GEOMODELLING LTD
GEOLOGY - RESOURCES - RESERVES

56 Adelaide Street
Petone
New Zealand 5012
Ph +64 4 970 9163
info@geomodelling.co.nz

Report on an Estimate of Copper Resources, Lloyds Mine Area.

10 June, 2015.

1 Summary

An estimate has been made of copper - gold – silver - zinc mineral resources at the Burraga project for Elysium Resources Ltd (EYM). EYM are currently completing a study into the feasibility of a facility to produce copper concentrates from a combination of in situ mineralisation mined by open pit and from re-processing of tailings and slag heaps from historical production.

The Burraga project comprises four separate resources, an in situ resource at the historically mined Lloyds mine as well as resources in the tailings dam and in two slag heaps.

The in situ mineralisation at the Lloyds mine comprises high grade (1% - 5% Cu), 0.5 m - 3.0 m wide quartz – sulphide (dominantly chalcopyrite) veins in a lower grade (0.1% - 1% Cu) matrix. The mineralisation is hosted in a sequence of Ordovician to Silurian meta-sediment and meta-volcanic rocks. The copper mineralisation strikes east – west and dips moderately to the north. North striking, east dipping post-mineralisation faults have truncated and offset the mineralisation giving rise to an apparent northeast plunge. The mineralisation is typically 5 m to 15 m thick and has been demonstrated by historical mining and drilling to have a strike length of about 200 m. The mineralisation is open down dip.

These resources have been estimated largely from recently completed RC and diamond drilling, but also from historical diamond and open hole percussion drilling at the Lloyds mine and from surface grab samples for the slag heaps.

1.1. Lloyds In Situ Resource Estimation

The data was domained using a wireframe interpreted at a nominal 0.2% Cu.

A regularised block model was constructed using blocks of 10 m by 10 m by 2 m (XYZ). This model was in turn coded for proportions of blocks below / inside the topography,

All raw assay samples were composited to 2.0 metres prior to statistical analysis and grade interpolation.

The Lloyds in situ resource was estimated by ordinary kriging of copper grades using a copper domain interpreted at a nominal a 0.2% Cu as a hard boundary.

Other elements (Au, Ag, Pb, Zn and S) were interpolated into blocks using with inverse distance squared weighting also using the 0.2% copper domain as a hard boundary.

Completely oxidised mineralisation does not occur at Lloyds. A transition zone comprising mixed sulphide, carbonate and oxide copper minerals occurs near surface. The lower surface of this transition zone was interpreted from drill logs and used to create transition and fresh oxidation domain wireframes. These wireframes were used to classify blocks as either transition or fresh.

Bulk density was assigned by oxidation domain. Analysis of the bulk density data showed no significant difference in density between mineralised and un-mineralised material. There is currently insufficient density data to allow interpolation of density.

The proportion of each block depleted by historical mining was coded from a wireframe digitised from historical mining plans and block volumes adjusted accordingly.

The block model was classified in accordance with the JORC (2012) code largely taking into account geological continuity and data (drillhole) spacing, but also modified for data sample quality and statistical measures of grade estimation uncertainty. Measured, indicated and inferred resources have been reported. Resources were only reported from within the 0.2% copper domain.

The block model was validated visually and using several statistical methods.

1.2. Tailings Resource Estimation

Most of the historically mined ore was processed through a flotation plant. The tailings from this plant were deposited in a dam to the west of the mine. These tailings are generally sand sized particles.

The tailings resource was estimated into a separate block model also with 10 m by 10 m by 2 m (XYZ) blocks.

A wireframe of the tailings was created from surface DGPS surveys at a 10 m by 10 m grid and from an IP inversion model surface of the base of tailings. This wireframe excludes higher grade tailings sludge mapped as part of the surface survey.

The tailings dam was drilled using a power auger on a nominal 10 m by 20 m grid, with samples collected at 1.0m intervals downhole.

All grades (Cu, Au, Ag, Pb, Zn and S) were interpolated into blocks using inverse distance squared weighting using the topographic surface as 'un-folding' surface. 'Un-folding' was used to replicate the probable deposition of the tailings in layers parallel to topography. The tailings wireframe was used as a hard boundary for grade interpolation.

A bulk density of 1.8 t/m^3 was assigned to all blocks in the tailings wireframe. No density data exists for the tailings, so this value was calculated assuming the tails comprise a combination of 95% quartz sand at 1.6 t/m^3 and 5% chalcopyrite at 4.2 t/m^3 for a total bulk density of 1.8 t/m^3.

All of the tailings were classified as indicated because there is very little geological uncertainty, grades have low statistical and spatial variability, the material has been sampled at an appropriate spacing and because the grade and tonnage can be validated with a high degree of confidence from the historical production records.

1.3. Slag Heap Resource Estimation

Two slag heaps; the north heap and the south heap have been identified. These heaps comprise accumulations of very coarse crucible waste (porous glass similar to vesicular obsidian). Most of the particles are about 0.7m across, however some breakage occurred during dumping resulting in the formation of smaller particles which have infilled some of the pore space between the larger crucible particles.

It is not possible to reliably drill the slag heaps due to the highly friable nature of the slag heaps. Therefore the slag heaps were sampled by grab sampling on a nominal 10 m by 10 m grid.

A block model covering both slag heaps was created with 10 m by 10 m by 2 m (XYZ) blocks.

Average de-clustered (nearest neighbour) grades were assigned to all blocks for Cu, Au, Ag, Pb, Zn and S. Grade interpolation was not used because no spatial correlation was expected due to the way the slag was dumped, therefore local grade estimation was not considered possible.

A Dry Bulk Density (DBD) of 2.0 t/m^3 was assigned based on the range of reported gravel densities (Berkman, 1995). The higher end of the range was used because of the high metal content of the slag likely resulting in higher particle density compared to most gravels.

All of the slag was classified as indicated because very little geological uncertainty, grades have low statistical variability and because the grade can be validated with a high degree of confidence from the historical production records.

1.4. Results

The Burraga Project mineral resources are presented in Table 1-1.

The in situ Lloyds copper resources are reported at a cutoff of 0.3% Cu. No cutoff grades have been applied to the tailings or slag resource estimates because, if economic, these will be mined in their entirety.

Model		tonnes	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Cu Metal (t)
Lloyds (0.3% Cu cutoff)	Measured	80,000	1.0	0.1	5	0.2	800
	Indicated	910,000	0.8	0.1	7	0.2	7,130
	Inferred	320,000	0.7	0.1	5	0.1	2,200
	Total	1,310,000	0.8	0.1	6	0.2	10,090
Tailings	Indicated	280,000	1.2	0.3	9	0.2	3,490
Slag Heaps	Indicated	90,000	1.3	0.2	7	0.7	1,170
Burraga Combined	Measured	80,000	1.0	0.1	5	0.2	800
	Indicated	1,280,000	0.9	0.1	7	0.2	11,520
	Inferred	320,000	0.7	0.1	5	0.1	2,200
	Total	**1,680,000**	**0.9**	**0.1**	**7**	**0.2**	**15,120**

Table 1-1. Burraga Project Mineral Resources by model and resource category

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Recommendations have been made to reduce the resource estimation risk and to increase the resource size.

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2 Introduction

The Burraga Project comprises in situ copper – gold – silver resources at the Lloyds Mine as well as tailings and slag heaps from historical mining.

2.1. Location

The Burraga project is located in central NSW, approximately 40 km southwest of Oberon and 80 km southeast of Orange (see Figure 2-1).. The village of Burraga lies about 1.5km to the north of the Lloyds Mine.

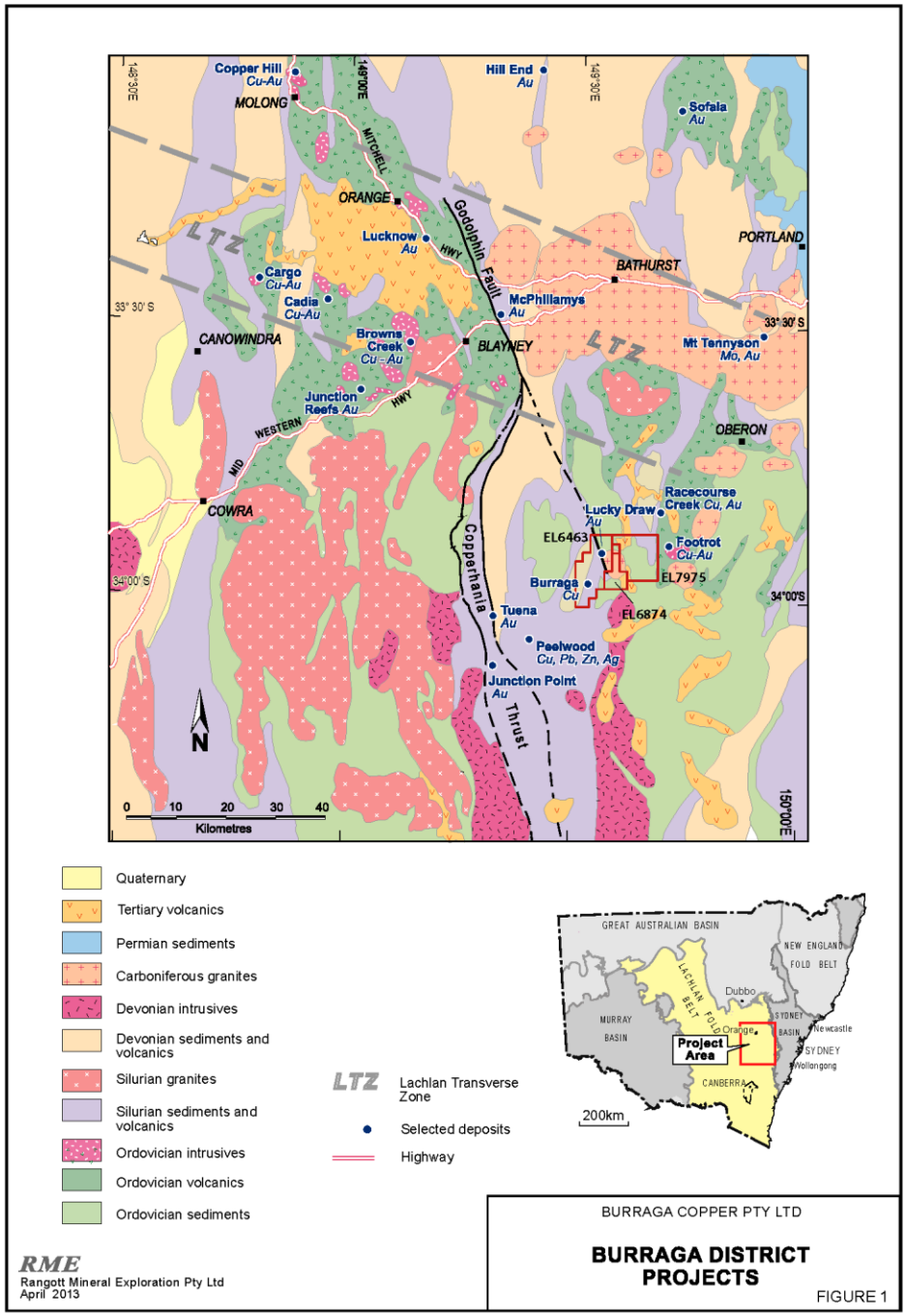


Figure 2-1 Geological setting and location of EL6463 (after Harley, 2011).

2.2. Context

This resource estimate will be used for public reporting of mineral resources and as the basis of a feasibility study being completed by Elysium Resources Limited (EYM).

2.3. Tenement

The Burraga project occurs within EL6463, held by Burraga Copper Exploration Propriety Limited (BCEL). BCEL is a 100% owned subsidiary of EYM.

A mining licence application over the project area is currently being prepared pending completion of an EIS and DGRS. These studies are expected to be completed early 2016.

2.4. Other

2.4.1. Software

All the geological and block modelling was completed using Minesight (v 9.20) software.

In addition, a database of all the drilling data was compiled using Minesight MSTorque software over a SQL database.

Statistical and geostatistical analysis was completed using Minesight MSDA software.

2.4.2. Grids

All work reported on here was completed in the GDA94 grid. There is no local mine grid.

2.4.3. Cutoff Dates

The cutoff date for data used in this resource estimate was 1 March, 2015.

3 Geology

3.1. Regional Geology

The project area is located in a structurally complex geological setting within the southern part of the Hill End Trough.

The recent discovery of substantial gold mineralisation at McPhillamys Hill between Blayney and Bathurst has altered the perspective of key structural controls on gold mineralisation and the prospectivity of sections of the Lachlan Fold Belt. The McPhillamys deposit (at least 2.96 million ounces of gold) lies on the southwestern margin of the Hill End Trough adjacent to the Godolphin Fault within strongly deformed sediments and acid volcanics (Anson Formation) belonging to the Late Silurian Mumbil Group. The Godolphin Fault separates the Mumbil Group rocks that host the McPhillamys deposit on the northeastern side of the fault from Late Ordovician volcanics, sediments and intrusives of the Blayney Volcanics to the west.

3.1.1. Stratigraphy

Bedrock within the area covered by EL 6874 is dominated by Middle and Late Ordovician meta-sediments and the Carboniferous Burraga Granite. Figure 3-1 shows the geology of EL6463 and is based on the geological mapping of the Oberon 1:100,000 geological sheet area by the Australian Geological Survey Organisation and the NSW Geological.

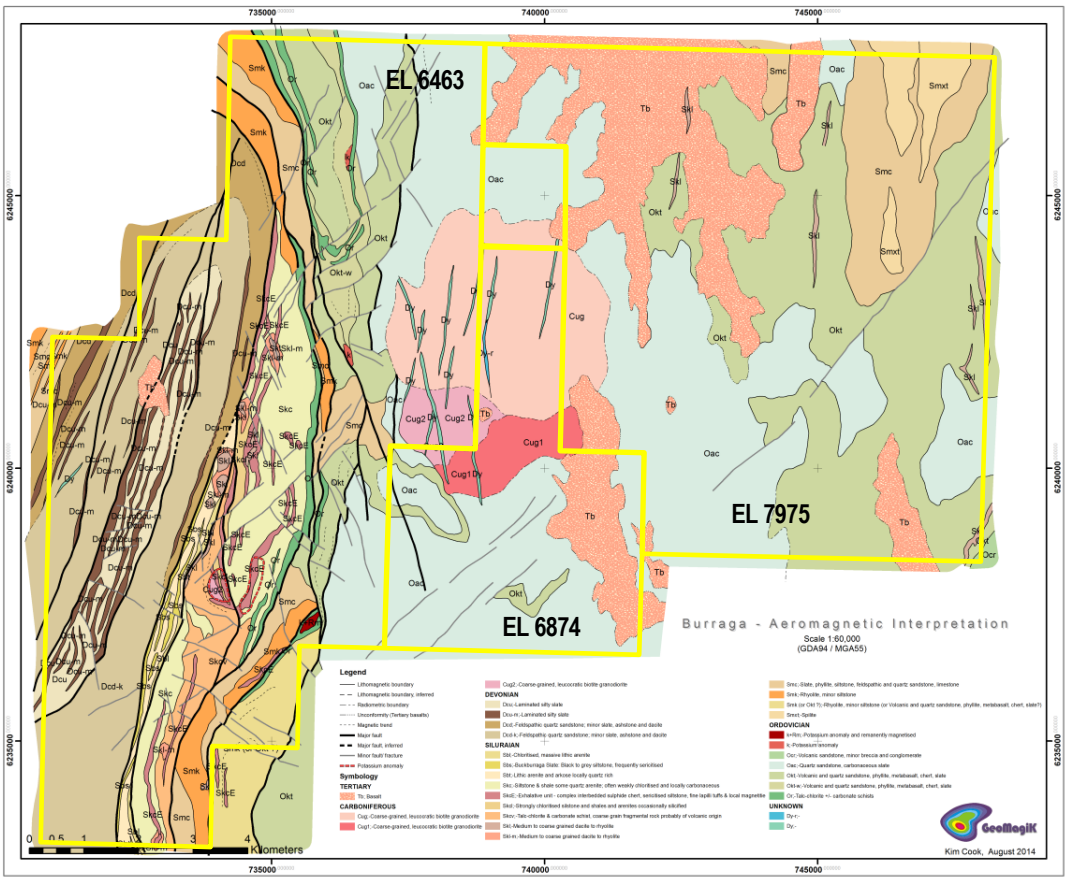


Figure 3-1 Geological Map of EL6463 and surrounding tenements.

The stratigraphy of EL6463 is poorly understood with different workers providing substantially different interpretations, especially with respect to the relationship of the Burraga sequence to the rest of the stratigraphy. The following descriptions of the rocks with EL6463 is a summary of the 'consensus' stratigraphy.

The oldest rocks in the tenement are the middle Ordovician Adaminaby Group which is comprised mainly of variably deformed quartz sandstone and carbonaceous shale. The Adaminaby Group underlies the south eastern parts of the licence area, east of the 'Lloyds syncline'.

Conformably overlying the Adaminaby Group is the Triangle Formation of the middle Ordovician Kenilworth Group. The Triangle Formation consists of mafic volcaniclastic sandstone, meta-basalt, slate, phyllite, schist, siliceous carbonaceous slate, chert, quartzite and sandstone. The Triangle Group is host to the Lucky Draw and Hackney's Creek gold deposits in the north eastern part of EL6463.

The Triangle Formation rocks are unconformably overlain by the Middle to Late Silurian Campbells Formation of the Mumbil Group. Typically, the formation comprises siltstones overlain by interbedded slate and fine to coarse grained feldspathic meta-sandstone. The Campbells Formation is broadly correlatable with the Anson Formation; host to the McPhillamys Hill gold deposit in the Blayney-Orange district to the northwest.

In faulted contact above the Triangle Formation are sediments of the Early Devonian Crudine Group. The Crudine Group comprises the Dunchurch Formation (feldspathic quartz sandstone with minor slate, ashstone and dacite) and the Buckburraga Slate (laminated silty slate).

Within the 'Lloyds syncline' is a sequence of strongly deformed rocks with complex structural and stratigraphic relationships. This sequence comprises a basal slate mapped as the Buckburraga slate overlain by the Excelsior Porphyry. Petrographic analysis of the Excelsior Porphyry shows that is in fact a highly altered volcanic tuff. Above the Excelsior Porphyry is the Hanrahan's Agglomerate which is actually a polymict breccia of tectonic origin. The Hanrahan's Agglomerate includes clasts of limestone, amorphous silica and Excelsior Porphyry. Most of the Burraga copper mineralisation occurs in the Hanrahan's Agglomerate. Fine grained schist, phyllite and minor limestone of the Lovett's Formation occurs above the Hanrahan's Agglomerate.

The age and stratigraphic relationship of the 'Lloyds syncline' sequence to rocks outside the 'syncline' have not been resolved. The sequence is variably interpreted as part of the Late Ordovician Rockley Volcanics or as part of the Silurian Mumbil Group.

In the northeast of EL 6463 is the western margin of the Carboniferous Burraga Granite that has intruded rocks of the Adaminaby Group and Triangle Formation. The Burraga Granite is described as a medium to coarse-grained leucocratic biotite granodiorite that comprises two phases; a massive medium-grained two mica I-type granodiorite and a medium-grained garnet-muscovite granodiorite that has S-type affinities. The garnet-muscovite phase occurs in the northwest part of the pluton (within EL 6463) adjacent to the Lucky Draw gold deposit. Intruded Ordovician Adaminaby Group sediments have been contact metamorphosed to micaceous quartzite and pelitic quartz-mica schists containing quartz-albite-biotite ± cordierite and quartz-biotite-muscovite-albite-andalusite-cordierite assemblages. Intruded Ordovician Triangle Formation sediments have been contact metamorphosed to quartz-feldspar-biotite schist and tremolite-chlorite schist (Rockley Volcanics?). The contact metamorphic aureole associated with the intrusion of the Burraga Granite is reported to be 75-100 metres wide.

Minor Quaternary alluvium and gravels are located adjacent to streams in the central part of the tenement where these streams drain part of the Burraga Granite.

3.1.2. Structure

The tenement area has undergone a complex structural and metamorphic history.

Recent re-interpretation of airborne magnetic data suggests that the Godolphin Fault, (a significant control on the recently discovered 2.96 Moz McPhillamys gold deposit) extends through EL6463 where it juxtaposes Silurian Campbells Formation (to the west) and Ordovician Triangle Formation (to the east; see Figures 1 & 2).

A recent structural interpretation of the Burraga area (King, 2013) suggests that the 'Lloyds syncline' is not a syncline, but a NNE trending structural corridor (Lloyds corridor) and that the synformal shape suggested by the outcrop pattern and magnetic signature of the Hanrahan's agglomerate (breccia) is in fact two separate shear / alteration zones that intersect in the Burraga South area giving rise to a synform like outcrop pattern (see figure 3 below). There is no evidence for a synformal structure in the Lloyds corridor. There is good evidence for polyphase folding and faulting within the Lloyds corridor.

3.1.3. Burraga Style Copper – Gold – Silver +/- Zinc +/- Lead Mineralisation

Within EL6463 copper – gold – silver +/- zinc +/- lead mineralisation is generally restricted to the Lloyds corridor, although localised anomalous base metal values also occur in the Mossgrove North prospect. The mineralisation is best developed in the Hanrahan's Agglomerate but also occurs in the upper part of the Excelsior Porphyry.

3.1.4. Gold Mineralisation

The Lucky Draw gold deposit occurs in metasomatised sediments of the Ordovician Triangle Formation immediately below the contact with mafic volcanic rocks inferred to belong to the Rockley Volcanics (Sheppard *et al*., 1995) and very close to the contact with the Carboniferous Burraga Granite. The skarn-like ore displays a gold – bismuth - tellurium association (an "intrusion-related gold" signature), but is generally sulphur-poor with a very low sulphide mineral content. Skarn-like mineral assemblages (including garnet and gedrite), alteration and mineralisation at Lucky Draw including are considered by Sheppard *et al*. (1995) to be the product of contact metamorphism and hydrothermal activity associated with the intrusion of the Burraga Granite.

Lucky Draw was discovered by Renison Goldfields Consolidated Ltd (RGC) in the mid-1980s and that company mined a total of 1.48 million tonnes grading 3.53 g/t gold between 1988 and 1991. The current resource at Lucky Draw (31,600oz; see http://www.elysiumresources.com.au/projects/burraga/mineral-resource-statement) is largely contained in the pod of un-mined mineralisation to the northwest of the pit. This material was not economic in the gold price and cost environment of the early 1990's. The pit remains open and is reported to be in good condition.

Similar mineralisation to Lucky Draw is located at the Hackneys Creek prospect some 800 metres north of the Lucky Draw deposit was also discovered by RGC in the late 1980s. EYM currently estimate the Hackney's Creek resource at 102,000 ounces of gold.

3.2. Local Geology

The Burraga copper deposits were mined mainly during the late 19th century. The largest producer was the Lloyds Copper Mine which produced 19,443 tonnes of copper (470,000 tonnes of ore at 3.6% Cu) from a complex quartz – carbonate - sulphide vein system located within a significant altered shear zone. Recent drilling by EYM has confirmed the presence of significant widths of moderate grade copper - silver - gold ± zinc ± lead mineralisation on the margins of the historically mined vein. The style of mineralisation in the Burraga deposits is also somewhat ambiguous, showing characteristics typical of both large carbonate-base metal (deep epithermal) mineralised systems and volcanic hosted massive sulphide (VHMS) systems.

At Lloyds mine copper mineralisation was mined in two quartz – sulphide veins, although most production was from the main vein. The predominant sulphide mineral in the veins was chalcopyrite with sphalerite on the vein walls and pyrrhotite disseminated in the wall rocks. Galena and tetrahedrite were also reported, but not at economically important levels. Disseminated base metal mineralisation was reported as forming a halo to the veins. The main vein varied in width from 0.3m to 12 m, striking roughly east - west and dipping moderately north. The main vein has a typical strike extent of 180m, terminating in faults at both ends. The intersection of the terminating faults with the vein results in the ore plunging to the northeast.

Various workers have proposed an exhalative or volcanic hosted massive sulphide (VHMS) model for the Burraga base – precious metal mineralisation. This interpretation is based on the largely stratiform nature of the mineralisation and sulphur isotopic evidence.

Work on the mineralisation and alteration in and near Lloyds Mine (Corbett, 2008) concluded that the Burraga deposits represent structurally controlled, deep, low sulphidation epithermal Cu - Au grading to a carbonate - base metals mineralised system which in turn may be part of a larger porphyry system. The evidence for a porphyry system includes the presence of deep, low sulphidation epithermal mineralisation, monzonite dykes, skarnoid rocks and biotite (potassic) alteration.

Recent studies of the structural geology at Lloyds mine (Jackson *et al*., 2010; King, 2013) shows that the Hanrahan Agglomerate and upper part of the Excelsior Porphyry form a NNE striking, moderately east dipping shear zone and that anomalous copper soil geochemistry and alteration are coincident with this shear zone. The bounding structures of this shear zone form the limiting faults to the Lloyds mine veins. These faults were historically named the 'city' faults, with the Melbourne fault forming the western limit of mineralisation. The shear zone exhibits evidence for early sinistral reverse movement

associated with foliation development and later dextral strike slip movement associated with quartz veining and copper mineralisation. The shear zone on the eastern side of the Lloyds corridor is less well developed.

The mineralised copper veins strike east-west and dip shallowly to the north. The city faults appear to be post-mineralisation and offset the quartz sulphide veins. The intersection of the city faults and the quartz sulphide veins plunges about 20° towards 050°.

3.2.1. Tailings

The Lloyds mine tailings were dumped down slope from the historic flotation plant, presumably in a similar fashion to a pro-grading river delta. The tailings were prevented from flowing downslope by a series of buttresses formed from sludge fines (see Figure 3-2 & Figure 3-3). These tailings are generally sand sized particles.

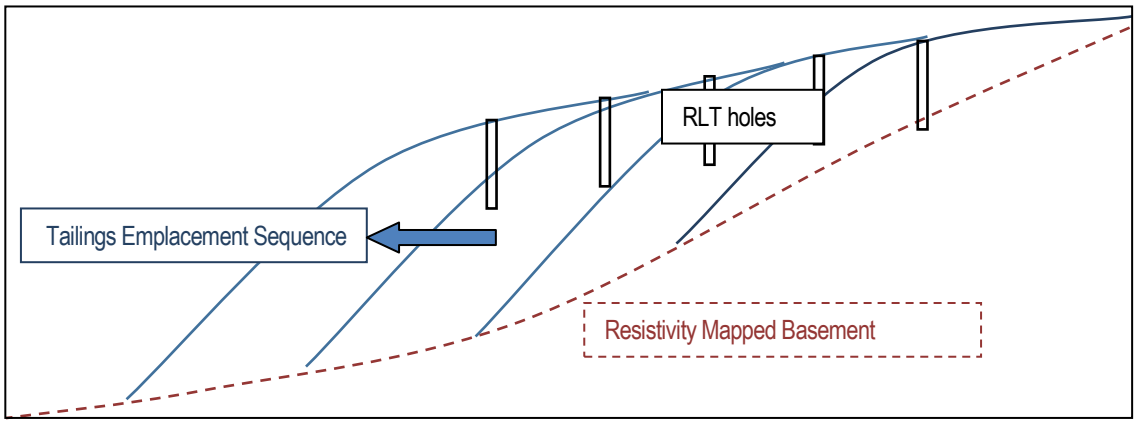


Figure 3-2 Schematic section through tailings, showing emplacement method.

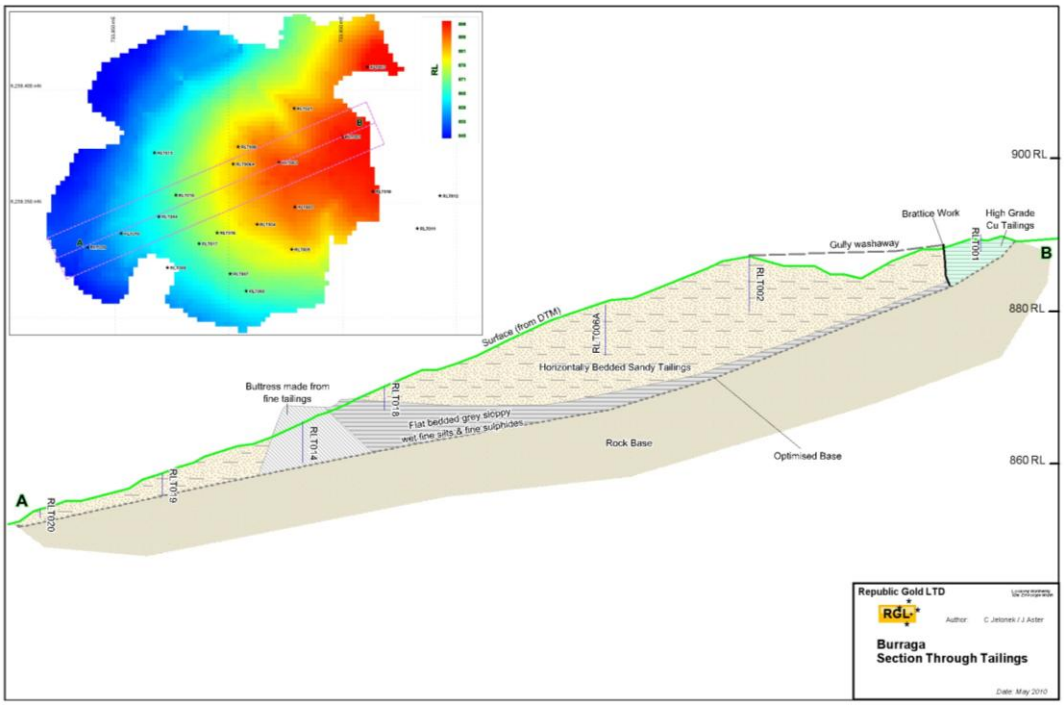


Figure 3-3 Cross Section through the tailings dam.

3.2.2. Slag Heaps

The slag heaps comprise dumps of very coarse crucible waste (porous glass similar to vesicular obsidian). Most of the particles are about 0.7m across, however some breakage occurred during dumping resulting in the formation of smaller particles which have infilled some of the pore space between the larger crucible particles.

The slag dumping method is not known, but appears to be similar to paddock dumping on a modern waste dump.

During the intervening years since the operation of the smelter an unknown amount of slag has been removed for various uses such as road base.

Pyke (ref) estimated that 185,000t of slag was produced. However since the mine closed it is clear that a significant amount of slag has been removed from the dumps for various purposes. This is especially so for the south dump where several metres of material has been removed.

3.3. Previous Mining and Exploration

Copper was discovered at the Lloyds Mine prior to 1877. Underground mining of a narrow, high grade vein commenced in 1878 and ceased in 1919. Mining occurred on 14 levels accessed by an incline shaft. Further minor production from remnant ore in the upper levels occurred from 1919 to the late 1960s. Recorded production totals 469,626t processed from which 19,443t of copper was produced, implying a recovered grade of 4.14% copper.

Mineral exploration has been carried out at Burraga by a large number of companies since the Second World War, with major programmes conducted by the Getty Oil Development Company Limited, and Dominion Mining Ltd., in its various guises.

In 1949, Broken Hill South Ltd. undertook geological mapping and SP surveying at the Lloyds Mine, and in 1958 New Consolidated Goldfields Australia carried out geological mapping of the mine.

In 1962, CRA Ltd. carried out geological mapping, IP surveying and geochemical sampling on 3.5kms of strike extension of the Lloyds Mine, and drilled one diamond hole at the mine and two about 1km to the south.

General Resources Ltd. drilled four surface percussion and fifteen underground holes at the mine between 1964 and 1965, with a best intercept of 34.6 metres at 1.49% Cu (Au and Ag not assayed).

In 1969-1970, Dominion Mining drilled fourteen holes at the mine, which were used to calculate a (non JORC compliant) 'reserve'.

During the period 1969-1972, Mines Search Pty. Ltd. (a subsidiary of Pacific Copper Ltd.) carried out regional and local exploration north of Burraga township. Subsequently (1973-1976), another subsidiary of Pacific Copper, Platina Developments N.L. did stream sediment sampling, geological mapping, magnetic and IP surveying, soil geochemical sampling, and drilled four diamond holes east of the township.

During the period 1980-1984, Getty Oil and its joint venture partners carried out comprehensive programmes for VHMS-style mineralisation, including a compilation, review and evaluation of prior exploration and mining data; grid installation, geological mapping, rock chip sampling and petrological studies, colour aerial photography, ground magnetic surveying, and flying of a DIGHEM electromagnetic/magnetic survey. All DIGHEM anomalies were followed up on the ground, including further mapping, soil and rock sampling, EM surveying, and three percussion and ten diamond holes were drilled 800 – 2000 metres south of Lloyds Mine to test combined EM / magnetic / geochemical / geological targets.

Getty's diamond holes (DB1-9A) intersected widespread pyrrhotite - pyrite - (chalcopyrite - galena - sphalerite) mineralisation, with copper, lead and zinc values strongly anomalous over broad intervals, reaching the low percents (lead and zinc dominated).

Getty showed that mineralisation occurred in a number of stratigraphic positions, and concluded that the mineralisation was transgressive and epigenetic in character, with a high temperature magmatic vein f genesis, with some indications of skarn development.

Partly as a result of Getty's work on their retained mining leases, in 1984 Dominion Mining and Oil N.L. pursued stratabound base metal mineralisation around and to the north of the Lloyds Mine. They drilled fourteen vertical open percussion holes (P16-P29) to depths ranging from 120 to 300 metres.

Significant mineralisation was evident in a number of the holes with all holes intersecting anomalous base and precious metal grades. In particular, two holes drilled in the North Shaft area returned significant copper intersections, including 5m @ 1.87% Cu from 59m (P27) and 6m @ 1.48% Cu from 150m (P22). These were followed up with EYM-024 which returned 3m @ 1.87% Cu from 31m and 5m @ 1.38% Cu from 47m. Together, these three holes define a resource development target of similar grade and size to Lloyds located along the Melbourne Fault some 500m north of Lloyds.

During 1991 and 1992, Dominion Mining Ltd. and Southern Ventures Ltd., undertook a major assessment programme within the Lloyds Syncline area. The target emphasis of this programme was on stratiform / stratabound VMS base metal deposits, but gold mineralisation was also a major consideration. Mapping and detailed soil sampling was completed over much of the syncline area.

Dominion carried out some ground magnetic surveying, then drilled eight RC percussion holes at the Heylens Prospect, of which three tested base metal potential in the basal Lloyds Syncline stratigraphy, and five tested gold mineralisation in a cross-cutting shear zone. Low grade base metal and gold intersections were obtained in each case.

During 1994, Telminex N.L undertook a brief review of drilling conducted in the Lloyds Mine and North Shaft areas, and mapped the area immediately south of Dominion's EL. Telminex subsequently entered in to a joint venture arrangement with Michelago Resources, who checked data, and carried out very limited sampling of selected core from Getty drillholes, supplemented by petrological work.

In 1998, Geoinstruments Pty. Ltd. (now part of the Fugro group) flew a free airborne EM / magnetics survey over much of the Lloyds Syncline area with the permission of Telminex and Michelago, to demonstrate their then recently-developed Hummingbird system. This survey provided high quality data, and being DGPS-controlled, it was the first accurately/reliably located dataset of the syncline area (navigational problems are evident with some of the earlier DIGHEM data).

In October, 2002, Marlborough Resources and Michelago Ltd. (EL 5777) reviewed previous work and re-logged selected core, focussing on understanding the stratigraphy of the Lloyds.

EL 6463 was granted to Republic Gold Limited (RGL) on September 5, 2005. In 2007 RGL drilled three reverse circulation holes into the upper part of the Lloyds Mine workings four holes between Lloyds Mine and the North shaft, one hole in the South Burraga area and one hole into the eastern 'limb' of the 'Lloyds syncline'.

The three holes drilled at the Lloyds Mine are effectively a single hole as only the third hole (RCR002) was able to penetrate the old workings.

Of the holes drilled on the regional targets, all intersected broad zones of anomalous Cu – Au – Ag – Zn +/- Pb, but with only narrow intervals of sub-economic mineralisation. The best result was 5.8m at 0.51% Cu in RCR006 drilled on the eastern side of the Lloyds corridor. Several of the holes showed a distinct base metal zonation, typical of VHMS style deposits.

RGL also drilled 22 auger holes into the Lloyds Mine tailings. The holes were drilled to the limit of the equipment, averaging 4.0m deep with a maximum depth of 7.5m. The holes were sampled at one metre intervals and assayed for a 60 element suite. All 73 samples contained significant Cu (0.46% to 5.59%, average 1.30%), Au and Ag (see Resources section below).

RGL also conducted geological mapping, structural interpretation, rock chip sampling, infill soil geochemistry over the Burraga South and Mossgrove North prospects, re-logging of previously drilled holes, petrography, re-processing and interpretation of the 1998 aerial geophysics survey and compiled all drilling data into a database.

In June 2011 EYM drilled five vertical RC holes in the Lloyds Mine area. All five holes intersected significant Cu – Au – Ag – Zn +/- Pb mineralisation marginal to the historically mined vein.

In February 2012 EYM conducted a second drilling campaign. Ten RC drill-holes were drilled at the surface of the old Lloyd's Mine (ZRC-006 to ZRC-009 and ZRC011 to ZRC-028) to establish a resource potentially amenable to open pit mining. The results were in line with previous drilling in the Lloyd's shoot with narrow high grade intersections enveloped in a broader low grade halo.

ZDD-018 was drilled some 700m from the surface of Lloyd's to intersect the shoot down plunge. This hole intersected the Lloyds structure approximately 180m down plunge of the deepest historical workings. At the target depth anomalous copper, gold and associated elements were intersected over a 39 m interval grading 0.12% Cu, 0.14% Zn and 1.7 g/t Ag from 335.0 m downhole depth. This intercept included two one metre wide zones: 1.0 m at 1.04% Cu and 6.4 g/t Ag from 340.0 m and 1.0 m at 1.03% Cu, 8.6 g/t Ag, 0.35 g/t Au and 0.20% Zn from 365.0 m. The latter is interpreted to be the historically mined vein.

Six RC drill-holes (ZRC-022 to ZRC-028) were completed at the northern Lloyd's look-a-like shoot with the best results being ZRC-023, 8m @ 1.1% Cu (including 3m @ 2.9% Cu) from 45m and ZRC-026, 3m @ 1.8% Cu from 29m. The orientation of this shoot is still in question but it remains an exploration target for future drilling.

Two RC drill-holes (ZRC-020 and ZRC-021) were completed at the NE surface geochemistry target. These holes deviated considerably and only managed to pick up broad low grade mineralisation near surface, the best being ZRC-021: 13m @ 0.2% Cu from 4m. Whilst this is not considered economic, it does show that a mineralising system is present and that this is a viable drilling target.

RC drilling in the area deviated considerably due to highly altered lithologies.

4 Data

4.1. Data Provided

4.1.1. Databases

EYM provided two drilling databases, 'Compiled EYM Burraga Drillhole Data.mdb' and 'EYM Drillhole Database Master.mdb'. These databases contain all the drill collar, assay and downhole survey information for the Burraga area.

These databases did not contain all logging, density or assay QAQC data.

The raw data imported into the databases were also provided as excel spreadsheets and as laboratory csv files and pdf assay certificates. As part of the data compilation process, checks were performed for duplicate and overlapping intervals.

GML compiled all the provided data into master collar, downhole survey, assay, logging and density files. These files were then imported into a Minesight MSTorque SQL database. All below detection limit results were converted to 50% of the detection limit before import.

4.1.2. Topography

A topography wireframe was provided by EYM. This wireframe was created from a digital terrain model (DTM) acquired as part of a regional airborne geophysics survey carried out for EYM.

In areas where more detailed topography was necessary (tailings, slag heaps and potential plant site) surface differential GPS traverses were completed on roughly 10 m by 10 m grid with infill traverses of ridges and gullies as necessary. These survey points were triangulated to form a wireframe which was 'stitched' into the DTM wireframe to provide a final topography wireframe.

4.1.3. Underground workings

Level plans of historical underground workings were digitised from microfiche scans of the original paper plans from the DPI library. The plans were originally surveyed to local datums which have since been lost. Therefore the plans were located using points which could be located by DGPS; these included the portal of the incline shaft, the Excelsior shaft and the foundations of the processing plant. The elevation of the underground mining levels was taken from the recorded level depth and the elevation of the incline shaft portal.

The stoped areas were digitised from a geological plan similarly located. A wireframe of the mined vein was created from the digitised stopes.

4.1.4. Base of Tailings

The tailings auger holes did not generally penetrate to the top of in situ material. As there is no pre-deposition surface survey a surface was created from inverted IP data. This probably reflects a change in clay and moisture content of the basal tailings compared to the underlying in situ rock.

4.2. Drilling Programmes

4.2.1. Data Omitted

The following data was not used for any purpose in this resource estimate for the reasons described in Table 4-1.

Note that hole BC-6 was inadvertently omitted due to the initially 'missing' sample intervals being found, but the omit list was not updated. BC-6 should be used in future resource estimate updates.

HoleID	comment
UP series	collar location un-certain, sampling & assaying unknown
D6	un-sampled intervals that are probably mineralised within the Cu 0.2% domain
D7	
D8	
D13	
D14	
BC-6 *	
EYMMT series	no assays
MET series	no assays
RLT series	tailings, therefore not part of the natural population
DB, BHRC, 62B, BG & PB series	not near Lloyds

Table 4-1 Omitted drilling data. ** Inadvertently omitted.*

The remainder of this section describes only those drillholes used as inputs into the resource estimates (i.e. excludes the omitted drilling data).

As would be expected with the long exploration history at Burraga, there have been several drilling campaigns. For the purposes of this report, the drilling data has been amalgamated into 3 groups, based on like drilling, sampling and assaying methods. These groups are termed pre-RGL, RGL and EYM.

4.2.2. Pre-RGL Drilling

The pre-RGL drilling is a combination of open hole percussion (OHP), diamond (DD) and reverse circulation (RC) drilling. There is limited information about the drilling, sampling and assaying methods from these drilling programmes.

The pre-RGL drilling comprises approximately 60% of the metres drilled, but only 15% (by length) of the samples used for interpolation in the Lloyds in situ resource.

Most of the percussion drilling was open hole, with sampling methods, sample quality (moisture etc) and recovery not stated. The percussion drilling was sampled continuously at 1.0 m intervals. The Dominion RC drilling was sampled using a Jones Riffle splitter.

The diamond drilling is all described as having been split, but it is not clear whether it was split by saw or with a hammer.

The drill logs some intervals are logged as having chalcopyrite mineralisation but not sampled. Presumably this was because the amount of mineralisation observed was considered not to be potentially economic at the time. Therefore all un-sampled intervals in the pre-RGL drilling cannot be considered barren of copper mineralisation.

The copper assay method is not stated except for the Dominion RC drilling (AAS, digestion method not stated). 311 of the Dominion pulps were located by EYM and re-assayed by 4 acid ICP-AES (ME-ICP61). For the remainder of the pre-RGL drilling the likely assay method would be AAS following aqua regia digest, as was common for the time. The only QAQC data found for this drilling are field duplicates (duplicate splits) of the Dominion RC drilling.

4.2.3. RGL Drilling

In 2007 RGL completed an RC drilling exploration programme aimed at discovering repeats of the Lloyds Mine mineralisation. The RC drilling was all completed using a face sample hammer and sampled (12.5%) with a Jones Riffle splitter at 1.0 m intervals. All copper assays were completed by ALS (Brisbane) by 4 acid ICP-AES (ME-ICP61). QAQC data comprises limited standards, field duplicates and pulp duplicates.

Downhole surveys were carried out at 30 m intervals downhole in the open hole upon completion of the hole. The RGL RC drilling is notable for having commonly deviated.

The RGL RC drilling comprises approximately 10% of the metres drilled, but only 5% (by length) of the samples used for interpolation in the Lloyds in situ resource.

RGL carried out auger drilling of the tailings on a nominal 10 m by 20 m grid (RLT series), although access to planned drilling sites was limited by the slope. The drilling was completed using a power auger (see Figure 4-1) with samples collected from a plywood platform at 1.0 m intervals. The maximum depth achieved was 7.5 m. Most holes did not penetrate the full thickness of the tailings. The sub-sampling method (if any) is not stated. All copper assays were completed by ALS (Brisbane) by 4 acid ICP-AES (ME-ICP61).

The RGL auger drilling is the only data source for the tailings resource estimate, however historical production records provide high quality validation of these data.

Figure 4-1 Power auger sampling of Lloyds Mine tailings.

4.2.4. EYM Drilling

EYM carried out three drilling programmes. The first comprises holes ZCRC001, ZCRC003 to ZCRC005 and ZCRC010 were drilled in 2011. ZCRC002, ZCRC006 to ZCRC009, ZCRC011 to ZCRC026 and ZCDD018 were drilled in 2012 and the latest holes BC1-6, EYMRC001-026, EYMDD001-002 and EYMMT001-003 (the latter three being metallurgical holes and so not assayed) were drilled in late 2014 through to early 2015.

Hole locations are set out by DGPS. The hole azimuth is set up using a hand held sighting compass. Instructions to the driller are communicated by a standard form.

The EYM RC drilling was completed using similar practices to those used by RGL. 12.5% sub-samples were taken using a Jones riffle splitter.

EYM DD drilling was HQ3 (triple tube), reduced to NQ3 as necessary. All samples were taken as half core cut using a diamond core saw.

All multi-element assays (33 element suite) were completed by ALS (Brisbane) by 4 acid ICP-AES (ME-ICP61).

Downhole surveys of both RC and DD holes were carried out at 30 m intervals downhole with an additional survey at 6m to confirm the rig setup. RC holes were surveyed in the open hole upon completion of the hole. The down surveys were taken using an electronic magnetic compass and inclinometer with the results hand written by the driller onto a paper form.

Whilst the EYM drilling comprises only 32% of the metres drilled, it accounts for 80% (by length) of the samples used for interpolation in the Lloyds in situ resource.

Drilling Group	Company	Drilling Method	Number of Holes	Total Length (m)	Length as a % of all data	Number of Cu assays	Number of Au assays	Number of S assays
pre-RGL	**CRA**	DD	3	236.8	1.6%	8	8	
	Dominion Mining	OHP	22	3925.6	26.8%	441	231	
		RC	8	882	6.0%	1583	594	344
	General Resources	DD AX	2	43.7	0.3%	85		
		OHP	2	147.9	1.0%	11		
	Getty Oil	DD	10	2281	15.6%	817	817	
		OHP	3	500	3.4%	250	250	
	Platina	DD	4	559.3	3.8%	38		
pre-RGL Total			**54**	**8576.3**	**58.5%**	**3233**	**1900**	**344**
RGL	**RGL**	Auger Hole	22	87.6	0.6%	73	73	73
		RC	10	1331.3	9.1%	846	846	675
RGL Total			**32**	**1418.9**	**9.7%**	**919**	**919**	**748**
EYM	**BURRAGA COPPER**	DD	1	447	3.1%	447	447	447
		RC	44	4205	41.4%	4151	4151	2368
EYM Total			**45**	**4652**	**45.8%**	**4598**	**4598**	**2815**
Grand Total			**131**	**14648.2**	**100.0%**	**8750**	**7417**	**3907**

Table 4-2 Summary of drilling methods for all drilling intersecting a copper domain and therefore used for grade estimation.

Cu Domain	group	Drilling Type	Total Length (m)	Length as a % of data by Cu domain	Number of Cu assays	Number of Au assays	Number of S assays
Lloyds In Situ (DOM = 1)	**pre-RGL**	OHP	427.5	13.6%	339	94	34
		DD AX	43.2	1.4%	11		
	RGL	RC	145.8	4.6%	148	148	147
	EYM	RC	2535	80.4%	2482	2482	1141
Lloyds In Situ Total			**3151.5**	**100.0%**	**2980**	**2724**	**1322**
Tailings	**RGL**	Auger Hole	79.6	100.0%	70	70	70
Tailings Total			**79.6**	**100.0%**	**70**	**70**	**70**
Not in a Cu domain	**pre-RGL**	DD	967	14.0%	863	825	
		RC	882	12.8%	441	231	
		OHP	1826.2	26.4%	1579	750	310
	RGL	Auger Hole	7	0.1%	3	3	3
		RC	1117.7	16.2%	698	698	528
	EYM	DD	447	6.5%	447	447	447
		RC	1670	24.1%	1669	1669	1227
Not in a Cu domain Total			**6916.9**	**100.0%**	**5700**	**4623**	**2515**
Grand Total			**10148**	**100.0%**	**8750**	**7417**	**3907**

Table 4-3 Summary of drilling methods by Cu domain for all samples

4.3. Drilling Recovery

RC drilling recovery has not been recorded.

DD drilling recovery has been recorded run by run for the RGL and EYM drilling.

The average DD drilling recovery for all EYM DD drilling is 97.4%.

The RGL DD drilling recovery averages 94.5%, however no RGL DD drilling intersects a copper domain.

4.4. Drilling configuration

Sites suitable for drill pads are limited due to the topography. Therefore the drilling has been oriented according to the available drill sites rather than using a consistent orientation. EYM have tried to maintain a consistent 25 m by 25 m drilling pattern at the intersection of the vein, however this is still compromised by the topography in some places especially where the vein is closer to surface.

4.5. Slag Sampling

The slag heaps were grab sampled on a nominal 10 m by 10 m grid.

The grab samples were taken as a composite of several clasts within a 2 metre radius of the sample point. Each grab sample weighed about 10kg in total.

4.6. Assay Methods

The ME-ICP41s multi-element assay method used by ALS (Brisbane) for the RGL drilling involved weighing on receipt, drying, crushing to 70% passing 2 mm in a jaw crusher, sub-sampling 250 g using a riffle splitter (with remainder stored as a coarse reject), milling to 85% passing 75 µm. A 0.25g sub-sample was taken with a spatula and digested in aqua regia and analysed by ICP-AES. A second 50 g sub-sample was analysed for Au with fire assay preparation followed by AAS analysis (Au-AA22).

The 4 acid ICP-AES (ME-ICP61) multi-element assay method used by ALS (Brisbane) for the EYM and Dominion re-assays used the same sample preparation methods. A 0.25g sub-sample was taken with a spatula, digested in perchloric, nitric, hydrofluoric and hydrochloric acids and analysed for a 33 element suite (including S) by ICP-AES. Any samples returning over 0.5 % Cu, Pb or Zn were re-analysed by 4 acid digest with AAS analysis for the relevant elements. A second 30 g sub-sample was analysed for Au with fire assay preparation followed by AAS analysis (Au-AA25). Note that all S assays are by ICP-AES.

ICP analytical methods are known to under-report total sulphur above about 5% sulphur due to instrumental interference from other elements. Infra-red spectroscopy from electric arc furnace (e.g. LECO brand) is the best method for total sulphur analysis. Therefore the sulphur assay method is not optimal but not likely to pose a significant economic risk as the sulphur grade is not a major economic input.

Cu Domain	Group	Cu Assay Method	Total Length (m)	Length as a % of data by Cu domain	Number of Cu assays	Number of Au assays	Number of S assays
Lloyds In Situ (DOM = 1)	**pre-RGL**	ME-ICP61	34	1.1%	34	34	34
		unknown	436.7	13.9%	316	60	
	RGL	ME-ICP61	145.8	4.6%	148	148	147
	EYM	Not assayed	52	1.7%			
		ME-ICP61	1103	35.0%	1102	1102	1102
		OG62	1380	43.8%	1380	1380	39
Lloyds In Situ Total			**3151.5**	**100.0%**	**2980**	**2724**	**1322**
Tailings	**RGL**	ME-ICP61	79.6	100.0%	70	70	70
Tailings Total			**79.6**	**100.0%**	**70**	**70**	**70**
Not in a Cu domain	**pre-RGL**	ME-ICP61	311	4.5%	310	310	310
		unknown	2482.2	35.9%	2132	1265	
		AAS	882	12.8%	441	231	
	RGL	ME-ICP61	1124.7	16.3%	701	701	531
	EYM	Not assayed	1	0.0%			
		ME-ICP61	1667	24.1%	1667	1667	1667
		OG62	449	6.5%	449	449	7
Not in a Cu domain Total			**6916.9**	**100.0%**	**5700**	**4623**	**2515**
Grand Total			**10148**	**100.0%**	**8750**	**7417**	**3907**

Table 4-4 Summary of assay methods by Cu domain for all samples

4.7. Surface Survey methods

All surface surveying carried out by RGL and EYM is by differential GPS (DGPS).

EYM had some doubt as to the precision of the surveying completed by RGL and so re-surveyed the collars of the RGL drilling using a new device. The new EYM DGPS survey data was always used where multiple data exists.

Collar locations are considered to be accurate to +/- 0.1 m.

4.8. Assay QAQC

The QAQC data received required significant work to put into a format suitable for analysis. The documentation of the QAQC samples is poor; the main standards have not been certified, many standard results were not labelled with a standard name, there is no procedure for assessing data quality prior to import into the database, performance gates have not been defined and some standards were described in the database as duplicates and vice versa. Fortunately the original sampling sheets and laboratory assay certificates were available and it was possible to re-construct the QAQC data from these.

The QAQC data were reviewed for copper and gold only. Copper being the element of primary economic importance for this project and gold being of secondary importance and, because of the low gold grades, suitable for assessing potential laboratory contamination.

The pre-RGL drilling has very limited QAQC data. Dominion collected duplicate riffle split samples on the drilling completed in 1984. In addition, EYM re-analysed 311 coarse reject samples from the 1984 Dominion drilling. No other QAQC data relating to the pre-RGL drilling has been located.

RGL appear to have used an undocumented system of standards and field duplicates.

The EYM quality control system requires the insertion of un-labelled, standards every 30 samples with the laboratory instructed to re-assay from pulp every 20 samples. Field duplicates of RC drilling are carried out on an 'as needs' basis targeting logged mineralisation. Blank samples are not inserted. No samples have been sent to an umpire laboratory.

4.8.1. Standards

Many standards have been used over the life of the project; however most standards have only been used once or twice (see Table 4-5 and Table 4-6) and so cannot be used for analysis. In addition, some of these standards are clearly gold standards and so of limited use for a copper project.

There are results for 148 standards submitted by EYM from 2011 to 2015; however these data are not labelled with a standard name. Site staff state that there are two standards used, both derived from pulps of tailings samples used in the 2011 metallurgical testwork. Plots of copper versus various elements were used (e.g. Figure 4-2) to separate the EYM data into two sets, labelled EYM UNK1 and EYM UNK2.

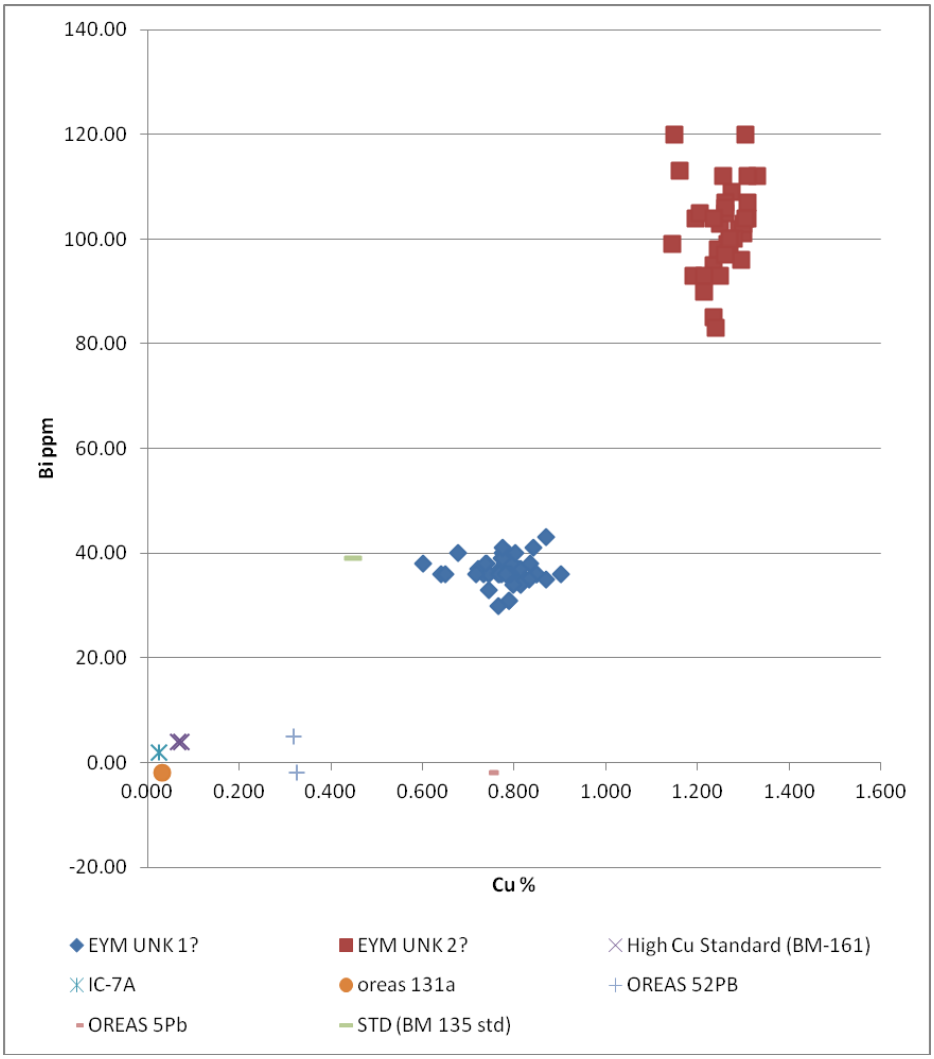


Figure 4-2 Scatter plot of Cu versus Bi, one of several graphs used to distinguish un-labelled standards.

The dates of the standard results were not recorded, however an analytical sequence was established using drillhole and sample numbering which are known to be sequential.

The results are presented in Table 4-5 and Table 4-6 and in Figure 4-3 and Figure 4-4. Only the results for EYM UNK1 and EYM UNK2 are plotted on the graphs.

Standard	Number of results	Average Cu (ppm)	Standard deviation
EYM UNK 1	46	7,787	579
EYM UNK 2	102	12,041	672
High Cu Standard (BM-161)	2	698	47
IC-7A	1	250	#DIV/0!
oreas 131a	1	329	#DIV/0!
OREAS 52PB	2	3,235	49
OREAS 5Pb	1	7,460	#DIV/0!
STD (BM 135 std)	1	4,490	#DIV/0!

Table 4-5 Summary Cu standards results.

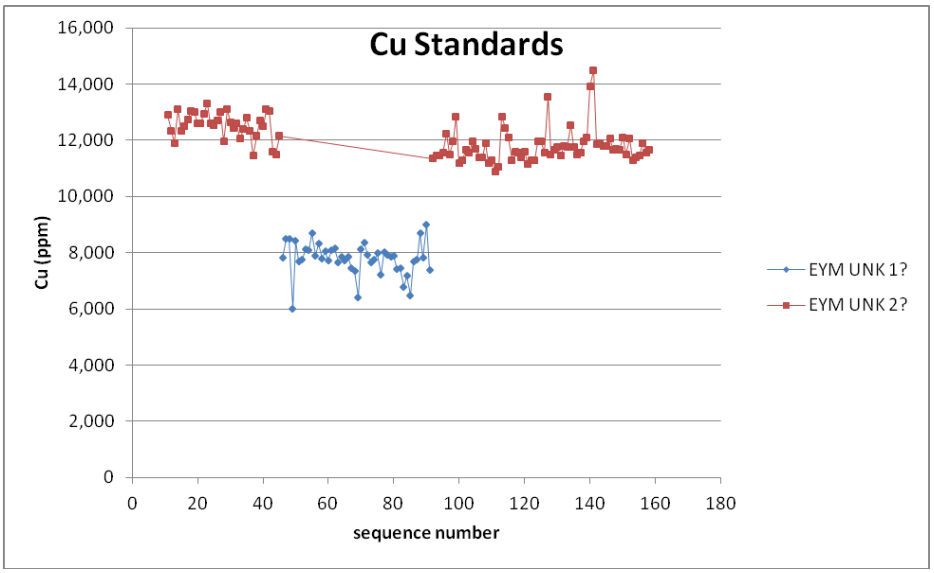


Figure 4-3 Sequential plot of Cu standards EYM UNK1 and EYM UNK2

Standard	Number of results	Average Au (g/t)	Standard deviation
EYM UNK 1?	46	0.14	0.07
EYM UNK 2?	102	0.33	0.15*
High Cu Standard (BM-161)			
IC-7A	1	3.34	#DIV/0!
oreas 131a	1	0.04	#DIV/0!
OREAS 52PB	2	0.30	0.02
OREAS 5Pb	1	0.91	#DIV/0!
STD (BM 135 std)			

Table 4-6 Summary Au standards results. **Note: standard deviation of EYM UNK2 without probable mislabelled sample is 0.11.*

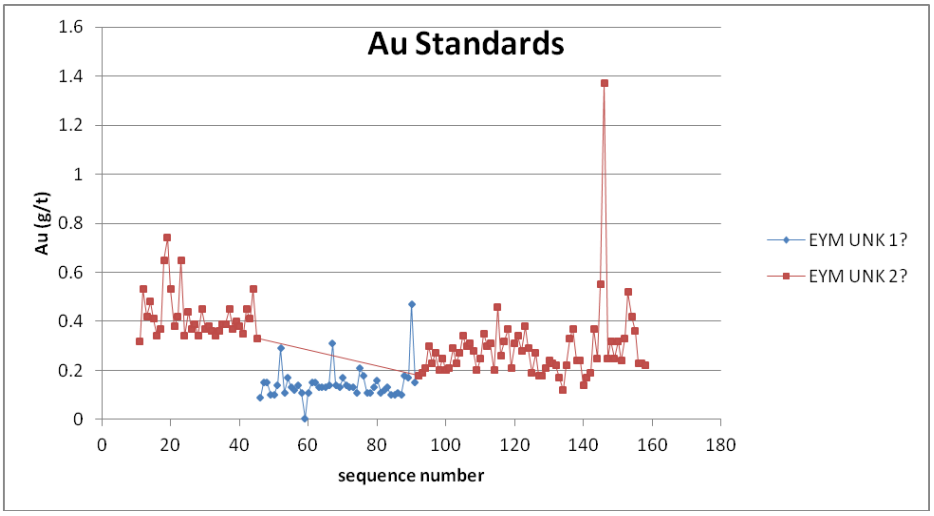


Figure 4-4 Sequential plot of Au standard standards EYM UNK1 and EYM UNK2

As the certified values are unknown only limited conclusions can be drawn.

The copper values are reasonably consistent with relative standard deviations of 7% and 5%, There are a few samples which vary more than would be expected, but without certified values it is difficult to say whether these variations are significant.

The gold results for EYM UNK1 are also reasonably consistent with a few 'flyers'. The relative standard deviations are much higher than the copper values, but these are low grade gold standards, so greater errors would be expected. The EYM UNK2 values appear to show some variation with time, with the newer data (greater than sequence number 91) returning significantly lower grades than the ealier data. One sample (EYM-1650) has a gold value which is so far out of range that it is likely a sample numbering error in the laboratory.

4.8.2. Coarse rejects

31 pairs of Dominion coarse reject samples were assayed twice by EYM. The results are presented in Figure 4-5. These results show acceptable reproducibility (coefficient of regression, R^2 = 0.88) and acceptable bias (-7%).

The gold results are not presented as the 31 pairs are uniformly low and so of no use in assessing data quality.

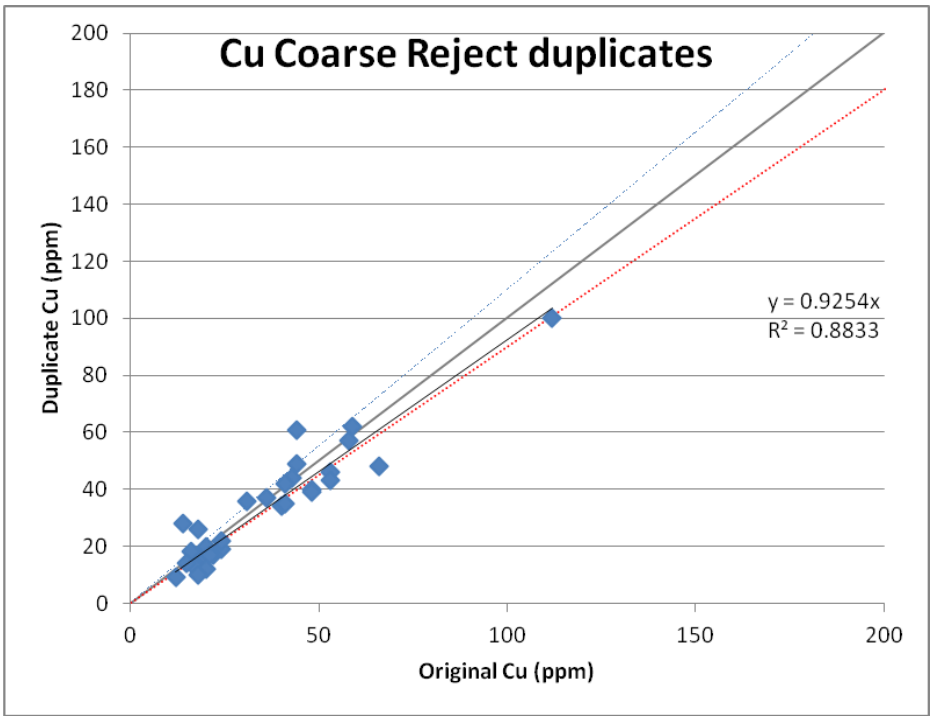


Figure 4-5. Scatter plot of original and duplicate Cu assays for coarse rejects.

4.8.3. Field Duplicates

Field duplicates are a second sub-sample taken from the riffle splitter at the same time as the original sample and submitted for assay at the same time as the original sample. Variation in field duplicate results is a combination of the natural inherent grade variability at the sample scale plus sampling errors.

The EYM field duplicates (39 pairs; Figure 4-6) show good reproducibility (coefficient of regression, R^2 = 0.94) and acceptable bias (+9%). Similarly, the RGL data (22 pairs) also show good reproducibility (R^2 = 0.99) and acceptable bias (-9%).

The Dominion field duplicates (33 pairs; see Figure 4-6) show poor reproducibility (coefficient of regression = 0.32) but acceptable bias (+7%). This is probably due to the drilling method (OHP) which is prone to downhole contamination. The Dominion data forms a small proportion of the total dataset used for grade interpolation. Any such sampling variability inherent in the Dominion data contributes to the nugget effect in the variogram model and so is accounted for during ordinary kriging grade estimation.

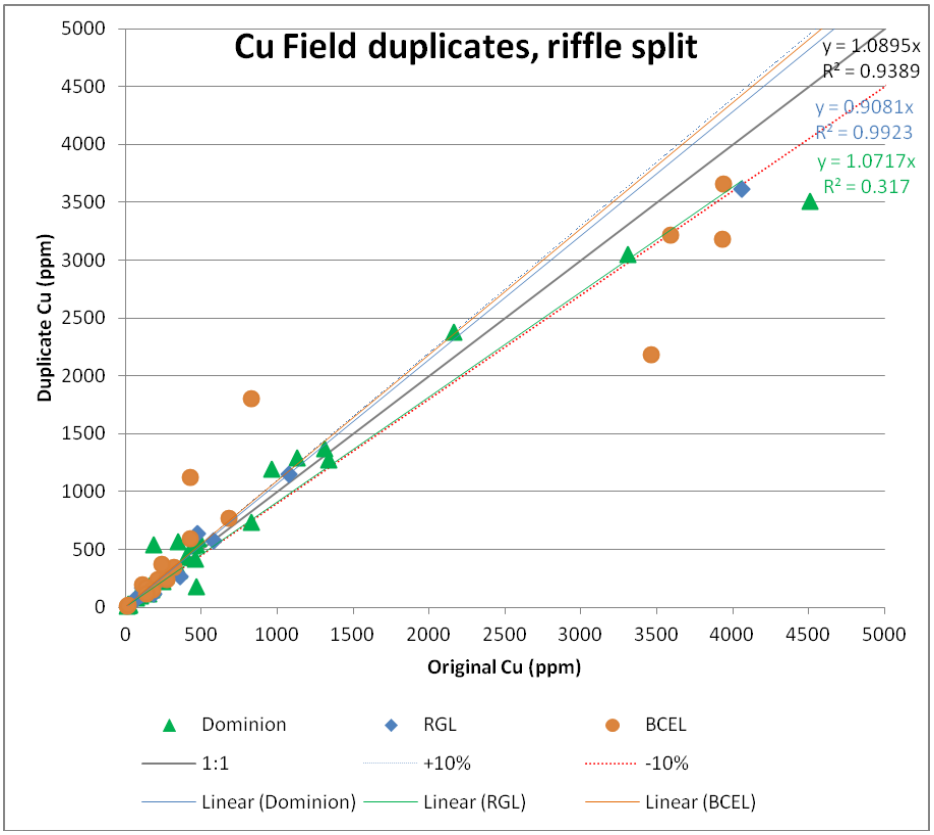
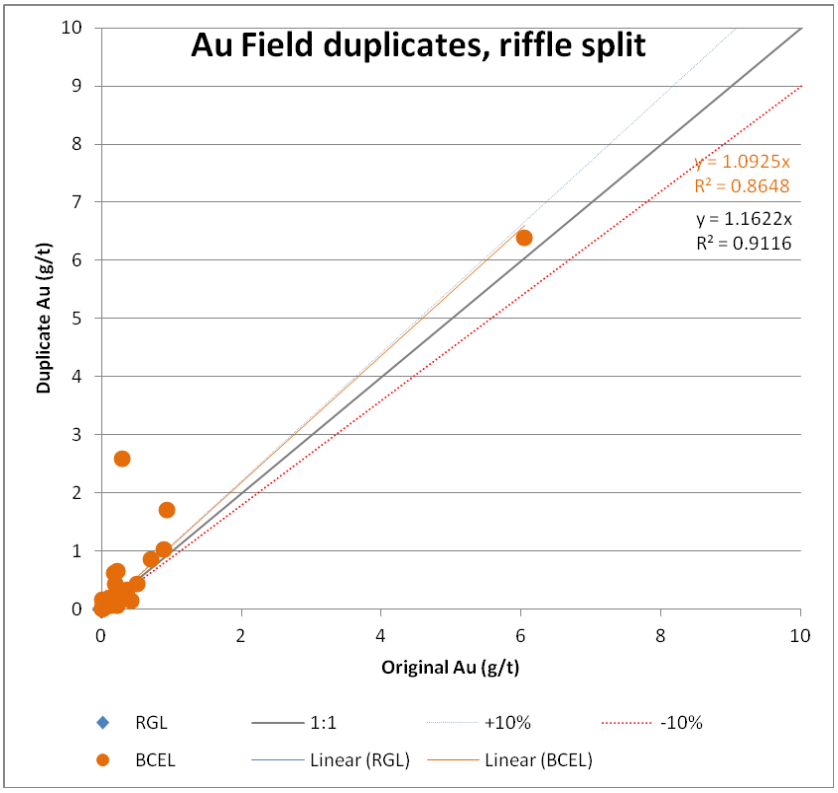


Figure 4-6. Scatter plot of original versus duplicate results for Cu field duplicates by company.

There are only field duplicate gold data available for the EYM and RGL data. Both datasets show some variability (R^2 = 0.86 and 0.67 respectively) and weak positive biases (+9% for both datasets). Part of the variability can be explained by the greater natural variability of gold grades due to the low grades. The RGL data is all less than 0.05 g/t which is approaching the lower detection limit and so much (almost all?) of the variability may be due to random analytical errors.

A.



B.

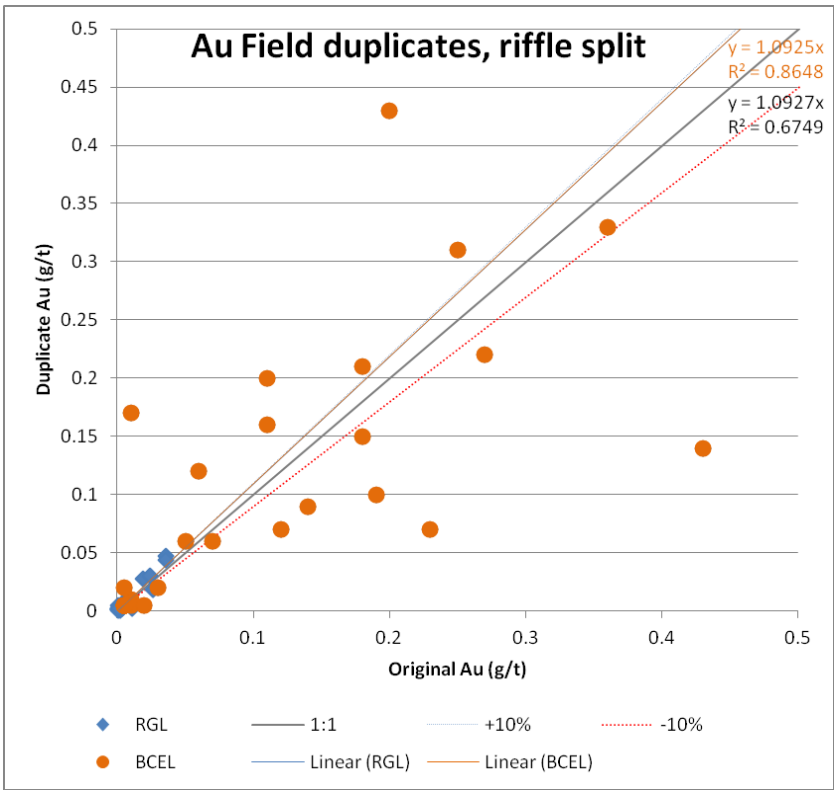


Figure 4-7. A. Scatter plot of original versus duplicate results for Au field duplicates by company. B. Close up on low grade samples.

4.8.4. EYM re-assays of Dominion coarse rejects

EYM conducted re-analysis of Dominion 1984 OHP drilling coarse rejects In order to assess the quality of the Dominion drilling data.

The copper results of the 35 pairs (Figure 4-8) show poor reproducibility and a bias high in the original Dominion data. However, this is strongly influenced by three samples from one hole (P17). As all the other elements also show substantial differences, it may be that the stored coarse reject samples have been incorrectly labelled. When the three P17 pairs are removed (Figure 4-9), the data shows much better reproducibility (R^2 = 0.87) and bias (4%).

The gold grades of the 35 pairs are uniformly low and so of no use in assessing data quality.

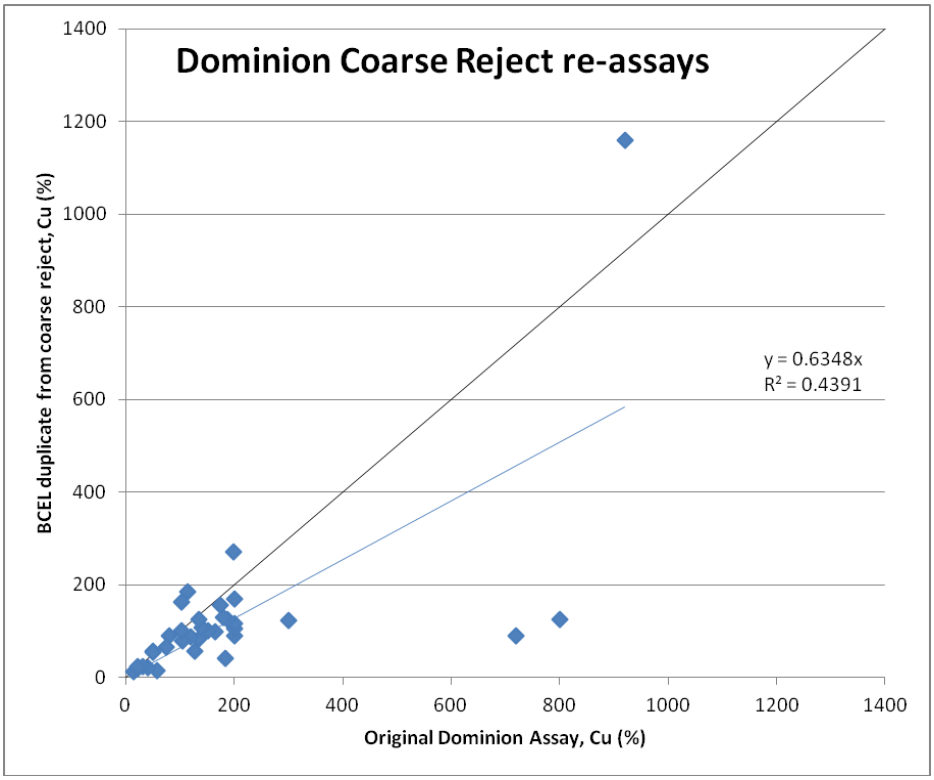


Figure 4-8. Scatter plot of Original Dominion Cu assay versus EYM coarse reject duplicate.

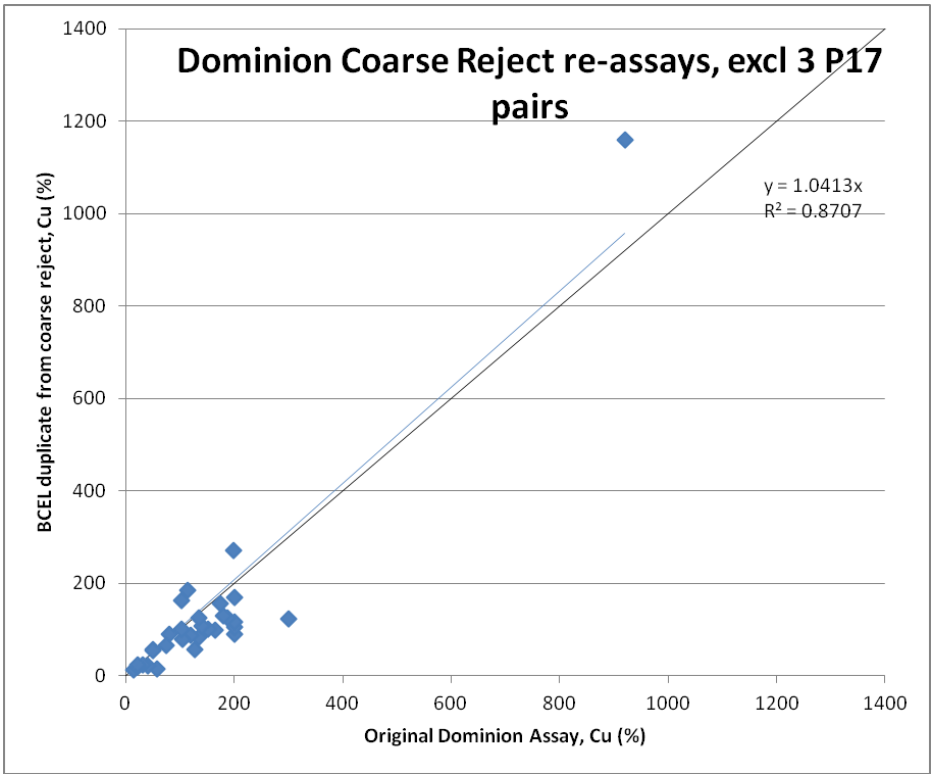


Figure 4-9 Scatter plot of Original Dominion Cu assay versus EYM coarse reject duplicate with 3 samples removed.

4.8.5. Conclusions

The available QAQC data shows no evidence of unacceptable assay data quality, however the quantity of available QAQC data is limited and so it is not possible to say that the data definitely is of acceptable quality.

There is very limited QAQC data for the historical drilling datasets, however these form a small portion of the data used for resource estimation and so this issue is not considered material.

4.8.6. Recommendations

Determine laboratory cleanliness with the systematic use of blank samples inserted at a rate of 1 in 10 samples within logged mineralised zones only.

Determine laboratory precision by instructing the laboratory to conduct duplicate analyses from pulps at a rate of 1 per 20 samples.

Assess laboratory bias by the use of umpire laboratory analyses. All samples greater than 0.1% Cu from 1 in 10 batches should be sent to an independent umpire laboratory.

A QC system is only of use when the QAQC data are assessed prior to be accepted as suitable for import into a drilling database. It is recommended that EYM documents and implements a QA system that has clearly defined thresholds for acceptable data and clear instructions on how to follow up results not meeting the thresholds. This should include a formally defined reporting procedure (monthly when drilling).

4.9. Data Validation and Import into MSTorque Database

Prior to use in Minesight software, all the data was compiled from the provided databases and spreadsheets into collar, downhole survey, assay and logging spreadsheets. Checks were performed for minimum values, maximum values, out of

range values (e.g. azimuth > 360°) and overlaps. Any such flagged data were checked against the original data (log sheets, downhole surveys, assay certificates) and fixed as appropriate.

Where more than one assay result was available for a sample the assays were ranked and the highest ranked result imported. The ranking priority for Cu was OG63 > ME-ICP61 > UNK (unknown).

Any values provided as -9999 or -99 (missing data) were converted to -1 on import into the MSTorque database. Below detection limit data were imported as half the detection limit.

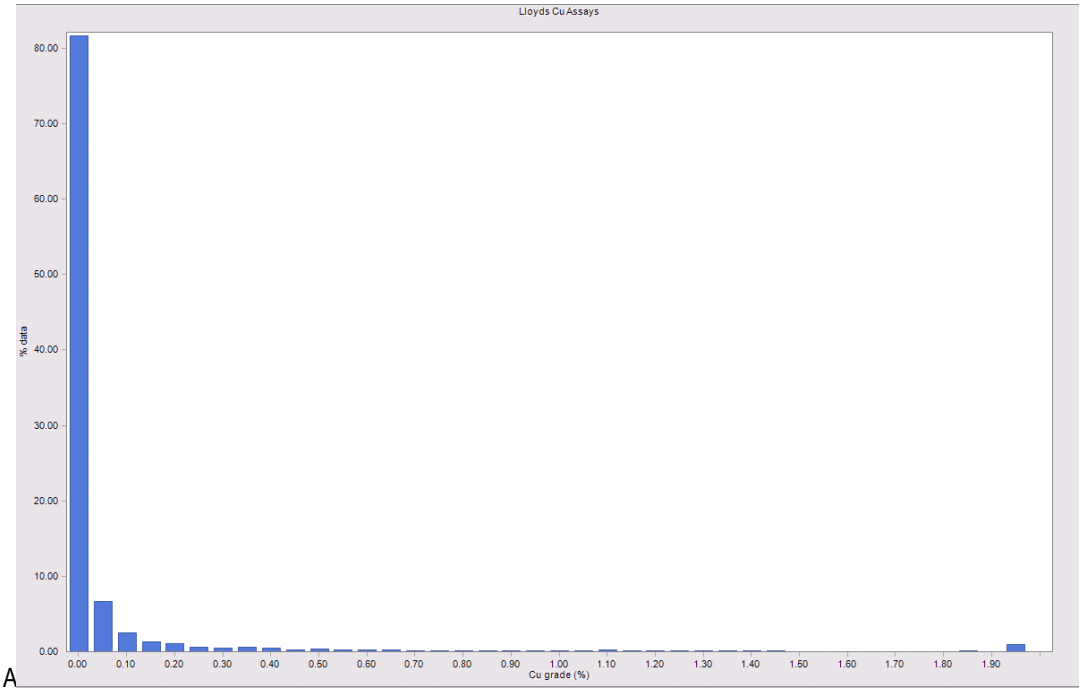
Prior to import all lengths in feet were converted to metres by multiplying by 0.305 and then rounding to 0.1m.

This data was then imported into an *'MSTorque'* SQL database. MSTorque performs additional checks for out of range data, overlapping and missing intervals on import.

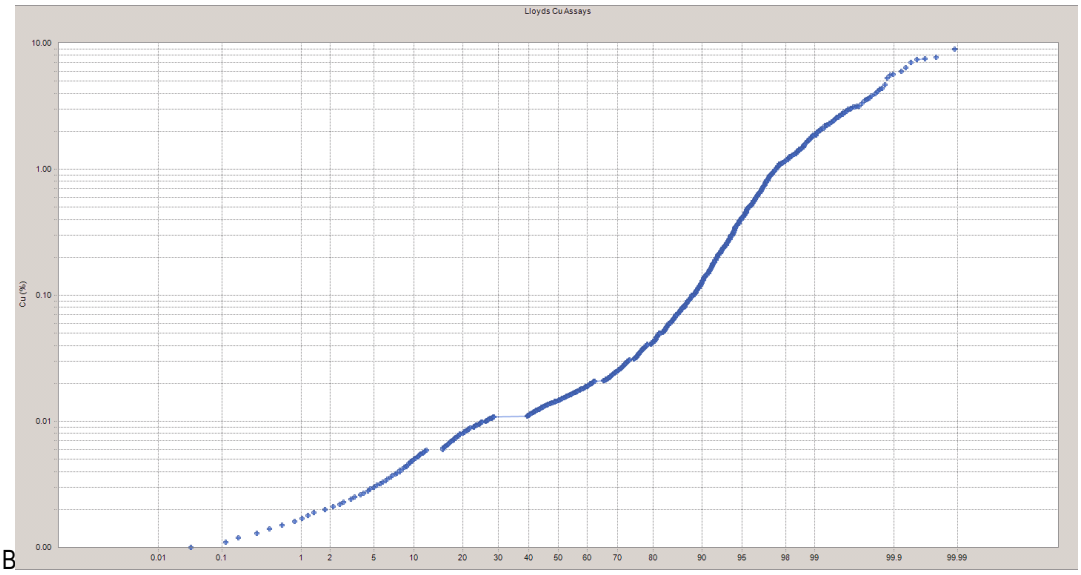
5 Domaining

5.1. Lloyds Copper Mineralisation (DOM = 1)

The geological controls on in situ copper mineralisation in the Lloyds Mine area not well understood. It is known that mineralisation occurs in, and as a halo to, quartz – sulphide veins. These veins have been offset and compartmentalised by post-mineralisation faults. The quartz – sulphide veins are broadly stratiform, but the stratigraphic setting of these veins is not well understood.



A



B

Figure 5-1. A. Cu histogram and B. Cu Cumulative Probability (not length weighted, all data excluding the RLT, UP, DB, BHRC, 62B, BG, PB, EYMMT, MET series and D12).

Histograms and cumulative probability plots (CPPs) of all the raw assay data showed no natural lower cutoff of copper grade distribution, however it should be noted that these plots included a large amount of data from outside the Lloyds mine area. The CPP does show a gradual slope change between 0.02% Cu and 0.05% Cu and a second slope change at about 1.0% Cu. These slope changes are suggestive of mixed Cu grade populations.

Visual assessment of grade continuity indicated that copper grade was spatially continuous above about 0.2% Cu. Therefore a copper grade domain was interpreted at nominal 0.2% Cu. Logged voids were assumed to represent pre-mining mineralisation and so were included within the domain.

The domain was interpreted as polygon strings on 25m spaced sections on 070°. The strings were snapped to assay intervals so that later coding of the assay data would honour the interpreted domain boundary.

The strings were later linked to form the domain wireframe. Not all strings were linked as an assessment in 3D showed that the continuity observed in section did not extend between sections.

The domain includes a minimum downhole width of 2.0 metres, with maximum internal dilution of 4.0 metres.

The copper grade domain was limited in the west by the Melbourne Fault, elsewhere the copper domain was projected a maximum of about 60 metres down dip and 25 metres along strike.

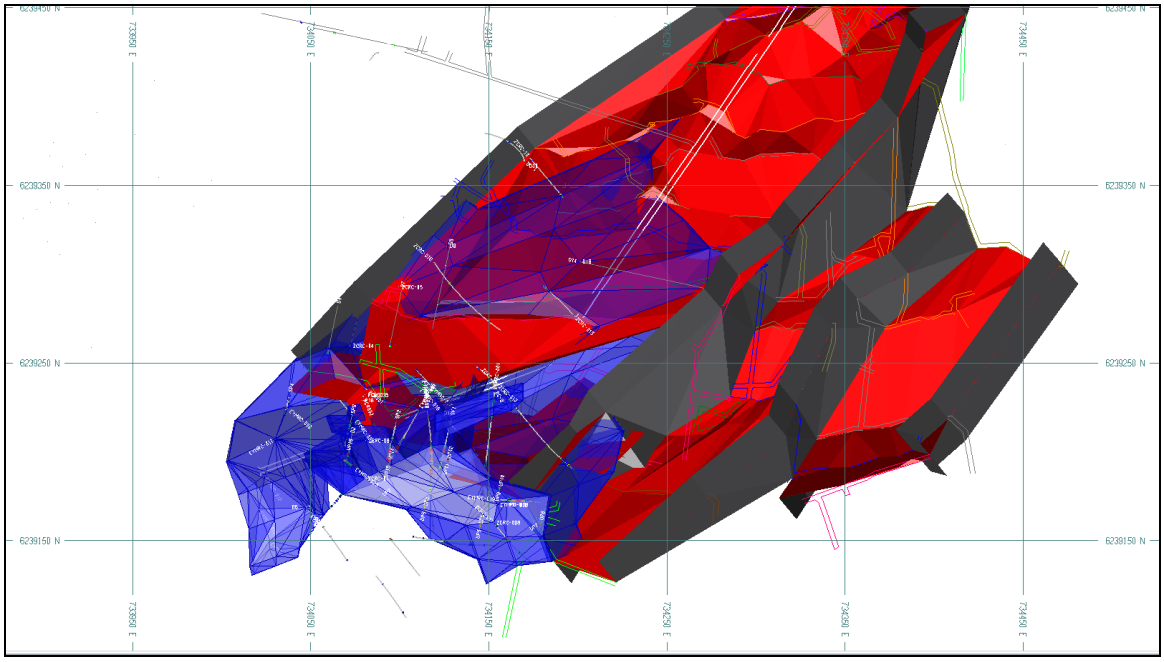


Figure 5-2. Plan view of Copper grade domain (blue) showing limiting faults (grey) and historically mined vein (red).

5.2. Tailings (DOM = 2)

The tailings domain wireframe was created between the upper and lower surfaces.

The upper tailings surface was triangulated from surface DGPS traverses on a 10 m by 10 m grid with infill traverses of ridges and gullies as necessary. This upper surface excluded sludge areas.

The auger drilling of the tailings rarely penetrated to the in situ 'basement', therefore an alternative method was required to define the base of the tailings. An IP survey carried out on a 30 m by 30m grid clearly delineated the base of the tailings. Presumably the IP survey was picking up the higher moisture content at the base of the tailings. The IP data was inverted to locate the base of the tailings in true space and this was used as the lower tailings surface.

5.3. Slag (DOM = 3)

The slag domain wireframes were created between upper and lower surfaces.

The upper slag surfaces were triangulated from surface DGPS traverses on a 10 m by 10 m grid with infill traverses of ridges and gullies as necessary. The lower surface of the slag wireframes were created from the topography DTM surface adjusted in the slag heap areas to match logged base of slag in three holes drilled through the slag heaps.

5.4. Oxidation Domains

Two oxidation domains were created, the near surface transition domain and the fresh domain.

The transition domain comprises partially weathered rocks and includes mixed copper sulphides (mainly chalcopyrite) and secondary copper minerals (mainly malachite but also rare azurite and native copper). There is no completely oxidised zone as sulphide minerals occur at surface, albeit in conjunction with oxide and carbonate minerals.

The fresh domain is un-weathered rocks in which the main copper mineral is chalcopyrite.

The base of transition surface was created from logged oxidation at the highest occurrence where logged oxidation is fresh. Note that oxidation logging was only available for the ZCRC, ZCDD and EYM series of holes. Where no logging data is available the base of transition surface was interpreted at about 15m below topography which is the typical depth of fresh material observed in the logging.

The transition domain was created as a wireframe solid between the topography and base of transition surfaces.

A fresh domain wireframe was not created, instead all material below topography and not in the transition wireframe was coded as fresh.

5.5. Assay coding

The raw assays in the MSTorque database were coded for DOM (copper domain) and DOX (oxidation domain) from the domain wireframes,

The item DOM was coded as 1 in the in situ Lloyds 0.2% Cu wireframe, as 2 in the tailings wireframe and as 3 in the slag wireframes.

The coding of the assays was validated using the filtering function in the Minesight drillview to show all samples meeting the domain criteria (i.e. > 0.20% Cu) and not coded as in the 0.2% Cu wireframe. The visible samples were investigated to ensure that they had been deliberately excluded from the wireframe (usually because they did not show sufficient geological continuity for inclusion in a resource). Similarly all samples not meeting the domain criteria and coded as inside the domain wireframe were viewed and checked .

The item DOX was coded as 1 in fresh material and 2 in the transition zone.

6 Statistics

The statistical analysis and variography were completed using the Minesight Data Analyst (MSDA) module of the Minesight software package.

6.1. Lloyds Copper Domain

6.1.1. Compositing

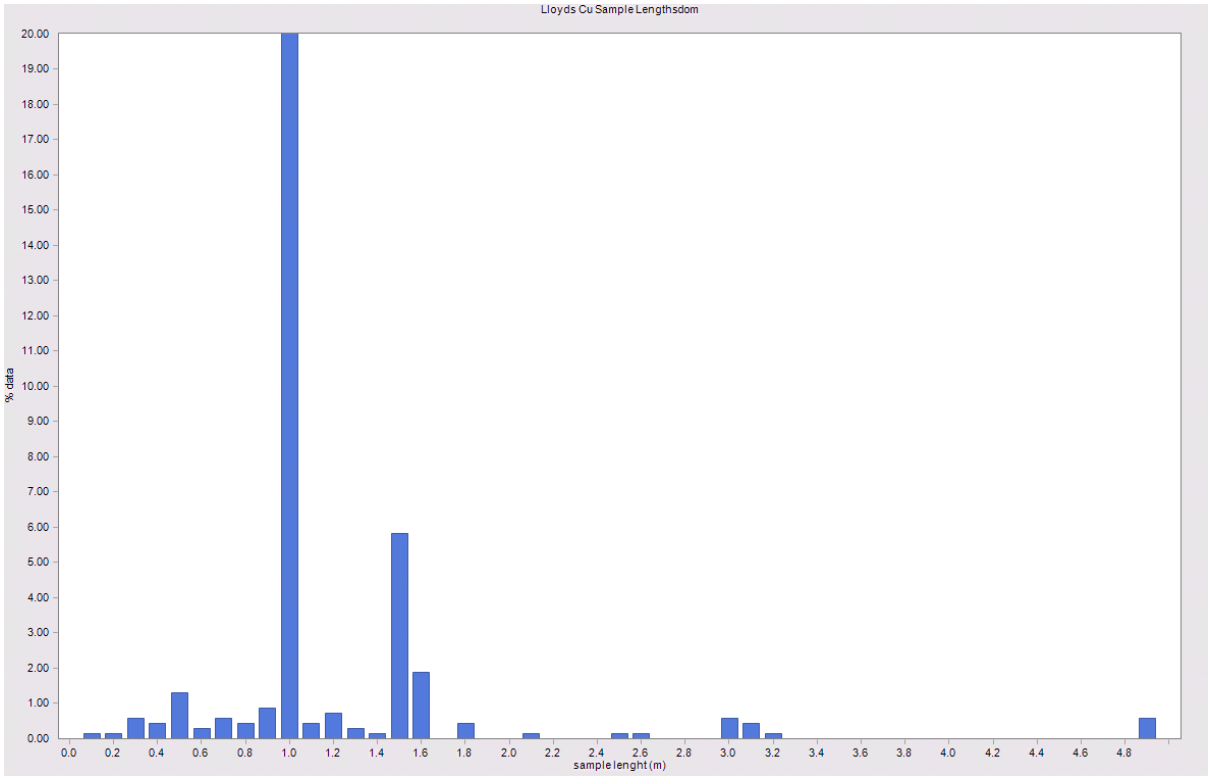


Figure 6-1. Raw sample length where DOM=1 and Cu not null.

A composite length of 2.0m was selected as this requires the splitting of very few raw samples (15 or 2.4% of the raw samples; see Figure 6-1) and also because it is the likely mining flitch height (most holes were drilled sub-vertically). Compositing to 1.0m would have resulted in the splitting of 11.9% of the data within the Lloyds copper domain.

6.1.2. Univariate statistics

Table 6-1 presents the statistics for the main elements of possible economic importance within the Lloyds copper domain.

In the fresh oxidation domain the CV (coefficient of variation) is low for S, moderate for Cu and high for Ag, Au, Pb and Zn.

There is much less data in the transition oxidation domain. Cu, Au, Pb and S have significantly different average grades in the transition material compared to fresh. The CV in the transition material is lower for all elements, however there are limited data.

		In Lloyds in situ 0.2% Cu Domain (DOM=1); 2.0m composites						
	Oxidation domain	Count	Minimum	Maximum	Mean	Std. Devn.	Variance	C.V.
Ag	fresh	302	0.02	79.12	6.79	9.71	94.26	1.43
	transition	37	0.10	21.15	5.83	5.48	30.02	0.94
Au	fresh	255	0.00	1.45	0.07	0.13	0.02	1.82
	transition	33	0.01	0.16	0.03	0.04	0.00	1.22
Cu	fresh	332	0.01	5.71	0.76	0.82	0.67	1.08
	transition	45	0.13	1.18	0.46	0.28	0.08	0.61
Pb	fresh	287	0.00	1.19	0.08	0.14	0.02	1.70
	transition	38	0.01	0.59	0.17	0.17	0.03	0.98
S	fresh	95	0.14	5.27	1.51	1.15	1.33	0.77
	transition	1	0.47	0.47	0.47			
Zn	fresh	292	0.01	4.18	0.23	0.36	0.13	1.59
	transition	38	0.05	0.92	0.21	0.20	0.04	0.93

Table 6-1. Summary univariate statistics for Ag, Au, Cu, Pb, S and Zn composites within the Lloyds copper domain by oxidation domain.

6.1.3. Extreme Values

Analysis of extreme values was only completed for copper as it drives most of the economic value in the project.

Cumulative probability plots of fresh and transition composite data within the Lloyds copper domain show no evidence of a separate high grade population (see Figure 6-2).

Visual examination of the higher copper grades showed that these formed continuous zones that are supported by surrounding moderate grade samples.

It is concluded that no manipulation (capping or similar) of high grade copper samples is necessary as they clearly form part of the main population of copper samples.

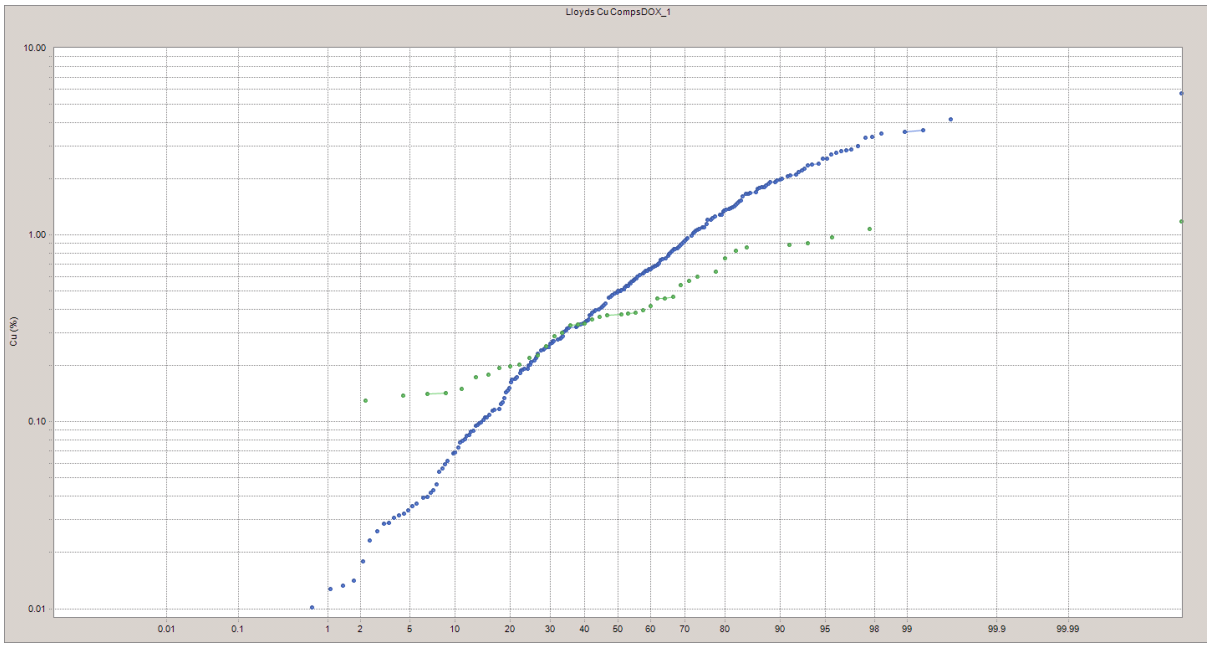


Figure 6-2. Cu Composite Cumulative Probability Plot (not length weighted), Fresh (DOX=1) is blue and transition (DOX=2) is green.

Histograms of fresh and transition composite data within the Lloyds copper domain also show no evidence of a separate high grade population (see Figure 6-3 and Figure 6-4). The data is close to log-normally distributed, but with a negative skew.

All Cu inside DOM=1 copper domain and in transition domain (DOX=2):

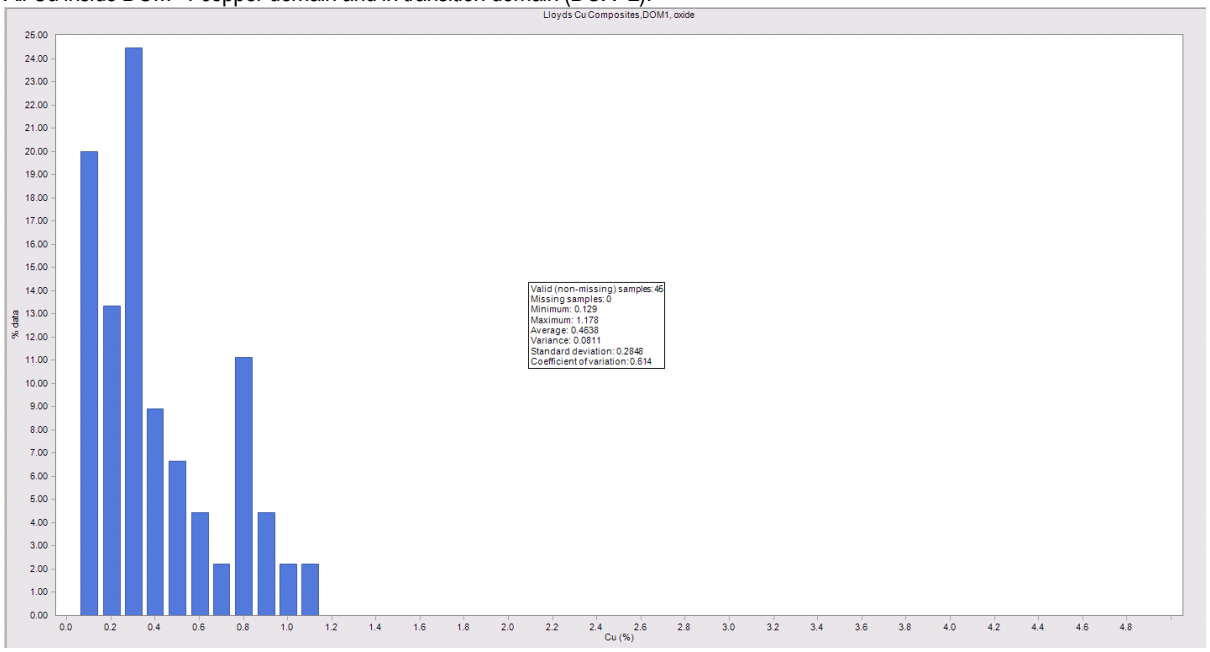


Figure 6-3. Histogram of all Cu composite data within the Lloyds copper domain and transition oxidation domain.

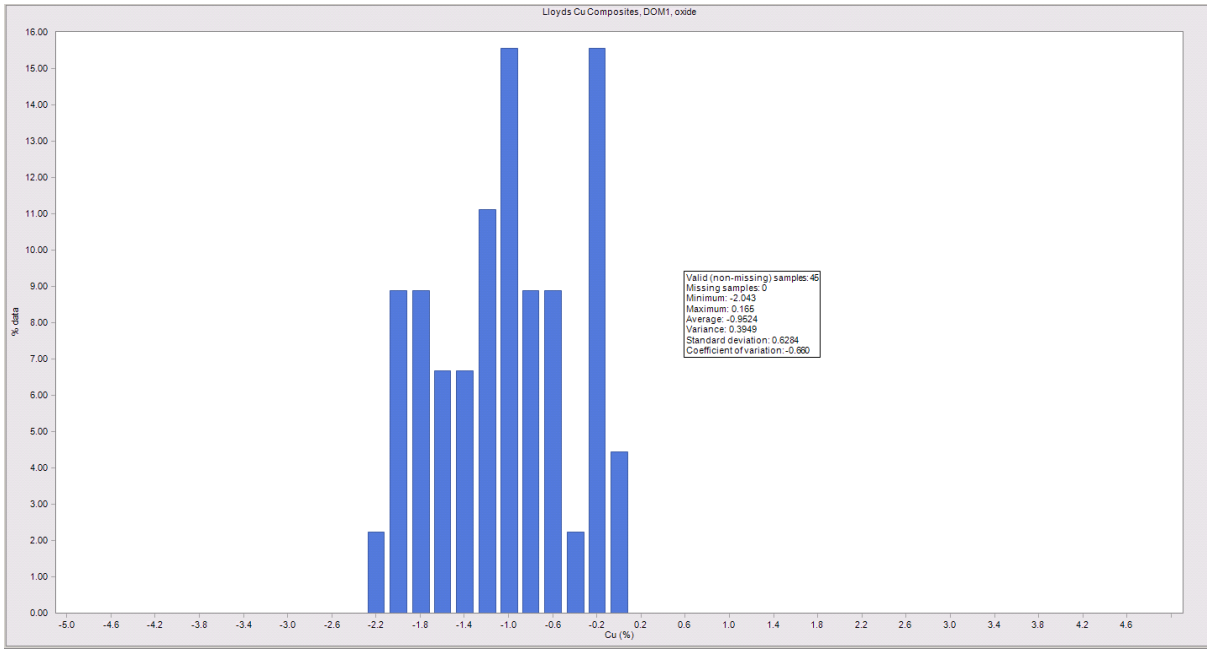


Figure 6-4. Log Histogram of all Cu composite data within the Lloyds copper domain and transition oxidation domain:

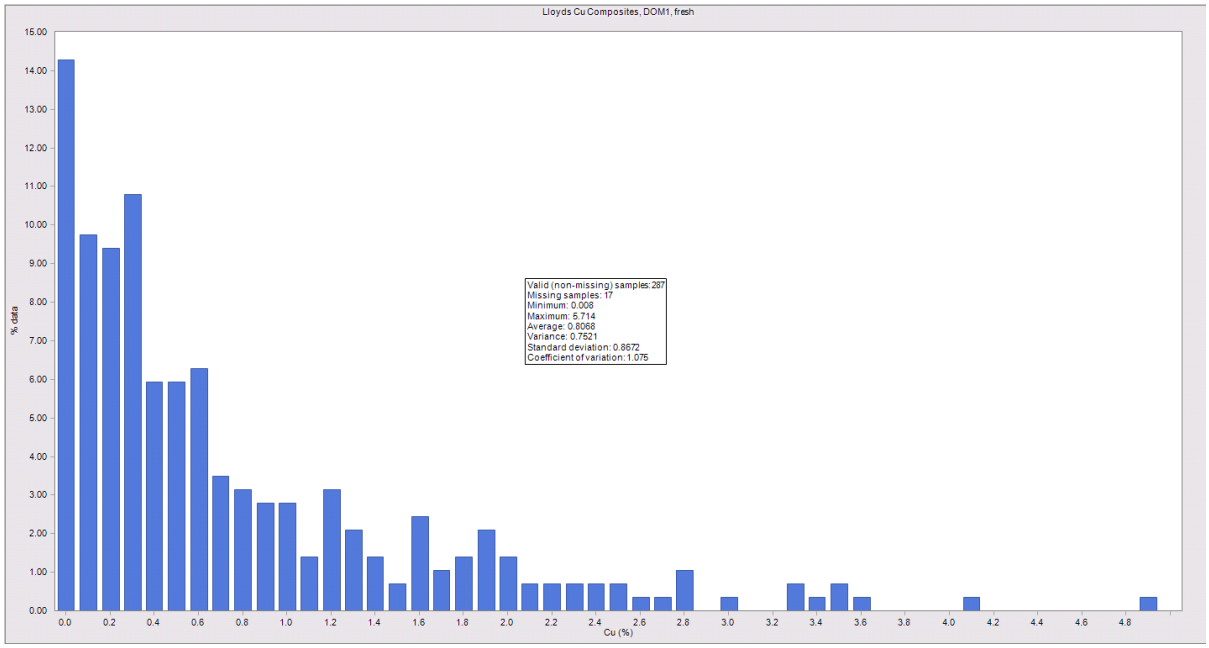


Figure 6-5. Histogram of all Cu composite data within the Lloyds copper domain and fresh oxidation domain:

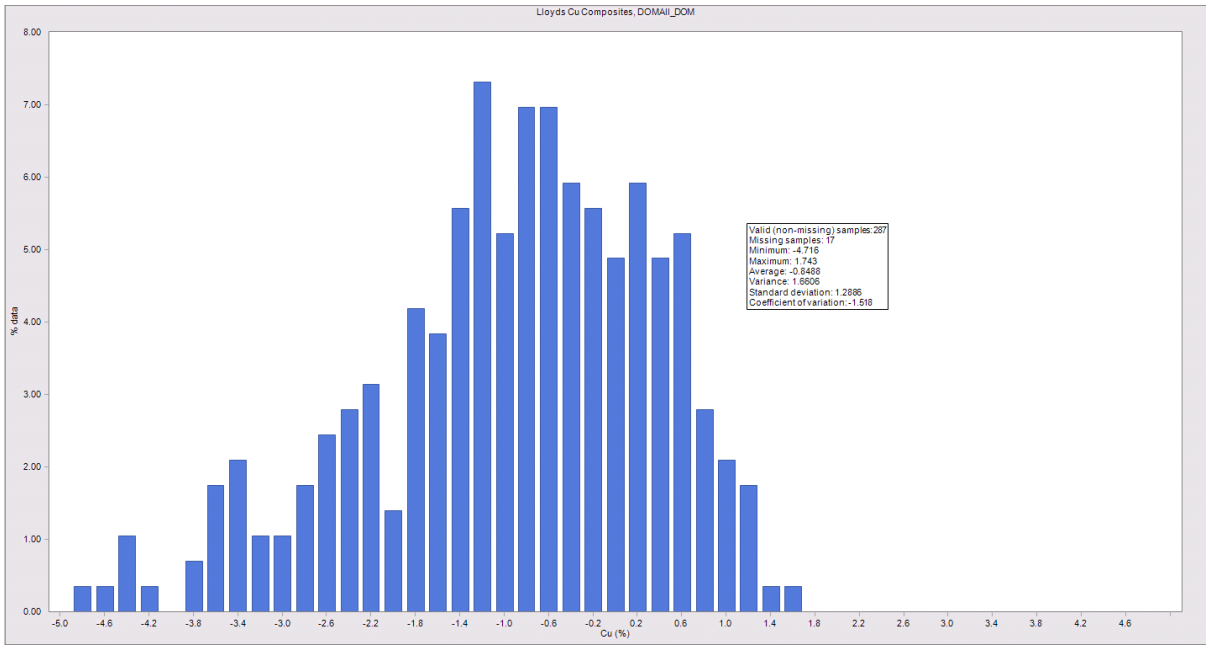


Figure 6-6. Log Histogram of all Cu composite data within the Lloyds copper domain and fresh oxidation domain:

6.2. Tailings

6.2.1. Compositing

A composite length of 2.0m was selected because it is the likely mining flitch height (most holes were drilled sub-vertically).

6.2.2. Univariate statistics

Summary univariate statistics for the tailings composites are presented in Table 6-2. All elements have low CVs and minimum values typically 30% to 50% of the median values due to the low grade variance for all elements. This demonstrates the relative homogeneity of the tailings. This is further illustrated by the Cu composite histogram in Figure 6-7.

	Count	Minimum	Maximum	Mean	Median	Std. Devn.	Variance	Co. of Variation
Cu%	50	0.49	5.59	1.32	1.15	0.74	0.55	0.56
Pb%	50	0.02	0.08	0.04	0.04	0.01	0.00	0.30
Zn%	50	0.04	0.43	0.16	0.15	0.09	0.01	0.54
S%	50	0.32	2.80	1.16	1.08	0.53	0.28	0.45
Au g/t	50	0.09	0.67	0.29	0.27	0.12	0.02	0.43
Ag g/t	50	4.2	17.3	9.5	8.7	2.4	5.8	0.25

Table 6-2. Tailings composite summary statistics.

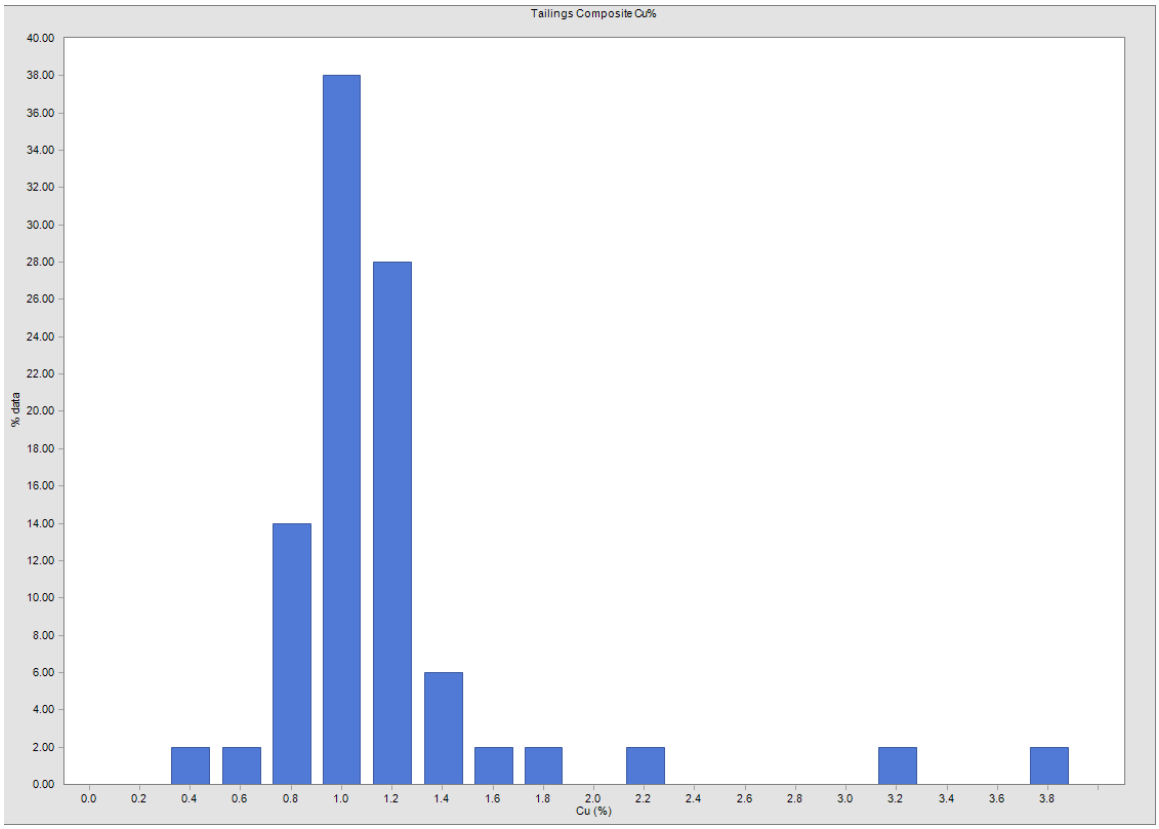


Figure 6-7. Histogram of composite Cu grades in tailings.

6.3. Slag Heaps

6.3.1. Compositing

The slag grab sample data was not composited because it all has the same support.

6.3.2. Univariate statistics

Summary univariate statistics for the slag are presented in Table 6-3. The slag grades are significantly higher for Cu, Au, Ag and S in the north slag heap.

	North Cu	South Cu
count	52	43
min	0.68	0.48
max	4.93	1.67
average	2.22	0.93
median	2.17	0.89
SD	0.71	0.29
CV	0.32	0.31
median Au	0.28	0.10
median Ag	11.55	5.20
median Pb (%)	0.07	0.11

median Zn (%)	0.45	0.71
median S (%)	0.62	0.35

Table 6-3. Summary univariate statistics for Ag, Au, Cu, Pb, S and Zn samples within the slag heaps.

6.4. Variography

Variography was only completed for copper and only in the fresh oxidation domain. Variography was not attempted for the transition material because there were so few copper composites in the transition domain. This meant that the chance of experimental variograms being both well structured and fair representations of the underlying true variogram were low.

It was decided to use inverse distance squared weighting for interpolation of the other elements because they were of considerably lesser economic importance. Inverse distance squared weighting was also used for interpolation of all elements in the 'waste' (i.e. not in the Lloyds copper domain).

Variography was not attempted for the tailings or slag heaps because these are not naturally occurring features with (geological) controls on mineralisation. The interpolation of these domains is described in sections 7.1.2 and 7.2.2.

All the experimental variograms were normal variograms of the composited data with no top cut and normalised to total variance. The lag tolerance was always set to half the lag.

Initially a downhole variogram was generated using 2 m lags and used to determine the nugget from a single sill spherical model largely honouring the first two lags.

Next a fan of experimental variograms at 10° increments was created in the plane of the mineralised vein. The variogram with the maximum continuity in this plane was designated the major axis. A second fan of experimental variograms was then created in the plane normal to the major axis and the minor axis designated as the direction of least continuity with the semi-major axis being the direction normal to both the major and minor axes.

The lag distance and angular tolerance (maximum 22.5°) were then varied for each axis in order to get the best structured experimental variogram for each axis.

MSDA was then used to simultaneously view the experimental variograms in the major, semi-major and minor axes. The nugget as determined from the downhole variogram was fixed and spherical variogram models manually fitted. It was found that only a single sill was necessary to model the experimental variograms.

The experimental variograms (Figure 6-8 to Figure 6-11)showed no significant anisotropy within the plane of mineralisation with the ranges the same for the major and semi-major axes. The minor axis range is 10% of the major axis. This variogram model suggests that the offsetting 'city' faults are not significant in localising copper grade, consistent with the interpretation that the 'city' faults are post-mineralisation.

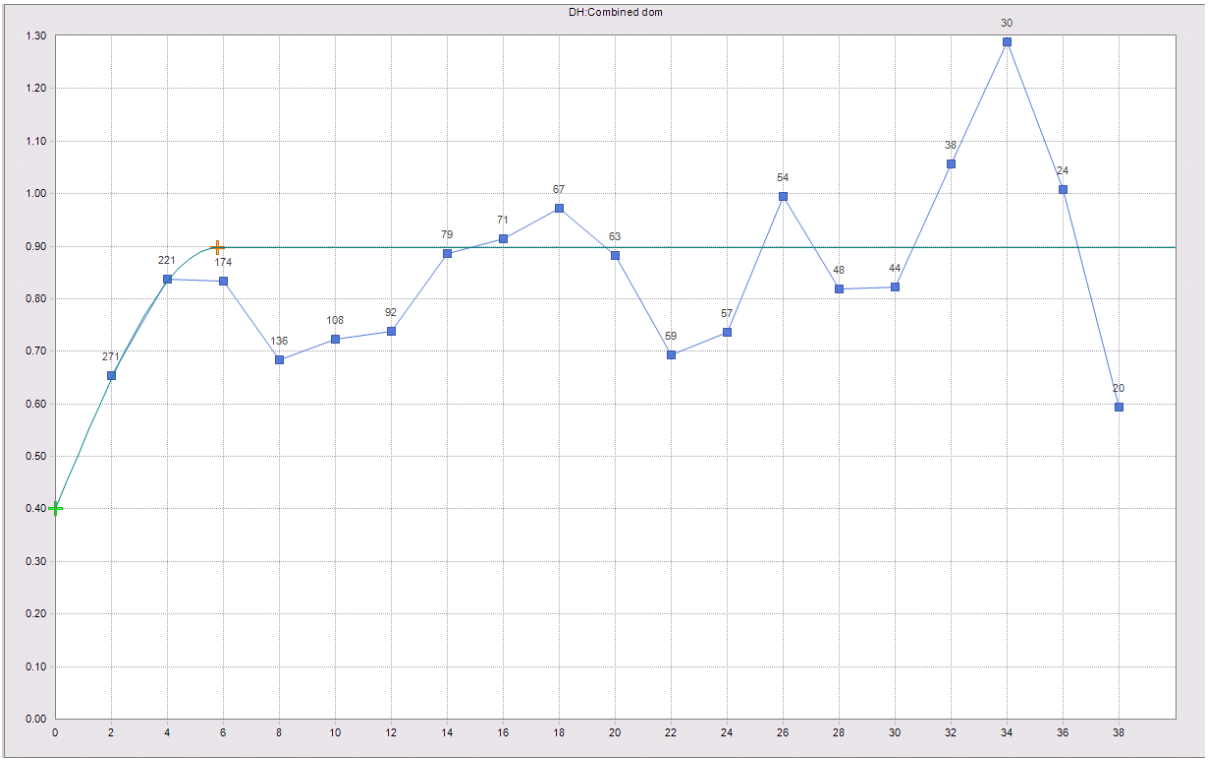


Figure 6-8. Downhole variogram (2m absolute tolerance).

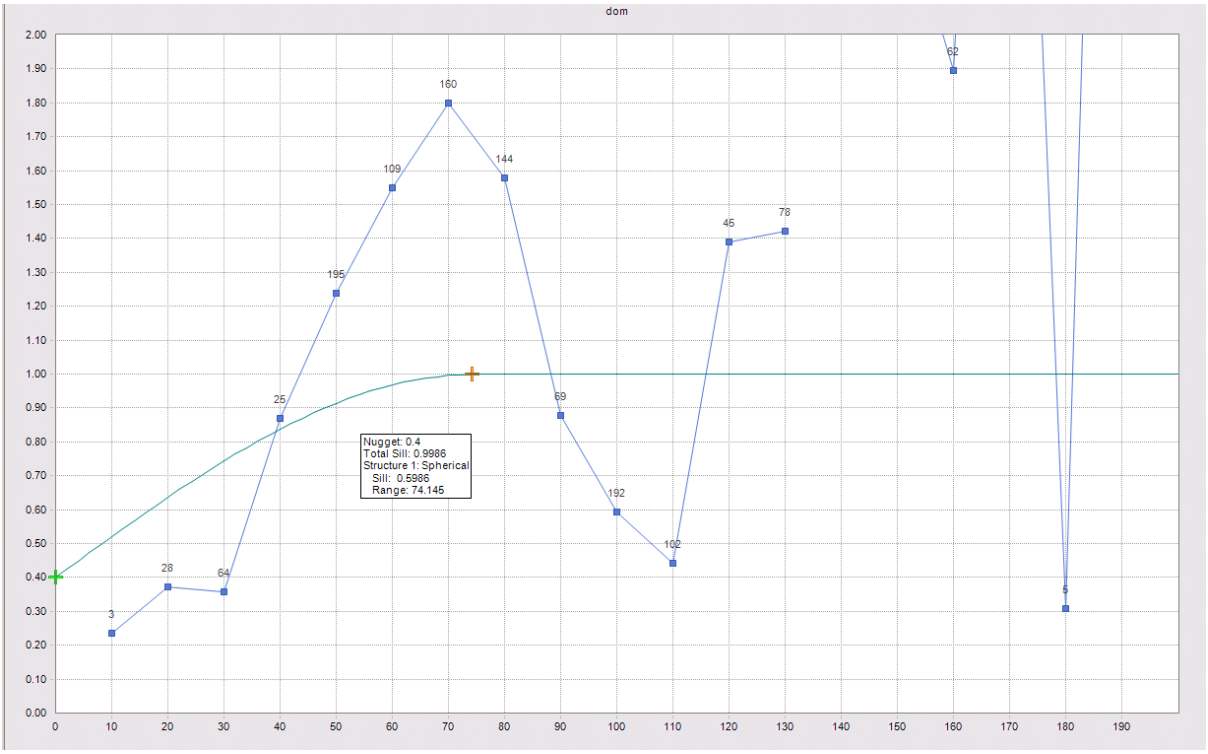


Figure 6-9. Major axis experimental variogram and model (23/158, 10m lag, 10 deg window)

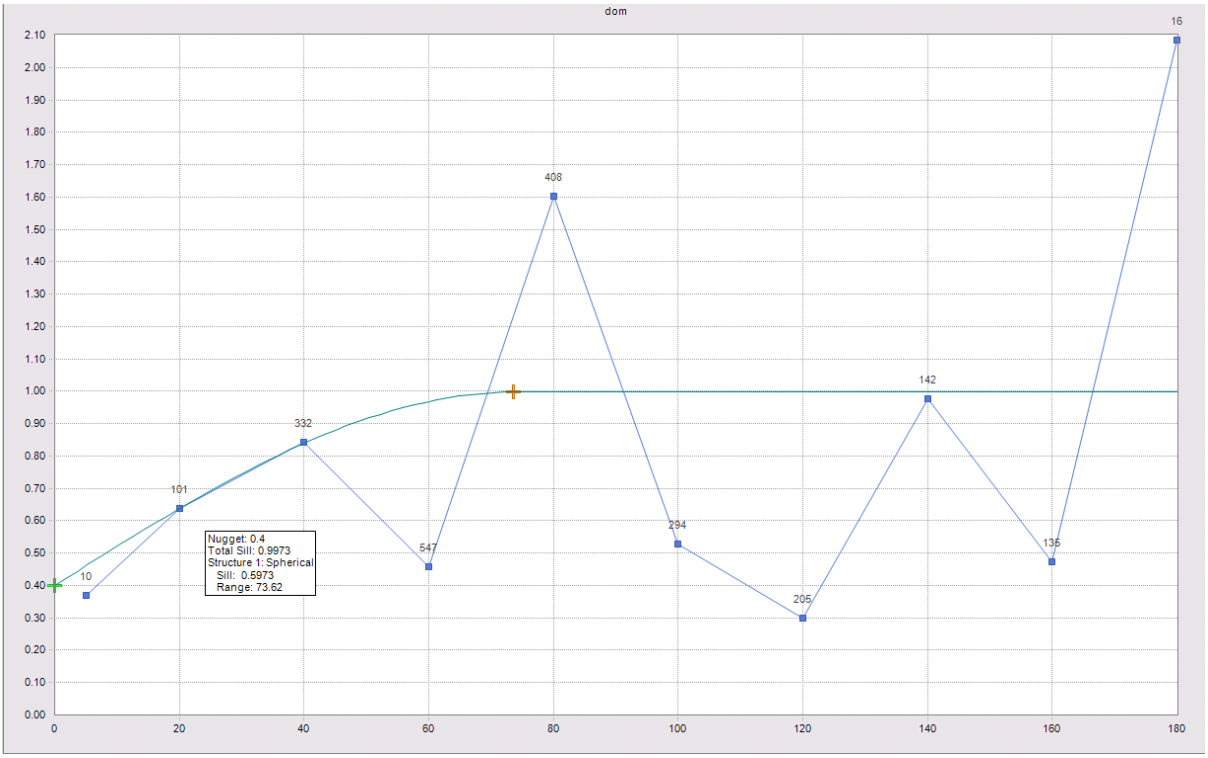


Figure 6-10. Semi-major axis experimental variogram and model (08/252, 20m lag, 10 deg window)

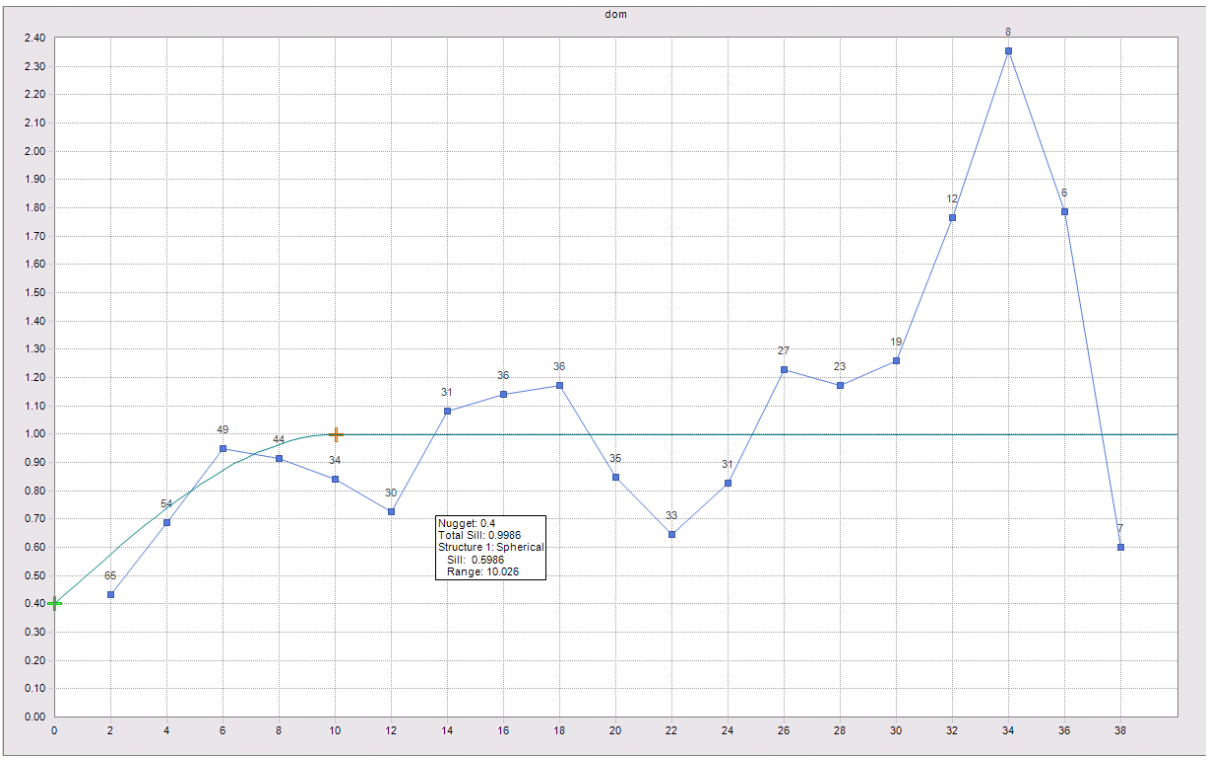


Figure 6-11. Minor axis experimental variogram and model (-65/180, 2m lag, 10 deg window)

Mineralisation Domain	Nugget Variance		Sill (Spherical)	Range (m)			Actual Direction (plunge/trend)		
DOM	C0	%C0	C1	Maj	Semi	Min	Maj	Semi	Min
1	0.4	40%	0.6	100	100	10	23/158	08/252	-65/180

Table 6-4. Lloyds Copper Domain variogram models.

6.5. Density

6.5.1. Tray Data

The main source of bulk density data was determined by the whole tray method from EYM DD drilling. This data was collected from 5 holes (see Figure 6-12).

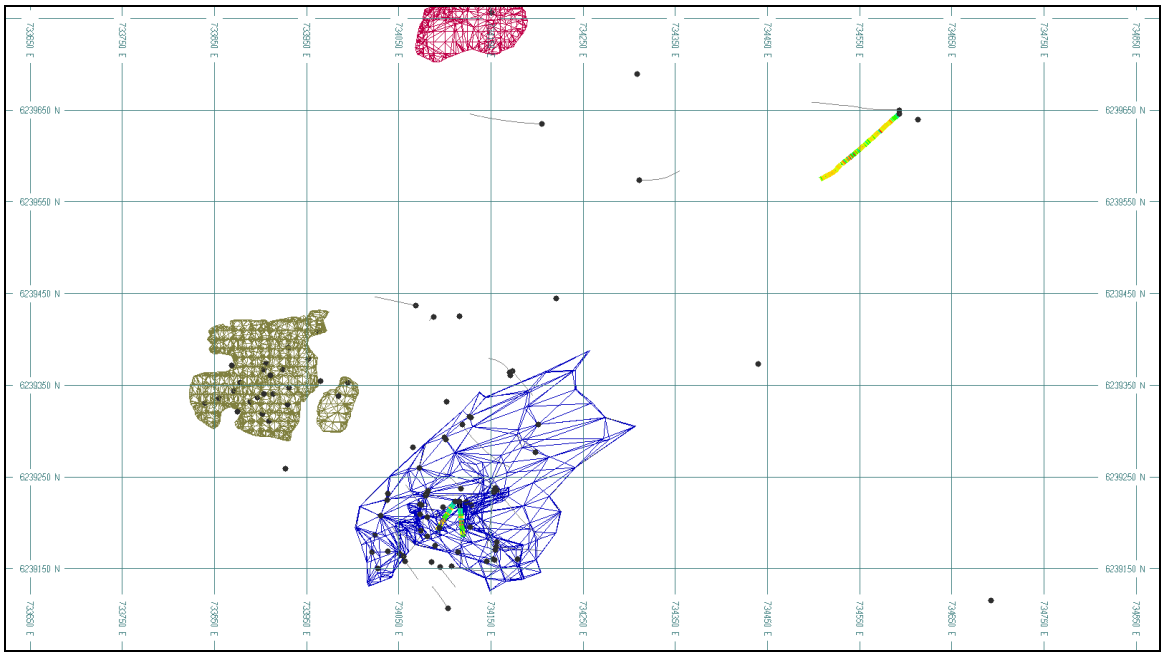


Figure 6-12. Location map of tray density samples (coloured drill traces), Lloyds copper domain is blue wireframe at south of map.

The tray method involves measuring the average core diameter, the total length of core in a tray, weighing the combined tray, core and core blocks and then subtracting the weight of the tray and core blocks. Note that this method does not account for moisture content, however all the samples measured were from fresh material with probable very low moisture contents.

The raw tray density data provided was not adjusted for drilling recovery. The raw data ("DBD") was combined with the drilling recovery from the drill plods and the density adjusted accordingly ("DBDx").

There are no tray density data within the transition part of the Lloyds copper domain.

In the fresh material there is no significant difference between the mineralised (within Lloyds copper domain) and un-mineralised material. This is somewhat unexpected given that the mineralised material has an elevated sulphide mineral content.

Oxidation domain	Copper domain	Number of samples	Average raw tray density	Average tray density adjusted for drilling recovery
transition	waste	7	1.31	2.16
fresh	min	20	2.62	2.64
	waste	195	2.63	2.68

Table 6-5. Bulk density data determined using the 'tray' method.

The tray density data show some correlation with depth to about 100m depth (see Figure 6-13). Below 100m the density appears to be constant, although this data comes from a single hole, ZCDD018.

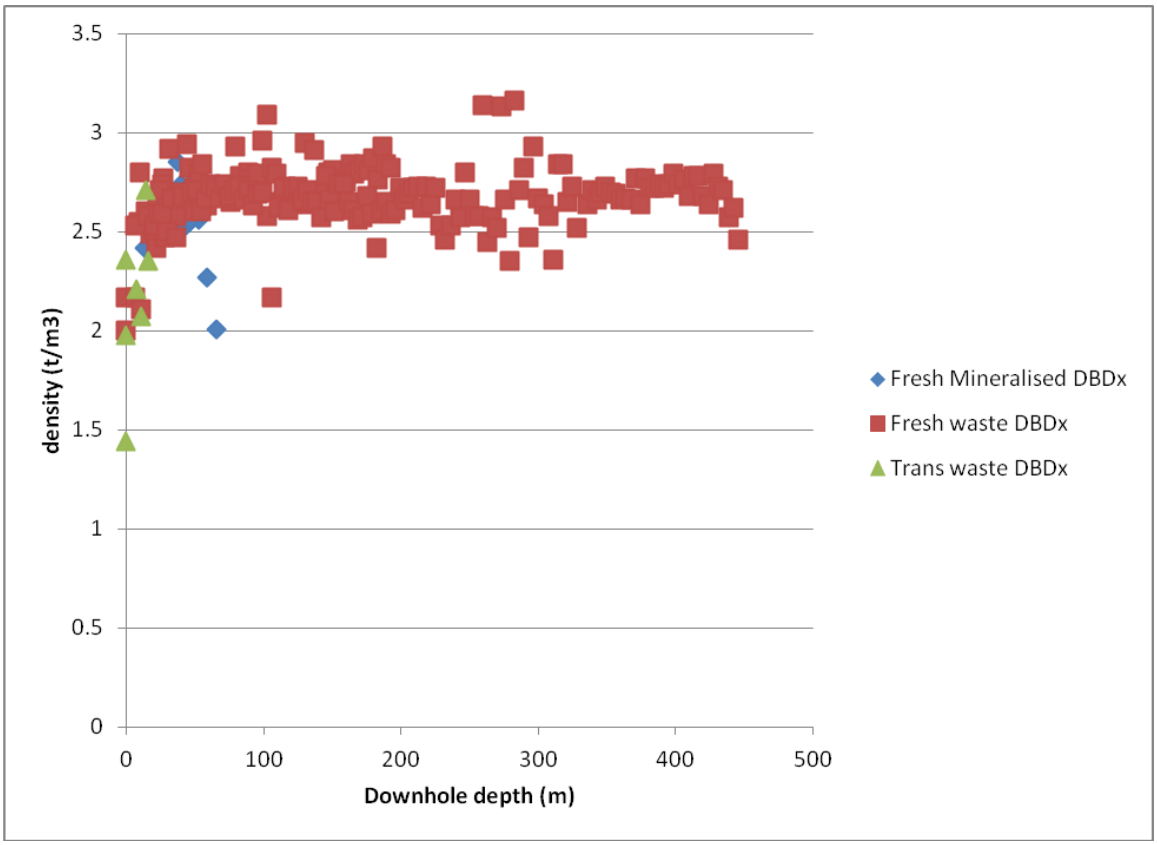


Figure 6-13. Graph of tray density versus depth.

6.5.2. Metallurgy Samples SG

The specific gravity (SG) of 6 composite samples was determined as part of the current metallurgical testwork programme. The results of this work are presented in Table 6-6.

			Calculated bulk density	
sample	**type**	**SG**	**5% porosity**	**10% porosity**
EYMMT-008	Transition	2.67	2.54	2.40
EYMMT-008	Transition	2.59	2.46	2.33
Average Transition		**2.63**	**2.50**	**2.37**
EYMMT-001	Fresh	2.74	2.60	2.47
EYMMT-002	Fresh	2.79	2.65	2.51
EYMMT-006	Fresh	2.78	2.64	2.50
EYMMT-007	Fresh	2.84	2.70	2.56
EYMMT-009	Fresh	2.76	2.62	2.48
EYMMT-010	Fresh	2.77	2.63	2.49
Average Fresh		**2.78**	**2.64**	**2.50**

Table 6-6. Specific gravity data from metallurgical testwork.

The SG data for the transition material is significantly higher than the tray method data, even when adjusted for 10% porosity which is probably high. It should be noted that there are only 2 SG samples from the transition material and so may not be representative.

The fresh SG data are a little higher than the tray data. The fresh material likely has a low porosity, in the range of 0.5% - 3%. Therefore the SG data indicate that the tray data are robust for the fresh material.

7 Block Model

7.1. Lloyds In Situ Model

The Minesight filename for the Lloyds block model is LLYD15.035.

7.1.1. Extents and items

The Lloyds block model was constructed using the block sizes, extents and items described in Table 7-1and Table 7-2.

	min	max	block size (m)	# blocks
X	733900	734400	10	50
Y	6239000	6239500	10	50
RL	700	1000	2	150

Table 7-1. The Lloyds block model extents.

The block dimensions were not determined quantitatively, but were selected with consideration of the closest drilling (25 m by 25 m) and likely open pit mining SMU.

The block model uses ore percentages (proportions) for volume determinations.

item	min	max	precision	comment
TOPO	0	100	0.1	Proportion of block below topographic surface (%)
D05	0	99	1	0.05% Copper domain (not used)
D05%	0	100	0.1	% of block in 0.05% Copper domain (not used)
DOM	0	99	1	0.2% Copper domain
DOM%	0	100	0.1	% of block in 0.2% Copper domain
DOX	0	99	1	Oxidation domain; 1=fresh, 2=transition
CU%	0	99	0.001	OK copper grade (Base case reported)
CU05%	0	99	0.001	not used
AU	0	99	0.01	Au grade (g/t; IDW2)
AG	0	999	0.1	Ag grade (g/t; IDW2)
PB%	0	99	0.0001	Pb grade (%; IDW2)
ZN%	0	99	0.0001	Zn grade (%; IDW2)
S%	0	99	0.0001	S grade (%; IDW2; assigned where insufficient data)
BULKD	0	9	0.01	Dry bulk density
#CMP	0	99	1	number of composites used to estimated CU%
#DH	0	99	1	number of drillholes used to estimated CU%
DIST	0	999	0.1	distance to nearest composite used to estimated CU%
KVAR	0	99	0.001	kriging variance CU%
KREG	0	9	0.001	kriging slope of regressions CU%
RSCAT	0	9	1	resource category; 1=measured, 2=indicated, 3=inferred
MATL	0	9	1	not used
ROCK%	0	100	0.1	% of block in 0.2% Copper domain and not mined **USE THIS INSTEAD OF TOPO**
CUEQ	0	100	0.001	Copper equivalent

item	min	max	precision	comment
CUNN	0	100	0.001	Cu variant: nearest neighbour
CUIDW	0	100	0.001	Cu variant: inverse distance squared
CUV1	0	100	0.001	Cu variant:
CUV2	0	100	0.001	Cu variant:
CUV3	0	100	0.001	not used
QLTY	0	1	0.001	OK weighting given to high quality samples
ZONE	0	999	1	not used
QUAD	0	99	1	number of split, rotated quadrants containing composites used to estimated CU%
VEIN%	0	100	0.1	% of block in vein solid

Table 7-2. Lloyds block model items.

7.1.2. Interpolation Methods

7.2.1.1 Copper

Copper was interpolated using ordinary kriging (OK) from the composited data into the block model item CU%.

No pre-processing changes (such as top cutting) were applied to the data.

CU% was only interpolated within the Lloyds copper domain.

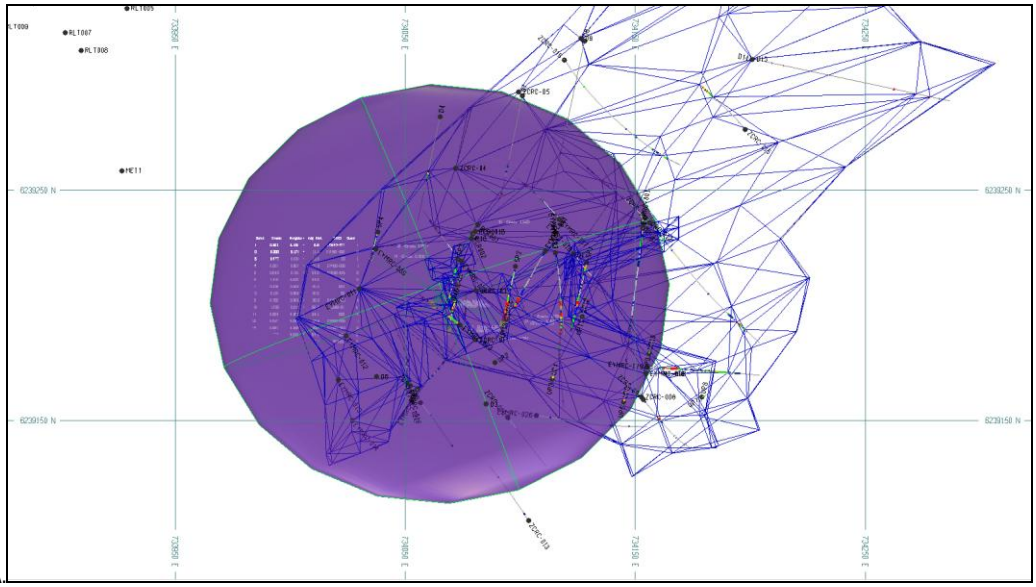
The search neighbourhood was determined from the drill spacing and variogram range, allowing a block to 'see' across drill sections in the major axis direction.

The minimum, maximum samples and block discretisation were determined by assessing the kriging variance in sparsely and closely drilled areas.

- Search ellipsoid at variogram range (100m x 100m x 10m)
- Minimum 5 composites
- Maximum 15 composites (limits negative kriging weights)
- Maximum of 10 composites per quadrant
- Copper and oxidation domains as hard boundaries
- Block discretisation of 3x3x1 (XYZ)

No additional de-clustering methods such as quadrant restriction or limiting the number of composites per hole was employed because the data is not particularly clustered.

A



B,

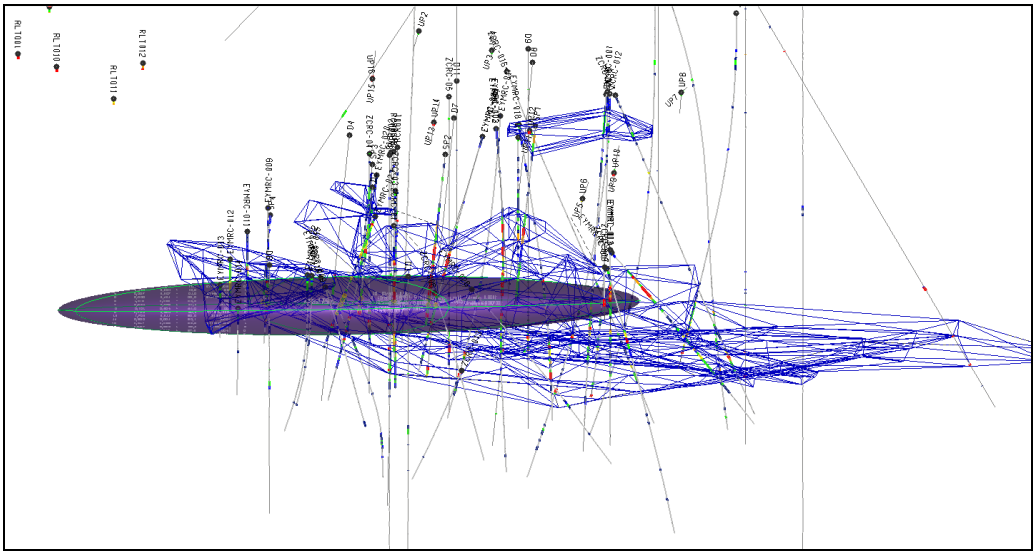


Figure 7-1. Plan (A) and oblique (towards 000/-25; B) views of search ellipsoid, drilling and Lloyds copper domain.

7.2.1.2 Other elements

Au, Ag, Pb, Zn and S were interpolated using inverse distance squared weighting using the same search neighbourhood as the OK copper into the block model items AU, AG, PB%, ZN% and S% respectively. The oxidation domain boundary was not a hard boundary for these elements.

S% was interpolated into both inside and outside the Lloyds copper domain.

Where no S% grade was interpolated, S% was assigned by oxidation domain based on average values. This was done in order to ensure a sulphur grade in every block for assessment of waste characteristics. The assigned values (Table 7-3) were based on average S grades by copper and oxidation domains.

Oxidation domain	inside Lloyds Cu domain	outside Lloyds Cu domain
Transition	0.5%	0.2%
fresh	1.5%	0.5%

Table 7-3. Assigned sulphur grades.

7.2.1.3 QLTY

The composite data was coded with the item QLTY such that QLTY = 1 for all ZCRC and EYM holes and QLTY=0 for all other holes.

The item QLTY was interpolated using the same methods as for CU% so that the resultant value shows the weighting given to composites from ZCRC and EYM holes when estimating CU%.

7.1.3. Density

Dry Bulk Density (DBD) was assigned to the item BULKD because the available density data is spatially clustered, meaning that any interpolation method would give very poor local estimates of DBD.

The assigned values (Table 7-4) were based on average bulk density values by copper and oxidation domains.

	Copper domain (DOM)	
Oxidation domain	**1 (Mineralised)**	**9 ('waste')**
Transition	2.4	2.4
Fresh	2.7	2.7

Table 7-4. Assigned Bulk Densities (t/m^3). Lloyds model.

7.1.4. ROCK%

In the Lloyds block model (LLYD15.035) the block proportion of in situ rock is described by the item ROCK%. ROCK% is the block proportion below the topographic surface (TOPO) adjusted for historic mining.

ROCK% = TOPO – VEIN% where VEIN% was coded from a wireframe of the historic mining voids.

The vein wireframe was created from digitised mine plans with the thickness calculated using records of historic production (469,000t), the area of the historic voids (81,700m2) and an assumed density of 2.6 t/m^3 giving a thickness of 2.99m. This thickness is in line with the reported historical mining thicknesses 10 feet (3.0 m). Note that only a portion of the historically mined vein occurs within the extents of the block model.

7.2. Tailings

The Minesight filename for the tailings block model is TAIL15.dat.

7.2.1. Extents and items

The Lloyds block model was constructed using the block sizes, extents and items described in Table 7-5 and Table 7-6.

	min	max	block dim	# blocks
X	733800	734050	10	25
Y	6239250	6239450	10	20
RL	820	900	2	40

Table 7-5. The Lloyds block model extents.

The block dimensions were not determined quantitatively, but were selected with consideration of the closest drilling (20 m by 20 m) and likely mining SMU.

The block model uses ore percentages (proportions) for volume determinations.

item	min	max	precision	comment
TOPO	0	100	0.1	Proportion of block below topographic surface (%)
DOM	0	99	1	0.2% Copper domain
DOM%	0	100	0.1	% of block in 0.2% Copper domain
BULKD	0	10	0.01	Dry bulk density
RSCAT	0	9	1	resource category; 1=measured, 2=indicated, 3=inferred
RELEV	0	9999	0.01	relative elevation', for un-folding
DOX	0	9	1	Oxidation domain; 1=fresh, 2=transition
CU%	0	100	0.01	OK copper grade (Base case reported)
PB%	0	100	0.01	Pb grade (%; IDW2)
ZN%	0	100	0.01	Zn grade (%; IDW2)
S%	0	100	0.01	S grade (%; IDW2; assigned where insufficient data)
AU	0	100	0.01	Au grade (g/t; IDW2)
AG	0	100	0.01	Ag grade (g/t; IDW2)
CUEQ	0	100	0.01	Copper equivalent
CUNN	0	100	0.01	Cu variant: nearest neighbour
PASS#	0	9	1	interpolation pass number

Table 7-6. Tailings block model items.

7.2.2. Interpolation Methods

Cu, Au, Ag, Pb, Zn and S were interpolated from composited samples using inverse distance squared weighting into the block model items AU, AG, PB%, ZN% and S% respectively.

No pre-processing changes (such as top cutting) were applied to the data.

Grades were only interpolated within the tailings wireframe (which excluded the higher grade sludge).

Copper and oxidation domains were used as hard boundaries for grade estimation.

Grades were interpolated using unfolding parallel to the topographic surface. This was done so as to approximate the spatial grade trends expected from the inferred deposition of the tailings (see Figure 3-2).

A search neighbourhood was used to limit the data selected for grade interpolation. The search neighbourhood was determined from the drill spacing, allowing a block to 'see' across drill sections in the major axis direction.

Grades were interpolated in two passes, the first pass within a 30m by 30 m by 5m ellipsoid and the second in a 100m x 100m x 10m ellipsoid. This was done to provide a better local grade estimate where there is more data, but still interpolate all blocks within the tailing wireframe.

A minimum of 4 and a maximum of 20 composites were used to interpolate grades. These values were selected based on the experience of the author.

No additional de-clustering methods such as quadrant restriction or limiting the number of composites per hole was employed because the data is not particularly clustered.

7.2.3. Density

There are no reliable density data available for the tailings and no economically feasible method of determining bulk density.

Am attempt was made to determine the bulk density of the tailings by simply filling a bucket of known volume with hand dug tailings. This method returned un-feasibly low bulk densities and so this data was not used.

A Dry Bulk Density (DBD) of 1.8 t/m3 was assigned to the item BULKD. This value was calculated assuming the tails comprise a combination of 95% quartz sand (bulk density typically 1.6 t/m^3, Berkman, 1995) and 5% chalcopyrite (specific gravity 4.2 t/m^3, Berkman, 1995) for a total bulk density of 1.8 t/m^3.

7.3. Slag

The Minesight filename for the slag block model is SLAG15.dat.

7.3.1. Extents and items

The Slag block model was constructed using the block sizes, extents and items described in Table 7-7 and Table 7-8.

	min	max	block dim	# blocks
X	734050	734250	10	20
Y	6239650	6240250	10	60
RL	850	950	2	50

Table 7-7. The Slag block model extents.

The block model SLAG15.dat covers both the north and south slag heaps.

The block dimensions were not determined quantitatively, but were selected with consideration likely mining SMU.

The block model uses ore percentages (proportions) for volume determinations.

item	min	max	precision	comment
TOPO	0	100	0.1	Proportion of block below topographic surface (%)
DOM	0	99	1	0.2% Copper domain
DOM%	0	100	0.1	% of block in 0.2% Copper domain
BULKD	0	10	0.01	Dry bulk density
RSCAT	0	9	1	resource category; 1=measured, 2=indicated, 3=inferred
RELEV	0	9999	0.01	relative elevation', for un-folding, not used
DOX	0	9	1	Oxidation domain; 1=fresh, 2=transition
CU%	0	100	0.01	OK copper grade (Base case reported)
PB%	0	100	0.01	Pb grade (%; assigned)
ZN%	0	100	0.01	Zn grade (%; assigned)
S%	0	100	0.01	S grade (%; assigned)
AU	0	100	0.01	Au grade (g/t; assigned)
AG	0	100	0.01	Ag grade (g/t; assigned)
CUEQ	0	100	0.01	Copper equivalent
CUNN	0	100	0.01	Cu variant: nearest neighbour
PBNN	0	100	0.01	Pb variant: nearest neighbour
ZNNN	0	100	0.01	Zn variant: nearest neighbour
SNN	0	100	0.01	S variant: nearest neighbour
AUNN	0	100	0.01	Au variant: nearest neighbour

item	min	max	precision	comment
AGNN	0	100	0.01	Ag variant: nearest neighbour
PASS#	0	9	1	interpolation pass number

Table 7-8. Slag block model items.

7.3.2. Grade Assignment Method

Grades were assigned (not interpolated) in the slag model. This was because the slag heaps were formed by dumping of very coarse material resulting in dumps with no spatial grade correlation. Therefore a local grade estimate was not considered possible and the decision was made to assign the same grades to the entire heaps.

The assigned grades (Table 7-9) were determined from average nearest neighbour grades for the north and south slag heaps separately. Nearest neighbour grades were used in order to de-cluster the data. The nearest neighbour grades were interpolated from the raw slag samples.

	Average Nearest neighbour grade	
Item	**North Slag Heap**	**South Slag Heap**
CU%	2.1	0.9
PB%	0.1	0.1
ZN%	0.5	0.8
S%	0.6	0.4
AU	0.3	0.1
AG	11	5

Table 7-9. Assigned grades for the Slag model.

7.3.3. Density

There are no density data available for the slag heaps and no economically feasible method of determining bulk density.

A Dry Bulk Density (DBD) of 2.0 t/m^3 was assigned to the item BULKD based on the range of reported gravel densities (Berkman, 1995). The higher end of the range was used because of the high metal content of the slag likely resulting in higher particle density compared to most gravels.

8 Resource Classification

8.1. Lloyds in Situ

Classification took into account

- geological continuity,
- the plausibility of alternative geological interpretations,
- data (drilling) density and configuration (distance to nearest samples, number holes & quadrants used)
- kriging slope of regression

Mineral resources were only classified within the Lloyds in situ copper domain.

Blocks classified as measured must have high geological confidence with no plausible alternative geological interpretation. In addition, measured blocks generally met the criteria described in Table 8-1.

Blocks classified as indicated have high geological confidence with possible, but unlikely, plausible alternative geological interpretations. In addition, indicated blocks generally met the indicated criteria described in Table 8-1.

All other blocks in the Lloyds in situ copper domain were classified as inferred.

The classification was coded directly from wireframes created from 25m spaced sectional strings enclosing continuous zones meeting the relevant resource category criteria.

In practice, the distance to the nearest sample and possible geological alternatives were given the highest weight when assessing resource categorisation.

Criteria	Measured	Indicated	Inferred
Geological Confidence	High	High	Moderate
Geological alternatives	None	Possible	Likely
Distance to nearest sample	<15m	15m-30m	>30m
Number of drillholes used	>6	>4	Any
Kriging slope of regression	>0.95	>0.8	Any
Number of quadrants containing data	>6	>4	Any
QLTY (proportion of data from ZCRC or EYM holes)	>0.5	>0.5	Any

Table 8-1. Resource classification criteria.

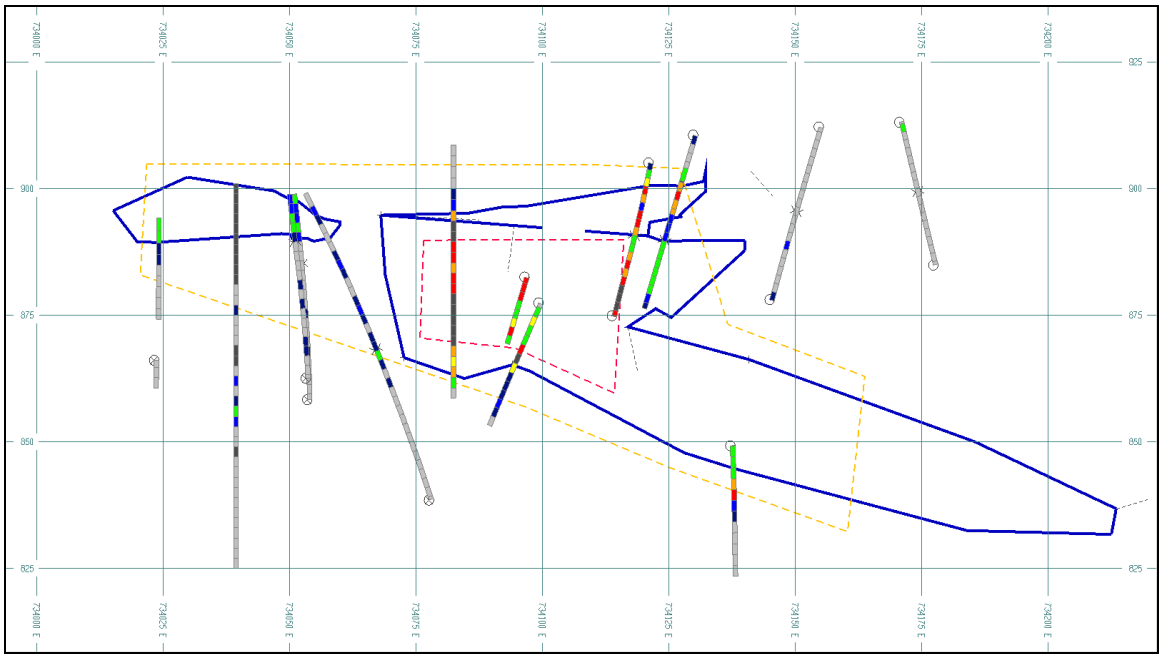


Figure 8-1. Cross section showing drilling with copper grades, copper domain (heavy blue line), measured string (red dashes) and indicated string (orange dashes). Note that whilst the classification strings extend beyond the copper domain, only blocks within the copper domain were assigned resource categories.

8.2. Tailings

All of the tailings were classified as indicated. This was because the geological risk is considered very low and the tailings tonnage is well known from historical production data. However the sample quality is only moderate and the configuration of the samples (i.e. the deeper parts of the tailings could not be sampled due to equipment limitations) means that the grades in the lower parts are extrapolated from the overlying samples. The risk due to this extrapolation is considered low due to the tailings emplacement method and low variability of the grade data. The classification is the same throughout the tailings as the quality of the local grade estimate is not considered to vary much spatially.

8.3. Slag

All of the slag was classified as indicated for the similar reasons as the tailings classification. The geological risk is considered very low. However the sample quality is only moderate and the configuration of the samples (i.e. surface samples only) means that the global grades are extrapolated from overlying samples. The risk due to this extrapolation is considered low due to the slag dumping method and low variability of the grade data. The classification is the same throughout the slag heaps because no local grade estimate has been made and so the risk must be the same throughout the slag heaps.

9 Results

The in situ Lloyds copper resources are reported at a cutoff of 0.3% Cu. This is based on the cutoff grade from a previous pre-feasibility level study factored for reasonable foreseeable increases in metal recovery and reductions in capital, mining and processing costs. The increased metal recovery and reduced capital, mining and processing costs are based on preliminary results from the current feasibility study. The copper price used in the 2011 PFS (Pike, 2011) was AUD $10,000 per tonne, the current copper price is about USD$2.75/lb which equates to about AUD $7,800 per tonne at an AUD:USD exchange rate of 0.78.

No cutoff grades have been applied to the tailings or slag resource estimates because, if economic, these will be mined in their entirety.

Model		tonnes	Cu (%)	Au (g/t)	Ag (g/t)	Zn (%)	Cu Metal (t)
Lloyds (0.3% Cu cutoff)	Measured	80,000	1.0	0.1	5	0.2	800
	Indicated	910,000	0.8	0.1	7	0.2	7,130
	Inferred	320,000	0.7	0.1	5	0.1	2,200
	Total	1,310,000	0.8	0.1	6	0.2	10,090
Tailings	Indicated	280,000	1.2	0.3	9	0.2	3,490
Slag Heaps	Indicated	90,000	1.3	0.2	7	0.7	1,170
Burraga Combined	Measured	80,000	1.0	0.1	5	0.2	800
	Indicated	1,280,000	0.9	0.1	7	0.2	11,520
	Inferred	320,000	0.7	0.1	5	0.1	2,200
	Total	**1,680,000**	**0.9**	**0.1**	**7**	**0.2**	**15,120**

Table 9-1. Burraga Project Mineral Resources by model and resource category.

10 Validation

Note that other than volume checks no other validation was performed on the slag model because grade was simply assigned.

10.1. Statistical

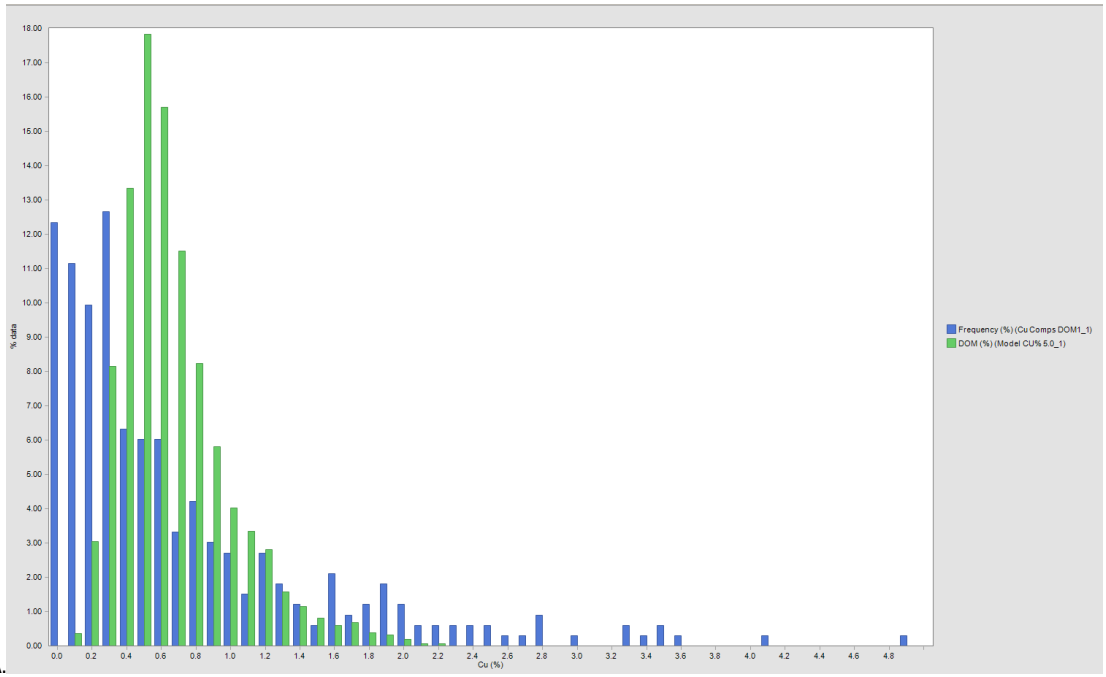
The average estimated grade at a 0.0% Cu cutoff was compared to the average nearest neighbour grade. The nearest neighbour grade represents a de-clustered average grade. Table 10-1 shows that the model and nearest neighbour grades agree closely.

Model	Model grade (Cu %)	Nearest neighbour grade (Cu %)
Lloyds	0.72	0.74
Tailings	1.25	1.22

Table 10-1. Comparison of block model and de-clustered composite grades for Lloyds and Tailings models at 0.0% Cu cutoff.

Histograms of composite and block grades for the Lloyds model are presented in Figure 10-1. These show that the block model honours the composite grade whilst reducing variance and yet retaining the positive skew.

A.



B.

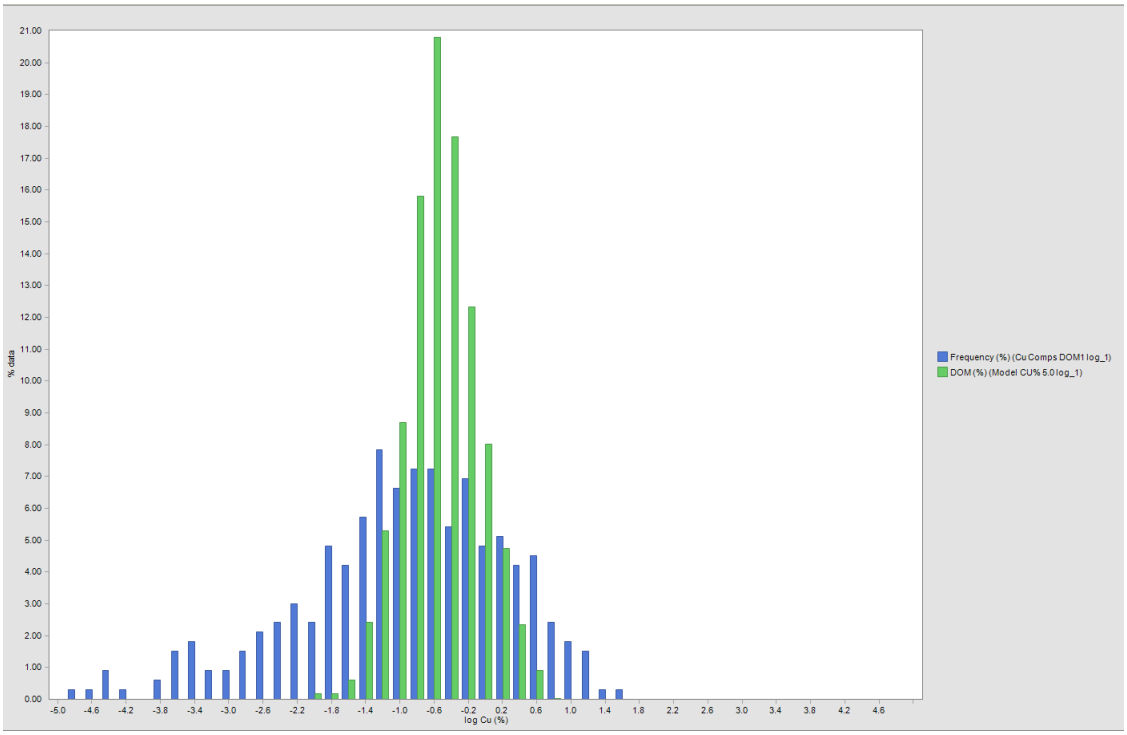


Figure 10-1. Lloyds model histograms of composite and block grades. A is natural data and B is log data.

10.2. Volume

To assess the coding of the block models the volumes of the copper domain wireframes were compared to the volumes reported from the block models.

The tailings and slag domain wireframes compare very closely to the block model (see Table 10-2). The Lloyds block model volume is 4% lower than the wireframe volume. This is because there are some un-interpolated blocks at the northern and eastern (down plunge) margins of the wireframe. These blocks were not interpolated because there was insufficient data.

Model	Copper Domain Wireframe Volume (BCM)	Block model Volume (BCM) at 0.0% Cu cutoff	Difference (BCM)	comment
Lloyds	529,208	509,743	19,465	Un-interpolated blocks at periphery of domain
Tailings	154,229	154,121	108	
Slag	45,236	45,178	58	

Table 10-2. Comparison of copper domains with block model volumes.

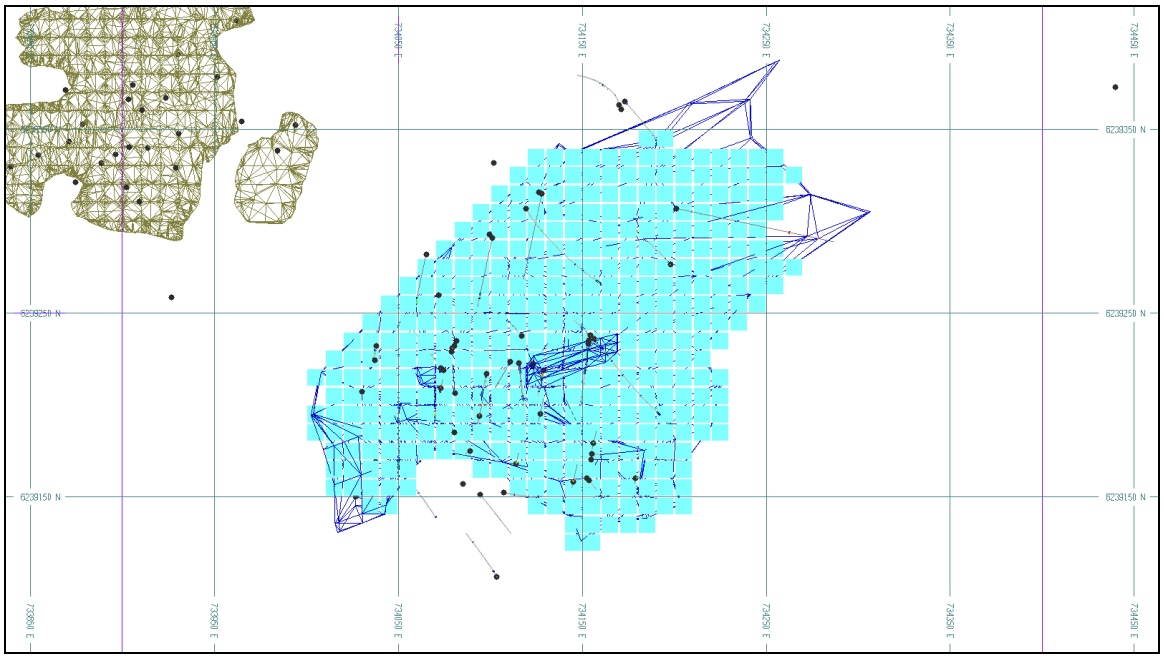


Figure 10-2. Plan view of Lloyds model showing interpolated blocks (pale blue) and copper domain wireframe. Note that there are no interpolated blocks in the northern and eastern (down plunge) margins of the wireframe.

10.3. Comparison to Historical Production records

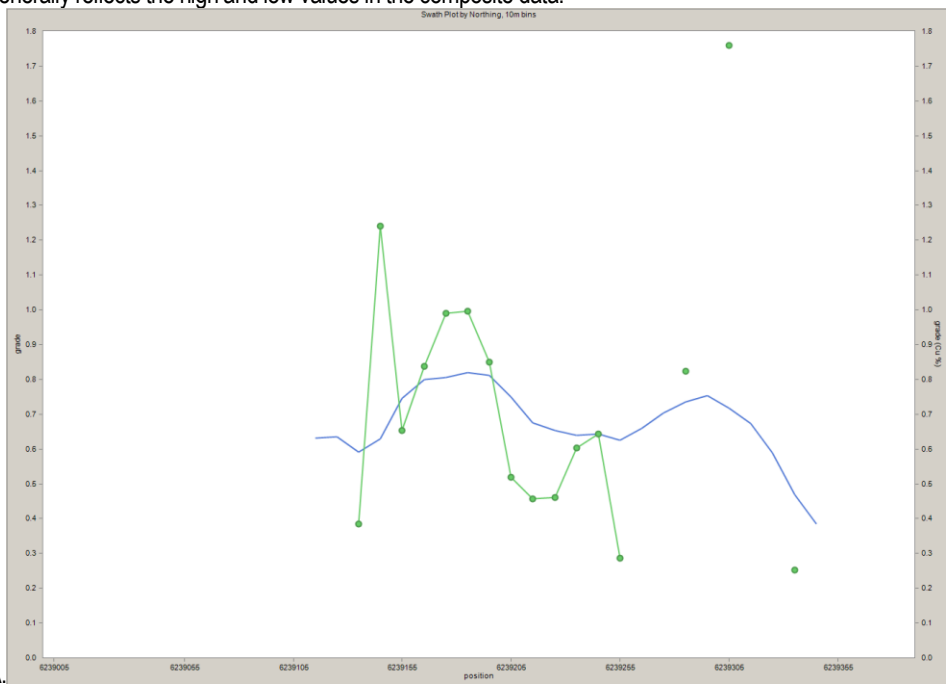
Pyke (ref) used historical production records to estimate historical tailings at 255,000t and slag at 185,000t. These estimates include several assumptions about the historical processing methods and so probably have errors in excess of 10%.

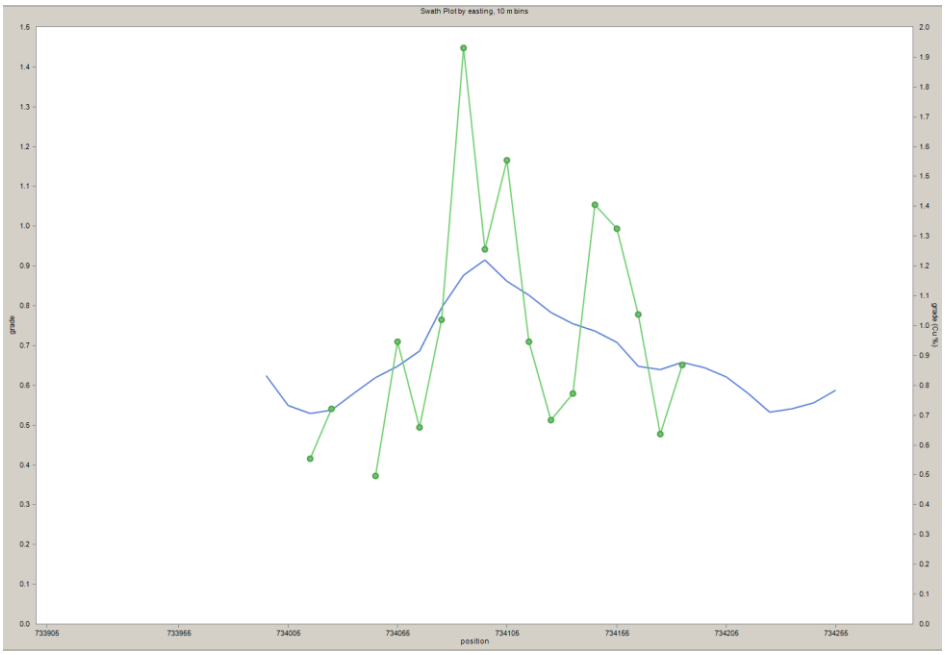
The estimated tailings resource of 280,000t is within the range of likely historical tailings production, albeit at the upper end.

The estimated slag resource of 90,000t is significantly less than the estimated historical production of slag.

10.4. SWATH Plots

Swath plots (plots of average grade in directional swaths) were created in 10 m bins oriented north=south, east-west and vertically for the Lloyds model only. The results are presented in Figure 10-3and show a broad coherence between the input composite data and the block model grades with the block grades showing greater smoothing . Even so, the block model generally reflects the high and low values in the composite data.

A. 

B. 

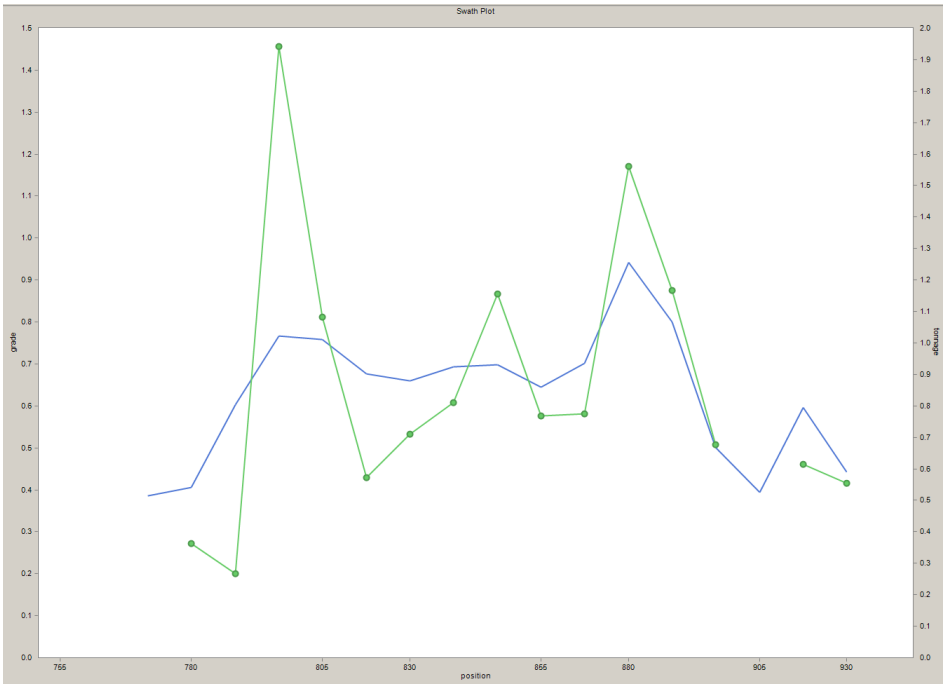
C. 

Figure 10-3. Swath plots of composite (green) and block (blue) grades in 10 m bins. A, by northing, B. by easting and C. by elevation.

10.5. Variants

The variants in Table 10-3 were estimated in order to assess the criteria used to estimate Cu grade.

Variant	Description
CUV1	Max composites = 10, no quadrant / octant restriction
CUV2	Max composites = 20, no quadrant / octant restriction
CUNN	Nearest neighbour, same search neighbourhood
CuIDW	Inverse distance squared weighting, same search neighbourhood

Table 10-3 Copper variants used

10.5.1. Variant Grade Tonnage Curves

Grade tonnage curves of the variants were plotted to assess the degree of smoothing in the model.

Figure 10-4shows the effect of changing the maximum number of composites used to interpolate each block on volume – variance. The nearest neighbour grade tonnage curve is also shown for reference. These curves demonstrate that decreasing maximum number of composites used for OK interpolation decreases the degree of volume variance correction (i.e. decreases the smoothing in the model). Increasing the maximum number of composites from 15 in the base case to 20 had little effect but likely introduced negative kriging weights.

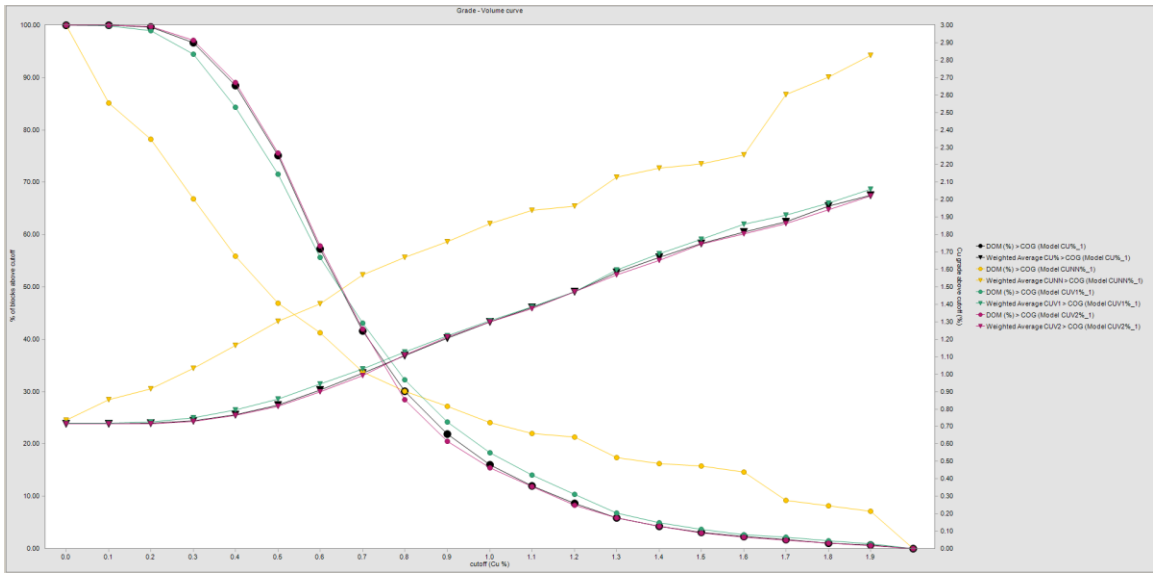


Figure 10-4. Grade-tonnage curves for Lloyds model base case, (black) variants with varying maximum composites and nearest neighbour interpolation (orange).

11 Recommendations

11.1. To reduce risk:

- Store all drilling data in a relational database with inbuilt validation on import
- Infill near surface to de-risk start up phase of project and better define metallurgical characteristics of the start up ore
- QAQC needs to be systematic
    - Standards need to be quantified
    - Blanks need to be routinely inserted in mineralised zones
    - Conduct umpire laboratory analyses on > 0.1% Cu samples for about 1 in 20 batches
    - Request the laboratory to complete duplicate analyses from pulp at a rate of 1 in 20 samples.
    - Document and implement a QA system that has clearly defined thresholds for acceptable data and clear instructions on how to follow up results not meeting the thresholds. Include a formally defined reporting procedure (monthly when drilling).
- Acquire more density data, especially from the transition zone.
- Standardise logging codes, re-logging old core and chips as necessary.
- Carry out detailed geological modelling, focussing on structure and stratigraphy to provide better control on the copper grade domain interpretation.
- Estimate As and any other economically important variables

11.2. To increase the resource:

- Drill near surface, up-dip projections of the historically mined mineralisation in the south east of the mine area.
- Continue near mine exploration targeting repeats of the Lloyds mine mineralisation
- Complete a conceptual analysis of underground mining of higher grade portions to determine whether further drilling of possible underground resources is warranted

12 References

Berkman, D. A. (1995): *Field Geologists' Manual*. (The Australasian Institute of Mining and Metallurgy, third edition).

Pike, P. (2011): *Burraga Copper Project Prefeasibility Study*. Unpublished report to Burraga Copper Pty. Ltd.

13 Appendix One: JORC Table 1.

13.1. Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialized industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*	• Samples are collected using standard industry practice sampling, assay methods and QAQC. • Reverse Circulation (RC) samples weighing approximately 2kg are collected as individual 1m samples through a cyclone which are riffle split (12.5%) for analysis. • Diamond core is cut with a diamond saw to 1.0 m or geological intervals and half sampled. • For the slag heaps, grab samples were taken by collecting handfuls from a 2m radius to a total of about 10kg
	• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*	• Nominal 1m down the drill-hole samples are taken unless geology intervals dictate otherwise.
	• *Aspects of the determination of mineralization that are Material to the Public Report.*	• Gold by fire assay method and Base metals by 4 acid digest with ICP-AES analysis. • Analytical methods unknown for historical data (14% of data within copper domain)
	• *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverized to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralization types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• Best industry practise used with drill samples crushed to 2mm, split in a riffle splitter to obtain a 250g which was milled to 75 µm. 0.5g of the pulp was analysed for a multi-element suite (4 acid digest, ICP-AES analysis). For gold analysis a nominal 30g sample charge was by analyse by fire assay with AAS finish. • Mineralisation is mostly disseminated with moderate variability and no known sampling difficulties.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple*	• 85% of drilling in copper domain was modern reverse circulation which used a face-sampling bit of 126mm

Criteria	JORC Code explanation	Commentary
	or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	diameter • 14% of drilling in copper domain was historical open hole percussion, no further details recorded • 1% of drilling in copper domain was historical diamond, AX core. • Modern core drilling was HQ3 and NQ3 (triple tube) in order to maximise core recovery

Criteria	JORC Code explanation	Commentary
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.*	• Visual inspection of the sample volume indicates sample recovery is better than 90%. Any poor sample recovery or condition is noted in the logs. • Diamond core recovery is recorded as run by run • RC sample bags are weighed prior to splitting
	• *Measures taken to maximize sample recovery and ensure representative nature of the samples.*	• RC samples are visually checked for recovery, moisture and contamination. A riffle splitter is used to provide a uniform sample and is routinely cleaned. Air is used at the beginning of each drill rod to remove excess water and maintain dry samples where possible.
	• *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Ground conditions are conducive for RC drilling and drilling returned consistent sized samples. RC recoveries are high enough to preclude the potential for sample bias.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*	• Logging of RC drilling identifies all aspects of lithology, colour, weathering, texture, alteration and mineralization including percentage estimates of sulphide content. During logging, part of the RC sample was sieved, logged and placed in RC chip trays which is also photographed and included with the logging. The logging includes references to wet samples if present, voids and other information important to the resource estimation process.
	• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*	• Logging is qualitative. Magnetic susceptibility is quantitative. Chip trays are stored for reference and photos are included in the logs.
	• *The total length and percentage of the relevant intersections logged.*	• All drilling is logged over the full length of the hole.
Sub-sampling techniques and sample	• *If core, whether cut or sawn and whether quarter, half or all core taken.*	• Diamond core was sampled as half core, cut by diamond saw.
	• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*	• Sampling was dry off the cyclone / riffle splitter.

Criteria	JORC Code explanation	Commentary
preparation	• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*	• The sample preparation techniques are appropriate to the style, grade and grain size of mineralisation
	• *Quality control procedures adopted for all sub-sampling stages to maximize representivity of samples.*	• Sub-sampling is done with a riffle splitter in the field and laboratory until the sample has been reduced to a pulp
	• *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.*	• Duplicate samples are inserted at a rate of approximately 1: 20 as a check on the sampling process
	• *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Samples sizes are to industry standard and considered appropriate.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	• The analytical methods used are appropriate to the mineralogy of the samples and return total results for all elements of economic importance.
	• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*	• Geophysical tools not used to determine grade.
	• *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	• In addition to the internal laboratory checks the Company submits standards on a 1: 30 ratio and one field duplicate for the strongest mineralised interval visualised for every drill hole.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.*	• None undertaken as this was not considered material
	• *The use of twinned holes.*	• A proportion of the RC program reported here was in part intended to verify historical significant grade widths. While not close enough to be considered “twins” due to the access issues, the holes trace closely to the historical holes which are now considered appropriate for inclusion into future resource estimates.

Criteria	JORC Code explanation	Commentary
	• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*	• Data is stored both as a hard copy and entered into a database.
	• *Discuss any adjustment to assay data.*	• No adjustments were made to the data.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	• Collar locations are determined by DGPS. • Down-hole surveys are electronically recorded magnetic compass and inclinometer readings obtained at 6m and every 30m intervals thereafter except for vertical holes where fewer readings are taken.
	• *Specification of the grid system used.*	• GDA94 (Zone 55)
	• *Quality and adequacy of topographic control.*	• Topographic surface in areas of likely development is from closely spaced (<10m) DGPS traverses in a grid pattern and on ridges and gullies. Elsewhere a DTM obtained from airborne geophysical surveys was used.
Data spacing and distribution	• *`Data spacing for reporting of Exploration Results.*	• Scout drilling into anomalous areas defined by geochemistry and geophysics does not consider drill spacing. • Drilling into Lloyds for resource estimation purposes targets a 25 x 25m lateral spacing for the highest confidence. Due to terrain, drilling is carried out from common pads in a "fan" which generally harnesses the highest variance grade reasonably well given the relatively flat nature of the mineralised shoot.
	• *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.*	• The resource development drilling is targeting a spacing of between 25-50m, is considered sufficient to harness the geological and grade continuity for Mineral Resource and subsequent Ore Reserve estimation.
	• *Whether sample compositing has been applied.*	• No sample compositing is carried out.
Orientation of data in	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to*	• Drilling is oriented as close to perpendicular to the interpreted mineralised shoot as practically

Criteria	JORC Code explanation	Commentary
relation to geological structure	*which this is known, considering the deposit type.*	possible (and therefore, across the direction of greatest variance).
	• *If the relationship between the drilling orientation and the orientation of key mineralized structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• As per above. No bias suspected.
Sample security	• *The measures taken to ensure sample security.*	• All samples prior to submission are under the supervision of the Project Geologist. • Following submission to the laboratory (by Company personnel), reference material are stored at the Company's warehouse in Oberon.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits completed on current drill program.

13.2. Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.*	• EL6463 • ~60km South of Oberon in NSW. • EYM through a subsidiary holds 100%
	• *The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.*	• Tenement is in good standing.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	Various operators have held tenure over the area; the following companies have recorded work in the area to varying capacities: • CRA Ltd • General Resources Ltd • Pacific Copper Ltd • Southern Ventures Ltd • Telminex N.L. • Michelago Resources • Marlborough Resources • Getty Oil • Dominion Mining • Republic Gold N.L. The final three in the list have carried out the majority of the most recent work and upon which EYM has based its exploration programs.
Geology	• *Deposit type, geological setting and style of mineralization.*	• At Lloyds mine copper mineralisation occurs as quartz – sulphide veins, and as a halo of disseminated mineralisation in the wall rocks. The predominant sulphide mineral is chalcopyrite with sphalerite on the vein walls and pyrrhotite disseminated in the wall rocks. Galena and tetrahedrite have also reported, but not at economically important levels. The mineralisation

Criteria	JORC Code explanation	Commentary
		varied in width from 0.3m to 12 m, striking roughly east - west and dipping moderately north. The mineralisation has a typical strike extent of 180m, terminating in faults at both ends. The intersection of the terminating faults with the mineralisation results in the ore plunging to the northeast.

Criteria	JORC Code explanation	Commentary
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.*	• Refer to the body of the text of this report and Appendix 2.
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• No exclusions of information have occurred.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	• Not material as exploration results are not reported.
	• *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.*	• Not used / applied.
	• *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• No metal equivalents reported.
Relationship between mineralization widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.*	• Not material as exploration results are not reported.
	• *If the geometry of the mineralization with respect to the drill hole angle is known, its nature should be reported.*	• Close to perpendicular.

Criteria	JORC Code explanation	Commentary
	• *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• Close to true width.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• To the extent relevant, maps are included in the main body of the report.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Not material as exploration results are not reported.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Not material as exploration results are not reported.
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).*	• Geotechnical diamond core drilling • Metallurgical diamond core drilling • Resource estimate • Scout exploration / sterilization drilling • Resource definition drilling of new areas
	• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• The full extent of the planned drill programs have been previously reported through announcements or Company presentations.

13.3. Section 3 Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• A portion of the data used was compared to original logging and laboratory certificates • The databases used include checks on holeID between data types • Anomalous element ratios were checked for possible sample number errors
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• A site visit was made for 10 days during March 2015, allowing inspection of the site, drilling, sampling, logging and data handling methods, Talks were held with key site personnel.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• The geological interpretation is of high confidence due to the simple geology, high data density and high quality underground mapping • The Lloyds copper grade domain was interpreted using copper assays, drill logging and historical underground level mapping • The tailings and slag heaps domain wireframes were constructed from surface topography and inverted IP data (base of tailings). The resultant volumes were validated against historical production records • Geological constraints (especially offsetting faults) were used to guide and limit the interpretation of the Lloyds copper grade domain. • Geological and grade continuity are controlled by post-mineralisation faulting
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The Lloyds copper mineralisation extends over an east – west strike length of about 200m, is 2m – 30 m thick. The resource extends about 300m down plunge, although historical workings went about 500m down plunge.
Estimation and	• *The nature and appropriateness of*	• Minesight mine planning software

Criteria	JORC Code explanation	Commentary
modeling techniques	*the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	was used for all data analysis, geostatistics, block modelling and grade interpolation. • In the Lloyds model copper grades were interpolated into a block model (10m x 10m x 2m blocks) by ordinary kriging within a copper grade domain interpreted at a nominal 0.2% Cu. Only the copper grade domain was used as a hard boundary. Each block grade was estimated using a minimum of 5 and a maximum of 15 2.0 metre composites with a maximum of 10 within a quadrant. No extreme copper grades were identified and so no measures taken to deal with such. Other elements (Au, Ag, Zn, Pb % S) were interpolated using the same parameters as copper except that inverse distance squared weighting was used instead of ordinary kriging. The block size was chosen as about half the closest drilling. The vertical block extent reflects the likely open pit mining flitch height. • In the tailings model the grades of all elements were interpolated by inverse distance squared weighting with the topographic surface used as an 'un-folding' surface. • In the slag model average de-clustered grades were assigned to the block model because it was not considered possible to make a local grade estimate due to the way the slag was dumped. • The block models were created assuming that mining would be by open pit methods at a rate of 150kt to 500kt per annum • In the Lloyds model (total) sulphur grades were estimate into all blocks to allow assessment of possible acid rock drainage characteristics of both tailings and waste rock. • No deleterious elements have been estimated. Arsenic averages 100ppm in the Lloyds copper domain and has not been identified by metallurgical

Criteria	JORC Code explanation	Commentary
		testwork as a problematic element. • The Lloyds model was validated by comparison of average de-clustered composite (input) grades to average block grades, by volume checks of wireframes to the block model, by swath plots and by comparison of grade – tonnage curves with alternative interpolation methods. • There is no reconciliation data available.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• All tonnages are on a dry basis
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• The reporting cutoff (0.3% Cu) is based on a 2011 pre-feasibility study factored for subsequent changes in copper price and exchange rate and preliminary capex and opex costs from studies in progress
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• Open pit mining at 150kt to 500kt is assumed. This resulted in a minimum copper domain width of 2.0m. Dilution up to a maximum of 4.0 m was included in the copper domain
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the*	• A flowsheet comprising crushing, milling and flotation to produce a copper concentrate with Au, Ag and possibly Zn credits • Metallurgical testwork for the 2011 PFS and the current study show that flotation copper recoveries in excess of 70% should be easily achieved for the tailings and 50% for the slag. • Current studies are suggesting in

Criteria	JORC Code explanation	Commentary
	case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	excess of 95% should be achievable in the fresh hard-rock mineralisation.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• It is assumed that it will be possible to place all waste rock and tailings produced as a result of any mining project on site. Some sulphur grades in likely waste rock are such that acid rock drainage may occur if not managed appropriately.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• Bulk density in the Lloyds model was assigned from the average of data collected from 5 diamond holes using the tray method. The tray method takes into account voids but not moisture content. The moisture content of fresh mineralisation is likely very low (<3%), however moisture in the transition mineralisation may be higher. These data show little variation with depth, but are spatially clustered and so may not be representative of the entire Lloyds resource. • The bulk density in the tailings and slag models was assigned from assumed values.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity*	• Resource categorisation of the Lloyds model was mostly influenced by geological continuity and data (drillhole) spacing, but was also modified for data sample quality and statistical measures of grade estimation uncertainty. Wireframes enclosing zones of like confidence were used to apply classification to the blocks. Resources were only

Criteria	JORC Code explanation	Commentary
	and distribution of the data). • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	reported from within the 0.2% copper domain • The tailings and slag models were both completely categorised as indicated as the level of risk to grade and tonnage was considered to be equal throughout these models.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• No audits or reviews of the resource estimation process have been completed
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The accuracy of the resource categories cannot be quantified • The resource categorisation relates to confidence in the local (block scale) estimate for the Lloyds model • The tailings and slag models are categorised globally reflecting the fact that selective mining will not be possible • No production data is available to test the accuracy of these estimates.

14 Appendix Two – Drillhole List

Hole_id	GDA94 Easting	GDA94 Northing	MGA RL	MGA Azimuth	Hole dip	Maximum depth	Hole type	Company
62B1	734068.3	6239437	912.63	282	-50	73	Diamond	CRA
62B2	734028	6238053	830	252	-50	130	Diamond	CRA
62B3	734053.1	6238353	846.94	282	-60	153	Diamond	CRA
BC-1	734169.97	6239364	915.90	0	-90	180	RC	EYM
BG01	735058	6242187	931	282	-45	183	Diamond	Platina
BG02	735058	6242341	948	282	-45	183	Diamond	Platina
BG03	734897	6241858	950	282	-45	183	Diamond	Platina
BG04	734848.7	6241680	957.35	282	-45	183	Diamond	Platina
BHRC1	734819	6240854	990	270	-59	92	RC	Dominion Mining
BHRC2	734783	6240880	985	270	-60	82	RC	Dominion Mining
BHRC3	734556	6240866	970	286	-60	120	RC	Dominion Mining
BHRC4	734857	6240780	988	259	-60	90	RC	Dominion Mining
BHRC5	734868	6240683	1000	261	-60	90	RC	Dominion Mining
BHRC6	734458	6240668	950	286	-70	126	RC	Dominion Mining
BHRC7	734856	6240860	991	287	-60	108	RC	Dominion Mining
BHRC8	734622	6240847	977	286	-60	174	RC	Dominion Mining
D1	734123	6239222	925	0	-90	64	Diamond	Dominion Mining
D10	734171	6239361	920	0	-90	149	Diamond	Dominion Mining
D11	734102	6239332	895	0	-90	118	Diamond	Dominion Mining
D15	734115.5	6239425	926.43	282	-60	131	Diamond	Dominion Mining
D2	734073	6239209	912	192	-60	44.12	Diamond	Dominion Mining
D3	734085.2	6239157	902.37	0	-90	107	Diamond	Dominion Mining
D4	734065.1	6239282	897.73	192	-60	92	Diamond	Dominion Mining
D9	734126.4	6239316	914.7	0	-90	144	Diamond	Dominion Mining
DB1	734375.5	6237408	730.68	102	-60	251	Diamond	Getty Oil
DB2	734543.7	6238055	893.56	102	-60	296	Diamond	Getty Oil
DB3	734483.4	6237654	819.7	132	-60	250	Diamond	Getty Oil
DB4	734029.2	6238085	832.6	282	-60	295	Diamond	Getty Oil
DB5	734761.2	6238549	889.14	102	-60	251	Diamond	Getty Oil
DB6	734575.1	6238222	884.31	102	-60	250	Diamond	Getty Oil
DB7	733994.1	6237856	857	297	-60	298	Diamond	Getty Oil
DB8	734319.3	6238431	904.15	282	-60	299	Diamond	Getty Oil
DB9	734185	6238060	899.17	282	-60	174	Diamond	Getty Oil
DB9A	734185	6238060	899.17	282	-70	433.4	Diamond	Getty Oil
EYMRC-001	734153.22	6239233	935.79	185	-55	124	RC	EYM
EYMRC-003	734115.45	6239223	927.84	170	-50	120	RC	EYM
EYMRC-005	734110.78	6239223	924.40	210	-55	84	RC	EYM

Hole_id	GDA94 Easting	GDA94 Northing	MGA RL	MGA Azimuth	Hole dip	Maximum depth	Hole type	Company
EYMRC-007	734150.88	6239756	938.7	0	-90	100	RC	EYM
EYMRC-008	734088.10	6239425	916.23	0	-90	162	RC	EYM
EYMRC-009	734037.11	6239224	897.04	0	-90	52	RC	EYM
EYMRC-010	734154.62	6239170	906.21	0	-90	74	RC	EYM
EYMRC-011	734029.98	6239207	895.90	0	-90	30	RC	EYM
EYMRC-012	734024.17	6239187	895.11	0	-90	28	RC	EYM
EYMRC-013	734020.83	6239168	894.15	0	-90	20	RC	EYM
EYMRC-014	734026.85	6239150	893.57	0	-90	33	RC	EYM
EYMRC-015	734052.11	6239165	898.82	0	-70	64	RC	EYM
EYMRC-016	734055.25	6239163	898.77	46	-60	108	RC	EYM
EYMRC-017	734116.9	6239237	925.80	340	-85	126	RC	EYM
EYMRC-018	734123.20	6239222	929.65	140	-75	108	RC	EYM
EYMRC-019	734155.13	6239173	903.66	90	-50	80	RC	EYM
EYMRC-020	734074.49	6239219	911.94	325	-80	100	RC	EYM
EYMRC-022	734050.69	6239166	898.75	2	-70	80	RC	EYM
EYMRC-023	734073.87	6239191	909.03	312	-70	60	RC	EYM
EYMRC-026	734107.13	6239152	899.68	97	-50	80	RC	EYM
P16	734440	6239373	1009	0	-90	380	Percussion	Dominion Mining
P17	734220.7	6239445	948.09	0	-90	300	Percussion	Dominion Mining
P18	734078.8	6239229	914.87	0	-90	283	Percussion	Dominion Mining
P19	734056	6238942	870	0	-90	211	Percussion	Dominion Mining
P20	734308.9	6239690	953.87	0	-90	300	Percussion	Dominion Mining
P21	734613	6239640	995	0	-90	296	Percussion	Dominion Mining
P22	734374	6239896	950	0	-90	300	Percussion	Dominion Mining
P23	734341	6240117	941	0	-90	271	Percussion	Dominion Mining
P24	734514	6240139	938	0	-90	277	Percussion	Dominion Mining
P25	734692.8	6239115	980.48	0	-90	289	Percussion	Dominion Mining
P26	735340	6239445	965	0	-90	241	Percussion	Dominion Mining
P27	734206.2	6239926	919.4	0	-90	103	Percussion	Dominion Mining
P28	735142	6239971	1000	0	-90	288	Percussion	Dominion Mining
P29	734190	6240070	915	0	-90	120	Percussion	Dominion Mining
PB10	735458	6239331	950	42	-60	150	Percussion	Getty Oil
PB11	735521	6239308	930	62	-60	150	Percussion	Getty Oil
PB12	736072	6239363	950	259.5	-60	200	Percussion	Getty Oil
RCR001	734081.5	6239235	914.93	0	-90	70	DDH	RGL
RCR001B	734080.3	6239232	914.89	0	-90	22.1	DDH	RGL

Hole_id	GDA94 Easting	GDA94 Northing	MGA RL	MGA Azimuth	Hole dip	Maximum depth	Hole type	Company
RCR002	734079.4	6239231	914.85	0	-90	135	DDH	RGL
RCR003	734337.8	6239978	940.17	271	-60	180.3	DDH	RGL
RCR004	734302.4	6239842	940.56	271	-60	171.3	RC/DDH	RGL
RCR005	734205.5	6239635	943.79	271	-60	144	RC	RGL
RCR006	734853.9	6238727	951.92	99	-50	201	RC/DDH	RGL
RCR008	734311.2	6239574	651.41	93	-65	150.3	RC/DDH	RGL
RCR009	733987.4	6238132	826.66	235	-60	150	RC	RGL
RCR010	734005.5	6237588	842.37	305	-60	150	RC	RGL
RLT001	733951.31	6239379	883.47	0	-90	2	AUGER	RGL
RLT002	733923.44	6239367	880.58	0	-90	7.5	AUGER	RGL
RLT003	733930.39	6239348	881.28	0	-90	6.5	AUGER	RGL
RLT004	733913.88	6239340	876.43	0	-90	6.5	AUGER	RGL
RLT005	733929.07	6239329	876.41	0	-90	6	AUGER	RGL
RLT006	733905.51	6239374	874.77	0	-90	2.5	AUGER	RGL
RLT006A	733903.35	6239367	874.42	0	-90	6.5	AUGER	RGL
RLT007	733902.04	6239318	867.75	0	-90	2.5	AUGER	RGL
RLT008	733909.06	6239311	865.33	0	-90	2.5	AUGER	RGL
RLT009	733874.45	6239321	865.1	0	-90	2.5	AUGER	RGL
RLT010	733964.65	6239355	889.84	0	-90	2	AUGER	RGL
RLT011	733984.19	6239338	885.37	0	-90	2.5	AUGER	RGL
RLT012	733994.13	6239353	892.09	0	-90	2.5	AUGER	RGL
RLT013	733962.16	6239409	887.16	0	-90	2.5	AUGER	RGL
RLT014	733870.69	6239344	860.63	0	-90	5.3	AUGER	RGL
RLT015	733868.76	6239372	865.39	0	-90	2.5	AUGER	RGL
RLT016	733896.30	6239336	870.22	0	-90	6.5	AUGER	RGL
RLT017	733888.38	6239332	866.35	0	-90	4	AUGER	RGL
RLT018	733878.17	6239353	864.08	0	-90	3	AUGER	RGL
RLT019	733854.12	6239336	853.43	0	-90	3.3	AUGER	RGL
RLT020	733839.42	6239330	847.97	0	-90	1.1	AUGER	RGL
RLT021	733930.11	6239391	875.45	0	-90	7.4	AUGER	RGL
SP1	734129	6239219	930.59	193	-60	62.4	Percussion	General Resources
SP2	734098	6239217	920.59	193	-60	59	Percussion	General Resources
SP3	734073	6239220	915.59	193	-60	39.6	Percussion	General Resources
SP4	734038	6239232	890.59	193	-67	32	Percussion	General Resources
ZCDD-018	734592.8	6239646	1000.9	230	-75	446.8	DIAMOND	BURRAGA COPPER
ZCRC-006	734094.43	6239151	898.79	140	-60	60	RC	BURRAGA COPPER
ZCRC-007	734153.56	6239159	904.50	140	-60	96	RC	BURRAGA COPPER
ZCRC-008	734152.63	6239160	904.47	140	-90	20	RC	BURRAGA COPPER

Hole_id	GDA94 Easting	GDA94 Northing	MGA RL	MGA Azimuth	Hole dip	Maximum depth	Hole type	Company
ZCRC-009	734056.68	6239158	897.99	140	-60	50	RC	BURRAGA COPPER
ZCRC-01	734080.43	6239185	908.61	0	-90	50	RC	BURRAGA COPPER
ZCRC-011	734156.28	6239236	934.42	140	-50	120	RC	BURRAGA COPPER
ZCRC-012	734154.42	6239238	934.01	140	-90	162	RC	BURRAGA COPPER
ZCRC-013	734103.57	6239106	890.29	330	-60	60	RC	BURRAGA COPPER
ZCRC-014	734319.78	6239990	935.64	320	-80	120	RC	BURRAGA COPPER
ZCRC-015	734197.98	6239277	946.64	0	-90	147	RC	BURRAGA COPPER
ZCRC-016	734119.21	6239307	910.32	140	-50	132	RC	BURRAGA COPPER
ZCRC-017	734593.45	6239650	1000.89	230	-90	300	RC	BURRAGA COPPER
ZCRC-020	734626.53	6239846	977.44	140	-60	80	RC	BURRAGA COPPER
ZCRC-021	734673.42	6239873	966.42	320	-55	72	RC	BURRAGA COPPER
ZCRC-022	734099.84	6239871	923.30	320	-60	80	RC	BURRAGA COPPER
ZCRC-023	734202.01	6239921	917.04	330	-70	100	RC	BURRAGA COPPER
ZCRC-024	734094.96	6239803	931.04	320	-50	80	RC	BURRAGA COPPER
ZCRC-025	734205.46	6239925	917.08	360	-70	100	RC	BURRAGA COPPER
ZCRC-026	734304.91	6240002	933.0	330	-80	126	RC	BURRAGA COPPER
ZCRC-03	734080.75	6239206	911.87	0	-90	75	RC	BURRAGA COPPER
ZCRC-04	734071.96	6239260	901.19	0	-90	91	RC	BURRAGA COPPER
ZCRC-05	734099.34	6239293	907.35	0	-90	120	RC	BURRAGA COPPER
ZCRC-10	734173.17	6239365	916.10	140	-60	162	RC	BURRAGA COPPER