Beruang Kanan Main Zone, Kalimantan, Indonesia;

2017 Resource Estimate Report.

Prepared under the auspices of the Canadian National Instrument 43-101

July, 2017

Prepared for PT Kalimantan Surya Kencana
by
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Qualified Person's Report on the Mineral Resources of the Beruang Kanan Main Zone Mineralisation 2017.

Prepared for PT Kalimantan Surya Kencana.
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28th July 2017

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1 Summary

1.1 Project and Resource Overview

The Beruang Kanan 2017 Resource Estimate deals with the copper mineralization for the Beruang Kanan prospect located 180 kilometers north of Palangkaraya, the capital city of Central Kalimantan. The Beruang Kanan mineralization is located within tenement held 100% by PT Kalimantan Surya Kancana (KSK) under the Generation 6, KSK Contract of Work. KSK is in turn 75% owned by Indokal Limited (a 100% owned subsidiary of Asiamet Resources Limited *(formerly Kalimantan Gold Corporation Limited)* and 25% by PT Pancaran Cahaya Kahayan. PT Pancaran Cahaya Kahayan is a 99% owned subsidiary of Indokal Limited with the remaining 1% owned by Mr. Mansur Geiger (held in trust for Asiamet Resources Limited).

KSK, through Asiamet Resources Limited publically reported the Beruang Kanan Main Zone 2017 Copper Resource Estimate on the 28th June 2017. The 2017 Estimate is an update of the 2015 Estimate of mineralization at Beruang Kanan Main Zone (BKM) and is based on the KSK and joint venture partners' drill hole logging and sample assay databases as at 15th June 2017 and the geological and structural interpretation undertaken by Mr. Stephen Hughes (KSK) and Mr. Duncan Hackman of Hackman & Associates Pty Ltd (H&A). The data analysis, triangulation domaining, block modeling and grade interpolation was undertaken by Mr. Hackman. Mr. Hackman verified components of the exploration activities and mineralization features during a site visits conducted between the 2nd and 3rd September 2014, the 21st and 28th June 2015 and the 22nd and 23rd June 2016.

The 2017 resource model covers the 1300m north-south strike extent and 800m width of the Beruang Kanan Main Zone vein style mineralized system which well defines the extent of the near surface mineralisation at BKM. Three deep holes under the main areas of near surface mineralisation have failed to intersect significant copper mineralisation, however the depth repetition of mineralisation has not been fully tested. There are indications from the structural interpretation that repeat systems at depth and proximal to the Beruang Kanan Main Zone may exist.

Copper mineralisation occurs as covellite, chalcocite, bornite and chalcopyrite replacement of pyrite in veins and less common fracture fill settings. The copper is of both hypogene and supergene origin. Veins and mineralisation are hosted in both blocky fractured volcanics and sediments, mainly in the south of the prospect and, in strongly sheared and tectonically milled breccias related to thrusting mainly in the central and northern sections of the prospect. Phyllic-style alteration is pervasive throughout the prospect.

The Beruang Kanan resource model is underpinned by data from 267 Diamond Drill holes (43,440m). Modeled copper mineralisation has been intercepted in 868 nominal 3m drill intervals

(2486m) in historical drill holes, in 1920 nominal 1m drill intervals (2377m) in holes drilled in 2015 and in 5014 nominal 1m intervals (5131m) in holes drilled from 2016 to 2017. Topographic control is achieved through the use of a highly detailed LIDAR generated surface to which all drill hole collar coordinates comply. Sample data was composited to three metre lengths and flagged by domains defined by >2000ppm copper assay grades and directed by the H&A and KSK structural interpretation. Three passes of Ordinary Kriging interpolation methodology were employed to estimate grades within domains into a sub-blocked model (parent block size of 25mE x 25mN x 10mRL). High grade copper assays were included in the interpolation with limits to their area of influence applied. The Mineral Resource estimate has been classified based on data density, data quality and reliability, confidence in the geological interpretation, confidence in the copper grade modeling and interpolation and confidence in tonnage factors employed.

On February 16, 2017, the Company formally established with the Government of the Republic of Indonesia that the KSK CoW has now entered the Feasibility Study Period which runs for not less than two years, is extendable, and provides time to complete studies and identify the area for mining. The KSK Cow has a total of 30+ years remaining for exploration, development and operations. The KSK CoW is in good standing regarding meeting expenditure, social and environmental commitments and KSK possesses current permits to operate within production forest covered by the CoW.

KSK and the Indonesian Government are negotiating details of a non-binding Memorandum of Understanding to amend some of the terms of the KSK CoW specifically 1) royalties, 2) size of CoW in Exploration vs. Production, 3) domestic processing, 4) divestment obligations, 5) State revenues and 6) prioritizing the use of local manpower and local products. KSK states that progress in the KSK CoW update was made in 2015 and 2016 however the renegotiations are still continuing. KSK states that the amendments will not alter KSK's holding in the CoW.

1.2 Resource Estimate

The Beruang Kanan resource is reported between 768400mE and 769200mE, 9931400mN and 9932800mN and above 120mRL (450m vertical extent). Table A details the Beruang Kanan Main Zone Copper Mineral Resource as estimated in the 2017 resource model.

Table A: Beruang Kanan Main Zone Copper Resource Estimate, June 2017.

Measured Mineral Resources				
Reporting cut (Cu %)	**Tonnes ('000)**	**Cu Grade (Cu %)**	**Contained Cu ('000 tonnes)**	**Contained Cu ('000,000 lbs)**
0.2	**20.5**	**0.7**	**147.7**	**325.7**

0.5	15.4	0.8	126.8	279.6
0.7	8.5	1.0	85.8	189.2

Indicated Mineral Resources				
Reporting cut (Cu %)	**Tonnes ('000)**	**Cu Grade (Cu %)**	**Contained Cu ('000 tonnes)**	**Contained Cu ('000,000 lbs)**
0.2	**28.7**	**0.6**	**174.9**	**385.7**
0.5	16.9	0.8	127.7	281.6
0.7	7.7	1.0	73.8	162.7

Inferred Mineral Resources				
Reporting cut (Cu %)	**Tonnes ('000)**	**Cu Grade (Cu %)**	**Contained Cu ('000 tonnes)**	**Contained Cu ('000,000 lbs)**
0.2	**17.7**	**0.6**	**109.3**	**241.0**
0.5	12.1	0.7	86.2	190.1
0.7	4.7	0.9	41.9	92.4

Notes: Mineral Resources for the Beruang Kanan Main Zone mineralization have been estimated in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines. In the opinion of Duncan Hackman, the block model Resource Estimate and Resource classification reported herein are a reasonable representation of the copper Mineral Resources found in the defined area of the Beruang Kanan Main mineralization. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resource will be converted into Mineral Reserve. Computational discrepancies in the table and the body of the Release are the result of rounding.

H&A is not aware of any current legal, political, environmental, permitting, taxation, socio-economic, marketing or other risks that could materially affect the potential development of the Mineral Resources at BKM.

1.3 Comparison with 2015 Resource Estimate

The previous, 2015 resource estimate was reported as:

- Indicated Resources: 15MT @ 0.7%Cu or 105KT of contained copper at a 0.2% reporting cut.
- Inferred Resources: 49.7MT @ 0.6%Cu or 298KT of contained copper at a 0.2% reporting cut.

The 2015 resource drilling programme undertaken by KSK was designed to delineate the extent and continuity of the BKM mineralisation and the 2016-2017 resource drilling program designed to test primarily for geological and grade continuity of the BKM mineralisation. Both programmes were completed successfully, meeting their objectives, where the 2015 drilling resulted in an increase in previously estimated resources (contained copper increase of 105KT (Indicated) and 18KT (Inferred) over the 2014 resource estimate) and the 2016-2017 drilling has consolidated this increase by facilitating the classification of the BKM mineralisation into 31% Measured Resources and 43% Indicated Resources, with 26% remaining as Inferred Resources (NI 43-101, at 0.2% copper reporting grade).

In April 2016 a Preliminary Economic Assessment ("PEA") mine plan was based on a subset of the 2015 Mineral Resource comprising Indicated Resources of 14.2 million tonnes at 0.66% Cu and Inferred Resources of 34.5 million tonnes at 0.54% Cu (at ~0.16% Cu cut-off), the mineral inventory or the 2017 resource within the April 2016 conceptual PEA open pit design now comprises (at 0.20% Cu cut-off):

- Measured Resources of 20.2 million tonnes at 0.7% Cu (141.4k tonnes of copper)
- Indicated Resources of 25.8 million tonnes at 0.6% Cu (154.8k tonnes of copper)
- Inferred Resources of 3.2 million tonnes at 0.6% Cu (19.2k tonnes of copper)

1.4 Contributing Experts

Expert Person / Company	Area of Expertise and Contribution of Expert
Duncan Hackman B.App.Sc *MSc. MAIG.* Hackman & Associates Pty. Ltd.	*Exploration and Resource Geologist – 32yrs experience*. Data validation and quality analysis, resource domaining, block modelling, grade interpolation, resource classification. Qualified Person reporting on Beruang Kanan Main Zone Copper Resource Estimate
Stephen Hughes *BSc.(Hons)*, PT Kalimantan Surya Kancana.	*Copper Gold Exploration Geologist – 19yrs experience.* Geological interpretation.

1.5 Compliance with the Canadian NI 43-101 assessment criteria

The Beruang Kanan Main Zone Copper Resource Estimate and this mineral resource report has been compiled in accordance with the guidelines set out in the Canadian National Instrument 43-101 - Standards of Disclosure for Mineral Projects (NI 43-101).

Duncan Hackman is a member of the Australian Institute of Geoscientists and has sufficient experience relevant to the style of mineralization and type of deposit under consideration and to the activity undertaken to qualify as a Qualified Person as defined in NI 43-101.

Duncan Hackman consents for the inclusion in the PT Kalimantan Surya Kancana Public Release Statement of the matters based on his information and for Kalimantan Surya Kancana or their agents to use this resource estimate in the form and context in which it appears. The opinions and recommendations provided by Duncan Hackman are in response to requests by PT Kalimantan Surya Kancana and based on data and information provided by PT Kalimantan Surya Kancana or their agents. Duncan Hackman therefore accepts no liability for commercial decisions or actions resulting from any opinions or recommendations based on their data and information and offered within.

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1.6 **Key points relating to the Beruang Kanan 2017 Resource Estimate:**

1. The resource estimate applies to outcropping vein style copper mineralization centred on 768800E, 9932400N (WGS84, UTM Zone 49S). The mineralization has been delineated as thirty-two stacked and adjacent domains covering a strike length of 1300m (towards 000^{O}), across a total width of 800m and a vertical extent of 450m. Mineralization is centered on three areas whose lateral and vertical extents are well defined. Structural interpretation indicates potential for repeat settings to exist at depth and in laterally detached locations to Beruang Kanan.
2. Covellite, chalcocite, bornite and chalocpyrite replacement vein style copper mineralization is hosted in sheared and blocky sediments and volcanics of Cretaceous to Tertiary age. The mineralization is located within and adjacent to an interpreted thrust fault-coupling or ramping zone. Extensive and intense phyllic-style alteration persists throughout the mineralised zone.
3. 267 diamond drillholes have been drilled within and around the Beruang Kanan mineralisation. 74 of these holes were drilled before May 2013 and formed the basis of the 2014 resource estimate. An additional 71 holes were drilled by KSK from May to September 2015, resulting in 145 holes underpinning the 2015 resource estimate. A further 122 holes have been drilled by KSK from June 2016 to April 2017, and the additional drilling and data from these holes form the basis of the 2017 Resource Estimate update for the deposit. The mineralisation is delineated by 213 of the 267 holes, totaling 28,119m of which 10,009m have intercepted the domained mineralisation. Drilling of the deposit was undertaken in five programmes by three separate companies; PT Kalimantan Surya Kancana (KSK), Oxiana Limited (OX) and PT Eksplorasi Nusa Jaya (ENJ). The latter two mentioned companies undertook their work in Joint Venture with KSK. Hole attitudes are mostly angled between 60 and 70^{O} towards 270^{O}. Seventeen holes have been drilled with easterly azimuths, two

northerly, seven southerly and sixteen vertically. Seven twin holes have been drilled at Beruang Kanan Main.

4. Pre 2015 holes were sampled at nominal 3m lengths. Drilling of mineralisation undertaken by KSK between 2015 and 2017 is sampled at nominal 1m lengths while non-mineralised core is sampled at nominal 2m lengths in 2015 and 1m lengths in the 2016-17 drilling campaign. The Pre 2015 assays were determined from 8,211 half-PQ, half-HQ, half-NQ and half-BQ diamond core samples. The 2015 to 2017 assays were determined from 359 half-PQ and 14,575 half-HQ samples. 36 elements have been assayed throughout the history of the project, with 22,992 of the 23,327 assayed intervals containing copper assays, 22,060 containing Fe and S assays and 11,165 containing Ag assays. 8,679 of the drill intervals are modeled within the mineralised domains at Beruang Kanan. Copper is the only element with potentially economic grades and is accompanied by 0.5ppm to 1.0ppm silver.
5. Copper grades of samples from NQ/BQ core average 26% lower than those from PQ/HQ core samples. This difference is due to a base shift or systematic relative bias between the two datasets and may be related to the fundamental sampling error but most likely reflects variation in copper grade throughout the mineralisation (PQ and HQ drilling samples shallower depths of mineralization than NQ and BQ drilling). It is unknown if the early laboratory sample reduction methods are appropriate, where pre-2015 samples were reduced to 1kg in size at -4mm crush size. the 2015 to 2017 samples were reduced to 1kg in size at -2mm crush size. Analysis of QC data from the 2015 to 2017 period shows that splitting and reducing at -2mm particle size returns acceptable levels of precision. The comparatively uniform grade profile in the dataset suggests that any introduced sampling variance at the crushing stage of sub-sampling in the pre-2015 samples will not materially affect confidence in the global resource estimate.
6. Samples were digested by mixed 3 acid-digest methods and determined by both ICP-OES and AAS instruments. Assay quality control samples included with the ENJ and KSK drill samples show that confidence can be placed in assays from these subsets of the resource data. Comparison of data population distributions between the ENJ copper assays, the 2015 KSK assays and the historic assays indicate that the earlier assays are also of acceptable reliability for estimating global resources. The assay data is considered of acceptable quality to underpin Measured, Indicated and Inferred Resources (NI 43-101) at Beruang Kanan.
7. Copper grade is estimated by ordinary kriging interpolation methodology. Interpolation is guided and constrained by solid TIN (triangulated) boundaries. 3,542 three metre composites inform the grade interpolation within domains. Parent cell estimates (25mEx25mNx10mRL) were written to a sub-blocked model. High grade values (>3%Cu) were restricted from informing block grades at greater than 50m (E and N) and 25m (RL) distance from sample locations. 67 copper composites were affected by this treatment. Tonnage factors (based on 6,397 dry bulk density measurements) of 1.77g/cc, 2.25g/cc, and 2.61g/cc were stamped on the model according to clay content and weathering characteristics. Tonnage factors determined by a linier regression with Fe assay based on

4,166 measurements, were applied to the majority of the mineralisation and all of the Measured Resources at Beruang Kanan.

8. The estimate is assigned Measured, Indicated and Inferred Mineral Resource classifications under the guidelines outlined in the Canadian National Instrument 43-101. Risk associated with drilling density, primary sampling reliability, certainty in geological and grade continuity, confidence in the copper grade modeling and interpolation and confidence in tonnage factors employed are the key inputs in determining the resource classification.

1.7 Further evaluation and exploration

The Beruang Kanan Main Zone Copper Resource is now drilled at nominal 50m centres. Conditional simulation studies indicate that this drill spacing is adequate for generating robust copper grade estimates (with acceptable variance) into a 25m x 25m x 10m block model such as that employed to represent the grade distribution at Beruang Kanan in the 2017 block model. H&A added an additional requirement for classifying resources, in that only those volumes of the mineralisation with proven grade and geological continuity obtained through west, east, north and south drilled holes have been considered for Measured Resources. Two significant volumes totaling 31% of the resource have proven continuity and have been classified as Measured Resources; however, two additional volumes of the mineralisation, in the north and central areas are yet to be drill tested by holes at these orientations. There is strong indication that the mineralisation in these volumes will be proven to be continuous when these holes are drilled and further 15% of the resource could be converted to Measured Resources with US$614,000 minimal additional expenditure.

Within the same areas that are yet to be drilled in multiple orientations (identified in the previous paragraph) there is heterogeneous material wrt determining a robust tonnage factor and these areas have been restricted from being classified as Measured Resources on this basis. Further drilling in these areas must include a robust investigation into the dry bulk density determination for this mineralisation.

KSK is currently undertaking Initial metallurgical testwork on the BKM copper mineralisation with column testwork planned for completion within the Q3 2017. Results from this work will inform planning for further investigations into the metallurgy and engineering at BKM.

Scout drilling of the five adjacent prospects for repeat styles and other styles of mineralisation should assist with identifying potential in building the mineral resource base within the immediate vicinity of the Beruang Kanan Main Zone Copper Resource and, KSK should also consider continuing the evaluation of mineralisation located at the Baroi, Mansur and Beruang Tengah prospects and other lesser developed prospects within the KSK CoW.

1.8 Recommendations

1.8.1 Follow-up on 2015 recommendations

In 2015 H&A recommended that KSK:

- *Investigate the impact that the primary sample size has on copper grade representivity and reliability for improving robustness and confidence in future assay datasets. In particular:*
    - *understand the reasons why the NQ and BQ core samples report lower copper grades than the PQ and HQ core samples,*
    - *determine if precision and accuracy issues relating to the sample reduction protocols impact on the reliability of copper assays in the current dataset and*
    - *incorporate duplicate hole drilling into future programmes to better understand the heterogeneity of the in situ mineralization*
    - ✓ KSK has satisfactorily addressed the impact that primary sample size has on copper grade representivity and reliability by undertaking the investigations recommended by H&A.
- *Improve knowledge and understanding of mineralizing processes and their expected attitudes, geometries and extents for designing infill drilling programmes.*
    - ✓ KSK has improved their understanding of mineralizing processes and have utilized this knowledge in the design of drilling programmes and data collection procedures and in the modelling and estimating of the resource.
- *Investigate the relationship between copper grade and mineralization events (veining styles/density/orientation) to assist in the design of future drilling (hole orientation and density).*
    - ✓ KSK continues to lift their level of understanding of mineralizing processes and where appropriate they have implemented protocols and procedures to ensure that new knowledge is used in improving models of the mineralisation.
- *Continue to build a comprehensive specific gravity dataset to generate reliable dry bulk density and bulk density datasets for use in future resource estimates and engineering studies.*
    - ✓ KSK has significantly increased and improved the specific gravity dataset at Beruang Kanan. They have also audited the dataset and implemented programmes that target specific-issue areas to further improve confidence in the tonnage factors applied to the 2017 and future resource estimates.
- *Increase confidence in the historic KSK dataset through programmes such as twinning of key holes.*
    - ✓ KSK has twinned 2015 and pre-2015 holes with satisfactory results that increase condidence in the historic dataset at Beruang Kanan.
- *Rebuild the ENJ-KSK assay dataset and remove quality control umpire assays from the primary data.*
    - ✓ KSK has not rebuilt the ENJ-KSK assay dataset for the 2017 resource estimate at Beruan Kanan. This is not considered a limiting issue by H&A.

- *Review all protocols for future evaluation work to ensure their suitability regarding mineralisation styles, local conditions, sample and data integrity and use, sample and data security and storage etc.*
  - ✓ KSK has continually evaulated the suitability of protocols throughout the 2016-17 resource drilling programme. Two interim data analysis and modelling programmes were undertaken by H&A in September 2016 and December 2016 as part of this evaluation.

The following programmes were recommended for improving confidence in the BKM resource and in expanding the resource base in the BKM zone area:

Stage 1 – Infill and resource drilling at BKM:

This programme comprises diamond drilling totaling 14,000 m (approximately 150 holes averaging 90m each) on a 50 metre by 50 metre grid to infill drilling at the BKM mineralization. This program could be carried out in 5-6 months using 5 man-portable drill rigs, assuming an average daily drilling rate of 20m per rig. The outcome is to upgrade the classification of the Mineral Resources at BKM to Measured and Indicated Resources achieving confidence levels for resources that can support a preliminary and definitive feasibility studies.

- ✓ KSK completed 122 holes averaging 102m in depth for the 2017 resource update and have achieved their goal of defining resources that can support a preliminary and quite likely, a definitive feasibility study. By completing the additional 1500m of planned drilling KSK should achieve their goal of defining resources to support a definitive feasibility study.

Stage 2 – scout drilling at prospects adjoining Beruang Kanan Main Zone:

H&A recommended investigations and scout drilling at Beruang Kanan West, Beruang Kanan South and Beruang Kanan Polymetallic (BKZ) Prospects.

- ✓ KSK has begun this process. No additional results to those publicly reported on the 9th June 2017 are available at the time of preparing this report. KSK reported an expanded "Footprint of High Grade Polymetallic Mineralisation in BK District" through rockchip and channel sampling of the BKZ prospect located 800m north of the Beruang Kanan Main prospect.

In addition to the upgrading of the BKM resource H&A acknowledges that KSK has, as planned, completed a Preliminary Economic Assessment Study (as defined by the NI 43-101) which was publicly reported on the 5th April 2016 where it was publicly reported that "BKM deposit PEA delivers US$204m NPV10 and 39% IRR".

1.8.2 2017 recommendations

H&A acknowledges that KSK, through their evaluation projects, has significantly advanced their understanding of the styles and extent of the mineralisation at BKM and that they have used this knowledge to design and undertake appropriate procedures in obtaining and utilising data to advance the BKM project towards production. The recommendations outlined below are reminders to continue to collect and evaluate data relative to the identified risks to the resource estimate regardless of the degree of those risks. H&A recommends that KSK:

- Continue to investigate the impact that the primary sample size has on copper grade representivity and reliability for improving robustness and confidence in future assay datasets. In particular:
    - understand the reasons why the NQ and BQ core samples report lower copper grades than the PQ and HQ core samples, and
    - continue the practice of duplicate hole drilling in future programmes to better understand the heterogeneity of the in situ mineralization.
- Continue to improve knowledge and understanding of mineralizing processes and their expected attitudes, geometries and extents for designing infill drilling programmes.
- Continue to investigate the relationship between copper grade and mineralization events (veining styles/density/orientation) to assist in the design of future drilling (hole orientation and density).
- Continue to build a comprehensive specific gravity dataset to generate reliable dry bulk density and bulk density datasets for use in future resource estimates and engineering studies. Focus especially on areas were sample selectivity can impact on reliability of tonnage factors used in resource estimates.
- Continue to improve core recovery and investigate the relationship between core recovery and copper grade.
- Continue to increase confidence in the historic KSK dataset through programmes such as twinning of key holes.
- Rebuild the ENJ-KSK assay dataset and remove quality control umpire assays from the primary data.
- Undertake another review all protocols for future evaluation work to ensure their suitability regarding mineralisation styles, local conditions, sample and data integrity and use, sample and data security and storage etc.

The following programmes are recommended for improving confidence in the BKM resource and in expanding the resource base in the BKM zone area:

Stage 1 – Infill and resource drilling at BKM:

This programme comprises diamond drilling totaling 2,000 m (approximately 22 holes averaging 90m each) at orientations other than westerly and twin holes in selected areas of the BKM mineralisation. This program could be carried out in 1-2 months using 3 man-portable drill rigs, assuming an average daily drilling rate of 20m per rig. The outcome is to upgrade the classification of an additional 15% of the BKM mineralisation to Measured Resources, achieving confidence levels for resources that can support a preliminary and definitive feasibility studies.

Stage 2 – scout drilling at prospects adjoining Beruang Kanan Main Zone:

This program comprises additional mapping and systematic sampling on surface at Beruang Kanan West, Beruang Kanan South and Beruang Kanan Polymetallic Prospects to test current targets and identify mineralisation (and results dependent, additional targets for testing). Scout diamond drilling totaling 2,500 m (approximately 20 holes averaging 125m each) is proposed, to test the mineralization at Beruang Kanan West, Beruang Kanan South, Beruang Kanan Polymetallic North, Beruang Kanan Polymetallic South, and the Low Zone Prospects. This program could be carried out in 2 months using 2 man-portable drill rigs, assuming an average daily drilling rate of 20m per rig. The outcome is to identify areas for drilling to delineate additional resources within the immediate vicinity of the Beruang Kanan Main Zone.

In addition to the extension and upgrading of the BKM resource H&A acknowledges that KSK is continuing with the feasibility study of the BKM deposit (as defined by the NI 43-101) that is scheduled for completion Q1 2018. This study has been budgeted at approximately US$7,200,000, of which projects to the estimated value of US$4,700,000 are still to be undertaken to complete the study.

In preparation for the engineering study of the feasibility report KSK must generate a recoverable copper resource model and metallurgical materials models (both copper mineral species and gangue characteristic model). H&A is aware that data is being collected in preparation for undertaking these models.

The total of Stage I, Stage II drilling and the Feasibility budgets is estimated at US$8,614,000. A breakdown of drilling costs is listed at Table 36.

Qualified Person's Report on the Mineral Resources, Beruang Kanan Main Zone, July 2017.

2 Introduction

This report details aspects of the Beruang Kanan Main Project and the generation and classification of the Copper Mineral Resource identified by drilling of the prospect in accordance with directives set-out in the Canadian National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101).

The Beruang Kanan Main Zone 2017 Resource Estimate is an update of the 2015 Resource Estimate and deals with the copper mineralization for the Beruang Kanan prospect located 180 kilometers north of Palangkaraya, the capital city of Central Kalimantan. The Beruang Kanan mineralization is located within tenement held 100% by PT Kalimantan Surya Kancana (KSK) under the Generation 6, KSK Contract of Work. Asiamet Resources Limited (AMR) through subsidiaries and affiliates holds 100% of PT Kalimantan Surya Kancana.

This report is prepared for PT Kalimantan Surya Kancana who publically reported the Beruang Kanan Main Zone 2017 Resource Estimate through their parent company Asiamet Resource Ltd in a public statement dated 28th June 2017.

2.1 Terms of Reference

This report comprises Hackman And Associates Pty Ltd (H&A) independent Qualified Persons technical assessment of the mineral resources located within the Beruang Kanan Main Zone Prospect (BKM), Kalimantan, Indonesia. BKM is held under license by PT Kalimantan Surya Kencana (KSK) and copper mineralization at the prospect can be considered material with respect to assets held by the company.

The objectives of this report are to:

1. Present aspects of the BKM project, environs and statutory/compliance standings so that the reader can gain an appreciation of the project.
2. Present the 2017 Resource Estimate of copper mineralization at BKM and to identify and classify risk associated with the estimate so that the reader can better understand the value of the BKM prospect to KSK and the confidence independent qualified persons' place in the reliability of the estimate.

The report:

1. relays the current understanding of the geology and mineralization styles uncovered at the BKM prospect,
2. reports on the current standing of the project's tenure status,
3. relays the current understanding of the geographical, cultural, social and environmental aspects associated with the project,

4. reviews the historical activities undertaken in evaluating the BKM prospect,
5. presents the work undertaken in producing the mineral resource estimate for BKM,
6. evaluates reliability risks within inputs and methodologies undertaken in producing the mineral resource estimate,
7. presents material aspects of the BKM prospect for consideration in evaluating its value to KSK,
8. outlines the process undertaken to classify the mineral resource estimate according to the directives set out in the Canadian National Instrument 43-101 and accompanying policies and documents,
9. comments on the similarities and differences between the 2017 Resource Estimate and the 2015 and 2014 resource estimates, and
10. presents interpretations, conclusions and recommendation, including indicative exploration and evaluation activities and budgets.

2.2 Reporting Standard

This report has been produced in accordance with the Standards of Disclosure for Mineral Projects as contained in National Instrument 43-101 (NI 43-101) and accompanying policies and documents. NI 43-101 utilizes the definitions and categories of mineral resources and mineral reserves as set out in the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Standards on Mineral Resources and Reserves – Definitions and Guidelines (CIM Definition Standards).

2.3 Data and Information Sources

All data and Information utilized in preparing the Beruang Kanan Main Zone 2017 Resource Estimate and this report were supplied by or verified by KSK personnel (refer Table 5) who have provided a written assurance that the data supplied is current, complete, accurate and true and that they have disclosed all data and information material for the assessment of the resources at BKM (Appendix 11).

2.4 Qualified Persons Site Inspection

Duncan Hackman has undertaken three site inspections of the Beruang Kanan Main Zone and the KSK Tangkiling core processing facilities where historic drill core was processed and where remaining core is currently stored. The primary reason for visiting the prospect and core shed was to locate and confirm evidence of historic exploration activities reported by KSK and their JV partners, to observe and confirm copper mineralisation in core and outcrop and to observe and review drilling and sampling protocols employed by KSK in their 2015 and 2016-17 drilling campaigns. Duncan Hackman also visited the PT Intertek Utama Services Laboratory in Jakarta (ITS) to review the sampling reduction and preparation procedures employed.

H&A did not uncover any reason to question the exploration activities undertaken in exploring and evaluating the Beruang Kanan prospect nor to question the presence of copper mineralisation of the tenor and styles reported by KSK. The sampling procedures at site and sample preparation procedures at ITS were found to be sound and are considered appropriate for generating reliable sub-sample aliquots for assay (see Section 12 for details and data analysis). Key observations and comments from the site visits are included at Appendix 8.

2.5 Work Undertaken

The Interpretations, opinions, Methodologies and Comments presented in this report are based on the following work programmes undertaken in 2014 (as part of the initial 2014 resource estimate) and in 2015 and 2016-17 (subsequent resource updates):

2014:

- Early-July – review of documents transferred via DropBox from KSK to H&A. These expert and internal reports outline the:
    - geographical, cultural, social and environmental aspects of the BKM project,
    - geological and mineralization setting and styles identified/interpreted at BKM,
    - historical exploration undertaken at BKM, and
    - data collection and validation procedures and quality investigations undertaken by previous workers.
- Mid-July – review of drilling logs against core photographs to validate and assess previous workers factual data and interpretations.
- Late-July – geomorphological and geological/structural interpretation of the BKM prospect and surrounds for guiding resource estimate domaining.
- Early-August – construct domained mineral resource block model and undertake copper grade interpolation
- Mid-August – review block model domains and specific gravity measurements against core photographs to validate and assess estimate and applicable tonnage factors.
- Late-August – report writing and compilation
- Early-September – site visit
- Mid to Late September – report editing, factual detail checks with KSK via draft report and report finalization for public release.

2015:

- Late-June – site and laboratory visit – protocols review and adjustment
- July-October – on-receipt of assay data, ongoing assay quality control data review and laboratory quality management
- Early-August – undertake mineralisation review through multi-element assay association investigation
- Mid-August – update 2014 structural interpretation
- Late August – assay quality control review (including umpire assay results)
- Early-September – undertake preliminary data evaluation studies (DBD, core recoveries etc.)
- Mid-September – update mineralisation domain models
- Early-October – update mineralisation domain models and data evaluation studies
- Mid-October – update mineralisation domain models and data evaluation studies, construct domained mineral resource block model and undertake copper grade interpolation
- November – report writing and compilation

2016:

- May-June– undertake conditional simulation investigation into optimum drillhole spacing, design resource update drilling, create matrix matched standards, protocols review and coreyard setup
- Late-June – site and laboratory visit – protocols review and adjustment
- July-December – monitor and review drilling and assay data integrity
- September – interim resource modelling update
- December - interim resource modelling update

2017:

- January-May – monitor and review drilling and assay data integrity
- February– review and revise drilling programme
- March – optical mineralogy programme
- April – data review and interim resource modelling update
- May – Assay integrity review, resource data investigations (e.g. core recovery vs grade, primary sampling error investigation)
- June – modelling update and resource calculation, validation, classification and reporting
- July – resource report compilation

2.6 **Qualification of Consultants**

H&A is an independent highly experience technical consulting group whose principals and associates each have a minimum of 30 years' experience in the mining and resources industry.

Qualified Person’s Report on the Mineral Resources, Beruang Kanan Main Zone, July 2017.

H&A's independence is ensured by the fact that it holds no equity in any project and that its ownership rests solely with its principals. H&A has a demonstrated track record in undertaking independent assessments of Mineral Resources, Ore Reserves, project reviews and audits, competent person's reports and independent feasibility evaluations on behalf of exploration and mining companies and financial institutions world-wide. H&A has specific and extensive experience in undertaking mineral resource estimates of copper prospects of the styles identified at BKM.

This report has been prepared by Duncan Hackman (B.App.Sc., MSc., MAIG). Duncan Hackman has the expertise and experience required to be considered a Qualified Person under the guidelines outlined in the Canadian National Instrument 43-101 for undertaking resource estimates on mineralization styles such as those identified at BKM.

2.7 **Statement of Independence**

Neither H&A nor any of the authors of this Report have any material present or contingent interest in the outcome of this report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of H&A.

H&A has no prior association with KSK or their affiliates in regard to the mineral asset that is the subject of this Report. H&A has no beneficial interest in the outcome of the technical assessment being capable of affecting H&A’s independence.

H&A’s fee for completing this Report is based on its normal professional daily rates plus reimbursement of incidental expenses. The payment of that professional fee is not contingent upon the outcome of the report. A signed statement of independence is included at Appendix 1.

2.8 **Consents**

Pursuant to Section 8.3 of NI 43-101 H&A and the author consent to this Report being published, in full, on SEDAR and the KSK and their associated parties’ web sites in the form and context in which the technical assessment is provided, and not for any other purpose.

H&A provides this consent on the basis that the technical assessments expressed in the Summary and in the individual sections of this Report are considered with, and not independently of, the information set out in the complete Report. A signed consent is included at Appendix 2.

2.9 **Conversions and Abbreviations**

A list of conversions and abbreviations used in this report can be seen at Appendix 18.

3 Reliance on Other Experts and Personnel

H&A has relied on input from KSK personnel and reports from previous workers where relaying information relating to:

- the tenure status of the KSK CoW,
- project history and previous exploration and evaluation work,
- geological and mineralization setting and styles,
- the geographical, cultural, social and environmental aspects of the project and,
- source data and information for undertaking the mineral resource estimate.

Where stated in this report, H&A has independently checked the data and details provided by others and comments on the confidence in and reliability of the data, information and facts obtained.

3.1 Limited Disclaimer

The estimate undertaken and opinions expressed by H&A in this report have been based in part on observations made during site visits to the Beruang Kanan Prospect over a 2-day period in September 2014, a 3-day period in June 2015 and a 2 day period in June 2016, together with observations made from data, information and drill core made available to H&A by KSK. The estimate and opinions in this report are provided in response to a specific request from KSK to do so and as per guidelines set out in NI 43-101. H&A has exercised all due care in reviewing the supplied information. Whilst H&A has checked supplied data against alternative sources where possible and compared key supplied data with expected values, the accuracy and reliability of the resource estimate, interpretations and opinions are entirely reliant on the accuracy, reliability and completeness of the supplied data. H&A's analysis of data accuracy, reliability and completeness is documented in Section 12.

KSK has represented in writing to H&A that full disclosure has been made of all material information regarding the resources at BKM and that such data and information is current, complete, accurate and true (Appendix 11).

4 Property Description and Location

BKM is located within the PT Kalimantan Surya Kencana Contract of Work area (KSK CoW) in Central Kalimantan, just south of the equator (Figure 1). It is about 190 kilometers north and slightly west of Palangkaraya, the capital city of Central Kalimantan (Figure 2). The BKM project (centred on Long. 113 25 00 E, Lat. 00 37 00 S) is in mountainous jungle terrain at the headwaters of the south flowing Kahayan and Samba rivers in a remote area where no permanent villages exist. The location is isolated and access both to and around the prospect is difficult and imposes certain restrictions on field operations.

Details of the KSK CoW area, tenure, obligations to the Republic of Indonesia Government, environmental permitting and other details relating to the evaluation of mineralisation within the KSK CoW area are described in the following sub-sections.

Figure 1: Location Plan KSK CoW containing the BKM Project.

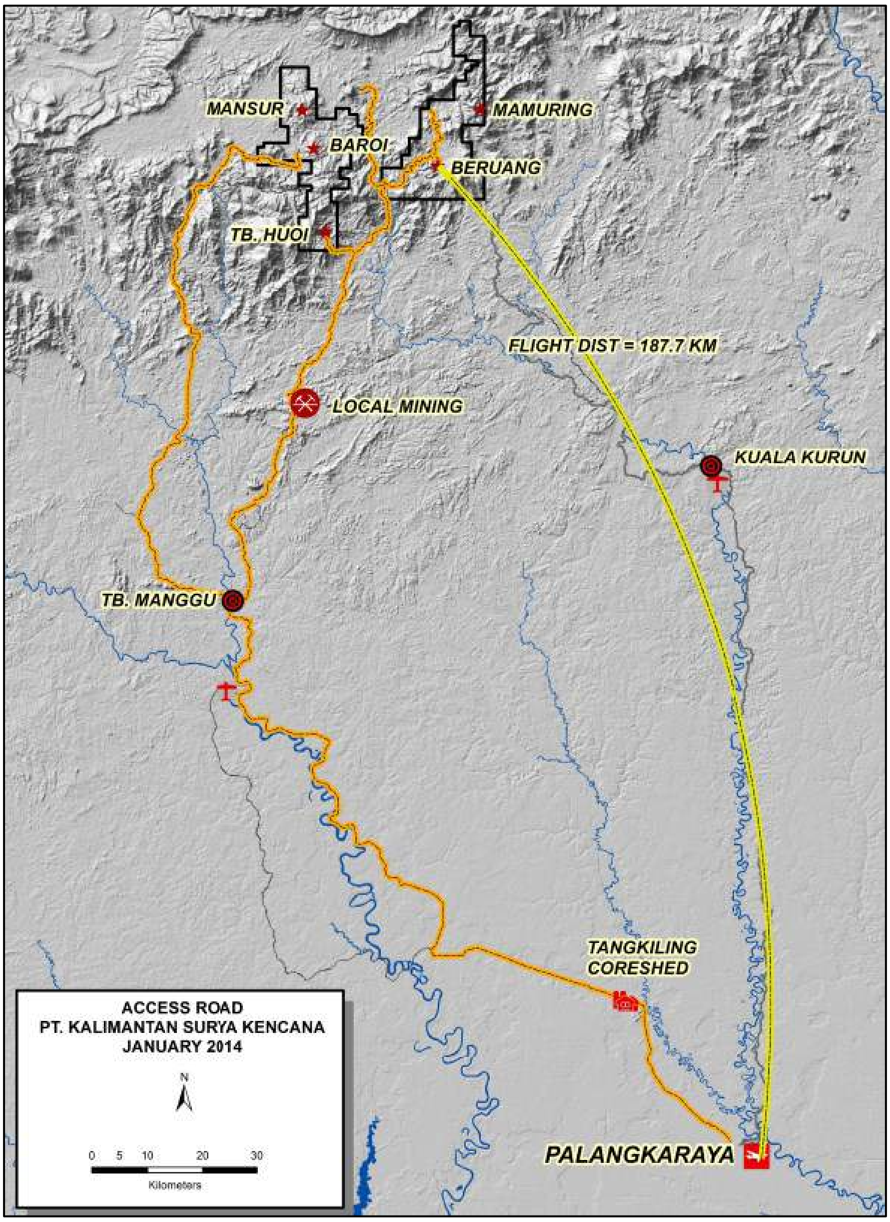

Figure 2: Access to the BKM Project from Palangkaraya, capital of Central Kalimantan Province (refer Figure 1 for location of Palangkaraya).

4.1 **Land Use**

BKM is located within a production forest reserve. The BKM area has already been logged and KSK was granted permission to work within the forestry reserve over BKM on the 23 April 2015 (permit 29/1/IPPKH/PMDN/2015, Appendix 10).

With regard to areas of the KSK CoW that are under Hutan Lindung (protected forest) KSK, in 2004, were informally told that the KSK CoW predates the 1999 Government of Indonesia Law No. 41 on Forestry which prohibits open pit mining in Hutan Lindung areas. The government confirmed that when the Company's property fits the necessary criteria defined in the Presidential Decree it will be given a permit to exploit that portion of the property within the KSK CoW that fall within the protected forest area (it is unclear to H&A if this permit will include open pit mining, as Law No. 41 states that only underground mining is permitted). Regardless, the BKM prospect is not within a protected forest area and both open pit and underground mining is permitted at BKM and in other areas of production forest reserve within the KSK CoW.

There are no other commercial undertakings covering the BKM area. BKM is located on Government land and there are no local land owners within the project area. KSK has established a cooperative relationship with the people living in the district which has played an integral part in the facilitation of work undertaken to date.

4.2 **Corporate Structure, Tenure and Permitting**

The following outlines the details of the PT Kalimantan Surya Kencana Contract of Work, the history and current status of the tenement and other permits required for exploring the CoW.

4.2.1 Corporate Structure and Ownership of Mining Rights

PT Kalimantan Surya Kencana (KSK, incorporated in Indonesia) is the 100% owner of the 6^{th} generation Contract of Work (KSK CoW) within which BKM is located. KSK in turn is owned 75% by Indokal Limited (incorporated in Hong Kong) and 25% by PT Pancaran Cahaya Kahayan (incorporated in Indonesia). Indokal Limited owns 99% of PT Pancaran Cahaya Kahayan with the remaining 1% owned by Mr. Mansur Geiger (held in trust for Asiamet Resources Limited). The parent company to the corporate structure is a Bermuda company, Asiamet Resources Limited (AMR), formally Kalimantan Gold Corporation Limited, which is a publically listed company on the AIM (London) stock exchange. AMR owns 100% of the shares in Indokal Limited.

The KSK CoW is the subject of an agreement between KSK and the Government of the Republic of Indonesia whereby in the preamble it is stated that the parties:

"Witnesseth that:

A. All Mineral resources contained in the territories of the Republic of Indonesia, including the offshore areas, are the national wealth of the Indonesian Nation;
B. The Government desires to encourage and promote the exploration and development of the Mineral resources of Indonesia. The Government is also desirous of facilitating the development of ore deposits if commercial quantities are found to exist and the operation of Mining enterprises in connection therewith;
C. The Government, through the operation of Mining enterprises, is desirous of creating growth centers for regional development, creating more employment opportunities, encouraging and developing local business and ensuring that skills, know-how and

technology are transferred to Indonesian nationals, acquiring basic data regarding and related to the country's Mineral resources and preserving, and rehabilitating the natural Environment for further development of Indonesia;

D. The Company through Indokal Limited, a Company incorporated in Hong Kong has and has access to the information, knowledge, experience and proven technical and financial capability and other resources to undertake a program of General Survey, Exploration, Feasibility Study, Development, Construction, Mining, Processing and Marketing with respect to the Contract Area, and is ready and willing to proceed thereto under the terms and subject to the conditions set forth in this Agreement;

E. The Government and the Company are willing to cooperate in developing the Mineral resources hereinafter described on the basic provisions hereof and of the laws and regulations of the Republic of Indonesia, specifically Law No. 11 of 1967 on the Basic Provisions of Mining (Undang-Undang Pokok Pertambangan) and Law No. 1 of 1967 on Foreign Capital Investment (Undang- Undang Penanaman Modal Asing) and its amendment Law No. 11 of 1970 and the relevant laws and regulations pertaining thereto.

NOW, THEREFORE, in consideration of the mutual promises, covenants and conditions hereinafter set out to be performed and kept by the Parties hereto, and intending to be legally bound hereby, it is stipulated and agreed between the Parties hereto as follows :"

25 Articles and 8 Annexures covering terms of the agreement follow and the headers of these are listed in Table 1.

Table 1: Headers of Articles and Annexures detailing the terms of the KSK CoW

Headers of Articles covered in the KSK CoW							
DEFINITIONS	APPOINTMENT AND RESPONSIBILITY OF THE COMPANY	MODUS OPERANDI	CONTRACT AREA	GENERAL SURVEY PERIOD	EXPLORATION PERIOD	REPORT AND SECURITY DEPOSIT	FEASIBILITY STUDY PERIOD
CONSTRUCTION PERIOD	OPERATING PERIOD	MARKETING	IMPORT AND RE-EXPORT FACILITIES	TAXES AND OTHER FINANCIAL OBLIGATIONS OF THE COMPANY	RECORDS, INSPECTION AND WORK PROGRAM	CURRENCY EXCHANGE	SPECIAL RIGHTS OF THE GOVERNMENT
EMPLOYMENT AND TRAINING OF INDONESIAN NATIONALS	ENABLING PROVISIONS	FORCE MAJEURE	DEFAULT	SETTLEMENT OF DISPUTES	TERMINATION	COOPERATION OF THE PARTIES	PROMOTION OF NATIONAL INTEREST
REGIONAL COOPERATION IN REGARD TO ADDITIONAL	ENVIRONMENTAL MANAGEMENT AND PROTECTION	LOCAL BUSINESS DEVELOPMENT	MISCELLANEOUS PROVISIONS	ASSIGNMENT	FINANCING	TERM	GOVERNING LAW
Headers of Annexures covered in the KSK CoW							
CONTRACT AREA	MAP OF CONTRACT AREA	LIST OF OUT STANDING MINING AUTHORIZATIONS	DEADRENT FOR VARIOUS STAGES OF ACTIVITIES	FEASIBILITY STUDY REPORT	ROYALTY ON MINERAL PRODUCTION	THE IMPLEMENTING OF ROYALTIES	RULES FOR COMPUTATION OF INCOME TAX

The original KSK CoW was signed on the 28th April 1997 for a minimum period of 38 years. It has since become part of an amalgamated title and its history is outlined in Section 4.2.2.

4.2.2 Tenure History and Status

The following outlines the tenure history of the KSK CoW.

PT Kalimantan Surya Kencana held an 80% interest in the now terminated company PT Pancaran Paringa Kalimantan who was the holder of the 4th generation PPK CoW. On August, 16, 1999, by decree of the Government of the Republic of Indonesia, the KSK CoW and nearby PPK CoW were amalgamated into the one holding (KSK CoW, effective date of April 28, 1999). As a result of the amalgamation the KSK CoW comprises two blocks, A and B. On February 16, 2017, KSK formally established with the Government of the Republic of Indonesia that the KSK CoW (both blocks) has now entered the Feasibility Study Period which runs for one year (extendable) and provides time to complete the feasibility studies for BKM.

On August 24, 2004, 5,100ha was added to the KSK CoW making the maximum holding of the KSK CoW 129,290ha. According to the conditions of the CoW, KSK has since relinquished ~50% of the tenement area in two stages so that the current holding now stands at 61,003ha. The next relinquishment is scheduled to coincide with the completion of the feasibility stage of the tenement. The KSK CoW is currently in the first year of its recognized feasibility stage (Appendix 10), this is to be followed by a three year construction stage and 30 years of production stage (the feasibility stage can be extended by request to the RI Government).

The KSK has signed a non-binding Memorandum of Understanding (MOU) with the Government of the Republic of Indonesia (GOI) covering amendments to its KSK Contract of Work. The CoW system provides security of tenure for a minimum of 38 years of exploration, development and operations and KSK continues discussions with the GOI regarding possible amendments to some of the KSK CoW terms in order to achieve closer alignment with the current Law No. 4/2009. Following the completion of negotiations, items contained within the MOU will be incorporated as an amendment to the CoW.

Pursuant to the MOU, and subject to final negotiation, agreement has been reached in principle on the following six points:

1. The size of the CoW shall remain unchanged at 61,003 hectares.
2. The MOU contemplates that after 30 years of Operating under the CoW, the Company may apply to continue operations in the form of a Special Mining Business License for a further 2 x 10 year periods.
3. Under the agreed MOU terms the corporate income tax rate will continue to be 30% as prescribed in the CoW but royalties will now follow the provisions of the prevailing law. Gold and copper royalties under the prevailing laws are 3.75% and 4%, respectively.
4. The CoW currently has a provision that requires the Company to work towards, and assist, the Government in supporting the policy of establishing metals processing facilities in Indonesia in relation to smelting and refining. The Company is now under

obligation to process and refine the mineral ores domestically in line with the current provisions of the rules of law in Indonesia.

5. The Company's Indonesian subsidiary that holds the CoW is a Foreign Investment Company ("PMA"). Current law mandates that Indonesian Nationals or Companies be offered the opportunity to invest in a PMA Company, the level and timing of divestment being dependent on the type of mining and processing. As an example, the current regulation for a PMA company holding an IUP Production license that is conducting open pit mining and undertaking its own processing and/or refining activities is divestiture of 20% at year 6, 10% in year 10 and a further 10% in year 15, for a total of 40% divestiture over 15 years. The divestiture of shares is to be at fair value and subject to pre-emptive rights allowing holders to maintain relative percentage ownership. Pursuant to the MOU, shares of a PMA, listed on the Indonesia Stock Exchange may be recognized as a 20% Indonesian shareholding.
6. The CoW currently contemplates the priority use of local labor, products and registered mining service companies and the MOU reinforces this requirement.

In 2014 H&A noted that the online Directorate General of Minerals and Coals WEB GIS tenement map showed that the northwest region of the KSK CoW had a conflicting and overlapping boundary with a later granted IUP issued to PT. Persada Makmur Sejahtera. KSK requested and received confirmation from the Ministry that there is no overlapping of the KSK CoW and the PT. Persada Makmur Sejahtera IUP (Appendix 10) and that the WEB GIS was wrong and would be corrected. The correction of the WEB GIS has not yet been undertaken.

4.2.3 Environmental Permitting

Indonesian environmental laws require the preparation of an Environmental and Social Impact Assessment (known as AMDAL in Indonesia) for projects requiring an Exploitation Permit (generally undertaken in parallel with the Government of Indonesia Feasibility Study). An AMDAL document consists of:

a) the Terms of Reference;
b) an Environmental Impact Statement (ANDAL) which details the independent and comprehensive assessment of major and significant impacts (both negative and positive) that are likely to result from the proposed project activity; and
c) an Environmental Management Plan and Environmental Monitoring Plan (RKL-RPL) to address and eliminate, and where not possible, to mitigate, the predicted negative social and environmental impacts and to enhance the positive impacts associated with the project.

On AMDAL approval, KSK will then be required to submit an application for an Environmental License, which is an administrative procedure, typically taking 10 working days. The AMDAL approval is also a pre-requisite for preparing documents and obtaining permits supporting the forestry, mining and processing licenses. KSK advises H&A that the AMDAL report is underway, and is being overseen by PT Lorax Indonesia.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

Daily air flights connect Jakarta with Palangkaraya, the regional capital of Central Kalimantan. Beruang Kanan is eight hours travel by vehicle (approx. 350km), or 50 minutes flying time by helicopter from Palangkaraya. Logging roads provide access into this previously remote area. Access to the project is via foot and dozed tracks from the field camp, which is located on the eastern side of the project at the base of the main ridge.

The topography in the Beruang area is very mountainous with the mountains being moderate to very steep. Drainages in the area are dendritic. The area is thickly vegetated and the rugged topography ranges in elevations from 300 meters to about 1,000 meters above sea level. Large drainage systems to the west and east of the BMK area present as potential sites for locating mining infrastructure.

Indonesia has a typically tropical climate with two seasons, wet and dry. In most of the country the dry season occurs from May to October with the wet season occurring in the rest of the year. Humidity is on average a minimum of 60% with an average temperature of 26 to 27 degrees Celsius all year round. Rainfall at BKM is reportedly around 8 meters per annum resulting in frequent and rapid changes to river levels (rises of 2 to 3 meters in river levels are not uncommon). Erosion is rapid, resulting in steep-sided river valleys where landslides are common.

The BKM area has been logged and a lot of the forest now present is regrowth following this activity. Local artesian miners are scattered throughout the region. None are active within the BKM area. Apart from logging roads, the area has little infrastructure.

6 History

The history of the KSK CoW tenure is detailed in Section 4.2.2. The following briefly outlines the operational and exploration history of the KSK CoW and incorporated Beruang Kanan area.

6.1 Operational History

Recorded exploration on the KSK CoW essentially started in 1981 when PT. Pancaran Cahaya Mulia (PCM) and Sinar Enterprises International B.V. intended to explore the area. PCM changed its name to PT. Pancaran Bahagia (PCB) and in the same year hired two expatriate geologists Mansur Geiger and Mathew Mayberry. Mr. Geiger is currently the President Director of KSK and has dedicated his career to the area.

Mr. Geiger and Mr. Mayberry conducted reconnaissance surveys from 1982 until 1985 into the upper Kahayan area. Access to the area in these early days was only by small boat and was very difficult. Mr. Geiger reports it took two weeks to get from Palangkaraya to the Beruang Kanan camp. This period of exploration was undertaken primarily for placer gold.

In 1985, the exploration emphasis changed to looking for hard rock epithermal gold. To finance the exploration, a joint venture was signed with Molopo, an Australian mining company. The vehicle used by Molopo for this joint venture was PT Pancaran Paringa Kalimantan (PPK). The joint venture agreement between PCB and PPK was signed on October 7, 1985. The agreement provided PCB with a 20 percent interest and Paringa Mining and Exploration Company PLC, subsidiary of Molopo with an 80 percent interest in a fourth generation CoW. This CoW was signed between PPK and the Republic of Indonesia on December 2, 1986. The original CoW covered 613,700 hectares but it did not include mining permits (KP's) also held by the joint venture. The original CoW over time was reduced in size to 33,170 hectares and added as Block A to the current KSK CoW. All of the KP's were relinquished.

During the joint venture exploration phase, several areas were recognized as having potential for porphyry copper style mineralization, specifically the Beruang Kanan and Tumbang Huoi prospects. In 1990 the Molopo/PPK joint venture was dissolved.

In 1992, Kalimantan Investment Corporation (KIC) took over field operations from Molopo and PPK. The new company consisted of essentially the same people that formed PCB. During this period (1992-95) the Tumbang Huoi and Mansur prospects were evaluated by IP and diamond drilling.

PT. Cyprus Indonesia signed an option for the Mansur Prospect, which gave Cyprus the option to earn a 67.5 percent interest in the prospect. In December 1996 Cyprus terminated their option.

Kalimantan Gold Corporation Limited (KGCL) was formed during May 1996 and listed on the then Vancouver Stock Exchange. KGCL made application through KSK to the Department of Mines for a 121,900 hectares sixth generation CoW subsequently officially granted on April 28, 1997. The details and history of this current CoW are outlined in Section 4.2.2. On January 14, 2015, KGCL through a private share placement acquired a 40% interest in the Beutong copper-gold project in Sumatra, Indonesia and completed changes to management. On July 24, 2015, KGCL changed its name to Asiamet Resources Limited (ARS) which is listed on the AIM in England.

Exploration and evaluation of the KSK CoW has centred on four main areas (Baroi, Beruang Tengah, Beruang Kanan and Mansur) where KSK and two consecutive Joint Venture partners Oxiana Limited and Eksplorasi Nusa Jaya (ENJ) focused on identifying porphyry mineralization at the prospects. During their involvement, ENJ also undertook delineation drilling of the near surface mineralization at BKM. Between 2015 and 2017 KSK continued the delineation and development drilling of BKM and the ENJ-KSK and KSK drilling data constitutes the majority of the data utilized in preparing the 2017 Resource Estimate for the project.

6.2 Exploration History – Beruang Kanan Main Zone

Detail of the surface exploration activities and results are not included in this report as they have been documented in a report by Munroe and Clayton (2006). The details of the drilling and evaluation activities pertinent to the estimation of resources at BKM are included at Sections 9, 11 and 12.

The following exploration and evaluation of the BKM area has been conducted over the last 18 years:

- 1997 to 2004 - KSK:
    - Field mapping and rock chip sampling
    - Outcrop channel sampling
    - 200m by 50m soil sampling
    - Dipole dipole IP
    - Drilling 17 holes totaling 3,631m
- 2005 to 2007 - Oxiana Limited and KSK JV:
    - Reprocessing of IP data
    - Drilling 5 holes totaling 2,450m
- 2012 to 2013 - ENJ and KSK JV:
    - Aerial magnetic, gravity and LIDAR survey
    - Field mapping and rock chip sampling
    - Drilling 32 holes totaling 11,851m
- 2014:
    - Maiden resource estimate undertaken
- 2015 – KSK
    - Drilling of 71 holes totaling 6,178m
    - Resource estimate update
- 2016 to 2017 – KSK
    - Undertaking of a Preliminary Economic Assessment Study
    - Drilling of 122 holes totaling 12,480m
    - Resource estimate update

KSK continue to advance the BKM project towards production. Metallurgical testwork is currently underway and scheduled for completion in Q3 and Q4 2017.

7 Geological Setting and Mineralisation Styles at Beruang Kanan Main Zone

The following details the current understanding of the regional geology and the geological setting and mineralisation styles of the Beruang Kanan Main Zone.

7.1 Regional Setting

The KSK CoW is situated within a mid-Tertiary age magmatic arc (Carlile and Mitchell, 1994) that hosts a number of epithermal gold deposits (e.g., Kelian, Indon, Muro) and significant prospects such as Muyup, Masupa Ria, Gunung Mas and Mirah (Figure 3).

Copper-gold mineralization (may be porphyry) in the KSK CoW is associated with a number of intrusions that have been emplaced at shallow crustal levels at the junction between Mesozoic metamorphic rocks to the south and accreted Lower Tertiary sediments to the north. These intrusions are interpreted to be part of the Oligocene Central Kalimantan arc of Carlile and Mitchell (1994) (Figure 3). Older intrusions, and associated volcanic and volcaniclastic rocks, of probably Cretaceous age also outcrop along this contact (Carlile and Mitchell, 1994).

Structures in the region are dominated by a northeast striking set of faults that are interpreted to be features of the Kalimantan Suture (van Leeuwen et al., 1990) and are probably arc parallel, or accretionary, faults. Subsidiary northwest trending arc normal, or transfer faults cross-cut the northeast structures. The mid-Tertiary intrusions have commonly been emplaced within dilational settings at the intersection of these major structural features. The major gold prospects and deposits in Kalimantan are also localized in a similar structural setting (Corbett and Leach, 1998). The shallow level intrusions are apparent as major anomalies on aero magnetic survey data.

Large circular features, that are evident on satellite, landsat, radar, and aerial photo images commonly coincide with the mid-Tertiary intrusions and associated magnetic high anomalies. These circular structures are interpreted to be volcanic collapse features and they host many of the porphyry copper-gold prospects within the KSK CoW. To date, more than 38 porphyry and porphyry-related copper and/or gold prospects have been defined in the KSK CoW, and only a few of these, namely the Baroi, Mansur and Beruang prospects have undergone any detailed exploration.

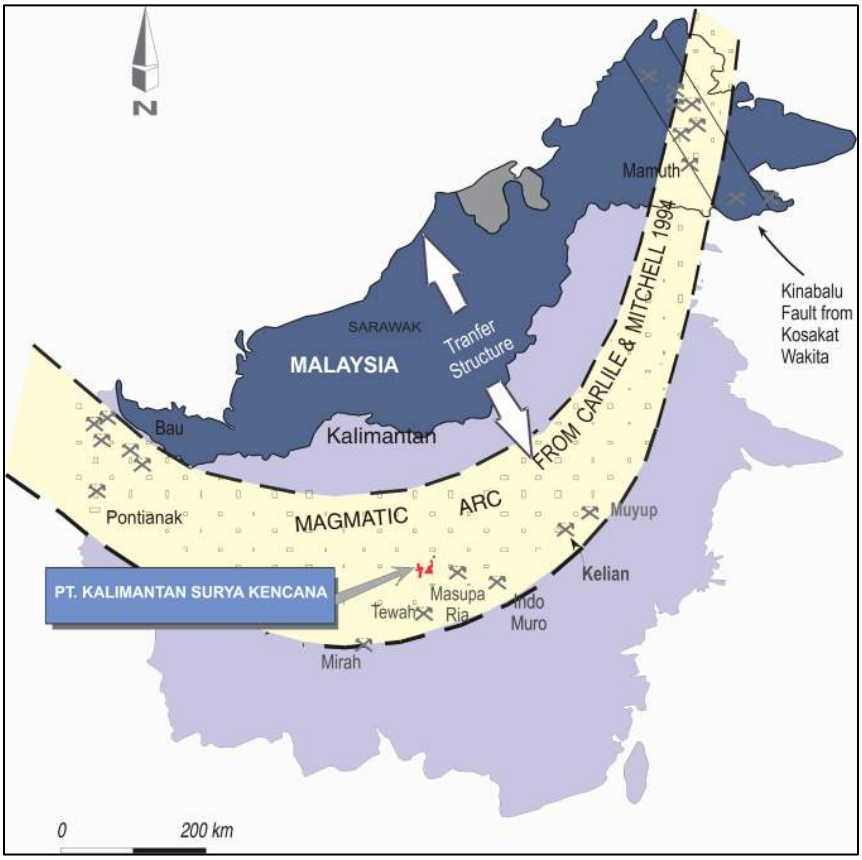

Figure 3: Location of significant mineralization within the Central Kalimantan Island Arc (after Carlile and Mitchell, 1994)

7.2 Beruang Kanan Geology and Mineralisation

The following description is taken from a KSK internal report "EXPLORATION SUMMARY REPORT, 1997 through 2007", author not stated. The report lists a comprehensive reference list containing reports by consultants and KSK personnel who have worked and reported on the BKM prospect.

The Beruang Kanan prospect is defined by a $16km^2$ zone of propylitic, local phyllic, and rare advanced argillic altered sequence of dacitic tuffs and sediments returning greater than 200ppm Cu in soils. It is situated in the Central Eastern portion of the KSK CoW (Figure 45).

The Beruang Kanan mineralization is hosted in a sequence of dacite tuff of probable Oligocene age that overlie lower Tertiary volcaniclastic siltstone and sandstones in the eastern prospect area. Pre-mineral Sintang dacite porphyry intrusions of probable Oligocene age, and post-mineral (may be Miocene) andesite, dacite to basalt-gabbro dykes are intruded into the tuffs and sediments.

Geological, geochemical (soil, ridge and spur, auger and rock chip) and geophysical (IP and ground magnetics) surveys delineate three centres of possible porphyry-style alteration and mineralization; the Main, South and West Zones (Figure 4). These are:

- The South Zone; consisting of a 1km northeast striking zone of quartz-sulphide stockwork veining with anomalous gold, molybdenum and copper soil geochemistry.
- The Central Zone; consisting of locally intense sericite-quartz-pyrite alteration, stockwork quartz + sulphide veins, weak anomalous Au-Mo in soils and a deep IP anomaly. A broad outer halo of anomalous copper-zinc-arsenic-antimony in soils is hosted in intensely chlorite-pyrite altered tuff. Sporadic quartz- pyrite-chalcopyrite (with minute native gold inclusions) veins cut the chloritised tuff.
- The West Zone; defined by scattered zones of phyllic alteration and anomalous copper and base metal geochemistry which suggest that in the West Zone the system is less well defined.

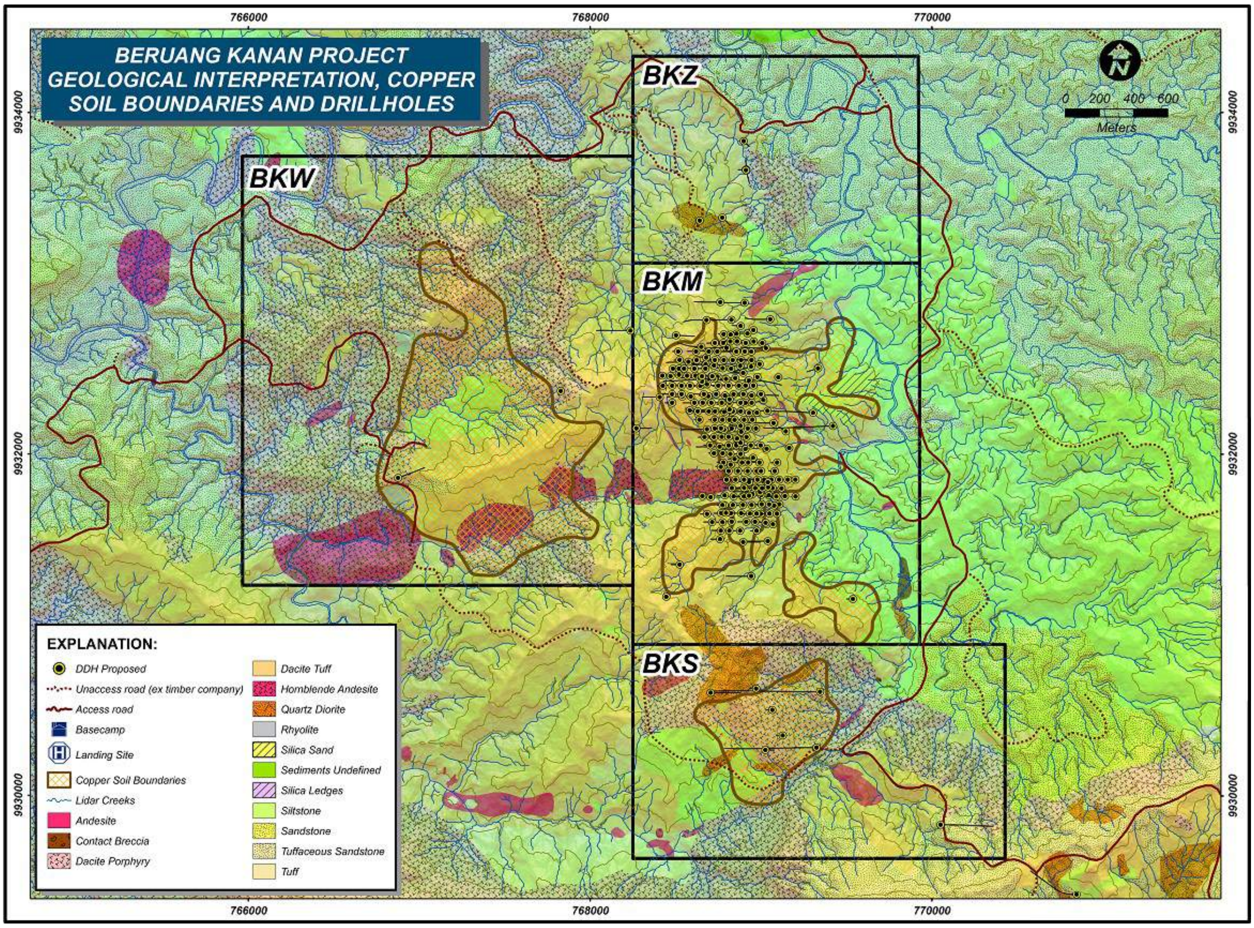

Figure 4: Prospects within the Beruang Kanan area. This resource estimate reports the estimated mineralization within the Beruang Kanan Main Zone.

Exploration activity to date at Beruang Kanan has been focused on the Main zone (the subject of this resource estimate), that is defined by a north-south elongate, 1.0km by 1.5km area of anomalous copper (>0.1% in rock chips) ± gold-molybdenum geochemistry, high chargeability, and by intense phyllic alteration. The phyllic alteration is capped at high elevations on the western margin of the Main zone by advanced argillic alteration. The alteration and mineralization are hosted almost entirely in dacite tuff and are cut by post-mineral dacite dykes. These dykes defined by ground magnetics, are up to 100-200m wide, and radiate northwest and west through the prospect area. Copper-gold-molybdenum in soils are aligned northeast within the Main Zone.

Zinc, and to a lesser extent lead, form broad anomalous geochemical halos around the Main Zone, and massive northeast trending zone of polymetallic mineralization outcrop to the north and south of the Main zone. Limited drilling into the zones to the north intersected intervals of up to 16m @ 2.8%Pb, 5.8%Zn, 58 g/t Ag, 0.65 g/t Au and 0.17% Cu (BKZ-1) associated with quartz-chlorite-illite alteration. Base metal sulphide (sphalerite, galena, tennantite, and chalcopyrite-bornite) mineralization occurs as wallrock disseminated grains, in shear zones and as sheeted veins.

In the Main Zone, drilling has intersected a north-northwest trending zone of intensely sheared and silicified, highly pyritic, zoned phyllic to advanced argillic altered rock. This zone was found to host copper grades of up to 167m @ 0.59% Cu.

Early quartz veins, that are commonly recrystallised and strained, contain rare anhydrite and apatite inclusions and are locally cut by thin anhydrite veinlets. Subsequent shearing of the quartz veins was accompanied by wallrock alteration and vein deposition of mineral assemblages that are zoned temporally from early advanced argillic, through intermediate phyllic to late stage argillic and sub-propylitic.

The alteration assemblages and associated mineralization are also spatially zoned. From deeper levels in drillholes to the south-east to shallow levels in drillholes to the northwest the zoning is: chlorite + pyrite + chalcopyrite ^ sericite + pyrite + chalcopyrite ± bornite ± sphalerite ± galena ^ dickite/kaolinite + pyrite + bornite + chalcopyrite + tennantite ^ alunite + pyrite ± barite ± enargite. This zonation indicates progressive oxidation and decrease in fluid pH as the hydrothermal fluids migrated to cooler and shallow levels northeastward from a source inferred to lie at depth to the south-east. Supergene chalcocite and covellite overgrow and replace many of the primary sulphides and account for much of the copper mineralization at shallow levels.

8 Deposit Type

The deposit type and structural controls on mineralization and discussion on deposit type can be found at Sections 12.1.3 and 12.2.1 and follows direct investigations of copper grade undertaken as part of the work to model and estimate the resources at the BKM prospect.

9 Exploration

Detail of the surface exploration activities and results are not included in this report as they have been documented in a report by Munroe and Clayton (2006). A brief outline of these activities are listed at Section 6.2.

The details of the drilling and evaluation activities pertinent to the estimation of resources at BKM are included at Sections 10, 11 and 12.

10 Drilling and Primary Sampling

The BKM prospect has been a focus of copper exploration in the KSK CoW for 20 years, being the subject of drilling for KSK and joint venture partners in eight distinct programmes (Table 2). Prior to 2015, KSK and Oxiana Limited (in Joint Venture with KSK) undertook shallow to moderate depth exploration drilling (max ~600m) and identified that a near surface body of mineralization could exist at BKM. ENJ (in Joint Venture with KSK) undertook definition (delineation) drilling of this mineralization and drilled three deep holes (>1000m) into BKM. Moderate and deep holes drilled by Oxiana and ENJ were targeted to test for porphyry style mineralization at BKM. In 2015 KSK drilled 71 holes into and peripheral to the mineralised zones to better define and understand the copper mineralisation at BKM. In 2016-17 KSK drilled 122 holes into the BKM mineralisation to confirm geological and grade continuity and to build a dataset capable of underpinning resources to be considered for Measured and Indicated classification (NI 43-101, CIM Definition Standards). The 2015-17 KSK and historic drilling underpin the 2017 Resource Estimate. The data relevance and quality from, and the quality control practices attached to the 2015-17 drilling has enabled the evaluation of and improved understanding of risks to the project (as identified in 2014 and 2015) which in turn has improved confidence in and an upgrade of classification for most of the resource at BKM. A list of significant intercepts is included at Appendix 7.

All holes were drilled utilizing diamond drill rigs. The historic holes typically started at PQ or HQ core sizes, reducing to NQ and BQ when required due to drilling conditions and rig capabilities. The 2015 and 2016-17 holes were drilled with HQ triple tube running gear and 1.5m core barrels. A list of core diameters through the significant mineralized intercepts is presented at Table 3. 84% of the mineralization has been sampled with HQ core. Shallower mineralization has been intercepted with PQ and HQ core while deeper mineralization intercepted with NQ and BQ core. The differences in average Cu grades reported in Table 3 could be attributed to the fundamental sampling error, however it is more likely to be related to grade tenor changes with depth. No work has been undertaken to identify the reason for the grade differential between drill core sizes. The differential between larger and smaller diameter holes will have little impact on the resource estimate as the NQ and BQ holes now contribute to <10% of the modeled mineralisation and are interspersed with and spatially heavily outweighed in number by PQ and HQ holes.

Table 2: Diamond Drilling within Beruang Kanan Prospect Area (includes redrills and 20 holes located at adjacent prospects). The BKM 2017 Resource Estimate is centred on the Main Zone mineralization.

Program	AREA	Drill Corp	Rig	Start Date	End Date	Number of Holes	Average Depth	Total Metres
KSK Phase I	**Main Zone**	**R&B**	**R&B Rig**	**13-Jan-98**	**29-Apr-98**	**10**	**192**	**1921**
KSK North Poly	**North Polymetallic**	**R&B**	**R&B Rig**	**06-May-99**	**02-Jul-99**	**6**	**145**	**871**
KSK Phase II	Main Zone	R&B	R&B Rig	14-Apr-01	04-Aug-01	7	244	1710
	South Zone	R&B	R&B Rig	13-Mar-01	29-Mar-01	2	129	258
	KSK Phase II Total			**13-Mar-01**	**04-Aug-01**	**9**	**219**	**1967**
JV Oxiana	Main Zone	ANTERO	AD1000/AD500	25-Apr-07	18-Jul-07	5	490	2450
	South Zone	ANTERO	AD500	26-Jun-07	19-Jul-07	2	349	698
		KSK RIG	Rig34	21-Apr-07	14-Aug-07	2	227	455
	West Zone	ANTERO	AD500	22-Jul-07	08-Apr-07	1	279	279
	JV Oxiana Total			**21-Apr-07**	**14-Aug-07**	**10**	**388**	**3882**
Deep - KSK-ENJ	Low Zone	KSK RIG	AID350	03-Jun-13	10-Jul-13	2	601	1203
	Main Zone	PONTIL	Duralite#2	07-Jun-12	27-Jan-13	3	1052	3155
	South Zone	PONTIL	Duralite#2/LF130#2	12-Aug-12	07-May-13	3	826	2478
	Deep Total			**07-Jun-12**	**10-Jul-13**	**8**	**854**	**6836**
Definition - KSK-ENJ	Main Zone	KSK RIG	Jackro-MJT240/Rig34	03-Jul-12	15-Jul-13	29	300	8696
	South Zone	KSK RIG	Jackro MJT240	14-Apr-13	13-May-13	2	300	600
Definition Drilling - KSK	Main Zone	DBM RIG	DBM240	07-Jul-15	19-Sep-15	20	101	2021
		KSK RIG	Jackro MJT240	12-May-15	18-Sep-15	24	86	2070
		KSK RIG	Rig34	21-May-15	04-Sep-15	27	78	2096
	Definition Total			**03-Jul-12**	**19-Sep-15**	**102**	**152**	**15483**
Resource Definition and Upgrade Drilling - KSK	Main Zone	IDP RIG	IDP	03-Feb-17	20-Apr-17	10	142	1418
			Jackro MJT240	04-Apr-17	20-Apr-17	4	112	450
		INDODRILL	ID-200C	22-Jun-16	12-Jul-16	5	79	396
			ID-350E	20-Jun-16	05-Aug-16	7	145	1018
			ID-350F	22-Jun-16	20-Jul-16	6	111	665
		KSK RIG	Jackro MJT240	02-Jun-16	04-Apr-17	41	110	4501
			Rig34	21-Jun-16	20-Apr-17	49	82	4032
	Definition and Upgrade Total			**02-Jun-16**	**20-Apr-17**	**122**	**102**	**12480**
Grand Total				**13-Jan-98**	**20-Apr-17**	**267**	**163**	**43440**

Table 3: Core sizes through mineralized intercepts at BKM.

Core Size	Number of Intervals	Length (m)	Av. Depth (m)	Av. Cu Grade (ppm)
PQ	420	476	28	8023
HQ	6865	8018	45	7284
NQ	279	815	119	5279
BQ	34	95	202	6980
Historic/Unknown	66	179	129	6147
Total	**7664**	**9583**	**65**	**7743**

Sample lengths are listed at Table 4. These lengths have been employed by all workers and for all core sizes. 80% of the samples within the mineralised domains are 1.0m in length and 17% are ≥2.0m (with 8% being ≥3.0m). Half core sampling was employed, generating the following nominal samples sizes for long interval (≥2.0m):

- PQ: 22kg
- HQ: 12kg
- NQ: 7kg
- BQ: 4kg

There is no specific experimental data available to assess the suitability of sample sizes wrt the fundamental sampling error (considers the in situ heterogeneity of the mineralization). Optical mineralogy descriptions of the replacement style copper mineralisation at BKM shows that the copper mineralisation is ubiquitous within mineralised zones. However it is not homogeneously distributed wrt small sample sizes as suggested by the ½ core copper grade comparison. The half core comparison indicates that inappropriately small primary sample sizes will introduce a precision error but not an accuracy (bias) error.

There is also no specific experimental data available to assess if the sample reduction strategy employed is appropriate for the BKM mineralisation (especially for the long interval or heavy samples). The generalised sample mass nomogram proposed by Gy (Pitart and Yuhasz, 1993) shows that crushing to 1.5mm is the maximum particle size recommended for reduction to a 1kg sub-sample mass (for unknown material) to ensure that sample comminution strategies remain in the safe zone. The KSK 2015 and 2016-17 programmes reduce to 1kg at -2mm crush size (Gy’s standard nomogram recommends reducing to 1.5kg at this crush size), however results of the KSK quality control protocol of testing the copper repeatability from routinely submitter 4% of samples at the -2mm crush size show acceptable comparison between duplicates (Section 12.2.3). This confirms that this step of the KSK sample reduction strategy is appropriate for the BKM mineralisation regardless of the pre-crush sample size.

Historic workers at BKM (pre-2015) have reduced to 1kg at -4mm crush size (Gy’s standard nomogram recommends reducing to 5kg at this crush size). ENJ report that the coarse rejects from 4% of samples were analyzed, however neither the results of these assays or the duplicate comparison analysis was made available to H&A to assess the suitability of this step in the sample reduction strategy. H&A notes that, it is highly probable that sampling variance will be greater in the pre-2015 dataset than in the 2015-17 dataset (especially as the majority of long interval or heavy samples exist in the pre-2015 dataset), however H&A expects that this issue will not materially impact on the reliability of the 2017 resource estimate.

Table 4: Sample lengths. These intervals have been employed regardless of drill core size. The most common sample length in mineralisation is 1m (80% of dataset) with 2m and 3m lengths both comprising 7%.

Domain	Sample Length (m)	Count
Mineralised	<1.0	17
	1.0	6180
	1 to 1.5	185
	1.5 to 1.99	75
	2	537
	2.01 to 2.5	56
	2.5 to 2.99	49
	3	563
	3.01 to 3.5	93
	>3.5	3
Mineralised Total		**7758**
Non-Mineralised	<1.0	26
	1.0	6495
	1 to 1.5	554
	1.5 to 1.99	274
	2	2403
	2.01 to 2.5	618
	2.5 to 2.99	492
	3	3798
	3.01 to 3.5	873
	>3.5	35
Non-Mineralised Total		**15568**
Total BKM Samples		**23326**

11 Sample Preparation, Analyses and Security

11.1 Pre 2015

Detailed documentation on security, sampling and core yard procedures specific to the pre-2015 drilling at BKM is non-existent.

Descriptions of work by KSK have been reported by Geiger and Prasetyo (2004). Although this report focusses on activities at the Baroi Project, it is reasonable to assume that similar procedures were undertaken at BKM where drilling was undertaken during the same time period. Geiger and Presetyo report:

> "The Company's diamond drill programs are designed by and implemented under the supervision of Mansur Geiger, Vice President Exploration and Didik Prasetyo, Senior Project Geologist.
>
> The drill core is lifted from the drill and placed into a core box, which is 1m in length and usually has 5 divisions across. Core boxes are marked with the drill hole number, box number, and the top and bottom of each box is clearly marked. A wooden marker is placed at the end of each drill run with the depth to the bottom of each drill run marked on the

divider. Drill runs are laid into the core boxes in consecutive order running from top to bottom. Drill cores are recorded in a drill log detailing:

- the hole number,
- depth from, to, and length of each drill run in meters,
- % recovery per drill run and relevant notes, and
- measurements are taken as the cores are laid into the core sample boxes.

Completed core boxes are kept at the drill site until moved, usually two at a time, to the central drill core logging area.

Once at the central drill core logging area, the core boxes for each hole are laid out and drill log cover sheets are prepared for each hole under the supervision of the senior geologist. A check is made that the hole was drilled in accordance with the drill plan and that the driller's information is correct. The drill log cover sheet is then completed detailing:

- hole number,
- location, coordinates, bearing, inclination, and total depth,
- date commenced and completed,
- % recovery,
- drilling supervisor,
- core size, and
- signature of person completing the log.

The senior geologist carries out a detailed geological analysis of each drill run at various depths, usually where a geological change has occurred, and completes a detailed drill core log sheet. The detailed log is a structured, hand-written analysis of each hole covering lithology, alteration and mineralization, with a detailed description of drill cores at various depths.

The drill core is marked as to exactly where sections of the drill core are to be cut based on mineralogy and geological composition. Selected drill core sections are then dissected with a one-half section of the drill core placed/swept into a plastic bag. The other half is placed back into the core box. The hole number and depths from/to are written in indelible ink on both sides of the plastic bags. In addition, an aluminum tag with both the hole number and depths is placed inside each bag. The plastic bags are then sealed by wrapping masking tape completely around the bag with the hole number and the depths written again on the masking tape.

The cut drill core samples that have been placed back into the core boxes are re-analyzed for any further relevant geological information and the detailed log is updated.

> The completed drill log cover sheets and detailed drill core log sheets are sent to the KSK office for entry into the drilling database. All details of the core sample from each hole are entered into the drilling database maintained at the KSK office in Palangkaraya. A drill hole summary report is produced for each hole from the drilling database for the Vice President Exploration.
>
> Under the supervision of the senior project geologist, approximately four of the bound plastic core sample bags from the same hole are placed into a larger sample bag and tied with string at the top. The larger sample bag is then marked clearly with the word 'SAMPLE' on the front and back. A detailed list of the core samples in each bag is produced at the drill site, a copy of which is kept with each bag.
>
> The large sample bags are then transported to the KSK office in Palangkaraya by boat/road or helicopter. Each sample bag received remains sealed and is checked against the accompanying detailed list prepared at the drill site and is inspected for damage under the supervision of the senior office geologist. The contents of any damaged bag is packed into a new bag and labeled. Smashed bags are rejected and not sent to the laboratory for assay.
>
> The core sample bags are packed into a new sack and an assay sample dispatch sheet pre-printed by the assay company, PT Indoassay Laboratories in Balikpapan, is prepared. The assay sample dispatch sheet includes all sample numbers, with hole numbers and depths, sample type and elements to be recorded. The core sample bags are then sent by commercial courier to PT Indoassay Laboratories together with the original assay sample dispatch sheet, copies of which are kept in data and geological files.
>
> When the core samples and accompanying dispatch sheets are delivered, PT Indoassay Laboratories confirms receipt to the KSK office. They produce pulp and residue from each core sample bag and 50 grams of pulp is used to conduct assay analysis. The results of the assay from each sample are sent to the KSK office by email and then in hardcopy via courier, and are entered into the mining database. Results include the hole number, starting depth, ending depth, total length and percentages of various minerals in each sample.
>
> Residue for each sample is placed into a new plastic bag by the laboratory and labeled with reference numbers.
>
> Pulp is placed in an envelope and labeled accordingly. The residue bags and pulp samples are then sent back to the KSK office by commercial courier. These are stored in a secure archival building in Palangkaraya, away from the KSK office."

There is no record of how Oxiana Limited core was handled during their involvement at BKM.

Details of core handling and sampling undertaken by ENJ during their involvement at BKM is recorded in an internal document "Sample Preparation and Assay Quality Control report, 30 January 2014" (Appendix 3), which describes the following activities:

"This report address the assay quality collected from the diamond drill core and geochemical samples during the Exploration program starting May 2012 to December 2013 at PT KSK CoW area at Kalimantan Tengah, Indonesia.

Geoassay Laboratory was chose to give its services for sample preparation and assaying. The sample preparation established at Tengkiling at about 35 km from PT ENJ and PT KSK main office at Palangkaraya.

The total amount of 18,522 samples consisted of 10,852 drill core and 7,670 geochem samples were sent to laboratory for prep and analysis.

The preparation and assay procedures utilized by Geoassay follow the Standard Operating Procedures (SOP) developed by PT ENJ and Geoassay to suite the conditions and criteria required for KSK samples.

All the drill core and geochem samples from work site are transported from Marinyuoi to Tengkiling. The arrival of samples at Tengkiling is confirmed with paperwork transfer. Trips between the Marinyuoi core handling facility and sample preparation area generally occur about 2 times per week. Upon arrival at Tengkiling, containers are unpacked and checked against the shipping orders from Marinyuoi. A sequential KSK job number is assigned and written on a laboratory worksheet and the ENJ transmittal form.

The core is marked for sawing to split for assay and storage. The core is split longitudinally with a core saw. Conventional splitters are also available for small diameter core. Half of the core is returned to the core box after splitting and the other half is bagged and numbered for sample preparation processing by GeoAssay personnel in the building adjacent to PT KSK's core shed. The samples are then processed and finally placed into kraft paper bag and shipped to the GeoAssay Analytical Laboratory in Cikarang, Jakarta (GA) for assaying. Transmittal and assay instruction forms accompany the sample shipment to GA.

The sample preparation work effective started on July 3, 2012 according to the following procedures:

1. The samples are weighed before drying in an oven for a maximum of 8 hours at 105°C. Samples weights are also taken after drying and recorded on the transmittal sheet.
2. The entire sample (half core) is placed into a jaw crusher; the output is crushed to between -8mm and -10mm. All the crushed material is then fed to the Boyd RSD Combination crusher and splitter with nominal output size of –4mm.
3. The rotary splitter opening is set to get about a 1 kilogram sample. This 1 kilogram sample is directly output from the Boyd Crusher to the LM2 pulveriser to pulverize. The rest of the material reports to coarse reject.
4. Additional reject splits are retained for future metallurgical work and for duplicate coarse reject analysis. Roughly 1 in 25 of the duplicate coarse reject

(DR) samples are prepared and assayed as a check on the pulp preparation process. As well, 1 in 25 coarse reject samples are also screen analyzed to confirm the comminution size of 95% passing 4mm is achieved.

5. Approximately 1000g of the primary split is pulverized to produce a 95% passing 200 mesh pulp. One out of every 25 pulps is wet screened to monitor the comminution of -200 mesh pulp size. This sample also forms the Duplicate Assay sample (DA) which is separately assayed for QC purposes.
6. After pulverizing, the 1000g sample is mat rolled then split into 4 components using a spoon. The entire pulped sample is divided and placed into 4 kraft paper pulp bags.

One of the pulp bags is sent out for analysis to Geoassay right away. The remaining three pulp bag are individually sealed then placed into zip lock plastic bags and submitted to ENJ. This will be used for assay check programmes with the frequency 1 in 20. Check assay pulps are sent out for analysis to Intertek and Sucofinfo.

Following the Standard Operating Procedures (SOP) document, CRM Standards are inserted on a 1 in 20 basis and one blank is inserted per batch.

Assay instructions are supplied to GeoAssay electronically by PT ENJ personnel. GeoAssay labs use Inductively Coupled Plasma (ICP) Optical Emission Spectrometer (OES) methodology for determining the base metal content. Assay requests are complete ICP-OES packages (36 elements) with three acid digest from a 0.5g pulp sample (aliquot). If the result of that method reports greater than 10.0% copper, the assay is rerun as an "ore grade" sample where a 1.0g sample is digested with three acids and followed with flame AA."

The core handling, sampling and sample reduction protocols as described appear suitable for preparation of BKM material for assay. The procedure where ENJ mat-rolls and divides the pulverized material to generate 4 pulps from each sample by spooning into paper bags would appear to be poor practice, however the acceptable duplicate pulp and inter-laboratory check copper assay indicates that this practice has not adversely affected the sample reliability.

Evaluation and interpretation of the sampling suitability and assay reliability (quality control evaluation, assessment of copper grade against sampling interval lengths and recovery etc) is included along with the assessment of all datasets utilized in the resource estimate in Section 12.

11.2 **2015 to 2017**

KSK undertook the 2015 and 2016-17 drilling following protocols setout in the following SOPs and the June 27, 2015 revision:

- KSK_SOP_002_2015.01.14_Chain_of_Custody_Doccumentation_FINAL.doc
- KSK_SOP_004_2015.01.14_Core Pickup, Handling and Processing - FINAL.doc
- SOP Revision By Duncan Hackman_20150627.docx

Chain of custody documentation is available for all holes drilled in the 2015 and 2016-17 programmes. They revolve around establishing responsible persons for sections of work and signing-off on the completion and verification of this work. They also record the transferal of the responsibility for core, samples and data through the employ of hand-over signatures. Chain of custody documentation is available for the following activities undertaken during the drilling programmes:

- Drill surveys
- Core pick-up at rig
- Core received at camp
- Core photos
- Core logging
- Core geotech-logging
- Core data collection
- Core sampling
- Core sample transport record
- Data entry checklist
- Core summary log
- Core processing finalization checklist

The standard operating procedures document is presented as a flow chart centred on photographs depicting the activities employed to process core and samples (Appendix 12). Although not detailed in their description on the flowchart, the procedures (including the H&A changes) are considered appropriate for the processing of the BKM core and samples. H&A observed that the protocols being followed at site were in line with those in the document "Kalimantan Surya Kencana – Core Handling Procedure : Drill Site – Core Shed - Processing". H&A implemented minor changes to protocols in undertaking the following activities (refer details in document "SOP REVISION BY DUNCAN HACKMAN, 27 June 2015. PT. KSK, BERUANG KANAN PROJECT"):

- Specific Gravity (six points)
- Down-hole survey intervals (two points)
- QA/QC for down-hole survey camera tool (four points)
- Drilling and core logging of veining (three points)
- Sampling (three points)
- RQD (two points)
- Core Photo (two points)

These changes have added further quality assurance and quality control features to the protocols.

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The onsite processing workflow is as follows:

- Core is packed and carried by hand (2015) and by hand and vehicle (2016-17) from drill sites to the core processing facility at camp (located to the east of the BKM mineralisation).
- Core blocks and tray details are checked and hole depth details recorded on core.
- Core trays are weighed and photographed wet.
- Geotechnical and geological logging undertaken
- Geologist selects segments of core for SG determination, which is undertaken by core yard technicians.
- Sample intervals are determined by geologists and core is split longitudinally by core saw. Clayey and incompetent core is wrapped in glad-wrap and packing tape prior to cutting.
- CRM Standards, coarse blanks (granite), pulp blanks and coarse crush duplicates are inserted into sample sequence (coarse crush duplicates are generated at ITS during sample preparation, empty, numbered bags are included within the sampling sequence in preparation for their creation).
- Core and QC samples are bagged and tagged for transport to ITS Jakarta.
- Dispatch paperwork is prepared for ITS which includes the list of coarse crush duplicates to be prepared and samples where SG segments require drying separately and recombined with the remaining material before crushing).
- Half core in trays is photographed both wet and dry.
- Core block details inscribed onto aluminum tags which are then attached back onto core blocks. Tray details are engraved onto trays before being packed and transported by light vehicle to the Tengkiling core shed for rack storing under cover.

KSK employs the use of numbered, tamper-proof zip ties to seal sample bags being transported off-site.

Details of sample preparation and analysis and QC insertion rates are included in Section 12.2.3.2.

12 Resource Data, Description, Verification and Evaluation

Table 5 lists the files and data supplied to H&A that underpins the BKM resource estimate. Table 6 lists the files generated by H&A in undertaking the resource estimate. Table 14 and Table 15 list intervals where the laboratory assay files were not supplied to H&A and Table 7 lists the photos not supplied. In addition there is no assay quality control data or reports for the early KSK drilling (pre 2002), no assay quality control data for the ENJ-KSK dataset, no protocol documentation for the early KSK and OX-KSK drilling programmes and no core photos for the early KSK drilling.

H&A is satisfied that the files/data and information supplied by KSK is sufficient and suitable for producing a resource estimate on the mineralization at BKM and for evaluating the risk inherent in the estimate and reporting findings following the guidelines set out under the Canadian NI 43-101.

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KSK has provided written assurance that the data supplied is current, complete, accurate and true and that they have disclosed all data and information material for the assessment of the resources at BKM (Appendix 11).

Table 5: Files supplied to H&A by KSK and utilized in undertaking the BKM 2017 Resource Estimate and NI 43-101 report.

File	Description	Use
Ass.csv; Coll.csv; Surv.csv	2014 resource data (74 Drillhole collar, survey and assay data. DHs	historic hole assay data for estimate (2015 hole data appended to these
Coll2015_final_check_20151013.xlsm Surveys_20151005.xlsm QC_Analysis_V2-11.xlsm	2015 Drillhole collar, survey and assay data. 71 holes. Compiled and cross-checked from individual excel files and sheets transferred	drill hole display, update 2014 domaining and grade interpolation. 2015 assay QC evaluation.
2017.04.30_ksk_ddh_col.xlsx w_2017.04.30_ksk_ddh_assays.xlsx	KSK compiled dataset of all KSK holes	Cross check collar and assay data for all hole collars and assays for 2015 to 2017 drilling against H&A compiled
52 files: [*Creation Date*]_List Sample Dispatch_BKM0[003-012, 015-026, 028-057, 064-067, 071-075, 077, 083-087, 089-090, 093, 096, 099, 101, 104, 106, 108-174, 176-178].xls	KSK sampling sheets for 71 holes drilled in 2015 and 122 holes drilled in 2016-17	generating resource dataset and QC evaluation data
526 files: [*Hole_Name*]_Data Entry_[*Geo Logging Sheets_New/MagSus/Photography and Weight_NEW/RQD/Sample Number and Recovery/SG Sample*].xls	KSK 2015 drillholes - Lithology, Alteration, Structure, vein and non-vein mineralisation, SG, Core Diameter	drill hole display, domaining and mineralisation setting interpretation, tonnage factor determination, investigation into fundamental sampling error affect
kskall_exd_geol.csv kskall_exd_Metcodes_20170526.csv	KSK 2016-17 drillholes - lithology and material code logging by Site geologists and revised from photos by Steve Hughes	drill hole display, domaining and mineralisation setting interpretation, tonnage factor determination, investigation into fundamental sampling error affect - generating a material-type model
DTM-BK-Lidar_A.00t; DTM-BK-Lidar_B.00t; DTM-BK-Lidar_C.00t	Vulcan 3D TIN Topo Surface	drill hole collar location validation, resource domaining
209 x [*ITS Lab Job No*].xls	Intertek Utama Services Laboratory Assay Report files (assays, drying weights and Lab QC results (including ".01" and "D" reissue	construct 2015 to 2017 Assay and QC dataset
072[581,781,838,936].csv; 073[520,741].csv	DHs KBK-00[19-22,24] Laboratory Assay Report files	Validation of Cu assay data - Lab Duplicate and Repeat Assay analysis
150269.xls 150424.xls CIK.MIN.06503.xls	ITS and GeoAssay Laboratory Assay QC Report files	Determination of Coarse Blank Assay Values and umpire lab assay results
20140604_bk_geo_interp_with_silica ledges_no_ddh.png	interpretation map	domaining
20140827_bk_rock_geo_alt.csv	Rock Chip Sample data	domaining
20140827_bk_so_ctr.DXF	Cu soils contours	domaining
KSK Sample Prep and Assay QC Final Report Jan2014.docx	ENJ-KSK drill sample assay QC report	Assay QC analysis
oxiana qaqc 2007.pdf	OX-KSK drill sample assay QC report	Assay QC analysis
Beruang LeachReportRecomendations.doc; All Beruang Summary Drill Holes.doc; Beruang Report - Dave Howard.pdf; Report_Central BK 17July-3Aug_2012_TP96.pdf; P_Pollard_KSK copper review.pdf; Bob_BurkeKGC REPORT.pdf; MG_Report_43-101_Appraisal_2004.docx; 43-101 Appraisal Report.pdf;	Reports on BK by Historic Authors	Project Familiarisation and NI43-101 Report Compilation
KSK Petrology Report- Rowena Duckworth-June 2017.pdf; KSK_Mineragraphy-26 1a polished buttons -Rowena Duckworth-June 2017.pdf; KSK_Mineragraphy-11 1b polished buttons -Rowena Duckworth-June 2017.pdf	Mineralogy Reports	Input into resouce modelling, data quality and utilisation
KSK_CoW[1].pdf	KSK CoW agreement between KSK and Gov. RI	Reference - Terms and Conditions
6570 x core photo files (*.jpg)	pre2015 (BK0* and KBK00* drill holes) and 2015 to 2017 KSK drill holes core photo files	mineralisation setting investigation, resource domaining - assay and DBD validation and verification

Table 6: Files generated by H&A and used in undertaking the BKM 2017 Resource Estimate.

File	Description	Use
1a_Combined_22_017_2017.00t 1a_Combined_22_030_2017.00t 1a_Combined_29_060_2017.00t 1a_Combined_36_095_2017.00t 1a_Combined_40_025_2017.00t 10_Base_Soil_Surface_20170511.00t	Grade interpolation domains (nominally >2000ppm Cu)	Cu resource estimate grade interpolation
a_solid-Hetrogeneous_poss_bias_SG.00t	Volume outlining mixed, clay and competent material	Assign Tonnage Factors and inform resource classification
a_Inferred.00t a_Measured.00t	drill density and grade interpolation defined volumes	Assign Resource Classification
a_Base_Surf_recovIssue_Solid_20170611.00t	poor recovery topo parallel domain	Inform Resource Classification
139 x [*hole name*].xlsm	core photo compilation files	verification of assay geology and DBD data
QC_Analysis_V2-11.xlsm QC_Analysis_V2-11-to_BKM0168.xlsm	Compiled Assay and QC data	Resource and QC datasets
bkcu_3m.map; bkfe_3m.map; bks_3m.map	3m composited Cu, Fe and S assay data	Cu, Fe and S grade interpolation
BM_Create_2017.bdf; bkcuID2OK_2017.bef; run.ber; 2017_a_code_allmin.bcf; 2017_b_tonfact.bcf; 2017_c_class.bcf; 2017_d_cu_gt_20k_in_025.bcf	Vulcan Definition Files	Generate Cu, Fe and S grade block model
BK_postestimate_2017.bmf	BK 2017 RE block model	Cu, Fe and S block model

Table 7: List of core photos missing from those supplied to H&A from ENJ-KSK JV drilling.

Hole	No. Photos	From	To	Interval
KBK0019	1 photo	61.2	68.62	7.42
KBK0020	1 photo	190.9	198.25	7.35
KBK0021	5 photos	365.6	405.05	39.45
KBK0025	58 photos	76.05	393.2	317.15
KBK0026	1 photo	6.9	13.2	6.3
KBK0026	9 photos	55.65	103.75	48.1

12.1 **Verification and Validation**

There is missing metadata and QA/QC information for the pre 2012 drilling for assay, density and geological inputs used in the resource estimate. H&A has endeavored to verify and validate historical data firstly by assessing the validity and suitability of the ENJ-KSK and 2015-17 KSK data and then comparing this data with the earlier data.

Qualified Person's Report on the Mineral Resources, Beruang Kanan Main Zone, July 2017.

The following sub-sections outline the verification and validation approach for data used in generating the 2017 Resource Estimate and highlights issues uncovered and considers the risks to the estimate associated with these issues.

12.1.1 Grid Reference and Sample Location

All work is undertaken and recorded in WGS84, UTM Zone 49S. The site visit confirmed that work was undertaken in this reference as drill hole collar markers are marked with coordinates matching those in the resource dataset and coordinates for four pre-2015 holes checked by GPS agree within acceptable limits to records in the KSK dataset. H&A has been informed that there are no translation issues to investigate and that the grid references for drill holes and the LIDAR topographic surface are congruent.

KSK employed geoindo Survey Services (geoindo) to locate or site the holes drilled in the 2015 and 2016-17 programmes and to locate and survey historic hole locations. The bodies of the geoindo reports including survey pickups are included at Appendix 13. H&A cross-checked the original geoindo pickups against the pre-2015 and 2015 KSK collar files to verify collar locations for geoindo surveyed holes.

The collar locations for the thirty pre-2015 holes not located and surveyed by geoindo were verified by:

- Cross checking the supplied dataset with an historic listing of holes supplied as text files.

  Only coordinates for hole BK052 differ by more than 5m between the two sources. This hole is located 200m south of the BMK resource.

- Cross checking holes against the LIDAR topographic surface.

  All drill hole collar elevations concur within acceptable accuracy to the topographic surface.

H&A is of the opinion that drill collars are known within sufficient accuracy for the BKM 2017 Resource Estimate to be considered for all resource classifications under the NI 43-101.

There is no downhole survey data for the early KSK drill holes BK-[01-16,17A,17B,18] and later holes BK0[30-32,55-57], BKD02-01 and KBK-00[19,28]. Drill traces for these holes are defined by collar surveys. Of the remaining holes, traces are defined by:

- KBK-00[20-27]: 30 to 50 metre spaced Eastman Camera Surveys
- BK0[53,54,58]: 3 metre spaced Gyro Surveys
- BK0[29,33-44,44-02,45-52]: 3 metre spaced Maxibore Surveys
- 2015 to 2017 holes (BKM series): 20m spaced single shot digital camera surveys

Surveyed holes show absolute azimuth deviations range between 3 and 15 degrees and absolute dip deviation ranges between 2 and 6 degrees for all survey measurement types. Holes in general deviate clockwise, with the majority steepening with depth. Final drill hole survey directions are comparable with collar hole survey directions, with the majority of holes showing less than 5 degrees difference in both azimuth and dip.

In general holes show minimal deviation and, when considered in relationship to the geometries of the interpreted mineralized domains, drill hole traces are considered to be well defined. The consistent minor deviations observed in holes where survey control is well established lends confidence to the trace path and therefor sample locations in those 30 holes whose trace is defined by a single collar survey.

H&A considers that sample locations known to an acceptable level of accuracy for the BKM 2017 Resource Estimate to be considered for all classifications under the NI 43-101.

12.1.2 Topographic Surface

The drill collars and surface mapping (including contours) overlay with good correlation on the LIDAR topographic surface. The consistency between the datasets assures H&A that the BK2017 resource model has internal integrity.

12.1.3 Geology, Mineralization, Alteration, Structural, Oxidation and Surface-Clay Domain Logging

Simplified coding of logged intervals in the digital dataset describes the geology, mineralization and alteration at BKM. There is no logging of the oxidation state in the resource dataset. H&A and Mr. Stephen Hughes of KSK reviewed core photos of the mineralized intervals at BKM to verify the logging, to generate an oxidation log, a surface clay/poor-drilling log and to identify and classify settings for the BKM mineralization. The grouping or classification of the mineralization settings was undertaken with the specific purpose of guiding resource domaining and grade interpolation as the KSK supplied logging is not suited or readily formatted for this purpose.

In 2015, mineralized intervals for 26 historic holes, BK0[29-31,33-36,38,44,44-02,45-52,54-5] and KBK00[21,23,24] were re-logged from the core photographs. Details of the 299 observations (287 mineralized intervals) are included at Appendix 5. The key findings and styles of mineralization identified from this work and utilized in the resource estimate are:

- 12 styles of mineralization were identified (Appendix 6). These can be further grouped into three main classifications; Sheared Veins, Veins in Shears and Veins in Breccia. The Veins in Shears type is the most dominant style, whereas the Cu grade is highest in Sheared Veins (Table 8).

Table 8: Styles of mineralization identified from logging of core photos from 26 original holes at BKM.

Photo Logging Classification					Summary		
Mineralisation Setting	Number	Metres	Proportion of Mineralisation	Average Cu (%)	Setting	Proportion	Average Cu (%)
Brecciated and oxidized	3	23	1%	0.00	Other	2%	0.28
Cc	2	11	1%	0.91			
Sheared Si-Py-Cp veins	2	11	1%	0.73	Sheared Veins	6%	0.69
Sheared Si-Py-Cv veins	6	27	2%	0.92			
Sheared Si-Py-Cv/Cc veins	11	63	4%	0.59			
Cp veins in shear	22	182	11%	0.51	Veins in Shear	91%	0.62
Si-Py-Cp veins in shear	57	385	23%	0.53			
Si-Py-Cc veins in shear	5	21	1%	0.35			
Si-Py-Cp-Cv veins in shear	10	60	4%	0.72			
Si-Py-Cv veins in shear	118	609	37%	0.63			
Si-Py-Cv/Cc veins in shear	47	241	15%	0.81			
Si-Py-Cv veins in breccia	4	20	1%	0.49	Veins in Breccia	1%	0.49
Total	287	1654		0.63			

- The digital structural logging shows that the ENJ-KSK recognized the structure within the mineralized intercepts (Table 9) however the significant observation made in the core photo logging is that the structural deformation is intense and shows a distinct shear fabric.

Table 9: Structural logging associated with mineralization styles identified from logging of core photos from 26 original holes at BKM.

Mineralisation Setting (from Photo Logging)	Structure Logging in RE Dataset (from KSK)		
Veins in Shear	blocky	crushed-fractured	fractured-brecciated
	blocky-fractured	crushed-gouged	fractured-gouged
	blocky-veined	crushed-veined	fractured-veined
	crushed	fractured	gouged
	crushed-blocky	fractured-banded	gouged-veined
	crushed-brecciated	fractured-blocky	unconsolidated-veined
Sheared Veins	crushed-blocky	fractured-gouged	
	crushed-fractured	fractured-veined	
	fractured	gouged	
	fractured-banded	gouged-blocky	
Veins in Breccia	crushed-fractured		
	fractured		

- Copper mineralization is associated with veining (various Cu mineral species are hosted in veins and fractures, mostly with, but can be without silica and pyrite). A direct relationship between vein intensity/thickness (%veining) and copper grade was noted in the core photos. This relationship also becomes apparent when copper grade is assessed against the logged percentage of veining in the sample interval (Table 10). N.B. subsequent optical mineralogy investigations (undertaken in 2017) clearly show abundant microscopic scale copper minerals replacing pyrite which in-turn is present as replacement alteration/vein pyrite. This mineralisation forms broad zones containing the fracture filled mineralisation readily observed by the eye.

- There is no apparent association between copper grade and total percent logged crack-seal pyrite veins (Table 10). There is however an association between copper grade and intensity/frequency of pyrite veining (reflecting the intensity of replacement pyrite) and to a lesser extent with quartz-sulphide veining (Table 11).
- The ENJ-KSK Main Structure logging within the mineralized domains shows that geologists have recognized that veining (42% of intervals) and faulting (brecciation 4%, gouge 15%) are key features of the mineralized intervals. The recognition that 30% of the mineralized intervals are fractured is of significance, however it is not discernible from the logging if this fracturing is important wrt mineralization and related to faulting or is insignificant and related to late stage shattering/jointing. The core photo logging has clearly identified that mineralized intervals contain structure-related faulting and shearing which appears to be important wrt mineralization (enhancing ground preparation, forming fluid conduits and reworking and upgrading mineralization through reactivation events).

Table 10: ENJ-KSK Vein%, Pyrite% and Main Structure logging - within mineralized domains.

Logged Vein % in RE Domains			Logged Pyrite % in RE Domains			Logged Main Struct in RE Domains		
Percent (%)	Proportion of Mineralisation	Av. of Cu%	Logged Py Perc (%)	Proportion of Mineralisation	Av. of Cu%	Logged Structure	Proportion of Mineralisation	Av. of Cu%
0	2%	0.5	0-2	3%	0.5	Blocky	9%	0.9
0-2	50%	0.6	2-4	37%	0.7	Brecciated	4%	0.7
2-4	14%	0.7	4-6	23%	0.6	Fractured	30%	0.9
4-6	24%	0.5	6-8	17%	0.5	Gouge	15%	0.7
6-8	3%	1.1	8-10	5%	1.5	Vein	42%	0.6
8-10	3%	1.3	>10	15%	0.8			
>10	4%	2.3						

The photos for the 71 KSK 2015 holes were logged for veins/mineralisation styles in conjunction with the assay data. Table 11 and Table 12 present the findings from 1292 observations and show that:

- Significant copper grades (>0.5%) are associated with low vein frequencies.
- It appears that higher copper grades are more common with low frequencies of pyrite veins than they are with low frequencies of quartz veins (reflecting copper mineral replacement or "disease" of pyrite)
- 85% of the observations have ≤ 3 quartz veins and ≤ 5 pyrite crack-seal veins per metre confirming observations that very little veining can host significant copper mineralisation.

Table 11: Average copper grades for logged mineralised intervals, split by veining type.

Copper Grades (%) split by veining frequency - Qtz (+/- sulphides) and Pyrite (+/- copper sulphides)																	
Pyrite vn freq (+/- Cu sulphides) - vns/m	Quartz veining frequency (+/- sulphides) - vns/m																
	0	1	2	3	4	5	6	7	8	10	12	15	20	25	30	80	all
0	0.6	0.9	0.5	0.5	0.4	1.2	0.3	0.4									0.7
1	0.2	0.3	0.3	0.4	0.4	0.6	0.4			1.0							0.3
2	0.4	0.3	0.5	0.6	0.5	0.7			0.0	0.6							0.4
3	0.6	0.4	0.7	0.5	0.4	0.6			1.6	4.5		0.7					0.6
4	0.4	0.5	0.8	0.5		0.7		0.0	0.8								0.6
5	0.7	1.0	1.2	0.7	0.9	0.9		0.6	0.7	1.5	1.3	0.9	2.6	0.7			1.0
6	0.8	0.7	0.8			1.3						1.0	5.0				1.1
7	1.2	1.2	1.2	0.9	0.6	0.5						1.1					1.1
8	1.2	1.2	1.3	1.1		3.1			2.0			0.5					1.3
9		1.2	0.9														1.1
10	2.6	2.0	2.2	1.6	1.2	1.7				0.2		1.5			2.1		2.0
12		1.2		1.5													1.4
15	3.7	1.8	4.4	2.5		2.1				1.2		2.7					2.5
18						5.3											5.3
20				4.6		3.2			7.3	2.0							3.9
25				2.6					1.4								1.8
30						0.2											0.2
35						2.3											2.3
40																12.5	12.5
all	**0.7**	**0.6**	**0.8**	**0.8**	**0.5**	**1.2**	**0.4**	**0.3**	**1.7**	**1.5**	**1.3**	**1.2**	**3.8**	**0.7**	**2.1**	**12.5**	**0.8**

Table 12: Number of logged mineralised intervals, split by veining type.

Number of Logged Intervals split by veining frequency - Qtz (+/- sulphides) and Pyrite (+/- copper sulphides)																	
Pyrite vn freq (+/- Cu sulphides) - vns/m	Quartz veining frequency (+/- sulphides) - vns/m																
	0	1	2	3	4	5	6	7	8	10	12	15	20	25	30	80	all
0	84	33	32	6	4	4	1	1									165
1	20	79	34	33	7	7	1			1							182
2	59	49	53	36	4	10			1	1							213
3	57	73	64	25	2	13			4	1		1					240
4	8	18	10	5		4		1	2								48
5	51	73	51	25	2	13		1	2	7	2	2	1	1			231
6	5	2	7			1						1	1				17
7	10	13	7	4	2	1						2					39
8	18	7	18	8		1			2			1					55
9		2	1														3
10	20	8	8	10	2	12				1		2			1		64
12		1		2													3
15	1	1	1	8		4				1		1					17
18						1											1
20				2		4			1	1							8
25				1					2								3
30						1											1
35						1											1
40																1	1
all	**333**	**359**	**286**	**165**	**23**	**77**	**2**	**3**	**14**	**13**	**2**	**10**	**2**	**1**	**1**	**1**	**1292**

An oxidation log was produced from both historic and 2015-17 drilling. Table 13 shows that the base of complete oxidation is encountered at shallow depths at BKM. This material is consistently leached of copper and has been domained and included as a barren zone within the 2017 Resource Estimate. For most areas of the BKM mineralisation the oxide zone is underlain by a clay/fracture zone which, in the drilling to date, presents with poor core recovery. All holes were logged to

Table 13: Depth to base of complete oxidation and thickness of surface clay/fracture zone, split by relationship to mineralised domain projection.

Domain	Base of Complete Oxidation (m)	Thickness of Clay/Fracture Zone (m)	Total Depth BOCO Plus Clay/Fracture Zones (m)
Above Mineralised	7.1	7.7	14.8
Above Unmineralised	7.9	10.0	17.9
All	**7.5**	**9.0**	**16.5**

12.1.4 Specific Gravity

KSK collected 6396 bulk density and dry bulk density measurements from core in the 2015 and 2016-17 drill programmes utilising the Archimedes principle for determining volume and drying permeable samples at the ITS laboratory. Quality assurance procedures included confirming scale stability over time (weighing a standard steel bar) and ensuring the water depth for immersed weight measurements were at a constant level before each SG batch was processed. H&A improved the robustness of the workstation setup during the June 2015 site visit to ensure stability over time. Quality control data from weighing the steel standard confirms that the scale measurement was constant throughout the programmes and records show that water levels were checked and stable as intended.

KSK dispatched 130 competent pieces of core to ITS between May 30, and June 20, 2015 for check DBD measurements of competent/non-permeable core which confirmed that the scales were calibrated correctly (wrt ITS scales) and that the BD measurements were being correctly undertaken at site (with the av%MPD being 0% and the av%|MPD| being 0.4% for pairs from both SG determinations). These samples contained an estimated moisture content of between 0 and 2% (average 0.8%). To further confirm that competent/non-permeable core could be processed for DBD at site, KSK undertook an oven drying test on 5 pieces of core and found that between 3g and 8g of moisture was driven off in the first hour of drying (1% relative wt) with only a further 0.5g to 1.5g being removed with continued drying.

With the significant amount and robust dataset created by KSK between 2015 and 2017, H&A has eliminated the riskier 330 SG measurements taken by ENJ-KSK from the evaluation dataset.

The 6396 DBD measurement taken by KSK were validated and 54 records show spurious results (caused by missing data and/or data entry errors). These records were removed from the evaluation dataset. A further 68 records were removed from the dataset as they were found to be |>3SD| from the mean of expected SGs given their material types (split on logged clay content) and Fe grade ranges (i.e. H&A removed SG sample suspected of being highly unrepresentative of the total interval).

KSK 2015-17 protocols dictate that two samples, each of 0.20m length, be selected from each tray for SG (DBD) determination and that the core be marked with the sample locations and recorded both digitally and pictorially in core tray photographs. H&A reviewed the core tray photographs to evaluate the representivity of segments taken for SG determination. This involved a five stage investigation and reselection process as follows:

1. Determine those SG measurements within domained mineralisation (2833 of 6274 or 45%)
2. To determine if core is porous/permeable or wont absorb water (906 of 2833 or 32% are porous)
3. To determine if permeable/porous core is heterogeneous or homogeneous wrt physical characteristics relative to determining DBD (611 of 906 or 67%)
4. Spatially evaluating coded data (wet/Dry/Heterogeneous/Homogeneous) to determine if mineralisation can be domained along these key criteria (three clear domains identified; a surface zone, thickest in the north and northeast of the deposit and two deeper zones, one central and the other in the northern portion of the mineralisation).
5. Flagging of trays where SG sample representivity may be compromised by selection bias and resampling segments of these trays as directed by H&A (416 of 611 SG samples or 370 trays)

The final DBD dataset, split by material type and area-of-concern criteria comprises:

- 4208 samples within homogeneous and predominantly non-porous areas,
- 68 samples within the soil/oxide domain
- 139 samples within the surface clay/poor-recovery heterogeneous domain and
- 370 samples within the two deeper heterogeneous and variable porous domains.

12.1.5 Assays

12.1.5.1 Pre-2015 Data

Handling and storage of the pre-2015 BKM data is poorly documented. To verify that the resource dataset has not been corrupted H&A rebuilt the dataset from source files. Not all laboratory report files were available for this process. Table 14 and Table 15 list the assay intervals still to be verified.

Key findings:

- 739 of the 1051 early KSK Cu assays (pre 2002, BK-01 to BK-18 series of holes) were cross checked with their laboratory report records and no issues were detected.
- 802 of the 1658 OX-KSK Cu assays from (KBK-0019 to KBK-0028 series of holes) were cross checked with their laboratory report records and no issues were detected.
- 3163 of the 4923 ENJ-KSK Cu assays (BK series of holes) match with their primary laboratory report records (GeoAssay Laboratory results).
- ENJ-KSK compliance to protocols regarding assay-result prioritization and the management of quality control data appears to be poorly observed by personnel as Intertek Services and Sucofindo umpire laboratory results have supplanted the primary GeoAssay results in the resource estimate dataset supplied to H&A (Table 16).
    - H&A has not corrected the resource dataset as the entire dataset could not be corrected due to the missing or non-supplied assay results files.
    - Mixed primary and umpire Cu results in the resource dataset will not affect the outcome or confidence in the BKM 2017 Resource Estimate as the comparison of data populations (Figure 8) and 'duplicate' results from both the source and umpire laboratories (Figure 9) show that the results can be interchanged with negligible local and global impact.

Table 14: List of intervals where Laboratory Report Files not supplied to H&A for assay data verification – KSK and OX-KSK drilling programmes.

KSK Drilling				OX-KSK Drilling			
HOLEID	From	To	No. Assays	HOLEID	From	To	No. Assays
BK-11	3	132	44	KBK-0019	221	277	28
BK-12	1.1	107.6	26	KBK-0021	517.9	634.5	10
BK-13	18	220.65	68	KBK-0023	2	566	290
BK-14	3	240.55	68	KBK-0025	2	343	174
BK-16	11	257	42	KBK-0026	2	374	185
BK-17A	2	53	17	KBK-0027	2.4	188.9	94
BK-17B	2.65	277.2	34	KBK-0028	2.5	151.3	75
BK-18	215.8	267.8	13				
Total			312	Total			856

Table 15: List of intervals where Laboratory Report Files not supplied to H&A for assay data verification – ENJ-KSK drilling programme.

Supplied Laboratory Report Files	Determination of assay source in ENJ-KSK Cu dataset	HOLEID	No. of Assays	From	To	Comment
No Lab Report files to H&A (20140820)	Source of RE dataset cannot be determined	BK037	55	5	181.2	Should have GeoAssay Lab (GA) results somewhere - possibly Intertek Services (ITS) and Sucofindo (SFK) check assays too
		BK038	50	18	183.3	
		BK040	54	2.9	187	
		BK041	34	188.4	300.1	
		BK042	54	6.4	181.9	
		BK043	54	10.5	189.6	
		BK044	54	3.3	180.1	
		BK045	54	1.4	171.3	
		BK046	54	6	181.5	
		BKD03-02	42	362	540.8	
Have ITS assay results only	ITS assays do not match RE dataset - source of RE dataset not determinable	BKD03-02	12	391	537.8	Should have GA results somewhere - possibly SFK as well...
Have SFK assay results only	most likely SFK in RE dataset as these consistently match sequence in RE dataset	BK037	6	30.35	169.97	Should have GA results somwhere - possibly ITS as well...
		BK038	3	45.8	105.3	
		BK040	6	28.9	178	
		BK041	3	214.9	275.5	
		BK042	6	28.8	172.9	
		BK043	6	37.3	180.1	
		BK044	6	28.1	171	
		BK045	6	27.8	163	
		BK046	3	32.4	146.8	
		BKD03-02	5	415	531.8	
have GA results - however suspect other assays missing	DB records are not GA - most likely ITS as consistent with adjoining assays in RE dataset	BK029	54	135.5	300	Suspect ITS and/or SFK results missing
		BK030	44	169.1	301	

Table 16: List of copper assay sources for pre 2015 data utilized in 2017 Resource Estimate.

Assay Results files	Comments regarding prioritisation for inclusion in FPT RE dataset	Number of Samples
no Lab Report files to H&A (20140820)	Source of RE dataset cannot be determined	505
Have ITS assay results only	ITS assays do not match RE dataset - source of RE dataset not determinable	12
Have SFK assay results only	most likely SFK in RE dataset as these consistently match sequence in RE dataset	50
	SFK-GAM match RE dataset however have SFK OreGrade Assays not prioritised in RE dataset	5
GA results only	Most likely GA in RE dataset as these consistently match adjoining sequence	2982
have GA results - however suspect other assays	DB records are not GA - most likely ITS as consistent with adjoining assays in RE dataset	98
Have GA and ITS assay results	GA prioritised in RE dataset	153
	ITS prioritised in RE dataset	872
GA-ITS-SFK	SFK prioritised in RE dataset	14
GA-SFK	GA prioritised in RE dataset	28
	SFK prioritised in RE dataset	197
	SFK-GAM match RE dataset however have SFK OreGrade Assays not prioritised in RE dataset	7
total FPT drill assays in BK		4923

12.1.5.2 2015 and 2016-17 Data

H&A was engaged by KSK at the beginning of the 2015 drilling programme to monitor copper assay quality assurance and quality control (QAQC). H&A reviewed and improved the KSK QAQC practices in two stages, the first being in early June and the second being during the late June site visit. The review included:

- Reviewing analytical method; resulting in increasing the elements reported by ITS,
- Reviewing standard type, grade ranges, insertion positions and rates; resulting in preferentially positioning coarse blanks and duplicates in mineralised intervals,
- Assessing sample dispatch sizes wrt the standard inclusion rates and ITS laboratory batch/work flow sheet; resulting in an increase in batch sizes,
- Reviewing standards, duplicates and blanks performance for assays already received (batches BKM00[3-12, 15-24]; resulting in feedback to laboratory regarding copper assay drift and correction issues and the continuation of -2mm crush and split of primary sample to produce a ~1kg subsample for pulverizing,
- A visit to the ITS Jakarta laboratory to review sample preparation workstations and procedures; resulting in the following recommendations and requests:
    - To de-clutter the sample crushing and pulverizing area,
    - The Boyd Crusher to be used exclusively for reducing the samples to -2mm in size,
    - Barren wash to be processed between each sample processed through the crusher and pulverizer,
    - Move the barren wash storage bins to more accessible places (wrt workstations),
    - Use a better shaped, square sided scoop for sampling of pulverized material,
    - Use pulp package that is capable of holding >>250g (eg 500g) and ensure that the 250g pulp material is not tightly packed into this satchel (allowing analytical charge to be selected from any portion of in the satchel),
    - Both the -2mm and -75micron comminution test results to be reported with assay results.

Section 12.2.3.2 reports on the quality control assessment of samples included in the 2015 assay batches and on the findings from resubmitting selected samples to an umpire or check laboratory. Section 12.2.3.4 reports on the quality control assessment of the samples included in the 2016-17 assay batches.

In addition to reviewing the QAQC protocols and quality control assay data H&A ensured data validity by constructing a parallel dataset from site DPO files and ITS Laboratory results files which was cross-checked with the KSK generated assay dataset before being used to generate the 2017 Resource Estimate. No issues were uncovered.

12.1.6 Core Diameter

The historic drill core diameter data was delivered to H&A with significant and numerous errors. It appeared that the dataset was corrupted at some point and H&A suspects that drag-drop or copy-down processes are responsible. H&A re-generated the drill core diameter data from logging files for some of the early KSK drill holes (pre 2002) and from core photographs for the OX-KSK and ENJ-KSK drilling. Core diameter logging for holes BK-[06-18], BK044 and BKD[01-01,02-01,02-02,03-01,03-02,04-01] could not be verified.

Complete and reliable data was delivered for the KSK 2015 and 2106-17 drillholes.

The dataset used in evaluating the impact of the fundamental error on the BKM 2017 Resource Estimate is accurate, however is also incomplete as H&A does not have original logs and/or photos for mineralised sections for a number of holes. These holes now comprise <10% of the resource dataset. H&A is of the belief that the missing data will not impact on the outcomes of the evaluation or on the confidence in assessing any risk to the BKM 2017 Resource Estimate related to drilling recovery issues.

12.1.7 Core Recovery

Core recovery data for holes BK[29-36, 38, 44-01, 44-02, 45-50, 54, 55, 57, 58], BKD03-[01, 02] and the KSK 2015, 2016-17 drillholes was delivered to H&A and available to evaluate the association between recovery/loss and copper assays. Verification of the logged core recovery data was undertaken by assessing the core photos for all mineralised intervals.

The validation, evaluation and use of the core logging data (Section 12.2.5.1) has enabled the risk associated with low recoveries to be appropriately represented in the classification of the BKM 2017 Resource Estimate.

12.2 Analysis and Investigation

The following analyses and investigations underpin the modeling, grade interpolation strategies and classification of the BKM 2017 Resource Estimate.

12.2.1 Geology, Mineralization and Structure

Historical workers' reports on the BKM geology have largely focused on aspects of the geology and mineralization for the targeting of world-class systems in the prospect area. Descriptions of the Beruang Kanan Main Zone style(s) of mineralization and settings are brief and mainly directed at how they relate to both porphyry and breccia-pipe systems. There are limited references to the geology, mineralization and structural setting of the copper mineralisation that is the subject of the BKM 2017 Resource Estimate. Historical authors recognize the structural setting hosting the mineralization and the following references can be found in historic reports:

- Geiger and Prasetyo (2004) report:
    - In the Main Zone, fourteen drill holes, to 280m measured depth, have intersected a north-northwest trending zone of intensely sheared and silicified, highly pyritic, zoned phyllic to advanced argillic altered wallrock. This zone was found to host copper grades of up to 167m @ 0.59% Cu.
    - The IP surveys clearly define the highly pyritic north northeast trending shear zone that hosts most of the copper mineralization in the Main Zone.
- Munroe and Clayton (2006) report:
    - Drill core from Beruang Kanan which was observed during this review indicated a strongly altered (phyllic and advanced argillic) centre which was strongly deformed in some areas. Quartz + pyrite + chalcopyrite in veins are associated with a strong cleavage in the altered rock, suggesting a strong structural control to the veins.
    - The drilling indicates a significant zone of narrow vein and disseminated mineralization which returns 0.7-0.9% Cu.
- Johansen (2007) reports:
    - Alteration and copper mineralization are strongly structurally controlled. This is particularly obvious in the copper soil geochemistry data. Based on the drilling completed at Beruang Kanan by Oxiana Ltd (10 holes for 3,881.25m) alteration within or close to structures is dominated by sericite (phyllic) with peripheral alteration dominated by chlorite (propylitic). Copper mineralisation is associated with zones of white, irregular, mesothermal quartz veins (1 to 5cm wide). The veining distribution is closely associated with faulting. The majority of the chalcocite, covellite, digenite and enargite at the main zone at Beruang Kanan are more likely to be supergene though there is still some evidence for the remnants of a high sulphidation system.
- Pollard (2006) reports of observations from drill holes BK[01,02,04,05,15]:
    - Most of the drill core is composed of milled breccia with fragments commonly 1-4cm in size and a matrix component of 10-30 vol%. The fragments are commonly rounded and are composed of silica- and silica-sericite altered material ranging from dark black-brown (possibly chloritic), to pale yellow-brown, to dark and pale grey in colour. These may reflect different original rock types and/or different alteration styles. The matrix probably consisted of rock flour material but is now completely altered to silica-sericite. Much of the core exhibits strong shearing *(sic. Fig. 10)* which appears to be post-mineral in timing, i.e. the alteration zone is sheared rather than being alteration of a shear zone.

Petrology work undertaken in 2017 by Mintex Petrological Solutions describe 20 drill core samples selected from across the deposit. A summary of key observations from this work:

- Mainly strongly phyllic (silica-sericite-pyrite) altered volcanic rocks with fine-grained quartz matrix and overprinting sericite. Coarser grained quartz occurs as patchy alteration and veins. Most rock have occasional quartz phenocrysts and some have probable sericitised feldspar phenocrysts.

- Two pyrite size populations, finer grained (ca.0.1mm) and coarser-grained (0.3-1mm). The coarser pyrite appears to be paragenetically later than the fine-grained0.05-0.1mm pyrite. Coarser pyrite occurs as cubic discrete grains and in clusters and is commonly associated with the sericite and later coarser-grained quartz which shows ductile deformation textures, and is largely absent from the fine-grained quartz areas.
- Coarser pyrite is fractured and more commonly hosts later copper sulphides which infill in the fractures and coat pyrite grain boundaries.
- Later copper sulphide replacement is more developed in pyrite that overprints coarser grained deformed quartz rather than sericite: there are Cu sulphides in pyrite in sericite but they are more abundant in pyrite associated with strained quartz.
- Some rocks have only very fine-grained pyrite that is texturally different but still with sericite and quartz alteration but here Cu sulphides are uncommon.
- Copper sulphide phases chalcocite (often intergrown with digenite), bornite and covellite all occur, chalcopyrite is the least common. Paragenesis is likely pyrite-chalcopyrite-bornite-chalcocite-covellite.
- In many samples chalcocite is crystallographically intergrown with digenite and this appears to be neither exsolution nor replacement and may represent a transitional copper sulphide phase that precipitates between 230-260°C.
- Chalcopyrite is probably hypogene and in some samples bornite, chalcocite and covellite are also hypogene (for example samples BKM32600-03-109.30, BKM32500-08-51.60 and BKM32400-10-133.60). Apart from sample BKM32500 08-51.60, covellite is a late replacement phase.

KSK personnel (Mr. S. Hughes) and H&A verified the core logging and reviewed the geological setting of the BKM mineralisation (Section 12.1.3, Appendix 5, Appendix 6 and Appendix 8) and their observations clearly support that the mineralisation is vein related (both fracture and replacement) and the host rock is strongly sheared, milled and faulted. Key observations relevant to the modeling of the mineralization for the 2017 Resource Estimate are:

- There is strong indication that the advanced argillic alteration spans the deformation as the milled matrix is commonly silicified.
- Copper bearing cross-cutting veins and breccia veins-fragments were noted, suggesting that the mineralization veining event spans the deformation (though it could not be determined at what stage the covellite/chalcopyrite replacement of pyrite occurred).
- There is indication that the covellite/chalcopyrite replacement of pyrite is of hypogene origin and occurred during a single, or specific number of, event(s) as it occupies unique locations within veins (commonly along vein extremities) leaving untouched other apparently favorable pyrite rich bands.

- Later pyrite alteration overprints the covellite/chalcopyrite replacement. In hand specimen there is no evidence that this amorphous pyrite has been attacked by the copper bearing fluids.
- Copper grade tenor is loosely correlated to the veining intensity/thickness. Ground preparation (shearing, brecciation, silicification etc.) appears to be an important step in focusing and increasing veining.

H&A has adopted the shear/thrust related mineralisation setting in modeling resource domains to guide copper grade interpolation at BKM. The majority of the mineralisation at BKM is located along the main east-west trending ridge and spur defined loosely between 768400E and 769000E; 9932000N and 9932700N. A second, smaller centre of mineralisation is located along a lower spur to the south and defined loosely between 768700E and 769100E; 9931600N and 9931900N. The geomorphology over the mineralisation is reflective of E-W striking north dipping thrust faulting.

Following detailed evaluation (Section 12.2.2) it can be interpreted that two thrust systems are present and strike at approximately 20 degrees to each other (Figure 6). It cannot be interpreted from the current data and information as to how the system may have manifested which could be by ramping, coupling or reactivation (following a change in the stress regime). Determining the nature of the structural model is not of major concern regarding risk to the resource modeling, as favorable locations for hosting mineralization are coincident with each model and in-order with the observed location of mineralisation at BKM. Internal geometries of mineralised veins will differ between models and directional drilling was undertaken in 2016-17 to test for copper grade differential wrt drill direction (Section 12.2.6).

12.2.2 Resource Domaining

H&A undertook the activities in domaining the mineralization at BKM for resource estimation:

- Reviewed historic reports and drill core (at site and in the supplied ENJ-KSK, OX-KSK and KSK 2015-17 photos with the assistance of KSK geologists)
- Generated a 3D working environment in Minesight^{TM} presenting the drill hole copper assays, the drill hole structure, lithology and oxidation logging, surface soils and rockchip copper assays, the LIDAR topography (TIN surface) and the KSK interpreted surface geology mapping.
- Presented the LIDAR topography utilizing two Minesight^{TM} routines that colour/contour surfaces by associated features (in this case azimuth and dip).
- Identified and interpreted topographic surfaces (faces of the TIN) at 020 degree azimuth ranges between 040 and 180 degrees (i.e. 020-040, 040-060 etc., Figure 5) and interpreted key or main thrust surfaces
- Interpreting and visualizing the multi-element assay data (Appendix 14) to identify volumes of favorable mineralisation signatures.

- Generated surfaces projecting the interpreted major thrusts (from topographic surface) through the volume defined by the drilling assisted by features observed in the multi-element geochemistry volumes.
- Statistically reviewing the copper drill hole assay data to establish likely natural cutoff grades for modeling the mineralization
- Linking/domaining the >2000ppm Cu intercepts (Figure 7) utilising the topographic interpreted thrusts and their projected depth surfaces as guides to identify related intercepts.
- Visually and statistically validating the modeled domains to ensure that TIN surfaces snapped to drillhole traces and are consistent with adjoining modeled intervals (Table 17).

East-west cross-sections of the domains can be seen at Appendix 9.

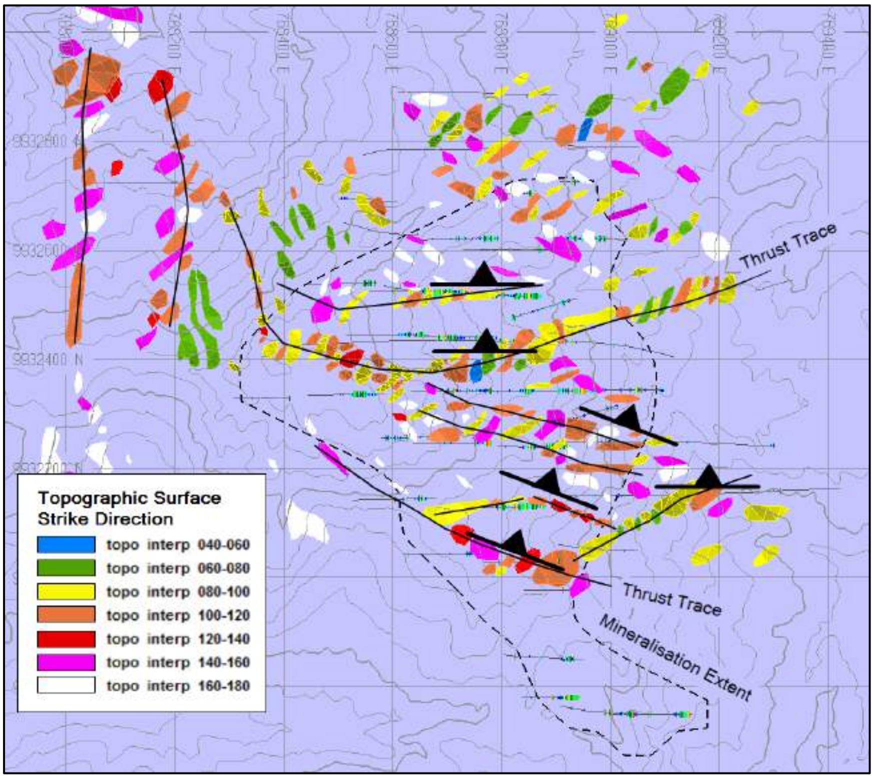


Figure 5: Geomorphology Interpretation and interpreted thrust-control on mineralization (idealized); detailed interpretation presented at Appendix 14.

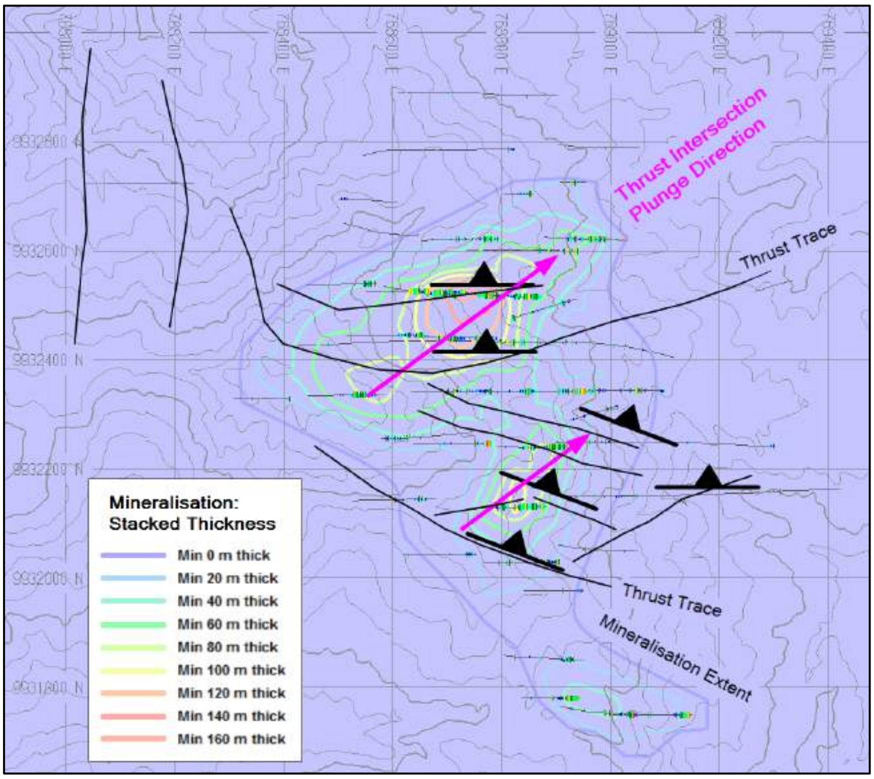


Figure 6: Mineralised domains (stacked total thickness) and thrust-control interpretation (idealized); detailed interpretation presented at Appendix 14.

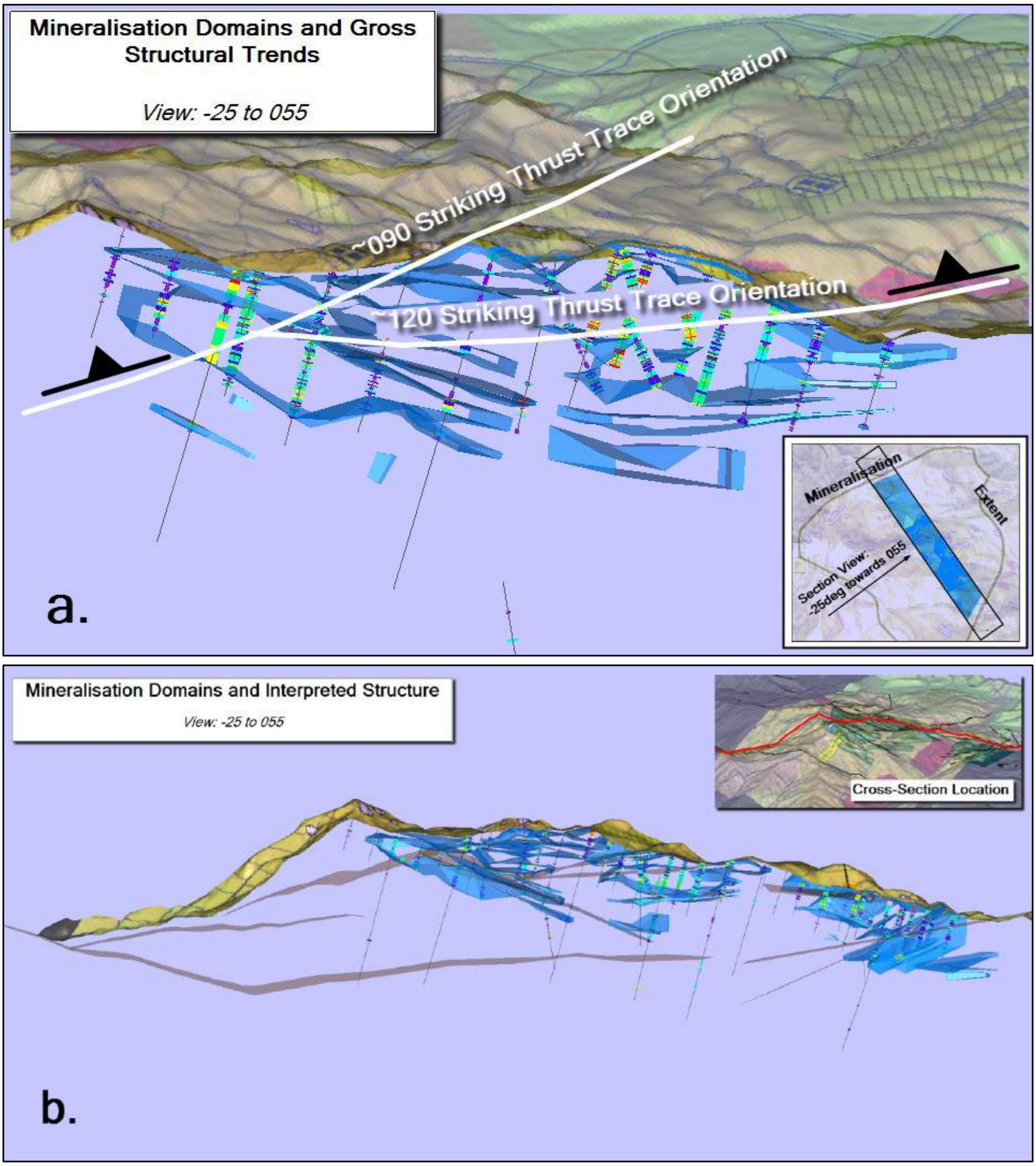


Figure 7: Mineralisation Domains - View down plunge extention of domains. a. showing two main thrust directions and b. interpreted thrust and fault planes interpreted from geomorphology and multi-element domains associated with copper mineralisation.

Table 17: Average copper grade across domain contacts show significant and sharp grade tenor change.

	Domained Mineralisation Av. Cu Grade (ppm)					Contact	Not Mineralised Av. Cu Grade (ppm)				
Composites Location wrt Domaim Contact	**-5**	**-4**	**-3**	**-2**	**-1**		**1**	**2**	**3**	**4**	**5**
Mineralisation Upper Contact	6633	6402	6944	7106	6992		866	732	737	627	678
Mineralisation Lower Contact	7786	6973	6826	6693	6054		835	886	848	730	575

12.2.3 Copper Assays – Quality Assessment

12.2.3.1 Pre-2015 Copper Assays

Quality Control Assay samples were submitted with routine samples for the OX-KSK and ENJ-KSK drilling programmes. There were no quality control samples inserted into the early KSK drill samples to check the reliability of copper results.

ENJ-KSK compiled a detailed assay quality control report (see Appendix 3). H&A has confirmed that the assay results for the QC samples are as reported from the laboratories and agrees with the ENJ-KSK findings, these being:

- There is no detectable cross contamination issues to be considered
- The CRM assays show that the laboratories (GeoAssay, Intertek Services and Sucofindo) return reliable copper assays for all batches
- Check assays to reference laboratories show good correlation with the primary laboratory copper assays.

H&A also notes that ENJ-KSK:

- Submitted both barren quartz and unconsolidated sand as their blank material at the rate of one per batch. The use of sand is not ideal as exposure to crusher contamination cannot be detected. The inclusion rate of blanks is low.
- Sourced four standards from those used by PT Freeport Indonesia and produced one matrix matched standard from the BKM prospect. Globally the matrix matched standard BKSH-01 performs poorly wrt the other standards, H&A suspects that this is more likely due to features of the standard rather than issues with the laboratories and therefor has no reason to question the reliability of the routine assay at this stage of the project.
- Copper assays of the standards from ITS and SFK increase from ~+/-1% difference from their certified values pre May 2013 to +3-5% difference from these values post May 2013. The GA results are acceptable for all periods bar August 2012 where they are 4% greater than the certified values. ENJ-KSK offer no reason for the deviation in assay accuracy.
- The inter-laboratory check sample results analysis presented by ENJ-KSK show that assays generally differ by less than 4% (mean paired difference). The ENJ-KSK report does not show direct comparisons between the primary laboratory (GeoAssay) and the check

laboratory sample results. H&A presents this comparison in Figure 8 and Figure 9. This analysis confirms the ENJ-KSK findings, being that the umpire laboratories' copper assays compare well with the primary laboratory assays.

In addition, H&A reviewed all laboratory inserted standards, duplicate assays and repeat assays inserted by GeoAssay, Intertek Services and Sucofindo. No material issues were uncovered that would impact on assay confidence for generating and classifying the BKM 2017 Resource Estimate.

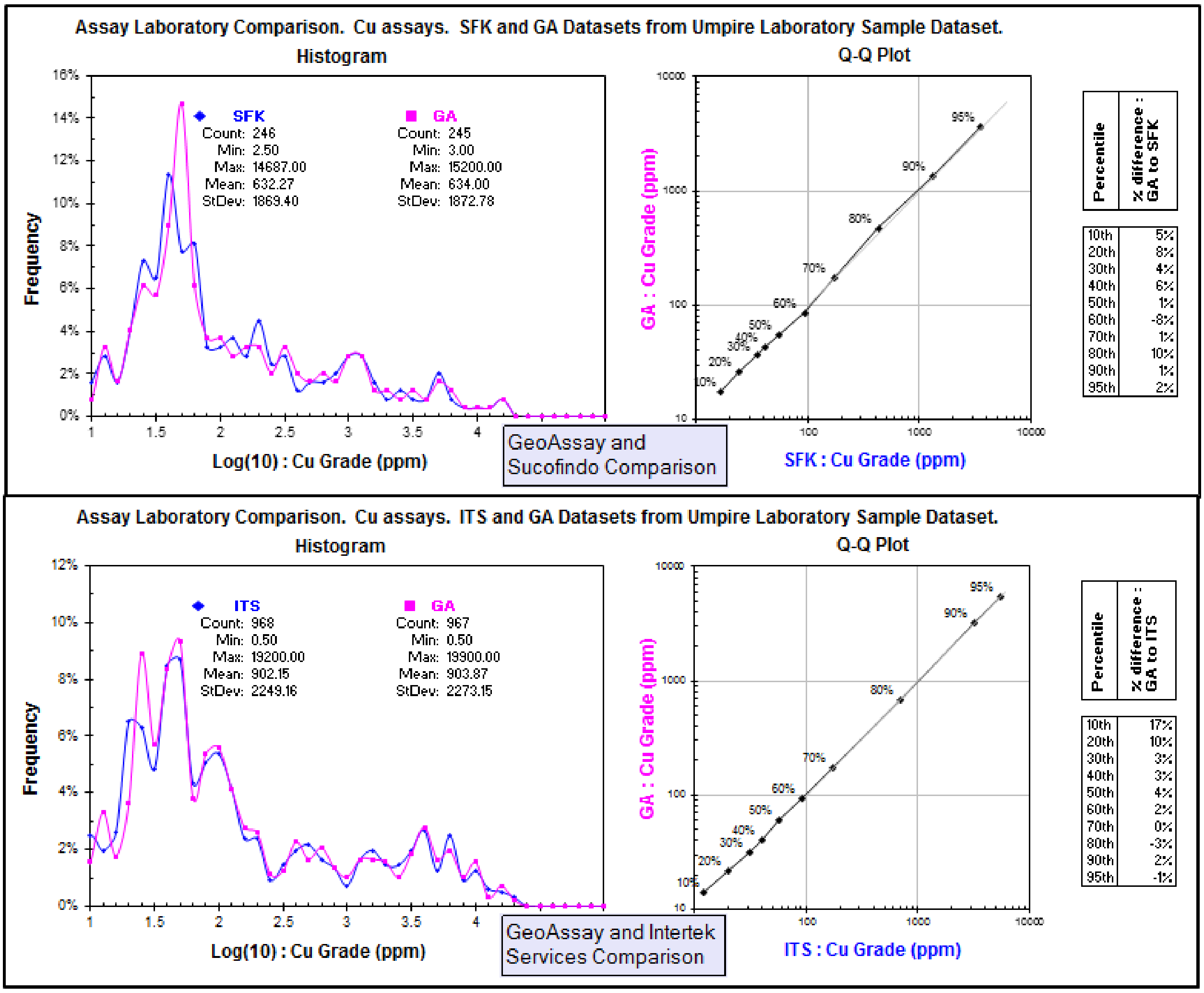


Figure 8: ENJ-KSK dataset. Umpire Laboratory copper assays (ITS and SFK) comparison with Primary GeoAssay copper assays. Histogram and Q-Q Plot presentation.

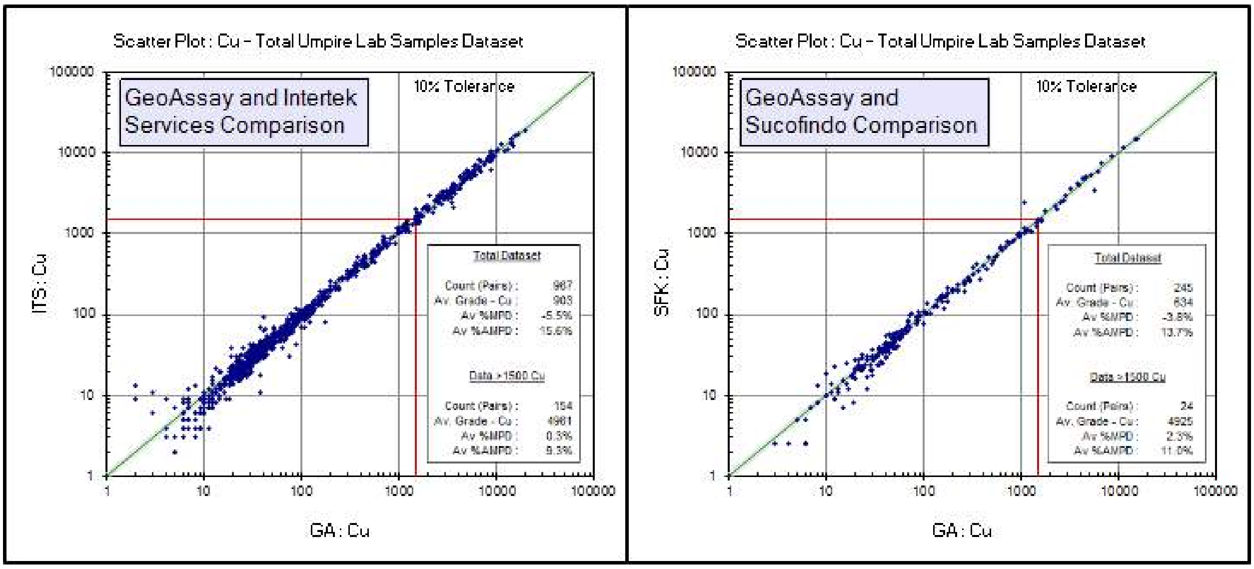


Figure 9: ENJ-KSK dataset. Umpire Laboratory copper assays (ITS and SFK) comparison with Primary GeoAssay copper assays. Scatter Plots and MPD presentation.

Blanks and standards were submitted into the routine sample stream for assaying by OX-KSK. There is no reference in the dataset supplied to H&A as to which assay results belong to the quality control samples, therefor H&A is not able to cross-check the graphs presented by OX-KSK on the assay quality control assay results (Appendix 4).

H&A notes from the OX-KSK graphs:

- The QC programme undertaken is limited and not ideal for assessing the reliability of assaying of samples to be utilized in generating resource estimates.
- There is no concern regarding the degree of cross-sample contamination, however early batches (K30001 to K30010)show that the laboratory performance is questionable with the level of contamination in coarse blanks being up to double that of later batches.
- CRM standards show that laboratory performance for early batches (K30001 to K30009) is of concern, as:
    - All copper results for standard OREAS52pb (3338ppm Cu) are within the "warning" classification (>2StdDev from expected value as specified by the CRM documentation).
    - Copper results for the inserted standard OREAS50pb (7440ppm Cu) are more in alignment with their expected value, however the precision in batches K30001 to K30009 is poor compared with batches K30010 and above.

The reliability of copper results for batches K30001 to K30009 is yet to be confirmed. This casts doubt on the suitability of assays in mineralised intervals for hole KBK-0021 in underpinning resource estimates. Hole KBK-0021 is located in the eastern extent of the modeled mineralization. There is significant drilling in mineralisation to the west of hole KBK-0021 and three holes are located to the east of KBK-0021. The weighting of samples from the surrounding holes will effectively restrict the influence of hole KBK-0021 to informing resources within the immediate vicinity of its drill trace. The impact of any confidence in the assays for hole KBK-0021 is expected to be minimal and most likely immaterial when considering the classification criteria for the BKM 2017 Resource Estimate at global scale. There are no Measured Resources proximal to KBK-0021.

H&A is of the opinion that the copper assays for the ENJ-KSK drill programme are suitable for underpinning resource estimates being considered for Classification under the guidelines set out in the Canadian NI 43-101. H&A has compared the copper assay populations from ENJ-KSK with the combined KSK and OX-KSK programmes and with the assays from pre-2015 with the 2015 KSK drilling and considers that, for the purpose of generating the BKM 2017 Resource Estimate, all populations are statistically the same (Figure 10 and Figure 19). H&A is of the opinion that, although the reliability of the pre ENJ-KSK drill assay data cannot be assessed directly, the similarity of the statistical-distributions adds confidence in this data and H&A proposes that the probability this data containing material issues affecting accuracy or confidence in the BKM 2017 Resource Estimate is low.

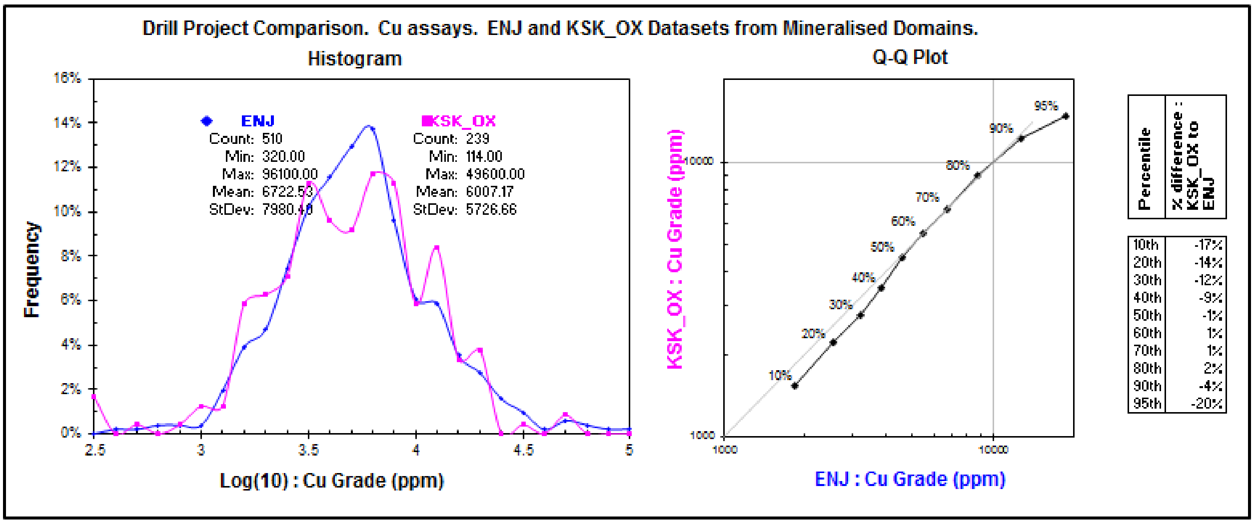


Figure 10: Copper grade comparison - recent ENJ-KSK assays vs combined historic KSK and OX-KSK assays.

12.2.3.2 2015 Copper Assays

KSK submitted half core routine samples to PT Intertek Utama Services (ITS) Jakarta laboratory for sample preparation and analysis (the laboratory KAN accreditation certificates are included at Appendix 15). The sample preparation flowsheet is presented at Figure 11. All samples were assayed for copper by ITS method IC30 with four samples returning assays of >12%Cu being reassayed by ITS method GA30. Details of the analytical methods are as follows:

- Sample assay charge: IC30 = 0.50g; GA30 = 0.25g

- Digest method: digested to incipient dryness with Nitric, Hydrochloric and Perchloric acids. The salts are redissolved in Hydrochloric Acid and made to final volume in a volumetric flask using distilled water.
- Analytical method: ICP-OES
- Lower limit of detection, Cu: IC30 = 2ppm; GA30 = 0.01%
- Upper limit of detection, Cu: IC30 = 10%; GA30 = unlimited. Reanalysis by GA30 is primarily due to the upper limit for IC30 however may also be conducted to confirm higher IC30 grade results for QC purposes.

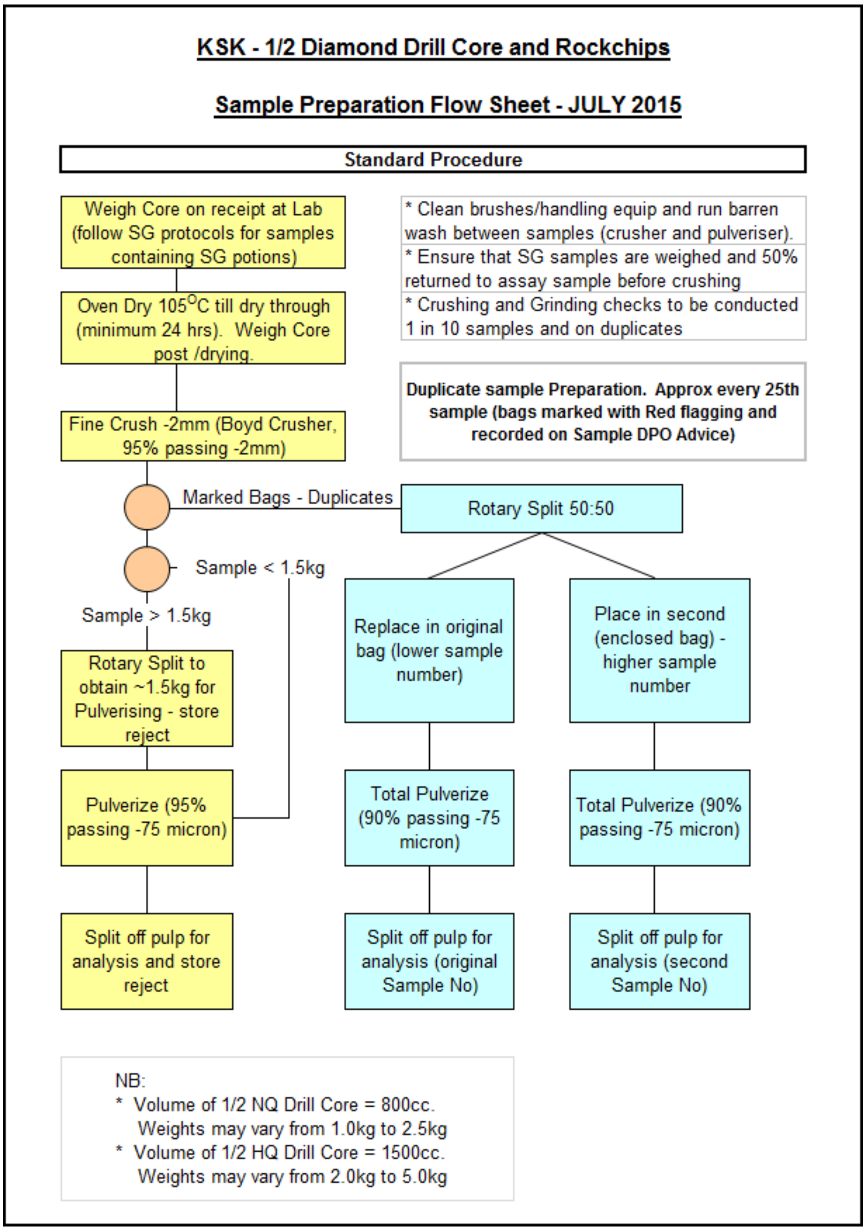


Figure 11: KSK 2015-17 drillcore sample preparation flowsheet.

KSK employed coarse and pulp blanks, standards and coarse crush and split duplicates with the routine samples to assess copper assay reliability. ITS included blanks, standards, second charges (same batch) and repeat assays (subsequent assay batch) in the analytical stream. Insertion rates and sizing test results are shown at Table 18. Coarse blanks and coarse crush and split duplicates were preferentially inserted where mineralisation was observed. KSK pulp blanks were inserted following standards. KSK utilized the commercially available Ore Research & Exploration Pty Ltd standards OREAS 50C (7420ppm Cu, performance gate of 1STDEV = 160ppm Cu) and OREAS 151A (1660ppm Cu, performance gate of 1STDEV = 50ppm Cu). Details of the standards employed by ITS are presented at Table 19.

Table 18: Quality control sample insertion rates and sieve sizing analysis.

Batch	Routine Sample Count	Inclusion Sample Percentage of Batch								Sizing Distribution (number of tests in each material passing category)			
		KSK Quality Control Samples				ITS Lab Quality Control Samples				-2mm	-75micron		
		Standards	Coarse Blanks	Pulp Blanks	Coarse Crush Duplicates	Standards	Blanks	Second Charge	Repeat Assay	> 95% < 100%	> 85% < 90%	> 90% < 95%	> 95% < 100%
BKM0003	74	6%	2%	2%	3%	10%	3%	6%	3%				5
BKM0004	54	6%	2%	2%	5%	8%	3%	6%	5%				4
BKM0005	66	5%	3%	1%	5%	8%	3%	6%	5%				3
BKM0006	60	6%	3%	1%	4%	11%	3%	4%	6%				5
BKM0007	84	7%	2%	3%	3%	9%	3%	6%	5%				5
BKM0008	71	7%	2%	2%	4%	10%	2%	6%	4%				4
BKM0009	45	6%	2%	2%	4%	12%	4%	6%	6%				3
BKM0010	47	7%	2%	4%	4%	11%	4%	5%	5%				3
BKM0011	72	6%	2%	1%	5%	8%	2%	5%	5%				5
BKM0012	14	12%	6%	0%	0%	12%	6%	6%	6%				1
BKM0015	56	8%	2%	3%	3%	12%	3%	6%	6%				4
BKM0016	57	6%	3%	3%	4%	12%	3%	6%	6%				4
BKM0017	61	6%	1%	1%	4%	9%	3%	4%	7%				4
BKM0018	59	6%	1%	1%	4%	9%	3%	4%	6%				4
BKM0019	55	5%	3%	2%	3%	6%	3%	6%	5%				3
BKM0020	59	7%	1%	1%	3%	7%	3%	6%	4%				5
BKM0021	26	3%	3%	3%	6%	6%	3%	6%	6%				2
BKM0022	52	5%	2%	2%	5%	7%	3%	7%	3%				3
BKM0023	22	4%	0%	0%	4%	8%	4%	4%	8%				2
BKM0024	37	7%	5%	2%	2%	14%	5%	5%	5%				3
BKM0025	39	7%	2%	2%	4%	13%	4%	7%	4%				3
BKM0026	36	5%	0%	2%	5%	10%	2%	2%	7%				3
BKM0028	41	8%	0%	4%	2%	10%	4%	2%	6%				3
BKM0029	45	4%	4%	2%	4%	10%	4%	6%	6%				3
BKM0030	63	4%	3%	3%	4%	8%	3%	5%	4%				4
BKM0031	60	9%	1%	1%	3%	10%	3%	6%	3%				4
BKM0032	118	6%	2%	1%	4%	7%	3%	5%	4%	13			13
BKM0033	60	6%	3%	3%	4%	6%	3%	6%	6%	8			4
BKM0034	106	5%	2%	2%	4%	5%	2%	7%	4%	10			7
BKM0035	78	4%	3%	1%	4%	6%	3%	7%	4%	10			5
BKM0036	68	5%	4%	3%	4%	9%	3%	6%	5%	9			4
BKM0037	70	6%	4%	1%	4%	6%	2%	6%	5%	9			9
BKM0038	101	6%	3%	3%	4%	8%	3%	5%	6%	10			7
BKM0039	112	6%	2%	2%	4%	6%	3%	5%	8%	4			6
BKM0040	143	5%	2%	2%	4%	7%	3%	7%	5%	17	1		10
BKM0041	100	5%	4%	4%	4%	7%	2%	7%	5%	10			6
BKM0042	190	4%	3%	3%	4%	7%	3%	6%	5%	23			8
BKM0043	162	4%	2%	2%	4%	8%	3%	7%	3%	19			13
BKM0044	99	4%	3%	3%	5%	8%	3%	6%	5%	12			12
BKM0045	116	6%	2%	2%	4%	8%	3%	7%	7%	14			7
BKM0046	101	6%	2%	4%	4%	6%	3%	5%	6%	13			7
BKM0047	68	5%	3%	3%	4%	8%	3%	6%	3%	8			4
BKM0048	59	9%	3%	0%	3%	4%	3%	6%	9%	7			5
BKM0049	84	5%	3%	0%	4%	7%	3%	6%	5%	10			6
BKM0050	156	6%	2%	2%	3%	6%	3%	6%	6%	18			11
BKM0051	88	7%	4%	2%	3%	9%	3%	5%	6%	11			7
BKM0052	57	5%	2%	0%	3%	11%	3%	6%	8%	7			7
BKM0053	71	6%	1%	2%	5%	7%	2%	5%	10%	9			5
BKM0054	73	7%	2%	2%	3%	8%	3%	6%	5%	9			5
BKM0055	98	4%	3%	2%	4%	6%	3%	6%	5%	12			6
BKM0056	85	6%	2%	2%	4%	7%	3%	6%	5%	10			9
BKM0057	100	6%	2%	3%	3%	8%	3%	6%	5%	12			6

Table 19: Laboratory standards performance criteria

Cu Standards used by ITS Laboratory (Cu Grade %)			
Lab Standard	Expected Value	Performance Gate	Performance Gate Criteria
OREAS 50C	7420	160	1STD
OREAS 151A	1660	50	1STD
OREAS 501B	2600	110	1STD
OREAS 502B	7730	200	1STD
OREAS 503B	5310	230	1STD
OREAS 504B	11100	420	1STD
BM 161	687	43	1STD
BM 49 / 197	3881	195	1STD
BM-16/214	15022	552	1STD
GBM399-5	29424	1446	1STD
LKSD-4	31	1.2	4%RSD
NI_LTRT13	10	0.4	4%RSD
STSD-1	36	1	4%RSD

No contamination or carry-over issues were detected in the coarse blanks or pulp blanks (both KSK and ITS). No material issues were detected in the KSK or ITS standards (KSK inserted standards shewhart control chart is presented at Figure 12).

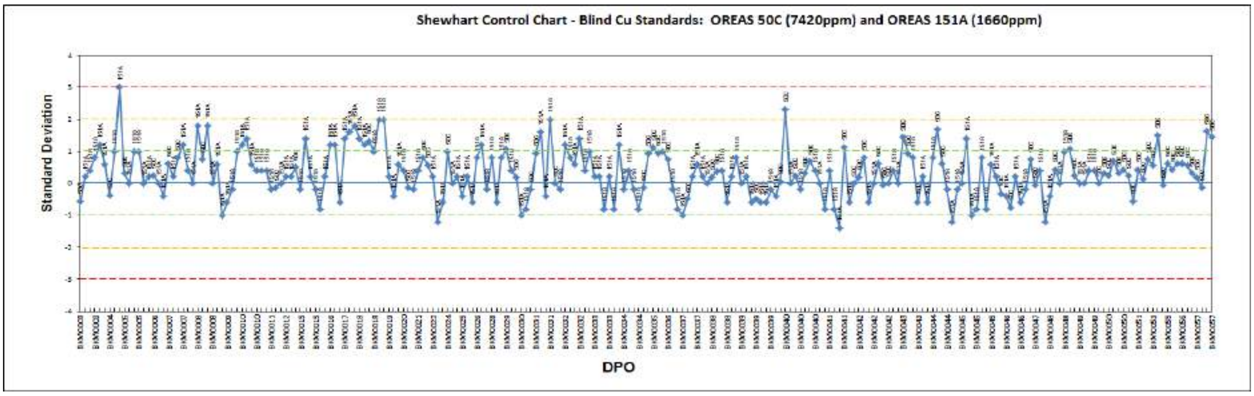
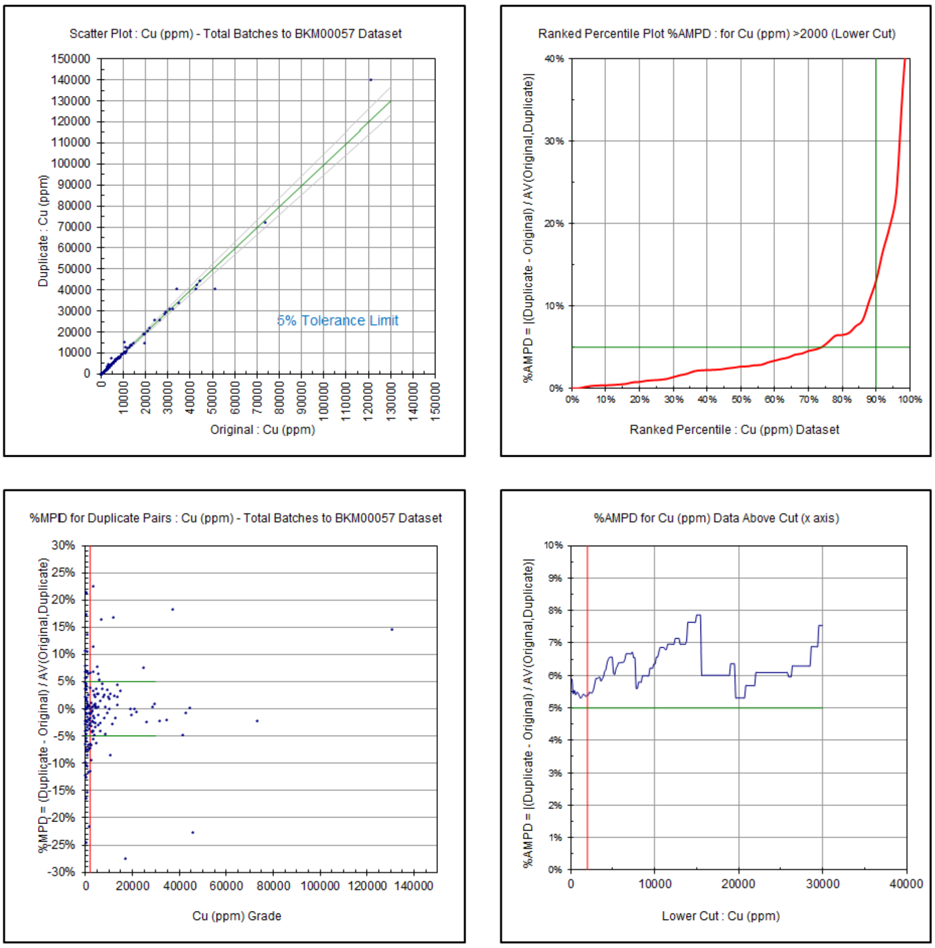


Figure 12: KSK standards for 2015 assays. Shewhart control chart.

The KSK Coarse crush and split duplicate copper assays (Figure 13) show acceptable repeatability for early batches (to BKM0038, 1956 samples), with only 7 of the 39 pairs with grades greater than 0.2% Cu showing %MPDs of greater than 5% (maximum 11% AMPD). Later batches (from BKM0039, 1962 samples) show a marked breakdown in the duplication of copper assays. For these batches, 17 of the 60 pairs with grades greater than 0.2% Cu show %MPDs of greater than 5% (maximum 47% AMPD).

Cu (ppm) - BKM Duplicate Analysis - Split Following Coarse Crush - 2015 : Batches to BKM00057



Summary Statistics

Total Dataset - Batches to BKM00057

Count (Pairs) :	172
Av. Grade - Cu (ppm) :	6924.69
Av %MPD :	0.2%
Av %AMPD :	5.8%

Data >2000 Cu (ppm) - Batches to BKM00057

Count (Pairs) :	96
Av. Grade - Cu (ppm) :	11833.3
Av %MPD :	1.3%
Av %AMPD :	5.4%

Top 30 Pairs (%AMPD) : >2000 Cu (ppm)

Original	Duplicate	%AMPD	Batch
4770	7670	47%	BKM0053
10200	15500	41%	BKM0041
3420	4950	37%	BKM0039
19500	14800	27%	BKM0042
50900	40500	23%	BKM0044
2840	3560	23%	BKM0045
33700	40500	18%	BKM0044
10900	12900	17%	BKM0052
6240	7360	16%	BKM0053
121000	140000	15%	BKM0040
2940	3300	12%	BKM0043
2210	1970	11%	BKM0018
2680	2440	9%	BKM0005
11100	10200	8%	BKM0003
4810	5200	8%	BKM0046
23900	25800	8%	BKM0053
2020	1880	7%	BKM0011
3290	3520	7%	BKM0025
2340	2190	7%	BKM0007
2070	1940	6%	BKM0050
5270	5620	6%	BKM0042
2260	2120	6%	BKM0055
4590	4310	6%	BKM0043
3530	3340	6%	BKM0031
5720	6040	5%	BKM0035
3800	3620	5%	BKM0038
42500	40500	5%	BKM0040
6940	7270	5%	BKM0045
8440	8060	5%	BKM0041
13100	13700	4%	BKM0040

Figure 13: Coarse Crush and Split Duplicate Analysis.

H&A has undertaken the following evaluation of the later batches to establish reasons for the poor repeatability in coarse crush duplicate samples:

- Discussed issue with ITS who then:
    - Confirmed that no prep equipment, procedures or personnel changes have taken place at any time over the duration of the KSK work.
    - Re-assayed coarse crush duplicate pulps and "duplicated" results of original assays, confirming discrepancies in Cu grades between original and duplicate portions of samples.
    - Retrieved coarse rejects from adjacent intervals (to duplicated samples), generated coarse crush duplicates and established that grades of these duplicates portions are comparable.
    - Screened pulps of the poor duplicates and established that Cu grades of the fine and coarse fractions are comparable (with coarse fraction being marginally lower grade, reason unknown, but likely due to loading-bias of silicates in coarse material fraction).

    - Observed fine shiny filaments within the plus portion of the screened samples and shiny flecks within the minus portion of the screened samples (confirmed analytically and visually under magnification as parts of the brush used in screening samples and cleaning the sieves).
- H&A further reviewed the QC data, multi-element assay data and core photos and established that:
    - There is nothing unique in the duplicate samples' multi-element geochemistry from that of adjacent samples.
    - Ag, As Fe, S and Sr show a similar relationship between the duplicate pairs as that observed for Cu.
    - The laboratory second sample from pulps and laboratory repeat of pulps, where assayed, compare with the original assays of either duplicate (depending on which of the duplicate pair samples were selected for repeating by the laboratory).
    - There is nothing noticeably different in the lithology, alteration or mineralisation about the duplicate samples from other mineralised intervals in the deposit (observable from the core photos)
    - The duplicate samples issue is not related to the weathering or oxidation profiles.
    - The holes whose assays are questioned with regard to the poor repeatability of the coarse crush and split duplicates are located primarily within the central section of the mineralised area (Figure 14).

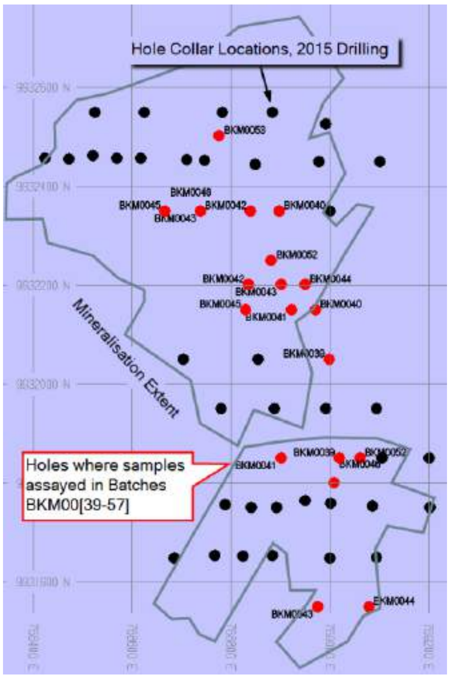


Figure 14: Location of holes affected by batches recording poor copper assay repeatability in coarse crush and split duplicates.

The investigation into the cause of the poor repeatability of copper assays in the coarse crush and split duplicates has failed to identify the cause of the poor assay duplication. H&A suspects that it is a laboratory sample preparation issue, quite likely due to hygiene issues as the issue is not present in contiguous check samples or in the 2016-17 QC dataset.

The 2015 copper assay data compares well with the pre and post 2015 datasets, indicating that any issue relating to the poor copper grade repeatability in coarse crush and split duplicate assays will not materially impact on the confidence of the 2017 Resource Estimate.

12.2.3.3 2015 Umpire Laboratory Check Assays

45 mostly mineralised samples were selected from batches BKM00[3-24,26] whose QC analysis showed any issues that warranted checking at an umpire laboratory (N.B. QC for these batches showed no material issues wrt undertaking and classifying the 2017 Copper Resource Estimate). Four standards and three pulp blanks were included in the inter-laboratory check batch and dispatched to PT GeoAssay Laboratory, Jakarta (GA) where copper <1.0% was assayed by method GAI03 (0.5g charge, 3 acid digest, ICP-OES determination) and copper >1.0% assayed by method GOA03 (1.0g charge, 3 acid digest, AAS determination).

The following copper check assays were generated from the 45 samples:

- 54 coarse crush reject assays to compare ITS copper results with GA copper results and further assess the comminution at -2mm crush size. These duplicates were selected from those batches where the ITS coarse crush and split duplicates reported between 3% and 8% mean paired differences. 50 of the 54 comparisons were selected from mineralised samples (>0.2%Cu). There are three comparisons to be made from the 54 pairs, these are:
  - 34 direct comparisons through submitting total reject material to GA (GA pulverized and analyzed samples)
  - 12 50:50 riffle splits of coarse reject material (undertaken at ITS) and submitted "blind" to GA (GA pulverized and analyzed samples). Generating an internal GA coarse crush and split dataset for comparison with the ITS:GA dataset.
  - Pulps from 8 of the 48 above mentioned samples were also submitted, generating a further 8 comparisons of comminution at -2mm crush size.
- 39 inter-laboratory pulp repeat assays to compare ITS copper results with GA copper results to assess the robustness of the ITS analytical protocols and practices. These pulps were selected from batches where base-shifts, trends and abrupt corrections were noted in the standards QC analysis. 33 of the 39 pulps were selected from mineralised samples (>0.2%Cu). (NB. There was no consideration in preserving the original sample material integrity in storing rejects and pulps at ITS. Oxidation of sample may affect the repeatability of assay results.)

There are no discernible issues wrt the GA copper assays detected from the standards and blanks inserted into the inter-laboratory check batch or from the 7 lab pulp repeat assays undertaken by GA. Internally it is considered that the GA copper assays are reliable.

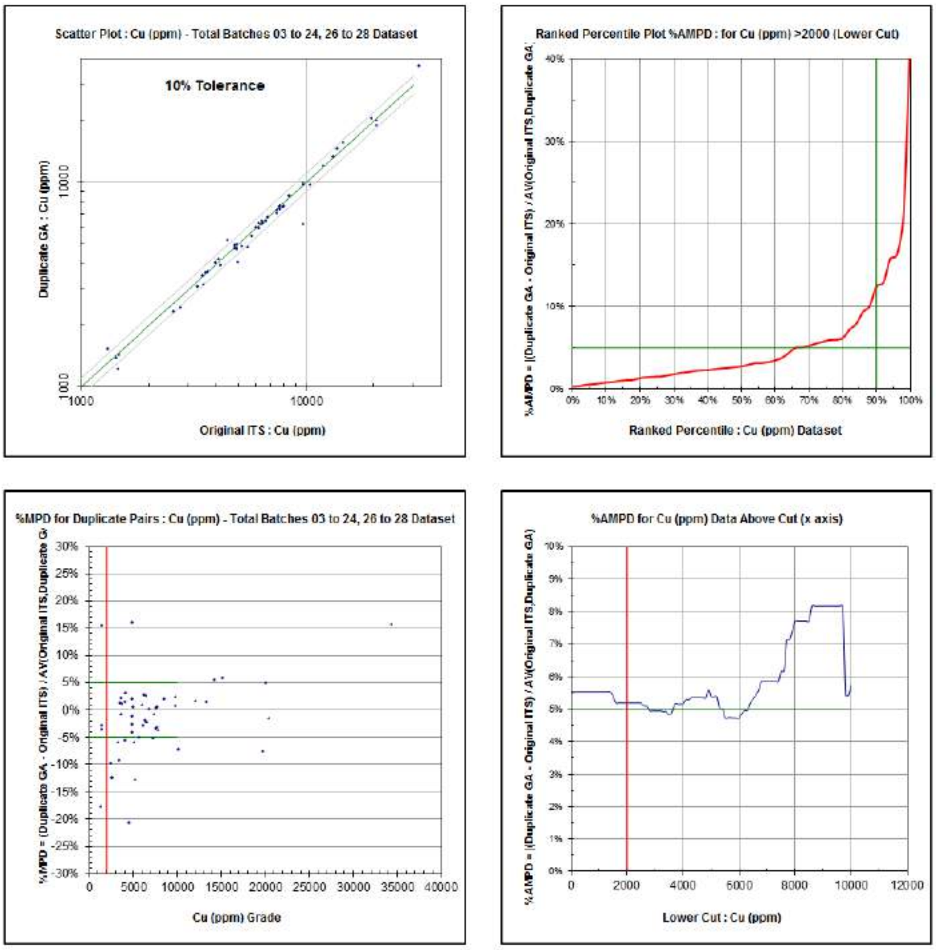
Figure 15 and Figure 16 present the comparison between the ITS copper assays (“Original”) and GA assays (“Duplicate”). Of note:

- 12 of the 54 coarse reject check assays show variance of >5%MPD with 5 of these showing >10%MPD. There is a weak negative relative bias in the GA assays for copper assays <10,000ppm.
- 16 of the 39 pulp check assays show variance of >5%MPD with 3 of these showing >10%MPD. There is a negative relative bias in the GA assays for samples assaying <10,000ppmCu.

Although the inter laboratory assay checks do not show excellent repeatability with the ITS assays, they support the robustness of the original ITS assays and further increase the belief that the ITS assays are robust and reliable for use in estimating copper mineralisation at BK. Of note, when assessing the correlation:

- GA report’s copper assays <10,000ppm by method GAI03 and >10,000ppm by GOA03. ITS utilizes a threshold of 100,000ppm for reassaying of samples by their ore grade method. The relative bias between assays from the two laboratories is only observed in the samples assaying <10,000ppmCu suggesting that GA is returning low values for these samples. The four standards submitted with the batch to GA do not show low assays, suggesting that even though GA is capable of returning reliable assays, they may not have been able to do so for the BKM samples at this time (NB. There is no detectable bias or issue in GA assays from the pre-2015 drilling as shown in Figure 8.)
- It is likely that the coarse crush duplicate issue discussed in Section 12.2.3.2 is observable in the -2mm coarse reject comparison.
- Sampling by GA of the -2mm coarse reject material will produce a similar sample to the original split taken for preparation by ITS, however theoretically the two samples are different and this difference may account for some of the features observed in Figure 15.

Cu (ppm) - BKM Inter-laboratory Check Assays - Minus 2mm Coarse Reject Material - 2015 : Batches 03 to 24, 26 to 28



Summary Statistics

Total Dataset - Batches 03 to 24, 26 to 28

Count (Pairs) : 54
Av. Grade - Cu (ppm) : 7334.45
Av %MPD : -2.0%
Av %AMPD : 5.5%

Data >2000 Cu (ppm) - Batches 03 to 24, 26 to 28

Count (Pairs) : 50
Av. Grade - Cu (ppm) : 7808.62
Av %MPD : -2.0%
Av %AMPD : 5.2%

Top 30 Pairs (%AMPD) : >2000 Cu (ppm)

Original ITS	Duplicate GA	%AMPD	Batch
9740	6287	43%	BKM0011
4980	4047	21%	BKM0024
4470	5250	16%	BKM0011
31600	37000	16%	BKM0024
5490	4835	13%	BKM0024
3490	3181	9%	BKM0019
20500	19000	8%	BKM00QC01
10400	9685	7%	BKM0003
3290	3099	6%	BKM0025
5200	4899	6%	BKM0008
14700	15600	6%	BKM0008
13800	14600	6%	BKM0003
4170	3949	5%	BKM0019
7424	7052	5%	BKM00QC01
5740	5459	5%	BKM0003
19500	20500	5%	BKM0024
4899	4705	4%	BKM00QC01
7950	7668	4%	BKM0003
7680	7424	3%	BKM0019
3949	4075	3%	BKM00QC01
4080	4210	3%	BKM0011
7860	7620	3%	BKM0003
6140	5973	3%	BKM0003
6170	6339	3%	BKM0025
6339	6503	3%	BKM00QC01
4899	4777	3%	BKM00QC01
9685	9925	2%	BKM00QC01
3560	3642	2%	BKM0008
6600	6452	2%	BKM0003
6452	6309	2%	BKM00QC01

Figure 15: Inter laboratory check copper assay analysis; minus 2mm coarse reject material.

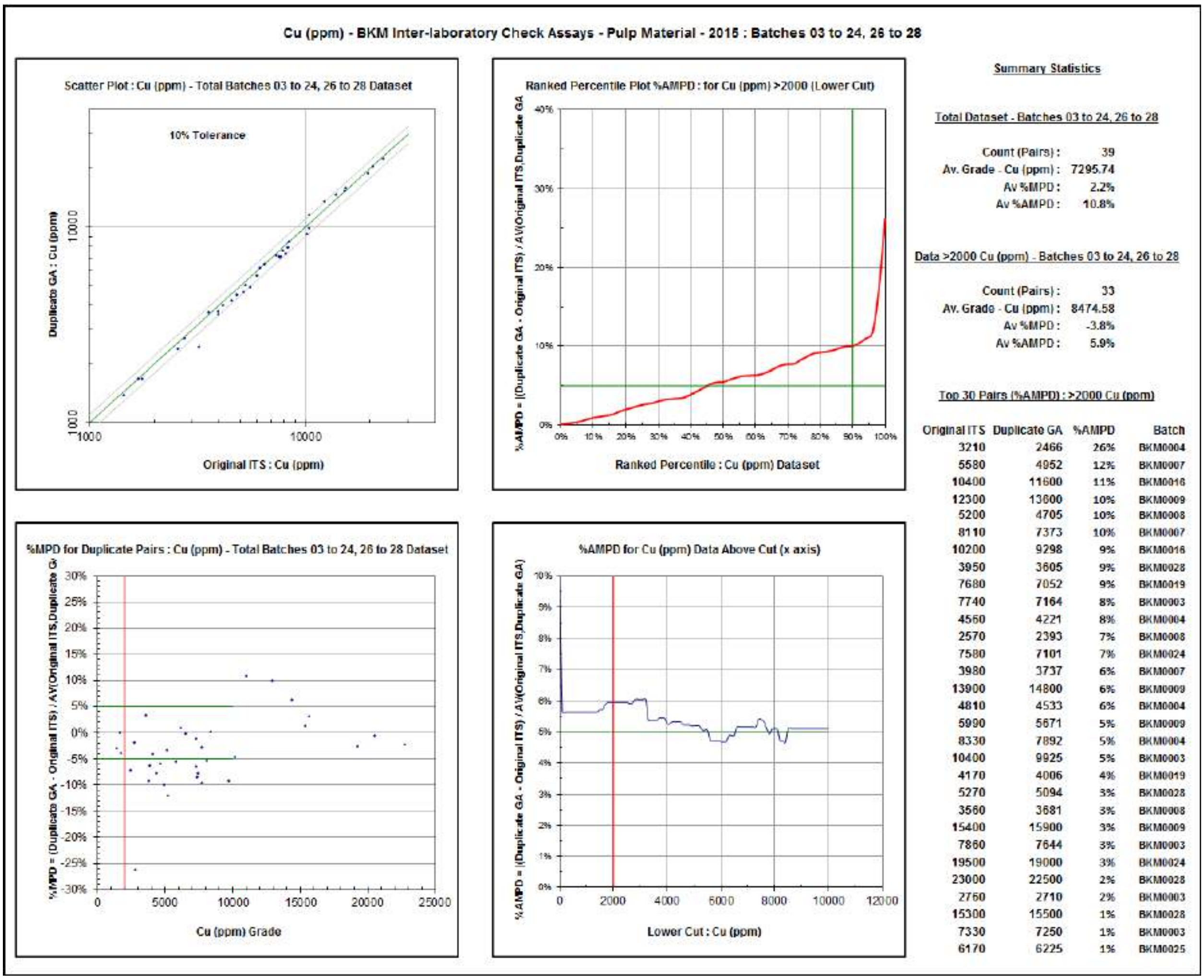


Figure 16: Inter laboratory check copper assay analysis; pulp material.

12.2.3.4 2016-17 Copper Assays

Sample preparation and assaying for the 2016 and 2017 drill samples followed the same protocols as those for the 2015 samples (refer Section 12.2.3.2 for details). KSK and ITS Quality Control protocols were also unchanged from the 2015 programme. KSK added matrix matched standards to the commercially available Ore Research & Exploration Pty Ltd standards OREAS 50C and OREAS 151A, these being BKM-LOW (2950ppm Cu, performance gate of 1STDEV = 90ppm Cu), BKM-MED (6620ppm Cu, performance gate of 1STDEV = 200ppm Cu) and BKM-HIGH (10780ppm Cu, performance gate of 1STDEV = 350ppm Cu). Insertion rates and sizing test results are shown at Table 20.

No contamination or carry-over issues were detected in the coarse blanks or pulp blanks (both KSK and ITS). One sample mixup at the laboratory was detected from the positioning of the coarse blank sample. This mixup in dispatch BKM0156 casts doubt on the reliability of 19 assays of low grade. As no resources were estimated from these samples no action was taken to correct the issue. ITS was advised and investigated the issue but could not determine the reason for the mixup.

No material issues were detected in the KSK or ITS standards (KSK inserted standards shewhart control chart is presented at Figure 17. ITS was advised of their lax performance in the initial stages of the programme (pre dispatch BKM0077) and subsequently improved in analyzing both accuracy and precision of the standards.

The KSK Coarse crush and split duplicate copper assays (Figure 18) show acceptable repeatability for all batches as do the ITS second charge and repeat assay duplicates.

Table 20: Quality control sample insertion rates and sieve sizing analysis.

Batch	Routine Sample Count	Inclusion Sample Percentage of Batch								Sizing Distribution (number of tests in each material passing category)		
		KSK Quality Control Samples				ITS Lab Quality Control				-2mm	-75micron	
		Standards	Coarse Blanks	Pulp Blanks	Coarse Crush Duplicates	Standards	Blanks	Second Charge	Repeat Assay	>= 95% < 100%	>= 90% < 95%	>= 95% < 100%
BKM0064	124	6%	2%	2%	**3%**	6%	3%	5%	6%	15		15
BKM0065	165	6%	2%	2%	5%	6%	3%	6%	5%	18		20
BKM0066	127	6%	2%	2%	**3%**	5%	3%	5%	5%	14		8
BKM0067	133	6%	3%	3%	4%	5%	3%	5%	6%	15		16
BKM0071	159	5%	2%	2%	4%	5%	3%	7%	4%	6		19
BKM0072	159	6%	2%	2%	4%	5%	3%	6%	5%	18		19
BKM0073	152	6%	2%	2%	4%	6%	3%	6%	5%	17		18
BKM0074	139	6%	2%	2%	4%	6%	2%	6%	6%	16		17
BKM0075	126	5%	3%	2%	4%	5%	3%	6%	4%	15		15
BKM0077	200	6%	2%	**1%**	**3%**	5%	3%	6%	5%	23		21
BKM0083	150	6%	2%	2%	5%	6%	3%	5%	6%	18		17
BKM0084	148	6%	2%	2%	4%	6%	3%	6%	6%	18		18
BKM0085	169	6%	2%	2%	4%	6%	3%	7%	9%	10		20
BKM0086	116	6%	2%	2%	4%	7%	3%	7%	6%	14		14
BKM0087	95	6%	2%	3%	4%	6%	3%	6%	5%	10		12
BKM0089	129	6%	2%	2%	**3%**	6%	3%	6%	5%	15		15
BKM0090	122	6%	2%	2%	4%	6%	3%	6%	5%	7		7
BKM0093	136	6%	2%	2%	4%	6%	3%	6%	4%	16		15
BKM0096	158	5%	2%	2%	5%	5%	3%	7%	5%	19		19
BKM0099	135	5%	2%	2%	4%	5%	3%	5%	6%	8		16
BKM0101	125	6%	2%	2%	4%	5%	3%	5%	8%	12		14
BKM0104	129	5%	3%	2%	**3%**	7%	3%	5%	5%	10		14
BKM0106	159	6%	2%	2%	4%	8%	3%	7%	4%	9		19
BKM0108	150	6%	2%	2%	4%	6%	3%	6%	4%	12		18
BKM0109	77	6%	2%	**1%**	4%	8%	3%	4%	6%	9		9
BKM0110	125	6%	2%	2%	**3%**	6%	3%	6%	4%	8		15
BKM0111	215	5%	2%	3%	4%	5%	2%	5%	4%	25		25
BKM0112	188	6%	2%	2%	4%	5%	4%	6%	4%	20		22
BKM0113	82	7%	**1%**	2%	5%	7%	3%	6%	5%	10		10
BKM0115	148	5%	2%	2%	4%	6%	3%	6%	5%	18		18
BKM0117	84	7%	2%	2%	4%	6%	3%	6%	4%	5		9
BKM0118	83	6%	2%	2%	4%	7%	3%	6%	4%	10		10
BKM0119	66	5%	**1%**	**1%**	4%	5%	3%	7%	5%	4		8
BKM0120	94	6%	2%	3%	4%	7%	3%	4%	4%	12		12
BKM0121	90	6%	2%	3%	4%	5%	3%	7%	4%	11		11
BKM0122	109	5%	2%	2%	4%	6%	2%	6%	5%	13		13
BKM0114	161	4%	4%	**0%**	**0%**	11%	5%	**0%**	15%	0		9
BKM0116	86	5%	5%	**0%**	**0%**	9%	4%	**0%**	17%	0		5
BKM0126	75	5%	5%	**0%**	**0%**	11%	5%	**0%**	10%	0	2	2
BKM0123	95	5%	2%	2%	5%	8%	3%	6%	4%	12		12
BKM0124	96	6%	3%	3%	4%	6%	3%	6%	4%	12		12
BKM0125	95	7%	2%	2%	4%	8%	3%	6%	5%	11		12
BKM0127	127	5%	2%	2%	4%	6%	3%	5%	5%	15		14
BKM0128	77	6%	2%	2%	4%	9%	3%	7%	4%	9		10
BKM0129	106	6%	2%	2%	5%	6%	2%	6%	4%	13		12
BKM0130	74	6%	2%	3%	**2%**	7%	3%	5%	5%	9		9
BKM0132	126	6%	2%	2%	**3%**	6%	3%	4%	4%	15		15
BKM0134	63	7%	**1%**	**1%**	4%	8%	3%	5%	5%	8		8
BKM0136	71	5%	2%	2%	4%	6%	2%	5%	6%	9		9
BKM0137	159	5%	2%	2%	5%	5%	3%	6%	5%	19		19
BKM0131	137	6%	2%	2%	4%	6%	3%	6%	5%	16		16
BKM0133	97	6%	3%	2%	4%	5%	3%	4%	5%	10		12
BKM0135	111	6%	2%	2%	4%	8%	3%	5%	5%	13		13
BKM0139	63	6%	3%	**1%**	**3%**	7%	3%	6%	**3%**	8		8
BKM0140	169	7%	2%	3%	4%	6%	3%	7%	5%	20		20
BKM0141	176	6%	2%	2%	4%	5%	2%	6%	4%	21		19
BKM0142	141	6%	2%	2%	4%	5%	2%	5%	4%	17		17
BKM0143	82	6%	2%	2%	5%	6%	3%	6%	4%	10		10
BKM0144	160	6%	2%	2%	4%	5%	3%	6%	4%	19		19
BKM0145	133	6%	2%	2%	4%	5%	3%	6%	**3%**	16		16
BKM0146	135	5%	3%	2%	4%	5%	3%	6%	5%	16		16
BKM0147	102	7%	2%	2%	4%	6%	2%	5%	4%	13		11
BKM0148	142	5%	2%	2%	4%	5%	2%	6%	4%	17		16
BKM0149	110	6%	2%	2%	4%	7%	3%	6%	4%	13		13
BKM0152	96	5%	2%	2%	5%	6%	3%	6%	5%	11		12
BKM0150	156	5%	2%	3%	4%	6%	3%	7%	4%	19		19
BKM0151	172	6%	3%	2%	4%	5%	3%	7%	5%	20		21
BKM0153	153	6%	2%	2%	4%	5%	3%	6%	4%	18		18
BKM0154	177	7%	**1%**	2%	4%	5%	2%	6%	4%	21		21
BKM0156	84	5%	2%	3%	4%	7%	3%	5%	6%	10		10
BKM0157	84	5%	2%	3%	5%	6%	3%	5%	5%	4		9
BKM0158	147	6%	2%	2%	4%	5%	3%	6%	5%	17		17
BKM0155	156	6%	2%	2%	**3%**	5%	3%	6%	4%	18		18
BKM0159	162	6%	2%	2%	**3%**	6%	3%	6%	4%	19		19
BKM0160	147	5%	2%	2%	4%	6%	3%	4%	5%	18		18
BKM0161	132	5%	3%	**1%**	5%	6%	3%	6%	5%	16		16
BKM0164	98	6%	2%	2%	4%	7%	4%	6%	4%	12		12
BKM0165	96	6%	2%	2%	4%	6%	3%	5%	5%	12		12
BKM0166	141	6%	2%	2%	4%	5%	2%	6%	5%	17		17
BKM0168	125	5%	2%	3%	4%	5%	3%	6%	**3%**	15		14
BKM0167	104	6%	2%	3%	**3%**	5%	2%	5%	6%	13		13
BKM0171	106	6%	**2%**	**2%**	4%	5%	2%	7%	4%	13		13
BKM0170	107	6%	2%	2%	4%	6%	2%	6%	4%	13		12
BKM0169	100	7%	2%	2%	4%	6%	3%	6%	4%	12		12
BKM0171	106	6%	2%	2%	4%	5%	2%	7%	4%	13		13
BKM0172	118	5%	2%	**1%**	4%	7%	3%	7%	4%	14		12
BKM0173	104	6%	2%	2%	4%	6%	2%	6%	4%	10		13
BKM0174	99	6%	2%	2%	4%	5%	3%	6%	5%	10		12
BKM0176	111	6%	2%	2%	**3%**	6%	3%	6%	5%	13		13
BKM0177	115	7%	2%	2%	**3%**	5%	3%	5%	5%	14		14
BKM0178	115	6%	2%	2%	**4%**	6%	3%	4%	**4%**	13		14

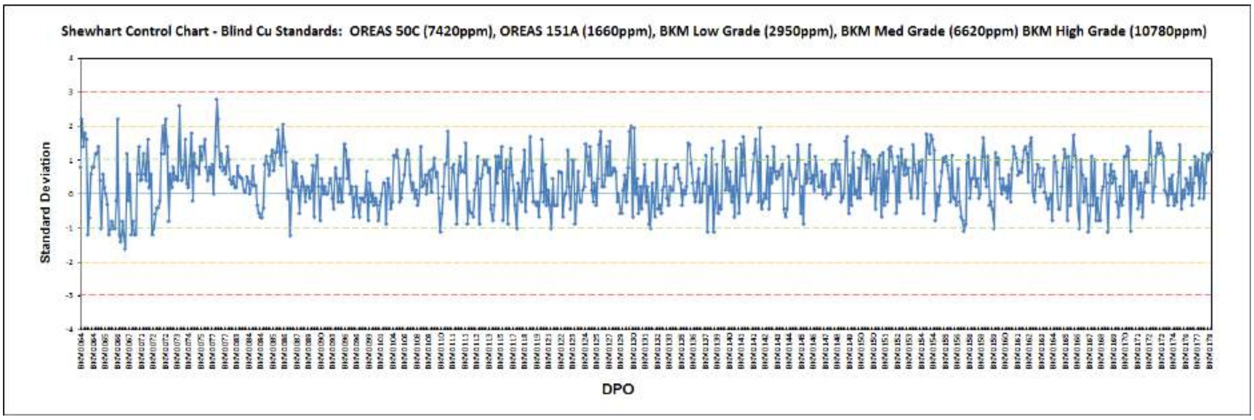
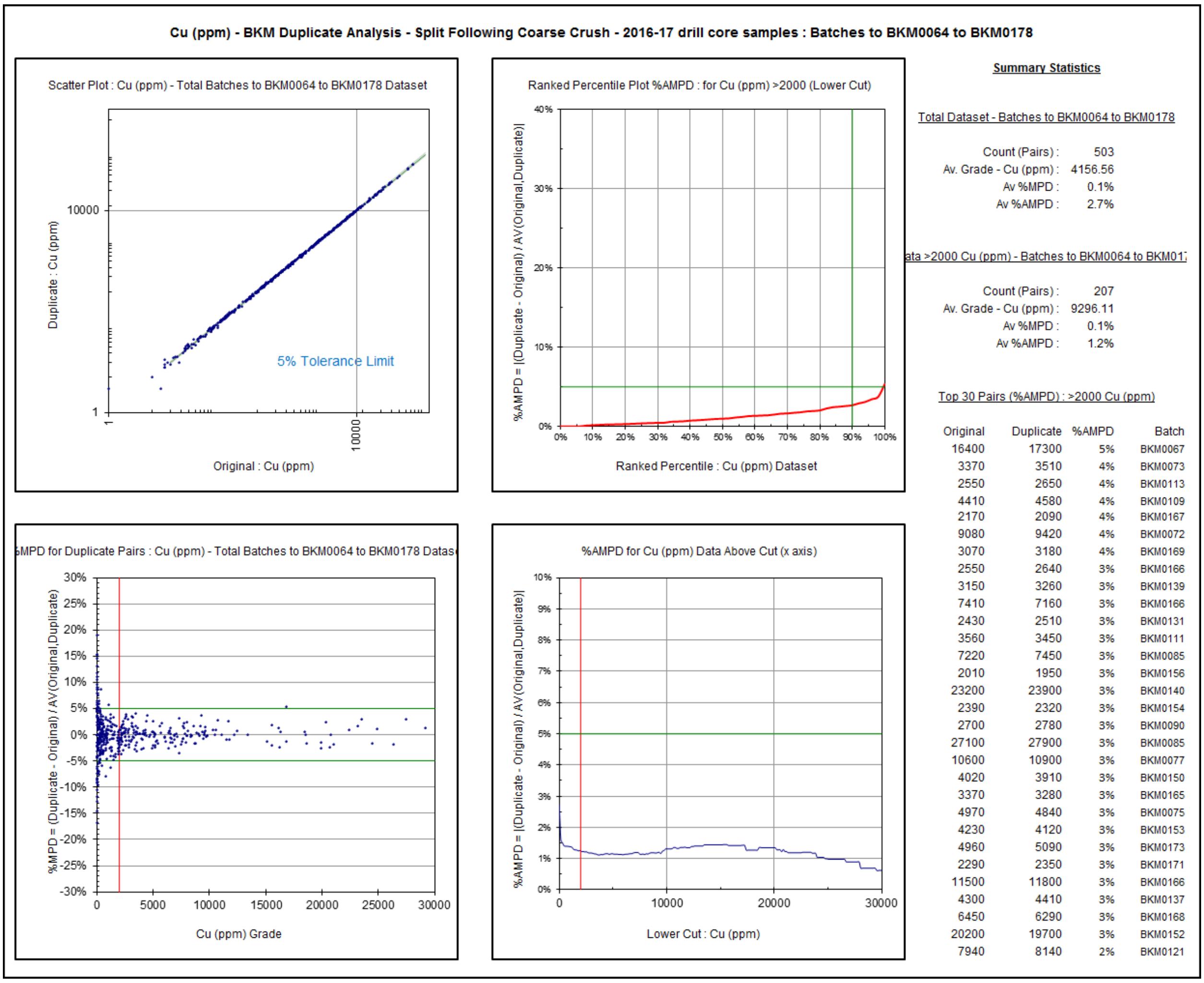


Figure 17: KSK standards for 2016-17 assays. Shewhart control chart.



Original	Duplicate	%AMPD	Batch
16400	17300	5%	BKM0067
3370	3510	4%	BKM0073
2550	2650	4%	BKM0113
4410	4580	4%	BKM0109
2170	2090	4%	BKM0167
9080	9420	4%	BKM0072
3070	3180	4%	BKM0169
2550	2640	3%	BKM0166
3150	3260	3%	BKM0139
7410	7160	3%	BKM0166
2430	2510	3%	BKM0131
3560	3450	3%	BKM0111
7220	7450	3%	BKM0085
2010	1950	3%	BKM0156
23200	23900	3%	BKM0140
2390	2320	3%	BKM0154
2700	2780	3%	BKM0090
27100	27900	3%	BKM0085
10600	10900	3%	BKM0077
4020	3910	3%	BKM0150
3370	3280	3%	BKM0165
4970	4840	3%	BKM0075
4230	4120	3%	BKM0153
4960	5090	3%	BKM0173
2290	2350	3%	BKM0171
11500	11800	3%	BKM0166
4300	4410	3%	BKM0137
6450	6290	3%	BKM0168
20200	19700	3%	BKM0152
7940	8140	2%	BKM0121

Figure 18: Coarse Crush and Split Duplicate Analysis.

12.2.4 Comparison of Copper Assays from pre-2015, 2015 and 2016-17 Programmes

The copper assays from each of the three drilling campaign periods show comparable population distributions and can be combined for estimating the 2017 resources (Figure 19 and Figure 20). The base shift between the pre2016 and the2016-17 drill programme copper grades is explained by the spatial distribution of the holes within each drill period, with a significantly higher portion holes drilled into the better mineralised areas of the deposit pre2016 and a higher portion of the 2016-17 holes in the areas peripheral to the high grade areas (than in the pre2016 hole dataset). Additional confidence that there is no issue with combining the datasets is obtained from the reconciliation between the 2015 and 2017 resource estimates (Section 14.10).

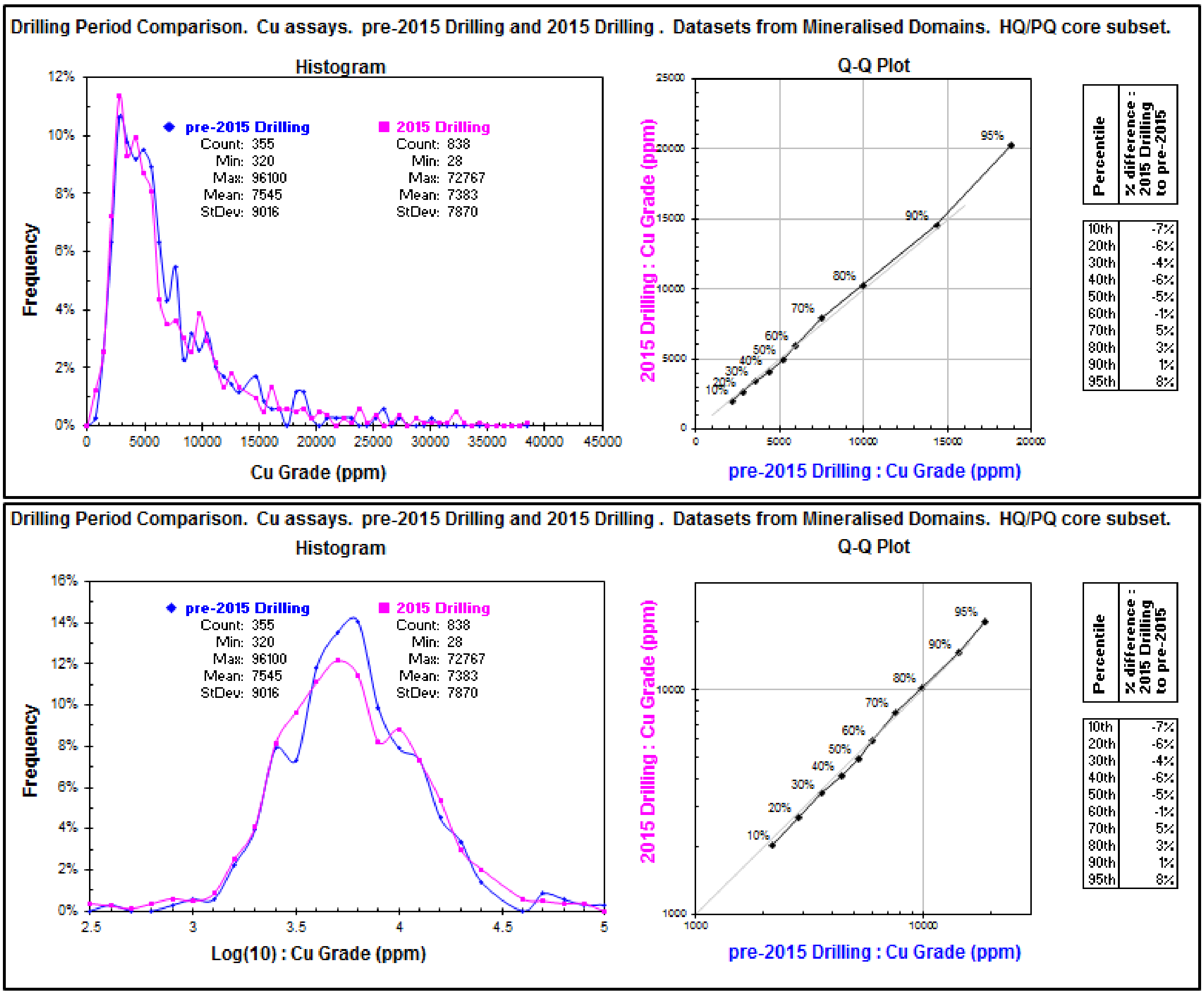


Figure 19: Comparison of 2015 and pre-2015 copper dataset populations.

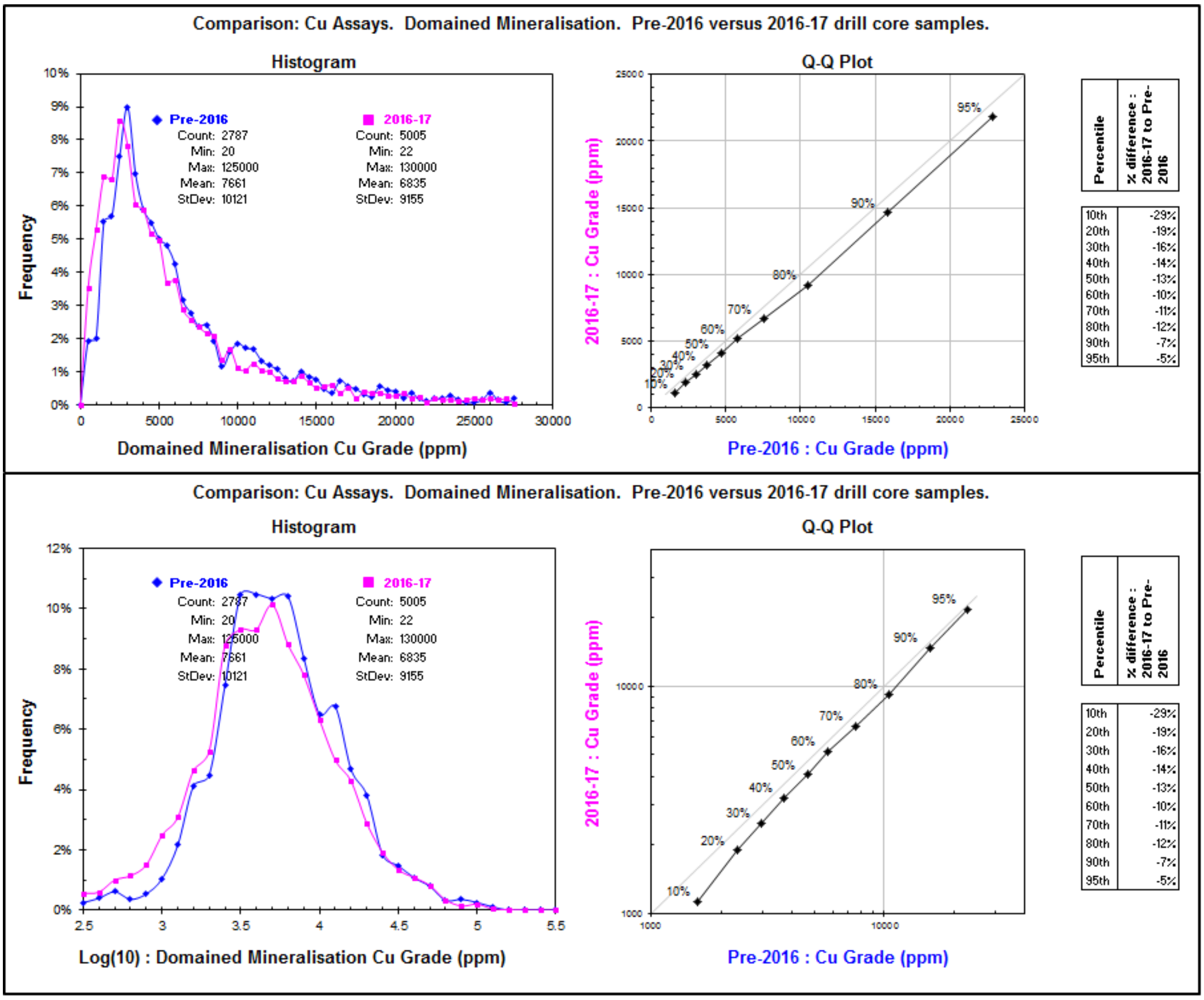


Figure 20: Comparison of 2016-17 and pre-2016 copper dataset populations.

12.2.5 Copper Grade Relationship with Core Recovery

Core recoveries by length are good for the BKM mineralisation with over 94% of the intervals within the mineralised domains returning >90% recovery (Table 21 and Table 22). There is no readily observable relationship between length recovery and copper grade. H&A however observed a consistent poor recovery and poor core condition interval in the upper portions of most holes (both within and immediately below the soil and base of complete oxidation horizon) and undertook an additional investigation to both evaluate the spatial significance of this material and the impact it has on the 2017 resource estimate. H&A also observed minor occurrences of washing or scrubbing of core from the drilling and core sawing processes and included the evaluation of scrubbing in the additional investigation.

Table 21: Copper grades split by recovery categories. Pre-2015 drilling.

Logged Core Recovery within Domained Mineralisaton		
Core Recovery (%)	Count	Av. Cu (ppm)
0 to 10	5	12120
10 to 20	6	5250
20 to 30	14	4605
30 to 40	13	5994
40 to 50	26	4702
50 to 60	16	6791
60 to 70	23	5904
70 to 80	24	5905
80 to 90	37	7197
90 to 100	997	6918
All	**1161**	**6810**

Table 22: Copper grades split by recovery categories. 2015 and 2016-17 drilling – mineralised domains.

Core Recovery (%)	Surface Zone Moderate and High Concern		Deep Zone Minor Concern		Deep Zone Moderate and High Concern		Deep Zone No Concern		All Data	
	Count	Av. Cu (ppm)	Count	Av. Cu (ppm)	Count	Av. Cu (ppm)	Count	Av. Cu (ppm)	Count	Av. Cu (ppm)
20 to 30							1	2090	1	2090
30 to 40	6	3175					2	20100	8	7406
40 to 50	8	4635	1	2160	4	6205	4	5733	17	5117
50 to 60	21	3304			10	3675	1	5530	32	3489
60 to 70	31	5471			4	5889	4	2608	39	5220
70 to 80	65	7794	7	5699	12	9076	10	5192	94	7525
80 to 90	64	10664	14	6691	30	7310	10	13415	118	9573
90 to 100	477	6851	1020	8271	373	7637	4619	7052	6489	7262
Totals	**672**	**7072**	**1042**	**8227**	**433**	**7534**	**4651**	**7061**	**6798**	**7271**

12.2.5.1 Core recovery vs copper grade investigation

Core was assessed at tray length intervals and assigned to one of four categories wrt effect of recovery on sampling representivity (impacting on both copper assay and DBD reliability). Assay and SG samples were assigned a category relating to this risk, these being of:

a. High Concern: denoted by anomalous records in most or all of the following indicators:
   i. logged percent core recovery (inverse of percent length core loss),
   ii. logged core condition (4 or 3, indicating pervasive internal loss or washing of core),

iii. core-tray weights (significantly lower than predicted given drilled length and measured SG),
iv. drilled lengths (longer than tray capacity),
v. drill run-lengths (noted by number of core blocks in tray, short runs indicate difficult drilling conditions and possible poor core condition/recovery),
vi. %RQD10 (low, indicating possible poor drilling conditions),
vii. visually in photographs as extensive rubbly and broken core, large and numerous washed intervals, numerous loss intervals.

b. Moderate Concern: denoted by anomalous records in some or most of the indicators listed above (a.i to a.vi) plus:
   i. visually in photographs as intermittent rubbly and broken core, some washed intervals, intermittent loss intervals.
c. Minor Concern: denoted by core tray position to those categorized as being of either High or Moderate Concern plus indicators listed above as a.1, a.ii (2 or 3), a.v, a.vi plus:
   i. visually in photographs as minor rubbly core, some washed intervals, few loss intervals.
d. No Concern.

Visual examples of the four categories can be seen in Figure 21.

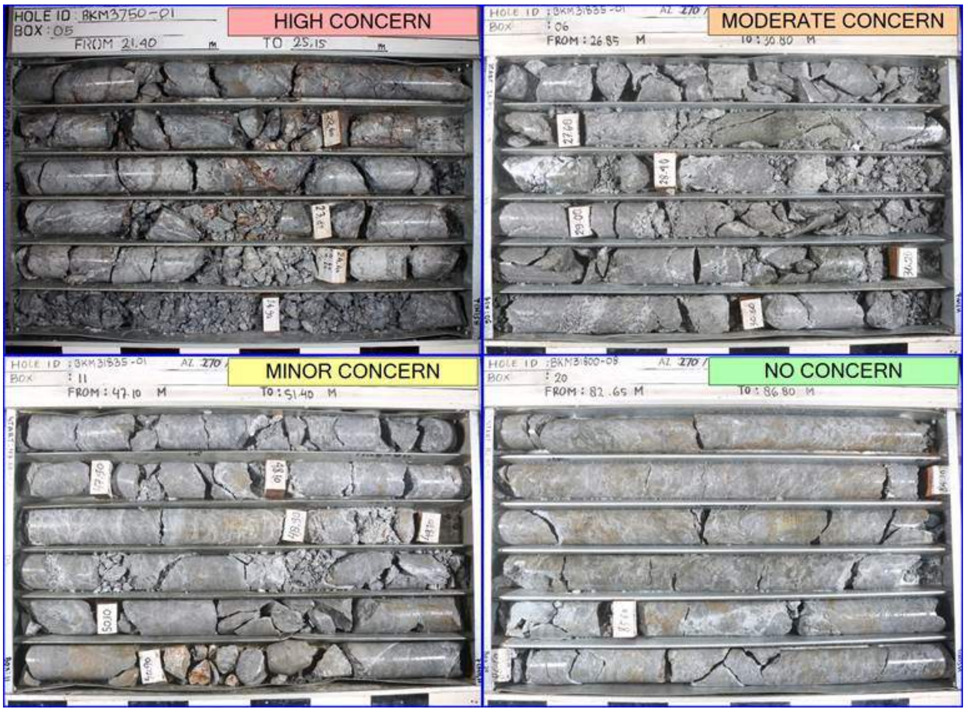


Figure 21: Examples of recovery concern classification to assess impact of core recovery on assay samples (copper grade) and specific gravity samples.

Logged data from all 6,398 trays from forty pre-2015 holes and 195 2015-17 holes were assessed. 3,622 of these trays were visually checked (precut core photographs) with the remainder coded as "not visually checked as No Concern in logged data". All 2,588 trays containing domained mineralisation were assessed and 2,142 of these (82%) were checked visually with the remainder coded as "not visually checked as No Concern in logged data". Table 23 shows statistics from the categorization of drill core.

Table 23: Statistics on classification of core for assessing the impact of core recovery on assay samples (copper grade) and specific gravity samples.

Period	Min/Non-Mineralised	Trays in Surface Zone			Deep Zone (Trays below Surface Zone)					Total
		High Concern	Moderate Concern	Minor Concern	High Concern	Moderate Concern	Minor Concern	Viz Checked - No Concern	Not Viz Checked - Logged Data Shows No Concern	
pre 2015 Drilling	Mineralisation in Tray	22	29	3	3	22	83	273		435
	No Mineralisation in Tray	92	25		12	24	59	174	1,115	1,501
	pre 2015 Total	**114**	**54**	**3**	**15**	**46**	**142**	**447**	**1,115**	**1,936**
2015-17 Drilling	Mineralisation in Tray	158	69		34	101	331	1,014	446	2,153
	No Mineralisation in Tray	379	83		30	49	183	370	1,215	2,309
	2015-17 Total	**537**	**152**		**64**	**150**	**514**	**1,384**	**1,661**	**4,462**
Total		**651**	**206**	**3**	**79**	**196**	**656**	**1,831**	**2,776**	**6,398**

The coded data was visualized to assess the spatial distribution of core recovery concern. The existence of a near surface poor recovery zone was clearly identified as well as two deeper areas, one to the north of 993500N and the second between 9931800N and 9932050N (Figure 22). These three areas have been excluded from being classified as Measured Resources. The remainder of the core noted as being of moderate or high concern is interspersed with core noted as being of minor or no concern.

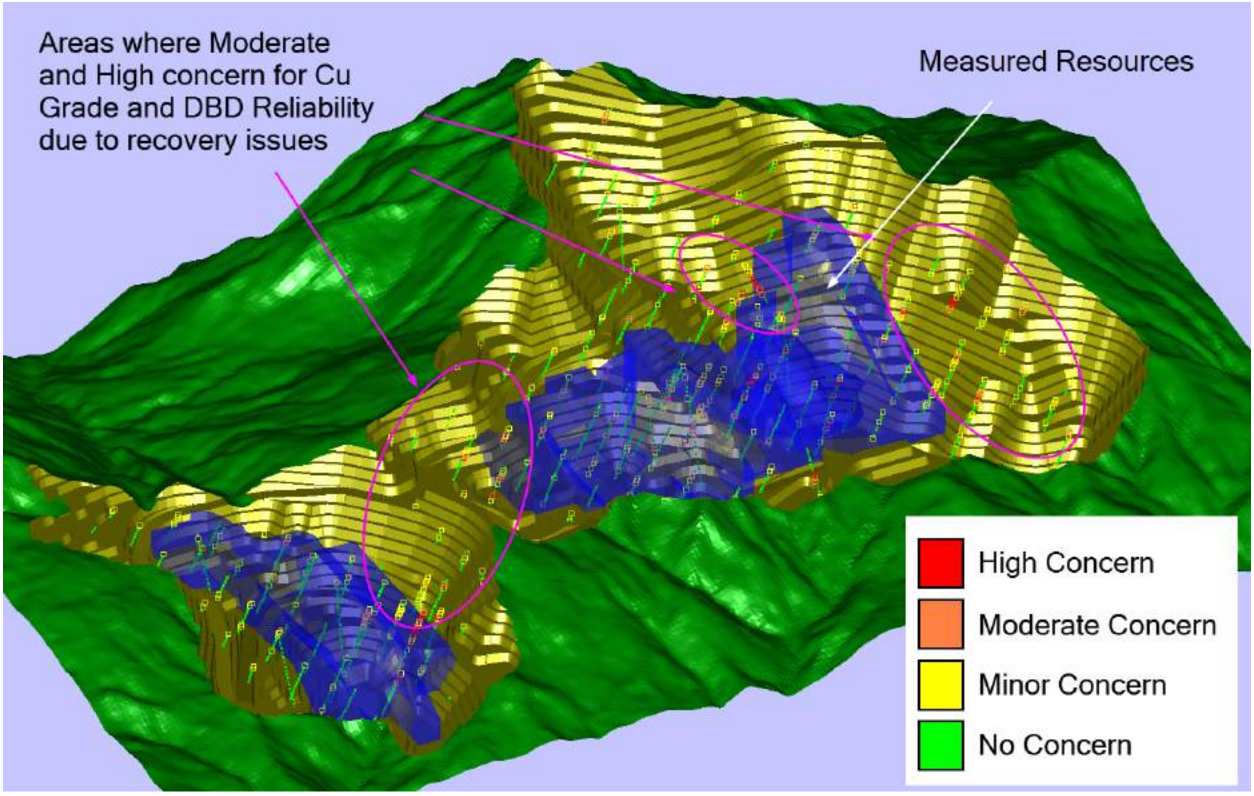


Figure 22: Areas of BKM at depth where the effect of core recovery on copper grade and specific gravity samples is classified as being of moderate and high concern.

The prevalent near surface High Concern recovery zone was modeled (Figure 23) and resources within this zone were restricted from the Measured Resource classification.

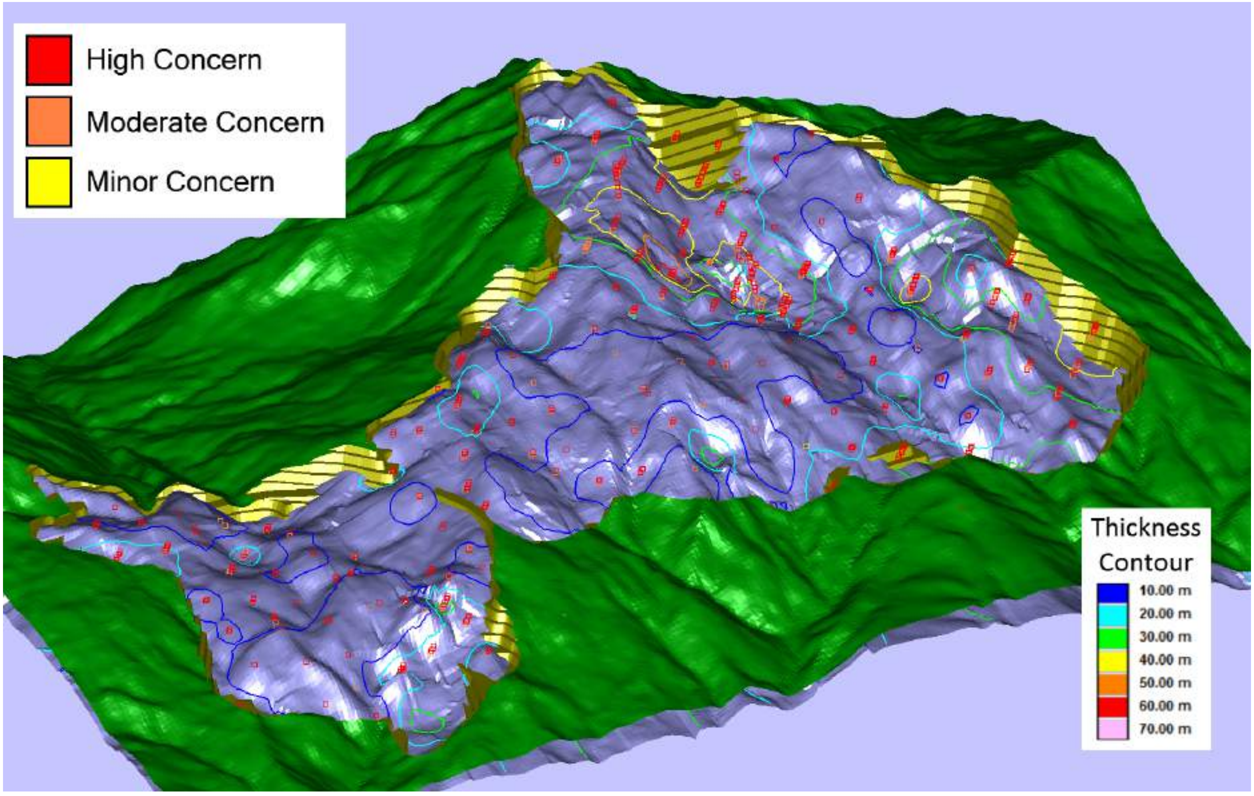


Figure 23: Modelled surface containing high portion of core classified as being of moderate and high concern wrt impact on reliability of assays and specific gravity samples.

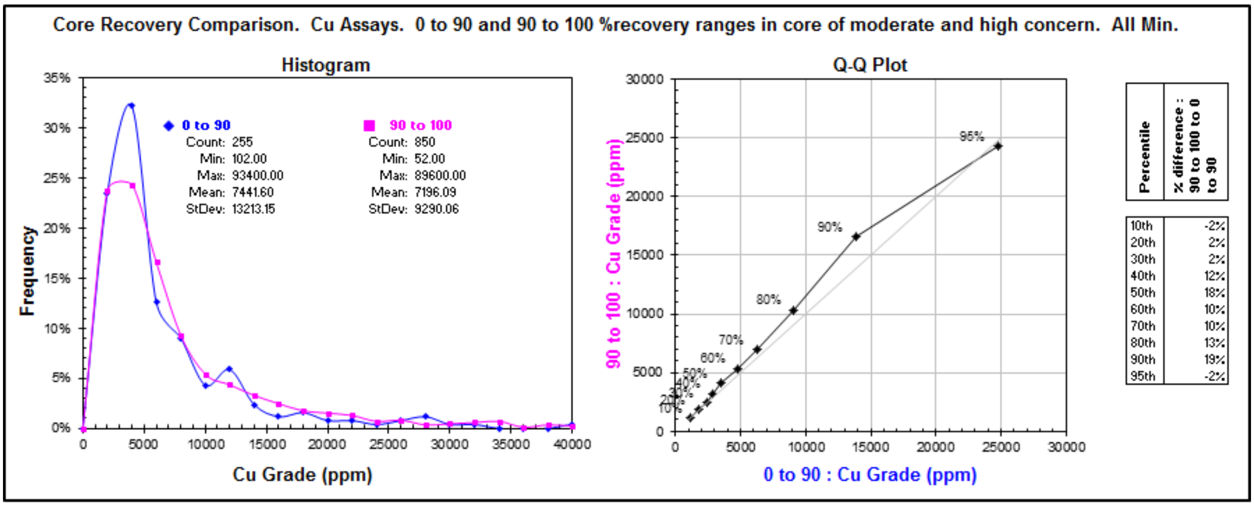
The recovery concern coding was utilized to group and assess the effect of core recovery on sample copper grades and to code and review the SG data that underpins the tonnage factors applied to the 2017 resource estimate (Section 12.1.4). Although there is a low portion of mineralised intervals with low core recoveries, both high level and in-depth investigations into the core recovery and copper assay association indicates that there is a correlation between core recovery and copper grade, where most of the copper grades in low recovery intervals (<80%) are less than 6000ppm, significantly lower than the estimated grade of the deposit (Table 24 and Figure 24).

Further investigation was inconclusive in determining if this association is directly contributable to core recovery or if it is a derivative of a related association, such as low recovery occurs in low copper grade areas (the physical characteristics of host rock material caused by intensity of the alteration/mineralisation events). Figure 25 presents a comparison between surface and deeper copper grade populations of samples within moderate and high concern intervals showing a base shift in grade tenor for deeper intervals, which on the whole are more silicified (part of the mineralizing event) and less phyllic altered than the near surface intervals. Figure 26 presents the acceptable comparison of copper grade populations between intervals of concern and of no concern for deep intercepts. The similarity of the copper populations in the deeper zones indicate that there is low risk to the resources estimated in these areas of the deposit and the differences in the populations between the surface and deeper areas presents as a yet to be understood risk to the resources estimated in the surface areas and those areas with clustered poor core recovery.

The copper grades of the resources in the surface and two clustered core recovery concern areas are such that any correction would not affect their economic viability and as such these areas can be considered for Indicated Resources (NI 43-101, CIM Definition Standards). They cannot however be considered for Measured Resource classification.

Table 24: BKM copper grades split by core recovery percent and spatial classification describing areas of concern wrt impact on reliability of assays and specific gravity samples.

Core Recovery (%)	Surface Zone Moderate and High Concern		Deep Zone Minor Concern		Deep Zone Moderate and High Concern		Deep Zone No Concern		All Data	
	Count	Av. Cu (ppm)	Count	Av. Cu (ppm)	Count	Av. Cu (ppm)	Count	Av. Cu (ppm)	Count	Av. Cu (ppm)
20 to 30							1	2090	1	2090
30 to 40	6	3175					2	20100	8	7406
40 to 50	8	4635	1	2160	4	6205	4	5733	17	5117
50 to 60	21	3304			10	3675	1	5530	32	3489
60 to 70	31	5471			4	5889	4	2608	39	5220
70 to 80	65	7794	7	5699	12	9076	10	5192	94	7525
80 to 90	64	10664	14	6691	30	7310	10	13415	118	9573
90 to 100	477	6851	1020	8271	373	7637	4619	7052	6489	7262
Totals	**672**	**7072**	**1042**	**8227**	**433**	**7534**	**4651**	**7061**	**6798**	**7271**



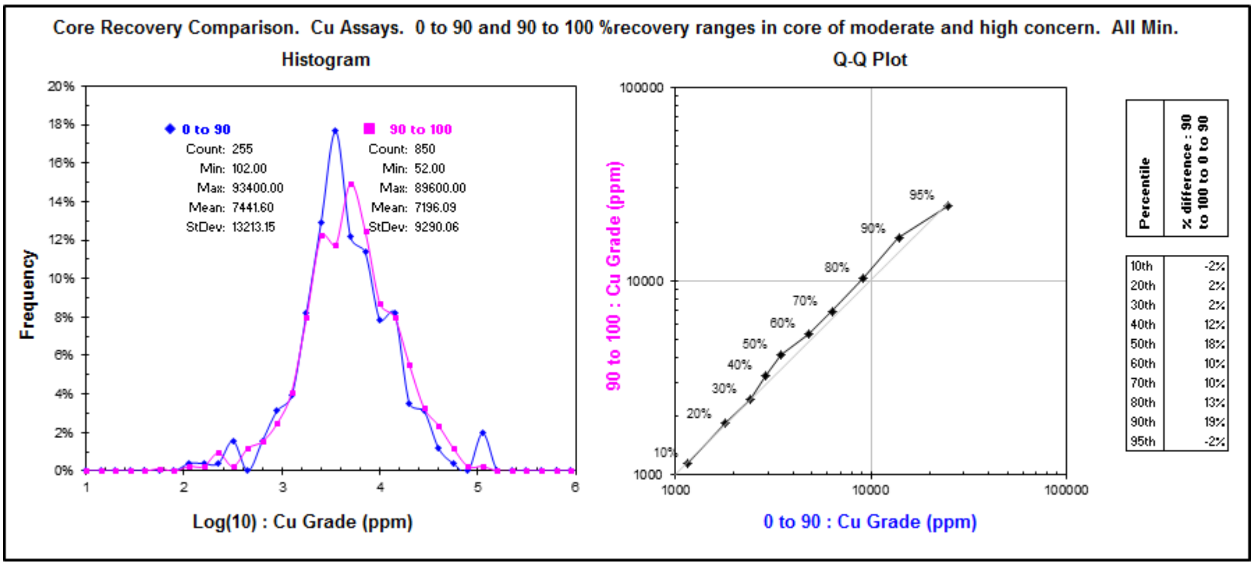


Figure 24: Copper assay comparison between high and low core recovery intervals in areas of BKM mineralisation classified as being of moderate and high concern wrt recovery impact on reliability of assays and specific gravity samples.

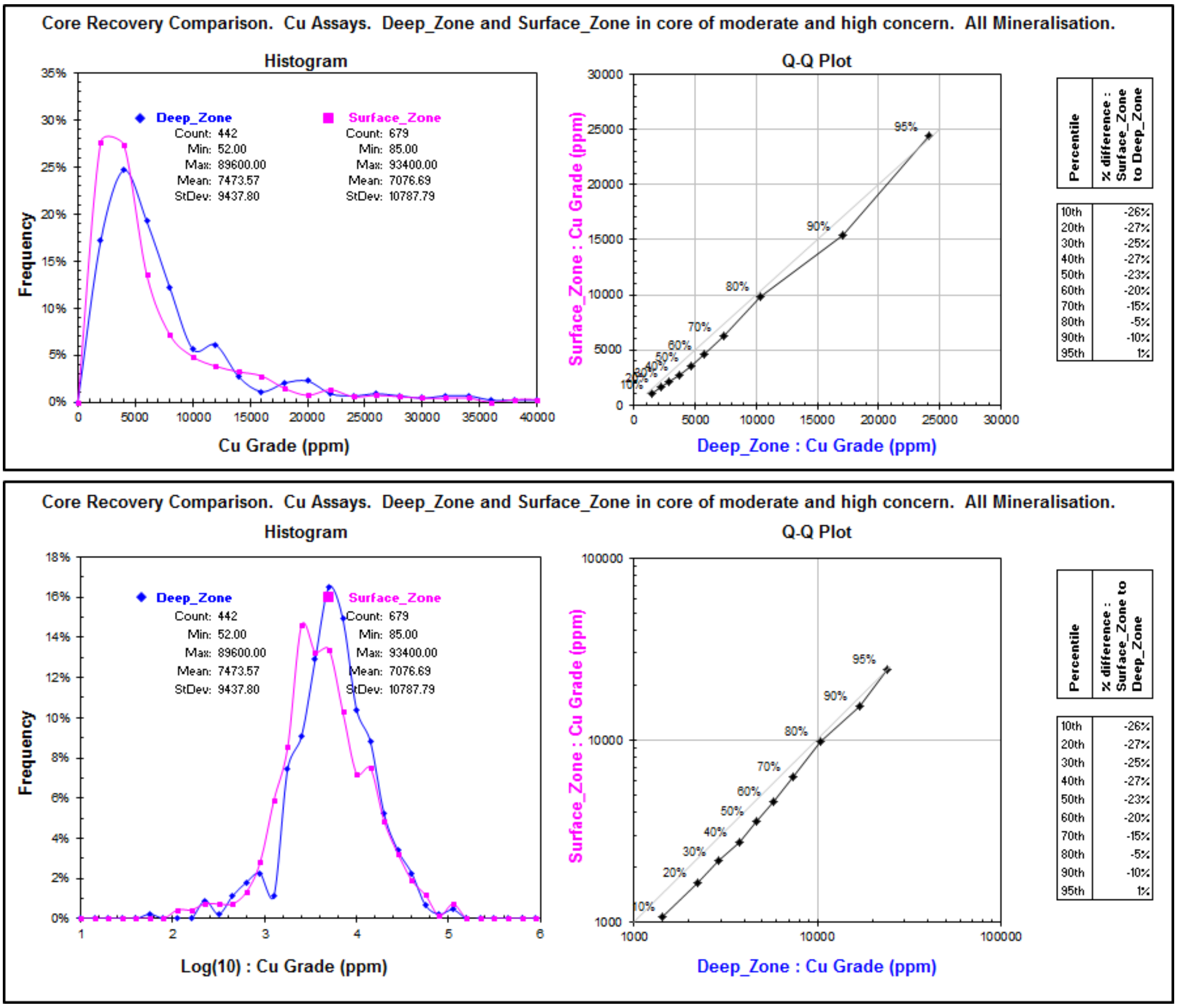


Figure 25: Copper assay comparison between upper surface zone and deep zones where BKM mineralisation is classified as being of moderate and high concern wrt recovery impact on reliability of assays and specific gravity samples.

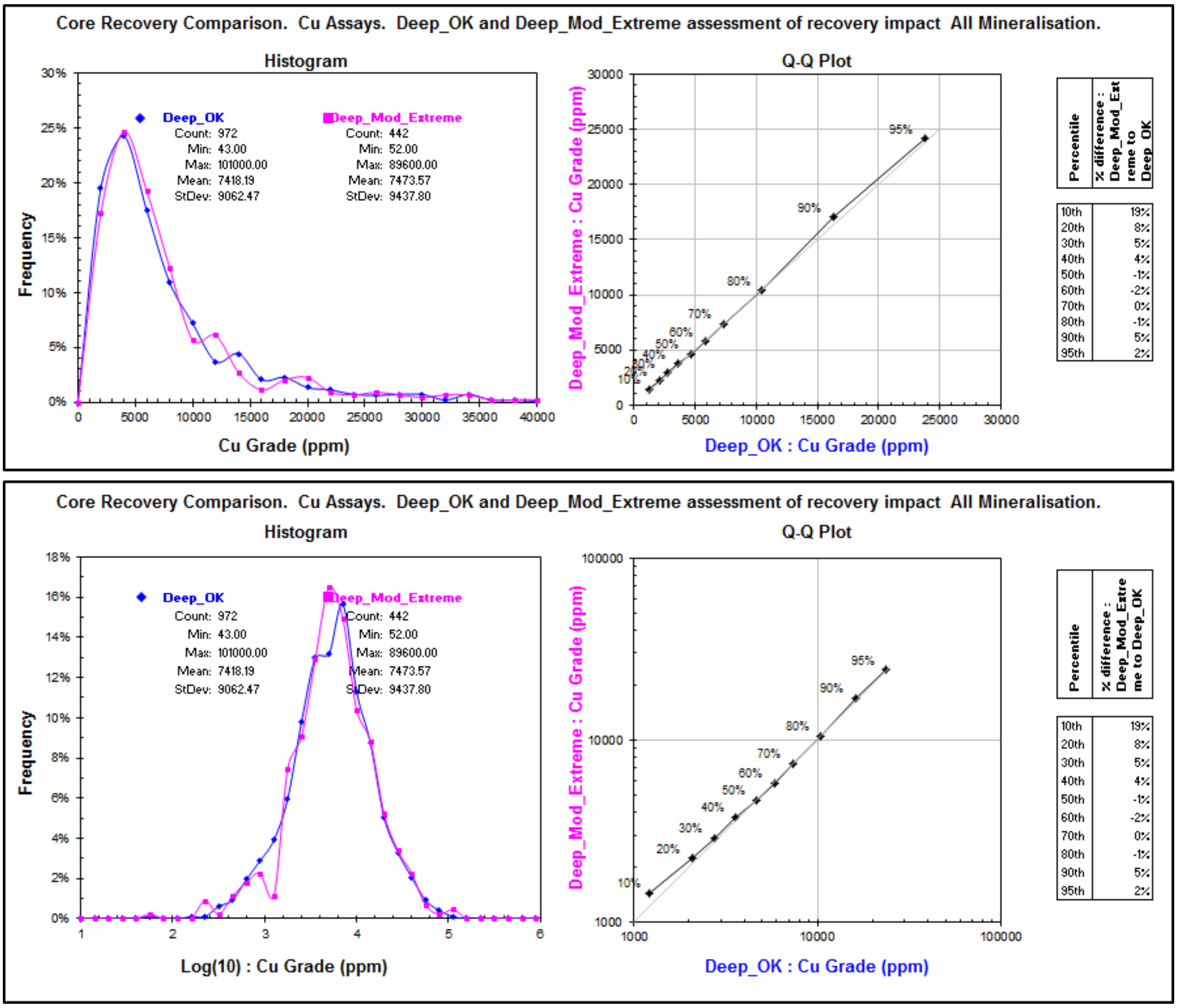


Figure 26: Copper assay comparison between core classified as being of no concern and core classified as being of moderate and high concern (wrt recovery impact on reliability of assays and specific gravity samples) in the deep zones of mineralisation at BKM.

12.2.6 Copper Grade Relationship with Primary Sample Size and Orientation

The analysis of copper grade versus the primary sample size shows that the average grade for NQ-BQ drill core samples is 26% lower than the average grade for the PQ-HQ drill core samples. Figure 27 shows that this is because there is a population shift in copper grade-tenor of approximately this amount between the two datasets. The PQ-HQ dataset also shows a greater range of copper values and a higher maximum value. A population shift such as the one shown in Figure 27 can be due to one or both of the following:

- PQ and HQ drilling samples mineralisation closer to the surface than NQ and BQ drilling (average depths are shown at Table 3). The grade differential may be due to primary zonation within the BKM mineralisation.

- There may be a primary sample size effect similar to that experienced with drilling nuggetty gold mineralisation, where negative assay bias presents stronger in the smaller drill core than larger diameter core.

The replacement vein style copper mineralisation at BKM is effectively a copper alteration event (disease/replacement of ubiquitous pyrite) in areas of strong mineralisation and any primary sample size issue should be negligible. Copper distribution in lower grade areas may be more patchy and a primary sample size issue may affect the reliability of estimated copper grades in these areas. The copper grade tenor difference between the HQ/PQ and NQ/BQ assay data sets may be affected by both primary sample size suitability and internal zonation at BKM as NQ/BQ, however as they now comprise <10% of the mineralised data and are spatially interspersed with HQ/PQ samples the impact of any sampling error, if present, on the 2017 resource estimate will be minimal.

All drilling in the 2015 programme was undertaken employing HQ triple tube diamond core. The same base shift in copper assays is observed when comparing the 2015 copper assays with the pre-2015 NQ-BQ sample assays. There is a good comparison with the pre-2015 PQ-HQ core sample copper assays and the 2015 copper assays (Figure 19).

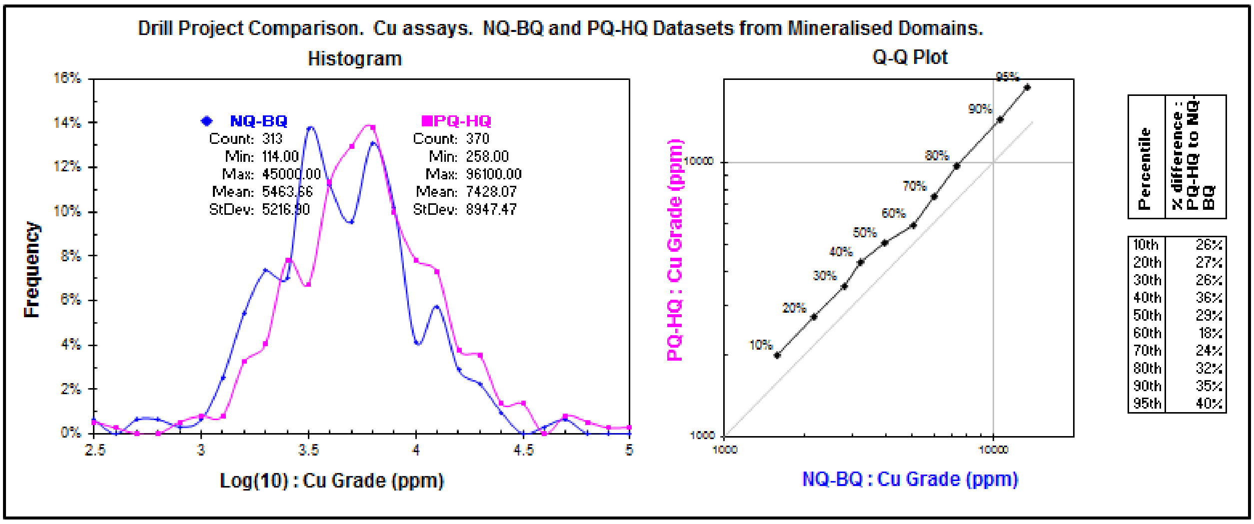


Figure 27: Copper grade comparison between PQ-HQ drilling and NQ-BQ drilling (pre-2015 data).

All drilling in the 2016-17 drill programme was undertaken employing HQ and PQ triple tube diamond core. The 2016-17 drilling copper grade population has a higher proportion of samples at grades between 1000ppm and 2500ppm Cu than the pre 2016 drilling copper grade population resulting in a grade tenor shift between the two datasets (Figure 28). Swath plots (de-clustered comparisons) show that the low copper grade areas are underrepresented in the pre 2016 dataset and the high copper grade areas are overrepresented, compared with the 2016-17 dataset. The bias observed in Figure 28 reflects the staged drillout of the deposit and there is no concern in combining data from all drill programmes for estimating the 2017 copper resources at BKM.

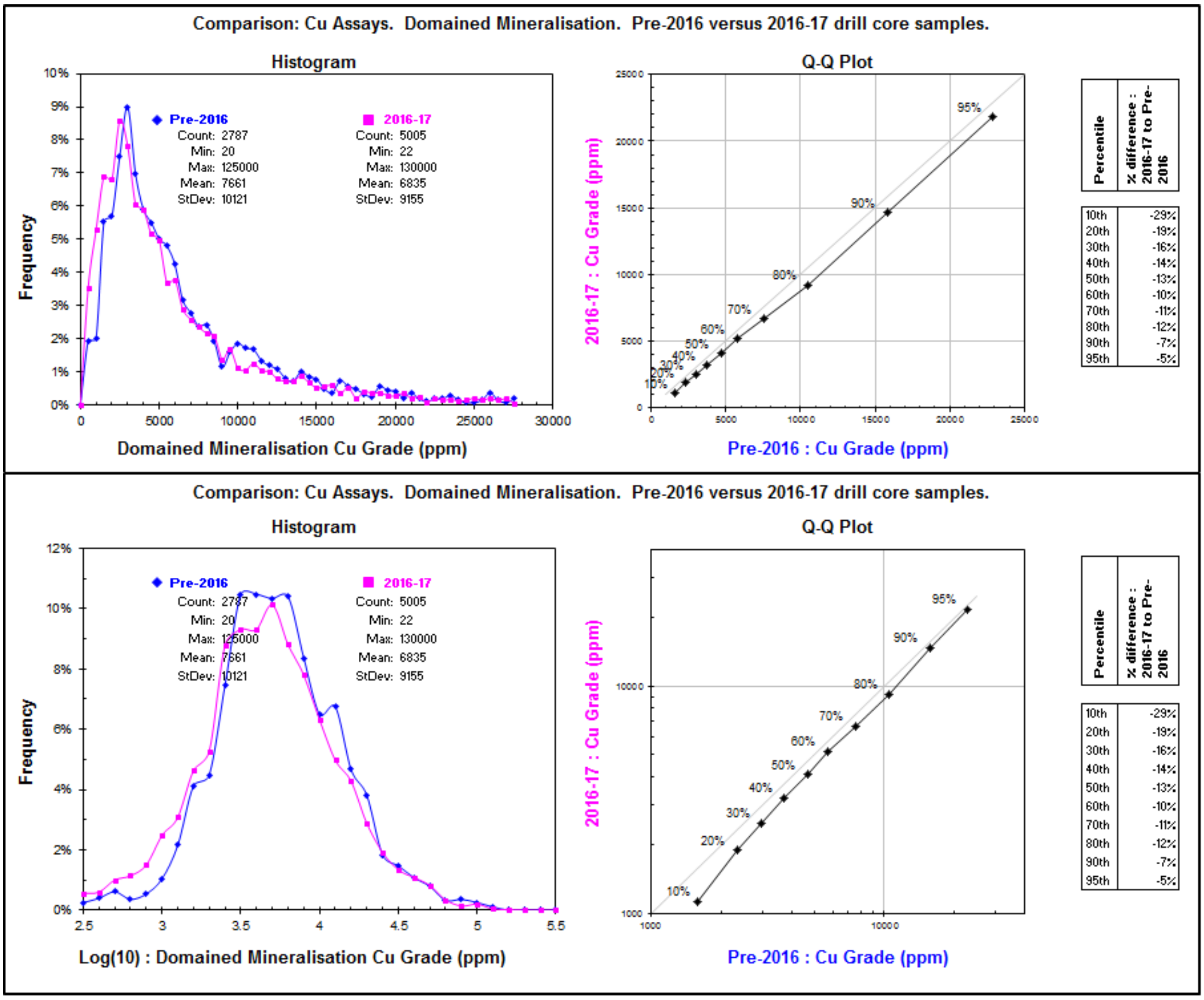


Figure 28: Copper garde comparison between pre 2016 and 2016-17 drill core samples.

Of the 267 holes drilled in and around the BKM mineralisation 225 are drilled into the predominant slope in a westerly direction. Seventeen holes have been drilled with easterly azimuths, two northerly, seven southerly and sixteen vertically. Seven twin holes have been drilled at BKM. Paired intercepts from crossed holes were determined visually and the linking of intervals for comparison honours the mineralised domain interpretation used to generate the 2017 resource model. Table 25 presents the number of holes, intercepts and metres generated by the alternate direction drilling and twinning of holes that comprise the dataset generated for evaluating the robustness of the predominantly unidirectional westerly drilling at BKM. As the drilling grid has now closed to nominally 50m X 50m centres the alternate direction holes in most cases cross with at least two westerly drilled holes and in all cases the positioning and geometry of the mineralised domains modeled for the 2015 and 2017 resource estimates were confirmed with the alternate direction drill holes. Table 25 presents this confirmation and the confidence in geological/mineralisation continuity, where intercept numbers are identical and total meters for mineralised intervals are very similar regardless of the drilling direction.

A reasonable dataset exists for comparing the copper grades intersected in holes drilled easterly, southerly and westerly. These holes are clustered in two areas of the deposit (Figure 29), with little or no information relating to mineralisation between 9931800N and 9932100N and north of 9932400N. Full coverage of the deposit is desirable, which when obtained should increase the dataset by 50% which will in turn add confidence in the reliability and robustness of the 2017 resource estimate.

Figure 30, Figure 31 and Figure 32 present the copper grades and interval lengths of the individually matched pairs of intercepts for the cross hole and twin hole comparisons. These figures show that in most cases a similar tenor of grade has been intercepted in the paired interval, however significant differences are encountered (and expected) in holes drilled through the high grade and thick zones of mineralisation (e.g. pairing H in Figure 30, where either one of an easterly or westerly drilled intercept can be significantly higher grade than its linked pair/interval). When assessed as copper assay population distributions there is no material difference between a dataset generated by either drill hole direction for westerly holes and easterly holes (Figure 33, high grade pairing H excluded) and for the lower 60% of the datasets for holes drilled southerly and westerly (Figure 34). It is indicated that similar resource estimates for copper mineralisation at BKM would be generated from datasets obtained from predominantly westerly or predominantly easterly drilled holes. It is likely that this will also be interpreted from comparisons with southerly drilled holes in the future as more holes test the mineralisation in this direction.

The good comparison in the twin hole copper grade populations (Figure 35) indicate that holes have reliably tested the mineralisation in their immediate vicinity and that, in alignment with the alteration associated replacement copper mineralisation style at BKM, short range mineralisation features are unlikely to exist.

Table 25: Description of holes, intercepts and metres generated by the alternate direction drilling and twin holes for testing of geological, mineralisation and copper grade continuity.

Description of Testwork Sample Pairs utilized in Primary Sampling Suitability Investigation								
Sampling Comparison	Direction		Number of Holes		Number of Intercepts		Total Metres	
	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
Directional	Easterly	Westerly	14	20	25	25	658	649
Directional	Southerly	Westerly	5	7	16	16	338	321
Directional	Vertical	Westerly	2	4	7	7	131	138
Twin Holes	2016	2015	6	6	16	16	317	339
Twin Holes	2015	Pre 2015	1	1	1	1	64	63
Spatial	Vertical	Westerly	2	7	2	7	60	270

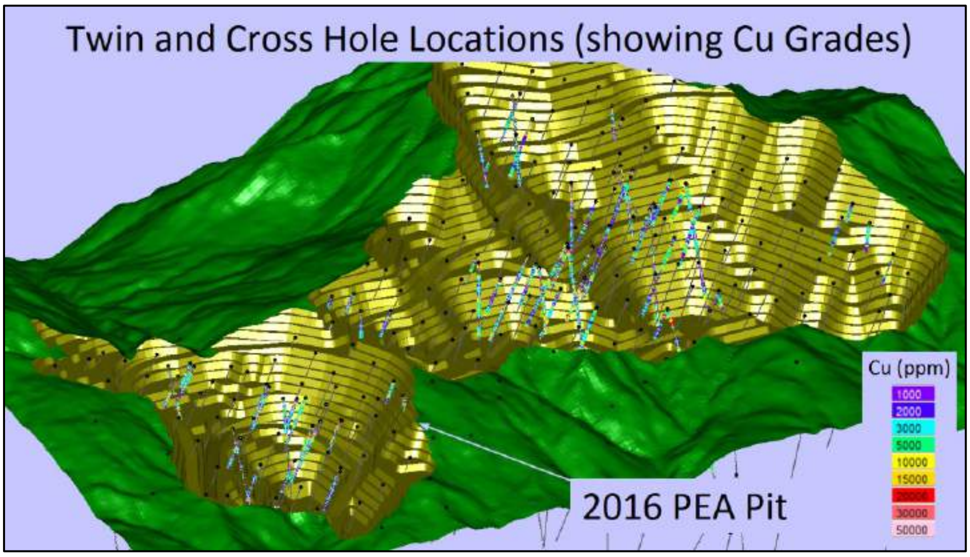


Figure 29: Twin and cross hole locations.

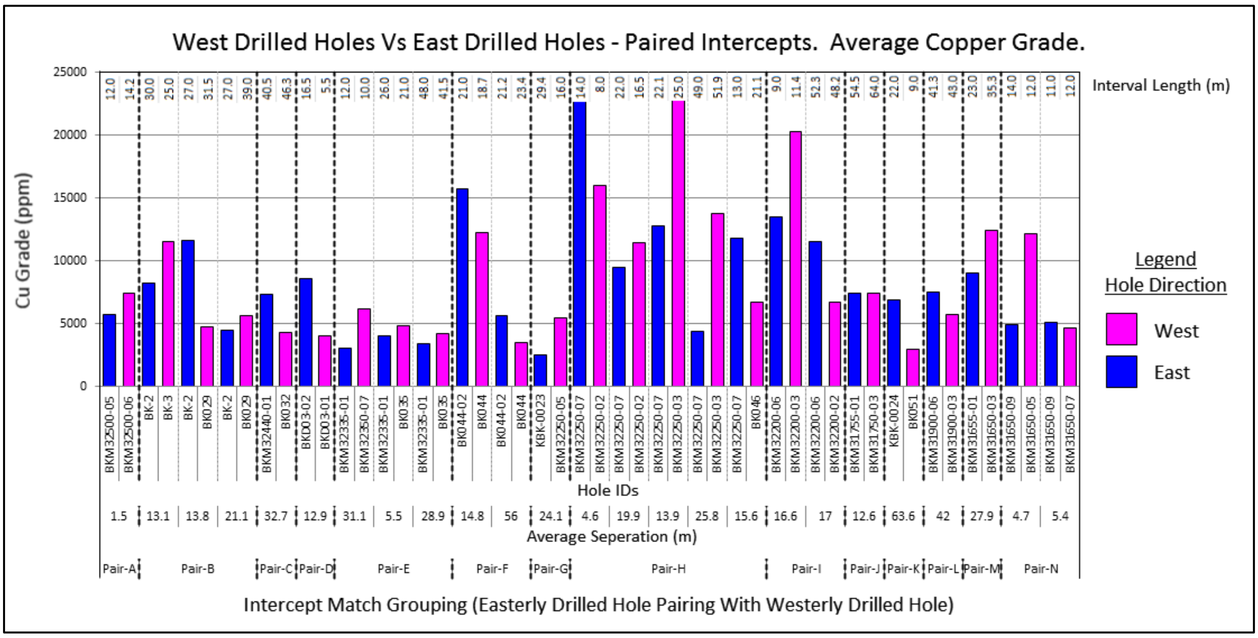


Figure 30: Paired interval copper grade and intercept length. Westery and Easterly drilled holes.

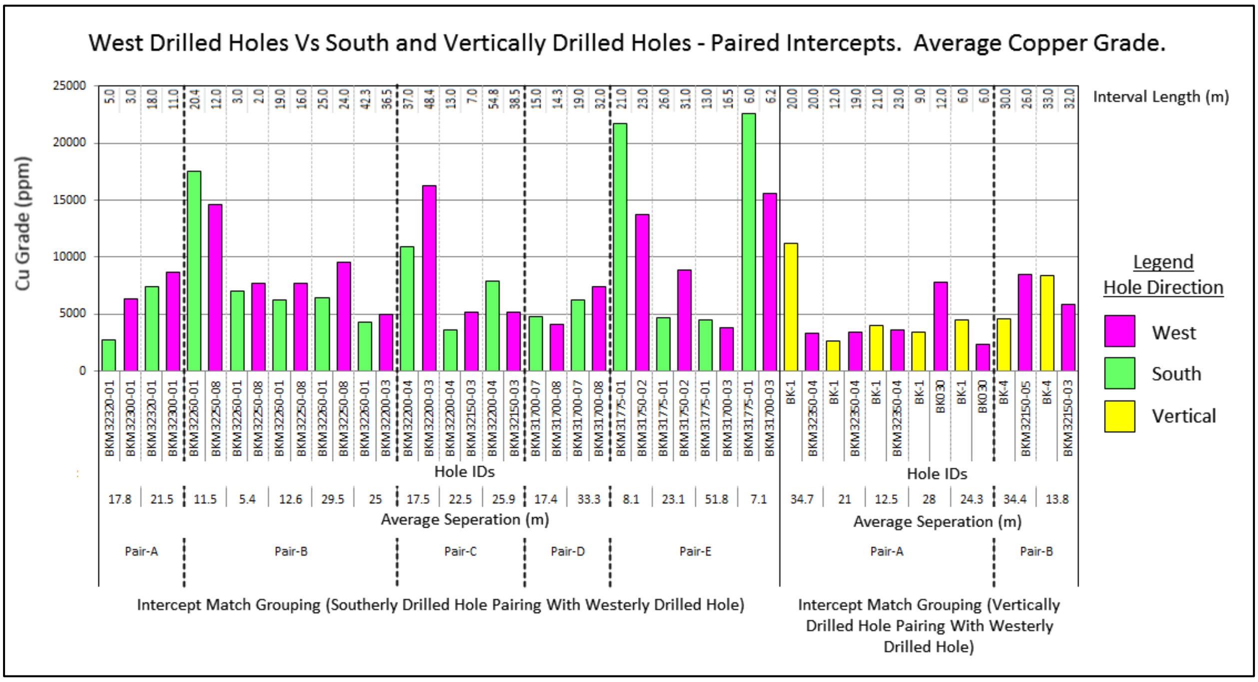


Figure 31: Paired interval copper grade and intercept length. Westery, Southerly and vertically drilled holes.

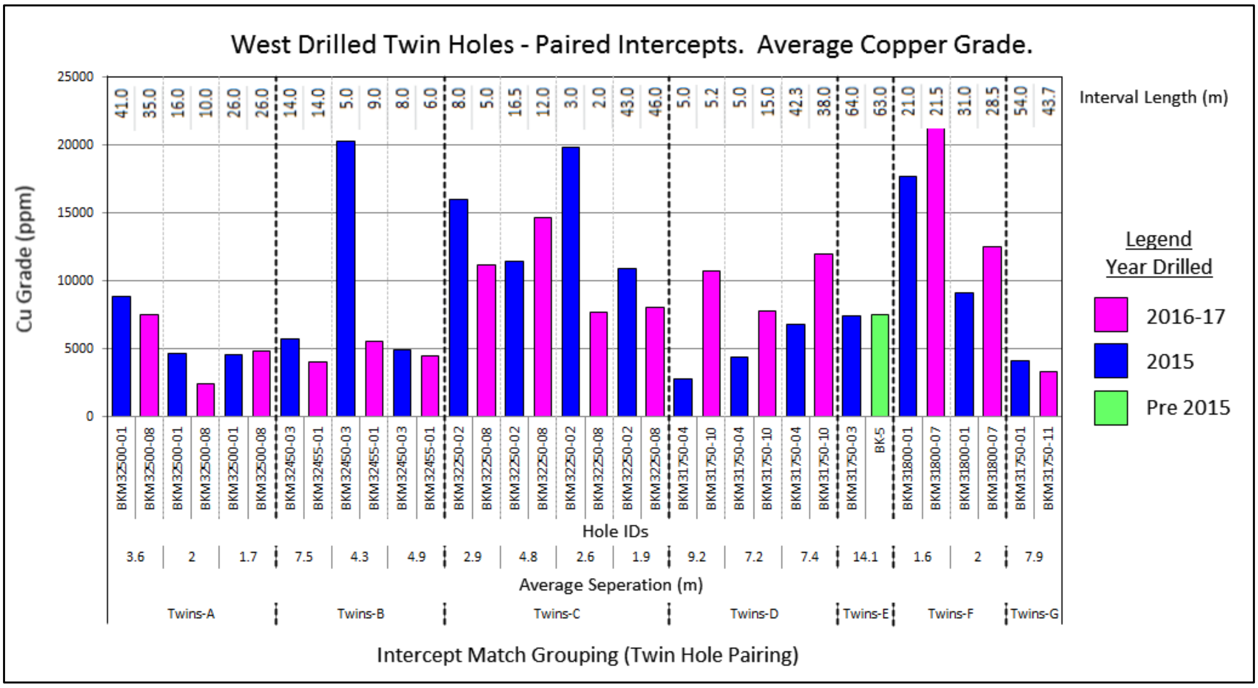


Figure 32: Paired interval copper grade and intercept length. Twinned holes.

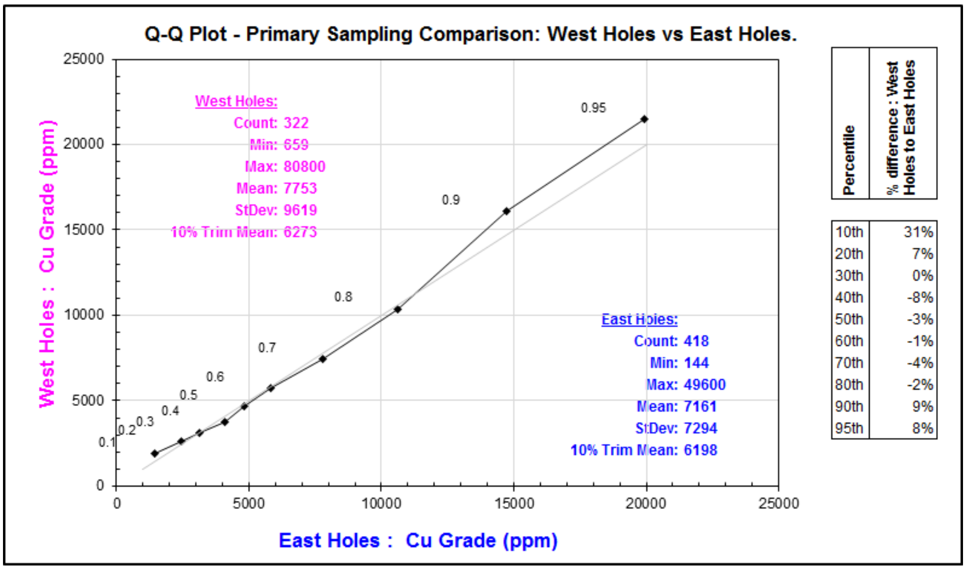


Figure 33: Copper grade population comparison. Westery and Easterly drilled holes.

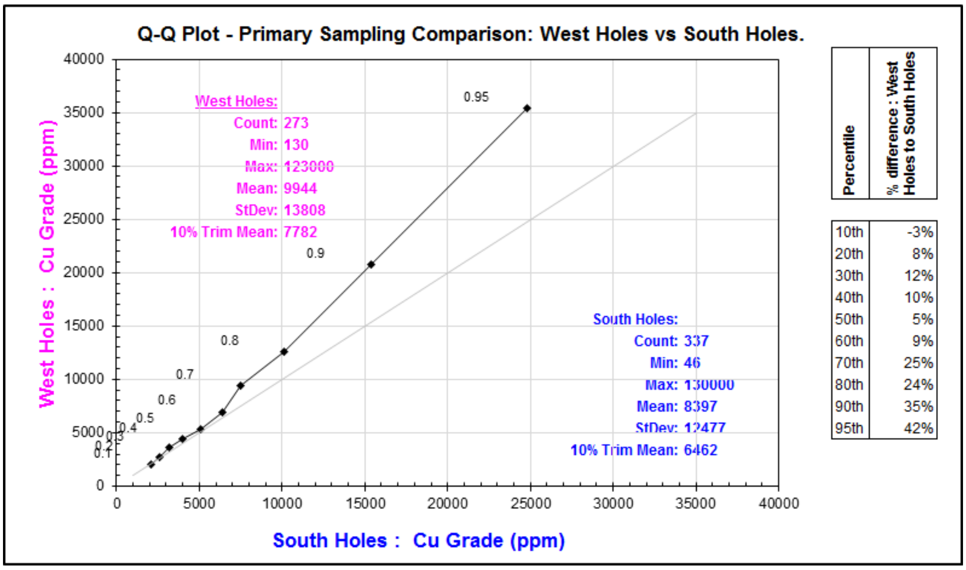


Figure 34: Copper grade population comparison. Westery and Southerly drilled holes.

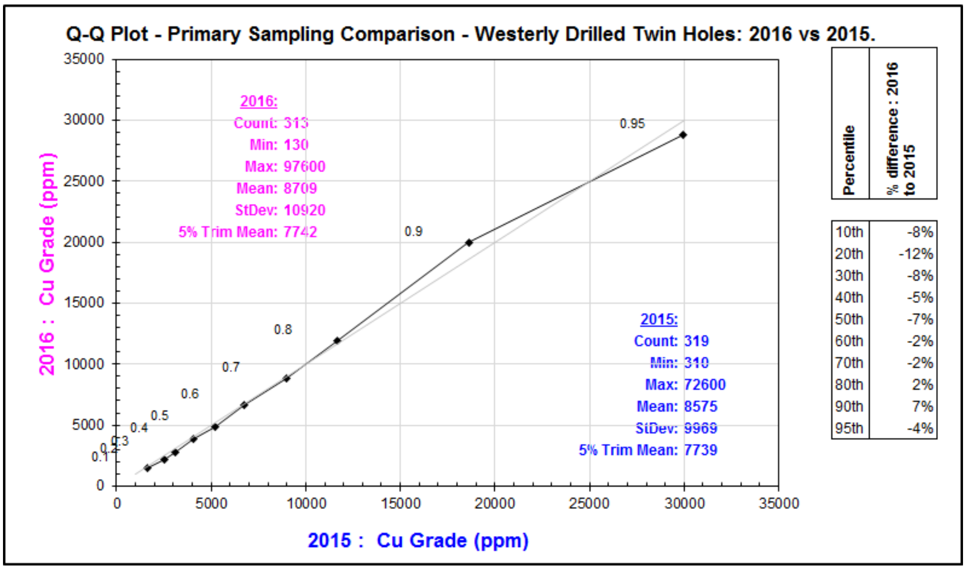


Figure 35: Copper grade population comparison. Twin holes.

12.2.7 Tonnage Factor Determination

The 2015 and 2016-17 DBD measurements were used to determine tonnage factors for the 2017 Resource Estimate. Four domains, defined by TIN surfaces, are employed to assign tonnage factors (DBD) into the block model for the 2017 Resource Estimate. These are:

- Soil and oxide domain: the average DBD of 68 validated measurements, Tonnage_Factor = 1.77 t/m^3
- Surface clay/poor-recovery heterogeneous domain: the average DBD of 139 validated measurements, Tonnage_Factor = 2.25t/m^3
- Deep heterogeneous and variable porous domains: the average DBD of 370 validated measurements, Tonnage_Factor = 2.61t/m^3
- Homogeneous and predominantly non-porous domain: a regression based on 4208 validated measurements, Tonnage_Factor = (0.025 * Block_Fe_OK_grade + 2.65) t/m^3

13 Mineral Processing and Metallurgical Testing

KSK is currently conducting column leaching and associated testwork studies on six representative composite samples of the BKM mineralisation. This work is being undertaken at Core Resources (Australia) under the direction of KSK and heap leach experienced consultants Graeme Miller (Miller Metallurgical Services Pty Ltd, (MMS)) and David Readett (Mworx Pty Ltd).

KSK has informed the market of metallurgical progress and results through press releases dated 17 July, 2015, 22 November 2016 and 22 May, 2017 where:

- In 2015 they reported:

  - BKM Mineralogy is suitable for a microbial acid/ferric leach regime.
  - Bottle roll tests show leaching potential:
    - for high copper recoveries with >95% acid + cyanide soluble copper.
    - very low acid consumption.
    - supporting evidence to be nett acid producing.
  - Low/positive acid balance which will facilitate long term heap leaching without reaching an economic limit. Thus potentially allowing higher recoveries to be achieved.
  - MMS concludes that further work is required with appropriate protocols to provide quantitative results for metallurgical design.
- In 2016 they reported on the comminution testwork findings, these being:
  - The BKM ore types will require minimal crushing.
  - Relatively low wear-rates can be expected for the metal components within the crushing plant.
- In 2017 they reported on the interim column leach testwork findings, these being:
  - Short (2-metre) columns having at the time been leached for 100 of the planned 180 day programme show recoveries exceeding 87% (12.5mm crush material) and recoveries exceeding 75% (19mm crush material) in some composites.
  - Long (6-metre) columns having at the time been leached for 100 of the planned 270 day programme show recoveries exceeding 72% (12.5mm crush material) and recoveries exceeding 73% (19mm crush material) in some composites.

No further update on the column testwork is available at the time of reporting on the 2017 mineral resource estimate; however H&A expects that KSK will update the market of current metallurgical testwork findings and planned additional testwork at the completion of the short column leach tests during Q3 2017.

14 Mineral Resource Estimates

The BKM 2017 mineral resource estimate was undertaken utilizing Minesight™ software for domaining and Vulcan™ software for block modeling and grade interpolation. This section lists the processes and parameters used in generating the estimate.

14.1 Resource Domaining

The methods involved in identifying and generating the copper grade interpolation domains is outlined in Section 12.2.2. These domains and details are listed in Table 26. The domain triangulations are grouped according to their composite search ellipsoid parameters (Figure 36).

The domains have been utilized as hard boundaries for copper grade interpolation in the BKM 2017 Resource Estimate.

Table 26: Resource domain TIN files, block model coding details and composite search parameters for copper grade interpolation.

Usage	Triangulation	BM Variable	Value	Priority	Z Axis Inversion	Composite Search Ellipsiod (Vulcan™)		
						Bearing (Z)	Plunge (Y)	Dip (X)
Grade Interpolation	1a_Combined_29_060_2017.00t	estdom	60	1	None	37	-18	-13
	1a_Combined_36_095_2017.00t	estdom	95	1	None	95	-40	0
	1a_Combined_22_017_2017.00t	estdom	17	1	None	11	-21	-24
	1a_Combined_40_025_2017.00t	estdom	25	1	None	37	-40	-7
	1a_Combined_22_030_2017.00t	estdom	30	1	None	30	-19	-9
	10_Base_Soil_Surface_20170511.00t	estdom	100	1	Partial	No Grade Estimated		
	DTM-BK-Lidar_C.00t	estdom	2	2	Partial			
Tonnage Factor Assignment	DTM-BK-Lidar_C.00t	dbddoms	1	1	None	dbdregress = (0.025 * FEOK + 2.65) t/m^3		
	10_Base_Soil_Surface_20170511.00t	dbddoms	2	2	Partial	dbdregress= 1.77 t/m^3		
	a_Base_Surf_recovIssue_Solid_20170611.00t	dbddoms	3	3	None	dbdregress= 2.25t/m^3		
	a_solid-Hetrogeneous_poss_bias_SG.00t	dbddoms	4	4	None	dbdregress = 2.61t/m^3		
	DTM-BK-Lidar_C.00t	dbddoms	5	5	Partial	dbdregress = -99		

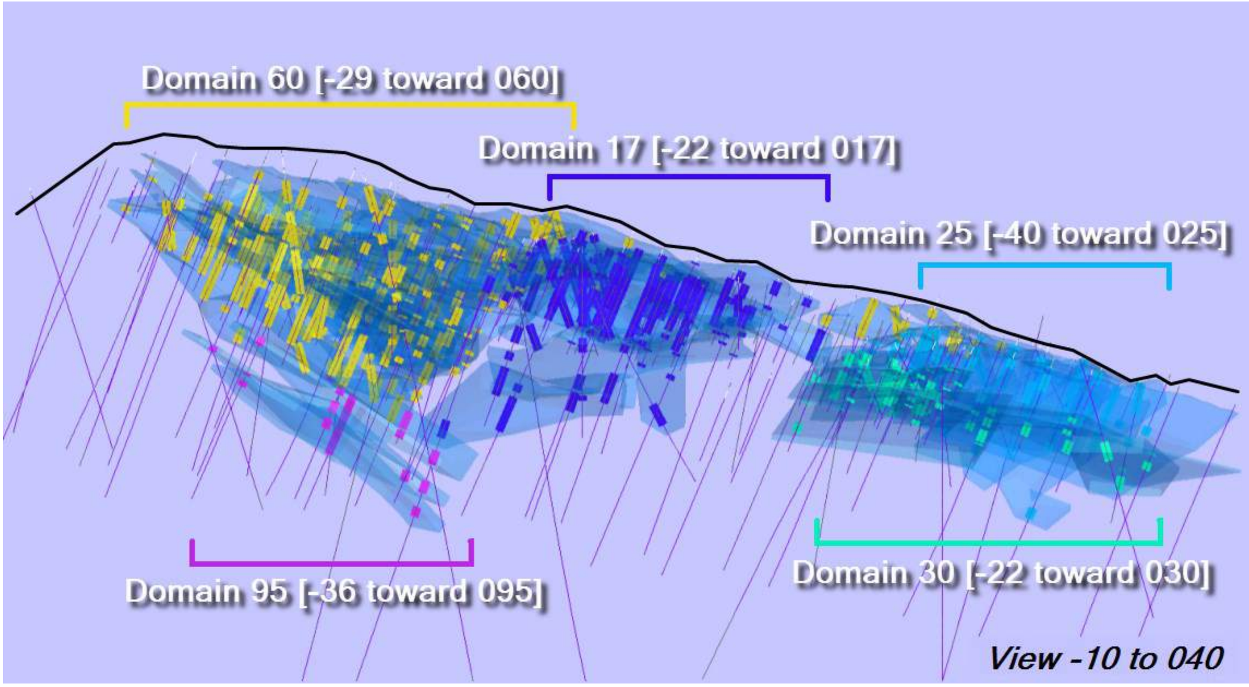


Figure 36: Mineralisation Domains. View in dip direction.

14.2 Copper Assay Compositing

Compositing was undertaken utilizing the Vulcan™ run-length routine. Composites were checked visually on screen and against original sample intervals/grades to ensure that domain contacts and sample interval breaks were honoured.

Kriging Neighborhood Analysis (KNA) investigations support a three metre composite length which also aligns with the 563 mineralised primary sample intervals employed in the pre-2015 drill programmes. The BKM 2017 Resource Estimate is underpinned by 3,542 mathematical composites within mineralised domains and designed to have a nominal length of 3m. 353 of these composites are less than three metres in length, with 39 being less than one metre in length (minimum length of 0.1m). The 34 short composites (<1m) were checked against the original assay dataset which confirmed that compositing had been undertaken as intended. The short composite intervals are the result of the irregular original sampling intervals where the compositing routine generates a remainder-interval to accommodate the additional sample lengths between the last 3m composite and the domain boundary. As there is no discernible copper grade differential with proximity to domain boundaries (Table 17) the short edge-composites were not excluded from the composite dataset used for grade interpolation.

10,282 nominal 3m composites are located outside of the mineralised domains and, through highly restrictive search and sample selection criterion, have been used in estimating blocks in the vicinity of isolated high grade intercepts (preserving grade) as well as generating a background copper, iron (for tonnage determination) and sulphur model.

The copper composite data distribution is shown in Figure 39. The population within mineralised domains has a mean of 6825ppm Cu and in non-mineralised areas a mean of 429ppm Cu.

14.3 High Grade Copper Treatment

A review of the copper composite data was undertaken to identify any outlier assays that may require consideration during grade interpolation. The 3m copper composites within mineralised domains were log_{10} transformed and plotted as a log-probability graph (Figure 37). A clear continuum in the graph between 1200ppm and 30000ppm copper supports the observations from core and made during resource domaining, that being, the copper mineralization appears to be of the same event and that more intense veining/replacement leads to higher grades. The sixty-seven composites with grades greater than 30000ppm that plot as outliers in the log-probability also plot spatially as individual, dual/triple or clustered samples. These outliers were selected for high-grade treatment during grade interpolation.

The high grade copper composites have been used uncut in grade interpolation however their area of influence has been restricted to a 50mX50mX25m volume surrounding their location (Table 27). This action will preserve high grades within the estimate and will reflect the geological event controlling their distribution.

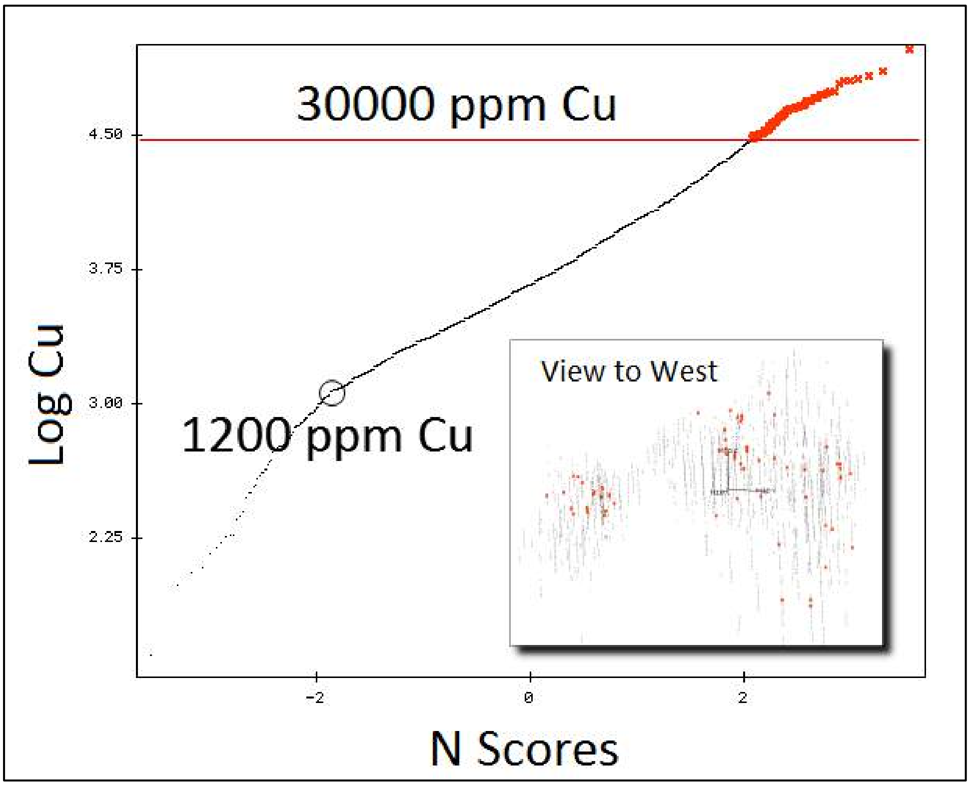


Figure 37: Log-probability plot, copper composites. High grade treatment threshold set at 30000ppm Cu.

As validation that 30000ppm Cu is a reasonable threshold, two check interpolation runs were undertaken with restrictions set at 44800ppmCu and at no-restriction. Swath plots presented at Figure 38 show that 30000ppmCu is a reasonable level to apply the restriction there is no significant deviation of grade from the other trial and then only where there is clustering of high grade copper intercepts on section lines (reflecting the restriction of these grades to their immediate vicinity in interpolating copper grades). The grade differential between the 30000ppm Cu restricted influence model and the uncut model cuts 1.9KT of contained copper from the estimated Measured Resources, 2.7KT from the Indicated Resources and 9.2KT from the Inferred resources.

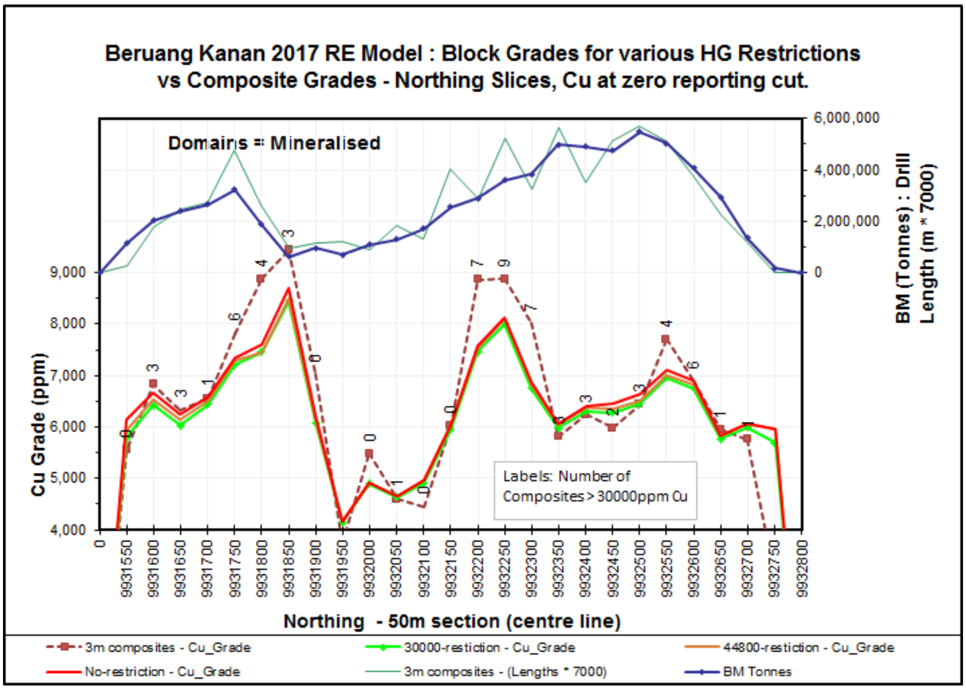


Figure 38: Swath plot of high grade copper restriction threshold trials.

14.4 Block Model Details

Details of the BKM 2017 Resource Estimate Vulcan™ block model are listed below. Domain triangulations and the block coding details are listed at Table 26.

```
Block Model Details

Model name          : BK_postestimate_2017
Format              : extended
Structure           : non-regular
Number of blocks    : 428775
Number of variables : 12
Number of schemas   : 2
Origin              : 0.000000 0.000000 0.000000
Bearing/Dip/Plunge  : 90.000000 0.000000 0.000000
Created on          : Wed Jun 21 09:23:46 2017
Last modified on    : Fri Jun 28 12:24:12 2017
Model is indexed.

Variables       Default    Type       Description
-----------------------------------------------------
estdom            5.0      short      Estimation domains
cuok            -99.0      short      Cu ppm; Ordinary Kriged estimate
flagok          -99.0      short      Flag if estimated in OK (pass 1-3 in estdom >5<100)
                                       plus flag 4 and 5 for estdom = 5
kvar            -99.0      float      OK variance
numbsamp        -99.0      short      Number of composites OK
numbdhs         -99.0      short      Number of holes OK
avdist          -99.0      short      Av distance of selected samples OK
class           -99.0      short      Classification 1Meas 2Indic 3infer
pit2016         -99.0      byte       in April 2016 PEA pit shell (1)
allmin          -99.0      short      all mineralised domains (estdom 17-95)
dbddoms         -99.0      short      domains for assigning DBD; SoilOx; surfaceconcern;
                                       deepconcern; ok
dbdregress      -99.0      float      DBD regression with Fe or stamped av DBD

Schema <parent>
Offset minimum : 768200.000000 9931400.000000 100.000000
       maximum : 769250.000000 9932900.000000 600.000000
Blocks minimum : 25.000000 25.000000 10.000000
       maximum : 25.000000 25.000000 10.000000
  No of blocks : 42 60 50

Schema <subblock>
Offset minimum : 768200.000000 9931400.000000 100.000000
       maximum : 769250.000000 9932900.000000 600.000000
Blocks minimum : 5.000000 5.000000 2.000000
       maximum : 25.000000 25.000000 10.000000
  No of blocks : 210 300 250
```

14.5 Copper Grade Interpolation

Ordinary Kriging was employed as the copper interpolation method. The kriging neighborhood investigation and experimental variography report is included at Appendix 16. Key features of the mineralisation and domaining identified in the investigation are:

- The general consistency of copper grades within and between the estimation domains.
- Experimental semi-variograms were assessed for all domains. Variogram models involving a nugget and two spherical structures were fitted to all semi-variograms and primary directions reflect the overall geometries of the modeled domains.
- Blocks outside of modeled domains were estimated by the inverse distance squared interpolator.

Copper grade interpolation was undertaken in five passes, reflecting the block proximity to drilling data and block relationship with mineralization domains. Details of the runs are listed in Table 27. In summary:

- Pass 1: Within modeled mineralised domains and search radii of nominally 100mX70mX20m (runs ok017a, ok025a, ok030a, ok060a and ok095a). Composites within all domains can inform blocks within domains, composites outside of domains are not used. Five search ellipsoids orientations are employed, each reflecting the overall geometry of the domains they best fit (as shown in Table 26 and Figure 36). A minimum of 8 and maximum of 40 composites are used to generate block grades. Octant search parameters are employed with a minimum of 6 octants to be informed before a grade is interpolated (except domain 95). Copper grades greater than 30000ppm are restricted to estimate blocks within a radius of 50mX50mX25m.
- Pass 2: Within modeled mineralised domains and search radii of nominally 200mX150mX40m (runs ok017b, ok025b, ok030b, ok060b and ok095b). Composites within all domains can inform blocks within domains, composites outside of domains are not used. Five search ellipsoids orientations are employed, each reflecting the overall geometry of the domains they best fit (as shown in Table 26 and Figure 36). A minimum of 4 and maximum of 40 composites are used to generate block grades. Octant search parameters are employed with a minimum of 4 octants to be informed before a grade is interpolated (except domain 95). Copper grades greater than 30000ppm are restricted to estimate blocks within a radius of 50mX50mX25m.
- Pass 3: Within modeled mineralised domains and search radii of nominally 230mX180mX60m (runs ok017c, ok025c, ok030c, ok060c and ok095c). Composites within all domains can inform blocks within domains, composites outside of domains are not used. Five search ellipsoids orientations are employed, each reflecting the overall geometry of the domains they best fit (as shown in Table 26 and Figure 36). A minimum of 2 and maximum of 40 composites are used to generate block grades. Octant search parameters are employed with a minimum of 4 octants to be informed before a grade is interpolated (except domain 95). Copper grades greater than 30000ppm are restricted to estimate blocks within a radius of 50mX50mX25m.
- Pass 4: Outside of modeled mineralised domains, sample selection of only those composites with greater than 2000ppm copper grades, outside of the modeled mineralised domains and within a search radius of 25mX25mX10m (run cuid5a). All other parameters are the same as for the Pass 1 for domain 60 except a minimum of 3 and maximum of 10

composites applied and the octant search criteria removed. Copper grades greater than 10000ppm are restricted to estimate blocks within a radius of 25mX25mX10m.

- Pass 5: Outside of modeled mineralised domains, sample selection of only those composites outside of the modeled mineralised domains and within a search radius of 250mX200mX60m (run cuid5b). All other parameters are the same as for the Pass 1 except a maximum of 10 composites applied and the octant search criteria removed. Copper grades greater than 2000ppm are restricted to estimate blocks within a radius of 25mX25mX10m.

Table 28 shows that grade interpolation process ran as planned with 98% of the blocks within the mineralised domains being estimated in passes 1 and 2 and 325 blocks estimated outside of the mineralised domains in pass 4.

Table 27: Copper Grade Interpolation - Estimation Run Details.

Criteria	Default for estimation runs (those not listed to right)	Specific to individual estimation runs	
		Estimation Run	**Detail**
Estimation_File	bkcuID2OK_2017.bef		
Estimation Type	Ordinary Block Kriging	cuid5a ; cuid5b	inverse distance squared
Block Model	BK_postestimate_2017.bmf		
Estimation Variable	cuok : Default value -99		
Composite_File	BKCU_3M.MAP		
Input Variable	CUPPM		
Composite Selection Criteria	Ignore GEOCOD "5.000" and "100.000"	cuid5a	CUPPM >=2000 and GEOCOD = "5.000"
		cuid5b	GEOCOD = "5.000"
Maximum Number of Composites	40	cuid5a	10
Minimum Number of Composites	8	ok017b ; ok025b ; ok030b ; ok060b ; ok095b	4
		ok017c ; ok025c ; ok030c ; ok060c ; cuid5b	2
		cuid5a	3
Octant base composite search (matches search elipsoid)	no octant sample selection criteria	ok017a ; ok025a ; ok030a ; ok060a	Minimum of 6 octants filled ; min 1 max 4 comps per octant
		ok017[b-c] ; ok025b ; ok030b ; ok060[b-c] ; cuid5b	Minimum of 4 octants filled ; min 1 max 4 comps per octant
Sample Upper Cuts	not cut		
High Grade Cu Restriction Threshold	30000	cuid5a ; cuid5b	10000 ; 2000
Restriction Major Axis (m) Within	50	cuid5a ; cuid5b	25
Restriction Semi-Major Axis (m) Within	50	cuid5a ; cuid5b	25
Restriction Minor Axis (m) Within	25	cuid5a ; cuid5b	10
Bearing (Rotation around Z): Composite Selection, High Grade Restriction and Kriging Structures		ok017[a-c]	11
		ok025[a-c] ; ok060[a-c] ; cuid5[a-b]	37
		ok030[a-c]	30
		ok095[a-b]	95
Plunge (Rotation around Y): Composite Selection, High Grade Restriction and Kriging Structures		ok017[a-c]	-21
		ok025[a-c] ; ok095[a-b]	-40
		ok030[a-c]	-19
		ok060[a-c] ; cuid5[a-b]	-18
Dip (Rotation around X): Composite Selection, High Grade Restriction and Kriging Structures		ok017[a-c]	-24
		ok025[a-c]	-7
		ok030[a-c]	-9
		ok060[a-c] ; cuid5[a-b]	-13
		ok095[a-b]	0

Table 27 continued. Copper Grade Interpolation - Estimation Run Details.

Criteria	Default for estimation runs (those not listed to right)	Specific to individual estimation runs	
		Estimation Run	Detail
Composite Selection Ellipsoid Major Axis (m)		ok017[a-c]	120 ; 240 ; 300
		ok025[a-c]	100 ; 200 ; 250
		ok030[a-c]	70 ; 140 ; 175
		ok060[a-c]	125 ; 250 ; 310
		ok095[a-b]	50 ; 100
		cuid5[a-b]	25 ; 250
Composite Selection Ellipsoid Semi-Major Axis (m)		ok017[a-c]	90 ; 180 ; 225
		ok025[a-c]	70 ; 140 ; 175
		ok030[a-c]	50 ; 100 ; 125
		ok060[a-c]	100 ; 200 ; 250
		ok095[a-b]	50 ; 100
		cuid5[a-b]	25 ; 200
Composite Selection Ellipsoid Minor Axis (m)		ok017[a-c]	20 ; 40 ; 50
		ok025[a-c]	25 ; 50 ; 62.5
		ok030[a-c]	16 ; 32 ; 40
		ok060[a-c]	30 ; 60 ; 75
		ok095[a-b]	15 ; 30
		cuid5[a-b]	10 ; 60
Ordinary Kriging Model	nugget + two spherical structures		
Nugget ; Structure1 Sill Differential ; Structure2 Sill Differential		ok017[a-c]	0.2576 ; 0.4918 ; 0.2506
		ok025[a-c]	0.1869 ; 0.4376 ; 0.3755
		ok030[a-c]	0.2866 ; 0.4757 ; 0.2377
		ok060[a-c]	0.1843 ; 0.3755 ; 0.4402
		ok095[a-b]	0.2465 ; 0.2769 ; 0.4766
Range Structure 1 [major ; semi-major ; minor]		ok017[a-c]	40 ; 40 ; 8
		ok025[a-c]	75 ; 60 ; 10
		ok030[a-c]	10 ; 10 ; 5
		ok060[a-c]	60 ; 60 ; 7
		ok095[a-b]	25 ; 25 ; 10
Range Structure 2 [major ; semi-major ; minor]		ok017[a-c]	120 ; 90 ; 20
		ok025[a-c]	100 ; 70 ; 25
		ok030[a-c]	70 ; 50 ; 16
		ok060[a-c]	125 ; 100 ; 30
		ok095[a-b]	50 ; 50 ; 15
Block Selection		ok017[a-c]	estdom eq 17 and FLAGOK lt 0
		ok025[a-c]	estdom eq 25 and FLAGOK lt 0
		ok030[a-c]	estdom eq 30 and FLAGOK lt 0
		ok060[a-c]	estdom eq 60 and FLAGOK lt 0
		ok095[a-b]	estdom eq 95 and FLAGOK lt 0
		cuid5[a-b]	estdom eq 5 and FLAGOK lt 0
Block Discretization	5X ; 5Y ; 4Z		
Estimation centroid	parent block centroid		
Flag if Estimated		ok017a ; ok025a ; ok030a ; ok060a ; ok095a	1
		ok017b ; ok025b ; ok030b ; ok060b ; ok095b	2
		ok017c ; ok025c ; ok030c ; ok060c ; ok095c	3
		cuid5a ; cuid5b	4 ; 5

Table 28: Copper Grade Interpolation - Estimation Run Performances.

Estimation Run ID	Total Blocks in Domain	Blocks Estimated	Cumulative % Estimated
ok017a	15158	11054	72.9%
ok017b		3984	99.2%
ok017c		120	100.0%
ok025a	9603	5844	60.9%
ok025b		3529	97.6%
ok025c		230	100.0%
ok030a	10159	2462	24.2%
ok030b		6446	87.7%
ok030c		125	88.9%
ok060a	36707	31119	84.8%
ok060b		5532	99.8%
ok060c		7	99.9%
ok095a	3009	1404	46.7%
ok095b		1605	100.0%
cuid5a	212658	325	0.2%
cuid5b		167250	78.8%

14.6 Tonnage Factors

The tonnage factors were stamped onto the model according to the following:

- Soil and oxide domain:
  - TIN surface "10_Base_Soil_Surface_20170511.00t",
  - BM Variable "dbddoms" = 2
  - Tonnage Factor variable "dbdregress" = 1.77 t/m^3
- Surface clay/poor-recovery heterogeneous domain:
  - TIN surface "a_Base_Surf_recovIssue_Solid_20170611.00t"
  - BM Variable "dbddoms" = 3
  - Tonnage Factor variable "dbdregress" = 2.25t/m^3
- Deep heterogeneous and variable porous domains:
  - TIN surface "a_solid-Hetrogeneous_poss_bias_SG.00t"
  - BM Variable "dbddoms" = 4
  - Tonnage Factor variable "dbdregress" = 2.61t/m^3
- Homogeneous and predominantly non-porous domain:
  - Default below topography and not included in above TIN surfaces
  - BM Variable "dbddoms" = 1
  - Tonnage_Factor = (0.025 * Block_Fe_OK_grade + 2.65) t/m^3

14.7 Model Validation

The resource block model coding was validated visually against both the mineralization domain models and the coded composites.

The copper grade interpolation was cross-checked against the composite data both statistically (Figure 39) and spatially on screen and by swath plots (Figure 40). An ID^2 check estimate and a composite selection methodology check estimate (octant search parameters removed) were generated and correlate well with the grade distribution of the BKM 2017 resource block model. The BKM copper grade interpolation strategy has produced a resource model that adequately reflects the grade distribution identified in both the close and broad spaced drilling of the project area.

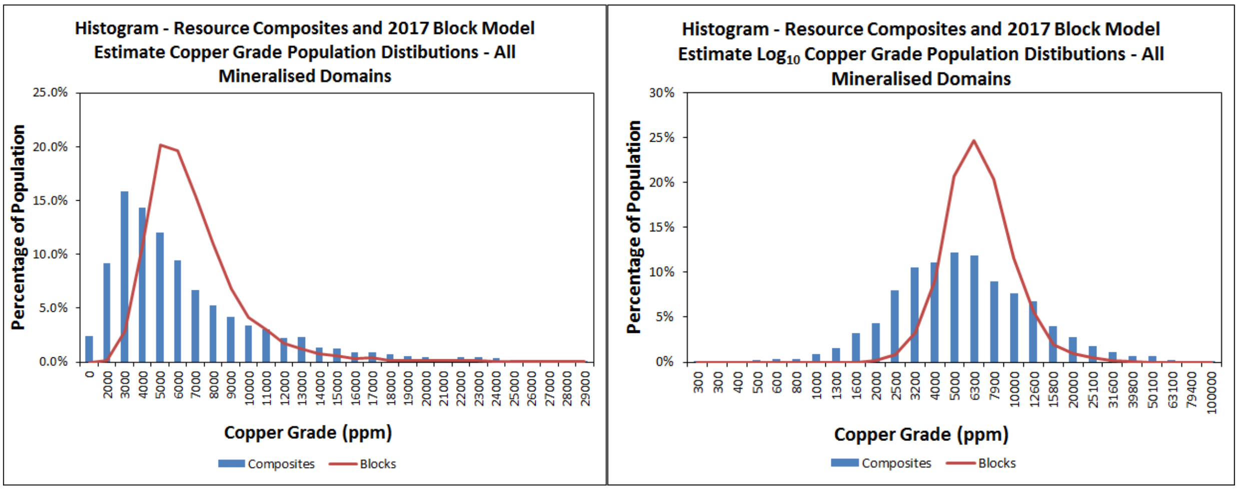


Figure 39: Histograms showing comparison between 2017 resource model Copper grades and Composite Copper grades.

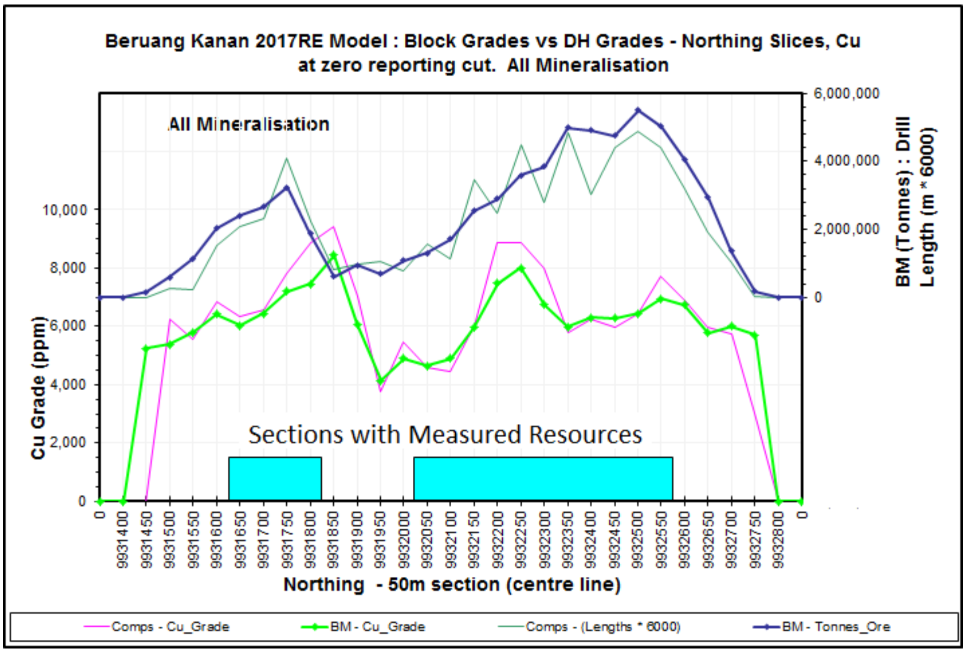


Figure 40: Block Model Validation. Northing Swath Plots.

14.8 Classification

The resources at Beruang Kanan as estimated in 2017, being the subject of this report, are classified as Measured, Indicated and Inferred Resources under guidelines set out in the Canadian National Instrument 43-101 (CIM Definition Standards). The key considerations in assigning this classification are as follows and risk reduction associated with these criteria will assist with expanding the Indicated and Measured Resources by assigning higher classifications to the Indicated and Inferred Resources in future estimates:

- Low to moderate risk associated within the three volumes showing significant intervals of poor core recovery and variable physical properties reducing confidence in the assay and DBD samples used to determine the copper estimate and tonnage factors for these zones.
- Low risk associated with the current drill spacing and orientation in reliably testing Indicated mineralisation in the north of the deposit where mineralisation is tested only by westerly drilled holes.
- Low risk associated with the unknown suitability of the sample comminution and sub-sampling strategy employed by historic workers
- Low risk associated with inability to directly validate historic data

The classification process involved:

- Utilising findings from a conditional simulation study undertaken in early 2016 and designed to determine the maximum (optimal) drill/sample spacing for defining Measured, Indicated and Inferred resources at BKM (Appendix 17), in particular the material most likely to be mined within the first four years of production (as defined in the PEA study). The conditional simulation study addresses estimation confidence based on grade variability throughout the deposit. The study shows:

- that at the 2015 drilling configuration;
  - No Measured Resources could be assigned,
  - 40% of the material in the first four year's production could be assigned Indicated classification, and
  - 57% of the material in the PEA pit could be assigned Indicated classification
- With the proposed 2016-17 drilling program (infill to 50mx50m spacing);
  - 56% material in the first four year's production could be assigned Measured classification with the remainder comfortably assigned Indicated classification.
  - Confidence in the remaining resources in the PEA pit will be significantly increased.

- Defining volumes of the resource for measured resource consideration by:
  - Delineating the mineralisation where geological and grade continuity is proven by holes drilled at orientations other than the primary westerly testing direction.
  - Identifying volumes of the mineralisation where copper grades were estimated;
    - in the first interpolation pass,
    - with more than 35 composites,
    - with the average composite distance being less than 50m,
    - with composites being sourced from more than three drillholes (mostly more than six drillholes),
    - with a Kriging variance of less than 0.2.
  - Defining exclusion volumes where confidence in copper grade estimate is compromised by poor core recovery and confidence in tonnage factors is compromised by suspected selective sampling and low sample numbers where material heterogeneity exists.
- Defining volumes of the resource for exclusion from Measured and Indicated resource consideration by:
  - Identifying volumes of the mineralisation where copper grades were estimated;
    - in the second and third interpolation pass,
    - with less than 35 composites,
    - with the average composite distance being greater than 50m (mostly greater than 75m),
    - with composites being sourced primarily from 3 to 6 drillholes (but can be significantly more),
    - with a Kriging variance of greater than 0.2 (mostly 0.3 to 0.4).
  - identifying all mineralisation not belonging to modeled estimation domains.

- Two classification TIN solids "a_Measured.00t" and "a_Inferred.00t" were generated from the criteria listed above and employed to stamp the Measured and Inferred classification onto the 2017 block model. Resources within the upper Surface clay/poor-recovery heterogeneous domain "a_Base_Surf_recovIssue_Solid_20170611.00t" were restricted from being classified as Measured Resources.
- By default any resources not classified as Measured or Inferred are classified as Indicated Resources. The location of the Measured, Indicated and Inferred resources is presented at Figure 41.

Table 29 shows that copper grades for 96% of the Measured Resources and 87% of the Indicated Resources were interpolated in the first pass of the estimation runs. This pass has most stringent criteria in selecting samples for estimating block grades (Table 27) as reflected by the statistics listed in Table 29. In contrast 44% of Inferred resources were interpolated in the first pass of estimation runs.

98% of the Measured Resources are contained within the 2016 PEA pit. 45% of the mineralisation within the PEA pit has a Measured Mineral Resource classification, 50% an Indicated classification and 5% an Inferred Classification (all Inferred resources are located proximal to the final pit shell position).

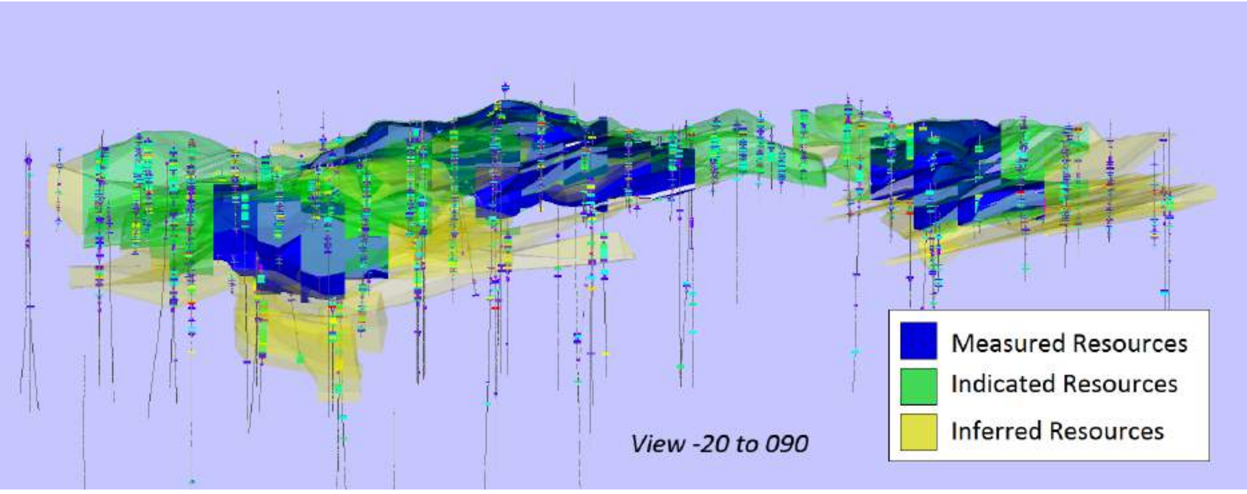


Figure 41: Location of Indicated Resources. Remaining mineralisation classified as Inferred Resources.

Table 29: Statistics on data selection criteria for Measured, Indicated and Inferred resources.

Interpolation Run Number	Interpolated Cu grade (%)				Tonnes Estimated (MT)				Average Number of DHs in Estimate				Average Number of Composites in Estimate				Average distance to Composites in Estimate			
	1	2	3	Total	1	2	3	Total	1	2	3	Total	1	2	3	Total	1	2	3	Total
Measured Resources	0.7	0.7		**0.7**	19.6	0.9		**20.5**	7.1	9.0		**8.0**	39.6	39.6		**39.6**	43.4	53.7		**48.6**
Indicated Resources	0.6	0.6	0.6	**0.6**	25.0	3.7	0.01	**28.7**	7.4	8.6	7.2	**7.7**	39.3	38.4	31.1	**36.3**	51.6	69.1	96.0	**72.2**
Inferred Resources	0.6	0.6	0.6	**0.6**	7.8	9.2	0.7	**17.7**	5.9	7.4	6.7	**6.7**	30.4	33.6	22.5	**28.8**	58.7	84.0	105.6	**82.8**
Total	**0.6**	**0.6**	**0.6**	**0.6**	**52.4**	**13.9**	**0.7**	**66.9**	**6.8**	**8.3**	**6.9**	**7.4**	**36.4**	**37.2**	**26.8**	**34.3**	**51.2**	**68.9**	**100.8**	**70.3**

The Beruang Kanan 2017 Resource Estimate and Block Model are known at a Measured, Indicated and Inferred level of confidence (NI 43-101) at a global or overall scale. The Inferred resources are not suitable for any detailed studies or investigations requiring a high degree of local resource confidence (such as engineering or metallurgical studies) other than for the preparation of a Preliminary Economic Assessment Study and for planning purposes for programmes designed in improving local and global resource confidence or resource expansion.

The following details the technical areas considered in classifying the BKM 2017 Copper Resource Estimate;

- Geological understanding (geological and copper grade continuity):

  KSK and joint venture workers have undertaken sufficient work to understand the style(s) of mineralization at BKM for the classification of Measured Resources. The geological and grade continuity is based on recent interpretations undertaken as part of this and the previous (2014-15) resource estimation processes. The core logging and other observations fit with the interpretation that mineralization is vein style and hosted mostly within a structurally complex zone (shear or thrust coupling/ramping/divergence) and the observations from a comprehensive petrology study.

  Geological and grade continuity has been tested by holes drilled at orientations other than the primary testing direction of 270degrees in volumes of the mineralisation classified as Measured Resources. Of concern regarding confidence in the Indicated and Inferred mineralisation is that:

  - Surface mapping does not recognize the interpreted major thrust directions of ~090 and ~110 degrees used in directing the overall geometry of mineralization and where mineralisation thins and copper grade tenor diminishes the grade continuity is assumed by extrapolation from volumes where continuity is confirmed.
  - The vein mineralization continuity is not understood and may be at orientations other than that described by the overall geometry of the mineralization which presents as a higher risk to local estimates where mineralisation is thinner and of lower grade tenor.

- Drilling density and configuration:

  The drilling is mostly oriented at -60^{O} towards 270^{O} and at nominal 50m centres along 50m spaced grid lines over the main zone of mineralization. Measured Resources have been drill tested at alternate orientations. Of concern regarding confidence in the Indicated and Inferred Resources is that:

- There has been no investigation into attitude of the mineralised veins/vein-sets and therefor no evaluation as to the suitability of drill hole orientation wrt the mineralization.
- The drill density is such that, given the vein-style mineralization hosting copper, the estimate can only be considered for classification at a global scale where continuity is not proven at local scale by alternate drilling directions.

- Sample location:

  The collar locations of holes are considered well known. Down hole survey information is lacking for 30 of the holes drilled into the BKM Main Zone mineralisation. Of concern regarding confidence in the resource estimate is that:

  - Although the locations of samples from these holes delineating the mineralization cannot be validated, the reasonable predictability of hole trace locations for those with survey information lends support to the reliability of hole traces defined by a single collar survey azimuth and declination. The 2015 drilling results support the earlier hole results indicating that collar location issues are likely to pose only a minor risk to the estimate. The sample locations are considered well enough established to consider the BKM resource estimate for classification at a global scale.

- Primary sample size:

  The mineralization has been tested primarily with HQ triple-tube core however holes have been drilled at sizes of PQ, NQ and BQ. Workers for the pre 2015 drilling employed a nominal 3m sample interval (8% of samples within mineralisation) and a significant number of 2m intervals were sampled by workers in the 2015 drilling campaign (9% of samples within mineralisation). Of concern regarding confidence in the resource estimate is that:

  - There is an observed copper grade tenor shift of 26% between the NQ-BQ drill core samples (lower) and the PQ-HQ drill core samples. This is most likely due to natural grade variability throughout the mineralization but may reflect a fundamental sampling error effect in dealing with inherent heterogeneity of the mineralization. The dataset for the 2017 BKM resource estimate now comprises of <10% samples from NQ/BQ drilling which are spatially interspersed with HQ/PQ samples and the impact of any sampling error, if present, on the 2017 resource estimate will be minimal.
  - The large primary sample size and the sample comminution and reduction process employed are not theoretically ideal (according to Gy's generalized sampling nomogram) however the relatively narrow band of copper assays within the mineralization suggests that any issues may not be of significance when the risk is assessed at the global scale. The coarse crush duplicate analysis undertaken in the

2015 and 2016-17 QC programme shows no concern wrt sample reduction procedures effect on copper assay reliability.

- Sample preparation and assay:

  Large mineralised samples (2m and 3m lengths) were crushed to -4mm (3m samples) and -2mm (2m samples) before being sub-sampled to 1kg for pulverizing. All digests were conducted by 3 acid digest. Of concern regarding confidence in the resource estimate is that:

  - The sample comminution and reduction process employed are not theoretically ideal (according to Gy's generalized sampling nomogram) however the relatively narrow band of copper assays within the mineralization suggests that any issues may not be of significance when the risk is assessed at the global scale. The QC evaluation of the coarse crush and split duplicates undertaken during the 2015 and 2016-17 drilling campaigns showed no concern regarding sample preparation procedures on the reliability of copper assays for the BKM resource estimate.
  - Three acid digests are akin to total digests. This is only an issue if copper silicates are present within the mineralization at BKM. There is one recording of the copper silicate, chrysocolla, in an early thin section report and none in the 2017 petrology work. Three acid digests will give total copper content of samples and hense the 2017 BKM resource estimate is a total copper estimate. Sequential digests, currently being undertaken, are required of mineralised samples to obtain recoverable copper assays for use in future resource and reserve estimates.

- Assay data quality:

  The 2015 assay QC programme and QC work undertaken by ENJ-KSK contains sufficient quality control samples to assess reliability of the copper assays. Earlier work by OX-KSK contained limited quality control samples and there were no quality control samples submitted with assays for the early work undertaken by KSK (pre 2002). Of concern regarding confidence in the resource estimate is that:

  - Quality control samples submitted with the 2015, 2016-17 KSK programmes show that the copper assaying for these periods are of acceptable quality for classifying resources.
  - Quality control samples submitted with the ENJ-KSK programme show that the copper assaying for this period is of acceptable quality for classifying resources.
  - Quality control samples submitted with the OX-KSK programme show that there may be issues with copper assays from early batches of their work, however only one hole is affected by this issue and therefor assays from this period are of acceptable quality for classifying resources. Resources in the proximity of the affected hole have been classified as Inferred.

  - The copper assays data population from the early OX-KSK and early KSK work is comparable with the assay population from the 2015 KSK and ENJ-KSK work, leading H&A to conclude that, even though there is limited/no quality control on the early work, the copper assays from these periods are suitable for inclusion in the BKM 2017 Resource Estimate and acceptable for classifying resources.

- Tonnage factors:

  Dry Bulk Density measurements were taken from core during KSK 2015 and 2016-17 drilling programmes. Of concern regarding confidence in the resource estimate is that:

  - Diminished confidence in the tonnage factors applied to the resources from two heterogeneous and variably porous areas of the BKM mineralisation has occurred due to low DBD numbers and suspected sample selectivity. Mineralisation in these areas have been held back from being classified as Measured resources.

- Resource copper grade interpolation:

  The copper grade has been estimated by ordinary kriging interpolation methods. Of concern regarding confidence in the resource estimate is that:

  - The resource estimate reconciles well with the source (composite) dataset and compares well with alternative estimates utilising ID^2 methodologies and various check high grade restriction and composite selection strategies. The copper grade interpolation strategies are robust for the BKM estimate and acceptable for classifying the resource at the local scale.

14.9 Copper Resource Table and GT Curves

The Measured Indicated and Inferred Copper Resources at Beruang Kanan Main is tabulated at Table 30 and presented in the Grade-Tonnage curve in Figure 42.

Details within the 2016 BKM PEA study where the life of mine schedule was developed utilizing a variable elevated cut-off grade strategy that is optimized over time to maximize the project value. The optimized cut-off grade ranges between the Break Even Cutoff Grade of 0.09% Cu (Leachable) and an elevated cut-off up to 0.11% Cu (Leachable) over the life of the project. This equates to a Cu (Total) cut-off grade range of approximately 0.16% to 0.20%. Therefore the use of a resource cut-off of 0.2% Cu (Total) can be considered appropriate for the 2017 Resource Estimate. 0.2% copper is also a natural or geological cut in drill intervals that intercept significant and modeled mineralisation.

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In addition, H&A has reviewed parameters utilized for determining reporting cuts from similar deposits and uncovered that, utilising a similar approach and parameters as those in the BKM PEA:

- GeoVector Management Inc. determined a 0.2% copper reporting cut for the Las Posadas Copper Deposit, Chile, as part of PEA prepared for Global Hunter Corp. (October 2012).
- Tetra Tech Inc. determined a 0.25% copper reporting cut for the Zonia Copper-Oxide Deposit, Arizona, USA, as part of a resource report prepared for Cardero Resource Corp. (December 2015).

H&A is of the opinion that 0.2% Cu is an appropriate base case reporting cut in stating the BKM mineral resources and that any upward movement in reporting cut to 0.3%Cu (based on any sensitivity studies) would not materially alter the reported Measured, Indicated or Inferred Resources (refer Figure 42).

Table 30: Tabulated Copper Resources - Beruang Kanan Main [Measured Indicated and Inferred Classified Resources reported separately].

Measured Mineral Resources				
Reporting cut (Cu %)	**Tonnes ('000)**	**Cu Grade (Cu %)**	**Contained Cu ('000 tonnes)**	**Contained Cu ('000,000 lbs)**
0.2	**20.5**	**0.7**	**147.7**	**325.7**
0.5	15.4	0.8	126.8	279.6
0.7	8.5	1.0	85.8	189.2

Indicated Mineral Resources				
Reporting cut (Cu %)	**Tonnes ('000)**	**Cu Grade (Cu %)**	**Contained Cu ('000 tonnes)**	**Contained Cu ('000,000 lbs)**
0.2	**28.7**	**0.6**	**174.9**	**385.7**
0.5	16.9	0.8	127.7	281.6
0.7	7.7	1.0	73.8	162.7

Inferred Mineral Resources				
Reporting cut (Cu %)	**Tonnes ('000)**	**Cu Grade (Cu %)**	**Contained Cu ('000 tonnes)**	**Contained Cu ('000,000 lbs)**
0.2	**17.7**	**0.6**	**109.3**	**241.0**
0.5	12.1	0.7	86.2	190.1
0.7	4.7	0.9	41.9	92.4

Notes: Mineral Resources for the Beruang Kanan Main Zone mineralization have been estimated in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines. In the opinion of Duncan Hackman, the block model Resource Estimate and Resource classification reported herein are a reasonable representation of the copper Mineral Resources found in the defined area of the Beruang Kanan Main mineralization. Mineral Resources are not Mineral Reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the Mineral Resource will be converted into Mineral Reserve. Computational discrepancies in the table and the body of the Release are the result of rounding.

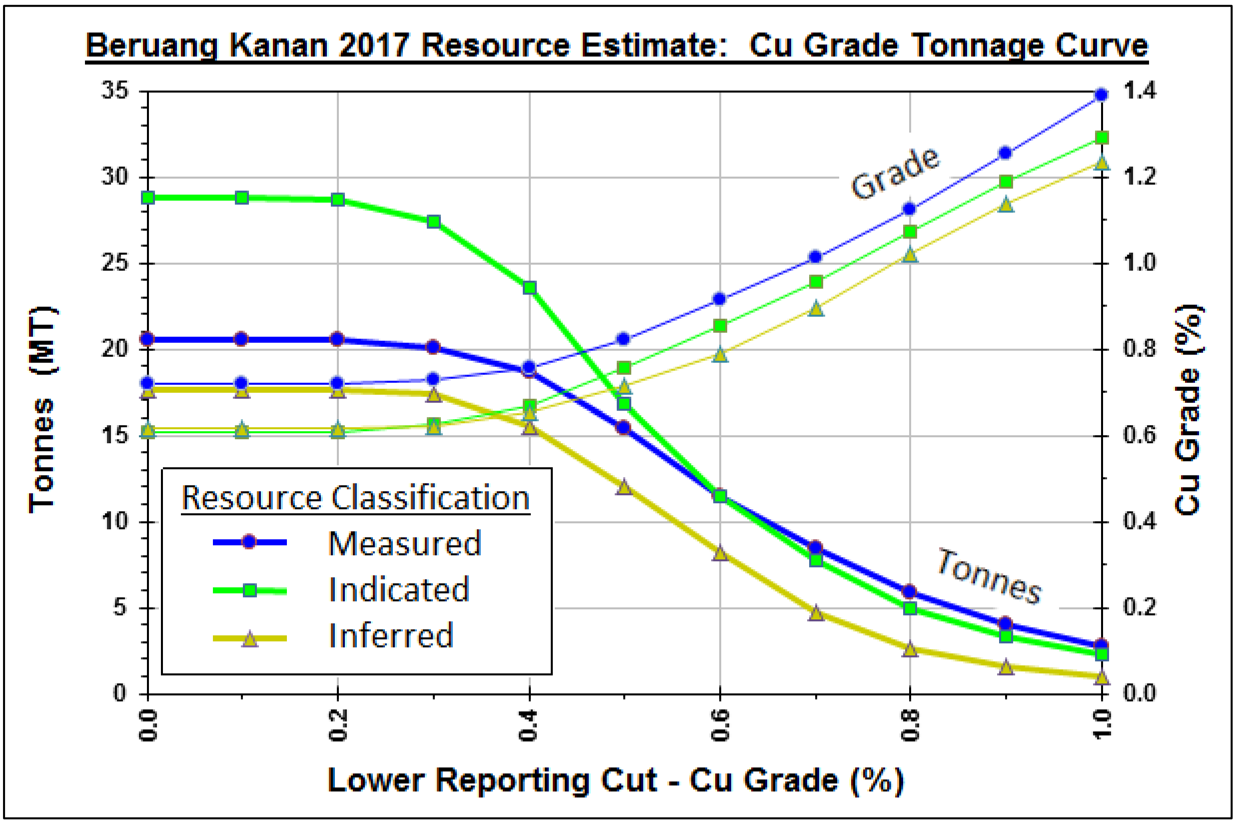

Figure 42: Copper Grade Tonnage Curves. Beruang Kanan Resources.

H&A details the current tenure and permitting status of the KSK CoW (incorporating the Beruang Kanan Main Zone mineralisation) in Section 4.2. KSK has signed a MOU with the Government of Indonesia covering items to amend in the KSK contract of work, a requirement stipulated by the Government to align existing CoWs with the current Indonesian Mining Law. All details of the amendments have not been finalized, however the continuation of the CoW is clearly stated in the MOU. XXX

H&A is not aware of any current legal, political, environmental, permitting, taxation, socio-economic, marketing or other risks that could materially affect the potential development of the mineral resources at BKM.

14.10 **Comparison with 2015 Resource Estimate**

The previous, 2015 resource estimate at BKM was reported as:

- Indicated Resources: 15MT @ 0.7%Cu or 105KT of contained copper at a 0.2% reporting cut.

- Inferred Resources: 49.7MT @ 0.6%Cu or 298KT of contained copper at a 0.2% reporting cut.

The 2015 resource drilling programme undertaken by KSK was designed to delineate the extent and continuity of the BKM mineralisation and the 2016-2017 resource drilling program designed to test primarily for geological and grade continuity of the BKM mineralisation. Both programmes were completed successfully, meeting their objectives, where the 2015 drilling resulted in an increase in previously estimated resources (contained copper increase of 105KT (Indicated) and 18KT (Inferred) over the 2014 resource estimate) and the 2016-2017 drilling has consolidated this increase by facilitating the classification of the BKM mineralisation into 31% Measured Resources and 43% Indicated Resources, with 26% remaining as Inferred Resources (NI 43-101, at 0.2% copper reporting grade).

A Northings Swath Plot (Figure 43) shows that mineralisation has been expanded in the south of the deposit and that the estimated copper grade, in general, has improved marginally across the deposit

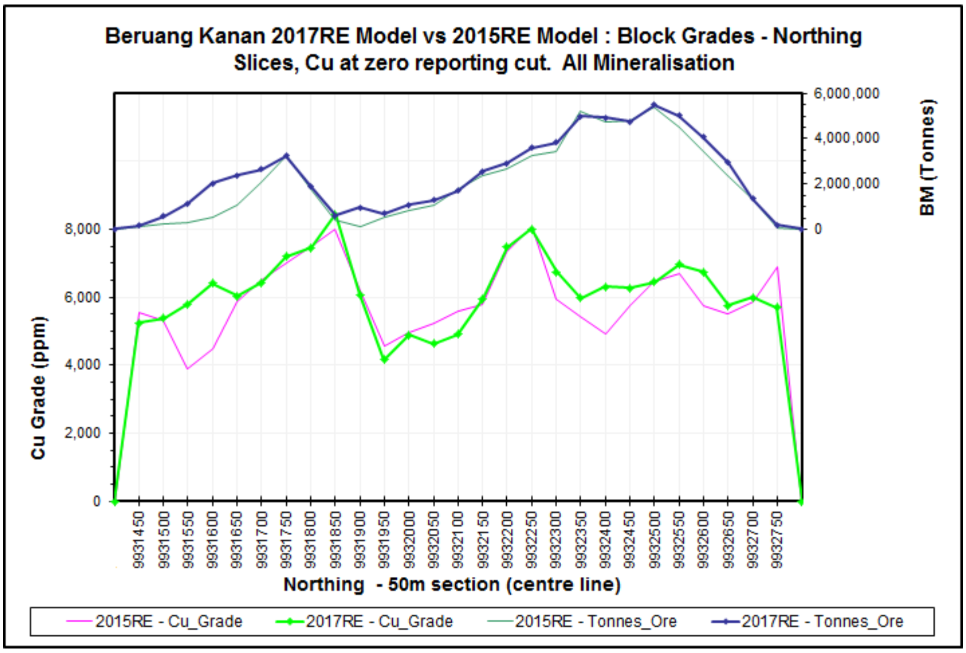

Figure 43: Northing Swath Plot. 2017 and 2015 BKM resouce estimates.

In April 2016 a Preliminary Economic Assessment ("PEA") mine plan was based on a subset of the 2015 Mineral Resource comprising Indicated Resources of 14.2 million tonnes at 0.66% Cu and Inferred Resources of 34.5 million tonnes at 0.54% Cu (at ~0.16% Cu cut-off), the mineral inventory or the 2017 resource within the April 2016 conceptual PEA open pit design now comprises (at 0.20% Cu cut-off):

- Measured Resources of 20.2 million tonnes at 0.7% Cu (141.4k tonnes of copper)
- Indicated Resources of 25.8 million tonnes at 0.6% Cu (154.8k tonnes of copper)

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- Inferred Resources of 3.2 million tonnes at 0.6% Cu (19.2k tonnes of copper)

15 Mineral Reserve Estimates

There are no advanced project investigations to report for the BKM mineralization (Items 15 to 23, NI 43-101). KSK reported on a Preliminary Economic Assessment Study in May 2016. A brief project description from this study follows.

16 Mining Methods

BKM is amenable to a low strip ratio open pit mining approach utilizing a conventional truck and shovel based mining methodology.

17 Recovery Methods

Heap Leaching, Solvent-Extraction/Electrowinning processing is proposed for recovering copper from the BKM mineralisation.

18 Project Infrastructure

Siteworks including the following were proposed for establishing mining operations at BKM:

- Bulk Earthworks, including:
    - Haul Roads
    - Diversion Channels
    - Heap Leach Pad
    - ROM Pad/Secondary Crusher
    - SX-EW pad
    - Raffinate pond
    - Power Station Pad
    - Lime Pad
    - Pump Station Pad
    - Environmental Dam
    - Accommodation Camp Pad
    - Stormwater HDPE Lined Dam
- Stormwater Management
- Access and Service Roads
- Power Supply (20MW peak load power)
- Water Supply
- Pit dewatering
- Mine Infrastructure, including:
    - Offices and associated buildings for staff and contractors

    - Workshops
    - Fuel Storage
    - Explosives Magaxines
    - Dewatering equipment
- Process Plant Infrastructure, including:
    - Motor control centres
    - Control room
    - Laboratory
    - Gate house
    - Workshop
    - Store
    - Offices and associated buildings
- Accommodation Camp
- Utilities, including:
    - Potable Water treatment plant
    - Sewage Treatment System
    - Communications
    - Fencing
    - Weighbridge

19 Market Studies and Contracts

Assumes that BKM will produce copper cathode that attracts an LME (London Metal Exchange) "A" Grade Copper Price and assumes that it will met the required quality and physical properties to command the associated price premium. However if the product is not LME accredited, a discount to the copper price may be negotiated by a future buyer.

KSK sourced an independent copper price forecast from Wood Mackenzie (Woodmac). Woodmac are a recognized international consulting and research group providing market analysis across a broad spectrum of commodities. The forecast copper price schedule ranges between US$2.60/lb to US$3.65/lb over the life of the project (averaging US$3.25/lb).

20 Environmental Studies, Permitting and Social or Community Impact

The senior management team at KSK has extensive experience with mining projects in Indonesia and fully understands the importance of conducting all aspects of mining activities in an environmentally and socially responsible manner to ensure the success of the project. Specifically, as stated in the PEA, KSK is committed to:

- Complying with all applicable Indonesian environmental and social laws and regulations pertaining to mining operations;
- Adopting an inclusive and transparent approach with all stakeholders, with a focus on local communities and Indigenous Peoples;
- Appling Best Available Technology (BAT) and Good International Industry Practice (GIIP) to the design and operation of mining activities at the BKM Project; and,
- Leaving a positive legacy subsequent to cessation of mining activities.

KSK have undertaken first pass waste and ore acid rock drainage/metal leaching (ARD/ML) study (static test work), surface water quality and aquatic ecology (dry season) and terrestrial flora and fauna (both dry and wet season) investigations. In addition, an automated weather station has been installed at site providing site-specific climate date since November 2016. KSK plans to undertake the following environmental baseline studies:

- Continuation of site-specific meteorology data collection,
- Continued regular surface water quality monitoring,
- Hydrology assessment,
- Hydrogeology assessment,
- Acid rock drainage/metal leaching (ARD/ML) – Phase II kinetic test work,
- Soils,
- Wet season aquatic ecology,
- Air quality and noise.

Future social and health baseline studies will include:

- Demographics
- Livelihood
- Economics
- Cultural heritage
- Public health

The PEA outlines the likely effects that BKM will have on the environment and community and general approaches that are to be considered in the ongoing feasibility study, which will be further advanced and detailed during the AMDAL process. It also outlines the permitting requirements for the project that KSK must obtain before mining can commence at BKM. The four key approvals or permits that are required in support of the Mine Construction Permit are:

- Government of Indonesia Feasibility Study (KSK advises that this is currently in progress and expected to be completed by Q1 2018);
- ESHIA (called AMDAL in Indonesia) and associated Environmental License;

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- Mandatory 5-Year Reclamation and Mine Closure Plans; and
- Borrow-to-Use Forestry Permit (IPPKH) for mining activities in forestry land.

KSK will be directed by requirements documented in 62 legislated, regulated and decreed acts, regulations, procedures and guidelines in constructing and operating BKM.

21 Capital and Operating Costs

The estimated initial and sustaining capital costs developed for the BKM Project are listed in Table 31.

Table 31: Initial and sustaining capital costs

Period	Item	US$ M
Initial	Mining	1.7
	Primary Crusher + Agglomerator	24.6
	Leach Pads	31.3
	SX/EW (Incl. Neutralization)	82.7
	Infrastructure	2.1
	Subtotal	142.4
	Contingency @ 15%	21.4
	Total	163.8
Sustaining and Closure	Mining	5
	Leach Pads	1
	SX/EW	1.6
	Subtotal	7.6
	Contingency @ 15%	1.1
	Total	8.7
Grand Total		172.5

The C1 operating costs are listed in Table 32 (including sustaining and closure capital, excluding offsite transport of cathode and royalties). Offsite transport (by truck and barge) is estimated at US$111.680/tonne. This equates to US$19.8M of cathode transport costs over the life of mine. Royaties are set at 4%, totalling US$63.5M over the life of mine.

Table 32: C1 operating costs (including sustaining and closure capital, excluding offsite transport of cathode and royalties)

Item	US$M	US$ / tonne total	US$ / tonne ore	US$ / rec. lb. Cu
Mining	233	2.15	4.78	0.6
Crushing / Stacking	66	0.61	1.35	0.17
SX/EW Processing	47.2	0.44	0.97	0.12
Power	131.2	1.21	2.69	0.34
G&A and Support	13.5	0.12	0.28	0.03
Sustaining Capital	8.7	0.08	0.18	0.02
C1 Cash Cost	499.5	4.6	10.25	1.28

22 Economic Analysis

The results of the Base Case economic analysis, and the key underlying assumptions, are provided in Table 33 and presented over time in Figure 44.

Table 33: Base Case economic analysis.

<table>
<tr><th colspan="2">Economic Summary</th><th>Unit</th><th>Base Case</th></tr>
<tr><td colspan="2">Life of Mine (LOM)</td><td>Years</td><td>8</td></tr>
<tr><td colspan="2">Copper Cathode Sold</td><td>Million lbs</td><td>391</td></tr>
<tr><td colspan="2">Copper Price (LOM Average)</td><td>US$/lb</td><td>3.25</td></tr>
<tr><td colspan="2">Gross Revenue</td><td>US$</td><td>1270.6M</td></tr>
<tr><td colspan="2">LOM C1 Operating Costs</td><td>US$</td><td>499.5M</td></tr>
<tr><td colspan="2">LOM C1 Operating Cost (recovered copper)</td><td>US$/lb</td><td>1.28</td></tr>
<tr><td colspan="2">Royalties</td><td>US$</td><td>63.5M</td></tr>
<tr><td colspan="2">Off-site transport</td><td>US$</td><td>19.8M</td></tr>
<tr><td colspan="2" rowspan="2">LOM All In Operating Cost</td><td>US$</td><td>582.8M</td></tr>
<tr><td>US$/lb</td><td>1.49</td></tr>
<tr><td colspan="2">Initial Capital Cost (including a 0.15 Contingency)</td><td>US$</td><td>163.8M</td></tr>
<tr><td colspan="2">Taxes</td><td>US$</td><td>136.6M</td></tr>
<tr><th colspan="4">NPV and IRR (Base Case)</th></tr>
<tr><td colspan="2">Discount Rate</td><td>(%)</td><td>10</td></tr>
<tr><td rowspan="4">Pre-Tax</td><td>Net Free Cash Flow(incl. royalties)</td><td>US$</td><td>524M</td></tr>
<tr><td>NPV</td><td>US$</td><td>290.7M</td></tr>
<tr><td>IRR</td><td>%</td><td>47.5</td></tr>
<tr><td>Payback Period</td><td>Years</td><td>2.1</td></tr>
<tr><td rowspan="4">After Tax</td><td>Net Free Cash (incl. royalties)</td><td>US$</td><td>Cash</td></tr>
<tr><td>NPV</td><td>US$</td><td>204.3M</td></tr>
<tr><td>IRR</td><td>%</td><td>38.7</td></tr>
<tr><td>Payback Period</td><td>Years</td><td>2.4</td></tr>
</table>

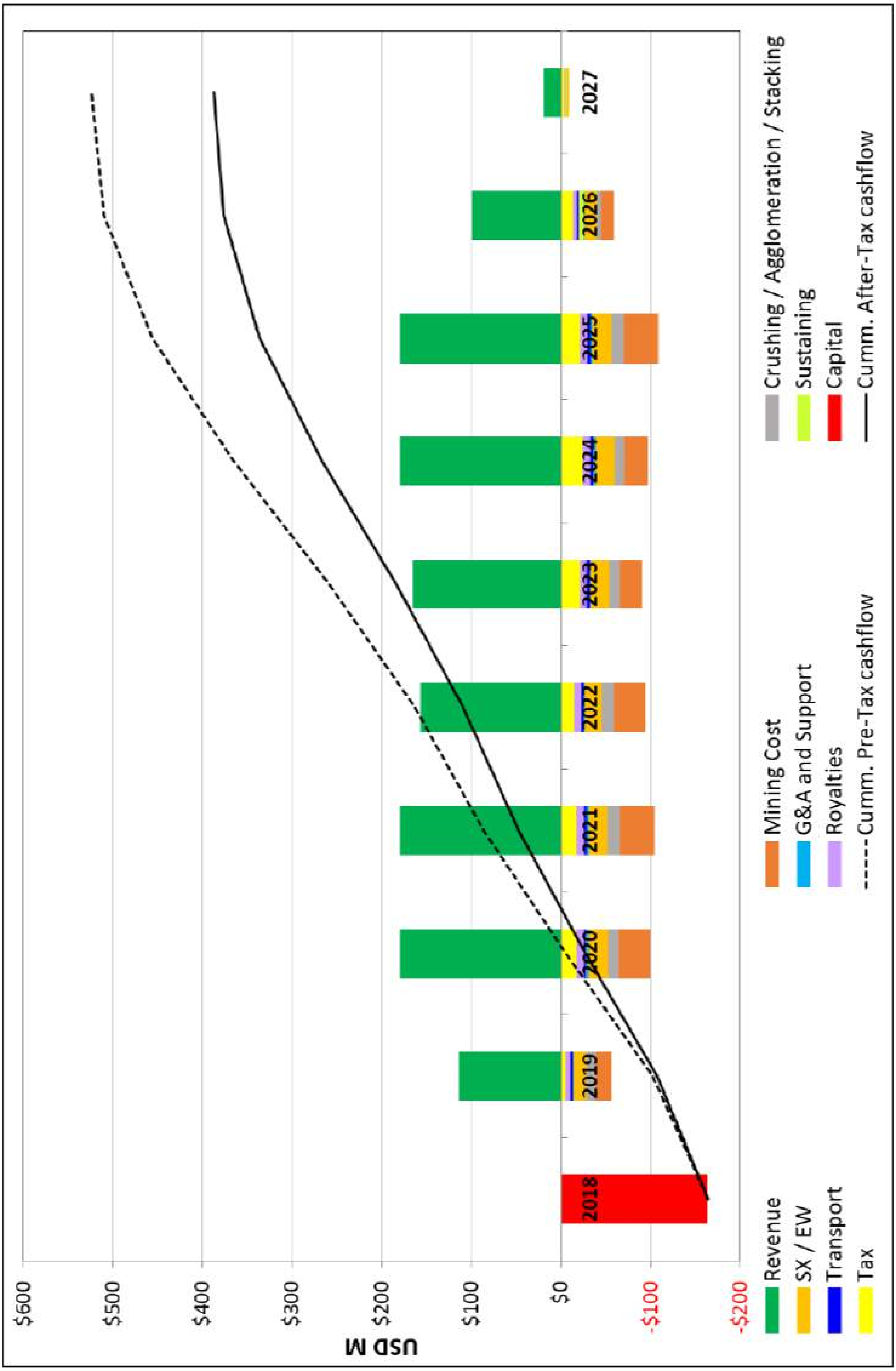

Figure 44: Base Case economic analysis.

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23 Adjacent Properties

KSK Projects:

The following main projects have also been the subject of exploration activities within the KSK CoW (refer Figure 45 for location wrt Beruang Kanan):

- Baroi - Central and Far-East Prospects (Au, Cu, Ag, Mo): Vein-hosted mineralization in volcanic and sedimentary rocks. Veined material consistently returns copper grades of 1-5% and elevated Zn, Ag and Pb. The Central zone also contains elevated Au grades (1-3g/t). Baroi is 17km from BKM.
- Beruang Tengah - Eastern (Au, Cu) and Western (Au) Prospects. Beruang Tengah is 4km from BKM.
- Mansur Prospect (Cu Au). Mansur is 25km from BKM.
- Beruang Kanan - North Polymetallic (also known as BKZ, Pb, Zn, Cu, Ag, Au), West and South (Cu, Au) Prospects. These prospects are proximal to BKM.

These prospects have geological, geochemical and alteration characteristics that are consistent with mineralization being associated with porphyry intrusives and intrusive related vein systems (Munroe and Clayton, 2006). Mineralization has been identified at all of these prospects and they are the target ongoing exploration. To this date none of the prospects have been subjected to drilling to the extent of that directed at BKM. Detailed descriptions of the geology and mineralization are reported by Munroe and Clayton (2006). Press releases by KSK (through Asiamet Resources) highlight significant rockchip and channel sample results from BKZ (release dated 9th June 2017) and rockchip samples from Beruang Kanan West (release dated 19th July 2017). These areas and Beruang Kanan South are currently being evaluated by surface mapping and sampling by KSK with the aim of discovering significant additional resources at Beruang Kanan.

Companies working within KSK CoW District:

In 2015 KSK determined that:

> "Two IUPs abut the KSK CoW; to the east, the tenure is held by PT. Kahayan Mineral, and to the north by PT. Persada Makmur Sejahtera. There is no information readily available on the activities undertaken by these companies.
>
> There are further IUPs to the south of the KSK CoW. These do not adjoin the CoW."

In 2017 KSK, due to issues in accessing the GOI website, could not update their knowledge of other workers within the vicinity of the KSK CoW.

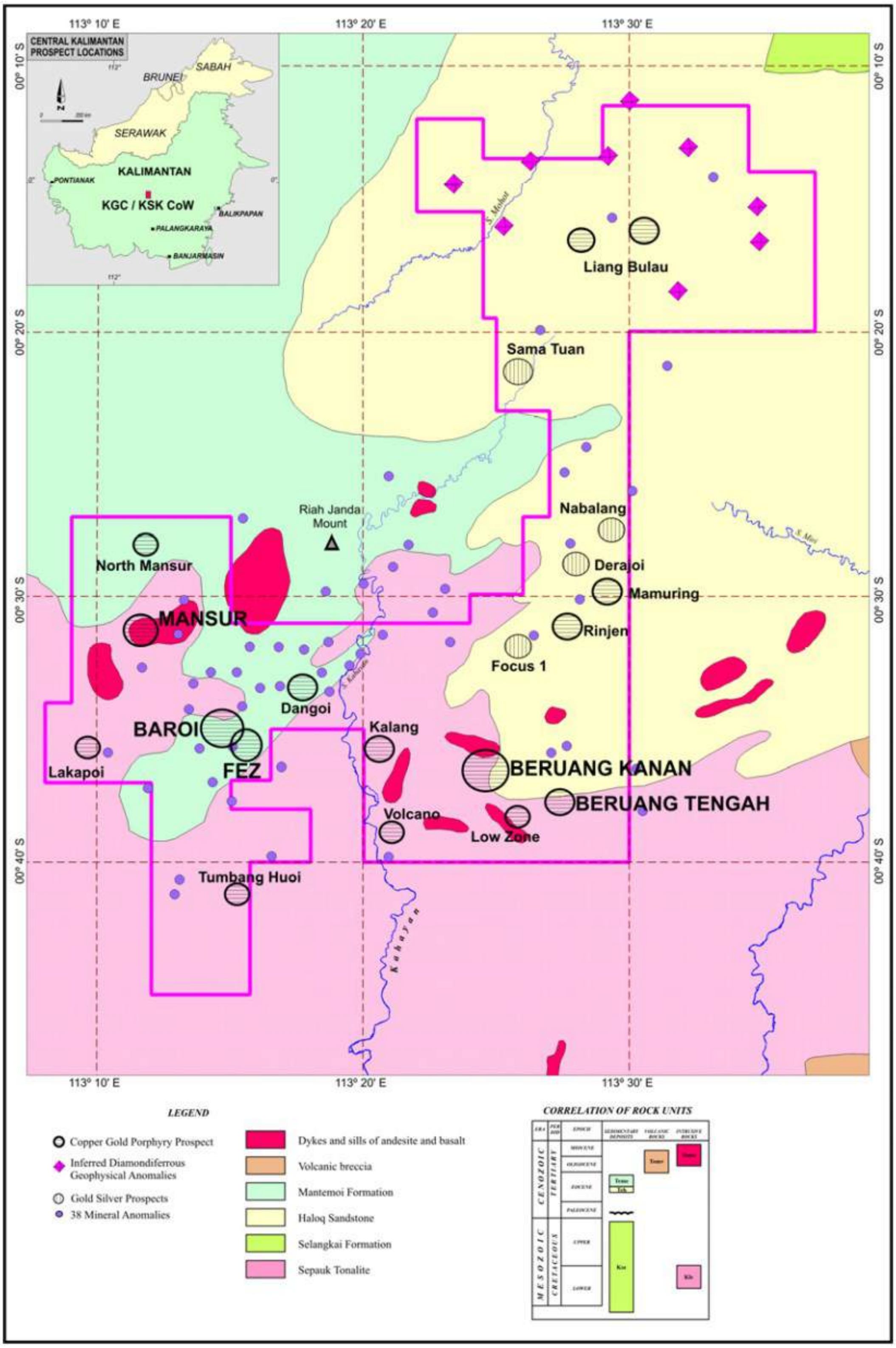

Figure 45: Geological setting and location of prospects and main geochemical anomalies in the KSK CoW (after Munroe and Clayton 2006).

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24 Other Relevant Data and Information

Other than that included in this report, there was no relevant data or information offered to or uncovered by H&A during the course of generating the BKM 2017 Resource Estimate.

25 Interpretation and Conclusion

The Beruang Kanan Main Zone 2017 Copper Resource Estimate is tabulated at Table 30. It is estimated that there are 147.7KT of contained copper classified as Measured Resources, 174.9KT of contained copper classified as Indicated Resources and 109.3KT of contained copper classified as Inferred Resources at the anticipated economic and natural/geological grade cut of 0.2% Cu. The resource estimate was conducted under the auspices of the Canadian National Instrument 43-101 and classified under the guidelines set out in the Instrument.

The covellite, chalcocite, bornite and chalocpyrite replacement of pyrite in vein style mineralization is hosted in sheared and blocky sediments and volcanics within an interpreted thrust fault-coupling or ramping zone. The BKM area has been tested by 267 diamond drillholes which defines a mineralised area with dimensions of 1300mN, 800mE and a depth of 450m containing 33 interpreted zones of mineralisation. These zones have been intercepted by 213 of the 267 holes. There is potential for satellite bodies of mineralisation to be discovered towards the east and south of BKM and at depth in repeat structural setting.

The risk associated with the current resource estimate is reflected in the assigned Measured, Indicated and Inferred classifications. The drilling density and orientation suitability, primary sampling reliability, certainty in geological and grade continuity, tonnage factor representivity, sample reduction strategy suitability and the unknown reliability of historic assay data are the key factors in determining the resource classification. The completed 50mX50m spaced drilling at BKM is deemed statistically acceptable for assigning Measured and Indicated Resource classifications however only those resources with confirmed geological and grade continuity gained from holes drilled at orientations other than, and in addition to, the predominant westerly orientation have been assigned the Measured Resource classification. Volumes of the mineralisation where confidence in copper grade and tonnage factors is questioned, due to drill core recovery issues and dry bulk density sample representivity, have been restricted to Indicated and Inferred Resource Classifications. Geological and grade continuity (thicker and higher grade domains) and grade interpolation confidence are the primary factors in separating Indicted from Inferred Resources at BKM.

The BKM mineralisation has been classified into 31% Measured Resources and 43% Indicated Resources, with 26% remaining as Inferred Resources (NI 43-101, at 0.2% copper reporting grade). In April 2016 a Preliminary Economic Assessment mine plan, based on the 2015 Mineral Resource, generated a pit outline which now comprises (at 0.20% Cu cut-off) 20.2 million tonnes at 0.7% Cu

(141.4k tonnes of copper) Measured Resources, 25.8 million tonnes at 0.6% Cu (154.8k tonnes of copper) Indicated Resources and 3.2 million tonnes at 0.6% Cu (19.2k tonnes of copper) Inferred Resources from the 2017 BKM Resource Estimate.

Risks associated with the 2017 BKM resource estimate can be better understood or alleviated with further work on the project which will involve infill drilling and appropriate studies on core and sampling protocols (particularly core recovery and DBD) aimed at improving the confidence in the data and greater understanding of grade continuity and geological controls on mineralisation (at all scales). An indicative drilling programme is offered in Section 26 which will infill drilling in areas of concern in Indicated and Inferred resources. The anticipated outcome for a programme of this extent is, for an expenditure of US$0.61mil and the appropriate focus, upgrading of these resources to higher category classifications (Indicated and Measured as described in the NI 43-101). H&A proposes the programme however KSK may choose not to undertake the work if they deem that the current resource classification is sufficient for a bankable feasibility which, in part, is related to acceptable risks for their selected funding strategy.

Initial metallurgical testwork on the BKM copper mineralisation is currently nearing completion and results from this work will be required to advance the understanding of the mineralisation and economic viability of the project.

In addition to the satellite mineralisation potential to extend copper mineralisation identified in the immediate Beruang Kanan Main Zone area there are additional targets within the local area to BKM. KSK and JV partners have historically drilled a limited number of holes at the nearby South Beruang (5), West Beruang (1), Low Zone (2), North Polymetallic Zone (6) and South Polymetallic Zone (6) prospects during drilling campaigns. Significant intercepts from this drilling are listed in Table 34.

Table 34: Significant Intercepts from 24 historic holes drilled into Prospects Adjacent to BKM

Significant Drill Intercepts from Prospects Adjacent to BKM Cu Mineralisation										
Prospect	Hole	Intercept	From	To	Interval	Cu(%)	Au (ppm)	Zn (%)	Pb (%)	Ag (ppm)
South Zone	BKD02-01	>0.2%Cu	205.00	211.50	6.50	0.68	0.01	0.08	0.01	4.9
		>0.2%Zn	330.50	338.50	8.00	0.01	0.02	0.26	0.08	0.8
	BKD02-02	>0.2%Cu	204.30	212.50	8.20	0.71	0.01	0.09	0.01	4.8
	BKD04-01	>0.2%Zn	250.00	265.50	15.50	0.10	0.03	0.48	0.25	4.0
	KBK-0028	>0.2%Cu	11.50	29.00	17.50	0.60	2.03	0.02	0.01	3.7
		>0.5ppmAu	11.50	14.50	3.00	0.22	11.57	0.01	0.01	6.0
		>0.2%Cu	14.50	17.00	2.50	1.86	0.06	0.04	0.01	4.4
Low Zone	LZ01-01	>0.2%Zn	309.00	325.60	16.60	0.01	0.15	1.07	0.38	36.6
	LZ02-01	>0.2%Zn	298.50	304.50	6.00	0.17	0.03	0.33	0.12	7.7
North Polymetallic	BKZ-1	>0.2%Zn	6.00	44.00	38.00	0.12	0.63	3.48	1.31	31.4
		>0.2%Zn	46.00	70.00	24.00	0.07	0.10	1.23	0.08	3.1
		>0.2%Zn	78.00	86.00	8.00	0.02	0.02	0.51	0.16	1.1
	BKZ-2	>0.2%Zn	8.20	60.40	52.20	0.08	0.25	2.09	0.81	14.1
	BKZ-3	>0.2%Zn	14.60	64.95	50.35	0.05	0.27	3.28	1.20	17.6
	BKZ-6	>0.2%Zn	87.00	96.00	9.00	0.08	0.01	0.51	0.02	0.5
South Polymetallic	BK051	>0.2%Cu	*188.00*	194.00	6.00	0.31	0.02	0.04	0.00	1.8
	BK052	>0.2%Zn	*9.60*	24.50	14.90	0.03	0.09	0.42	0.14	4.2
		>0.2%Cu	90.20	105.20	15.00	0.28	0.01	0.04	0.00	0.5
	BK-11	>0.2%Cu	0.00	6.00	6.00	1.97	0.01	0.00	0.01	5.0
		>0.2%Cu	99.00	114.00	15.00	0.32	0.07	0.07	0.01	0.7
	KBK-0024	>0.2%Cu	102.00	136.00	34.00	0.53	0.02	0.09	0.00	1.2

Qualified Person's Report on the Mineral Resources, Beruang Kanan Main Zone, July 2017.

KSK has drilled four holes at Beruang Kanan South (refer Figure 4). Significant results to date are listed at Table 35.

Table 35: Significant Intercepts from KSK 2015 drilling programme at Beruang Kanan South

Hole ID	From (m)	To (m)	Length (m)	Cu (%)
BKM30500-01	19.5	29.5	10	2.52
BKM30500-01	43.5	46.5	3	1.45
BKM30500-01	58.5	62	3.5	1.04
BKM30625-01	7.5	8.5	1	3.83
BKM30625-01	12.5	14.5	2	0.67

An indicative exploration and scout drilling programme for 2018 is offered in Section 26. The anticipated outcome for a programme of this extent is, for an expenditure of US$0.77mil and the appropriate focus, the identification of where additional base and precious metal resources can be added within the immediate vicinity of the BKM Zone Copper Resource.

Obvious drill targets also exist at the proximal Beruang Tengah project and other recognized projects within the KSK CoW (Figure 45) leading H&A to believe that there is a reasonable probability of KSK expanding the copper resources within the Beruang Kanan district and to add precious and base metal resources to their inventory.

H&A has no reason to question that the current negotiations KSK is conducting with the Government of Republic of Indonesia, on a memorandum of understanding regarding details of the KSK CoW (Section 4.2.2), will reach a satisfactory conclusion and that KSK will be able to continue to explore and, at the appropriate time, develop mineral resources within the KSK CoW area.

26 Recommendations

The following activities directed at improving the confidence in the input data utilized in generating future estimates of the copper resources at Beruang Kanan are recommended by H&A:

- Continue to investigate the impact that the primary sample size has on copper grade representivity and reliability for improving robustness and confidence in future assay datasets. In particular:
    - understand the reasons why the NQ and BQ core samples report lower copper grades than the PQ and HQ core samples, and
    - continue the practice of duplicate hole drilling in future programmes to better understand the heterogeneity of the in situ mineralization.

- Continue to improve knowledge and understanding of mineralizing processes and their expected attitudes, geometries and extents for designing infill drilling programmes.
- Continue to investigate the relationship between copper grade and mineralization events (veining styles/density/orientation) to assist in the design of future drilling (hole orientation and density).
- Continue to build a comprehensive specific gravity dataset to generate reliable dry bulk density and bulk density datasets for use in future resource estimates and engineering studies. Focus especially on areas were sample selectivity can impact on reliability of tonnage factors used in resource estimates.
- Continue to improve core recovery and investigate the relationship between core recovery and copper grade.
- Continue to increase confidence in the historic KSK dataset through programmes such as twinning of key holes.
- Rebuild the ENJ-KSK assay dataset and remove quality control umpire assays from the primary data.
- Undertake another review all protocols for future evaluation work to ensure their suitability regarding mineralisation styles, local conditions, sample and data integrity and use, sample and data security and storage etc.

These recommendations will require new drill core and would be included in a programme designed to increase the confidence of future resources at the Beruang Kanan Main Zone.

The following programmes are recommended for improving confidence in the BKM resource and in expanding the resource base in the BKM zone area:

Stage 1 – Infill and resource drilling at BKM:

This programme comprises diamond drilling totaling 2,000 m (approximately 22 holes averaging 90m each) at orientations other than westerly and twin holes in selected areas of the BKM mineralisation. This program could be carried out in 1-2 months using 3 man-portable drill rigs, assuming an average daily drilling rate of 20m per rig. The outcome is to upgrade the classification of an additional 15% of the BKM mineralisation to Measured Resources, achieving confidence levels for resources that can support a preliminary and definitive feasibility studies. H&A is of the opinion that this work is optional and dependent on KSK's risk profile in advancing the project, especially in sourcing and securing finance.

Stage 2 – scout drilling at prospects adjoining Beruang Kanan Main Zone:

This program comprises additional mapping and systematic sampling on surface at Beruang Kanan West, Beruang Kanan South and Beruang Kanan Polymetallic Prospects to test current targets and identify mineralisation (and results dependent, additional targets for testing). Scout diamond drilling totaling 2,500 m (approximately 20 holes averaging 125m each) is proposed, to test the mineralization at Beruang Kanan West, Beruang Kanan South, Beruang Kanan Polymetallic North, Beruang Kanan Polymetallic South, and the Low Zone Prospects. This program could be carried out in 2 months using 2 man-portable drill rigs, assuming an average daily drilling rate of 20m per rig. The outcome is to identify areas for drilling to delineate additional resources within the immediate vicinity of the Beruang Kanan Main Zone.

In addition to the extension and upgrading of the BKM resource H&A acknowledges that KSK is continuing with the feasibility study of the BKM deposit (as defined by the NI 43-101) that is scheduled for completion Q1 2018. This study has been budgeted at US$7,200,000 of which US$2,500,000 has already been expended and US$4,700,000 of project work remains to be completed in 2017/18.

The total of Stage I, Stage II and Feasibility budgets is estimated at US$8,614,000. A breakdown of drilling costings are listed at Table 36.

Table 36: Indicative budget for recommended work programme – all costings in USD.

Activity	Programme	
	Infill and resource Drilling at BKM	Scout Drilling
Assaying	$80,000	$100,000
Geological staff	$122,000	$153,000
Drilling	$180,000	$225,000
Camp Food / Accommodation	$29,000	$37,000
Field Work / Contract Labour	$64,000	$80,000
Transport / Aircraft	$8,000	$10,000
Metallurgy	$78,000	$97,000
Community Relations	$11,000	$14,000
Permitting / Legal	$4,000	$6,000
Field Supplies	$18,000	$22,000
Travel	$8,000	$10,000
Report / Compilation	$11,000	$14,000
Total	**$614,000**	**$767,000**

Qualified Person's Report on the Mineral Resources, Beruang Kanan Main Zone, July 2017.

27 References

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28 Appendices: Numbers 1 to 18

Appendix 1 Qualified Persons Certificate and Statement of Independence

AUSTRALIAN INSTITUTE OF GEOSCIENTISTS

Supporting Geoscientists

Annual Membership Certificate 2017/2018

The Council of the Australian Institute of Geoscientists hereby certifies that

Mr Duncan Howard Hackman MAIG

(# 1742)

is a current, financial member of the Institute, as stipulated in the Articles of Association, has agreed to be bound by the Institute's Code of Ethics, and holds the membership level of Member.

Mike Erceg President	Patrick Maher Councillor for Membership

Current to 30th June 2018

Joining date: 11st November 1999

Australian Institute of Geoscientists
www.aig.org.au

APPENDICES: Qualified Person's Report on the Mineral Resources, Beruang Kanan Main Zone, July 2017.

Qualified Persons Statement

RE: Beruang Kanan Main Zone, Kalimantan, Indonesia; 2017 Resource Estimate Report dated 28th July 2017.

(a) I, Duncan Hackman B.App.Sc. MSc. MAIG am employed as a Principal Consultant for Hackman and Associates Pty. Ltd., 260A Crawford Rd, Inglewood, Western Australia.

(b) I am a Member of the Australian Institute of Geoscientists.
As a result of my experience (13 years in copper resource evaluation and mining, including deposits such as Beruang Kanan (Indonesia), Khanong (Laos), Prominent Hill (Australia) and Golden Grove (Australia)) and academic qualifications (B.App.Sc. and MSc.), am a Qualified Person as defined in National Instrument 43-101.

(c) My most recent visit to the Beruang Kanan Project was between the 22nd and 23rd June, 2016.

(d) I am responsible for all sections of the above mentioned report.

(e) I am independent of PT Kalimantan Surya Kencana, Asiamet Resources Limited and all affiliates of these companies, in accordance with the application of Section 1.5 of National Instrument 43-101.

(f) My previous involvement with the Beruang Kanan Project was in generating the 2015 resource estimate for the Beruang Kanan Main mineralisation.

(g) I have read National Instrument 43-101 and Form 43-101F1 and this report has been prepared in compliance with same.

(h) As of the effective date of the report, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Dated, this 28th day of July 2017.

Duncan Hackman B.App.Sc. MSc. MIAG
Principal Consultant

Appendix 2 H&A consent to file report and release resource statement

Duncan Hackman
Hackman & Associates Pty Ltd.
260A Crawford Rd. Inglewood
Western Australia, 6052

CONSENT OF QUALIFIED PERSON

I, Duncan Hackman, consent to the public filing of the technical report titled "Beruang Kanan Main Zone, Kalimantan, Indonesia; 2017 Resource Estimate Report." and dated July 28, 2017 (the "Technical Report") by Asiamet Resources Limited.

I also consent to any extracts from or a summary of the Technical Report in the June 28, 2017 news release of Asiamet Resources Limited.

I certify that I have read the June 28, 2017 news release being filed by Asiamet Resources Limited and that it fairly and accurately represents the information in the sections of the technical report for which I am responsible.

Dated this 28th day of July 2017.

____

Signature of Qualified Person

Duncan Hackman B. App.Sc. MSc. MAIG

Print name of Qualified Person

Appendix 3 PT Eksplorasi Nusa Jaya: Assay Quality Control Data Assessment Report

FROM: Meilinawati J. **DATE:** 30 January 2014

RE: Sample Preparation and Assay Quality Control report

This report address the assay quality collected from the diamond drill core and geochemical samples during the Exploration program starting May 2012 to December 2013 at PT KSK CoW area at Kalimantan Tengah, Indonesia.

Geoassay Laboratory was chose to give its services for sample preparation and assaying. The sample preparation established at Tengkiling at about 35 km from PT ENJ and PT KSK main office at Palangkaraya.

The total amount of 18,522 samples consisted of 10,852 drill core and 7,670 geochem samples were sent to laboratory for prep and analysis. The samples production by monthly shows on this histogram:

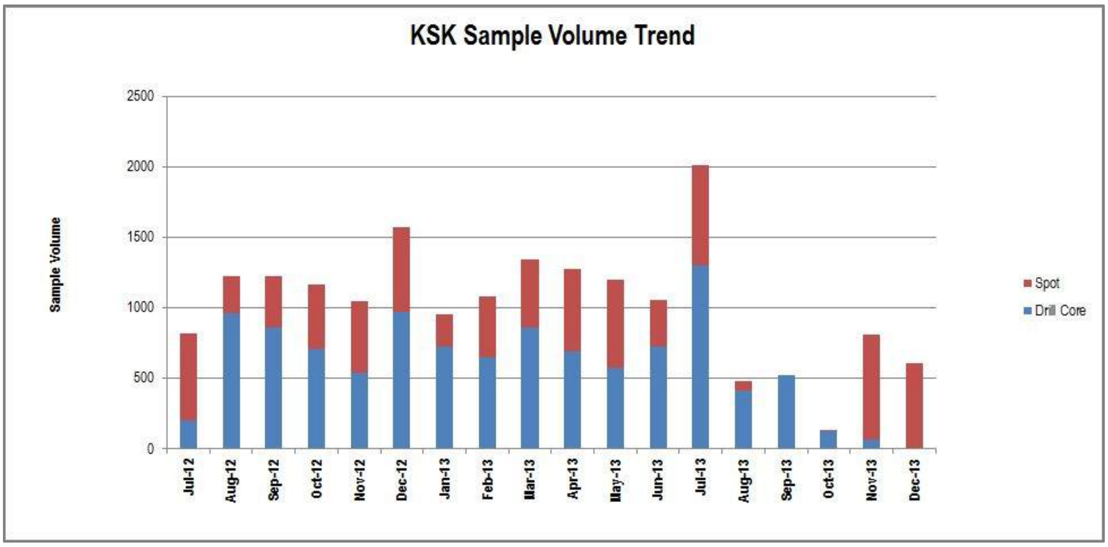


Figure 1: Samples Volume from July 2012 to December 2013

The quality control involves for KSK samples:

- Examination on preparation work by
  - Pulp screen test after pulverize passing -200mesh
  - Duplicate reject
  - Blank
- Examination on analytical work by
  - Production standard results
  - Duplicate assay results
- Inter Laboratory Check results

Preparation and Assay Procedures

The preparation and assay procedures utilized by Geoassay follow the Standard Operating Procedures (SOP) developed by PT ENJ and Geoassay to suite the conditions and criteria required for KSK samples.

All the drill core and geochem samples from work site are transported from the Marinyuoi to Tengkiling. The arrival of samples at Tengkiling is confirmed with the paperwork transfer. Trips between the Marinyuoi core handling facility and sample preparation area generally occur about 2 times per week. Upon arrival at Tengkiling, the containers are unpacked and checked against the shipping orders from Marinyuoi. ENJ personnel are advised if there are any discrepancies in sample received and the transmittal form. If there are no discrepancies then sample preparation proceeds. However, if the transmittal form and receiving form do not match all work stops. A sequential KSK job number is assigned and written on a laboratory worksheet and the ENJ transmittal form.

The core is then marked for sawing to split for assay and storage. The core is split longitudinally with a core saw. Conventional splitters are also available for small diameter core. Half of the core is returned to the core box after splitting and the other half is bagged and numbered for processing by GeoAssay personnel in the building adjacent to PT KSK's core shed. The samples are then processed and finally placed into kraft paper bag and shipped to the GeoAssay Analytical Laboratory in Cikarang, Jakarta (GA) for assaying. Transmittal and assay instruction forms accompany the sample shipment to GA.

The sample preparation work effective started on July 3, 2012. Figure 1 shows the Sample Preparation Protocol for Diamond Drill Core at the GeoAssay sample preparation area at Tengkiling.

1. The samples are weighed before drying in an oven for a maximum of 8 hours at 105°C. Samples weights are also taken after drying and recorded on the transmittal sheet.

2. The entire sample (half core) is placed into a jaw crusher; the output is crushed to -8mm to -10mm. All the crushed material is then fed to the Boyd RSD Combination crusher and splitter with output–4mm.

3. The rotary splitter opening is set to get about a 1 kilogram sample. This 1 kilogram sample is directly output from the Boyd Crusher to the LM2 ring to pulverize. The rest of the material reports to coarse reject.

4. Additional reject splits are retained for future metallurgical work and for duplicate coarse reject analysis. Roughly 1 in 25 of the duplicate coarse reject (DR) samples is prepared and assayed as a check on the pulp preparation process. As well, 1 in 25 coarse reject samples are also screen analyzed to confirm the size is 95% passing 4mm. Results of the screen analysis are reported monthly.

5. Approximately 1000g of the primary split is pulverized in a ring to produce a 95% passing 200 mesh pulp. One out of every 25 pulps is wet screened to confirm the proper -200 mesh pulp size. This sample forms the Duplicate Assay sample (DA) which is separately assayed for QC purposes.

6. After pulverizing, the 1000g sample is mat rolled then split into 4 components using a spoon. The entire pulped sample is divided and placed into 4 kraft paper pulp bags.

One of the pulp bag send out for analysis to Geoassay right away. The remaining three pulp bag are individually sealed then placed into zip lock plastic bags and submitted to ENJ. This will be used for recheck program with the frequency 1 to 20. Those two pulps send out for analysis to Intertek and Sucofinfo.

Prior to send the samples to prepare, a Blank is inserted within the dispatch batch that available at Tengkiling. A numbers of CRM were also inserted when the pulp samples received from the preparation work prior to shipment to Geoassay lab at Cikarang, Jakarta for analysis. Following the Standard Operating Procedures (SOP) document, Standards are inserted on a 1 in 20 basis and one blank is inserted per batch.

Figure 2-5 shows the Sample Preparation Protocol for Drill Core, Rock Sample, Soil and Stream Sediment samples.

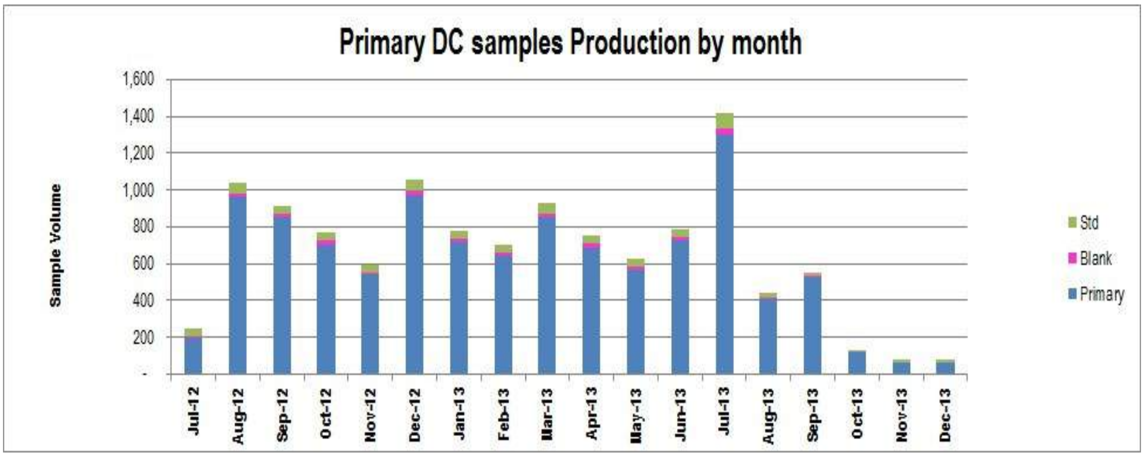


Figure 6: Drill core samples Production with insertion Std and Blank from July 2012 to December 2013

Assay instructions are supplied to GeoAssay electronically by PT ENJ personnel. GeoAssay labs use Inductively Coupled Plasma (ICP) Optical Emission Spectrometer (OES) methodology for determining the base metal content. Assay requests are complete ICP-OES packages (36 elements) with three acid digest from a 0.5g pulp sample (aliquot). If the result of that method reports greater than 10.0% copper, the assay is rerun as an "ore grade" sample where a 1.0g sample is digested with three acids and followed with flame AA.   Over range of base metal such as Cu, Pb, Zn is repeated by Oregrade AAS finish method (GOA03) with 3 acid digest.

Gold is assayed by fire assay methods utilizing a 40g aliquot with an AAS finish. If gold values are greater than 50ppm they are re-analyzed by fire assay gravimetric methods.

Table below is the list elements by ICP-OES done by Geoassay:

ANALYTICAL METHOD

GOLD Analysis : Fire Assay (FA)

Geoassay FA-40gr

Base Metal Analysis

Geoassay ICPOES

GAI03_DG	Three Acid Digest for ICP Trace Elements - Per Digest						
GAI03_ICP	ICPOES Single Trace Elements Determinations - per elements						
GAI03_ICP36	ICPOES Package Trace Wlements (all elements listed below) - per package						
Ag	0.5 - 100ppm	Al	0.01 - 25.0%	As	5 - 10,000ppm	Ba	10 - 10,000ppm
Be	5 - 1,000ppm	Bi	5 - 10,000ppm	Ca	0.01-10.0%	Cd	0.5 - 2,000ppm
Co	1 - 10,000ppm	Cr	2-10,000ppm	Cu	1 - 10,000ppm	Fe	0.01% - 25.0%
Ga	2-2,000ppm	K	0.01-25.0%	La	5-10,000ppm	Li	1 - 10,000ppm
Mg	0.01 - 10.0%	Mn	5-100,000ppm	Mo	2 - 10,000ppm	Na	0.01 - 10.0%
Nb	5 - 10,000ppm	Ni	5 - 10,000ppm	P	5 - 10,000ppm	Pb	5 - 10,000ppm
S	0.01 - 10.0%	Sb	5 - 1,000ppm	Sc	5 - 1,000ppm	Sn	10 - 1,000ppm
Sr	5 - 1,000ppm	Ta	5 - 10,000ppm	Ti	0.01-10%	V	2 - 10,000ppm
W	10 - 10,000ppm	Y	5- 10,000ppm	Zn	5 - 10,000ppm	Zr	5 - 10,000ppm

Over Range Cu, Pb, Zn Mo (>10,000ppm)
Reanalysis by Oregrade GOA3 AAS finish

The Results

The assay results from the laboratories were stored in the acquired database system. These analytical results are direct import into acQuire database and publish after passing the quality validation tools. The analytical results are stored as a quarantine file and will be flagged when QC is done.

Any Flag result that pass the QA/QC validation tools will note as 'accepted' and publish means available to look, to retrieve and used by user as also auto generate text file for other software dataset. On the other hand if it's failed it will be 'rejected' the results will stored as quarantine file. The QC personnel will contact the laboratory to do the necessary action and will upload the revise results by following the Validation tools. The revise results will not replace the previous rejected one.

Other than quality control for all analytical results from Geoassay, ENJ also conduct Inter laboratory check to ensure that the quality of analysis with a relatively new method (ICP-OES) can provide a high level of confidence.

Intertek participate as secondary check using ICP-OES method and Sucofindo with AAS determination.

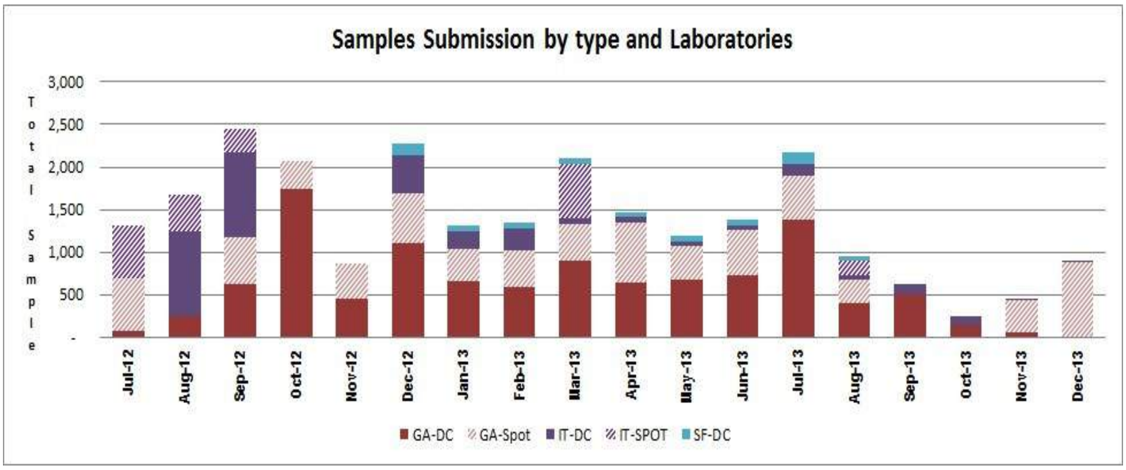


Figure 7: Samples submission distribution by type and Laboratories

Coarse reject and Pulp screen test

The sizing test from coarse reject and pulp is a routine QC procedure implemented by ENJ to check the homogenous crushing and grinding results during preparation work. Size tests were undertaken by Geoassay on coarse samples and -200mesh pulps on every 25th sample while internally this size test conducted by ENJ on pulp size only. The criteria of sizing test for both coarse reject and pulp are ± 5%, at 95% passing.

Blank

One blank is inserted in every samples batch on drill core and geochem (spot) samples. Originally the Blank is barren quartz but the blank material now is unconsolidated sand material.

One blank is inserted in every samples batch. The blank material is currently made up from barren Quartz from Tengkiling area. The analysis of blanks indicates the background value on Blank samples. Blanks results did not show any contamination; almost all elements are in the low level.

The results from the Blank samples from drill core and spot reflected on the bar plot download directly from acQuire as shows on Appendix 3 and 4.

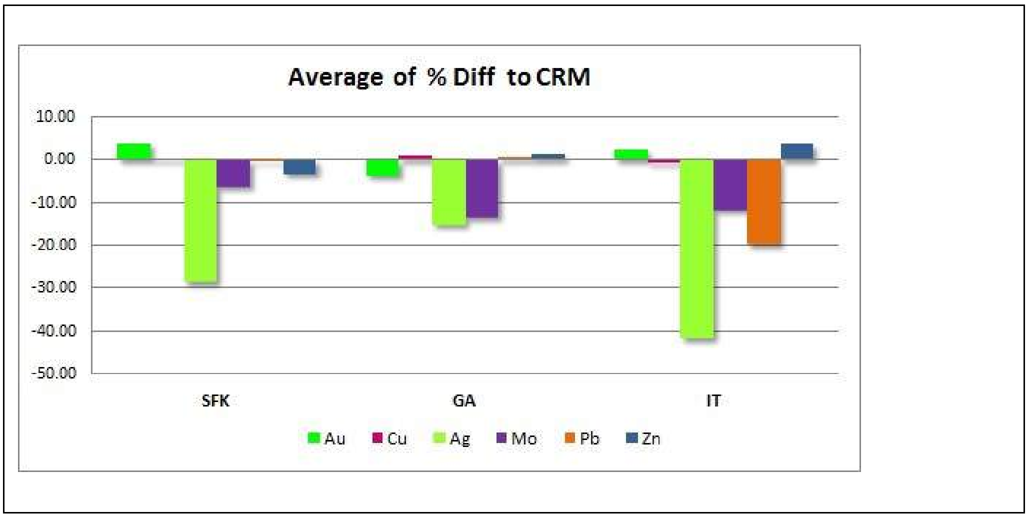
Production Standard

A total of 727 CRM samples were analyzed by Geoassay during this time. There were five types of standard samples were used to control the assay quality during this period. Four standards or "CRM" (Certified Reference Materials) samples are sourced from PT Freeport Indonesia material, named GRGEO-03, GRVL-02, MLZLG-04 and MLZMG-01. Those selected type of standard has attempted to have closer matrix match with rock background found at KSK project. BKSH-01 was taken and produced from the Beruang Kanan location, KSK project area.

The results are summarized in histogram plot showed the average of CRM production results of each laboratory compared to the certified value.

The production standard output indicates:

- The histogram plotting the average of Au, Cu, Ag, Mo, Pb and Zn for each CRM.
    - Geoassay, Intertek and Sucofindo shows good performance on Copper results for all type of CRM (Figure 8). This shows by the %RSD and the %Difference Cu from all laboratories are less than 1,5% Diff from the certified value. Fig 9-11 show its fall within the 2 StdDev line boundary.
    - The accuracy of Cu, Mo, Pb, Zn results from Geoassay were described on the result of % Different to certified value that fall within the acceptance limit (2 StdDev).
    - Au, Ag, As and Mo showed erratic results due to low grade results.



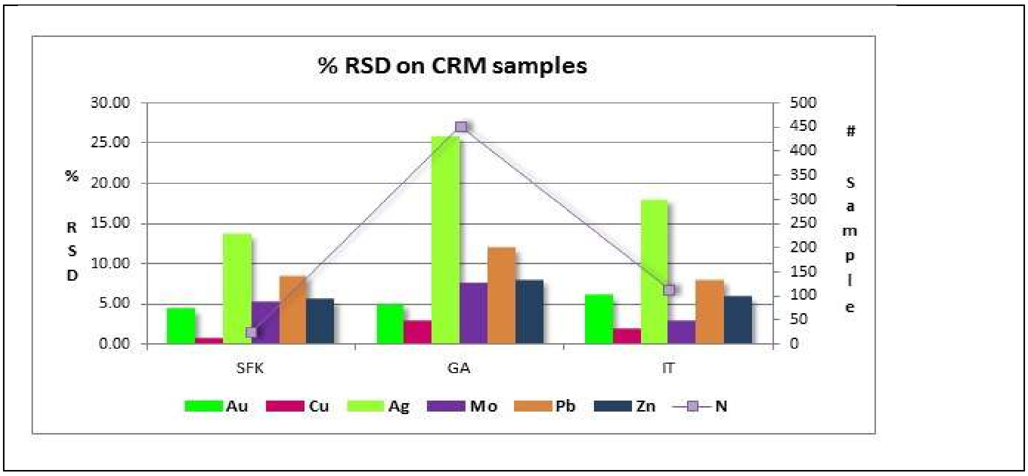


Figure 8: Histogram plot the average of Different Standard production results from certified value and %RSD

by Geoassay, Intertek and Sucofindo KK

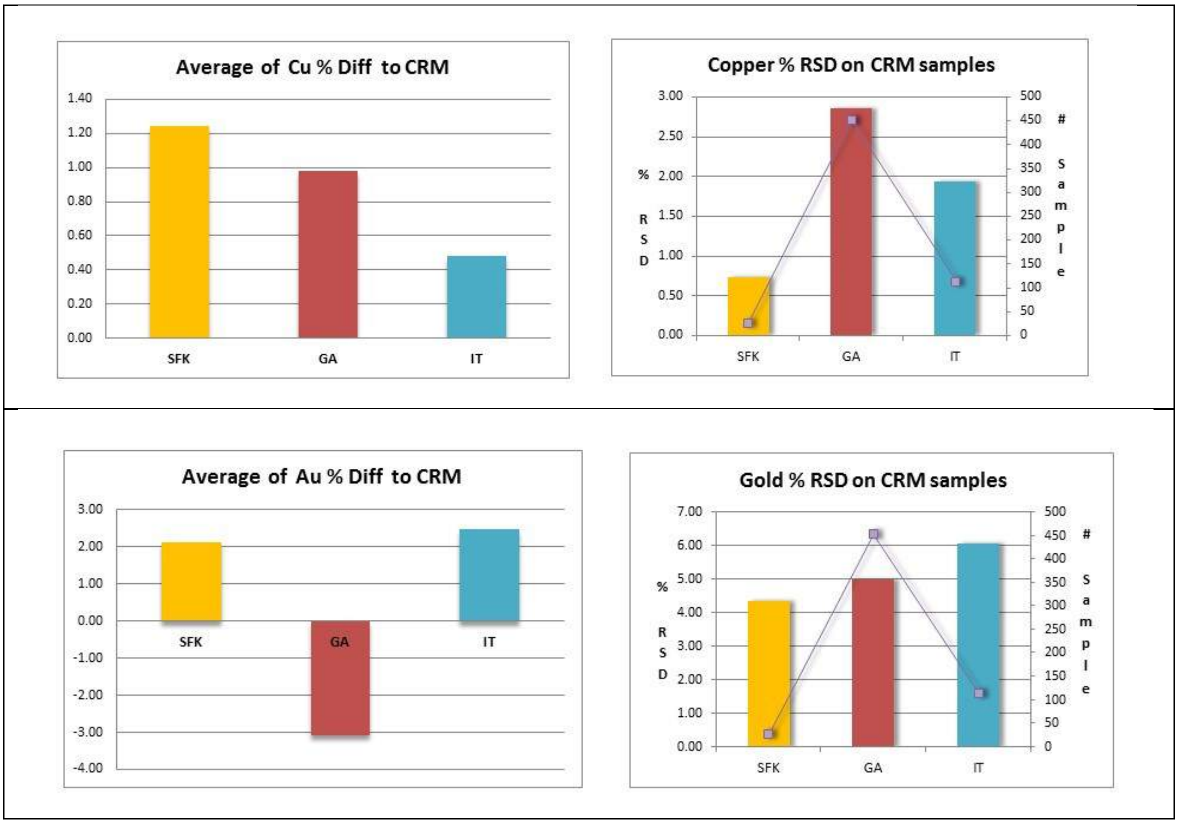


Figure 9: Histogram plot the average of Different Standard production results from certified value and %RSD

by each elements interest

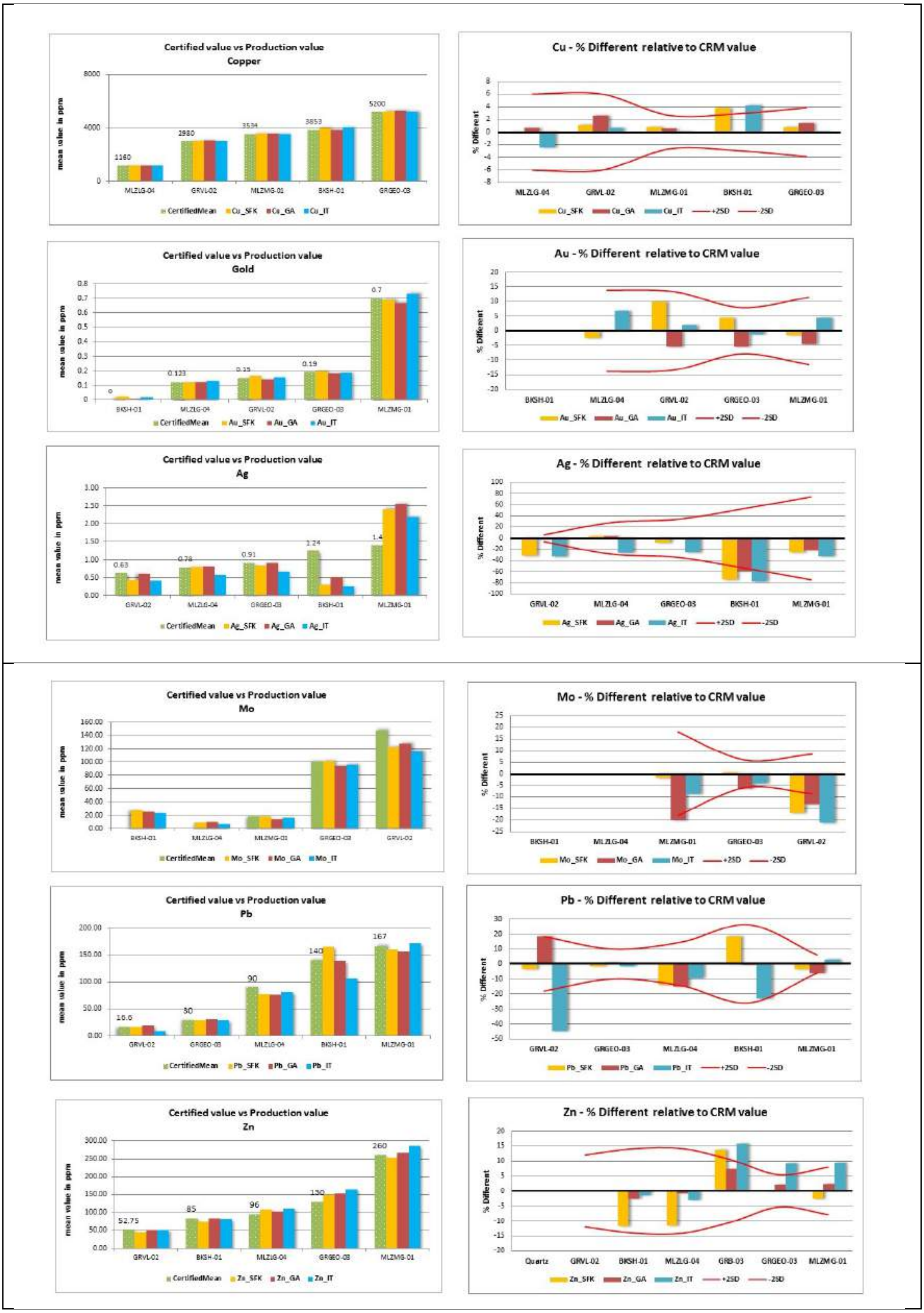
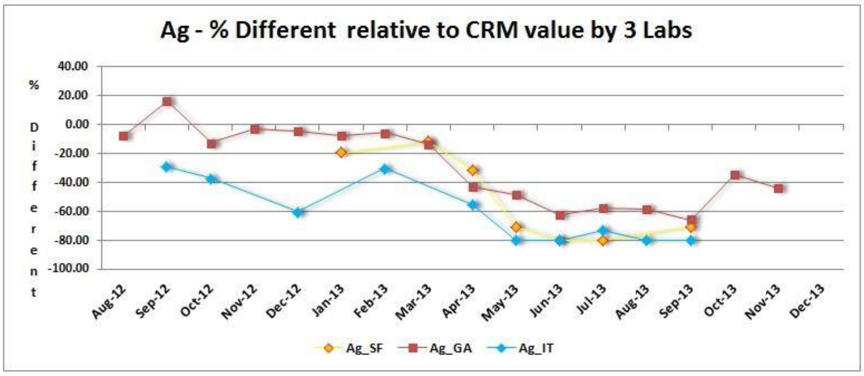
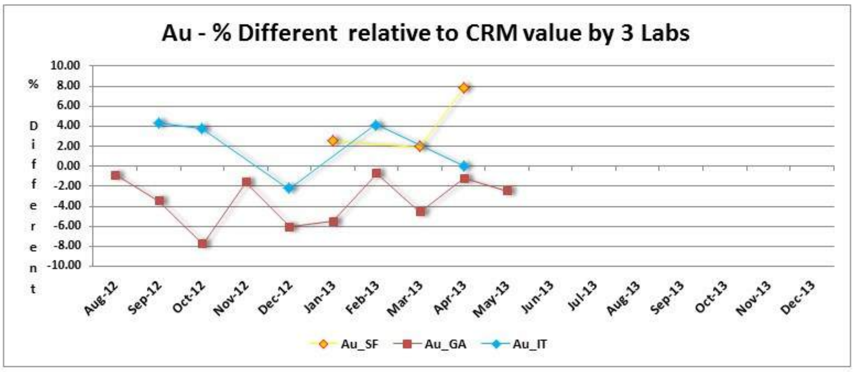
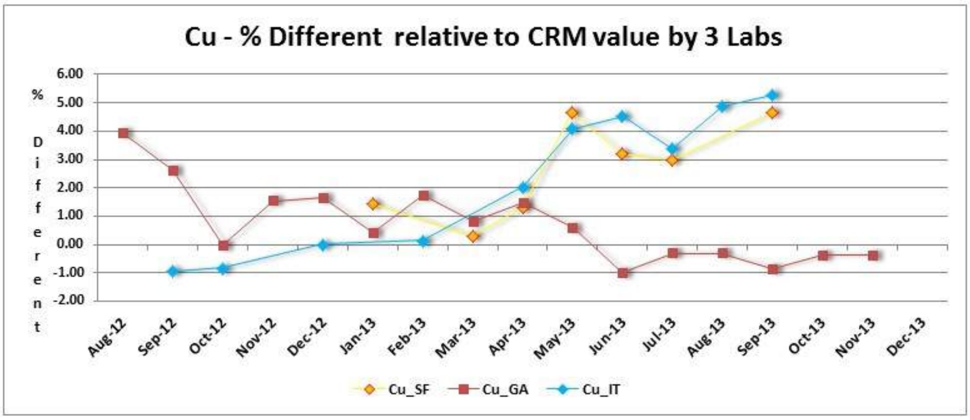
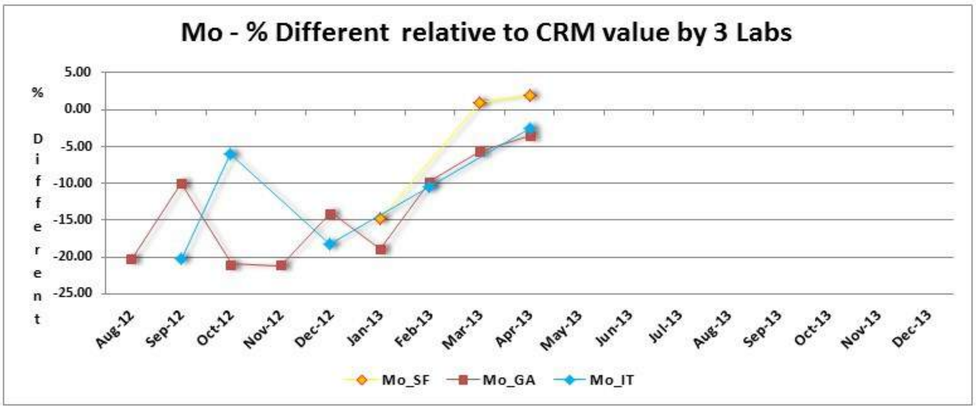


Figure 10: Histogram plot the average of CRM production results by Standard type


Ag - % Different relative to CRM value by 3 Labs
% Different
40.00
20.00
0.00
-20.00
-40.00
-60.00
-80.00
-100.00
Aug-12 Sep-12 Oct-12 Nov-12 Dec-12 Jan-13 Feb-13 Mar-13 Apr-13 May-13 Jun-13 Jul-13 Aug-13 Sep-13 Oct-13 Nov-13 Dec-13
Ag_SF Ag_GA Ag_IT


Au - % Different relative to CRM value by 3 Labs
% Different
10.00
8.00
6.00
4.00
2.00
0.00
-2.00
-4.00
-6.00
-8.00
-10.00
Aug-12 Sep-12 Oct-12 Nov-12 Dec-12 Jan-13 Feb-13 Mar-13 Apr-13 May-13 Jun-13 Jul-13 Aug-13 Sep-13 Oct-13 Nov-13 Dec-13
Au_SF Au_GA Au_IT


Cu - % Different relative to CRM value by 3 Labs
% Different
6.00
5.00
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
Aug-12 Sep-12 Oct-12 Nov-12 Dec-12 Jan-13 Feb-13 Mar-13 Apr-13 May-13 Jun-13 Jul-13 Aug-13 Sep-13 Oct-13 Nov-13 Dec-13
Cu_SF Cu_GA Cu_IT


Mo - % Different relative to CRM value by 3 Labs
% Different
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
Aug-12 Sep-12 Oct-12 Nov-12 Dec-12 Jan-13 Feb-13 Mar-13 Apr-13 May-13 Jun-13 Jul-13 Aug-13 Sep-13 Oct-13 Nov-13 Dec-13
Mo_SF Mo_GA Mo_IT

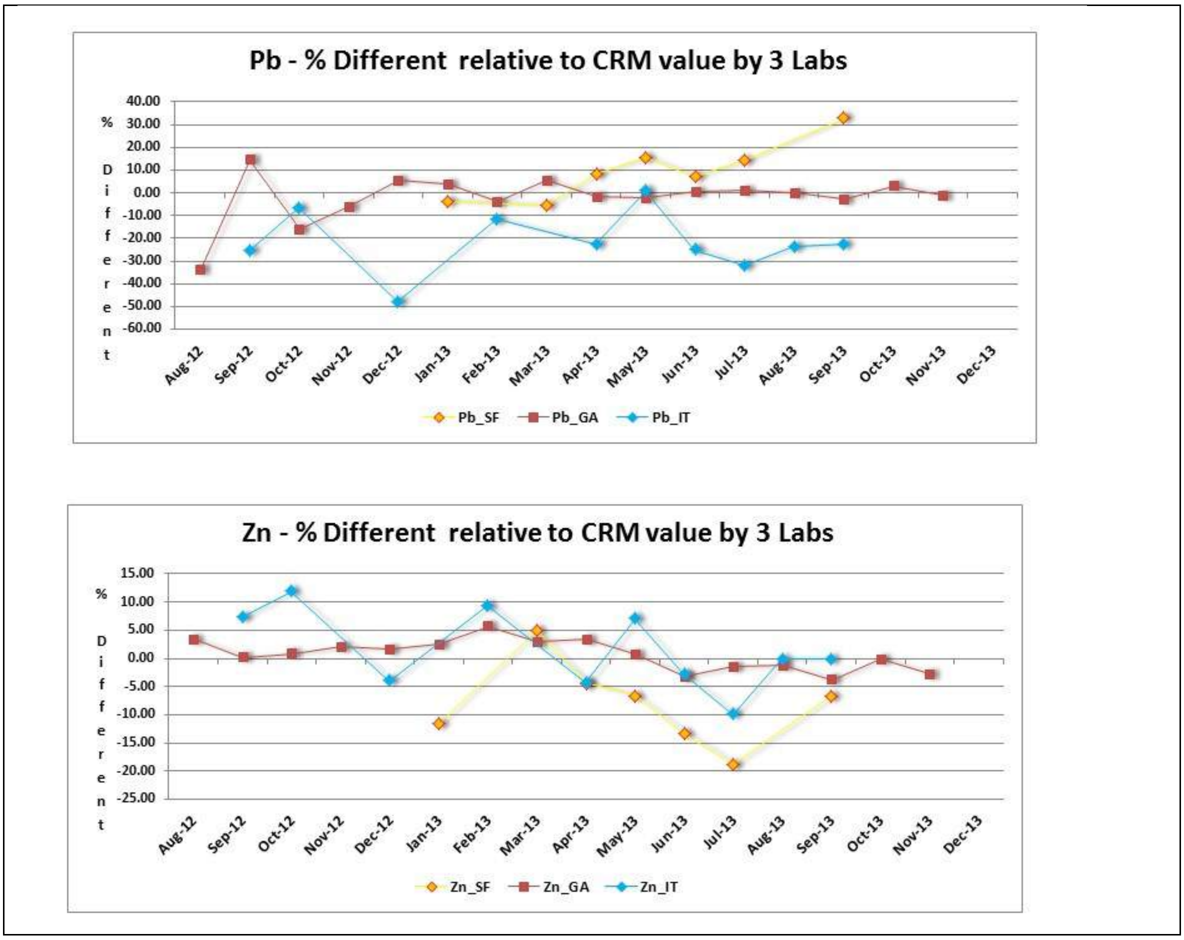
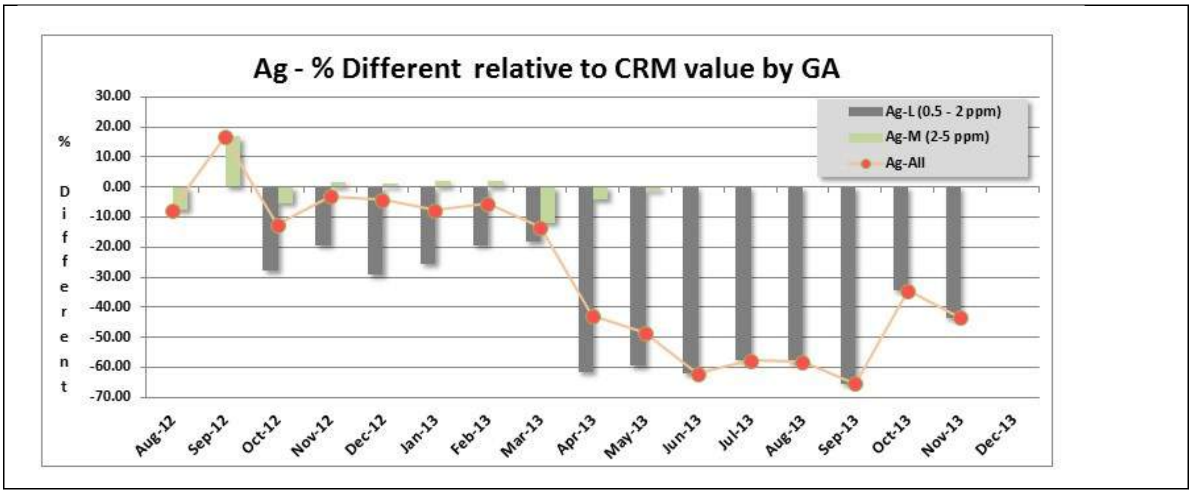
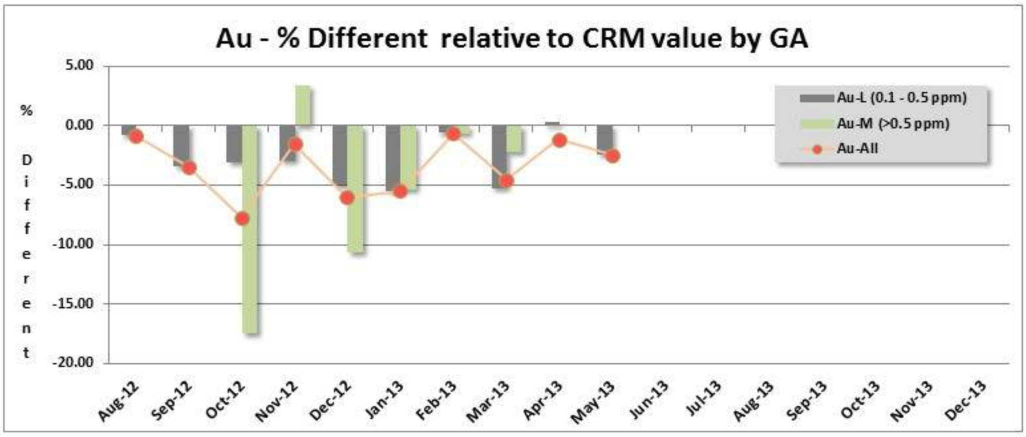
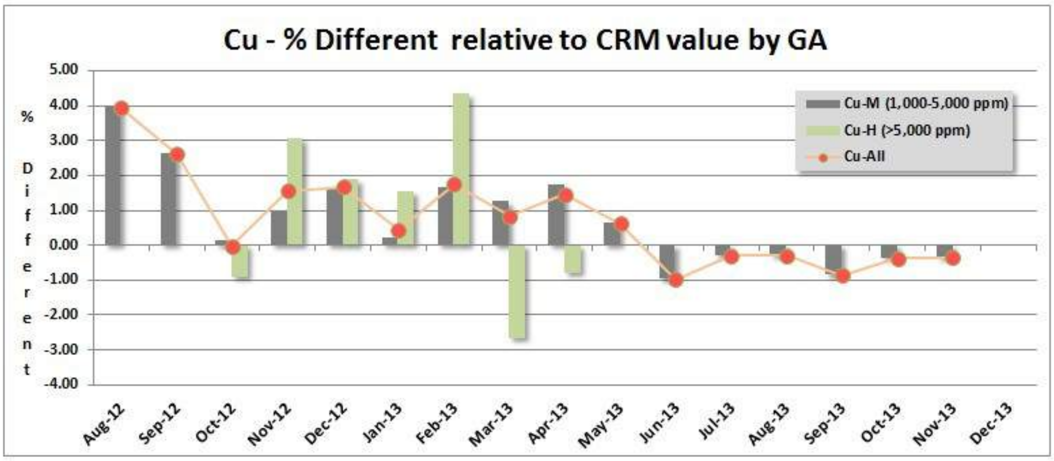
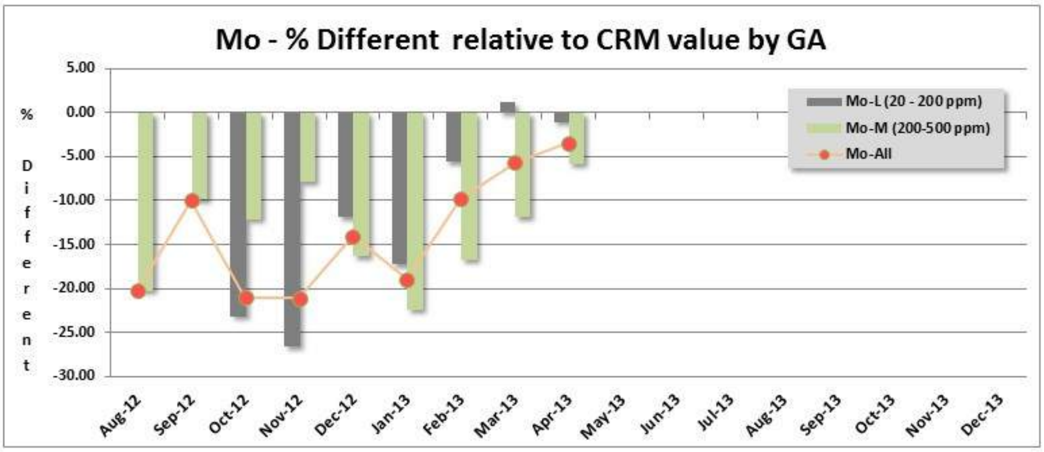


Figure 11: Performance of %Different each Laboratory through the month




Au - % Different relative to CRM value by GA
% Different
5.00
0.00
-5.00
-10.00
-15.00
-20.00
Au-L (0.1 - 0.5 ppm)
Au-M (>0.5 ppm)
Au-All
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13


Cu - % Different relative to CRM value by GA
% Different
5.00
4.00
3.00
2.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
Cu-M (1,000-5,000 ppm)
Cu-H (>5,000 ppm)
Cu-All
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13


Mo - % Different relative to CRM value by GA
% Different
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
-30.00
Mo-L (20 - 200 ppm)
Mo-M (200-500 ppm)
Mo-All
Aug-12
Sep-12
Oct-12
Nov-12
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13

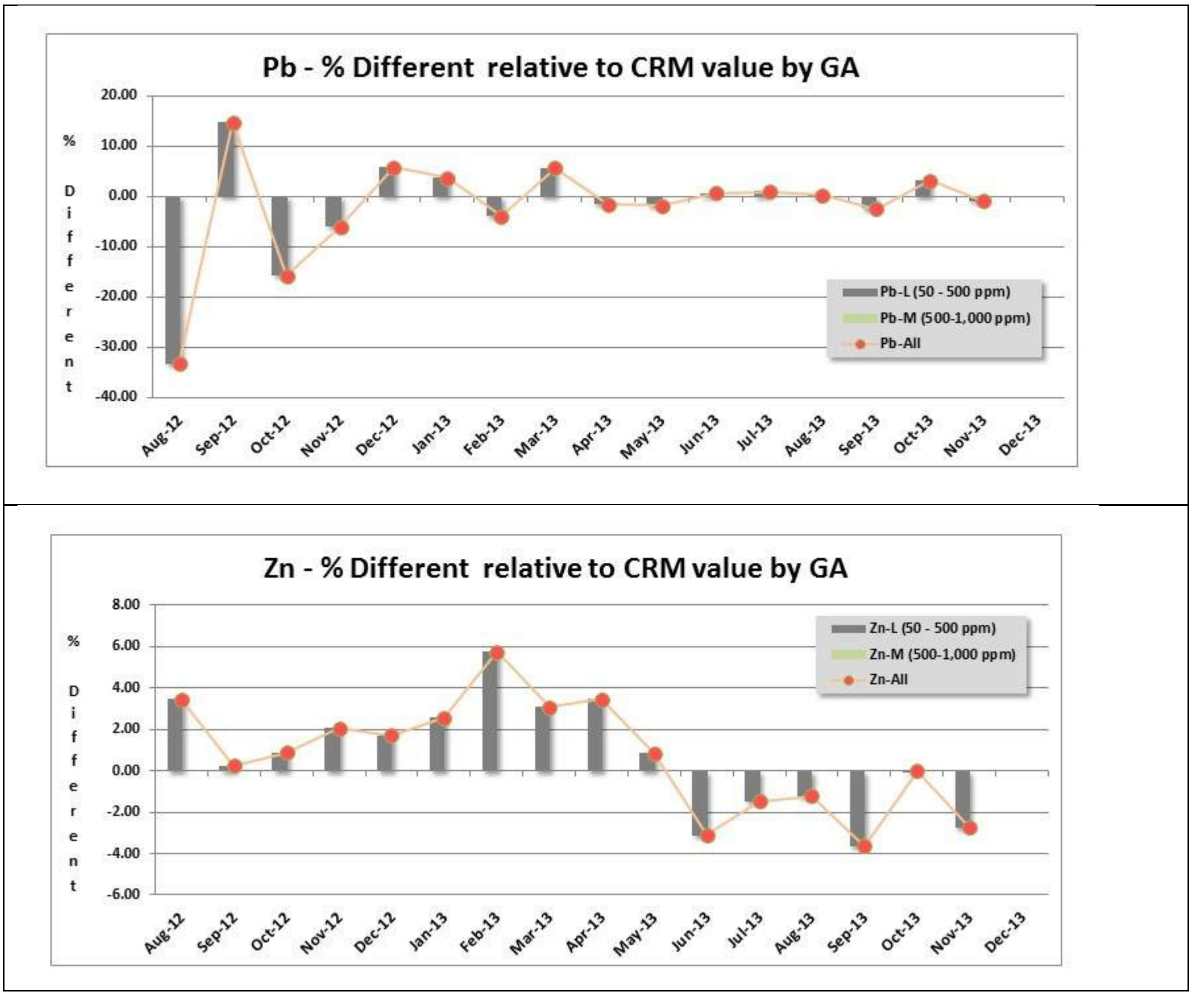


Figure 12: Performance of %Different each Laboratory through the month by grade

Inter Laboratory check

In accordance with the initial intention to check the quality of the assay results from Geoassay (GA) as a main lab, the amount of 20% of total of Drill core samples was taken for this recheck program and send to the two laboratories (Intertek/IT and Sucofindo Kuala Kencana/SFK). Some Drill core and Spot samples reanalyzed by ICP-MS to get a low detection for path finder element to detect the porphyry foot print. ICP-MS were done by Intertek on selected sample only. Detail list of elements and method used by each laboratories depicted on Appendix 10.

A total of 650 drill core samples were sent started November 2012 and stopped on September 2013. Intertek analyze by ICP-OES method for 36 elements while SFK analyze by AAS for limited to Cu, Au, Ag, Mo, Pb and Zn. The study of recheck results during this period limited to several elements Cu, Au, Ag, Mo, Pb and Zn. Because most results for Au, Ag and Mo are near low or near detection, therefore only Cu, Mo, Pb and Zn are more representative. The statistic calculation is starting 10 times detection limit of each element.

The results of observation:

- Geoassay and SFK showed a comparable results rather than Intertek especially for Cu, Ag, Mo and Pb. Copper %Different GA vs SFK is 2.6% and GA vs IT is 5.7% (Figure 13).
- Mean Percent Relative Different (MPRD) plots on Figures 14 and 15 show the comparison results of each laboratory for Cu, Au, Mo, Pb and Zn by month. The Cu assays with ore grade methods shows compatible of ±5%MPRD band.
- Relative high %Different for Au were because most Au results at near Detection limit.
- MPRD plot for Zn shows within a ±12% MPRD band.
- MPRD plot for Mo and Pb shows up to 30% due to low results.

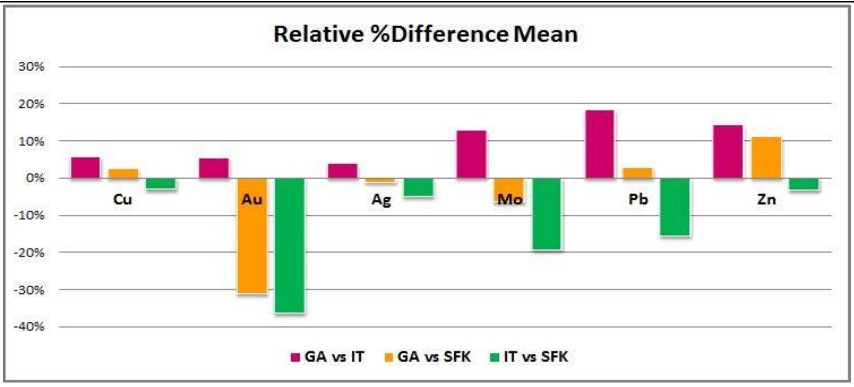
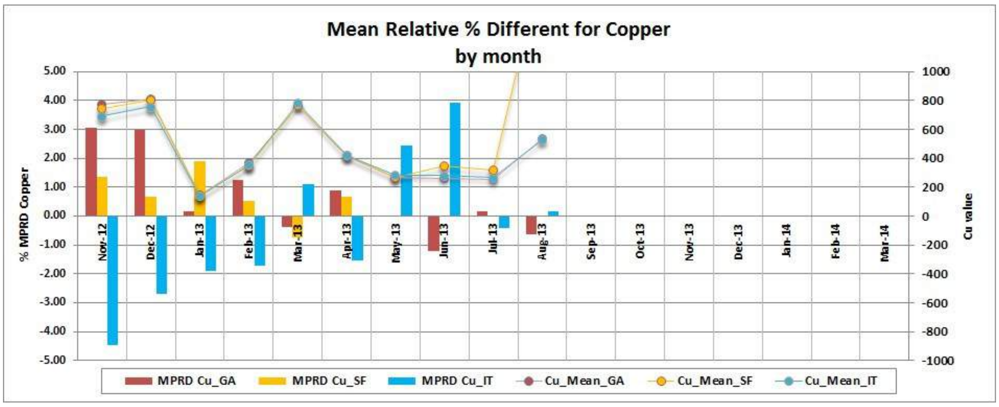


Figure 13: The summary of Relative % Diff. between the three labs for Cu, Au, Ag, Mo, Pb and Zn



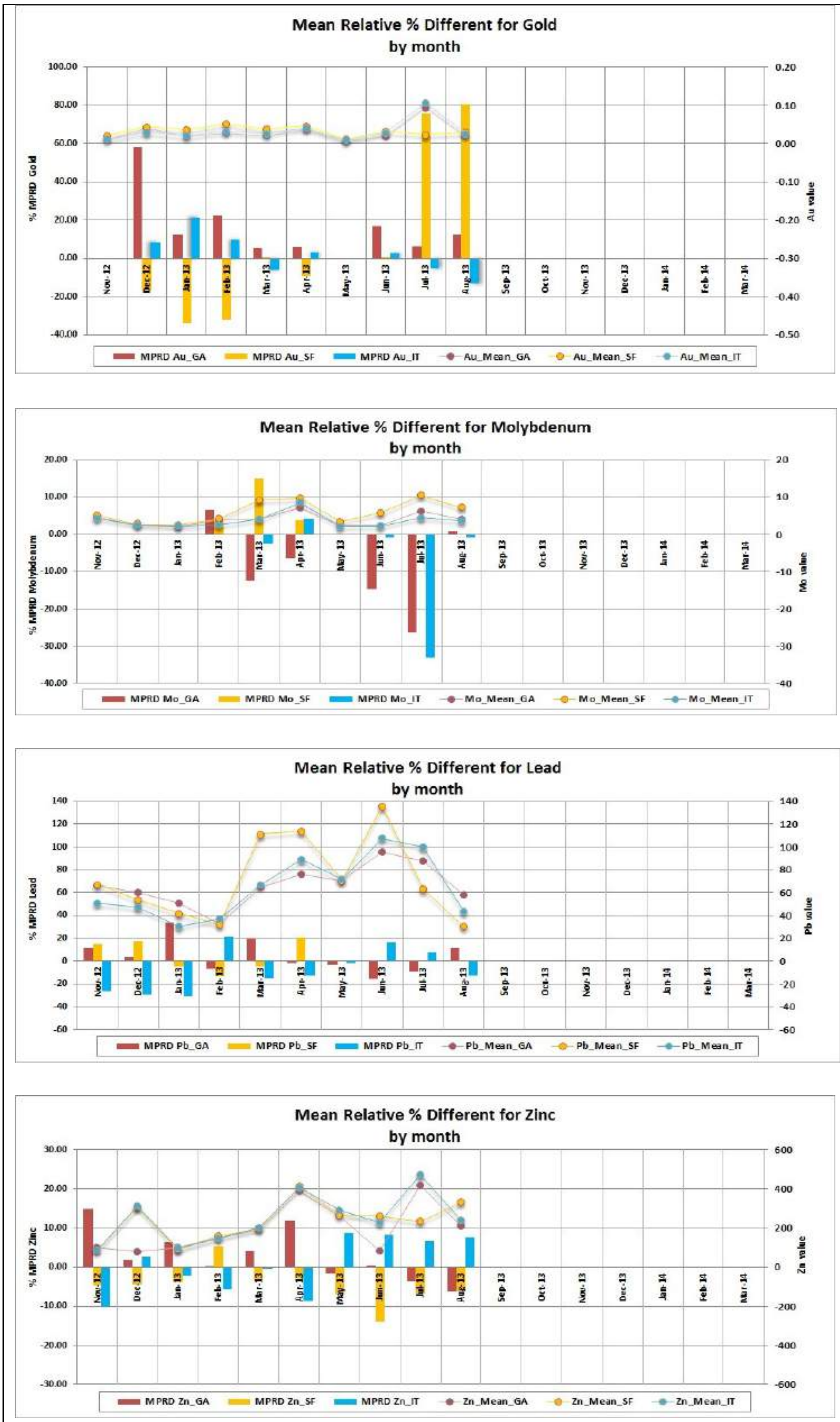
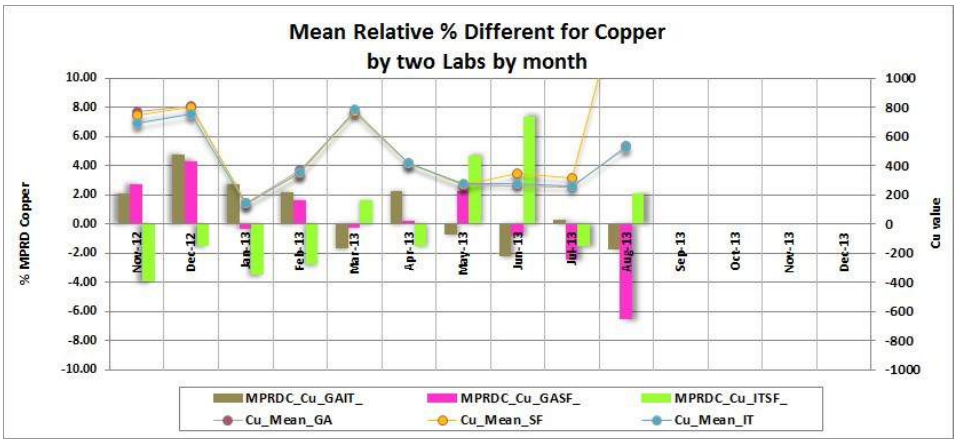
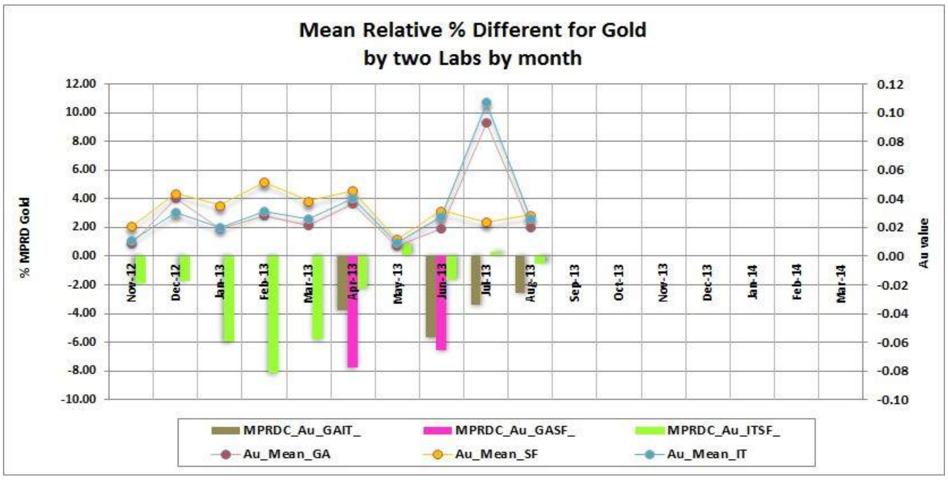
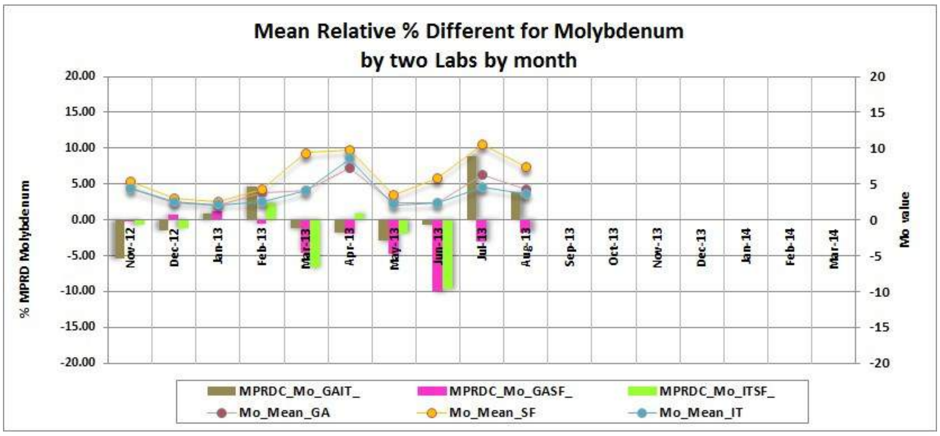


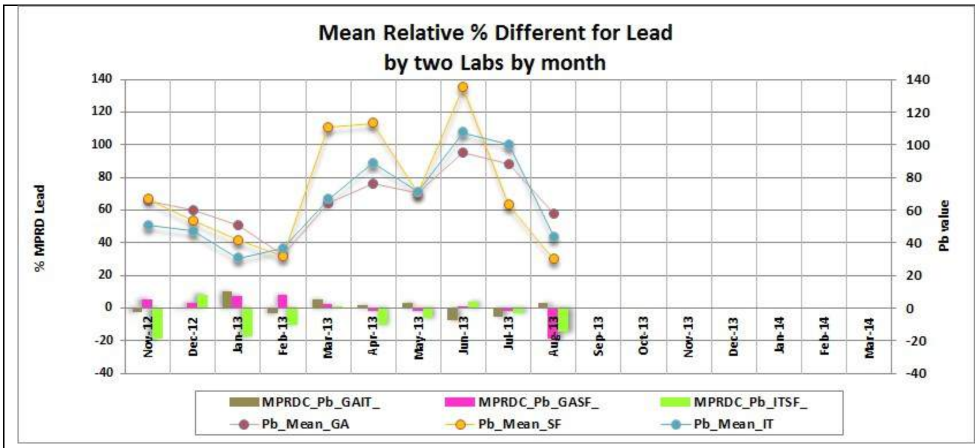
Figure 14: Mean Relative % Different each element from the Clean Mean of three labs

for Cu, Au, Ag, Mo, Pb and Zn









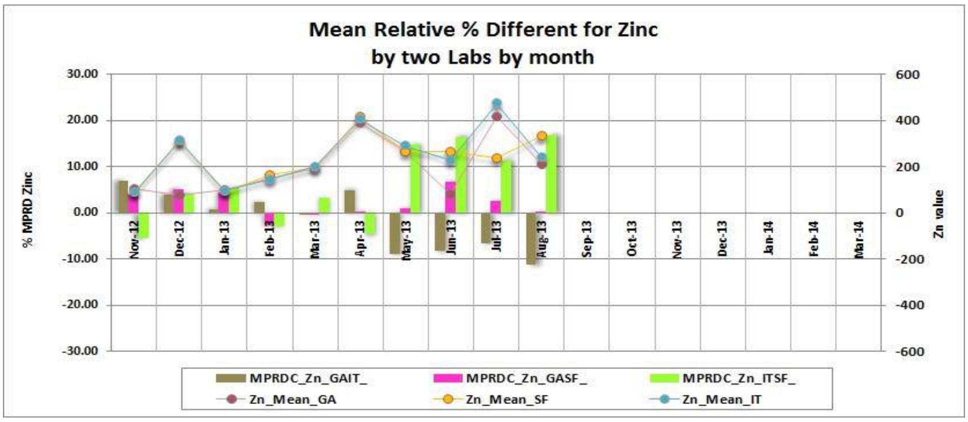
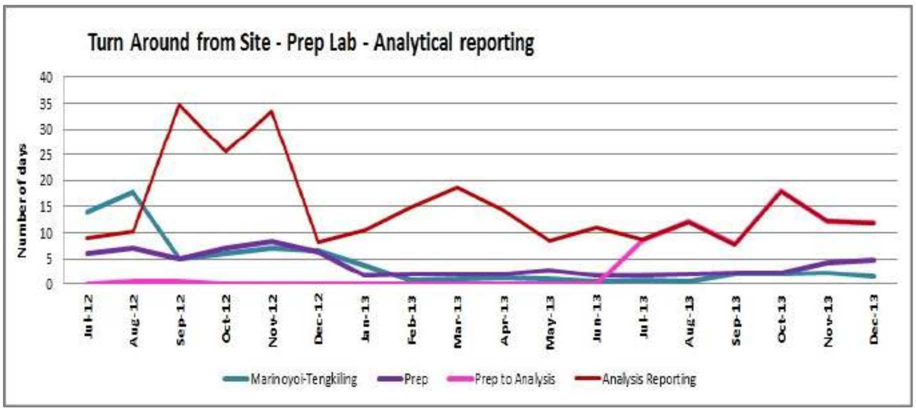


Figure 15: Mean Relative Different each element comparing with 2 labs for Cu, Au, Ag, Mo, Pb and Zn

Turnaround time

The turnaround time of is calculated from the date of pulp sample received by laboratory for analytical work up to the final results reported date.

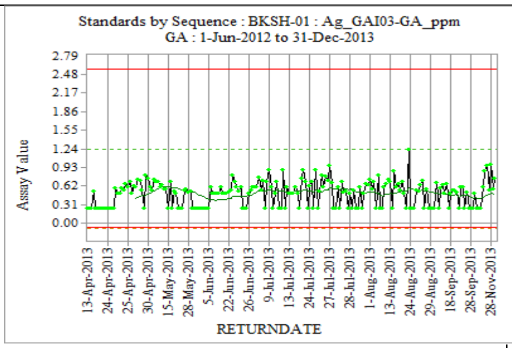


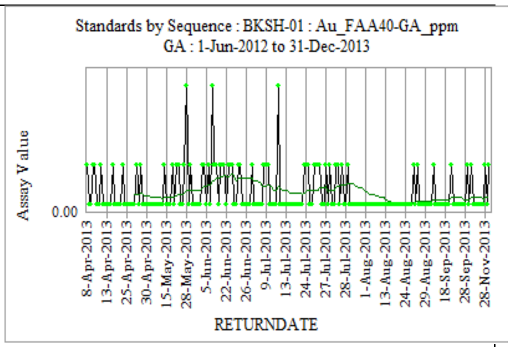
CONCLUSIONS:

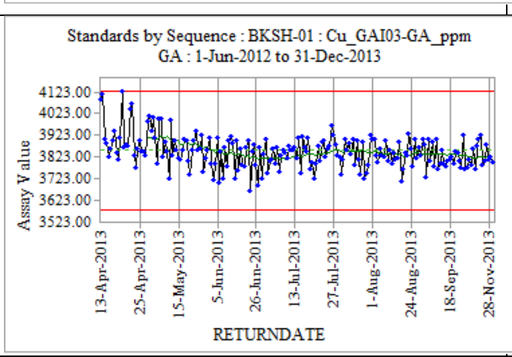
- Results from blanks prove that no contamination occurs during preparation.
- Geoassay produced the confidence analytical results especially for Copper which proved by:
    - Comparable results with Intertek and Sucofindo as shown on the re-check program results.
    - Good performance on production standard as most interest elements (Cu, Ag, Mo, Pb and Zn) that all of elements fall within the tolerance bands of the Certified Reference Material (±2StdDev bands).

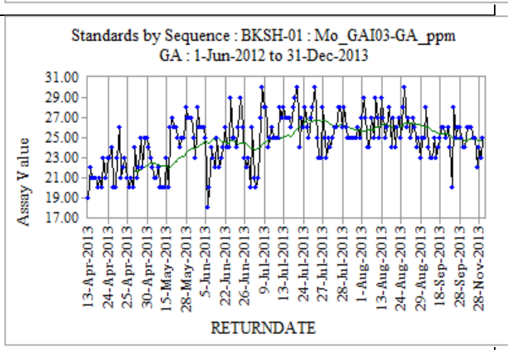
Appendix1: Standard samples performance by date sequence inserted on Diamond Drill Hole samples direct download from AcQuire Geoassay and Intertek Lab.

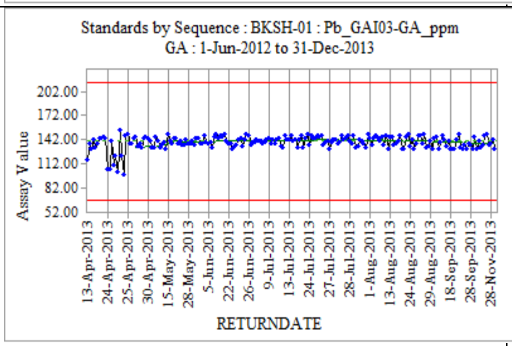
- Standard type: BKSH-01
-

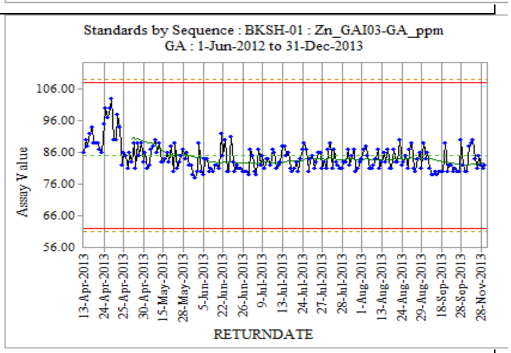


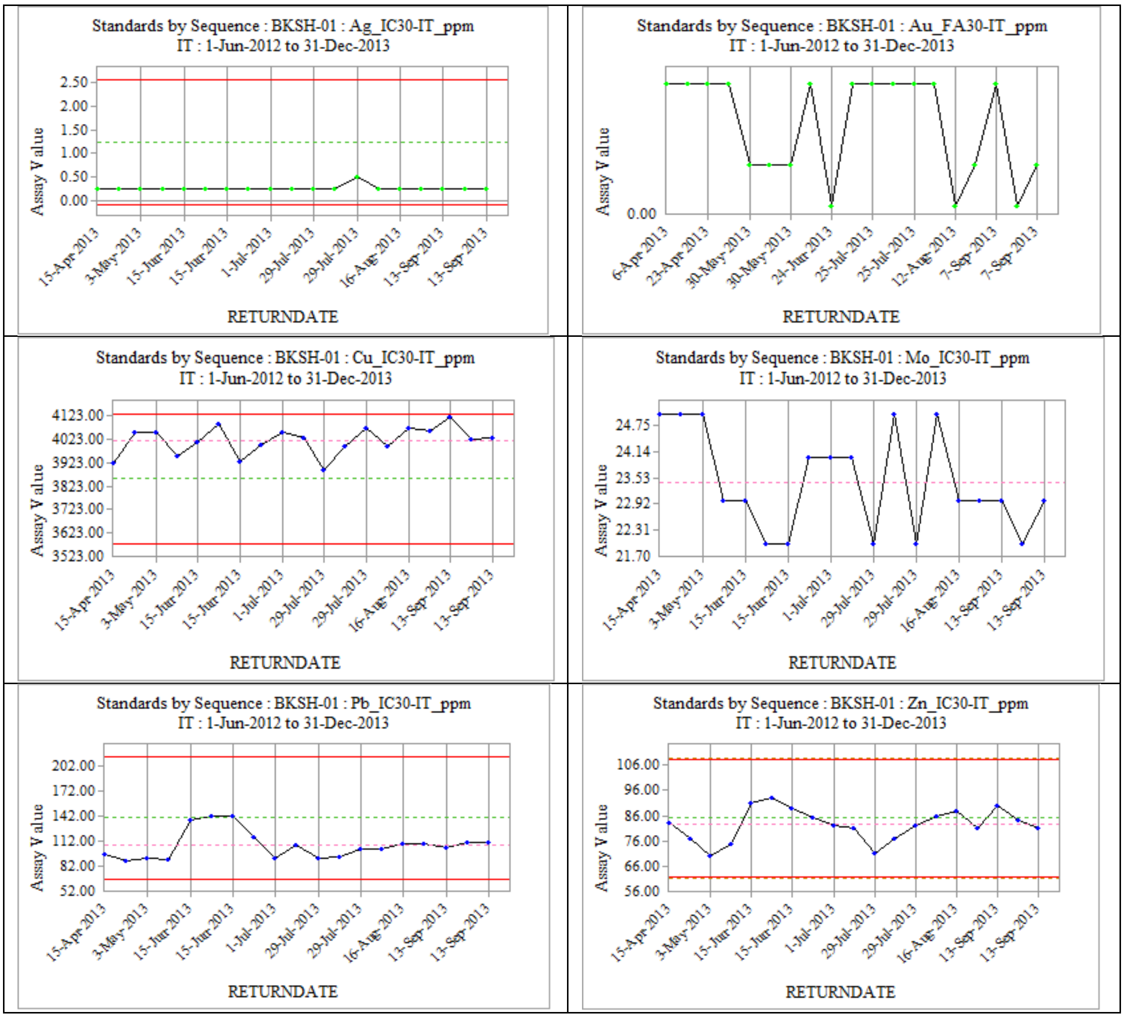


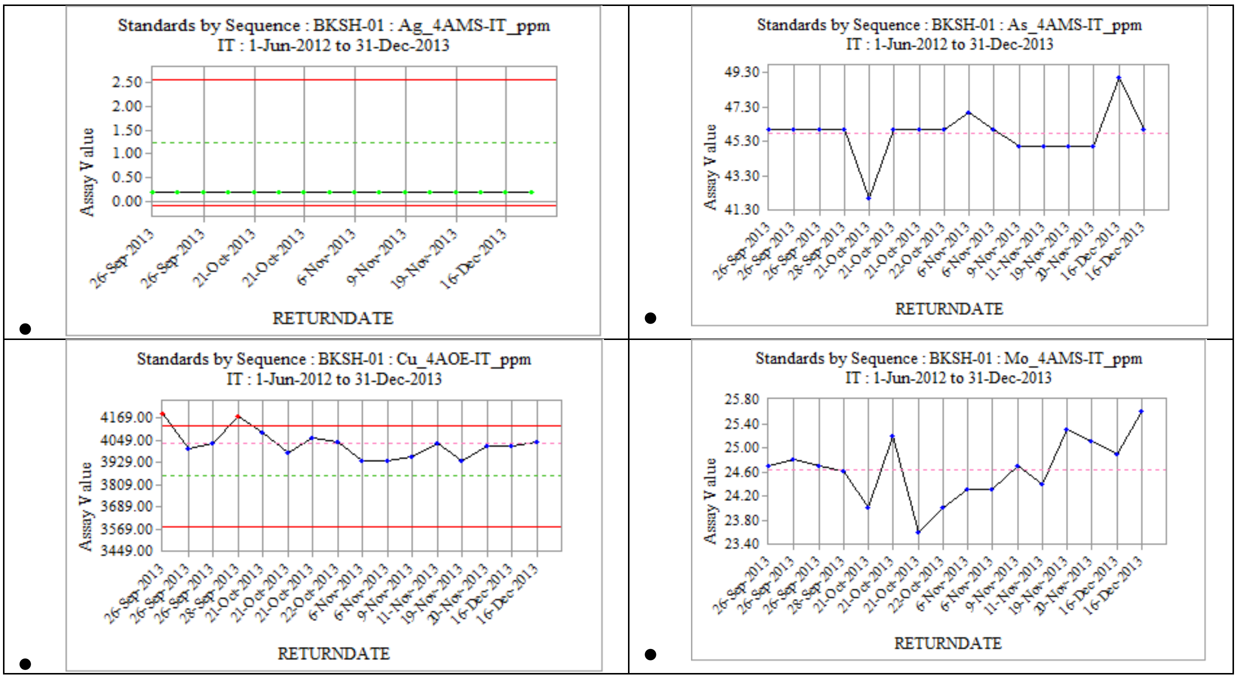


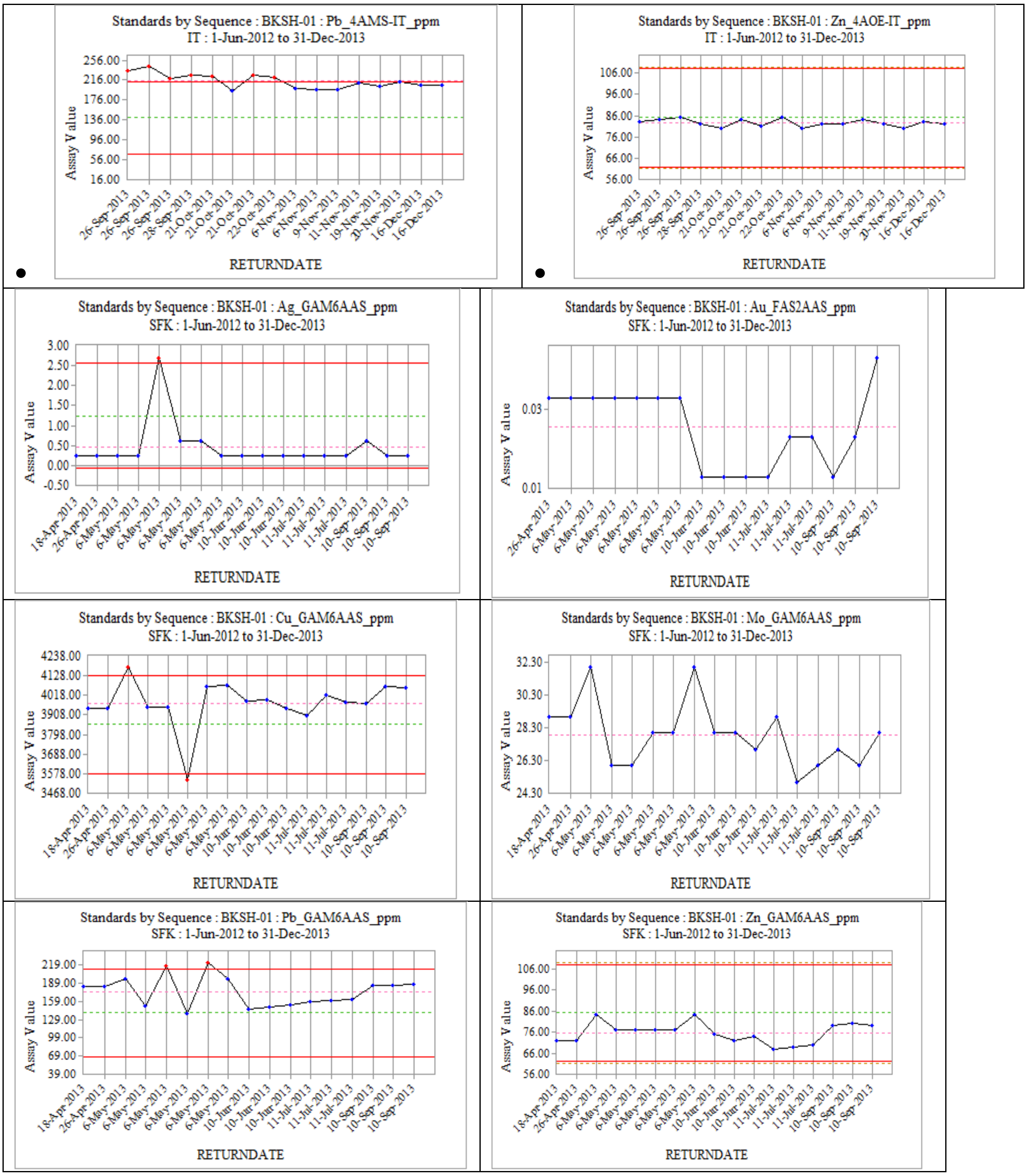




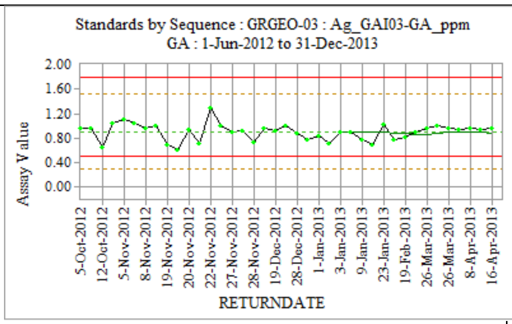


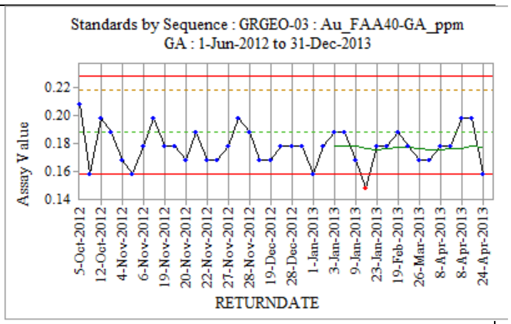

Standards by Sequence : BKSH-01 : Ag_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
2.50
2.00
1.50
1.00
0.50
0.00
15-Apr-2013
3-May-2013
15-Jun-2013
15-Jun-2013
1-Jul-2013
29-Jul-2013
29-Jul-2013
16-Aug-2013
13-Sep-2013
13-Sep-2013
RETURNDATE
Standards by Sequence : BKSH-01 : Au_FA30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
0.00
6-Apr-2013
23-Apr-2013
30-May-2013
30-May-2013
24-Jun-2013
25-Jul-2013
25-Jul-2013
12-Aug-2013
7-Sep-2013
7-Sep-2013
RETURNDATE
Standards by Sequence : BKSH-01 : Cu_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
4123.00
4023.00
3923.00
3823.00
3723.00
3623.00
3523.00
RETURNDATE
Standards by Sequence : BKSH-01 : Mo_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
24.75
24.14
23.53
22.92
22.31
21.70
RETURNDATE
Standards by Sequence : BKSH-01 : Pb_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
202.00
172.00
142.00
112.00
82.00
52.00
RETURNDATE
Standards by Sequence : BKSH-01 : Zn_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
106.00
96.00
86.00
76.00
66.00
56.00
RETURNDATE

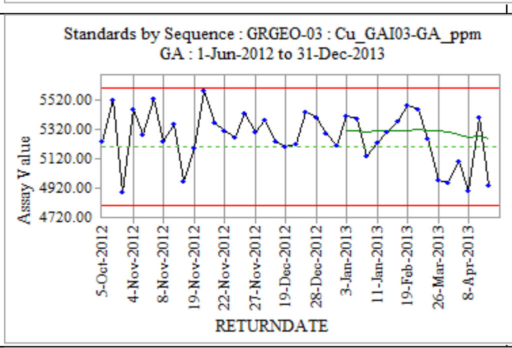

Standards by Sequence : BKSH-01 : Ag_4AMS-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
2.50
2.00
1.50
1.00
0.50
0.00
26-Sep-2013
26-Sep-2013
21-Oct-2013
21-Oct-2013
6-Nov-2013
9-Nov-2013
19-Nov-2013
16-Dec-2013
RETURNDATE
Standards by Sequence : BKSH-01 : As_4AMS-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
49.30
47.30
45.30
43.30
41.30
RETURNDATE
Standards by Sequence : BKSH-01 : Cu_4AOE-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
4169.00
4049.00
3929.00
3809.00
3689.00
3569.00
3449.00
RETURNDATE
Standards by Sequence : BKSH-01 : Mo_4AMS-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
25.80
25.40
25.00
24.60
24.20
23.80
23.40
RETURNDATE

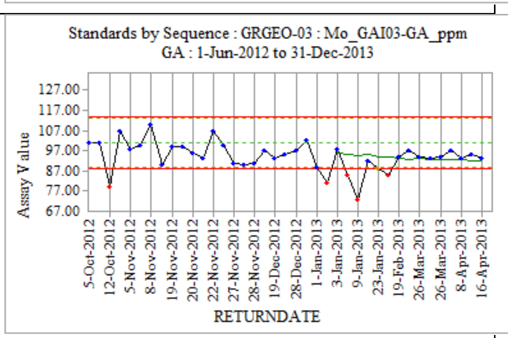


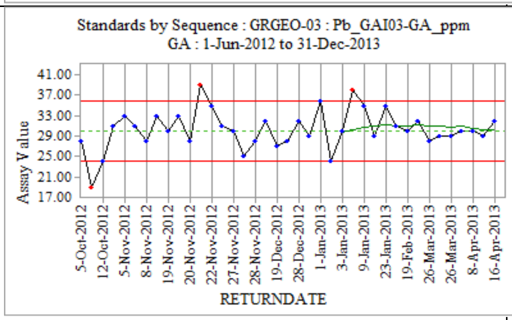
- Standard type: GRGEO-03
-

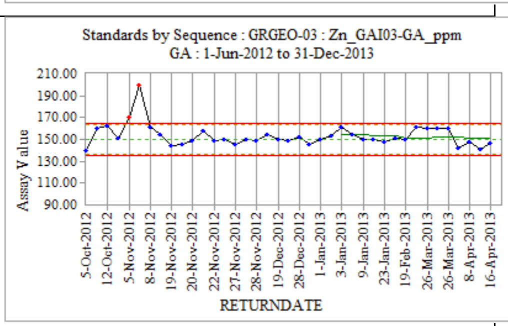

Standards by Sequence : GRGEO-03 : Ag_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE


Standards by Sequence : GRGEO-03 : Au_FAA40-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE


Standards by Sequence : GRGEO-03 : Cu_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE


Standards by Sequence : GRGEO-03 : Mo_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE


Standards by Sequence : GRGEO-03 : Pb_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE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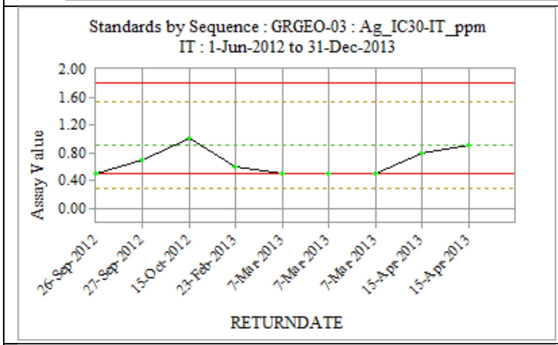
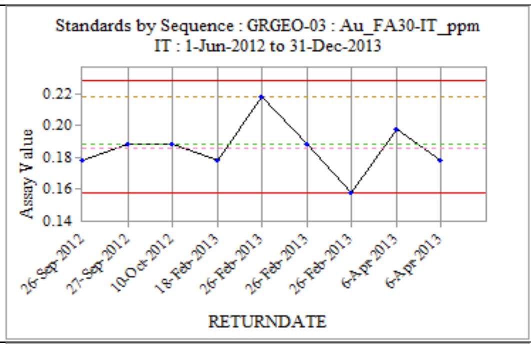
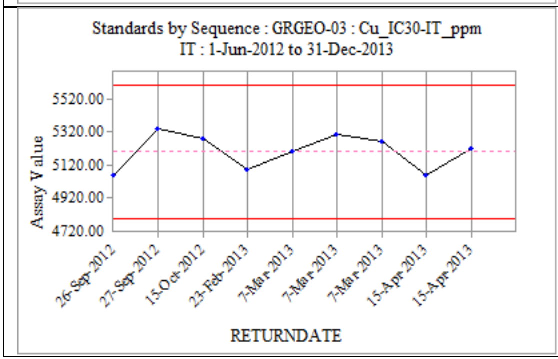
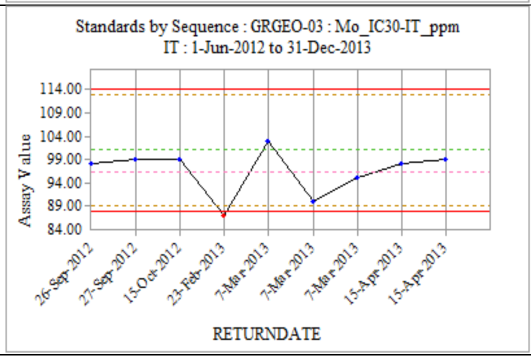
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE


Standards by Sequence : GRGEO-03 : Ag_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE


Standards by Sequence : GRGEO-03 : Au_FA30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE


Standards by Sequence : GRGEO-03 : Cu_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE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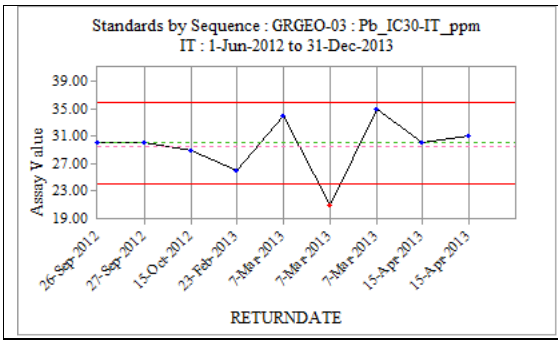
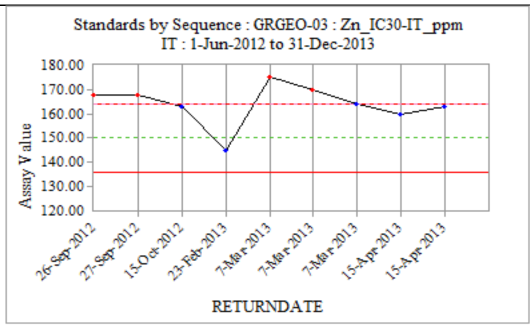
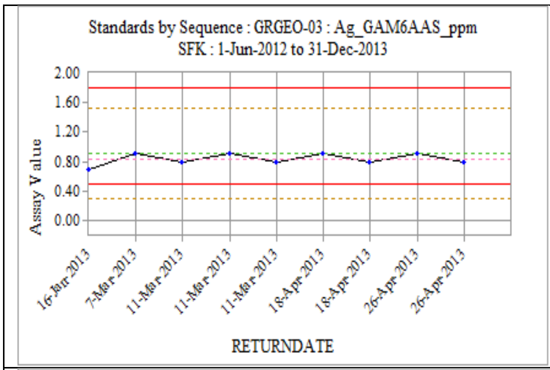
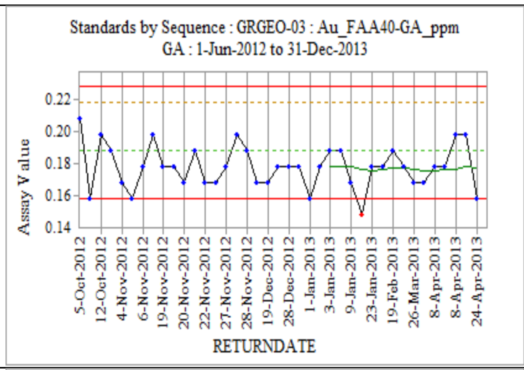
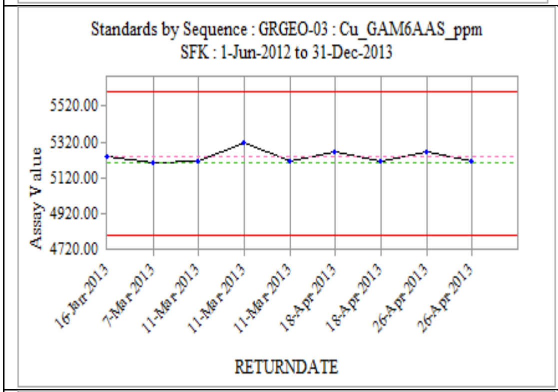
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

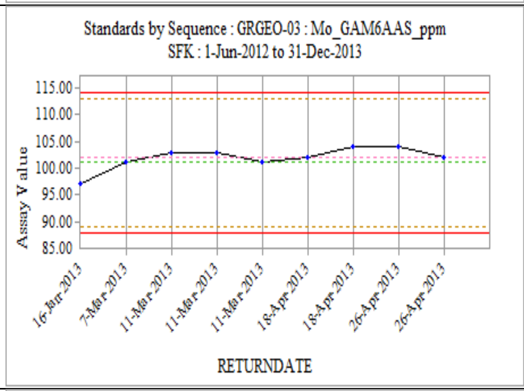


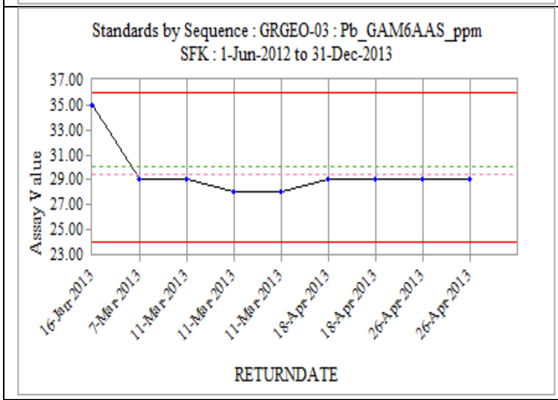


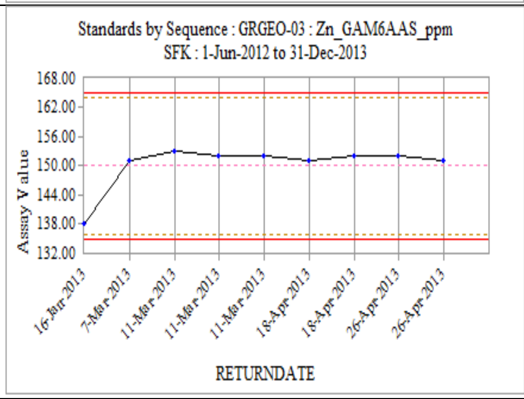




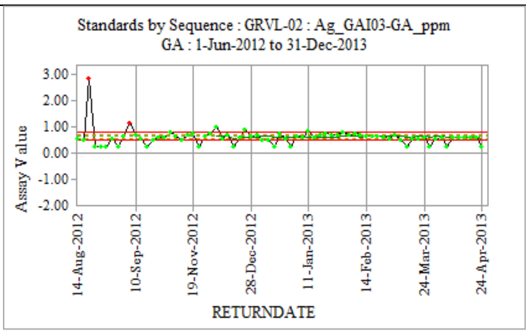


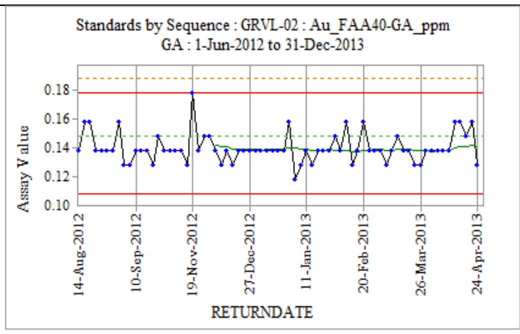






Standard type: GRVL-02


Standards by Sequence : GRVL-02 : Ag_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE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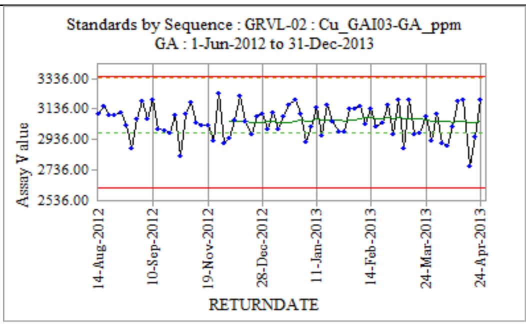
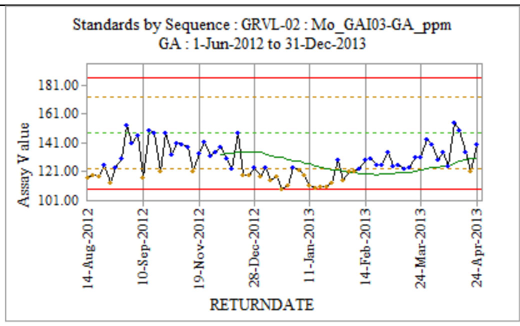
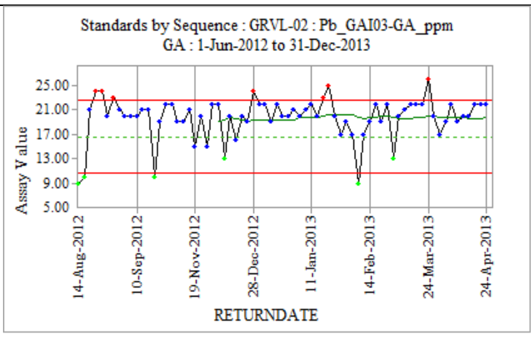
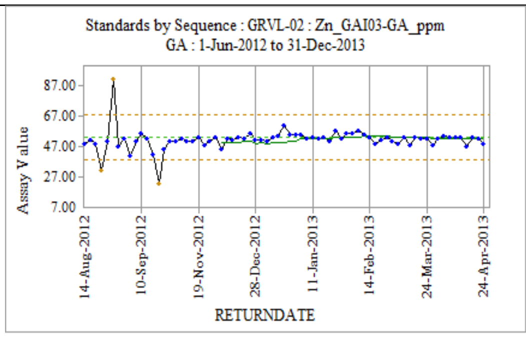
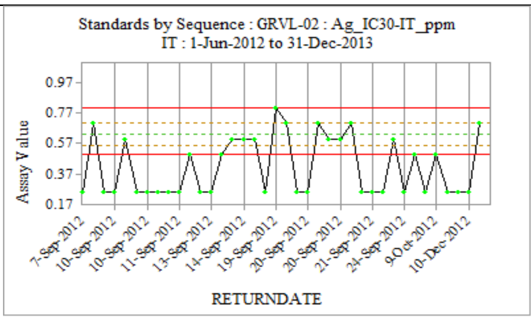
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

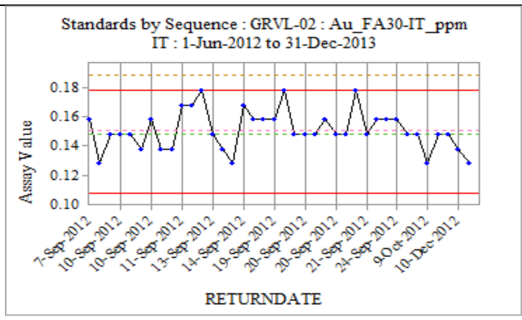

Standards by Sequence : GRVL-02 : Cu_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

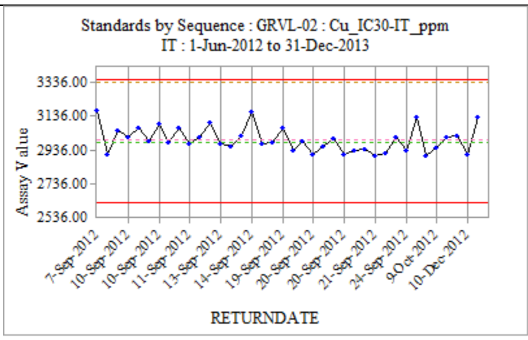

Standards by Sequence : GRVL-02 : Mo_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

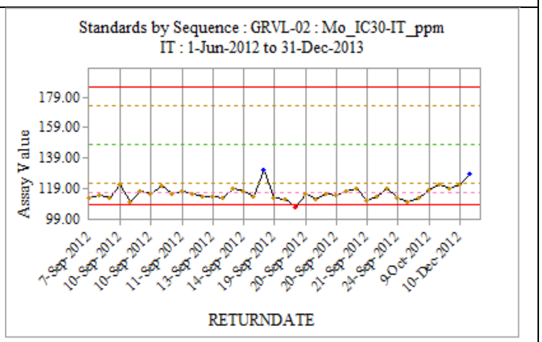

Standards by Sequence : GRVL-02 : Pb_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

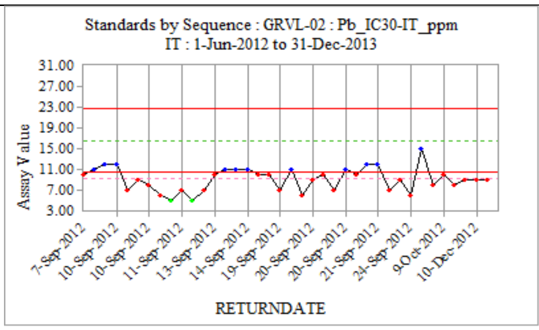

Standards by Sequence : GRVL-02 : Zn_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

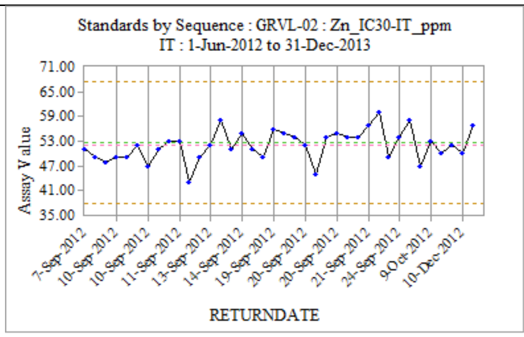

Standards by Sequence : GRVL-02 : Ag_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

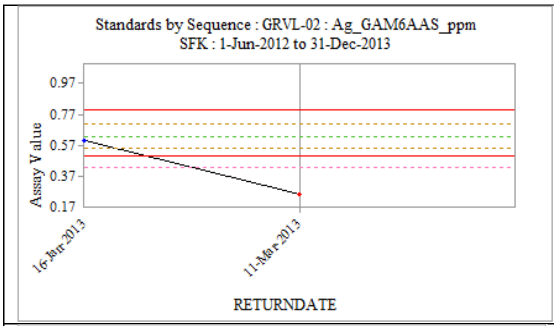

Standards by Sequence : GRVL-02 : Au_FA30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

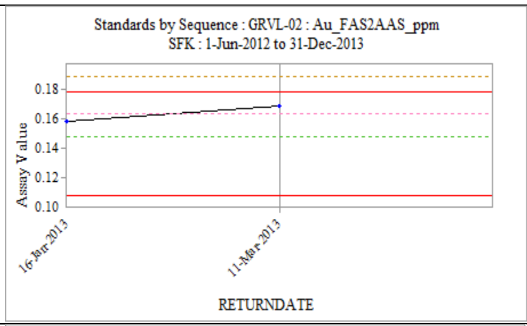

Standards by Sequence : GRVL-02 : Cu_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

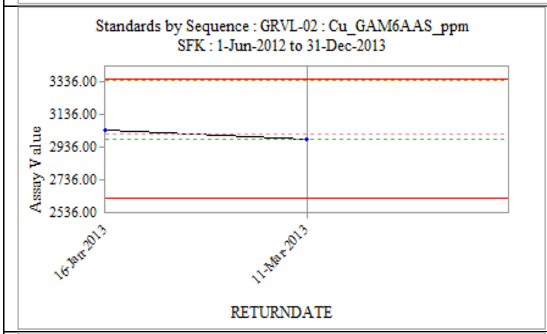

Standards by Sequence : GRVL-02 : Mo_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

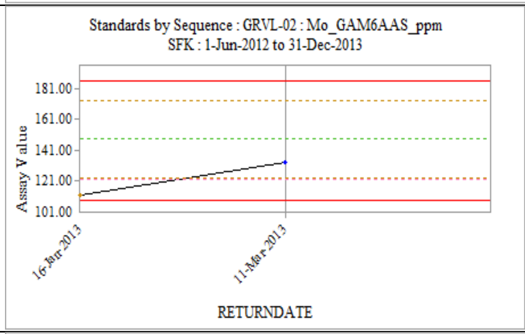


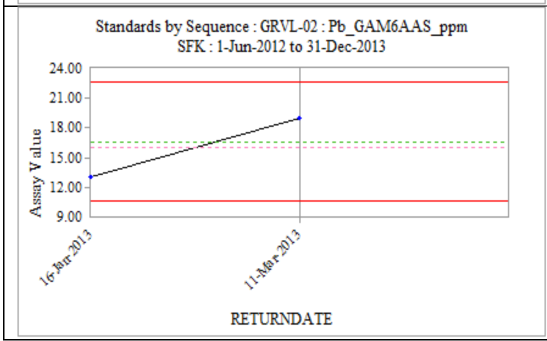


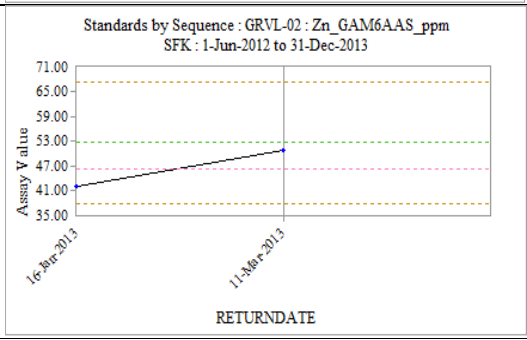




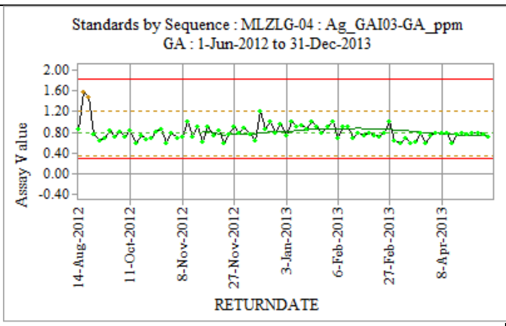


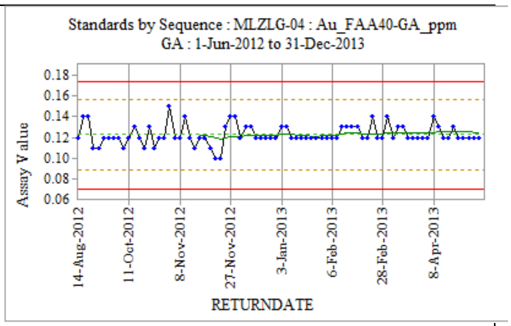


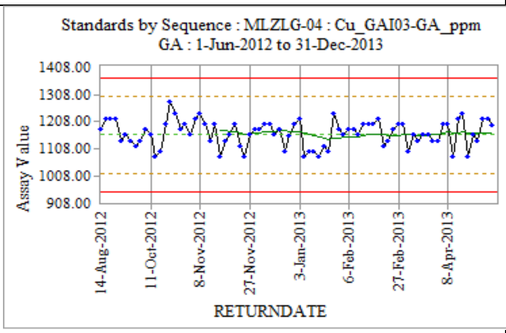


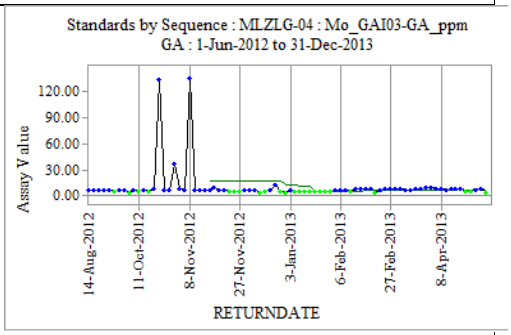


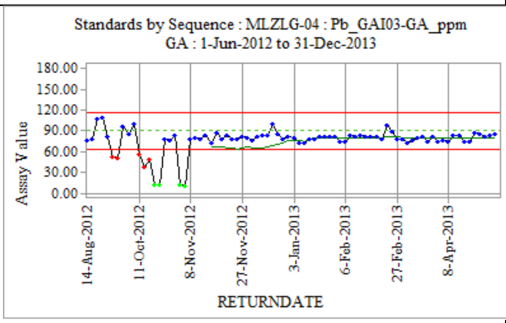
- Standard type: MLZLG-04
-

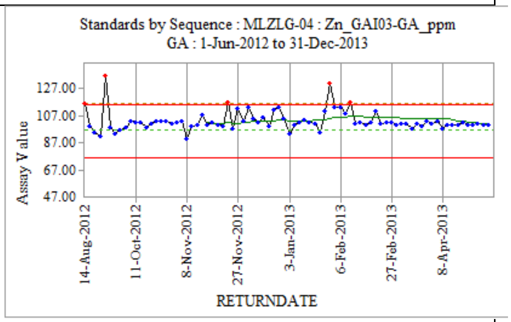

Standards by Sequence : MLZLG-04 : Ag_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

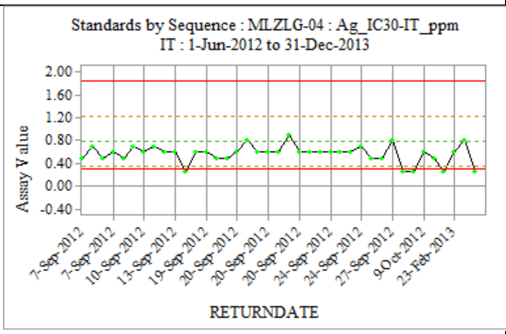

Standards by Sequence : MLZLG-04 : Au_FAA40-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

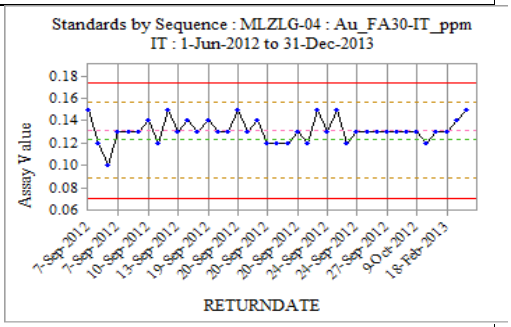

Standards by Sequence : MLZLG-04 : Cu_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

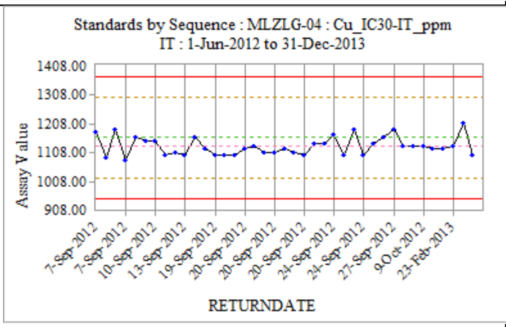

Standards by Sequence : MLZLG-04 : Mo_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

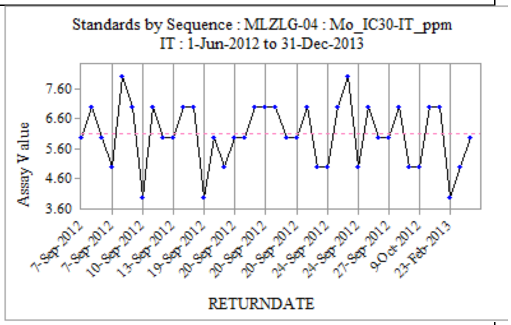

Standards by Sequence : MLZLG-04 : Pb_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

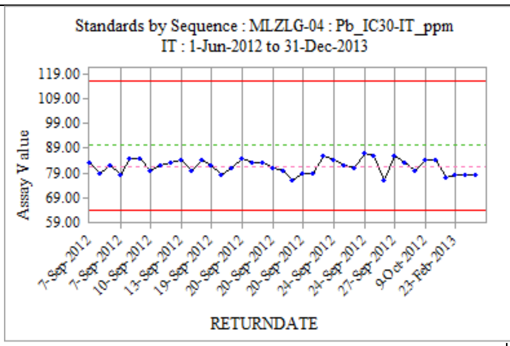

Standards by Sequence : MLZLG-04 : Zn_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

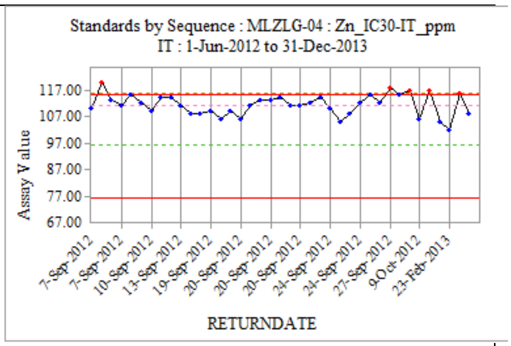

Standards by Sequence : MLZLG-04 : Ag_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

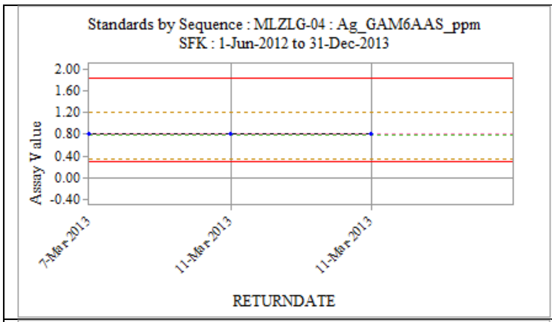

Standards by Sequence : MLZLG-04 : Au_FA30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

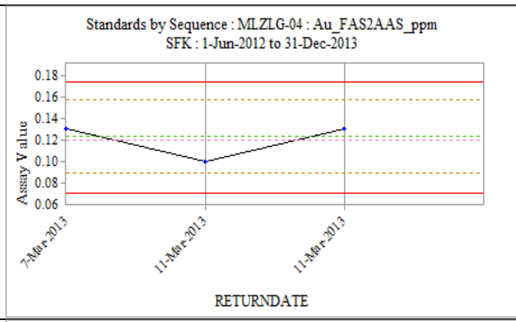

Standards by Sequence : MLZLG-04 : Cu_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

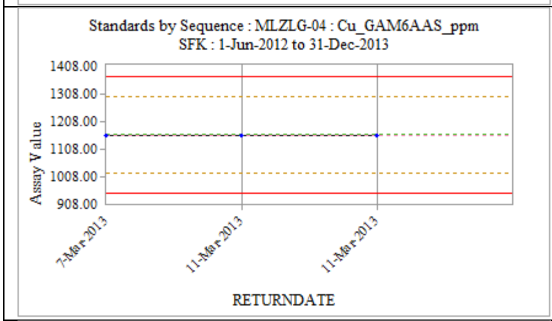

Standards by Sequence : MLZLG-04 : Mo_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
Assay Value
RETURNDATE

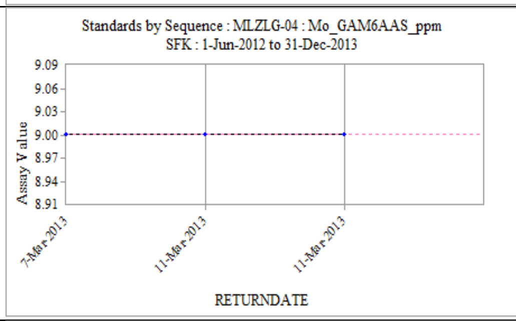


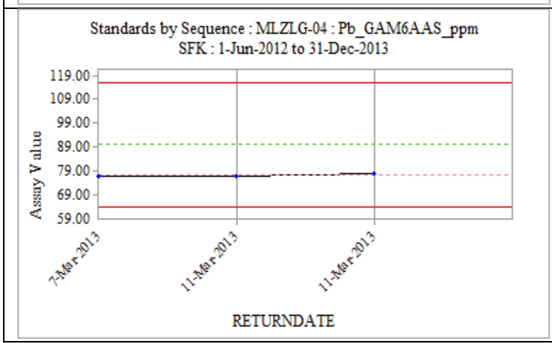


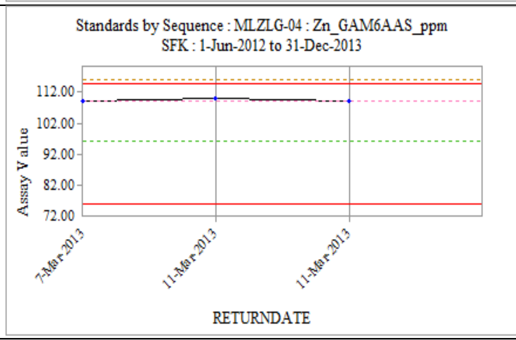




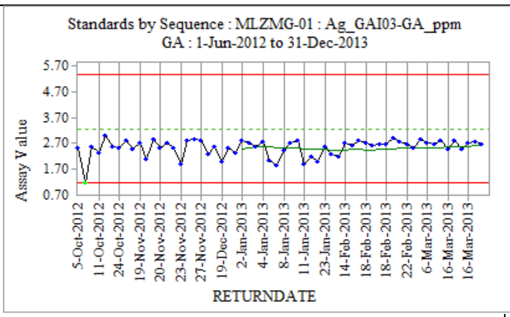


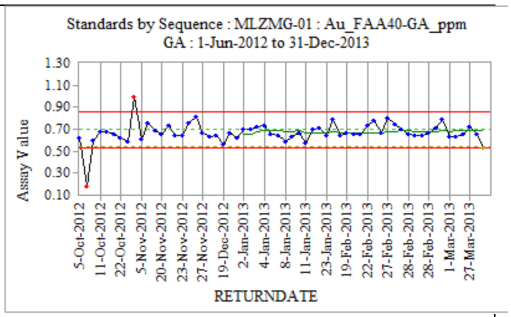


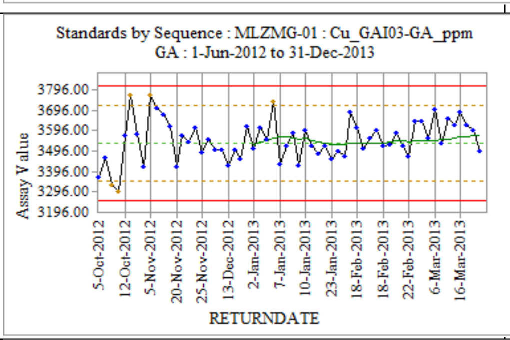


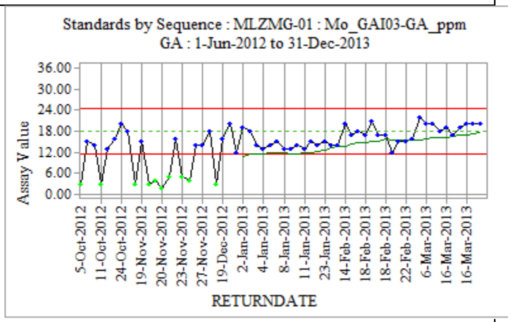


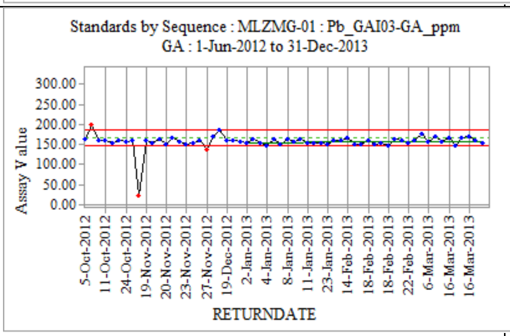
- Standard type: MLZMG-01
-

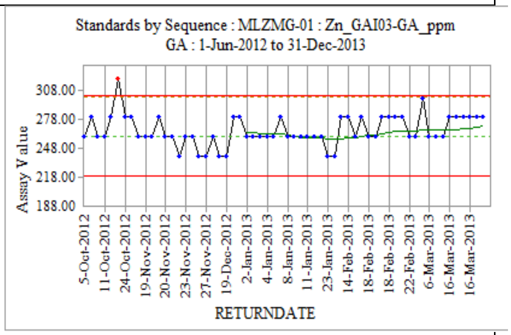

Standards by Sequence : MLZMG-01 : Ag_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
5.70
4.70
3.70
2.70
1.70
0.70
Assay V alue
RETURNDATE

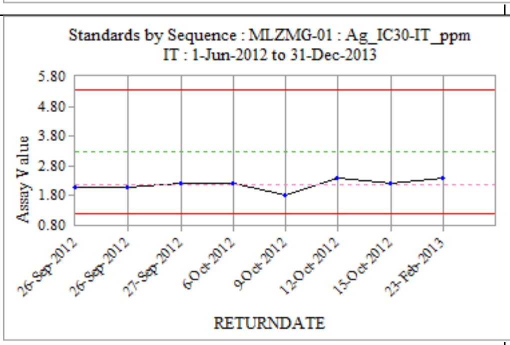

Standards by Sequence : MLZMG-01 : Au_FAA40-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
1.30
1.10
0.90
0.70
0.50
0.30
0.10
Assay V alue
RETURNDATE

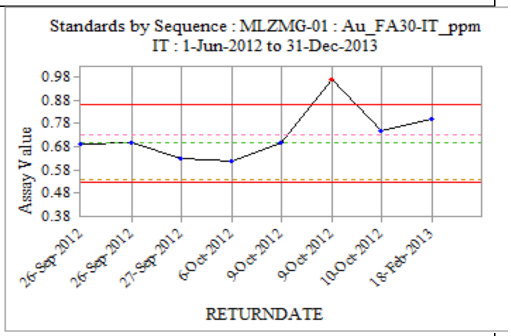

Standards by Sequence : MLZMG-01 : Cu_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
3796.00
3696.00
3596.00
3496.00
3396.00
3296.00
3196.00
Assay V alue
RETURNDATE

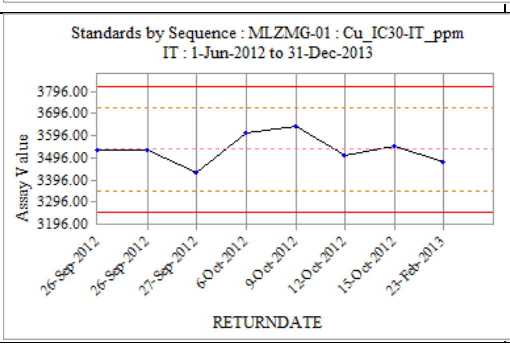

Standards by Sequence : MLZMG-01 : Mo_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
36.00
30.00
24.00
18.00
12.00
6.00
0.00
Assay V alue
RETURNDATE

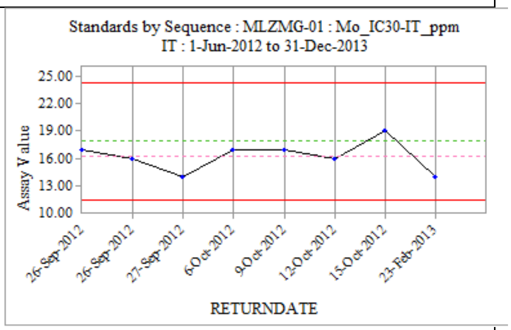

Standards by Sequence : MLZMG-01 : Pb_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Assay V alue
RETURNDATE

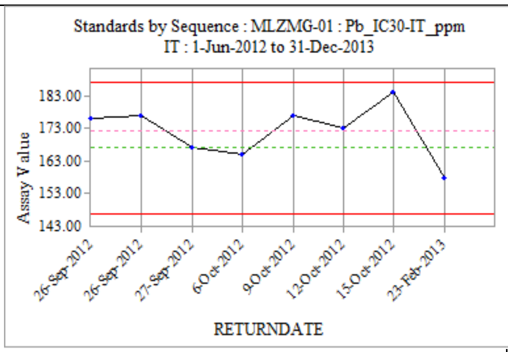

Standards by Sequence : MLZMG-01 : Zn_GAI03-GA_ppm
GA : 1-Jun-2012 to 31-Dec-2013
308.00
278.00
248.00
218.00
188.00
Assay V alue
RETURNDATE

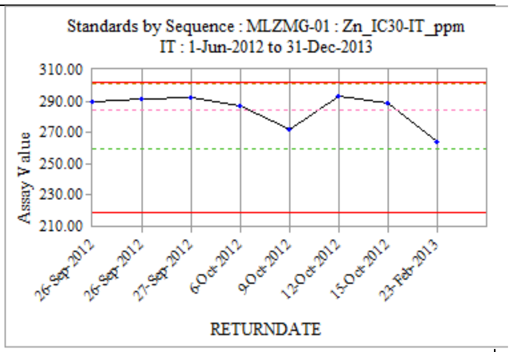

Standards by Sequence : MLZMG-01 : Ag_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
5.80
4.80
3.80
2.80
1.80
0.80
Assay V alue
RETURNDATE


Standards by Sequence : MLZMG-01 : Au_FA30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
0.98
0.88
0.78
0.68
0.58
0.48
0.38
Assay V alue
RETURNDATE


Standards by Sequence : MLZMG-01 : Cu_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
3796.00
3696.00
3596.00
3496.00
3396.00
3296.00
3196.00
Assay V alue
RETURNDATE

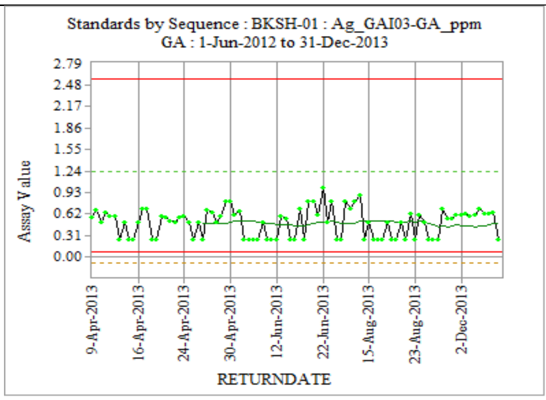

Standards by Sequence : MLZMG-01 : Mo_IC30-IT_ppm
IT : 1-Jun-2012 to 31-Dec-2013
25.00
22.00
19.00
16.00
13.00
10.00
Assay V alue
RETURNDATE

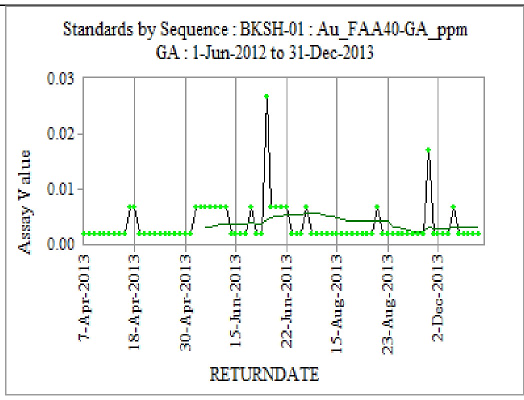


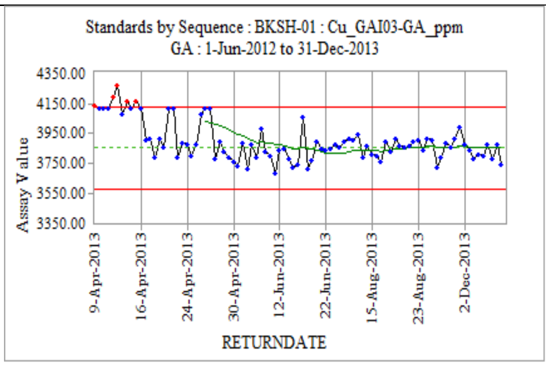


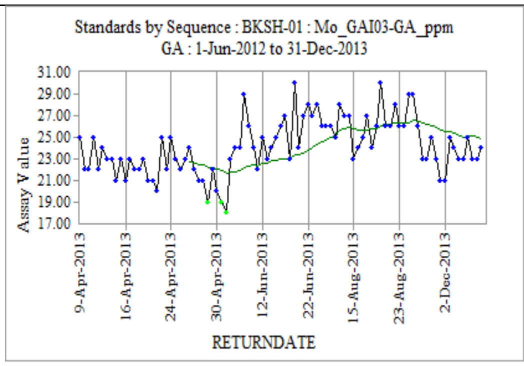
Appendix2: Standard samples performance by date sequence inserted on Spot samples direct download from AcQuire from Geoassay and Intertek Lab.

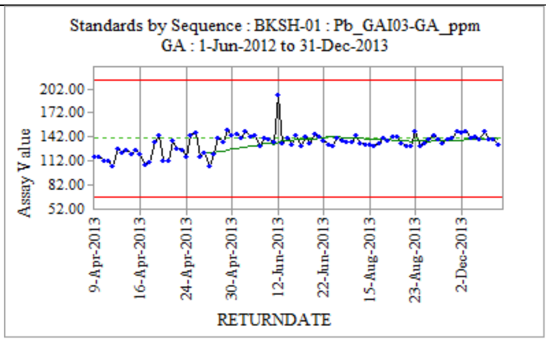
- Standard type: BKSH-01

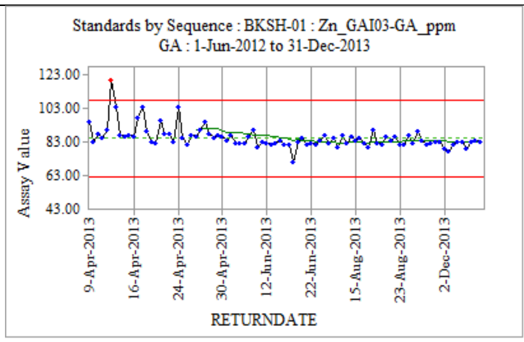




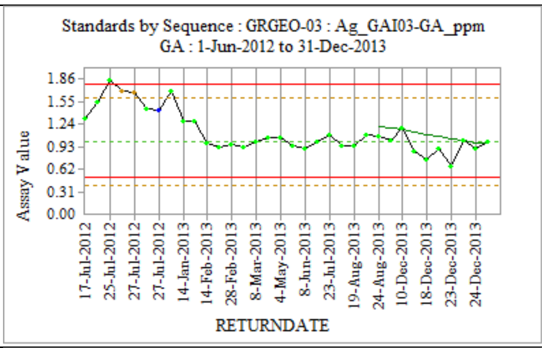


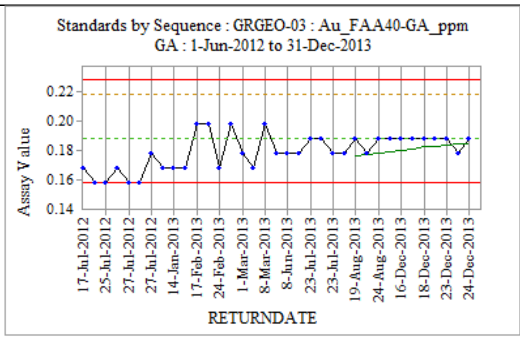


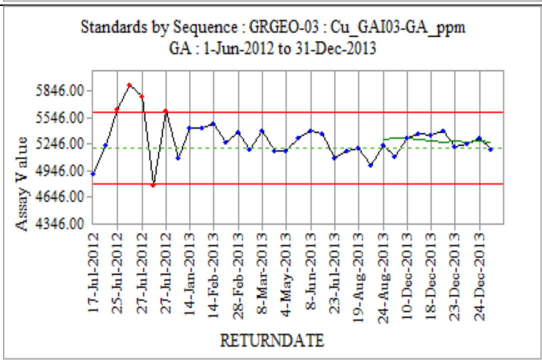


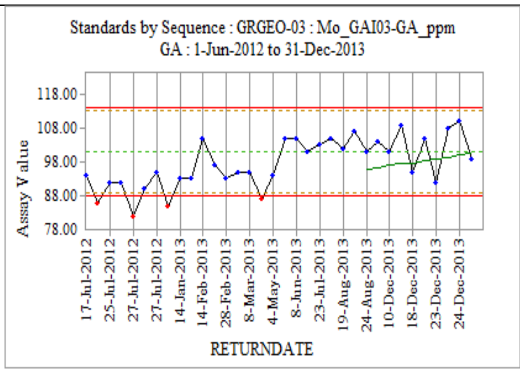


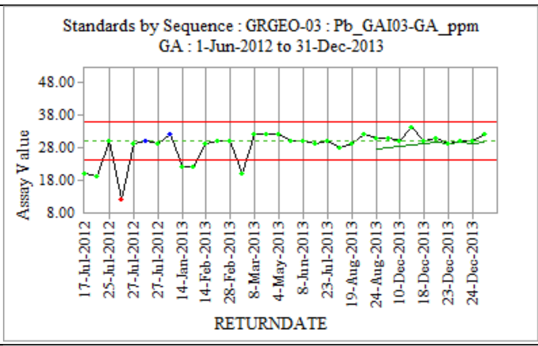
- Standard type: GRGEO-03

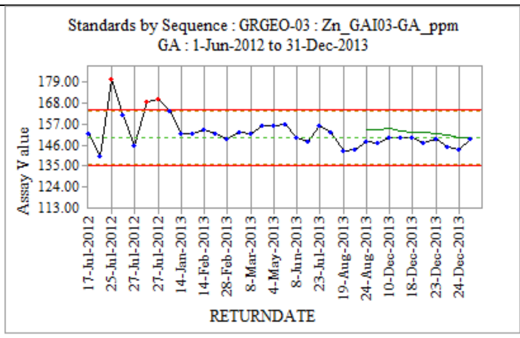


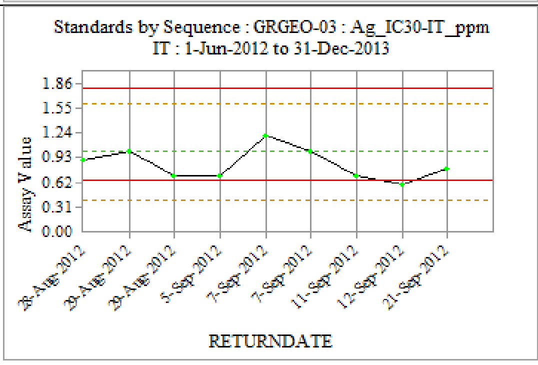


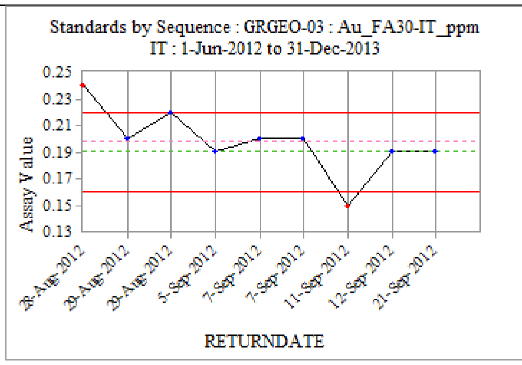


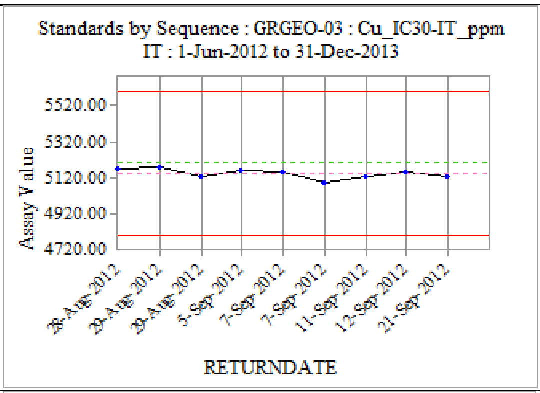


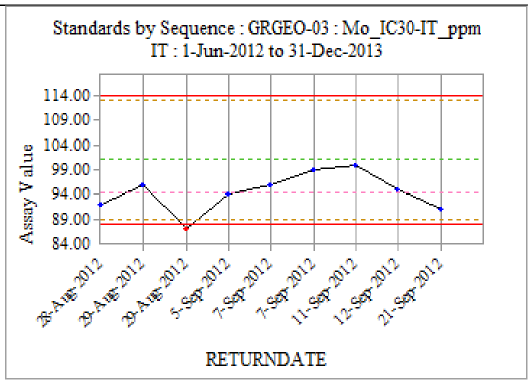


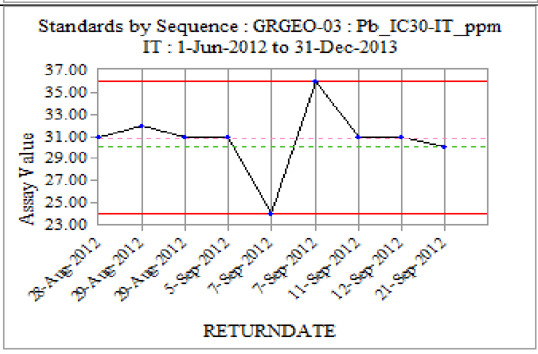


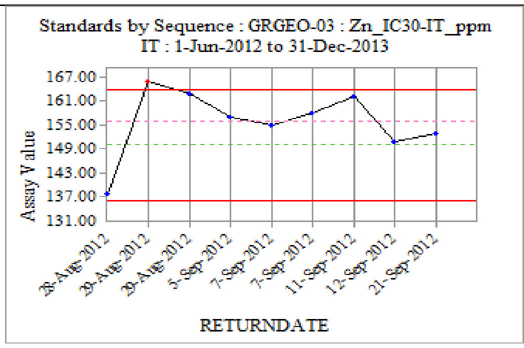




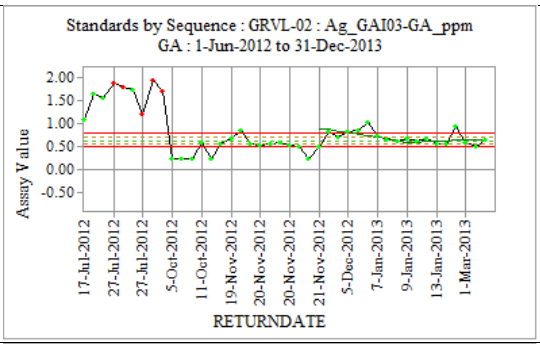


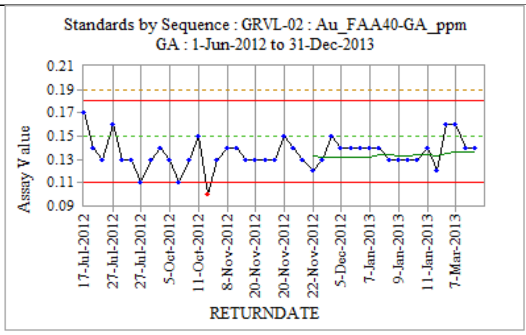


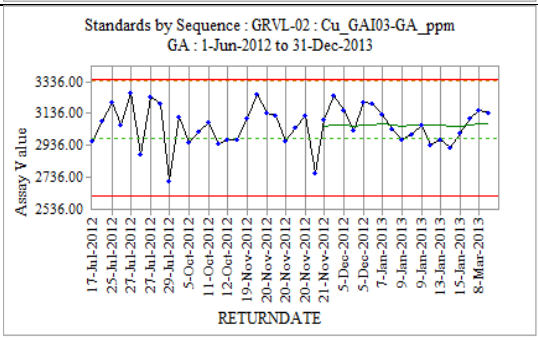


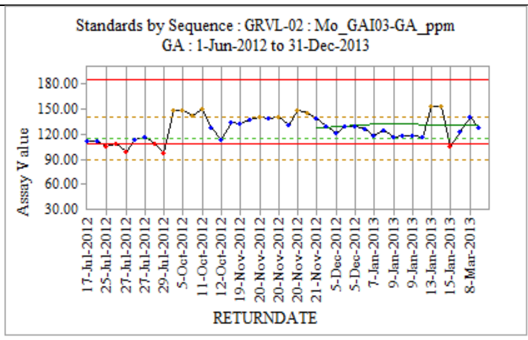


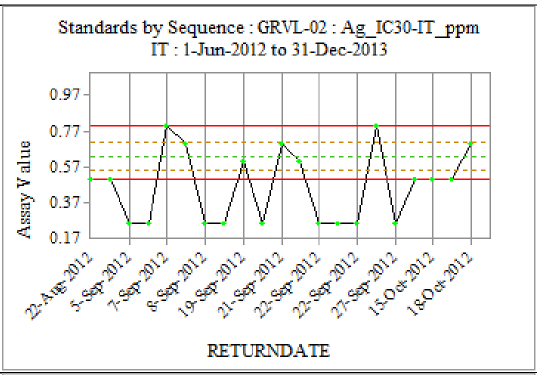
- Standard type: GRVL-02

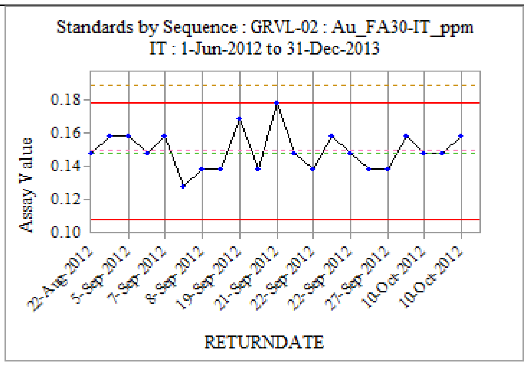


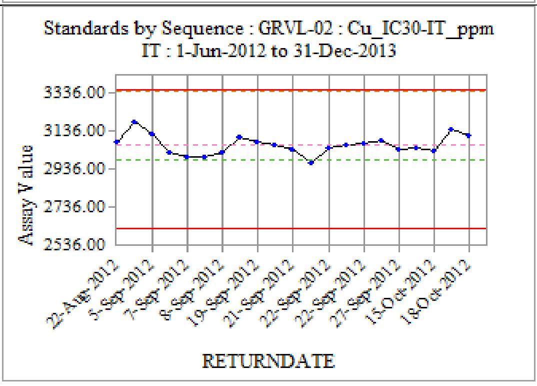


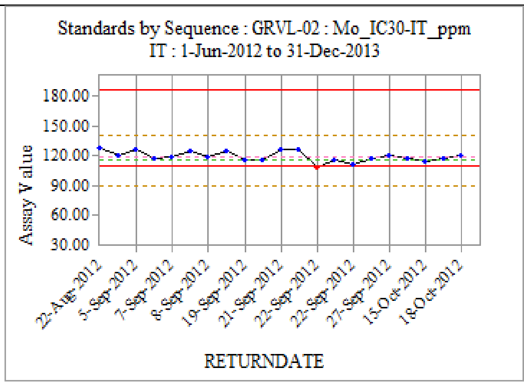




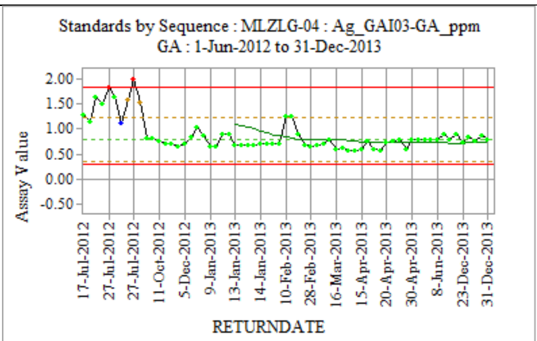
- 

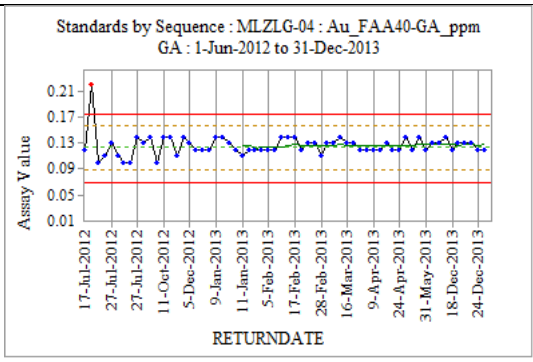
- 

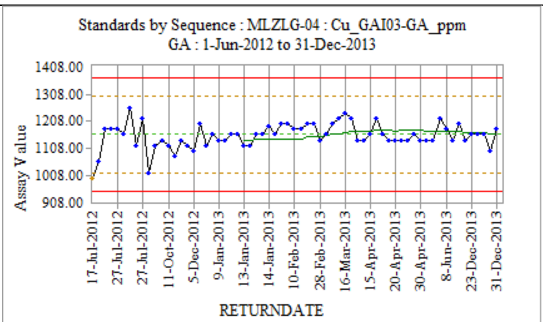
- 

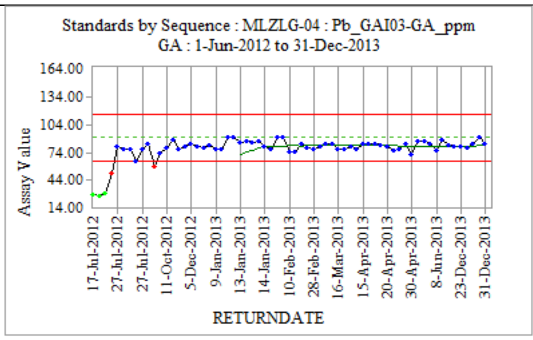
- 

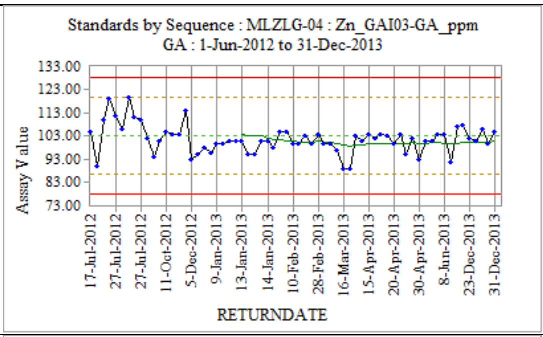
- Standard type: MLZLG-04
-

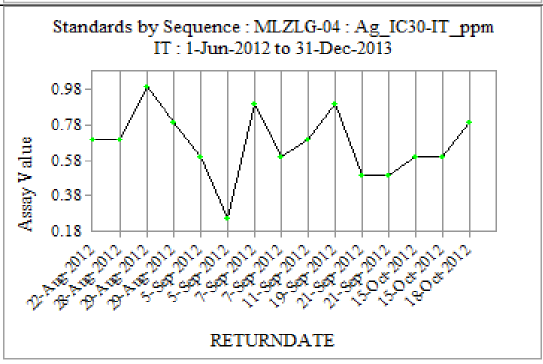
- 

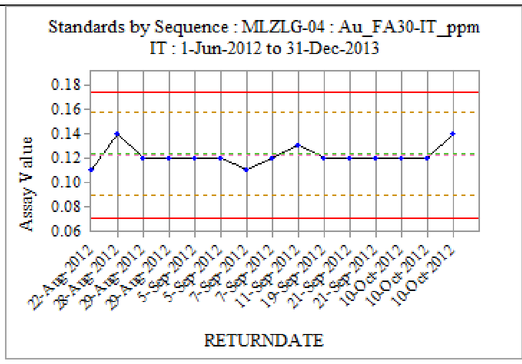
- 

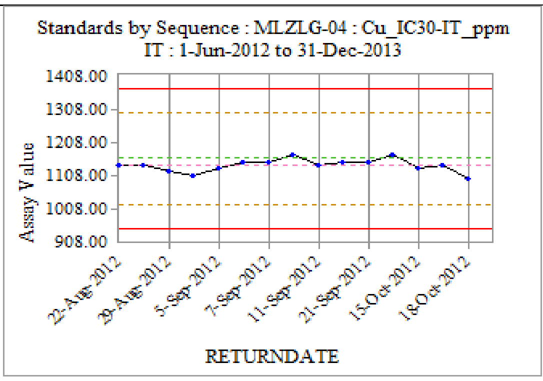
- 

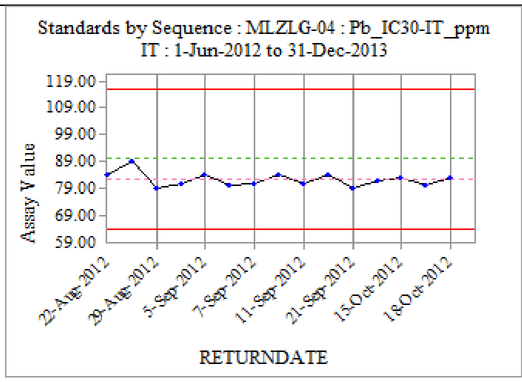
- 

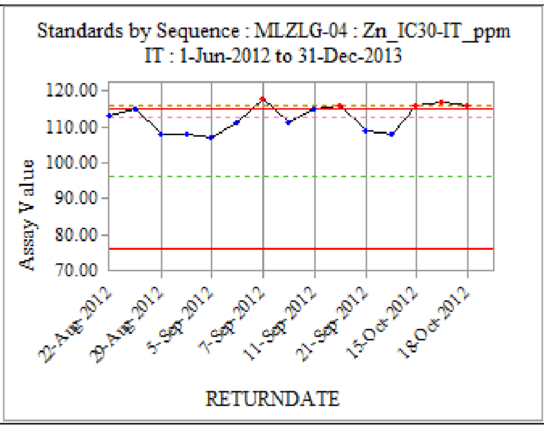




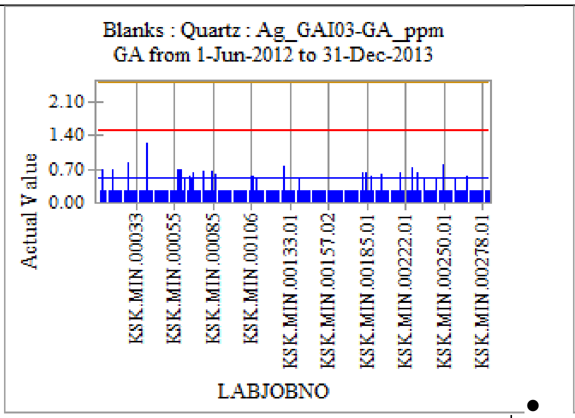


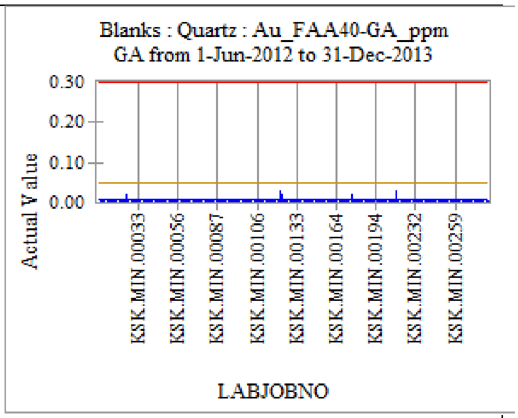


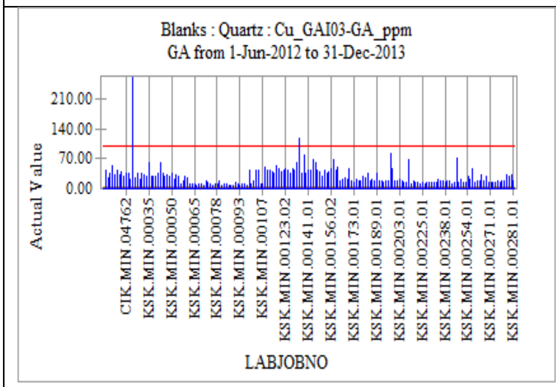


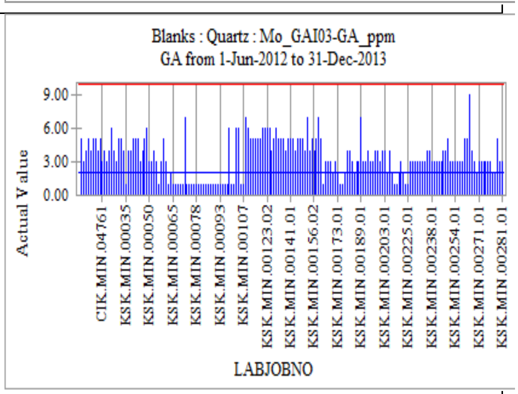


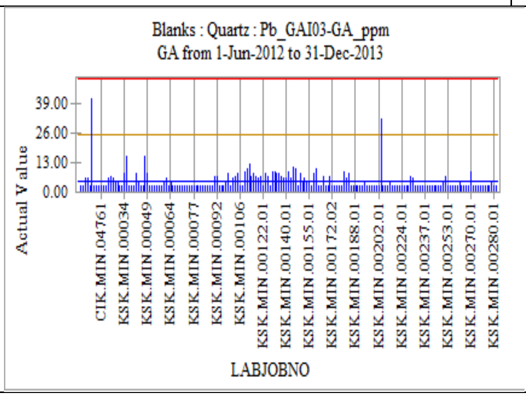
Appendix3: Blank performance by date sequence inserted on Drill core samples from Geoassay Laboratory.

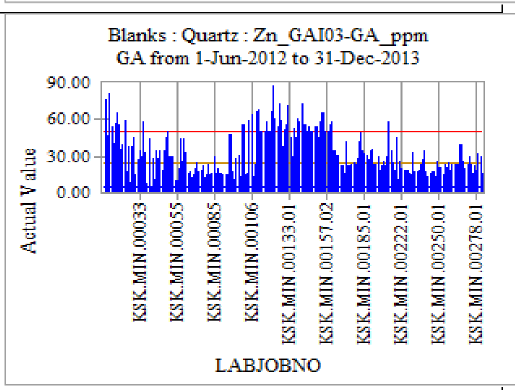




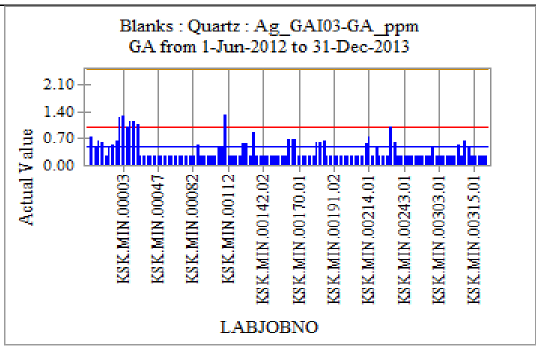


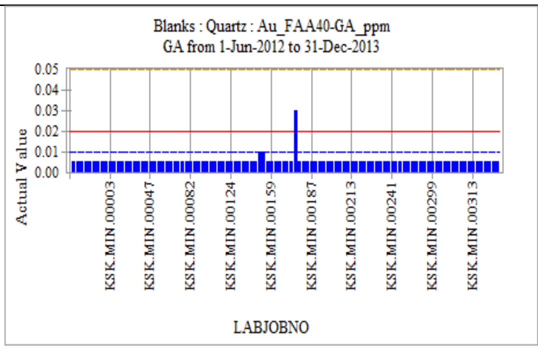


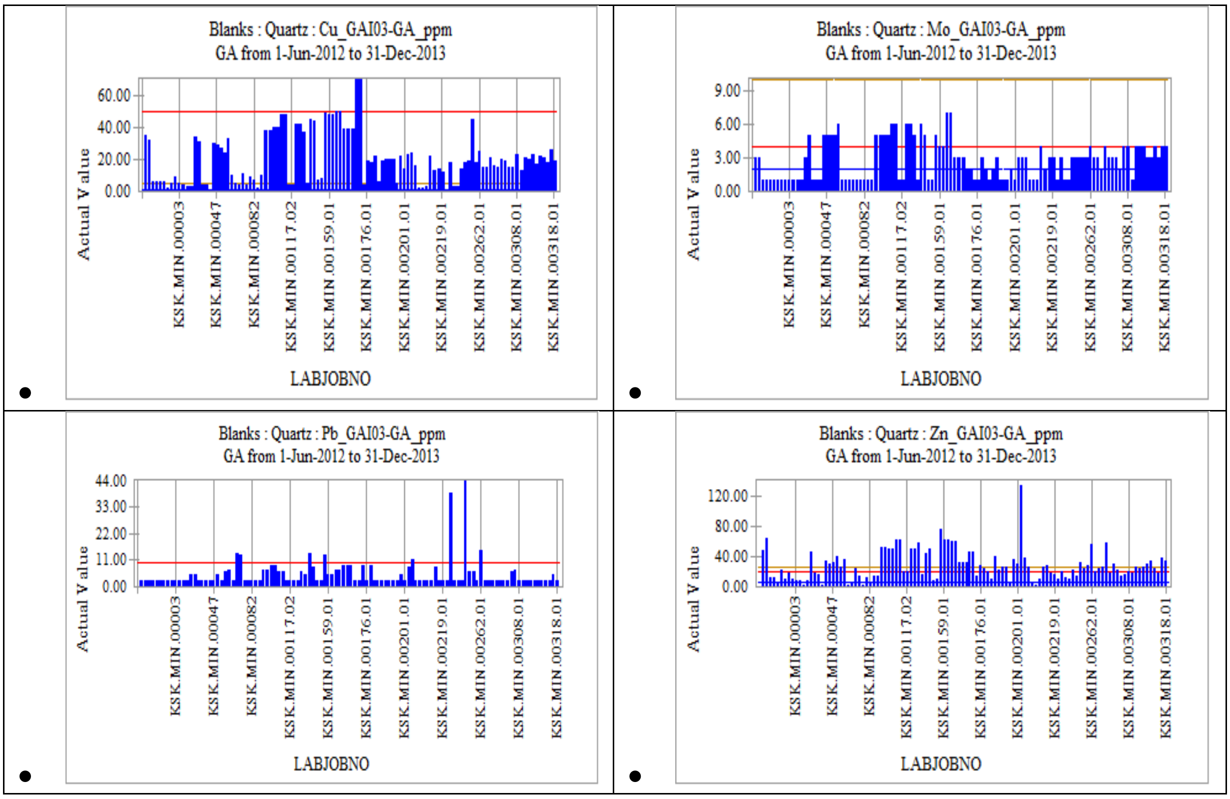




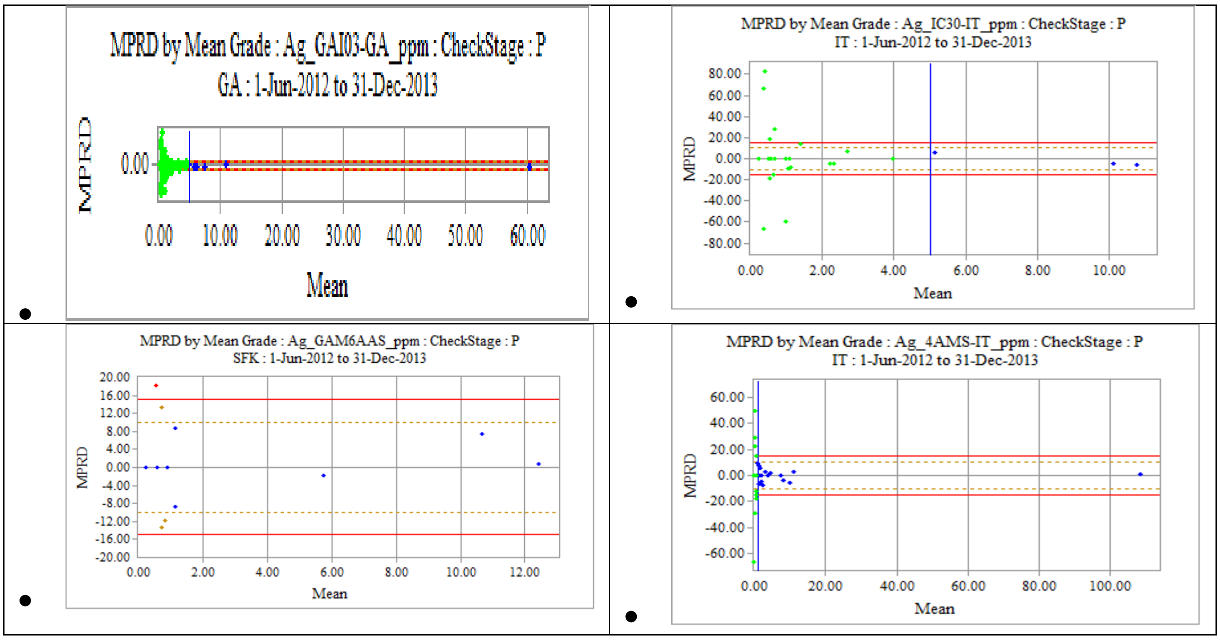
Appendix4: Blank performance by date sequence inserted on Spot samples direct download from AcQuire from Geoassay Laboratory.

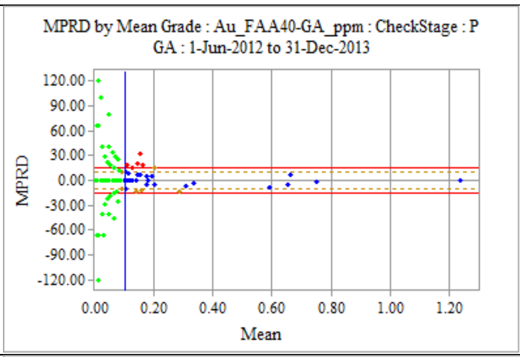


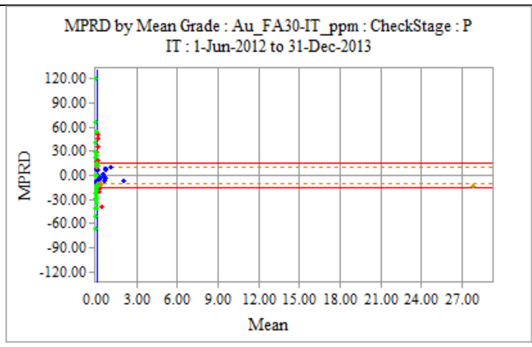


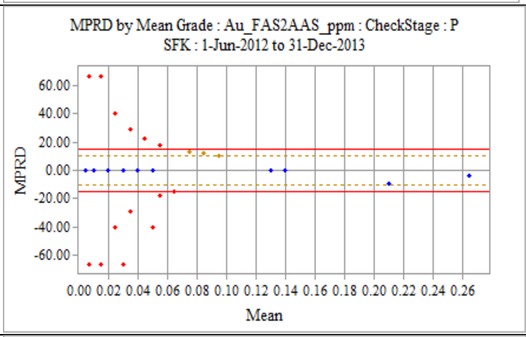


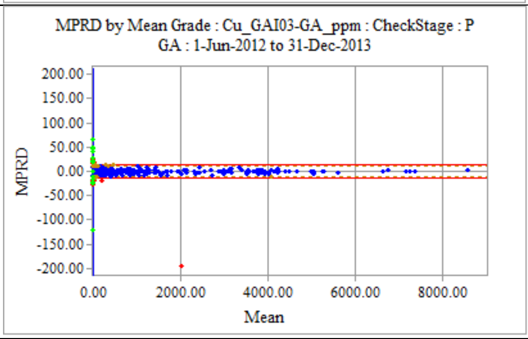
- Appendix5: Paired data by date sequence direct download from AcQuire from Geoassay and Intertek Lab.

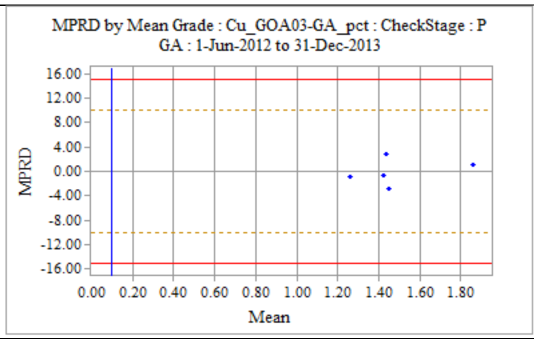


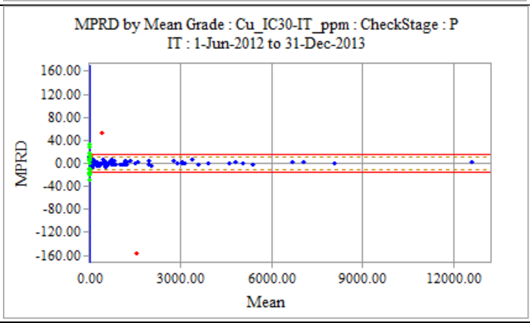

MPRD by Mean Grade : Au_FAA40-GA_ppm : CheckStage : P
GA : 1-Jun-2012 to 31-Dec-2013
MPRD
Mean

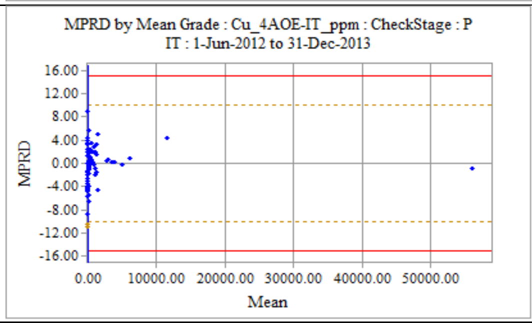

MPRD by Mean Grade : Au_FA30-IT_ppm : CheckStage : P
IT : 1-Jun-2012 to 31-Dec-2013
MPRD
Mean

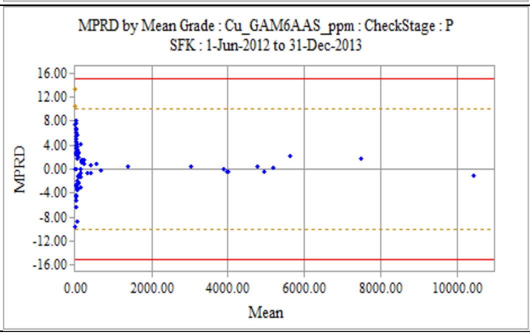

MPRD by Mean Grade : Au_FAS2AAS_ppm : CheckStage : P
SFK : 1-Jun-2012 to 31-Dec-2013
MPRD
Mean

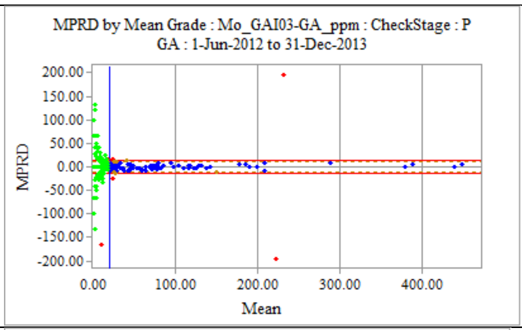

MPRD by Mean Grade : Cu_GAI03-GA_ppm : CheckStage : P
GA : 1-Jun-2012 to 31-Dec-2013
MPRD
Mean

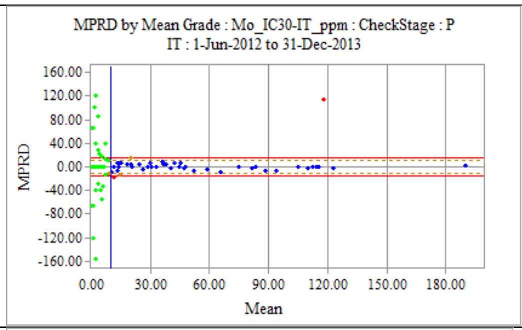

MPRD by Mean Grade : Cu_GOA03-GA_pct : CheckStage : P
GA : 1-Jun-2012 to 31-Dec-2013
MPRD
Mean

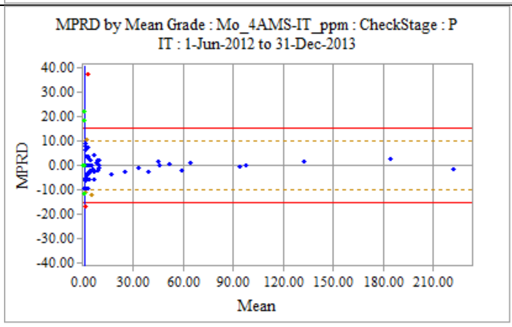

MPRD by Mean Grade : Cu_IC30-IT_ppm : CheckStage : P
IT : 1-Jun-2012 to 31-Dec-2013
MPRD
Mean

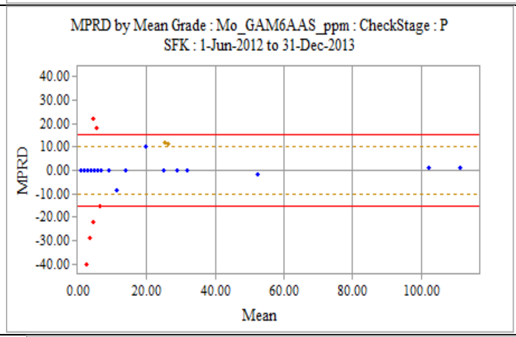

MPRD by Mean Grade : Cu_4AOE-IT_ppm : CheckStage : P
IT : 1-Jun-2012 to 31-Dec-2013
MPRD
Mean

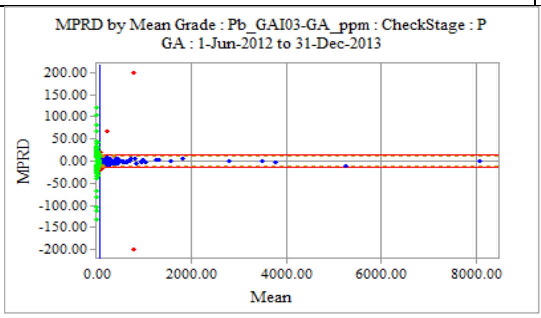

MPRD by Mean Grade : Cu_GAM6AAS_ppm : CheckStage : P
SFK : 1-Jun-2012 to 31-Dec-2013
MPRD
Mean

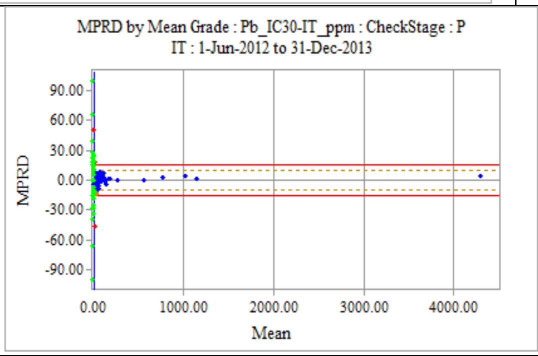

MPRD by Mean Grade : Mo_GAI03-GA_ppm : CheckStage : P
GA : 1-Jun-2012 to 31-Dec-2013
MPRD
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00
0.00
100.00
200.00
300.00
400.00
Mean

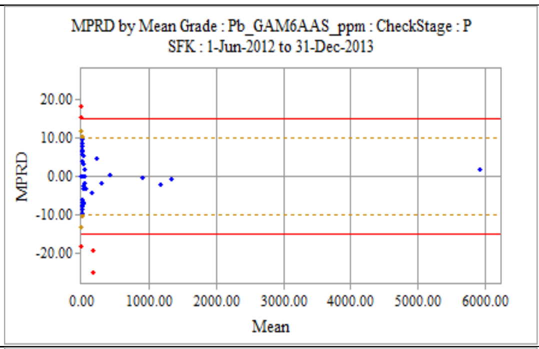

MPRD by Mean Grade : Mo_IC30-IT_ppm : CheckStage : P
IT : 1-Jun-2012 to 31-Dec-2013
MPRD
160.00
120.00
80.00
40.00
0.00
-40.00
-80.00
-120.00
-160.00
0.00
30.00
60.00
90.00
120.00
150.00
180.00
Mean

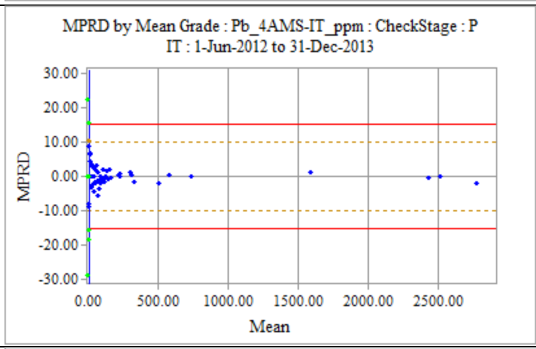

MPRD by Mean Grade : Mo_4AMS-IT_ppm : CheckStage : P
IT : 1-Jun-2012 to 31-Dec-2013
MPRD
40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00
0.00
30.00
60.00
90.00
120.00
150.00
180.00
210.00
Mean

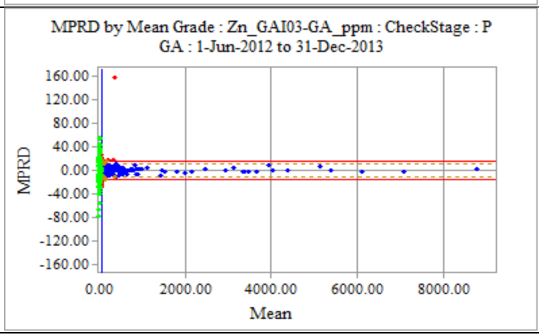

MPRD by Mean Grade : Mo_GAM6AAS_ppm : CheckStage : P
SFK : 1-Jun-2012 to 31-Dec-2013
MPRD
40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00
0.00
20.00
40.00
60.00
80.00
100.00
Mean

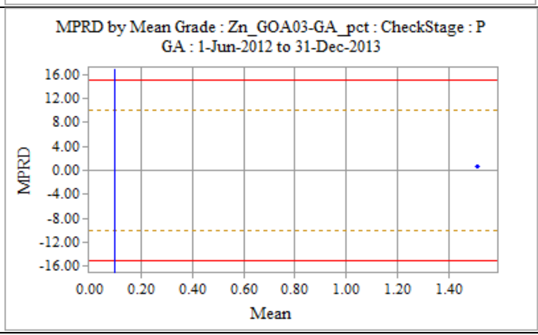

MPRD by Mean Grade : Pb_GAI03-GA_ppm : CheckStage : P
GA : 1-Jun-2012 to 31-Dec-2013
MPRD
200.00
150.00
100.00
50.00
0.00
-50.00
-100.00
-150.00
-200.00
0.00
2000.00
4000.00
6000.00
8000.00
Mean

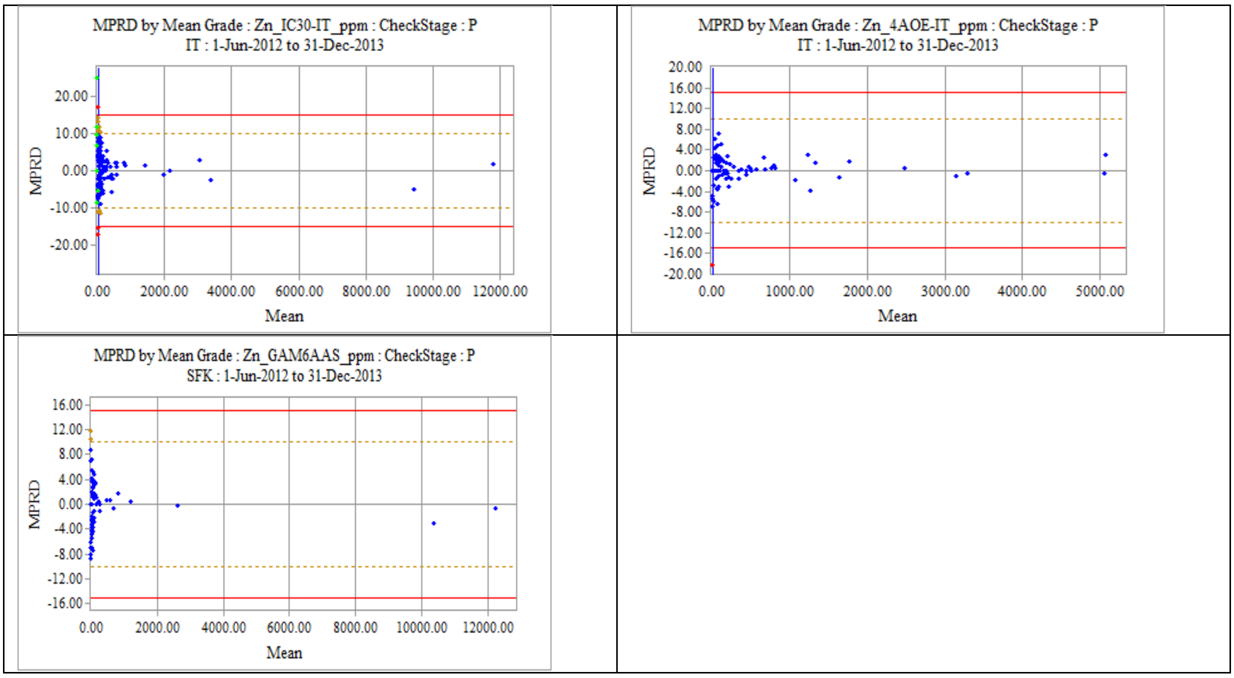

MPRD by Mean Grade : Pb_IC30-IT_ppm : CheckStage : P
IT : 1-Jun-2012 to 31-Dec-2013
MPRD
90.00
60.00
30.00
0.00
-30.00
-60.00
-90.00
0.00
1000.00
2000.00
3000.00
4000.00
Mean


MPRD by Mean Grade : Pb_GAM6AAS_ppm : CheckStage : P
SFK : 1-Jun-2012 to 31-Dec-2013
MPRD
20.00
10.00
0.00
-10.00
-20.00
0.00
1000.00
2000.00
3000.00
4000.00
5000.00
6000.00
Mean

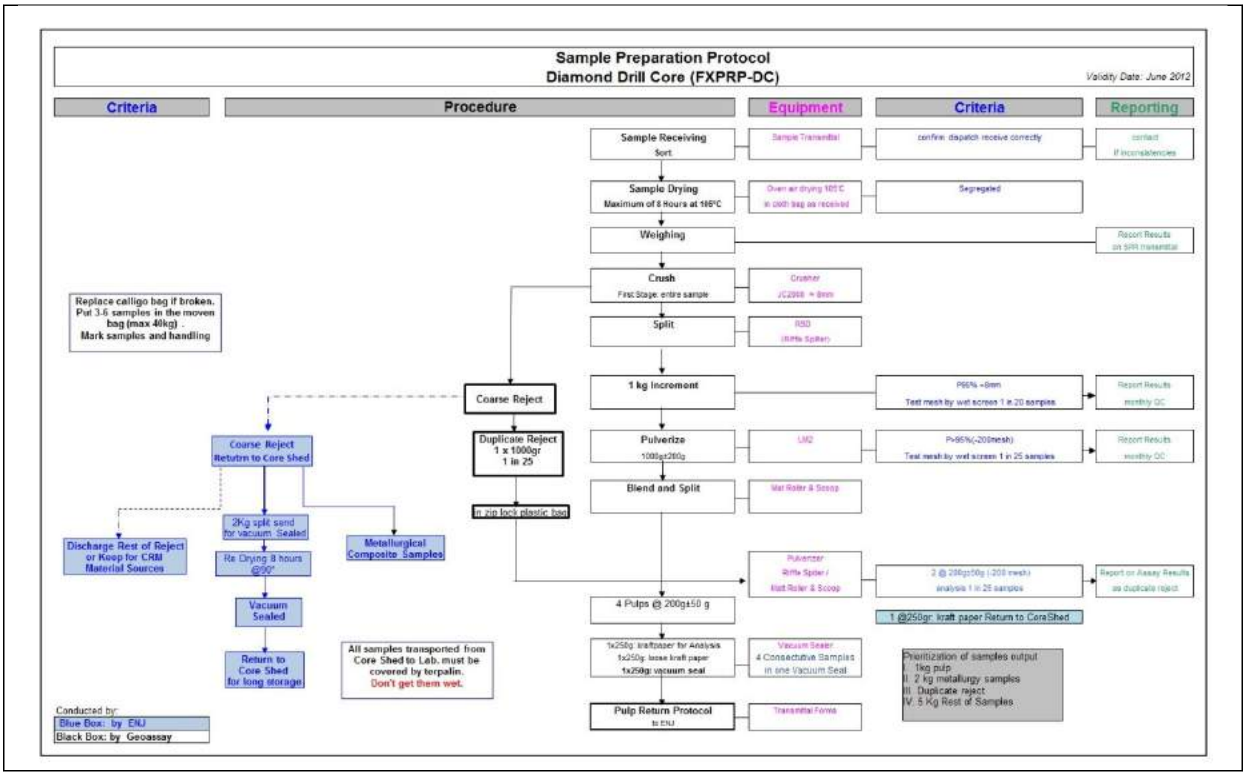

MPRD by Mean Grade : Pb_4AMS-IT_ppm : CheckStage : P
IT : 1-Jun-2012 to 31-Dec-2013
MPRD
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
0.00
500.00
1000.00
1500.00
2000.00
2500.00
Mean


MPRD by Mean Grade : Zn_GAI03-GA_ppm : CheckStage : P
GA : 1-Jun-2012 to 31-Dec-2013
MPRD
160.00
120.00
80.00
40.00
0.00
-40.00
-80.00
-120.00
-160.00
0.00
2000.00
4000.00
6000.00
8000.00
Mean

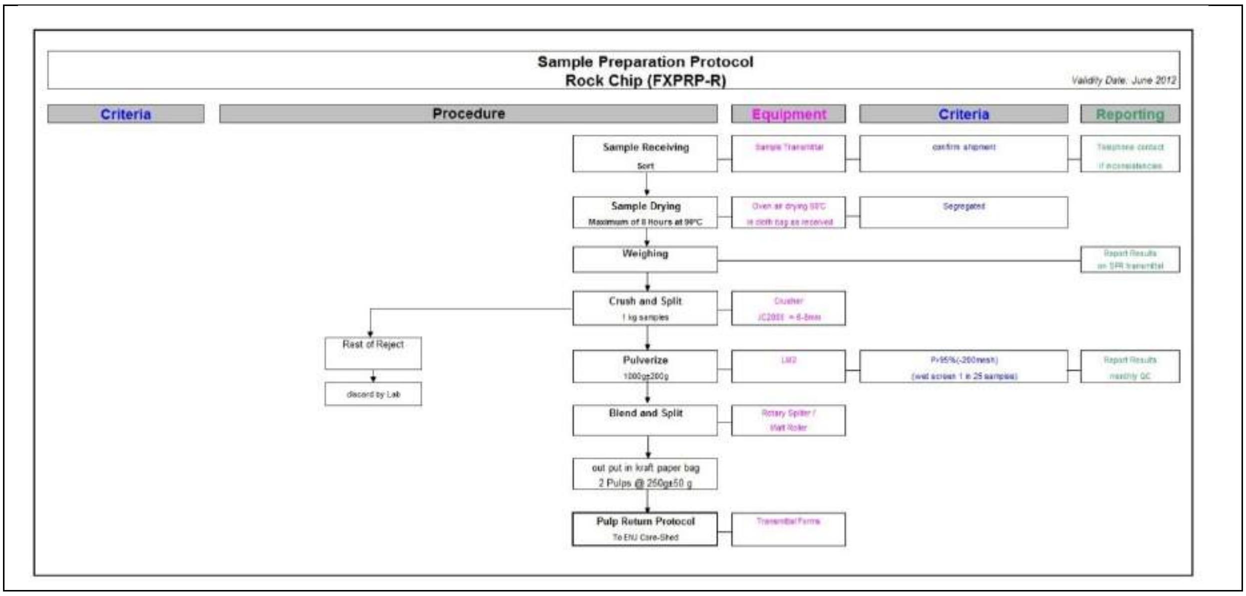

MPRD by Mean Grade : Zn_GOA03-GA_pct : CheckStage : P
GA : 1-Jun-2012 to 31-Dec-2013
MPRD
16.00
12.00
8.00
4.00
0.00
-4.00
-8.00
-12.00
-16.00
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
Mean



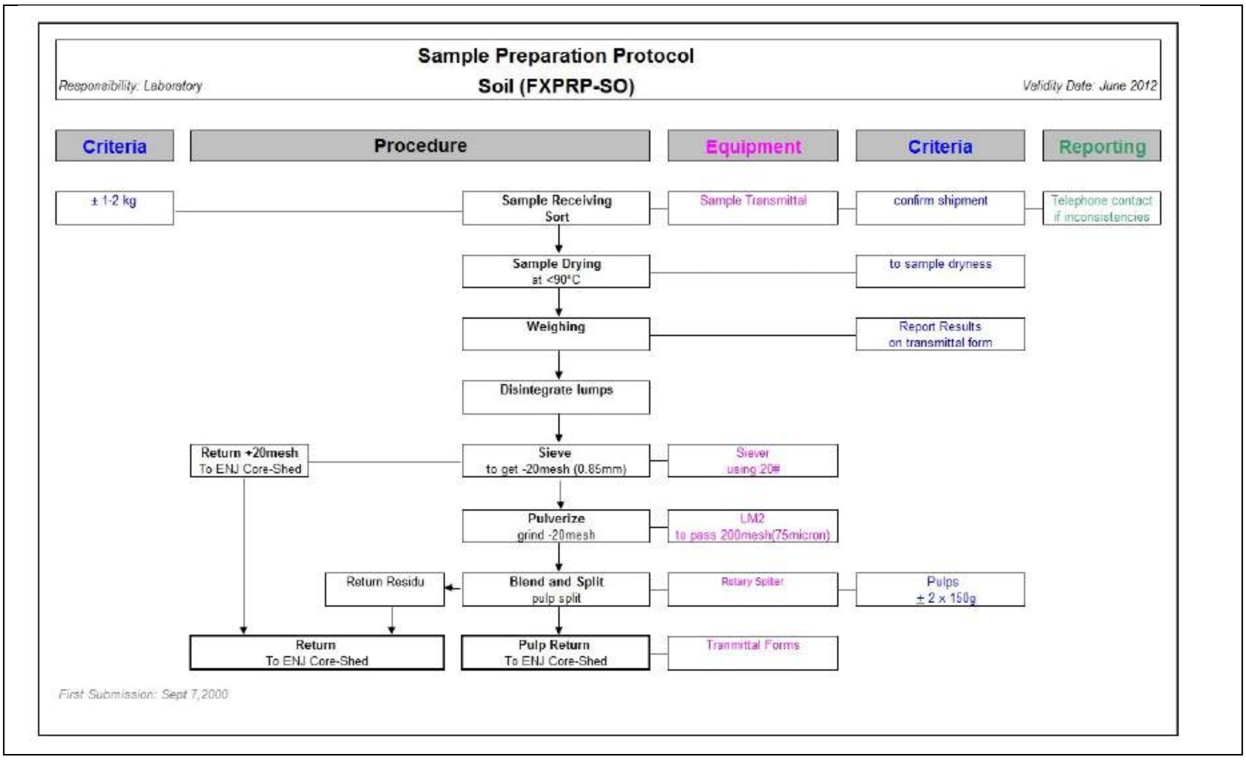
Appendix 6: Sample Preparation Protocol for Diamond Drill Core at the Geoassay Laboratory



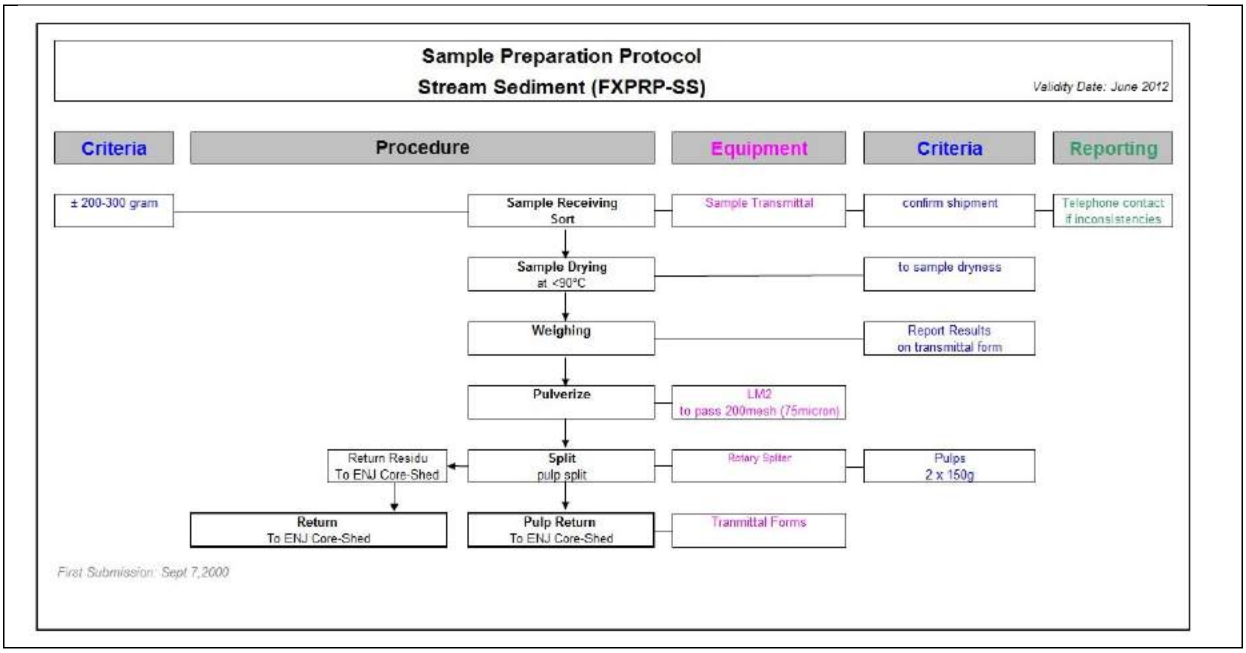
Appendix 7: Sample Preparation Protocol for Rock samples at the Geoassay Laboratory



Appendix 8: Sample Preparation Protocol for Soil samples at the Geoassay Laboratory



Appendix 9: Sample Preparation Protocol for Stream Sediment samples at the Geoassay Laboratory



Appendix 10: Analytical Methods by each Laboratory

ANALYTICAL METHOD

GOLD Analysis : Fire Assay (FA)

Geoassay	FA-40gr
Intertek	FA-30gr
Sucofindo KK	FA-30gr

Base Metal Analysis

Geoassay **ICPOES**

GAI03_DG	Three Acid Digest for ICP Trace Elements - Per Digest						
GAI03_ICP	ICPOES Single Trace Elements Determinations - per elements						
GAI03_ICP36	ICPOES Package Trace Wlements (all elements listed below) - per package						
Ag	0.5 - 100ppm	Al	0.01 - 25.0%	As	5 - 10,000ppm	Ba	10 - 10,000ppm
Be	5 - 1,000ppm	Bi	5 - 10,000ppm	Ca	0.01-10.0%	Cd	0.5 - 2,000ppm
Co	1 - 10,000ppm	Cr	2-10,000ppm	Cu	1 - 10,000ppm	Fe	0.01% - 25.0%
Ga	2-2,000ppm	K	0.01-25.0%	La	5-10,000ppm	Li	1 - 10,000ppm
Mg	0.01 - 10.0%	Mn	5-100,000ppm	Mo	2 - 10,000ppm	Na	0.01 - 10.0%
Nb	5 - 10,000ppm	Ni	5 - 10,000ppm	P	5 - 10,000ppm	Pb	5 - 10,000ppm
S	0.01 - 10.0%	Sb	5 - 1,000ppm	Sc	5 - 1,000ppm	Sn	10 - 1,000ppm
Sr	5 - 1,000ppm	Ta	5 - 10,000ppm	Ti	0.01-10%	V	2 - 10,000ppm
W	10 - 10,000ppm	Y	5- 10,000ppm	Zn	5 - 10,000ppm	Zr	5 - 10,000ppm

Over Range Cu, Pb, Zn Mo (>10,000ppm)
Reanalysis by Oregrade GOA3 AAS finish

Intertek **ICPOES**

IC30	Three Acid Digest (HCl/HNO_3/$HClO_4$)						
Ag	0.5ppm	Al	0.01%	As	5ppm	Ba	2ppm
Bi	5ppm	Ca	0.01%	Cd	1ppm	Co	2ppm
Cr	2ppm	Cu	2ppm	Fe	0.01%	Ga	10ppm
K	0.01%	La	1ppm	Li	1ppm	Mg	0.01%
Mn	2ppm	Mo	1ppm	Na	0.01%	Nb	5ppm
Ni	5ppm	Pb	2ppm	Sb	5ppm	Sc	2ppm
Sn	10ppm	Sr	1ppm	S	20ppm	Ta	5ppm
Te	10ppm	Ti	0.01%	V	1ppm	W	10ppm
Y	1ppm	Zn	2ppm	Zr	5ppm		

Over Range Cu, Pb, Zn Mo (>10,000ppm)
Reanalysis by Oregrade GA31 AAS finish

Intertek **ICPMS/OES** 45 elements

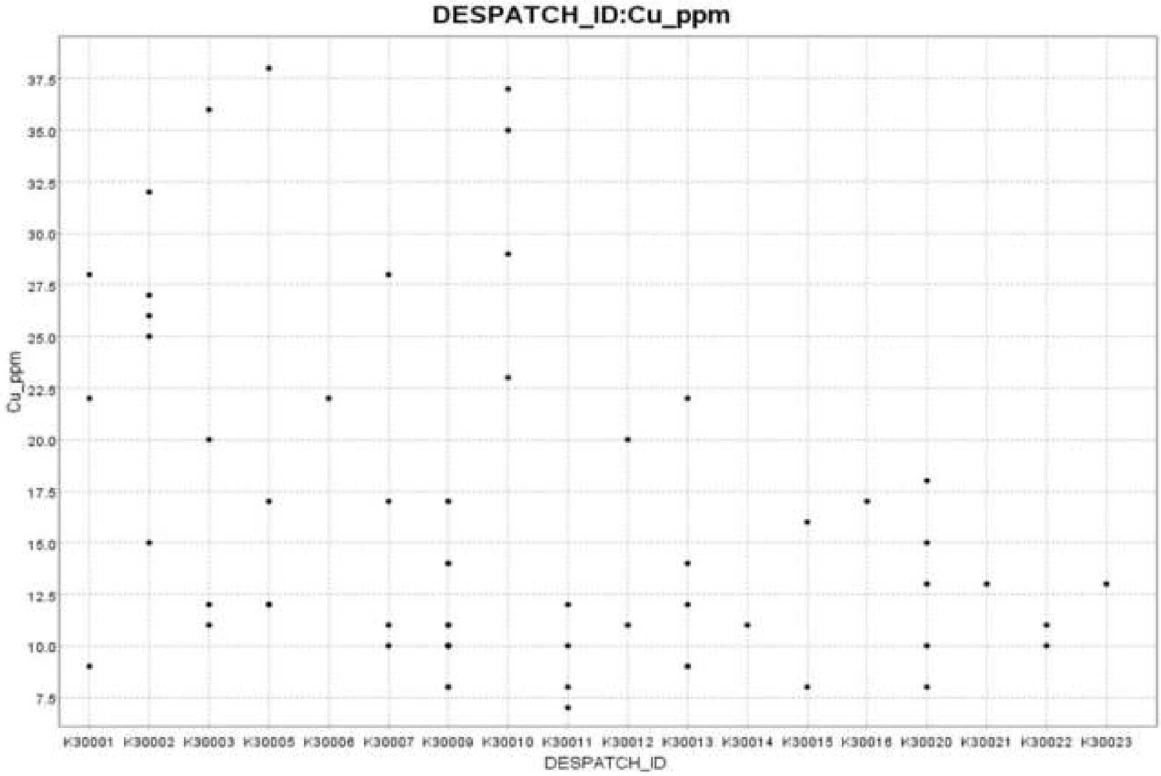
4A/OM10 – 4 acid combined ICP-OES & ICP-MS							
Ag	0.1 - 500ppm	Al	50 - 15.0%	As	1 - 20,000ppm	Ba	1 - 5,000ppm
Be	0.5 - 2,000ppm	Bi	0.05 - 2,000ppm	Ca	50 - 40.0%	Cd	0.5 - 2,000ppm
Co	0.1 - 10,000ppm	Cr	5 - 20,000ppm	Cs	0.1 -2,000ppm	Cu	1 - 50,000ppm
Fe	0.01% - 50.0%	Ga	0.1-2,000ppm	Ge	0.1-2,000ppm	Hf	0.1 - 2,000ppm
In	0.05 - 2,000ppm	K	20 -10.0%	Li	1 - 50,000ppm	Mg	20 - 40.0%
Mn	1 - 50,000ppm	Mo	0.1 - 10,000ppm	Na	20 - 10.0%	Nb	0.1 - 2,000ppm
Ni	1 - 50,000ppm	P	50 - 50,000ppm	Pb	1 - 10,000ppm	Rb	0.1 - 2,000ppm
Re	0.05 - 2,000ppm	S	50 - 15.0%	Sb	0.1 - 10,000ppm	Sc	1 - 5,000ppm
Se	1 - 10,000ppm	Sn	0.1 - 2,000ppm	Sr	0.5 - 10,000ppm	Te	0.1 - 2,000ppm
Ta	0.05 - 2,000ppm	Th	0.05 - 5,000ppm	Ti	5 - 20,000ppm	Tl	0.02 - 2,000ppm
U	0.05 - 10,000ppm	V	1 - 5,000ppm	W	0.1 - 2,000ppm	Zn	1 - 50,000ppm
Zr	0.5 - 2,000ppm						

Sucofindo Kuala Kencana
3-Acid digestion AAS finish (GAM007)

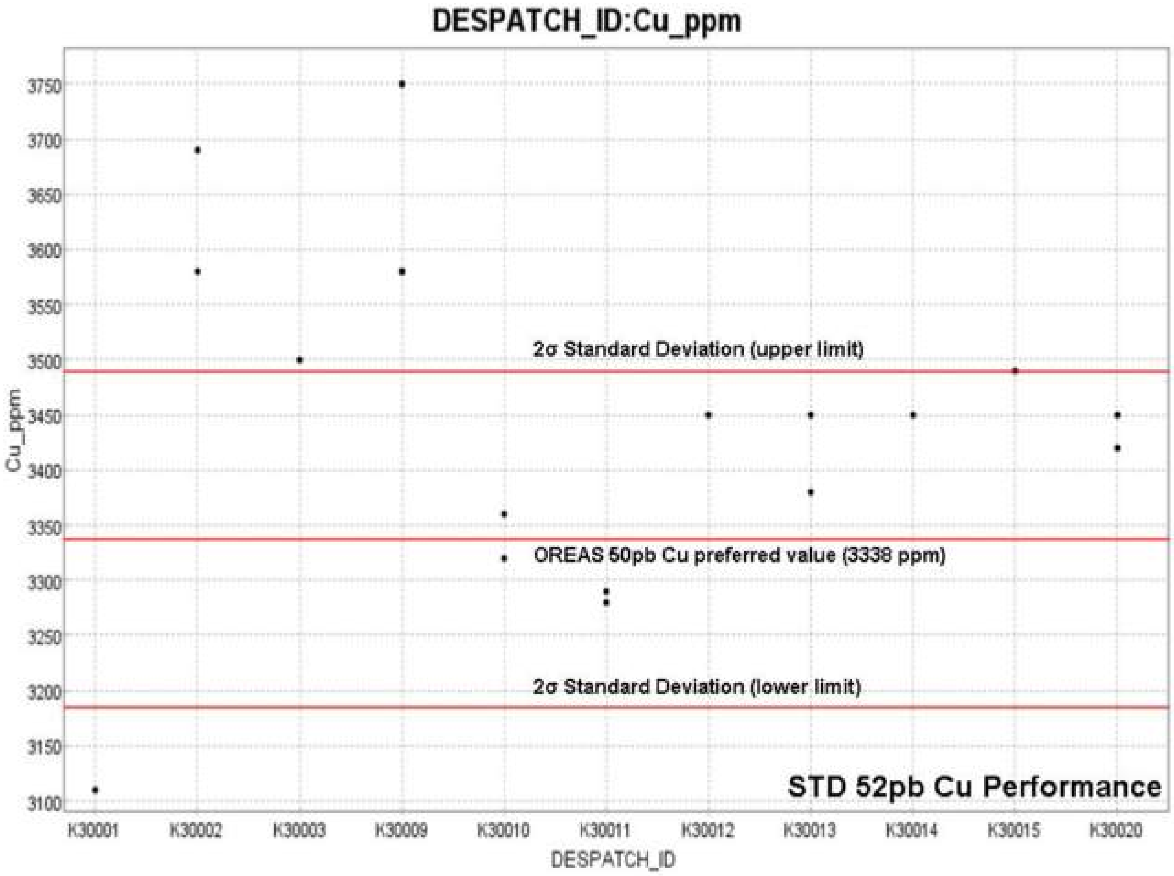
Ag	0.5 ppm
Cu	5 ppm
Mo	2 ppm
Pb	5 ppm
Zn	5 ppm

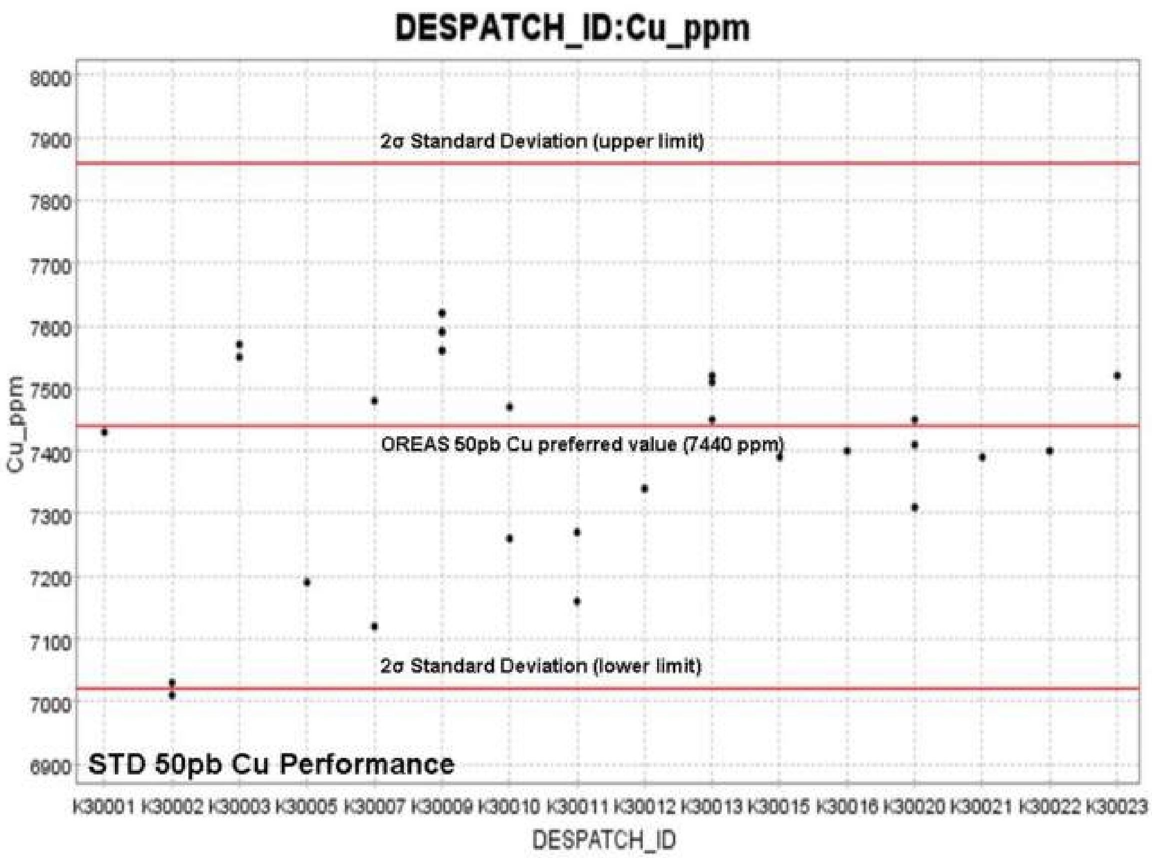
Over Range Cu, Pb, Zn Mo (>10,000ppm)
Reanalysis by Oregrade GOG001 AAS finish

Appendix 4 Oxiana Limited: Quality Control Data Assessment Diagrammes



Coarse Blank Cu Performance


DESPATCH_ID:Cu_ppm
3750
3700
3650
3600
3550
3500
3450
3400
3350
3300
3250
3200
3150
3100
Cu_ppm
2σ Standard Deviation (upper limit)
OREAS 50pb Cu preferred value (3338 ppm)
2σ Standard Deviation (lower limit)
STD 52pb Cu Performance
K30001
K30002
K30003
K30009
K30010
K30011
K30012
K30013
K30014
K30015
K30020
DESPATCH_ID


DESPATCH_ID:Cu_ppm
2σ Standard Deviation (upper limit)
OREAS 50pb Cu preferred value (7440 ppm)
2σ Standard Deviation (lower limit)
STD 50pb Cu Performance
Cu_ppm
8000
7900
7800
7700
7600
7500
7400
7300
7200
7100
7000
6900
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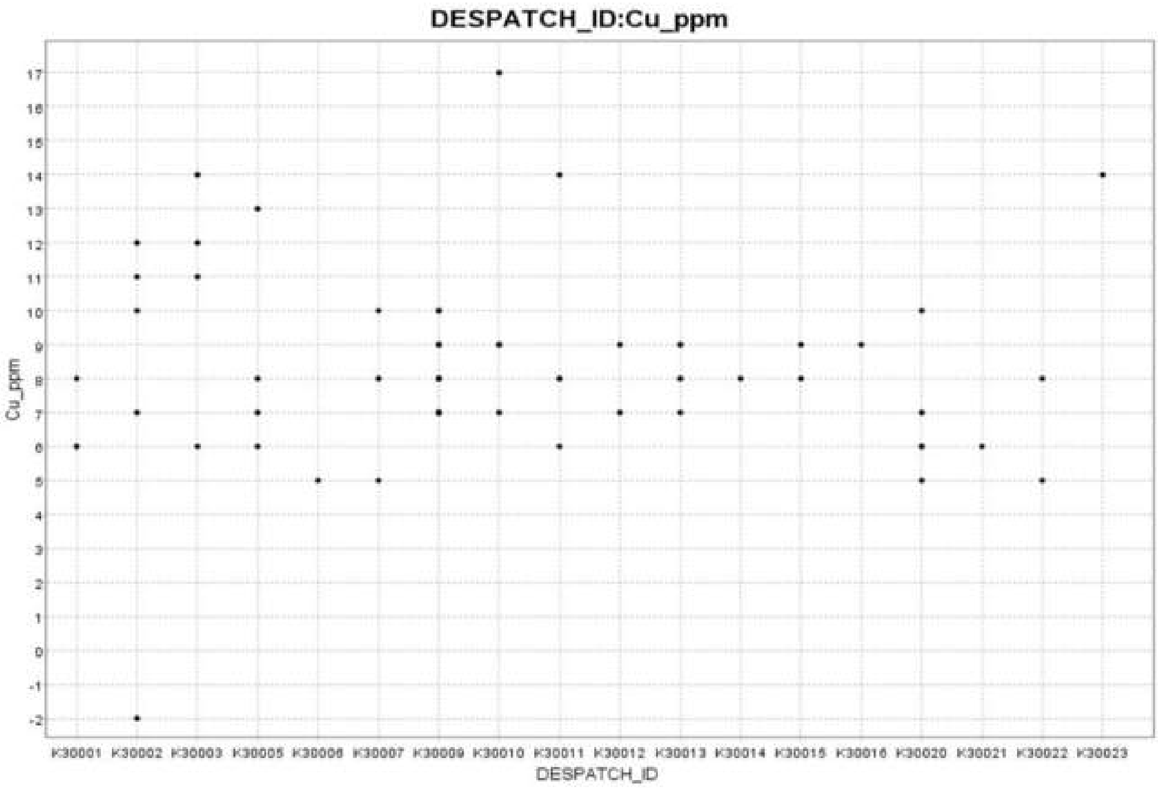


Pulp Blank Cu Performance

Appendix 5 Core photography logging presentation

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK029-01	a	10.0	16.9	6.9	0.5	crushed-gouged	qz-cl-py	N/R	Si-Py-Cv/Cc veins in shear	Quartz veins/veinlets cutting brecciated, and boudined country rock. Broken, but only minor clay. Serious recovery issues, only 20% in places, and likely washed away material.
		16.9	22.8	5.9	0.5	fractured-gouged				Quartz veins/veinlets cutting brecciated, and boudined country rock. Broken, but only minor clay. Recovery issues, 40-60% in places, and likely washed away material.
		22.8	28.4	5.6	0.3	crushed-gouged	qz-cl-py-cv	qz-py-cl		Quartz veins/veinlets cutting brecciated, and boudined country rock. Broken, but no clay. Rock is very siliceous. Recovery issues, 40-60% in places, and likely washed away material.
		28.4	33.0	4.6	1.0	crushed-fractured			Sheared Si-Py-Cv/Cc veins	Quartz veins/veinlets cutting brecciated, and boudined country rock. Post vein shearing. Broken rock, but minor clay. Rock is very siliceous. Noted covellite
		33.0	36.3	3.3	0.7				Si-Py-Cv/Cc veins in shear	Sheared / brecciated, and boudined country rock, 1-2 qtz veins / meter that contain covellite. Broken rock, no clay. Rock is very siliceous.
		36.3	39.7	3.4	0.3					Sheared / brecciated, and boudined country rock, rare qtz veins. Broken rock, no clay. Rock is very siliceous.
		39.7	44.1	4.4	0.1					Sheared / brecciated, and boudined country rock, rare qtz veins. Broken rock, no clay. Rock is very siliceous.
		44.1	48.4	4.3	0.2				Sheared Si-Py-Cv/Cc veins	Sheared / brecciated, and boudined country rock, rare qtz veins. Broken rock, moderate clay. Rock is very siliceous.
		48.4	52.5	4.2	0.4					Sheared / brecciated, and boudined country rock, rare qtz veins. Broken rock, strong clay. Questionable recoveries. Obvious core loss from tumbling around in the core barrel
		52.5	56.1	3.6	0.5	fractured				Sheared / brecciated, and boudined country rock, large cm-scale qtz - py - cv vein. Broken rock over top 2m, moderate clay. Lower section more massive
		56.1	60.2	4.1	0.3					Sheared / brecciated, and boudined country rock, large, broken, cm-scale qtz - py - cv veins. Locally minor clay.
		60.2	64.2	4.0	0.2				Si-Py-Cv veins in shear	Sheared / brecciated, and boudined country rock, minor broken cm-scale qtz - py - cv veins. Minor clay along shear. Massive core
		64.2	67.7	3.5	0.2					Sheared / brecciated, and boudined country rock, cv veinlets. Massive core. Notably less pyrite
		67.7	71.9	4.3	0.4					Sheared / brecciated, and boudined country rock, cv veinlets. Massive core. Mm to cm scale pyrite - covellite veins
		71.9	76.4	4.4	0.4					Sheared / brecciated, and boudined country rock, locally crushed, 10-15% clay, cv veinlets. Massive core. Mm to cm scale pyrite - covellite veins
		76.4	80.7	4.4	0.7					Sheared / brecciated, and boudined country rock, locally crushed, 10-15% clay, cv veinlets. Massive core. Mm to cm scale pyrite - covellite veins. Up to 6cm wide pyrite veins
		80.7	85.1	4.3	0.8					Shear fabric perpendicular to core axis, locally crushed, 10-15% clay, cv veinlets. Massive core. Mm to cm scale pyrite - covellite veins. 60cm wide massive pyrite vein
		85.1	89.4	4.3	0.8		qz-cl-pl-py-gp	qz-gp-py-cv-cp		Strong silicification with cv veins in top 2m interval. Shear fabric less evident. Massive core. Mm to cm scale pyrite - covellite veins. Minor milky white quartz veins
		89.4	93.6	4.2	0.7					Sheared / brecciated, and boudined country rock. Massive core. Mm to cm scale pyrite - covellite veins. Minor milky white quartz veins
		93.6	98.0	4.5	0.6	fractured-veined				Sheared / brecciated, and boudined country rock. Massive core. Mm to cm scale pyrite - covellite veins.
		98.0	102.1	4.1	0.4	fractured-gouged				Sheared / brecciated, and boudined country rock. Massive core. Mm to cm scale pyrite - covellite veins. Cm-scale shears with clay, 5%
		102.1	106.8	4.7	0.3					Sheared / brecciated, and boudined country rock. Massive core. Mm to cm scale pyrite - covellite veins. Cm-scale shears with clay, 5%

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK029-01	b	115.4	128.3	12.9	0.3	fractured-gouged	qz-cl-pl-py-gp	qz-cl-pl-py-gp	Si-Py-Cv veins in shear	Sheared / brecciated, and boudined country rock. Massive core. Mm to cm scale pyrite - covellite veins. Cm-scale shears with clay, <5%. Rare milky white quartz veins
	c	154.2	160.1	5.9	0.3	fractured-gouged	qz-cl-pl-py-gp	qz-gp-py-cp-cv	Si-Py-Cv veins in shear	Sheared / brecciated, and boudined country rock, silicified, minor cm-scale py-cv veins
		160.1	164.4	4.3	0.1	fractured-veined				Sheared / brecciated, and boudined country rock, silicified, minor cm-scale py-cv veins. Top 2m broken and contains 5% clay
		164.4	168.8	4.3	0.1	fractured				Sheared / brecciated, and boudined country rock, silicified, minor cm-scale py-cv veins.
		168.8	173.0	4.3	3.3				Si-Py-cp-Cv vein in shear	Sheared / brecciated, and boudined country rock, silicified, 3 meter wide quartz- py-cv-cpy vein
BK030-01	a	0.0	5.3	5.3	0.2	crushed-veined	qz-cl-py-hm-lm	qz-py-hm	Si-Py-Cv veins in shear	mm-scale hematite veinlets, most likely after copper-py
		5.3	8.6	3.4	0.3	crushed-blocky				Minor hematite veinlets, locally quartz-sulphide veins. Clay alteration, 5-10 % clay, crushed and broken rock
		8.6	11.9	3.3	0.4					Brecciated rock, minor quartz-sulphide veins, significant sulphide in matrix of breccia. Clay alteration, 5-10 % clay, crushed and broken rock
		11.9	16.3	4.4	0.6	crushed-gouged				Brecciated rock, minor quartz-sulphide veins, significant sulphide in matrix of breccia. Clay alteration, 5-10 % clay, crushed and broken rock to 15.2m
		16.3	19.5	3.3	0.1	blocky-veined				Brecciated rock, minor quartz-sulphide veins, significant sulphide in matrix of breccia. Massive core, difficult to identify copper sulphide species
		19.5	25.1	5.6	0.2					Brecciated rock, minor mm-scale quartz-sulphide veins (1-2/meter), significant sulphide in matrix of breccia. Massive core, difficult to identify copper sulphide species
		25.1	28.9	3.8	0.3	blocky				Brecciated rock, minor mm to cm-scale quartz-sulphide veins (1-2/meter), significant sulphide in matrix of breccia. Massive core, difficult to identify copper sulphide species
	b	46.4	57.1	10.7	0.1	fractured-blocky	qz-cl-py	qz-py-cl	Si-Py-Cv veins in shear	Brecciated rock, minor mm to cm-scale quartz-sulphide veins (1-2/meter), significant sulphide in matrix of breccia. Broken core, difficult to identify copper sulphide species
		57.1	60.6	3.5	0.2	fractured				Brecciated rock, minor mm to cm-scale quartz-sulphide veins (1-2/meter), significant sulphide in matrix of breccia. Broken core to crushed, 5% clay, difficult to identify copper sulphide species
		60.6	67.4	6.8	0.2					Brecciated rock, minor mm to cm-scale quartz-sulphide veins (1-2/meter), significant sulphide in matrix of breccia. Broken core to crushed, cpy mineralization

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK031-01	a	5.2	12.8	7.6	0.1	fractured-veined	N/R	N/R	Sheared Si-Py-Cv/Cc veins	Brecciated quartz-sulphide vein (15 meter zone), was significant sulphide in matrix of breccia, now comprising intense FeOx stain. Broken core to crushed
		12.8	20.3	7.5	0.4	crushed-blocky	qz-cl-ka-py-cc	qz-py-cl-cc		Estimated 20% Clay. Probably some loss of copper mineralization due to washing. Poor recoveries
		20.3	31.2	10.9	0.5					Estimated 30% Clay. Probably some loss of copper mineralization due to washing. Poor recoveries, rubble and pebbles
		31.2	36.0	4.8	0.7	fractured				Estimated 5% Clay. Probably some loss of copper mineralization due to washing. Poor recoveries over first 2 meters. Sulphide vein?? Sub parallel to core axis
		36.0	42.3	6.3	0.8	crushed-blocky				Estimated 30% Clay. Probably some loss of copper mineralization due to washing. Poor recoveries from start to end. Core has been tumbling around in the barrel, rounded.
	b	68.5	74.5	6.0	0.3	blocky-fractured	qz-py-cl-cv-an-gp	qz-gp-an-py-cv-cl-ka	Si-Py-Cv veins in shear	Well developed shear fabric perpendicular to core axis. Significant pyrite encompasses boudined fragments? Will need to look at the core to confirm cv-dominant and no cpy
		74.5	80.4	5.9	0.2	fractured				Well developed shear fabric perpendicular to core axis. Minor clay. Post shear brecciation and quartz-sulphide veins 2-3/meter
		80.4	86.2	5.9	0.3					Well developed shear fabric perpendicular to core axis. Minor clay. Quartz-sulphide veins 2-3/meter
		86.2	92.4	6.1	0.1					Coarse and well developed shear fabric ends at 89.45m, becoming finer grained and less obvious, more massive downhole. Minor clay. Quartz-sulphide veins 1-2/meter
		92.4	98.5	6.2	0.2	blocky-fractured				Well developed micro-shear fabric, more massive downhole . Quartz-sulphide veins 1-2/meter
		98.5	104.5	6.0	0.3	blocky-veined				Well developed micro-shear fabric, qtz in stockwork vein system, 5-8vn/m. 10-30cm wide massive py vein
		104.5	110.5	6.1	0.2					Well developed micro-shear fabric, qtz stockwork veining, 5-8vn/m, up to 1.5m in width but typically cm-scale.
BK033-01	a	19.0	23.4	4.4	0.5	fractured-veined	qz-ch-cl-hb-py	ca-qz-py	Si-Py-Cv veins in shear	Shear fabric less obvious. Dark spotted mineral. Locally vuggy. Appears to have drilled parallel to a quartz-py-cv vein. Vein density low, 1-2/meter
		23.4	27.7	4.3	0.5	fractured-brecciated				Shear fabric less obvious. Dark spotted mineral. Locally vuggy. Appears to have drilled parallel to a quartz-py-cv vein while other veins are almost perpendicular to CA. . Vein density low, 1-2/meter
		27.7	31.9	4.3	0.4	fractured-veined				Shear fabric less obvious. Dark spotted mineral. Locally vuggy. Appears to have drilled parallel to a quartz-py-cv vein, while other veins are almost perpendicular to CA. Vein density low, 1-2/meter
		31.9	36.2	4.3	0.3					Shear fabric less obvious. Dark spotted mineral. Locally vuggy. Veins are steep to CA. Vein density low, 1-2/meter
		36.2	40.6	4.4	0.7					Shear fabric less obvious. Dark spotted mineral. Locally vuggy. Veins are steep to CA. Vein density low, 1-2/meter
		40.6	45.2	4.6	0.3					Sheared / brecciated, and boudined country rock, anastomosing qtz veins at 45 degrees to core axis, locally parallel to CA.
		45.2	49.6	4.3	0.4	fractured-gouged	ch-qz-cl-py-ca	qz-ch-py-cv-hm		Sheared / brecciated, and boudined country rock, massive -pyrite mineralization, and an anastomosing qtz vein parallel to CA. The shear fabric is perpendicular to the CA. Dark sulphide mineral, unsure, not sphalerite (likely magnetite)
		49.6	54.0	4.5	0.2	fractured-veined				Sheared / brecciated, and boudined country rock, fabric perpendicular to the CA. Quartz-pyrite-cv vein density is 1/meter. Less veining = lower grades
		54.0	58.4	4.4	0.3					Sheared / brecciated, and boudined country rock, fabric perpendicular to the CA. Quartz-pyrite-cv vein density is 2-3/meter. Dark sulphide mineral, unsure, not sphalerite (likely magnetite)
		58.4	62.9	4.5	0.3					Sheared / brecciated, and boudined country rock, fabric perpendicular to the CA. Quartz-pyrite-cv vein density is 3-4/meter. Dark sulphide mineral, unsure, not sphalerite (likely magnetite). Contact at 62.2m depth with a medium grained diorite (?)
		62.9	68.9	6.0	0.0					Diorite (?), cut by stockwork veins, absent of copper sulphide species

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK034-01	a	0.0	7.1	7.1	0.5	fractured	qz-cl-gp-py-cc	N/R	Si-Py-Cv veins in breccia	Breccia zone. Minor zone of clay, 10cm wide, the remaining core is massive. Strong FeOx in the top 1 meter. Mm-scale quartz-pyrite-covellite veins 1-2/meter
		7.1	10.4	3.3	0.6					Breccia zone. Minor zone of clay, 10cm wide, the remaining core is massive. CM-scale quartz-pyrite-covellite veins 1-2/meter
		10.4	16.1	5.7	0.5	crushed-fractured				Intense silicification, textural destruction. Vein and fracture hosted mineralization. Localized clay, but not strong. Crushed and broken 50%, so possible loss of mineralization. Mm-scale quartz-pyrite-covellite veins 1-2/meter
		16.1	20.0	4.0	0.4	fractured				Breccia zone. Crushed and broken core. Vein and fracture hosted mineralization, possibly loss of grade due to washing out of sulphides. Localized clay, but not strong. Mm-scale quartz-pyrite-covellite veins 1-2/meter
		20.0	24.4	4.4	0.5		qz-cl-py-cp-cv	qz-py	Si-Py-Cv veins in shear	Intense silicification, textural destruction. Vein and fracture hosted mineralization, and veins anastomosing sub-parallel to CA.
		24.4	28.9	4.5	0.5	fractured-gouged				Sheared / brecciated, and boudined country rock. Vein and fracture hosted mineralization, one cm-scale pyrite-quartz-cv? Veins/meter.
		28.9	33.4	4.5	0.7					Sheared / brecciated, and boudined country rock. Vein and fracture hosted mineralization, 1-2 mm to cm-scale pyrite-quartz-cv? veins/meter.
		33.4	37.7	4.3	0.5	fractured-blocky				Sheared / brecciated, and boudined country rock. Vein and fracture hosted mineralization, 1-2 mm to cm-scale pyrite-quartz-cv? veins/meter. A 10cm wide breccia cutting shear fabric
		37.7	44.3	6.7	0.8	fractured-banded				Narrow 1m wide dyke, followed by vein and fracture mineralization in sheared / brecciated, and boudined country rock. Brittle fracturing. Vuggy texture. Rubble zone about 1m
		44.3	49.7	5.4	1.6				Sheared Si-Py-Cv/cc veins	Sheared / brecciated and boudined country rock, reactivated, strongly sheared and broken. Remnant quartz-sulphide veins. Strong clay locally, possible 10-20% of the interval. Dark black mineral in veins, suspected chalcocite
		49.7	54.2	4.6	0.6	gouged			Sheared Si-Py-Cv veins	Sheared / brecciated and boudined country rock, reactivated, strongly sheared and broken. Remnant quartz-sulphide veins. Strong clay locally, possible 10% of the interval. Dark black mineral in veins, suspected chalcocite
		54.2	58.7	4.5	0.9					Sheared / brecciated and boudined country rock, reactivated, strongly sheared and broken. Remnant quartz-sulphide veins. Strong clay locally, possible 10% of the interval. Dark black mineral in veins, suspected chalcocite
		58.7	63.2	4.5	0.4					Sheared / brecciated and boudined country rock, reactivated, strongly sheared and broken. Remnant quartz-sulphide veins. Strong clay locally, possible 10% of the interval. Dark black mineral in veins, suspected chalcocite. Large sulphide-quartz vein marks end of interval
	b	67.4	88.7	21.3	0.4	fractured	qz-cl-py-cp-cv	qz-py	Si-Py-Cv veins in shear	Sheared / brecciated and boudined country rock, coarse fragments. Strongly pyritic. Minor quartz-sulphide veins
		88.7	94.7	6.0	0.6					Sheared / brecciated and boudined country rock, coarse fragments. Strongly pyritic. Minor quartz-sulphide veins

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK034-01	c	130.7	136.7	6.0	0.6	fractured	qz-cl-py-cp	qz-py-cp	Si-Py-Cp veins in shear	Sheared / brecciated, and boudined country rock, 2-5 qtz veins / meter that contain chalcopyrite. Massive core. Rare chalcopyrite veins. Fragments look wispy, or almost "juvenile" in texture
		136.7	142.7	6.0	1.2	blocky-fractured		py-qz-cp		Sheared / brecciated, and boudined country rock, 2-5 qtz veins / meter that contain chalcopyrite. Massive core. Rare chalcopyrite veins. Fragments look wispy, or almost "juvenile" in texture. There is a 1.5m wide vein near start of interval
		142.7	148.8	6.1	0.2	fractured				Sheared / brecciated, and boudined country rock, 2-3 qtz veins / meter that contain chalcopyrite. Massive core. Rare chalcopyrite veins. Fragments look wispy, or almost "juvenile" in texture. Gradational contact with finer grained unit at end of box
	d	171.8	177.6	5.8	0.6	gouged	cl-qz-py-cp	qz-py-cp	Sheared Si-Py-Cp veins	Finer grained rock, that is strongly broken and sheared. Large cm-scale quartz-pyrite-sulphide veins, up to 50cm in width.
		177.6	183.9	6.3	2.5	fractured	qz-cl-py-cp	py-qz-cp	Si-Py-Cp veins in shear	Finer grained rock, that is strongly broken and sheared. Large cm-scale quartz-pyrite-sulphide veins, up to 20cm in width. Vein density 3-6 veins per meter.
		183.9	190.4	6.5	2.4	fractured	qz-ch-cl-py	py-qz-cp-ca		This entire interval could be classified as a large pyrite-quartz-chalcopyrite vein, almost 6m in width.
		190.4	196.6	6.3	0.6	fractured-blocky				Sheared / brecciated, and boudined country rock, that is cut by 3-5cm wide quartz-pyrite-sulphide veins. Vein density 1-3 per meter.
		196.6	204.1	7.5	0.4	fractured-blocky				Sheared / brecciated, and boudined country rock, much finer grained than previous interval. Cut by 3-5cm wide quartz-pyrite-sulphide veins. Vein density 1-3 per meter.
		204.1	211.6	7.5	0.6	fractured-veined				Sheared / brecciated country rock, finer grained. Cut by 1-2cm wide quartz-pyrite-sulphide veins. Locally, one vein is 30cm in width. Vein density 1-3 per meter. Decreasing quartz
		211.6	219.0	7.4	0.7	fractured-gouged			Cp veins in shear	Sheared / brecciated country rock, finer grained. Cut by 1-2cm wide quartz-pyrite-sulphide veins. Locally, one vein is 30cm in width. Vein density 1-3 per meter.
		219.0	226.5	7.5	0.9	blocky-veined				Sheared country rock, finer grained. Locally cut by 3-5cm wide chalcopyrite veins. Vein density 1-2 per meter. Lacking quartz
		226.5	234.0	7.6	0.6	fractured				Sheared country rock, finer grained. Locally cut by 3-5cm wide chalcopyrite veins. Vein density 1-2 per meter. Lacking quartz

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK035-01	a	0.0	6.7	6.7	0.0	crushed-blocky	cl-qz-hm-lm	N/R	Brecciated and oxidized	Remnant quartz veins with strong FeOx. Not assayed, but should be checked
		6.7	14.6	7.9	0.0					Remnant quartz veins with strong FeOx. Not assayed, but should be checked
		14.6	23.4	8.8	0.0					Remnant quartz veins with strong FeOx. Not assayed, but should be checked
		23.4	35.9	12.5	0.7		qz-cl-ch-py	qz-py-cp	Si-Py-cp veins in shear	Upper half of this interval is strongly oxidized. Lower half is 40-50% clay. Core has been flushed out. Extremely poor recoveries. Blackish mineral, possibly cc
		35.9	40.3	4.4	0.2	fractured				Textural destruction. Rock is cut by mm-scale quartz-sulphide veins and hairline veinlets (unknown black mineral). 10-20% clay, crushed and broken core.
		40.3	44.9	4.6	0.2	fractured-veined				Textural destruction. Rock is cut by mm-scale quartz-sulphide veins and hairline veinlets (unknown black mineral). <5% clay. Blocky core
		44.9	50.3	5.4	0.2	fractured-blocky				Textural destruction. Rock is cut by mm-scale quartz-sulphide veins and hairline veinlets (unknown black mineral). Minor clay. Blocky core
		50.3	59.4	9.1	0.5	fractured-veined				Textural destruction. Rock is cut by cm-scale quartz-sulphide veins and hairline veinlets (unknown black mineral). Minor clay. Blocky core
	b	70.2	76.0	5.8	0.4	fractured-veined	qz-cl-ch-py	qz-py-cp	Cp veins in shear	Breccia. Stockwork veining <5 vol %. At least two generations of quartz veins, and a silica-flood event. Massive pyrite veins. Chalcopyrite appears late, cross-cuts quartz and pyrite veins.
		76.0	93.7	17.7	0.5					Breccia. Stockwork veining <5 vol %. At least two generations of quartz veins, and a silica-flood event. Massive pyrite veins. Chalcopyrite appears late, cross-cuts quartz and pyrite veins.
		93.7	99.9	6.3	0.4					Breccia. Stockwork veining <10 vol %. At least two generations of quartz veins, and a silica-flood event. Massive pyrite veins. Chalcopyrite appears late, cross-cuts quartz and pyrite veins.
		99.9	111.9	12.0	0.5					Breccia. Stockwork veining <10 vol %. At least two generations of quartz veins, and a silica-flood event. Massive pyrite veins. Chalcopyrite appears late, cross-cuts quartz and pyrite veins.
		111.9	117.6	5.6	0.6					Breccia. Stockwork veining <10 vol %. At least two generations of quartz veins, and a silica-flood event. Massive pyrite veins. Chalcopyrite appears late, cross-cuts quartz and pyrite veins.
		117.6	135.2	17.6	0.4					Breccia. Weaker Stockwork veining. At least two generations of quartz veins, and a silica-flood event. Massive pyrite veins. Chalcopyrite appears late, cross-cuts quartz and pyrite veins.

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK036-01	a	0.0	5.8	5.8	0.2	crushed	cl-qz-pl-py-cc	py-qz-cc	Si-Py-Cc veins in shear	Sheared / brecciated, and boudined country rock, 1-2 qtz veins / meter that contain chalcocite. Broken rock, very siliceous. Clay alteration, less than 10%
		5.8	9.9	4.1	0.4	fractured				Sheared / brecciated, and boudined country rock, 1-2 qtz veins / meter that contain chalcocite. 1-3 pyrite veins / meter. Broken rock, very siliceous. Clay alteration, less than 5%
		9.9	13.6	3.7	0.3					Sheared / brecciated, and boudined country rock, 1-2 qtz veins / meter that contain chalcocite. 1-3 pyrite veins / meter. Broken rock, very siliceous. Clay alteration, less than 5%
		13.6	16.8	3.3	0.5					Sheared / brecciated, and boudined country rock, 1-2 qtz veins / meter that contain chalcocite / chalcopyrite. 1-3 pyrite veins / meter. Broken rock, very siliceous. Clay alteration, less than 2%. Core is locally vuggy
		16.8	21.4	4.6	0.5	crushed-veined				Sheared / brecciated, and boudined country rock, 1-2 qtz veins / meter that contain chalcocite / chalcopyrite. 1-3 pyrite veins / meter. Broken rock, very siliceous. Clay alteration, less than 5%. Core is locally vuggy
		21.4	25.2	3.9	0.9	fractured-veined			Si-Py-cp veins in shear	Sheared / brecciated, and boudined country rock, 1-2 qtz veins / meter that contain chalcocite / chalcopyrite. Locally chalcopyrite veins. 1-3 pyrite veins / meter. Broken rock, very siliceous. Clay alteration, less than 5%.
		25.2	30.6	5.4	0.5					Sheared / brecciated, and boudined country rock, 1-2 qtz veins / meter that contain chalcocite / chalcopyrite. Locally chalcopyrite veins. 1-3 pyrite veins / meter. Broken rock, very siliceous. Clay alteration, less than 5%.
		30.6	36.5	5.9	0.2	crushed-fractured				Sheared / brecciated, and boudined country rock, 1-2 qtz veins / meter that contain chalcocite / chalcopyrite. Locally chalcopyrite veins. 1-3 pyrite veins / meter. Broken rock, very siliceous. Clay alteration, less than 5%. Contact with barren diorite dyke at end of interval
		36.5	44.0	7.6	0.5	fractured	pl-cl-o	N/R	Si-Py-Cv/Cc veins in shear	Barren dyke to 40.9m. Followed downhole by rock with texture completely destroyed.
		44.0	49.2	5.2	0.4	crushed-fractured	cl-qz-pl-py-o	qz-py-cp		Sheared / brecciated, and boudined country rock, 1-2 qtz veins / meter that contain chalcocite / chalcopyrite. Locally chalcopyrite veins. 1-3 pyrite veins / meter. 5% Clay
		49.2	53.9	4.7	0.3	fractured				Sheared / brecciated, and boudined country rock, 1-2 qtz pyrite / meter. Locally brecciated with "milled matrix". Clay less than 5%. Sheared, broken, sulphide in matrix
		53.9	58.9	5.0	0.3					Sheared / brecciated, and boudined country rock, 1-2 sulphide veins / meter that contain chalcocite / chalcopyrite. 10% Clay

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK038-01	a	0.0	4.2	4.2	0.0	unconsolidated	cl-hm-lm-qz	N/R	Nil	Should analyze Fe-rich material, but likely barren
		4.2	10.1	5.9	0.0					Should analyze Fe-rich material, but likely barren
	b	25.0	31.1	6.1	0.0	blocky-fractured	qz-Kf-pl-ca-bi-cl	ca	Nil	Core loss due to spinning in the barrel. Barren Dyke
	c	67.6	73.1	5.5	0.9	gouged-blocky	qz-cl-ch-py-hm	qz-py-cl-hm-cp-cv	Sheared Si-Py-cp veins	Sheared / brecciated texture, 1-2 qtz-chalcopyrite-pyrite veins / meter. Large 30cm chalcopyrite vein. Broken rock, crushed rock. Clay-phyllic alteration.
		73.1	77.1	4.1	0.4	fractured-blocky			Si-Py-cp-cv veins in shear	Sheared / brecciated texture, 1-2 qtz-chalcopyrite-pyrite veins / meter. Broken rock, crushed rock. Clay-phyllic alteration.
		77.1	83.1	6.0	0.3	gouged-veined				Sheared / brecciated texture, 1-2 qtz-chalcopyrite-pyrite veins / meter. Broken rock, crushed rock. Clay-phyllic alteration.
		83.1	89.0	5.9	0.2					Sheared / brecciated texture, rare chalcopyrite-pyrite veins. Clay-phyllic alteration. lacking qtz-sulphide veins.
		89.0	94.9	5.8	0.4	gouged				Sheared / brecciated texture, rare chalcopyrite-pyrite veins. Clay-phyllic alteration. lacking qtz-sulphide veins. 5-10% Clay in crushed zones.
		94.9	101.1	6.2	0.4					Sheared / brecciated texture, rare chalcopyrite-pyrite veins. Clay-phyllic alteration. lacking qtz-sulphide veins. 5-10% Clay in crushed zones.
		101.1	107.2	6.1	0.4					Sheared / brecciated texture, rare chalcopyrite-pyrite veins. Clay-phyllic alteration. lacking qtz-sulphide veins. 5% Clay in crushed zones.
		107.2	113.1	5.9	0.9	gouged-veined			Si-Py-cv veins in shear	Sheared / brecciated texture, 4-6 quartz-pyrite-cv veins per meter. Clay-phyllic alteration. 5% Clay in crushed zones. increasing pyrite
		113.1	118.8	5.7	1.2	gouged				Sheared / brecciated texture, 2-4 quartz-pyrite-cv veins per meter, up to 10cm in width. Clay-phyllic alteration. 5% Clay in crushed zones. increasing pyrite
		118.8	124.9	6.1	0.8	fractured-veined				Sheared / brecciated texture, 2-4 quartz-pyrite-cv veins per meter, up to 10cm in width. Clay-phyllic alteration. 5% Clay in crushed zones. increasing pyrite
		124.9	130.9	6.1	1.0		cl-qz-py-Kf-cv	qz-py-cl-cv-gp		Sheared / brecciated texture, 2-4 quartz-pyrite-cv veins per meter in the top 3m interval. Below 127m is a distinct decrease in pyrite and lack of veins.
		130.9	136.9	5.9	0.4					Sheared / brecciated texture, 1 quartz-pyrite-cv veins per meter, decrease in pyrite and lack of veins.
	d	154.5	160.3	5.9	0.4	fractured	qz-cl-py-Kf-cp-ca	qz-cl-py-cp-cv-gp	Si-Py-cp veins in shear	Note the qtz vein with dark mineral (wolframite?), tungsten values up to 540ppm
	e	178.4	195.9	17.5	0.2	fractured-veined	qz-cl-py-Kf-cp-ca	qz-cl-py-cp-cv-gp	Si-Py-cp veins in shear	Sheared / brecciated texture. 3-5 quartz-pyrite-chalcopyrite veins per meter, up to 30cm in width. Clay-phyllic alteration. Locally 5% Clay in crushed zones.
		195.9	202.1	6.3	0.5	gouged				
		202.1	210.0	7.8	0.3	blocky-veined				

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK044-01	a	0.0	3.3	3.3	0.7	fractured	qz-Kf-cl-py	py-qz-cv-cp	Si-Py-Cv veins in shear	Fresh sulphides from start of hole, collared in outcrop. Dark colored mafic rock, cut by cm-scale quartz-cv-pyrite veins. Vein density 2/meter.
		3.3	6.6	3.3	1.4	fractured-blocky				Dark colored mafic rock, cut by cm-scale quartz-cv-pyrite veins. Vein density 2/meter, up to 7cm in width. Crack and seal type texture. Rock is strongly brecciated after 7.9m
		6.6	10.3	3.7	0.7	fractured				
		10.3	13.8	3.5	1.2					Brecciated, abundant covellite on fractures and in veins. Notable lack of milky white quartz veins
		13.8	17.3	3.6	1.9					Brecciated, abundant quartz-covellite-pyrite veins. Thick cm-scale pyrite veins
		17.3	20.9	3.6	0.8					Brecciated, banded quartz-covellite-pyrite veins.
		20.9	24.4	3.5	0.1	fractured-blocky				Brecciated and with a shear fabric, rare quartz - covellite veins.
	b	35.2	39.6	4.4	0.2	fractured	qz-Kf-pl-cl-py	py-qz-cv-cp-cl	Si-Py-Cv veins in shear	Sheared / brecciated, and boudined country rock, 1-2 qtz thick veins / meter that contain covellite and minor chalcopyrite.
		39.6	43.8	4.2	0.2	fractured-veined				Sheared / brecciated, and boudined country rock, 1-2 qtz thick veins / meter that contain covellite and minor chalcopyrite.
		43.8	48.2	4.5	0.4	blocky-veined				Sheared / brecciated, and boudined country rock, 1-2 qtz thick veins / meter that contain covellite and minor chalcopyrite.
		48.2	52.7	4.5	0.2	fractured-veined	qz-Kf-cl-py-cv	py-qz-cv-cp		
		52.7	57.1	4.4	0.3	fractured				
		57.1	61.5	4.5	0.3	blocky-veined	qz-Kf-py-cl	py-qz-cv-cl-cp		Sheared / brecciated, and boudined country rock, Cross cut by minor irregular milky quartz-sulphide veins. Bleached. Notably more veining and increased grade confirms copper-bearing veins
		61.5	66.1	4.6	0.5	blocky-fractured				
		66.1	70.5	4.4	0.4	fractured-brecciated				
		70.5	75.4	4.9	0.0	crushed-brecciated			Nil	Veins are absent
	c	149.5	155.8	6.4	0.3	fractured	qz-cl-ch-py	py-qz-cp	Cp veins in shear	Shear/breccia zone, sulphides in veins and matrix, weak clay/phyllic overprint
		155.8	161.6	5.8	0.4	fractured-veined				Shear/breccia zone in contact with a different breccia-type at 159m? Two types of veins, quartz-pyrite veins and late chalcopyrite veins
		161.6	173.6	12.1	0.3	fractured	qz-ch-cl-py			Breccia zone. Two types of veins, quartz-pyrite veins and late chalcopyrite veins
		173.6	179.4	5.8	0.5	fractured-veined				
		179.4	185.2	5.8	0.9					Breccia zone. Two types of veins, quartz-pyrite veins and late chalcopyrite veins (up to 20cm thick)
		185.2	191.1	5.9	0.5					Breccia zone. Two types of veins, quartz-pyrite veins and late chalcopyrite veins

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK044-02	a	2.6	6.8	4.2	0.5	fractured	qz-pl-py-cl	py-qz-cv	Si-Py-Cv veins in shear	Fresh sulphides from start of hole, collared in outcrop. Dark colored mafic rock, cut by cm-scale quartz-cv-pyrite veins. Vein density 2/meter.
		6.8	10.2	3.4	1.2					In the field, this appears to be a basalt, pillow textures. Clearly it is brecciated and cut by 2-4 quartz-py veins with cv / meter. No clay, brittle fracturing
		10.2	12.7	2.6	2.7					Brecciated. It is cut by abundant quartz-py veins with cv. No clay, competent rock
		12.7	16.9	4.2	1.6	fractured-veined				
		16.9	20.4	3.5	2.6					Brecciated. It is cut by abundant quartz-py veins with cv. No clay, competent rock and is strongly silicified
		20.4	23.8	3.4	1.3	fractured				
		23.8	27.6	3.9	0.2	fractured-veined				Brecciated. It is cut by minor quartz-py veins with cv. No clay, competent rock and is strongly silicified
		27.6	31.2	3.6	0.1					Brecciated. It is cut by rare quartz-py veins with cv. No clay, competent rock and is strongly silicified
	b	39.5	43.6	4.1	0.5	fractured-veined	qz-cl-py-cv	qz-py	Si-Py-Cv veins in shear	Very large quartz-sulphide vein, probably 3-4m in width. Might represent a silica ledge at surface. No clay, but crushed zones
		43.6	49.4	5.8	0.3	fractured-blocky				Brecciated / shear zone with minor quartz-py veins with cv. No clay, but crushed zones
		49.4	53.6	4.3	0.7					Brecciated / shear zone with quartz-py veins with cv. The zone is bleached, sericite or clay alteration
		53.6	57.8	4.2	1.1					Brecciated / shear zone with quartz-py veins containing abundant cv.
		57.8	62.2	4.4	0.3					Brecciated / shear zone with minor quartz-py veins with cv.
	c	195.9	201.7	5.8	0.4	fractured	qz-cl-py	py-qz-cp	Si-py-cp veins in shear	Prominent shear fabric and locally micro-breccias. First generation of quartz-py veins that are not carrying copper, and these dominate the veining (up to 20 vol %). Later stage quartz-chalcopyrite-pyrite veins cutting the older veins, 1-2 veins / meter.
		201.7	207.6	5.9	1.3	fractured-veined				
		207.6	213.2	5.6	0.3	fractured				
		213.2	218.7	5.5	0.5	blocky				
		218.7	224.2	5.5	0.9	crushed				
		224.2	230.0	5.8	0.5	fractured-veined		qz-py-cp		
BK045-01	a	0.0	6.1	6.1	1.3	fractured-blocky	qz-cl-py-cv	py-qz	Si-Py-Cv veins in shear	Sheared / brecciated, and boudined country rock, 1-2 qtz veins / meter that contain covellite / chalcocite. Broken rock, no clay. Rock is very siliceous.
		6.1	10.6	4.5	2.4	fractured				Sheared / brecciated, and boudined country rock, network of qtz veins that contain covellite / chalcocite. Broken rock, no clay. Rock is very siliceous.
		10.6	14.9	4.4	2.8	fractured-gouged			Sheared Si-Py-Cv veins	Sheared / brecciated, and boudined country rock, network of qtz veins that contain covellite / chalcocite. Broken rock, no clay. Rock is very siliceous.
		14.9	18.9	4.0	4.7	fractured-blocky			Si-Py-Cv veins in shear	
		18.9	23.2	4.3	1.5	fractured				Sheared / brecciated, and boudined country rock, network of qtz veins that contain covellite / chalcocite. Broken rock, no clay. Rock is very siliceous.
	b	42.4	46.8	4.4	0.5	gouged-blocky	qz-cl-py	py-qz	Sheared Si-Py-Cv veins	Shear/breccia containing covellite mineralization. Broken and clay matrix in lower section, probably 40%
		46.8	51.8	5.0	0.4	crushed-blocky				Shear/breccia containing covellite mineralization. Broken and clay matrix in lower section, probably 40%

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK046-01	a	0.0	7.2	7.2	1.0	unconsolidated	qz-cl-pl-py-cp-cv	py-qz-cp-cv	cc	Oxidized and weather rock to 11m depth, contains cc.
		7.2	10.7	3.5	0.8	fractured				Oxidized and weather rock to 11m depth, contains cc.
	b	14.2	17.9	3.7	0.5	unconsolidated-veined	qz-cl-pl-py-cp-cv	py-qz-cp-cv	Si-Py-Cv/Cc veins in shear	Spherical features / weathering. Sulphide in matrix. Quartz-pyrite-cv veins. Older pyrite veins and infill. Second part of this interval contains abundant clay/soil, perhaps 30%. Possible drilled through a slump block and back into paleo soil.
		17.9	22.0	4.2	0.1					Spherical features / weathering. Sulphide in matrix. Quartz-pyrite-cv veins. Older pyrite veins and infill. Top part of this interval contains abundant clay/soil, perhaps 30%. Possible drilled through a slump block and back into paleo soil.
		22.0	25.3	3.3	0.4	fractured-veined				Sheared / brecciated country rock, network of qtz veins (3-4vn/meter) that contain covellite / chalcocite. Broken rock, no clay. Rock is very siliceous.
		25.3	29.9	4.6	0.4	unconsolidated-veined				Start of zone is brecciated with qtz-sulphide veins, which is acid leached and vuggy. Followed by 1.5m of soil (?), perhaps slump material? Brecciated with qtz-sulphide veins over the last meter.
		29.9	51.6	21.7	0.4	fractured-veined				Sheared / brecciated country rock, network of qtz veins (2vn/meter) that contain covellite / chalcocite. Broken rock, no clay. Rock is very siliceous. Veins are vuggy
		51.6	56.0	4.4	0.9	blocky-veined				
		56.0	64.6	8.6	0.5	fractured-veined	qz-cl-py-cp-cv	qz-py-cp-cv	Si-Py-cp-cv veins in shear	Sheared / brecciated country rock, network of qtz veins (2vn/meter) that contain covellite / chalcocite. Broken rock, no clay. Rock is very siliceous. Veins are vuggy
		64.6	69.1	4.5	0.5	blocky-veined				
		69.1	77.9	8.9	0.8	fractured-veined		py-qz-cp-cv		
		77.9	86.8	8.9	0.6	blocky-veined			Si-Py-cp veins in shear	Shear / breccia hosted mineralization, smaller clasts. Cut by minor quartz - sulphide veins. Massive core. Boudined clasts
		86.8	91.2	4.4	0.5	fractured-veined				Shear / breccia hosted mineralization, large clasts. Cut by minor quartz - sulphide veins and cm-scale cpy veins. Massive core. Boudined clasts
	c	104.2	108.5	4.3	1.5	fractured	qz-cl-py-cp-cv	py-qz-cp-cv	Si-Py-cp veins in shear	Shear / breccia hosted mineralization, large clasts. Cut by minor quartz - sulphide veins and 30cm wide cpy vein. Massive core. Boudined clasts
	d	143.2	147.4	4.2	0.5	fractured-gouged	qz-cl-py-cp-cv-ga	py-qz-cp-cv	cp veins in shear	Breccia/shear hosted mineralization. Cut by quartz-sulphide veins and massive cpy veins. Minor clay in post mineral shears
		147.4	163.6	16.2	0.8	fractured-veined				Breccia/shear hosted mineralization. Cut by quartz-sulphide veins and massive cpy veins.
		163.6	169.4	5.8	0.6	fractured				
		169.4	175.4	6.0	0.4					Breccia/shear hosted mineralization. Cut by quartz-sulphide veins and massive cpy veins. 10-15% clay in post mineral shears
		175.4	183.6	8.2	0.5					Breccia/shear hosted mineralization. Cut by quartz-sulphide veins and massive cpy veins.
BK047-01	a	36.7	41.1	4.4	0.2	fractured	qz-ch-cl-py-sm	qz-py-ch	cp veins in shear	Shear/breccia hosted mineralization. Cpy as sulphide veins and with minor quartz. Massive core, with minor crushed zones
		41.1	49.5	8.4	0.7	fractured-veined	qz-ch-cl-py-cp	py-cp-qz-ch		

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK048-01	a	0.0	4.5	4.5	0.2	fractured-veined	qz-cl-py	qz-py-gp-cv	Si-Py-Cv veins in shear	Breccia/shear zone. Minor quartz veins. Silica flooding with covellite.
		4.5	7.9	3.4	1.0					Breccia/shear zone. Quartz - cv veins broken and probably lost ore. Covellite-dominated ore. <5% Clay
		7.9	11.3	3.4	0.6					Breccia/shear zone. Minor quartz-Covellite veins, but rare. Covellite on fractures. <5% Clay
		11.3	15.0	3.7	0.9					Breccia/shear zone. Quartz-Covellite veins, and silica-cv flooding. Covellite on fractures. No Clay
		15.0	18.3	3.3	1.9					Breccia/shear zone. Quartz-Covellite veins. Covellite on fractures. Silicified zones.
		18.3	21.7	3.4	1.0	fractured				Breccia/shear zone. Quartz-Covellite veins. Covellite on fractures. Silicified zones. Broken vuggy veins
	b	29.2	34.4	5.2	0.3	fractured-veined	qz-cl-py	qz-py-gp-cv	Si-Py-Cv veins in shear	Breccia/shear zone. Minor Quartz-Covellite veins. Covellite on fractures. Three post mineral clay-rich shears, 10cm each
		34.4	38.8	4.4	0.7					Breccia/shear zone. Covellite on fractures. Larger quartz veins here, but one is parallel to CA
		38.8	43.0	4.2	0.5					Breccia/shear zone. Covellite on fractures. Larger quartz veins, unclear if parallel to CA? No clay
		43.0	47.3	4.3	0.4					Breccia/shear zone, prominent shear fabric. Covellite on fractures. Minor quartz veins, unclear if parallel to CA? No clay
		47.3	55.9	8.6	0.4	blocky-veined				Breccia/shear zone. Covellite on fractures. Minor quartz veins. No clay
		55.9	68.7	12.8	0.4	fractured-veined				shear/breccia hosted mineralization, but smaller clast size. Covellite on fractures. Minor quartz veins. No clay
		68.7	85.6	17.0	0.8	fractured				Shear/breccia hosted mineralization, but smaller clast size. Covellite on fractures. Minor quartz veins. No clay. Massive core
		85.6	90.0	4.4	0.7	blocky-veined				
		90.0	107.3	17.3	0.5	fractured-veined				Shear/breccia hosted mineralization, but smaller clast size, almost like a crystal tuff?. Covellite on fractures. Minor quartz veins. No clay.
		107.3	111.4	4.1	0.8					Shear/breccia hosted mineralization, but smaller clast size, almost like a crystal tuff?. Covellite on fractures. Minor quartz veins. No clay. Massive core
	c	137.3	141.4	4.1	0.4	fractured-veined	qz-cl-ch-py	py-qz-gp-cv	Si-Py-Cv veins in shear	Large quartz-sulphide vein and associated stockwork. Massive core. no clay.
	d	145.7	150.2	4.5	0.4	fractured	qz-cl-ch-py	py-qz-gp-cv	Si-Py-Cv veins in shear	There is a 1m wide quartz-sulphide vein. Massive core. no clay.
		150.2	155.1	4.9	0.5					shear/breccia hosted mineralization. Covellite on fractures and in veins. Minor quartz veins. No clay. Massive core
		155.1	166.9	11.9	0.4	fractured-veined				
BK049-01	a	18.7	23.1	4.4	0.4	crushed-blocky	qz-cl-py-ch	qz-py-cp-cv-cl	Si-Py-Cv veins in shear	Sheared / brecciated. Upper 3m contains sulphide and quartz veins. Lower 3m is broken and crushed. Not a lot of clay, perhaps 5%. Grade loss in lower zone
		23.1	27.8	4.7	0.1	crushed-veined		py-qz-cl-cp		Sheared / brecciated. Rubble for the top 2m, perhaps some grade loss. Not a lot of clay, perhaps 5%. Typical quartz-sulphide veins
		27.8	40.5	12.7	0.3	fractured-veined		qz-py-cp-cv-cr-cl		Sheared / brecciated. Minor white quartz veins. Not a lot of clay, perhaps 5%. Typical sulphide matrix of the shear zone, infill

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK050-01	a	3.6	7.0	3.4	1.0	fractured	qz-cl-py	py-qz-cv	Si-Py-Cv veins in shear	Sheared / brecciated. cut by quartz-cv-py veins, 3/meter. Pyrite veins, possibly without copper. Core is massive, very little clay
		7.0	10.6	3.6	1.1					Sheared / brecciated. cut by quartz-cv-py veins, 3/meter. Pyrite veins, possibly without copper. Core is massive, very little clay
		10.6	13.7	3.2	1.9			py-qz-cp		Sheared / brecciated. cut by quartz-cv-py veins, 3/meter. Pyrite veins, possibly without copper. Core is massive, very little clay
		13.7	17.3	3.6	0.5					Sheared / brecciated. cut by quartz-cv-py veins, 3/meter. Pyrite veins, possibly without copper. Core is massive, very little clay
	b	39.7	44.0	4.3	0.4	fractured	qz-cl-py	py-qz-cp	Si-Py-Cv veins in shear	Breccia/shear hosted mineralization, cut by quartz-cv-py veins. Locally massive sulphide veins, possibly chalcopyrite. Clay in shears, <5%
		44.0	48.3	4.3	0.3					Breccia/shear hosted mineralization, cut by quartz-cv-py veins. Locally massive sulphide veins, possibly chalcopyrite. Clay in shears, <5%
BK051-01	a	7.5	11.0	3.6	0.0	fractured	qz-cl-sm-py	qz-py	Nil	Prominent shear fabric, siliceous rock with disseminated pyrite
		11.0	14.8	3.8	0.1				Si-Py-Cv veins in shear	Prominent shear / breccia fabric, siliceous rock with disseminated pyrite and rare cv in quartz veins. Some obvious core loss from spinning around in the barrel
		14.8	17.8	3.0	0.2		qz-cl-sm-py-cp	qz-py-cp	Si-Py-cp veins in shear	Prominent shear / breccia fabric, very siliceous rock with disseminated pyrite and less than a percent cpy on fractures. Massive core, with two brittle fractured zones
		17.8	21.2	3.4	0.0				Nil	Prominent shear / breccia fabric, siliceous rock with disseminated pyrite and cm-scale pyrite veins, and noted wavy py-veins. Massive core, with narrow quartz veins
		21.2	24.8	3.6	0.0		qz-cl-sm-py	qz-py		Prominent shear / breccia fabric, siliceous rock with disseminated pyrite and mm-scale qtz-pyrite veins. Massive core, with narrow cm-scale structural breccias with clay matrix
	b	31.8	36.1	4.3	0.0	blocky-fractured	qz-cl-sm-py	qz-py-an-cp	Nil	Reduced to HQ at 31.8m
	c	53.7	57.9	4.3	0.0	blocky-fractured	qz-cl-sm-py	qz-py-an-cp	Nil	Sheared / brecciated. Although less obvious, shear fabric is present, siliceous rock with disseminated pyrite and mm-scale qtz-pyrite veins. Massive core, with large cm-scale quartz - pyrite veins
	d	75.3	79.5	4.2	0.2	fractured	qz-ch-cl-sm-py	qz-py-cp	Si-Py-cp veins in shear	Sheared / brecciated, silicified, disseminated pyrite and mm-scale qtz-pyrite veins. Massive core, with large crack-seal type quartz - chalcopyrite pyrite veins (irregular). Older generation of quartz veins are barren
		79.5	83.9	4.4	0.1	fractured-veined				Sheared / brecciated, silicified, disseminated pyrite and mm-scale qtz-pyrite veins. Massive core, with large quartz - chalcopyrite pyrite veins, 2-3vn/meter.
		83.9	88.1	4.2	0.3					Sheared / brecciated, silicified, with disseminated pyrite and mm-scale qtz-pyrite veins. Massive core, with large cm-scale quartz - chalcopyrite pyrite veins. , 2-3vn/meter.
		88.1	92.3	4.2	0.2	blocky-fractured				Sheared / brecciated, silicified, with disseminated pyrite and mm-scale qtz-pyrite veins. Massive core, with at least 2 large cm-scale quartz - chalcopyrite pyrite, 2-3vn/meter.
		92.3	96.7	4.4	0.2	fractured				Sheared / brecciated, silicified, with disseminated pyrite and mm-scale qtz-pyrite veins. Massive core, with at large cm-scale quartz - chalcopyrite pyrite veins. 2-3vn/meter.

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK052-01	a	0.0	6.9	6.9	0.0	fractured	pl-qz-ch-si-hb-bi-	cl	Nil	Mixed soil and boulders
		6.9	11.2	4.3	0.0	crushed-blocky				Strongly brecciated rock, silicified, brittle fractured. Significant core loss
BK054-01	a	41.3	45.8	4.5	0.2	crushed-fractured	cl-si-py	qz-py-cv-ga-cp-sl-cr	Si-Py-Cv/Cc veins in shear	Sheared / brecciated, with weak clay overprint. Crushed quartz veins. MM-scale quartz - sulphide veinlets
		45.8	50.1	4.4	0.5	fractured				Sheared / brecciated, with weak clay overprint. MM-CM-scale quartz - covellite veins. Also covellite veinlets. Mineralization parallels the shear, but also cross cuts the fabric
		50.1	54.7	4.6	0.6					Sheared / brecciated, with weak clay overprint. MM to CM -scale quartz - covellite veinlets, locally up to 10cm wide
		54.7	60.7	6.0	0.5					Sheared / brecciated, with weak clay overprint. MM to CM -scale quartz - covellite veinlets, locally up to 10cm wide. Locally thick quartz-pyrite veins
BK055-01	a	80.3	84.2	4.0	0.5	fractured	qz-ch-cl-sm	qz-py-cp-ch	Si-Py-cp veins in shear	More than 70% of the rock has been crushed by a reactivated structure, strong clay est. at 20%. Rock itself is strongly silicified, remnant shear fabric visible. Cut by hairline chalcopyrite veins. Significant py as disseminated grains and cm-scale veins
		84.2	88.9	4.7	0.7	fractured-veined				Sheared / brecciated. More than 50% of the rock has been crushed by reactivated structure, strong clay est. at 20%. Rock itself is strongly silicified, remnant shear fabric visible. Cut by thick cm-scale chalcopyrite veins. Significant py as disseminated grains and cm-scale veins
	b	97.9	102.1	4.2	0.5	fractured-veined	qz-ch-cl-sm	qz-py-cp-ch	Si-Py-cp veins in shear	Sheared / brecciated. Rock is strongly silicified, remnant shear fabric. Cut by thick cm-scale chalcopyrite - quartz veins. Significant py as disseminated grains and mm to cm-scale veinlets
	c	192.9	198.9	6.0	1.0	fractured-veined	cl-si-sm-ch-py	qz-py-an-ca-cp	Si-Py-cp veins in shear	Brecciated and sheared rock cut by >1m quartz-chalcopyrite vein.
BK056-01	a	0.0	5.2	5.2	0.7	fractured	qz-cl-sm-ch-py-ca	qz-py-cp-ca	Si-Py-cv veins in shear	Silicified rock after the oxidized zone, with pyrite. Minor covellite in quartz veins. Suspect mineralized and oxidized vein at top of hole

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
BK057-01	a	0.0	4.2	4.2	0.0	unconsolidated	cl-hm-lm-qz	N/R	Nil	Intensely oxidized quartz veins fragments mixed in clay and soil. Probably should have been analyzed.
		4.2	8.5	4.3	0.2	crushed-brecciated	cl-si-lm	qz-lm-py	Si-Py-Cv/Cc veins in shear	Massive quartz sulphide vein, completely oxidized, rock is brittle fractured and brecciated.
		8.5	12.3	3.8	1.5	fractured-blocky				First 2m in this core box is massive quartz sulphide vein, completely oxidized, rock is brittle fractured and brecciated. Following 2m interval is broken and contains 5% clay. There are notable quartz - chalcocite veins. Suspected CC after cv
		12.3	15.3	3.0	1.8	crushed-blocky	cl-si-py	qz-py-cv-cp		Sheared / brecciated. Brittle fractured and 100% broken/crushed and contains 10% clay. There are remnants of cm-scale quartz-covellite veins +- chalcocite on fractures.
		15.3	22.5	7.3	1.4	gouged				Brittle fractured and broken/crushed and contains 30% clay. There are remnants of cm-scale quartz-covellite veins +- chalcocite on fractures.
		22.5	25.7	3.2	1.0	fractured-veined				Massive to broken/crushed and minor clay. There are mm to cm-scale quartz-covellite and cpy veins. Average 5 wavy / irregular quartz-sulphide veins per meter
		25.7	29.0	3.3	0.7					Lower half of this interval is broken with some clay. There are 1-3 mm to cm-scale quartz-covellite and cpy veins / meter
		29.0	32.6	3.6	0.6					Strongly broken core, minor clay. Loss of core from tumbling inside the core barrel. There are only 3 mm to cm-scale quartz-covellite and cpy veins / meter
		32.6	36.9	4.3	0.3	gouged				Strongly broken core over the top 2m and strongly broken (<2% clay) and crushed core in the lower 2m (10-20% clay). There are only 2-3 mm to cm-scale quartz-covellite veins / meter
		36.9	41.2	4.4	0.4	fractured-veined	si-cl-ch-py	qz-py-cp		Strongly broken core and minor clay. There mm-scale quartz-covellite stockwork veins, probably 10% of the rock vol.
		41.2	46.7	5.5	0.5					Strongly broken core and minor clay. There mm-scale quartz-covellite and cpy stockwork veins, probably 10% of the rock vol. Locally large pyrite filled voids, forming cm-scale massive sulphide blebs
		46.7	51.1	4.4	0.2					Massive core, no clay. MM-scale quartz+-covellite +- cpy veins, est.. 2vn/meter.
BK058-01	a	8.9	14.0	5.1	3.2	fractured-blocky	cl-si-py	qz-py-cv-cp	Si-Py-Cv/Cc veins in shear	Significant core loss in the mineralized interval, perhaps 30-40% of the run was not recovered between 12.2-13.2m. This is the high grade vein material, comprising quartz-covellite pyrite, interpreted as silica ledge at surface
		14.0	18.5	4.5	8.5	blocky-fractured				Massive quartz-covellite pyrite vein, interpreted as silica ledges at surface. Good core recoveries here, core is massive, siliceous and in tact.
		18.5	22.9	4.4	3.2	fractured-veined		qz-py-cp-cv		Top 2m is massive quartz-covellite pyrite vein. Good core recovery, core is massive, siliceous and in tact. Lower section is Sheared / brecciated. Cut by anastomosing milky white quartz-cv veins
		22.9	27.3	4.5	0.5					Sheared / brecciated. Cut by anastomosing milky white quartz-cv veins, sub-parallel to core axis
		27.3	31.5	4.2	0.3	fractured-blocky				Sheared / brecciated. Cut by 2cm-scale anastomosing milky white quartz-cv veins / meter.
		31.5	35.8	4.3	0.2	fractured-veined				Sheared / brecciated. Cut by 1-2cm-scale anastomosing milky white quartz-cv veins / meter.
		35.8	40.1	4.3	0.5	blocky-veined				Sheared / brecciated. Cut by 1-2cm-scale anastomosing milky white quartz-cv veins / meter. One vein parallels the core axis
		40.1	44.6	4.5	0.3	fractured-veined				Sheared / brecciated. Cut by 1-2cm-scalemilky white quartz-cv veins / meter.

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
KBK0021	a	21.1	26.8	5.7	1.1	N/R	N/R	N/R	Si-Py-Cv/Cc veins in shear	Sheared / brecciated. Coated in gray clay, difficult to identify mineralization
		26.8	32.5	5.7	0.3					Sheared / brecciated. Rock is silicified and strongly broken, with quartz vein fragments in the rubble. Suspected qtz-cv veins
		32.5	38.2	5.7	0.1					Sheared / brecciated. Rock is silicified , with quartz-sulphide veins. Poor quality images make it impossible to identify cv vs. cpy
		38.2	43.9	5.7	0.6					Sheared / brecciated. Rock is silicified, with quartz-sulphide veins. Poor quality images make it impossible to identify cv vs. cpy. Massive core
		43.9	49.9	6.0	0.8					Sheared / brecciated. Rock is silicified and strongly broken, with quartz-sulphide veins. Poor quality images make it impossible to identify cv vs. cpy. Minor zone of clay, good recoveries
		49.9	55.1	5.2	0.5					Sheared / brecciated. Rock is silicified, with quartz-sulphide veins. Poor quality images make it impossible to identify cv vs. cpy.
		55.1	60.6	5.4	1.0					Sheared / brecciated. Rock is silicified and broken, with quartz-sulphide veins. Poor quality images make it impossible to identify cv vs. cpy. Minor zone of clay, might be some core loss
		60.6	66.3	5.7	0.1					Sheared / brecciated. Rock is silicified and broken, with quartz-sulphide veins, bleached . Poor quality images make it impossible to identify cv vs. cpy. Minor zone of clay, might be some core loss
	b	76.9	82.9	5.9	0.2	N/R	N/R	N/R	Si-Py-Cp veins in shear	Sheared / brecciated. Rock is silicified and broken, with quartz-sulphide veins and moderate clay. Poor quality images make it impossible to identify cv vs. cpy.
		82.9	88.1	5.3	0.1					Sheared / brecciated. Rock is silicified and broken, with quartz-sulphide veins. Poor quality images make it impossible to identify cv vs. cpy.
	c	114.5	120.2	5.7	0.3	N/R	N/R	N/R	Si-Py-Cp veins in shear	Breccia / Shear zone, silicified, cut by anastomosing milky white quartz - cpy veins, 2-4 / meter, mm-scale. Massive core
		120.2	125.6	5.4	0.4					Breccia / Shear zone, silicified, cut by milky white quartz - cpy veins, 2 / meter, cm-scale. Massive core
	d	141.5	146.8	5.3	0.1	N/R	N/R	N/R	Si-Py-Cp veins in shear	Breccia / Shear zone, silicified, cut by milky white quartz - cpy veins, 2-4 / meter, cm-scale. Large vein parallel to core axis. Massive core
		146.8	158.2	11.4	0.2					Breccia / Shear zone, silicified, cut by milky white quartz - cpy veins, 2 / meter, cm-scale.
		158.2	164.3	6.1	0.9					Breccia / Shear zone, silicified, cut by milky white quartz - cpy veins, 2 / meter, cm-scale. Locally 2-3cm wide cpy veins with mm-scale veinlets, mini stockwork zone
		164.3	171.7	7.4	0.6					Breccia / Shear zone, silicified, cut by milky white quartz - cpy veins, 2 / meter, cm-scale. Top of hole are 1-2cm wide cpy veins with mm-scale veinlets, mini stockwork zone. Qtz-py-cpy vein parallels the core axis
		171.7	178.9	7.2	0.1					Breccia / Shear zone, silicified, cut by minor milky white quartz - cpy veins
		178.9	186.3	7.3	0.8					Breccia / Shear zone, silicified, cut by a 3cm wide milky white quartz - py - cpy vein that parallels the core axis
KBK0023	a	30.3	40.7	10.4	0.3	N/R	N/R	N/R	Si-Py-Cp veins in shear	Breccia zone, silicified, cut by stockwork vein system, suspected quartz - cpy. Poor image quality. Core is massive, no clay
		40.7	45.8	5.2	0.2					Breccia zone, silicified, cut by stockwork vein system, suspected quartz - cpy. Poor image quality. Core is massive, minor clay in a 30cm shear
	b	71.3	76.5	5.2	0.4	N/R	N/R	N/R	Si-Py-Cp veins in shear	Breccia zone, silicified, cut by minor quartz - cpy veins. Poor image quality. Core is broken, minor clay in a 30cm shear
		76.5	81.7	5.2	0.5					Breccia zone, cut by minor quartz - cpy veins. Core is broken, moderate clay in a 2m shear zone
		81.7	87.0	5.3	0.2					Breccia zone, cut by minor quartz - cpy veins. Core is broken in 10cm chunks, minor clay
	c	138.1	152.4	14.3	0.3	N/R	N/R	N/R	Si-Py-Cp veins in shear	Breccia zone, cut by minor cm-scale quartz cpy veins. Core is broken in 10cm chunks, no clay
KBK0024	a	97.3	119.4	22.2	0.6	N/R	N/R	N/R	Si-Py-Cp veins in shear	Breccia, strongly silicified, original rock texture destroyed and is cut by a quartz stockwork vein system, contains cpy and py. Core is massive, good recoveries
		119.4	134.1	14.7	0.4					Breccia, strongly silicified, original rock texture destroyed and is cut by quartz - cpy and py veins, cm-scale, 2/meter. Core is massive, good recoveries

Hole	Photo Logging Interval	KSK Supplied Structure and Mineralisation Log							Core Photo Relog H&A and Mr. Steven Hughes (KSK)	
		From	To	Int	Cu%	Gross-Meas Structure	Non-Vein minerals	Vein Minerals	Mineralisation Setting	Core Photo Logging Description
KBK0023	a	30.3	40.7	10.4	0.3	N/R	N/R	N/R	Si-Py-Cp veins in shear	Breccia zone, silicified, cut by stockwork vein system, suspected quartz - cpy. Poor image quality. Core is massive, no clay
		40.7	45.8	5.2	0.2					Breccia zone, silicified, cut by stockwork vein system, suspected quartz - cpy. Poor image quality. Core is massive, minor clay in a 30cm shear
	b	71.3	76.5	5.2	0.4	N/R	N/R	N/R	Si-Py-Cp veins in shear	Breccia zone, silicified, cut by minor quartz - cpy veins. Poor image quality. Core is broken, minor clay in a 30cm shear
		76.5	81.7	5.2	0.5					Breccia zone, cut by minor quartz - cpy veins. Core is broken, moderate clay in a 2m shear zone
		81.7	87.0	5.3	0.2					Breccia zone, cut by minor quartz - cpy veins. Core is broken in 10cm chunks, minor clay
	c	138.1	152.4	14.3	0.3	N/R	N/R	N/R	Si-Py-Cp veins in shear	Breccia zone, cut by minor cm-scale quartz cpy veins. Core is broken in 10cm chunks, no clay
KBK0024	a	97.3	119.4	22.2	0.6	N/R	N/R	N/R	Si-Py-Cp veins in shear	Breccia, strongly silicified, original rock texture destroyed and is cut by a quartz stockwork vein system, contains cpy and py. Core is massive, good recoveries
		119.4	134.1	14.7	0.4					Breccia, strongly silicified, original rock texture destroyed and is cut by quartz - cpy and py veins, cm-scale, 2/meter. Core is massive, good recoveries

Appendix 6 Descriptions of mineralization styles

Breccia/shear style, low grade copper mineralization. Mineralization is dominated by chalcopyrite, but contains white quartz along the vein margins. The breccia contains no copper. This entire zone assayed 0.20% Cu. Chalcopyrite – dominated ore. Vein density is very low, only 2 veins / box

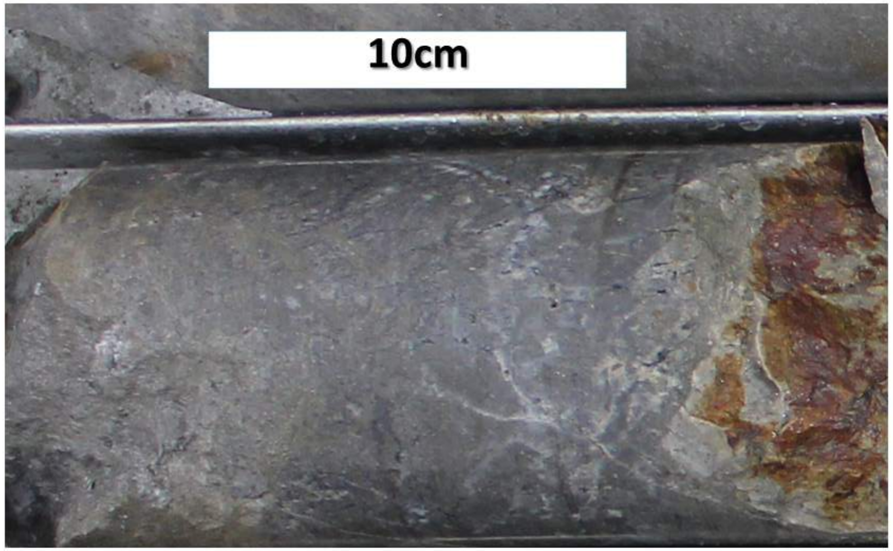
Breccia/shear style, high grade copper mineralization. There are "stretched clasts" in the breccia, suggesting it is a shear zone. Mineralization is dominated by white quartz veins containing cpy and pyrite. The breccia contains no copper. This entire zone assayed 1.10% Cu. Chalcopyrite – dominated ore. Vein density is much higher, at least 2 veins / meter

Breccia/shear style, moderate grade copper mineralization. Vein density is similar to the box below, but this box is not "bleached". This entire zone assayed 0.49% Cu. Chalcopyrite – dominated ore. Vein density is moderate, roughly 1 significant (i.e. >1cm wide) vein / meter

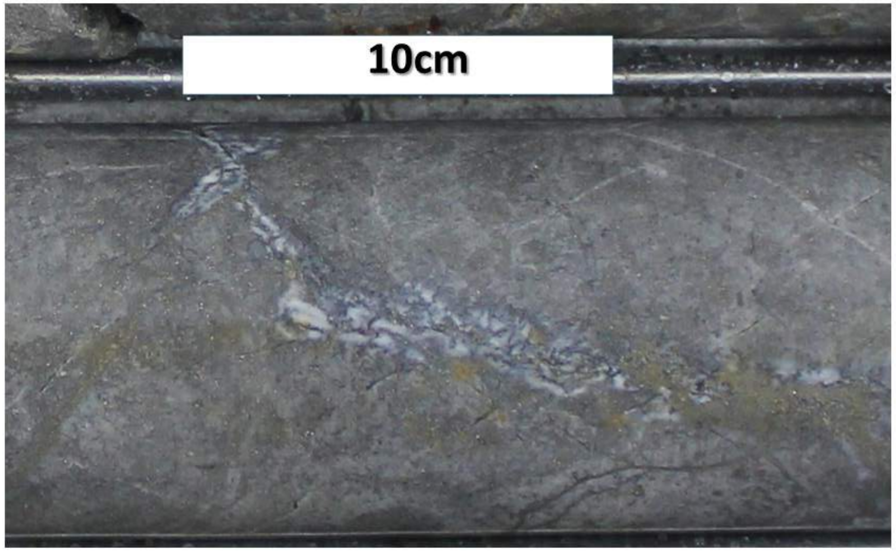
Breccia/shear style, moderate grade copper mineralization. Vein density is similar to the box above, but this box is "bleached". This entire zone assayed 0.57% Cu. Chalcopyrite – dominated ore. Veins are thicker than above, but vein density is lower, roughly 1 significant (i.e. >1cm wide) vein per two meter interval

Siliciclastics (?) cut by copper-bearing quartz veins. Vein density is similar to the box below, only 3-5 per box. This entire zone assayed 0.81% Cu. Chalcopyrite – dominated ore. There is a breccia zone in the last couple of meters of this box.

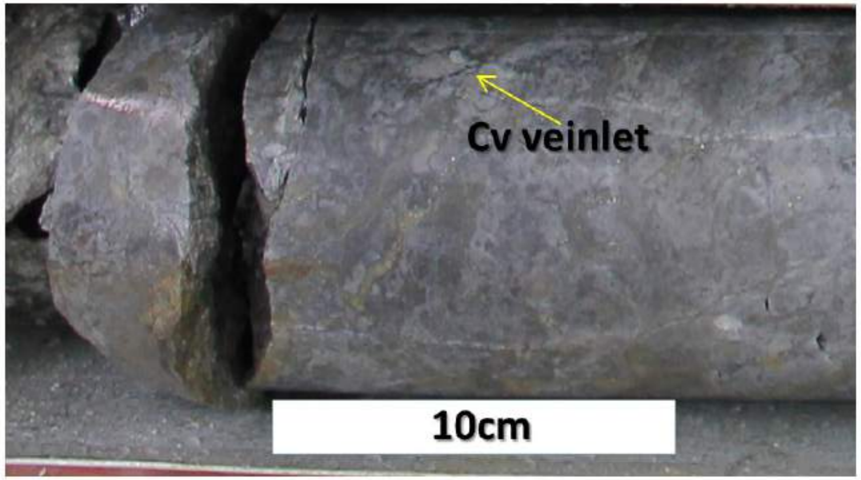
Siliciclastics (?) cut by copper-bearing quartz veins. Vein density is similar to the box above, only 3-5 per box. This entire zone assayed 0.92% Cu. Chalcopyrite – dominated ore. Could this be basalt? Some work needs to be done on the host rocks.



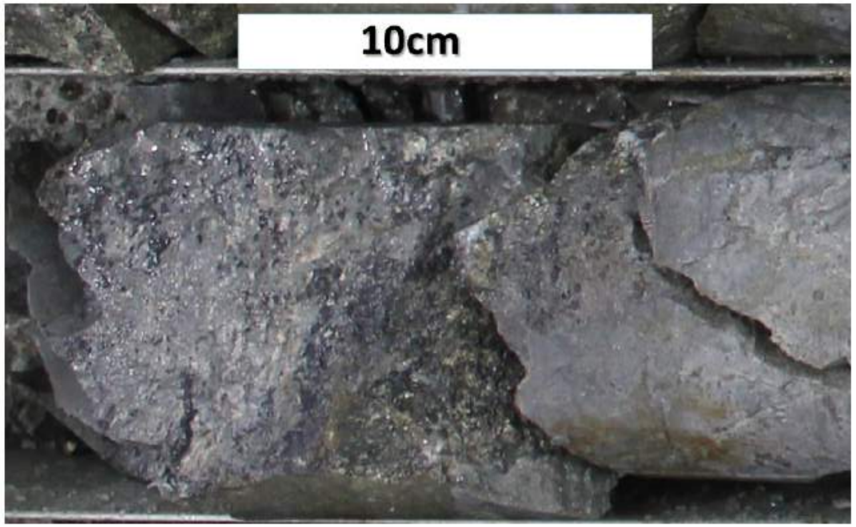
Copper Mineralization – Covellite Dominated. Not your classic quartz, but more like a silica flooded zone. Note the abundant indigo blue or purple-blue covellite throughout this interval. (BK048-01 Box 04_11.30-15.00)



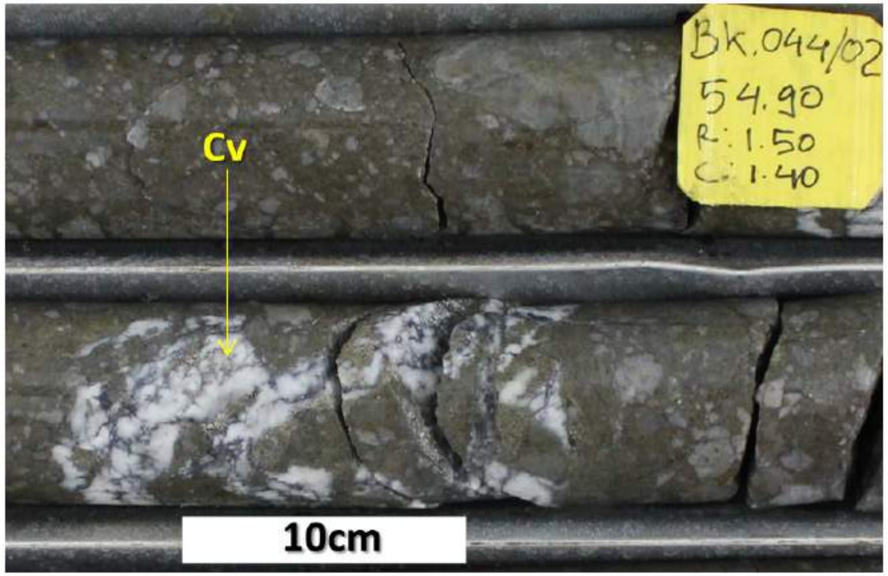
Siliciclastics (?) cut by copper-bearing quartz veins. This is a more classic quartz vein, milky white, and contains abundant indigo blue or purple-blue covellite. (BK048-01 Box 04_11.30-15.00)



Copper Mineralization – Covellite Dominated. These are thin cv veinlets that occur in the breccia, which is silicified. (BK048-01 Box 05_15.00-18.30)



Siliciclastics (?) cut by copper-bearing quartz veins. These are cv coated fractures in the breccia, which is silicified. (BK048-01 Box 05_15.00-18.30)



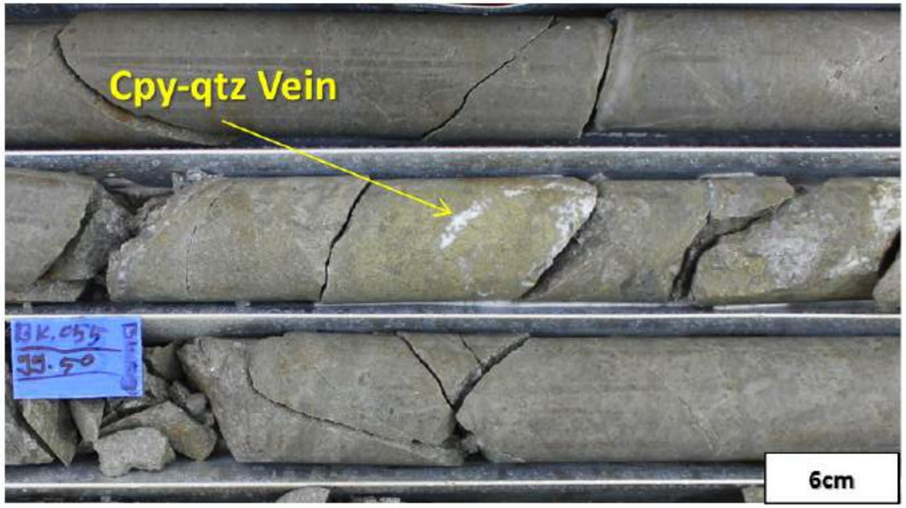
Copper Mineralization – Covellite Dominated. These are thick milky white quartz veins containing covellite, that clearly cut the older breccia, which is silicified. (BK044-02 Box 14_53.60-57.80)

Copper Mineralization – Chalcopyrite Dominated. These are still the thick milky white quartz veins, but now contain chalcopyrite. (BK046-01 Box 25_104.15-108.50)

Copper Mineralization – Covellite Dominated. These are thick gray, massive quartz veins containing minor covellite, that clearly cut the breccia, which is also silicified. (BK054-01 Box 11_54.70-60.65)

Veins are not straight, commonly wavy or irregular

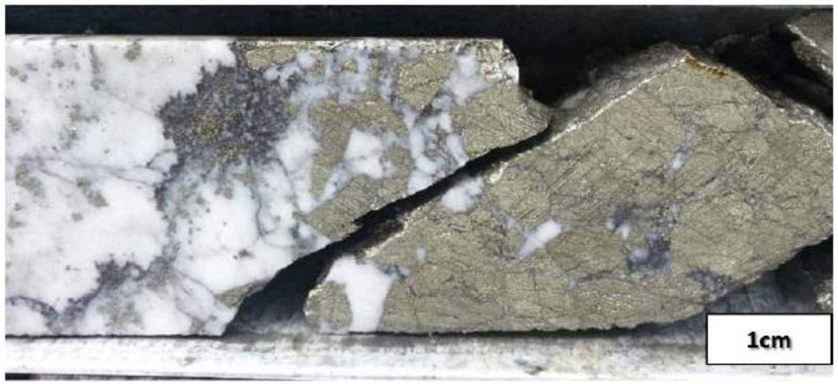
Copper Mineralization – Chalcopyrite Dominated. These are thick chalcopyrite – dominated veins with minor milky white quartz gangue. (BK046-01 Box 25_104.15-108.50)



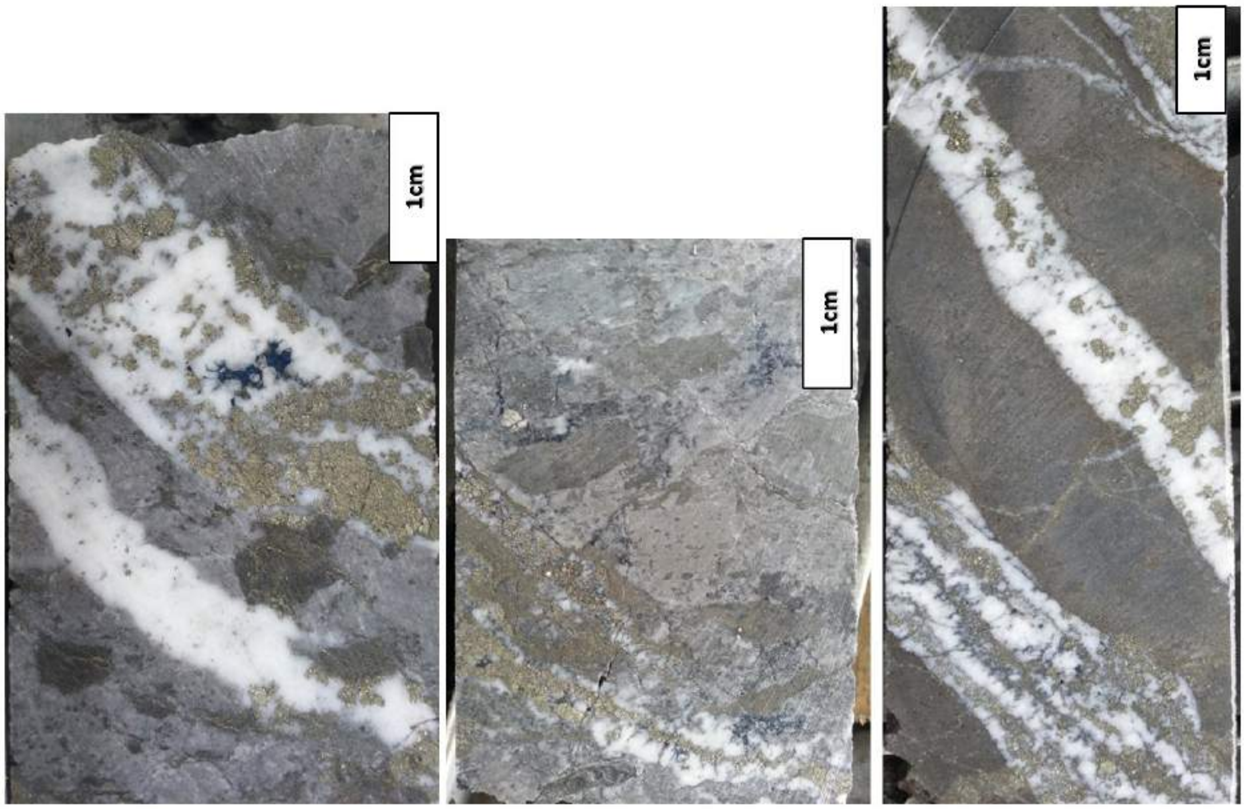
Copper Mineralization – Chalcopyrite Dominated. These are thick chalcopyrite – dominated veins with minor milky white quartz gangue. (BK055-01 Box 24_97.90-102.10). Host rock strongly sheared and silicified, with abundant hairline to mm-scale pyrite veinlets. These veins are sometimes dominated by py with little or no cpy

Copper Mineralization – Covellite Dominated. These are massive quartz-pyrite-covellite veins, that geologists often refer to as "silica ledges" in the field. These contain bonanza grade copper values, up to 10% over 3m intervals. (BK054-01 Box 11_54.70-60.65)

Copper Mineralization – Covellite Dominated. Thick quartz-covellite veins, which typically are wavy, appear to have crack sealed fractures or are anastomosing. Host rock strongly sheared and silicified, with abundant hairline to mm-scale pyrite veinlets. Weakly phyllic altered host rock



Copper Mineralization – Covellite Dominated. Thick quartz-covellite veins, which typically are wavy, appear to have crack sealed fractures or are anastomosing. Host rock strongly sheared and silicified, with abundant hairline to mm-scale pyrite veinlets. Weakly phyllic altered host rock



Appendix 7 Tabulated significant copper mineralised drill intercepts

Hole	Category	From	To	Interval	Cu (%)
BK029	**>0.2%Cu**	11.00	38.00	27.00	0.56
	incl. >1.0%Cu	29.00	32.00	3.00	1.09
	>0.2%Cu	44.00	105.50	61.50	0.47
	incl. >1.0%Cu	78.50	81.50	3.00	1.32
	incl. >1.0%Cu	87.50	90.50	3.00	1.05
	>0.2%Cu	117.50	126.50	9.00	0.42
	>0.2%Cu	167.00	173.00	6.00	2.37
	incl. >1.0%Cu	170.00	173.00	3.00	4.50
BK030	**>0.2%Cu**	4.50	16.50	12.00	0.43
	>0.2%Cu	55.50	64.50	9.00	0.23
	>0.2%Cu	91.10	97.10	6.00	0.25
	>0.2%Cu	136.10	148.10	12.00	0.78
	incl. >1.0%Cu	136.10	145.10	9.00	0.93
BK031	**>0.2%Cu**	16.00	41.45	25.45	0.67
	incl. >1.0%Cu	38.00	41.45	3.45	1.11
	>0.2%Cu	68.00	83.00	15.00	0.33
	>0.2%Cu	92.00	110.00	18.00	0.21
BK032	**>0.2%Cu**	2.80	8.80	6.00	0.32
	>0.2%Cu	14.80	75.40	60.60	0.74
	incl. >1.0%Cu	17.80	20.90	3.10	1.04
	incl. >1.0%Cu	27.10	30.10	3.00	1.07
	incl. >1.0%Cu	44.95	48.05	3.10	1.47
	incl. >1.0%Cu	63.30	69.30	6.00	1.66
	>0.2%Cu	138.60	171.65	33.05	0.29
	>0.2%Cu	175.15	182.15	7.00	1.24
	incl. >1.0%Cu	178.65	182.15	3.50	2.14
	>0.2%Cu	190.25	202.75	12.50	1.05
	incl. >1.0%Cu	192.75	199.25	6.50	1.38
	>0.2%Cu	208.75	220.50	11.75	0.55
	incl. >1.0%Cu	214.75	217.75	3.00	1.06
BK033	**>0.2%Cu**	18.60	60.50	41.90	0.39
BK034	**>0.2%Cu**	2.70	65.10	62.40	0.65
	incl. >1.0%Cu	40.85	50.00	9.15	1.55
	>0.2%Cu	70.60	96.60	26.00	0.48
	>0.2%Cu	129.60	141.60	12.00	0.89
	incl. >1.0%Cu	135.60	138.60	3.00	2.34
	>0.2%Cu	171.60	237.70	66.10	0.96
	incl. >1.0%Cu	177.60	192.70	15.10	2.26
	incl. >1.0%Cu	219.70	222.70	3.00	1.28
BK035	**>0.2%Cu**	31.40	46.10	14.70	0.46
	incl. >1.0%Cu	31.40	34.40	3.00	1.49
	>0.2%Cu	69.20	123.20	54.00	0.48
	incl. >1.0%Cu	117.20	120.20	3.00	1.09
BK036	**>0.2%Cu**	6.30	32.30	26.00	0.49
	incl. >1.0%Cu	21.40	24.80	3.40	1.10
	>0.2%Cu	38.75	59.40	20.65	0.45
BK038	**>0.2%Cu**	66.80	81.80	15.00	0.61
	incl. >1.0%Cu	66.80	70.30	3.50	1.40
	>0.2%Cu	87.30	134.30	47.00	0.69
	incl. >1.0%Cu	108.80	117.80	9.00	1.22
	>0.2%Cu	176.30	183.30	7.00	0.34
	>0.2%Cu	195.50	207.20	11.70	0.49
BK041	*incl. >1.0%Cu*	112.60	116.05	3.45	1.65

Hole	Category	From	To	Interval	Cu (%)
BK044	**>0.2%Cu**	0.00	18.70	18.70	1.22
	incl. >1.0%Cu	3.30	6.40	3.10	1.63
	incl. >1.0%Cu	12.60	18.70	6.10	1.99
	>0.2%Cu	45.00	68.40	23.40	0.35
	>0.2%Cu	150.10	159.00	8.90	0.43
	>0.2%Cu	165.10	195.20	30.10	0.50
	incl. >1.0%Cu	183.10	186.10	3.00	1.26
	>0.2%Cu	198.30	204.30	6.00	0.50
BK044-02	**>0.2%Cu**	4.00	25.00	21.00	1.57
	incl. >1.0%Cu	7.00	22.00	15.00	1.99
	>0.2%Cu	38.10	59.30	21.20	0.56
	incl. >1.0%Cu	53.40	56.40	3.00	1.38
	>0.2%Cu	198.50	210.50	12.00	0.93
	incl. >1.0%Cu	201.50	207.30	5.80	1.34
	>0.2%Cu	216.40	225.50	9.10	1.08
	incl. >1.0%Cu	222.50	225.50	3.00	1.95
	>0.2%Cu	296.00	300.00	4.00	0.23
BK045	**>0.2%Cu**	1.40	27.80	26.40	2.10
	incl. >1.0%Cu	4.30	21.80	17.50	2.95
	>0.2%Cu	42.20	48.30	6.10	0.61
BK046	**>0.2%Cu**	6.00	17.20	11.20	0.69
	>0.2%Cu	20.70	91.10	70.40	0.54
	incl. >1.0%Cu	50.50	53.50	3.00	1.37
	incl. >1.0%Cu	73.60	79.30	5.70	1.26
	>0.2%Cu	141.00	181.50	40.50	0.56
	incl. >1.0%Cu	160.50	169.50	9.00	0.74
	incl. >1.0%Cu	175.50	178.50	3.00	1.01
BK047	**>0.2%Cu**	41.10	58.50	17.40	0.49
	incl. >1.0%Cu	163.00	166.20	3.20	1.86
BK048	**>0.2%Cu**	1.50	112.00	110.50	0.59
	incl. >1.0%Cu	13.50	19.50	6.00	1.85
	incl. >1.0%Cu	70.50	73.50	3.00	1.20
	incl. >1.0%Cu	106.00	109.00	3.00	1.16
	>0.2%Cu	136.00	142.85	6.85	0.41
	>0.2%Cu	147.85	169.00	21.15	0.45
	>0.2%Cu	178.00	190.00	12.00	0.27
	incl. >1.0%Cu	273.50	276.70	3.20	1.44
BK050	**>0.2%Cu**	0.60	16.00	15.40	1.03
	incl. >1.0%Cu	3.60	6.80	3.20	1.06
	incl. >1.0%Cu	10.00	13.00	3.00	2.74
	>0.2%Cu	38.30	47.00	8.70	0.42
BK051	**>0.2%Cu**	188.00	194.00	6.00	0.31
BK052	**>0.2%Cu**	90.20	105.20	15.00	0.28
BK053	**>0.2%Cu**	190.00	196.00	6.00	0.31
BK054	**>0.2%Cu**	45.00	58.50	13.50	0.56
	>0.2%Cu	65.50	77.50	12.00	0.32
BK055	*incl. >1.0%Cu*	82.90	85.90	3.00	1.58
	incl. >1.0%Cu	194.40	197.40	3.00	2.09
BK057	**>0.2%Cu**	7.70	47.70	40.00	0.89
	incl. >1.0%Cu	10.70	16.30	5.60	1.92
	incl. >1.0%Cu	19.70	22.70	3.00	1.88
	>0.2%Cu	53.70	59.70	6.00	0.28

Hole	Category	From	To	Interval	Cu (%)
BK058	**>0.2%Cu**	11.70	44.70	33.00	2.28
	incl. >1.0%Cu	11.70	20.70	9.00	7.35
	>0.2%Cu	55.20	61.20	6.00	0.30
	>0.2%Cu	103.20	118.20	15.00	0.61
	incl. >1.0%Cu	115.20	118.20	3.00	1.40
BK-1	**>0.2%Cu**	22.50	42.50	20.00	1.12
	incl. >1.0%Cu	22.50	28.50	6.00	2.94
	>0.2%Cu	54.50	66.50	12.00	0.27
	>0.2%Cu	72.50	93.50	21.00	0.41
	>0.2%Cu	111.50	117.50	6.00	0.31
	>0.2%Cu	132.50	141.50	9.00	0.34
	>0.2%Cu	147.50	153.50	6.00	0.45
BK-10	**>0.2%Cu**	50.70	61.40	10.70	0.41
	>0.2%Cu	237.50	249.80	12.30	0.58
BK-11	**>0.2%Cu**	0.00	6.00	6.00	1.97
	incl. >1.0%Cu	0.00	6.00	6.00	1.97
	>0.2%Cu	99.00	114.00	15.00	0.31
BK-12	*incl. >1.0%Cu*	43.60	46.60	3.00	2.25
BK-15	**>0.2%Cu**	6.00	42.00	36.00	0.55
	incl. >1.0%Cu	18.00	21.00	3.00	1.07
	incl. >1.0%Cu	36.00	39.00	3.00	1.47
BK-18	**>0.2%Cu**	89.80	98.80	9.00	0.53
	>0.2%Cu	104.80	119.80	15.00	0.26
	>0.2%Cu	140.80	164.80	24.00	0.81
	incl. >1.0%Cu	143.80	146.80	3.00	2.60
	incl. >1.0%Cu	152.80	155.80	3.00	1.90
BK-2	**>0.2%Cu**	4.50	97.50	93.00	0.75
	incl. >1.0%Cu	7.50	10.50	3.00	1.79
	incl. >1.0%Cu	22.50	25.50	3.00	1.81
	incl. >1.0%Cu	40.50	49.50	9.00	2.39
	>0.2%Cu	124.50	130.50	6.00	0.25
	>0.2%Cu	136.50	171.50	35.00	0.66
	incl. >1.0%Cu	154.50	166.50	12.00	1.11
BK-3	**>0.2%Cu**	6.40	37.40	31.00	0.97
	incl. >1.0%Cu	6.40	22.40	16.00	1.43
	>0.2%Cu	43.40	85.40	42.00	0.93
	incl. >1.0%Cu	49.40	55.40	6.00	1.42
	incl. >1.0%Cu	70.40	85.40	15.00	1.15
	>0.2%Cu	136.40	142.40	6.00	1.15
	incl. >1.0%Cu	136.40	139.40	3.00	1.62
BK31650-03	**>0.2%Cu**	34.00	60.00	26.00	1.57
	incl. >1.0%Cu	40.00	50.00	10.00	2.95
BK31650-04	**>0.2%Cu**	58.00	72.60	14.60	0.42
BK31650-05	**>0.2%Cu**	21.00	33.00	12.00	1.22
	>0.2%Cu	45.00	70.00	25.00	0.42
BK31650-06	**>0.2%Cu**	6.70	25.00	18.30	0.43
	>0.2%Cu	64.00	81.00	17.00	0.39
BK31750-01	**>0.2%Cu**	17.00	36.00	19.00	0.47
	>0.2%Cu	39.00	75.10	36.10	0.38
BK31750-02	**>0.2%Cu**	12.50	70.50	58.00	1.04
	incl. >1.0%Cu	17.50	33.50	16.00	1.67
	incl. >1.0%Cu	45.50	56.50	11.00	1.45

Hole	Category	From	To	Interval	Cu (%)
BK31750-03	**>0.2%Cu**	5.00	72.00	67.00	0.72
	incl. >1.0%Cu	9.00	22.00	13.00	1.26
BK31750-04	**>0.2%Cu**	39.00	75.30	36.30	0.73
	incl. >1.0%Cu	50.00	53.00	3.00	2.60
BK31750-05	**>0.2%Cu**	16.00	32.00	16.00	0.97
	incl. >1.0%Cu	18.00	29.00	11.00	1.21
BK31750-06	**>0.2%Cu**	7.20	24.50	17.30	0.28
	incl. >1.0%Cu	78.00	85.00	7.00	1.02
BK31750-09	**>0.2%Cu**	47.00	56.30	9.30	0.64
BK31800-01	**>0.2%Cu**	9.00	30.00	21.00	1.77
	incl. >1.0%Cu	9.00	25.00	16.00	2.12
	>0.2%Cu	35.00	66.00	31.00	0.91
	incl. >1.0%Cu	45.00	54.00	9.00	1.42
BK31800-02	**>0.2%Cu**	52.00	77.00	25.00	0.32
BK31850-02	*incl. >1.0%Cu*	7.00	17.00	10.00	3.16
BK31850-03	**>0.2%Cu**	13.50	25.50	12.00	0.82
BK31950-03	**>0.2%Cu**	3.50	22.00	18.50	0.31
BK31950-04	**>0.2%Cu**	1.00	13.00	12.00	0.34
	>0.2%Cu	18.00	43.00	25.00	0.53
BK32050-02	**>0.2%Cu**	1.10	19.00	17.90	0.69
	>0.2%Cu	22.00	64.00	42.00	0.50
BK32150-02	**>0.2%Cu**	3.15	57.00	53.85	0.45
BK32150-03	**>0.2%Cu**	0.50	21.50	21.00	0.53
	incl. >1.0%Cu	8.50	12.00	3.50	1.27
	>0.2%Cu	29.50	36.50	7.00	0.52
	>0.2%Cu	58.00	84.50	26.50	0.64
	incl. >1.0%Cu	77.00	83.50	6.50	1.19
BK32200-01	**>0.2%Cu**	2.00	59.00	57.00	0.57
	incl. >1.0%Cu	52.00	55.00	3.00	1.38
	>0.2%Cu	75.00	84.00	9.00	1.72
BK32200-02	**>0.2%Cu**	26.00	106.80	80.80	0.63
	incl. >1.0%Cu	69.50	73.00	3.50	1.31
BK32200-03	**>0.2%Cu**	1.60	50.00	48.40	1.62
	incl. >1.0%Cu	5.00	12.00	7.00	2.49
	incl. >1.0%Cu	38.00	42.00	4.00	4.56
	>0.2%Cu	53.50	80.00	26.50	0.56
	>0.2%Cu	84.00	90.00	6.00	0.42
BK32250-02	**>0.2%Cu**	3.00	11.00	8.00	1.60
	incl. >1.0%Cu	4.00	11.00	7.00	1.79
	>0.2%Cu	15.50	32.00	16.50	1.15
	incl. >1.0%Cu	18.00	30.00	12.00	1.34
	>0.2%Cu	53.00	92.00	39.00	1.12
	incl. >1.0%Cu	67.00	84.00	17.00	1.82
BK32250-03	**>0.2%Cu**	10.00	44.00	34.00	2.04
	incl. >1.0%Cu	23.00	40.00	17.00	3.40
	>0.2%Cu	50.00	101.90	51.90	1.38
	incl. >1.0%Cu	64.00	77.00	13.00	1.46
	incl. >1.0%Cu	83.00	101.90	18.90	2.08

Hole	Category	From	To	Interval	Cu (%)
BK32350-02	**>0.2%Cu**	20.00	57.00	37.00	1.65
	incl. >1.0%Cu	20.00	43.00	23.00	2.27
	>0.2%Cu	63.00	92.00	29.00	0.95
	incl. >1.0%Cu	72.00	77.00	5.00	2.84
BK32350-03	**>0.2%Cu**	4.50	17.50	13.00	0.65
	>0.2%Cu	24.50	37.50	13.00	0.49
	>0.2%Cu	40.50	66.00	25.50	0.57
	>0.2%Cu	100.00	119.00	19.00	0.49
	>0.2%Cu	124.00	143.10	19.10	0.40
BK32350-04	**>0.2%Cu**	15.00	35.00	20.00	0.33
	>0.2%Cu	45.00	64.00	19.00	0.34
	>0.2%Cu	68.00	74.00	6.00	0.73
BK32350-05	**>0.2%Cu**	81.50	88.50	7.00	0.65
	>0.2%Cu	92.00	108.00	16.00	0.39
BK32450-01	**>0.2%Cu**	4.70	18.70	14.00	2.02
	incl. >1.0%Cu	4.70	14.70	10.00	2.58
	>0.2%Cu	32.00	54.00	22.00	0.88
	incl. >1.0%Cu	35.00	39.00	4.00	1.18
	incl. >1.0%Cu	45.00	51.00	6.00	1.57
	>0.2%Cu	82.00	91.00	9.00	0.85
BK32450-02	**>0.2%Cu**	28.50	51.50	23.00	0.47
BK32450-03	**>0.2%Cu**	30.00	44.00	14.00	0.57
BK32450-04	*incl. >1.0%Cu*	58.00	62.00	4.00	1.40
BK32450-05	**>0.2%Cu**	12.00	33.00	21.00	1.31
	incl. >1.0%Cu	12.00	27.00	15.00	1.75
BK32500-01	**>0.2%Cu**	24.00	100.00	76.00	0.70
	incl. >1.0%Cu	25.00	31.00	6.00	1.67
BK32500-02	**>0.2%Cu**	3.00	114.00	111.00	0.76
	incl. >1.0%Cu	3.00	9.00	6.00	1.61
	incl. >1.0%Cu	67.00	74.00	7.00	1.35
BK32500-03	**>0.2%Cu**	10.30	156.40	146.10	0.65
	incl. >1.0%Cu	131.00	135.00	4.00	1.13
BK32550-02	**>0.2%Cu**	37.00	58.00	21.00	0.67
	incl. >1.0%Cu	42.00	46.00	4.00	1.55
BK32550-03	**>0.2%Cu**	6.00	80.00	74.00	0.69
	incl. >1.0%Cu	34.00	46.00	12.00	1.41
BK32550-04	**>0.2%Cu**	1.60	44.00	42.40	1.00
	incl. >1.0%Cu	2.50	26.50	24.00	1.28
	>0.2%Cu	78.00	94.00	16.00	0.58
BK32550-06	**>0.2%Cu**	3.00	51.50	48.50	2.92
	incl. >1.0%Cu	3.00	10.50	7.50	4.11
BK32550-07	**>0.2%Cu**	10.00	96.00	86.00	0.95
	incl. >1.0%Cu	32.00	61.00	29.00	1.29
	incl. >1.0%Cu	68.00	78.00	10.00	1.30
	incl. >1.0%Cu	83.00	88.50	5.50	1.11
	>0.2%Cu	99.00	120.00	21.00	0.48
BK32650-01	**>0.2%Cu**	10.00	41.00	31.00	0.83
	incl. >1.0%Cu	17.00	28.00	11.00	1.49
	>0.2%Cu	45.00	68.00	23.00	0.78
	incl. >1.0%Cu	63.00	68.00	5.00	2.37

Hole	Category	From	To	Interval	Cu (%)
BK-4	*incl. >1.0%Cu*	6.00	9.00	3.00	1.12
	>0.2%Cu	18.00	84.00	66.00	0.64
	incl. >1.0%Cu	21.00	24.00	3.00	1.43
	incl. >1.0%Cu	54.00	60.00	6.00	1.39
	incl. >1.0%Cu	69.00	72.00	3.00	1.24
	>0.2%Cu	96.00	111.00	15.00	0.59
	incl. >1.0%Cu	105.00	108.00	3.00	1.24
	>0.2%Cu	156.00	162.00	6.00	0.24
BK-5	**>0.2%Cu**	3.00	66.00	63.00	0.75
	incl. >1.0%Cu	3.00	6.00	3.00	1.15
	incl. >1.0%Cu	12.00	15.00	3.00	1.26
	incl. >1.0%Cu	39.00	45.00	6.00	1.46
	incl. >1.0%Cu	60.00	63.00	3.00	1.02
	>0.2%Cu	99.00	105.00	6.00	1.89
	incl. >1.0%Cu	102.00	105.00	3.00	2.98
BK-6	**>0.2%Cu**	18.00	42.00	24.00	0.40
BKD01-01	**>0.2%Cu**	309.40	321.40	12.00	0.26
BKD02-01	**>0.2%Cu**	205.00	211.50	6.50	0.68
BKD02-02	**>0.2%Cu**	204.30	212.50	8.20	0.71
	incl. >1.0%Cu	204.30	207.30	3.00	1.08
BKD03-01	**>0.2%Cu**	194.30	213.75	19.45	0.69
	incl. >1.0%Cu	204.00	207.00	3.00	1.86
	>0.2%Cu	227.65	243.00	15.35	0.64
	incl. >1.0%Cu	240.00	243.00	3.00	1.14
	>0.2%Cu	260.45	274.22	13.77	1.40
	incl. >1.0%Cu	260.45	274.22	13.77	1.40
	>0.2%Cu	289.30	300.40	11.10	0.57
BKD03-02	**>0.2%Cu**	8.50	25.00	16.50	0.86
	incl. >1.0%Cu	17.50	22.50	5.00	1.42
KBK-0021	**>0.2%Cu**	37.00	61.00	24.00	0.69
	incl. >1.0%Cu	55.00	59.00	4.00	1.25
	>0.2%Cu	155.20	173.20	18.00	0.62
	incl. >1.0%Cu	161.20	165.20	4.00	1.24
	incl. >1.0%Cu	179.20	182.30	3.10	1.61
KBK-0023	**>0.2%Cu**	33.00	45.00	12.00	0.32
	>0.2%Cu	70.00	82.00	12.00	0.41
	>0.2%Cu	138.00	148.00	10.00	0.47
	>0.2%Cu	250.00	256.00	6.00	0.89
KBK-0024	**>0.2%Cu**	102.00	124.00	22.00	0.69
	>0.2%Cu	130.00	136.00	6.00	0.33
KBK-0028	**>0.2%Cu**	11.50	29.00	17.50	0.60

2016-17 Drilling

Hole	Category	From	To	Interval	Cu (%)
BKM31500-01	>0.2%Cu	79.00	82.00	3.00	0.55
	>0.2%Cu	94.00	102.00	8.00	0.35
BKM31600-01	>0.2%Cu	4.50	16.50	12.00	1.16
	>0.2%Cu	59.50	76.50	17.00	0.42
	>0.2%Cu	86.50	100.30	13.80	0.41
BKM31600-02	>0.2%Cu	1.00	4.00	3.00	0.13
	>0.2%Cu	28.00	37.00	9.00	0.40
	>0.2%Cu	68.50	87.00	18.50	0.60
BKM31600-03	>0.2%Cu	59.00	71.00	12.00	0.58
	>0.2%Cu	75.00	104.50	29.50	0.43
BKM31600-04	>0.2%Cu	13.00	16.00	3.00	1.15
	>0.2%Cu	52.50	74.50	22.00	0.97
	>0.2%Cu	78.50	89.50	11.00	1.06
	incl. >1.0%Cu	78.50	84.50	6.00	1.47
BKM31600-05	>0.2%Cu	18.00	21.00	3.00	0.39
	>0.2%Cu	48.00	74.50	26.50	1.18
BKM31600-06	>0.2%Cu	46.50	50.50	4.00	3.15
	incl. >1.0%Cu	47.50	50.50	3.00	3.99
BKM31650-07	>0.2%Cu	1.50	13.00	11.50	1.05
	>0.2%Cu	29.00	45.00	16.00	0.26
	>0.2%Cu	60.00	72.00	12.00	0.47
	>0.2%Cu	100.00	109.00	9.00	0.37
BKM31650-08	>0.2%Cu	26.00	33.00	7.00	0.69
	>0.2%Cu	55.00	69.00	14.00	1.80
	incl. >1.0%Cu	58.00	64.00	6.00	3.79
	>0.2%Cu	74.00	79.00	5.00	0.70
	>0.2%Cu	83.00	100.00	17.00	0.34
BKM31650-09	>0.2%Cu	19.00	33.00	14.00	0.49
	>0.2%Cu	90.50	108.50	18.00	0.41
BKM31655-01	>0.2%Cu	51.00	82.00	31.00	0.77
	incl. >1.0%Cu	56.00	69.00	13.00	1.27
	>0.2%Cu	88.00	91.00	3.00	0.68
BKM31700-01	>0.2%Cu	1.80	24.00	22.20	0.32
BKM31700-02	>0.2%Cu	1.00	66.50	65.50	0.40
BKM31700-03	>0.2%Cu	10.50	15.50	5.00	1.80
	>0.2%Cu	21.00	43.00	22.00	1.07
	incl. >1.0%Cu	21.00	24.00	3.00	5.42
	>0.2%Cu	47.00	58.50	11.50	0.30
	>0.2%Cu	66.20	72.00	5.80	0.41
	>0.2%Cu	98.50	108.20	9.70	1.06
BKM31700-04	>0.2%Cu	15.00	58.00	43.00	1.16
	incl. >1.0%Cu	23.00	34.00	11.00	2.00
	incl. >1.0%Cu	38.00	51.00	13.00	1.60
	>0.2%Cu	95.00	101.00	6.00	0.69
BKM31700-05	>0.2%Cu	11.90	32.00	20.10	0.68
	>0.2%Cu	76.00	79.00	3.00	0.45
BKM31700-06	>0.2%Cu	3.00	22.00	19.00	0.89
	>0.2%Cu	50.00	54.00	4.00	0.45
	>0.2%Cu	59.00	79.00	20.00	0.40
BKM31700-07	>0.2%Cu	7.50	42.50	35.00	0.55
BKM31700-08	>0.2%Cu	0.75	15.00	14.25	0.41
	>0.2%Cu	21.00	53.00	32.00	0.74
	incl. >1.0%Cu	22.00	26.00	4.00	1.89

Hole	Category	From	To	Interval	Cu (%)
BKM31700-09	**>0.2%Cu**	26.00	44.00	18.00	0.50
	>0.2%Cu	49.00	53.00	4.00	0.60
	>0.2%Cu	59.00	62.00	3.00	0.52
BKM31750-10	**>0.2%Cu**	14.50	37.50	23.00	0.57
	>0.2%Cu	41.50	92.50	51.00	0.99
	incl. >1.0%Cu	48.50	56.50	8.00	2.01
BKM31750-11	**>0.2%Cu**	20.00	52.00	32.00	0.36
	>0.2%Cu	55.00	69.00	14.00	0.26
BKM31755-01	**>0.2%Cu**	7.90	63.00	55.10	0.75
	incl. >1.0%Cu	49.00	56.00	7.00	1.37
	>0.2%Cu	97.00	113.00	16.00	0.58
BKM31775-01	**>0.2%Cu**	12.00	69.00	57.00	1.04
	incl. >1.0%Cu	16.00	30.00	14.00	2.80
	>0.2%Cu	79.00	92.00	13.00	0.45
	>0.2%Cu	128.00	141.00	13.00	1.16
	incl. >1.0%Cu	128.00	136.00	8.00	1.70
BKM31800-04	**>0.2%Cu**	6.00	64.00	58.00	0.61
	incl. >1.0%Cu	38.00	44.00	6.00	1.62
	>0.2%Cu	69.00	73.00	4.00	0.43
	>0.2%Cu	83.00	86.00	3.00	1.35
BKM31800-05	**>0.2%Cu**	13.50	19.50	6.00	0.27
	>0.2%Cu	33.50	62.50	29.00	1.17
	incl. >1.0%Cu	46.50	61.50	15.00	1.71
BKM31800-06	**>0.2%Cu**	58.00	61.00	3.00	0.34
BKM31800-07	**>0.2%Cu**	6.50	32.00	25.50	1.87
	incl. >1.0%Cu	7.50	28.00	20.50	2.25
	>0.2%Cu	36.00	64.50	28.50	1.25
	incl. >1.0%Cu	37.00	50.00	13.00	1.19
	>0.2%Cu	107.50	111.50	4.00	0.59
BKM31800-08	**>0.2%Cu**	13.00	70.50	57.50	0.55
	>0.2%Cu	77.50	88.50	11.00	0.38
BKM31835-01	**>0.2%Cu**	25.50	43.00	17.50	1.57
	incl. >1.0%Cu	27.50	37.00	9.50	2.60
BKM31850-09	**>0.2%Cu**	9.50	59.00	49.50	0.82
	incl. >1.0%Cu	43.00	51.00	8.00	1.05
BKM31900-01	**>0.2%Cu**	28.00	33.30	5.30	1.27
BKM31900-02	**>0.2%Cu**	18.00	30.00	12.00	0.95
	>0.2%Cu	35.00	70.20	35.20	0.80
	incl. >1.0%Cu	38.00	45.00	7.00	1.01
	incl. >1.0%Cu	51.00	59.00	8.00	1.55
BKM31900-03	**>0.2%Cu**	1.00	45.00	44.00	0.57
BKM31900-05	**>0.2%Cu**	18.50	35.15	16.65	0.48
BKM31900-06	**>0.2%Cu**	1.20	42.50	41.30	0.75
	incl. >1.0%Cu	7.50	14.50	7.00	1.10
BKM31925-01	**>0.2%Cu**	10.00	43.00	33.00	0.31
BKM31970-01	**>0.2%Cu**	11.50	65.00	53.50	0.42
BKM32000-01	**>0.2%Cu**	18.00	56.00	38.00	0.55
BKM32000-02	**>0.2%Cu**	25.00	41.00	16.00	0.47
	>0.2%Cu	47.00	56.00	9.00	1.06
	incl. >1.0%Cu	49.00	52.00	3.00	2.33
BKM32000-03	**>0.2%Cu**	3.00	22.00	19.00	0.51
BKM32000-04	**>0.2%Cu**	1.00	13.00	12.00	0.78
	>0.2%Cu	27.00	38.00	11.00	0.31
	>0.2%Cu	58.40	72.45	14.05	0.66

Hole	Category	From	To	Interval	Cu (%)
BKM32050-04	**>0.2%Cu**	1.50	23.00	21.50	0.32
	>0.2%Cu	37.00	42.00	5.00	0.42
	>0.2%Cu	74.00	78.00	4.00	0.35
BKM32050-05	**>0.2%Cu**	5.50	16.50	11.00	0.40
	>0.2%Cu	34.50	47.50	13.00	0.30
BKM32065-01	**>0.2%Cu**	12.00	75.00	63.00	0.49
BKM32090-01	**>0.2%Cu**	1.40	59.50	58.10	0.48
BKM32100-01	**>0.2%Cu**	8.00	18.00	10.00	0.27
BKM32100-02	**>0.2%Cu**	2.00	13.00	11.00	0.84
	incl. >1.0%Cu	2.00	6.00	4.00	1.87
	>0.2%Cu	17.00	38.00	21.00	0.38
	>0.2%Cu	47.00	60.00	13.00	0.55
BKM32100-03	**>0.2%Cu**	1.60	39.00	37.40	0.34
	>0.2%Cu	55.00	58.00	3.00	1.11
	>0.2%Cu	83.00	86.00	3.00	0.62
BKM32100-04	**>0.2%Cu**	31.50	38.50	7.00	0.66
BKM32100-05	**>0.2%Cu**	29.50	33.50	4.00	0.27
BKM32150-05	**>0.2%Cu**	13.00	39.00	26.00	0.85
BKM32165-01	**>0.2%Cu**	0.50	36.00	35.50	0.97
	incl. >1.0%Cu	10.50	23.60	13.10	1.51
	>0.2%Cu	41.00	106.00	65.00	0.52
BKM32200-04	**>0.2%Cu**	11.60	126.25	114.65	0.79
	incl. >1.0%Cu	37.50	40.50	3.00	3.36
	incl. >1.0%Cu	74.50	84.50	10.00	1.10
	incl. >1.0%Cu	113.50	124.50	11.00	1.25
BKM32200-05	**>0.2%Cu**	1.00	18.00	17.00	1.57
	incl. >1.0%Cu	2.00	17.00	15.00	1.72
BKM32200-06	**>0.2%Cu**	5.00	14.00	9.00	1.35
	>0.2%Cu	26.00	35.00	9.00	1.57
	incl. >1.0%Cu	30.00	34.00	4.00	3.04
	>0.2%Cu	39.00	78.25	39.25	1.16
	incl. >1.0%Cu	49.00	54.00	5.00	1.73
	incl. >1.0%Cu	60.00	78.25	18.25	1.44
BKM32200-08	**>0.2%Cu**	22.00	32.00	10.00	0.23
BKM32250-05	**>0.2%Cu**	23.50	39.50	16.00	0.55
BKM32250-06	**>0.2%Cu**	12.00	20.00	8.00	0.25
	>0.2%Cu	30.00	40.00	10.00	0.35
	>0.2%Cu	68.00	75.00	7.00	0.26
BKM32250-07	**>0.2%Cu**	1.00	110.50	109.50	0.96
	incl. >1.0%Cu	1.00	12.00	11.00	2.75
	incl. >1.0%Cu	19.00	27.00	8.00	1.57
	incl. >1.0%Cu	50.50	63.50	13.00	1.86
	>0.2%Cu	113.50	120.50	7.00	0.35
	>0.2%Cu	124.50	134.50	10.00	0.89
	incl. >1.0%Cu	130.50	133.50	3.00	2.41
	>0.2%Cu	138.50	145.50	7.00	1.01
BKM32250-08	**>0.2%Cu**	1.50	6.50	5.00	1.12
	>0.2%Cu	12.50	24.50	12.00	1.46
	incl. >1.0%Cu	14.50	24.50	10.00	1.68
	>0.2%Cu	43.50	90.50	47.00	0.79
	incl. >1.0%Cu	56.50	59.50	3.00	2.22
	incl. >1.0%Cu	69.50	79.50	10.00	1.47

Hole	Category	From	To	Interval	Cu (%)
BKM32260-01	**>0.2%Cu**	3.00	22.00	19.00	1.84
	incl. >1.0%Cu	3.00	15.00	12.00	2.42
	>0.2%Cu	26.00	49.00	23.00	0.62
	>0.2%Cu	54.00	124.30	70.30	0.49
BKM32300-01	**>0.2%Cu**	15.00	21.00	6.00	0.42
	>0.2%Cu	31.00	42.00	11.00	0.87
	>0.2%Cu	122.00	126.00	4.00	2.63
	incl. >1.0%Cu	122.00	126.00	4.00	2.63
BKM32300-02	**>0.2%Cu**	5.60	47.60	42.00	1.06
	incl. >1.0%Cu	7.60	13.60	6.00	2.23
	incl. >1.0%Cu	38.60	46.60	8.00	2.17
BKM32300-03	**>0.2%Cu**	0.00	6.00	6.00	0.78
BKM32300-04	**>0.2%Cu**	112.50	122.50	10.00	0.34
	>0.2%Cu	132.50	143.50	11.00	0.57
BKM32300-05	**>0.2%Cu**	54.00	57.00	3.00	1.14
BKM32300-06	**>0.2%Cu**	2.50	91.50	89.00	1.12
	incl. >1.0%Cu	2.50	20.50	18.00	2.37
	incl. >1.0%Cu	77.50	86.50	9.00	1.16
	>0.2%Cu	104.50	122.50	18.00	0.40
	>0.2%Cu	132.50	141.50	9.00	0.36
	>0.2%Cu	149.50	180.50	31.00	0.85
	incl. >1.0%Cu	150.50	153.50	3.00	1.71
BKM32300-07	**>0.2%Cu**	15.00	48.00	33.00	0.87
	incl. >1.0%Cu	15.00	18.00	3.00	1.07
	incl. >1.0%Cu	24.00	27.00	3.00	1.18
	incl. >1.0%Cu	34.00	37.00	3.00	3.74
	>0.2%Cu	67.00	82.00	15.00	0.27
BKM32300-08	**>0.2%Cu**	9.70	27.00	17.30	0.33
	>0.2%Cu	38.00	55.50	17.50	0.68
	>0.2%Cu	74.50	77.50	3.00	0.81
	>0.2%Cu	83.50	95.50	12.00	0.38
BKM32300-09	**>0.2%Cu**	16.00	19.00	3.00	1.06
	>0.2%Cu	78.00	91.00	13.00	0.30
	>0.2%Cu	132.50	140.00	7.50	0.18
BKM32300-10	**>0.2%Cu**	3.50	27.50	24.00	1.82
	incl. >1.0%Cu	3.50	17.50	14.00	2.67
BKM32320-01	**>0.2%Cu**	33.00	75.00	42.00	0.61
	incl. >1.0%Cu	42.00	48.00	6.00	1.53
	>0.2%Cu	108.00	137.00	29.00	0.43
BKM32335-01	**>0.2%Cu**	32.00	57.00	25.00	0.27
	>0.2%Cu	66.00	136.00	70.00	0.38
	>0.2%Cu	149.00	155.00	6.00	0.47
BKM32350-06	**>0.2%Cu**	50.50	57.50	7.00	1.53
	incl. >1.0%Cu	53.50	56.50	3.00	2.96
BKM32350-07	**>0.2%Cu**	21.00	76.00	55.00	0.44
	>0.2%Cu	80.00	85.00	5.00	0.38
BKM32400-01	**>0.2%Cu**	4.00	23.00	19.00	0.47
	>0.2%Cu	36.00	67.00	31.00	0.38
	>0.2%Cu	73.00	84.00	11.00	0.67
	incl. >1.0%Cu	80.00	83.00	3.00	1.53
	>0.2%Cu	126.00	167.00	41.00	0.32
BKM32400-02	**>0.2%Cu**	23.60	30.60	7.00	0.45
	>0.2%Cu	56.60	63.60	7.00	0.38
BKM32400-03	**>0.2%Cu**	108.00	118.00	10.00	0.18

Hole	Category	From	To	Interval	Cu (%)
BKM32400-04	**>0.2%Cu**	11.00	22.95	11.95	0.63
	>0.2%Cu	61.00	68.00	7.00	0.44
	>0.2%Cu	116.00	128.30	12.30	0.34
BKM32400-05	**>0.2%Cu**	10.00	24.00	14.00	0.77
	incl. >1.0%Cu	11.00	17.00	6.00	1.38
	>0.2%Cu	44.00	64.00	20.00	0.47
	>0.2%Cu	74.00	77.00	3.00	0.48
	>0.2%Cu	123.00	127.30	4.30	0.58
BKM32400-07	**>0.2%Cu**	13.00	31.00	18.00	1.60
	incl. >1.0%Cu	15.00	31.00	16.00	1.71
	>0.2%Cu	36.00	55.00	19.00	0.32
	>0.2%Cu	74.00	77.00	3.00	0.25
BKM32400-08	**>0.2%Cu**	25.00	37.00	12.00	0.47
	>0.2%Cu	40.00	73.00	33.00	0.56
BKM32400-10	**>0.2%Cu**	3.40	40.50	37.10	1.10
	incl. >1.0%Cu	5.50	22.50	17.00	1.54
	>0.2%Cu	67.50	84.50	17.00	0.33
	>0.2%Cu	100.50	105.50	5.00	1.12
	>0.2%Cu	115.50	143.50	28.00	1.23
	incl. >1.0%Cu	131.50	137.50	6.00	3.01
	>0.2%Cu	148.50	172.50	24.00	0.99
	incl. >1.0%Cu	152.50	165.50	13.00	1.48
	>0.2%Cu	179.50	192.50	13.00	0.38
	>0.2%Cu	204.50	223.85	19.35	1.46
	incl. >1.0%Cu	212.50	223.85	11.35	2.14
	>0.2%Cu	229.00	234.00	5.00	0.56
BKM32425-01	**>0.2%Cu**	30.50	53.00	22.50	0.51
BKM32440-01	**>0.2%Cu**	56.50	60.50	4.00	0.44
	>0.2%Cu	64.00	67.00	3.00	1.03
	>0.2%Cu	73.30	81.50	8.20	0.21
	>0.2%Cu	133.50	139.50	6.00	0.69
	>0.2%Cu	145.50	180.00	34.50	0.74
BKM32445-01	**>0.2%Cu**	29.50	66.00	36.50	0.35
	>0.2%Cu	74.00	94.30	20.30	0.47
BKM32455-01	**>0.2%Cu**	4.00	12.00	8.00	0.39
	>0.2%Cu	21.00	38.00	17.00	0.37
	>0.2%Cu	47.00	54.00	7.00	0.44
	>0.2%Cu	57.00	128.00	71.00	0.49
BKM32455-02	**>0.2%Cu**	20.00	30.00	10.00	0.55
	incl. >1.0%Cu	20.00	23.00	3.00	1.20
	>0.2%Cu	34.00	44.00	10.00	0.37
BKM32475-01	**>0.2%Cu**	8.60	35.00	26.40	0.78
	>0.2%Cu	65.15	74.00	8.85	0.75
	>0.2%Cu	100.00	103.00	3.00	0.98
BKM32500-05	**>0.2%Cu**	11.00	22.00	11.00	0.27
	>0.2%Cu	36.00	39.20	3.20	0.77
	>0.2%Cu	45.00	63.00	18.00	0.66
BKM32500-06	**>0.2%Cu**	42.50	55.20	12.70	0.82
	incl. >1.0%Cu	47.50	51.50	4.00	1.99
BKM32500-07	**>0.2%Cu**	37.00	40.00	3.00	0.38
	>0.2%Cu	47.00	57.00	10.00	0.30
	>0.2%Cu	61.00	78.00	17.00	0.49
BKM32500-08	**>0.2%Cu**	6.00	12.00	6.00	0.70
	>0.2%Cu	22.00	57.00	35.00	0.75
	incl. >1.0%Cu	51.00	55.00	4.00	1.45
	>0.2%Cu	61.00	71.00	10.00	0.25
	>0.2%Cu	75.00	101.00	26.00	0.49

Hole	Category	From	To	Interval	Cu (%)
BKM32550-08	**>0.2%Cu**	3.00	7.35	4.35	4.93
	incl. >1.0%Cu	3.00	7.35	4.35	4.93
	>0.2%Cu	22.50	68.00	45.50	0.69
	>0.2%Cu	89.00	109.00	20.00	0.35
BKM32565-01	**>0.2%Cu**	8.50	31.50	23.00	0.63
	incl. >1.0%Cu	12.50	19.50	7.00	1.03
	>0.2%Cu	35.50	78.50	43.00	0.96
	incl. >1.0%Cu	49.50	53.50	4.00	3.23
	incl. >1.0%Cu	63.50	72.50	9.00	1.32
	>0.2%Cu	89.50	101.50	12.00	0.64
BKM32600-01	**>0.2%Cu**	25.00	34.00	9.00	0.34
	>0.2%Cu	46.00	54.00	8.00	0.27
BKM32600-03	**>0.2%Cu**	8.00	112.00	104.00	0.87
	incl. >1.0%Cu	22.00	28.00	6.00	2.09
	incl. >1.0%Cu	33.00	38.00	5.00	1.61
	incl. >1.0%Cu	42.00	50.00	8.00	1.53
	incl. >1.0%Cu	106.00	111.00	5.00	3.64
	>0.2%Cu	123.00	126.00	3.00	0.51
	>0.2%Cu	130.00	142.00	12.00	0.24
BKM32600-04	**>0.2%Cu**	9.00	17.00	8.00	0.95
	>0.2%Cu	29.00	56.40	27.40	0.53
	>0.2%Cu	60.00	100.60	40.60	0.82
BKM32600-05	**>0.2%Cu**	12.00	33.10	21.10	0.52
	>0.2%Cu	35.50	72.80	37.30	2.40
	incl. >1.0%Cu	38.00	60.00	22.00	2.79
	>0.2%Cu	113.00	120.00	7.00	1.29
	incl. >1.0%Cu	114.00	120.00	6.00	1.47
BKM32600-06	**>0.2%Cu**	34.00	48.00	14.00	0.74
	incl. >1.0%Cu	36.00	39.00	3.00	1.77
BKM32650-03	**>0.2%Cu**	3.50	8.00	4.50	0.22
	>0.2%Cu	12.00	15.00	3.00	0.42
	>0.2%Cu	34.00	63.00	29.00	0.32
	>0.2%Cu	72.00	82.00	10.00	1.03
	>0.2%Cu	92.00	106.00	14.00	0.44
BKM32650-04	**>0.2%Cu**	77.00	81.00	4.00	0.56
	>0.2%Cu	85.00	124.00	39.00	0.75
	incl. >1.0%Cu	99.00	124.00	25.00	0.90
BKM32650-05	**>0.2%Cu**	87.00	93.00	6.00	2.22
	incl. >1.0%Cu	87.00	93.00	6.00	2.22
	>0.2%Cu	98.00	106.00	8.00	0.59
	>0.2%Cu	110.00	123.50	13.50	0.56
BKM32660-01	**>0.2%Cu**	20.00	87.00	67.00	0.63
BKM32660-02	**>0.2%Cu**	30.00	62.00	32.00	0.41
BKM32700-01	**>0.2%Cu**	5.00	43.00	38.00	0.51
BKM32705-01	**>0.2%Cu**	19.00	22.00	3.00	0.33
	>0.2%Cu	47.00	50.00	3.00	0.37
	>0.2%Cu	54.00	84.00	30.00	0.59
BKM32750-01	**>0.2%Cu**	24.00	27.00	3.00	0.30

Drill Intercepts >6m and >0.2%Cu not domained and not adjacent to modelled domains					
Hole	**Intercept**	**From**	**To**	**Interval**	**Cu(%)**
BK036	**>0.2%Cu**	6.10	60.10	54.00	0.42
	>0.2%Cu	123.10	129.10	6.00	0.40
BK041	**>0.2%Cu**	111.40	117.40	6.00	0.96
BK044-02	**>0.2%Cu**	107.30	113.30	6.00	0.22
	>0.2%Cu	182.30	188.30	6.00	0.36
BK047	**>0.2%Cu**	108.30	114.30	6.00	0.40
	>0.2%Cu	162.30	168.30	6.00	1.00
BK048	**>0.2%Cu**	178.00	190.00	12.00	0.27
	>0.2%Cu	271.00	277.00	6.00	0.79
BK049	**>0.2%Cu**	274.00	280.00	6.00	0.45
BK050	**>0.2%Cu**	203.30	209.30	6.00	0.43
BK051	**>0.2%Cu**	83.60	95.60	12.00	0.25
	>0.2%Cu	188.60	194.60	6.00	0.28
BK052	**>0.2%Cu**	91.30	103.30	12.00	0.28
	>0.2%Cu	193.30	199.30	6.00	0.28
BK055	**>0.2%Cu**	194.00	200.00	6.00	1.05
BK056	**>0.2%Cu**	47.70	53.70	6.00	0.33
	>0.2%Cu	155.70	161.70	6.00	0.53
BK058	**>0.2%Cu**	56.70	62.70	6.00	0.28
	>0.2%Cu	104.70	125.70	21.00	0.50
BK-1	**>0.2%Cu**	*111.50*	117.50	6.00	0.31
BK-11	**>0.2%Cu**	0.00	6.00	6.00	1.97
	incl. >1.0%Cu	0.00	6.00	6.00	1.97
	>0.2%Cu	99.00	114.00	15.00	0.32
BK-12	**>0.2%Cu**	43.10	49.10	6.00	1.13
BK-15	**>0.2%Cu**	6.00	42.00	36.00	0.55
BK-18	**>0.2%Cu**	89.80	119.80	30.00	0.31
BK-5	**>0.2%Cu**	99.00	105.00	6.00	1.89
BKD01-01	**>0.2%Cu**	311.40	320.40	9.00	0.25
BKD02-01	**>0.2%Cu**	204.00	213.00	9.00	0.51
BKD02-02	**>0.2%Cu**	202.00	214.00	12.00	0.49
BKD03-02	**>0.2%Cu**	181.00	187.00	6.00	0.30
	>0.2%Cu	379.00	385.00	6.00	0.62
BKD04-01	**>0.2%Cu**	430.80	436.80	6.00	0.33
	>0.2%Cu	607.80	613.80	6.00	0.26
BKZ-3	**>0.2%Cu**	95.95	105.95	10.00	0.49
KBK-0023	**>0.2%Cu**	178.00	184.00	6.00	0.26
	>0.2%Cu	250.00	256.00	6.00	0.89
KBK-0024	**>0.2%Cu**	102.00	126.00	24.00	0.64
KBK-0025	**>0.2%Cu**	111.00	117.00	6.00	0.52
KBK-0026	**>0.2%Cu**	6.00	12.00	6.00	0.26
KBK-0028	**>0.2%Cu**	12.00	27.00	15.00	0.66
	>0.2%Cu	57.00	63.00	6.00	0.20
LZ02-01	**>0.2%Cu**	89.40	95.40	6.00	0.58

Appendix 8 H&A site visit report

Report on H&A Site Trip 2nd to 3rd September 2014

Duncan Hackman of H&A undertook a site visit to Beruang Kanan as required to be conducted by the Qualified Person responsible for work reported under the auspices of the Canadian National Instrument 43-101.

The primary reason for visiting the prospect and core shed was to locate and confirm evidence of exploration activities reported by KSK and their JV partners and to observe and confirm copper mineralisation in core and outcrop.

H&A did not uncover any reason to question the exploration activities undertaken in exploring and evaluating the Beruang Kanan prospect nor to question the presence of copper mineralisation of the tenor and styles reported by KSK.

Key observations and comments from this visit are:

Beruang Kanan Site

Access

- Access to BKM is logistically simple. Flights to Palangkaraya are readily available and arrive early enough in the morning to make site by mid-afternoon.
- Road access is good, being sealed for ~200km and then unsealed for a further ~130km north of Bangan Munggu along a well-maintained logging road that passes immediately north of the prospect.
- The trip can be made comfortably within 7hours.

Site camp

- Site camp comprises of six main wood buildings, now stripped of planks and boarding.
- The wood is still structurally sound, however this may not be the case for long as there are signs of rotting and insect attack.

Geological, Mineralisation and Operation Observations

- Main traverse from camp to the west up main ridge to top helipad then over western side into "Acid Creek" and return. Two subordinate traverses to the south of the ridge into area around and west of drillhole BK-08.
- Evidence of exploration activities:
    - 6 drill hole collars located and four of these checked by GPS to confirm their recorded coordinates. Checked holes:
        - BK-8 (drilled westerly at ~-65degrees):

        - 9932307N; 769011E (within 8m of Data Base record)
    - BK044 (drilled westerly at ~-60degees):
        - 9932344N; 768948E (within 6m of Data Base record)
    - BK030 (drilled westerly at ~-60degees):
        - 9932342N; 768782E (within 4m of Data Base record)
    - BK-14 (drilled westerly at ~-65degees):
        - 9932334N; 768413E (within 7m of Data Base record)
- The collar records for these holes are considered to be of sufficient accuracy for any resources on which they are based to be considered for Inferred Classification under the Canadian NI 43-101.
    - Drillers supply building at lower helipad shows worn and discarded drilling equipment, a white board with operational and hole drilling notes.
    - Drill pads and sites show ample evidence of drilling activity.
    - Discarded drilling supplies observed at pads and at laydown spots along walk trails
    - Hand-dug wide cuttings through steep ridge crest at top of main ridge created to assist in man-portable rig shifts.
    - Numerous hand held core saw channel cuts observed in creek outcrop
    - Seedling planter packs observed at laydown site on main track.
- Original geological lithologies are difficult to determine in the highly altered and weathered outcrop. Fine grained tuffs and felsic crystal tuffs were observed.
- No copper mineralisation or oxidised/weathered evidence of primary copper mineralisation was observed. This is not unexpected given the tenor of mineralisation at the prospect, the high rainfall in the area and acidity of the water draining the project area. H&A would expect that any Cu mineralisation would be readily attacked by the acid waters and carried in solution from the prospect. Precipitation of Cu from solution would require a suitable geochemical trap and/or sufficient mixing of stream water to reduce its acidity, initiating the precipitation of copper oxides at some distance from the prospect.
- Massive and disseminated pyrite, silica pyrite flooding/alteration and quartz pyrite veining were the only styles of alteration observed. Significant acid leaching and oxidation of pyrite observed. Acid leaching of outcrop prevalent and FeO staining ubiquitous.

Photos:

Photo 1: Massive pyrite and silica alteration to the west of BK035. Similar to alteration observed in drill core.

Photo 2: Seedling planter containers for reforestation of disturbed ground.

Photo 3: Drill pad and preserved collar for hole BK035.

Photo 4: Quartz vein with cast following leaching of pyrite. Association and texture similar to veins observed in core.

Photo 5: Channel sampling in gully outcrop.

Core Yard

The following holes were viewed at the KSK Tangkiling core treatment and storage facility:

- BK057, BK058, BK032, BK046, BK044-1, BK044-2, BK029
- Mineralisation was observed in all holes
- Extensive Cu weathering product(s) (possibly brochantite) were noted coating fractures, veins and other original Cu mineralisation locations.
- Mineralisation is hypogene and mid to late stage wrt alteration and veining
- Mineralisation consists primarily of covellite/chalcocite overprinting (disease) of silica-vein and fracture hosted pyrite.
- Two main settings of mineralisation observed:
  - Veining, fracture fill and milled fragments within sheared, milled foliated super-saturated shear zone
  - Veining and fracture fill within veined and blocky tuffs
- Key Observations are tabulated below:

Mineralisation Setting	HOLE	From	To	Lithology	Alteration	Major Minerals	Vein Minerals	Structure	Core Observations	Plate No.
thrust/Shear	BK029-01	10	16.9	Volcanic Breccia	silicified argillic	Pyrite		crushed gouged	at 15m - covellite disease of fine py peripheral to massve py section of si-py vein in altered volc	1
	BK029-01	22.8	28.4	Volcanic Breccia	silicified argillic	Pyrite Covellite	qz py cl	crushed gouged	covellite occupies open space fill location	
	BK029-01	36.3	39.7	Volcanic Breccia	silicified argillic	Pyrite Covellite	qz py cl	crushed fractured	hypogene covellite with bleby py overprint - some covellite desease of py too	2
	BK029-01	39.7	44.1	Volcanic Breccia	silicified argillic	Pyrite Covellite	qz py cl	crushed fractured	gouge lineation/foliation ~90 to core axis	
	BK029-01	52.5	56.1	Volcanic Breccia	silicified argillic	Pyrite Covellite	qz py cl	fractured	green staining of massive py vein in qz. Advanced argillic alt is strongly breccieated/foliated/faulted.	
	BK029-01	76.35	80.7	Volcanic Breccia	silicified argillic	Pyrite Covellite	qz py cl	fractured	Covellite/Chacocite diseased py along edge of py shear veinlet	
	BK029-01	85.05	89.35	Volcanic Breccia	silicified argillic	Pyrite Covellite	qz gp py cv cp	fractured	at 90m true disease of py by covellite - late gypsum veinlet	3
	BK032-01	11.05	15	Tuff	silicified argillic	Pyrite Chalcocite	qz py cv cc gp cp	fractured	foliated sheared - techtonic brecciated intensley altered - py has v v weak rimming of ??chalcocite	
	BK032-01	25.5	29.35	Tuff	silicified argillic	Pyrite Chalcocite	qz py cv cc gp cp	blocky brecciated	shear banded	4
blocky/crack-seal veins	BK044-01	10.3	13.75	Lapilli Tuff	silicified argillic	Pyrite Covellite	py qz cv cp	fractured	Covellite in irregular fracures and vein plus minus qz	5
	BK044-01	52.65	57.05	Tuff	silicified argillic	Pyrite Covellite	py qz cv cp	fractured	massive py component in qz vn.	
	BK044-01	57.05	61.5	Tuff	silicified argillic	Pyrite Covellite	py qz cv cl cp	blocky veined	cu staining of pyrite - high fluid veins - qz has diffuse replacement contacts with ?tuff	
	BK044-02	16.9	20.4	Tuff	silicified	Pyrite Covellite	py qz cv	fractured veined	py and cu in fracture veins and veinlets - crack-seal veins- 2 phases of veining evident	
	BK046-01	22	25.3	Lapilli Tuff	silicified	Pyrite Chalcopyrite	py qz cp cv	fractured veined	anastomosing sructual veins	
	BK046-01	29.9	34.3	Lapilli Tuff	silicified argillic	Pyrite Chalcopyrite	py qz cp cv	fractured veined	multi injected vein - si-py	
	BK046-01	34.3	38.7	Lapilli Tuff	silicified argillic	Pyrite Chalcopyrite	py qz cp cv	fractured veined	cu staining in veined py (low quartz/silica component)	
	BK046-01	47.25	51.6	Lapilli Tuff	silicified argillic	Pyrite Chalcopyrite	py qz cp cv	fractured veined	Covellite in py-qz veins - no cpy	

Core photos:

Plate 1: BK029, 15m – Covellite disease of fine pyrite along vein margins. Strongly sheared/milled and foliated silica-clay altered rock

Plate 2: BK029, 39m – Covellite disease of fine pyrite along vein margins. A later blebby pyrite alteration event overprints covellite, evidence that Cu mineralisation replacing pyrite is from a hypogene event. Strongly sheared and foliated rock.

Plate 3: BK029, 90m – Covellite disease of massive pyrite.

Plate 4: BK032, 29m – Fluid saturated shear/tectonic breccia. Milled Si fragments and exfoliating and sheared py. Cu staining observed with covellite diseased fine or milled py.

Plate 5: BK044-01, 3m – Cu mineralisation in fracture controlled pyrite veinlets and Si-Py veins. Significant secondary brochantite formed when core exposed to air.

Plate 6: BK058, 18m – secondary brochantite formed along late fractures in blocky core.

Plate 7: BK057, 19m – silica-covellite vein fragment within fault gouge material.

Report on H&A Site Trip 21st to 28th June 2015

BKM Site Protocols review:

Specific Gravity

1. Always check the tool used for weight measurement every morning by measuring the same item all the time. Check if the weight is always the same.
2. Make sure water level in the bucket is constant.
3. For drill core that is not absorbing water, SG dry and wet are assumed to be the same value and measurement can be completed at BKM camp. The volume of the sample then also can be obtained.
4. For drill core that is absorbing water such as clay, SG measurement for wet condition can be done at BKM camp. Then that sample will be sent to Intertek to be dried.
5. To prove that SG dry and SG wet for non-porous rock are the same, a test need to be conducted:
   - Choose around 5-7 drill core of varied (non-porous) lithology
   - Soak them in the water for 3 days to get saturated
   - Put them in the oven and measure their weight every hours
   - If after 4-5 measurements the weight is stable, the test is succeed
6. For SG sample sent to Intertek, write calico number on SG sample bag where the SG sample put into. Example: SGK00287 / 121007
   -

Down-hole survey interval

1. Down-hole survey is done at 10.00 m, 30.00 m, 50.00 m, 70.00 m, and so on every 20.00m.

2. If the EOH is less than 10.00 m interval from last survey, then it is not necessary to do another survey.

Control for down-hole survey camera tool and compass.

1. Built a drill-hole replica at the camp using an one meter PVC pipe buried underground and secured with concrete.
2. Surveyor is requested to give an accurate azimuth and inclination of this replica.
3. Then down-hole survey tool must do reading every 2 days. Check if the reading is constant and also compare the result with the surveyor's. Record them on a table.
4. Check every compass used for drill site set up. By doing this, each compass reading deviation (if any) can be recognized by comparing to accurate azimuth/inclination done by surveyor.

Drilling and core logging

1. Do not wash the core at the drill site; it may wash away any minerals.
2. Mark unnatural break of drill core at the drill site.
3. During core logging, differentiate type/style of veins observed on each sampling interval. Vein logging will also include their mineral content, number, percentage, and a number of vein that have <20^{o} angle to core axis.

Sampling

1. Try to keep mineralized interval sampled in one bag, separated to barren zone.
2. Put Blank Pulp, Blank Coarse, and Duplicate Sample on the mineralization zone.
3. Be careful when scooping sample on loose material, avoid contamination between samples.

RQD

1. Geotechnician have to discuss with geologist for any observation they are not sure about.
2. On mineralization zone, geologist should make observation and give advice to geothechnician for internal core lost degree when is necessary.

Core Photo

1. Write azimuth and inclination of the drill hole on core photograph title board.
2. Upload wet full core photograph every night using drop box.

ITS Laboratory

Considerations and Divergence from Standard ITS Sample Preparation Procedures.

Duncan Hackman and Steven Hughes (DH, SH), accompanied by Robert Oliver (ITS) observed sample preparation and analytical charge weighing procedures on the 27th June 2015. DH and SH observed that the pulverizing setup was cluttered and that the sample rack and barren wash bin were not ideally located wrt the pulverizing workstations. DH and SH request that the work environment (layout) and physical-workflow be reviewed by ITS supervisors to better locate these items and workstation setup which will sure-up confidence in sample preparation quality assurance.

KSK requires the following actions to be incorporated into the ITS standard procedures for sample preparation.

- Only the Boyd Crusher to be used for reducing the samples to -2mm in size.
- Barren wash to be processed between each sample processed through the crusher and pulverizer.
- Flat bottomed and sided scoop to be used in collecting pulp from pulverized material. Ensure that the pulp pile is of even thickness (height) and that the scoop cuts entire pulp pile from top to bottom and edge to centre.
- Use pulp package that is capable of holding >>250g (eg 500g) and ensure that the 250g pulp material is not tightly packed into this satchel (allowing analytical charge to be selected from any portion of in the satchel).
- Both the -2mm and -75micron comminution test results to be reported with assay results.

ANALYTICAL

Element and method analytical techniques will be requested on sample dispatch advice forms. Any alteration or addition to the information on the dispatch forms must be approved by written (email) request/confirmation by Steven Hughes.

REPORTING

Digital SIF reports to include laboratory quality control assay results, -2mm and -75micron sizing results.

Site trip report 22-23 June 2016

Attendees:

Visitors:

- Duncan Hackman
- Steve Hughes
- Harry Vishnu

Site personnel:

- Yudhi Rinaldi
- Winoto
- Henry Agupitan

Travel to site – itinerary and observations:

- Flight from JAK to Palangkaraya leaves at 5.40am. Travel to airport commenced at Pondok Indah (south Jakarta) at 3.30am – at lounge ready for departure by 4.50am.
- Arrive Palangkaraya at 7.10am. Left immediately for site (7.30) in twin cab 4WD travelled nonstop and arrived site at 2.00pm.
- We passed 6 logging trucks, all transporting to the collection yard in the ranges on the way in and only one empty truck on the way out.
- Driver was alert and safe although on a few occasions I considered travelled too fast over short distances both on the sealed and unsealed sections of road. He slowed on his own accord and on one reminder so consider that these breaches were lapses in concentration rather than the norm (this fits with observations from previous trips to site). At one point, when travelling through a settlement, the driver's speed suggested that he did not consider the likelihood of a <5yr old child on the RHS of road darting to the LHS to re-join his family. Awareness of these situations requires improvement.
- Sections of the sealed road over swampy land (considerable kms) have settled and the road now presents as an uninterrupted sequence of humps and hollows that result in a rough ride. No heavy equipment was observed on the road so it is unknown if further and considerable damage will result from heavy vehicle activity.
- The most uneven section of unsealed road is in the foothills to the ranges where there appears to be a significant soil horizon and very little aggregate used on the road. This section will very likely become a quagmire in the wet if not upgraded and/or maintained. The logging company must keep on top of the maintenance as it is in relatively good shape and/or only transport logs to TB Manggu when the road allows them to do so (we passed no trucks going either in or out on this section of road).
- The road within the mountain range is mostly well covered with aggregate. Steep sections and log-structure bridges are obviously suited for the passage of heavy loads. Most gullies have been bridged without culverts and now dam the run-off water. Some dams are of considerable size. The risk of failure of these dams is a consideration in the reliability of access to site.

Core Yard:

- Tray receipt (were being transported by personnel – directed supervisors to use road as much as possible, which should be all core from the southern pit area):
    - Practices unchanged and undertaken with same diligence. Core is signed over from transporters to CY Staff, box details checked, depth metres marked on ridge/core dividers.
    - Core too tightly packed into trays by drillers as there is no room to get fingers in to lift out core and as core deteriorates (falls apart) it expands and bulges out of tray which would make racking the core trays impossible. Advised supervisors that must ensure that drillers leave 5-10cm free at end of each core tray channel (5cm in competent core and 10cm in fractured/broken core).
    - Supervisors reminded to continue with procedure of preserving core block information by attaching/stapling a scribed aluminium tag to the blocks before trays are transported off site.
- Logging:
    - RQD/recovery logging observed and approved.
    - Lith and mineralisation logging observed and approved.
    - Material type logging observed and discussion/training undertaken esp on MAT types 1, 2, 3 and 5 which were laid out on racks. The type sample board was being updated with examples of representative material types.
    - Collection of alpha, beta and gamma angles was discussed and procedures relayed to supervisors. Key issues to address in implementation of this work:
        - Implementation of Ori tool QC procedure.
        - Training of drillers in preserving the BOH position and then marking the core with BOH line while still in split (before transfer to core tray).
        - Update of logging sheet and codes to fit BKM requirements.
        - Purchase of additional ezy-logger tool.
        - Protocols and training example required.
- SG:
    - Utilising 2015 protocols and setup – though moved to new location the setup is stable and is being operated correctly.
- Photography:
    - Photography setup significantly improved with automatic capture to file from SLR camera in overhead fixed jig. Background lights extinguished before flash/photo operates/taken.
    - Dry, wet and markup photos taken before cutting and dry, wet photos taken following cutting and sampling. Photo quality is very good however disseminated pyrite is difficult to determine in the photos unless crystals are clustered. Flash reflection minimum and only at edge of photos (suspect that could be eliminated with use of double flashes and reflection shields and this setup may assist in visualization of pyrite crystals).

- Photo naming convention from 2015 followed and automatically generated in Core Recovery log.

- Cutting:
  - Conducted as in 2015 where fractured core is wrapped in cling wrap before core sawing. Cutting line determined by senior field technician. No issue with this as even though there is a fabric in the lithology the copper veining is overall randomly distributed and of no set orientation wrt core axis.
  - Informed supervisors that they need to address the fumes issue within the core saw shed.
- Sampling:
  - Undertaken according to 2015 protocols and diligently.
  - Have informed supervisors that there will be additional requirements in handling the standards when the matrix matched satchels arrive in early July.
  - Procedure for standards was discussed and relayed to supervisors.
- Dispatching:
  - As per 2015.
- Assaying:
  - As per 2015 (initial ME assays by 3acid digest, then select samples for Seq Sol Cu).
- Data management:
  - Although not ideal, logging is still into excel spreadsheets and transfer of logging, photos etc. via drop box. Cross validation which is undertaken on separate data sets compiled by H&A and Harry Vishnu adds confidence to the final data used in the resource evaluation. Project budgeting issues are the only reason that data collection and management as not been addressed.
- Metallurgical core sampling:
  - Methodology discussed and procedures relayed to supervisors.
  - Key issues in implementing:
    - PQ and HQ sampling differs
    - Lateritic clay to be included in PQ holes but not in HQ
    - No depth <3m to be sampled (quarantine issues in Australia)
    - Comminution pieces to be selected before entire PQ intervals can be sampled.
    - Protocol document required.

Drill Sites:

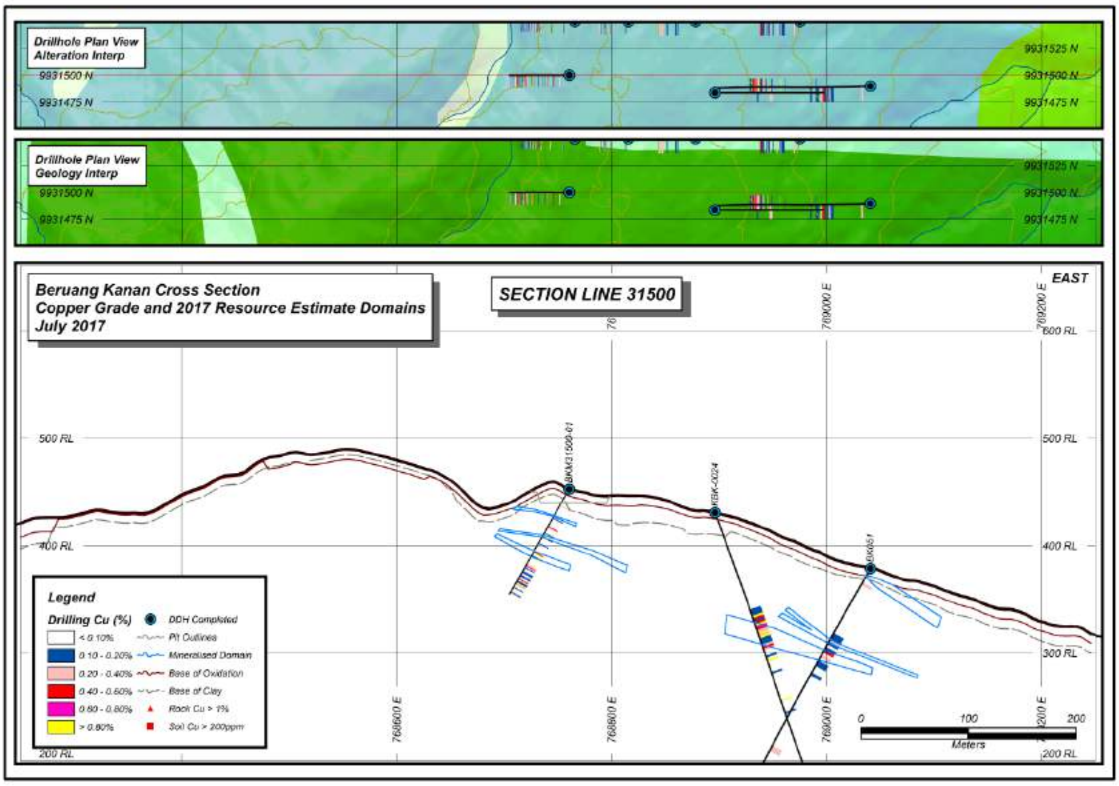
- Can be moved within 5m any direction for safety and or tree preservation issues and adjustments can be picked up using compass and tape procedures.
- Drillers to check BOH orientation tools at the beginning of each hole to confirm that tools have not been damaged and are correctly identifying the BOH position.

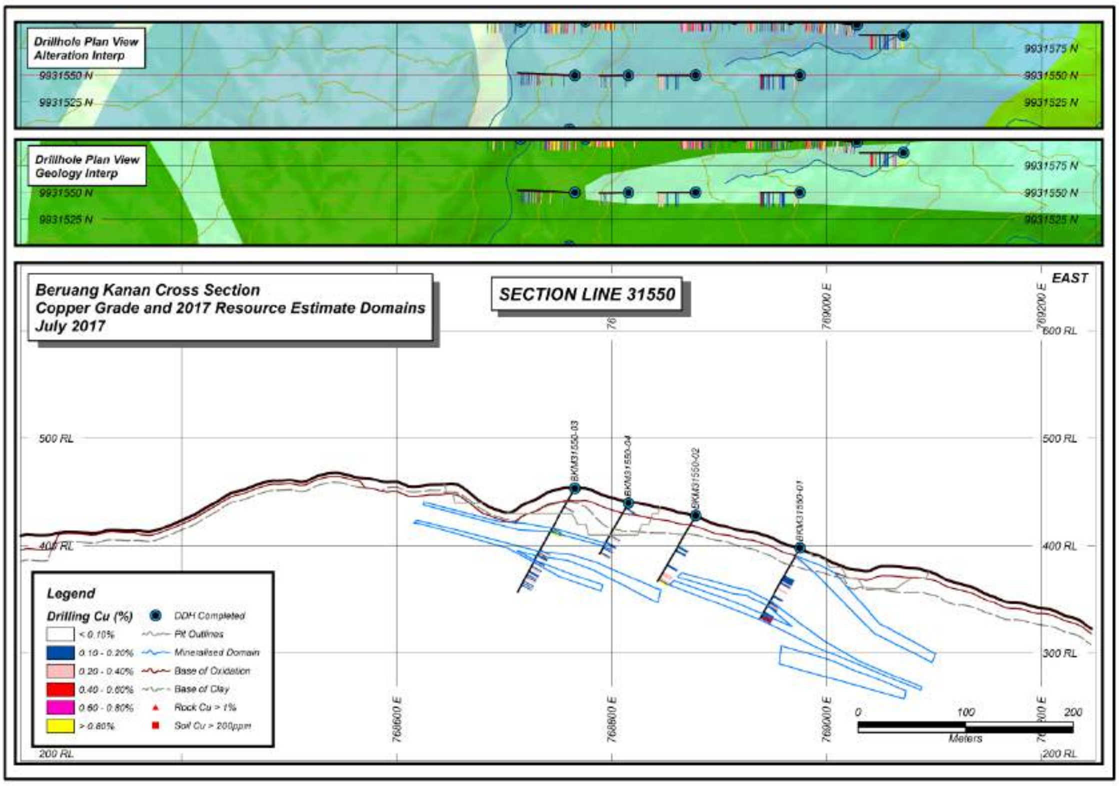
- Procedures for transferring BOH line to core relayed to Indodrill supervisor.

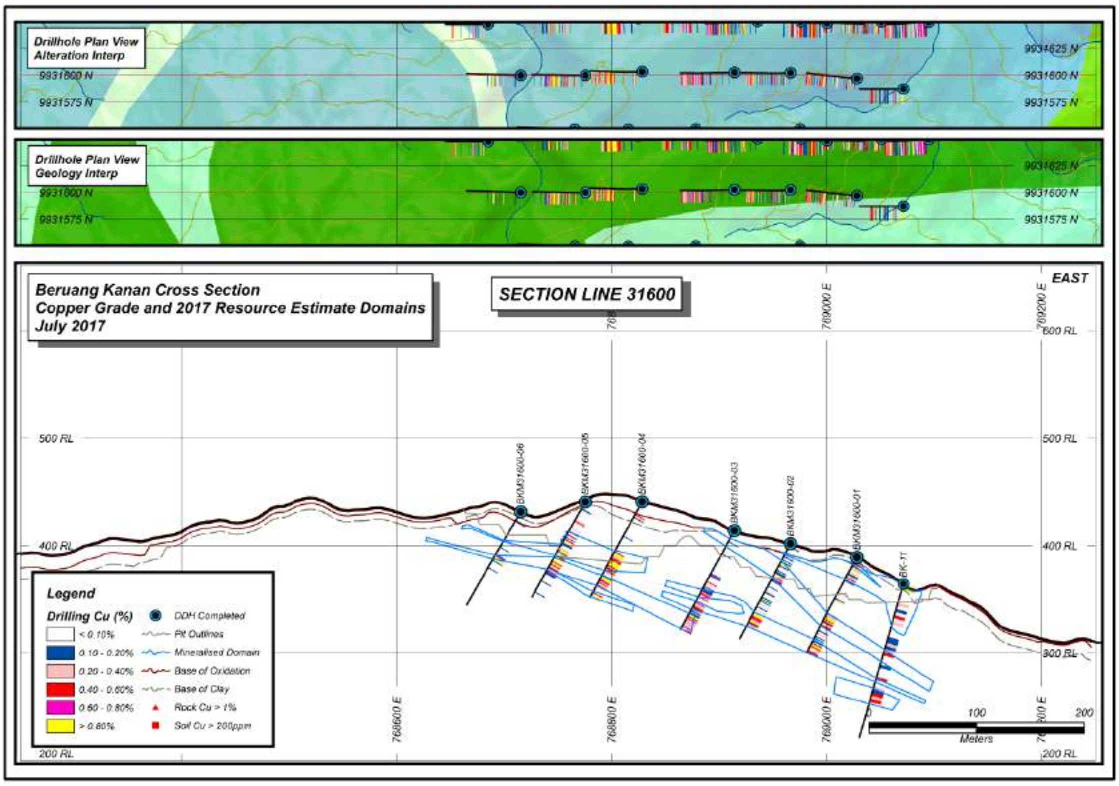
Compass and DH survey tool QC checks:

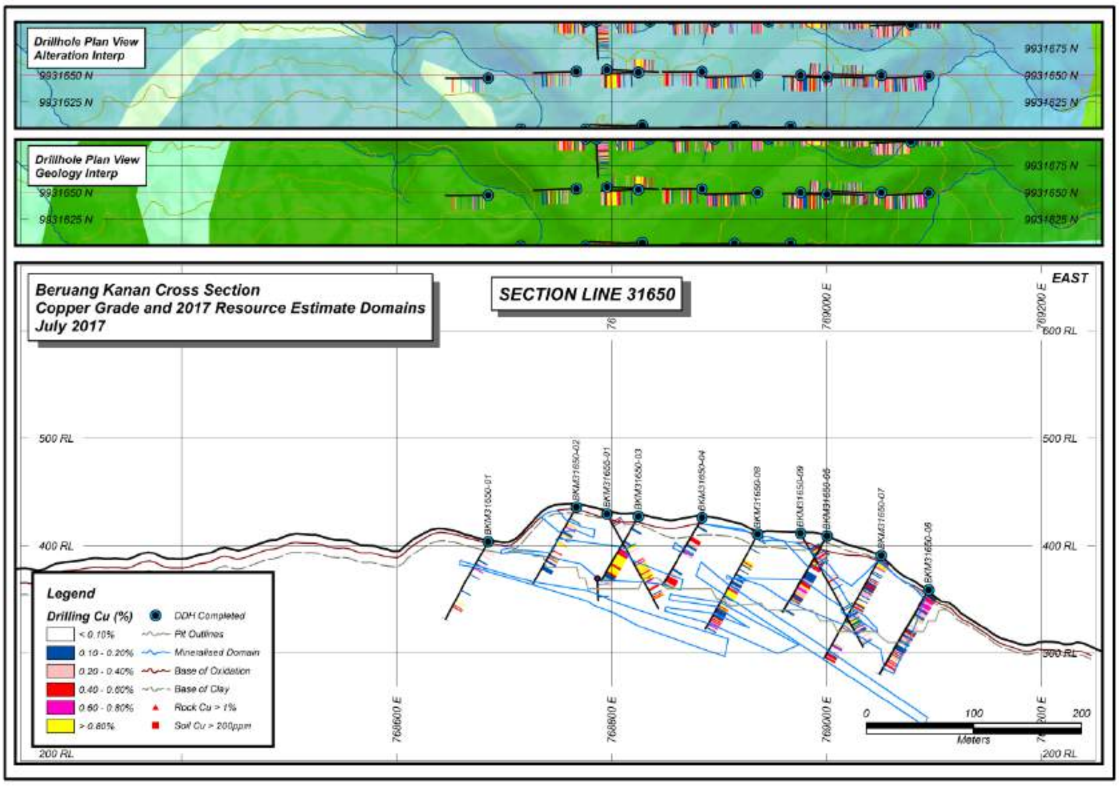
- Compasses used to site drill holes to be checked on "stonehenge" jig at regular weekly intervals
- Down hole survey camera to be checked at regular weekly intervals

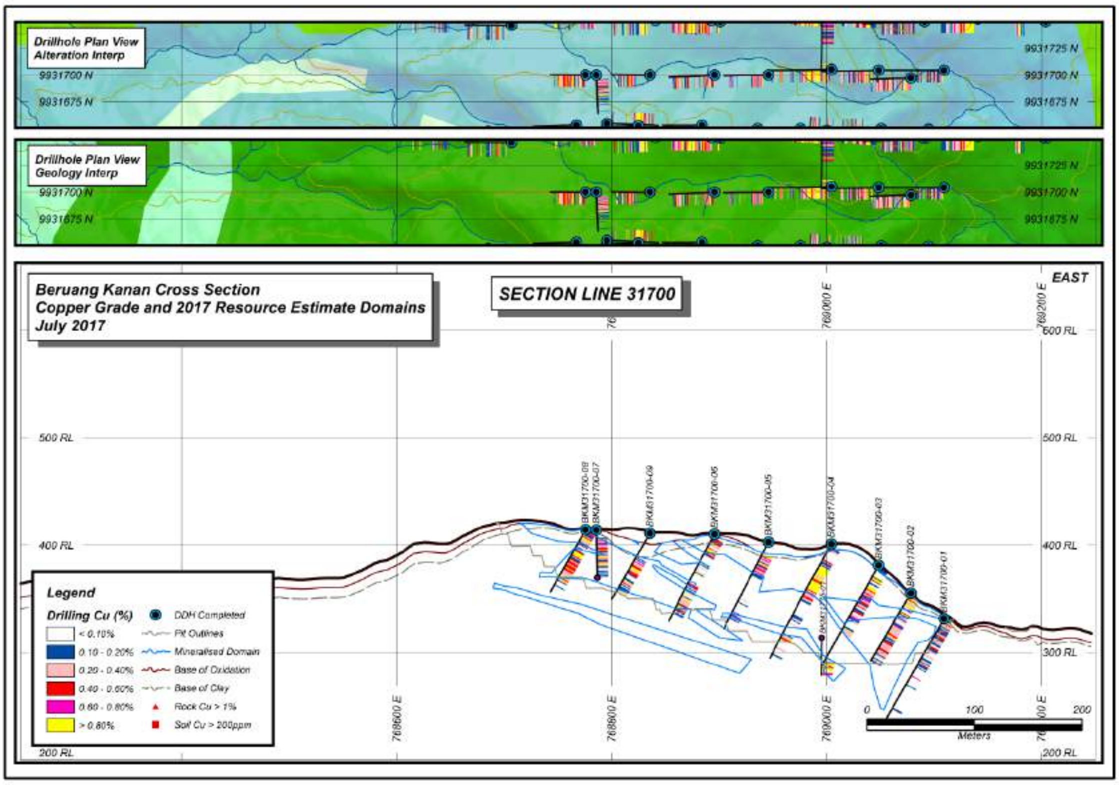
Appendix 9 Beruang Kanan Main Zone: Cross Sections

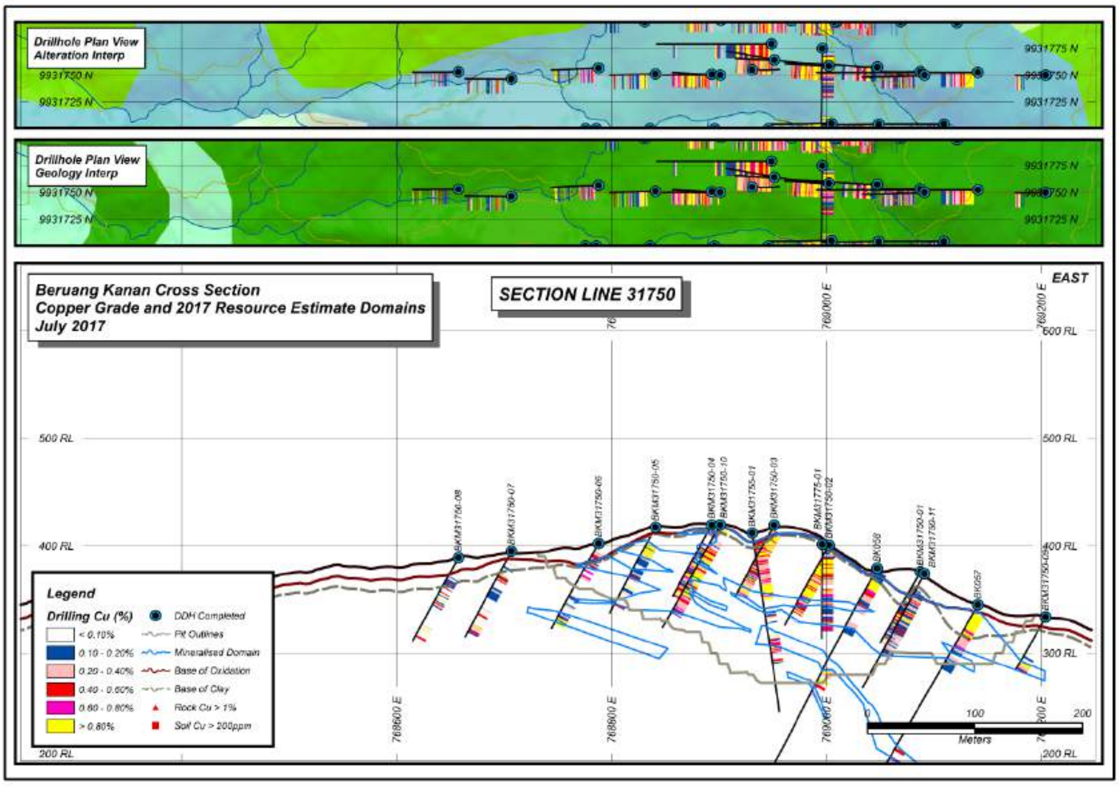


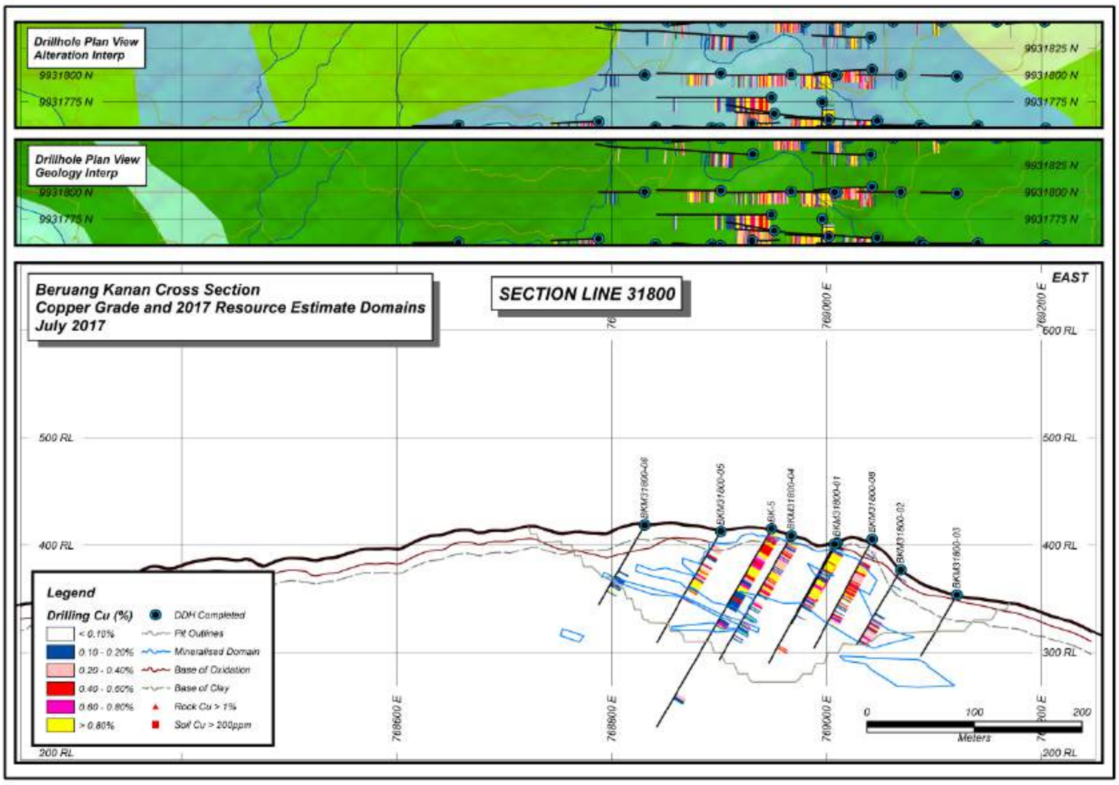


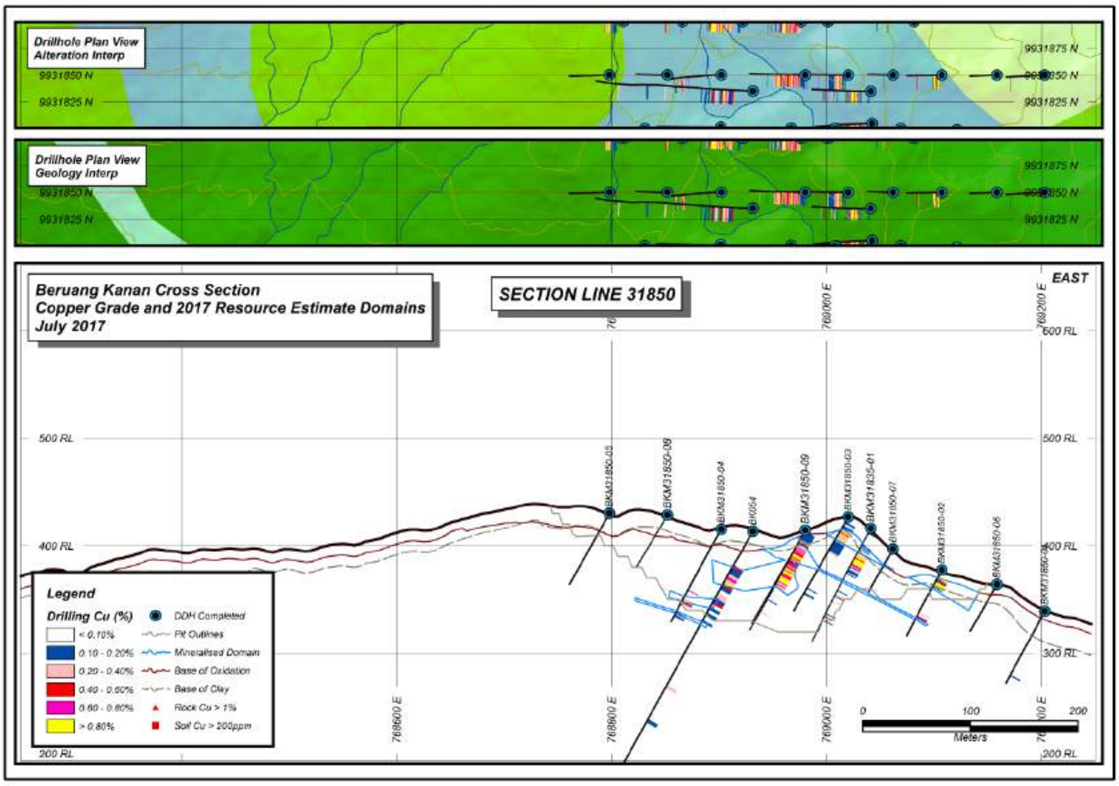

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 31600
EAST
Legend
Drilling Cu (%)
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Rock Cu > 1%
Soil Cu > 200ppm
Meters

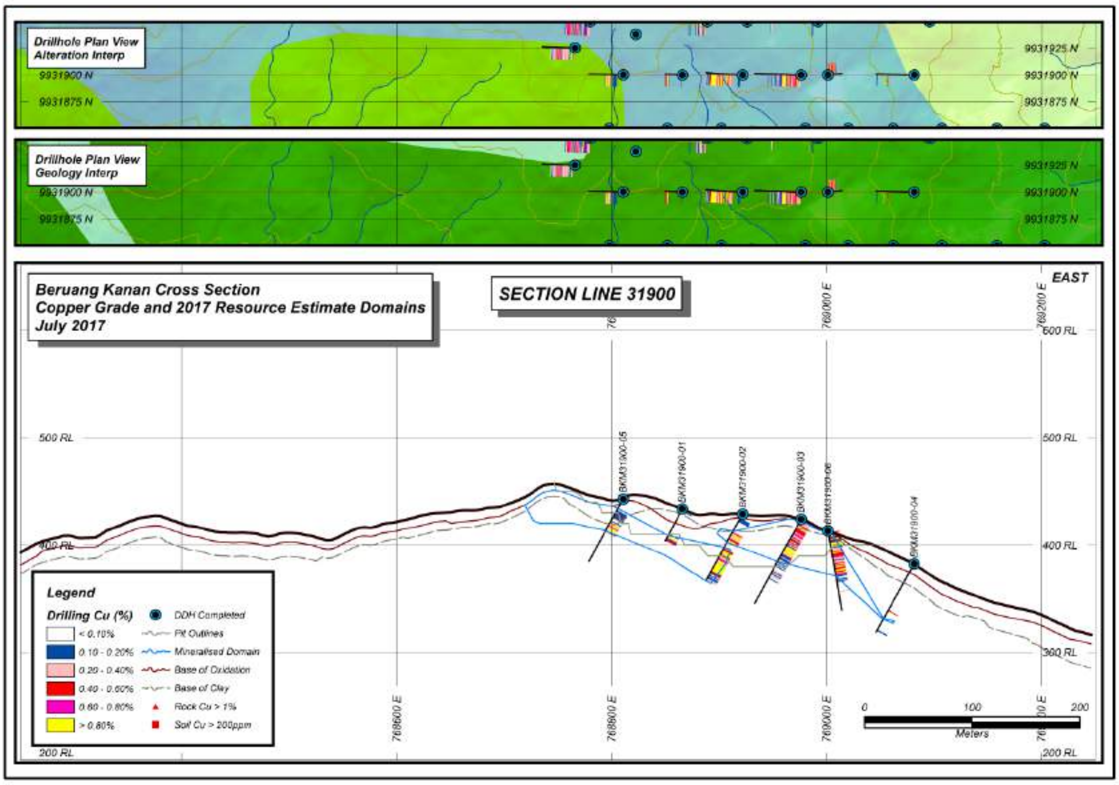

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 31650
EAST
Legend
Drilling Cu (%)
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Rock Cu > 1%
Soil Cu > 200ppm
Meters

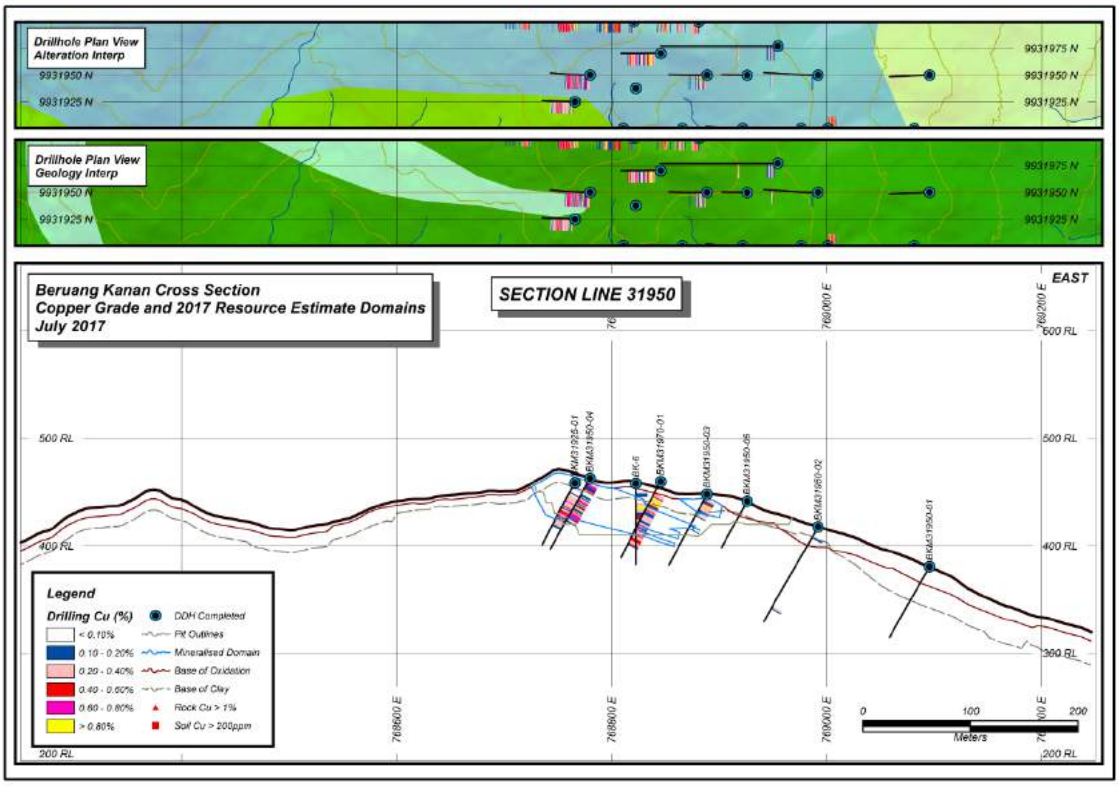

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 31700
EAST
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Rock Cu > 1%
Soil Cu > 200ppm
Meters

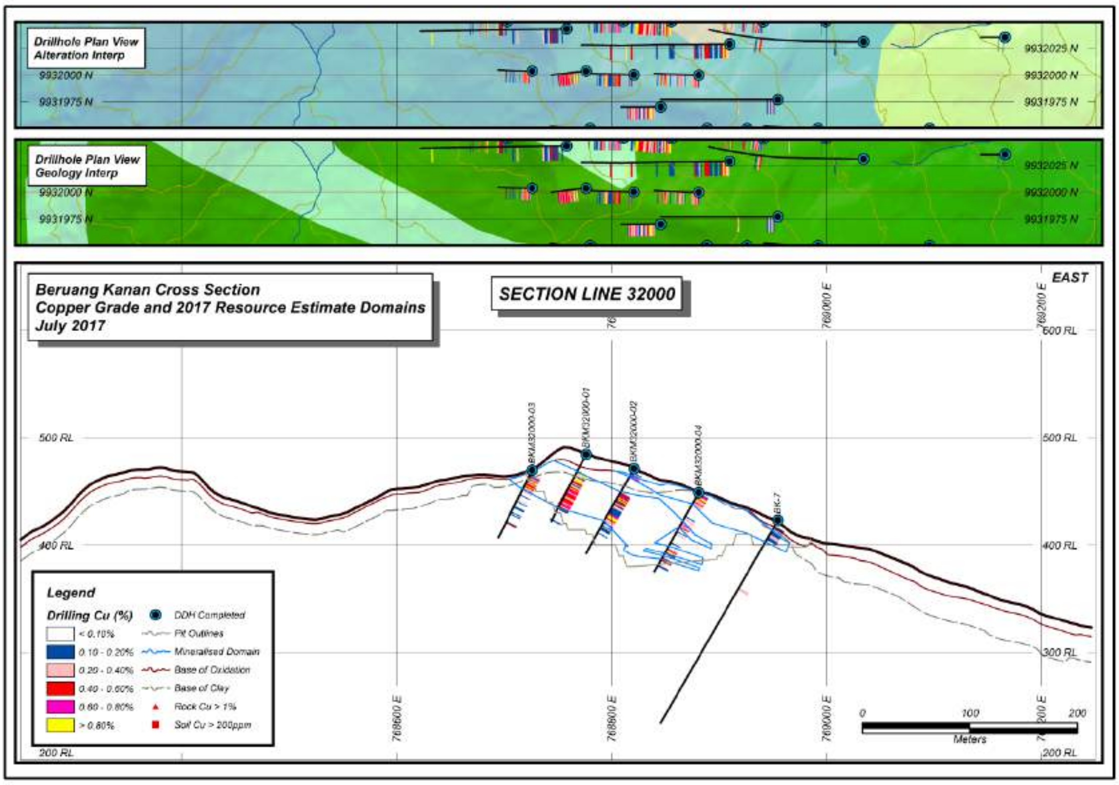

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 31750
EAST
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Rock Cu > 1%
Soil Cu > 200ppm
Meters

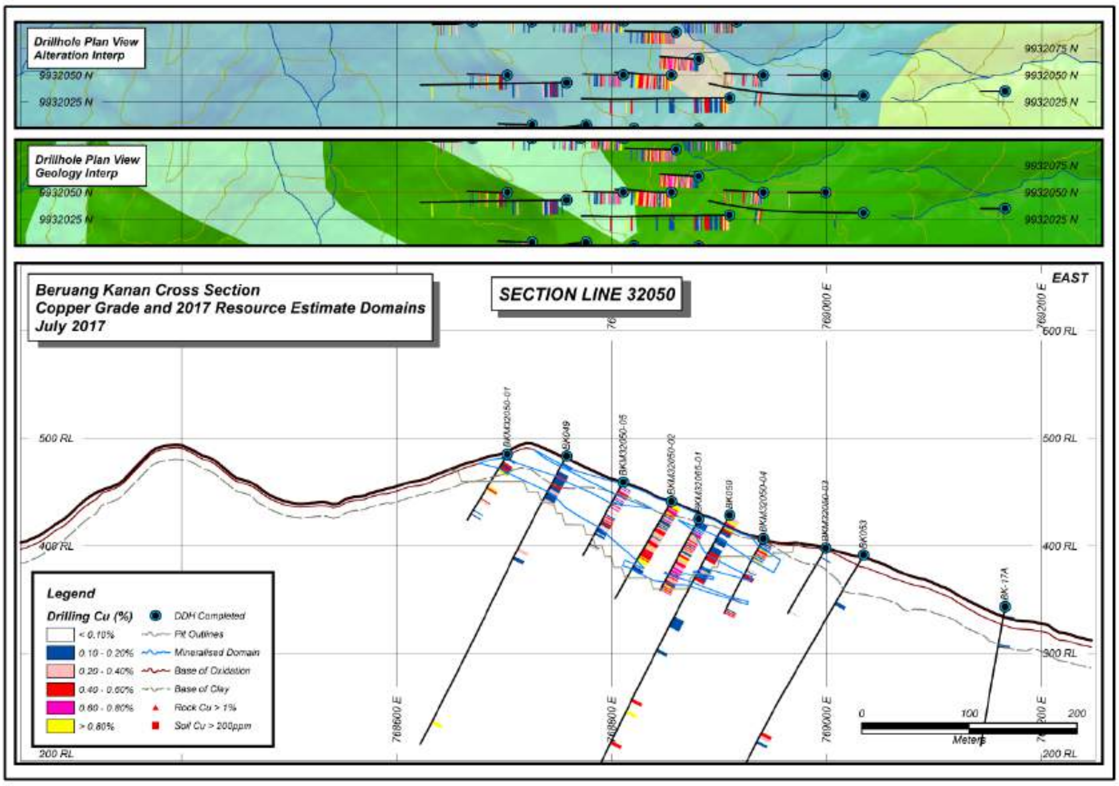

Drillhole Plan View
Alteration Interp
9931825 N
9931800 N
9931775 N
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 31800
EAST
769000 E
769200 E
600 RL
500 RL
400 RL
300 RL
200 RL
BKM31800-06
BKM31800-05
BK-5
BKM31800-04
BKM31800-01
BKM31800-08
BKM31800-02
BKM31800-03
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Rock Cu > 1%
Soil Cu > 200ppm
768600 E
768800 E
0
100
200
Meters

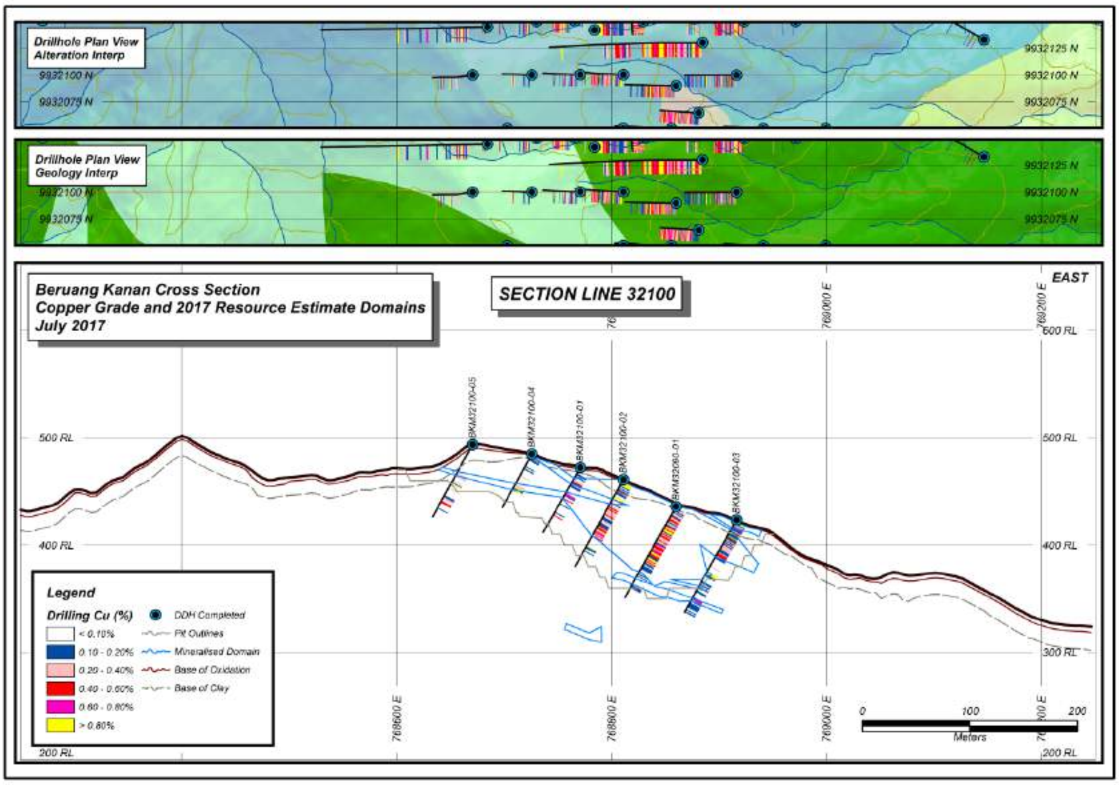

Drillhole Plan View
Alteration Interp
9931875 N
9931850 N
9931825 N
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 31850
EAST
769000 E
769200 E
600 RL
500 RL
400 RL
300 RL
200 RL
BKM31850-05
BKM31850-09
BKM31850-04
BK054
BKM31850-09
BKM31850-03
BKM31835-01
BKM31850-07
BKM31850-02
BKM31850-06
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Rock Cu > 1%
Soil Cu > 200ppm
768600 E
768800 E
0
100
200
Meters

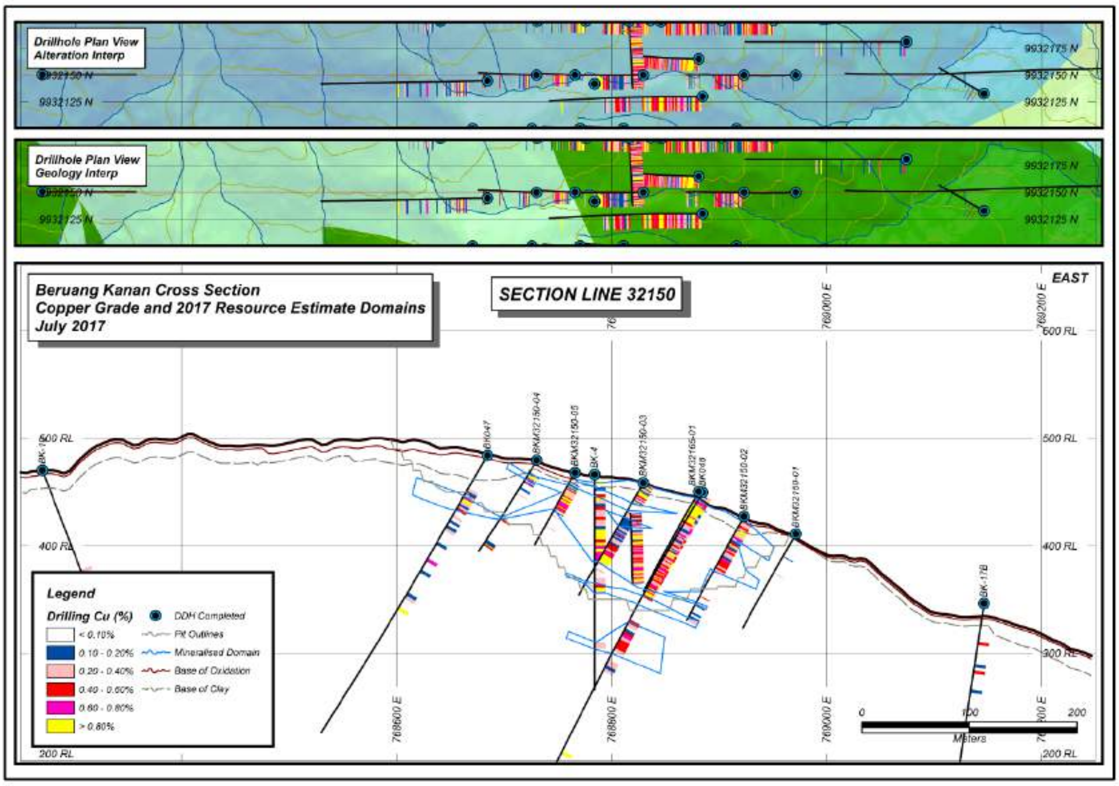

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 31900
EAST
500 RL
400 RL
300 RL
200 RL
600 RL
768600 E
768800 E
769000 E
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Rock Cu > 1%
Soil Cu > 200ppm
0
100
200
Meters

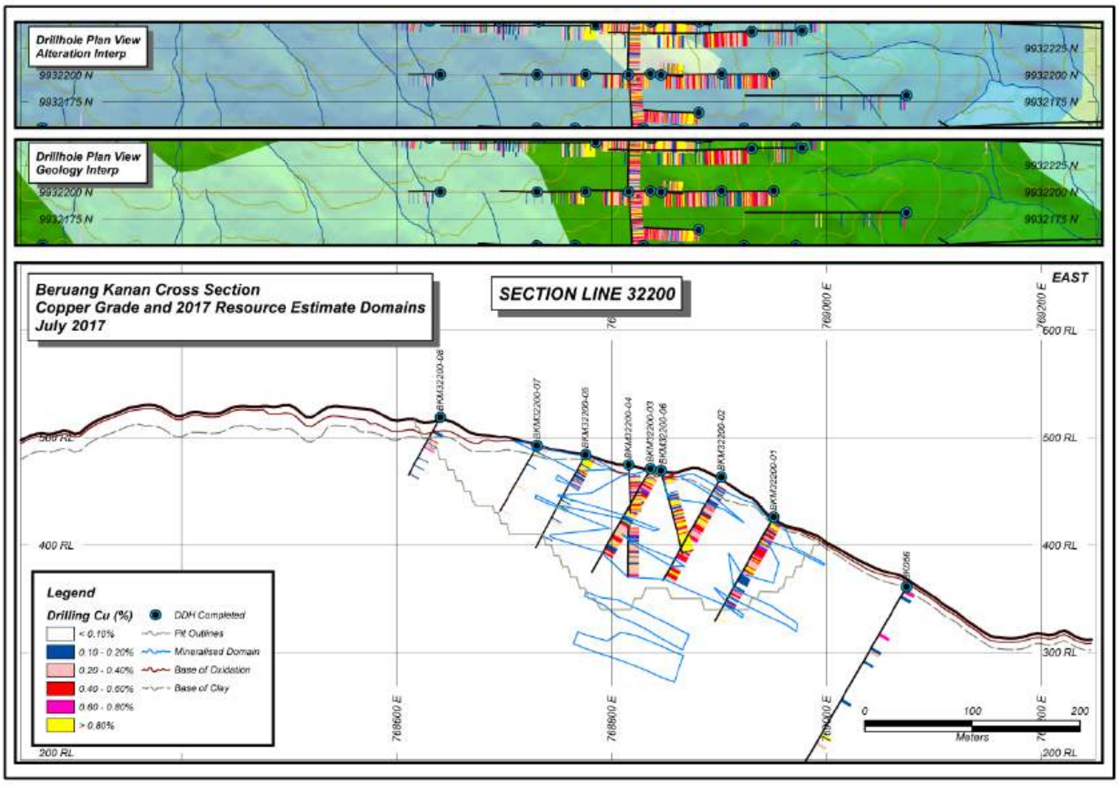

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 31950
EAST
500 RL
400 RL
300 RL
200 RL
600 RL
768600 E
768800 E
769000 E
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Rock Cu > 1%
Soil Cu > 200ppm
0
100
200
Meters

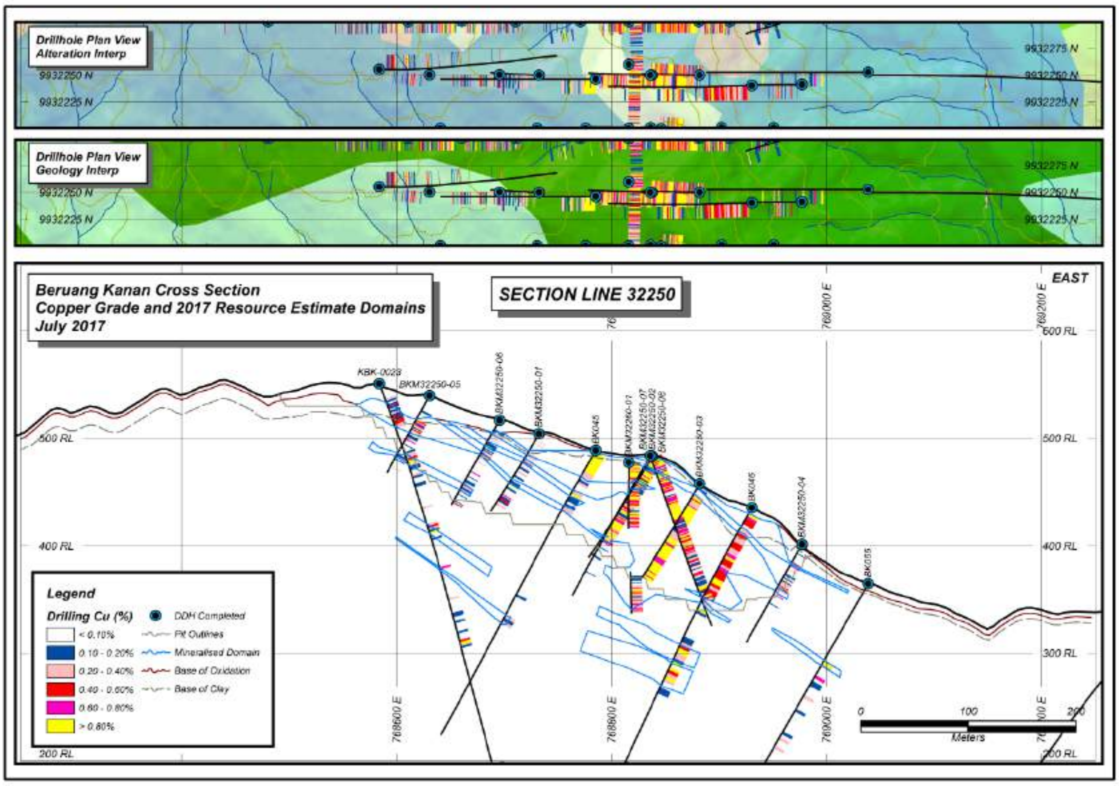

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32000
EAST
500 RL
400 RL
300 RL
200 RL
600 RL
768600 E
768800 E
769000 E
769200 E
BKM32000-03
BKM32000-01
BKM32000-02
BKM32000-04
BK-7
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Rock Cu > 1%
Soil Cu > 200ppm
0
100
200
Meters

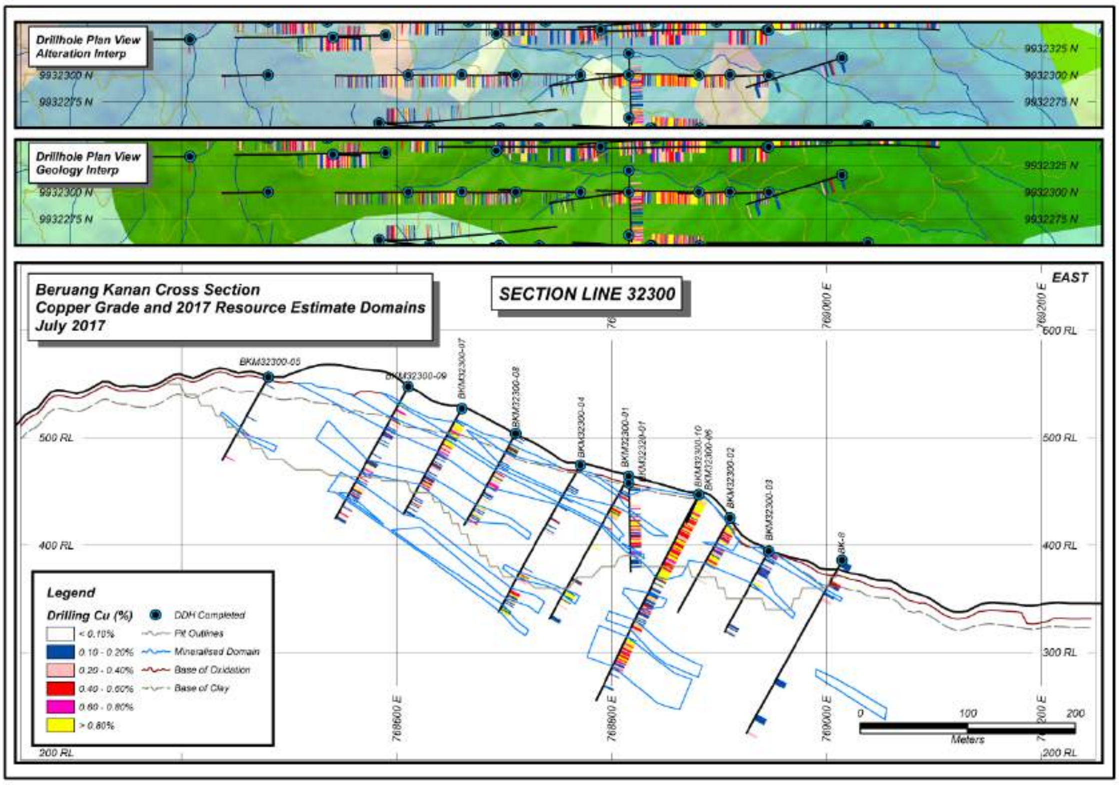

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32050
EAST
500 RL
400 RL
300 RL
200 RL
600 RL
768600 E
768800 E
769000 E
769200 E
BKM32050-01
BK049
BKM32050-05
BKM32050-02
BKM32065-01
BK059
BKM32050-04
BK053
BK-17A
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Rock Cu > 1%
Soil Cu > 200ppm
0
100
200
Meters

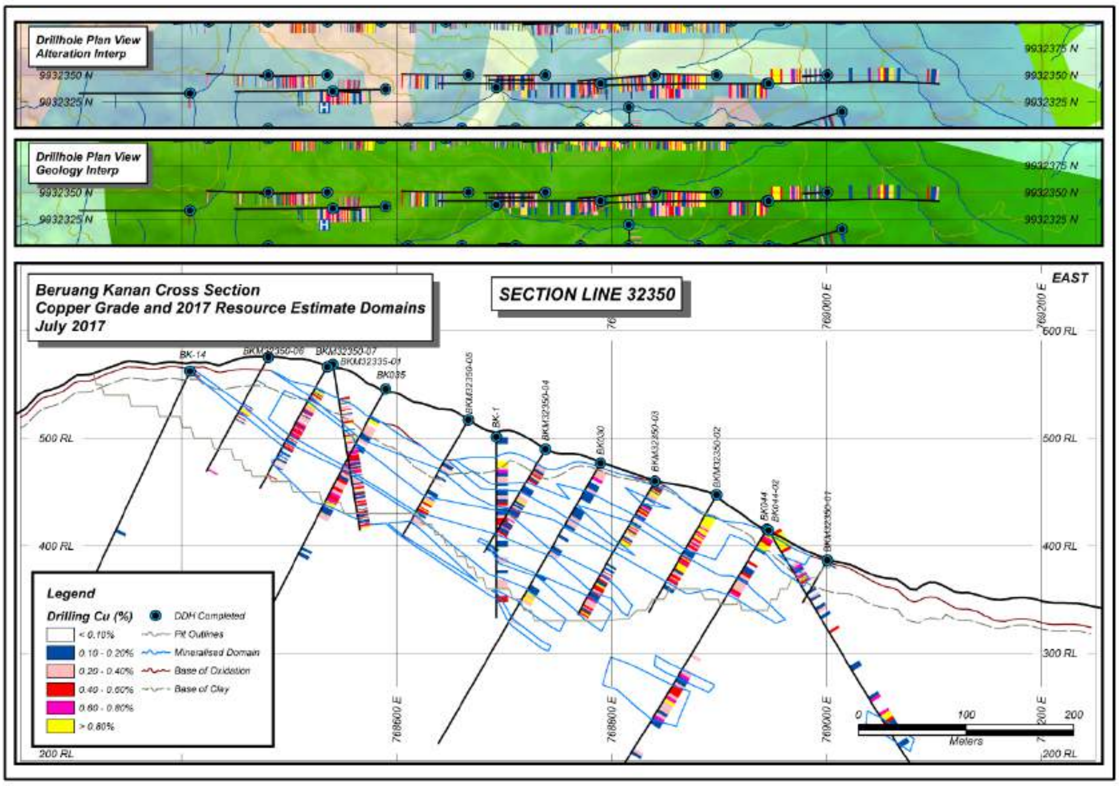

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32100
EAST
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Meters

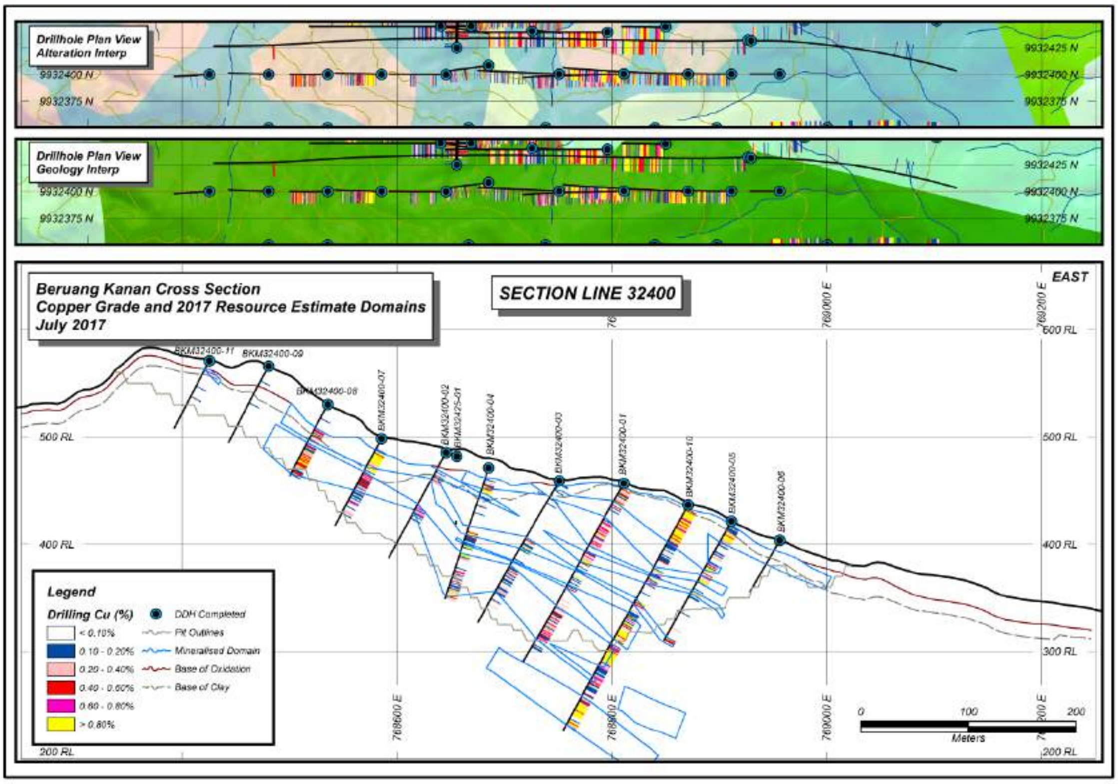

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32150
EAST
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Meters

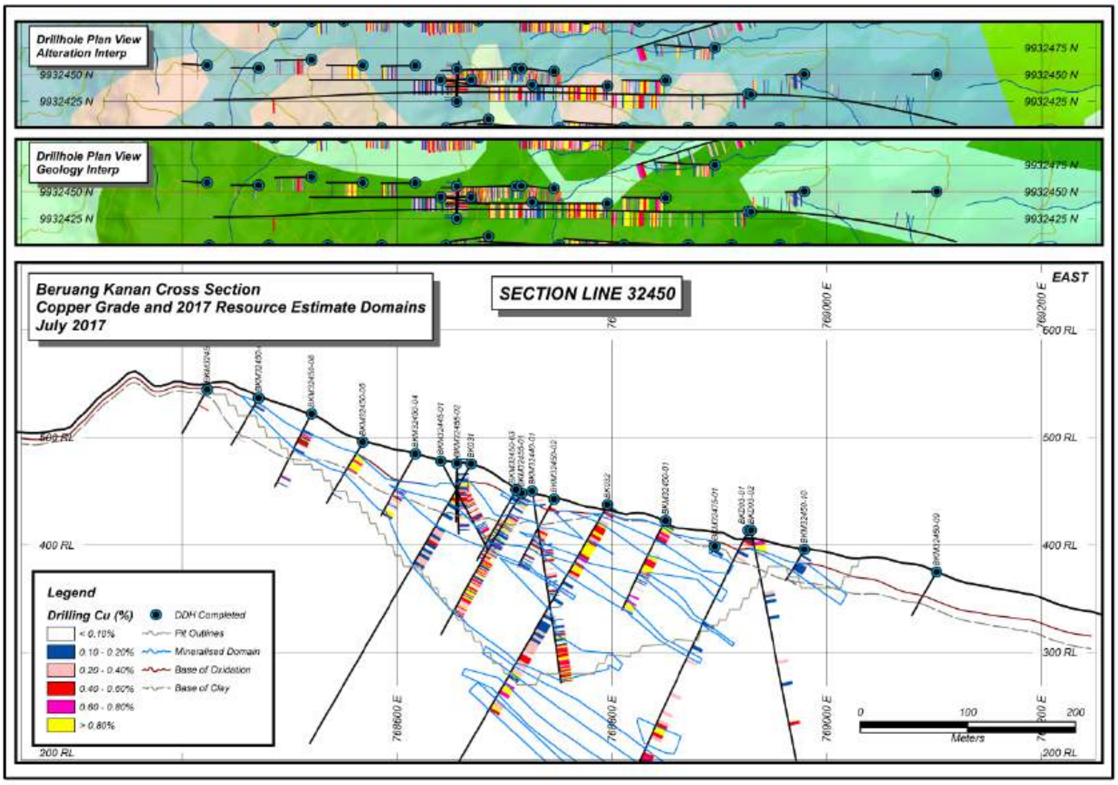

Drillhole Plan View
Alteration Interp
9932225 N
9932200 N
9932175 N
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32200
EAST
768600 E
768800 E
769000 E
600 RL
500 RL
400 RL
300 RL
200 RL
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
0
100
200
Meters


Drillhole Plan View
Alteration Interp
9932275 N
9932250 N
9932225 N
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32250
EAST
KBK-0023
BKM32250-05
768600 E
768800 E
769000 E
600 RL
500 RL
400 RL
300 RL
200 RL
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
0
100
Meters

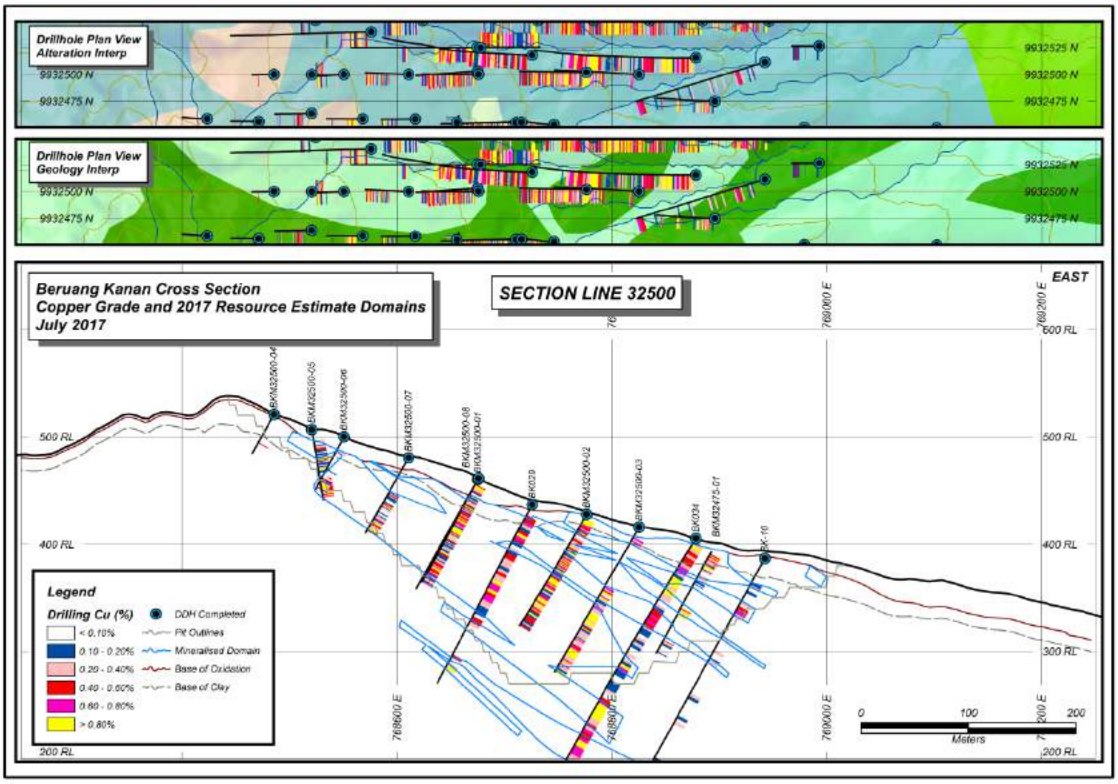

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32300
EAST
Legend
Drilling Cu (%)
DDH Completed
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Meters

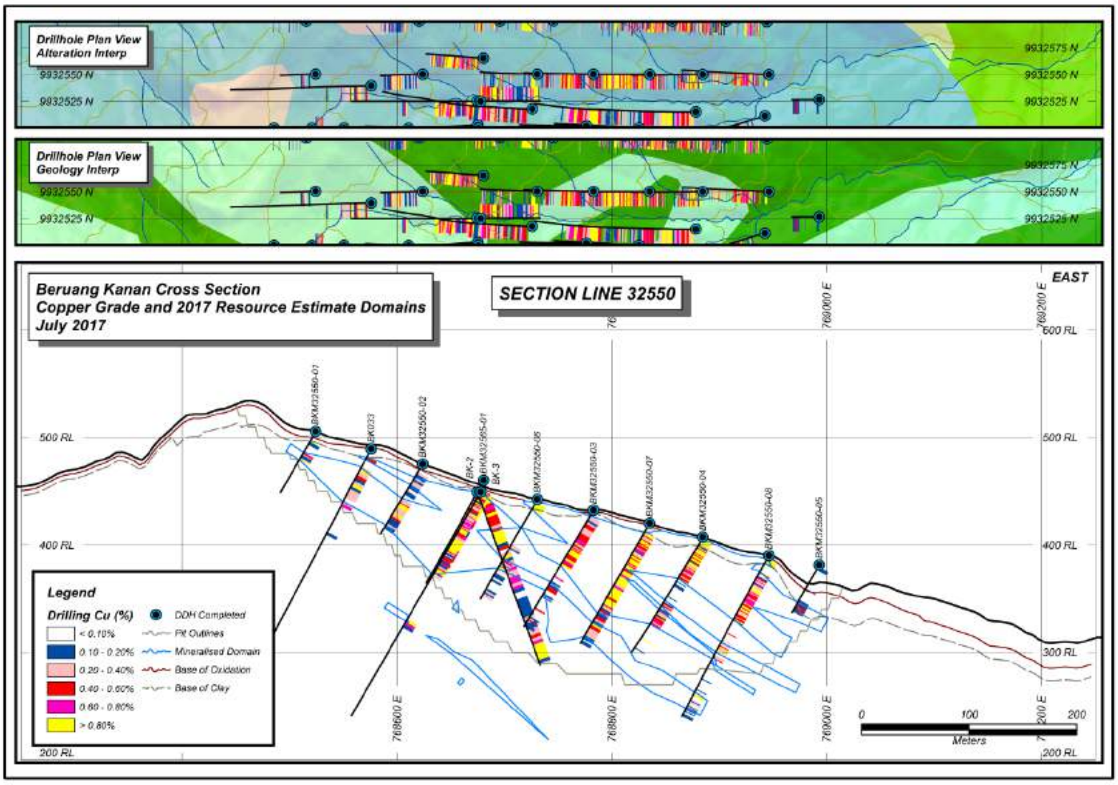

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32350
EAST
Legend
Drilling Cu (%)
DDH Completed
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Meters

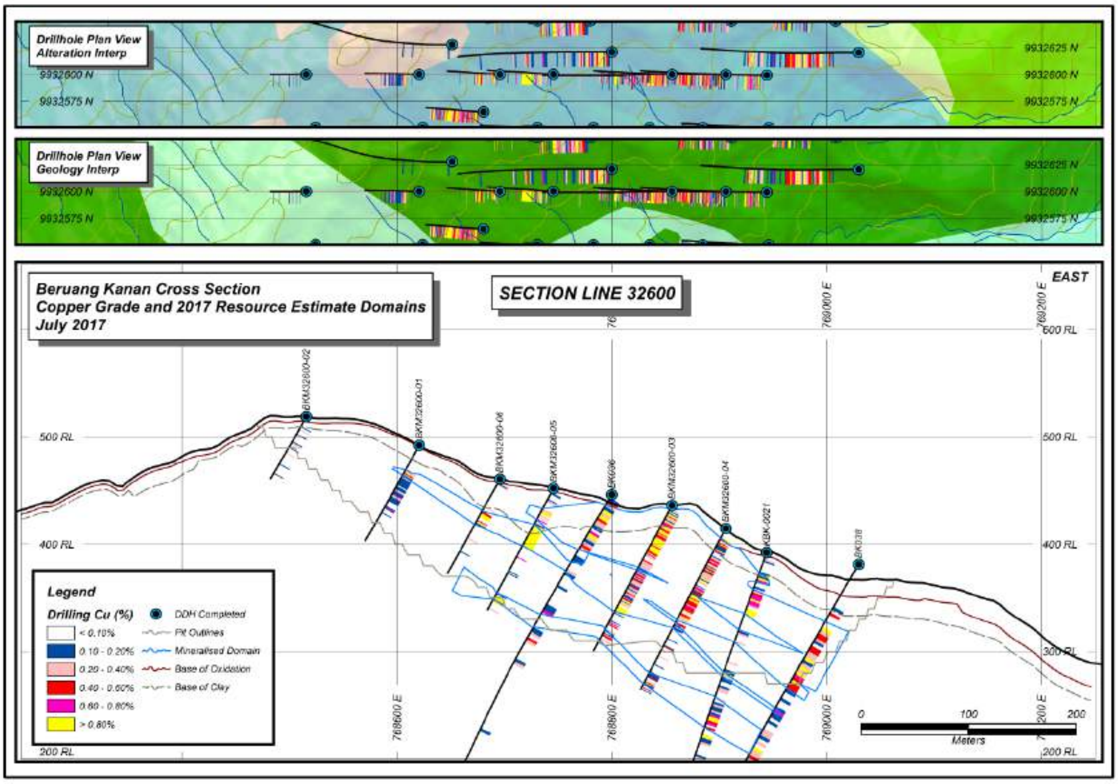

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32400
EAST
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Meters

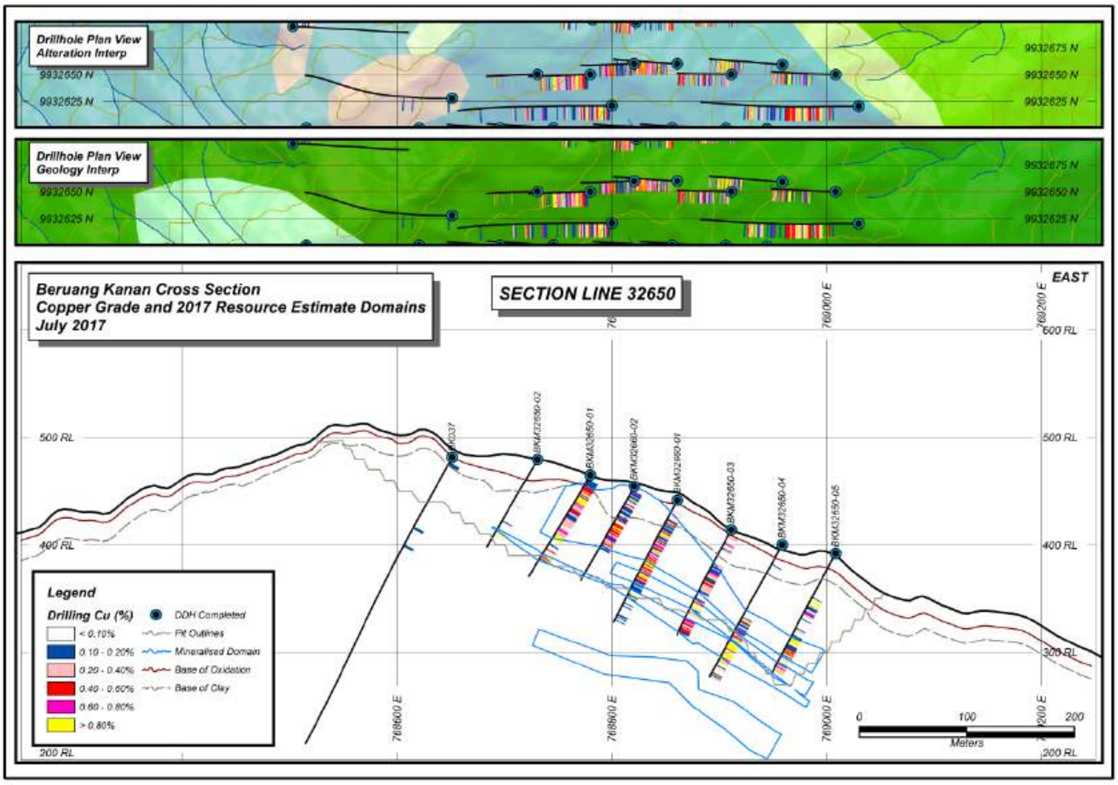

Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32450
EAST
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Meters

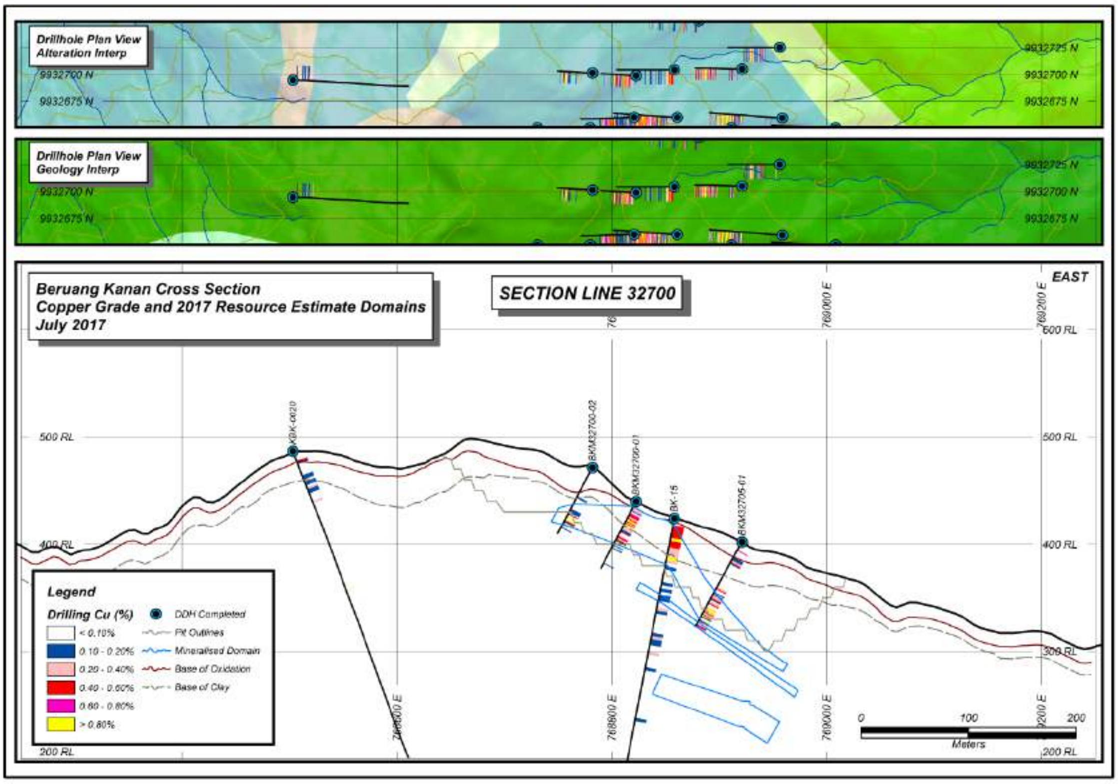
APPENDICES: Qualified Person's Report on the Mineral Resources, Beruang Kanan Main Zone, July 2017.

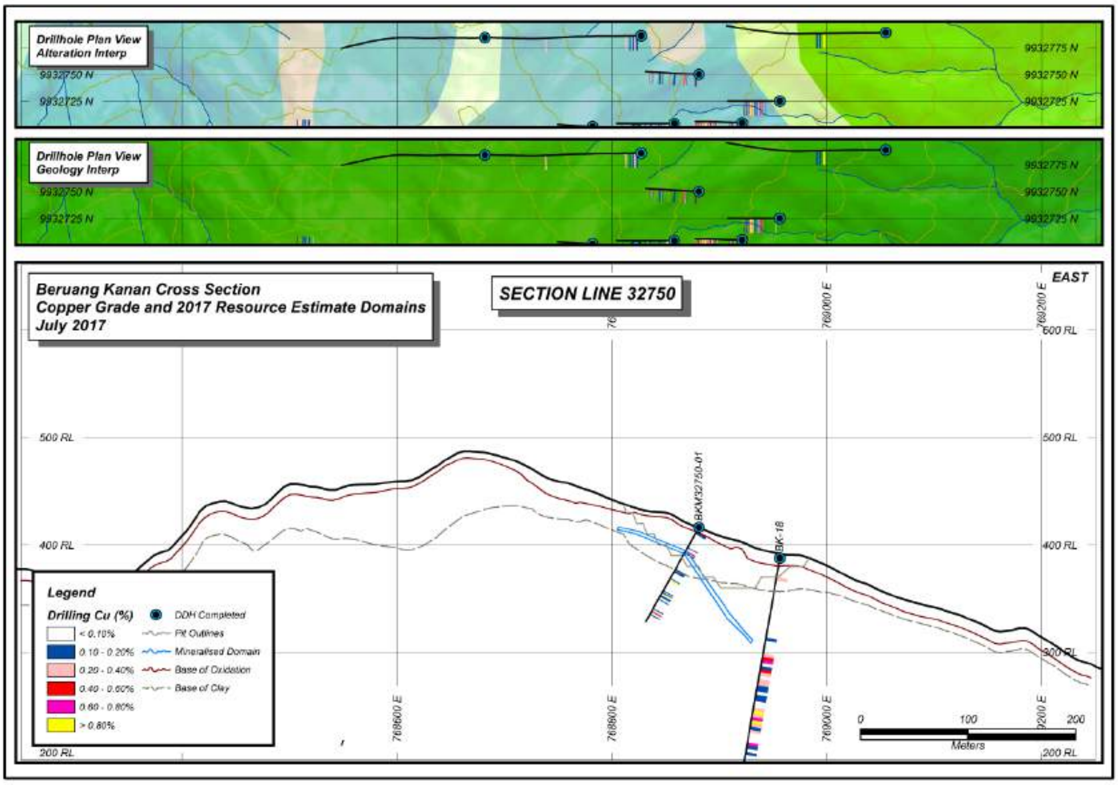





Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32600
EAST
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Meters


Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32650
EAST
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Meters


Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32700
EAST
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Meters


Drillhole Plan View
Alteration Interp
Drillhole Plan View
Geology Interp
Beruang Kanan Cross Section
Copper Grade and 2017 Resource Estimate Domains
July 2017
SECTION LINE 32750
EAST
Legend
Drilling Cu (%)
< 0.10%
0.10 - 0.20%
0.20 - 0.40%
0.40 - 0.60%
0.60 - 0.80%
> 0.80%
DDH Completed
Pit Outlines
Mineralised Domain
Base of Oxidation
Base of Clay
Meters

APPENDICES: Qualified Person's Report on the Mineral Resources, Beruang Kanan Main Zone, July 2017.

Appendix 10 KSK letters to Gov. of Republic of Indonesia RE: KSK Cow Status and Permits

Letter confirming tenure status of KSK CoW

MINISTRY OF ENERGY AND MINERAL RESOURCES
REPUBLIC OF INDONESIA

DECREE OF THE MINISTRY OF ENERGY AND MINERAL RESOURCES
NUMBER 160.K/31.02/DJB/2017
CONCERNING
APPROVAL FOR IMPROVEMENT OF THE FEASIBILITY STUDY ACTIVITY PHASE IN THE WORK CONTRACT AREA OF PT. KALIMANTAN SURYA KENCANA

UPON GRACE OF THE ONE AND ONLY GOD
THE MINISTER OF ENERGY AND MINERAL RESOURCES,

Considering :

a. that based on the letter of PT Kalimantan Surya Kencana Number 2094/KSK/G-X/2016 dated 26 October 2016 concerning Request for Improvement of the Feasibility Study Phase of PT Kalimantan Surya Kencana;
b. that PT Kalimantan Surya Kencana has submitted the Exploration final report and has obtained the approval from the Directorate of Mineral Undertaking Development in accordance with Letter Number 1927/31.02/DBM.PE/2016 dated 9 November 2016 concerning Approval for the Exploration Final Report of PT Kalimantan Surya Kencana;
c. that after conducting the review and evaluation on the request and technical report submitted by PT Kalimantan Surya Kencana, there are sufficient reasons for the Government to provide the Approval for the Feasibility Study Activity Phase Improvement in the Work Contract Area of PT Kalimantan Surya Kencana;
d. that based on the considerations in letter a, letter b and letter c, it is necessary to determine the Decree of the Ministry of Energy and Mineral Resources concerning Improvement for the Feasibility Study Activity Phase in the Work Contract Area of PT Kalimantan Surya Kencana;

In view of :

1. Law Number 4 of 2009 concerning Mineral and Coal Mining (State Gazette of the Republic of Indonesia of 2009 Number 4, Supplement to the State Gazette of the Republic of Indonesia

Number 4959);

2. Government Regulation Number 22 of 2010 concerning Mining Area (State Gazette of the Republic of Indonesia of 2010 Number 28, Supplement to the State Gazette of the Republic of Indonesia Number 5110);
3. Government Regulation Number 23 of 2010 concerning Implementation of Mineral and Coal Mining Business Activities (State Gazette of the Republic of Indonesia of 2010 Number 29, Supplement to the State Gazette of the Republic of Indonesia Number 5111), as has been amended several times and latest with the Government Regulation Number 1 of 2017 concerning Fourth Amendment of Government Regulation Number 23 of 2010 concerning Implementation of Mineral and Coal Mining Business Activities (State Gazette of the Republic of Indonesia of 2014 Number 263, Supplement to the State Gazette of the Republic of Indonesia Number 5597);
4. Government Regulation Number 55 of 2010 concerning Development and Control on the Organizing of Mineral and Coal Mining Business Activities Management (State Gazette of the Republic of Indonesia of 2010 Number 85, Supplement to the State Gazette of the Republic of Indonesia Number 5142);
5. Government Regulation Number 78 of 2010 concerning Reclamation and Post-Mining (State Gazette of the Republic of Indonesia of 2010 Number 138, Supplement to the State Gazette of the Republic of Indonesia Number 5172);
6. Regulation of the Minister of Energy and Mineral Resources Number 13 of 2016 Organization and Work System of the Ministry of Energy and Mineral Resources (State Gazette of the Republic of Indonesia of 2016 Number 782);
7. Decree of the Minister of Energy and Mineral Resources Number 812.K/40/MEM/2003 concerning Delegation of Authority of the Minister of Energy and Mineral Resources to the Director General of Geology and Mineral Resources for Implementation of Mining Power, Work Contract and Coal Mining Undertaking Work Agreement;
8. Decree of the Minister of Energy and Mineral Resources Number 305.K/30/DJB/2009 dated 8 June 2009 concerning Shrinkage II and Beginning of the Feasibility Study Phase Activity in the Work Contract of PT Kalimantan Surya Kencana.

HAS DECREED:

To determine : THE DECREE OF THE MINISTER OF ENERGY AND MINERAL RESOURCES CONCERNING APPROVAL FOR IMPROVEMENT OF THE

FEASIBILITY STUDY ACTIVITY PHASE IN THE WORK CONTRACT AREA OF PT KALIMANTAN SURYA KENCANA.

FIRST	:	Provide the Approval for Improvement of the Feasibility Study Activity Phase in the Work Contract Area of PT Kalimantan Surya Kencana with the area code of 10PK0159 of 61,003 Ha, for the period of 1 (one) year.
SECOND	:	All data and information that are obtained from the area, as meant in the First Dictum should be delivered to the Directorate General of Mineral and Coal within the period of not later than 3 (three) months as of the determination date of this Decree of the Minister.
THIRD	:	PT Kalimantan Surya Kencana is required to pay the Fixed Contribution in accordance with the Legislative Regulations and should settle the Non Tax State Revenue Accounts Receivable (PNBP) based on the Minutes of the Mineral and Coal PNBP Accounts Receivable Reconciliation Number 15/BAR/DBN/X/2016 as of the determination of this Decree of the Minister.
FIFTH	:	This Decree of the Minister commences applicable on the date of determination.

Determined in Jakarta
On 16 February 2017

for MINISTER OF ENERGY AND MINERAL RESOURCES
DIRECTOR GENERAL OF MINERAL AND COAL,

BAMBANG GATOT ARIYANTO

Copies to:
1. Minister of Energy and Mineral Resources;
2. Minister of Finances;
3. Secretary General of Ministry of Energy and Mineral Resources;
4. Inspector General of the Ministry of Energy and Mineral Resources;
5. Director General of Regional Financial Administration Guidance, Ministry of Home Affairs;
6. Governor of Central Kalimantan;
7. Governor of West Kalimantan;
8. Regent of Gunung Mas
9. Regent of Katingan
10. Regent of Murung Raya
11. Regent of Sintang

12. Head of Legal Bureau/Head of Financial Bureau/Head of Planning and Foreign Cooperation Bureau, Ministry of Energy and Mineral Resources;
13. Secretary of the Directorate of General of Mineral and Coal;
14. Director of Mineral Undertaking Development;
15. Director of Mineral and Coal Program Development;
16. Director of Mineral and Coal Technical and Environment;
17. Director of Mineral and Coal Receipt;
18. Director of Land and Building Tax, Ministry of Finances;
19. Director of Regional income Guidance, Ministry of Home Affairs;
20. Head of Mining and Energy Office, Central Kalimantan Province;
21. Head of Mining and Energy Office, West Kalimantan Province;
22. Management of PT Kalimantan Surya Kencana.

APPENDIX I:
DECREE OF THE MINISTER OF ENERGY AND MINERAL RESOURCES
NUMBER: 160.K/31.02/DJB/2017
DATE: 16 February 2017
CONCERNING
IMPROVEMENT OF FEASIBILITY STUDY PHASE OF PT. KALIMANTAN SURYA KENCANA

APPENDIX OF COORDINATE LIST

Name of Company : PT. KALIMANTAN SURYA KENCANA
Location
- Province : CENTRAL KALIMANTAN AND WEST KALIMANTAN
- Regency : KATINGAN, GUNUNG MAS, MURUNG RAYA & SINTANG
- Commodity : GOLD DMP
- Area Code : 61,003 HA

Point No.	Longitude			Latitude			
	°	'	"	°	'	"	North Latitude (LU)/ South Latitude(LS)
1	113	20	0.00	0	36	49.00	LS
2	113	21	56.00	0	36	49.00	LS
3	113	21	56.00	0	35	31.00	LS
4	113	22	41.50	0	35	31.00	LS
5	113	22	41.50	0	33	52.00	LS
6	113	23	45.00	0	33	52.00	LS
7	113	23	45.00	0	31	0.00	LS
8	113	24	32.50	0	31	0.00	LS
9	113	24	32.50	0	30	10.00	LS
10	113	27	5.00	0	30	10.00	LS
11	113	27	5.00	0	28	18.00	LS
12	113	28	11.60	0	28	18.00	LS
13	113	28	11.60	0	27	19.00	LS
14	113	28	45.00	0	27	19.00	LS
15	113	28	45.00	0	26	50.40	LS
16	113	29	23.00	0	26	50.40	LS
17	113	29	23.00	0	26	22.00	LS
18	113	28	11.60	0	26	22.00	LS
19	113	28	11.60	0	25	52.50	LS

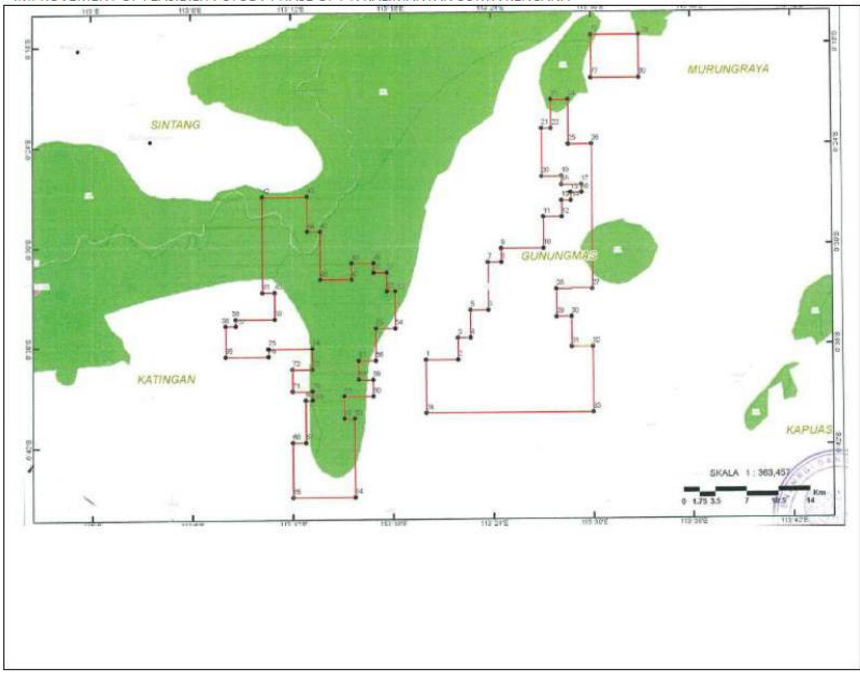
20	113	27	0.00	0	25	52.50	LS
21	113	27	0.00	0	23	0.00	LS
22	113	27	34.00	0	23	0.00	LS
23	113	27	34.00	0	21	18.00	LS
24	113	28	37.00	0	21	18.00	LS
25	113	28	37.00	0	23	57.00	LS
26	113	29	59.79	0	23	57.00	LS
27	113	29	59.79	0	32	37.83	LS
28	113	27	51.00	0	32	37.83	LS
29	113	27	51.00	0	34	17.40	LS
30	113	28	45.00	0	34	17.40	LS
31	113	28	45.00	0	36	5.00	LS
32	113	30	0.00	0	36	5.00	LS
33	113	30	0.00	0	40	0.00	LS
34	113	20	0.00	0	40	0.00	LS
35	113	8	0.00	0	36	35.00	LS
36	113	8	0.00	0	34	45.00	LS
37	113	8	37.00	0	34	45.00	LS
38	113	8	37.00	0	34	21.20	LS
39	113	10	58.00	0	34	21.20	LS
40	113	10	58.00	0	32	45.30	LS
41	113	10	13.80	0	32	45.30	LS
42	113	10	13.80	0	27	0.00	LS
43	113	12	55.10	0	27	0.00	LS
44	113	12	55.10	0	29	6.00	LS
45	113	13	42.00	0	29	6.30	LS
46	113	13	42.00	0	32	0.00	LS
47	113	15	34.60	0	32	0.00	LS
48	113	15	34.60	0	31	0.00	LS
49	113	16	53.00	0	31	0.00	LS
50	113	16	53.00	0	31	0.00	LS
51	113	17	41.00	0	31	35.00	LS
52	113	17	41.00	0	32	43.00	LS
53	113	18	11.00	0	32	43.00	LS
54	113	18	11.00	0	34	56.00	LS
55	113	17	1.00	0	34	56.00	LS
56	113	17	0.00	0	36	51.00	LS
57	113	15	58.00	0	36	51.00	LS
58	113	15	58.00	0	37	59.00	LS
59	113	16	50.20	0	38	0.00	LS
60	113	16	50.20	0	38	59.00	LS
61	113	15	6.00	0	38	59.00	LS

62	113	15	6.00	0	40	18.60	LS
63	113	15	43.00	0	40	18.60	LS
64	113	15	43.00	0	45	0.00	LS
65	113	12	0.00	0	45	0.00	LS
66	113	12	0.00	0	41	44.00	LS
67	113	12	47.00	0	41	44.00	LS
68	113	12	47.00	0	39	12.60	LS
69	113	13	11.70	0	39	12.60	LS
70	113	13	11.70	0	38	41.40	LS
71	113	12	0.00	0	38	41.40	LS
72	113	12	0.00	0	37	22.50	LS
73	113	13	11.70	0	37	22.50	LS
74	113	13	11.70	0	36	7.50	LS
75	113	10	35.00	0	36	7.50	LS
76	113	10	35.00	0	36	35.00	LS
77	113	30	0.00	0	20	0.00	LS
78	113	30	0.00	0	17	25.00	LS
79	113	32	52.00	0	17	25.00	LS
80	113	32	52.00	0	20	0.00	LS

for MINISTER OF ENERGY AND MINERAL RESOURCES
DIRECTOR GENERAL OF MINERAL AND COAL

BAMBANG GATOT ARIYONO

APPENDIX II
DECREE OF THE MINISTER OF ENERGY AND MINERAL RESOURCES
NUMBER
DATE
CONCERNING
IMPROVEMENT OF FEASIBILITY STUDY PHASE OF PT. KALIMANTAN SURYA KENCANA



WORK CONTRACT AREA MAP
PT. KALIMANTAN SURYA KENCANA
REGENCIES OF
KATINGAN, GUNUNG MAS, MURUNG RAYA AND SINTANG
PROVINCES OF
CENTRAL KALIMANTAN AND WEST KALIMANTAN

U

Area Code	Extent (Ha)	Commodity	Activity Phase
10PKO159	61.003	GOLD DMP	FEASIBILITY STUDY

LEGEND

	Province Capital City	Road Class	
	Regency Capital City		Toll Road
	Activity Center		National Road
			Provincial Road

Administrative Border	Land Use
State Border	Conservation Forest
Provincial Border	Protected Forest
Regency Border	Production Forest
Lake	Limited Production Forest
River	Convertible Production Forest

REMARKS
Projection System: Transverse Mercator
Grid System: Geographical (Longitude/Latitude)
Date : WGS 1984
Source: Administrative Border Indication Map, B.I.G – 2012
Forestry Map of Ministry of Forestry – 2012

Non official reference map on national and international border lines

DIRECTORATE GENERAL OF MINERAL AND COAL
MINISTRY OF ENERGY AND MINERAL RESOURCES

for MINISTER OF ENERGY AND MINERAL RESOURCES

APPENDICES: Qualified Person’s Report on the Mineral Resources, Beruang Kanan Main Zone, July 2017.

Letter stating renewal of IPPKH permit

BADAN KOORDINASI PENANAMAN MODAL

KEPUTUSAN KEPALA BADAN KOORDINASI PENANAMAN MODAL
NOMOR : 67 / 1 / IPPKH / PMDN / 2017

TENTANG

PERPANJANGAN KEDUA IZIN PINJAM PAKAI KAWASAN HUTAN UNTUK KEGIATAN EKSPLORASI EMAS DAN LOGAM IKUTANNYA SELUAS ± 7.422 (TUJUH RIBU EMPAT RATUS DUA PULUH DUA) HEKTAR PADA KAWASAN HUTAN PRODUKSI TERBATAS DAN HUTAN PRODUKSI TETAP ATAS NAMA PT. KALIMANTAN SURYA KENCANA DI KABUPATEN GUNUNG MAS, PROVINSI KALIMANTAN TENGAH.

KEPALA BADAN KOORDINASI PENANAMAN MODAL,

Menimbang : a. bahwa PT. Kalimantan Surya Kencana merupakan pemegang:

1. Izin Usaha Pertambangan sesuai Kontrak Karya antara Pemerintah Republik Indonesia dengan PT. Kalimantan Surya Kencana pada tanggal 28 April 1997 seluas ± 121.900 Hektar;
2. Persetujuan Peningkatan Tahap Kegiatan Studi Kelayakan Pada Wilayah Kontrak Karya seluas 61.003 Hektar untuk jangka waktu 1 (satu) tahun sesuai Keputusan Menteri Energi dan Sumber Daya Mineral Nomor 160.K/31.02/DJB/2017 tanggal 16 Februari 2017;

b. bahwa sesuai Keputusan Kepala Badan Koordinasi Penanaman Modal atas nama Menteri Lingkungan Hidup dan Kehutanan Nomor 29/1/IPPKH/PMDN/2015 tanggal 23 April 2015, kepada PT. Kalimantan Surya Kencana diberikan perpanjangan izin pinjam pakai kawasan Hutan untuk kegiatan eksplorasi emas dan logam ikutannya pada Kawasan Hutan Produksi Terbatas dan Kawasan Hutan Produksi Tetap seluas 7.422 Hektar di Kabupaten Gunung Mas, Provinsi Kalimantan Tengah, berlaku selama 2 tahun sampai tanggal 23 April 2017;

c. bahwa Presiden Direktur PT. Kalimantan Surya Kencana dengan surat Nomor 2227/KSK/G-I/2017 tanggal 19 Januari 2017, mengajukan Permohonan Perpanjangan Izin Pinjam Pakai Kawasan Hutan (IPPKH) untuk kegiatan eksplorasi emas dan logam ikutannya seluas ± 7.422 (tujuh ribu empat ratus dua puluh dua) Hektar Pada Kawasan Hutan Produksi Terbatas dan Hutan Produksi Tetap, terletak di Kabupaten Gunung Mas, Provinsi Kalimantan Tengah;

d. bahwa sesuai Surat Direktur Jenderal Planologi Kehutanan dan Tata Lingkungan Nomor S.647/PKTL/REN/PLA.0/4/2017 tanggal 28 April 2017, permohonan perpanjangan IPPKH tersebut huruf c telah memenuhi ketentuan teknis seluas ± 7.422 Hektar yang berada pada Kawasan Hutan Produksi Terbatas (HPT) seluas ± 6.347 Hektar dan Hutan Produksi Tetap (HP) seluas ± 1.075 Hektar serta berada dalam Areal IUPHHK-HA PT. Hutan Domas Raya seluas ± 6.875 Hektar, IUPHHK-HA PT. Carus Indonesia seluas ± 322 Hektar dan tidak dibebani IUPHHK-HA/HT/RE/HTR/HKm/HD seluas ± 225 Hektar;

e. bahwa berdasarkan pertimbangan tersebut huruf a sampai dengan huruf d, perlu menetapkan Keputusan Kepala Badan Koordinasi Penanaman Modal tentang perpanjangan kedua izin pinjam pakai Kawasan Hutan untuk kegiatan eksplorasi emas dan logam ikutannya seluas ± 7.422 (tujuh ribu empat ratus dua puluh dua) Hektar Pada Kawasan Hutan Produksi Terbatas dan Hutan Produksi Tetap atas nama PT. Kalimantan Surya Kencana di Kabupaten Gunung Mas, Provinsi Kalimantan Tengah.

Mengingat :

1. Undang-Undang Nomor 5 Tahun 1990 tentang Konservasi Sumberdaya Alam Hayati dan Ekosistemnya;
2. Undang-Undang Nomor 41 Tahun 1999 tentang Kehutanan, sebagaimana telah diubah dengan Undang-Undang Nomor 19 Tahun 2004;
3. Undang-Undang Nomor 26 Tahun 2007 tentang Penataan Ruang;
4. Undang-Undang Nomor 18 Tahun 2013 tentang Pencegahan dan Pemberantasan Perusakan Hutan;
5. Undang-Undang Nomor 23 Tahun 2014 tentang Pemerintahan Daerah, sebagaimana telah beberapa kali diubah terakhir dengan Undang-Undang Nomor 9 Tahun 2015;
6. Peraturan Pemerintah Nomor 44 Tahun 2004 tentang Perencanaan Kehutanan;
7. Peraturan Pemerintah Nomor 45 Tahun 2004 tentang Perlindungan Hutan, sebagaimana telah diubah dengan Peraturan Pemerintah Nomor 60 Tahun 2009;
8. Peraturan Pemerintah Nomor 6 Tahun 2007 tentang Tata Hutan dan Penyusunan Rencana Pengelolaan Hutan Serta Pemanfaatan Hutan, sebagaimana telah diubah dengan Peraturan Pemerintah Nomor 3 Tahun 2008;
9. Peraturan Pemerintah Nomor 26 Tahun 2008 tentang Rencana Tata Ruang Wilayah Nasional;
10. Peraturan Pemerintah Nomor 76 Tahun 2008 tentang Rehabilitasi dan Reklamasi Hutan;
11. Peraturan Pemerintah Nomor 24 Tahun 2010 tentang Penggunaan Kawasan Hutan, sebagaimana telah beberapa

kali diubah terakhir dengan Peraturan Pemerintah Nomor 105 Tahun 2015;

12. Peraturan Pemerintah Nomor 12 Tahun 2014 tentang Jenis dan Tarif Atas Jenis Penerimaan Negara Bukan Pajak Yang Berlaku Pada Kementerian Kehutanan;
13. Peraturan Pemerintah Nomor 33 Tahun 2014 tentang Jenis dan Tarif Atas Jenis Penerimaan Negara Bukan Pajak Yang Berasal Dari Penggunaan Kawasan Hutan Untuk Kepentingan Pembangunan di Luar Kegiatan Kehutanan Yang Berlaku Pada Kementerian Kehutanan;
14. Peraturan Pemerintah Nomor 104 Tahun 2015 tentang Tata Cara Perubahan Peruntukan dan Fungsi Kawasan Hutan;
15. Peraturan Presiden Nomor 165 Tahun 2014 tentang Penataan Tugas dan Fungsi Kabinet Kerja;
16. Peraturan Presiden Nomor 7 Tahun 2015 tentang Organisasi Kementerian Negara;
17. Peraturan Presiden Nomor 16 Tahun 2015 tentang Kementerian Lingkungan Hidup dan Kehutanan;
18. Peraturan Presiden Nomor 3 Tahun 2016 tentang Percepatan Pelaksanaan Proyek Strategis Nasional;
19. Peraturan Presiden Nomor 44 Tahun 2016 tentang Daftar Bidang Usaha Yang Tertutup dan Bidang Usaha Yang Terbuka Dengan Persyaratan di Bidang Penanaman Modal;
20. Instruksi Presiden Nomor 8 Tahun 2015 tentang Penundaan Pemberian Izin Baru dan Penyempurnaan Tata Kelola Hutan Alam Primer dan Gambut;
21. Peraturan Menteri Kehutanan Nomor P.60/Menhut-II/ 2009 tentang Pedoman Penilaian Keberhasilan Reklamasi Hutan;
22. Peraturan Menteri Kehutanan Nomor P.44/Menhut-II/ 2012 tentang Pengukuhan Kawasan Hutan, sebagaimana telah diubah dengan Peraturan Menteri kehutanan Nomor P.62/Menhut-II/2013;
23. Peraturan Menteri Kehutanan Nomor P.25/Menhut-II/ 2014 tentang Panitia Tata Batas Kawasan Hutan;
24. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.97/Menhut-II/2014 tentang Pendelegasian Wewenang Pemberian Perizinan dan Non Perizinan di Bidang Lingkungan Hidup dan Kehutanan Dalam Rangka Pelaksanaan Pelayanan Terpadu Satu Pintu Kepada Kepala Badan Koordinasi Penanaman Modal, sebagaimana telah diubah dengan Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.1/Menhut-II/2015;
25. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.18/Menlhk-II/2015 tentang Organisasi dan Tata Kerja Kementerian Lingkungan Hidup dan Kehutanan;
26. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.62/Menlhk-Setjen/2015 tentang Izin Peman faatan Kayu;
27. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.29/Menlhk/Setjen/PHPL.3/2/2016 tentang Pembatalan Pengenaan, Pemungutan dan Penyetoran Penggantian Nilai Tegakan;

28. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.50/Menlhk/Setjen/Kum.1/6/2016 tentang Pedoman Pinjam Pakai Kawasan Hutan;
29. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.71/MenLHK/Setjen/HPL.3/8/2016 tentang Tata Cara Pengenaan, Pemungutan, dan Penyetoran Provisi Sumber Daya Hutan dan Dana Reboisasi, Ganti Rugi Tegakan, Denda Pelanggaran Eksploitasi Hutan dan Iuran Izin Usaha Pemanfaatan Hutan;
30. Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor P.89/Menlhk/Setjen/Kum.1/11/2016 tentang Pedoman Penanaman Bagi Pemegang Izin Pinjam Pakai Kawasan Hutan Dalam Rangka Rehabilitasi Daerah Aliran Sungai;
31. Keputusan Menteri Lingkungan Hidup dan Kehutanan Nomor SK.6347/MenLHK-PKTL/IPSDH/PLA.1/11/2016 tanggal 21 November 2016 tentang Penetapan Peta Indikatif Penundaan Pemberian Izin Baru Pemanfaatan Hutan, Penggunaan Kawasan Hutan dan Perubahan Peruntukan Kawasan Hutan dan Areal Penggunaan Lain (Revisi XI);

Memperhatikan:

1. Akta Pendirian Perseroan Terbatas PT. Kalimantan Surya Kencana Nomor 5 tanggal 2 April 1997 yang dibuat di hadapan Maria Kristiana Soeharyo, S.H, Notaris di Jakarta yang telah mendapat pengesahan sesuai Keputusan Menteri Kehakiman Nomor C2-2962.HT.01.01. TH.97 tanggal 23 April 1997, sebagaimana telah diubah beberapa kali, terakhir dengan Akta Pernyataan Rapat Pemegang Saham Perseroan Terbatas PT. Kalimantan Surya Kencana Nomor 18 tanggal 12 Oktober 2015 yang dibuat di hadapan Ellys Nathalina, S.H; M.Kn, Notaris di Palangkaraya yang telah diterima dan dicatat di dalam sistem Administrasi Badan Hukum sesuai surat Direktur Jenderal Administrasi Hukum Umum atas nama Menteri Hukum dan Hak Asasi Manusia Nomor AHU-AH.01.03-0973389 tanggal 20 Oktober 2015;
2. Keputusan Bupati Gunung Mas Nomor 649 Tahun 2016 tanggal 5 Desember 2016 tentang Izin Lingkungan Pengeboran Eksplorasi (*Drilling Exploration*) di Area Prospek Beruang Kanan dan Prospek Baroi di Wilayah Kecamatan Damang Batu dan Kecamatan Miri Manasa, Kabupaten Gunung Mas Provinsi Kalimantan Tengah oleh PT. Kalimantan Surya Kencana;

MEMUTUSKAN:

Menetapkan : **KEPUTUSAN KEPALA BADAN KOORDINASI PENANAMAN MODAL TENTANG PERPANJANGAN KEDUA IZIN PINJAM PAKAI KAWASAN HUTAN UNTUK KEGIATAN EKSPLORASI EMAS DAN LOGAM IKUTANNYA SELUAS ± 7.422 (TUJUH RIBU EMPAT RATUS DUA PULUH DUA) HEKTAR PADA KAWASAN HUTAN PRODUKSI TERBATAS DAN HUTAN PRODUKSI TETAP ATAS NAMA PT. KALIMANTAN SURYA KENCANA DI KABUPATEN GUNUNG MAS, PROVINSI KALIMANTAN TENGAH**

KESATU : Memberikan Perpanjangan Kedua Izin Pinjam Pakai Kawasan Hutan untuk kegiatan eksplorasi emas dan logam ikutannya seluas ± 7.422 (tujuh ribu empat ratus dua puluh dua) Hektar pada Kawasan Hutan Produksi Terbatas dan Hutan Produksi Tetap atas nama PT. Kalimantan Surya Kencana di Kabupaten Gunung Mas, Provinsi Kalimantan Tengah, sebagaimana peta lampiran Keputusan ini.

KEDUA : Perpanjangan kedua Izin Pinjam Pakai Kawasan Hutan sebagaimana dimaksud dalam amar KESATU adalah untuk Kegiatan Eksplorasi Emas dan Logam Ikutannya, bukan untuk kegiatan lain serta arealnya tetap berstatus sebagai kawasan hutan.

KETIGA : PT. Kalimantan Surya Kencana berhak:

a. berada, menempati dan mengelola serta melakukan kegiatan-kegiatan yang meliputi Kegiatan Eksplorasi Emas dan Logam Ikutannya, serta melakukan kegiatan-kegiatan lainnya yang berhubungan dengan kegiatan tersebut dalam kawasan hutan yang dipinjam pakai;
b. melakukan penebangan pohon dalam rangka pembukaan lahan yang tidak dapat dielakan dengan membayar Provisi Sumber Daya Hutan (PSDH) dan/atau Dana Reboisasi (DR) sesuai dengan ketentuan Peraturan Perundang-Undangan.

KEEMPAT : PT. Kalimantan Surya Kencana wajib:

a. melaksanakan reklamasi pada kawasan hutan yang sudah tidak dipergunakan tanpa menunggu selesainya jangka waktu izin pinjam pakai kawasan hutan;
b. melakukan inventarisasi tegakan pada areal yang direncanakan untuk dilakukan pembukaan lahan sebagai dasar pembayaran Provinsi Sumber Daya Hutan (PSDH) dan/atau Dana Reboisasi (DR);
c. membayar PSDH dan/atau DR sesuai peraturan perundang-undangan;
d. membayar ganti rugi nilai tegakan kepada pemerintah apabila areal yang dimohon merupakan hutan tanaman hasil rehabilitasi seluas yang digunakan sesuai peraturan perundang-undangan;
e. melaksanakan perlindungan hutan pada areal Izin Pinjam Pakai Kawasan Hutan dan areal sekitar izin sesuai dengan peraturan perundang-undangan;

f. memberikan kemudahan bagi aparat lingkungan hidup dan kehutanan baik pusat maupun daerah pada saat melakukan *monitoring* dan evaluasi di lapangan;

g. mengkoordinasikan kegiatan kepada instansi lingkungan hidup dan kehutanan setempat dan /atau kepada pengelola hutan atau pemegang izin pemanfaatan hutan;

h. melakukan pemberdayaan masyarakat sekitar areal Izin Pinjam Pakai Kawasan Hutan;

i. membuat laporan secara berkala setiap 6 (enam) bulan sekali kepada Menteri Lingkungan Hidup dan Kehutanan mengenai penggunaan kawasan hutan yang dipinjam pakai dengan tembusan: Direktur Jenderal Planologi Kehutanan dan Tata Lingkungan, Direktur Jenderal Pengelolaan Hutan Produksi Lestari, Direktur Jenderal Konservasi Sumber Daya Alam dan Ekosistem, Direktur Jenderal Pengendalian Daerah Aliran Sungai dan Hutan Lindung, Kepala Dinas Kehutanan Provinsi Kalimantan Tengah, Kepala Balai Pemantapan Kawasan Hutan Wilayah XXI Palangkaraya, dan Kepala Balai Pengelolaan Daerah Aliran Sungai dan Hutan Lindung Kahayan.

KELIMA : PT. Kalimantan Surya Kencana dilarang:

a. memindahtanganka izin pinjam pakai kawasan hutan kepada pihak lain atau perubahan nama pemegang izin pinjam pakai tanpa persetujuan Menteri Lingkungan Hidup dan Kehutanan;

b. menjaminkan atau mengagunkan areal izin pinjam pakai kawasan hutan kepada pihak lain;

c. melakukan kegiatan lainnya yang dilarang sesuai peraturan perundang-undangan.

KEENAM : Menyelesaikan hak-hak pihak ketiga, apabila terdapat hak-hak pihak ketiga di dalam areal pinjam pakai kawasan hutan dengan meminta bimbingan dan fasilitasi Pemerintah Daerah setempat.

KETUJUH : Perpanjangan kedua Izin Pinjam Pakai Kawasan Hutan untuk kegiatan eksplorasi ini dicabut dan pemegang izin dikenakan sanksi sesuai peraturan Perundang-undangan, apabila pemegang izin tidak memenuhi kewajiban dan/atau melakukan pelanggaran atas ketentuan-ketentuan sebagaimana dimaksud dalam izin ini.

KEDELAPAN: Keputusan ini mulai berlaku pada tanggal 23 April 2017 sampai dengan 15 Februari 2018, kecuali apabila dicabut oleh Menteri Lingkungan Hidup dan Kehutanan.

Ditetapkan di Jakarta
Pada tanggal 03 JUL 2017

A.n. MENTERI LINGKUNGAN HIDUP DAN KEHUTANAN REPUBLIK INDONESIA,
KEPALA BADAN KOORDINASI PENANAMAN MODAL,

TTD

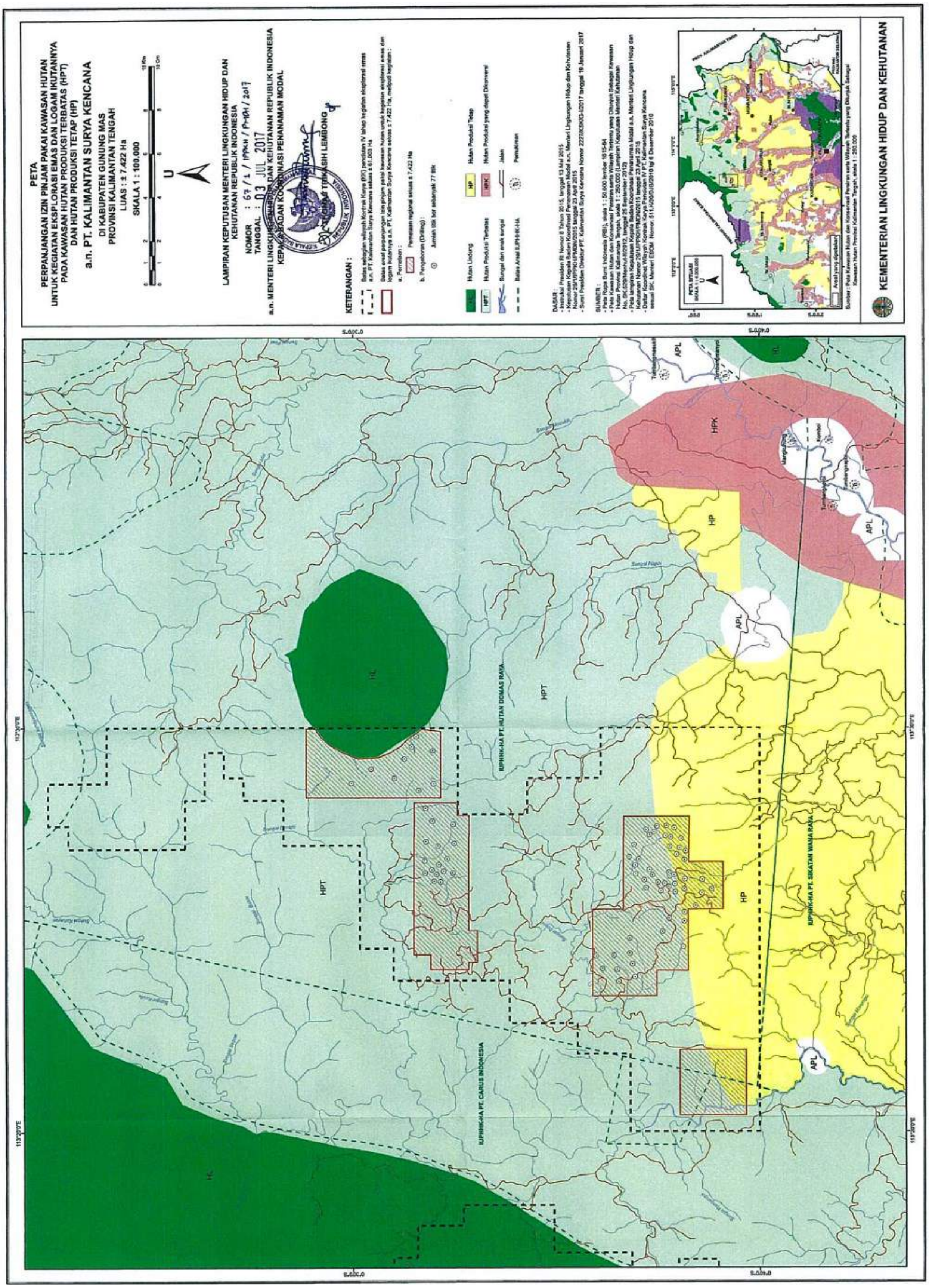
THOMAS TRIKASIH LEMBONG

Salinan sesuai dengan aslinya
KEPALA BIRO PERATURAN
PERUNDANG-UNDANGAN,
HUMAS DAN TATA USAHA
PIMPINAN

BADAN KOORDINASI PENANAMAN MODAL
BKPM
REPUBLIK INDONESIA

ARIESTA R. PUSPASARI

Tembusan Yth:
1. Menteri Lingkungan Hidup dan Kehutanan;
2. Menteri Energi dan Sumber Daya Mineral;
3. Sekretaris Jenderal Kementerian Lingkungan Hidup dan Kehutanan;
4. Direktur Jenderal Planologi Kehutanan dan Tata Lingkungan;
5. Direktur Jenderal Pengelolaan Hutan Produksi Lestari;
6. Direktur Jenderal Konservasi Sumber Daya Alam dan Ekosistem;
7. Direktur Jenderal Pengendalian Daerah Aliran Sungai dan Hutan Lindung;
8. Direktur Jenderal Mineral dan Batubara, Kementerian Energi dan Sumber Daya Mineral;
9. Gubernur Kalimantan Tengah;
10. Bupati Gunung Mas;
11. Kepala Dinas Kehutanan Provinsi Kalimantan Tengah;
12. Kepala Balai Pemantapan Kawasan Hutan Wilayah XXI Palangkaraya;
13. Kepala Balai Pengelolaan Daerah Aliran Sungai dan Hutan Lindung Kahayan;
14. Kepala Balai Pengelolaan Hutan Produksi Wilayah X Palangkaraya;
15. Presiden Direktur PT. Kalimantan Surya Kencana.


PETA
PERPANJANGAN IZIN PINJAM PAKAI KAWASAN HUTAN
UNTUK KEGIATAN EKSPLORASI EMAS DAN LOGAM IKUTANNYA
PADA KAWASAN HUTAN PRODUKSI TERBATAS (HPT)
DAN HUTAN PRODUKSI TETAP (HP)
a.n. PT. KALIMANTAN SURYA KENCANA
DI KABUPATEN GUNUNG MAS
PROVINSI KALIMANTAN TENGAH
LUAS : ± 7.422 Ha
SKALA 1 : 100.000
KETERANGAN :
HPT
HP
HPK
HL
APL
KEMENTERIAN LINGKUNGAN HIDUP DAN KEHUTANAN

Letter requesting correction of overlapping tenement and Ministry response

Kalimantan Surya Kencana
PT Kalimantan Surya Kencana

Pakangkaraya, September 22nd, 2014

Number: 1407/KSK/G-IX/2014
Appendix: 1 (one) file
Subject: Clarification required on borders of Mining Business License (IUP) of PT. Persada Makmur Sejahtera

To
Director General of Minerals and Coals
Ministry of Energy and Mineral Resources of the Republic of Indonesia
Jl. Prof. Dr. Supomo, SH. No. 10
Jakarta 12870

Referring to WEB GIS webpage of Directorate General of Minerals and Coals http://gis.djmbp.esdm.go.id:8008/mapguide2011/fusion/templates/mapguide/indonesia/index.html?ApplicationDefinition=Library://Webgis/Layouts/Indonesia.ApplicationDefinition

We are submitting a request to Director General of Minerals and Coals to review the border of Mining Business Permit (IUP) issued in the region. Based on our examination, the map attached contains IUP (area) belongs to PT. Persada Makmur Sejahtera, that (area) is also part of our contract of work. This is important to reassure our investor and to avoid undesirable situations in the future.

This is our request letter submitted for your perusal, and we thank you for all your attention, assistance, and cooperation.

Sincerely,

PT. Kalimantan Surya Kencana (KSK)

Signature
Stamp of Kalimantan Surya Kencana

Mansur Geiger
President Director
Carbon copy:

1. Honorable Regent of Gunung Mas in Kuala Kurun
2. Director General of Mineral Planning in Jakarta
3. Director of Mineral and Coal Developments in Jakarta
4. Head of Mining and Energy Office, Gunung Mas in Kuala Kurun
File

AUTHORIZED & SWORN TRANSLATOR
S.K. GUB. DKI. JKT.
MOCHAMAD HIKMAT GUMILAR
No.1765/2006

www.kalimantan.com

MINISTRY OF ENERGY AND MINERAL RESOURCES OF REPUBLIC OF INDONESIA
DIRECTORATE GENERAL OF MINERAL AND COAL
JALAN PROF. DR. SUPOMO, SH. NO. 10 JAKARTA 12870
TELEPON: (021) 8295609 FACSIMILE: (021) 8297642 Email: djmbp@minerba.esdm.go.id / www.minerba.go.id PO BOX. 4532KBY

Number: 55.Ktr/04/DTM2014 October 23, 2014
Attachment: -
Subject: Clarification of WEB GIS Borders
PT. Kalimantan Surya Kencana

To:
PT. Kalimantan Surya Kencana.
Jln. Rajawali VII, Srikandi III No. 100
Palangkaraya, Indonesia

In reference to your letter number: 1407/KSK/G-IX/2014 subject: Clarification required on borders of Mining Business License (IUP) of PT. Persada Makmur Sejahtera, as stated in your letter, in WEB GIS Directorate General of Mineral and Coals that borders of IUP Area of PT. Perdana Makmur Sejahtera overlaps with Contract of Work area of PT. Kalimantan Surya Kencana.

Therefore, we can confirm you that:

1. There is no overlapping between IUP area of PT. Persada Makmur Sejahtera Kalimantan and Contract of Work area of PT. Kalimantan Surya Kencana.
2. That WEB GIS of Directorate General of Minerals and Coals contains some errors that require correction.

This letter was published as a response and confirmation to your letter.

Thank you for your attention.

Directorate General,

(Signature and Stamp Affixed)

R. Sukhyar
Civil Servant Reg. # 195504111981031002

Carbon Copy:
1. Director of Mineral and Coals Development Program
2. Director of Mineral Exploration Development
3. Head of Sub Directorate of Mapping

AUTHORIZED & SWORN TRANSLATOR
S.K. GUB. DKI. JKT
MOCHAMAD HIKMAT GUMILAR
No. 1785/2006

Appendix 11 Letter of Data and Information disclosure from KSK to H&A

Kalimantan Surya Kencana
PT Kalimantan Surya Kencana

Jl. Rajawali VII, Srikandi III, No. 100
Palangkaraya, Indonesia, 73112

T +62 (536) 322 4810
F +62 (536) 322 9187

Palangka Raya, July 11, 2017

Reference No : 2413/KSK/A-VII/2017

To : Hackman & Associates Pty Ltd
Perth – Australia
Ph: +61 8 9473 1160 Fax: +61 8 9473 1161
Mbl: +61 4 0997 8386

Attn : Mr. Duncan Hackman

Dear Sir,

All data and Information utilized in preparing the Beruang Kanan Main Zone 2017 Resource Estimate and this report were supplied by or verified by KSK personnel (refer Table 5) who have provided a written assurance that the data supplied is current, complete, accurate and true and that they have disclosed all data and information material for the assessment of the resources at BKM (Appendix 11).

Yours Sincerely

Stephen Hughes
Director

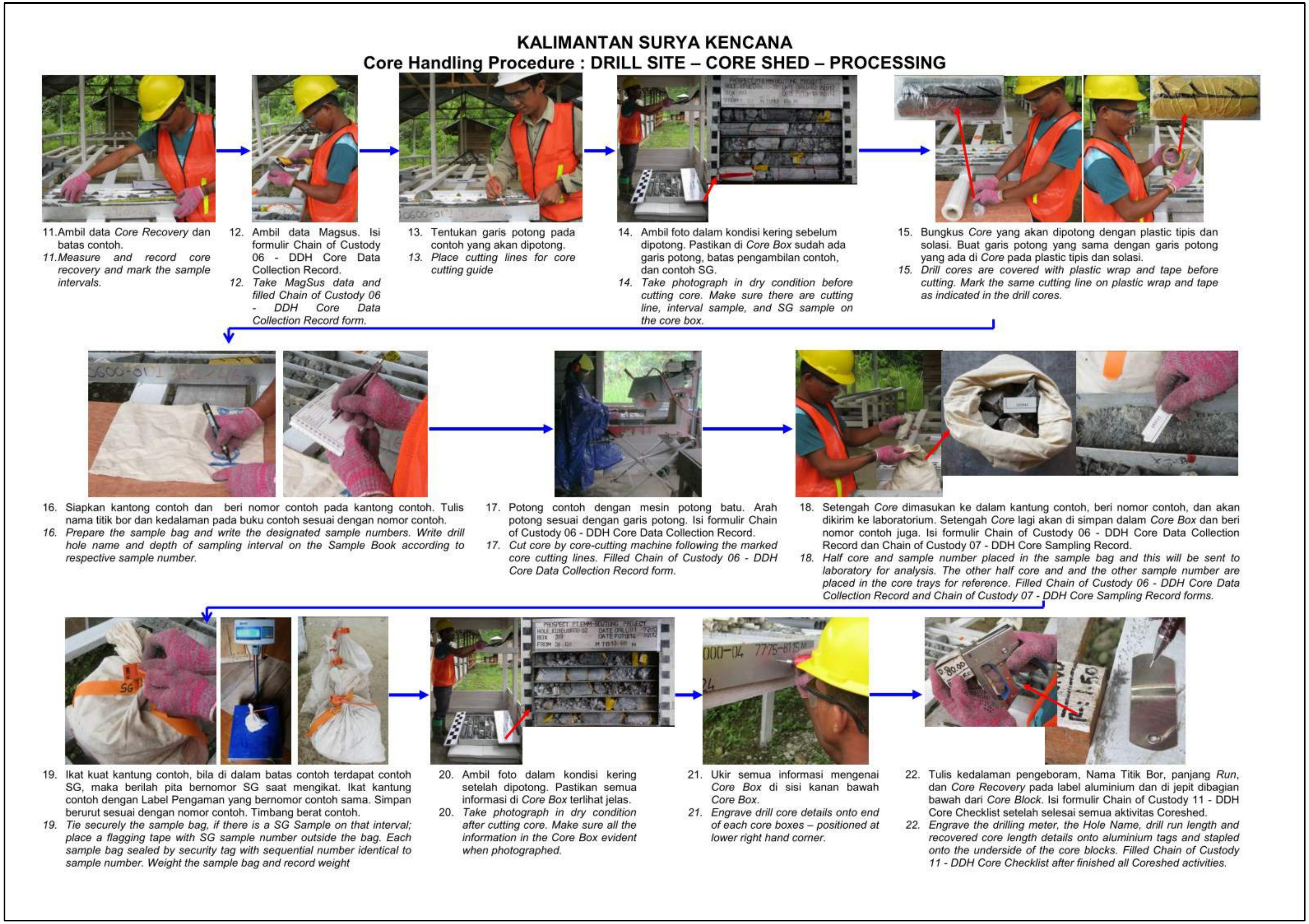
Kalimantan Surya Kencana
PT Kalimantan Surya Kencana

www.kalimantan.com

APPENDICES: Qualified Person's Report on the Mineral Resources, Beruang Kanan Main Zone, July 2017.

Appendix 12 KSK 2015 core processing procedures


KALIMANTAN SURYA KENCANA
Core Handling Procedure : DRILL SITE – CORE SHED – PROCESSING
1. Isi formulir Chain of Custody 02 - DDH Core Received Base Camp ketika Core Box sampai di core shed.
1. Record in Chain of Custody 02 Form - DDH Core Received Base Camp, when the core boxes arrived at the core shed.
2. Simpan core box di meja cuci Core. Buka Karet Pengaman, Penutup Core Box, dan Paralon.
2. Place the core tray in the washing rack. Remove Security rubber, core box cover, and PVC cover.
3. Cuci Core dengan kuas dan air.
3. Wash the drill cores gently with a small brush and water with low pressure
4. Ukur kedalaman awal dan akhir setiap Core Box. Tulis kedalaman tersebut di Core Box.
4. Measure the depth of the Start and Finish of the drill core and mark the core box accordingly
5. Ambil foto dalam kondisi basah dan timbang berat Core Box. Isi formulir Chain of Custody 03 - DDH Core Photos.
5. Take photograph in wet condition and measure core box weight. Record measurements in the Chain of Custody 02 - DDH Core Received Base form.
6. Ambil data RQD. Isi formulir Chain of Custody 05 - DDH Core Geotech Record.
6. Take RQD data and record in the Chain of Custody 05 - DDH Core Geotech Record form.
7. Tentukan Contoh SG dan ambil data SG. Isi formulir Chain of Custody 06 - DDH Core Data Collection Record.
7. Mark the depth of SG samples and take SG data. Record data in the Chain of Custody 06 - DDH Core Data Collection Record form.
8. Ambil data Geologi, Mineralogi, dan Struktur. Isi formulir Chain of Custody 04 - DDH Core Logging.
8. Take Geological, Mineralogy, and Structure data and record Chain of Custody 04 - DDH Core Logging form.
9. Tentukan batas kedalaman pengambilan contoh. Batas panjang pengambilan contoh adalah 2.0 – 4.0 m.
9. Measure and mark depth of samples interval. A minimum sample length of 2.0m and maximum length of 4.0m is allowed.
10. Beri Yellow Core Marker dan pita di steiap batas kedalaman contoh.
10. Put Yellow Core Marker and Flagging Tape in every marked samples interval.


KALIMANTAN SURYA KENCANA
Core Handling Procedure : DRILL SITE – CORE SHED – PROCESSING
11. Ambil data *Core Recovery* dan batas contoh.
11. Measure and record core recovery and mark the sample intervals.
12. Ambil data Magsus. Isi formulir Chain of Custody 06 - DDH Core Data Collection Record.
12. Take MagSus data and filled Chain of Custody 06 - DDH Core Data Collection Record form.
13. Tentukan garis potong pada contoh yang akan dipotong.
13. Place cutting lines for core cutting guide
14. Ambil foto dalam kondisi kering sebelum dipotong. Pastikan di *Core Box* sudah ada garis potong, batas pengambilan contoh, dan contoh SG.
14. Take photograph in dry condition before cutting core. Make sure there are cutting line, interval sample, and SG sample on the core box.
15. Bungkus *Core* yang akan dipotong dengan plastic tipis dan solasi. Buat garis potong yang sama dengan garis potong yang ada di *Core* pada plastic tipis dan solasi.
15. Drill cores are covered with plastic wrap and tape before cutting. Mark the same cutting line on plastic wrap and tape as indicated in the drill cores.
16. Siapkan kantong contoh dan beri nomor contoh pada kantong contoh. Tulis nama titik bor dan kedalaman pada buku contoh sesuai dengan nomor contoh.
16. Prepare the sample bag and write the designated sample numbers. Write drill hole name and depth of sampling interval on the Sample Book according to respective sample number.
17. Potong contoh dengan mesin potong batu. Arah potong sesuai dengan garis potong. Isi formulir Chain of Custody 06 - DDH Core Data Collection Record.
17. Cut core by core-cutting machine following the marked core cutting lines. Filled Chain of Custody 06 - DDH Core Data Collection Record form.
18. Setengah *Core* dimasukan ke dalam kantung contoh, beri nomor contoh, dan akan dikirim ke laboratorium. Setengah *Core* lagi akan di simpan dalam *Core Box* dan beri nomor contoh juga. Isi formulir Chain of Custody 06 - DDH Core Data Collection Record dan Chain of Custody 07 - DDH Core Sampling Record.
18. Half core and sample number placed in the sample bag and this will be sent to laboratory for analysis. The other half core and and the other sample number are placed in the core trays for reference. Filled Chain of Custody 06 - DDH Core Data Collection Record and Chain of Custody 07 - DDH Core Sampling Record forms.
19. Ikat kuat kantung contoh, bila di dalam batas contoh terdapat contoh SG, maka berilah pita bernomor SG saat mengikat. Ikat kantung contoh dengan Label Pengaman yang bernomor contoh sama. Simpan berurut sesuai dengan nomor contoh. Timbang berat contoh.
19. Tie securely the sample bag, if there is a SG Sample on that interval; place a flagging tape with SG sample number outside the bag. Each sample bag sealed by security tag with sequential number identical to sample number. Weight the sample bag and record weight
20. Ambil foto dalam kondisi kering setelah dipotong. Pastikan semua informasi di *Core Box* terlihat jelas.
20. Take photograph in dry condition after cutting core. Make sure all the information in the Core Box evident when photographed.
21. Ukir semua informasi mengenai *Core Box* di sisi kanan bawah *Core Box*.
21. Engrave drill core details onto end of each core boxes – positioned at lower right hand corner.
22. Tulis kedalaman pengeboram, Nama Titik Bor, panjang *Run*, dan *Core Recovery* pada label aluminium dan di jepit dibagian bawah dari *Core Block*. Isi formulir Chain of Custody 11 - DDH Core Checklist setelah selesai semua aktivitas Coreshed.
22. Engrave the drilling meter, the Hole Name, drill run length and recovered core length details onto aluminium tags and stapled onto the underside of the core blocks. Filled Chain of Custody 11 - DDH Core Checklist after finished all Coreshed activities.

KALIMANTAN SURYA KENCANA

Core Handling Procedure : DRILL SITE – CORE SHED – PROCESSING

23. Contoh disiapkan untuk di kirim ke Lab Intertek di Medan. Sebelum contoh di masukan ke dalam karung, sampel-sampel setiap karung di foto bersama dengan karungnya. Hitung berat dan jumalah contoh untuk dianalisa. Isi formulir Chain of Custody 08 - DDH Core Sample Transport Record ketika pengiriman contoh.

23. *Packed samples for sending to Intertek Lab in Medan. Take photographs of the samples in sequential order together with labeled sack showing number of samples. Total weight and corresponding samples for analysis. Filled Chain of Custody 08 - DDH Core Sample Transport Record.*

SOP REVISION BY DUNCAN HACKMAN, 27 June 2015

PT. KSK, BERUANG KANAN PROJECT

Abraham Benian Widjaja

Specific Gravity

7. Always check the tool used for weight measurement every morning by measuring the same item all the time. Check if the weight is always the same.
8. Make sure water level in the bucket is constant.
9. For drill core that is not absorbing water, SG dry and wet are assumed to be the same value and measurement can be completed at BKM camp. The volume of the sample then also can be obtained.
10. For drill core that is absorbing water such as clay, SG measurement for wet condition can be done at BKM camp. Then that sample will be sent to Intertek to be dried.
11. To prove that SG dry and SG wet for non-porous rock are the same, a test need to be conducted:
    - Choose around 5-7 drill core of varied (non-porous) lithology
    - Soak them in the water for 3 days to get saturated
    - Put them in the oven and measure their weight every hours
    - If after 4-5 measurements the weight is stable, the test is succeed
12. For SG sample sent to Intertek, write calico number on SG sample bag where the SG sample put into. Example: SGK00287 / 121007

Down-hole survey interval

3. Down-hole survey is done at 10.00 m, 30.00 m, 50.00 m, 70.00 m, and so on every 20.00m.
4. If the EOH is less than 10.00 m interval from last survey, then it is not necessary to do another survey.

Control for down-hole survey camera tool and compass.

5. Built a drill-hole replica at the camp using an one meter PVC pipe buried underground and secured with concrete.
6. Surveyor is requested to give an accurate azimuth and inclination of this replica.
7. Then down-hole survey tool must do reading every 2 days. Check if the reading is constant and also compare the result with the surveyor's. Record them on a table.

8. Check every compass used for drill site set up. By doing this, each compass reading deviation (if any) can be recognized by comparing to accurate azimuth/inclination done by surveyor.

Drilling and core logging

4. Do not wash the core at the drill site; it may wash away any minerals.
5. Mark unnatural break of drill core at the drill site.
6. During core logging, differentiate type/style of veins observed on each sampling interval. Vein logging will also include their mineral content, number, percentage, and a number of vein that have <20^{o} angle to core axis.

Sampling

4. Try to keep mineralized interval sampled in one bag, separated to barren zone.
5. Put Blank Pulp, Blank Coarse, and Duplicate Sample on the mineralization zone.
6. Be careful when scooping sample on loose material, avoid contamination between samples.

RQD

3. Geotechnician have to discuss with geologist for any observation they are not sure about.
4. On mineralization zone, geologist should make observation and give advice to geothechnician for internal core lost degree when is necessary.

Core Photo

3. Write azimuth and inclination of the drill hole on core photograph title board.
4. Upload wet full core photograph every night using drop box.

KSK SG: Dry and Weigh Flowsheet - July 2015

Portions of the total assay sample have been selected for SG weighing. These portions require drying and weighing at ITS Jakarta - samples bags with SG portions will contain additional callico bags which contain the SG portions. The samples with SG portions will be tied with orange flagging tape and will be noted on the dispatch advice sheet. The bags containing the SG portions will be numbered for individual identification and will also have the assay sample number noted to which the final portion of the SG sample will be returned.

Receipt as normal - leave the SG portions in their calico bags. Weigh the assay sample and the SG portion(s) (in bags) together to get the total receipt wt (leave the SG portions in their bags) - record the receipt wt against the assay sample number (e.g. 124212).

Weigh each of the SG portion(s) seperately (keep in calico bags) and record receipt SG weight against their individual SG sample numbers (e.g. SGK0211).

Place the SG portion calico bags on top of the total sample for oven drying and dry as per the KSK Assay Sample Prep Protocols.

Weigh the assay dried sample and the dried SG portions (in bags) together to get the total dry weight (leave the SG portions in their bags) - record the dried weight against the assay sample number as normal (e.g. 124212).

Weigh each of the dried SG portions seperately (keep in calico bags) and record dried SG weight against their individual sample numbers (e.g. SGK0211).

Crush the SG portion to 95% passing -2mm (Boyd Crusher) and split 50:50. Return one 50% portion of the SG sample to the original assay sample and discard the other 50%

Proceed with assay sample preparation as per KSK Assay Sample Prep Flowsheet

For SG Samples (e.g. SGK0226) - please report received weight and post drying weight. Do not undertake SG determination.

Appendix 13 geoindo Survey Services Reports

KALIMANTAN GOLD CORPORATION Ltd.

BERUANG KANAN – CENTRAL KALIMANTAN, INDONESIA

REPORT FOR SURVEY OF BOREHOLE COORDINATES & SECTION LINES

JULY 2015

Report No : TRC / 004 / 15 / Rev.00. Rep. 1




geoindo SURVEY SERVICES

Certificate No: JKT0500251

PT. GEOINDO GIRI JAYA
Jl. Batununggal Indah IV No 83,
BANDUNG 40266,
West Java - INDONESIA
Tel: +62 22 7513168, +62 22 7538775
Fax: +62 22 7538776
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geoindo
SURVEY SERVICES

• Topographic, Hydrographic & Construction Survey Services • Site Control • Laser Scanning • 2D/3D Modelling • CAD/GIS Bureau
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KALIMANTAN GOLD CORPORATION Ltd.

BERUANG KANAN – CENTRAL KALIMANTAN
INDONESIA

REPORT FOR SURVEY OF
BOREHOLE COORDINATES & SECTION LINES

Report No: TRC / 004 / 15 / Rev.00. Rep. 1

Authorised and signed by ______________________
~~Managing Director~~/Technical Director

Date of issue 28th July 2015

KALIMANTAN GOLD CORPORATION Ltd.

BERUANG KANAN – CENTRAL KALIMANTAN, INDONESIA

REPORT FOR SURVEY OF BOREHOLE COORDINATES & SECTION LINES

REVISION HISTORY

Revision	Date	Description
00	28th July 2015	Initial Issue

Review / Approval Signatures		
Prepared by	**Reviewed by**	**Approved by**
Fahrizal Ilham	Adang Herdhyana	Bob Bacciarelli
Geodetic Engineer	Project Manager	Technical Director

KALIMANTAN GOLD CORPORATION Ltd.

BERUANG KANAN – CENTRAL KALIMANTAN, INDONESIA

REPORT FOR SURVEY OF BOREHOLE COORDINATES & SECTION LINES

TABLE OF CONTENTS **Page No.**

TABLES

FIGURES

APPENDICES

DRAWING

No.	DWG No.	Rev No.	Drawing Title	Scale	Size
1	TRC/004/001/001	A	Borehole Location	1 : 2,500	A1

KALIMANTAN GOLD CORPORATION Ltd.

BERUANG KANAN – CENTRAL KALIMANTAN, INDONESIA

REPORT FOR SURVEY OF BOREHOLE COORDINATES & SECTION LINES

1. INTRODUCTION

1.1 Project Description

Kalimantan Gold Corporation Ltd. is currently carrying out exploration mapping and drilling for mining project in Beruang Kanan, Central Kalimantan. As part of resource assessment and mine development planning, Kalimantan Gold Corporation Ltd. requires survey of borehole coordinates and section lines. There are two types of borehole coordinate, existing or old borehole (pickup) and new borehole (stakeout). Coordinates of all boreholes (old and new) to be tied in to existing benchmark on site, Ex Marinyuoi and BKM camp (Current Project) as a control point.

Kalimantan Gold Corporation Ltd. commissioned PT. Geoindo in May 2015 to carry out geodetic control survey, setting out section lines, and stakeout & pick up boreholes collar coordinates in Beruang Kanan, Central Kalimantan. The survey consisted of:

- Check existing BM BKM01 refer to two Bakosurtanal Benchmarks. We used Bakosurtanal Benchmark at Pontianak (CPON) and Balikpapan (CBAL) as a control point (by using CORS data).
- Construct additional BM consist of 2 pairs BMs (BKM03, BKM 04, BKM05, BKM06 were surveyed by static DGPS survey method) and 1 pair BM (BKM07, BKM08 were surveyed by traverse survey method).
- Perform geodetic control network using static DGPS survey method.
- Traverse survey.
- Stakeout survey for setting out 12 No. Section Lines (BK 31150 to BK 32650).
- Survey services for stakeout coordinates of 79 No. propose boreholes, and pickup coordinates of 65 No. existing boreholes.
- Drawing and Reporting.

This report presents the survey results, findings and conclusions together with drawings, figures, and tables summarizing the result of the survey.

1.2 Definitions / Abbreviations

Geoindo	=	PT. Geoindo Giri Jaya
DGPS	=	Differential Global Positioning System
LGO	=	Leica Geo Office
GDOP	=	Geometric Dilution of Precision
PDOP	=	Position Dilution of Precision
Company	=	Kalimantan Gold Corporation Ltd.
CORS	=	Continues Operating Reference Station

2. SCOPE OF WORK

The survey work consisted of the following:

1. Mobilisation.
2. Obtain permit, safety induction, prepare basecamp, site orientation, and coordinate with client for local labours.
3. Construct 4 No. new benchmarks (2 pairs) for entire survey area, and conduct static DGPS survey to tie in 2 No. Bakosurtanal/BIG control points (CORS data) at Pontianak and Balikpapan.
4. Stakeout survey for setting out 12 No. Section Lines.
5. Traverse survey around borehole locations which then tied in to minimum two benchmarks including adding 2 No. Benchmarks surveyed by traverse survey method.
6. Stakeout coordinates of 79 No. propose boreholes, and pick up coordinates 65 No. existing boreholes. Traverse survey was carried out to determine coordinates of additional control points for pick up coordinate of boreholes collar.
7. Field data processing and draft drawing production.
8. Demobilisation survey team.
9. Field data processing and QC.
10. Data processing, final report & drawing preparation in head office (Bandung)
11. Submit to client the pick-up boreholes collar survey report.

3. METHODOLOGY

The methodology used to carry out the survey of boreholes is presented in the following sections:

3.1 Mobilisation

The survey team mobilized from Bandung to Jakarta by car continued to Palangkaraya by air plane, and continued to Beruang Kanan by car on 30th May 2015. The team consisted of one senior surveyor (Ferry Ferdinan) until 23th June, replaced (Asep Kuswendi). The team was mobilized together with survey equipment consisting of the following:

- 2 units Leica GPS 1200 complete accessories.
- 1 unit total station Leica TS 06.
- 1 unit laptop with additional batteries & power
- 3 units Handy Talkie Radio for onsite communication.
- 1 unit digital camera.

3.2 Field Preparation

On arrival on site (31st May - 1st June 2015), the team conducted work coordination with client representatives, safety induction, site orientation, base camp preparation, set up radio communication, internet and office equipment.

3.3 Kick off Meeting and Site Inspection

On arrival on site, series of meetings were held at client office on site including:

- HSE briefing and induction.
- Security clearances and permits obtained for personnel, equipment and fieldwork activities if required.
- Confirm all logistic support.
- Scope of work explanation especially if there is client instruction on site.

A brief reconnaissance of survey area then was carried out in order to finalise work procedure and activities prior to start of fieldwork.

3.4 Benchmark Construction and Geodetic Control Survey

Resurvey of existing benchmark as base station BK Drill (BKM01) was carried out on 2nd June 2015 and tied in to CORS benchmarks at Pontianak (CPON benchmark) and Balikpapan (CBAL benchmark). CPON and CBAL are Indonesian CORS Networks from BIG (Geospatial Information Agency) that presented in Appendix 1 - BIG Reference Points.

Coordinate of BKM01 from our survey as follows:

Description	UTM S	UTM E	Ellipsoid Height	Latitude	Longitude
Base Stn BK Drill (BKM01)	9932425.408	769801.127	267.676	0°36'38.943"S	113°25'26.556"E

This value is different with previous survey with difference coordinates as follows:

Description	Geoindo Survey			Previous Survey			Difference of Coordinates		
	UTM S	UTM E	Ellipsoid Height	UTM S	UTM E	Ellipsoid Height	ΔX	ΔY	ΔZ
Base Stn BK Drill (BKM01)	9932424.0497	769803.8915	265.7407	9932425.408	769801.127	267.676	-1.358	2.764	-1.935

Difference of coordinate is likely occurred due to the use of reference points, methods and system of measurement is different as well as the possibility the central point of benchmark has shifted or different with previous survey. After discussion with the client (Mr. Steve Hughes) the value of new coordinate is used as reference for all survey activities.

Between 3rd June and 8th June 2015, total 4 No. benchmarks (2 pairs) consist of BKM03, BKM 04, BKM05, and BKM06 were constructed as additional BM for entire survey area. These new benchmarks were tied in to BKM01 benchmark by using static DGPS survey method.

DGPS survey network method was carried out over six hour period on BKM01 to CORS benchmarks and over one hour period on other new control points in order to tie in to existing reference benchmarks to determined coordinates and elevation of control points.

Technical specification of the GPS equipment used is as follows:

Model	: Leica GPS system 1200
Sensor Type	: Dual Frequency, 12 Channel
Accuracy	: 2 mm + 0.5 ppm

GPS observation data and coordinate transformation were processed using Leica Geo office V.7.0

Geodetic parameters for the survey used are as follows:

- ◊ Ellipsoid Reference : WGS 84
- ◊ Projection System : UTM Zone 49 S
- ◊ False Easting : 500,000
- ◊ False Northing : 0
- ◊ Central Meridian (CM) : 111° East
- ◊ Scale Factor : 0.9996
- ◊ Unit : Meters
- ◊ Elevation : Above Geoid / Orthometric height (Calculated by using EGM 2008 Model)

All data observation was automatically recorded on PCMCIA built in to total station to avoid manual record error.

Description of reference benchmark and new benchmarks are presented in Table 1 – List of Benchmark Coordinates and Appendix 2 – Benchmark Details. The geodetic control networks established by static DGPS survey are presented in Figure 1 – Geodetic Control Network.

Summary and results from geodetic control survey are presented in Table 2 – GPS Accuracy and Appendix 4 – Report of GPS Survey Data Processing.

3.5 Traverse Survey

Traverse survey was carried out between 8th June and 21st July 2015 to determine geodetic control coordinates along traverse route to boreholes locations. Total 2 No. benchmarks (1 pair) consist of BKM07 and BKM08 were constructed and surveyed by traverse survey as additional BM for entire survey area. All traverse markers were referenced to existing control points.

Minimum 2 No. existing control points were used as control points for traverse survey. Minimum 2 sets of angle and distance data in 1st face and 2nd face were recorded. All data was recorded automatically on memory card built in to the total stations to avoid manual record error.

Technical Specification of equipment used is as follows:

Model	: Leica TS 06 series
Angle Standard Deviation	: 1" both vertical and horizontal
Distance	: 2 mm + 2 ppm
Recording media	: Internal Memory 2 MB

Bowditch method was applied to obtain definitive coordinates. Levelling was applied by using our total station TS 06 series. Our survey result indicates that our equipment is sufficient to achieve accuracy better than (20 $\sqrt{D}$ km) mm, where D is levelling distance in km.

Summary and results from traverse survey are presented in Table 3 – Traverse Accuracy and Appendix 5 – Report of Traverse Survey Data Processing.

The traverse survey networks are presented in Figure 2 – Traverse Survey Network.

3.6 Pick up Borehole Collar Survey

The pickup borehole collar survey was carried out between 9th June and 20th July 2015, by one survey team for stakeout coordinates of 79 No. propose boreholes, and then pick up coordinates of 65 No. existing boreholes.

Traverse survey was carried out to determine coordinates of control points for pick up & stake out coordinate of borehole collars. Minimum 2 No. benchmarks were used as reference points for traverse survey.

All points of the survey was tied in and corrected with new control points / benchmarks.

Team started with line 31750 and the new holes and get BK57-58 surveyed, followed by the proposed holes. Afterwards survey new holes on line 32450 and did a couple of checks on the old KSK drill holes, to ensure accuracy of the previous survey data. The sequence borehole pickup was follow instruction on site. Team finished the survey at line 31550.

Coordinates of boreholes are presented in Table 4 – List of Borehole Collar Coordinates (Stakeout), Table 5 – List of Borehole Collar Coordinates (Pickup), and Appendix 3 – Borehole Details.

The position of all boreholes are presented in Figure 3 – Position of Boreholes and Drawing 001 – Borehole Map.

3.7 Data Processing

Data was analysed and processed in the field. All points from geodetic control and pick up borehole collar survey were used to generate the borehole map. Draft drawing of borehole map was updated every day after daily fieldwork finished.

Final data processing and analysis were done in Bandung. All data produced from the study was recorded on CD-ROM media and was submitted to Kalimantan Gold Corporation Ltd. at the end of the project.

3.8 Demobilisation

The team demobilized after completion of all of the survey work and after head office have approved initial results. The equipment was checked and packed. The team and equipment demobilized back to Bandung (head office) from Beruang Kanan to Palangkaraya by Car on 22nd July 2015, continued from Palangkaraya to Jakarta by air plane and continued from Jakarta to Bandung by car on 24th July 2015.

3.9 Deliverables and Reporting

3.9.1 Daily Report

Field survey progress and data from the survey was reported to Kalimantan Gold Corporation Ltd. the next day after completion. This also included programme for the next day's work and any problems which had or might occur during the fieldwork.

3.9.2 Final Report

The final report was produced in our Bandung office and included finalisation of the approved final draft drawings.

The report was consisted of hard copy and soft copy of the following:

- Drawings on A1 sheets at 1:2,500.
- Report book with tables, figures and appendix. Softcopy excel and ASCII file of tabulated data for benchmark coordinates and borehole collars coordinates.
- Two original hardcopy and soft copy of files in DVD format

3.10 Coordination and Communication with Company

During the project work, one senior surveyor communicated and coordinated with both the Kalimantan Gold Corporates Ltd. representative and our head office in Bandung on a daily basis. Daily activity reports were produced during field work and processing work and submitted to Kalimantan Gold Corporates Ltd. representative and our head office.

All correspondence related to administrative matters including those related to contractual or financial was between Kalimantan Gold Corporates Ltd. representative and our company director.

4. QUALITY CONTROL

PT. Geoindo is an ISO 9001 company certified by Llyods and is committed to the philosophy of quality assurance and quality control.

Each step of the survey process was reviewed and checked by senior members of the team prior to review by the technical directors. Our expatriate director oversaw the project team which consisted of our Indonesian surveyors and ensured that international standards and Kalimantan Gold Corporates Ltd. requirements were fully met.

Quality control is assured in that although the work was mainly carried out by our Indonesian professional staff, they were managed and technically controlled by one of our expatriate directors.

Data processing and draft drawings were generated directly in the field on a daily basis after each day survey fieldwork. The draft drawings and survey data processing was used to check and verify the previous day's survey as part of our Quality Control.

The data and draft drawing were then checked by our QC in head office Bandung before review and sign off by our survey manager prior to final check and sign off by one of our technical directors. Once the checks and signoffs were obtained the report and drawing were submitted to client in DRAFT form. Client review was then carried out by Kalimantan Gold Corporates Ltd. and approval given for Geoindo to finalise and submit the FINAL report and drawings.

5. SUMMARY AND CONCLUSIONS

The survey work which has been carried is summarized as follows:

1. Resurvey of existing benchmark as base station BK Drill (BKM01) was tied in to CORS benchmarks at Pontianak (CPON) and Balikpapan (CBAL).
2. Construct additional BM consist of 2 pairs BMs (BKM03, BKM 04, BKM05, BKM06) which were surveyed by static DGPS survey method and 1 pair BM (BKM07, BKM08) which were surveyed by traverse survey method).
3. Perform geodetic control network using static DGPS survey method.
4. Traverse survey.
5. Stakeout survey for setting out 12 No. Section Lines (BK 31150 to BK 32650).
6. Survey services for stakeout coordinates of 79 No. propose boreholes, and pickup coordinates of 65 No. existing boreholes.

Final data processing, reporting and drawing was carried out between 23th and 25th July 2015. The survey results are summarized below:

- Descriptions of new benchmarks are presented in Table 1 – List of Benchmark Coordinates and Appendix 2 – Benchmark Details.
- Summary and results from GPS survey are presented in Table 2 – GPS Accuracy and Appendix 4 – Report of GPS Survey Data Processing.
- GPS survey network is presented in Figure 1 – GPS Survey Network.
- Summary and results from traverse survey are presented in Table 3 – Traverse Accuracy and Appendix 5 – Report of Traverse Survey Data Processing.
- Traverse survey network is presented in Figure 2 – Traverse Survey Network.
- Coordinates of boreholes are presented in Table 4 – List of Borehole Collar Coordinates (Stakeout), Table 5 – List of Borehole Collar Coordinates (Pickup), and Appendix 3 – Borehole Details.
- Drawing of borehole map is presented in Drawing 001 – Borehole Map.

LIST OF BENCHMARK COORDINATES

Point ID	Geographic Coordinates								Ellips. Height (m)	UTM Coordinates		Elevation above GEOID (EGM2008)	Remarks
	Latitude				Longitude					Easting (m)	Northing (m)		
	°	'	"		°	'	"						
BKM01	0	36	38.98745	S	113	25	26.64526	E	265.7407	769803.892	9932424.050	219.725	Existing Benchmark
BKM03	0	36	41.40273	S	113	25	9.74559	E	342.1881	769281.054	9932350.063	296.182	New Benchmark/GPS
BKM04	0	36	39.79519	S	113	25	10.42297	E	338.9533	769302.031	9932399.454	292.947	New Benchmark/GPS
BKM05	0	36	52.54702	S	113	25	16.18966	E	272.3393	769480.251	9932007.504	226.332	New Benchmark/GPS
BKM06	0	36	54.17149	S	113	25	15.90559	E	274.2409	769471.440	9931957.588	228.234	New Benchmark/GPS
BKM07	0	37	4.267334	S	113	24	57.01034	E	426.5943	768886.762	9931647.604	380.599	New Benchmark/Traverse
BKM08	0	37	4.293532	S	113	24	55.08636	E	429.1753	768827.242	9931646.826	383.181	New Benchmark/Traverse
Note:													

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TABLE 1 - LIST OF BENCHMARK COORDINATES

geoindo
SURVEY SERVICES

Accuracy of GPS calculation is described as follow :

Loop	Accuracy Obtained	Accuracy Required	Acceptance (Y/N)
BKM01 – BKM03 – BKM05	1 : 69,211	1 : 50,000	Y

Calculated by: Ferry Ferdinan	Dicek oleh : Kurniayati
Tanggal : 10 June 2014	Tanggal : 11 June 2014

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TABLE 2 – GPS ACCURACY

geoindo SURVEY SERVICES

Horizontal and Vertical accuracy obtained for traverse survey is summarised below :

Traverse	Accuracy Obtained	Accuracy Required	Acceptance (Y/N)
Loop 1 BM 3-4,BM 5-6	Horizontal : 1 in 7.849 Vertikal : (0.003√D) mm	Horizontal : 1 in 5.000 Vertical : (10√D)mm	Y Y
Loop 2 BKM 31550	Horizontal : 1 in 36.669 Vertikal : (0.009√D) mm	Horizontal : 1 in 5.000 Vertical : (10√D)mm	Y Y
Loop 3 BKM 31650-31750	Horizontal : 1 in 13.248 Vertikal : (0.005√D) mm	Horizontal : 1 in 5.000 Vertical : (10√D)mm	Y Y
Loop 4 BKM 31950-31850	Horizontal : 1 in 33.507 Vertikal : (0.005√D) mm	Horizontal : 1 in 5.000 Vertical : (10√D)mm	Y Y
Loop 5 BKM 32050-32150	Horizontal : 1 in 28.925 Vertikal : (0.007√D) mm	Horizontal : 1 in 5.000 Vertical : (10√D)mm	Y Y
Loop 6 BKM 32350-32250	Horizontal : 1 in 18.518 Vertikal : (0.007√D) mm	Horizontal : 1 in 5.000 Vertical : (10√D)mm	Y Y
Loop 7 BKM 32650	Horizontal : 1 in 20.727 Vertikal : (0.002√D) mm	Horizontal : 1 in 5.000 Vertical : (10√D)mm	Y Y
Loop 8 BKM 32450	Horizontal : 1 in 8.064 Vertikal : (0.001√D) mm	Horizontal : 1 in 5.000 Vertical : (10√D)mm	Y Y
Loop 9 BKM 32550	Horizontal : 1 in 5.753 Vertikal : (0√D) mm	Horizontal : 1 in 5.000 Vertical : (10√D)mm	Y Y
Calculated by : Asep Kuswendi Date: 25 July 2015		Checked by : M.Sopyan Date: 25 July 2015	

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TABLE 3 – TRAVERSE ACCURACY

LIST OF DRILL HOLE COLLAR COORDINATES (STAKEOUT)

geoindo

Client Name: Kalimantan Gold Corporate Ltd
Project No.: TRC 004
Project Name: Survey of Borehole Coordinates & Section Lines
Location: Beruang Kanan, Central Kalimantan

• Typographic, Hydrographic & Construction Survey services • Site Control • Laser Scanning • 2D/3D Modelling • CAD/GIS Bureau • Satellite Imagery • Air Photography • Lidar Airbone Laser Topographic Surveys

PROPOSED DRILL HOLE COORDINATE					ACTUAL DRILL HOLE COLLAR COORDINATE								
NO	Hole ID	Easting	Northing	Elevation	Easting	Northing	Elevation		DIFFERENCE			Picked up Date	Remark
				Ellipsoid			Geoid	Ellipsoid	Easting	Northing	Elevation Ellipsoid		
1	BKM31550-01	769078.253	9931550.000	379.638	769078.251	9931549.966	333.081	379.076	0.002	0.034	0.562	07 July 2015	
2	BKM31550-02	768974.178	9931550.000	397.771	768974.182	9931549.958	351.947	397.936	-0.004	0.042	-0.165	07 July 2015	
3	BKM31550-03	768877.190	9931550.000	427.647	768877.198	9931549.979	381.943	427.968	-0.008	0.021	-0.320	07 July 2015	
4	BKM31550-04	768776.190	9931550.000	452.950	768776.220	9931549.973	407.321	453.344	-0.030	0.027	-0.394	08 July 2015	
5	BKM31550-05	768671.196	9931550.000	446.452	768671.122	9931550.877	401.752	447.768	0.073	-0.877	-1.316	08 July 2015	
6	BKM31550-06	769173.871	9931550.000	347.147	769173.860	9931549.975	300.387	346.387	0.011	0.025	0.760	07 July 2015	
7	BKM31650-05	768940.997	9931650.000	413.168	768940.808	9931647.730	365.830	411.826	0.189	2.270	1.342	16 June 2015	
8	BKM31650-06	768999.539	9931650.000	408.486	768999.325	9931648.334	362.927	408.924	0.214	1.666	-0.438	16 June 2015	
9	BKM31650-07	769049.701	9931650.000	389.181	769049.526	9931648.859	345.063	391.061	0.175	1.141	-1.880	16 June 2015	
10	BKM31650-08	769093.871	9931650.000	356.377	769093.593	9931649.342	312.736	358.735	0.278	0.658	-2.358	15 June 2015	
11	BKM31650-09	769145.262	9931650.000	322.010	769145.006	9931649.823	277.250	323.250	0.256	0.177	-1.240	15 June 2015	
12	BKM31750-10	769202.564	9931750.000	333.454	769202.567	9931750.007	287.597	333.598	-0.003	-0.007	-0.144	24 June 2015	
13	BKM31850-01	769201.636	9931850.000	339.794	769201.633	9931850.014	292.981	338.983	0.003	-0.014	0.811	24 June 2015	
14	BKM31850-02	769157.212	9931850.000	364.203	769157.218	9931850.008	317.954	363.955	-0.006	-0.008	0.248	24 June 2015	
15	BKM31850-03	769105.953	9931850.000	374.455	769105.956	9931850.024	331.384	377.384	-0.003	-0.024	-2.929	24 June 2015	
16	BKM31850-04	769060.552	9931850.000	395.447	769060.544	9931850.032	350.952	396.951	0.008	-0.032	-1.504	25 June 2015	
17	BKM31850-05	769019.110	9931850.000	426.623	769019.091	9931850.023	380.838	426.837	0.019	-0.023	-0.214	25 June 2015	
18	BKM31850-06	768900.869	9931850.000	417.879	768900.896	9931850.087	369.298	415.295	-0.027	-0.087	2.584	25 June 2015	
19	BKM31850-07	768848.422	9931850.000	427.080	768848.429	9931850.087	382.584	428.580	-0.007	-0.087	-1.500	25 June 2015	
20	BKM31850-08	768797.024	9931850.000	429.057	768797.007	9931850.084	384.123	430.118	0.017	-0.084	-1.061	02 July 2015	
21	BKM31850-09	768734.786	9931850.000	438.581	768734.800	9931850.095	391.156	437.150	-0.014	-0.095	1.431	02 July 2015	
22	BKM31850-10	768578.489	9931850.000	405.614	768578.505	9931849.949	358.109	404.100	-0.016	0.051	1.514	19 June 2015	
23	BKM31950-01	768651.869	9931950.000	447.308	768651.888	9931949.971	400.401	446.394	-0.019	0.030	0.914	19 June 2015	
24	BKM31950-02	768713.137	9931950.000	451.607	768713.196	9931949.988	403.992	449.986	-0.059	0.012	1.621	18 June 2015	
25	BKM31950-03	768778.991	9931950.000	462.211	768779.038	9931949.987	416.369	462.364	-0.047	0.013	-0.153	18 June 2015	
26	BKM31950-04	768834.305	9931950.000	456.105	768834.328	9931949.989	410.308	456.304	-0.023	0.011	-0.199	18 June 2015	
27	BKM31950-05	768888.003	9931950.000	448.023	768888.000	9931949.989	401.860	447.857	0.003	0.011	0.166	18 June 2015	
28	BKM31950-06	768938.153	9931950.000	434.164	768938.204	9931949.992	388.312	434.310	-0.051	0.008	-0.146	18 June 2015	
29	BKM31950-07	768990.961	9931950.000	417.531	768990.984	9931949.993	371.442	417.441	-0.022	0.007	0.090	17 June 2015	
30	BKM31950-08	769040.157	9931950.000	401.124	769040.210	9931949.988	355.020	401.020	-0.053	0.012	0.104	17 June 2015	
31	BKM31950-09	769094.530	9931950.000	380.235	769094.552	9931949.996	334.460	380.461	-0.022	0.004	-0.226	17 June 2015	
32	BKM31950-10	769145.953	9931950.000	352.215	769145.988	9931949.999	306.445	352.447	-0.035	0.001	-0.232	17 June 2015	
33	BKM32050-01	768998.180	9932050.000	398.113	768998.182	9932049.997	351.772	397.771	-0.002	0.003	0.342	02 July 2015	
34	BKM32050-02	768948.297	9932050.000	403.348	768948.277	9932049.998	357.130	403.129	0.020	0.002	0.219	03 July 2015	
35	BKM32050-03	768854.629	9932050.000	440.767	768854.625	9932049.997	395.133	441.130	0.004	0.003	-0.363	03 July 2015	
36	BKM32050-04	768804.443	9932050.000	460.537	768804.445	9932049.996	414.575	460.571	-0.002	0.004	-0.034	03 July 2015	
37	BKM32050-05	768702.347	9932050.000	488.149	768702.310	9932049.997	439.212	485.206	0.037	0.003	2.943	04 July 2015	
38	BKM32150-02	768729.523	9932150.000	478.010	768729.515	9932149.998	433.527	479.522	0.009	0.002	-1.512	05 July 2015	
39	BKM32150-03	768774.520	9932150.000	465.788	768774.493	9932149.993	419.436	465.432	0.026	0.007	0.356	05 July 2015	
40	BKM32150-04	768828.519	9932150.000	457.487	768828.502	9932149.993	412.358	458.355	0.017	0.007	-0.868	05 July 2015	
41	BKM32150-05	768922.111	9932150.000	425.275	768922.052	9932150.003	381.045	427.044	0.060	-0.003	-1.769	05 July 2015	
42	BKM32150-06	768970.316	9932150.000	407.517	768970.258	9932150.011	364.877	410.877	0.058	-0.011	-3.360	05 July 2015	
43	BKM32250-01	768973.876	9932249.999	403.545	768973.772	9932249.872	356.888	402.888	0.105	0.127	0.657	30 June 2015	
44	BKM32250-02	768881.001	9932250.001	457.190	768880.964	9932249.935	411.591	457.589	0.037	0.066	-0.399	30 June 2015	
45	BKM32250-03	768836.998	9932250.001	483.246	768836.918	9932249.964	437.270	483.268	0.080	0.037	-0.022	30 June 2015	
46	BKM32250-04	768731.747	9932250.001	505.158	768731.673	9932249.938	458.147	504.143	0.074	0.063	1.015	29 June 2015	
47	BKM32250-05	768681.750	9932250.001	518.982	768681.656	9932249.991	474.555	520.550	0.094	0.011	-1.568	29 June 2015	
48	BKM32250-06	768633.732	9932250.001	536.689	768633.669	9932250.026	491.368	537.362	0.063	-0.025	-0.673	29 June 2015	
49	BKM32250-07	768556.720	9932250.001	546.874	768556.631	9932250.057	502.007	548.000	0.089	-0.056	-1.126	29 June 2015	
50	BKM32250-08	769011.994	9932250.000	374.127	769011.937	9932249.850	327.514	373.515	0.057	0.150	0.612	30 June 2015	
51	BKM32350-01	768482.165	9932350.000	575.296	768482.171	9932350.129	529.404	575.396	-0.006	-0.129	-0.100	28 June 2015	
52	BKM32350-02	768535.455	9932350.000	566.369	768535.481	9932350.107	520.486	566.481	-0.026	-0.107	-0.112	28 June 2015	
53	BKM32350-03	768619.868	9932350.000	532.763	768619.890	9932350.112	484.530	530.524	-0.022	-0.112	2.239	28 June 2015	
54	BKM32350-04	768666.018	9932350.000	516.977	768666.035	9932350.091	470.995	516.990	-0.017	-0.091	-0.013	27 June 2015	
55	BKM32350-05	768737.672	9932350.000	489.147	768737.680	9932350.065	443.614	489.610	-0.008	-0.065	-0.463	27 June 2015	
56	BKM32350-06	768839.264	9932350.000	459.866	768839.276	9932350.034	414.018	460.016	-0.012	-0.034	-0.150	27 June 2015	
57	BKM32350-07	768896.684	9932350.000	444.877	768896.693	9932350.023	401.261	447.260	-0.009	-0.023	-2.383	27 June 2015	
58	BKM32350-08	768999.726	9932350.000	387.985	768999.699	9932349.997	340.453	386.454	0.027	0.003	1.531	26 June 2015	
59	BKM32450-10	768978.167	9932450.000	395.880	768978.154	9932450.298	349.556	395.557	0.013	-0.298	0.323	26 June 2015	
60	BKM32450-11	769050.038	9932450.000	387.137	769049.988	9932450.177	341.694	387.696	0.050	-0.177	-0.559	26 June 2015	
61	BKM32450-12	769101.041	9932450.000	374.881	769101.035	9932450.102	328.685	374.688	0.006	-0.102	0.193	26 June 2015	
62	BKM32450-13	769150.067	9932450.000	359.461	769150.055	9932450.034	314.248	360.252	0.012	-0.034	-0.791	26 June 2015	
63	BKM32550-01	768934.517	9932550.000	391.179	768934.484	9932550.171	345.807	391.808	0.033	-0.171	-0.629	09 June 2015	
64	BKM32550-02	768883.662	9932550.000	406.327	768883.668	9932550.188	361.037	407.037	-0.006	-0.188	-0.710	09 June 2015	
65	BKM32550-03	768834.159	9932550.000	419.311	768834.211	9932550.213	374.056	420.055	0.003	-0.213	-0.744	09 June 2015	
66	BKM32550-04	768782.056	9932550.000	431.291	768782.075	9932550.245	386.148	432.146	-0.019	-0.245	-0.855	10 June 2015	
67	BKM32550-05	768729.875	9932550.000	442.441	768729.896	9932550.273	396.381	442.378	-0.021	-0.273	0.063	10 June 2015	
68	BKM32550-06	768623.245	9932550.000	474.973	768623.247	9932550.334	429.152	475.147	-0.002	-0.334	-0.174	10 June 2015	
69	BKM32550-07	768523.752	9932550.000	504.606	768523.702	9932550.455	459.439	505.432	0.050	-0.455	-0.826	10 June 2015	
70	BKM32550-08	768476.025	9932550.000	528.624	768475.996	9932550.423	484.478	530.471	0.029	-0.423	-1.846	10 June 2015	
71	BKM31850-11	768679.000	9931850.000	448.100	768678.989	9931850.000	382.211	428.204	0.011	0.000	19.896	08 July 2015	
72	BKM32050-06	768650.000	9932050.000	515.760	768649.969	9932049.970	423.296	469.289	0.031	0.030	46.471	04 July 2015	
73	BKM32050-07	768600.000	9932050.000	543.370	768599.974	9932049.956	407.576	453.569	0.026	0.044	89.802	04 July 2015	
74	BKM32150-01	768625.520	9832150.000	490.230	768625.461	9932149.948	450.666	496.659	0.059	0.052	-6.429	04 July 2015	
75	BKM32250-09	768498.780	9932250.000	557.050	768498.841	9932250.019	495.729	541.721	-0.061	-0.019	15.329	11 July 2015	
76	BKM32450-09	768372.586	9932451.047	547.587	768372.604	9932451.124	502.089	548.079	-0.017	-0.077	-0.492	11 July 2015	
77	BKM32650-03	768779.000	9932650.000	463.000	768778.976	9932650.050	418.844	464.842	0.024	-0.050	-1.842	12 July 2015	
78	BKM32650-02	768866.000	9932650.000	445.000	768865.978	9932649.936	401.889	447.889	0.022	0.064	-2.889	13 July 2015	
79	BKM32650-01	768951.000	9932650.000	395.000	768950.944	9932649.656	350.489	396.490	0.056	0.344	-1.490	13 July 2015	

LIST OF DRILL HOLE COLLAR COORDINATES (PICK UP)

geoindo

Client Name	Kalimantan Gold Corporate Ltd
Project No.	TRC 004
Project Name	Survey of Borehole Coordinates & Section Lines
Location	Beruang Kanan, Central Kalimantan

• Topographic, Hydrographic & Construction Survey services • Site Control • Laser Scanning • 2D/3D Modeling • CAD/GIS Bureau • Satellite Imagery • Air Photography • Lidar Airborne Laser Topographic Surveys

NO	Hole ID	PROPOSED DRILL HOLE COORDINATE			ACTUAL DRILL HOLE COLLAR COORDINATE				DIFFERENCE			Picked up Date	Remark
		Easting	Northing	Elevation Ellipsoid	Easting	Northing	Elevation Geoid	Elevation Ellipsoid	Easting	Northing	Elevation Ellipsoid		
1	BK-1	768687.780	9932360.080	509.190	768692.023	9932338.538	455.126	501.121	-4.243	21.542	8.069	28 June 2015	
2	BK-10	768938.340	9932512.330	387.410	768941.215	9932511.516	340.566	386.567	-2.875	0.814	0.843	14 July 2015	
3	BK-11	769073.254	9931593.154	361.580	769070.280	9931587.202	318.450	364.448	2.974	5.952	-2.868	19 July 2015	
4	BK-14	768411.080	9932328.370	560.410	768407.270	9932333.221	516.331	562.321	3.770	-4.851	-1.911	11 July 2015	
5	BK-2	768675.940	9932523.700	449.780	768673.964	9932525.431	403.073	449.069	1.976	-1.731	0.711	15 July 2015	
6	BK-3	768672.220	9932526.100	449.760	768677.065	9932525.083	403.118	449.114	-4.845	1.017	0.646	15 July 2015	
7	BK-4	768779.350	9932142.250	466.660	768783.188	9932141.814	420.169	466.165	-3.838	0.436	0.495	05 July 2015	
8	BK-5	768944.880	9931779.900	416.000	768947.682	9931779.046	369.169	415.166	-2.802	0.854	0.834	18 July 2015	
9	BK-6	768817.391	9931938.693	458.560	768821.823	9931937.717	411.809	457.805	-4.432	0.976	0.755	20 July 2015	
10	BK-7	768950.190	9931977.820	424.510	768953.584	9931977.033	377.010	423.008	-3.394	0.787	1.502	20 July 2015	
11	BK-9	769331.196	9932502.200	315.702	769334.059	9932501.172	269.322	315.330	-2.863	1.028	0.372	15 July 2015	
12	BK-17A	769170.200	9932037.030	340.820	769164.692	9932035.107	297.156	343.158	5.508	1.923	-2.338	20 July 2015	
13	BK-17B	769142.260	9932133.620	346.120	769145.102	9932132.840	300.155	346.157	-2.842	0.780	-0.037	20 July 2015	
14	BK029	768723.410	9932518.850	437.720	768725.211	9932518.103	390.776	436.773	-1.801	0.747	0.947	15 July 2015	
15	BK030	768785.560	9932343.010	477.830	768788.635	9932342.209	430.773	476.770	-3.075	0.801	1.060	27 June 2015	
16	BK031	768665.410	9932445.650	476.280	768668.287	9932444.919	429.275	475.271	-2.877	0.731	1.009	10 July 2015	
17	BK032	768791.320	9932440.070	438.750	768795.034	9932439.334	391.344	437.342	-3.714	0.736	1.408	09 July 2015	
18	BK033	768572.340	9932540.320	489.940	768575.599	9932539.599	443.349	489.343	-3.259	0.721	0.597	12 July 2015	
19	BK034	768874.200	9932516.230	405.940	768877.199	9932515.377	359.337	405.336	-2.999	0.853	0.604	14 July 2015	
20	KBK-0021	768941.896	9932599.829	392.775	768943.024	9932599.352	346.023	392.024	-1.128	0.477	0.751	14 July 2015	
21	KBK-0024	768895.250	9931483.600	430.060	768898.008	9931482.757	383.214	429.209	-2.758	0.843	0.851	16 July 2015	
22	BK035	768586.020	9932337.080	555.680	768589.050	9932336.782	508.927	554.921	-3.030	0.298	0.759	28 June 2015	
23	BK036	768796.200	9932621.780	446.980	768799.162	9932620.889	400.027	446.026	-2.962	0.891	0.954	13 July 2015	
24	BK037	768647.960	9932628.760	483.720	768650.556	9932627.956	435.355	481.351	-2.596	0.804	2.369	12 July 2015	
25	BK038	769025.810	9932621.510	382.070	769028.625	9932620.531	335.165	381.167	-2.815	0.979	0.903	14 July 2015	
26	BK044	768940.610	9932342.890	416.280	768943.302	9932342.034	369.341	415.341	-2.692	0.856	0.939	27 June 2015	
27	BK044-02	768942.390	9932342.830	416.850	768944.854	9932342.100	368.126	414.126	-2.464	0.730	2.724	27 June 2015	
28	BK045	768781.510	9932246.960	489.550	768784.380	9932246.262	442.611	488.608	-2.870	0.698	0.942	30 June 2015	
29	BK047	768680.870	9932145.590	484.800	768683.709	9932144.718	437.937	483.931	-2.839	0.872	0.869	04 July 2015	
30	BK046	768926.540	9932241.270	435.760	768929.553	9932240.356	389.306	435.305	-3.013	0.914	0.455	30 June 2015	
31	BK048	768881.070	9932130.870	450.210	768883.579	9932130.188	403.540	449.538	-2.509	0.682	0.672	05 July 2015	
32	BK049	768754.550	9932043.960	484.220	768757.197	9932043.007	437.312	483.307	-2.647	0.953	0.913	03 July 2015	
33	BK050	768906.210	9932029.440	431.300	768908.775	9932028.772	382.213	428.211	-2.565	0.668	3.089	03 July 2015	
34	BK051	769037.100	9931490.470	380.750	769039.667	9931489.677	332.727	378.724	-2.567	0.793	2.026	16 July 2015	
35	BK053	769050.000	9932050.000	383.133	769033.156	9932031.002	345.283	391.283	16.844	18.998	-8.150	02 July 2015	
36	BK054	768950.000	9931850.000	408.700	768930.435	9931835.333	367.318	413.315	19.566	14.667	-4.615	02 July 2015	
37	BK055	769050.000	9932250.000	359.530	769037.567	9932252.728	318.617	364.618	12.433	-2.728	-5.088	30 June 2015	
38	BK056	769050.000	9932150.000	374.000	769073.197	9932181.031	315.137	361.138	-23.197	-31.011	12.862	20 July 2015	
39	BK057	769150.000	9931750.000	342.770	769139.527	9931752.382	298.996	344.996	10.473	-2.382	-2.226	19 July 2015	
40	BK058	769050.000	9931750.000	376.190	769046.025	9931757.453	332.936	378.935	3.975	-7.453	-2.745	19 July 2015	
41	BKD03-01	768922.860	9932432.790	414.340	768925.691	9932431.983	367.534	413.534	-2.831	0.807	0.806	09 July 2015	
42	BKD03-02	768925.910	9932432.110	414.680	768928.644	9932431.340	367.473	413.473	-2.734	0.770	1.207	09 July 2015	
43	KBK-0023	768580.000	9932256.010	551.604	768583.180	9932255.355	504.964	550.957	-3.180	0.655	0.647	11 July 2015	
44	KBK-0026	769301.977	9932241.765	337.995	769304.786	9932241.170	291.292	337.297	-2.809	0.595	0.698	20 July 2015	
45	BKM31650-01	768689.455	9931650.000	404.045	768684.318	9931647.418	357.688	403.680	5.137	2.582	0.365	16 July 2015	
46	BKM31650-02	768769.667	9931650.000	438.058	768766.253	9931653.308	389.617	435.610	3.414	-3.308	2.448	18 July 2015	
47	BKM31650-03	768827.787	9931650.000	427.383	768824.107	9931652.557	381.219	427.213	3.680	-2.557	0.170	18 July 2015	
48	BKM31650-04	768888.199	9931650.000	426.368	768883.197	9931653.237	379.973	425.968	5.002	-3.237	0.400	18 July 2015	
49	BKM31750-01	769102.000	9931750.000	363.215	769085.842	9931753.145	329.561	375.560	16.158	-3.145	-12.345	19 July 2015	
50	BKM31750-02	769006.000	9931750.000	397.224	769001.216	9931758.576	354.542	400.540	4.784	-8.576	-3.316	19 July 2015	
51	BKM31750-03	768958.000	9931750.000	416.994	768950.207	9931764.045	373.182	419.179	7.793	-14.045	-2.185	18 July 2015	
52	BKM31750-04	768901.000	9931750.000	419.712	768892.233	9931750.821	373.151	419.147	8.767	-0.821	0.565	18 July 2015	
53	BKM31750-05	768842.803	9931750.000	418.738	768839.971	9931751.052	371.106	417.101	2.832	-1.052	1.637	18 July 2015	
54	BKM31750-06	768783.769	9931750.000	401.028	768786.908	9931756.683	356.084	402.078	-3.139	-6.683	-1.050	18 July 2015	
55	BKM31750-07	768700.806	9931750.000	393.390	768706.054	9931746.320	348.799	394.792	-5.248	3.680	-1.402	18 July 2015	
56	BKM31750-08	768600.512	9931750.000	378.973	768656.795	9931753.096	342.768	388.760	-56.283	-3.096	-9.787	18 July 2015	
57	BKM32450-01	768845.305	9932449.198	422.693	768849.178	9932444.278	376.422	422.421	-3.873	4.920	0.272	09 July 2015	
58	BKM32450-02	768746.269	9932449.198	443.263	768745.382	9932453.281	396.518	442.515	0.887	-4.083	0.748	09 July 2015	
59	BKM32450-03	768704.078	9932449.198	455.517	768710.227	9932455.283	405.265	451.261	-6.148	-6.085	4.256	09 July 2015	
60	BKM32450-04	768613.082	9932449.198	485.301	768616.345	9932458.368	438.668	484.663	-3.264	-9.170	0.638	10 July 2015	
61	BKM32450-05	768562.638	9932450.000	497.805	768567.582	9932458.524	449.636	495.630	-4.943	-8.524	2.175	10 July 2015	
62	BKM32450-06	768518.178	9932450.000	521.077	768519.889	9932463.828	475.895	521.888	-1.711	-13.828	-0.811	10 July 2015	
63	BKM32450-07	768470.246	9932450.000	537.402	768470.660	9932456.212	490.755	536.747	-0.414	-6.212	0.655	10 July 2015	
64	BKM32450-08	768417.500	9932447.927	549.000	768423.084	9932458.720	498.665	544.656	-5.584	-10.793	4.344	11 July 2015	
65	BKM32550-05	768934.517	9932550.000	391.179	768991.884	9932526.667	335.172	381.173	-57.367	23.333	10.006	14 July 2015	

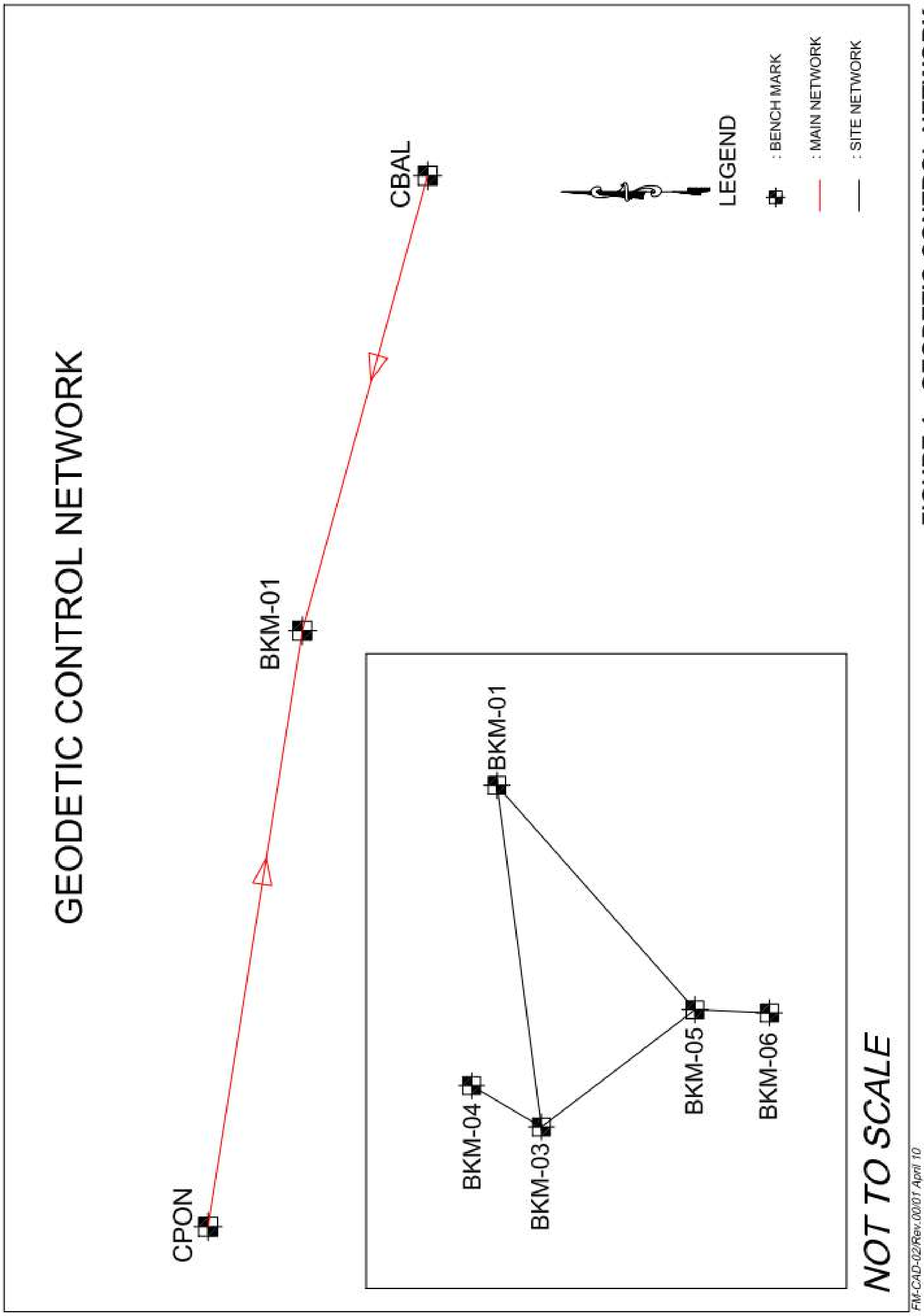

FIGURE 1 - GEODETIC CONTROL NETWORK

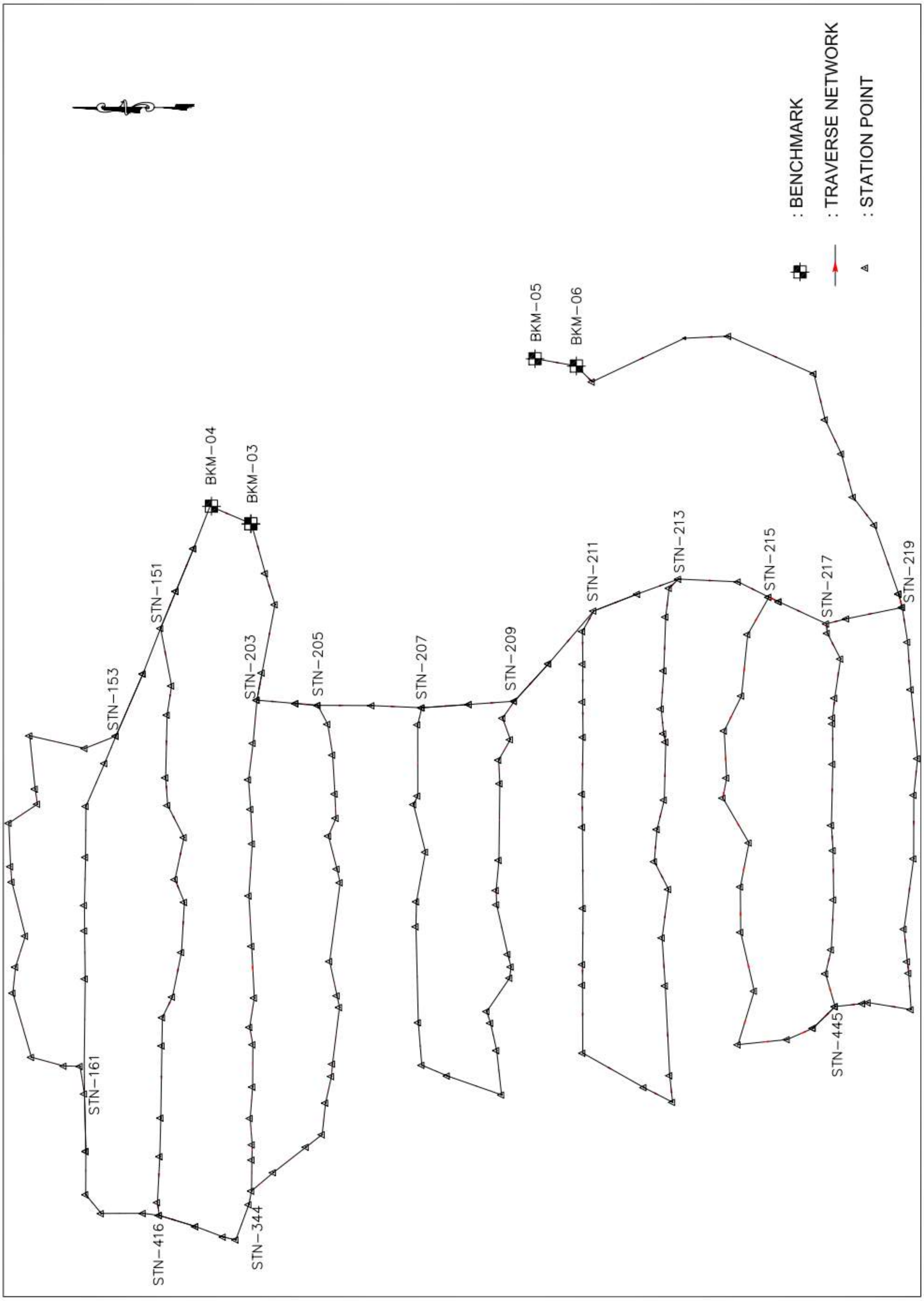

FIGURE 2 - TRAVERSE SURVEY NETWORK

PT. KALIMANTAN SURYA KENCANA

BERUANG KANAN – CENTRAL KALIMANTAN, INDONESIA

REPORT FOR SURVEY OF DRILL HOLE COLLAR LOCATIONS

JULY 2016

Report No. : AMR / 001 / 16 / Rev. 00. Rep.1




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SURVEY SERVICES

• Topographic, Hydrographic & Construction Survey Services • Site Control • Laser Scanning • 2D/3D Modelling • CAD/GIS Bureau
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Authorised and signed by ______________________
~~Managing Director~~/Technical Director

Date of issue 13th July 2016

PT. KALIMANTAN SURYA KENCANA

BERUANG KANAN – CENTRAL KALIMANTAN, INDONESIA

REPORT FOR SURVEY OF DRILL HOLE COLLAR LOCATIONS

REVISION HISTORY

Revision	Date	Description
00	13th July 2016	Initial Issue

Review / Approval Signatures		
Prepared by	Reviewed by	Approved by
Fahrizal Ilham	Moch. Darwis Legawa	Bob Bacciarelli
Geodetic Engineer	Ass. Technical Director	Technical Director

PT. KALIMANTAN SURYA KENCANA

BERUANG KANAN – CENTRAL KALIMANTAN, INDONESIA

REPORT FOR SURVEY OF DRILL HOLE COLLAR LOCATIONS

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DRAWING

No.	DWG No.	Rev No.	Drawing Title	Scale	Size
1	AMR/001/01/001	A	Drill Hole Collar Locations	1 : 2,500	A1

PT. KALIMANTAN SURYA KENCANA

BERUANG KANAN – CENTRAL KALIMANTAN, INDONESIA

WORK PLAN FOR
SURVEY OF DRILL HOLE COLLAR LOCATIONS

1. INTRODUCTION

1.1 Project Description

PT. Kalimantan Surya Kencana is currently carrying out exploration mapping and drilling for mining project in Beruang Kanan, Central Kalimantan. As part of resource assessment and mine development planning, PT. Kalimantan Surya Kencana requires survey of drill hole collar locations.

PT. Kalimantan Surya Kencana commissioned PT. Geoindo in May 2016 to carry out stake out survey of 117 No. proposed drill hole collar locations including marking azimuth direction in Beruang Kanan, Central Kalimantan.

This report summarises the fieldwork activity of the survey of drill hole collar locations.

1.2 Definitions / Abbreviations

Geoindo	=	PT. Geoindo Giri Jaya
CAD	=	Computer Aided Drawing, process to creating technical Drawing
Company	=	PT. Kalimantan Surya Kencana (KSK)

2. SCOPE OF WORK

The work consisted of the following:

- Mobilisation from Bandung to survey location.
- Site safety induction, work permit preparation, set up accommodation and camp.
- Traverse survey to reach drill hole collar locations tied in to existing benchmarks (BKM 05, BKM 06, BKM 03, and BKM 04) and constructed control point with North, East, South and West markers for down hole survey camera at BKM camp tied in to BKM 01A and BKM 01.
- Stake out survey for 117 No. drill hole collar coordinates including marking azimuth direction.
- Field data processing

- Demobilisation
- Final report preparation and submission

3. METHODOLOGY

The methodology that was used for the survey is presented in the following sections:

3.1 Mobilisation

The survey team mobilised from Bandung to Palangkaraya (PT. Kalimantan Surya Kencana) on 2nd June 2016. The team consisted of one Surveyor (Rena Febriana). The team continued mobilisation from Palangkaraya to Beruang Kanan Camp (Site) after safety induction. The team was mobilised together with survey equipment which consisted 1 unit total station Leica TS 09 complete with accessories and other equipment.

3.2 Field Preparation

On arrival at site, the team prepared site orientation, checked base camp, set up radio communication and checked internet access. On 3rd June 2016, the team carried out safety induction with PT. Kalimantan Surya Kencana representative (Mr. Riza). On the next day, 4th June 2016, the team carried out site orientation at benchmark BKM-07 and BKM-08 at southern area (both benchmarks found broken). Then the team moved to BKM 05 and BKM 06 to start traverse survey to stake out proposed drill holes.

3.3 Traverse Survey

The traverse survey was carried out between 4th and 29th July 2016 (at the same time as stake out survey of proposed drill hole collars) using Total Station Leica TS 09 in order to confirm geodetic control along route to drill holes locations. All traverse markers were referenced to existing benchmarks BKM 05, BKM 06, BKM 03, and BKM 04, as summarised in Table 1 – Benchmark Coordinates.

Minimum 2 No. existing control points were used as control points for traverse survey. Minimum 2 sets of angle and distance data in 1st face and 2nd face were recorded. All data was recorded automatically on memory card built in to the total stations to avoid manual record error.

Technical Specification of equipment which was used is as follows:

Model	: Leica TS 09 series
Angle Standard Deviation	: 2" both vertical and horizontal
Distance	: 3 mm + 2 ppm
Recording media	: Internal Memory 2 MB

Bowditch method was applied to obtain definitive coordinates. Levelling was applied by using our total station TS 09 series.

Result of traverse survey accuracy is given in Table 3 – Traverse Accuracy. There are six traverse loops which meet both horizontal accuracy better than 1 in 10,000 and vertical accuracy better than $10\sqrt{D}$ as follows :

hole collar map. Completion report was signed by PT. Kalimantan Surya Kencana representative (Mr. Oktavianus Kurniawan) on 2nd July 2016 after fieldwork completed.

Final data processing and reporting was carried out in Bandung between 5th and 12th July 2016. All data produced from the study was recorded in DVD and was submitted to PT. Kalimantan Surya Kencana at the end of the project. Interim data was submitted to client in excel or PDF format on an ongoing basis during the fieldwork.

3.6 Demobilisation

The team and equipment demobilised back from site to Palangkaraya by vehicle 3rd July 2016 after completion of all of the survey work and after head office had approved initial results. The team continued demobilisation from Palangkaraya to Jakarta by air plane and then by vehicle to head office in Bandung on 4th July 2016.

3.7 Deliverables and Reporting

3.7.1 Daily Report

Field survey progress and raw data from the survey were reported to our management each day. The field daily report was submitted to PT. Kalimantan Surya Kencana and our management in Bandung at start of each day before 8.00 am morning. This also included plan for the next day's work and any problems which have occurred during the fieldwork.

3.7.2 Final Report

The final report was produced in our Bandung office and included finalisation of the approved final draft drawings.

The report consists of hard copy and soft copy of the following:

- Drawing on A1 sheet at 1:2,500.
- Report with tables, figures and appendix. Softcopy excel and PDF file of tabulated data for benchmarks and drill hole collar coordinates & elevations.
- Soft copy of files in DVD format.

3.8 Coordination and Communication with Company

During the project work, the Party Chief communicated and coordinated with both the PT. Kalimantan Surya Kencana representative and our head office in Bandung on a daily basis. Daily activity reports were produced during field work and processing work and submitted to PT. Kalimantan Surya Kencana representative and our head office.

All correspondence related to administrative matters including those related to contractual or financial shall be between PT. Kalimantan Surya Kencana representative and our company director.

4. QUALITY CONTROL

PT. Geoindo is an ISO 9001 company certified by Llyods and is committed to the philosophy of quality assurance and quality control.

Each step of the survey process was reviewed and checked by senior members of the team prior to review by the technical directors. Our expatriate director oversaw the project team which consisted of our Indonesian surveyors and ensured that international standards and PT. Kalimantan Surya Kencana requirements were fully met.

Quality control is assured in that although the work was mainly carried out by our Indonesian professional staff, they were managed and technically controlled by one of our expatriate directors.

Data processing and draft drawings were generated directly in the field on a daily basis after each day survey fieldwork. The draft drawings and survey data processing was used to check and verify the previous day's survey as part of our Quality Control.

5. SUMMARY AND CONCLUSIONS

- Six traverse survey loops were carried out to reach drill hole collar locations tied in to 6 No. Benchmarks (BKM 05, BKM 06, BKM 03, BKM 04, BKM 01A, and BKM 01). Benchmark Coordinates can be seen in Table 1 – Benchmark Coordinates. Result of traverse accuracy can be seen in Table 2 – Traverse Accuracy. Report of traverse data processing can be seen in Appendix 3 – Report of Traverse Survey Data Processing. Figure of traverse survey network can be seen in Figure 2 – Traverse Survey Network.

- 117 No. drill hole collars coordinate were picked up and surveyed at site. Coordinates of drill hole collars can be seen in Table 2 – Drill Hole Collar Coordinates. Details of drill hole collars can be seen in Appendix 2 – Drill Hole Details.

- One set control point with North, East, South and West markers for down hole survey camera was constructed at BKM Camp which will be used to put pipe on each direction in order to check the down hole survey camera prior to drilling activity. Coordinates of top and bottom of the pipe with azimuth and inclination can be seen in Table 4 – Control Point Coordinates of Down Hole Survey Camera.

BENCHMARK COORDINATES

geoindo SURVEY SERVICES

Point ID	Geographic Coordinates								Ellips. Height (m)	UTM Coordinates		Elevation above GEOID (EGM2008)	Remarks
	Latitude				Longitude					Easting (m)	Northing (m)		
	°	'	"		°	'	"						
BKM01	0	36	38.98745	S	113	25	26.64526	E	265.7407	769803.892	9932424.050	219.725	Existing Benchmark
BKM03	0	36	41.40273	S	113	25	9.74559	E	342.1881	769281.054	9932350.063	296.182	New Benchmark/GPS
BKM04	0	36	39.79519	S	113	25	10.42297	E	338.9533	769302.031	9932399.454	292.947	New Benchmark/GPS
BKM05	0	36	52.54702	S	113	25	16.18966	E	272.3393	769480.251	9932007.504	226.332	New Benchmark/GPS
BKM06	0	36	54.17149	S	113	25	15.90559	E	274.2409	769471.440	9931957.588	228.234	New Benchmark/GPS
BKM07	0	37	4.267334	S	113	24	57.01034	E	426.5943	768886.762	9931647.604	380.599	New Benchmark/Traverse
BKM08	0	37	4.293532	S	113	24	55.08636	E	429.1753	768827.242	9931646.826	383.181	New Benchmark/Traverse
BKM01A	0	36	37.944491	S	113	25	26.81849	E	265.2742	769809.265	9932456.098	219.258	New Benchmark/Traverse

FM-SVY-02/Rev.01/23 March 11

TABLE 1 - BENCHMARK COORDINATES

DRILL HOLE COLLAR COORDINATES (STAKE OUT)

geoindo SURVEY SERVICES

Client Name	Kalimantan Surya Kencana
Project No.	AMR-001
Project Name	Survey of Proposed Drill hole collars
Location	Beruang Kanan, Central Kalimantan

• Topographic, Hydrographic & Construction Survey services • Site Control • Laser Scanning • 2D/3D Modelling • CAD/GIS Bureau • Satellite Imagery • Air Photography • Lidar Airborne Laser Topographic Surveys

PROPOSED DRILL HOLE COORDINATE								STAKE OUT DRILL HOLE COLLAR COORDINATE								
										Elevation		DIFFERENCE				
NO	Hole ID	Easting	Northing	Elevation Ellipsoid	Azimuth	Inclination	TD +5m	Easting	Northing	Geoid	Ellipsoid	Easting	Northing	Elevation Ellipsoid	Picked up Date	Remark
1	R06_31500N_8760_20m	768760	9931500	452.163	270	-60	20	768759.687	9931499.926	406.392	452.384	0.313	0.074	-0.221	06 June 2016	
2	R06_31550N_8655_13m	768655	9931550	456.978	270	-60	13	768654.637	9931549.906	410.158	456.149	0.363	0.094	0.829	07 June 2016	
3	R06_31550N_8815_40m	768815	9931550	440.703	270	-60	40	768814.689	9931549.895	393.639	439.633	0.311	0.105	1.070	06 June 2016	
4	R06_31550N_8765_32m	768765	9931550	453.682	270	-60	32	768764.742	9931549.906	407.272	453.265	0.258	0.094	0.417	06 June 2016	
5	R06_31600N_9020_49m	769020	9931600	393.18	270	-60	49	769027.178	9931596.888	343.037	389.034	-7.178	3.112	4.146	29 June 2016	pad finish
6	R06_31600N_8830_68m	768830	9931600	440.525	270	-60	68	768827.593	9931603.245	394.794	440.788	2.407	-3.245	-0.263	29 June 2016	pad finish
7	R06_31600N_8965_54m	768965	9931600	401.337	270	-60	54	768965.413	9931602.140	355.782	401.778	-0.413	-2.140	-0.441	29 June 2016	pad finish
8	R06_31600N_8715_30m	768715	9931600	430.807	270	-60	30	768714.716	9931599.922	385.430	431.422	0.284	0.078	-0.615	07 June 2016	
9	R06_31600N_8775_58m	768775	9931600	443.237	270	-60	58	768774.761	9931599.923	394.714	440.707	0.239	0.077	2.530	06 June 2016	
10	R06_31600N_8915_56m	768915	9931600	412.927	270	-60	56	768913.364	9931602.391	367.900	413.896	1.636	-2.391	-0.969	29 June 2016	pad finish
11	R06_31650N_9050_83m	769050	9931650	388.948	270	-60	83	769049.819	9931649.889	344.879	390.877	0.181	0.111	-1.929	05 June 2016	
12	R06_31650N_8935_77m	768935	9931650	412.707	270	-60	77	768934.784	9931649.905	364.419	410.415	0.216	0.095	2.292	06 June 2016	
13	R06_31650N_8975_159m	768975	9931650	412.05	90	-60	159	768974.782	9931649.918	365.285	411.282	0.218	0.082	0.768	06 June 2016	
14	R06_31655N_8795_100m	768795	9931655	430.333	90	-60	100	768794.737	9931654.952	383.321	429.315	0.263	0.048	1.018	07 June 2016	
15	R06_31700N_9115_110m	769115	9931700	331.763	270	-60	110	769107.957	9931704.463	285.367	331.366	7.043	-4.463	0.397	29 June 2016	pad finish
16	R06_31700N_8835_70m	768835	9931700	412.737	270	-60	70	768834.746	9931699.970	364.961	410.956	0.254	0.030	1.781	07 June 2016	
17	R06_31700N_8775_58m	768775	9931700	415.617	270	-60	58	768774.781	9931699.998	368.271	414.265	0.219	0.002	1.352	07 June 2016	
18	R06_31700N_8895_91m	768895	9931700	410.92	270	-60	91	768894.772	9931699.949	363.947	409.943	0.228	0.051	0.977	07 June 2016	
19	R06_31700N_9000_109m	769000	9931700	399.538	270	-60	109	769003.437	9931705.123	354.957	400.955	-3.437	-5.123	-1.417	09 June 2016	pad finish
20	R06_31700N_8945_90m	768945	9931700	403.165	270	-60	90	768944.822	9931699.927	356.595	402.592	0.178	0.073	0.573	09 June 2016	
21	R06_31700N_9050_108m	769050	9931700	380.255	270	-60	108	769047.403	9931704.374	335.075	381.073	2.597	-4.374	-0.818	09 June 2016	pad finish
22	R06_31700N_8785_74m	768785	9931700	415.018	180	-60	74	768784.790	9931700.041	367.883	413.877	0.210	-0.041	1.141	07 June 2016	
23	R06_31700N_9085_73m	769085	9931700	347.835	270	-60	73	769077.106	9931697.177	309.166	355.165	7.894	2.823	-7.330	05 June 2016	pad finish
24	R06_31750N_9090_162m	769090	9931750	371.725	270	-60	162	769089.896	9931749.947	327.908	373.907	0.104	0.053	-2.182	09 June 2016	
25	R06_31750N_9175_98m	769175	9931750	334.66	270	-60	98	769174.862	9931749.902	287.744	333.745	0.138	0.098	0.915	05 June 2016	
26	R06_31750N_8900_109m	768900	9931750	419.953	270	-60	109	768899.887	9931749.988	373.355	419.351	0.113	0.012	0.602	08 June 2016	
27	R06_31755N_8930_168m	768930	9931755	413.232	90	-80	168	768929.844	9931754.985	365.590	411.587	0.156	0.015	1.645	08 June 2016	
28	R06_31775N_8995_141m	768995	9931775	401.142	180	-60	141	768994.909	9931774.928	355.260	401.258	0.091	0.072	-0.116	08 June 2016	
29	R06_31800N_8900_118m	768900	9931800	413.985	270	-60	118	768900.479	9931801.399	366.530	412.526	-0.479	-1.399	1.459	08 June 2016	pad finish
30	R06_31800N_8965_132m_PQMET	768965	9931800	409.14	270	-60	132	768965.968	9931800.642	362.474	408.472	-0.968	-0.642	0.668	08 June 2016	pad finish
31	R06_31800N_9045_191m	769045	9931800	398.335	270	-60	191	769041.260	9931805.086	359.180	405.179	3.740	-5.086	-6.844	08 June 2016	pad finish
32	R06_31800N_9010_189m	769010	9931800	403.825	270	-60	189	769006.258	9931799.910	354.800	400.798	3.742	0.090	3.027	08 June 2016	pad finish
33	R06_31800N_8830_104m	768830	9931800	419.52	270	-60	104	768829.833	9931800.036	372.551	400.798	0.167	-0.036	18.722	09 June 2016	
34	R06_31835N_9040_118m	769040	9931835	414.27	270	-60	118	769039.943	9931835.005	370.037	416.036	0.057	-0.005	-1.766	09 June 2016	
35	R06_31900N_8810_20m	768810	9931900	444.443	270	-60	20	768809.847	9931900.107	396.623	442.618	0.153	-0.107	1.825	10 June 2016	
36	R06_31900N_8865_33m	768865	9931900	433.605	270	-60	33	768864.927	9931900.026	387.468	433.464	0.073	-0.026	0.141	09 June 2016	
37	R06_31925N_8765_27m	768765	9931925	458.268	270	-60	27	768764.850	9931925.160	412.322	458.317	0.150	-0.160	-0.049	10 June 2016	
38	R06_31950N_8925_30m	768925	9931950	440.96	270	-60	30	768925.070	9931949.862	395.331	441.3287	-0.070	0.138	-0.369	23 June 2016	
39	R06_31970N_8845_73m	768845	9931970	460.08	270	-60	73	768844.808	9931970.176	413.526	459.522	0.192	-0.176	0.558	10 June 2016	
40	R06_32000N_8820_75m	768820	9932000	471.367	270	-60	75	768819.890	9932000.170	425.078	471.074	0.110	-0.170	0.293	10 June 2016	
41	R06_32000N_8775_57m_HQMET	768775	9932000	485.268	270	-60	57	768775.461	9932003.740	438.217	484.212	-0.461	-3.740	1.056	10 June 2016	pad finish
42	R06_32000N_8880_84m	768880	9932000	449.777	270	-60	84	768880.100	9931999.838	402.775	448.7723	-0.100	0.162	1.005	23 June 2016	
43	R06_32050N_8810_64m	768810	9932050	458.938	270	-60	64	768809.872	9932050.185	413.049	459.045	0.128	-0.185	-0.107	10 June 2016	
44	R06_32050N_8940_52m	768940	9932050	406.02	270	-60	52	768940.100	9932049.889	360.441	406.4391	-0.100	0.111	-0.419	21 June 2016	
45	R06_32065N_8880_57m	768880	9932065	426.143	270	-60	57	768880.120	9932064.922	378.781	424.7789	-0.120	0.078	1.364	21 June 2016	
46	R06_32090N_8860_97m	768860	9932090	435.775	270	-60	97	768860.100	9932089.921	389.829	435.8261	-0.100	0.079	-0.051	21 June 2016	
47	R06_32100N_8915_98m	768915	9932100	422.885	270	-60	98	768915.110	9932099.900	377.258	423.2566	-0.110	0.100	-0.372	21 June 2016	
48	R06_32100N_8770_69m	768770	9932100	472.53	270	-60	69	768769.904	9932100.242	426.037	472.033	0.096	-0.242	0.497	11 June 2016	
49	R06_32100N_8670_48m	768670	9932100	494.242	270	-60	48	768669.932	9932099.984	447.375	493.3692	0.068	0.016	0.873	23 June 2016	
50	R06_32100N_8725_56m	768725	9932100	484.807	270	-60	56	768724.974	9932099.971	438.678	484.6724	0.026	0.029	0.135	23 June 2016	
51	R06_32100N_8810_92m	768810	9932100	460.91	270	-60	92	768809.942	9932100.229	414.906	460.902	0.058	-0.229	0.008	11 June 2016	
52	R06_32150N_8765_74m	768765	9932150	467.802	270	-60	74	768764.886	9932150.228	421.757	467.753	0.114	-0.228	0.049	11 June 2016	
53	R06_32165N_8880_106m	768880	9932165	450.29	270	-60	106	768880.069	9932164.955	404.331	450.3294	-0.069	0.045	-0.039	20 June 2016	
54	R06_32200N_8815_127m_PQMET	768815	9932200	474.72	180	-60	127	768815.010	9932200.259	428.630	474.627	-0.010	-0.259	0.093	11 June 2016	
55	R06_32200N_8730_70m	768730	9932200	493.075	270	-60	70	768729.932	9932200.339	446.528	492.524	0.068	-0.339	0.551	11 June 2016	
56	R06_32200N_8845_81m	768845	9932200	469.068	90	-80	81	768845.074	9932199.933	423.231	469.2282	-0.074	0.067	-0.160	20 June 2016	
57	R06_32200N_8775_97m	768775	9932200	484.112	270	-60	97	768774.935	9932200.272	438.095	484.091	0.065	-0.272	0.021	11 June 2016	
58	R06_32250N_8835_162m	768835	9932250	484.05	90	-70	162	768835.084	9932249.960	437.577	483.578	-0.084	0.040	0.472	20 June 2016	
59	R06_32250N_8560_24m	768560	9932250	546.473	270	-60	24	768559.949	9932249.994	499.862	545.855	0.051	0.006	0.618	24 June 2016	
60	R06_32250N_8630_81m_PQMET	768630	9932250	539.365	270	-60	81	768629.844	9932250.365	493.724	539.718	0.156	-0.365	-0.353	12 June 2016	
61	R06_32250N_8835_106m	768835	9932250	484.05	270	-60	106	768835.084	9932249.960	437.577	483.5744	-0.084	0.040	0.476	20 June 2016	
62	R06_32250N_8695_90m	768695	9932250	517.297	270	-60	90	768694.934	9932250.327	470.731	516.726	0.066	-0.327	0.571	11 June 2016	
63	R06_32260N_8815_124m	768815	9932260	478.568	180	-60	124	768815.087	9932259.969	431.422	477.4196	-0.087	0.031	1.148	20 June 2016	
64	R06_32300N_8555_128m	768555	9932300	565.465	270	-60	128	768555.037	9932299.996	519.426	565.419	-0.037	0.004	0.046	24 June 2016	
65	R06_32300N_8710_97m	768710	9932300	502.807	270	-60	97	768710.009	9932300.028	457.783	503.7782	-0.009	-0.028	-0.971	19 June 2016	
66	R06_32300N_8480_83m	768480	9932300	556.547	270	-60	83	768479.957	9932299.998	510.344	556.336	0.043	0.002	0.211	24 June 2016	
67	R06_32300N_8610_140m	768610	9932300	547.602	270	-60	140	768609.987	9932299.941	501.489	547.483	0.013	0.059	0.119	24 June 2016	
68	R06_32300N_8815_151m_HQMET	768815	9932300	464.36	270	-60	151	768814.988	9932300.000	418.136	464.1334	0.012	0.000	0.227	19 June 2016	
69	R06_32300N_8880_114m	768880	9932300	448.508	270	-60	114	768880.151	9932300.008	400.845	446.8432	-0.151	-0.008	1.665	19 June 2016	
70	R06_32300N_8660_107m	768660	9932300	528.528	270	-60	107	768659.892	9932300.332	481.227	527.222	0.108	-0.332	1.306	12 June 2016	
71	R06_32300N_8910_61m_PQMET	768910	9932300	423.805	270	-60	61	768909.091	9932300.085	383.302	429.3014	0.909	-0.085	-5.496	19 June 2016	steep
72	R06_32300N_8770_143m	768770	9932300	475.685	270	-60	143	768770.072	9932299.988	428.360	474.3564	-0.072	0.012	1.329	19 June 2016	steep
73	R06_32300N_8945_50m_PQMET	768945	9932300	394.675	270	-60	50	768945.063	9932299.886	348.303	394.3028	-0.063	0.114	0.372	20 June 2016	steep
74	R06_32320N_8815_137m_HQMET	768815	9932320	458.75	180	-60	137	768815.059	9932320.030	411.454	457.4511	-0.059	-0.030	1.299	19 June 2016	
75	R06_32335N_8540_152m	768540	9932335	568.927	90	-80	152	768539.934	9932335.023	522.656	568.649	0.066	-0.023	0.278	24 June 2016	
76	R06_32345N_8685_125m	768685	9932345	505.435	90	-70	125	768684.927	9932345.450	459.768	505.763	0.073	-0.450	-0.328	12 June 2016	
77	R06_32350N_8480_110m	768480	9932350	575.6	270	-60	110	768479.978	9932349.995	529.364	575.356	0.022	0.005	0.244	25 June 2016	
78	R06_32350N_8535_129m_HQMET	768535	9932350	566.605	270	-60	129	768534.972	9932350.040	520.407	566.400	0.028	-0.040	0.205	24 June 2016	
79	R06_32350N_8365_46m	768365	9932350	569.635	270	-60	46	768364.942	9932349.997	523.538	569.528	0.058	0.003	0.107	25 June 2016	
80	R06_32400N_8995_42m	768995	9932400	387.98	270	-60	42	768995.119	9932400.379	341.431	387.432	-0.119	-0.379	0.548	13 June 2016	
81	R06_32400N_8585_74m	768585	9932400	499.4	270	-60	74	768585.084	9932399.964	452.189	498.183	-0.084	0.036	1.217	26 June 2016	
82	R06_32400N_8750_151m	768750	9932400	460.198	270	-60	151	768750.140	9932400.324	412.876	458.873	-0.140	-0.324	1.325	12 June 2016	
83	R06_32400N_8810_189m_PQMET	768810	9932400	457.485	270	-60	189	768810.070	9932400.404	410.594	456.592	-0.070	-0.404	0.893	13 June 2016	
84	R06_32400N_8645_111m_PQMET	768645	9932400	487.967	270	-60	111	768645.127	9932399.920	439.400	485.395	-0.127	0.080	2.572	26 June 2016	
85	R06_32400N_8700_128m	768700	9932400	473.985	270	-60	128	768699.940	9932400.091	428.416	474.412	0.060	-0.091	-0.427	27 June 2016	steep
86	R06_32400N_8870_212m_HQMET	768870	9932400	438.017	270	-60	212	768870.110	9932400.362	390.548	436.547	-0.110	-0.362	1.470	13 June 2016	
87	R06_32400N_8535_74m	768535	9932400	529.81	270	-60	74	768535.046	9932399.963	484.254	530.247	-0.046	0.037	-0.437	26 June 2016	
88	R06_32400N_8910_127m	768910	9932400	421.235	270	-60	127	768910.181	9932400.265	375.300	421.300	-0.181	-0.265	-0.065	13 June 2016	
89	R06_32400N_8370_43m	768370	9932400	582.585	270	-60	43	768370.008	9932399.975	535.879	581.869	-0.008	0.025	0.716	25 June 2016	
90	R06_32400N_8425_53m	768425	9932400	571.578	270	-60	53	768424.943	9932399.989	524.870	570.861	0.057	0.011	0.717	26 June 2016	
91	R06_32400N_8480_73m	768480	9932400	565.565	270	-60	73	768480.027	9932399.987	519.818	565.811	-0.027	0.013	-0.246	26 June 2016	

TABLE 2 - DRILL HOLE COLLAR COORDINATES

DRILL HOLE COLLAR COORDINATES (STAKE OUT)

geoindo SURVEY SERVICES

Client Name Kalimantan Surya Kencana
Project No. AMR-001
Project Name Survey of Proposed Drill hole collars
Location Beruang Kanan, Central Kalimantan

• Topographic, Hydrographic & Construction Survey services • Site Control • Laser Scanning • 2D/3D Modeling • CAD/GIS Bureau • Satellite Imagery • Air Photography • Lidar Airbone Laser Topographic Surveys

PROPOSED DRILL HOLE COORDINATE								STAKE OUT DRILL HOLE COLLAR COORDINATE								
NO	Hole ID	Easting	Northing	Elevation Ellipsoid	Azimuth	Inclination	TD +5m	Easting	Northing	Elevation Geoid	Elevation Ellipsoid	DIFFERENCE Easting	DIFFERENCE Northing	DIFFERENCE Elevation Ellipsoid	Picked up Date	Remark
92	R06_32425N_8655_74m	768655	9932425	481.37		-60	74	768655.065	9932424.910	435.718	481.713	-0.065	0.090	-0.343	27 June 2016	
93	R06_32440N_8725_225m_HQMET	768725	9932440	450.158	90	-80	225	768725.068	9932440.422	403.917	449.914	-0.068	-0.422	0.245	12 June 2016	
94	R06_32445N_8640_93m	768640	9932445	479.36	90	-60	93	768640.040	9932444.951	432.027	478.022	-0.040	0.049	1.338	27 June 2016	
95	R06_32455N_8655_65m	768655	9932455	475.735	180	-60	65	768654.950	9932455.000	429.774	475.769	0.050	0.000	-0.034	14 June 2016	
96	R06_32455N_8715_151m_HQMET	768715	9932455	447.855	270	-60	151	768715.007	9932455.447	401.962	447.958	-0.007	-0.447	-0.103	12 June 2016	
97	R06_32475N_8895_214m	768895	9932475	399.655	270	-60	214	768894.974	9932474.930	352.631	398.631	0.026	0.070	1.024	16 June 2016	
98	R06_32500N_8520_66m	768520	9932500	507.362	90	-80	66	768520.022	9932499.876	460.774	506.767	-0.022	0.124	0.595	27 June 2016	
99	R06_32500N_8550_55m	768550	9932500	499.915	270	-60	55	768549.987	9932499.963	453.984	499.978	0.013	0.037	-0.063	27 June 2016	
100	R06_32500N_8675_106m_HQMET	768675	9932500	460.66	270	-60	106	768674.976	9932500.077	415.314	461.310	0.024	-0.077	-0.650	14 June 2016	
101	R06_32500N_8485_31m	768485	9932500	520.745	270	-60	31	768485.008	9932499.979	474.741	520.733	-0.008	0.021	0.012	27 June 2016	
102	R06_32500N_8610_80m	768610	9932500	481.557	270	-60	80	768610.058	9932499.947	434.414	480.409	-0.058	0.053	1.148	27 June 2016	
103	R06_32550N_8455_9m	768455	9932550	532.66	270	-60	9	768454.996	9932549.973	484.267	530.259	0.004	0.027	2.401	28 June 2016	
104	R06_32550N_8945_172m	768945	9932550	390.03	270	-60	172	768945.030	9932549.970	343.902	389.903	-0.030	0.030	0.127	16 June 2016	
105	R06_32565N_8680_109m	768680	9932565	459.363	270	-60	109	768679.853	9932565.114	414.140	460.136	0.147	-0.114	-0.773	14 June 2016	
106	R06_32600N_8905_182m	768905	9932600	413.277	270	-60	182	768905.013	9932599.840	368.623	414.623	-0.013	0.160	-1.346	16 June 2016	steep
107	R06_32600N_8855_176m	768855	9932600	435.805	270	-60	176	768855.026	9932599.994	390.141	436.140	-0.026	0.006	-0.335	16 June 2016	
108	R06_32600N_8745_134m	768745	9932600	452.008	270	-60	134	768744.955	9932600.113	405.998	451.995	0.045	-0.113	0.013	14 June 2016	
109	R06_32600N_8620_102m	768620	9932600	491.193	270	-60	102	768620.083	9932599.951	446.015	492.010	-0.083	0.049	-0.817	28 June 2016	
110	R06_32600N_8515_55m	768515	9932600	518.15	270	-60	55	768515.042	9932599.986	472.833	518.826	-0.042	0.014	-0.676	28 June 2016	
111	R06_32650N_8960_140m	768960	9932650	393.925	270	-60	140	768960.248	9932649.973	347.905	393.907	-0.248	0.027	0.019	15 June 2016	
112	R06_32650N_8910_129m	768910	9932650	413.328	270	-60	129	768910.069	9932649.987	367.879	413.880	-0.069	0.013	-0.552	15 June 2016	
113	R06_32650N_8730_99m	768730	9932650	479.302	270	-60	99	768730.008	9932650.089	433.405	479.402	-0.008	-0.089	-0.100	14 June 2016	
114	R06_32660N_8860_128m_HQMET	768860	9932660	442.487	270	-60	128	768860.027	9932660.011	395.497	441.497	-0.027	-0.011	0.990	15 June 2016	
115	R06_32700N_8820_41m_HQMET	768820	9932700	439.918	270	-60	41	768821.742	9932698.997	393.627	439.626	-1.742	1.003	0.292	15 June 2016	pad finish
116	R06_32700N_8780_54m	768780	9932700	472.413	270	-60	54	768781.091	9932701.421	425.242	471.241	-1.091	-1.421	1.173	15 June 2016	pad finish
117	R06_32705N_8920_89m	768920	9932705	401.698	270	-60	89	768920.019	9932705.056	355.839	401.840	-0.019	-0.056	-0.142	15 June 2016	

TABLE 2 - DRILL HOLE COLLAR COORDINATES

geoindo SURVEY SERVICES

Horizontal and Vertical accuracy obtained for traverse survey is summarised below :

Traverse	Accuracy Obtained	Accuracy Required	Acceptance (Y/N)
Loop 1 BKM 05, BKM 06 – BKM 03, BKM 04	Horizontal : 1 in 10,613.086 Vertical : $(5.3\sqrt{D})$ mm	Horizontal : 1 in 5,000 Vertical : $(10\sqrt{D})$ mm	Y Y
Closed Loop 2 R-527 – R-528	Horizontal : 1 in 23,958.753 Vertical : $(1.2\sqrt{D})$ mm	Horizontal : 1 in 5,000 Vertical : $(10\sqrt{D})$ mm	Y Y
Closed Loop 3 R-548 – R-547	Horizontal : 1 in 586,829.328 Vertical : $(6.8\sqrt{D})$ mm	Horizontal : 1 in 5,000 Vertical : $(10\sqrt{D})$ mm	Y Y
Loop 4 R-540, R-541, R-580 – R-576, R-534, R-535	Horizontal : 1 in 13,359.912 Vertical : $(9.1\sqrt{D})$ mm	Horizontal : 1 in 5,000 Vertical : $(10\sqrt{D})$ mm	Y Y
Loop 5 R-542, R-543, R-900 – R-924, R-808, R-809	Horizontal : 1 in 9,776.7331 Vertical : $(5\sqrt{D})$ mm	Horizontal : 1 in 5,000 Vertical : $(10\sqrt{D})$ mm	Y Y
Closed Loop 6 R-523 – R-514	Horizontal : 1 in 60,760.7258 Vertical : $(7.3\sqrt{D})$ mm	Horizontal : 1 in 5,000 Vertical : $(10\sqrt{D})$ mm	Y Y
Loop 7 BKM 03, BKM 04 – BKM 01A, BKM 01 – BKM 05, BKM 06	Horizontal : 1 in 91,547.6630 Vertical : $(7.6\sqrt{D})$ mm	Horizontal : 1 in 5,000 Vertical : $(10\sqrt{D})$ mm	Y Y
Calculated by : Rena Pebriana Date: 29 June 2016		Checked by : Fahrizal Ilham Date: 29 June 2016	

FM-SVY-10/Rev.01/23 March 11

TABLE 3 - TRAVERSE ACCURACY

APPENDICES: Qualified Person's Report on the Mineral Resources, Beruang Kanan Main Zone, July 2017.

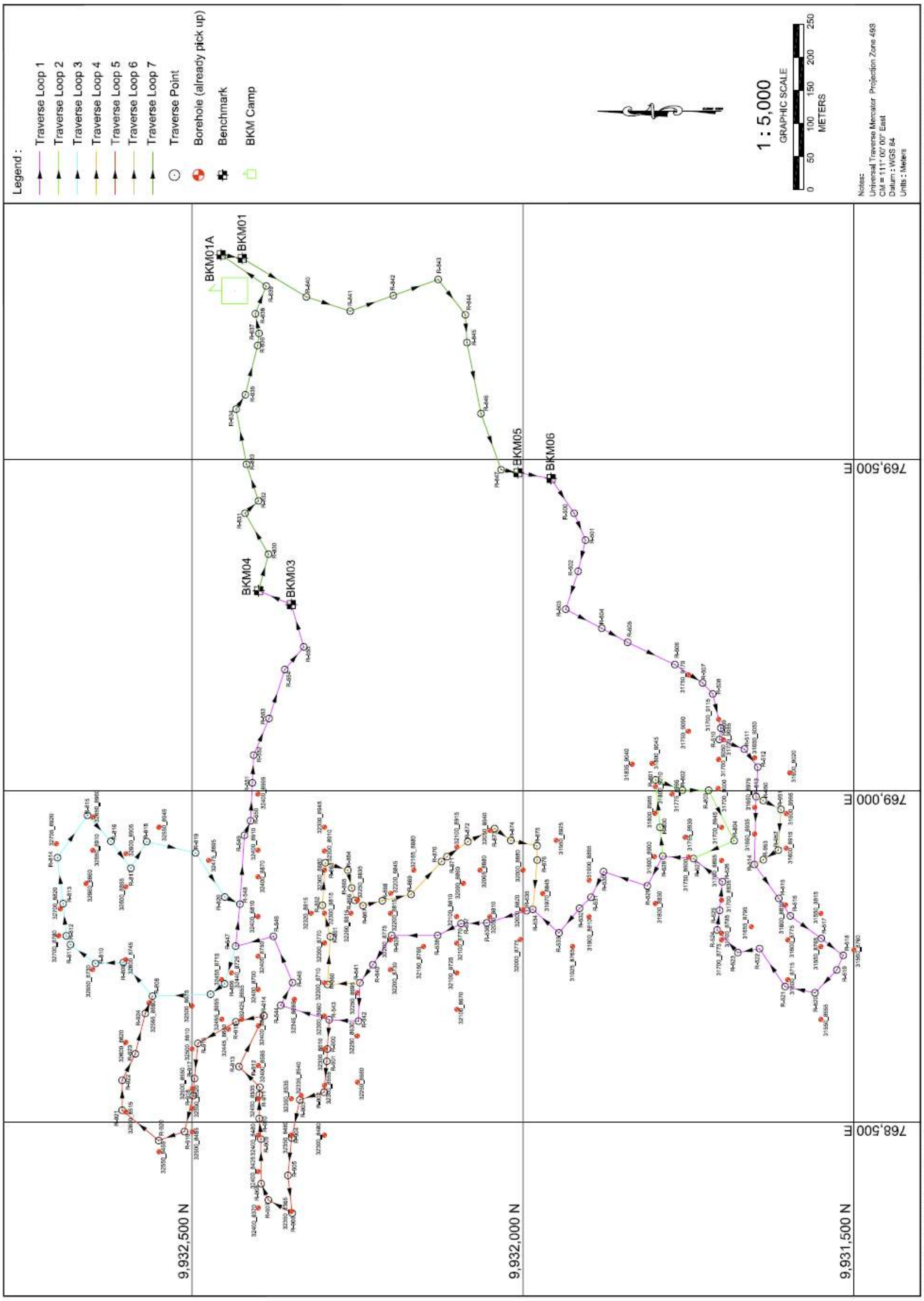


FIGURE 2 - TRAVERSE SURVEY NETWORK

FM-CADD-02/Rev.00/01 Aug 11

BENCHMARK DETAIL

geoindo SURVEY SERVICES
Topographic, Hydrographic & Construction Survey Services
Site Control – CAD/GIS Bureau – 2D/3D Ground Modelling
Satellite Imagery- Air Photography - LIDAR
airborne laser topographic surveys

Project : SURVEY OF DRILL HOLE COLLARS
Location : BERUANG KANAN, CENTRAL KALIMANTAN
Client : KALIMANTAN SURYA KENCANA

Bench Mark No :

BKM01A

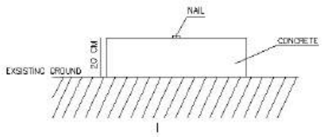
DATUM

ELLIPSOID		**PROJECTION SYSTEM**	
Ellipsoid Name	: WGS-84	Projection Name	: UTM - Zone 49 S
Semi Major Axis	: 6378137.000 m	Latitude of Origin	: 0° 00' 00.000" S
Semi minor Axis	: 6356752.314 m	Longitude of Origin	: 111° 00' 00" E
Inverse Flatening	: 298.257223563	False Easting	: 500,000 m
		False Northing	: 10,000,000 m
		Scale Factor at Origin	: 0.9996
		Units	: Meters

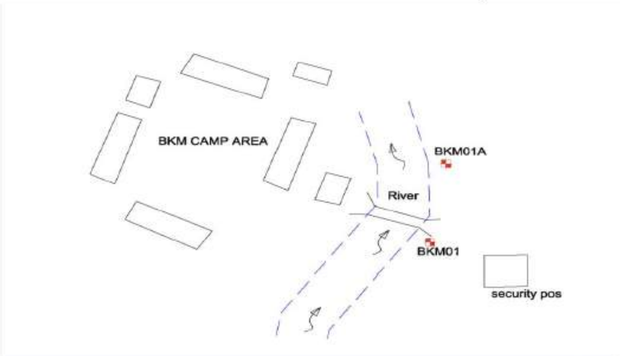
GEOGRAPHIC COORDINATE		**UTM COORDINATE**	
Latitude	**: 0° 36' 37.94449" S**	**Easting**	**: 769809.265**
Longitude	**: 113° 25' 26.81849" E**	**Northing**	**: 9932456.098**
Ellipsoid	**: 265.274 m**	**Elevation Above MSL (EGM 2008):**	**219.258**

PHOTOGRAPH

BENCH MARK CONSTRUCTION



SKETCH



FM-SVY-04/Rev.01/23 March 11

APPENDIX 1 - BENCHMARK DETAILS

Appendix 14 Multi Element Association Report

Beruang Kanan Main Zone, Kalimantan, Indonesia;

Multi Element Associations and their Relationship to Copper Mineralisation.

August, 2015

Prepared for PT Kalimantan Surya Kencana
by
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1 Summary

1.1 Project Overview

Samples at Beruang Kanan (BK) have been assayed for suites of elements, the number of which have differed between drilling programmes. A substantial number of samples have been assayed for major and trace element s (39 individual elements) as part of the ICP-OES analytical programme and H&A considers that the spatial distribution of these samples and elements determined are such that reliable relationships can be identified and interpreted with respect to lithological, alteration and mineralisation events.

H&A has undertaken the following activities in investigating the elements associated with copper mineralisation and this document presents the findings from the investigation:

1. Generated a multi-element dataset from the KSK sampling intervals file and the ITS and GA laboratory report files (SIF files);
2. Reviewed individual element data-population distributions;
3. Undertook Principle Components Factor Analysis (PCFA);
4. Refined and directed PCFA to investigate associations:
    - Maximizing the number of elements informing the analysis,
    - Maximize the spatial distribution of the analysis (while still considering the number of elements informing the analysis),
    - Within the mineralisation (selecting samples with greater than 500ppm Cu grades);
5. Identified an additive indices factor related to copper mineralisation by:
    - Reviewing the spatial distribution of individual element grades with respect to high grade copper mineralisation,
    - Reviewed findings against raw tabulated data to determine robustness of associations,
    - Generated a favorable copper added index score and standardized score to account for element number variability,
    - Investigated threshold values of added index with relation to copper mineralisation;
6. Interpreted the PCFA and additive index scores wrt copper mineralisation by:
    - Generating factor scores and added index scores for each sample and presenting these in the Minesight 3D visualization and interpretation software package,
    - Generating Implicit Modeled grade shells of the copper grades, factor scores and added index (including the derivatives presenting the pre-determined threshold information),
    - Assessing shell volumes for grade and distribution trends and reviewing against copper grade distributions
7. Identified vectors to mineralisation by:

- Refining and completing an earlier generated structural interpretation (based on geomorphological features) by honoring features in both this interpretation and in the grade shells,
- Evaluating copper grades against the structural model and added index grade shells;

8. Proposed a structural and mineralisation model for the Beruang Kanan copper mineralisation and suggested step-out/proximal drill targets for testing.

1.2 Key Findings

1.2.1 ME dataset - Assayed element coverage

Table 1: Element coverage in ME study dataset

Element	Count of assay records (total 9566 in Dataset)	Number of missing records	Percent populated records in dataset	Element	Count of assay records (total 9566 in Dataset)	Number of missing records	Percent populated records in dataset
Ag	9515	51	99	Na	6675	2891	70
Al	5845	3721	61	Nb	5211	4355	54
As	8661	905	91	Ni	6325	3241	66
Au	4071	5495	43	P	4792	4774	50
Ba	5797	3769	61	Pb	9559	7	100
Be	4792	4774	50	S	8333	1233	87
Bi	8333	1233	87	Sb	9363	203	98
Ca	6675	2891	70	Sc	5211	4355	54
Cd	6147	3419	64	Se	1658	7908	17
Co	6324	3242	66	Sn	5362	4204	56
Cr	6325	3241	66	Sr	6325	3241	66
Cu	9566	0	100	Ta	5211	4355	54
Fe	8328	1238	87	Te	2663	6903	28
Ga	5797	3769	61	Ti	5797	3769	61
K	6325	3241	66	V	5797	3769	61
La	5211	4355	54	W	5362	4204	56
Li	5362	4204	56	Y	5211	4355	54
Mg	5845	3721	61	Zn	9566	0	100
Mn	6673	2893	70	Zr	5211	4355	54
Mo	9216	350	96				

KSK was drilling at the time of the ME investigation and samples were still being processed at the laboratory. Although incomplete, H&A considers that there is sufficient data to investigate the element associations and that the additional data from shallow holes being drilled by KSK would not significantly alter the finding from this evaluation or from the interpretations of the spatial evaluation.

1.2.2 Data population distributions for elements

- Be, Nb, Sb, Se, Sn, Ta, Te, W: almost entirely at or below detection. These elements omitted from the analysis
- Ag, Bi, Ti, Zr: predominantly at or below detection. All but Ag omitted from the analysis

- Au, Cd, La, Li, Mo, Y: mostly at or below detection. Samples above detection are strongly positively skewed which persists following log10 conversion. Element associations reviewed and only Au and Y removed from analysis.
- Al, Fe, Ga, K, S, V: Gaussian distribution observed in raw data. Raw data included in investigation.
- Co, Ni, P, Sc, Sr, Zn: Gaussian distribution observed in log10 converted data. Log10 converted data used in investigation.
- As, Ba, Ca, Cr, Cu, Mg, Mn, Na, Pb: Log10 converted data shows two data-distribution populations for these elements. Reasons for populations investigated. Log10 converted data used in investigation.

Population distributions are included at Section 2.

1.2.3 Preliminary PCFA

Investigations confirmed decision to omit elements with poor statistical distributions and low coverage.

1.2.4 PCFA investigation

Findings for three investigations are:

1. Utilising maximum number of elements (R1):
    - 27 elements (Ag, Al, As, Ba, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, Mg, Mn, Mo, Na, Ni, Pb, S, V, Zn, La, Li, P, Sc, Sr, Ti),
    - 4202 samples,
    - Ag, Ba, Cr, Mo show low squared multiple correlation meaning that they do not correlate well with the other elements. These elements still included as they are significant wrt mineralisation, alteration and lithological interpretations,
    - Eight associations (factors) describe the total variance of the dataset. Cu loads into factors 5 and 7. The associations for Cu make sense wrt the styles of mineralisation within the area (F5 being the main mineralisation delineated by the drilling and F7 a possible porphyry signature, F3 is likely to reflect the pyritic alteration/veining event):
        - R1-F1: Sr_Na_Ti_Ca_P_La_(Ni)
        - R1-F2: Sc_Al_Mn_Mg_Li_V_Ga_(Ba_Zn)
        - R1-F3: Cr_Co_Fe_S_(Ga_V_As)
        - R1-F4: K_Al_As
        - <u>R1-F5: Ag_Pb_(Ba_Cu_As_Fe_)</u>
        - R1-F6: Cd_Zn
        - <u>R1-F7: Cu_(Mo_Pb_As)</u>
        - R1-F8: Ni_Co
2. Optimizing spatial and population coverage without significantly compromising element coverage (R2):

- 22 elements (Ag, Al, As, Ba, Ca, Co, Cr, Cu, Fe, Ga, K, Mg, Mn, Mo, Na, Ni, Pb, S, V, Zn, Sr, Ti),
- Cd, La, Li, P, Sc removed from R1 analysis, resulting in an increased coverage to 5792 samples,
- Ag, Ba, Cr, Mo, Ni, Zn show low squared multiple correlation meaning that they do not correlate well with the other elements. These elements still included as they are significant wrt mineralisation, alteration and lithological interpretations,
- Seven associations (factors) describe the total variance of the dataset. Cu loads into factors 1 and 5. These two factors are moderately correlated (r = 0.45). Attempts to forcibly combine these factors were not successful. The associations for Cu make sense wrt the styles of mineralisation within the area (F1 can be viewed as a chalcocite-covellite dominant association and F5 a chalcopyrite/pyrite event):
  - R2-F1: Ag_Pb_Cu_As_(Fe_S)
  - R2-F2: Mg_Mn_Al_V_Zn_(Ni_Ga)
  - R2-F3: Sr_Na_Ti_Ca_Ni
  - R2-F4: K_Al
  - R2-F5: Co_Fe_S_(Ga_As_Cu_V)
  - R2-F6: Cr_Ca
  - R2-F7: Ga_Ba

3. Restricting analysis to those samples containing >500ppm Cu (Cu500):
   - 14 elements (Cu, Ag, S, As, Fe, Ga, Mg, Mn, Na, Pb, Sr, K, V, Zn),
   - 1771 of the 2771 samples with >500ppm Cu,
   - Pb, Cu, Ag, As, Ga, Sr show low squared multiple correlation suggesting that they do not correlate well with the other elements however this is unlikely, and the real reason for these elements not being readily associated is that the subsetting has illogically truncated the lower distribution of the dataset, generating poor input data populations for the analysis. These elements still included as they are significant wrt mineralisation, alteration and lithological interpretations,
   - Five associations (factors) describe the total variance of the dataset. Cu loads into factors 2 and 4. These factors are moderately correlated (r = 0.46):
     - Cu500-F1-Mg_Mn_V_Zn_(Ag)
     - Cu500-F2-Ag_As_Cu_Pb_Zn_(S)
     - Cu500-F3-Na_K_Sr
     - Cu500-F4-S_Fe_(Ga_Cu)
     - Cu500-F5-Ga_(Pb_V)

1.2.5 Copper Mineralisation – Additive Indices

The following 12 elements show an association with copper mineralisation:

- +Ag +As -Ca +Co +Cu +Fe -Mg -Mn -Na +Pb +S –Zn: those elements with "+" symbol are positively associated and those with "-" symbol are negatively associated (i.e. are depleted in zones of high copper mineralisation – wrt the entire dataset).
- The following table depicts the associations:

Table 2: Example, Hole BK034: Elements Associated with Copper Mineralisation.

HOLEID	FROM	TO	Ag	As	Ca	Co	Cu	Fe	Mg	Mn	Na	Pb	S	Zn
BK034	129.60	132.60	0.25	18.00	0.10	21.00	2569.00	7.12	0.07	39.00	0.04	480.00	7.36	9.00
BK034	132.60	135.60	0.25	26.00	0.15	19.00	1820.00	7.14	0.07	71.00	0.03	740.00	7.11	9.00
BK034	135.60	138.60	2.15	99.00	0.34	37.00	23400.00	22.02	0.05	60.00	0.01	380.00	10.00	70.00
BK034	138.60	141.60	0.62	94.00	0.38	22.00	7893.00	16.40	0.05	73.00	0.02	680.00	10.00	42.00
BK034	141.60	144.60	0.25	40.00	0.10	18.00	1780.00	8.52	0.05	34.00	0.03	580.00	8.92	12.00
BK034	144.60	147.60	0.25	44.00	0.19	18.00	1960.00	9.45	0.08	103.00	0.04	660.00	8.88	13.00
BK034	147.60	150.60	0.25	23.00	0.21	18.00	880.00	6.90	0.23	76.00	0.03	360.00	6.90	22.00
BK034	150.60	153.60	0.54	23.00	0.11	21.00	720.00	5.96	0.06	52.00	0.03	380.00	5.89	2.50
BK034	153.60	156.10	0.25	39.00	0.15	19.00	1620.00	9.35	0.06	53.00	0.04	440.00	9.62	22.00
BK034	156.10	159.60	0.25	47.00	0.13	23.00	1180.00	7.45	0.07	47.00	0.05	500.00	7.52	31.00
BK034	159.60	162.80	0.25	34.00	0.29	21.00	1940.00	8.67	0.09	54.00	0.05	500.00	8.96	14.00
BK034	162.80	165.60	0.72	33.00	2.48	18.00	3337.00	9.08	0.77	360.00	0.09	156.00	9.19	71.00
BK034	165.60	168.60	0.25	9.00	3.28	7.00	197.00	4.10	1.32	980.00	0.12	51.00	0.15	95.00
BK034	168.60	171.60	0.25	4.00	4.14	8.00	28.00	4.30	1.25	1040.00	0.14	17.00	0.10	84.00
BK034	171.60	174.60	0.62	130.00	2.56	12.00	5409.00	6.32	0.77	680.00	0.10	64.00	4.80	194.00
BK034	174.60	177.60	0.87	164.00	0.15	28.00	6289.00	11.07	0.06	47.00	0.04	158.00	10.00	145.00
BK034	177.60	180.60	2.42	200.00	0.14	21.00	41800.00	14.35	0.04	61.00	0.03	420.00	10.00	133.00
BK034	180.60	183.60	0.73	73.00	0.17	26.00	9071.00	14.50	0.05	72.00	0.02	460.00	10.00	33.00
BK034	183.60	186.70	0.93	56.00	0.10	20.00	18500.00	21.94	0.03	71.00	0.01	540.00	10.00	40.00
BK034	186.70	189.70	4.24	108.00	0.15	20.00	32100.00		0.03	340.00	0.01	420.00	10.00	260.00
BK034	189.70	192.70	0.79	85.00	0.20	17.00	11500.00	22.15	0.05	89.00	0.01	400.00	10.00	55.00
BK034	192.70	195.70	0.25	33.00	0.07	16.00	2800.00	11.85	0.04	53.00	0.02	460.00	10.00	20.00
BK034	195.70	198.70	0.25	16.00	0.08	18.00	3420.00	13.77	0.05	54.00	0.02	340.00	10.00	27.00
BK034	198.70	201.70	0.25	32.00	0.11	18.00	4625.00	8.93	0.05	53.00	0.03	136.00	8.95	23.00
BK034	201.70	204.70	0.25	35.00	0.38	18.00	3617.00	10.19	0.04	75.00	0.02	33.00	10.00	17.00
BK034	204.70	207.70	0.25	148.00	0.36	18.00	7630.00	9.43	0.04	44.00	0.03	40.00	9.91	120.00
BK034	207.70	210.70	0.25	155.00	0.45	22.00	5851.00	8.48	0.04	82.00	0.02	43.00	8.65	88.00
BK034	210.70	213.70	0.25	41.00	0.45	16.00	5021.00	7.80	0.06	61.00	0.03	17.00	8.14	23.00
BK034	213.70	216.70	0.25	33.00	0.54	18.00	6135.00	7.45	0.05	69.00	0.04	18.00	7.53	58.00
BK034	216.70	219.70	0.25	42.00	0.67	19.00	8639.00	9.32	0.05	54.00	0.03	19.00	9.90	36.00
BK034	219.70	222.70	0.68	44.00	0.37	20.00	12800.00	7.51	0.12	68.00	0.02	14.00	8.27	200.00
BK034	222.70	225.70	0.25	24.00	0.25	16.00	6371.00	8.36	0.38	124.00	0.03	10.00	8.30	93.00
BK034	225.70	228.70	0.25	20.00	0.22	18.00	6826.00	7.63	0.49	143.00	0.03	12.00	7.26	93.00
BK034	228.70	231.70	0.25	20.00	0.12	14.00	7347.00	9.25	1.10	320.00	0.02	9.00	8.48	165.00
BK034	231.70	234.70	0.25	18.00	0.18	13.00	2562.00	11.87	3.18	800.00	0.01	11.00	10.00	340.00
BK034	234.70	237.70	0.25	12.00	0.21	13.00	2322.00	9.79	4.55	840.00	0.02	9.00	7.17	560.00
BK034	237.70	240.70	0.25	11.00	0.15	13.00	320.00	8.58	3.60	580.00	0.02	9.00	7.17	580.00
BK034	240.70	243.70	0.25	9.00	0.12	16.00	80.00	8.63	1.22	280.00	0.03	7.00	8.00	360.00
BK034	243.70	246.70	0.25	8.00	0.18	19.00	1080.00	7.29	3.65	580.00	0.02	2.50	6.12	440.00
BK034	246.70	249.70	0.25	3.00	0.24	14.00	37.00	5.33	3.42	580.00	0.02	2.50	4.25	500.00
BK034	249.70	252.70	0.25	7.00	0.21	15.00	41.00	7.02	1.20	260.00	0.03	9.00	7.03	740.00
BK034	252.70	255.70	0.25	9.00	0.17	14.00	27.00	11.64	0.23	99.00	0.03	11.00	10.00	125.00
BK034	255.70	258.70	0.25	6.00	0.16	10.00	59.00	7.67	2.55	640.00	0.03	24.00	6.27	280.00
BK034	258.70	261.70	0.25	3.00	0.22	7.00	10.00	4.68	2.42	600.00	0.03	7.00	3.63	280.00
BK034	261.70	264.70	0.25	9.00	0.70	13.00	660.00	9.44	2.31	580.00	0.04	10.00	8.98	720.00
BK034	264.70	267.70	0.25	9.00	0.21	20.00	17.00	5.97	0.99	194.00	0.05	11.00	5.70	500.00
BK034	267.70	270.70	0.25	10.00	0.33	12.00	16.00	6.42	0.72	198.00	0.06	9.00	6.63	142.00
BK034	270.70	273.70	0.25	9.00	0.32	14.00	15.00	8.83	0.81	300.00	0.04	8.00	7.52	300.00
BK034	273.70	276.70	0.25	7.00	0.27	11.00	10.00	7.05	2.02	680.00	0.05	6.00	2.95	220.00
BK034	276.70	279.70	0.50	12.00	0.23	19.00	14.00	23.05	0.36	195.00	0.05	11.00	10.00	240.00
BK034	279.70	282.70	0.25	21.00	0.26	21.00	14.00	18.72	0.79	188.00	0.04	12.00	10.00	360.00
BK034	282.70	285.70	0.25	4.00	0.88	12.00	9.00	3.71	0.77	185.00	0.05	7.00	3.52	109.00
BK034	285.70	288.70	0.25	8.00	0.56	20.00	14.00	4.47	0.38	191.00	0.06	8.00	4.07	83.00

- Spatial association is also observed (see figures at Section 3)
- An additive index score was generated by adding standard-scores for each of the positively correlated elements and adding the standard-scores * -1 for each of the negatively correlated elements. The scores were then weighted to account for the irregular coverage of elements between samples of different generations (Adjusted_AddInd = Raw_AddInd/count_elements*12). Only those samples with 5 or more elements (of the 12 associated elements) were selected and the AddInd generated.
- A threshold value of AddInd >=6 correlates well with copper mineralisation.

- Two additive binary Indices were generated. The first where only elements with a standard-score >0 were included (of the 12 associated elements) and the second where only elements with a standard-score of >1 were included. The binary index reduces the influence of extreme values by assigning a value of 1 to those elements that meet the criteria and a value of 0 to those that don't. The binary scores for all 12 elements are added to produce the additive binary index (again the scores were weighted to account for the irregular coverage of elements and only those samples with 5 or more elements included for generating scores.
- A threshold of >=9 (of 12) correlates well with copper mineralisation for the standard-score >0 AddBinaryInd and of >=3 for the standard-score >1 AddBinaryInd.

Figures showing the association of the factors scores and indices are presented at Section 3.

1.2.6 ME Association – Spatial Interpretation

The following figures present the distribution of the standard-score >1 AddBinaryInd. Similar patterns are observed with the factor analysis and other additive indices. Of note is:

- That there is a distinct and finite depth extent to the favorable associations, and that this boundary is relatively flat lying to gently dipping to the north-east.
- Higher positive associations are generally located at shallow depths (close to surface).
- Higher and broader development of positive associations is located generally on the eastern side of the three mineralised areas.
- Higher and broader development of positive associations is centred on structural complexity within interpreted thrust ramp environment.
- The geometry and trends in the associations are reflected in the intersection lineations of the two main thrust plan directions and suggest that mineralisation extends (or repeat centers of mineralisation exit) to the northeast.

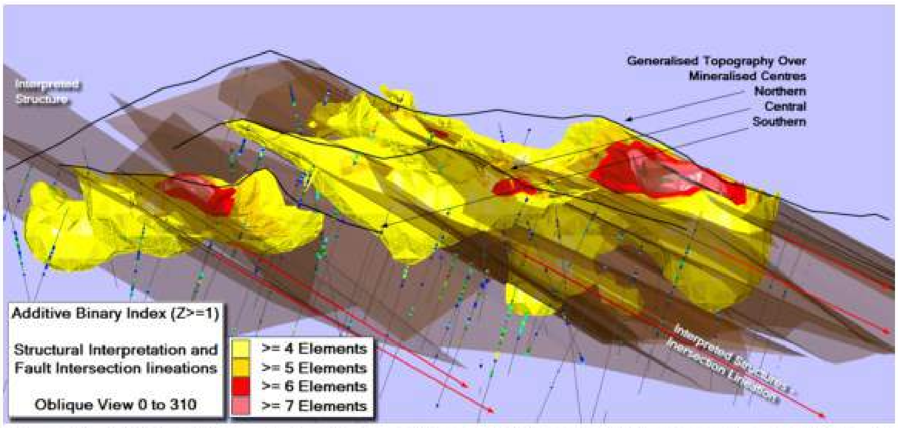

Figure 1: Additive Binary Index (standard-score >1) Implicit Modelling Grade Shells. View 00 to 310 degrees (at 090 degrees to interpreted structural intercept lineation, the suggested attenuation direction of copper mineralisation).

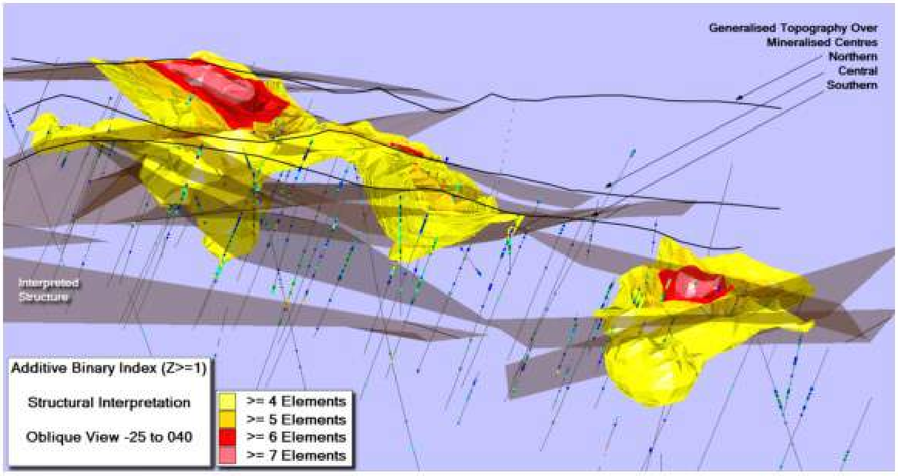

Figure 2: Additive Binary Index (standard-score >1) Implicit Modelling Grade Shells. View -25 to 040 degrees (along interpreted structural intercept lineation, the suggested attenuation direction of copper mineralisation).

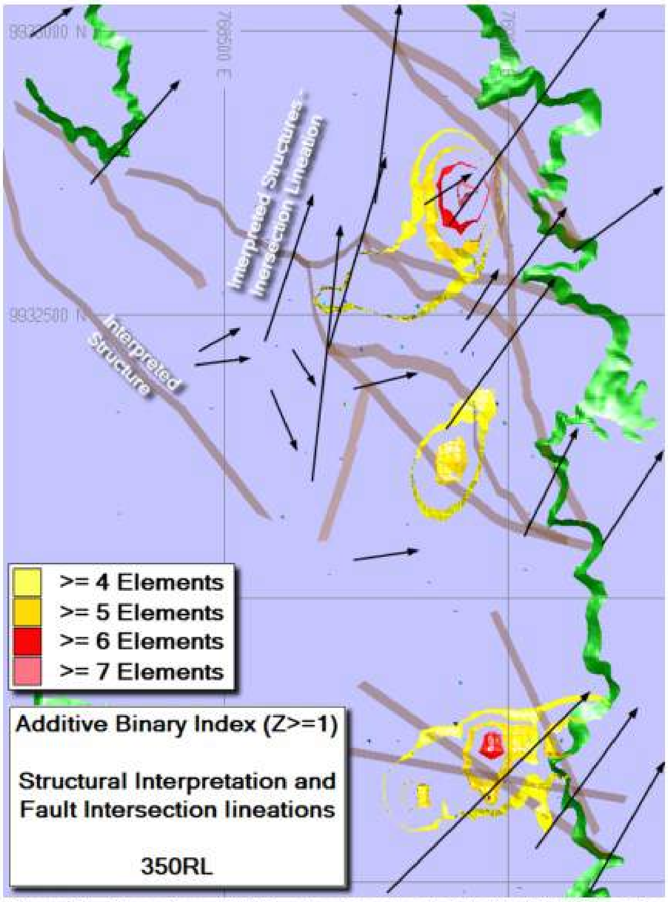

Figure 3: Plan view, 350RL: showing Grade Shelled Additive Binary Index (standard-score >=1), Interpreted Structures, Fault Intersection Lineations and Topography.

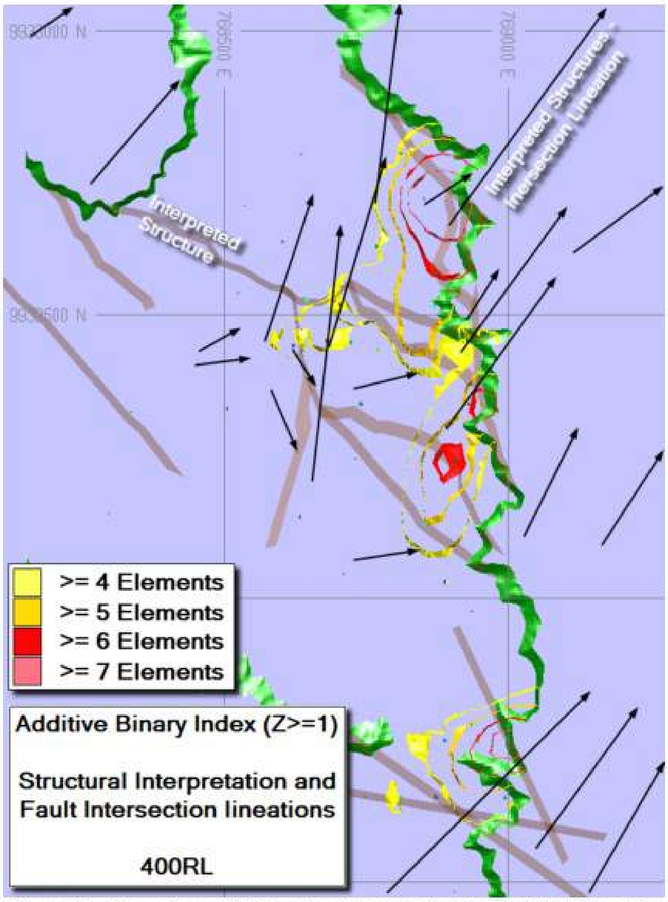

Figure 4: Plan view, 400RL: showing Grade Shelled Additive Binary Index (standard-score >=1), Interpreted Structures, Fault Intersection Lineations and Topography.

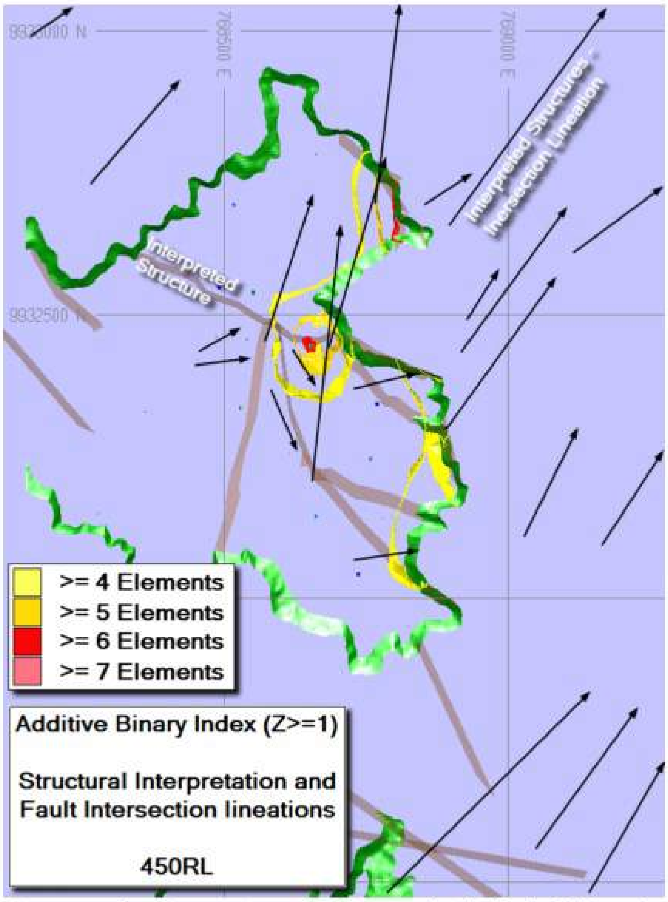

Figure 5: Plan view, 450RL: showing Grade Shelled Additive Binary Index (standard-score >=1), Interpreted Structures, Fault Intersection Lineations and Topography.

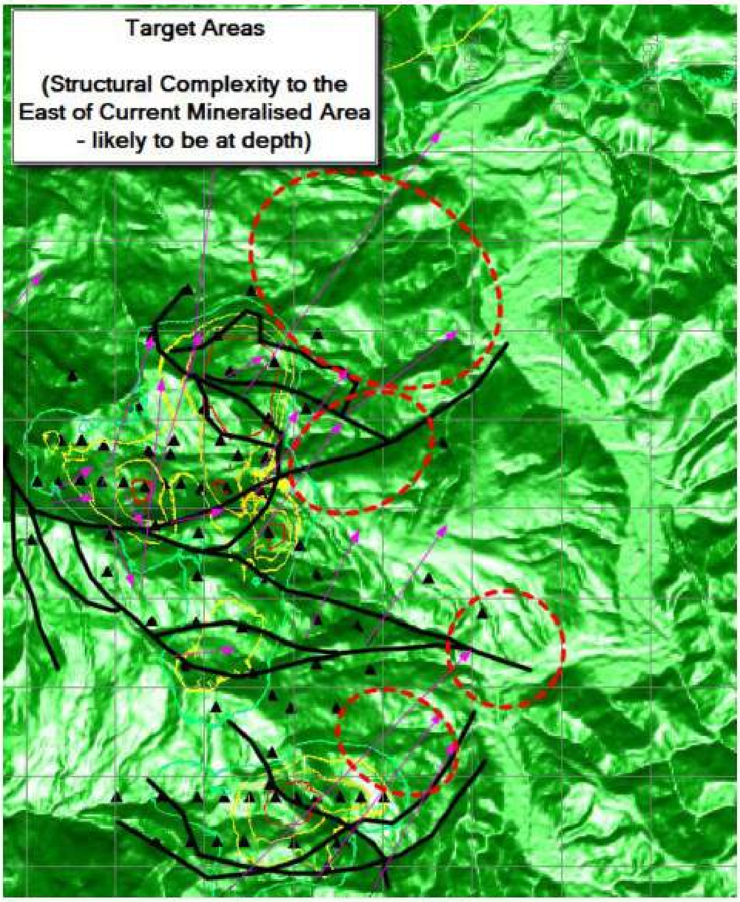

Figure 6: Extension and Proximal Mineralisation Target Areas. Generated from Multi-Element Association evaluation and interpreted thrust ramp environment mineralisation controls.

1.3 Recommendations

H&A recommends that:

- the interpretations and geometries developed in the multi-element assay analysis be utilized in guiding grade interpolation domaining in the upcoming resource estimate,
- KSK interrogate their existing database and undertake field investigations to assist in identifying mineralisation and drill targets to the east and northeast of the known mineralisation at BK.

2 Basic Statistics – ME Dataset

The following histograms present the data population distribution for the Multi-Element Dataset.

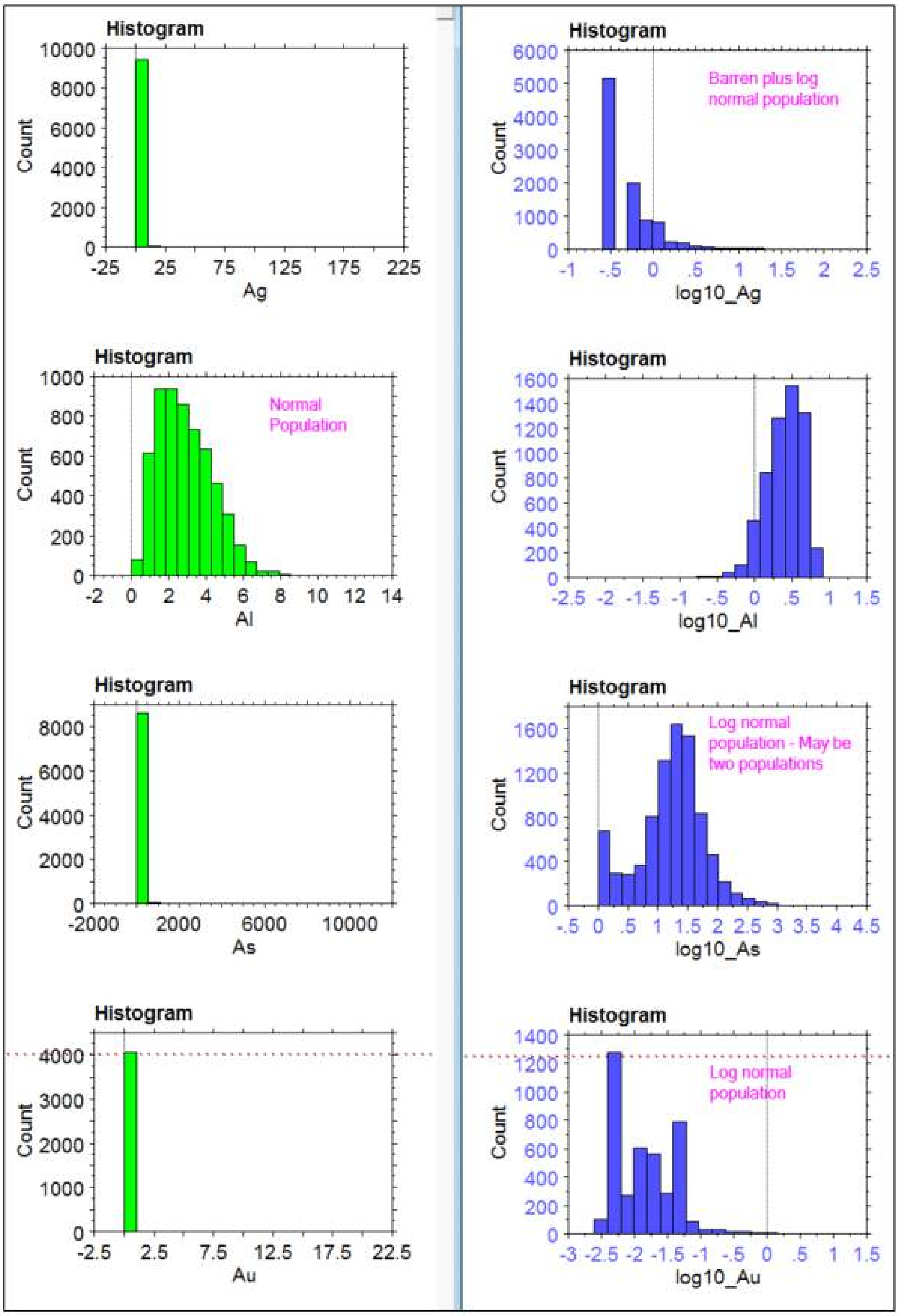

Figure 7: Multi-Element Histograms

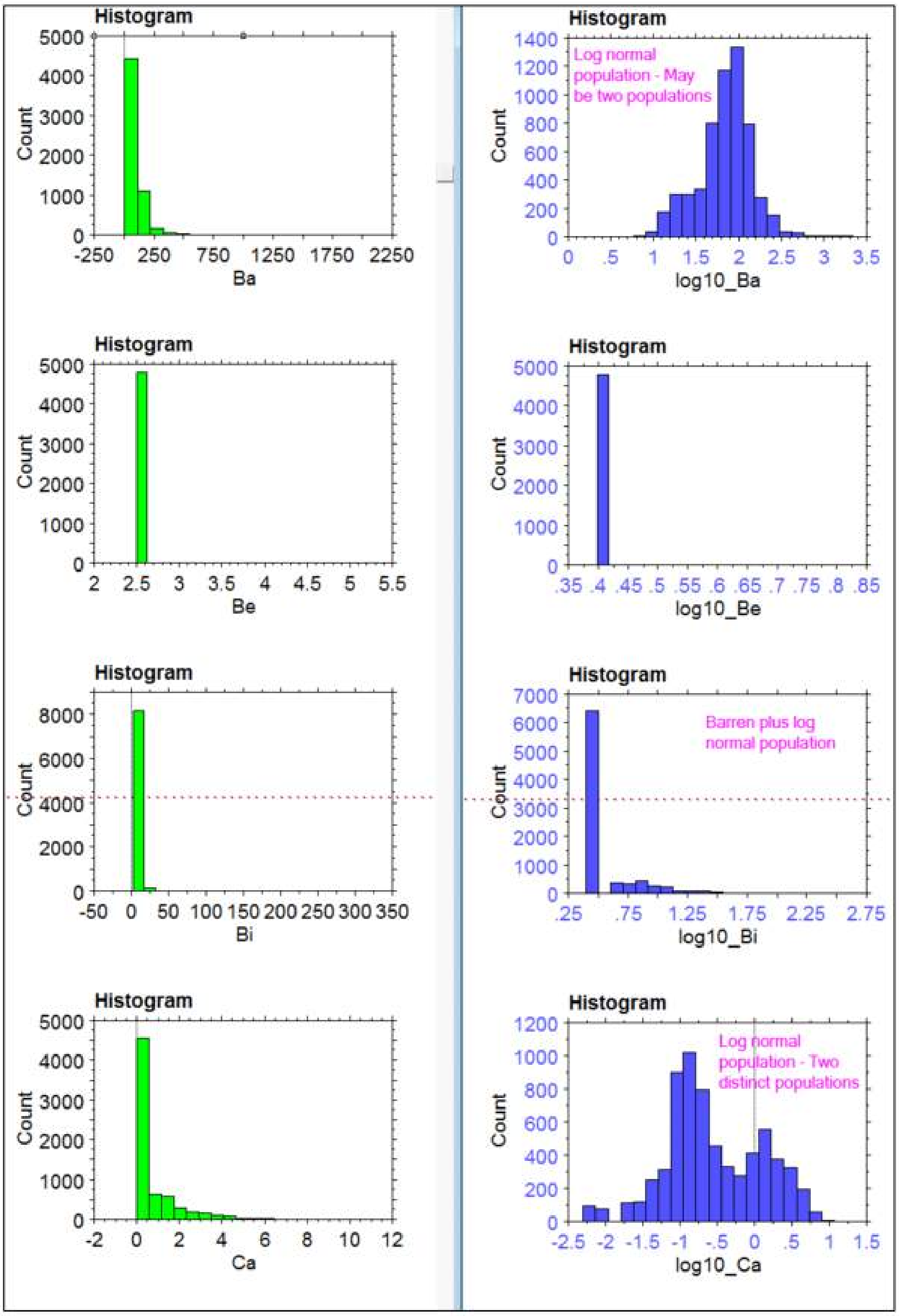

Figure 8: Multi-Element Histograms

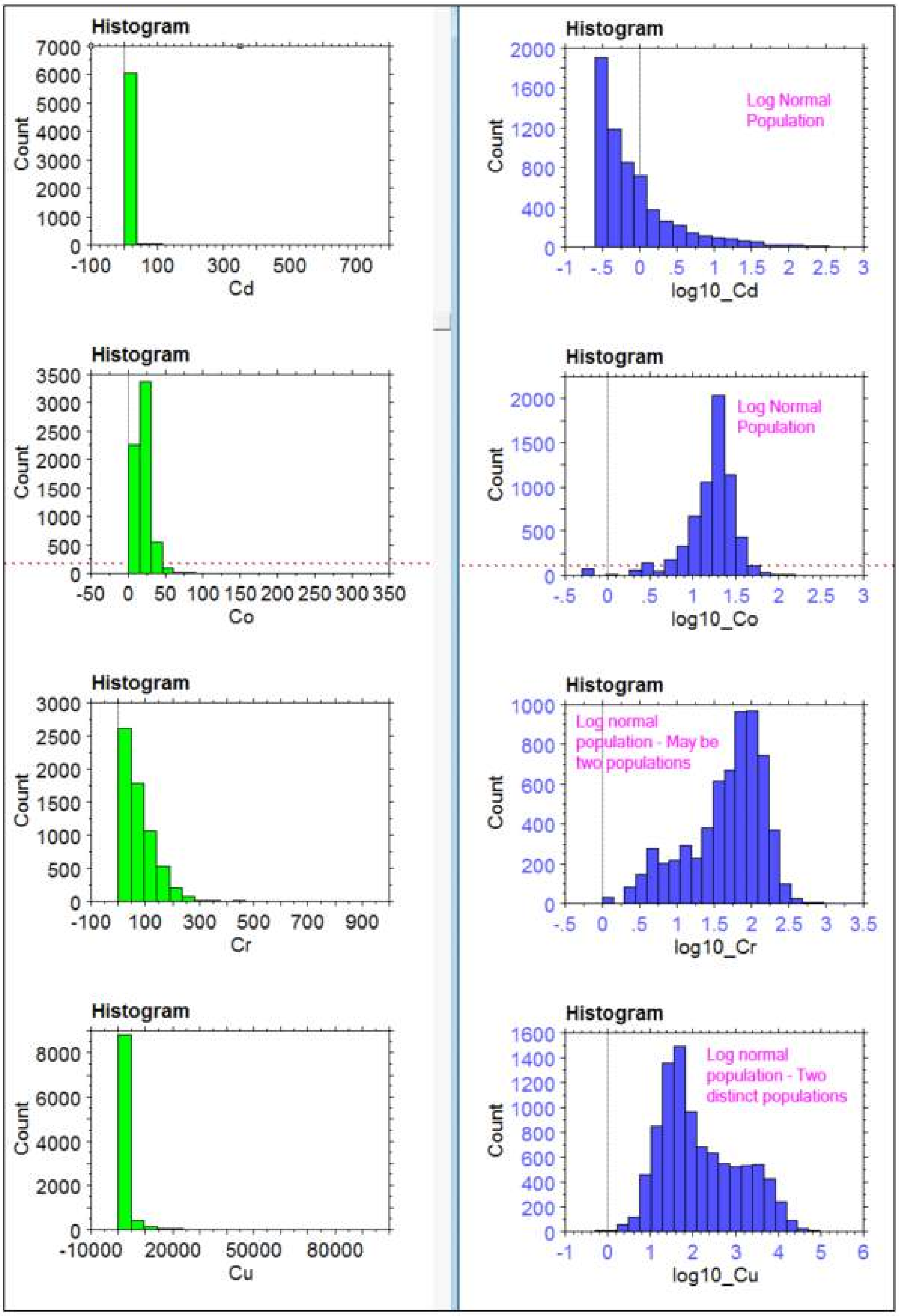

Figure 9: Multi-Element Histograms

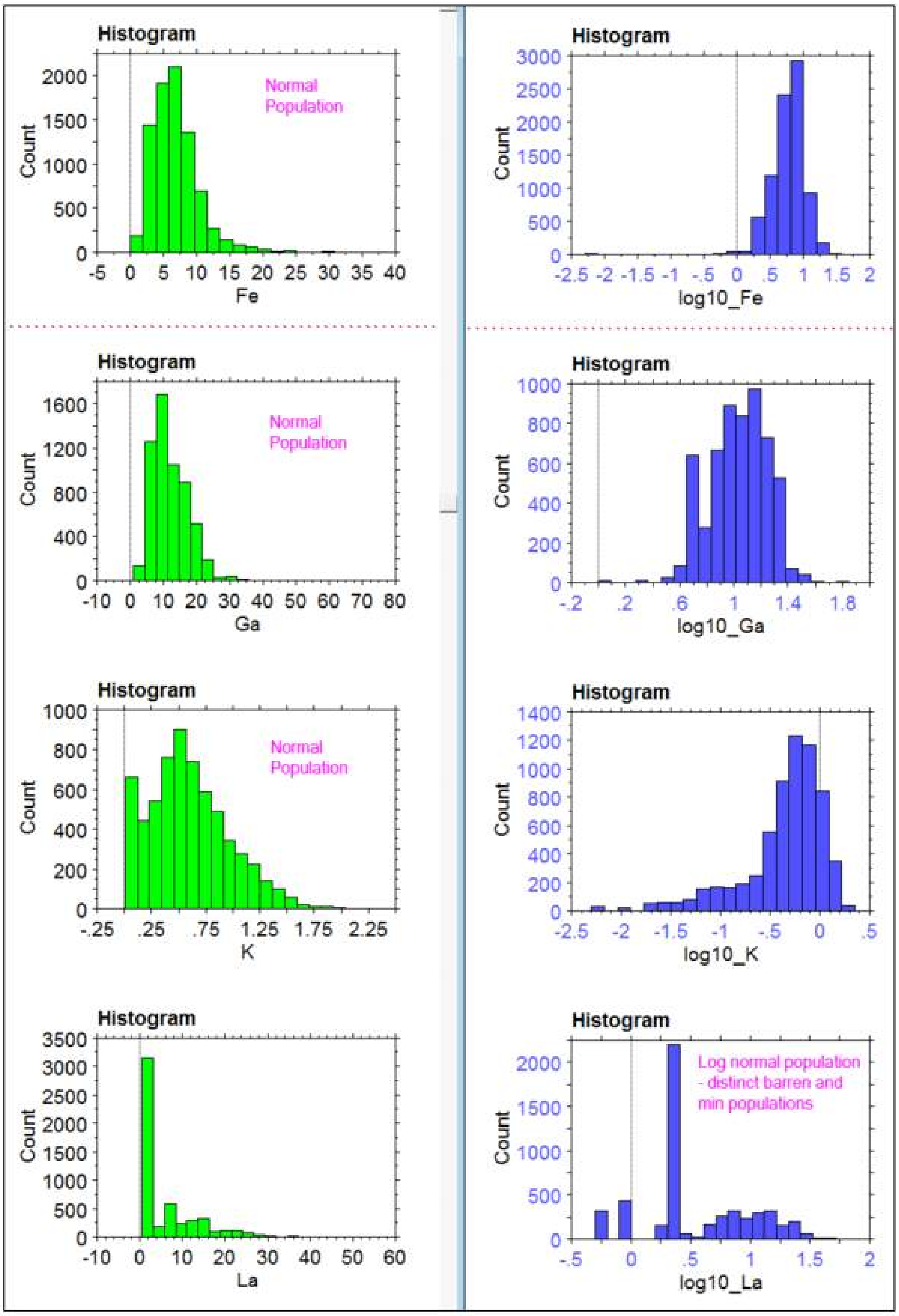

Figure 10: Multi-Element Histograms

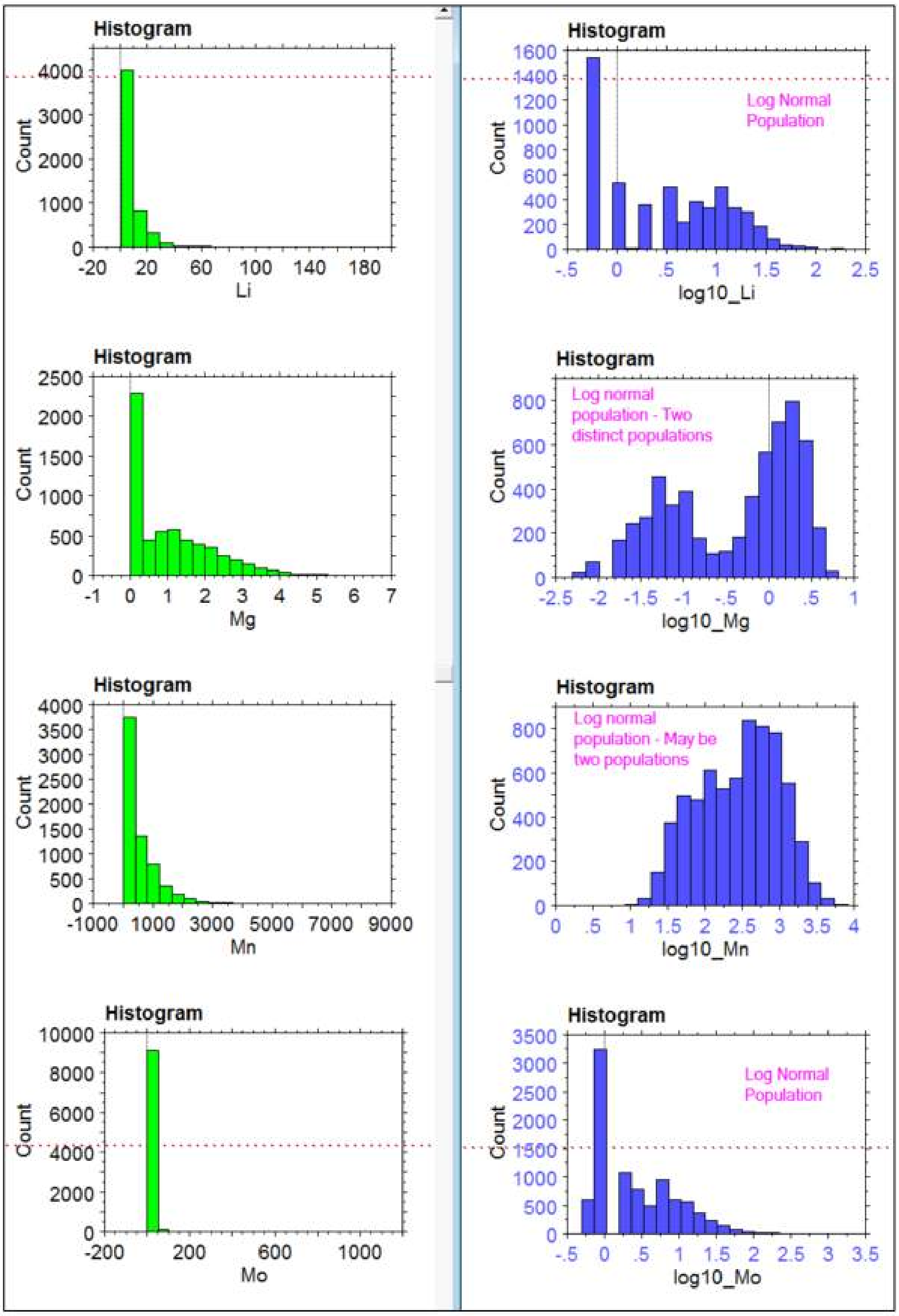

Figure 11: Multi-Element Histograms

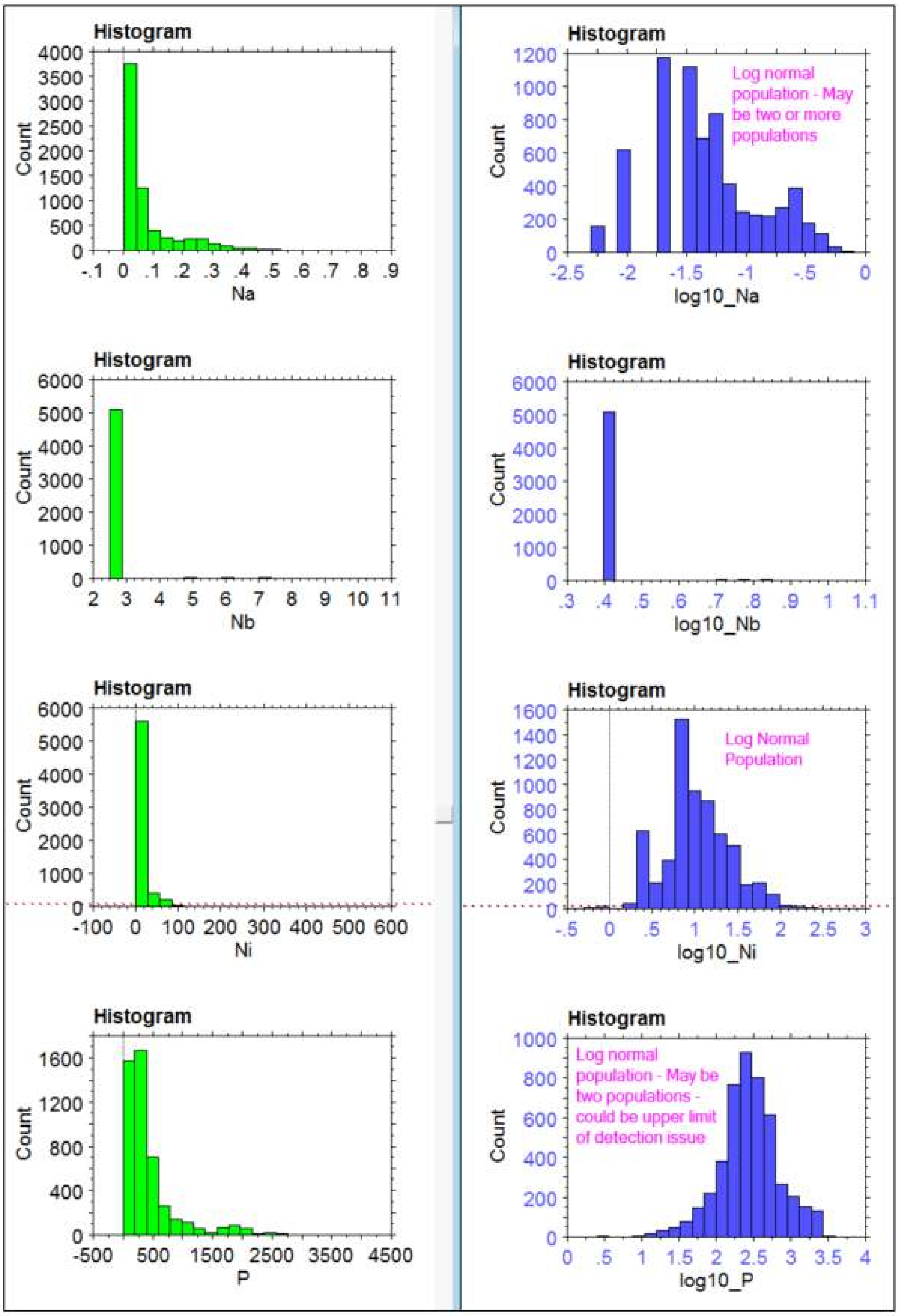

Figure 12: Multi-Element Histograms

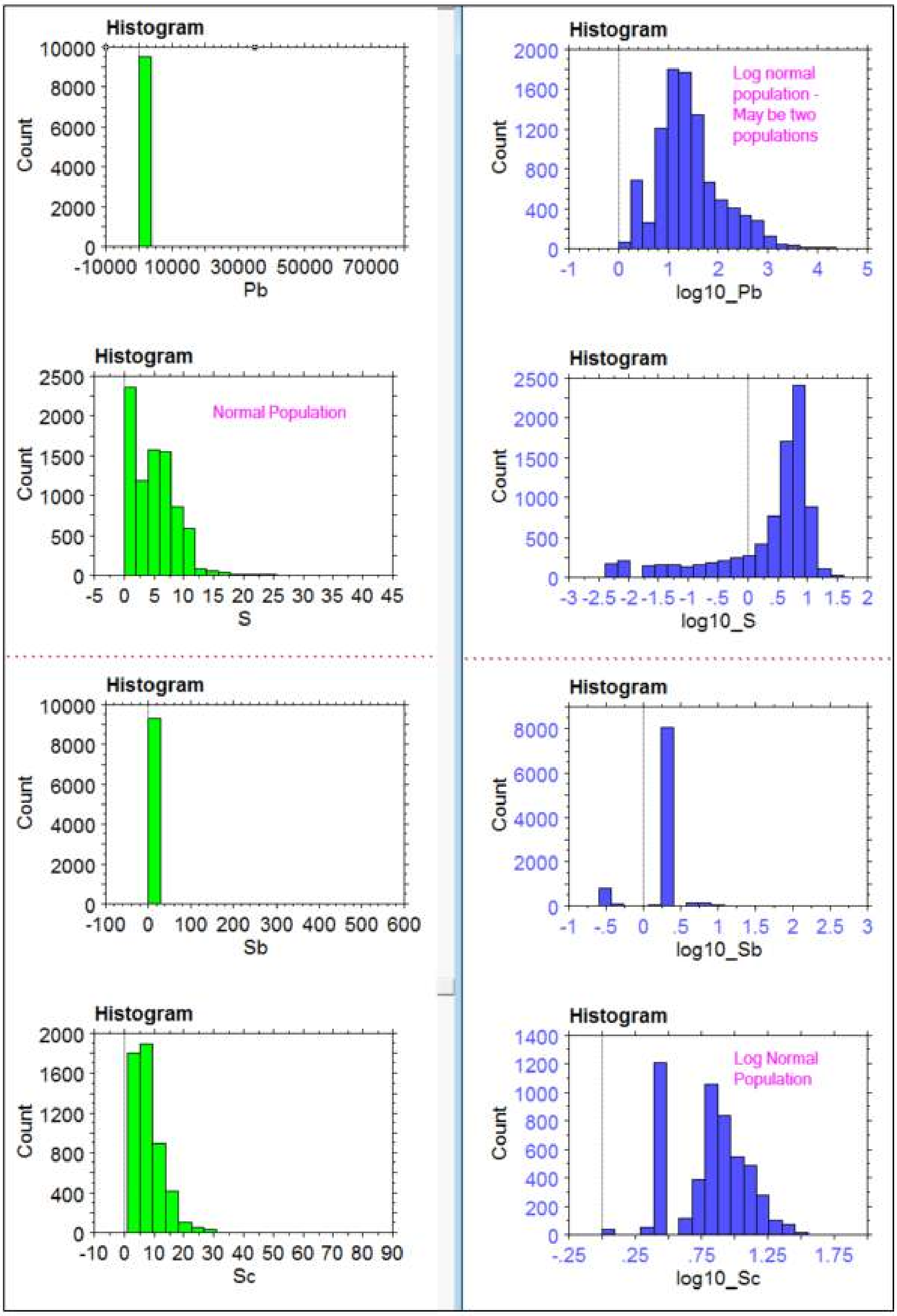

Figure 13: Multi-Element Histograms

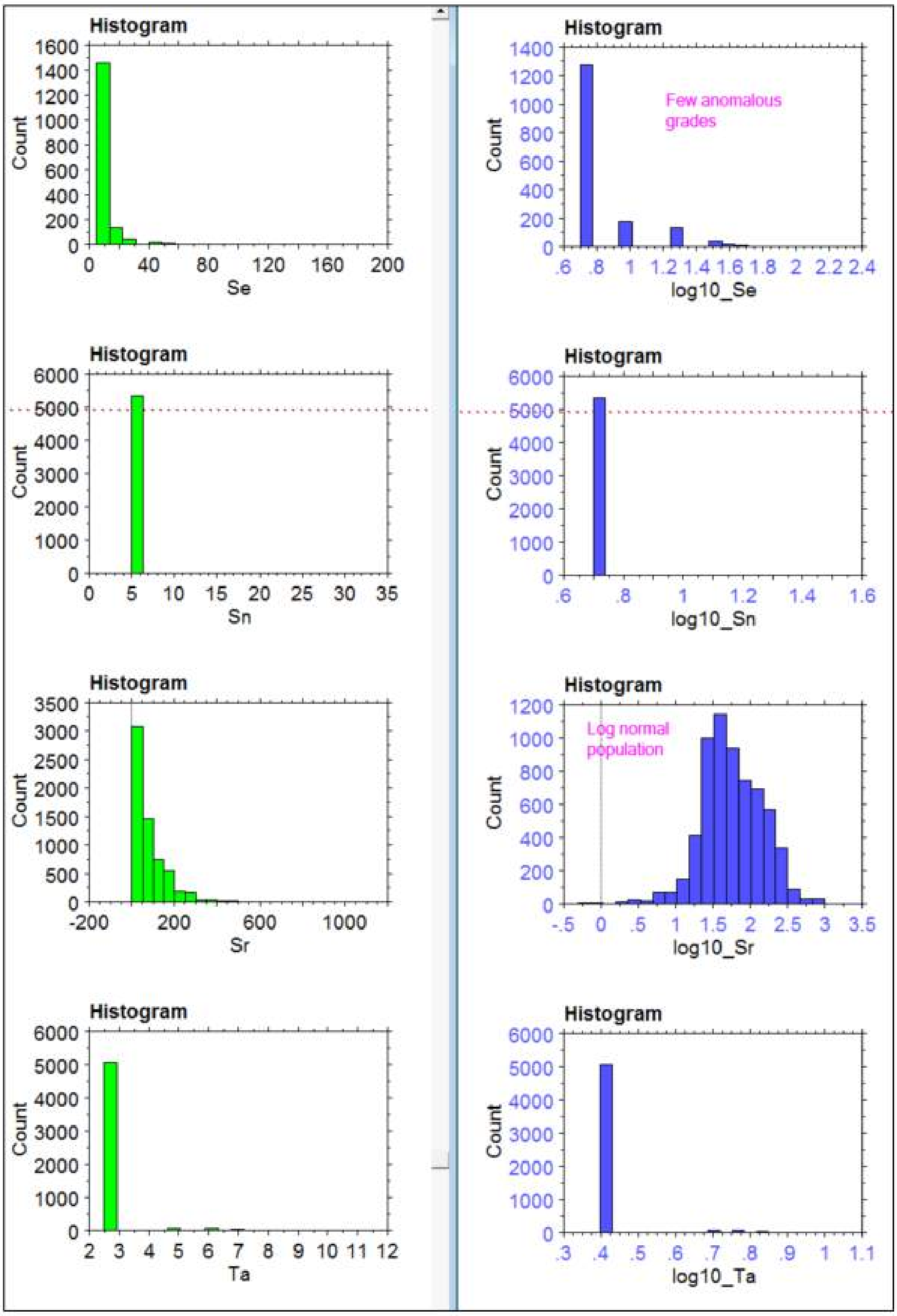

Figure 14: Multi-Element Histograms

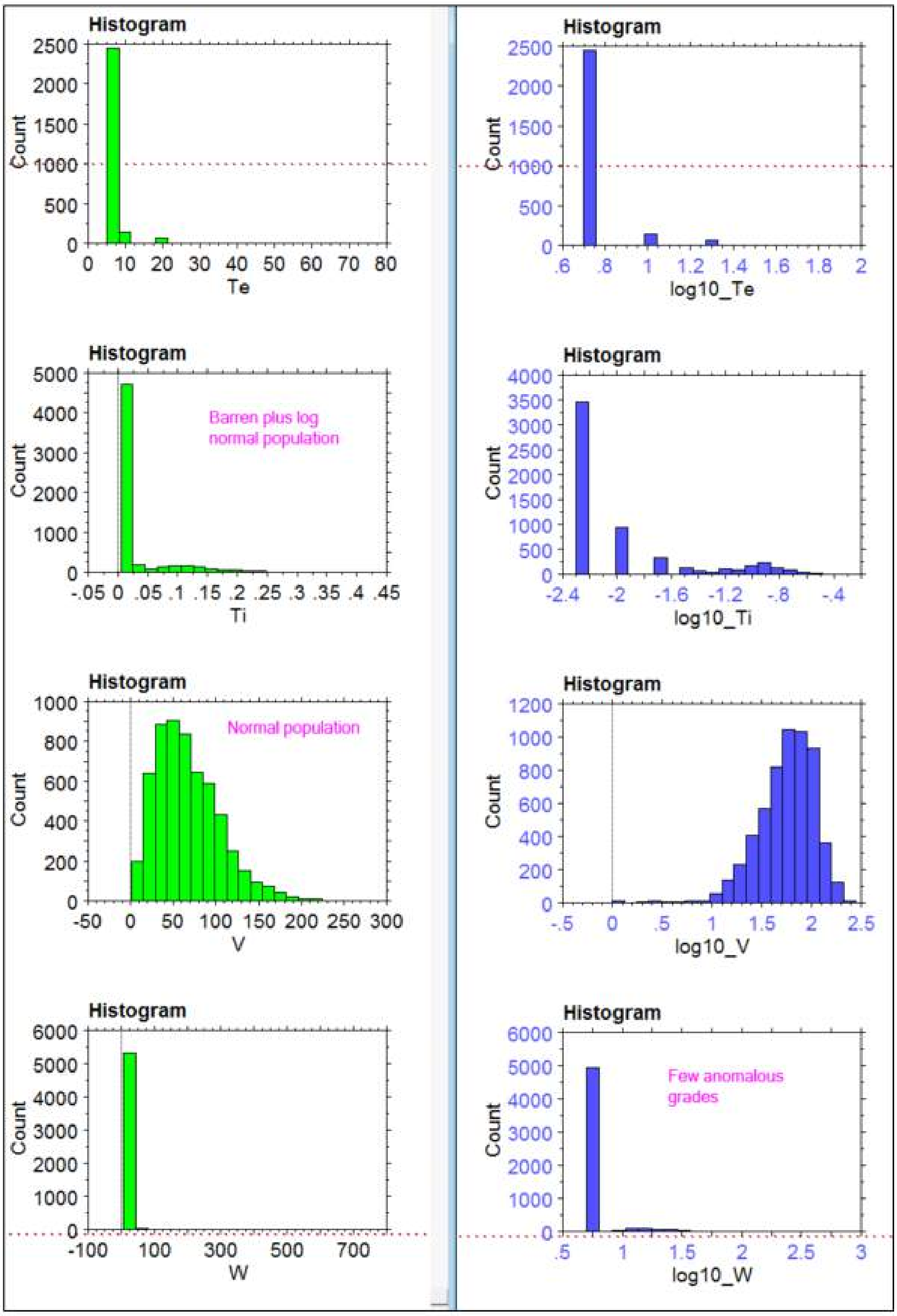

Figure 15: Multi-Element Histograms

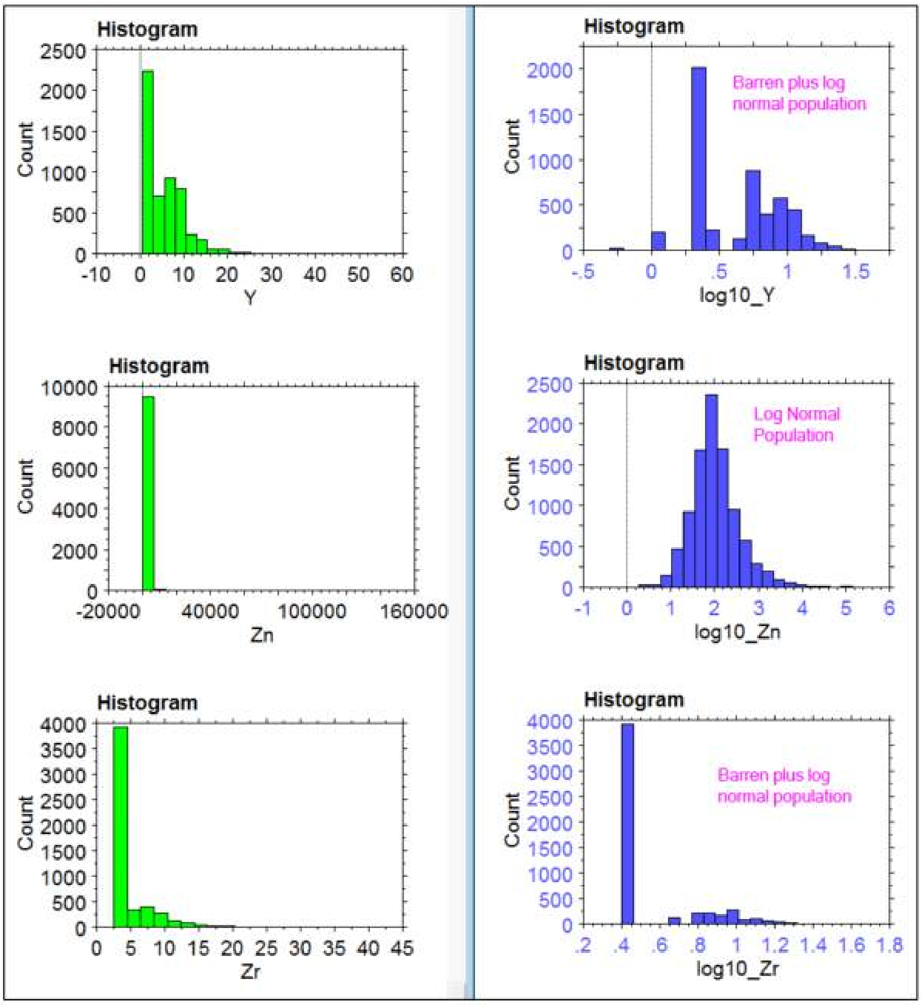

Figure 16: Multi-Element Histograms

3 Elements and Factors Associated with Copper Mineralisation

The following figures depict the statistical and spatial association of those elements associated with copper mineralisation.

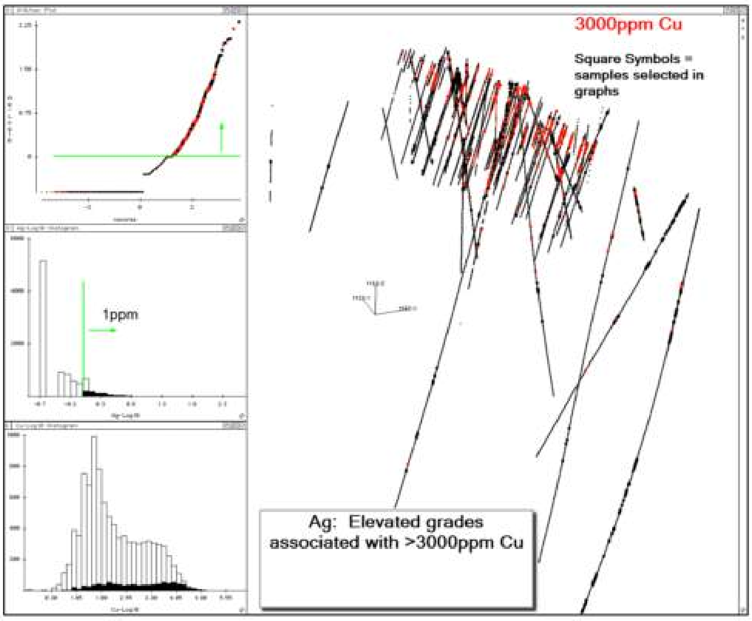

Figure 17: Ag-Cu Relationship

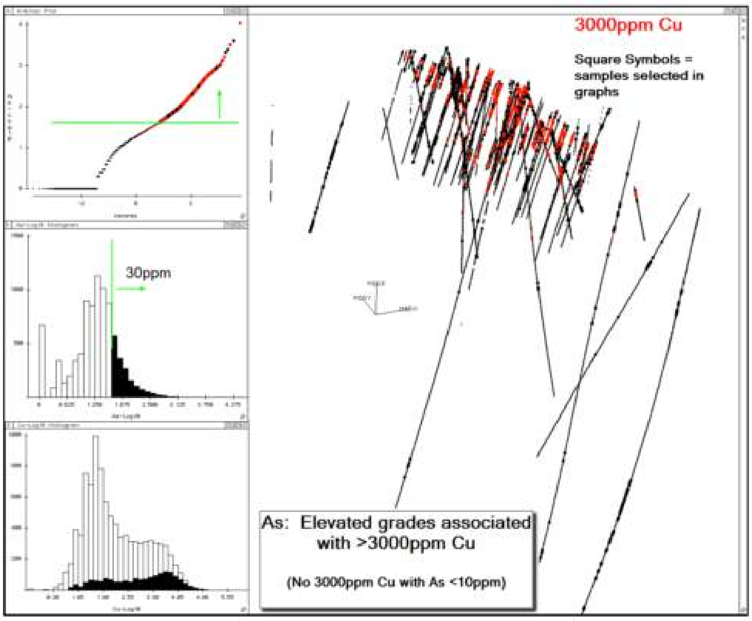

Figure 18: As-Cu Relationship

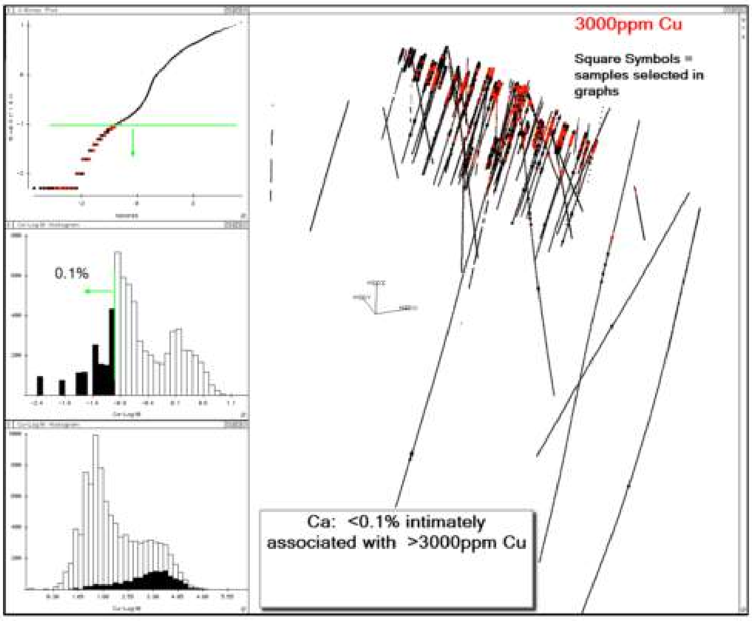

Figure 19: Low_Ca-Cu Relationship

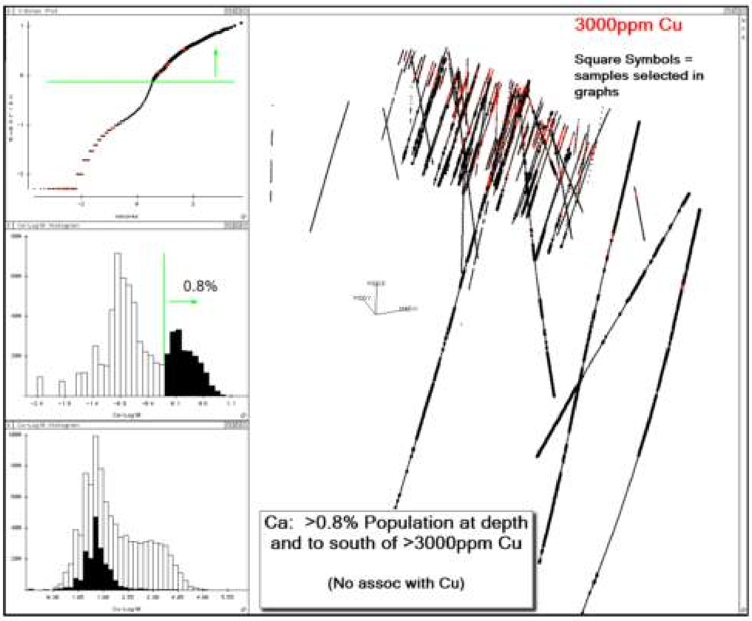

Figure 20: High_Ca-Cu Relationship

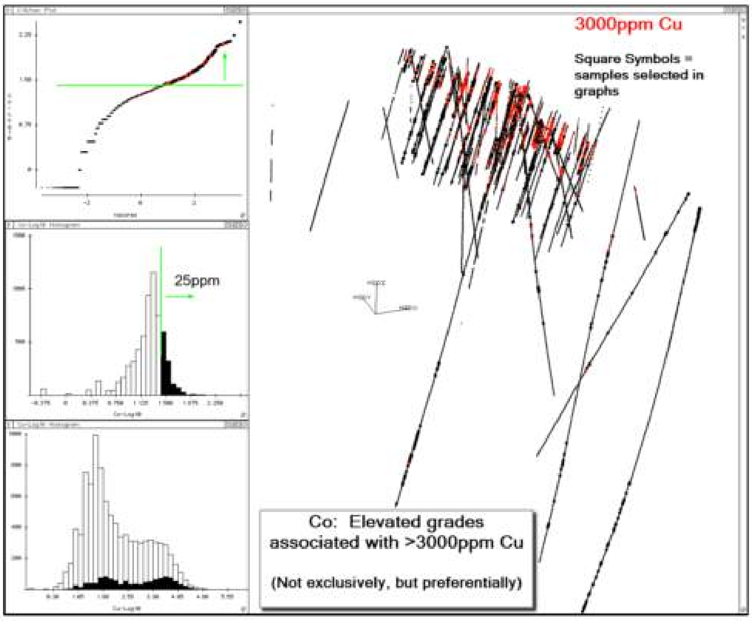

Figure 21: Co-Cu Relationship

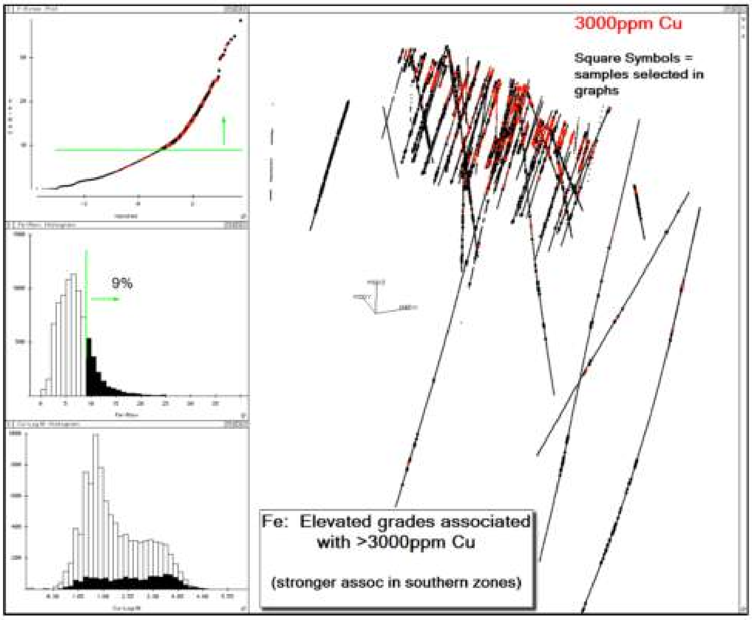

Figure 22: Fe-Cu Relationship

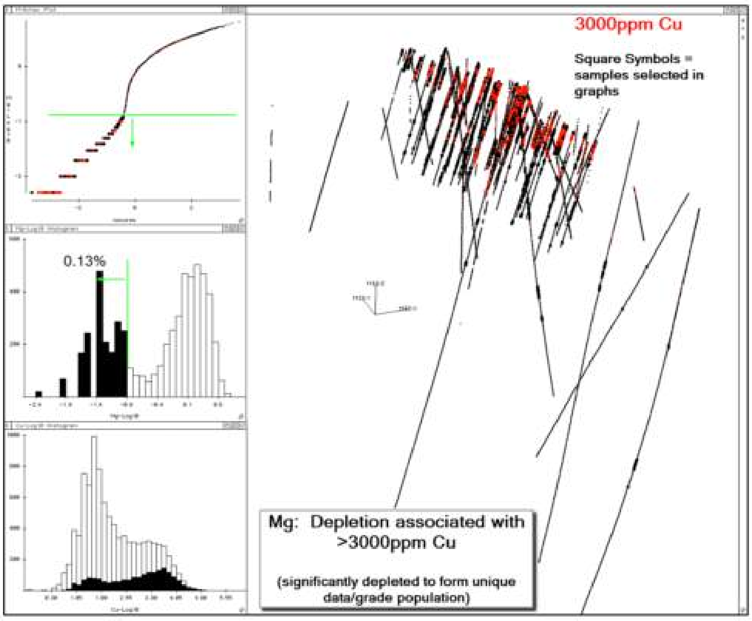

Figure 23: Mg-Cu Relationship

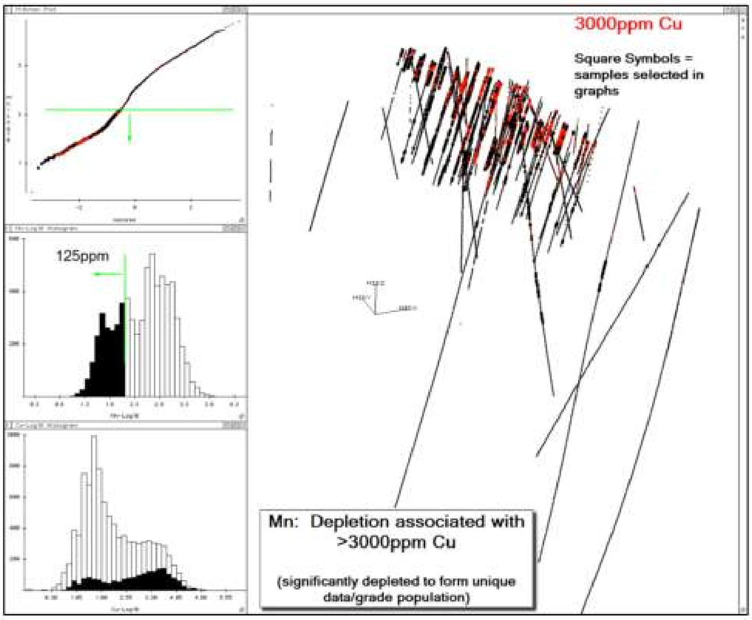

Figure 24: Mn-Cu Relationship

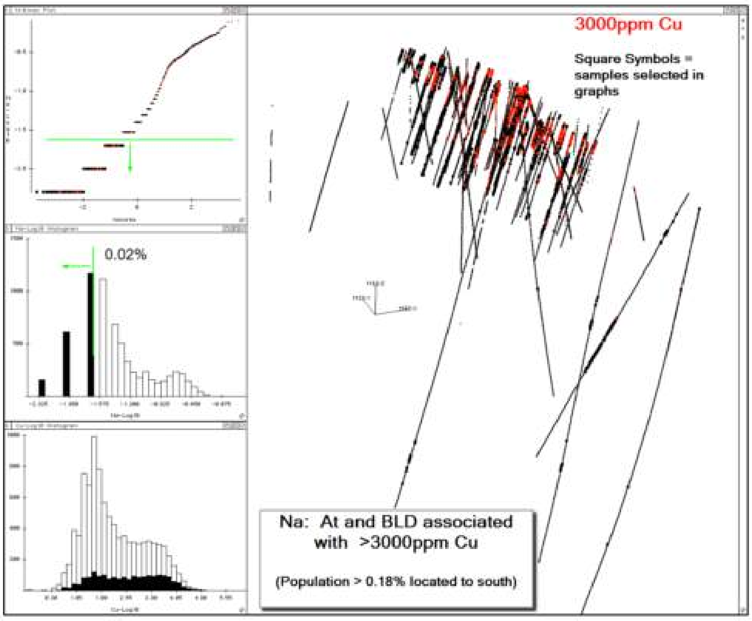

Figure 25: Na-Cu Relationship

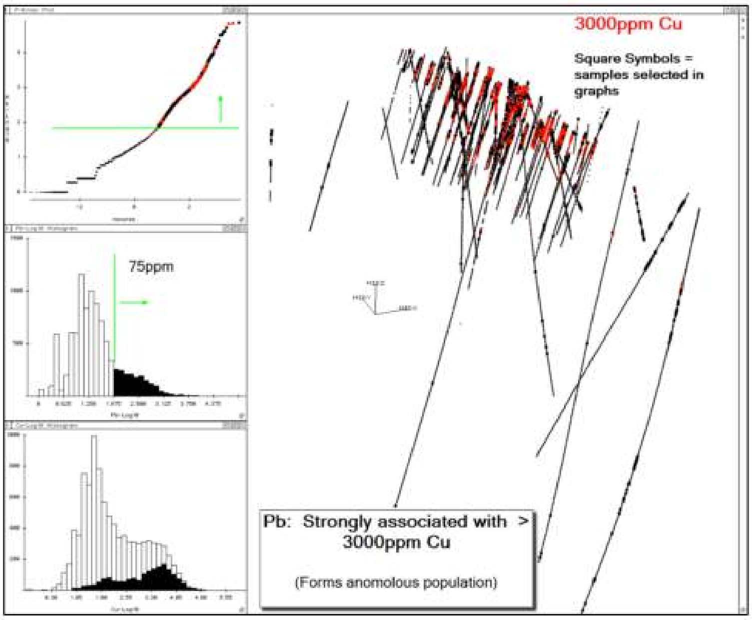

Figure 26: Pb-Cu Relationship

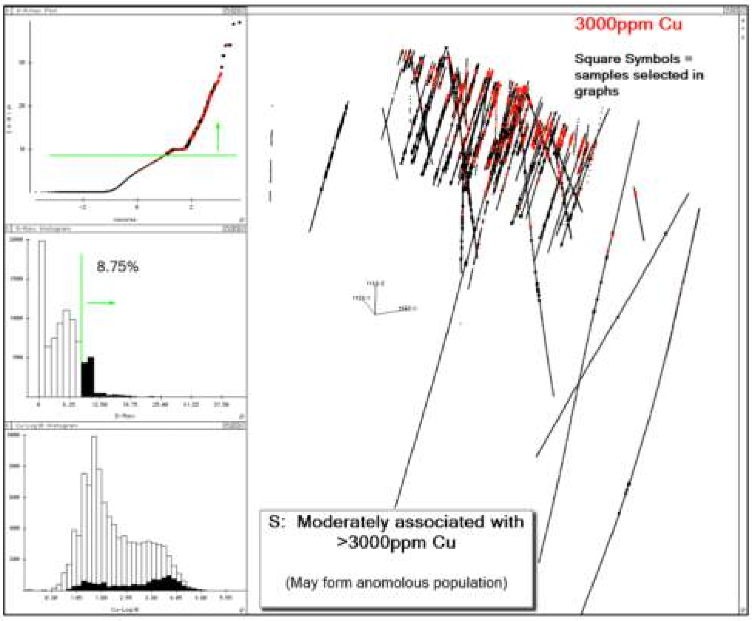

Figure 27: S-Cu Relationship

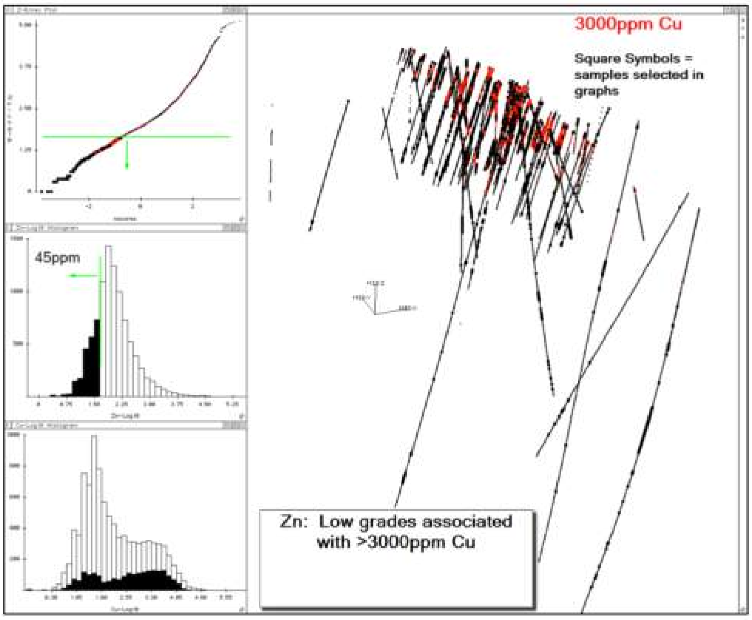

Figure 28: Zn-Cu Relationship

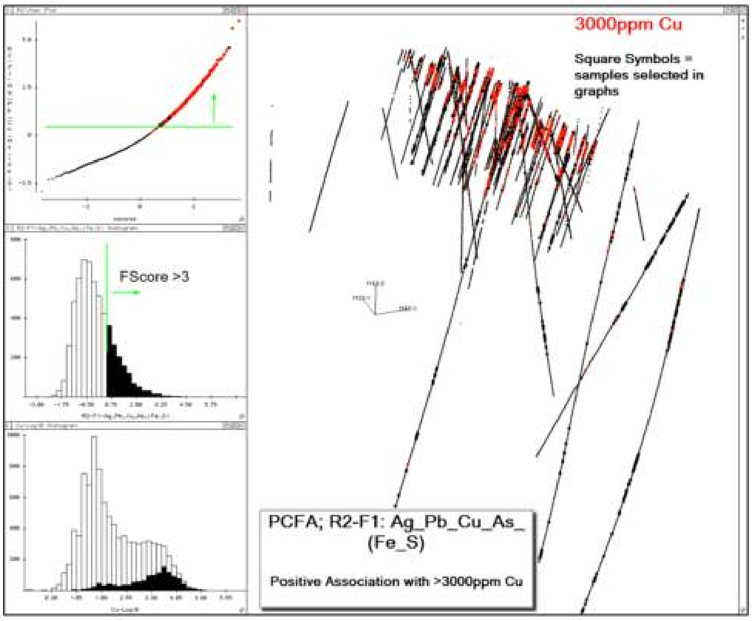

Figure 29: PCFA; R2_F1-Cu Relationship

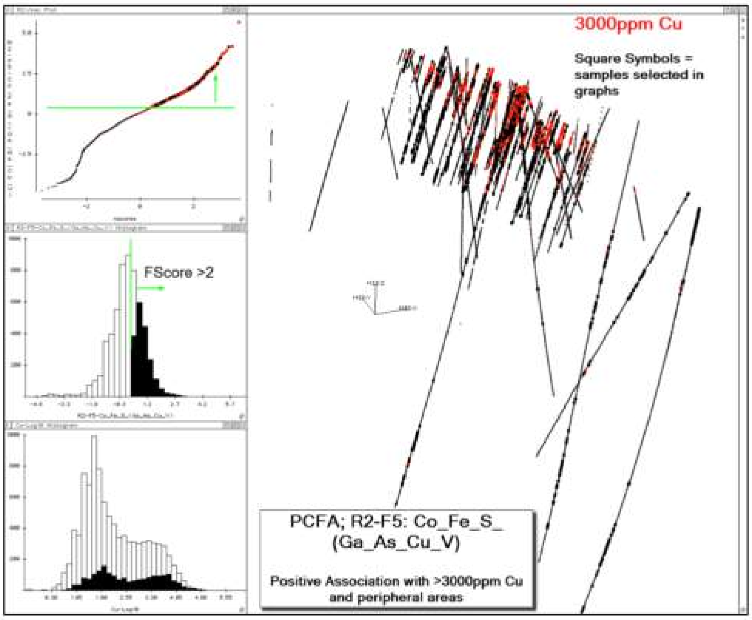

Figure 30: PCFA; R2_F5-Cu Relationship

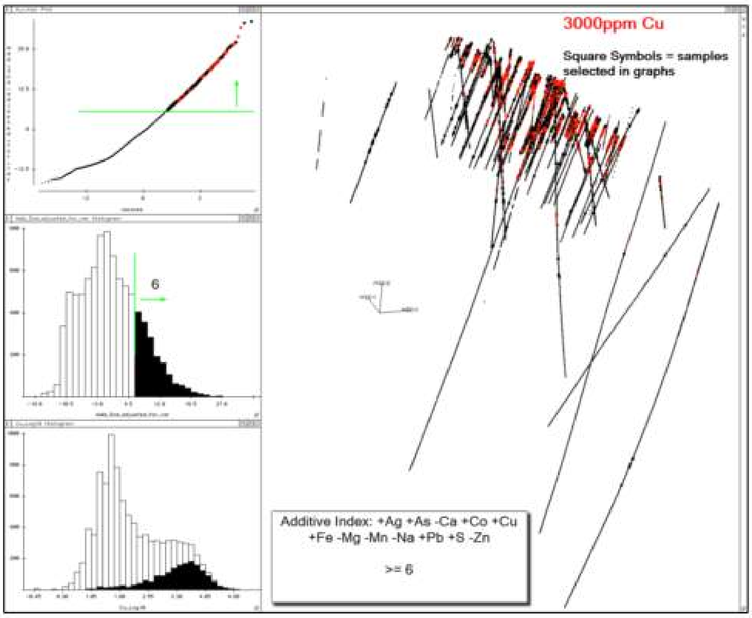

Figure 31: AddIndex-Cu Relationship

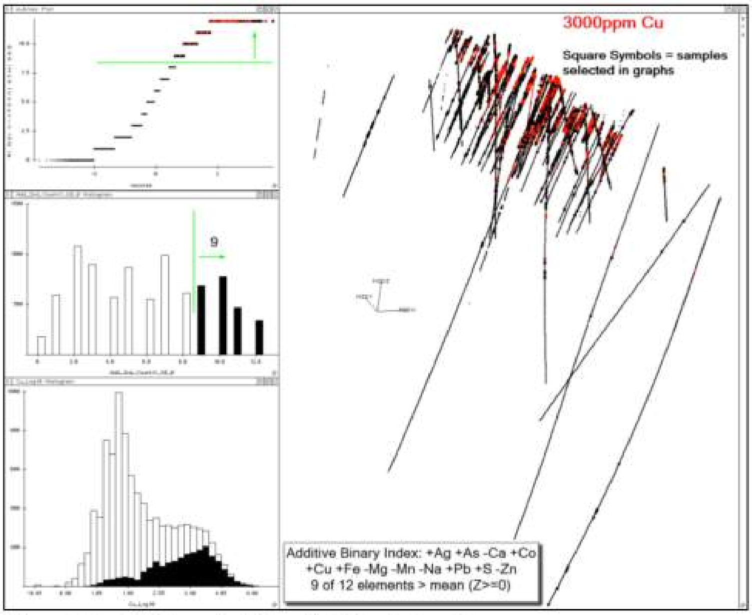

Figure 32: AddBinaryInd(Z>=0)-Cu Relationship

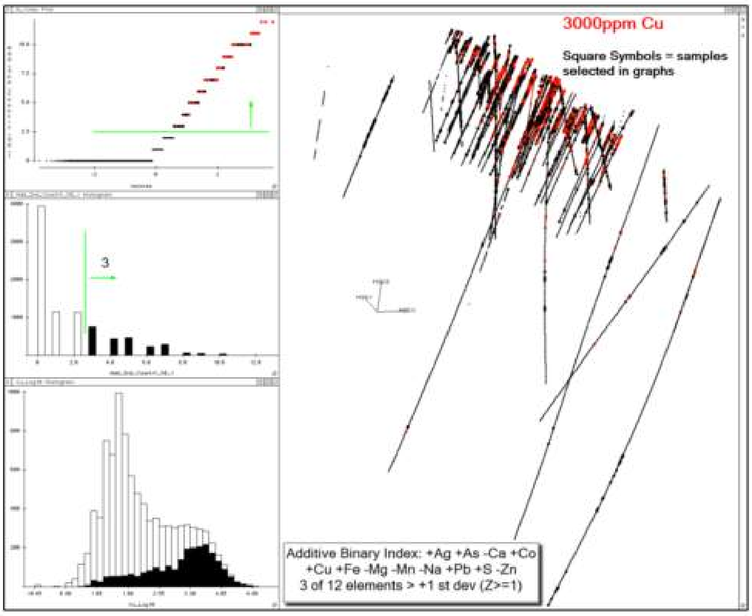

Figure 33 AddBinaryInd(Z>=1)-Cu Relationship

Appendix 15 ITS Laboratory Accreditation Certificate

SERTIFIKAT AKREDITASI

LP-130-IDN

Ditetapkan tanggal : 23 Juli 2014

Berlaku hingga: 22 Juli 2018

Diberikan kepada

PT INTERTEK UTAMA SERVICES

di

Jl. Raya Bogor KM 28, Jakarta Timur, DKI Jakarta- 13710

yang telah menunjukkan kompetensinya sebagai

LABORATORIUM PENGUJI

dengan menerapkan secara konsisten

SNI ISO/IEC 17025:2008 (ISO/IEC 17025:2005)
Persyaratan Umum Untuk Kompetensi Laboratorium Pengujian dan Laboratorium Kalibrasi

untuk ruang lingkup seperti dalam lampiran

KOMITE AKREDITASI NASIONAL

Prof. Dr. BAMBANG PRASETYA

KETUA

Sertifikat ini memberikan hak kepada laboratorium untuk menggunakan tanda akreditasi pada sertifikat/laporan yang diterbitkan, kop surat, iklan, dan tujuan promosi lainnya sesuai ketentuan yang berlaku. Sertifikat ini tidak boleh direproduksi sebagian, kecuali secara keseluruhan, tanpa izin tertulis dari Komite Akreditasi Nasional.

Komite Akreditasi Nasional

LAMPIRAN SERTIFIKAT AKREDITASI LABORATORIUM NO. LP-130-IDN

Nama Laboratorium : PT. Intertek Utama Services
Alamat : Jl. Raya Bogor KM 28, Jakarta Timur 13710
Telp. (021) 29384454 Faks. (021) 29384465 / 63

Masa berlaku: 23 Juli 2014 s/d 22 Juli 2018

Lingkup Akreditasi

Bidang pengujian	Bahan atau produk yang diuji	Jenis pengujian atau sifat-sifat yang diukur	Spesifikasi, metode pengujian, teknik yang digunakan	Keterangan
Penandatangan sertifikat/laporan : Andrew Riley; Robert Oliver; Allen Hingst; Titus Sitorus				
Kimia	Mineral batuan	Au	FA50, FA51, FA30 (*Teknik Fire assay* (FAAS))	
		Au, Pt, Pd *Low level detection*	FA55 (*Teknik Fire assay* (GF-AAS))	
		Au	FA20 (Teknik *Screen Fire Assay* (FAAS))	
		Au	FA12 (Teknik gravimetri)	
		Au	AR50.AR30, AR51 (Teknik digest aqua regia, AAS dan GF-AAS)	
		Au, Ag, Cu, Cyanide leach	CN02, CN04 (Teknik ekstraksi, AAS dan GF-AAS)	
		Ag, As, Cd, Co, Cu, Fe, Mn, Ni, Pb, Zn	GA02, GA03 (Teknik digest HCl/HClO4 & AAS)	
		Ag, As,Cu,Pb,Zn	GA01 (Teknik digest aqua regia & AAS)	
		Ag, Al, As, Cd, Co, Cr, Cu, Fe, Mg, Mn, Ni, Pb, Zn	GA30, GA50, GA31 (Teknik *Triple Acid Digestion / Multi Acid Digestion* & AAS)	
		Hg	CV02 (Teknik *Cold Vapour* (CV-AAS)	
		Sulphur dan carbon	ST01 (Teknik IR *Absorption* (LECO))	
		As, Ba, Bi, Mo, Pb, Sb, Se, Sn, Ta, Te, Tl, W	XR01 (Teknik XRF)	
		Ni, Co, Al_2O_3, SiO_2, Na_2O, MgO, Fe_2O_3, CaO, TiO_2, P_2O_5, MnO, K_2O, Cr_2O_3	XR80 (Teknik Whole Rock (XRF))	
		Loss On Ignition (LOI)	LOI (Teknik pembakaran)	
		Ag, Al, As, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, Pb, S, Sb, Sc, Sn, Sr, Ta, Te, Ti, V, W, Y, Zn and Zr	IC01, Digest Aqua regia, (Campuran HNO_3; HCl), dan analisis dengan instrumen ICP.	
		Ag, Al, As, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, Pb, Sb, Sc, Sn, Sr, Ta, Te, Ti, V, W, Y, Zn and Zr	IC50, *Digest Multi acid* , (Campuran HNO_3; HCl), $HClO_4$ dan HF), dan analisis dengan instrumen ICP.	
		Ag, Al, As, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, Pb, S, Sb, Sc, Sn, Sr, Ta, Te, Ti, V, W, Y, Zn and Zr	IC02, Digest, (Campuran $HClO_4$; HCl), dan analisis dengan instrumen ICP.	

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KAN
Komite Akreditasi Nasional

LANJUTAN LAMPIRAN SERTIFIKAT AKREDITASI LABORATORIUM NO. LP-130-IDN

Nama Laboratorium : PT. Intertek Utama Services
Alamat : Jl. Raya Bogor KM 28, Jakarta Timur 13710
Telp. (021) 29384454 Faks. (021) 29384465 / 63

Masa berlaku: 23 Juli 2014 s/d 22 Juli 2018

Lingkup Akreditasi

Bidang pengujian	Bahan atau produk yang diuji	Jenis pengujian atau sifat-sifat yang diukur	Spesifikasi, metode pengujian, teknik yang digunakan	Keterangan
Penandatangan sertifikat/laporan : Andrew Riley; Robert Oliver; Allen Hingst; Titus Sitorus				
Kimia	Mineral batuan (Lanjutan)	Ag, Al, As, Ba, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, Pb, Sb, Sc, Sn, Sr, Ta, Te, Ti, V, W, Y, Zn and Zr	IC30, *Digest Three Acid* , (Campuran HNO_3; HCl dan $HClO_4$), dan analisis dengan instrumen ICP.	
		Ni, Co, Al_2O_3, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, Cu, Zn, S, BaO, V_2O_5, Pb, AS, Sn dan Cl	XR20 (Teknik XRF)	
		Al_2O_3, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, S, ZrO_2	XR30 (Teknik XRF)	
		Al_2O_3, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, S, V_2O_5	XR40 (Teknik XRF)	
		Al_2O_3, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, Cu, Pb, Zn, S, BaO	XR50 (Teknik XRF)	
		Al_2O_3, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, S, Pb, AS, ZrO_2, HfO_2	XR60 (Teknik XRF)	
		Ni, Co, Al_2O_3, CaO, Cr_2O_3, Fe_2O_3, K_2O, MgO, MnO, Na_2O, P_2O_5, SiO_2, TiO_2, Cu, Zn, Cl	XR81 (Teknik XRF)	
	Batuan dan tanah	Ag, Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Ho, In, K, La, Li, Lu, Mg, Mn, Mo, Na, Nb, Nd, Ni, P, Pb, Pr, Rb, Re, S, Sb, Sc, Se, Sm, Sn, Sr, Ta, Tb, Te, Th, Ti, Tl, Tm, U, V, W, Y, Yb, Zn, Zr	4A/OE/MS (Teknik ICP MS)	

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Appendix 16 Kriging Neighborhood and Experimental Variography Report

MEMORANDUM

TO	Duncan Hackman, Stephen Hughes	DATE	19 June 2017
FROM	Bosta Pratama	PAGES	14
SUBJECT	Beruang Kanan Variography update 2017		

1 INTRODUCTION

1.1 Background and Scope of Works

Bosta Pratama (BP) of P&a was asked by Duncan Hackman (H&A) to undertake an update of the variography and neighbourhood parameters of the Beruang Kanan Deposit on behalf of Asiamet Resources (''ARS). This project was initiated by H&A with endorsement by ARS management.

The Beruang Kanan Main deposit (BKM) is currently the subject of a bankable feasibility study that will be based on the update of the 2017 resource estimate.

The scope of work are including:

- Updating the variography and estimation neighbourhood parameters base on the update 2017 drillhole data;
- Advising H&A on the plausible provisional classification derived from the estimation aspect; and
- Comparison or verification of the actual 2017 estimation versus the 2016 drill spacing study.

2 DATA IMPORT

2.1 Data Provided

H&A provided coded drillhole data including collar, survey and assays in Minesight Torque SQL format, and the 2017 update domains in Minesight and Vulcan format on 7 June 201.

The 2017 estimation domains including:

- Domain 17;
- Domain 25;
- Domain 30;
- Domain 60;
- Domain 95; and

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ABN 46120127605

- Domain 100

The 2017 Assays data including of Cu (ppm), Fe (%) and S (%).

All data were imported into Minesight and Isatis software.

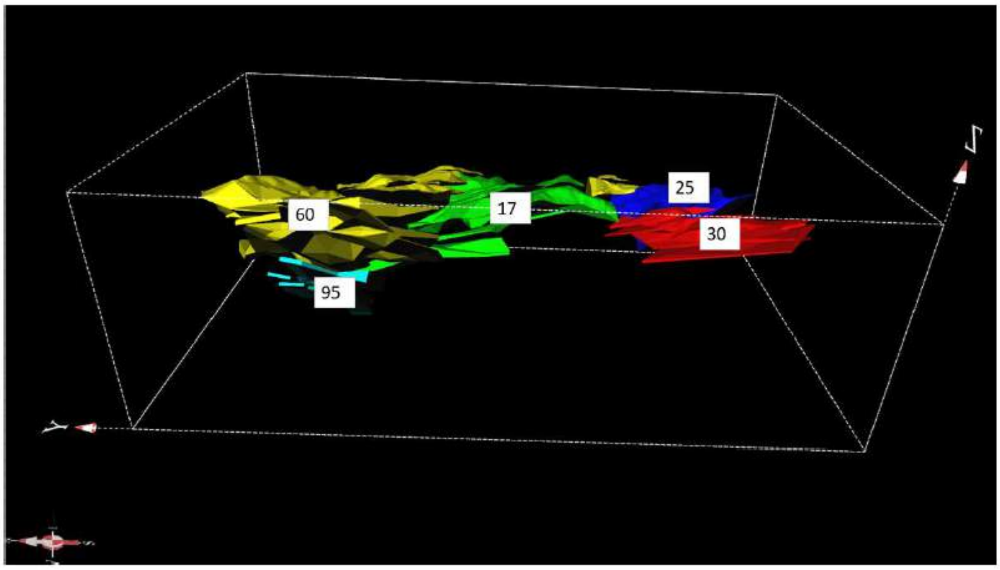

Figure 1. 2017 Estimation domains, please note that Domain 100 is not shown here (thin layer of oxide follow the topography)

2.2 Compositing

P&a performed a test on composite length, Coming into the conclusion that a 3m composite is reasonable, due to the length of approximately 95% of sample intervals (Figure 2 to Figure 4). A 3m composite is then used for the purposes of this work.

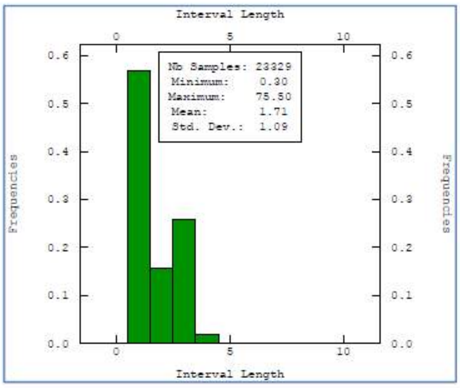

Figure 2. Histogram of sample length for 2017 drillhole at Beruang Kanan.

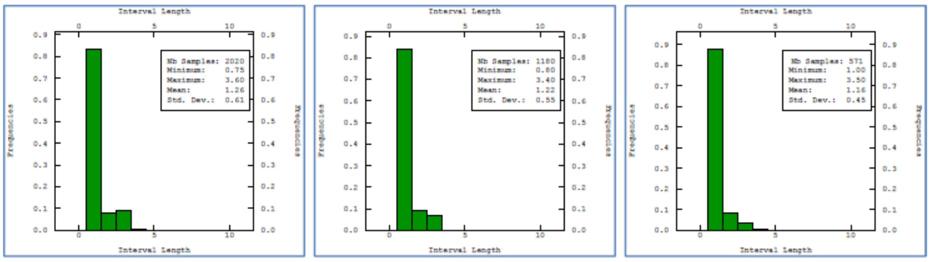

Figure 3. Histogram of sample length for Domain 17, 25 and 30 (Left to right)

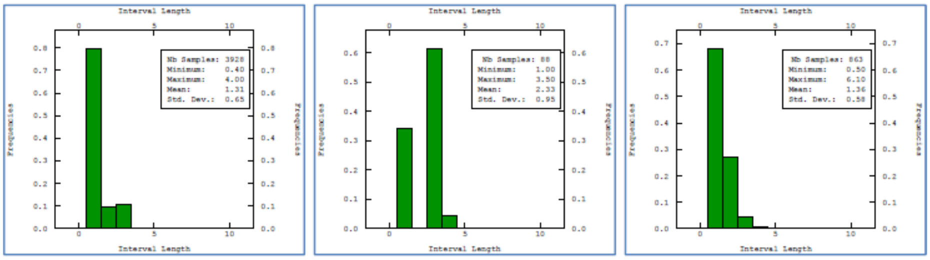

Figure 4. Histogram of sample length for Domain 60, 95 and 100 (Left to right)

P&a compared the Assay * length before and after compositing. All returned with negligible difference (Table 1).

	Assays			3m Composite			% Difference		
Domain	Sum of Cu*length	Sum of Fe*length	Sum of S*length	Sum of Cu*length	Sum of Fe*length	Sum of S*length	Cu * length	Fe * length	S * length
5	11610687.52	170860.2342	128286.9505	11630892.04	170932.1174	128345.1402	0%	0%	0%
17	16645632	22735.915	22344.8365	16645623.05	22735.6805	22344.6045	0%	0%	0%
25	9939023.5	12377.1975	13172.2355	9939010.58	12377.2585	13172.3685	0%	0%	0%
30	4892291.5	5461.1045	5853.6035	4892312.45	5461.1245	5874.473	0%	0%	0%
60	34880738.9	41963.9315	42091.837	34880766.2	41963.694	42111.425	0%	0%	0%
95	1971358.95	1781.6187	1669.7131	1971365.85	1781.5597	1669.7146	0%	0%	0%
100	810664.1	10426.8025	1869.483	811507.45	10456.012	1871.981	0%	0%	0%

Table 1. Comparison of Variable * length of Assays and Composite.

Coding and compositing of the data was undertaken in Minesight software. The composited data was exported into csv format for further analysis.

2.3 Univariate and Multivariate Data Statistics

Summary statistics of composite data for Beruang Kanan by domain is shown in Table 2 with coefficient correlation between Cu, Fe and S listed in Table 3.

VARIABLE	Domain	Count	Minimum	Maximum	Mean	Std. Dev.	Variance
Cu	17	877	574	62333	6534.05	6442.08	41500394.7
Fe	17	836	2.28	30.99	9.39	3.02	9.1204
S	17	836	1.89	30.55	9.24	3.18	10.1124
Cu	25	504	95	96100	6808.26	8292.31	68762405.1
Fe	25	469	2.6	30.17	9.25	2.55	6.5025
S	25	469	2.79	34.83	9.85	4.29	18.4041
Cu	30	244	553	51436	7312.57	6891.7	47495528.9
Fe	30	231	3.02	19.25	8.9	2.66	7.0756
S	30	231	3.09	27.02	9.55	4.03	16.2409
Cu	60	1808	39	72767	6758.85	7162.93	51307566.2
Fe	60	1677	1.13	34.93	8.89	3.77	14.2129
S	60	1677	0.09	38.6	8.91	4.1	16.81
Cu	95	71	895	45000	9786.62	8859.08	78483298.4
Fe	95	65	2.89	24.9	9.62	4.39	19.2721
S	95	65	2.98	22.03	9.11	3.37	11.3569
Cu	100	441	26	9653	734.18	964.42	930105.936
Fe	100	416	0.48	35.89	9.46	4.23	17.8929
S	100	416	0	10.81	1.84	2.47	6.1009

Table 2. Summary Statistics of 3m Composite by domain.

Domain	Coefficient of Correlation	Cu	Fe	S
17	Cu	1		
17	Fe	0.4	1	
17	S	0.46	0.91	1
25	Cu	1		
25	Fe	0.49	1	
25	S	0.37	0.61	1
30	Cu	1		
30	Fe	0.44	1	
30	S	0.36	0.73	1
60	Cu	1		
60	Fe	0.38	1	
60	S	0.45	0.91	1
95	Cu	1		
95	Fe	0.52	1	
95	S	0.56	0.7	1
100	Cu	1		
100	Fe	0.08	1	
100	S	0.52	-0.02	1

Table 3. Coefficient of Correlation of Cu-Fe-S for all domains.

3 SPATIAL DATA ANALYSIS

3.1 Overview of Experimental Variography

The variogram γ (h) characterises spatial variability and is the basis of most geostatistical methods. In effect, the variogram calculates half the mean squared difference for a given variable between points separated by a vector (i.e. a direction and a separation distance h).

The 'experimental variogram' that is calculated from the data is an estimate of the 'underlying' variogram (which is itself always unknown because the information is not exhaustive).

When variograms are difficult to interpret, alternative measures of spatial continuity can be used.

3.2 Variography

The variogram directions were consistent with the domain geometry and modelled with a nugget and two spherical structures. The variogram model parameters shown in Table 4 to Table 6 with all model plots are shown in Electronic Appendix.

Variable	Domain	Isatis Geologist Direction	Vulcan2-Rotation	Structure	Type	Variance	Major	Semi-Major	Minor
Cu	17	11,21,24	11,-21,-24	1	Nugget	10631365.07			
				2	Spherical	20295526.46	40	40	8
				3	Spherical	10342068.45	120	90	20
	60	37,18,13	37,-18,-13	1	Nugget	9430080.049			
				2	Spherical	19215731.76	60	60	7
				3	Spherical	22529733.32	125	100	30
	25	37,40,7	37,-40,-7	1	Nugget	12852045.56			
				2	Spherical	30089358.38	75	60	10
				3	Spherical	25820920.44	100	70	25
	30	30,19,9	30,-19,-9	1	Nugget	13610594.2			
				2	Spherical	22595200.66	10	10	5
				3	Spherical	11289734.18	70	50	16
	95	95,40,0	95,-40,0	1	Nugget	19346500.43			
				2	Spherical	21728717.96	25	25	10
				3	Spherical	37408046.12	50	50	15
	100	0,0,20	0,0,-20	1	Nugget	148275.4148			
				2	Spherical	448773.4036	50	85	6
				3	Spherical	340658.1185	110	125	12

Table 4. Variography Parameter for Cu-Fe-S data by Domain.

Variable	Domain	Isatis Geologist Direction	Vulcan2-Rotation	Structure	Type	Variance	Major	Semi-Major	Minor
Fe	17	11,21,24	11,-21,-24	1	Nugget	1.9			
				2	Spherical	2.3	65	35	6
				3	Spherical	4.9	160	110	30
	60	37,18,13	37,-18,-13	1	Nugget	1.4			
				2	Spherical	4	70	70	12
				3	Spherical	8.7	100	125	60
	25	37,40,7	37,-40,-7	1	Nugget	0.645			
				2	Spherical	2.9	50	60	15
				3	Spherical	2.9	90	80	20
	30	30,19,9	30,-19,-9	1	Nugget	0.95			
				2	Spherical	3.7	30	40	6
				3	Spherical	2.4	124	90	25
	95	95,40,0	95,-40,0	1	Nugget	1.9			
				2	Spherical	5.9	23	23	8
				3	Spherical	11.5	75	75	15
	100	0,0,20	0,0,-20	1	Nugget	2.5			
				2	Spherical	6	60	50	12
				3	Spherical	9.4	240	200	20

Table 5. Variography Parameter for Fe data by Domain.

Variable	Domain	Isatis Geologist Direction	Vulcan2-Rotation	Structure	Type	Variance	Major	Semi-Major	Minor
S	17	11,21,24	11,-21,-24	1	Nugget	2.5			
				2	Spherical	2.3	65	35	6
				3	Spherical	5.3	170	110	30
	60	37,18,13	37,-18,-13	1	Nugget	2			
				2	Spherical	5.5	60	70	12
				3	Spherical	9.3	110	125	60
	25	37,40,7	37,-40,-7	1	Nugget	2			
				2	Spherical	8	50	50	15
				3	Spherical	8.4	90	70	20
	30	30,19,9	30,-19,-9	1	Nugget	2			
				2	Spherical	5	25	20	6
				3	Spherical	9.1	100	70	25
	95	95,40,0	95,-40,0	1	Nugget	1.9			
				2	Spherical	3.04	23	23	8
				3	Spherical	6.38	75	75	15
	100	0,0,20	0,0,-20	1	Nugget	0.65			
				2	Spherical	2	50	50	12
				3	Spherical	3.5	240	170	20

Table 6. Variography Parameter for S data by Domain.

4 ESTIMATION PARAMETERS

4.1 Quantitative Kriging Neighbourhood Analysis

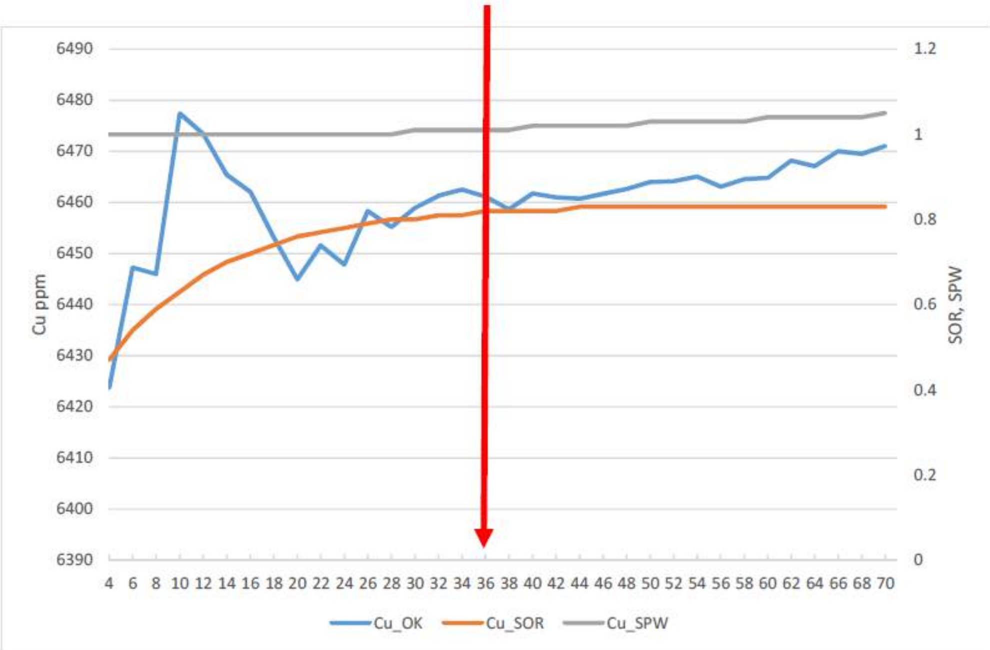

Figure 5. Example of QKNA plot for maximum number of sample for Cu Domain 60

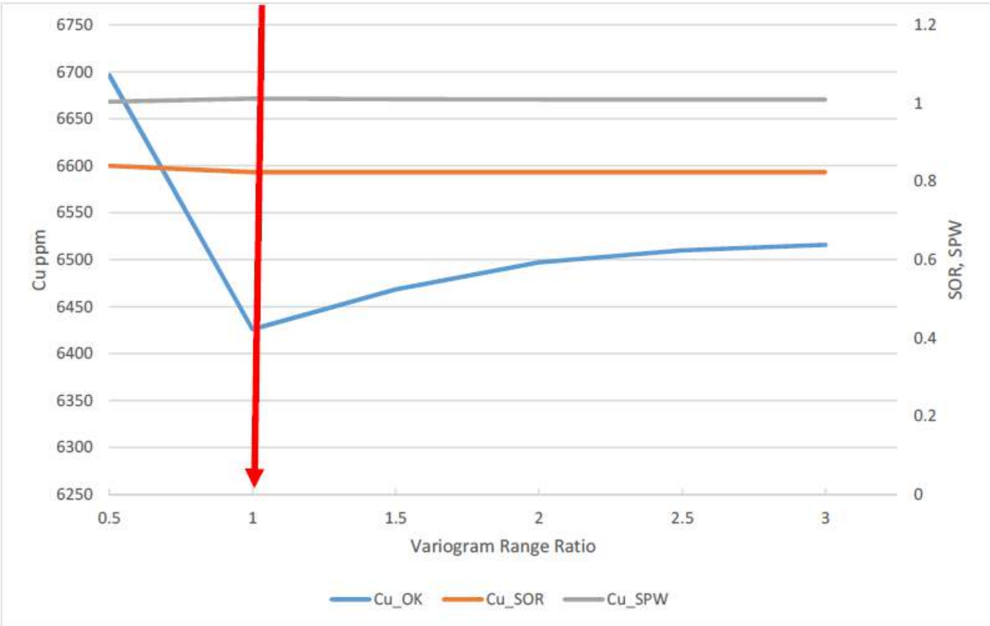

Figure 6. Example of QKNA plot for Search Parameter for Cu Domain 60

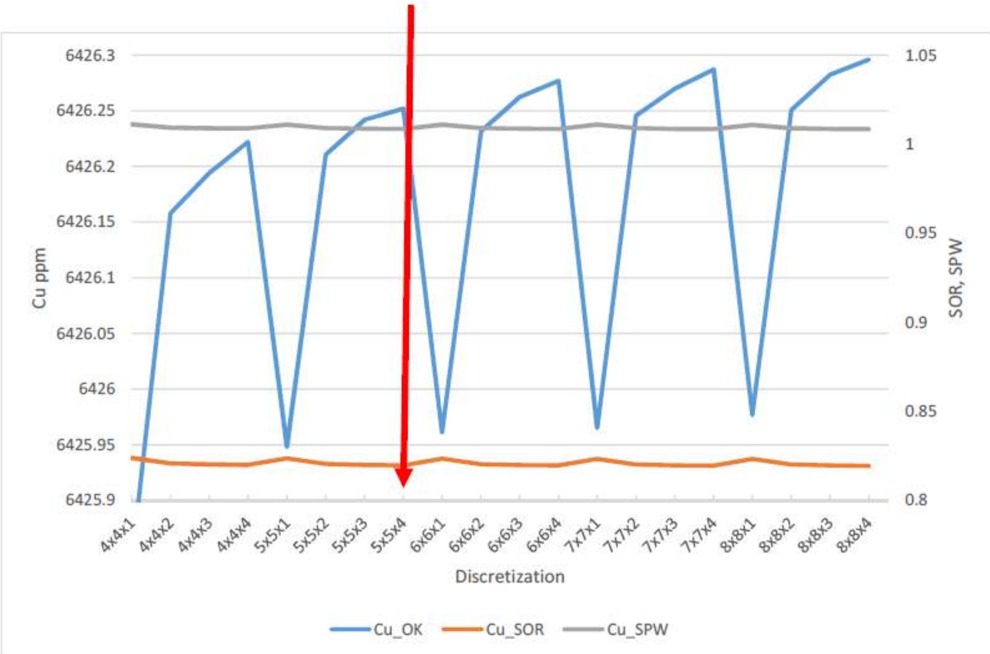

Figure 7. Example of QKNA plot for Discretization for Cu Domain 60

4.2 Estimation Parameters

The summary of the Estimation parameters listed in Table 7 and Table 8 Below.

Variables	Domain	1st pass					Restriction		Discretization			Vulcan Rotation		
		Major	Interm	Minor	Min	Max	Grade	Distance				Z	Y	X
Cu	17	120	90	20	8	40	41267	25	5	5	4	11	-21	-24
	60	125	100	30	8	36	46400	25				37	-18	-13
	25	100	70	25	8	40	46900	25				37	-40	-7
	30	70	50	16	8	36	38000	25				30	-19	-9
	95	50	50	15	8	36	32000	25				95	-40	0
	100	110	125	12	8	28	5000	25				0	0	-20
Fe	17	160	110	30	8	40	NA	NA				11	-21	-24
	60	100	125	60	8	36	NA	NA				37	-18	-13
	25	90	80	20	8	36	NA	NA				37	-40	-7
	30	124	90	25	8	36	NA	NA				30	-19	-9
	95	75	75	15	8	36	NA	NA				95	-40	0
	100	240	200	20	8	32	NA	NA				0	0	-20
S	17	170	110	30	8	40	NA	NA				11	-21	-24
	60	110	125	60	8	36	NA	NA				37	-18	-13
	25	90	70	20	8	36	NA	NA				37	-40	-7
	30	100	70	25	8	36	NA	NA				30	-19	-9
	95	75	75	15	8	36	NA	NA				95	-40	0
	100	240	170	20	8	32	NA	NA				0	0	-20

Table 7. Estimation Parameter – First Pass.

Variables	Domain	2nd pass					3rd pass					Restriction		Discretization			Vulcan Rotation		
		Major	Interm	Minor	Min	Max	Major	Intermed	Minor	Min	Max	Grade	Distan				Z	Y	X
Cu	17	240	180	40	4	40	300	225	50	2	40	41267	25	5	5	4	11	-21	-24
	60	250	200	60	4	36	312.5	250	75	2	36	46400	25				37	-18	-13
	25	200	140	50	4	40	250	175	62.5	2	40	46900	25				37	-40	-7
	30	140	100	32	4	36	175	125	40	2	36	38000	25				30	-19	-9
	95	100	100	30	4	36	125	125	37.5	2	36	32000	25				95	-40	0
	100	220	250	24	4	28	275	312.5	30	2	28	5000	25				0	0	-20
Fe	17	320	220	60	4	40	400	275	75	2	40	NA	NA				11	-21	-24
	60	200	250	120	4	36	250	312.5	150	2	36	NA	NA				37	-18	-13
	25	180	160	40	4	36	225	200	50	2	36	NA	NA				37	-40	-7
	30	248	180	50	4	36	310	225	62.5	2	36	NA	NA				30	-19	-9
	95	150	150	30	4	36	187.5	187.5	37.5	2	36	NA	NA				95	-40	0
	100	480	400	40	4	32	600	500	50	2	32	NA	NA				0	0	-20
S	17	340	220	60	4	40	425	275	75	2	40	NA	NA				11	-21	-24
	60	220	250	120	4	36	275	312.5	150	2	36	NA	NA				37	-18	-13
	25	180	140	40	4	36	225	175	50	2	36	NA	NA				37	-40	-7
	30	200	140	50	4	36	250	175	62.5	2	36	NA	NA				30	-19	-9
	95	150	150	30	4	36	187.5	187.5	37.5	2	36	NA	NA				95	-40	0
	100	480	340	40	4	32	600	425	50	2	32	NA	NA				0	0	-20

Table 8. Estimation Parameter – 2nd and 3rd Pass.

5 PROVISIONAL CLASSIFICATION

The provisional classification of the 2017 Beruang Kanan is considering some aspect including:

- The robustness of the overall geological envelopes;
- The global volume of the domain;
- Data density; and
- Broad estimation quality.

The provisional classification are summarised below:

- All domains that situated inside the pit shell of year 1 – 8 could be classified as Indicated.
- Some area within Domain 60 and 17 that situated inside the pit shell could be classified as Measured, where the average distance from the composite to estimated block is roughly <25 - 30m. The example of the rough measured wireframe is shown in Figure 8.

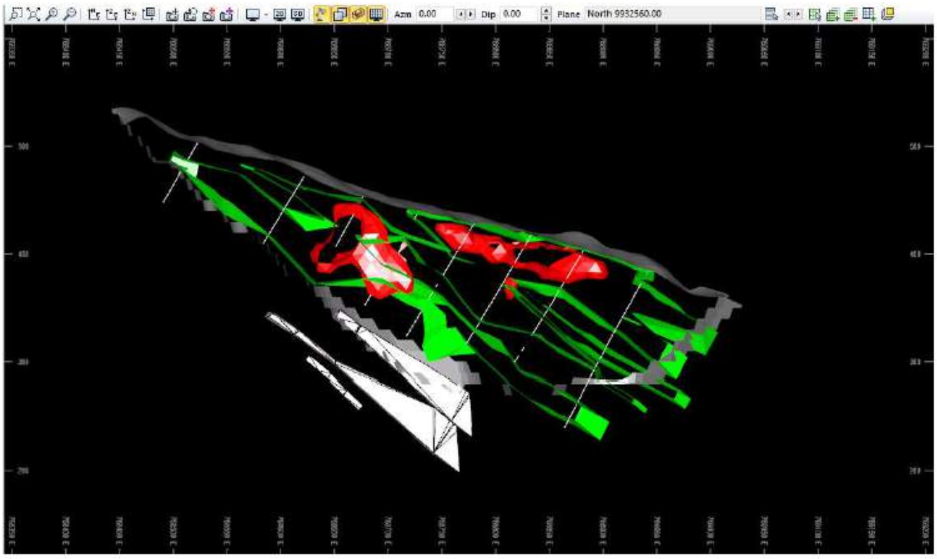

Figure 8. Example of the rough Measured wireframe in Secion N9932560.

- Beside point two above, the majority of the domain 60 is could comfortably classified as Indicated;
- Some area of the bottom part of domain 17 and domain 95 should classified as Inferred (Figure 9 and Figure 10).

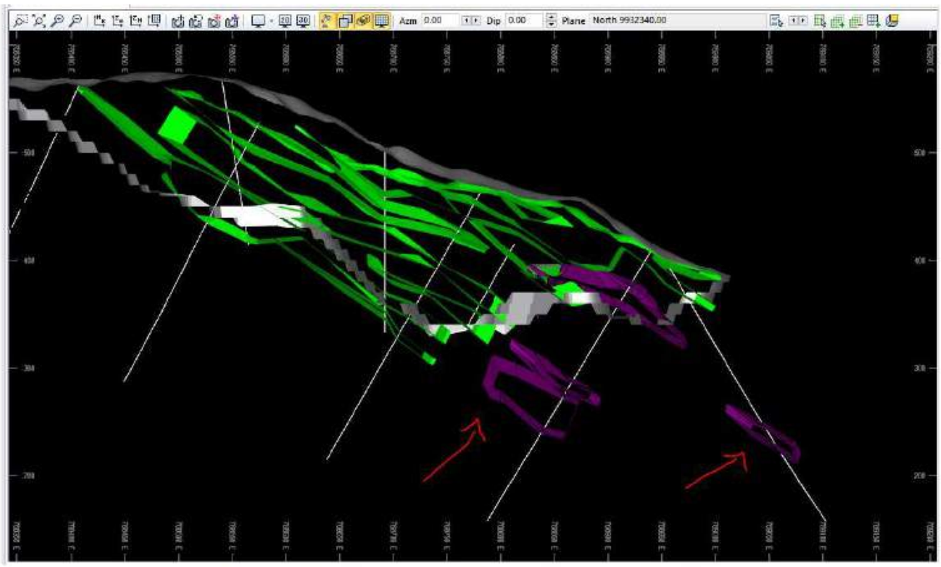

Figure 9. Example of the proposed Inferred in Secion N9932340.

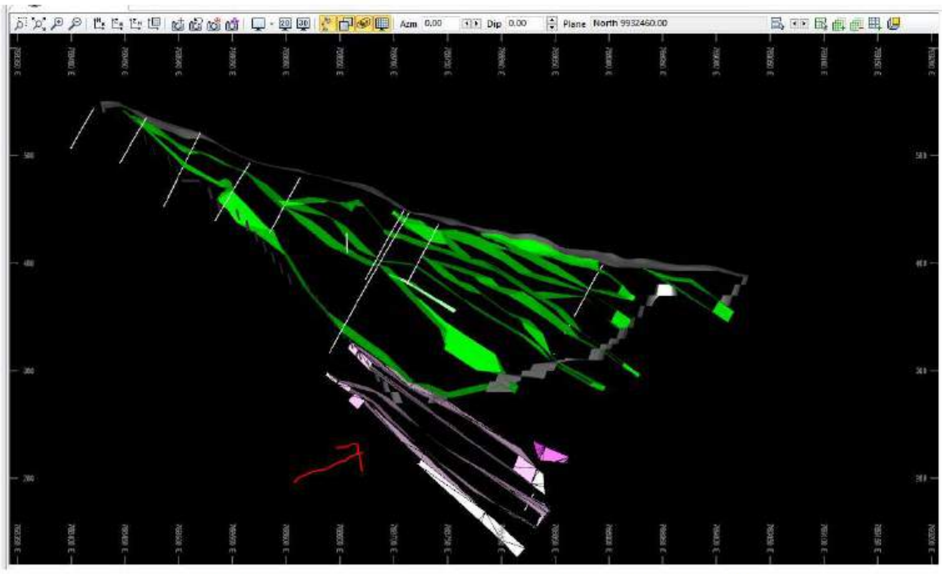

Figure 10. Example of the proposed Inferred in Secion N9932460.

However P&a do not have any knowledge of data quality, and thus accept no responsibility for this aspect of the provisional classification.

6 COMPARISON WITH PREVIOUS STUDY

A quick comparison of the 2017 update drillhole versus the 2016 variability study confirmed the prediction, which was the increasing of confidence level within the pit shell area to a minimum of Indicated Status. Similarly for some area within the year 1 – year 4 pit shell that increased in confidence level to Measured due to the additional drilhole data from the 2017 drillhole campaign.

Yours faithfully,

Bosta Pratama BSc (Geology) MSc (Geostatistics)
MAusIMM MAIG CPI
Principal Geologist-Geostatistician

Reference

Vann J, Jackson S, Bertoli O, 2003, Quantitative kriging neighbourhood analysis for the mining geologist- a description og the method with worked case examples. In: 5th international mining geology conference, Bendigo, 17-19 November, 2003.

Appendix

Variogram Plot

Electronic attachment: Variography v2.xlsx

QKNA Plots

Electronic attachment: QKNA_plots.xlsx, QKNA_plots_search.xlsx, QKNA_plots_dicretization.xlxs

Composite File

Electronic attachment: 3m_comp.csv

Appendix 17 BKM Drillhole Spacing Study

P&a geoscience

MEMORANDUM

TO	Duncan Hackman, Stephen Hughes, Tony Manini	DATE	22 May 2016
FROM	Bosta Pratama	PAGES	42
SUBJECT	Beruang Kanan Drillhole Spacing Study		

Executive Summary

Beruang Kanan deposit is currently the subject of pre-feasibility study based on the 2015 resource estimate. Asiamet Resources (ARS) intend to deliver a Bankable Feasibility Study (BFS) in 2018, which will be based on an updated resource estimate utilising the additional results from drilling that is currently underway. ARS wishes to maximise the amount of mineralisation classified as Indicated and Measured within the deposit for the BFS and has inquired the suitability of the current drilling configuration and, if required, additional or specific drilling requirements to ensure that mineralisation are considered for higher classifications.

Geostatistical Conditional Simulation (CS) is considered the best way to quantify grade variability. The resultant grade realisations can be used in a number of ways to help understand the orebody, especially in assisting with quantifying orebody uncertainty and facilitating drill spacing requirements. P&a used the Turning Bands conditional simulation (TBS) method to construct Cu grade realisations. The existing drilling which approximately ranges from 50m x 100m to 100m x 100m spacing was used as the input to the simulation process.

To test grade variability a combined drill hole configuration of existing drillholes and artificial infill design drillholes (provided by H&A) was generated to approximate a 50m x 50m drill spacing. The artificial holes contained nominal 3m intervals and were then drawn (or 'resampled') from different CS realisation data to generated five drillhole data sets.

Subsequent sets of conditional simulation were then run using the artificial drillholes. These sets of simulations were rigorously checked and validated in the same way as the original set of simulations.

To make use of the conditional simulations, it is best to understand the grade ranges (confidence limits) in volumes of material that represent monthly, quarterly or annual production periods. It is now not uncommon for larger mining companies to quantify the range of results used to classify resources as an additional guide to classification (on top of JORC or CIM guidelines). The concept initially floated by internationally recognised mining consultant, Harry Parker, was that resource confidence can be stated using statistical methods to calculate the probability that tonnage/grade/product content falls within certain accuracy for a one-month, quarterly or annual timeframe. One such derivation/example used by a large multinational gold mining company seen by P&a is as follows:

- Measured Resources: Error less than 15% with 90% of probability for a three month production period;
- Indicated Resources: Error less than 15% with 90% of probability for a one year production period; and
- Inferred Resources: Errors above 15% for a one year production period.

Resource classification is a subjective task which considers multiple key parameters including: drilling, sampling, drill spacing, sample preparation and analysis, geological logging, modelling and more. Uncertainties that are not related to drill spacing and grades are considered out of scope within this study.

Confidence limits were calculated for yearly and quarterly volumes provided by H&A. Method used to derive the confidence limits involves taking the average grade of all nodes of a single realisation within a quarterly volume, repeating this process for all 40 realisations, and then ranking the results. The 5th and 95th ranked means can be interpreted to represent the 90% confidence limits on grade – the resultant distributions for all such quantiles are known as 'risk curves'. Risk curves can then be calculated for the various drilling configurations.

The variability for the existing drillhole spacing within the first four year of mining has a range of ±2% to ±25% (Figure 1). Nevertheless, from the first four year of mining volume, based on Harry Parker proposal, the existing drillhole spacing at Beruang Kanan are returned with around 40% Indicated material and 60% Inferred.

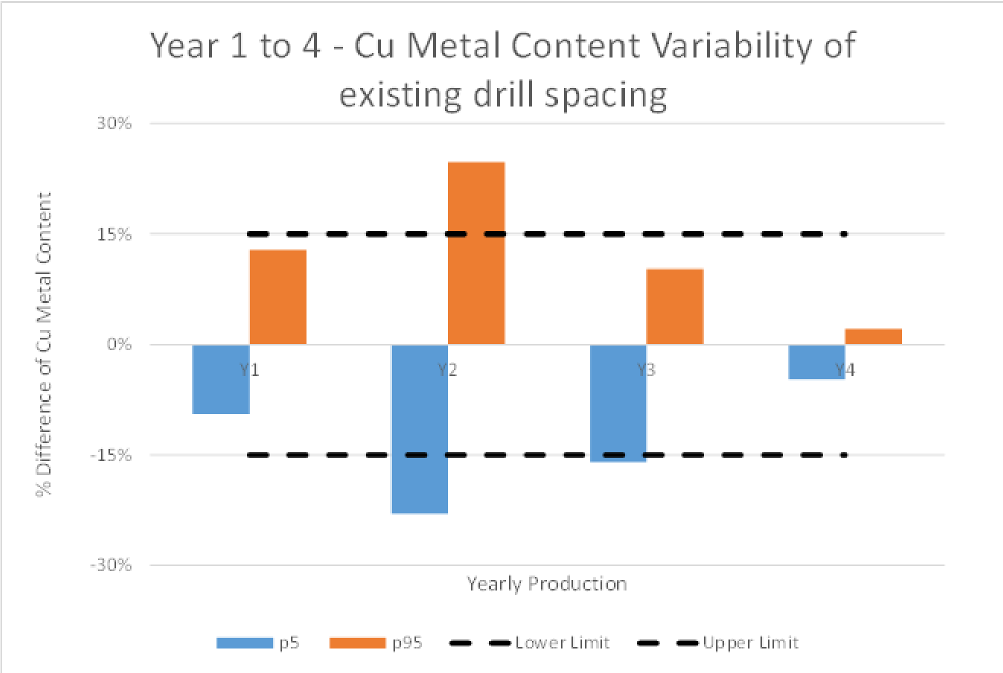

Figure 1. Cu metal content variability (expressed by the 5th and95th percentile of 40 realisation) by yearly production for existing drillhole

The variability for the combine drillhole spacing (existing plus planned holes) within the first four year of mining has a range from -14% to +13 (Figure 2), thus it is fair to assume that by infilling the existing drillhole with the given artificial drillhole design can comfortably convert the first four years of mining area into Indicated status based on this variability figures.

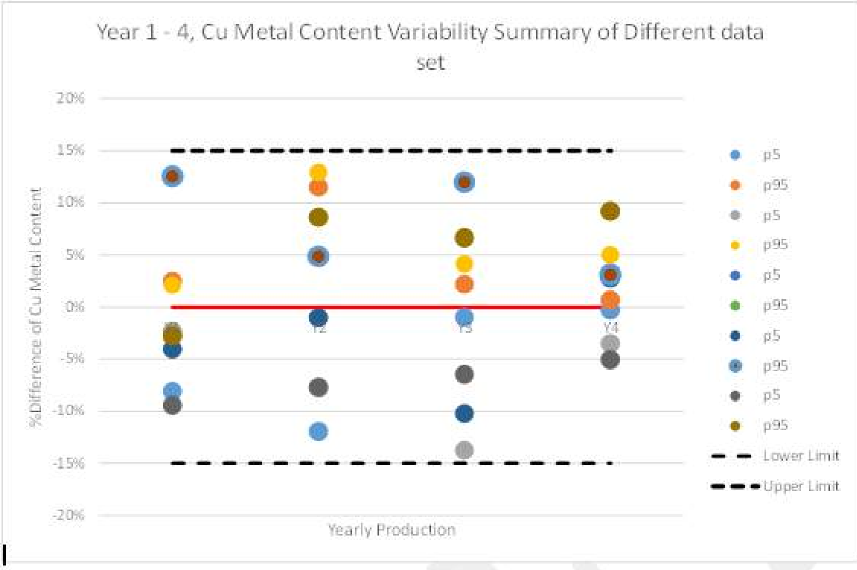

Figure 2. Cu metal content variabiliy by yearly production for all combined data sets.

The variability for the combined drillhole spacing within the first sixteen quarterly volume of mining (or four years of mining) has a range from -21% to +29%. However some quarterly volume returned with below 15% accuracy (Figure 3). Therefor, utilising above stated criterion, the infill drilling (by using the artificial design from this study) could convert around 56% of material into Measured status and 44% material into Indicated status.

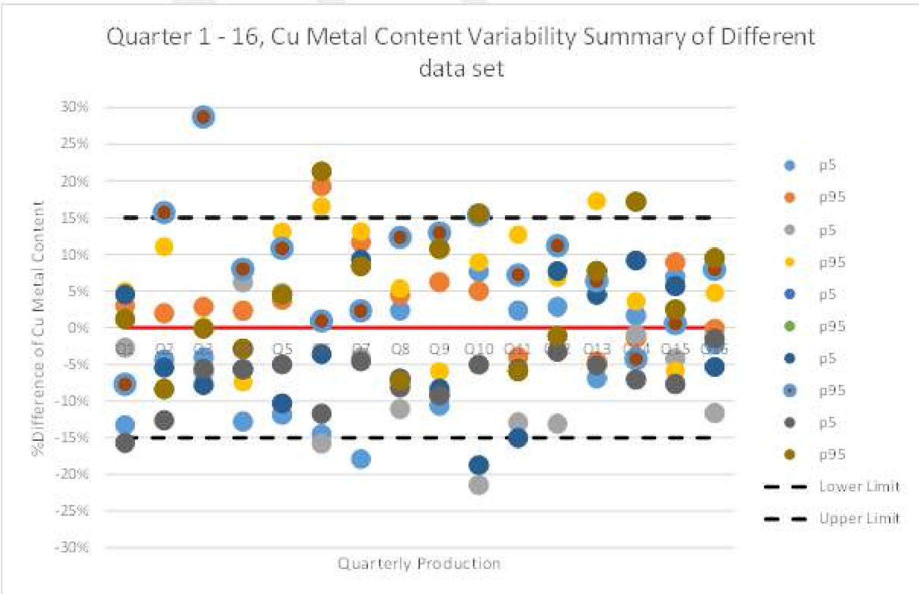

Figure 3. Cu metal content variabiliy by quarterly production for all combined data set.

One important point to note is that the proposed classification scheme only takes into account grade variability. Other factors such as geometric or data uncertainty are not taken into account but are also considered important at Beruang Kanan.

Please note that the resultant simulations (i.e. Cu grade) based on this artificial data should **only** be used for assessing global variability, and **must not** be used for mine planning purposes.

It is commonly known that sometimes the regular infill drilling program could be very challenging, due to the logistic and terrain difficulties, thus it would be beneficial to test any 'viable' infill drilling design with this kind of 'variability' study to quantify impact of infill drilling into 'ideal' criteria of accuracy.

1 INTRODUCTION

1.1 Background

Bosta Pratama (BP) of P&a was asked by Duncan Hackman (H&A) to undertake a review of drillhole spacing risk profile at Beruang Kanan Deposit on behalf of Asiamet Resources ("ARS). This project was initiated by H&A with endorsement by ARS management.

The Beruang Kanan Main deposit (BKM) is currently the subject of a pre-feasibility study based on the 2015 resource estimate. ARS intends to undertake a bankable feasibility study commencing in 2017 which will be based on an updated resource estimate utilising the additional results from drilling planned to start in May 2016

The broad aims of the drilling configuration project are to:

- Maximise the amount of mineralisation that can be considered for Indicated and Measured resource classification, particularly for those resources planned for extraction during the first four years of mining. By:
    - assessing the suitability of the current and proposed drill hole spacing in confidently defining grade variability within the deposit.
- If the combined current and planned drilling configuration is inappropriate then to recommend the ideal approach and drill spacing/orientation required for considering resources for Measured and Indicated JORC/NI 43-101 Resource Classifications.

1.2 Activities

The study involve the following steps:

- Select area for simulation based on priority (e.g Domains that inside the first four year of mining is the highest priority);
- Gaussian transformation, experimental variography and variogram modelling of Cu from the original drillhole data;
- Creating granular (point scales of 5m x 5m x 3m) simulated data via Conditional Simulation;
- Validation and checking of the original conditional simulations;
- Draw an 'artificial' drillhole design set from the various realisation and average realisation;
- Use this 'artificial' data to re-simulate over the area of interest;
- Post-process simulations to calculate confidence intervals for Cu accumulation;
- Repeat above steps for the subsequent 'artificial' drilling data;
- Calculate and compare the confidence intervals for Cu between different production volume;
- Memorandum of the above process and the results and recommendations.

2 DATA IMPORT

2.1 Study Areas

As requested by H&A, the first four years of mining area are the highest priority. This area is defined by the combined resource domains of 17, 25, 30 and 60.

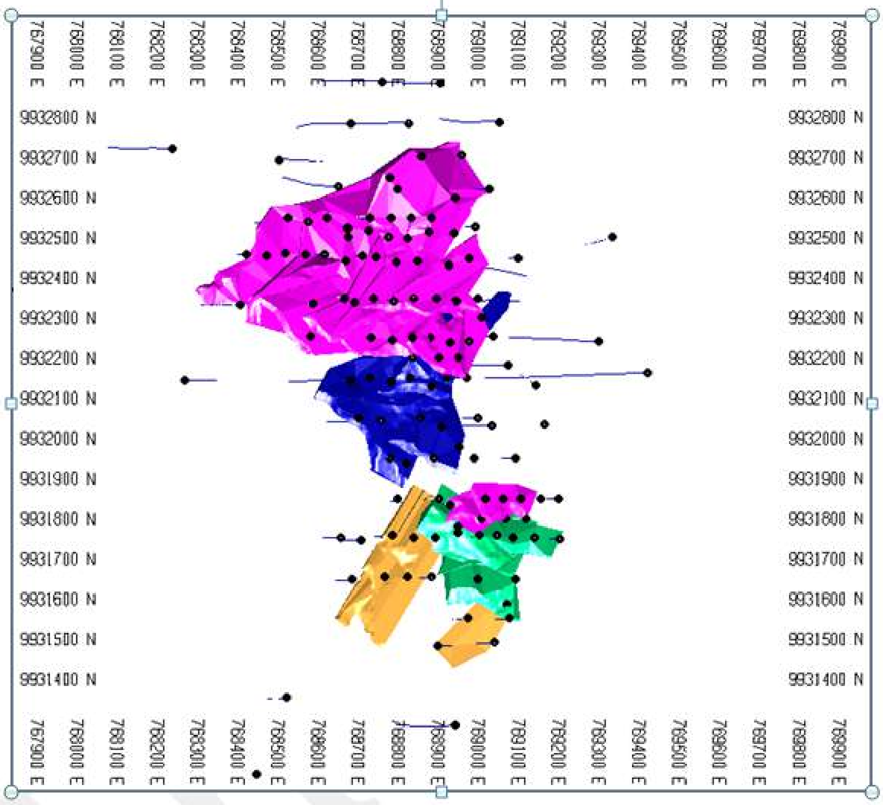

Figure 4. Beruang Kanan Combined Resource Domains (Magenta=60, Brown=30, Green=25, Blue=17)

2.2 Data importing

H&A provided coded drillhole data including collar, survey and assays in Minesight Torque SQL format on 9 May 2016.

P&a used H&A's 2015 estimation wireframes, Topographic surfaces, Yearly pit and Quarterly pit shells and considered them to be suitable for the purposes of this study.

All data were imported into Minesight software.

2.3 Compositing

P&a performed a test on composite length, Coming into the conclusion that a 3m composite is reasonable, due to the length of approximately 95% of sample intervals. A 3m composite is then used for the purposes of this study.

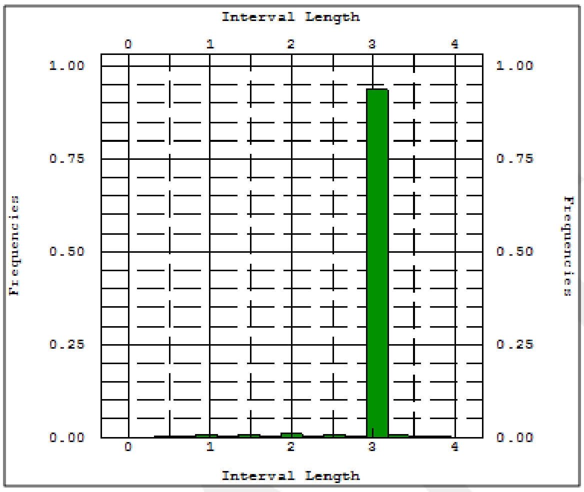

Figure 5. Histogram of sample length for existing drillhole at Beruang Kanan.

Coding and compositing of the data was undertaken in Minesight software. The composited data was exported into csv format for further analysis.

2.4 Univariate Data Statistics

Summary statistics of composite data for Beruang Kanan by domain is shown in Table 1, with histograms of these domains are shown in Appendix.

VARIABLE	Domain	Count	Minimum	Maximum	Mean	Std. Dev.	Variance	CV
Cu	17	391	624	62,333	7,099	7,634	58,273,584	1.1
Cu	25	221	40	96,100	6,637	9,509	90,427,487	1.4
Cu	30	84	264	34,233	6,542	6,396	40,905,803	1.0
Cu	60	881	76	72,767	6,692	6,953	48,348,142	1.0

Table 1. Summary Statistics of 3m Composite by domain.

3 SPATIAL DATA ANALYSIS

3.1 Declustering

One of the critical objectives of simulation is to reproduce the true histogram of grades throughout a domain. The true distribution of grades within a domain is unknown. However, what is known is the distribution of sampled grades. This may, or may not be represent the domain as a whole due to the locations of these samples. Declustering is used in attempt to remove the effects of clustering (over-representation of data from some grade bins, frequently the higher grades) in the data, and better reveal the true, underlying histogram of grades within a domain.

Declustering is somewhat subjective – there are a number of different methods available, each with its advantages and disadvantages, and no definitive measure of which is 'best'. P&a have utilised the moving window declustering by using 60m x 60m x 10m, and the results are considered acceptable.

3.2 Gaussian Transformation

All Gaussian-based conditional simulation methods rely on the raw data being transformed to a Gaussian distribution. The declustering weights, as described above, were used for the Gaussian (normal scores) transform.

A Gaussian transform (or 'anamorphosis') is a simple technique whereby a raw population data is transformed to a Gaussian distribution with zero mean and unit variance (σ). For each raw data value a Gaussian equivalent is generated via the cumulative histograms for both the raw and Gaussian distributions (Vann. et al., 2002).

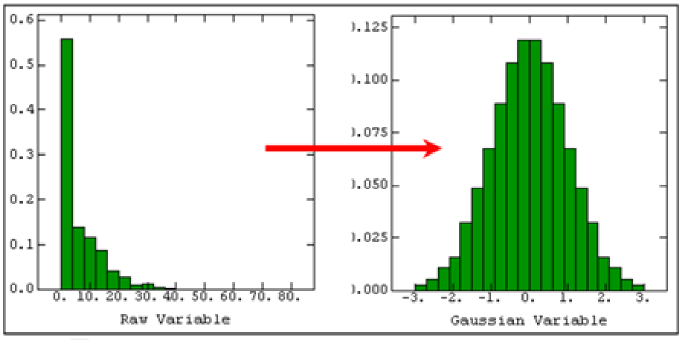

Figure 6. Example of Transformation from raw value to Gaussian value.

Gaussian distributions can then be transformed back to raw space via numerous methods. The two common approaches are a simple graphical method or a more complex but more mathematically useful technique using Hermite polynomials (Marechal, 1978; Riviorard, 1994).

3.3 Overview of Experimental Variography

The variogram γ (h) characterises spatial variability and is the basis of most geostatistical methods. In effect, the variogram calculates half the mean squared difference for a given variable between points separated by a vector (i.e. a direction and a separation distance h).

The 'experimental variogram' that is calculated from the data is an estimate of the 'underlying' variogram (which is itself always unknown because the information is not exhaustive).

When variograms are difficult to interpret, alternative measures of spatial continuity can be used.

3.4 Gaussian Variography

Experimental variograms for Cu were generated for the Gaussian transformed data of the existing data. The variogram directions were consistent with the domain geometry and modelled with a nugget and two spherical structures.

The variogram model parameters shown in Table 2 with all model plots are shown in Appendix.

Domain	Isatis Geologist Direction	Structure	Type	Variance	Major	Semi-Major	Minor
17	+15,+15,-10	1	Nugget	0.2			
		2	Spherical	0.25	40	40	6
		3	Spherical	0.55	120	90	20
60	+20,+20,-15	1	Nugget	0.25			
		2	Spherical	0.3	50	20	12
		3	Spherical	0.45	120	80	24
25	+10,-30,-3	1	Nugget	0.2			
		2	Spherical	0.2	100	100	15
		3	Spherical	0.6	120	120	20
30	+30,-15,0	1	Nugget	0.3			
		2	Spherical	0.3	20	20	12
		3	Spherical	0.4	50	50	16

Table 2. Variography Parameter for Gaussian Cu data by Domain.

4 SIMULATION

4.1 Overview of Conditional Simulation

Conditional simulation (CS) builds many realisations of the input data, each reproducing the histogram and variogram of the input data, as well as honouring the known data points (hence 'conditional'). Simulations provide an appropriate platform to study any problem relating to variability in a way that estimates cannot, such as risk analysis as an example. The two main CS methods widely applied in mining are Turning Bands Simulation (TBS) and Sequential Gaussian Simulation (SGS) (Vann et. al., 2002).

The TBS method used for this study, simulates one-dimensional processes on lines regularly spaced in 3D. The one-dimensional simulations are then projected onto the spatial coordinates and averaged to give the required 3D simulated value. The method is very efficient in generating non-conditional simulations and particularly good at replicating the variogram. Conditioning is obtained through a separate kriging step:

- Generate non-conditional simulations at all target points and all sample points (Zs(x));
- Krige values at all sample points using real data (ZK(x));
- Krige simulated values at all points (ZKS(x)); and
- Combine using ZCS(x) = ZK(x) + [Zs(x) – ZKS(x)].

In general, simulations seek to reproduce the input data characteristics on a fine mesh. These can then be re-blocked to whatever scale is required. Note that simulations differ to estimation in that a system of plausible realisations is generated, rather than a single "best" estimate. Simulations generate multiple realisations that allow for the assessment of global uncertainty of the variable being studied (e.g. Cu), which is not possible when estimation is used.

4.2 Conditional Simulation Implementation

To better capture the orientation of the domains, a non- rotated block model with a fine resolution was constructed by using the same domain flagging/coding as used for the sample selection. The coding was carefully checked and exported as a csv file for creating a simulation grid file.

The plan view of the model is shown in Figure 7 and details is listed in Table 3.

	Origin	Grid Size	Number of Nodes	Extent
Easting	768,250	5	200	1,000
Northing	9,931,400	5	280	1,400
RL	120	3	156	468

Table 3. Conditional Simulation Grid setup.

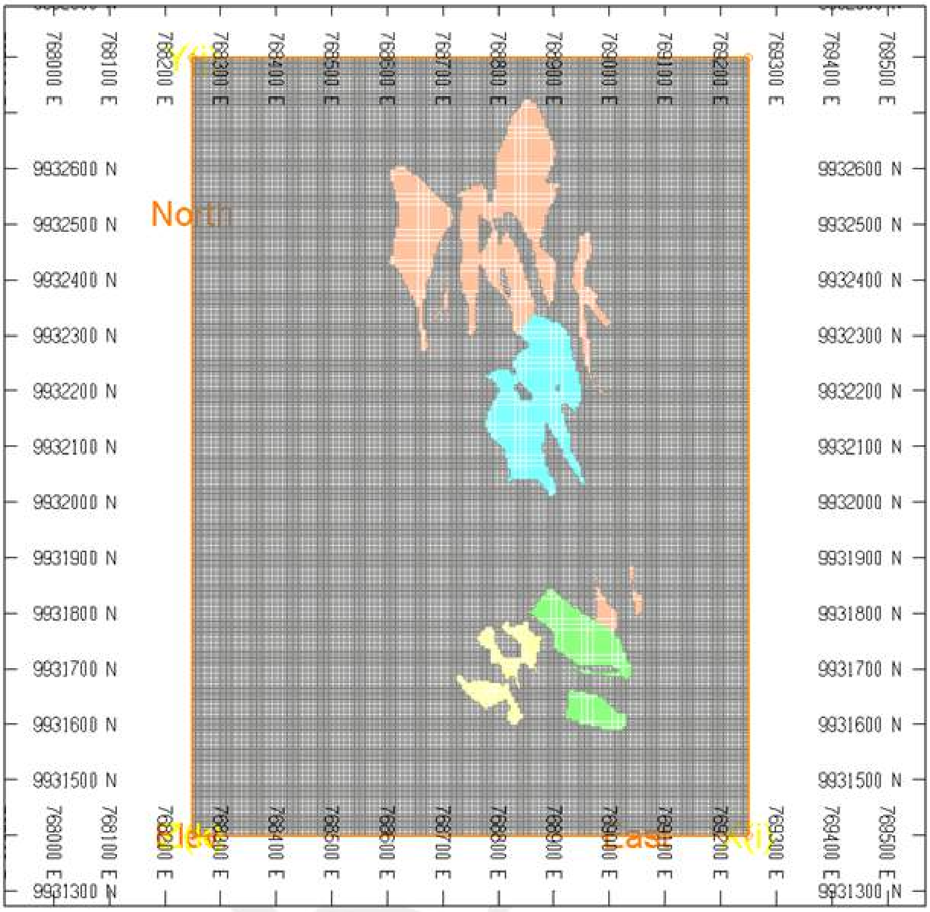

Figure 7. Plan view of the simulation grid for Beruang Kanan.

4.3 Uses of Conditional Simulation

In this study, P&a generated conditional simulations of Cu using TBS simulation for a 5m x 5m x 3m node/grid. For each domain TBS was used to generate 40 realisations. For each realisation, both Gaussian and raw values were stored.

The orientations of the simulation search neighbourhood parameters are shown in Table 4 below.

Domain	Neighbourhood					Rotation		
	Search1	Search2	Search3	Min Comp	Max Comp	Rot1	Rot2	Rot3
17	240	180	40	4	36	15	15	-10
60	225	180	36	8	36	20	20	-15
25	180	180	30	4	36	10	-30	3
30	125	125	40	2	36	30	-15	0

Table 4. Simulation Neighbourhood and Search Ellipse rotation.

4.4 Validation

Because of the stricter stationarity assumptions, rigorous checking of simulations is required. Simulations were validated by comparing the global statistics, variogram and histogram outputs against inputs.

One of the main check on simulation quality is how well the spatial continuity of the input data is reproduced by the simulations. The variograms used for the simulations were modelled on the Gaussian-transformed variables, so a non-back-transformed set of realisations must be retained to enable comparison with the input variograms. It is then possible to check the input model against models generated for all the realisations in a set of simulations.

Overall the variogram comparisons shows a reasonable reproduction of the input data by the simulation, and considered to be an adequate basis for characterisation of variability. Example from domain 17 shown in Figure 8 with details of other variogram validations are shown in Appendix.

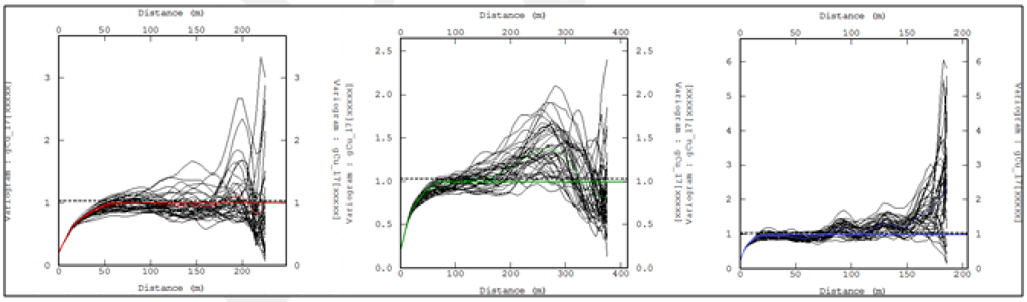

Figure 8. Simulation Variogram Validation for Domain 17 in Gaussian data.

To assess how well the simulations have replicated the input data, distributions of the data and simulations were compared.

One of the ways to compare distributions of multiple realisations is by using a plot of 'Grade Tonnage' which contains normalised frequencies (display as percentage between 0-100) of tonnes for the Y axis and the variable above cut-off for the X axis.

Overall the grade tonnage comparisons show a good reproduction of the input data by the simulations. Details of other charts are shown in Figure 9.

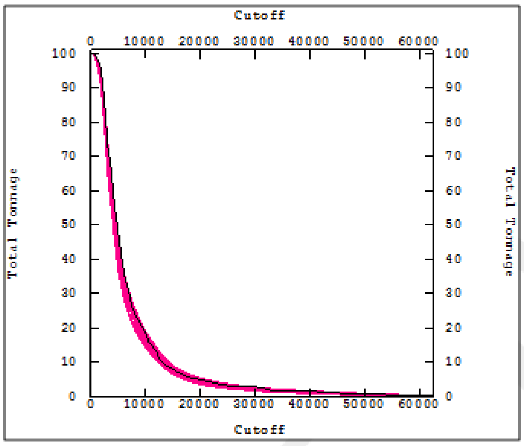

Figure 9. Normalise Simulation Distribution Frequency (pink) versus composite (black).

5 GRID 'RESAMPLING' METHOD

5.1 Background

The existing drill spacing in BKM varies from 50m x 100m to 100m x 100m spacing. To test the confidence of the grade estimate of Cu using different drilling patternsin this study, one set or design of the artificial drillholes was generated, which is designed to infilling the main domains to 50m x 50m spacing. To grasp all plausible Cu variability and continuity at Beruang Kanan deposit, H&A suggests several set combination of datas between existing drillholes and these artificial drillholes, including:

- Migrating Cu grades from the average of Cu realisation of the original set of conditional simulations that were generated with the existing drilling (set 1);
- Migrating Cu grades from the quantile 5 of Cu realisation of the original set of conditional simulations that were generated with the existing drilling (set 2);
- Migrating Cu grades from the quantile 95 of Cu realisation of the original set of conditional simulations that were generated with the existing drilling (set 3);
- Cu grades from the quantile 5 and average of Cu realisation of the original set of conditional simulations that were generated and randomly migrated into the combine drilling location regardless (set 4); and
- Cu grades from the average of Cu and quantile 95 realisation of the original set of conditional simulations that were generated and randomly migrated into the combine drilling location regardless (set 5).

The five resultant 'drillholes' are not real, but they are consistent with the assumed spatial model, and are a plausible model of reality to enable them to be used as the basis of a study of grade variability. All the resampled drillholes are inclined (close enough to be considered perpendicular to the ore body).

5.2 Statistics, Variography, Transformation and Simulation

Experimental variograms for each data set was generated from the Gaussian transformed data from each set. The variogram directions were set in the same rotation similar to the variogram calculated from the original data, and all were modelled with a nugget and two spherical structures.

The variogram model parameters shown in Table 5 and Table 6 with all model plots are shown in Appendix.

Set	Domain	Isatis Geologist Direction	Structure	Type	Variance	Major	Semi-Major	Minor
1	17	+15,+15,-10	1	Nugget	0.2			
			2	Spherical	0.25	80	80	6
			3	Spherical	0.55	180	120	20
	60	+20,+20,-15	1	Nugget	0.25			
			2	Spherical	0.3	60	30	15
			3	Spherical	0.45	150	120	24
	25	+10,-30,-3	1	Nugget	0.2			
			2	Spherical	0.26	100	40	18
			3	Spherical	0.6	130	100	24
	30	+30,-15,0	1	Nugget	0.3			
			2	Spherical	0.3	50	10	12
			3	Spherical	0.4	80	50	16
2	17	+15,+15,-10	1	Nugget	0.25			
			2	Spherical	0.22	60	60	6
			3	Spherical	0.53	150	120	20
	60	+20,+20,-15	1	Nugget	0.25			
			2	Spherical	0.4	60	30	15
			3	Spherical	0.35	160	130	24
	25	+10,-30,-3	1	Nugget	0.25			
			2	Spherical	0.25	70	40	15
			3	Spherical	0.5	140	120	30
	30	+30,-15,0	1	Nugget	0.4			
			2	Spherical	0.3	50	40	12
			3	Spherical	0.3	80	50	16

Table 5. Variography Parameter for Data Set 1 and 2.

Set	Domain	Isatis Geologist Direction	Structure	Type	Variance	Major	Semi-Major	Minor
3	17	+15,+15,-10	1	Nugget	0.25			
			2	Spherical	0.3	60	40	9
			3	Spherical	0.45	180	120	20
	60	+20,+20,-15	1	Nugget	0.25			
			2	Spherical	0.41	60	30	18
			3	Spherical	0.34	150	120	24
	25	+10,-30,-3	1	Nugget	0.28			
			2	Spherical	0.25	90	80	16
			3	Spherical	0.47	160	140	24
	30	+30,-15,0	1	Nugget	0.4			
			2	Spherical	0.25	70	50	12
			3	Spherical	0.35	120	80	16
4	17	+15,+15,-10	1	Nugget	0.15			
			2	Spherical	0.35	40	40	9
			3	Spherical	0.5	160	110	20
	60	+20,+20,-15	1	Nugget	0.1			
			2	Spherical	0.45	60	50	18
			3	Spherical	0.45	200	160	30
	25	+10,-30,-3	1	Nugget	0.2			
			2	Spherical	0.35	80	20	15
			3	Spherical	0.45	140	80	30
	30	+30,-15,0	1	Nugget	0.15			
			2	Spherical	0.3	70	40	15
			3	Spherical	0.5	110	65	20
5	17	+15,+15,-10	1	Nugget	0.15			
			2	Spherical	0.3	60	60	15
			3	Spherical	0.55	190	160	30
	60	+20,+20,-15	1	Nugget	0.15			
			2	Spherical	0.45	50	40	20
			3	Spherical	0.4	180	100	38
	25	+10,-30,-3	1	Nugget	0.15			
			2	Spherical	0.35	80	60	16
			3	Spherical	0.5	160	130	24
	30	+30,-15,0	1	Nugget	0.15			
			2	Spherical	0.5	50	40	12
			3	Spherical	0.3	100	70	16

Table 6. Variography Parameter for Data Set 3, 4 and 5.

Each artificial drillhole set (a total of 5 data sets) was used to re-simulated Cu on the same 5m x 5m x 3m simulation grid, which resulted in 5 conditional simulation models (each conditional simulation consists of 40 realisations). For Cu variability, the accumulation of simulated Cu (i.e. Cu grade x number of grid) from each realisation is then ranked from the lowest to the highest. The 5th and 95th percentile of realisations and the average realisation of Cu are plotted so the variability from each artificial drillhole data set can be analysed.

The search neighbourhood Parameters for each data set are shown below:

Set	Domain	Neighbourhood					Rotation		
		Search1	Search2	Search3	Min Comp	Max Comp	Rot1	Rot2	Rot3
1	17	210	165	30	6	36	15	15	-10
	60	225	180	36	8	36	20	20	-15
	25	195	150	36	6	36	10	-30	3
	30	160	100	32	4	36	30	-15	0
2	17	225	180	30	6	36	15	15	-10
	60	240	195	36	8	36	20	20	-15
	25	210	180	45	6	36	10	-30	3
	30	160	100	32	4	36	30	-15	0
3	17	270	180	30	6	36	15	15	-10
	60	225	180	36	8	36	20	20	-15
	25	240	210	36	6	36	10	-30	3
	30	180	120	24	4	36	30	-15	0
4	17	240	165	30	6	36	15	15	-10
	60	300	240	45	8	36	20	20	-15
	25	210	120	45	6	36	10	-30	3
	30	165	100	30	4	36	30	-15	0
5	17	285	240	45	6	36	15	15	-10
	60	270	150	50	8	36	20	20	-15
	25	270	195	36	6	36	10	-30	3
	30	150	105	24	4	36	30	-15	0

Table 7. Simulation Neighbourhood and Search Ellipse rotation for 5 data sets.

The artificial drilling pattern and existing drillhole patterns are shown in Figure 10 to Figure 11 below.

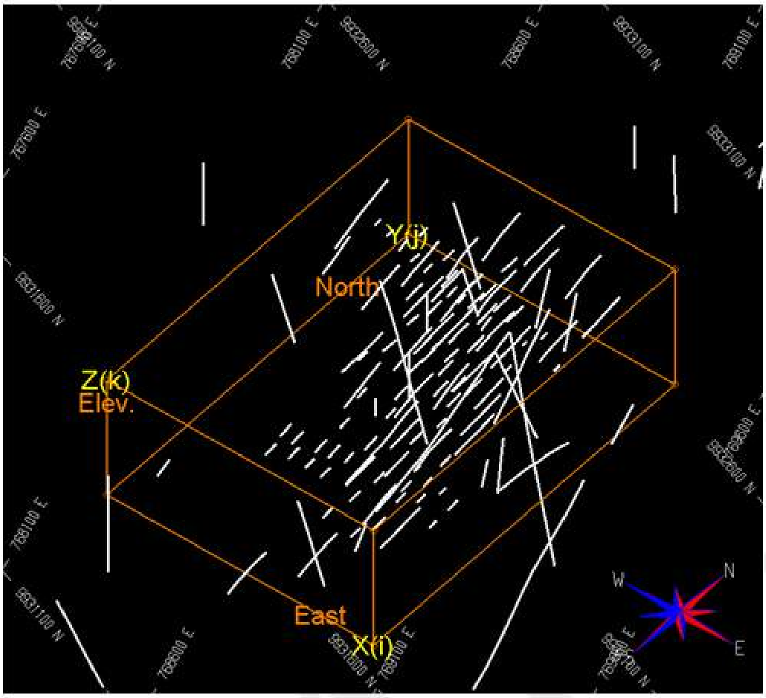

Figure 10. Non-orthogonal view of the existing drillhole (white lines)

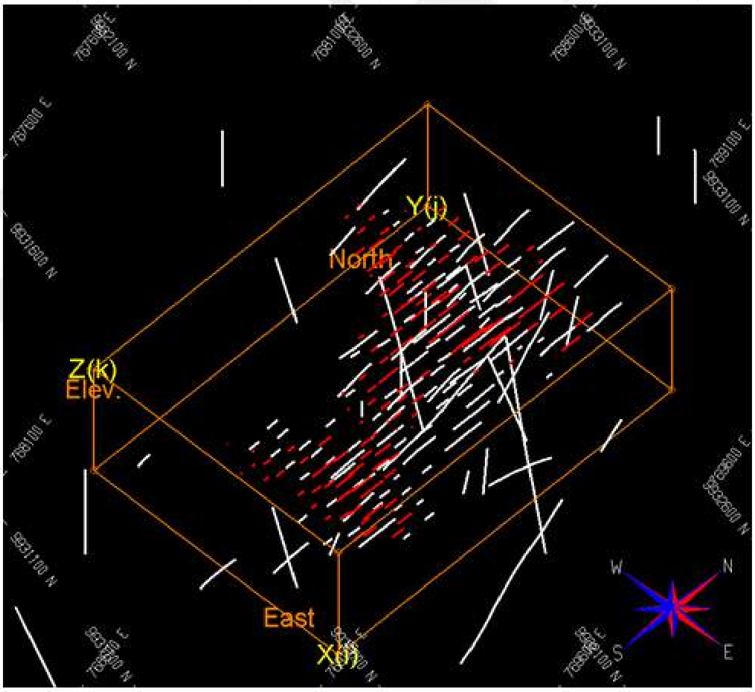

Figure 11. Non-orthogonal view of the combine drillholes (red lines=artificial drillholes)

6 RESULTS AND ANALYSIS

The results of a conditional simulation can be used in a number ways; in this study, risk curves and statistical maps are the most informative. Statistical maps are calculated on the whole set of realisations at each node of the grid. Risk curves are calculated on the global statistics of each realisation.

Confidence intervals can be calculated using the risk curves[1] post processing tools – each realisation is ranked according to the accumulation within the domains, and statistics such as minimum, maximum, median or quantiles grades can then be calculated and ranked.

6.1 Analysis by Volume

To make proper sense of the results, it is best to understand the confidence limits in volumes of material that represent monthly, quarterly or annual production periods. This is particularly relevant as some larger companies are attempting to quantify the range of results needed to classify resources as an additional guide to classification (on top of JORC or CIM guidelines). The concept initially floated by internationally regarded mining consultant, Harry Parker, was that resource confidence can be directly estimated using statistical methods to calculate the probability that tonnage/grade/product content falls within a certain accuracy for a one-month, quarterly or annual timeframe (Yeates and Hodson, 2006). One such derivation/example used by a large multinational gold miner seen by P&a is as follows:

- Measured Resources: Error less than 15% with 90% of probability for a three month production block;
- Indicated Resources: Error less than 15% with 90% of probability for a one year production block; and
- Inferred Resources: Errors above 15% for a one year production period.

H&A provided the quarterly and yearly volume wireframes that approximate the future mining production for Beruang Kanan (Figure 12 to Figure 14).

[1] The procedure that calculates statistics per realisation

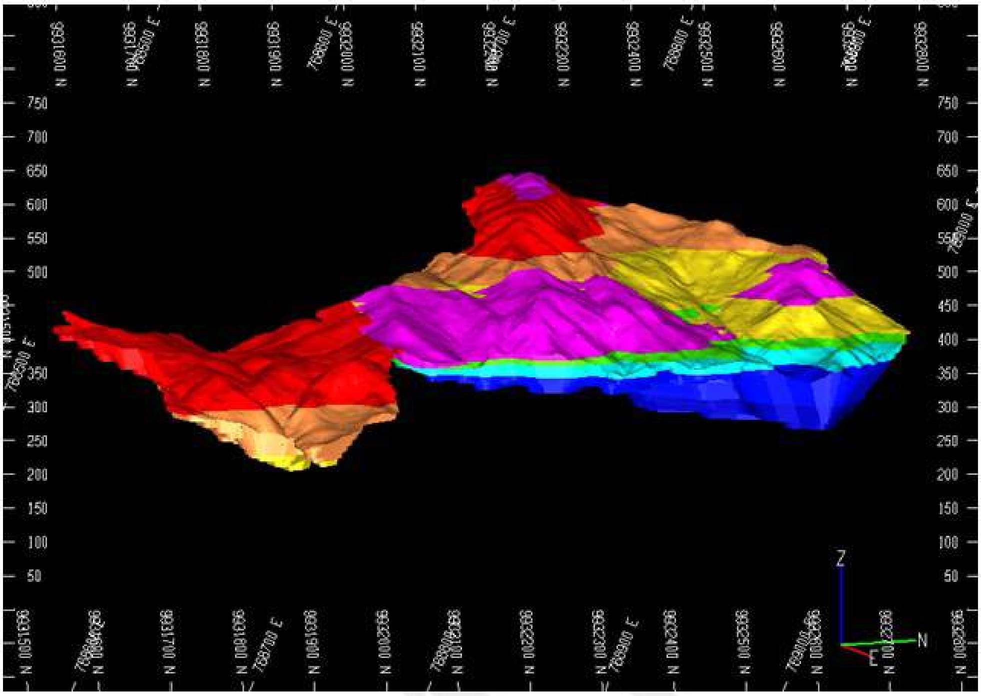

Figure 12. Year 1 to 8 Pit shell for Beruang Kanan.

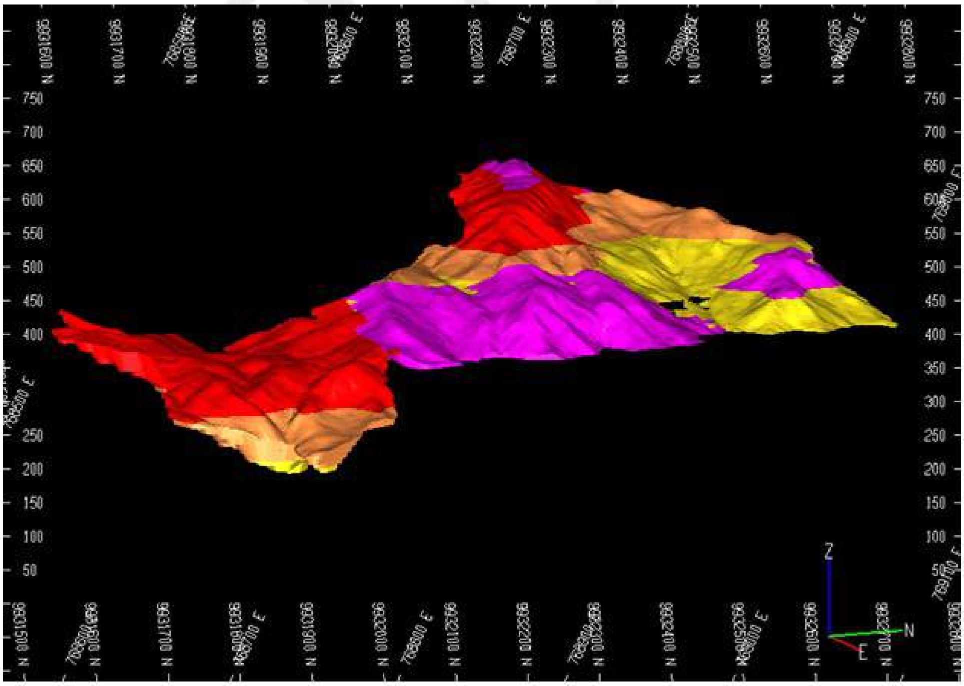

Figure 13. Year 1 to 4 Pit shell for Beruang Kanan.

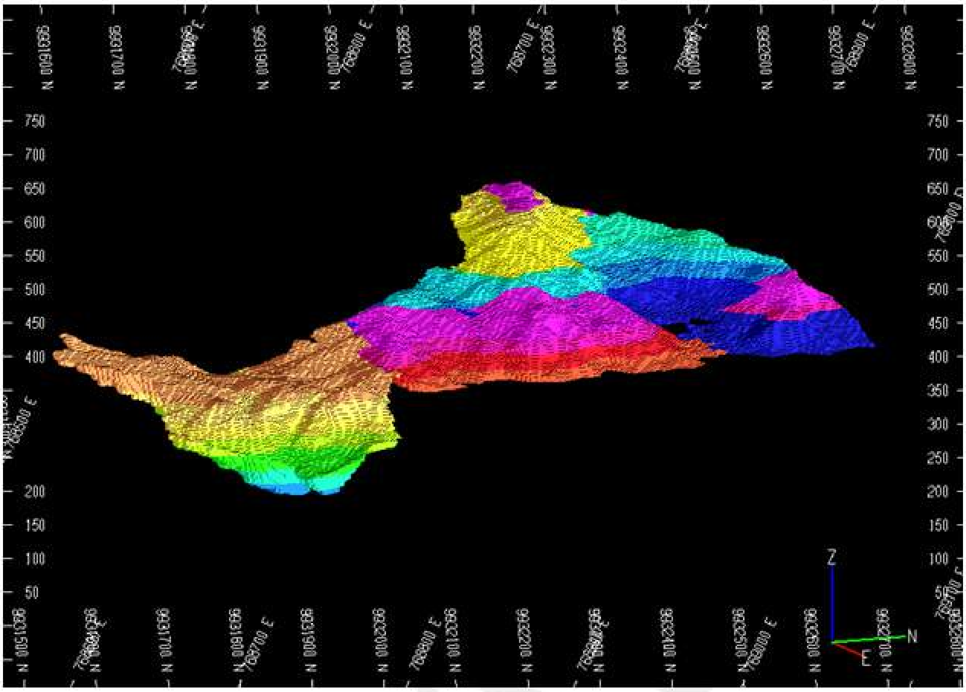

Figure 14. Quarter 1 to 16 Volume for Beruang Kanan.

The variability of each drilling data set simulation set can be characterised by the spread around the average/mean realisation. The spread can be summarised by the difference from the mean to the p5 and p95. For each configuration:

- The average/mean realisation of Cu is calculated;
- In each domain 40 simulations were ranked by accumulation of Cu;
- The p5 and p95 are recorded;
- The difference between the mean and the p5 and p95 realisation is plotted. This results in 90% confidence limit for the volume in question. To present this information graphically the upper and lower limit was plotted in line plot. As per Harry Parker's proposal this limit should be below ±15% in order to receive a Measured classification for Quarterly and Indicated classification for Annually production.

The spectrum of the Cu grade and metal content for every yearly volume for all combined domain are shown in Figure 15 and Figure 16. They show that the drillhole spacing located within the 2nd year volume has a range of ±24% or outside the limit of ±15% (or Indicated as per Harry Parker criteria).

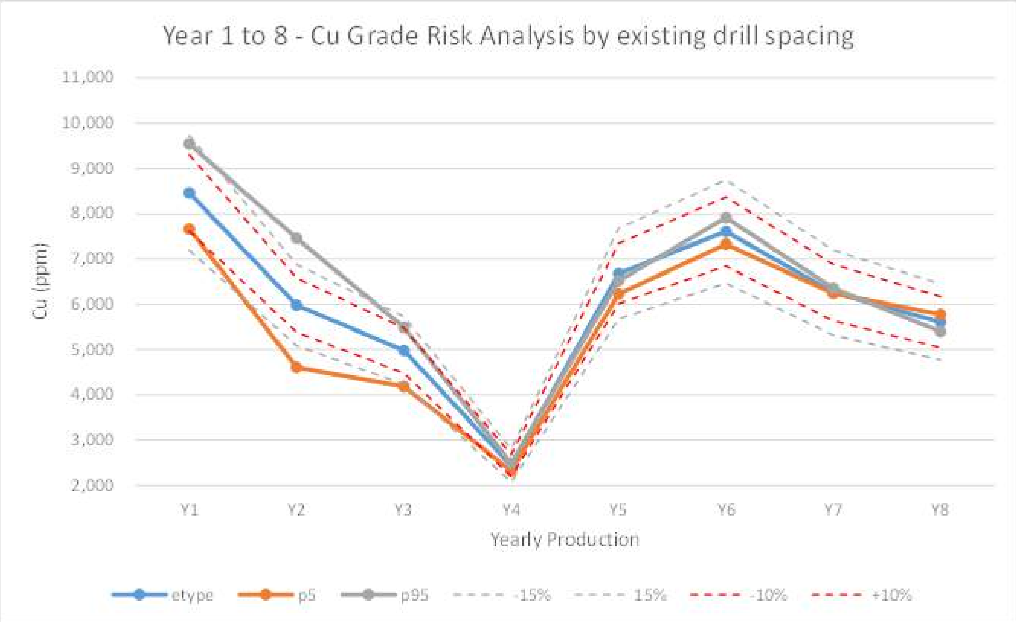

Figure 15. Existing Drillhole Risk Analysis by yearly production.

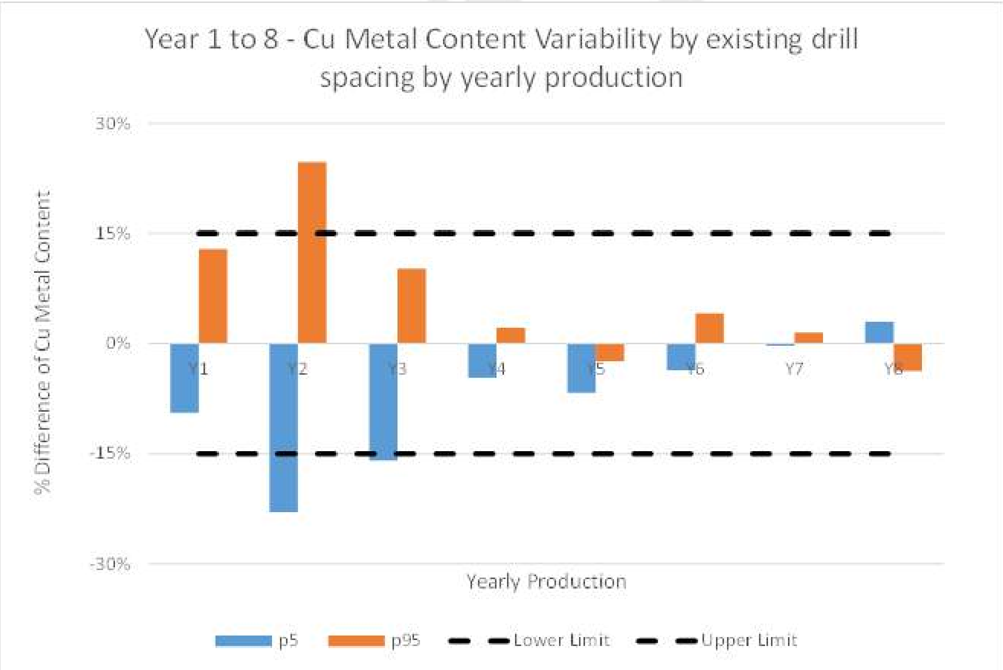

Figure 16. Cu metal content variability by yearly production for existing drillhole.

The more details risk profile for Year 2 production (Figure 17 below), based on the existing drillhole configuration, almost all domains are not drilled enough to get to the limit of ±15%.

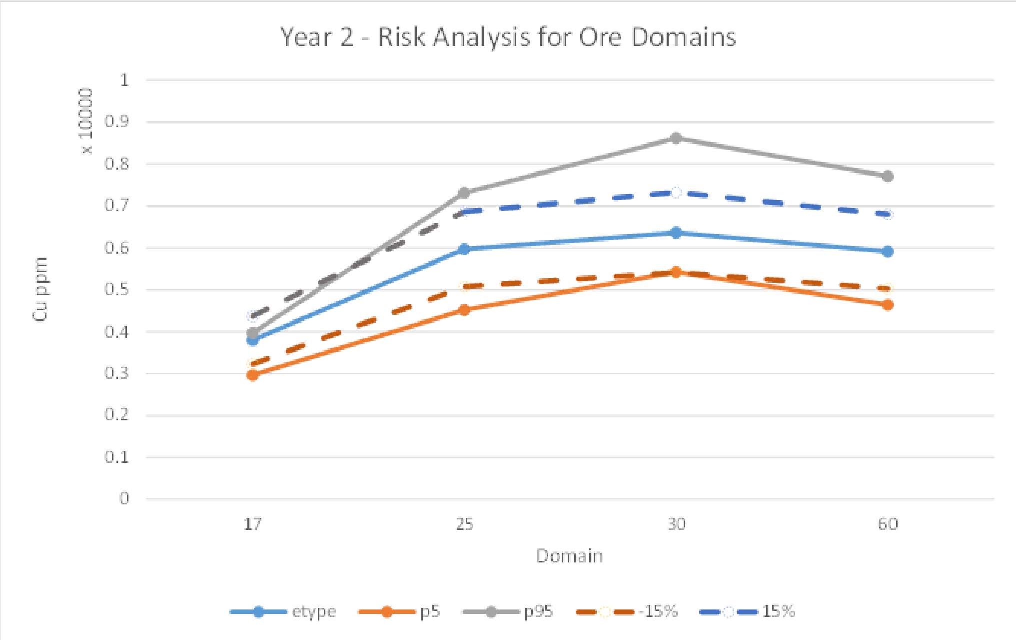

Figure 17. Existing Drillhole Risk Analysis for Year 2 by domains.

6.2 Analysis by Drillhole set 1

The variability analysis for drillhole set 1 is characterised by the spread around the average/mean realisation relative to the p5 and p95 realisation.

By yearly production volume (Figure 18 and Figure 19), the drillhole data set 1 has a range up to of ±12% which is inside the limit of ±15% of yearly production.

However, the spectrum of the variability quarterly volume are range from ±2% to ±18% as shown in Figure 20 and Figure 21.

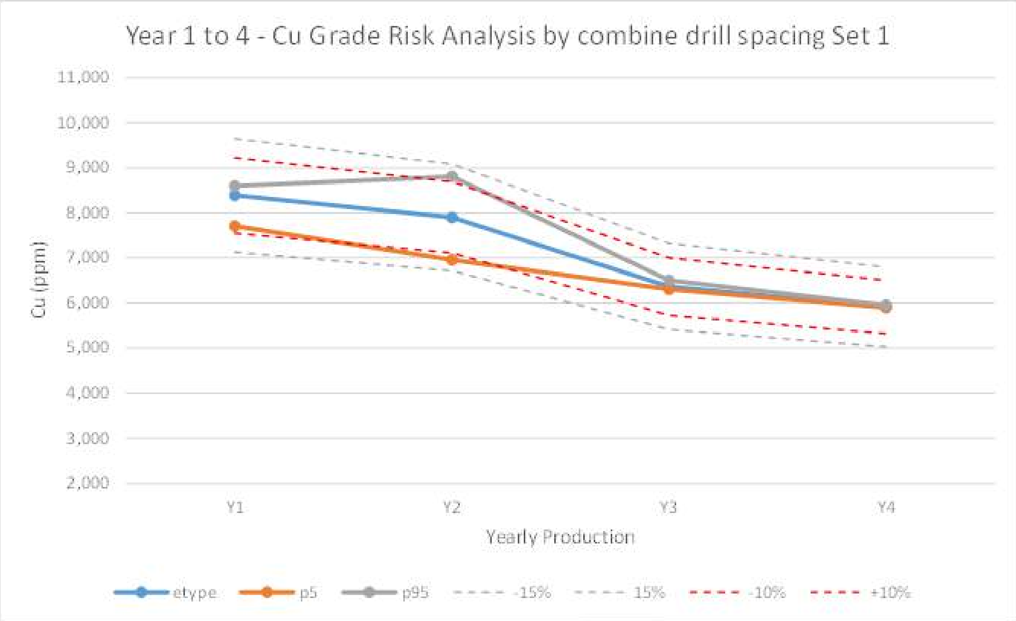

Figure 18. Drillhole Set 1 Risk Analysis by yearly production.

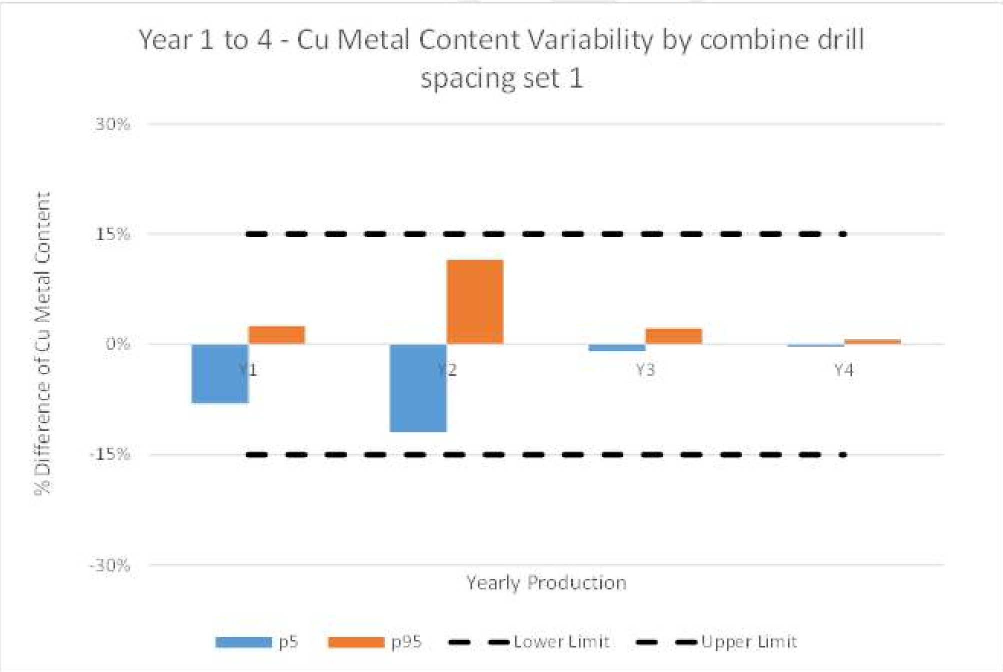

Figure 19. Cu metal content variability by yearly production for drillhole set 1.

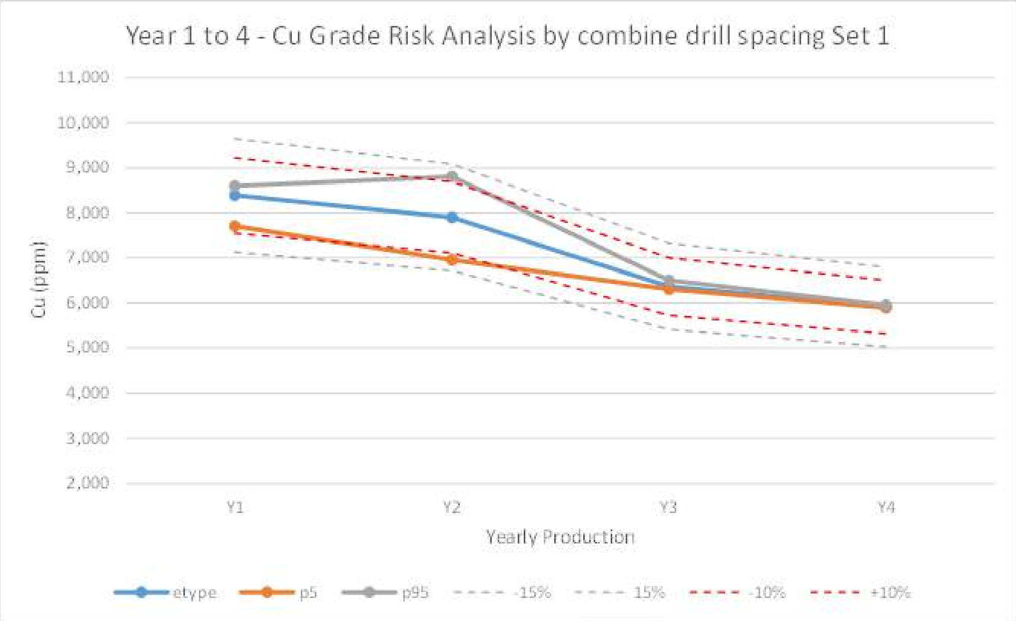

Figure 20. Drillhole Set 1 Risk Analysis by quarterly production.

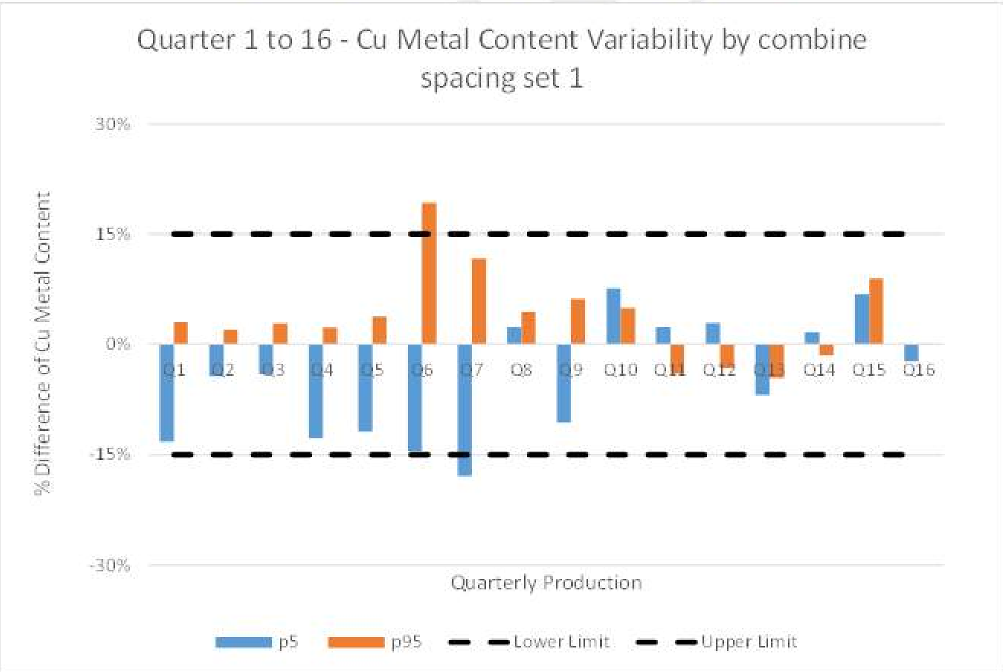

Figure 21. Cu metal content variability by quarterly production for drillhole set 1.

6.3 Analysis by Drillhole set 2

The variability analysis for drillhole set 2 is characterised by the spread around the average/mean realisation relative to the p5 and p95 realisation.

By yearly production volume (Figure 22 and Figure 23), the drillhole data set 2 has a range up to of ±14% which is inside the limit of ±15% of yearly production.

However, the spectrum of the variability quarterly volume are range from ±1% to ±21% as shown in Figure 24 to Figure 25.

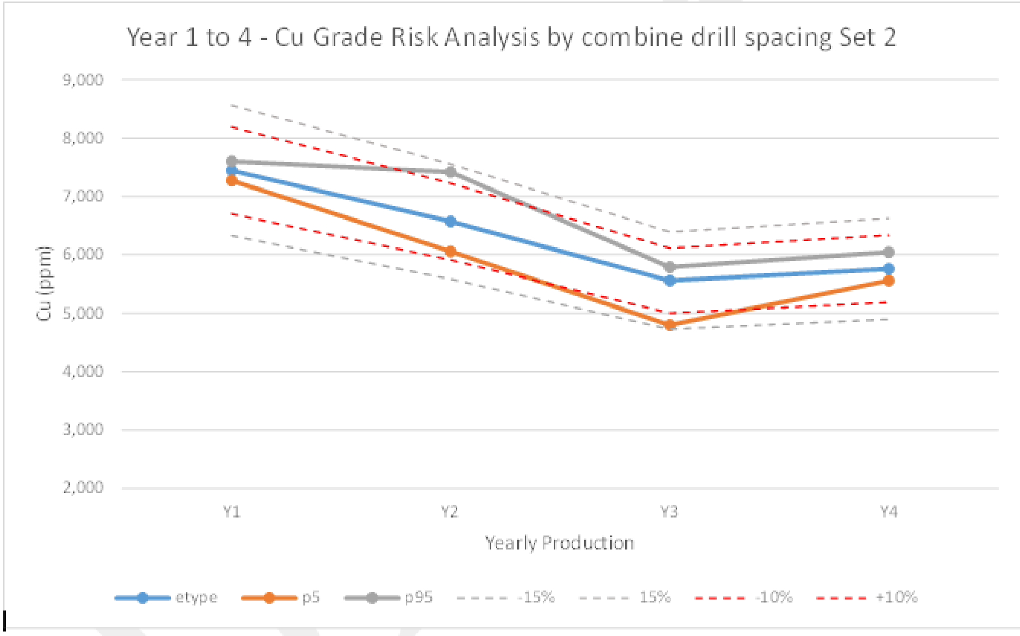

Figure 22. Drillhole Set 2 Risk Analyis by yearly production.

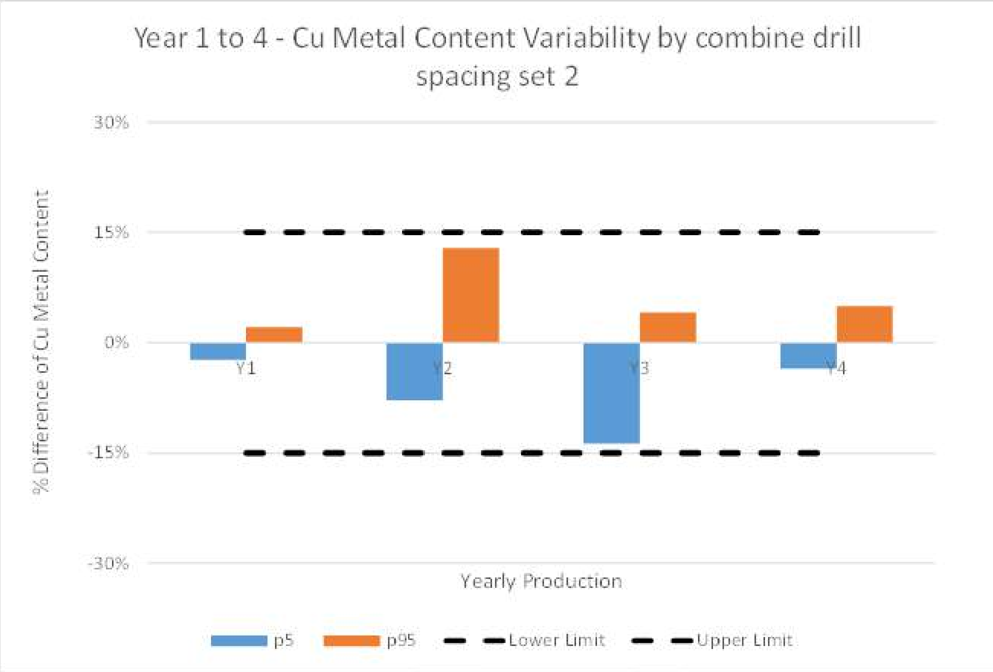

Figure 23. Cu metal content variabiliy by yearly production for drillhole set 2.

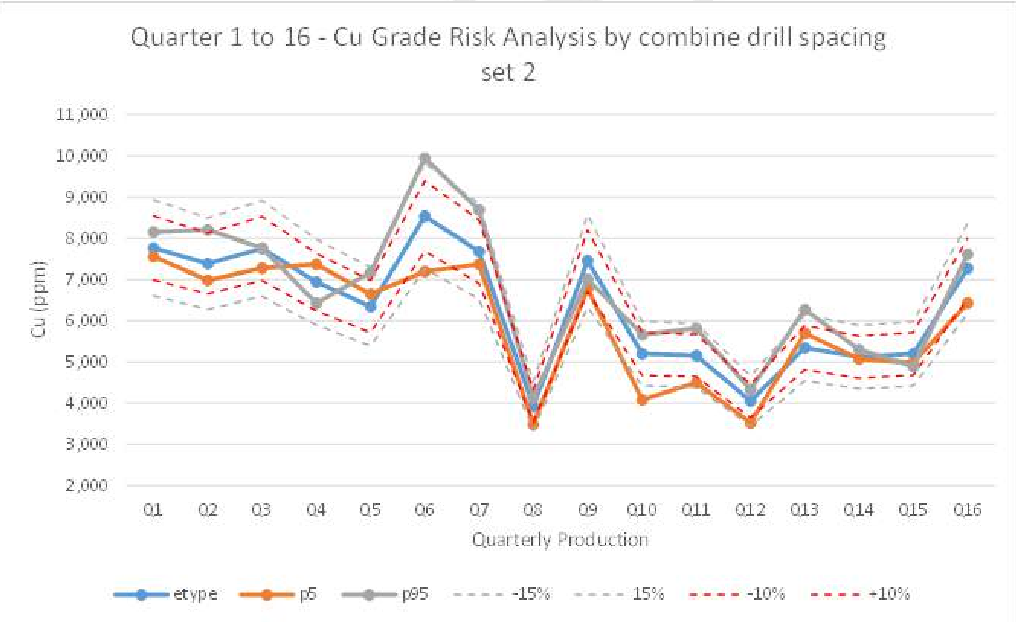

Figure 24. Drillhole Set 2 Risk Analyis by quarterly production.

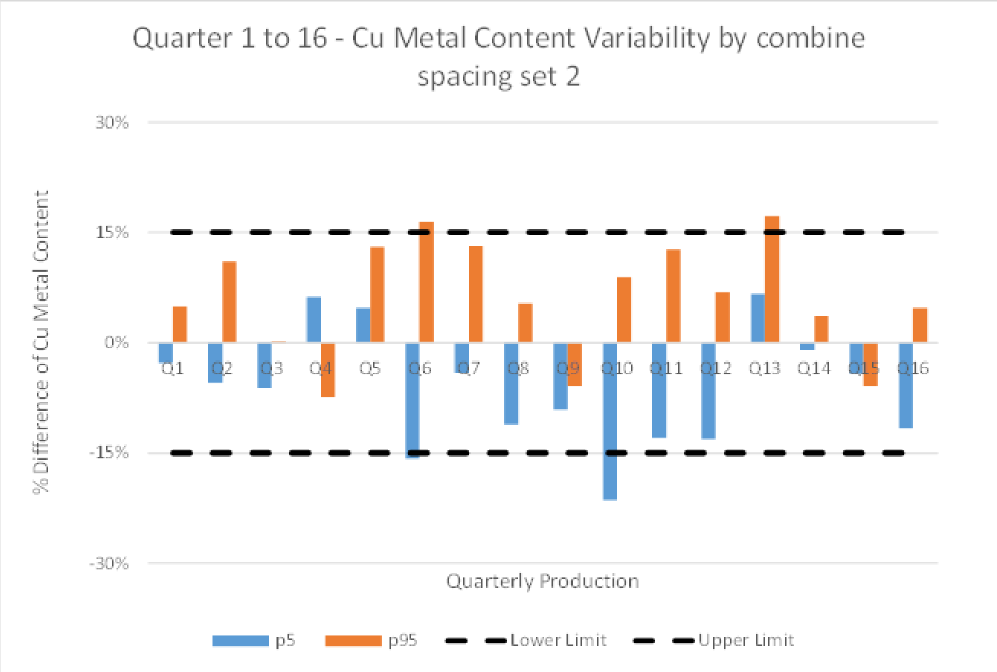

Figure 25. Cu metal content variability by quarterly production for drillhole set 2.

6.4 Analysis by Drillhole set 3

The variability analysis for drillhole set 3 is characterised by the spread around the average/mean realisation relative to the p5 and p95 realisation.

By yearly production volume (Figure 26 and Figure 27), the drillhole data set 3 has a range up to of ±9% which is inside the limit of ±15% of yearly production.

However, the spectrum of the variability quarterly volume are range from ±1% to ±21% as shown Figure 28 to Figure 29.

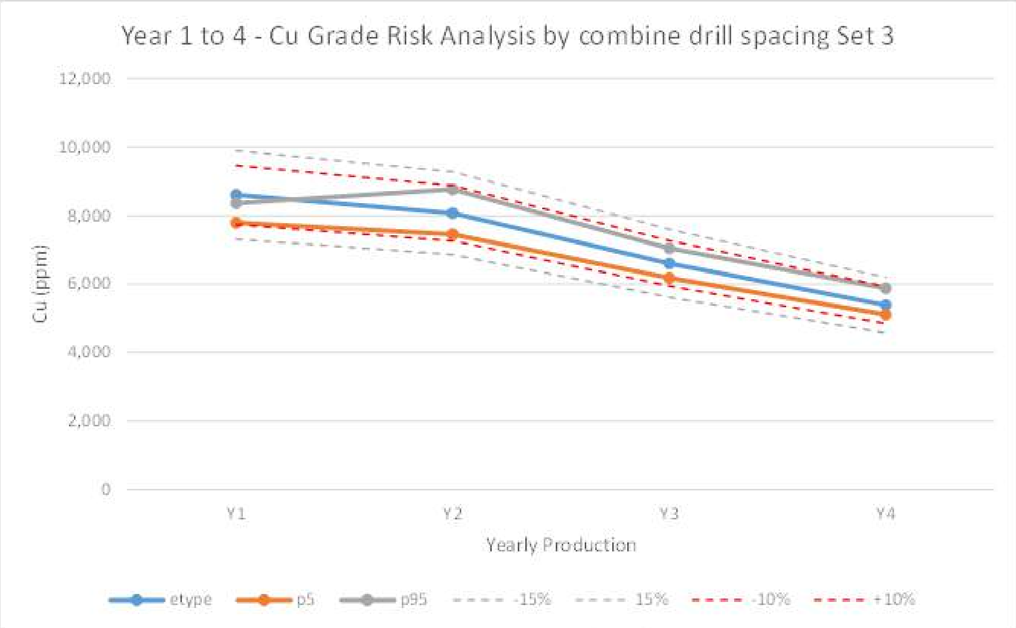

Figure 26. Drillhole Set 3 Risk Analysis by yearly production.

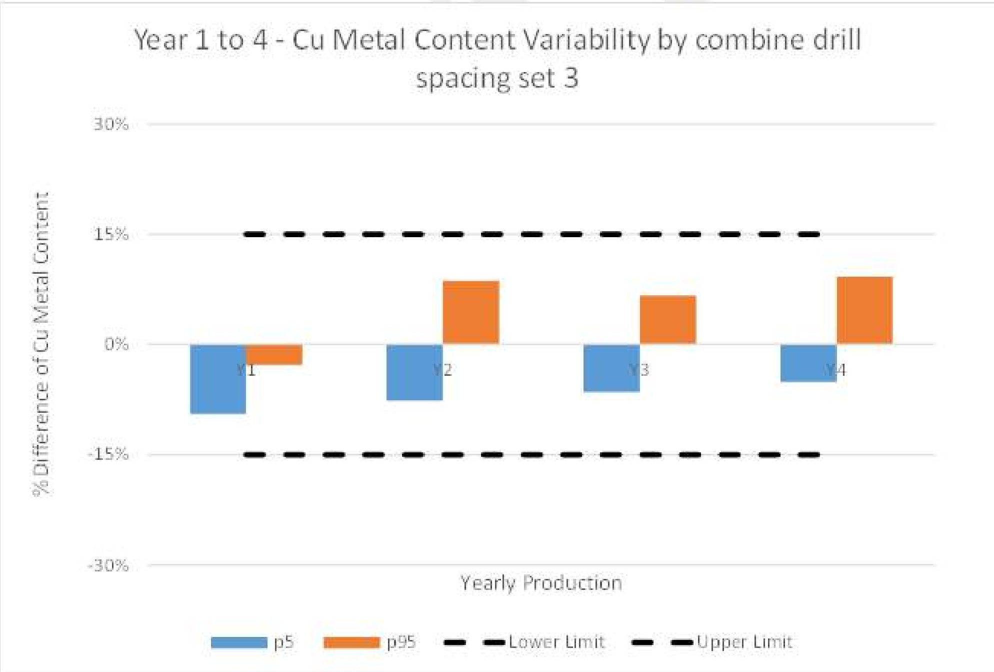

Figure 27. Cu metal content variability by yearly production for drillhole set 3.

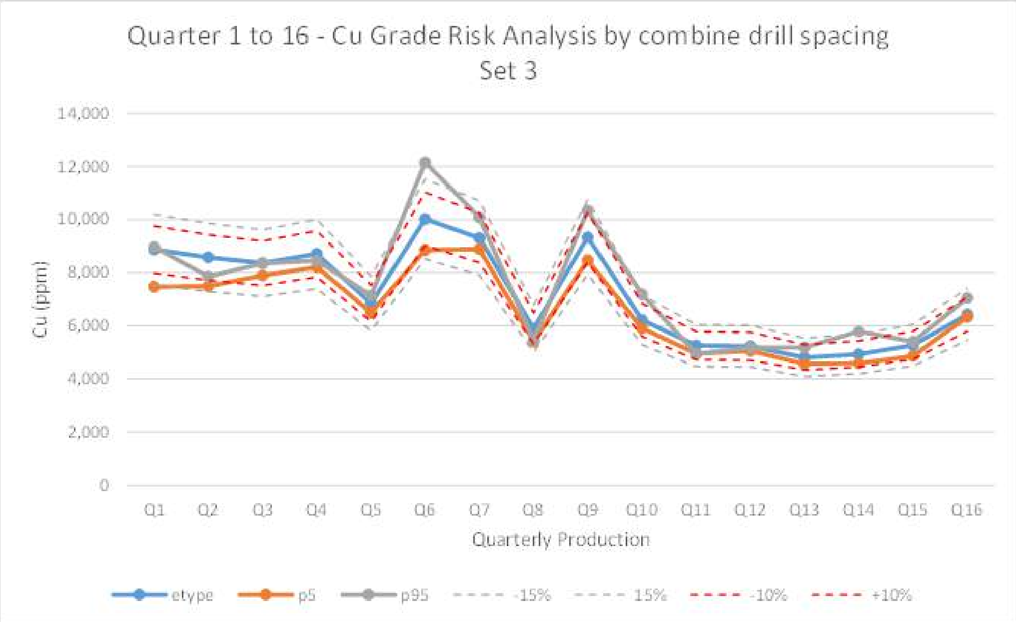

Figure 28. Drillhole Set 3 Risk Analysis by quarterly production.

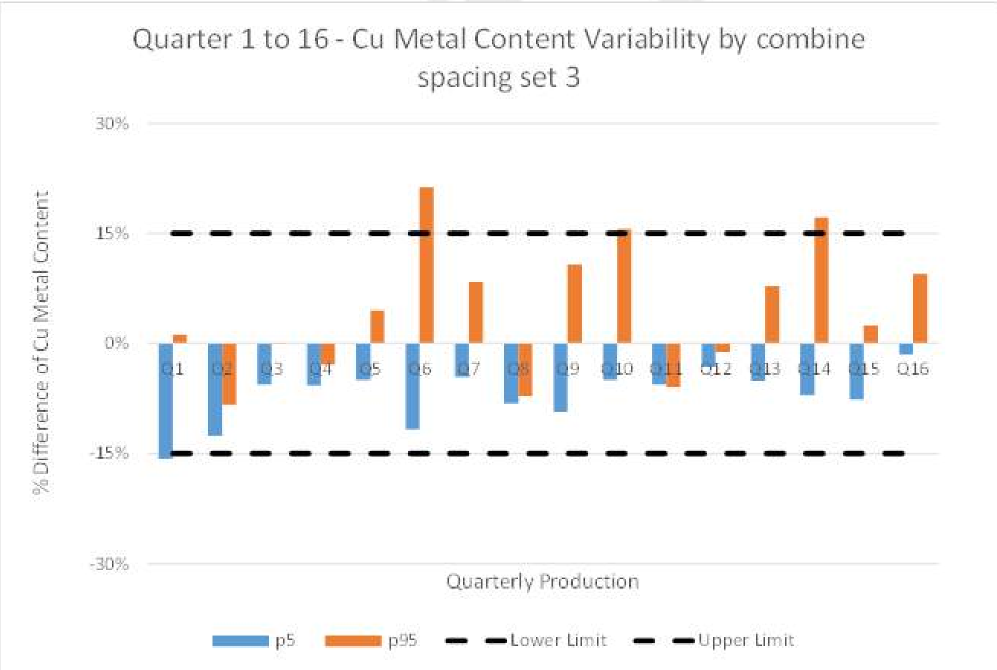

Figure 29. Cu metal content variability by quarterly production for drillhole set 3.

6.5 Analysis by Drillhole set 4

The variability analysis for drillhole set 4 (Cu grades from the quantile 5 and average of Cu realisation of the original set of conditional simulations that were generated and randomly migrated into the combine drilling location regardless) is characterised by the spread around the average/mean realisation relative to the p5 and p95 realisation.

By yearly production volume (Figure 30 and Figure 31), the drillhole data set 3 has a range up to of ±13% which is inside the limit of ±15% of yearly production.

However, the spectrum of the variability quarterly volume are range from ±1% to ±29% as shown in Figure 32 to Figure 33.

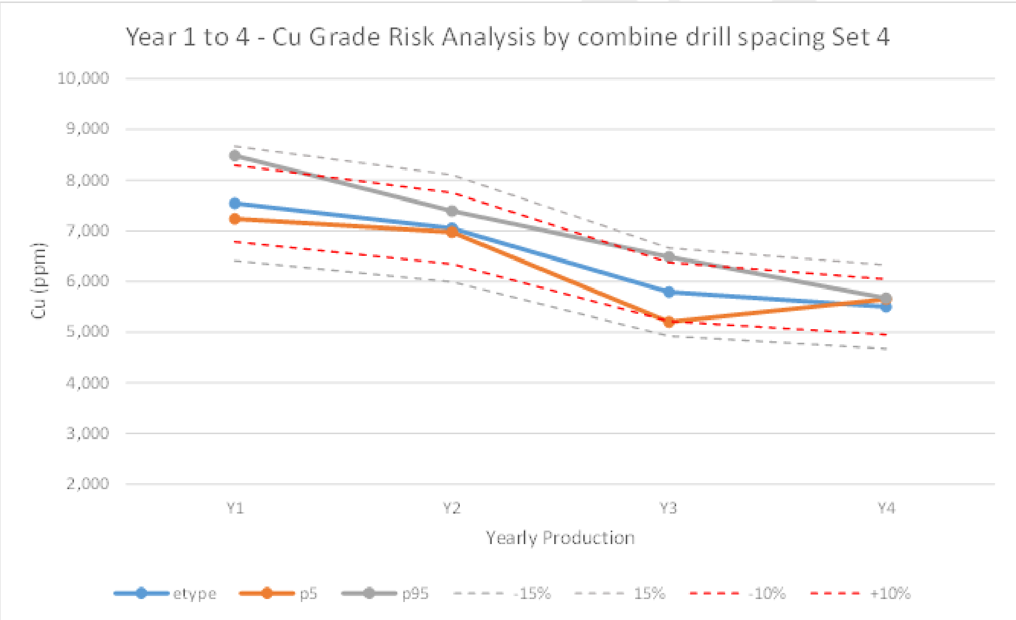

Figure 30. Drillhole Set 4 Risk Analyis by yearly production.

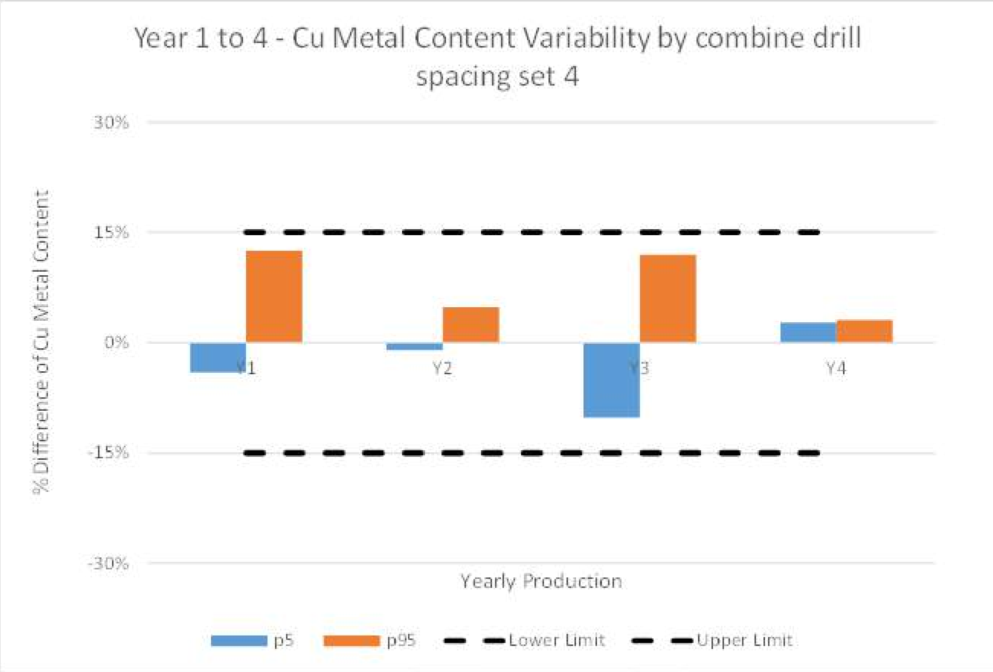

Figure 31. Cu metal content variabiliy by yearly production for drillhole set 4.

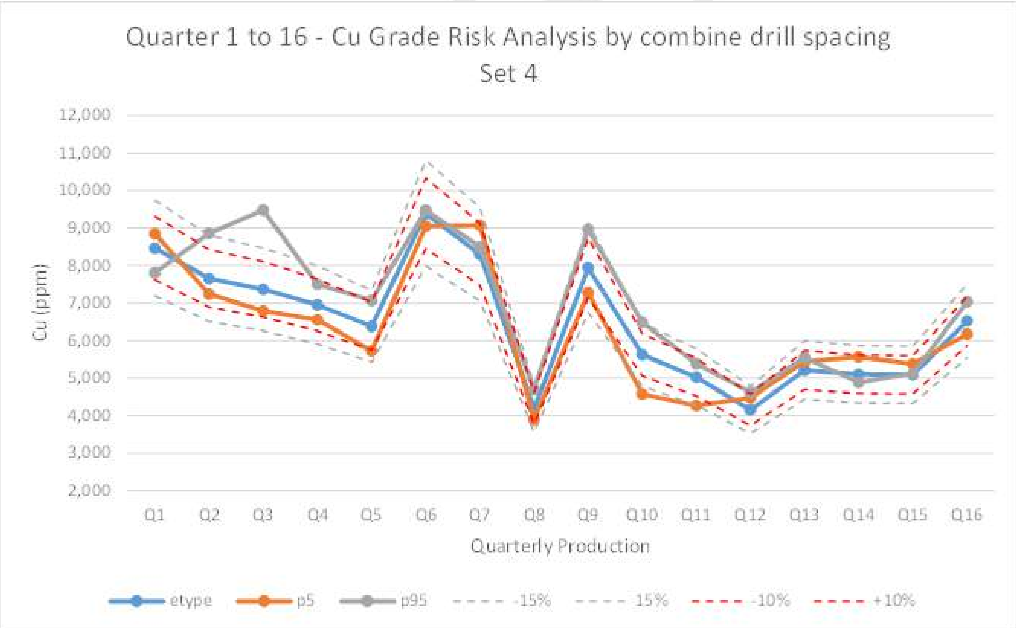

Figure 32. Drillhole Set 4 Risk Analyis by quarterly production.

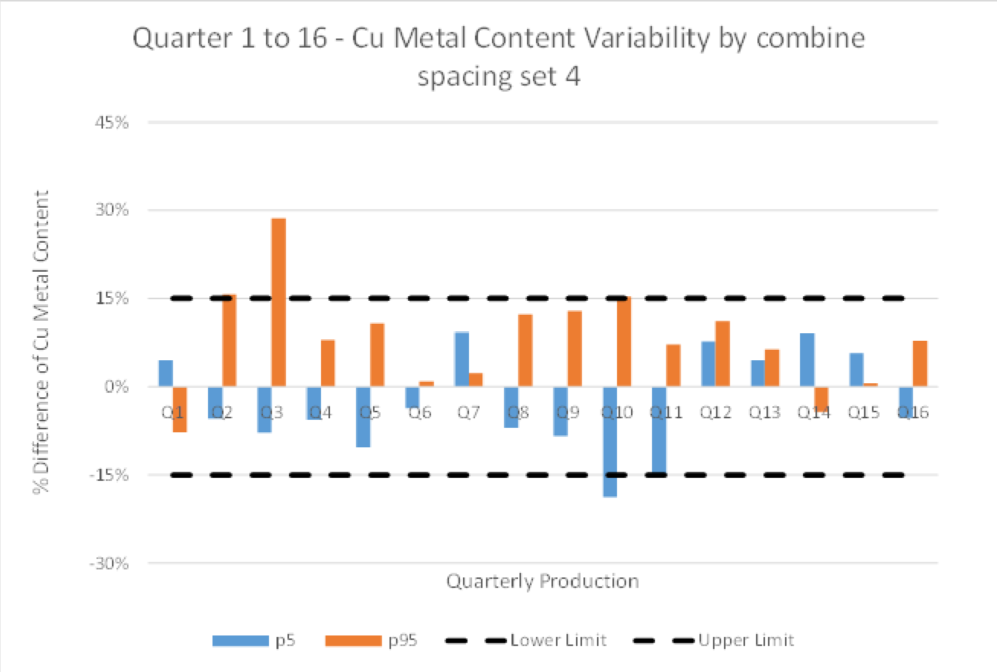

Figure 33. Cu metal content variabiliy by quarterly production for drillhole set 4.

6.6 Analysis by Drillhole set 5

The variability analysis for drillhole set 5 is characterised by the spread around the average/mean realisation relative to the p5 and p95 realisation.

By yearly production volume (Figure 34 and Figure 35), the drillhole data set 3 has a range up to of ±13% which is inside the limit of ±9% of yearly production.

However, the spectrum of the variability quarterly volume are range from ±1% to ±21% as shown in Figure 36 to Figure 37.

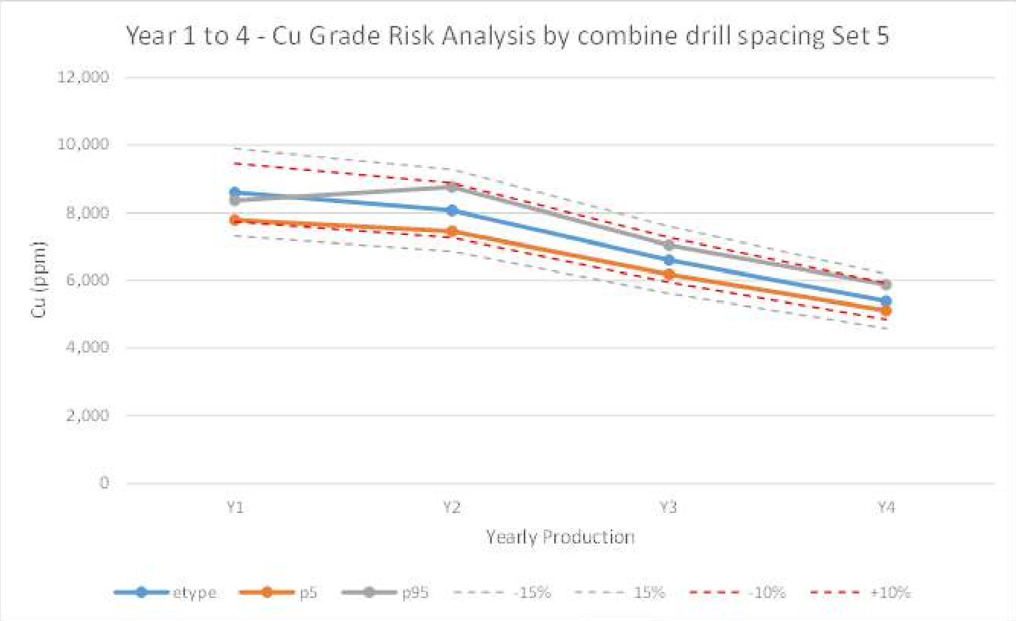

Figure 34. Drillhole Set 5 Risk Analysis by yearly production.

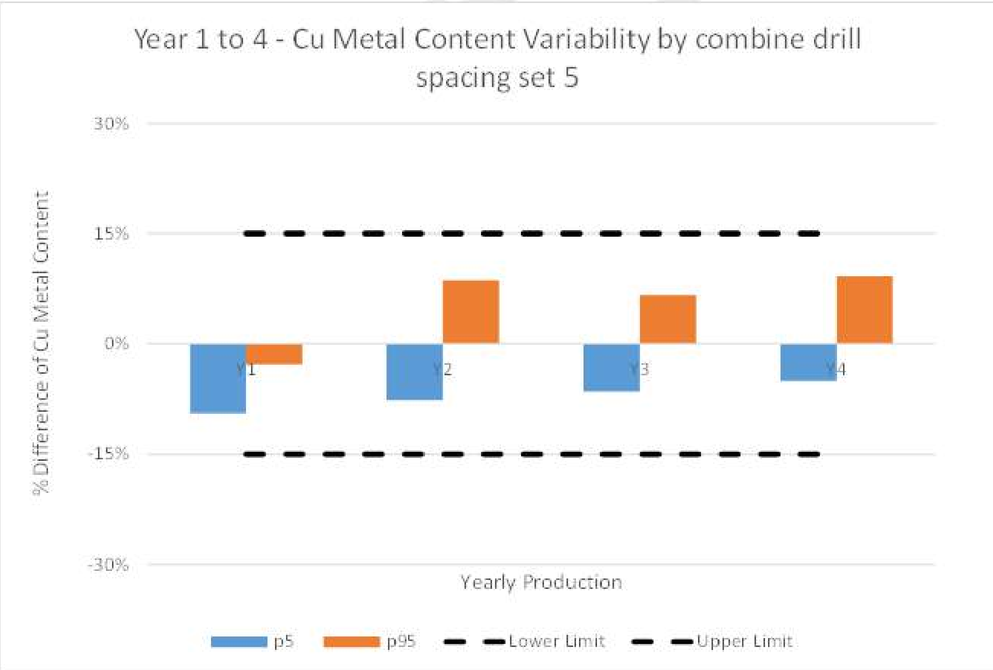

Figure 35. Cu metal content variability by yearly production for drillhole set 5.

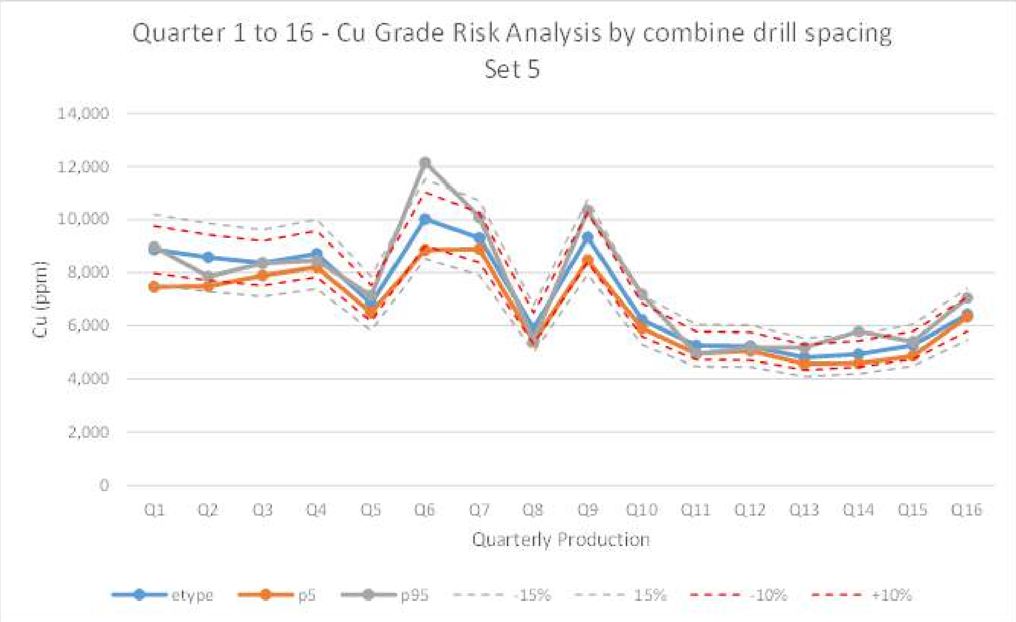

Figure 36. Drillhole Set 4 Risk Analysis by quarterly production.

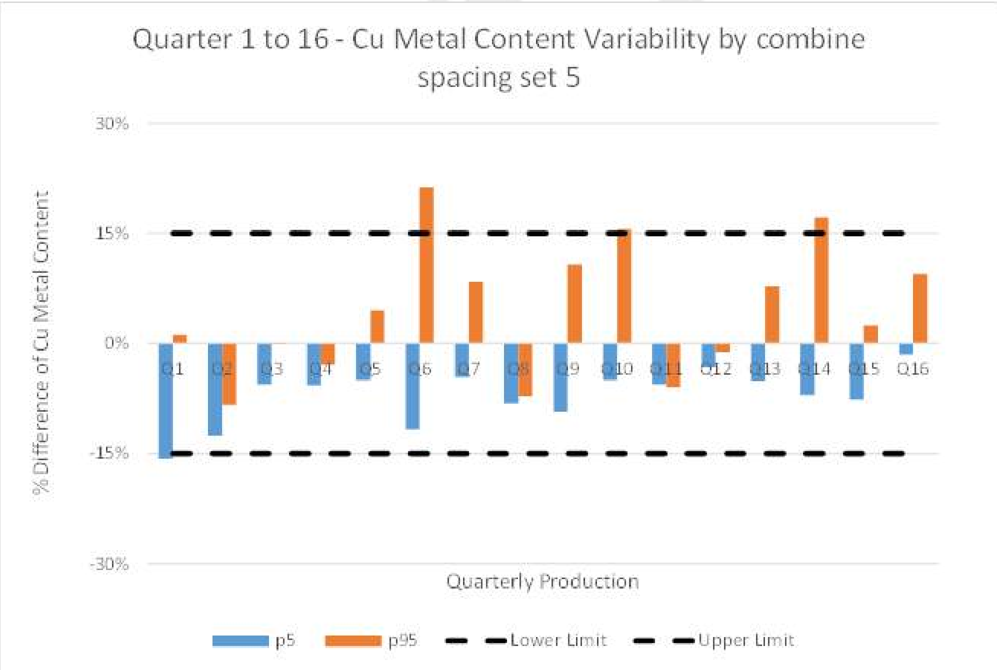

Figure 37. Cu metal content variability by quarterly production for drillhole set 5.

7 CONCLUSION AND RECOMMENDATIONS

Resource classification is a subjective task which considers multiple key parameters including drilling, sampling, drill spacing, sample preparation and analysis, geological logging and modelling etc. Uncertainties that are not related to drill spacing and grades are out of scope for this study.

The variability for the existing drillhole spacing within the first four year of mining has a range of ±2% to ±25% (Figure 38). In year 2 and 3 the range is returned above the 15% accuracy at 90% confidence over yearly production for Indicated Resources proposed by Harry Parker.

From the first four year of mining volume, the exisiting drillhole spacing are returned with around 40% Indicated material and 60% Inferred. However, by using all eight years mining volume, the existing drillhole spacing returned with about 57% Indicated material and the remains is inferred.

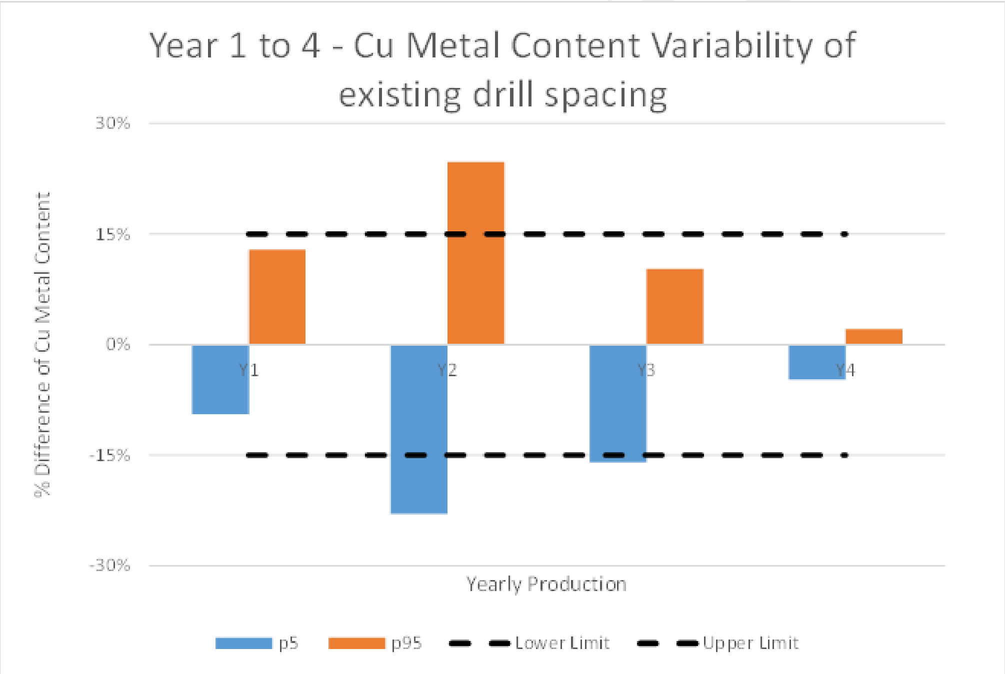

Figure 38. Cu metal content variabiliy by yearly production for drillhole set 5.

P&a compiled all the yearly and quarterly variability figures from all different data sets (or a combine drillhole that a merge of existing and artificial drillhole design).

The variability for the combined drillhole spacing within the first four year of mining has a range from -14% to +13% (Figure 39). This has shown that the combined drillhole configuration are returned with below 15% accuracy at 90% confidence over yearly production for Indicated Resources proposed by Harry Parker, regardless of data set. In other word, it would be fair to assume that by infilling the existing drillhole with given artificial drillhole design, can comfortably convert the first four year of mining area into Indicated status based on this variability figures.

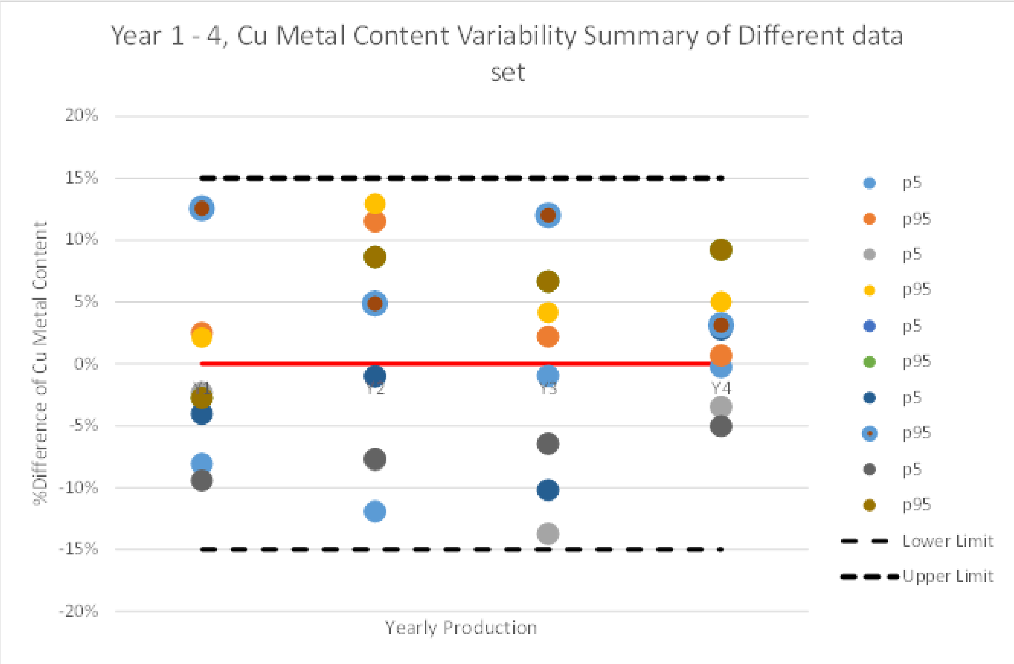

Figure 39. Cu metal content variabiliy by yearly production for drillhole set 5.

The variability for the combine drillhole spacing within the first sixteen quarterly volume of mining (or four years of mining) has a range from -21% to +29% (Figure 40). However some quarterly volume returned with below 15% accuracy.

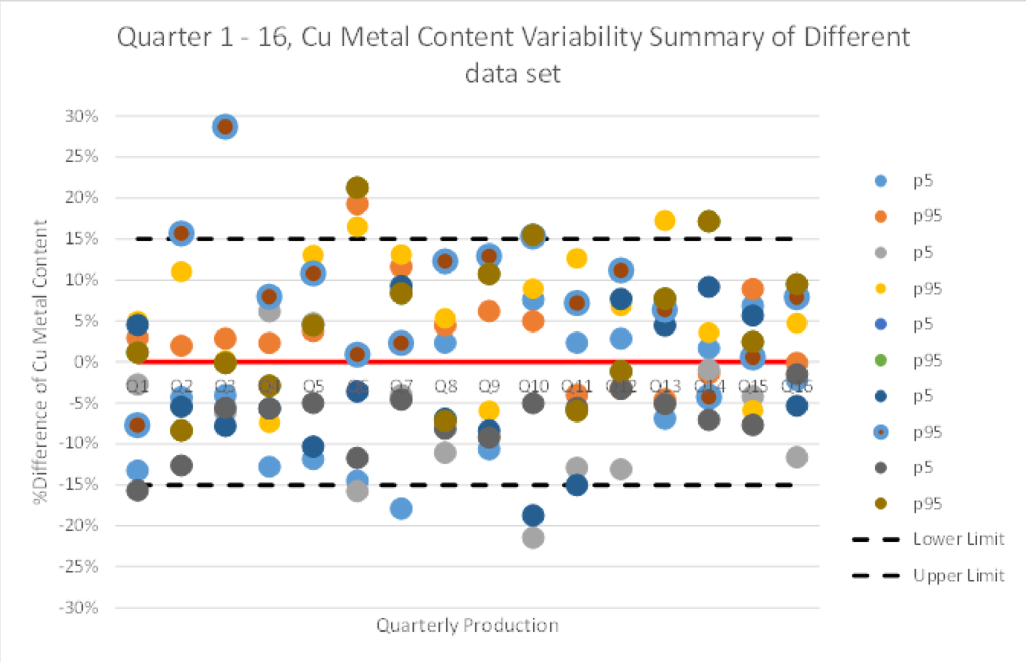

Figure 40. Cu metal content variabiliy by yearly production for drillhole set 5.

Hence, the quarterly variability result can be translated into the proportion of the Measured material for the first four year of mining volumes. Nine of the quarterly volume were returned with accuracy below 15% and 7 of the quarterly volume were returned with above 15% accuracy, which means that , infill drilling (by using the artificial design from this study) could convert around 56% of material into Measured status and 44% material into Indicated status.

One important point to note is the proposed classification scheme only takes into account grade variability. Other factors such as geometric or data uncertainty are not taken into accounts which are also considered important at Beruang Kanan.

Please note that the resultant simulations (i.e. Cu grade) based on this artificial data should **only** be used for assessing global variability, and **must not** be used for planning purposes.

It is commonly known that sometimes the regular infill drilling program can be very challenging, due to the logistic and terrain difficulties, thus any 'viable' infill drilling design would benefit to be tested with this kind of 'variability' study to quantify the impact of infill drilling into 'ideal' criteria of accuracy.

Yours faithfully,

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MAusIMM MAIG CPI
Principal Geologist-Geostatistician

Glossary

List of Abbreviations and Definition of Key Terms

Term	Definition
Conditional Simulation (CS)	A geostatistical method of producing a number of plausible, detailed images of the deposit. Simulations are not estimations, their goal being to characterise variability (or risk).
Variogram (Semi Variogram)	The variogram γ (h) characterises spatial variability and is the basis of most geostatistical methods. In effect, the variogram calculates half the mean squared difference for a given variable between points separated by a vector (i.e. a direction and a separation distance h).
Kriging Neighbourhood	The volume surrounding a block to be estimated which is searched for samples during interpolation by kriging. Also called "search neighbourhood."
Stationarity	Spatial statistical homogeneity. In essence, the assumption of stationarity usually adopted for estimation (i.e. intrinsic stationarity) means that it is considered appropriate to characterise the overall spatial variability of an area by a given variogram model. Mineral resource estimates are usually domained into distinct areas within which stationarity is assumed
Declustering	Techniques intended to correct sampling bias caused by a disproportionate number of measurements within a limited portion of the area.
Turning Bands Simulations (TBS)	A spatial simulation technique that adds the contributions of several independent one dimensional realisations along lines that are randomly or uniformly distributed in Euclidean space. Conditioning takes place using a kriging step.
Realisation	A set of values that may arise from a random function Z(x). This realisation may be regarded as a member of the random function in the same way that an individual observation is regarded as a member of a population.

Reference

Marechal, A., 1978. Gaussian anamorphosis models, Fontainebleau Summer School Notes C-7: 22p. Centre de Morphologie Mathematique: Fontainebleau.

Riviorard, J., 1994. Introduction to disjunctive kriging and non-linear geostatistics: 180 pp. Clarendon Press: Oxford.

Vann, J., Bertoli, O., and Jackson, S., 2002. An Overview of Geostatistical Simulation for Quantifying Risk, In: Publication of The Geostatistical Association of Australasia – Symposium on Quantifying Risk and Error, 21st-22nd March 2002, Perth WA.

Yeates, G. and Hodson, D., 2006. Resource Classification – Keeping the End in Sight. In: Proceedings Sixth International Mining Geology Conference, (The Australasian Institute of Mining and Metallurgy: Darwin).

Appendix

Variogram Plot of exisiting data

Electronic attachment: vario_isa.xlsx

CS validation of existing data

Electronic attachment: CS_validation.xlsx

CS realization ranking of existing data

Electronic attachement: CS_ranking.xlsx

Variogram Plot of combine data set

Electronic attachment: vario_isa.xlsx

CS validation of combine data set

Electronic attachement: CS_validation.xlsx

CS realization ranking of combine data set

Electronic attachement: CS_ranking.xlsx

Variability Analysis and Risk Profile

Electronic attachement:

Yearl1to8_h&a.xlsx

Quarter1to16_dummy_H&a.xlsx

Quarter1to16_dump5_H&a.xlsx

Quarter1to16_dump95_H&a.xlsx

Quarter1to16_random_p5_H&a.xlsx

Quarter1to16_random_p95_H&a.xlsx

Variability Compilation.xlsx

Appendix 18 Abbreviations and Conversions

Abbreviation	:	Meaning
%	:	Percent
%Difference	:	Percentage difference (duplicate - original)/original
%RSD	:	Percentage Relative Standard Deviation, StdDev/Average *100
°C	:	Degrees Celsius
3D	:	Three Dimension
A.B.N.	:	Australian Business Number
AAS	:	Atomic absorption spectroscopy - method for measuring element concentrations in solution (assays)
Ag	:	Silver
AIM	:	formerly the Alternative Investment Market - a sub-market of the London Stock Exchange
Au	:	Gold
B.App.Sc., MSc., MAIG	:	Bachelor Applied Science, Master of Science, Member Australian Institute of Geoscientists
BK	:	Beruang Kanan
BKM	:	Beruang Kanan Main Zone Prospect/mineralization
BSc.(Hons)	:	Bachelor Science with Honours
cm	:	centimetres
CoW	:	Contract of Work
CRM	:	Certified Reference Material
Cu	:	Copper
E	:	East
ENJ	:	PT Eksplorasi Nusa Jaya (a PT Freeport Indonesia subsidiary)
et al.	:	and others
g/cc	:	unit for measurement of specific gravity - grams per cubic centimetre (also can be expressed as T/m^3)

Abbreviation	:	Meaning
g/t	:	grams per metric tonne - a measurement of element concentration, interchangeable with ppm
GA	:	PT GeoAssay (laboratory)
Grade	:	Quantity of metal per unit weight of host rock.
GT	:	Grade Tonnage
H&A	:	Hackman and Associates Pty Ltd
ha.	:	hectare(s)
ICP-MS	:	Inductively coupled plasma mass spectrometry - method for measuring element concentrations in solution (assays)
ICP-OES	:	Inductively coupled plasma optical emission spectrometry - method for measuring element concentrations in solution (assays)
ICP-OES AAS	:	methods for measuring element concentrations in solution (assays)
IP	:	Induced Polarization - involves transmitting a current into the ground using two electrodes and measuring the voltage between another pair of electrodes.
IUP	:	Mining Business License (Izin Usaha Pertambangan).
JV	:	Joint Venture
kg	:	kilogram(s)
KGCL	:	Kalimantan Gold Corporation Limited
km	:	kilometre
km^2	:	kilometre squared
KNA	:	Kriging Neighbourhood Analysis
KP	:	Mining Authorization (Kuasa Pertambangan) - now defunct.
KSK	:	PT Kalimantan Surya Kencana
KSK CoW	:	the 6th generation Contract of Work (CoW) held by KSK

Abbreviation	:	Meaning
Lat	:	Latitude
LIDAR	:	Lidar is a remote sensing technology that measures distance by illuminating a target with a laser and analyzing the reflected light.
m	:	metre(s)
MAIG	:	Member of Australian Institute of Geoscientist
max	:	maximum
mesh	:	grid mesh (measurement of aperture)
mm	:	millimeters
Mo	:	Molybdenum
MPD	:	Mean Paired Difference (expressed as a percent)
MPRD	:	Mean Paired Relative Difference (expressed as a percent)
N	:	North
NB	:	Please note
NI 43-101	:	"Canadian National Instrument 43-101 - Standards of Disclosure for Mineral Projects" defines and regulates public disclosure in Canada for mineral projects and it relies on resource and reserve classification as defined by CIM.
Ordinary Kriging	:	3D interpolation method.
OX	:	Oxiana Limited
Pb	:	Lead
pH	:	measure of the acidity or basicity of an aqueous solution
ppm	:	parts per million - a measurement of element concentration, interchangeable with grams per metric tonne
PQ HQ NQ BQ	:	Diamond Drill Hole Core sizes
PT	:	Perseroan Terbatas ("Limited Liability")
Py	:	Pyrite
QA	:	Quality Assurance

Abbreviation	:	Meaning
QC	:	Quality Control
Q-Q	:	Quartile - Quartile (plot)
Rd	:	Road
RE	:	Reference to
RL	:	reduced level (relative to vertical datum - usually ASL - Average Sea Level)
S	:	South
Sb	:	Antimony
SEDAR	:	System for Electronic Document Analysis and Retrieval (Canadian - www.sedar.com)
SFK	:	PT Sucofindo (Persero) Laboratory
SG	:	Specific Gravity (mass/volume)
Si	:	Silica
SOP	:	Standard Operating Procedure
StdDev	:	Standard Deviation
T	:	metric tonnes
TIN	:	Triangulated Irregular Network (computer solid model shape that domains features of projects in 3D)
™	:	Trade Mark
UTM	:	Universal Transvers Mercator (Cartesian coordinate grid system)
vol%	:	Percentage of total volume
W	:	West
WA	:	Western Australia
WGS84, UTM Zone 49S	:	Spheroid projection and grid datum for the geographical location of data at Beruang Kanan
yrs	:	years
Zn	:	Zinc

APPENDICES: Qualified Person's Report on the Mineral Resources, Beruang Kanan Main Zone, July 2017.