length and 87% of the samples ≤2 m in length (Figure 7-10).

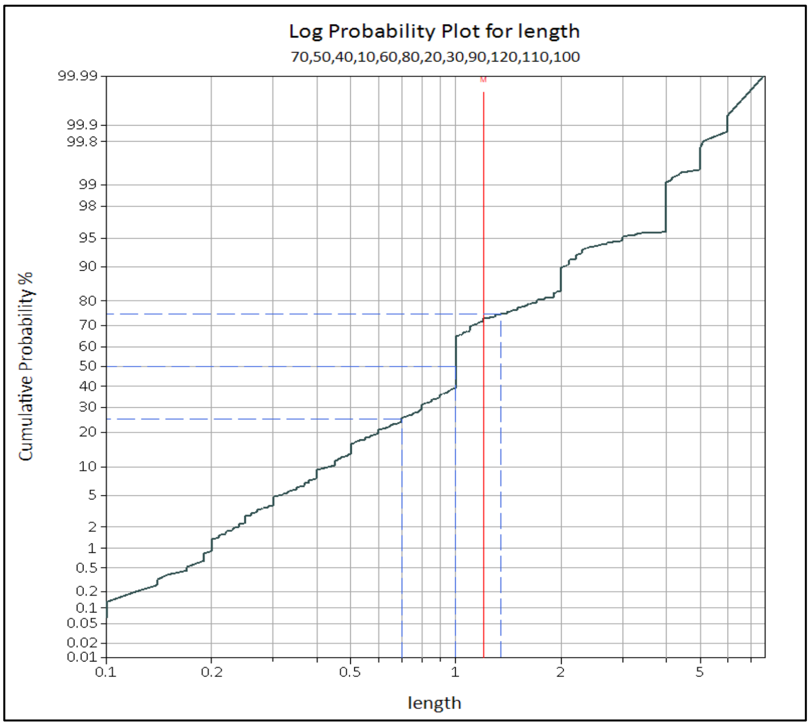


Figure 7-9: Log probability plot of raw mineralised sample lengths

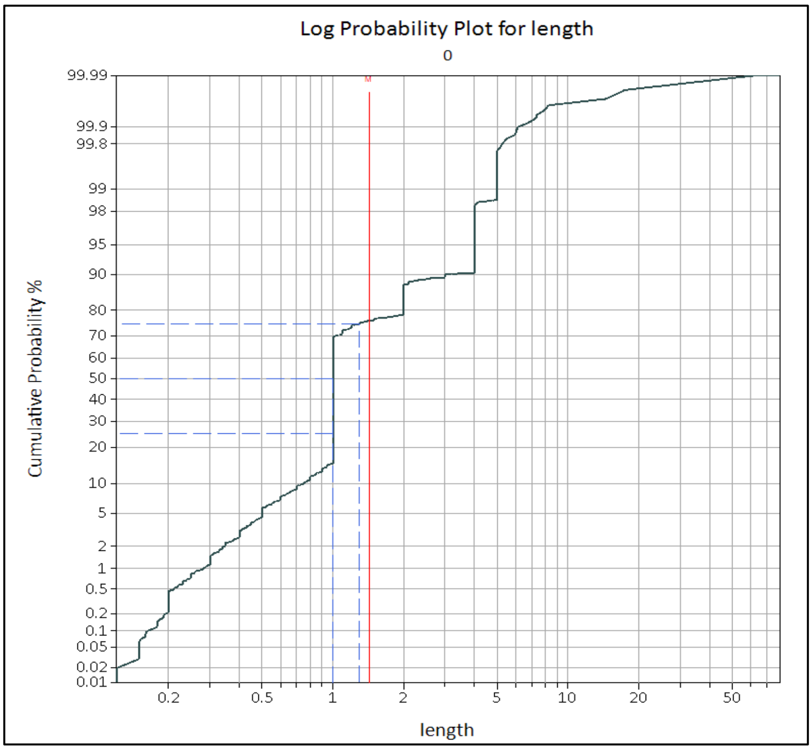


Figure 7-10: Log probability plot of raw waste sample lengths

Mean grades of the raw samples, 1 m and 2 m composites within the main mineralised domains show little difference, except for arsenic and cadmium which have fewer overall samples (Figure 7-11 to Figure 7-17).

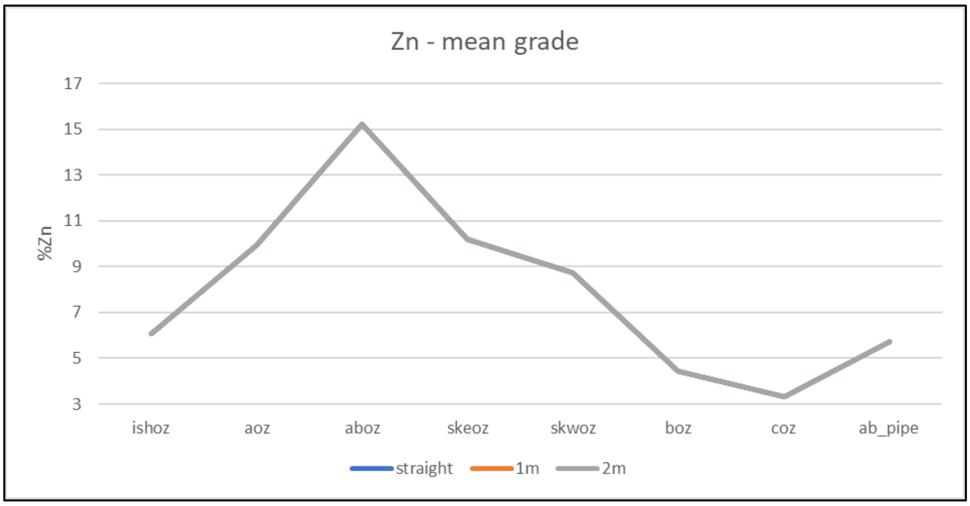


Figure 7-11: Composite length analysis – zinc grade

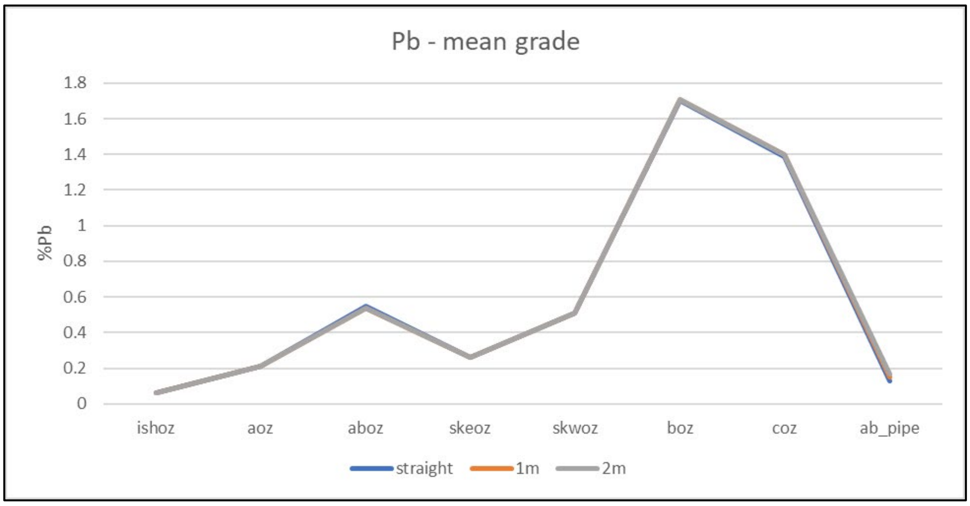


Figure 7-12: Composite length analysis – lead grade

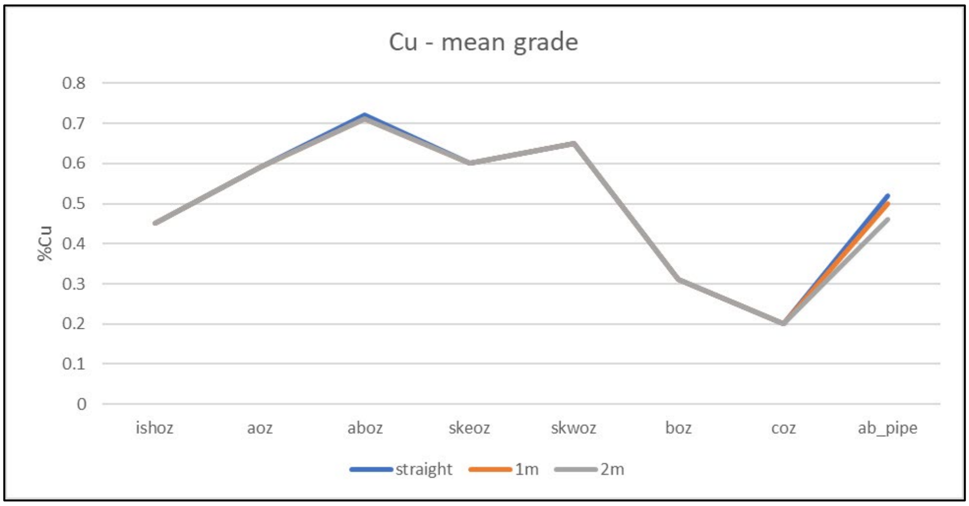


Figure 7-13: Composite length analysis – copper grade

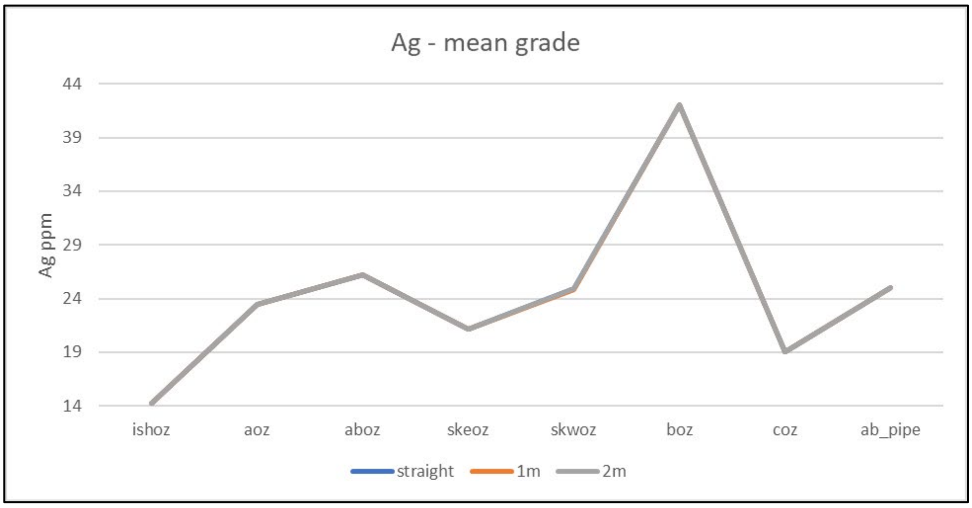


Figure 7-14: Composite length analysis – silver grade

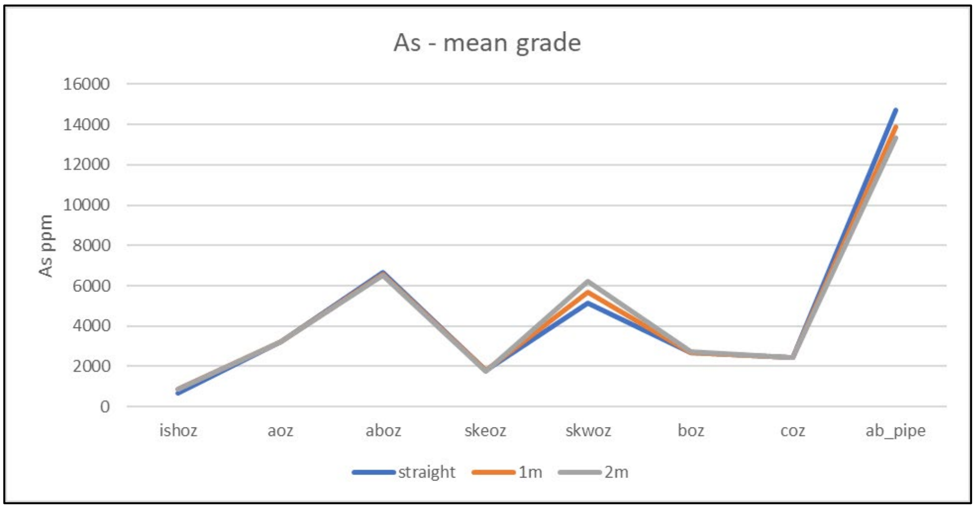


Figure 7-15: Composite length analysis – arsenic grade

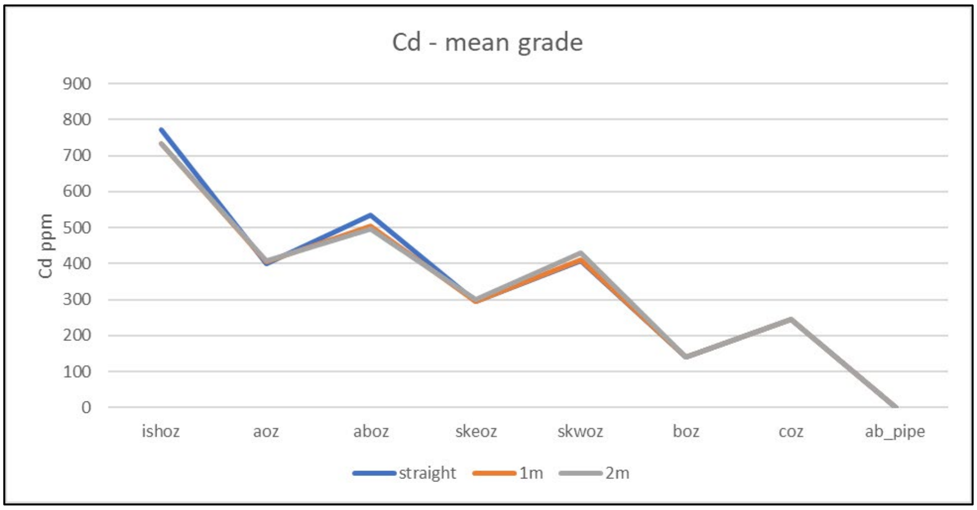


Figure 7-16: Composite length analysis – cadmium grade

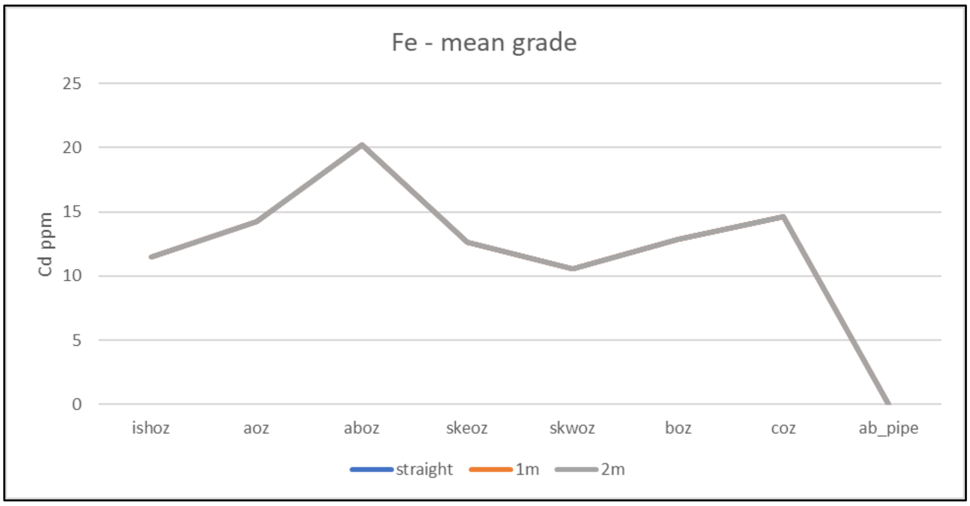


Figure 7-17: Composite length analysis – iron grade

After considering the range of mineralisation widths, grade variable ranges and the number of resulting composite samples, a composite sample size of 1 m has been adopted. Raw drillhole samples were composited into two 1 m composite databases – *kvol_res_1m.cmp.isis* for the grade variables and *kvol_dens_1m.cmp.isis* for density samples. Residual samples ≤0.5 m were appended to the previous composite sample.

Table 7-6: Zn, Pb, Cu and Ag composite length analysis – raw samples vs 1 m composites

Min			ishoz	aoz	aboz	skeoz	skwoz	boz	coz	ab_pipe
Minzone			10	20	30	40	50	60	70	80
Zn	Straight	# Samples	14	657	130	55	117	347	154	25
		Minimum	0.01	0.01	0.01	0.03	0.01	0.01	0.01	0.03
		Maximum	38.5	53.76	49	45.6	52.7	46.5	44.4	24.6
		Mean	6.06	9.95	15.22	10.2	8.73	4.43	3.32	5.73
		CV	1.64	1.32	1.02	1.22	1.30	1.68	1.51	1.19
	1 m	# Composites	32	750	124	58	119	460	267	28
		Minimum	0.01	0.01	0.01	0.07	0.01	0.01	0.01	0.03
		Maximum	38.5	48.74	48.7	45.6	51.78	46.5	44.4	24.6
		Mean	6.06	9.95	15.22	10.2	8.73	4.43	3.32	5.73
		CV	1.60	1.02	0.91	1.19	1.23	1.57	1.50	1.12
Min			**ishoz**	**aoz**	**aboz**	**skeoz**	**skwoz**	**boz**	**Coz**	**ab_pipe**
Minzone			**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**
Pb	Straight	# Samples	14	641	126	55	117	345	153	23
		Minimum	0.01	0	0	0	0	0	0	0.01
		Maximum	0.22	8.95	8.69	7.25	14.45	25.2	16.05	0.73
		Mean	0.06	0.21	0.55	0.26	0.51	1.7	1.39	0.13
		CV	0.98	2.40	2.02	3.13	2.69	2.04	1.49	1.22
	1 m	# Composites	32	728	124	58	119	454	263	25
		Minimum	0.01	0	0	0	0	0	0	0.01
		Maximum	0.22	6.88	6.4	7.25	6.53	20.7	16.05	0.73
		Mean	0.06	0.21	0.54	0.26	0.51	1.71	1.4	0.15
		CV	0.97	2.19	1.95	3.11	2.27	1.92	1.43	1.21

Min			ishoz	aoz	aboz	skeoz	skwoz	boz	coz	ab_pipe
Minzone			10	20	30	40	50	60	70	80
Cu	Straight	# Samples	14	646	126	54	114	343	152	22
		Minimum	0	0	0	0	0	0	0	0.01
		Maximum	2.31	12	6.65	3.35	7.1	5.8	1.73	4.7
		Mean	0.45	0.59	0.72	0.6	0.65	0.31	0.2	0.52
		CV	1.57	1.79	1.23	1.43	1.87	2.26	1.40	2.07
	1 m	# Composites	32	740	124	56	117	457	266	24
		Minimum	0	0	0	0	0	0	0	0.01
		Maximum	2.31	12	4.95	3.35	5.9	5.8	1.73	4.7
		Mean	0.45	0.59	0.71	0.6	0.65	0.31	0.2	0.5
		CV	1.55	1.66	1.11	1.42	1.69	2.17	1.37	2.13
Min			ishoz	aoz	aboz	skeoz	skwoz	boz	coz	ab_pipe
Minzone			10	20	30	40	50	60	70	80
Ag	Straight	# Samples	14	657	125	55	116	349	154	25
		Minimum	0.01	0.01	0.25	0.25	0.01	0.01	0.25	1
		Maximum	39	795	289.94	209.67	297.53	937	392	159
		Mean	14.28	23.44	26.18	21.2	24.91	42.02	19.07	25.05
		CV	0.92	2.94	1.19	1.57	1.79	2.43	2.37	1.78
	1 m	# Composites	32	750	121	58	119	462	267	28
		Minimum	0.01	0.01	0.25	0.45	0.01	0.01	0.25	1
		Maximum	39	795	172	209.67	239.04	937	392	159
		Mean	14.28	23.44	26.18	21.2	24.81	42.02	19.07	25.05
		CV	0.90	2.91	1.08	1.57	1.61	2.33	2.35	1.77

7.4 Declustering analysis

A large program of underground infill diamond drilling has been completed since the last Mineral Resource estimate in April 2016. Visual inspection of the resource drillhole dataset shows a semi-regular drilling grid of approximately 25 mY × 25 mRL intersecting the main mineralised lenses proximal to the current underground workings down to the 750 mRL level (Figure 7-18), where the drilling grid expands to ≥100 mY × 100 mRL.

Declustering analysis using cell sizes from 1 mX × 5 mY × 5 mRL up to 5 mX × 25 mY × 25 mZ cell size shows little difference between the naive and declustered means indicating the drillhole data are not inherently clustered.

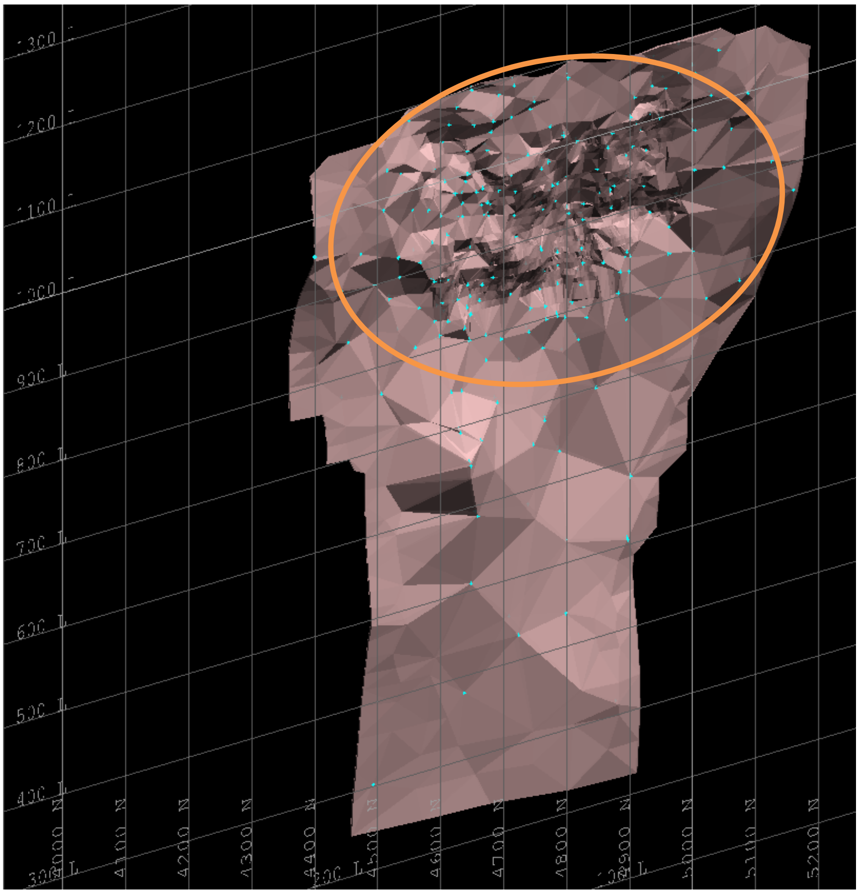


Figure 7-18: Drillhole intercepts through the aoz mineralised lens (Minzone=20)

Note: Close-spaced drilling (approximately 25 mY × 25 mRL) proximal to the current underground workings shown in orange circle.

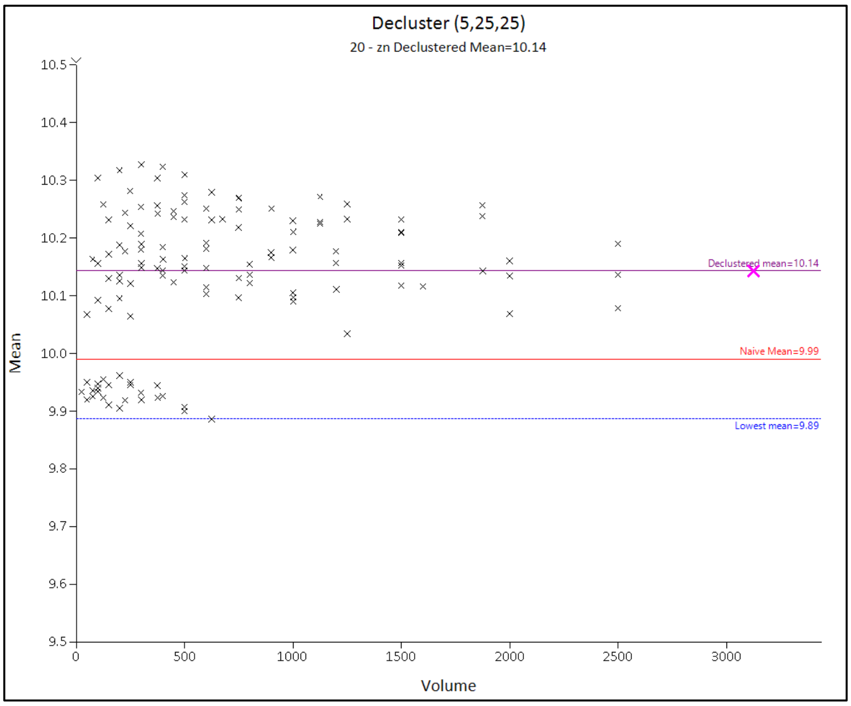


Figure 7-19: Minzone 20 Zn% decluster analysis using cells sizes from 1 mX × 5 mY × 5 mRL to 5 mX × 25 mY × 25 mRL (pink cross)

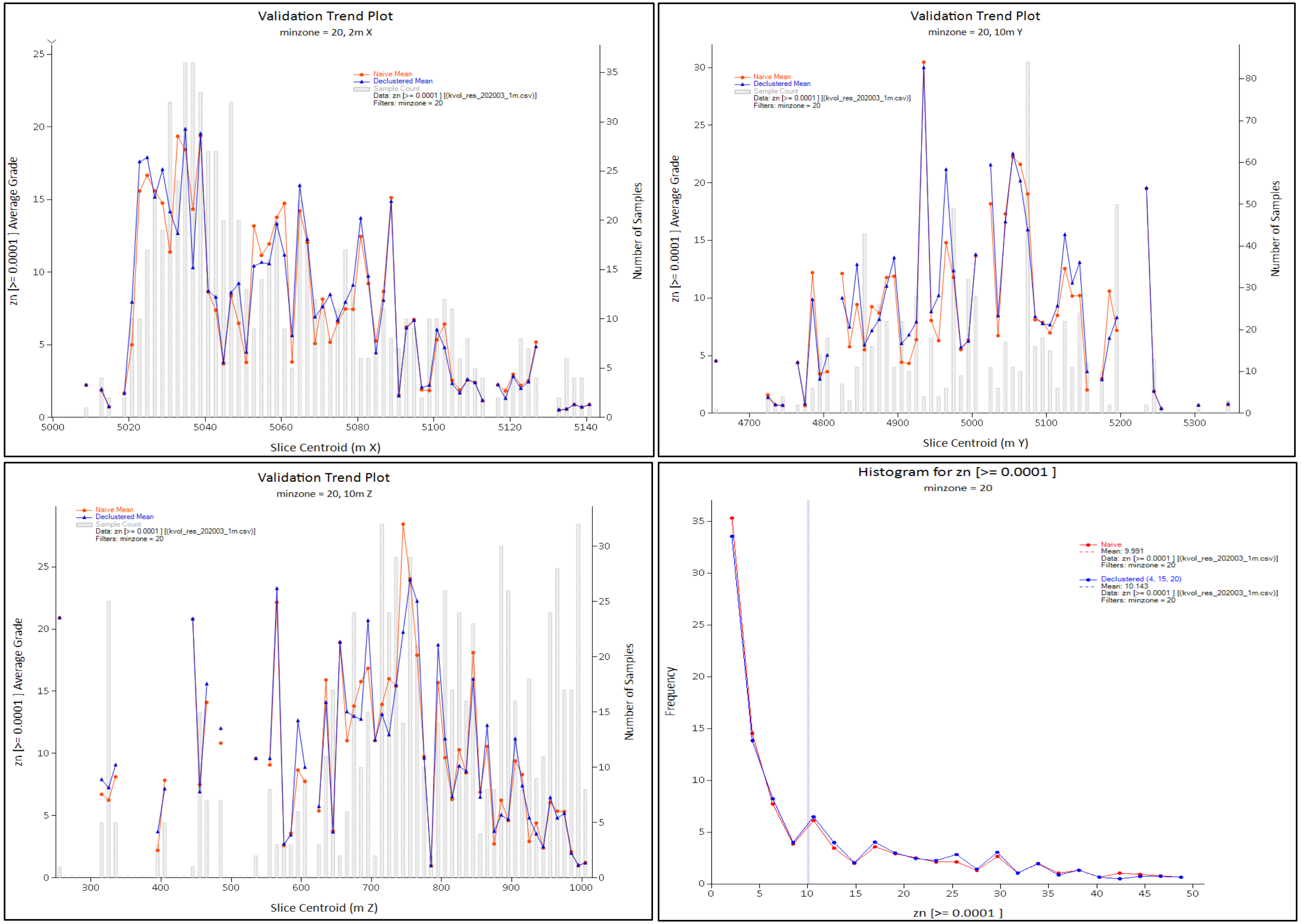
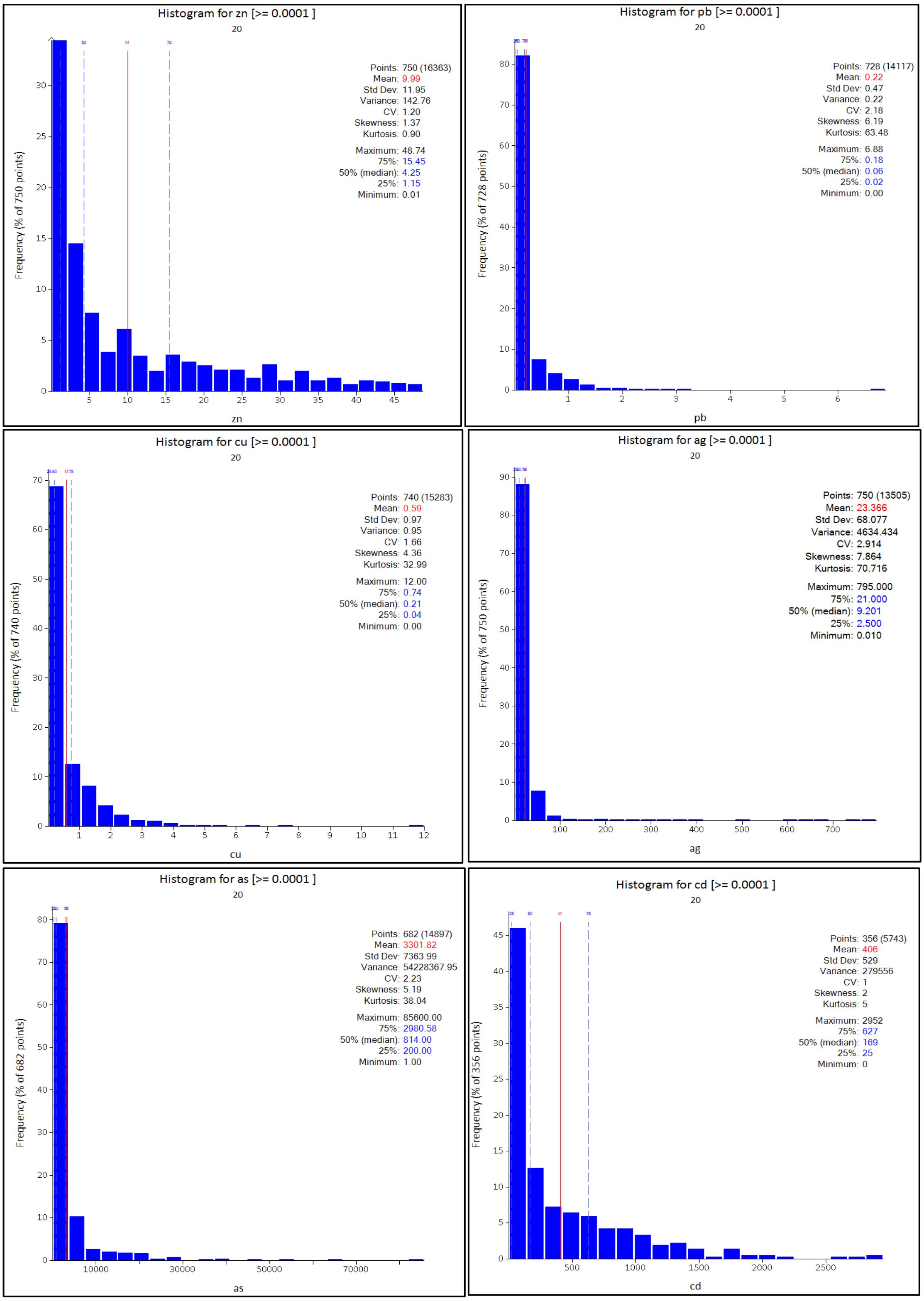


Figure 7-20: Minzone 20, Zn% declustered swath plots

Note: Naive mean=red line, declustered mean=blue line.

7.5 Outlier analysis

The mineralised domains all contain positively skewed zinc, lead, copper, silver, arsenic and cadmium populations with moderate to high coefficient of variation values indicating that high-grade values may contribute significantly to the mean grade of each domain and could cause high-grade smearing during estimation. Histograms and probability plots were used to identify high-grade outliers within each mineralised domain (Figure 7-21) and formulate top-cuts that were applied during grade estimation (Table 7-7).



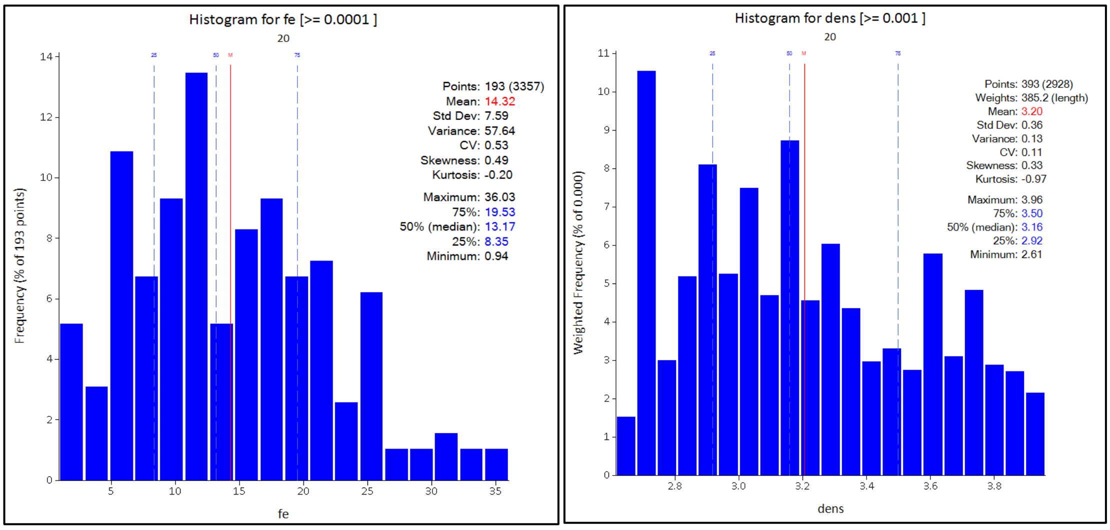


Figure 7-21: Minzone 20, variable length-weighted histograms

Table 7-7: Grade variables – top-cuts applied by domain

Domain	ishoz	aoz	aboz	skeoz	skwoz	boz	coz	ab_pipe	ark (hw, min1, min2, min3)
	10	20	30	40	50	60	70	80	90, 100, 110, 120
Zn %						40	27		
Pb %		3.5	4	1.5	3		9		
Cu %		8	3	2.2	4	3.6	1.1	2	
Ag ppm			140	120	150	450	200		
As ppm		6,000	30,000	10,000	5,500	30,000	35,000	60,000	
Cd ppm		2,250	1,400	1,000	1,600	1,100			
Fe %									

7.6 Variography

Variography modelling was conducted for zinc, lead, copper, silver, arsenic, cadmium and iron in Minzone domains 20 (aoz), 50 (boz) and 60 (coz) and for density in Minzone domain 20 where there were adequate composite samples. All of grade variables and density showed moderate anisotropy with the direction of major continuity occurring strike, the semi-major direction occurring up dip and down dip and the minor direction occurring across strike. Composite data were transformed into normal scores prior to variogram modelling and back-transformed into Vulcan ZXY rotation prior to Mineral Resource estimation (Figure 7-22 and Table 7-8).

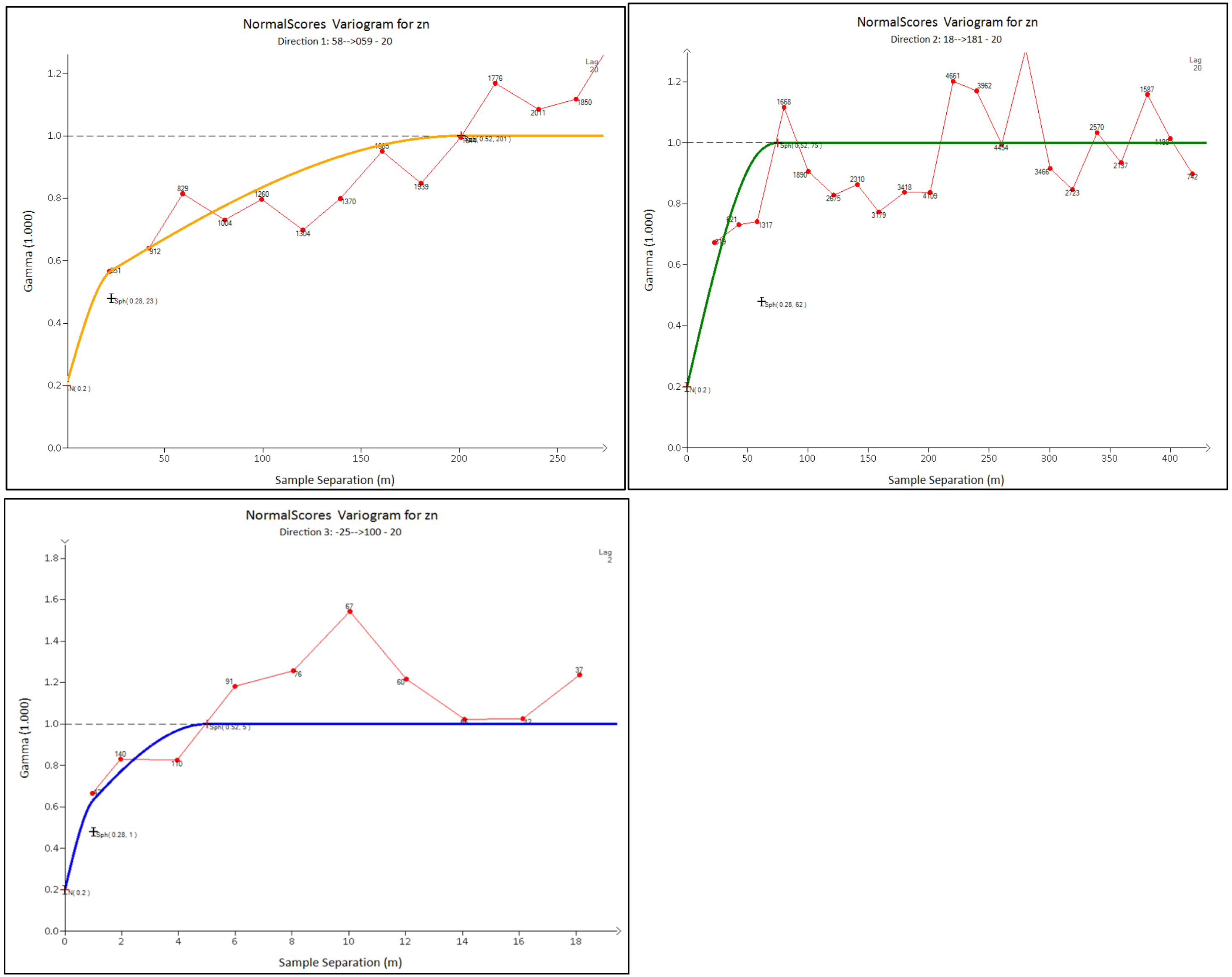


Figure 7-22: Zinc – major, semi-major and minor direction semi-variogram models for Minzone 20

Table 7-8: King Vol back-transformed variogram models

Minzone	Variable	Nugget	Structure 1				Structure 2				Structure 3				Directions		
			Sill	Major	Semi-major	Minor	Sill	Major	Semi-major	Minor	Sill	Major	Semi-major	Minor	Strike	Dip	Plunge
20	Zn	0.24	0.30	23	62	1	0.46	201	75	5					010	65→280	58→059
	Pb	0.13	0.69	193	35	5	0.18	250	351	10000					010	65→280	27→024
	Cu	0.14	0.62	28	38	2	0.24	161	66	18					010	65→280	36→036
	Ag	0.56	0.34	75	49	1	0.10	114	60	2					010	85→280	-20→008
	As	0.15	0.43	87	44	1	0.43	192	74	2					010	65→280	52→046
	Cd	0.12	0.61	103	37	8	0.26	152	51	9					000	85→270	-20→358
	Fe	0.17	0.22	23	53	2	0.52	101	67	10000	0.08	10000	68	10010	010	85→280	-15→009
	Density	0.11	0.82	52	28	6	0.08	58	116	10					005	90→275	40→185
60	Zn	0.21	0.38	47	20	2	0.41	68	32	10000					000	70→270	46→022
	Pb	0.13	0.50	34	72	5	0.37	321	145	10000					000	80→270	54→014
	Cu	0.24	0.42	38	71	5	0.35	224	112	10000					000	75→270	-43→345
	Ag	0.14	0.52	38	62	6	0.34	85	76	10000					000	85→270	55→007
	As	0.36	0.57	45	21	6	0.07	52	40	10000					000	75→270	48→017
	Cd	0.15	0.59	105	52	6	0.25	158	72	10000					355	80→265	0→355
	Fe	0.10	0.15	60	151	6	0.75	354	197	10000					355	80→265	0→355
70	Zn	0.23	0.58	43	58	6	0.19	222	70	10000					000	80→270	80→090
	Pb	0.08	0.46	7	39	6	0.45	456	46	10000					000	85→270	65→169
	Cu	0.10	0.41	54	58	6	0.50	234	69	10000					000	80→270	20→176
	Ag	0.31	0.28	11	17	8	0.40	334	122	10000					355	80→265	8→085
	As	0.28	0.48	40	43	8	0.24	177	54	10000					000	70→270	9→003
	Cd	0.15	0.45	66	120	8	0.40	278	212	10000					000	70→270	-5→358
	Fe	borrowed from Minzone 60															

7.7 Kriging neighbourhood analysis

Kriging neighbourhood analysis (KNA) was conducted using composite and variogram model data from the Minzone 20 domain with the resulting search parameters applied to all other mineralised domains.

The KNA analysis indicated:

- An optimised estimation block size of 5 mX × 10 mY × 10 mRL (Figure 7-23)
- Minimum of 6–8 samples and a maximum of 24–28 samples per block estimate (Figure 7-24)
- An optimised search range of 25–100 m (Figure 7-25)
- An optimised discretisation of 5 X × 5 Y × 5 mRL (Figure 7-26).

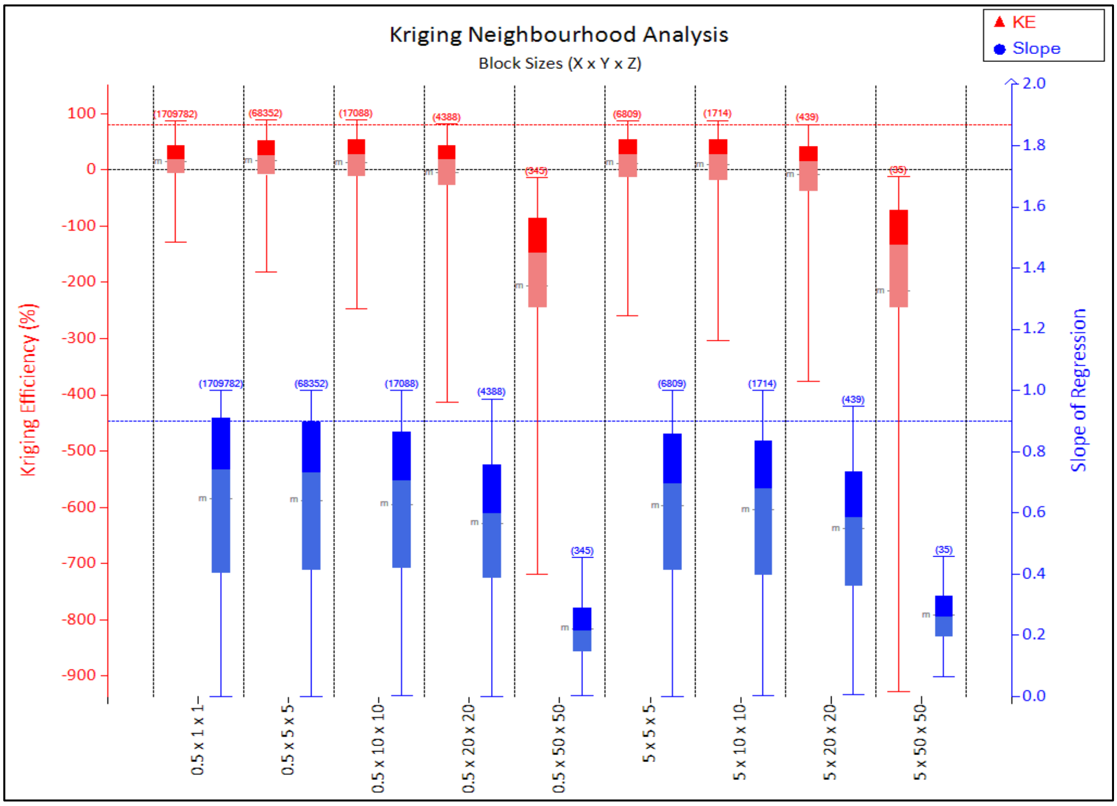


Figure 7-23: KNA block size analysis – Zn% Minzone = 20 (aoz)

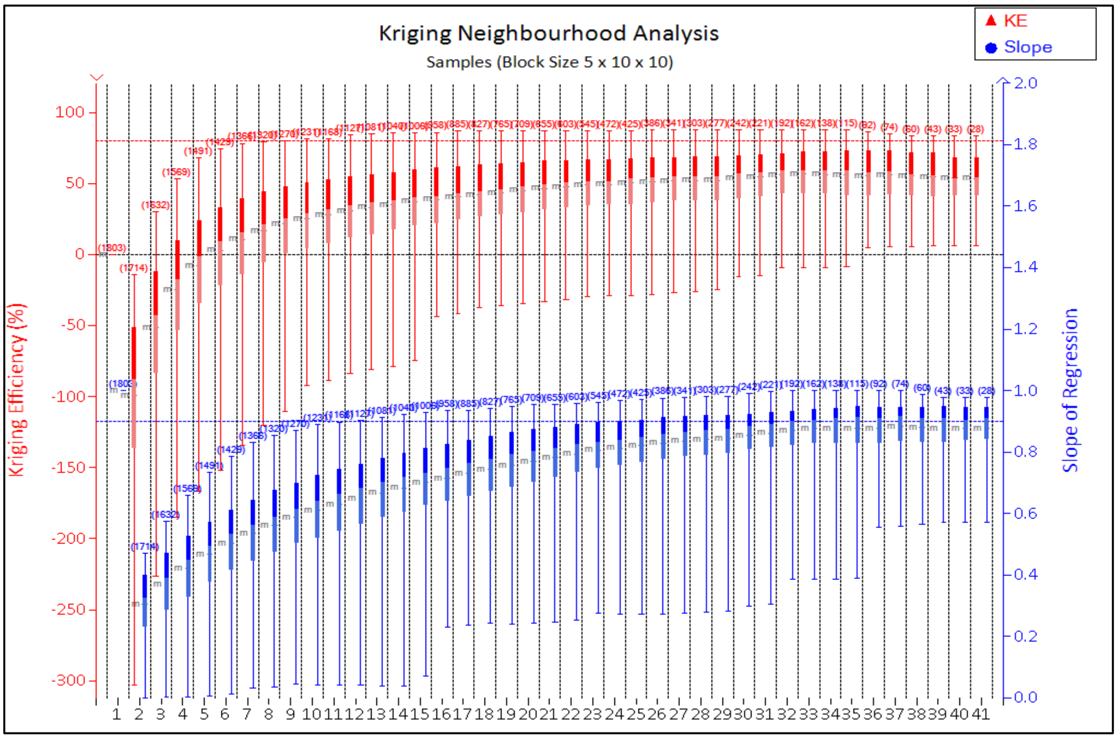


Figure 7-24: KNA sample range analysis – Zn% Minzone = 20 (aoz)

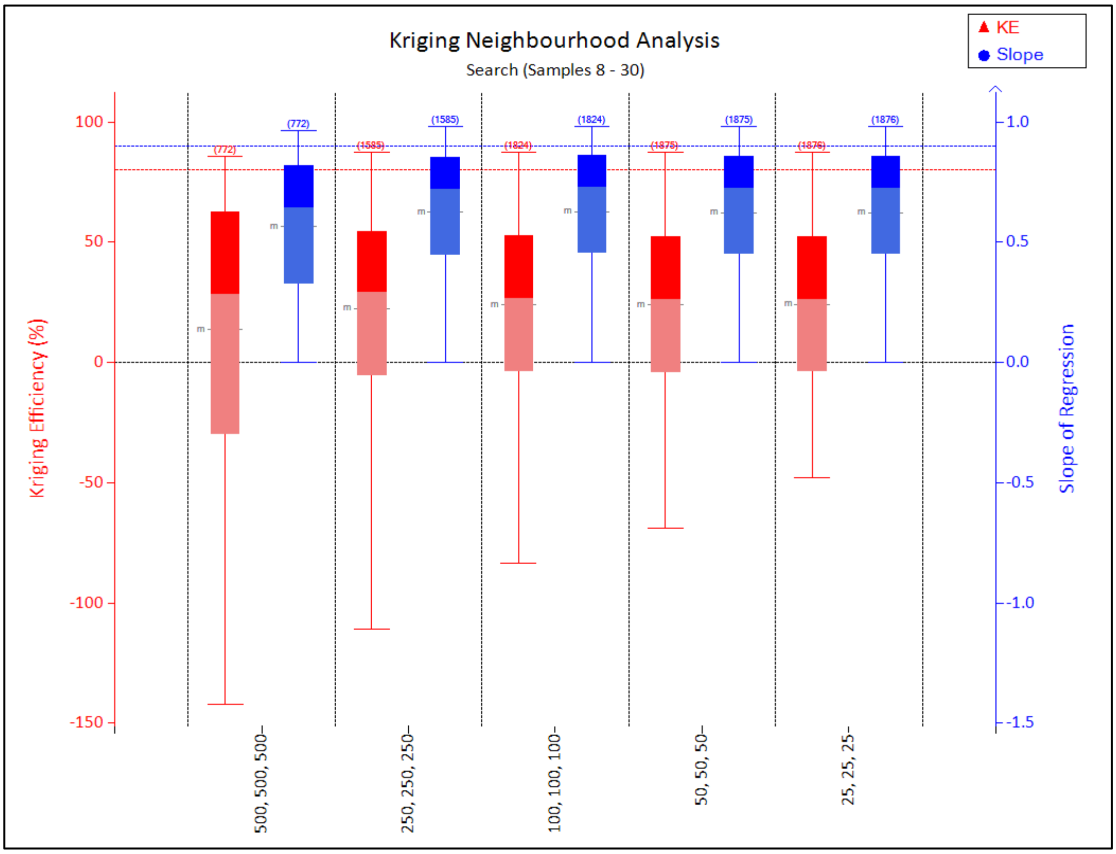


Figure 7-25: KNA search range analysis – Zn% Minzone = 20 (aoz)

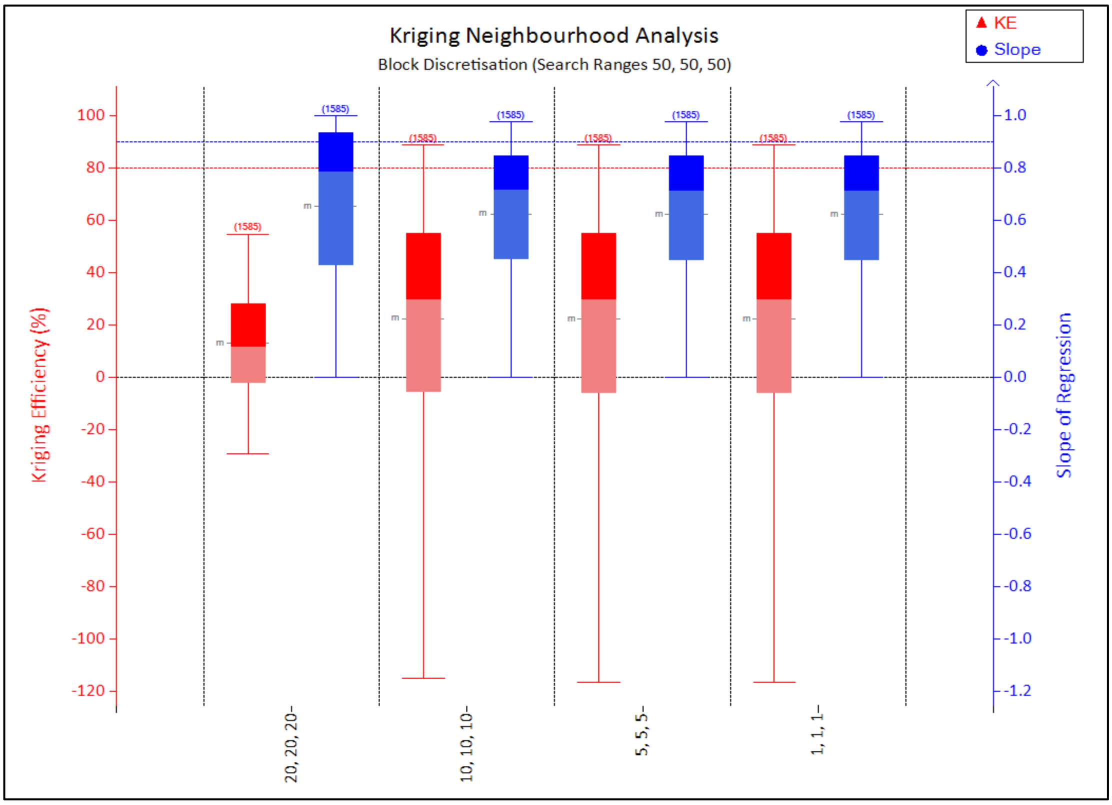


Figure 7-26: KNA block discretisation analysis – Zn% Minzone = 20 (aoz)

8 Mineral Resource Estimation

8.1 Block model construction

The 2020 King Vol block model dimensions were selected to match the extents of the current mineralisation domain models and to match, as closely as possible, the previous April 2016 Mineral Resource and the December 2019 Grade Control model (Figure 8-1 and Table 8-1).

The parent block size used was 5 mX × 10 mZ × 10 mRL with sub-cells of 0.5 mX × 1 mY × 1 mRL to match the optimal estimation cell size identified during KNA while also accommodating the narrow and variable nature of the mineralised lenses. Blocks were limited using the 2008 topographic surface, i.e. no blocks were constructed above the topography.

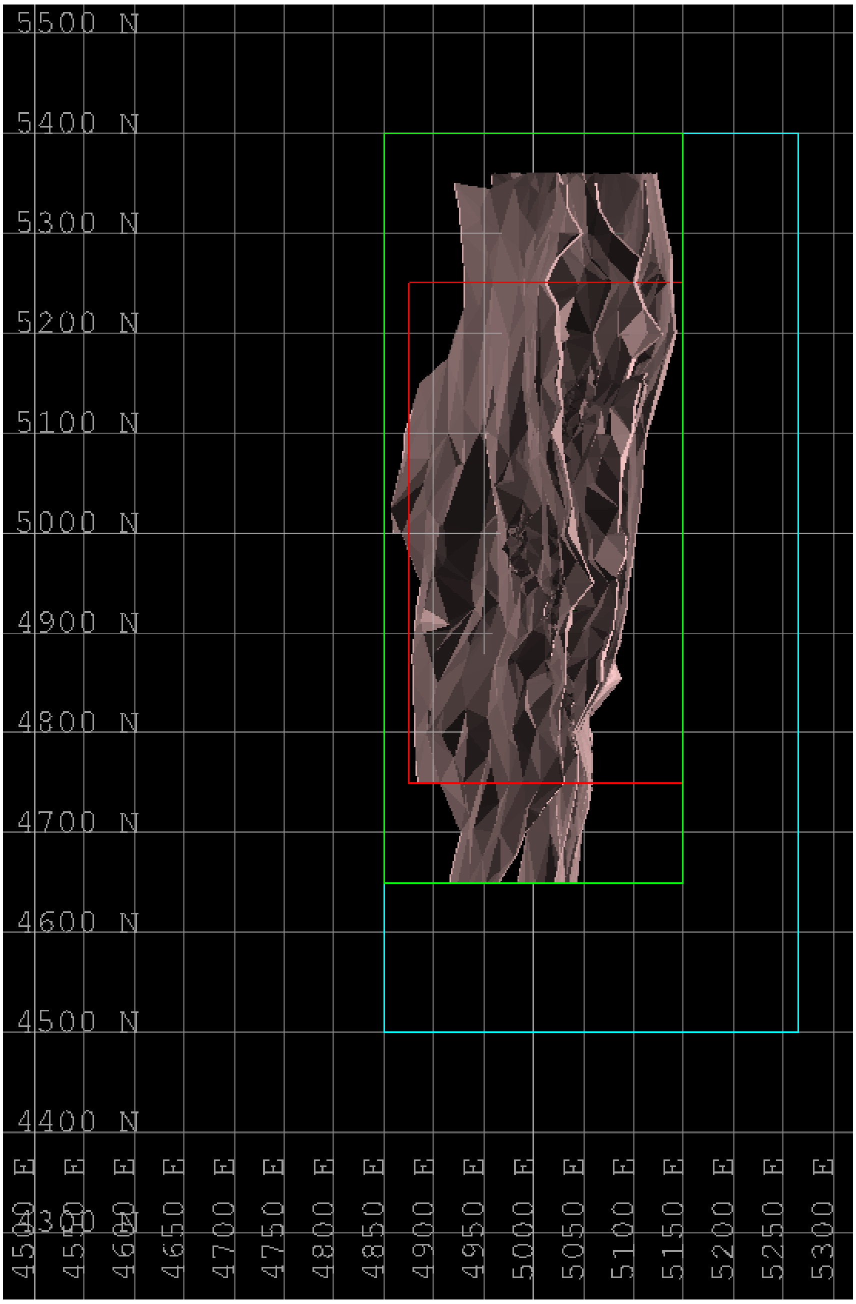


Figure 8-1: King Vol model extents

Notes: 2016 Mineral Resource = blue, 2020 Mineral Resource model = green, 2019 Grade Control model = red. Mineralisation wireframes shown in pink.

Table 8-1: Block model dimensions

		Block model		
		April 2016 Mineral Resource	**December 2019 Grade Control**	**March 2020 Mineral Resource**
Origin	X (m)	0	0	0
	Y (m)	0	0	0
	Z (m)	0	0	0
Start Offset	X (m)	4850	4,875	4,850
	Y (m)	4500	4,750	4,650
	Z (m)	150	650	250
End Offset	X (m)	5265	5,150	5,150
	Y (m)	5400	5,250	5,400
	Z (m)	1050	1,000	1,100
Parent Cell	X (m)	5	5	5
	Y (m)	10	10	10
	Z (m)	5	10	10
Sub-cell	X (m)	0.625	0.625	0.5
	Y (m)	1.25	1.25	1
	Z (m)	0.625	1.25	1

A range of grade, domain, estimation and other coding variables were added to the 2020 King Vol block model during the initial block construction (Table 8-2). The domain variables 'lith', 'geozone', 'min', 'minzone' and 'weath' were flagged during the block construction using the King Vol lithological, mineralisation and weathering geological models using the same coding that was applied to the King Vol drillhole database (Table 7-1 to Table 7-3). The block model was validated in plan in cross section to ensure block model extents and coding.

Table 8-2: King Vol 2020 block model variables

Grouping	Variables	Default	Type	Description
Grade variables	zn	-99	double	zn% estimate
	pb	-99	double	pb% estimate
	cu	-99	double	cu% estimate
	ag	-99	double	ag ppm estimate
	as	-99	double	as ppm estimate
	cd	-99	double	cd ppm estimate
	fe	-99	double	fe% estimate
	density	-99	double	density tm3 estimate
Domain variables	lith	unkn	name	lithology code
	min	unkn	name	mineralisation code
	geozone	-99	integer	lithology numeric code
	minzone	-99	integer	mineralisation numeric code
	intzone	-99	integer	combined lith and min code
	weath	-99	integer	weathering code 0 = fresh 2 = oxide
Estimation variables	ag_bv	-99	double	ag block variance
	ag_ke	-99	double	ag kriging efficiency
	ag_pass	-99	short	ag estimate pass
	ag_slope	-99	double	ag slope of regression
	as_pass	-99	short	as estimate pass
	cd_pass	-99	short	cd estimate pass
	cu_bv	-99	double	cu block variance
	cu_ke	-99	double	cu kriging efficiency
	cu_pass	-99	short	cu estimate pass
	cu_slope	-99	double	cu slope of regression
	dens_aads	-99	double	average anisotropic distance to samples
	dens_adns	-99	double	average distance to nearest sample
	dens_bv	-99	double	density block variance
	dens_ke	-99	double	density kriging efficiency
	dens_nd	-99	double	number of drillholes used for estimate
	dens_ns	-99	double	number of samples used for estimate
	dens_pass	-99	short	density estimate pass
	dens_slope	-99	double	density slope of regression
	fe_pass	-99	short	fe estimate pass
	pb_bv	-99	double	pb block variance
	pb_ke	-99	double	pb kriging efficiency
	pb_pass	-99	short	pb estimate pass
	pb_slope	-99	double	pb slope of regression
	samqual	-99	double	sample quality estimation
	zn_aads	-99	double	average anisotrpic distance to samples
	zn_adns	-99	double	average distance to nearest sample
	zn_bv	-99	double	zn block variance
	zn_ke	-99	double	zn kriging efficiency
	zn_nd	-99	double	number of drillholes used for estimate
	zn_ns	-99	double	number of samples used for estimate
	zn_pass	-99	short	zn estimation pass
	zn_slope	-99	double	zn slope of regression
Dynamic anisotropy variables	da_bear	-99	double	dynamic anisotropy bearing
	da_plun	-99	double	dynamic anisotropy plunge
	da_dip	-99	double	dynamic anisotropy dip
Other	rescat	-99	integer	resource classification 0=waste 1=meas 2=ind 3=inf 4=unclass
	mined	-99	integer	mining depletion 0=not mined 1=development 2=stoping

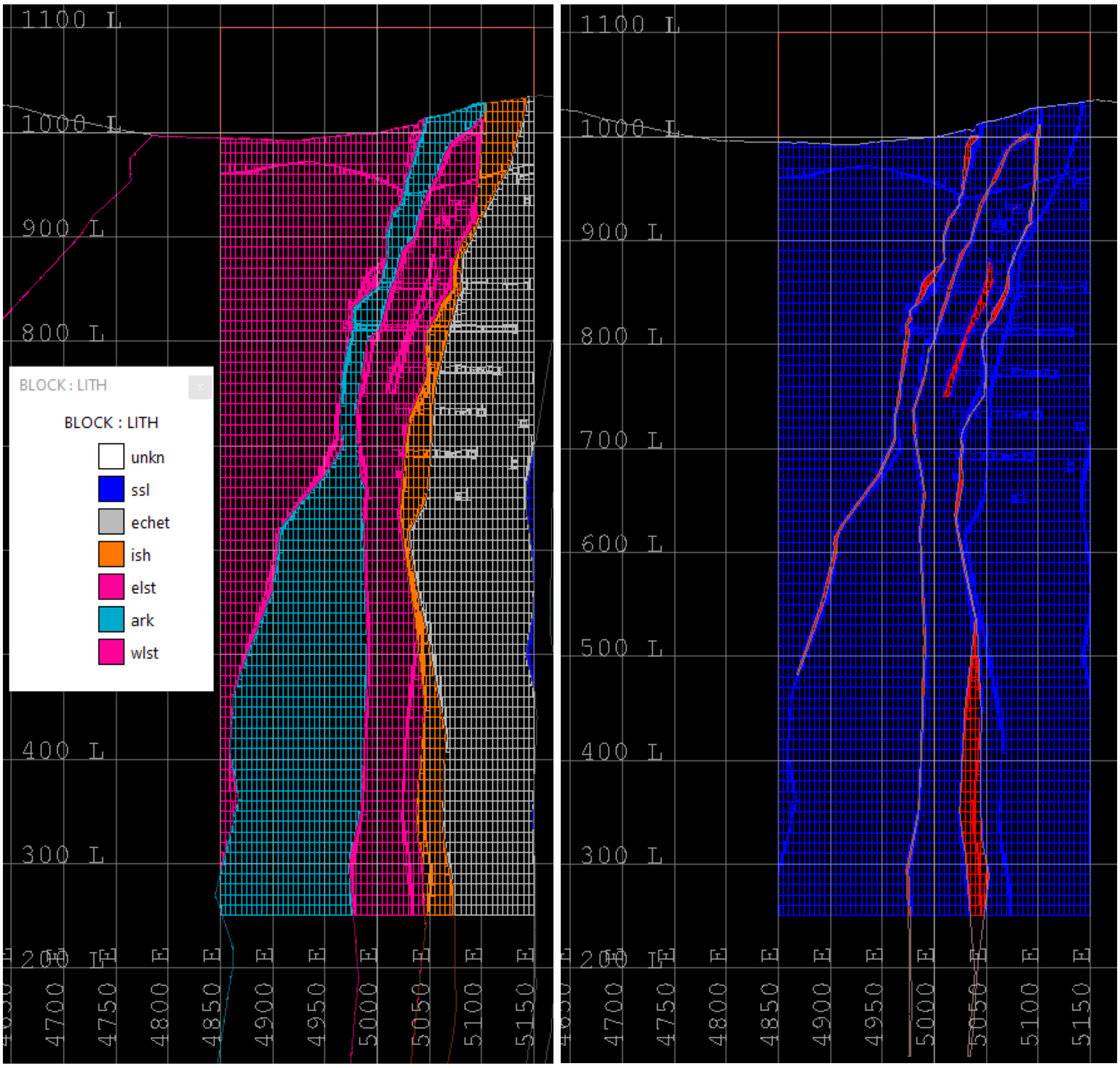


Figure 8-2: King Vol 2020 block model cross section validation 5000 mN

Notes: Left view = lith coding, right view = minzone coding (blue = 0, red ≥ 10).

8.2 Estimation parameters

All of the main mineralised domains were estimated using ordinary kriging (OK) interpolation, whereas Minzone domains 10, 80 90, 100, 110 and 120 were estimated using inverse distance squared (ID^2) interpolation due to the smaller, more dispersed number of drillhole composites in each domain (Table 8-3). Estimation cells sizes matched the overall parent cell size of 5 mX × 10 mY × 10 mRL, with parent cell values assigned to the sub-blocks. Waste domains were not estimated.

The Minzone domains were used as hard boundaries during estimation, except for Minzone domains 90, 100, 110 and 120 that were modelled as narrow *en echelon* lenses (these were estimated together due to low composite counts).

The main mineralised lenses used a dynamic anisotropy unfolding search which was coded into the block model using the Minzone 10 footwall and the Minzone 70 hangingwall contacts (Figure 8-3).

OK estimates for zinc, lead, copper, silver, arsenic, cadmium, iron and density in each domain were run over four passes aligned to the dynamic anisotropy directions stored in each estimation cell. The first two passes were deliberately smaller in an effort to produce more localised estimates in areas of closer drillhole spacing.

The third and four passes were designed to produce more global estimates in areas of wider drill spacing. ID^2 estimates for zinc, lead, copper, silver, arsenic, cadmium and iron were run over three passes whereas density was run over four passes and all were aligned to orientation (strike and dip) of each mineralised lens. The first two pass were the same size as those used for the OK estimations, but the third pass was larger.

Table 8-3: Estimation methodology by Minzone domain

Minzone	Min	Number of Zn composites	Volume of blocks (m^3)	Estimation method		Dynamic anisotropy
				Grade	Density	
10	ishoz	32	31,920	Inverse Distance	Inverse Distance	No
20	aoz	750	1,365,413	Ordinary Kriging	Ordinary Kriging	Yes
30	aboz	124	65,768	Ordinary Kriging	Ordinary Kriging	Yes
40	skeoz	58	44,296	Ordinary Kriging	Ordinary Kriging	Yes
50	skwoz	119	82,823	Ordinary Kriging	Ordinary Kriging	Yes
60	boz	460	825,632	Ordinary Kriging	Ordinary Kriging	Yes
70	coz	267	547,992	Ordinary Kriging	Ordinary Kriging	Yes
80	ab_pipe	28	11,284	Inverse Distance	Inverse Distance	No
90	ark_hw	14	30,572	Inverse Distance	Inverse Distance	No
100	ark_min1	5	8,690			
110	ark_min2	12	17,682			
120	ark_min3	4	5,323			

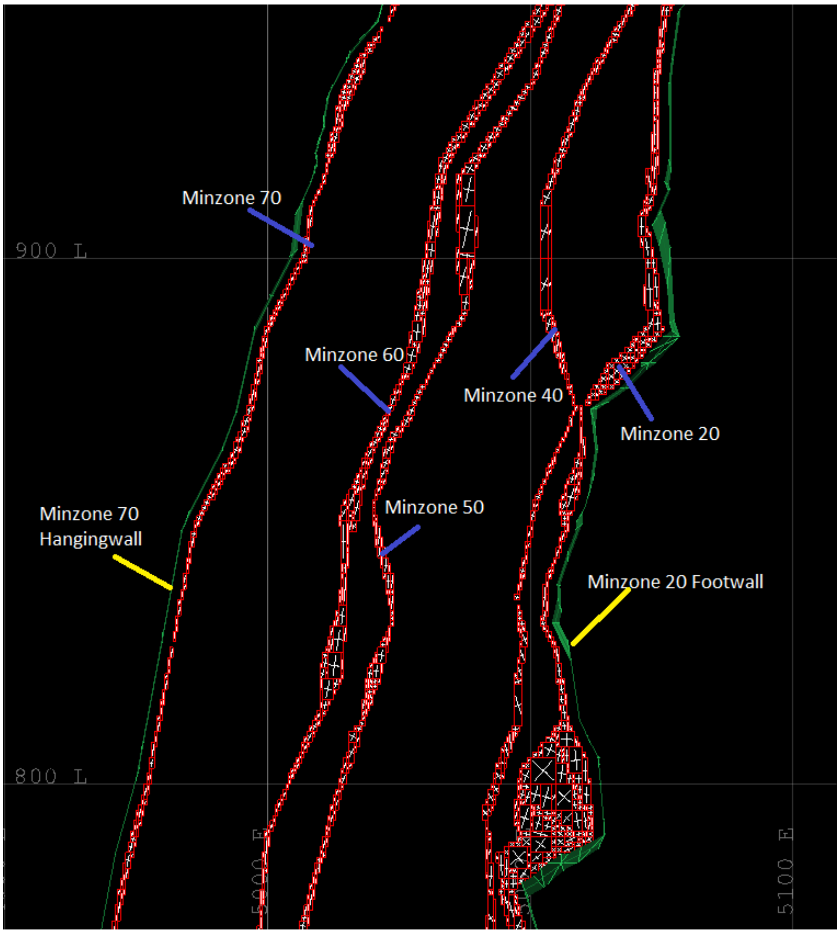


Figure 8-3: Cross section 4910 mN showing dynamic anisotropy coding in the King Vol 2020 block model

Table 8-4: King Vol 2020 Mineral Resource estimate search orientation and dimensions

Minzone	Interpolation method	Search orientation			Pass 1 search dimensions			Pass 2 search dimensions			Pass 3 search dimensions			Pass 4 search dimensions		
		Bearing	Plunge	Dip	Major	Semi-major	Minor	Major	Semi-major	Minor	Major	Semi-major	Minor	Major	Semi-major	Minor
10	ID^2	350o	0o	70o	25	10	25	50	25	50	250	100	250	1000*	100	1000
20	OK	Dynamic Anisotropy			25	10	25	50	25	50	150	50	150	1000	100	1000
30	OK				25	10	25	50	25	50	150	50	150	1000	100	1000
40	OK				25	10	25	50	25	50	150	50	150	1000	100	1000
50	OK				25	10	25	50	25	50	150	50	150	1000	100	1000
60	OK				25	10	25	50	25	50	150	50	150	1000	100	1000
70	OK				25	10	25	50	25	50	150	50	150	1000	100	1000
80	ID^2	090o	-70o	0o	25	10	25	50	25	50	250	100	250	1000*	100	1000
90 100 110 120	ID^2	0o	0o	80o	25	10	25	50	25	50	250	100	250	1000*	100	1000

Note: *Grade variables in Minzones 10, 80, 90, 100, 110 and 120 were estimated using three passes, whereas density was estimated using four passes for all domains.

Table 8-5: King Vol 2020 Mineral Resource estimate sample ranges and composite limits per drillhole

Minzone	Interpolation method	Pass 1 sample selection			Pass 2 sample selection			Pass 3 sample selection			Pass 4 sample selection		
		Minimum	Maximum	Max per drillhole	Minimum	Maximum	Maximum per drillhole	Minimum	Maximum	Maximum per drillhole	Minimum	Maximum	Max per drillhole
10	ID^2	8	28	3	8	28	3	6	28	3	6	24	3
20	OK	8	24	3	8	24	3	6	24	3	6	24	3
30	OK	8	24	3	8	24	3	6	24	3	6	24	3
40	OK	8	24	3	8	24	3	6	24	3	6	24	3
50	OK	8	24	3	8	24	3	6	24	3	6	24	3
60	OK	8	24	3	8	24	3	6	24	3	6	24	3
70	OK	8	24	3	8	24	3	6	24	3	6	24	3
80	ID^2	8	28	3	8	28	3	6	28	3	6	24	3
90 100 110 120	ID^2	8	28	3	8	28	3	6	28	3	6	24	3

In addition to the top cuts applied to certain grade variables (Table 7-7) distance restrictions were used in many of the third and fourth passes to minimise high-grade smearing in the estimate (Table 8-6).

Table 8-6: King Vol 2020 Mineral Resource estimate high-grade threshold limits

Minzone	Value	Zn (%)	Pb (%)	Cu (%)	Ag (ppm)	As (ppm)	Cd (ppm)	Fe (%)	Density (t/m^3)	Grade radius			Density radius		
										Major	Semi-major	Minor	Major	Semi-major	Minor
10	Threshold	12	0.3	0.5	10	25,000			3.46	10	10	10	50-100	25	50-100
	Pass #	P3	P3	P3	P3	P3			P3 and P4						
20	Threshold	15	1.5	3.5	100	3,000	1,500		3.5	100	25	100	50-100	25	50-100
	Pass #	P4	P4	P4	P4	P4	P4		P3 and P4						
30	Threshold				90	20,000			3.6	100	25	100	50-100	25	50-100
	Pass #				P4	P4			P3 and P4						
40	Threshold	20		1.0	90	3,000		25	3.50	100	25	100	50-100	25	50-100
	Pass #	P4		P4	P4	P4		P4	P3 and P4						
50	Threshold	35	1.5	1.0	100	3000	1,100	25	3.4	100	25	100	50-100	25	50-100
	Pass #	P4	P4	P4	P4	P4	P4	P4	P3 and P4						
60	Threshold	22	6.0	1.6	200		600		3.37	100	25	100	50-100	25	50-100
	Pass #	P4	P4	P4	P4		P4		P3 and P4						
70	Threshold	10	3.0	0.6		11,000	500	22	3.24	100	25	100	50-100	25	50-100
	Pass #	P4	P4	P4		P4	P4	P4	P3 and P4						
80	Threshold	12	0.3	0.5	10	25,000			4.00	10	10	10	100	25	100
	Pass #	P3	P3	P3	P3	P3			P4						
90 100 110 120	Threshold	10	1.0	0.5	35	3,500	300		3.3	10	10	10	50-100	25	50-100
	Pass #	P3	P3	P3	P3	P3	P3		P3 and P4						

8.3 Model validation

8.3.1 Blocks filled

Zinc, lead, copper and silver grade variables within the well-supported mineralised domains (Minzones 20, 30, 40, 50, 60 and 70) were filled mostly in the second and third estimation passes whereas the smaller, less well-supported domains estimated with ID^2 were filled mainly in the third larger estimation pass (Figure 8-4).

Density was filled in the predominantly in the third and fourth estimation passes due to the lower amount of available composite samples (Figure 8-5). Minzone 80 did not have enough density composites to fill and blocks.

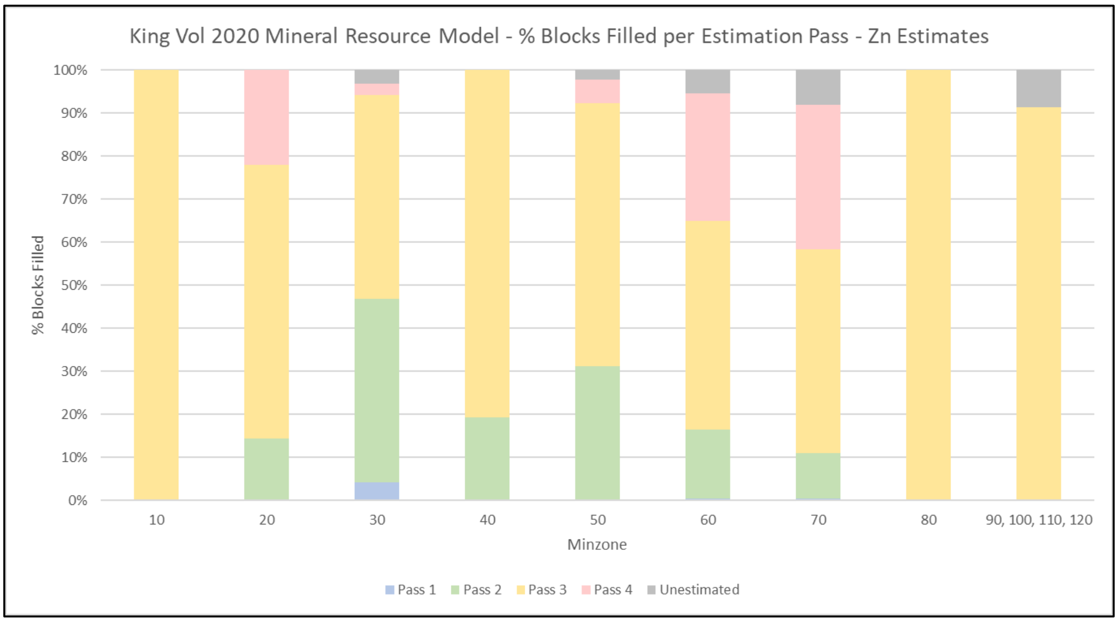


Figure 8-4: King Vol Mineral Resource estimate – blocks fill per zinc estimation pass

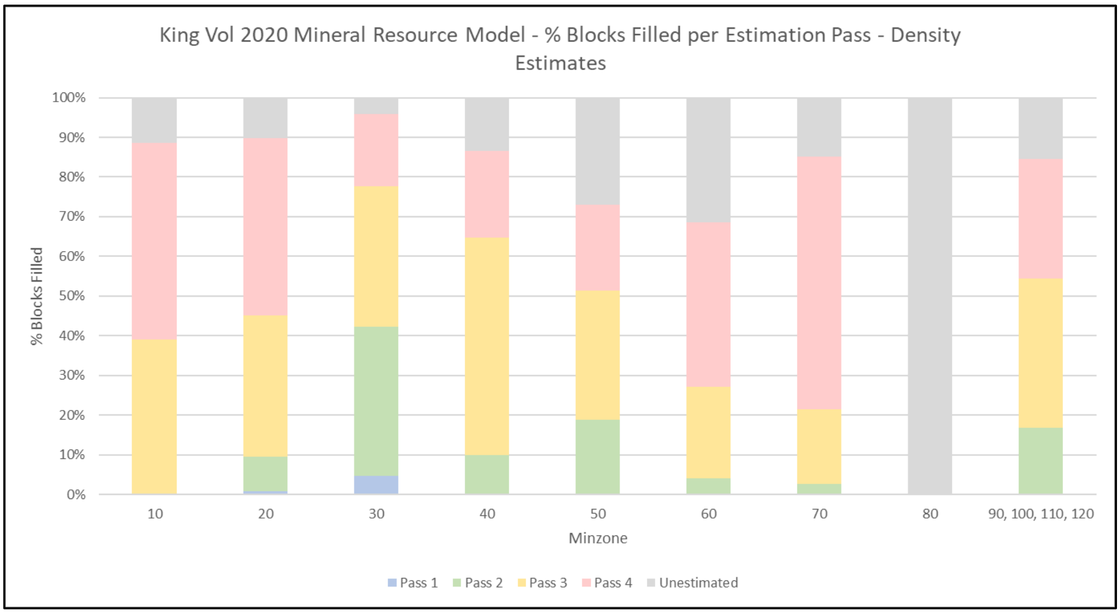


Figure 8-5: King Vol Mineral Resource estimate – blocks fill per density estimation pass

8.3.2 Visual validation

Visual validations between drillhole composite data and the estimated blocks where carried out for all the grade variables and density using east-west cross sections, plan sections and three-dimensional views along each mineralisation lens (Figure 8-6 to Figure 8-16).

Grade estimates for zinc, lead, copper and silver have reproduced the overall grade trends within each domain but due to the narrow width of each mineralised lens and the high grade variability, there are localised mismatches, particularly in the less well-supported domains. However, when compared to both the resource drilling and underground grade control face samples, the resource model appropriately estimates grade (Figure 8-8).

Estimates for arsenic, cadmium, iron and density show more smoothing due to fewer composite samples being available for each domain, but they still reproduce overall grade trends appropriately.

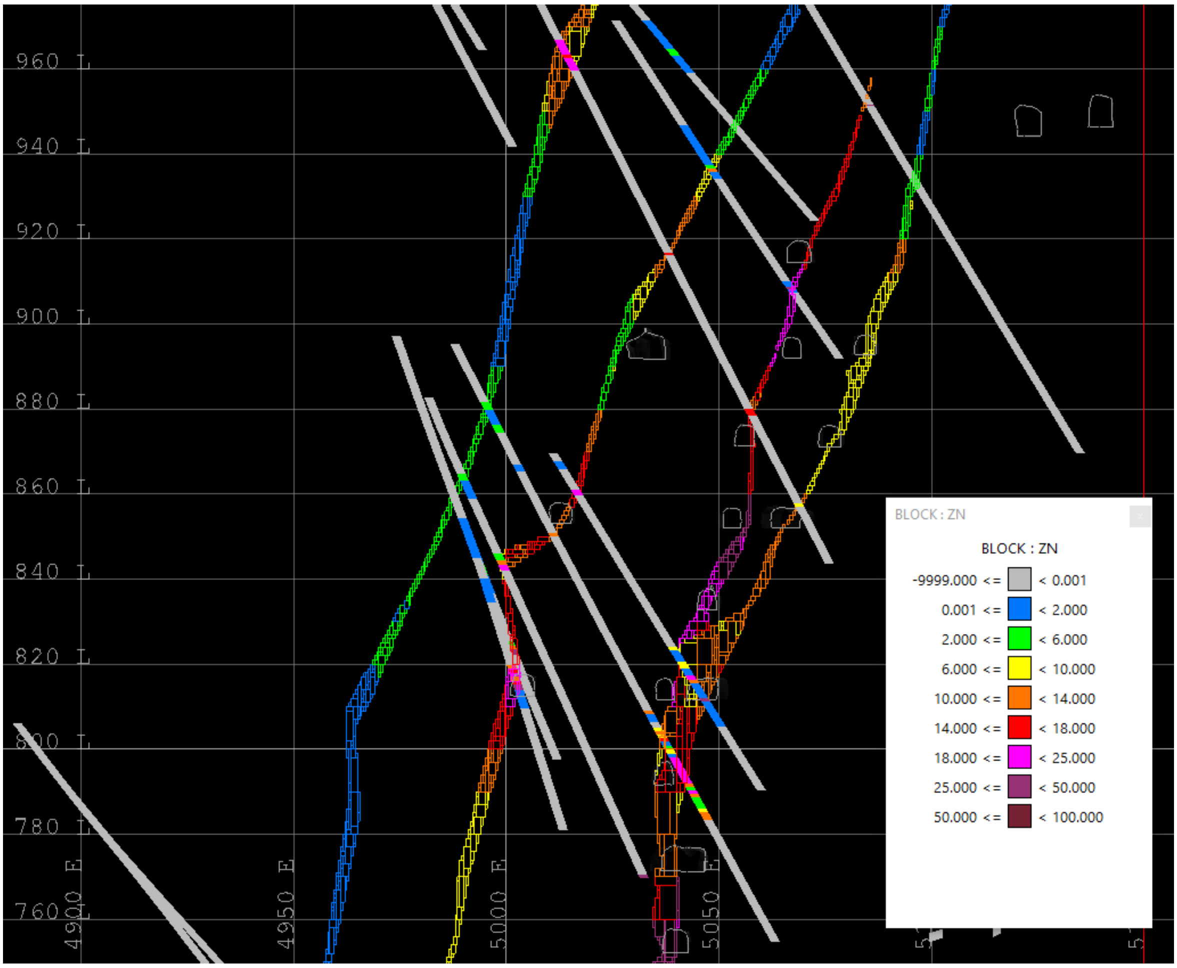


Figure 8-6: East–west cross section 5075 mN looking north showing drillhole composites and resource blocks coloured by zinc grade

Note: Development levels are shown in grey.

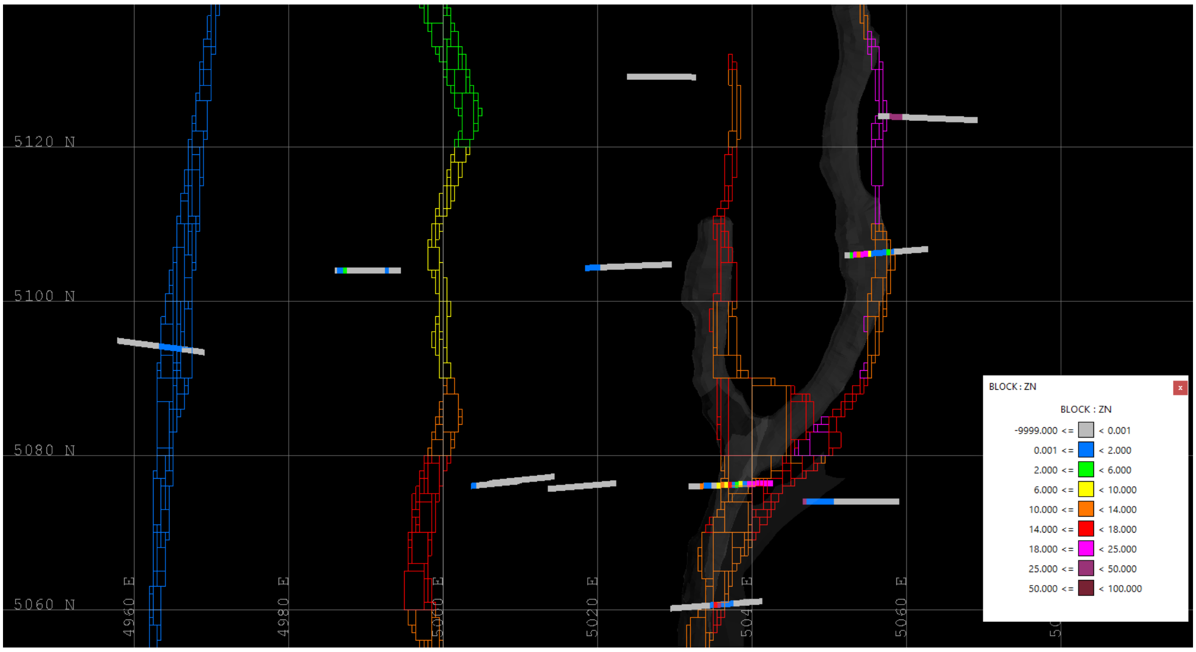


Figure 8-7: Plan section 800 mRL showing drillhole composites and resource blocks coloured by zinc grade

Note: Development level shown in grey.

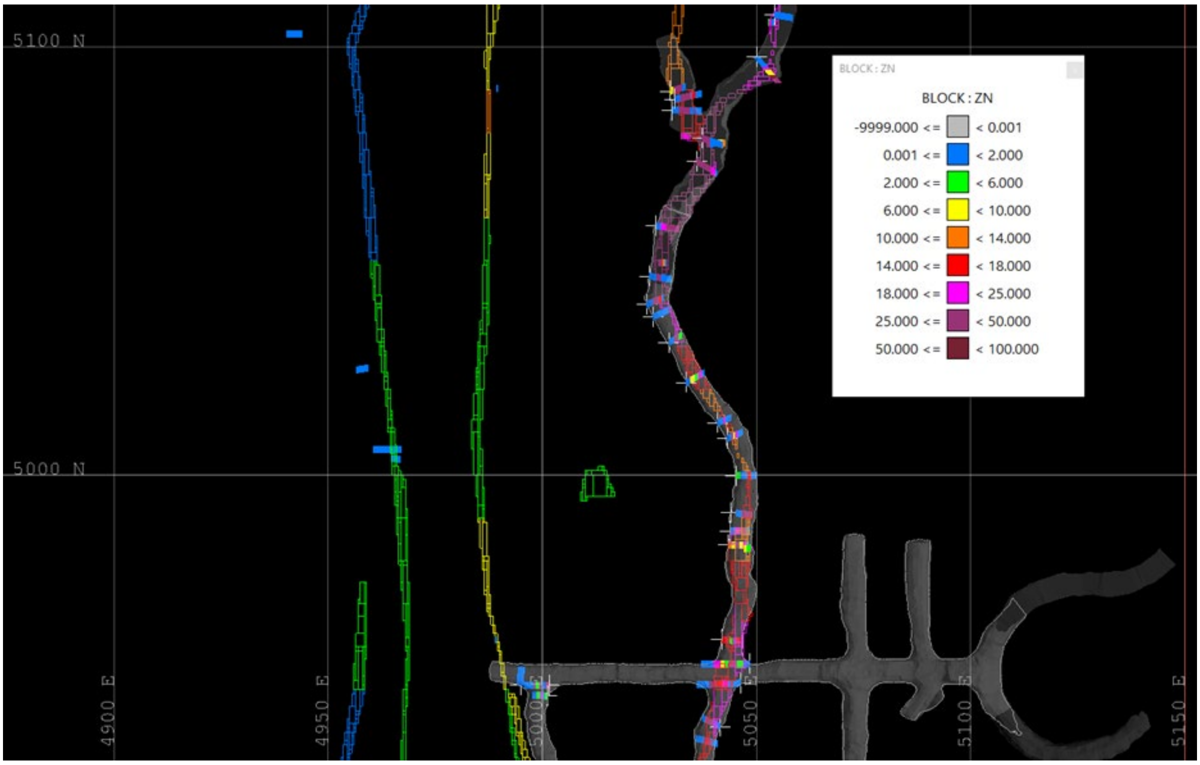


Figure 8-8: Plan section 750 mRL showing resource drillhole composites, grade control face samples and resource blocks coloured by zinc grade

Note: Development level shown in grey.

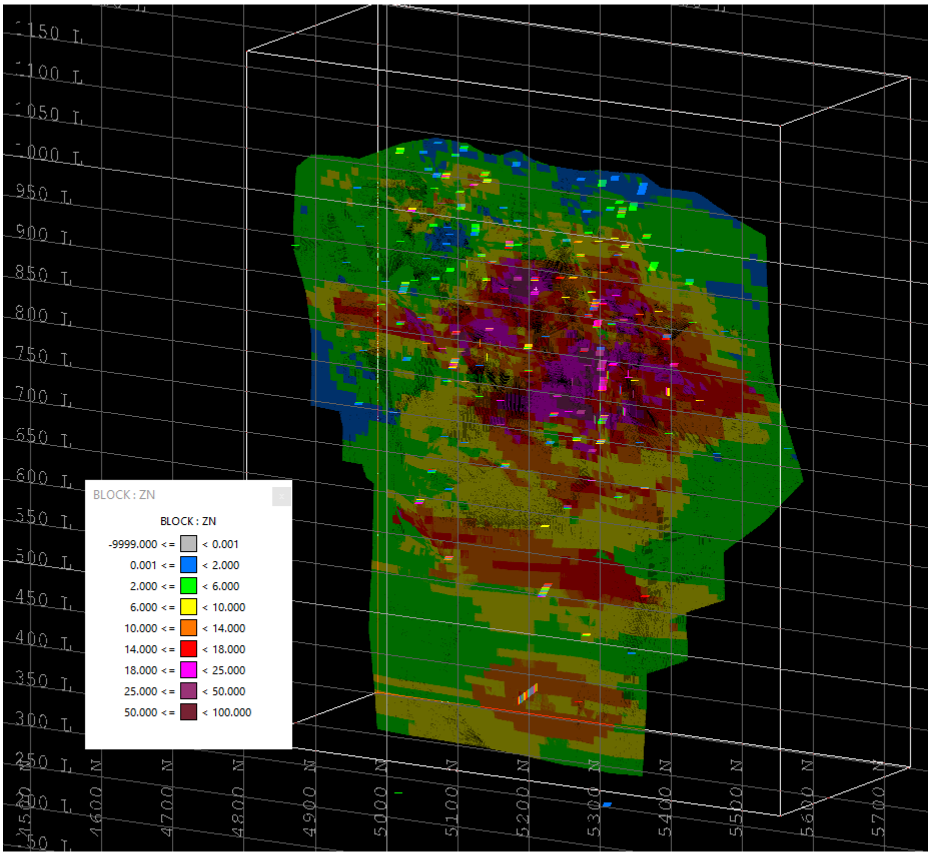


Figure 8-9: Oblique view looking west–southwest showing drillhole composites and resource model for Minzone 20 coloured by zinc grade

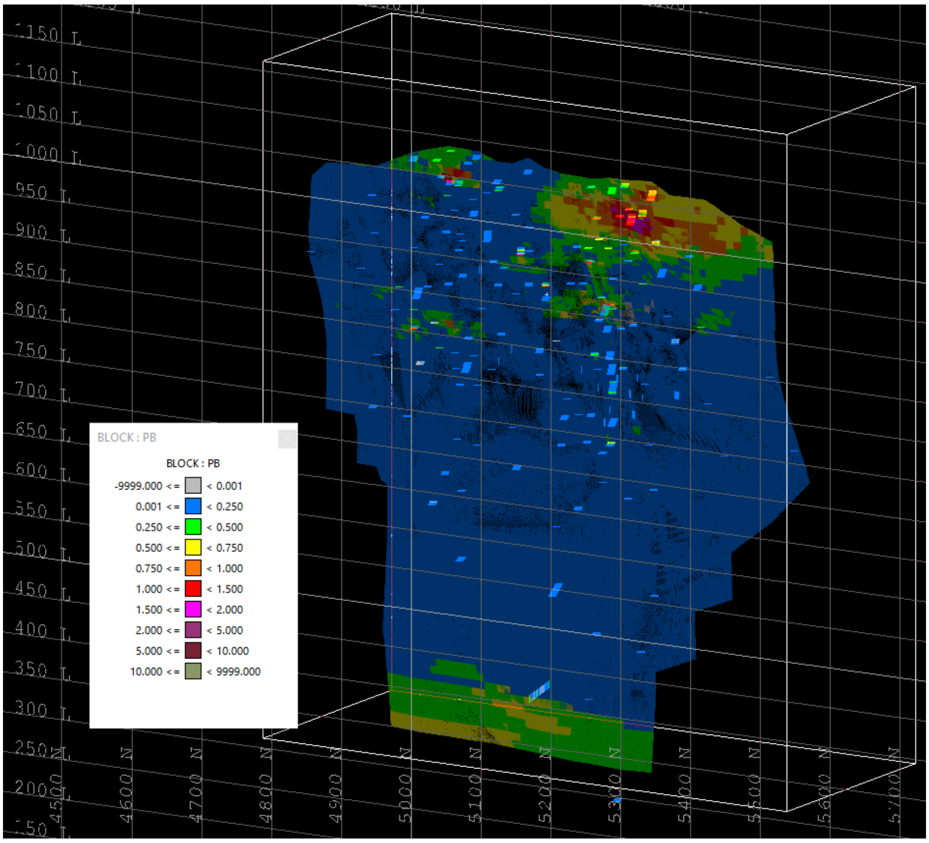


Figure 8-10: Oblique view looking west–southwest showing drillhole composites and resource model for Minzone 20 coloured by lead grade

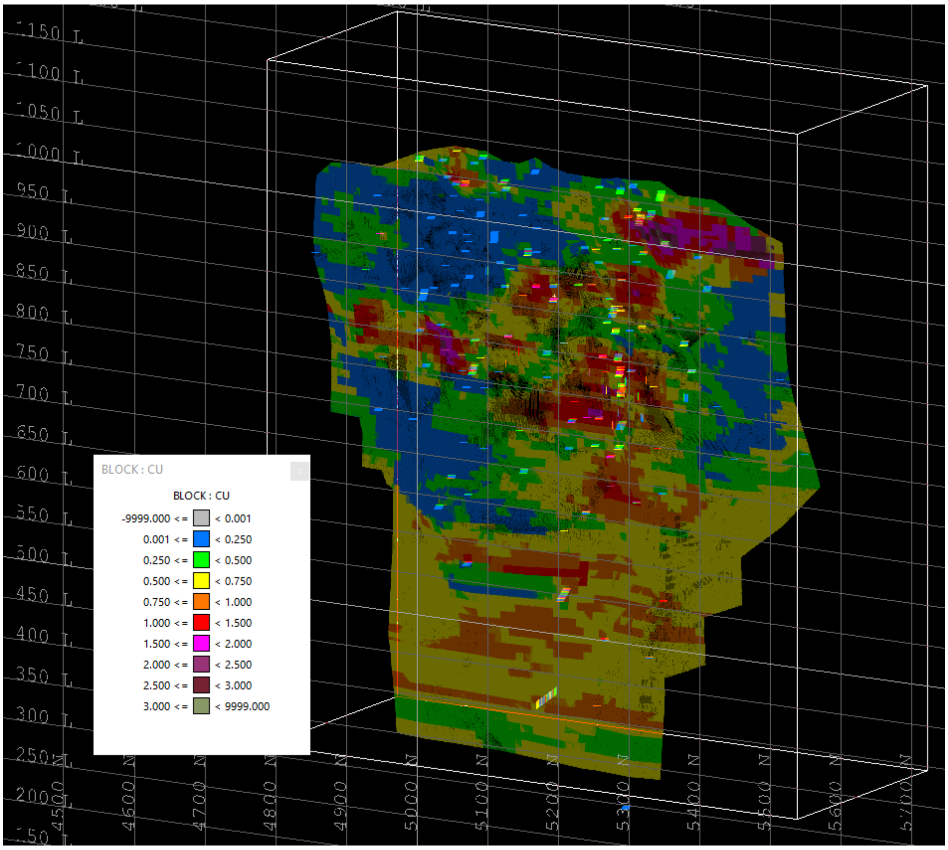


Figure 8-11: Oblique view looking west–southwest showing drillhole composites and resource model for Minzone 20 coloured by copper grade

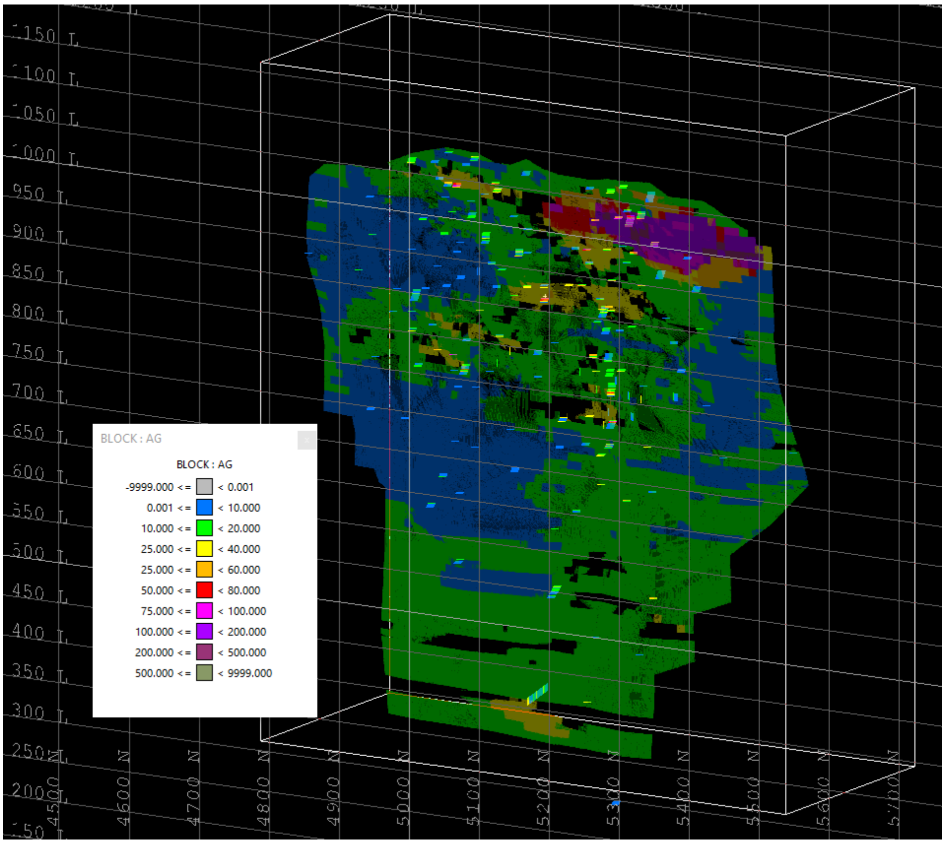


Figure 8-12: Oblique view looking west–southwest showing drillhole composites and resource model for Minzone 20 coloured by silver grade

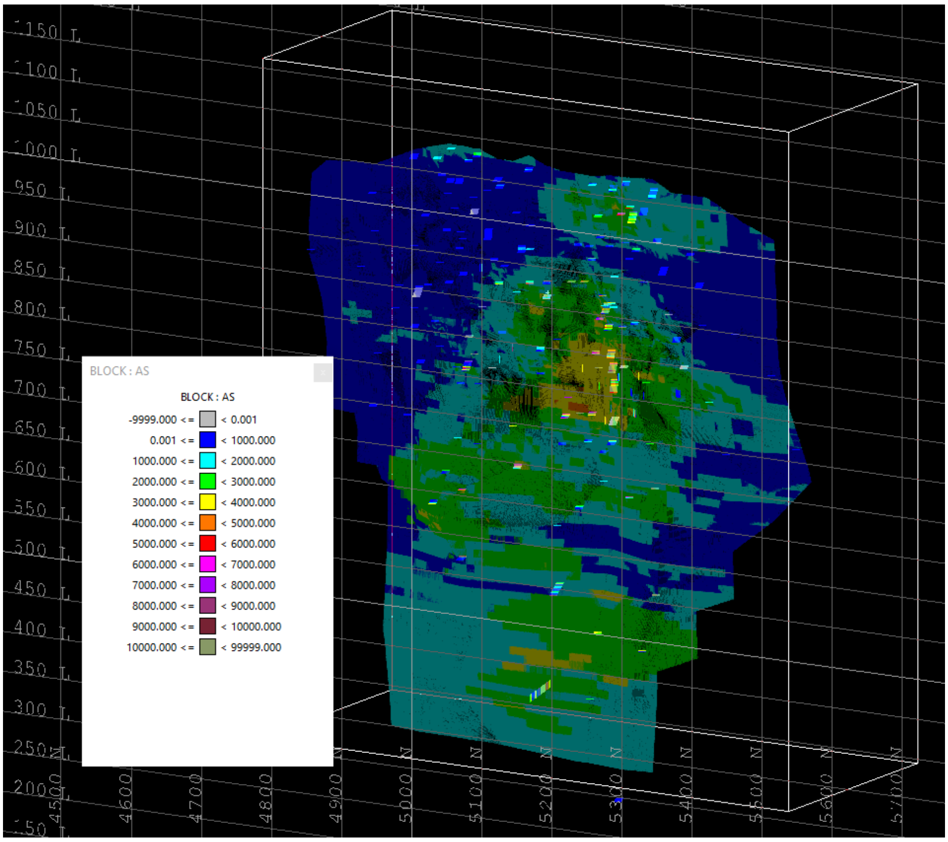


Figure 8-13: Oblique view looking west–southwest showing drillhole composites and resource model for Minzone 20 coloured by arsenic grade

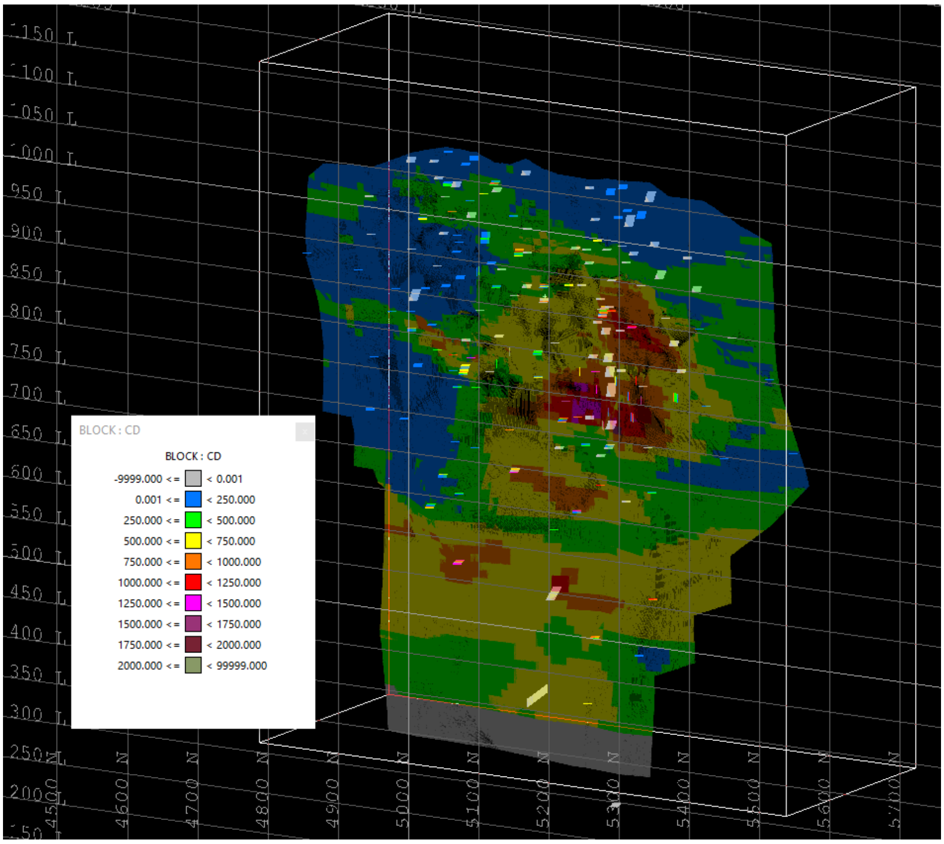


Figure 8-14: Oblique view looking west–southwest showing drillhole composites and resource model for Minzone 20 coloured by cadmium grade

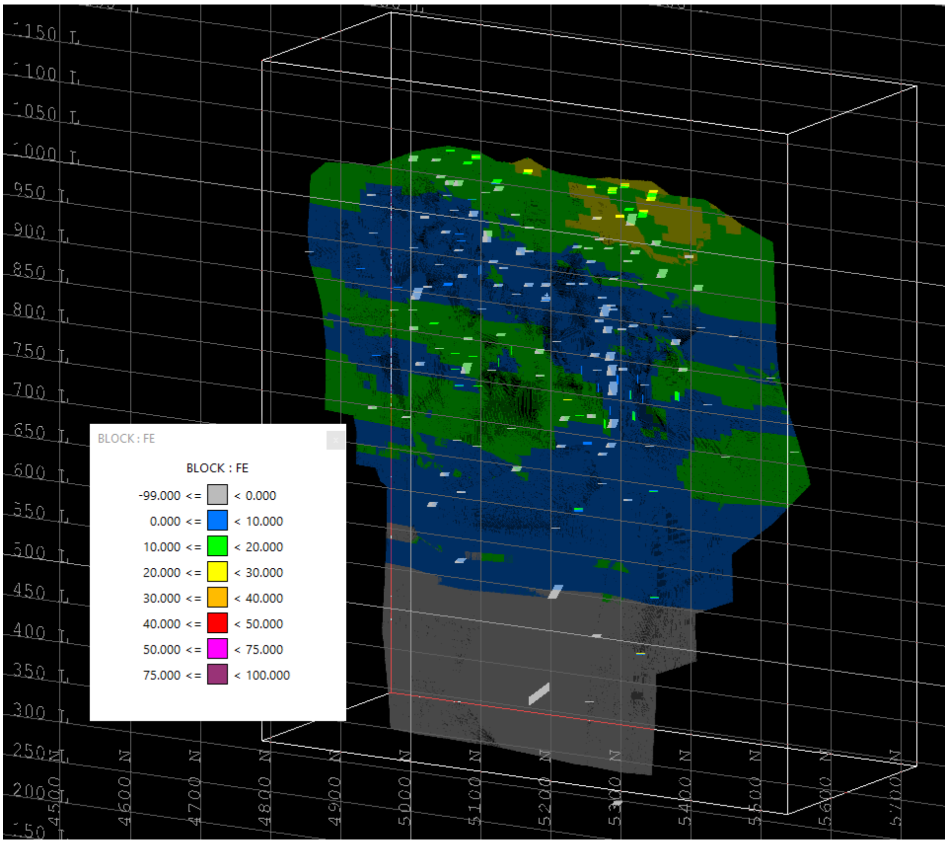


Figure 8-15: Oblique view looking west–southwest showing drillhole composites and resource model for Minzone 20 coloured by iron grade

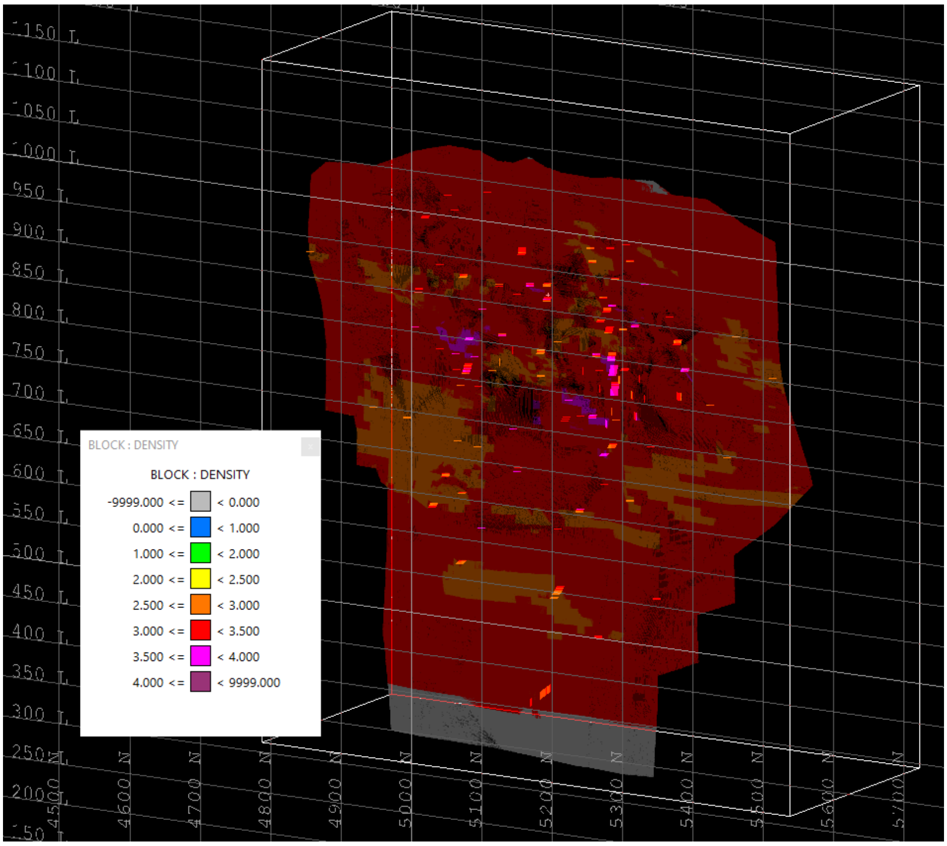


Figure 8-16: Oblique view looking west–southwest showing drillhole composites and resource model for Minzone 20 coloured by density

8.3.3 Global statistics

Comparisons between the mean length-weighted composite and mean volume-weighted block grades are outlined in Table 8-7 and Table 8-8.

Grade estimate means for zinc, lead, copper, silver, iron and the density estimates in the main mineralised domains are generally within an acceptable range of ±25% of the composite sample means given the current drill spacing and inherent grade variability. Lead grade estimates in Minzone domains 60 and 70 are >30% different to the composite data where the estimates have been biased lower than the drillhole composites. These are the two higher-grade lead domains where the composite means have been impacted by high-grade outliers. Visual validations show the lead estimates have reproduced the grade trends appropriately in the well drilled-out areas but may have smoothed the higher-grade areas at depth in areas of wider drillhole spacing (Figure 8-17).

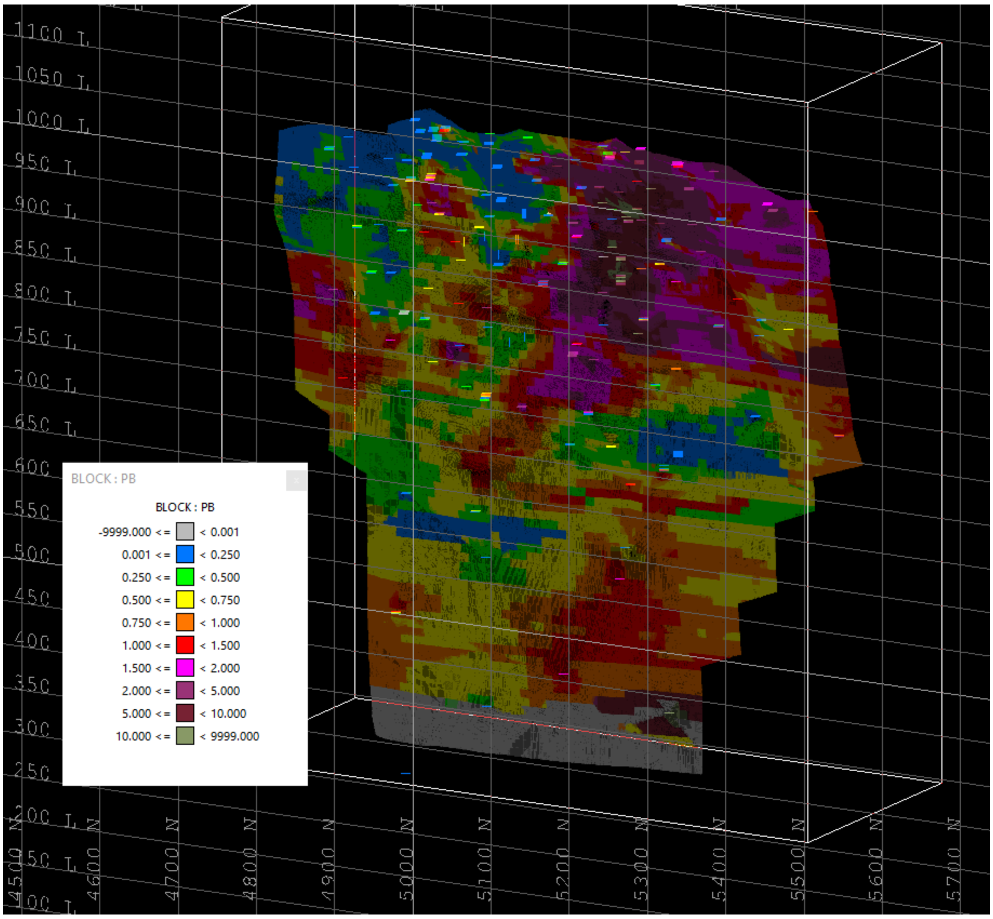


Figure 8-17: Oblique view looking west–southwest showing drillhole composites and resource model for Minzone 60 coloured by lead grade

Grade estimates for arsenic and cadmium show a higher degree of error between the mean estimate and composite grades, particularly arsenic, where the composite statistics are impacted by some very high grade outliers.

Table 8-7: King Vol length-weighted composite vs volume-weighted block averages – Zn, Pb, Cu, Ag and density

Minzone	Zn%			Pb%			Cu%			Ag ppm			Density (t/m³)		
	Composites	Blocks	% Difference	Composites	Blocks	% Difference	Composites	Blocks	% Difference	Composites	Blocks	% Difference	Composites	Blocks	% Difference
10	6.06	4.66	-23.1%	0.06	0.05	-10.6%	0.45	0.39	-12.5%	14.28	8.91	-37.6%	3.32	3.20	-3.5%
20	9.95	8.27	-16.9%	0.21	0.20	-5.3%	0.57	0.61	7.9%	23.37	21.33	-8.7%	3.20	3.09	-3.4%
30	15.22	14.47	-4.9%	0.43	0.36	-15.6%	0.65	0.58	-11.5%	25.56	22.57	-11.7%	3.30	3.33	1.0%
40	10.20	10.62	4.1%	0.14	0.18	30.4%	0.41	0.53	28.6%	18.71	16.97	-9.3%	3.41	3.33	-2.4%
50	8.73	8.61	-1.4%	0.31	0.33	7.6%	0.57	0.54	-5.2%	19.96	20.59	3.2%	3.26	3.16	-3.1%
60	4.29	3.79	-11.6%	1.71	1.22	-28.4%	0.25	0.20	-20.4%	35.41	29.26	-17.4%	3.17	3.06	-3.5%
70	3.27	3.37	2.9%	1.18	0.84	-29.2%	0.17	0.10	-38.6%	13.26	15.63	17.9%	3.09	2.98	-3.6%
80	5.73	3.64	-36.4%	0.15	No estimate	-	0.31	0.05	-83.7%	25.05	5.02	-80.0%	2.98	No estimate	-
90 100 110 120	4.85	3.05	-37.1%	1.31	0.77	-41.2%	0.39	0.16	-59.0%	24.29	14.75	-39.3%	3.09	2.77	-10.5%

Table 8-8: King Vol length-weighted composite vs volume-weighted block averages – As, Cd and Fe

Minzone	As ppm			Cd ppm			Fe%		
	Composites	Blocks	% Difference	Composites	Blocks	% Difference	Composites	Blocks	% Difference
10	882.6	431.5	-51.1%	735	508.79	-30.8%	11.48	No estimate	-
20	1135.8	1535.8	35.2%	378	457.42	21.0%	14.32	10.89	-24.0%
30	4828.9	3536.2	-26.8%	383	545.64	42.5%	20.24	15.34	-24.2%
40	1387.4	1160.4	-16.4%	237	346.05	46.0%	12.64	12.55	-0.7%
50	1309.2	1633.4	24.8%	363	397.06	9.4%	10.53	10.10	-4.1%
60	2231.6	1204.5	-46.0%	123	117.97	-4.1%	12.83	11.94	-6.9%
70	2084.0	1132.7	-45.6%	246	162.05	-34.1%	14.62	11.46	-21.6%
80	9025.0	2288.5	-74.6%	No comps	No estimate		No comps	No estimate	-
90 100 110 120	1951.5	532.0	-72.7%	157	105.47	-32.8%	9.37	8.36	-10.8%

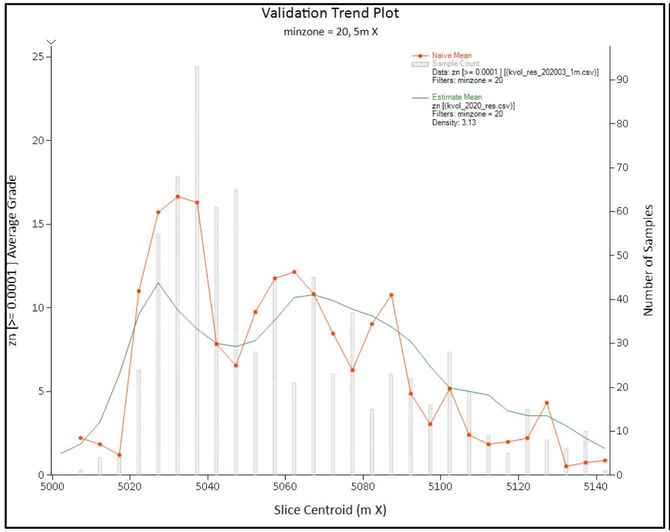
8.3.4 Swath plots

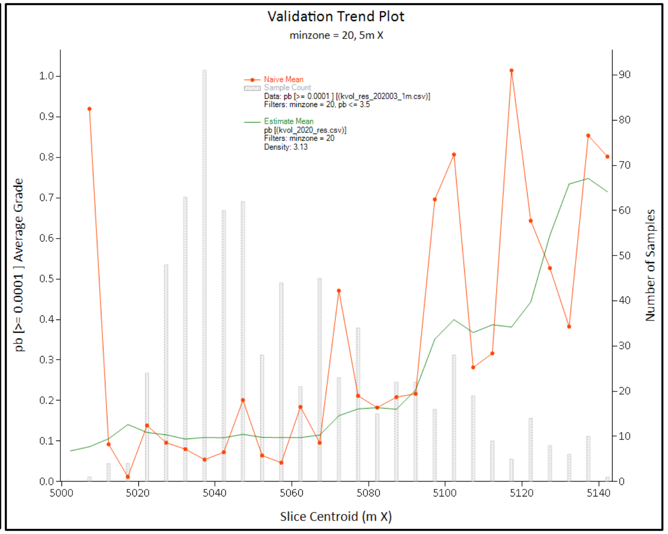
Swath validation plots and histograms comparing drillhole composite samples and estimated blocks along west–east, south–north and depth were generated and validated for each Minzone domain (Figure 8-18 to Figure 8-29).

The swath plots and histograms show that the zinc, lead, copper, silver and iron estimates, while smoothed, reproduce the overall grade trends of the composites to an acceptable level given the current drill spacing and the inherent grade variability.

Arsenic and cadmium estimations also reproduce the overall grade trends in each domain but show positive and negative biases.

Density estimates are significantly more smoothed than the grade estimates, particularly around areas of high-grade density composites, linked to the lower amounts of available density composites. The density estimates reproduce each domain mean to an acceptable level.





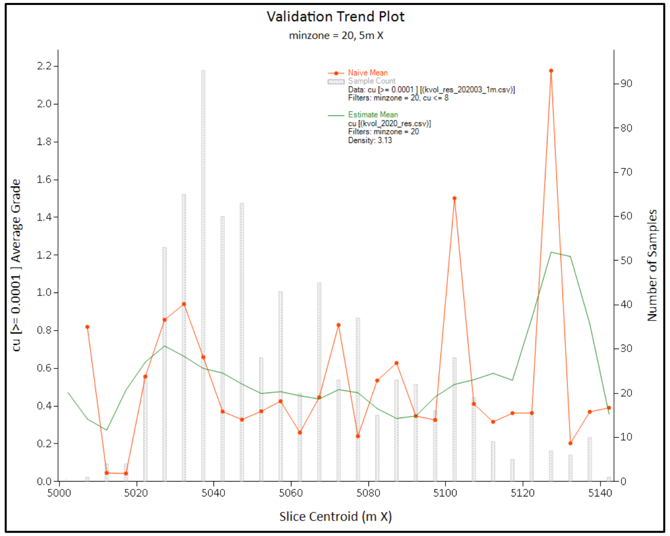


Figure 8-18: Minzone 20 – Zn% (left), Pb% (centre) and Cu% (right) west–east swath plot

Notes: Red line = composites, green line = blocks.

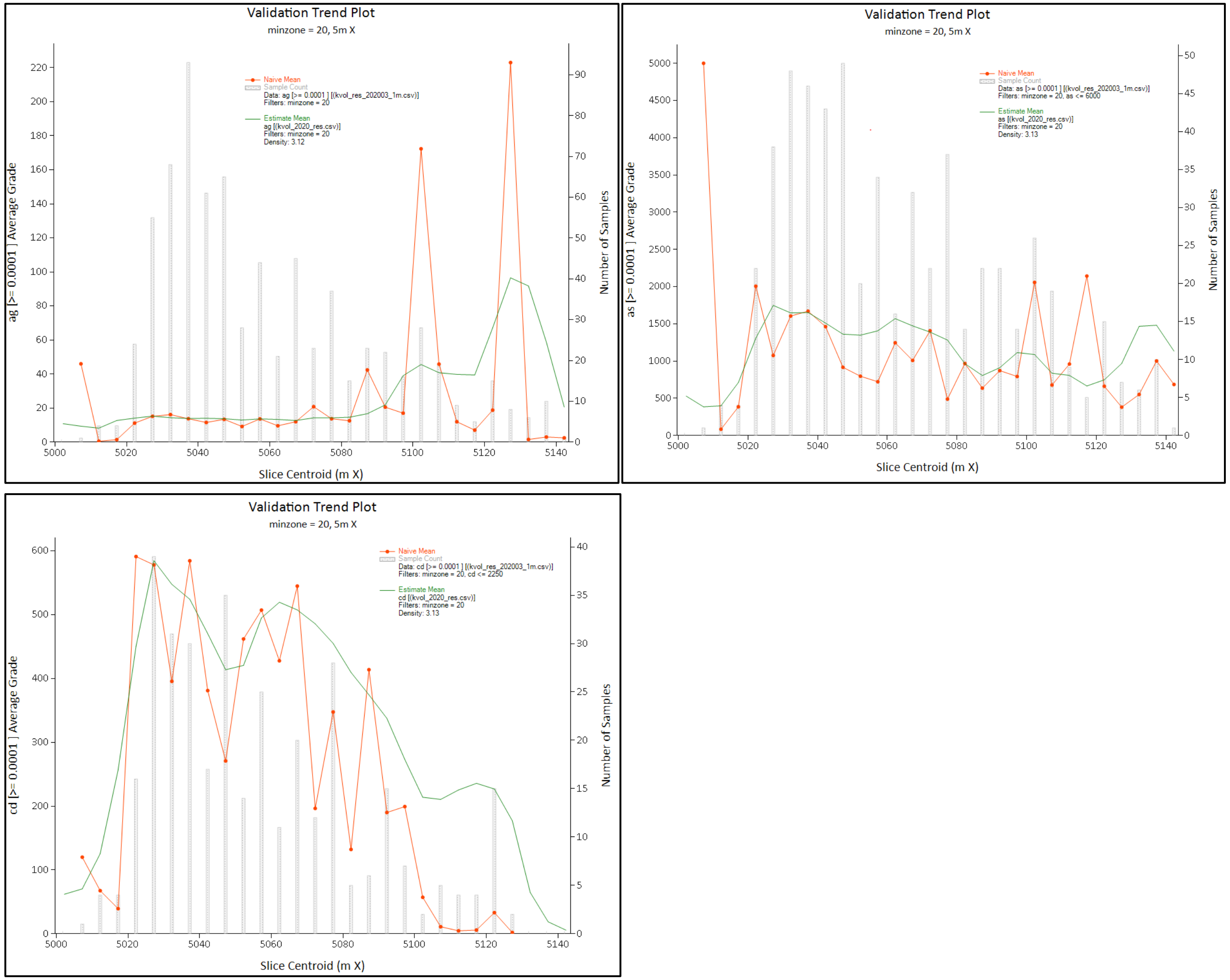


Figure 8-19: Minzone 20 – Ag ppm (left), As ppm (centre) and Cd ppm (right) west–east swath plot

Notes: Red line = composites, green line = blocks.

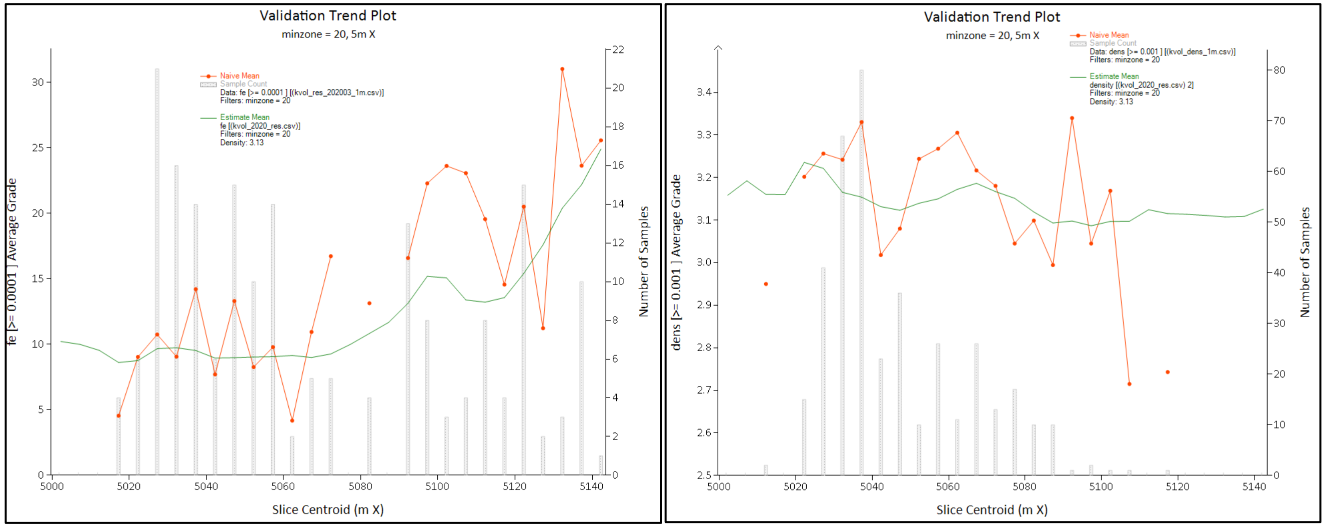


Figure 8-20: Minzone 20 – Fe% (left) and density t/m^3 (centre) west–east swath plot

Notes: Red line = composites, green line = blocks.

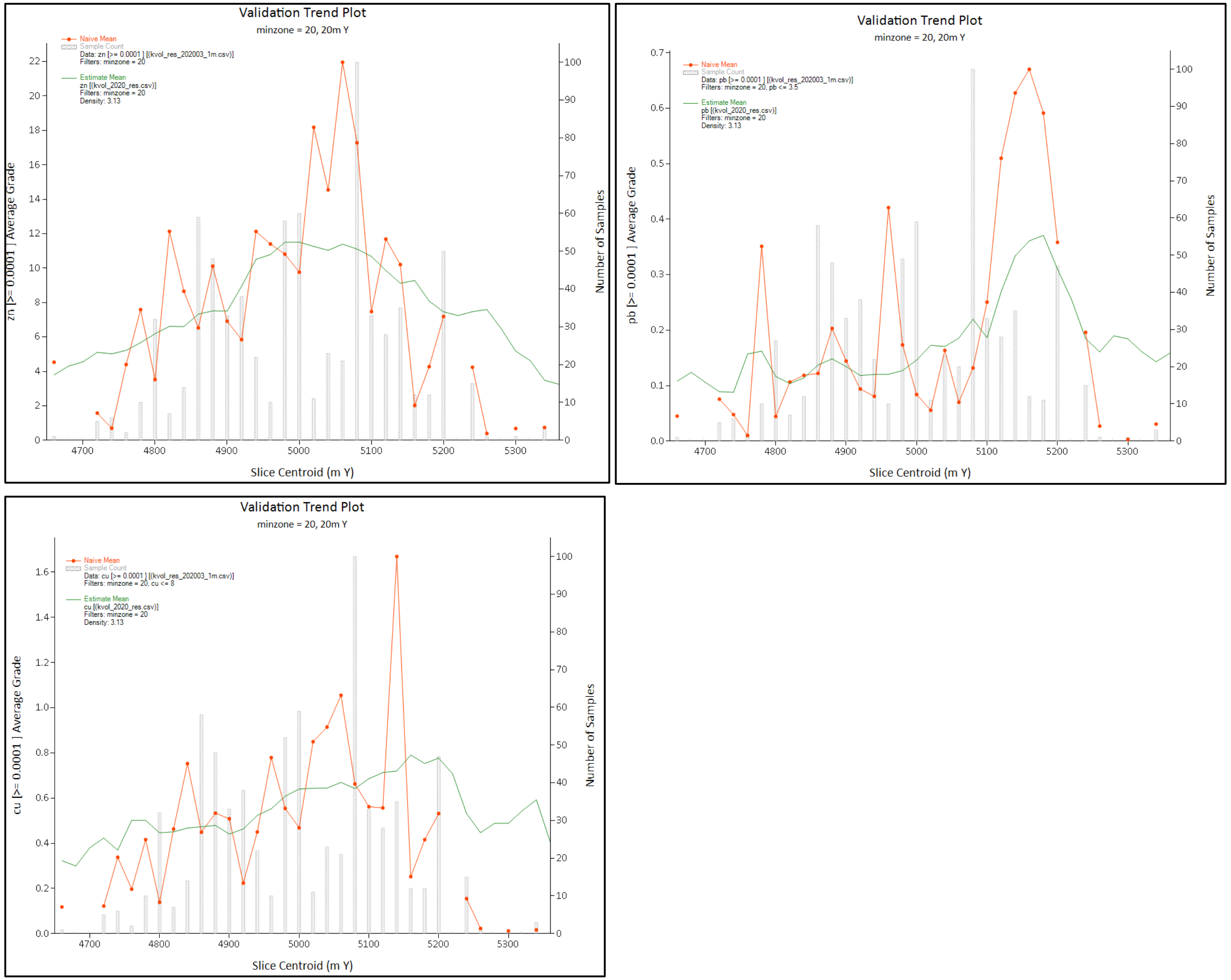


Figure 8-21: Minzone 20 - Zn% (left), Pb% (centre) and Cu% (right) south–north swath plot

Notes: Red line = composites, green line = blocks.

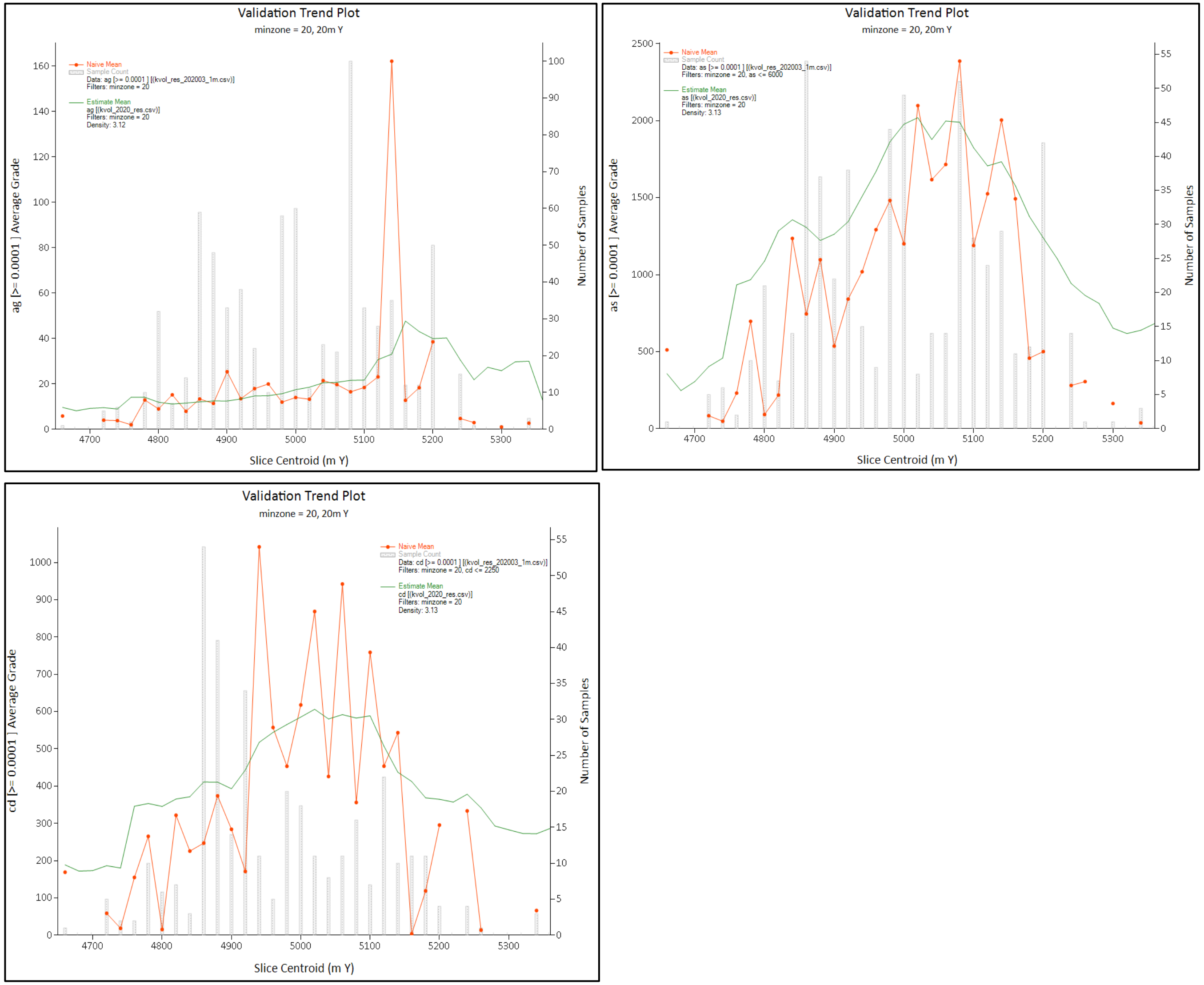


Figure 8-22: Minzone 20 – Ag ppm (left), As ppm (centre) and Cd ppm (right) south–north swath plot

Notes: Red line = composites, green line = blocks.

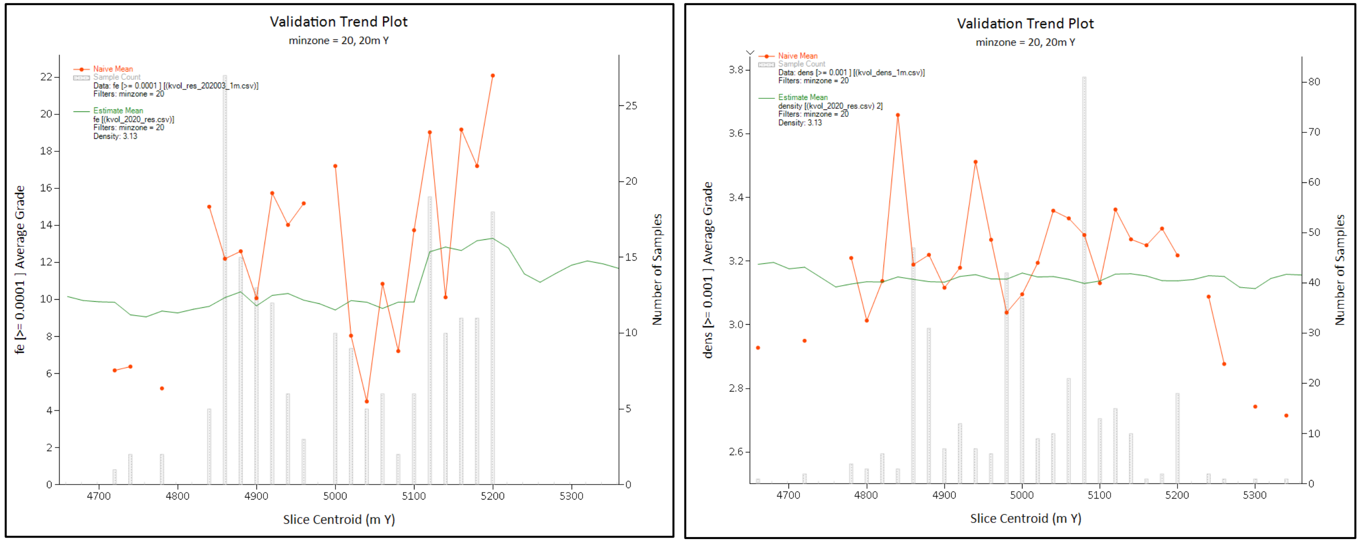


Figure 8-23: Minzone 20 – Fe% (left) and density (centre) south–north swath plot

Notes: Red line = composites, green line = blocks.

Figure 8-24: Minzone 20 - Zn% (left), Pb% (centre) and Cu% (right) mRL swath plot

Notes: Red line = composites, green line = blocks.

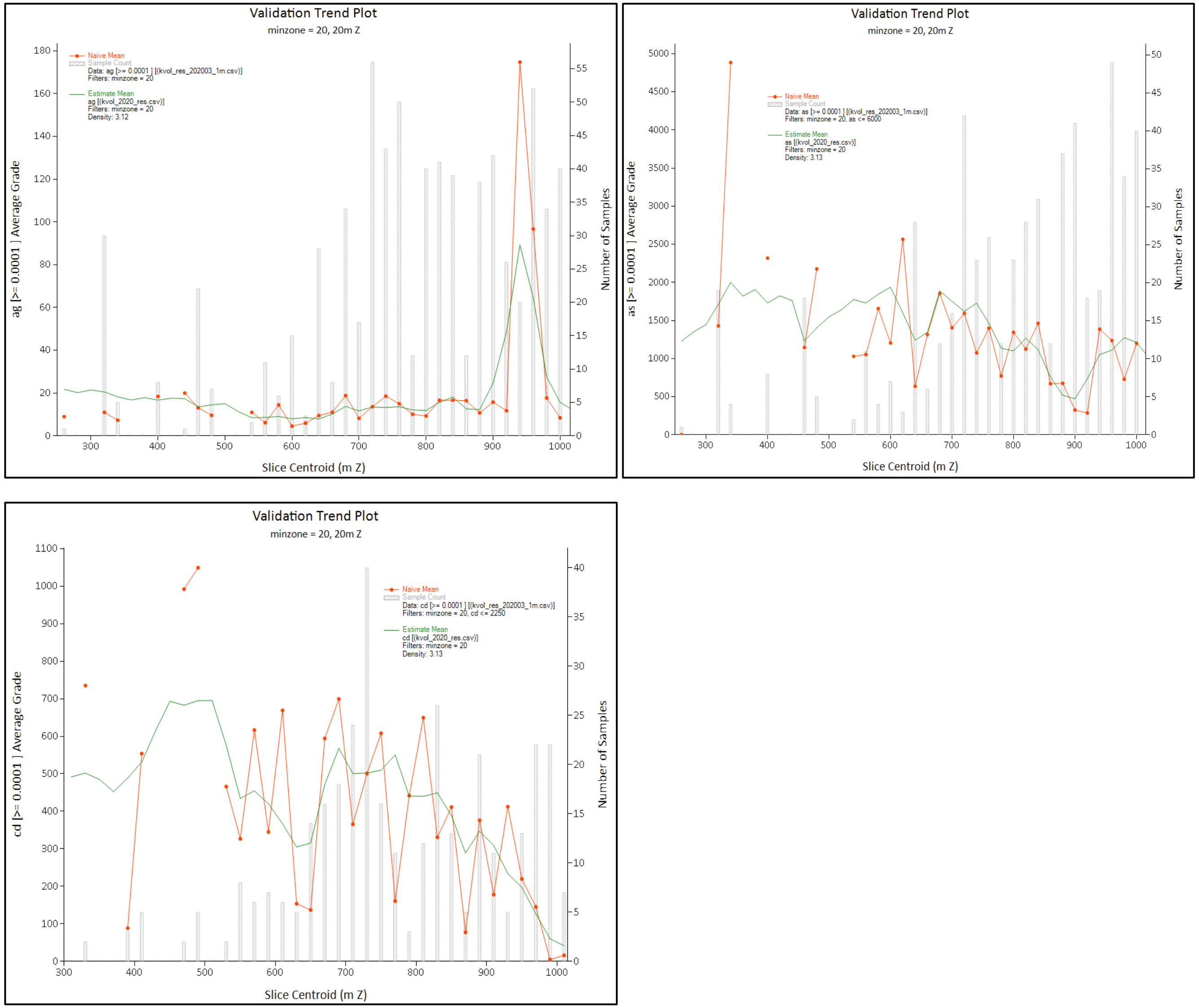


Figure 8-25: Minzone 20 – Ag ppm (left), As ppm (centre) and Cd ppm (right) mRL swath plot

Notes: Red line = composites, green line = blocks.

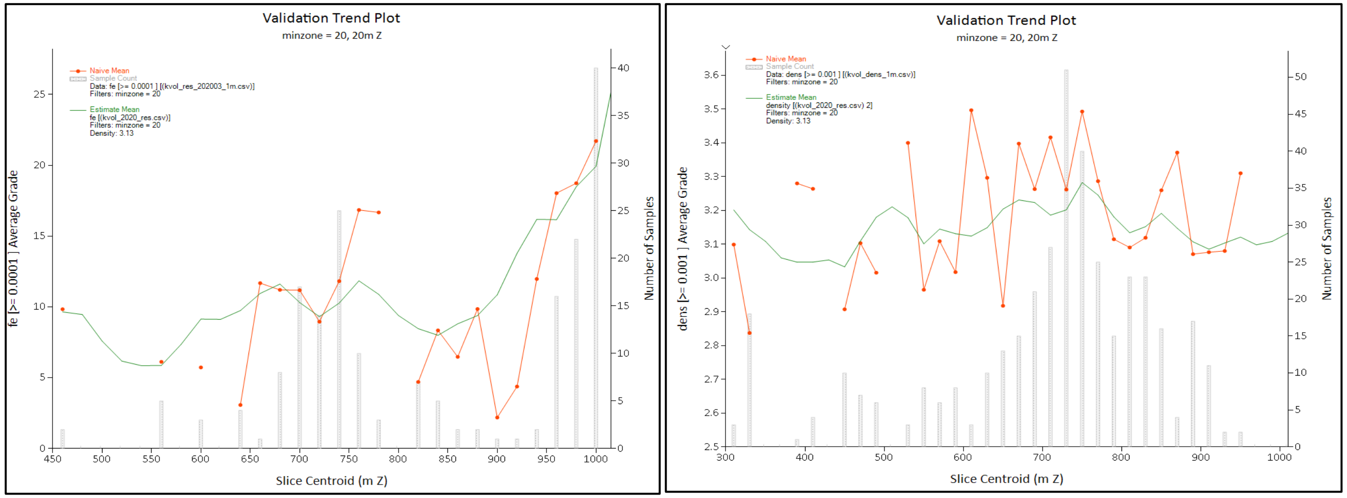


Figure 8-26: Minzone 20 – Fe% (left) and density (centre) mRL swath plot

Notes: Red line = composites, green line = blocks.

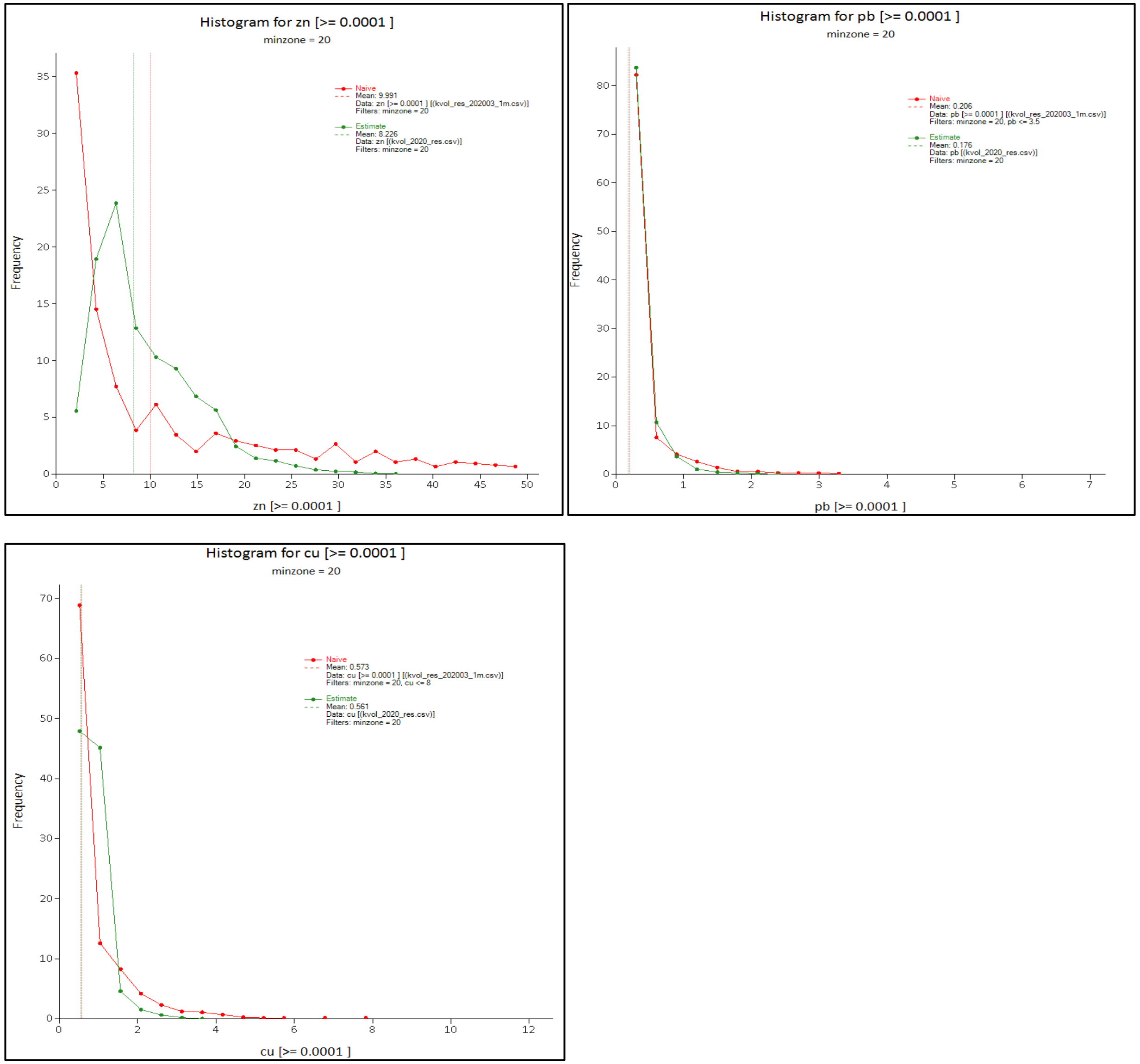


Figure 8-27: Minzone 20 – Zn% (left), Pb% (centre) and Cu% (right)composite vs block histogram

Notes: Red line = composites, green line = blocks.

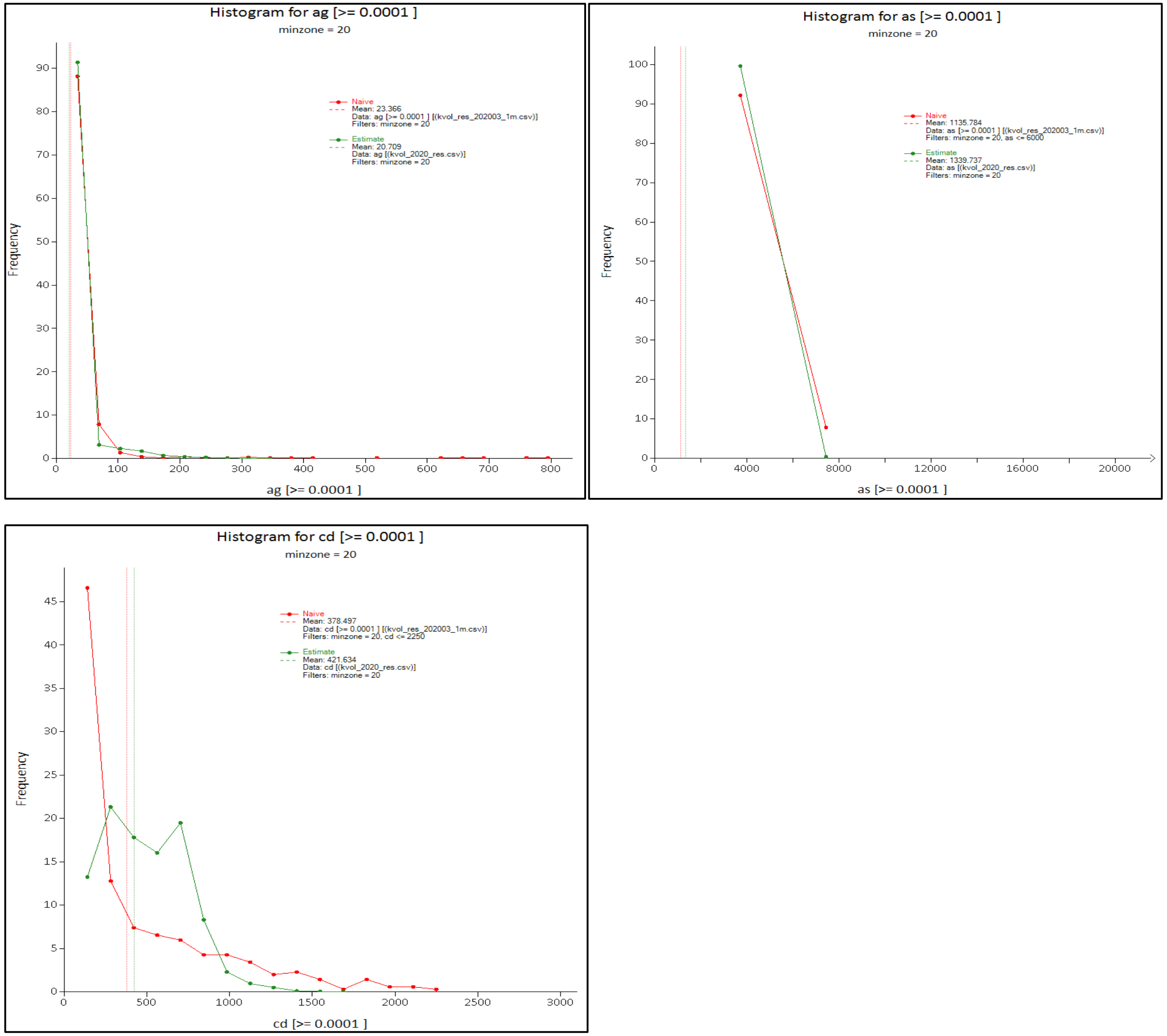
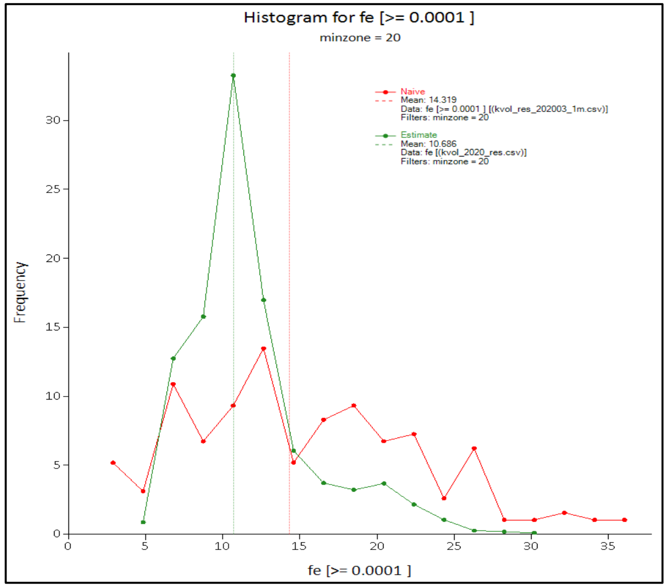


Figure 8-28: Minzone 20 – Ag ppm (left), As ppm (centre) and Cd ppm (right) composite vs block histogram

Notes: Red line = composites, green line = blocks.



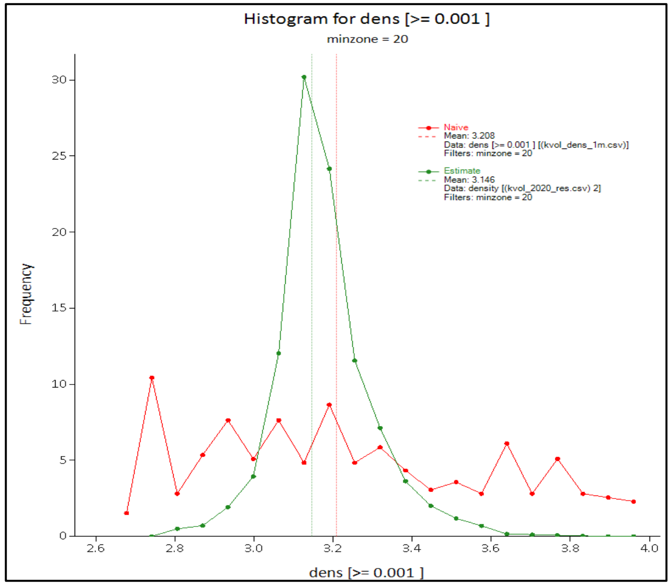


Figure 8-29: Minzone 20 – Fe% (left) and density t/m^3 (centre) composite vs block histogram

Notes: Red line = composites, green line = blocks.

8.4 Post processing

8.4.1 Default values

Unestimated blocks within the mineralised domains were assigned default grade and density values based on either the volume-weighted average from blocks within each domain that were estimated or the length-weighted average from composite samples where no blocks were estimated within a domain (Table 8-9).

No default grades were assigned to the waste blocks within the model; however, a default density of 2.87 t/m^3, based on length-weighted composite samples, was assigned to allow for tonnage calculations.

Table 8-9: Default grades applied to unestimated blocks,

Default Grades									
Min	**Minzone**	**Zn (%)**	**Pb (%)**	**Cu (%)**	**Ag (ppm)**	**As (ppm)**	**Cd (ppm)**	**Fe (%)**	**Density (t/m^3)**
ishoz	10	4.66	0.05	0.39	8.91	431.53	508.79	11.48	3.20
aoz	20	8.27	0.20	0.61	21.33	1535.83	457.42	10.89	3.09
aboz	30	14.47	0.36	0.58	22.57	3536.16	545.64	15.34	3.33
skeoz	40	10.62	0.18	0.53	16.97	1160.37	346.05	12.55	3.33
skwoz	50	8.61	0.33	0.54	20.59	1633.43	397.06	10.10	3.16
boz	60	3.79	1.22	0.20	29.26	1204.46	117.97	11.94	3.06
coz	70	3.37	0.84	0.10	15.63	1132.71	162.05	11.46	2.98
ab_pipe	80	5.73	0.15	0.50	25.05	13870.23	500.00	20.00	2.98
ark_hw	90	4.85	1.31	0.39	24.29	1951.51	157.00	9.37	3.09
ark_min1	100								
ark_min2	110								
ark_min3	120								

Note: Cells highlighted in yellow derived from length-weighted composite samples.

8.4.2 Mining depletion

Development and production mining depletion were applied to the 2020 King Vol Mineral Resource model. Development (*kv_development_solid_10_03_2020.00t*) and open stope production (*kvol_stope_deplete_08_01_2020.00t*) wireframes were used to flag the 'mined' variable with the resource using the triblock function in Vulcan. The development wireframe included all development drives completed until 10 March 2020, whereas the open stope wireframe included all completed stopes that had surveyed using a cavity monitoring system (CMS) tool until 8 January 2020.

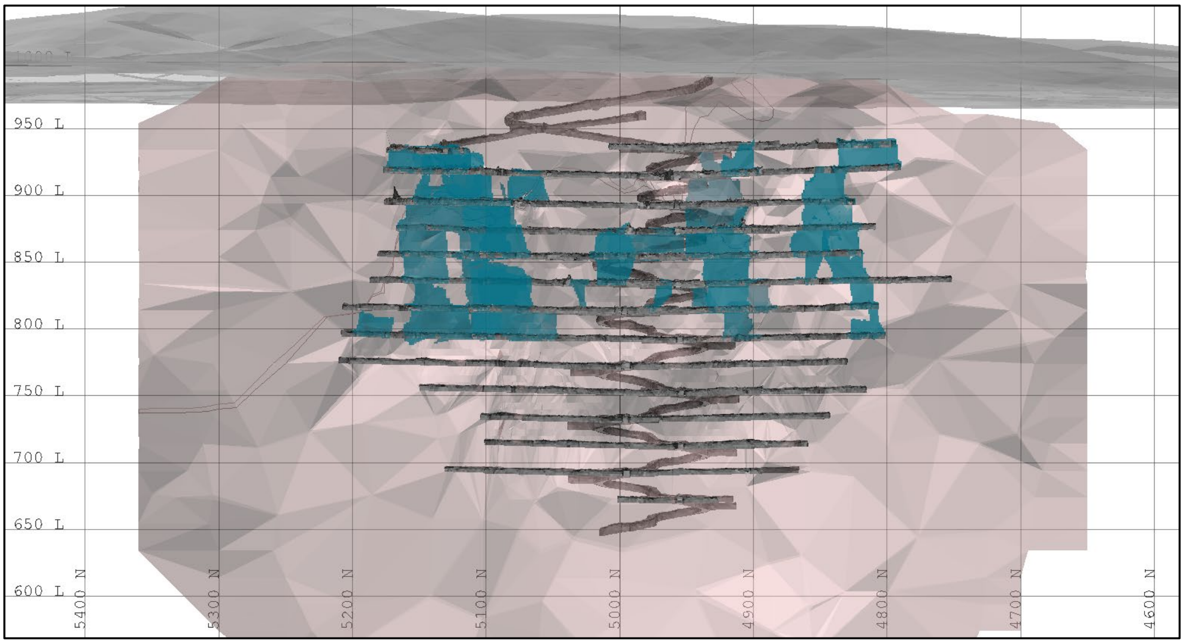


Figure 8-30: South to north long section showing development drives (grey), open stopes blue and the Minzone 20 geological model (pink)

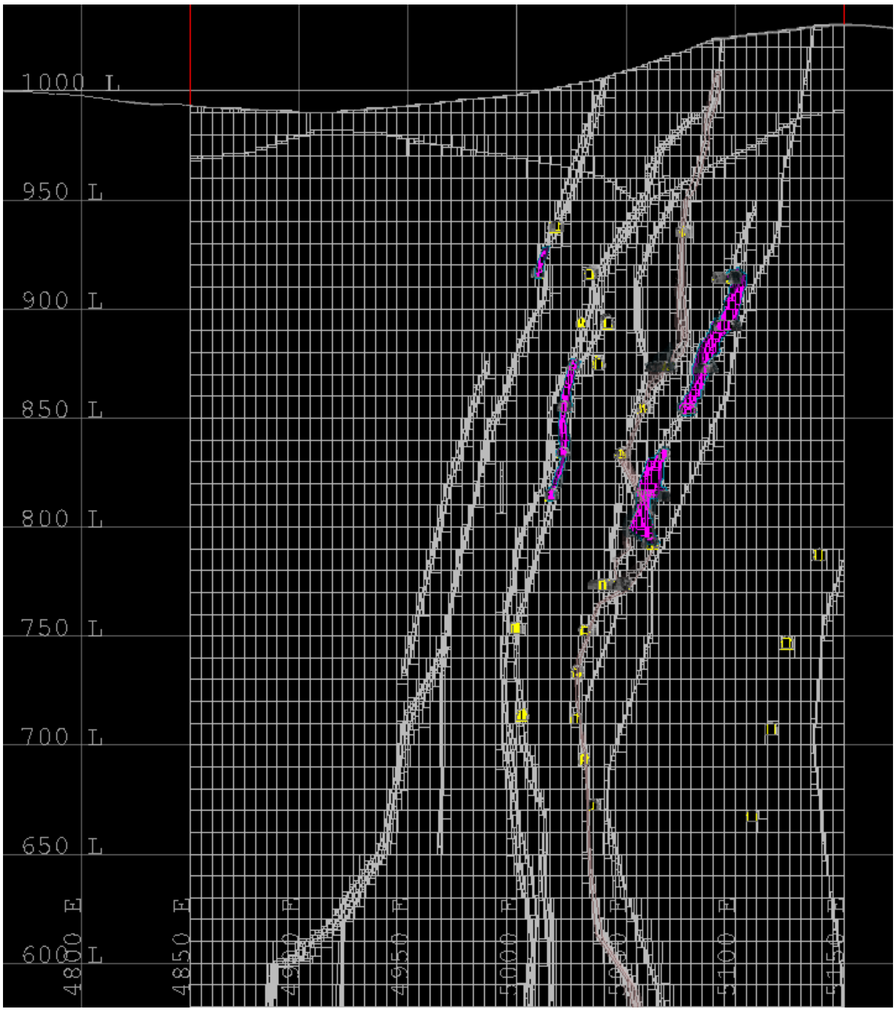


Figure 8-31: West–east cross section 4,920 mN through the King Vol 2020 Mineral Resource model showing depleted blocks

Notes: Yellow = development, pink = production (open stoping).

9 Discussion of Relative Accuracy and Confidence

The 2020 King Vol Mineral Resource estimate has been completed using information from RC and diamond drilling programs conducted between 1989 and 2019 and more recent underground mapping and production knowledge. The earlier drilling programs had limited QA/QC checks and balances, which introduces uncertainty into areas of the resource model that rely primarily on these samples during estimation. This uncertainly has been mitigated to some extent by the inclusion of more-recent infill drilling.

Mineralised domains (lenses) have been modelled within stratigraphic contact zones, altered skarn zones and structurally controlled dilation zones; however, the exact timing and genesis of the mineralisation event(s) and the structural geology evolution are not well understood. The mineralised lenses are often thin (approximately ≤1 m thick) and often offset by cross-cutting structures. However, underground backs mapping has confirmed that the mineralisation lenses are continuous and traceable.

Zinc, lead, copper and silver within the modelled mineralisation domains are all highly variable with positively skewed grade populations and in some cases high-grade outliers. It is important to note that zinc, lead, copper and silver are not correlated and therefore the current mineralisation domains based on underground mapping and zinc grades may not be the most appropriate domaining tool for all four grade variables.

Arsenic and cadmium are also highly variable, whereas iron and density approximate a more Gaussian population; however, there are fewer available deleterious assays and density samples in the current King Vol dataset, which has resulted in more smoothed and uncertain estimates.

SRK is of the opinion that the 2020 King Vol Mineral Resource estimate is an appropriate global estimate that reproduces the overall zinc, lead, copper and silver grade trends in each of the identified mineralised domains. The Mineral Resource model should not be considered a precise local estimate. SRK recommends a full independent review of the geological database, increased QA/QC sampling, further infill drilling and detailed geological backs mapping be completed.

10 Mineral Resource Classification

SRK considered several factors impacting the confidence in the geological modelling and grade estimation, including sampling methodology, assaying methodology and quality, confidence in the geological model and estimation performance, when determining a classification scheme for the King Vol Mineral Resource model.

SRK is of the opinion that drill spacing and confidence in the geological modelling have the largest impact on uncertainty throughout the model and therefore they form the basis of the Mineral Resource classification scheme:

- Mineralisation within the oxide zone was not classified because the oxide material has proven to be difficult to process – it is very fine and contains clays that cause issues in the plant's flotation cells and the tailing thickener.
- No mineralisation was classified as Measured Mineral Resources.
- Indicated Mineral Resources were constrained to blocks within Minzone domains 20, 30, 40, 50, 60 and 70, which are supported by a nominal drill spacing of 25 mN × 25 mRL and are proximal to underground development drives where detailed geological mapping has been carried out.
- Inferred Mineral Resources were constrained to blocks within Minzone domains 10, 20, 30, 40, 50, 60, 70 and 80 which are supported a nominal drill spacing of 100 mN × 100 mRL and have reasonable geological continuity.
- All remaining mineralisation, including Minzone domains 90, 100, 110 and 120, was not classified.

Wireframe solids were generated for areas of Indicated and Inferred Mineral Resources within each domain using the average distance to drillholes recorded in each estimation cell and the development drives as a guide (Figure 10-1). Mineral Resource classifications were then flagged into the 'rescat' (resource category) variable in the King Vol resource model.

- rescat = 0 – Waste
- rescat = 1 – Measured
- rescat = 2 – Indicated
- rescat = 3 – Inferred
- rescat = 4 – Unclassified mineralisation.

The Mineral Resources have been reported above a 3% Zn cut-off grade which is consistent with previous Mineral Resource estimates. In contrast, a 3.5% Zn cut-off grade is currently used to differentiate between ore and waste in the King Vol underground operation. SRK is of the opinion that all classified Mineral Resources above a 3% Zn cut-off would have reasonable prospects of eventual economic extraction using the current long-hole open stoping mining method.

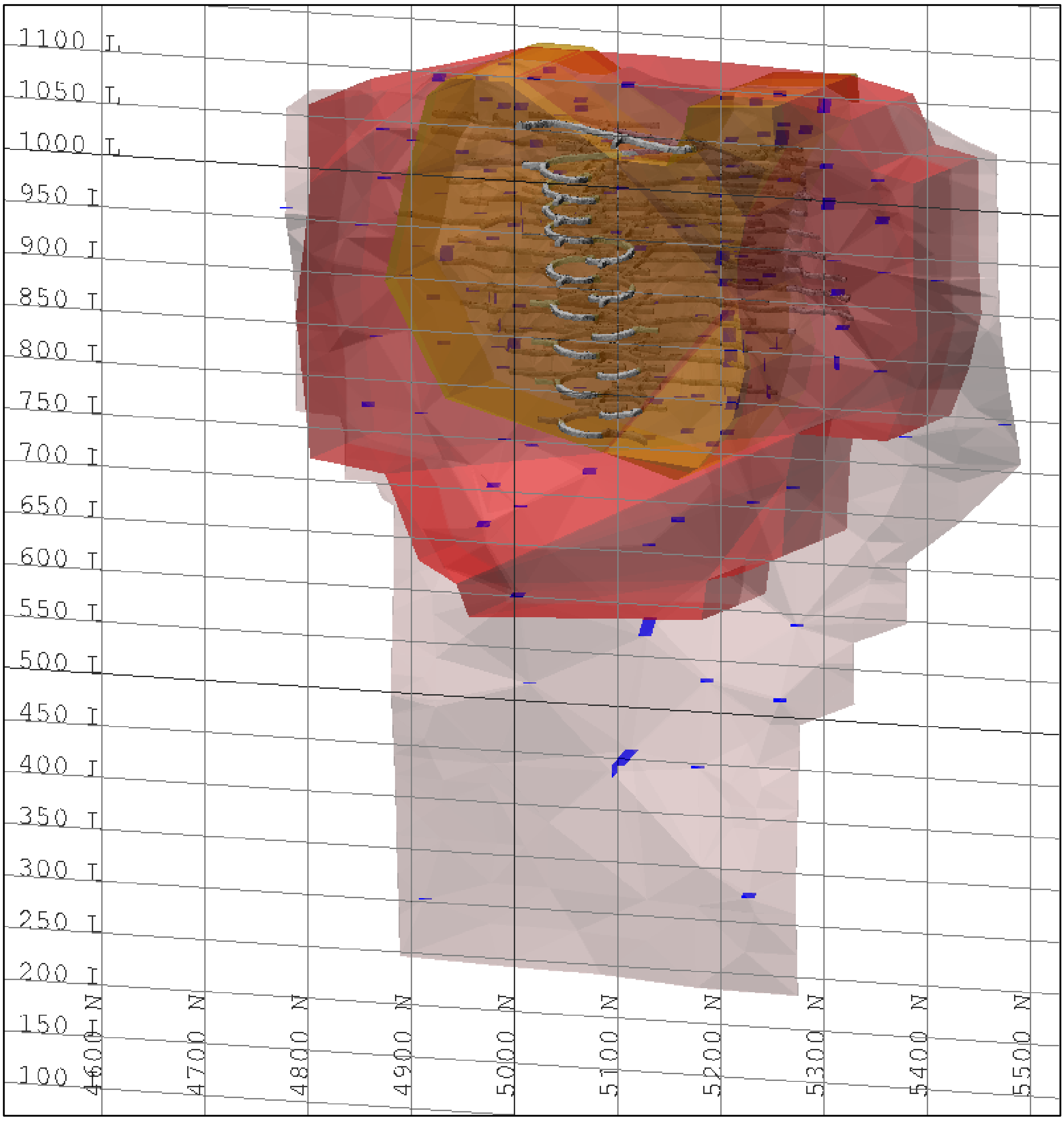


Figure 10-1: Mineral Resource classification wireframe solids for Minzone 20 (pink = Minzone 20 mineralisation domain)

Notes: Red = Inferred, orange = Indicated, grey = development drives, blue = Minezone 20 composite samples.

11 Mineral Resource Statement

The 2020 King Vol Mineral Resource estimate has been prepared and classified in accordance with the guidelines of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code ,2012 edition) by Mr Michael Lowry who is an employee of SRK Consulting (Australasia) Pty Ltd.

Mr Lowry is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM) and has sufficient experience that is relevant to the style of mineralisation and the type of deposit under consideration, and to the activity he is undertaking, to qualify as Competent Person in terms of the JORC Code (2012).

A summary of the updated in situ King Vol Mineral Resources as at 10 March 2020 is presented in Table 11-1.

Table 11-1: King Vol Mineral Resources ≥ 3.0% Zn as at 10 March 2020

Classification	Tonnes	Zn (%)	Pb (%)	Cu (%)	Ag (ppm)	As (ppm)	Cd (ppm)	Fe (%)	Density (t/m^3)
Measured									
Indicated	780,000	11.6	0.71	0.57	28.2	1,700	455	10.9	3.18
Inferred	1,890,000	8.2	0.64	0.43	24.1	1,538	350	10.2	3.09
Total	2,670,000	9.2	0.66	0.47	25.3	1,586	381	10.4	3.12

11.1 Comparison to previous Mineral Resource estimate

The previous Mineral Resource estimate for the King Vol deposit was completed by Auctus Resources Pty Ltd in April 2016. The 2016 model included three mineralised lenses; the Eastern Mineralised Contact Zone (equivalent to the current aoz lens - Minzone 20), the Eastern Mineralised Replacement Zone (equivalent to the current skeoz and skwoz lensed - Minzones 40 and 50) and the King Vol Zone (equivalent to the current boz lens - Minzone 60). The Mineral Resources were reported above a net smelter return (NSR) cut-off of A$110/t; however, there are no details recorded regarding how the NSR cut-off was derived.

SRK has recalculated the 2016 Mineral Resources above a 3% Zn cut-off and then compared them to the 2020 Mineral Resources (Table 11-2). Both models have been depleted for mining until 10 March 2020.

The 2020 King Vol Mineral Resources contain approximately 12% less tonnage and lower zinc, copper and silver grades, whereas the lead grade has remained constant. This is equivalent to an approximate reduction of 27% zinc metal, 8.6% lead metal, 43% copper metal and 30% silver ounces. The main differences between the two estimates can be attributed to:

- Inclusion of an additional 103 drillholes
- Revised lithological, structural and mineralisation models
- Revision of estimation domains and estimation setting
- Change in Mineral Resource classification, namely not classifying oxide material.

Table 11-2: Comparison between March 2020 and April 2016 King Mineral Resource estimates at a >3% Zn cut-off

Model	Classification	Tonnes	Zn (%)	Pb (%)	Cu (%)	Ag (ppm)	As (ppm)	Cd (ppm)	Fe (%)	Density (t/m³)
2020	Measured									
	Indicated	780,000	11.6	0.71	0.57	28.2	1,700	455	10.9	3.18
	Inferred	1,890,000	8.2	0.64	0.43	24.1	1,538	350	10.2	3.09
	total	**2,670,000**	**9.2**	**0.66**	**0.47**	**25.3**	**1,586**	**381**	**10.4**	**3.12**
2016	Measured									
	Indicated	1,242,530	14.2	0.54	0.83	36.7				3.24
	Inferred	1,797,861	9.0	0.70	0.66	28.6				3.07
	total	**3,040,391**	**11.1**	**0.63**	**0.73**	**31.9**				3.1394746
Difference 2020-2016	Measured									
	Indicated	-462,530	-2.6	0.17	-0.26	-8.5				-0.06
	Inferred	92,139	-0.8	-0.06	-0.23	-4.5				0.02
	total	**-370,391**	**-1.9**	**0.03**	**-0.26**	**-6.6**				**-0.02**
Difference 2020-2016	Measured									
	Indicated	-37.2%	-18.3%	31.5%	-31.3%	-23.1%				-1.9%
	Inferred	5.1%	-8.7%	-8.6%	-34.8%	-15.7%				0.7%
	total	**-12.2%**	**-17.2%**	**4.0%**	**-35.6%**	**-20.7%**				**-0.6%**

Note: Both models include mining depletion until 10 March 2020.

12 Recommendations for Future Work

SRK recommends the following actions to improve the King Vol drillhole dataset, geological models and Mineral Resource estimates in future updates.

- Standardise the RC sampling length to 1 m for both mineralised and waste intervals and collect samples from a rig-mounted riffle or cone splitter rather than using spear or grab sampling methods.
- Update the QA/QC processes to include:
  - Regular drillhole collar re-surveying (minimum of 5% re-surveys)
  - Regular drillhole downhole re-survey (minimum of 5% re-surveys)
  - Collect field duplicate samples from both RC and diamond core at a rate of 1:20. The RC field duplicates should be collected using the same method as the primary sample. SRK also recommends that diamond core duplicates are taken at a rate of 1:20. The duplicate sample can be either half or quarter core, but should match the primary sample.
  - Insert CRMs and blank samples for both RC and diamond core at a rate of 1:20
  - Conduct regular reviews of laboratory QA/QC results (laboratory duplicates, CRMs and blanks)
  - Continue umpire laboratory testing.
- Invest in an industry-standard geological database front-end that can collect standardised logging data digitally (via laptops or toughbooks) and capture data more seamlessly from other sources (such as mobile XRF, downhole survey data and assay results) and manage data exports.
- Engage a database specialist who is experienced with the DataShed database back-end to undertake an audit of the King Vol dataset.
- Continue to collect bulk density data from diamond drillholes to improve the size of the density dataset.
- Collect additional waste samples proximal to the mineralised lenses and estimate grade variables and density into proximal waste zones.
- Conduct additional underground infill diamond drilling, particularly into the boz, coz, skeoz and skwoz mineralised lodes to improve the confidence of the mineralisation models and grade estimates. SRK recommends a minimum drill spacing down to 25 mN × 25 mRL for areas that are planned to be mined.
- Complete a three-dimensional structural geology model and incorporate it into future grade control and Mineral Resource model updates. This should include updates to the lithology and mineralisation models.
- Due to there being no correlation between zinc, lead, copper and silver abundance, investigate the use of individual mineralisation domains for each grade variable.
- Investigate using alternative estimation methods such as multiple indicator kriging (MIK)/localised uniform conditioning (LUC) to better account for the narrow, discontinuous nature of the mineralised lenses.
- Conduct regular mine reconciliations between the Mineral Resource estimate, grade control estimate, claimed mine production and reconciled mine production back-calculated from final metal recoveries through the Mungana Processing Facility. Reconciliation errors should be investigated and followed by implementation of remedial actions.

Project Number: CSD002

Report Title: King Vol Mineral Resource Estimate

Compiled by

Michael Lowry

Principal Consultant – Resource Geology

Peer reviewed by

David Slater

Principal Consultant – Resource Geology

13 References

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Wolf, B, 2016. King Vol Resource Estimate, Auctus Resources Pty Ltd.

Appendices

Appendix A: Table 1 – JORC Code 2012

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 (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • 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 (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.	• The King Vol deposit has been sampled using diamond drill (DDH) and reverse circulation (RC) drilling techniques from the surface and underground diamond drilling (UGDD) techniques from underground drill platforms. Drill spacing varies from 25 mN × 25 mRL to greater than 100 mN × 100 mRL throughout the deposit (directions refer to the local mine grid which is approximately 51.5˚ east of magnetic north). • Surface drillholes were drilled towards the east with dips varying between 50° and 80˚ in order to intersect the King Vol mineralisation perpendicularly. • Underground drillholes were drilled towards the west from underground drill platforms at a variety of angles. • RC drill samples were collected over intervals ranging from 0.5 m to 8 m with most mineralised samples collected in 1 m intervals. Typically, 1 m bulk samples were collected directly from the drill rig-mounted cyclone in plastic bags. Composite samples were then collected from the bulk sample over 4 m intervals from the bulk samples using spear sampling (for dry samples) and grab sampling (for wet samples) to produce a 3 kg sample for analysis. Significant mineralised intervals were then re-sampled over 1 m intervals by processing the original 1 m bulk sample through a 75:25 Jones riffle splitter. • DDH and UGDD samples were collected over intervals ranging from 0.1 m to 7.4 m with most mineralised samples collected over 1 m intervals. Diamond core from each sample interval was either cut and sampled as half or quarter core or more rarely as an eighth, or a 'fillet sample' of core. • RC, DDH and UGDD samples have been sent to a range of laboratories for analysis: – 1989-1992: Analabs in Cairns – analysed for Cu, Pb, Zn and Ag using a perchloric, nitric acid digest with an AAS finish – 1999-2011: ALS or SGS Laboratories in Townsville – analysed for Cu, Pb, Zn and Ag using acid digest with either an AAS or ICP finish and Au analysis using 50 g fire assay. From 2006 onwards, the assaying also included analysis for As, Sb, Bi, Mo, Co, Ni, Cr, Cd and S. – 2015-2016: ALS Laboratory in Townsville – analysed for Cu, Pb, An, Ag As, Sb, Bi, Mo, Co, Ni, Cr, Cd and S using a multi-acid digest with and ICP-AES finish.

Criteria	JORC Code explanation	Commentary
		– 2016-present: Surface exploration samples were sent to ALS laboratory in Townsville (2016–2017) or Intertek laboratory (2018–2019) – analysed for Zn, Cu, Ag, Pb, As, Bi, Ca, Cd, Co, Fe, K, Mo, S, Sb, Sn and Te using a four-acid digestion followed by ICP-OES, whereas Au was assayed using a fire assay with a lead flux and an AAS finish. – 2018present: Underground diamond drill samples were sent to Auctus's Chillagoe onsite laboratory – analysed for Zn, Cu, Ag, Pb, As, Cd, Fe, Sb using MP-AES and Au using a fire assay with a lead flux and an AAS finish. • Additional grade control sampling completed at the King Vol deposit include face sampling of development drives and sludge sampling of long-holes drilled for stope blasting using underground percussion drill rigs. The grade control samples were used to refine the geological and mineralisation models but were not used for grade estimation.
Drilling techniques	• Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. 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.).	• BP Minerals 1989: The first RC drillholes into the King Vol deposit targeted the brecciated gossan of the Aoz along the ELST/ISH contact. Drillholes KVP001 to KVP011 had depths between 29 m to 60 m. Difficult drilling conditions were reported with broken ground and cavities causing four of the holes to be stopped prior to target. The King Vol database listed the drilling contractor as Rockdril C and the drill rig as Hammertrak. • Aztec 1990–1991: The King Vol database lists the drilling company that completed the 10 RC drillholes as Rockdril C using a Rotomac drill rig. The King Vol database lists the 18 NQ-sized DD drillholes as having a 5.5" diameter RC pre-collar. The drilling was completed by various companies using either a Warman 650 or Warman 1000 drill rig. • Perilya 1992: The MPBFS reports that the core size of the six drillholes completed by Perilya was NQ with 5.5" RC pre-collars. • Kagara 1999–2015: Kagara commissioned over half of the half of the drill metres completed at King Vol with nearly one third of the total drill metres completed in 2011. Most of the drilling produced NQ2-sized core with either HQ-sized diamond drilling or 5.25" RC drilling as pre-collars. Eight companies had a variety of drill rig operating on site during these programs, with most of the drilling undertaken by Drill Torq and DDH1. • Atherton 2015–2016: DDH1 drilled the NQ2 sized diamond core holes pre-collared using HQ3 sized rods and the 5.5' RC drillholes for Atherton using a multi-purpose UDR1200 rig. • Auctus from 2016: The underground diamond cored (UGDD) drilling was completed by HRM using two drilling rigs – DD32_LM30SS generating LTK60-sized core and Rig33_LM90 generating NQ2-sized core. The RC and diamond core drilling from surface were completed by AED using a variety of drill rigs. The diamond core was NQ2 size with either a 5.5" RC or HQ3-sized pre-collar.

Criteria	JORC Code explanation	Commentary
Drill sample recovery	• Method of recording and assessing core and chip sample recoveries and results assessed. • Measures taken to maximise sample recovery and ensure representative nature of the samples. • 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.	• Chip sample recoveries for the RC drilling have not been recorded. • Diamond core recoveries were calculated as the sum of all measurable core recovered over an interval. Approximately 97% of the diamond core has recoveries greater than 95% • Sample bias has not been investigated, but is not considered to have a material effect.
Logging	• 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. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography. • The total length and percentage of the relevant intersections logged.	• All RC and diamond core intervals were logged for lithology (primary and secondary lithologies), mineralogy (including a percentage estimate for key minerals), mineralisation, oxidation state and structure. • Diamond core was also logged geotechnically for recovery, rock quality designation (RQD), weathering, hardness and strength. • Diamond core was photographed after being marked up but prior to sampling. Photographs were taken for both wet and dry core. • Remanent diamond core and representative RC chips trays are stored on site for future reference.
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • 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. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• RC drill samples were collected over intervals ranging from 0.5 m to 8 m with most mineralised samples collected in 1 m intervals. Typically, 1 m bulk samples were collected directly from the drill rig-mounted cyclone in plastic bags. Composite samples were then collected from the bulk sample over 4 m intervals from the bulk samples using spear sampling (for dry samples) and grab sampling (for wet samples) to produce a 3 kg sample for analysis. Significant mineralised intervals were then re-sampled over 1 m intervals by processing the original 1 m bulk sample through a 75:25 Jones riffle splitter. • Diamond drillholes were sampled through mineralised zones and adjacent waste zones. Sample intervals were cut using a diamond saw to produce either a half core, quarter core or eighth core sample. • Sample preparation: Samples were transported to the laboratory and then dried in an oven set to 120°C. Samples were then crushed to 6 mm in jaw crusher and then split if the sample was greater than 3 kg. Samples were then pulverised to >85% passing 75 µm. A 200g pulp split was then retained for sample analysis. • Sample recovery information has been collected for diamond drillhole sample intervals but has not been collected for RC drill samples. • The samples sizes are considered appropriate for the base metal skarn mineralisation being sampled from the King Vol deposit.

Criteria	JORC Code explanation	Commentary
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. • 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. • Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	• All exploration samples have been sent to independent commercial laboratories and were analysed using the most appropriate, industry-standard technique for base metal analysis available at the time. • Underground diamond drill samples have been sent to the companies Chillagoe onsite laboratory and were analysed using the latest industry-standard technique for base metal analysis. Umpire check assays have been completed by ALS laboratory in Townsville. • QA/QC sampling includes the regular insertion of CRM samples and blank samples into the RC and diamond drillhole sampling streams. QA/QC samples results show no apparent assaying bias or sample preparation contamination. • Two rounds of umpire laboratory testing have been completed in 2014 and 2019 with results showing no assaying bias between laboratories. • A handheld magnetic susceptibility meter (KT-10) was used to measure magnetic susceptibility for each 1 m drill interval.
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• All sampling has been routinely inspected by senior geological staff. Significant intersections have been reviewed by senior geological and corporate staff. • No drillholes have been twinned at King Vol. • Drillhole logging was completed by qualified geologists at either the Chillagoe core processing facility or at the drill site. All drillhole data are initially recorded on paper logs before being sent to the database administrator for validation and data entry in the company's relational DataShed database. • No adjustments have been made to the assay data.
Location of data points	• Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• Historical drillhole collars completed between 1989 and 2007 were re-surveyed by licensed surveyors using a differential GPS in 2015. • Drillholes completed between 2007 and 2012 were surveyed by Kagara staff surveyors using a Trimble RTK GPS unit, or using a Trimble S6 Total Station once survey control was established. • Drillholes completed in 2015 were surveyed by licensed surveyors using a differential GPS. • Drillholes completed since 2016 have been completed Auctus surveying staff using RTK GPS or Total Station. • Most of the King Vol drillholes have had downhole surveys completed using a variety of methods including single-shot surveys, digital multi-shot cameras and gyroscopic survey tools. • Auctus regularly surveys drillholes that have been intersected in underground development drives to validate the downhole surveys. Results show location errors of less than 1.2 m horizontally and 0.8 m vertically.

Criteria	JORC Code explanation	Commentary
		• Aztec established a local mine grid across the King Vol deposit that was offset 51.5° east of magnetic north. This mine grid was aligned so that the strike of the main mineralised lodes is approximately north–south. In 2006, Stan Lowe Surveying devised a grid transformation for the King Vol local grid to MGA94. • AAMHAtch Pty Limited (AAM) flew aerial photography of the King Vol area in December 2005 and produced a digital terrain model (DTM) surface with a vertical and horizontal accuracy of 0.25 m horizontally and 0.15 m vertically.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • 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. • Whether sample compositing has been applied.	• Nominal drill spacing varies from 25 mN × 25 mRL to greater than 100 mN × 100 mRL throughout the deposit. Some high areas have been drilled down to 12.5 m centres. • The data distribution throughout the King Vol deposit are sufficient to demonstrate geological continuity and global grade continuity within the mineralised domains and appropriate to use for Mineral Resource estimation to define Indicated or Inferred Mineral Resources. • Drillhole samples were composited to 1 m intervals for Mineral Resource estimation.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • 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.	• Surface drillholes were drilled towards the east with dips varying between 50° and 80° in order to intersect the King Vol mineralisation perpendicularly. • Underground drillholes were drilled towards the west from underground drill platforms at a variety of angles. • Drillhole intersections have been assessed prior geological modelling to ensure geological continuity and clustering prior resource estimation and it was concluded that there is no sampling bias due to drillhole orientation or drillhole spacing.
Sample security	• The measures taken to ensure sample security.	• No details were recorded for sample security for drilling programs completed prior to 1999. • From 1999 onwards samples were stored in sealed polyweave bags at the Chillagoe core processing facility. The samples were then delivered to laboratories in Townsville by a local transport company.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• Sampling techniques have not been externally audited or reviewed.

Section 2 Reporting of Exploration Results

(Criteria listed in section 1 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, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • 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.	• The King Vol deposit lies within the Queensland Mining Lease ML20658 which was granted on 1 August 2015 and expires on 31 July 2036. • Auctus Resource Pty Ltd owns 100% of the King Vol tenure.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• Exploration activities have been completed by a number of companies between 1981 and 2019. – Kennecott – RC drilling in 1981 – BP Minerals – RC drilling in 1989 – Aztec – RC and diamond drilling in 1990-1991 – Perilya – Diamond drilling in 1992 – Karara – RC and diamond drilling between 1999 and 2015 – Atherton – RC and diamond drilling between 2015 and 2016 – Auctus – RC and diamond drilling between 2016 and 2019
Geology	• Deposit type, geological setting and style of mineralisation.	• The King Vol deposit is a polymetallic (Zn, Pb, Cu and Ag) skarn deposit occurring as steeply west-dipping tabular lenses, located on sheared contacts between sediments and carbonate rocks of the Chillagoe Formation.
Drillhole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes: • easting and northing of the drillhole collar • elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole collar • dip and azimuth of the hole • downhole length and interception depth • hole length. • 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 exploration results are being reported for the King Vol deposit. • Details of the drillhole information used for the updated King Vol Mineral Resource estimate are detailed in JORC Table 1, Section 1 - Sampling Techniques and Data.

Criteria	JORC Code explanation	Commentary
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated. • 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. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• No Exploration Results are being reported for the King Vol deposit. • Details of sample compositing are detailed in JORC Table 1, Section 1 - Sampling Techniques and Data. • No metal equivalents have been used for reporting.
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 drillhole angle is known, its nature should be reported. • If it is not known and only the downhole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	• No Exploration Results are being reported for the King Vol deposit. • Details of drillhole orientations are detailed in JORC Table 1, Section 1 - Sampling Techniques and Data.
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 drillhole collar locations and appropriate sectional views.	• See body of the report for the relevant plan and sectional views.
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	• No Exploration Results are being reported for the King Vol deposit.
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.	• No Exploration Results are being reported for the King Vol deposit.

Criteria	JORC Code explanation	Commentary
Further work	• The nature and scale of planned further work (e.g. 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.	• Underground infill diamond drilling to a nominal 25 mN × 25 mRL drill spacing is planned continue as the mine is developed.

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. • Data validation procedures used.	• The King Vol geological database is managed using MinRep software. Data are manually entered in the database by site geologists. • Digital (scanned) copies of all historical geological data are contained on the site data server. • There are no regular validations conducted on the drillhole database.
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.	• The Competent Person has not conducted a site visit; however, other qualified SRK personnel conducted site visits in January and March 2020. During the visits, SRK personnel inspected diamond drill core from the King Vol deposit, visited the King Vol underground mine and collected and validated all of the relevant drillhole and geological modelling data used in the 2020 King Vol Mineral Resource estimate. The Competent Person was in constant communication with the SRK personnel during the March site visit.
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.	• The geological models have been constructed using information from drillhole logging and underground backs mapping and include lithological domains, mineralisation domains (lenses), a basic structural model including identified fault planes and an oxide weathering domain. • The mineralised lenses have a complex morphology. They pinch and swell and are anastomosing along strike and up dip and down dip and they are often offset by cross-cutting structures. • There is reasonable level of confidence in the lithological and mineralisation models in areas of underground development. The models are less confident in areas supported by limited drilling. • There is lower confidence in the oxide weathering surface.
Dimensions	• The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	• The King Vol mineralisation has been modelled as 12 distinct lenses ranging in size from 100 m to 720 m along strike, <1 m to 25 m in width and at depths up to 900 m below the original topographic surface. • The mineralised lenses have been modelled within stratigraphic contact zones, altered skarn zones and structurally controlled dilation zones. • Most of the mineralised lenses strike between 350° and 010° and dip steeply (65°–85°) to the west except for the ab_pipe lens which strikes east–west and plunges 70° to the west.

Criteria	JORC Code explanation	Commentary

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 (e.g. 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 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 drillhole data, and use of reconciliation data if available.
		• Grade variables for Zn, Pb, Cu and Ag, deleterious variables for As, Cd and Fe, and density were estimated into the King Vol Mineral Resource estimate.
		• Variables within the aoz, aboz, skeoz, skwoz, boz and coz lenses were estimated using Ordinary Kriging interpolation.
		• Variables within the ishoz, ab_pipe, ark_hw, ark_min1, ark_min2 and ark_min3 lenses which had low sample counts were interpolated using Inverse Distance to the power two interpolation.
		• The mineralised lenses were used as hard boundaries during estimation, except for the ark_hw, ark_min1, ark_min2 and ark_min3 lenses, which were estimated together using soft boundaries due to low sample counts.
		• Top-cuts were applied to high-grade outliers within each estimation domain that were identified during exploratory data analysis.
		• The King Vol Mineral Resource estimate has been checked against grade control face sampling and the current King Vol grade control estimate.
		• No assumptions have been made regarding the recovery of by-products.
		• The estimation block size used was 5 mX × 10mY × 10 mRL which is approximately half the drillhole spacing of 25 mY × 25 mRL. The estimation was completed in three or four passes with searches ranging from 25 m, 50 m, 150 m 250 m and 1,000 m.
		• Selective mining units have been assumed to be similar to the estimation block size to match underground long-hole open stoping with stope panels being 5–10 m wide, 20 m high and 20–60 m long.
		• None of varies are correlated except for Zn and Cd.
		• The King Vol Mineral Resource estimate has undergone serval validation checks for each grade variable and density:
		  ○ Visual validation against resource drillholes and grade control face sampling.
		  ○ Global statistical comparison between length-weighted composite samples and volume-weighted estimated blocks.
		  ○ Swath plot validations between composite samples and estimated blocks.
		  ○ A review of the number of blocks estimated per domain.

Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• The King Vol Mineral Resource estimate has been estimated on a dry basis using dry bulk density values. • There are no moisture data available for assessment.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• A cut-off grade of 3% Zn has been used for Mineral Resource reporting. This cut-off is consistent with previous Mineral Resource estimates and the current ore/waste cut-off of 3.5% Zn used in the King Vol underground operation.

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	• 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.	• The King Vol deposit is current mined as an underground operation. • Development levels are spaced approximately every 20 m, with drive dimensions of approximately 4.5 m wide × 4.5 m high and 3 m in depth. • Open stope panels are approximately 5-10 m wide, 20 m high and 20–60 m long.
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.	• Ore is currently processed through the company's Mungana Processing Facility. • The fresh ore material from the King Vol underground is considered suitable for processing via flotation-style concentrating. The oxide and transitional mineralisation types are difficult to process as they are very fine and contain clays that cause issues in the plant's flotation cells and the tailing thickener. The oxide and transitional mineralisation has not been classified as Mineral Resources.
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 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.	• Assumptions regarding possible waste and process residue disposal options were considered during a Bankable Feasibility Study conducted by Auctus Resources Pty Ltd in January 2018 covering the Mungana Project, which includes the King Vol deposit.
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.	• Bulk density has been estimated in the King Vol Mineral Resource model using bulk density measurements derived from diamond drill core using the Archimedes method. • The drill core appears to contain very little porosity or cavities. • The estimates have been completed using the mineralised lenses as hard boundaries. There is a potential that more than lithology type can be present in each mineralised domain, which could have different bulk density populations. This has not been investigated for the current model as more bulk density data are required to conduct a proper assessment.

Criteria	JORC Code explanation	Commentary
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	• Sampling methodology, assaying methodology and quality, confidence in the geological model, estimation performance and metallurgical recovery were all taken into consideration when classifying the King Vol Mineral Resources. • The Competent Person considers that drill spacing and confidence in the geological modelling have the largest impact on the confidence of the Mineral Resource estimate. • The Competent Person is of the opinion that the King Vol Mineral Resource estimate represents an appropriate global estimate that reproduces the overall grade trends seen in the drillhole composite data. The King Vol Mineral Resources were therefore classified as either Indicated or Inferred. • Oxide mineralisation cannot currently be processed and was therefore not classified as Mineral Resources. • Mineralisation within the ark_hw, ark_min1, ark_min2 and ark_min3 lenses and mineralisation below the 500 mRL level (approximately 450–500 m below the original topographic surface) has not been classified as Mineral Resources as the mineralisation is not well supported by drilling and the continuity is considered uncertain.
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• A December 2019 review of the 2016 King Vol Mineral Resource estimate raised concerns about the geological modelling and resource estimation parameters applied and was the trigger for the 2020 Mineral Resource update. • The 2020 Mineral Resource update has not been independently reviewed or audited but has been peer reviewed by an independent SRK technical expert.
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.	• A combination of quantitative and qualitative approaches has been used to assess the relative accuracy/confidence of the King Vol Mineral Resource estimate. • Earlier drilling programs employed sub-optimal sampling techniques and had limited QA/QC checks and balances, which introduces uncertainty into areas of the resource model that relies primarily on these samples during estimation. Drillhole composite samples were flagged with a sample quality variable based on sampling method, QA/QC results, collar surveying method, downhole surveying method. Values between 0 and 3 with 0=reliable sample, 3=a very unreliable sample. Sample quality was then estimated as part of the Zn estimation runs. The estimation showed that the sampling uncertainly has been mitigated to some extent with inclusion of more-recent infill drilling. • Mineralised domains (lenses) have been modelled within stratigraphic contact zones, altered skarn zones and structurally controlled dilation zones; however, the exact timing and genesis of the mineralisation event(s) and the structural geology evolution are not well understood. The mineralised lenses are often thin (approximately ≤1 m thick) and often offset by cross-cutting structures. However, underground backs mapping has confirmed that the mineralisation lenses are

Criteria	JORC Code explanation	Commentary
		continuous and traceable. • Zn, Pb, Cu and Ag within the modelled mineralisation domains are all highly variable with positively skewed grade populations and in some cases high grade outliers. It is important to note that Zn, Pb, Cu and Ag are not correlated and therefore the current mineralisation domains based on underground mapping and Zn grades may not be the most appropriate domaining tool for all four grade variables. • As and Cd are also highly variable, whereas Fe and density approximate a more Gaussian population; however, there are less available deleterious assays and density samples in the current King Vol dataset which has resulted in more smoothed and uncertain estimates. • The 2020 King Vol Mineral Resource estimate is an appropriate global estimate that reproduces the overall Zn, Pb, Cu and Ag grade trends in each of the identified mineralised domains. The Mineral Resource model should not be considered as a precise local estimate. Further infill drilling and detailed geological backs mapping is required to produce a Mineral Resource estimate of higher confidence.

Appendix B: Mineral Resource Estimate – Drillhole List

Hole	East (m)	North (m)	mRL (m)	Depth (m)	Hole Type	Company	Year
KVP001	5056.99	4891.99	1009.11	50	RC	BP	1989
KVP002	5021.57	4898.96	1000.45	50	RC	BP	1989
KVP003	5082.22	4997.99	1021.58	50	RC	BP	1989
KVP004	5057.87	4997.54	1014.76	40	RC	BP	1989
KVP005	5023.44	4998.94	1004.04	60	RC	BP	1989
KVP006	5116.5	5095.97	1028.69	40	RC	BP	1989
KVP007	5092.68	5097.49	1024.25	42	RC	BP	1989
KVP008	5065.39	5097.6	1018.1	30	RC	BP	1989
KVP009	5012.98	5099.47	1004.86	60	RC	BP	1989
KVP010	5123.5	5198.41	1018.46	50	RC	BP	1989
KVP011	5072.09	5198.84	1014.29	50	RC	BP	1989
KVD001	4987.64	4900.53	995.71	189.25	RCD	AZTEC	1990
KVD002	4979.03	5000.2	998.43	201.3	RCD	AZTEC	1990
KVD003	4930.99	4999.5	993.28	233.2	RCD	AZTEC	1990
KVD004	4923.57	4902.58	990.08	313.3	RCD	AZTEC	1990
KVD005	4923.18	5102.33	996.73	299.6	RCD	AZTEC	1990
KVD006	4938.4	5200.23	1000.9	343.5	RCD	AZTEC	1990
KVD007	4912.03	5004.62	992.86	344.5	RCD	AZTEC	1990
KVD008	4962.01	5300.45	995.28	357.3	RCD	AZTEC	1990
KVD009	4977.43	5400.41	993.19	270	RCD	AZTEC	1990
KVD010	5012.44	5199.62	1003.94	234	RCD	AZTEC	1990
KVD011	4875	5200	1010	72	RC	AZTEC	1990
KVD012	4877.88	5205.72	1006.75	441	RCD	AZTEC	1990
KVP012	4909.39	5002.69	992.68	118	RC	AZTEC	1990
KVP013	4856.67	5015.64	995.43	140.5	RC	AZTEC	1990
KVP014	4973.68	4800.73	991.48	124	RC	AZTEC	1990
KVP015	4866.79	5202.57	1006.89	153	RC	AZTEC	1990
KVP016	5032.17	5297.79	999.09	66	RC	AZTEC	1990
KVP017	5000.72	5301.27	996.01	74	RC	AZTEC	1990
KVP018	4975	5400	993	120.5	RC	AZTEC	1990
KVP030	4726.737	5216.77	1028.44	96	RC	AZTEC	1990
KVP031	4743.653	5324.27	1022.27	60	RC	AZTEC	1990
KVD013	4875.71	5102.69	1001.15	420	RCD	AZTEC	1991
KVD014	4872.72	5015	995.17	426	RCD	AZTEC	1991
KVD015	4875.66	4899.06	992.15	402	RCD	AZTEC	1991
KVD016	4875.66	4899.06	992.15	350.5	RCD	AZTEC	1991
KVD017	4925.19	4800.85	987.58	250.8	RCD	AZTEC	1991
KVD018	4913.15	4702.91	987.99	297	RCD	AZTEC	1991
KVD019	4729.8	5216.67	1028.47	200	RCD	AZTEC	1991
KVD022	4899.26	5148.91	1000.86	423	RCD	PERILYA	1992
KVD023	4897.46	5103.77	999.04	387	RCD	PERILYA	1992

Hole	East (m)	North (m)	mRL (m)	Depth (m)	Hole Type	Company	Year
KVD024	4896.27	5053.8	997.04	296.5	RCD	PERILYA	1992
KVD025	4899.11	5153.68	1000.98	318	RCD	PERILYA	1992
KVD026	4959	5050	996	185.3	RCD	PERILYA	1992
KVD027	4983.5	4947.1	997.288	185.2	RCD	PERILYA	1992
KVD028	4829.03	5099.79	1001.58	530.6	RCD	KAGARA	1999
KVD029	5023.1	5300.44	998.58	225.7	RCD	KAGARA	1999
KVD030	4942.84	4950.22	993.62	222.2	RCD	KAGARA	2001
KVD031	4974.12	5150.44	1001.35	252.2	DDH	KAGARA	2001
KVD032	4921.59	5000.03	992.95	63	RC	KAGARA	2001
KVD033	4919.11	4999.88	993.01	282.3	RCD	KAGARA	2001
KVD034	4928.79	5050.16	994.47	267.2	RCD	KAGARA	2001
KVD035	4866.83	5051.68	998.06	93	RC	KAGARA	2001
KVD036	4869.45	5052.3	997.98	45	RC	KAGARA	2001
KVD037	4867.99	5054.1	998.09	45	RC	KAGARA	2001
KVD038	4859.52	5053.41	998.09	39	RC	KAGARA	2001
KVD039	4881.8	5050.07	997.82	423.3	RCD	KAGARA	2001
KVD040	4956.99	5100.15	997.58	39	RC	KAGARA	2001
KVD041	4955	5100.07	997.54	234.2	RCD	KAGARA	2001
KVD042	4955.04	5102.05	997.56	216	RCD	KAGARA	2001
KVD043	4955.66	5102.06	997.59	188.8	RCD	KAGARA	2001
KVD044	4900.2	5249.65	1003.36	39	RC	KAGARA	2001
KVD045	4899.31	5249.93	1003.38	348.2	RCD	KAGARA	2001
KVD046	4975.84	5200.16	1001.17	249.2	RCD	KAGARA	2001
KVD047	4972.97	5150.69	1001.35	194.1	RCD	KAGARA	2001
KVD048	4998.83	5100.6	1003.4	137.3	RCD	KAGARA	2001
KVP032	5027	4799.49	999.71	144	RC	KAGARA	2001
KVP033	5048.25	5099.36	1013.56	100	RC	KAGARA	2001
KVP034	5071.42	5148.91	1018.35	100	RC	KAGARA	2001
KVP035	5071.6	5197.94	1013.99	130	RC	KAGARA	2001
KVP036	5024.95	5198.73	1004.32	180	RC	KAGARA	2001
KVP037	5017.8	5151.24	1006.09	143	RC	KAGARA	2001
KVP038	5022.02	5048.81	1004.68	76.5	RC	KAGARA	2001
KVP039	4990	5048.77	1000.22	148.5	RC	KAGARA	2001
KVP040	5030.24	5248.83	1001.47	200	RC	KAGARA	2001
KVP041	5085.45	5250.26	1010.77	120	RC	KAGARA	2001
KVP042	4995.65	4998.74	998.89	160	RC	KAGARA	2001
KVP043	5023.02	5000.15	1003.81	120	RC	KAGARA	2001
KVP044	5016.11	4950.16	1001.13	150	RC	KAGARA	2001
KVP045	5050.44	4950.29	1009.32	111	RC	KAGARA	2001
KVP046	5019.76	4900.13	1000.24	89	RC	KAGARA	2001
KVP047	5018.09	4900.14	1000.16	150	RC	KAGARA	2001

Hole	East (m)	North (m)	mRL (m)	Depth (m)	Hole Type	Company	Year
KVP048	5056.53	4890.69	1008.97	110	RC	KAGARA	2001
KVP049	5039.67	4848.89	1005.34	150	RC	KAGARA	2001
KVP050	5050.39	4848.74	1005.95	110	RC	KAGARA	2001
KVP051	4987.3	4850.18	994.53	200	RC	KAGARA	2001
KVD049	4941.673	4852.19	990.76	201.3	DDH	KAGARA	2002
KVD050	4996.883	4802.259	994.36	123.3	DDH	KAGARA	2002
KVD051	4966.337	4802.697	991.19	213.6	DDH	KAGARA	2002
KVD052	4940.925	4753.192	986.9	246.1	DDH	KAGARA	2002
KVD053	5009.266	4851.275	998.34	99.4	DDH	KAGARA	2002
KVD054	4979.597	5252.008	998.43	197.5	DDH	KAGARA	2002
KVP052	5074.717	5302.196	1005.38	46	RC	KAGARA	2002
KVP053	4975.315	4749.468	989.64	178	RC	KAGARA	2002
KVP054	5014.052	4749.739	994	88	RC	KAGARA	2002
KVP055	4869.14	5208.352	1006.76	123	RC	KAGARA	2002
KVD055	4972.27	5124.819	1000.613	204.4	DDH	KAGARA	2006
KVD056	4973.856	5124.802	1000.616	168.4	DDH	KAGARA	2006
KVD057	4971.619	5074.89	998.829	213.7	DDH	KAGARA	2006
KVD058	4972.833	5074.975	998.849	195.3	DDH	KAGARA	2006
KVD059	5005.157	5071.037	1002.711	153.5	DDH	KAGARA	2006
KVD060	5006.603	5071.156	1002.716	136.8	DDH	KAGARA	2006
KVD061	5008.576	5124.878	1005.59	144.4	DDH	KAGARA	2006
KVD062	5010.277	5125.031	1005.659	135.2	DDH	KAGARA	2006
KVD063	4744.52	4888.114	1003.468	123	DDH	KAGARA	2006
KVD064	4742.998	4888.346	1003.609	897.8	DDH	KAGARA	2006
KVD064W1	4742.998	4888.346	1003.609	675.8	DDH	KAGARA	2006
KVD065	4742.92	4890.15	1003.618	1029.8	DDH	KAGARA	2006
KVD066	4536.518	5049.103	1004.234	915.9	DDH	KAGARA	2006
KVD067	4535.873	5049.747	1004.203	993.9	DDH	KAGARA	2006
KVD068	4990.11	5100.116	1002.276	39	DDH	KAGARA	2006
KVD069	4989.053	5099.871	1002.23	204.3	DDH	KAGARA	2006
KVD069W1	4989.053	5099.871	1002.23	202.3	DDH	KAGARA	2006
KVD069W2	4989.053	5099.871	1002.23	117.3	DDH	KAGARA	2006
KVW01	4935.224	4903.087	990.733	114	RC	KAGARA	2006
KVD064W2	4742.998	4888.346	1003.609	774.7	DDH	KAGARA	2011
KVD070	4751.4	4995.5	1003.451	120	DDH	KAGARA	2011
KVD071	4752.834	4996.15	1003.451	681.9	DDH	KAGARA	2011
KVD072	4770.306	5064.862	1003.705	605	DDH	KAGARA	2011
KVD072W1	4770.306	5064.862	1003.705	837.6	DDH	KAGARA	2011
KVD072W2	4770.306	5064.862	1003.705	680.7	DDH	KAGARA	2011
KVD073	4770.564	5064.875	1003.596	540.6	DDH	KAGARA	2011
KVD073W1	4770.564	5064.875	1003.596	489.5	DDH	KAGARA	2011

Hole	East (m)	North (m)	mRL (m)	Depth (m)	Hole Type	Company	Year
KVD073W2	4770.564	5064.875	1003.596	468.5	DDH	KAGARA	2011
KVD074	4836.969	4795.778	992.623	380.7	DDH	KAGARA	2011
KVD075	4836.505	4795.765	992.609	552	DDH	KAGARA	2011
KVD076	4823.799	4703.777	994.028	420.4	DDH	KAGARA	2011
KVD077	4872.688	4580.799	989.598	392.6	DDH	KAGARA	2011
KVD078	4823.115	4703.738	994.099	461	DDH	KAGARA	2011
KVD079	4727.854	4792.337	1001.597	687.6	DDH	KAGARA	2011
KVD079W1	4727.854	4792.337	1001.597	774.6	DDH	KAGARA	2011
KVD079W2	4727.854	4792.337	1001.597	834.6	DDH	KAGARA	2011
KVD080	4739.695	4940.158	1002.86	549.5	DDH	KAGARA	2011
KVD081	4753.072	4993.374	1003.3	573	DDH	KAGARA	2011
KVD082	4915.759	4923.858	990.23	288.1	DDH	KAGARA	2011
KVD083	4975.547	4973.054	997.33	186.1	DDH	KAGARA	2011
KVD084	4902.821	5028.59	994.22	306.6	DDH	KAGARA	2011
KVD085	4903.491	4972.886	991.89	296.4	DDH	KAGARA	2011
KVD086	5036.071	4970.799	1006.85	108.6	DDH	KAGARA	2011
KVD087	5035.245	4970.734	1006.78	150.7	DDH	KAGARA	2011
KVD088	4975.25	4973.1	997.33	222.5	DDH	KAGARA	2011
KVD089	4983.8	4872.73	994.86	147.5	DDH	KAGARA	2011
KVD090	4983.45	4872.71	994.8	183.4	DDH	KAGARA	2011
KVD091	4984.8	4921.98	996.5	201.4	DDH	KAGARA	2011
KVD092	4984.45	4921.97	996.48	201.6	DDH	KAGARA	2011
KVD093	5022.76	5022.36	1004.74	246	DDH	KAGARA	2011
KVD094	5022.21	5022.38	1004.79	146.5	DDH	KAGARA	2011
KVD095	5048.99	4925.74	1008.32	201.3	DDH	KAGARA	2011
KVD096	5048.45	4925.69	1008.24	144.7	DDH	KAGARA	2011
KVD097	4964.899	5027.427	997.066	189.5	DDH	KAGARA	2011
KVD098	4964.581	5027.397	997.12	213.5	DDH	KAGARA	2011
KVD099	4940.647	5069.245	995.44	237.5	DDH	KAGARA	2011
KVD100	4940.342	5069.233	995.423	306.6	DDH	KAGARA	2011
KVD100W1	4940.342	5069.233	995.423	360.5	DDH	KAGARA	2011
KVD101	4984.187	5003.153	998.745	180.5	DDH	KAGARA	2011
KVD102	5049.708	5076.887	1013.531	60.1	DDH	KAGARA	2011
KVD103	5049.234	5076.885	1013.485	167.7	DDH	KAGARA	2011
KVD104	4994.617	5072.784	1001.386	177.5	DDH	KAGARA	2011
KVD105	4955.235	4901.457	992.718	180.5	DDH	KAGARA	2011
KVD106	4924.313	4870.424	989.512	231.7	DDH	KAGARA	2011
KVD107	4953.418	4823.243	990.593	91	DDH	KAGARA	2011
KVD108	4951.412	4823.202	990.692	222.5	DDH	KAGARA	2011
KVD109	5005.211	4824.006	996.62	111.5	DDH	KAGARA	2011
KVD110	5004.589	4823.965	996.538	183.6	DDH	KAGARA	2011

Hole	East (m)	North (m)	mRL (m)	Depth (m)	Hole Type	Company	Year
KVD111	5047.499	4871.244	1006.478	78.2	DDH	KAGARA	2011
KVD112	5046.832	4871.169	1006.386	105.6	DDH	KAGARA	2011
KVD113	4944.688	5127.96	998.437	249.5	DDH	KAGARA	2011
KVD114	4944.379	5127.945	998.43	303.6	DDH	KAGARA	2011
KVD115	5046.801	5098.959	1013.51	111.5	DDH	KAGARA	2011
KVD116	4958.365	4779.542	989.05	291.5	DDH	KAGARA	2011
KVD117	4940.332	5069.256	995.38	270.5	DDH	KAGARA	2011
KVD118	4939.416	5069.835	995.38	306.5	DDH	KAGARA	2011
KVD119	4877.783	5053.871	998.34	372.5	DDH	KAGARA	2011
KVD120	4902.988	4794.644	989.76	303.2	DDH	KAGARA	2011
KVD121	4873.745	4774.465	991.12	358.6	DDH	KAGARA	2011
KVD122	4873.449	4774.478	991.12	327.2	DDH	KAGARA	2011
KVD123	4745.178	4888.217	1003.49	591.5	DDH	KAGARA	2011
KVD123W1	4745.178	4888.217	1003.49	639.6	DDH	KAGARA	2011
KVD124	4924.001	4870.551	989.45	279.6	DDH	KAGARA	2011
KVP056	5409.958	4383.615	976.53	228	RC	KAGARA	2011
KVP057	5288.885	4450.683	978.34	192	RC	KAGARA	2011
KVP058	5211.128	4322.397	1006.82	180	RC	KAGARA	2011
KVP059	5205.762	4357.703	1002.14	186	RC	KAGARA	2011
KVP060	5202.653	4393.898	997.28	180	RC	KAGARA	2011
KVP061	5205.929	4546.898	985.7	186	RC	KAGARA	2011
KVP062	5169.643	4648.718	1006.39	186	RC	KAGARA	2011
KVP063	5344.52	4598.349	981.42	186	RC	KAGARA	2011
KVP064	5411.635	4852.112	985.01	181	RC	KAGARA	2011
KVP065	5006.118	5509.147	992.08	187	RC	KAGARA	2011
KVP066	5017.315	5608.132	996.42	145	RC	KAGARA	2011
KVP067	5024.59	5796.026	996.23	181	RC	KAGARA	2011
KVP068	5052.272	5897.536	994.21	169	RC	KAGARA	2011
KVP069	5059.909	5991.908	1001.94	180	RC	KAGARA	2011
KVP070	5117.427	6079.631	1002.12	187	RC	KAGARA	2011
KVD125	4909.993	5214.009	1003.308	399.4	DDH	ATHERTON	2015
KVD126	4926.555	5163.55	1000.002	321.2	DDH	ATHERTON	2015
KVD127	5232.708	5231.726	1007.037	270.4	DDH	ATHERTON	2015
KVD128	4895.39	4964.64	991.816	390.3	DDH	ATHERTON	2015
KVD129	4833.577	5006.401	995.95	424.7	DDH	ATHERTON	2015
KVD130	4869.244	4865.681	990.966	408.1	DDH	ATHERTON	2015
KVD131	4873.874	4827.218	990.131	357.2	DDH	ATHERTON	2015
KVD132	4896.719	4964.588	991.821	363.4	DDH	ATHERTON	2015
KVD133	4868.573	4865.59	990.918	555.5	DDH	ATHERTON	2015
KVD134	4817.672	4904.762	995.55	440.3	DDH	ATHERTON	2015
KVD135	4836.879	4796.126	992.571	498.3	DDH	ATHERTON	2015

Hole	East (m)	North (m)	mRL (m)	Depth (m)	Hole Type	Company	Year
KVD136	4874.081	4774.143	991.068	447.4	DDH	ATHERTON	2015
KVD137	4896.809	5247.678	1003.716	442	DDH	ATHERTON	2015
KVD138	5266.363	4860.926	991.371	495	DDH	ATHERTON	2015
KVD139	5266.401	4860.256	991.387	384.5	DDH	ATHERTON	2015
KVD139W1	5266.401	4860.256	991.387	513.3	DDH	ATHERTON	2015
KVD140	4899.66	4669.167	988.994	268.2	DDH	ATHERTON	2015
KVD141	4817.814	4906.733	995.507	393.8	DDH	ATHERTON	2015
KVD141W1	4817.814	4906.733	995.507	422.9	DDH	ATHERTON	2015
KVD142	4952.186	5502.047	995.92	342.2	DDH	ATHERTON	2015
KVP071	5028.679	5504.547	989.953	150	RC	ATHERTON	2015
KVP072	5069.106	5565.121	989.115	92	RC	ATHERTON	2015
KVP073	5043.475	5566.293	990.396	121	RC	ATHERTON	2015
KVP074	5017.496	5446.499	991.318	92	RC	ATHERTON	2015
KVP077	5066.333	5502.369	987.659	121	RC	ATHERTON	2015
KVP078	5059.922	5458.224	989.886	151	RC	ATHERTON	2015
KVP079	5065.739	5361.559	1002.723	135	RC	KAGARA	2015
KVPD075	5019.637	5446.563	991.318	240	RCD	ATHERTON	2015
KVPD076	5018.36	5345.439	994.779	163.8	RCD	ATHERTON	2015
KVPD081	5006.66	5511.479	991.973	189.4	RCD	ATHERTON	2015
KVD143	4967.972	5352.048	994.854	288.5	DDH	AUCTUS	2016
KVD144	4946.734	5421.672	995.294	300.3	DDH	AUCTUS	2016
KVD144W1	4946.734	5421.672	995.294	345.6	DDH	AUCTUS	2016
KVD145	4931.935	5533.752	998.584	412.3	DDH	AUCTUS	2016
KVD146	4953.979	5608.84	1002.674	395.94	DDH	AUCTUS	2016
KVD147	4860.684	5342.423	1005.024	432.6	DDH	AUCTUS	2016
KVGT001	4881.15	5215.594	1006.165	35	RC	AUCTUS	2016
KVGT002	4822.716	5215.427	1017.161	59.5	DDH	AUCTUS	2016
KVGT003	4783.127	5224.047	1020.67	56	DDH	AUCTUS	2016
KVGT004	4782.483	5224.176	1020.721	50.2	DDH	AUCTUS	2016
KVGT005	5158.498	4966.495	1034.76	58.5	DDH	AUCTUS	2016
KVGT006	5156.519	4998.9	1035.12	199.8	DDH	AUCTUS	2016
KVGT007	5139.301	4988.409	1032.564	100.8	DDH	AUCTUS	2016
KVGT008	5250.445	4939.843	1000.905	40.8	DDH	AUCTUS	2016
KVGT009	4973.262	4959.882	996.935	75.38	DDH	AUCTUS	2016
KVP080	5065.262	5605.272	991.142	90	RC	ATHERTON	2016
KVP082	5098.515	5176.035	1019.814	98	RC	ATHERTON	2016
KVP083	5109.942	5151.229	1022.996	44	RC	ATHERTON	2016
KVP084	5081.745	5153.853	1018.297	67	RC	ATHERTON	2016
KVD148	5015.224	4777.296	996.616	117.9	RCD	AUCTUS	2017
KVD149	4995.261	4717.206	989.786	108.76	RCD	AUCTUS	2017
KVD150	4974.874	4725.674	988.94	189.7	RCD	AUCTUS	2017

Hole	East (m)	North (m)	mRL (m)	Depth (m)	Hole Type	Company	Year
KVD151	4907.727	4727.975	987.789	333.2	RCD	AUCTUS	2017
KVD152	4955.884	4780.23	988.854	219.5	RCD	AUCTUS	2017
KVD153	4941.851	4828.376	990.545	279.7	RCD	AUCTUS	2017
KVD154	4941.7	4852.2	990.8	222.6	RCD	AUCTUS	2017
KVGT010	5158.072	4984.923	1034.959	99.3	DDH	AUCTUS	2017
KVGT011	5156.811	4927.271	1031.095	52.6	DDH	AUCTUS	2017
KVP085	5095.119	5125.596	1023.391	75	RC	AUCTUS	2017
KVP086	5065.936	4960.639	1014.196	65	RC	AUCTUS	2017
KVP087	5069.648	4903.161	1013.731	65	RC	AUCTUS	2017
KVP088	5035.509	4907.919	1002.743	41	RC	AUCTUS	2017
KVP089	5084.319	4917.179	1019.466	110	RC	AUCTUS	2017
KVP090	5063.468	4871.029	1010.234	50	RC	AUCTUS	2017
KVP091	5037.002	4907.193	1002.754	82	RC	AUCTUS	2017
KVP092	5065.767	5124.848	1017.939	100	RC	AUCTUS	2017
KVP093	4888.62	5346.2	1004.63	134	RC	AUCTUS	2017
KVP094	5093.112	5524.715	987.737	74	RC	AUCTUS	2017
KVP095	5104.404	5534.509	987.122	56	RC	AUCTUS	2017
KVP096	5066.849	5524.97	987.239	100	RC	AUCTUS	2017
KVP097	5067.3	5584.165	990.155	92	RC	AUCTUS	2017
KVP098	5080.561	5549.633	987.259	75	RC	AUCTUS	2017
KVP099	5057.935	5575.481	990.345	95	RC	AUCTUS	2017
KVP100	5077.878	5573.509	988.599	62	RC	AUCTUS	2017
KVP101	5059.268	5539.041	987.694	110	RC	AUCTUS	2017
KVP102	5045.281	5588.16	992.121	121	RC	AUCTUS	2017
KVP103	5087.104	5587.409	990.439	67	RC	AUCTUS	2017
KVP104	5015.681	4777.342	996.618	118	RC	AUCTUS	2017
KVP105	4940.951	4852.654	990.8	110	RC	AUCTUS	2017
KVD155	4829.385	5100.825	1001.64	628	RCD	AUCTUS	2018
KVD156	4784.688	5224.253	1020.387	608.9	RCD	AUCTUS	2018
KVD157	4859.195	5342.347	1005.098	504.73	RCD	AUCTUS	2018
KVD158	4850.191	5419.169	1006.477	59	RCD	AUCTUS	2018
KVD159	4847.018	5418.628	1006.453	516.6	RCD	AUCTUS	2018
KVD160	4930.025	5533.771	998.668	428.9	RCD	AUCTUS	2018
KVD161	4803.663	3879.684	983.303	564.9	RCD	AUCTUS	2018
KVD162	5030.524	4561.201	990.725	510.9	RCD	AUCTUS	2018
KVD163	4832.145	5099.987	1001.516	487.1	RCD	AUCTUS	2018
KVD164	4828.572	5010.112	996.111	182.7	RCD	AUCTUS	2018
KVD165	4830.92	5010.048	996.392	218.7	RCD	AUCTUS	2018
KVD166	4830.3	5009.764	996.312	448.14	RCD	AUCTUS	2018
KVD167	4830.313	5009.751	996.308	272.2	RCD	AUCTUS	2018
KVD167W1	4830.313	5009.751	996.308	504.08	DDH	AUCTUS	2018

Hole	East (m)	North (m)	mRL (m)	Depth (m)	Hole Type	Company	Year
KVD168	4831.461	5100.451	1001.879	172.4	RCD	AUCTUS	2018
KVD168W1	4831.461	5100.451	1001.879	688.14	DDH	AUCTUS	2018
KVD169	4772.137	5064.436	1003.779	35	RCD	AUCTUS	2018
KVUD001	5074.26	5141.728	874.489	68.7	UGDD	AUCTUS	2018
KVUD002	5074.339	5141.679	873.975	88.4	UGDD	AUCTUS	2018
KVUD003	5053.821	5101.182	872.062	71.5	UGDD	AUCTUS	2018
KVUD004	5086.944	4912.323	872.711	106	UGDD	AUCTUS	2018
KVUD005	5087.061	4912.153	873.292	92.5	UGDD	AUCTUS	2018
KVUD006	5086.83	4912.837	872.074	156.5	UGDD	AUCTUS	2018
KVUD007	5087.061	4912.104	872.232	135.94	UGDD	AUCTUS	2018
KVUD008	5086.662	4913.102	872.043	116.4	UGDD	AUCTUS	2018
KVUD009	5039.03	4971.685	891.481	60	UGDD	AUCTUS	2018
KVUD010	5038.964	4971.238	891.311	8.7	UGDD	AUCTUS	2018
KVUD010A	5038.964	4971.238	891.311	55.1	UGDD	AUCTUS	2018
KVUD011	5073.45	4911.879	853.348	71.27	UGDD	AUCTUS	2018
KVUD012	5073.707	4910.158	853.236	114.5	UGDD	AUCTUS	2018
KVUD013	5073.702	4910.133	853.473	116	UGDD	AUCTUS	2018
KVUD014	5073.727	4909.912	853.459	109.8	UGDD	AUCTUS	2018
KVUD015	5073.509	4911.076	852.735	104	UGDD	AUCTUS	2018
KVUD016	5016.681	4907.456	854.303	57.6	UGDD	AUCTUS	2018
KVUD017	5016.322	4907.544	853.863	20.5	UGDD	AUCTUS	2018
KVUD017A	5016.322	4908.468	853.605	19.4	UGDD	AUCTUS	2018
KVUD018	5016.707	4907.425	854.314	50.4	UGDD	AUCTUS	2018
KVUD019	5016.654	4907.133	854.516	38.42	UGDD	AUCTUS	2018
KVUD020	5018.713	4949.544	853.845	37.7	UGDD	AUCTUS	2018
KVUD021	5019.052	4950.391	853.882	36.1	UGDD	AUCTUS	2018
KVUD022	5019.126	4951.172	853.939	38	UGDD	AUCTUS	2018
KVUD023	5135.88	4917.513	785.721	147.4	UGDD	AUCTUS	2019
KVUD024	5135.885	4917.502	785.721	220	UGDD	AUCTUS	2019
KVUD025	5135.902	4916.915	785.534	214	UGDD	AUCTUS	2019
KVUD026	5135.918	4916.397	785.646	197.62	UGDD	AUCTUS	2019
KVUD027	5136.277	4916.5	785.4	180	UGDD	AUCTUS	2019
KVUD028	5136.3	4916.5	785.4	205	UGDD	AUCTUS	2019
KVUD029	5136.4	4917.3	784.4	214.93	UGDD	AUCTUS	2019
KVUD030	5136.4	4917.3	784.4	215.6	UGDD	AUCTUS	2019
KVUD031	5136.4	4918.2	785.3	164	UGDD	AUCTUS	2019
KVUD032	5136.4	4918.2	785.3	164.5	UGDD	AUCTUS	2019
KVUD033	5136.4	4918.2	785.3	175	UGDD	AUCTUS	2019
KVUD034	5136.3	4916.7	784.7	179.7	UGDD	AUCTUS	2019
KVUD035	5136.3	4916.7	784.7	194.6	UGDD	AUCTUS	2019
KVUD036	5130.841	5036.236	765.8	155	UGDD	AUCTUS	2019

Hole	East (m)	North (m)	mRL (m)	Depth (m)	Hole Type	Company	Year
KVUD037	5130.939	5036.283	765.501	155.05	UGDD	AUCTUS	2019
KVUD038	5130.851	5036.02	765.543	131.5	UGDD	AUCTUS	2019
KVUD039	5130.764	5035.971	765.161	155.5	UGDD	AUCTUS	2019
KVUD040	5130.541	5035.658	765.678	149.4	UGDD	AUCTUS	2019
KVUD041	5130.512	5034.341	765.615	128.9	UGDD	AUCTUS	2019
KVUD042	5130.564	5034.73	765.356	164.4	UGDD	AUCTUS	2019
KVUD043	5130.581	5034.572	765.255	183.31	UGDD	AUCTUS	2019
KVUD044	5130.541	5033.848	765.862	118.1	UGDD	AUCTUS	2019
KVUD045	5130.454	5033.833	765.569	134.9	UGDD	AUCTUS	2019
KVUD046	5130.426	5033.841	765.312	131.7	UGDD	AUCTUS	2019
KVUD047	5130.398	5033.859	765.176	151	UGDD	AUCTUS	2019
KVUD048	5130.434	5033.457	765.316	145.06	UGDD	AUCTUS	2019
KVUD050	5131.679	5036.147	766.008	203.4	UGDD	AUCTUS	2019

SRK Report Client Distribution Record

Project Number: CSD002

Report Title: King Vol Mineral Resource

Date Issued: Estimate 3 March 2021

Name/Title	Company
	Consolidated Tin Mines Ltd

Rev No.	Date	Revised By	Revision Details
0	22/05/2020	Michael Lowry	Draft Report
2	03/03/2021	D Slater	Final Report