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Company Announcement Office  
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ASX code: MUX

## **REVISED RED CAP RESOURCE ESTIMATES RE-ISSUED WITH JORC 2012 COMPLIANCE**

Further to previous announcement of the Red Cap Resources Estimates Re-issued with JORC 2012 Compliance (ASX: 16 April 2015), Mungana Goldmines Ltd has revised that announcement to include a summary of the information material to understand the mineral resource estimate.

### **HIGHLIGHTS**

The Penzance, Queenslander and Morrisons deposits located in the Red Cap area, part of the Chillagoe Project in North Queensland are re-issued as JORC 2012 compliant Mineral resource estimates. There are no material differences between the revised 2015 resource estimations and those completed by Kagara Ltd in 2012 as published in the March and June 2012 quarterly reports.

- *Penzance - Copper dominant Inferred Resource of 0.2 million tonnes at 3.2% copper, 1.3% zinc, 0.2 grams per tonne gold and 58 grams per tonne silver, containing 7Kt of copper, 3Kt of zinc and 0.4Moz of silver*
- *Penzance, Queenslander and Morrisons - Inferred Resources with a combined total of 3.6 million tonnes at 5.0% zinc, 0.6% copper, 0.3% lead and 17 grams per tonne silver containing 178Kt of zinc, 20Kt of copper, 9Kt of lead, and 1.96Moz of silver*
- **The Penzance and Morrisons resources remain open at depth and along strike to the east. The Queenslander resource remains open at depth and along strike to the west.**

Mungana Goldmines Limited (ASX: MUX) is pleased to re-issue the Red Cap Mineral resource estimates associated with its 100%-owned Chillagoe base metals project located 210km west of Cairns in north Queensland. These resource estimates were previously completed by Kagara Ltd (KZL) and the latest work by Mungana Goldmines supersedes the previous work to JORC 2012 compliance. The Chillagoe base metals project was acquired by Mungana Goldmines from the liquidators of Kagara Ltd in July 2014.

The Red Cap area is located 15 kilometres North West of Chillagoe and only 4 kilometres from the partially built base metals concentrator at the Mungana mine site. This resource estimate does not include the Victoria resource also located at Red Cap which is still to be completed to JORC 2012

compliance. The Red Cap area is considered one of the most prospective areas within the Chillagoe portfolio and is expected to be a key focus of exploration activity outside of the King Vol area.

The company has previously re-issued the high grade King Vol zinc resource in January 2015 (ASX: 28 January 2015) to JORC 2012 compliance. The King Vol resource estimate is 3.0 million tonnes at 11.9% zinc, 0.8% copper, 0.6% lead and 29.9 gram per tonne silver. The King Vol resource is located 25km to the Northwest of Red Cap and the partially built Mungana concentrator.

The Red Cap Mineral Resource estimates are set out in Table 1 below.

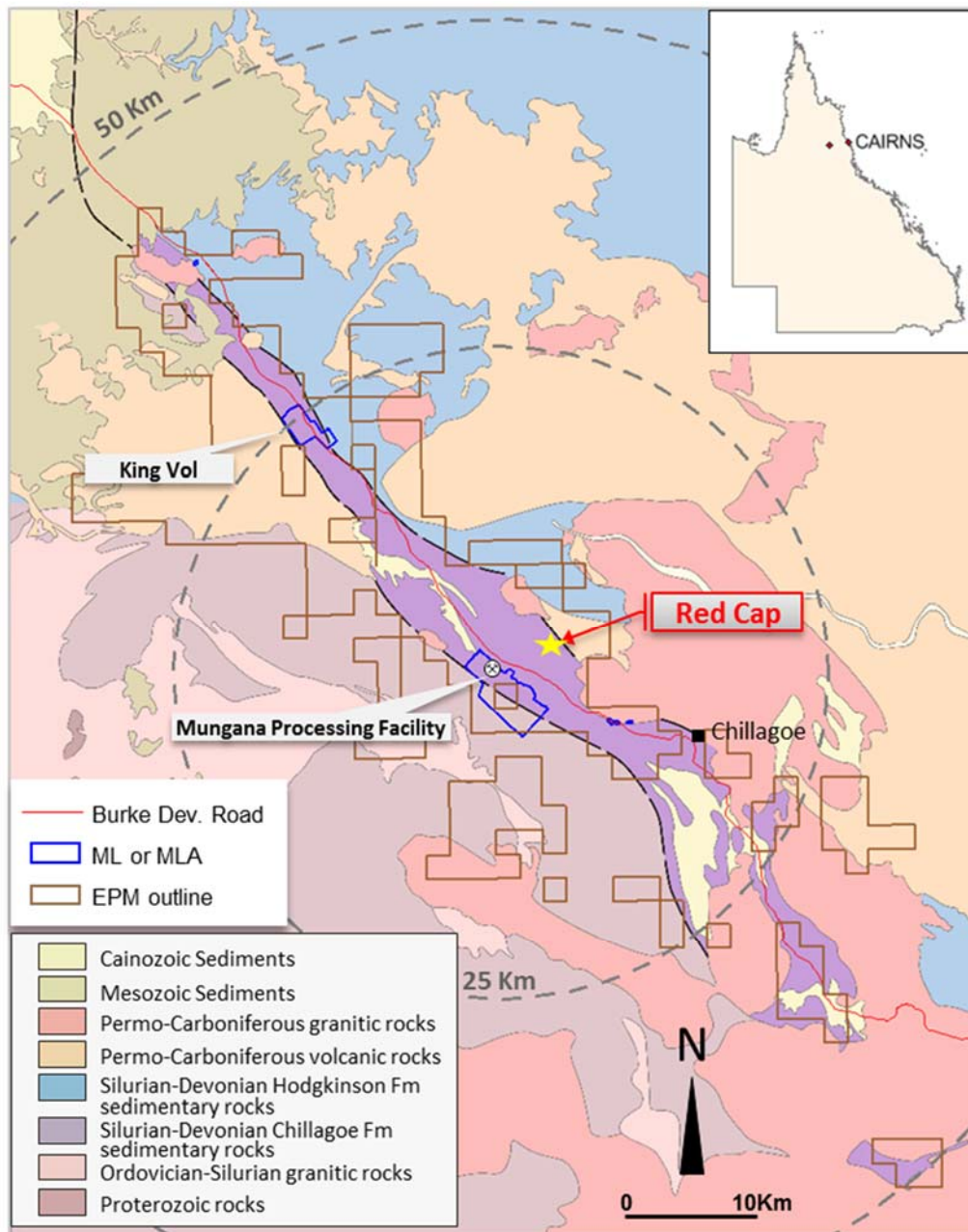
	Red Cap Inferred Mineral Resource - March 2015										
	Tonnes (Mt)	Grade					Contained Metal				
		Zn %	Cu %	Pb %	Au g/t	Ag g/t	Zn (kt)	Cu (kt)	Pb (kt)	Au (Koz)	Ag (Moz)
Penzance (Cu)	0.228	1.3	3.2	0.0	0.2	58	3	7	0	1.5	0.43
Penzance (Zn)	0.085	6.2	0.7	0.2	0.1	19	5	1	0	0	0.05
Queenslander	1.570	4.4	0.5	0.2	0.0	12	69	8	3	0	0.61
Morrison's	1.930	5.4	0.6	0.3	0.1	21	104	11	6	62	1.65
<b>Total</b>	<b>3.813</b>	<b>4.8</b>	<b>0.7</b>	<b>0.2</b>	<b>0.1</b>	<b>19</b>	<b>181</b>	<b>27</b>	<b>9</b>	<b>63.5</b>	<b>2.74</b>

**Table 1 – Red Cap Mineral Resource (Geologically constrained, not reported to cut-off)**

The Red Cap Mineral Resource estimate has been completed in accordance with the Australasian Code for Reporting of Exploration Results, Mineral resources and Ore reserves, The JORC Code 2012 Edition. The Mineral Resource is based on 76 intersections from 70 drill holes, with all intersections derived from NQ diamond core. Core samples were split with a diamond saw and half core samples taken for analysis. Sample intervals were nominally 2m but were adjusted to match lithological contacts. All samples were submitted to a commercial laboratory for analysis by acid digest with ICP finish for silver and base metals. Analysis for gold was by fire assay.

All resources are classified as inferred based on the confidence levels derived from the drill spacing. The Queensland and Morrison Resource Estimates were carried out using ordinary kriging and the Penzance estimate by inverse distance squared. Resource shapes are based on geological interpretation and as such a cutoff grade has not been utilised for reporting. The deposits are considered amenable to sub-vertical narrow ore mining methods similar to those previously employed at the nearby Mungana underground mine. No consideration has yet been given to other modifying factors.

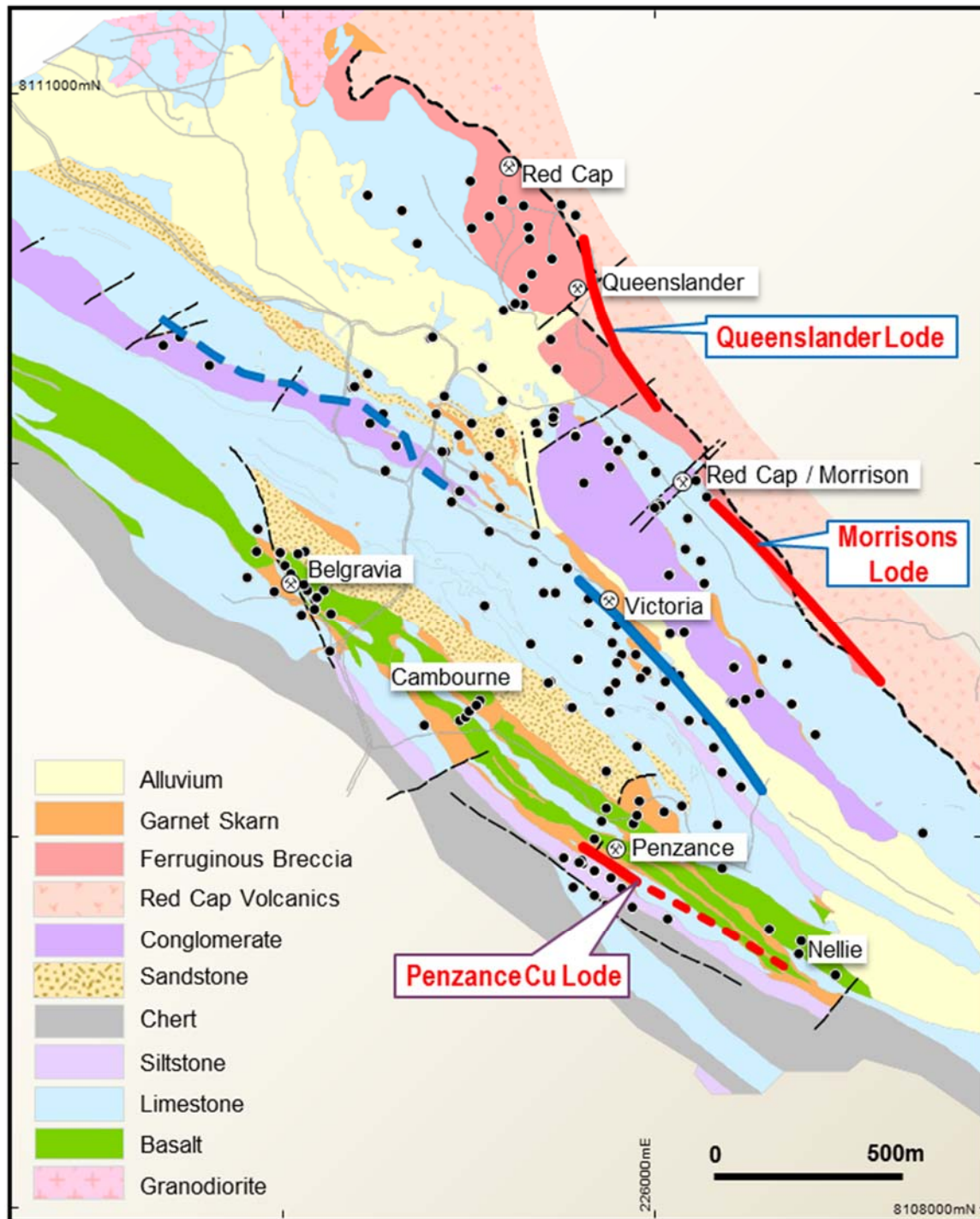
A summary of information used in the Red Cap Mineral resource estimate is provided in Appendix 1. There is no material differences in these resource estimates in comparison to those previously published in 2012. The Morrison's and Penzance resource estimates are the same and the Queensland resource is slightly different with the inclusion of an additional drill hole. (Queenslander 2012 resource was published as 1.59 Million tonnes at 4.5% zinc, 0.6% copper, 0.1% lead and 11 grams per tonne silver).



**Figure 1 – Red Cap Location Plan**

## Geology

The Red Cap area lies within the companies Chillagoe project and consists of several base metal skarn-associated deposits focussed along faulted contacts in the Silurian to Devonian aged Chillagoe Formation.



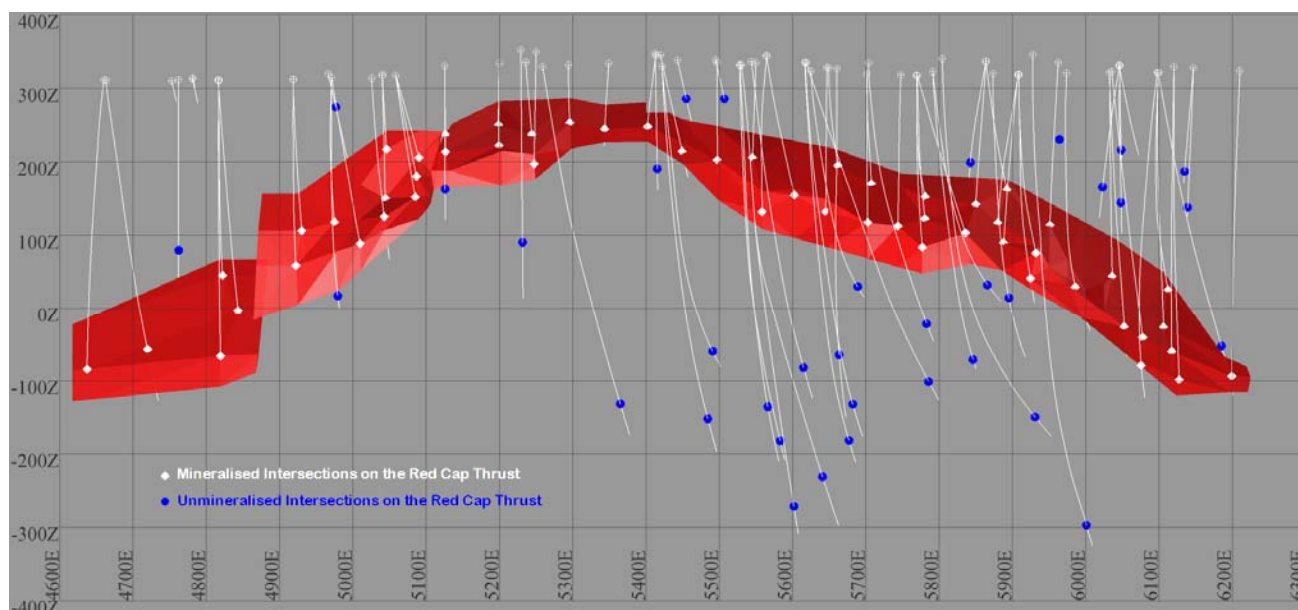
**Figure 2 – Local Geology and Drill Hole Collar Locations for the Red Cap Project**

At Red Cap, four northwest striking mineralisation trends are developed along sub-parallel lithological contacts located approximately 300-400m apart. The Queenslander and Morrisons lodes are located on the Red Cap - Morrisons Line and the Penzance lode is located on the Belgravia – Penzance Line.

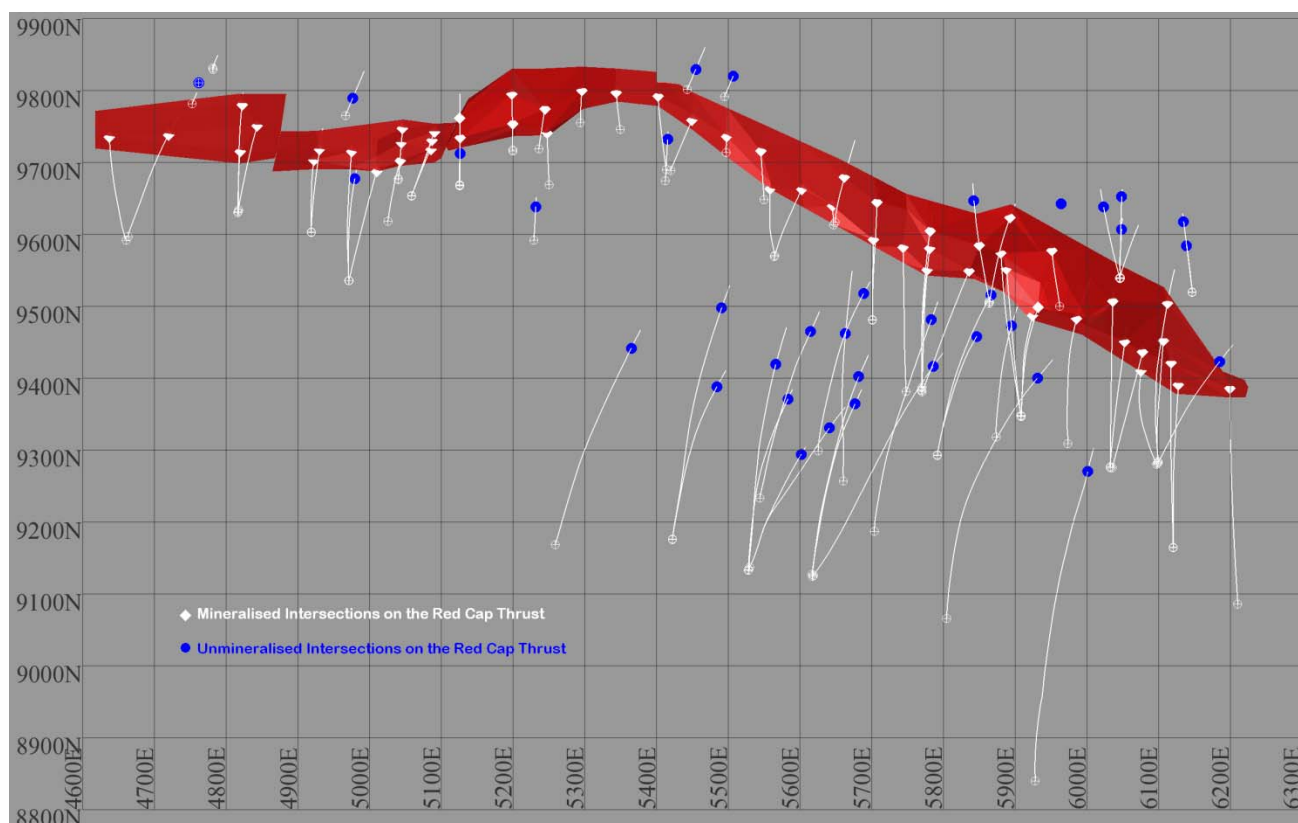
The Queenslander and Morrison lodes both lie on the Red Cap thrust, a moderately south west dipping thrust fault along which the Chillagoe Formation has been juxtaposed against the Late Carboniferous dacitic ignimbrites of the Red Cap Volcanics. The mineralisation that makes up the two lodes extends for over 1.5km along the Red Cap thrust. The thrust is expressed at surface as a prominent ridge of ferruginous and siliceous breccia and localised garnet skarn. Queenslander and Morrisons are named after historic workings located along the thrust with the Queenslander lode being defined as west of local grid easting 5400 and the Morrisons lode being east of local grid easting 5400.



Sphalerite is the main zinc sulphide mineral found with copper being in the form of Chalcopyrite and lead in the form of Galena. A close association exists between sphalerite-chalcopyrite (+/- minor galena and gold) and garnet-pyroxene-magnetite-pyrrhotite skarns.



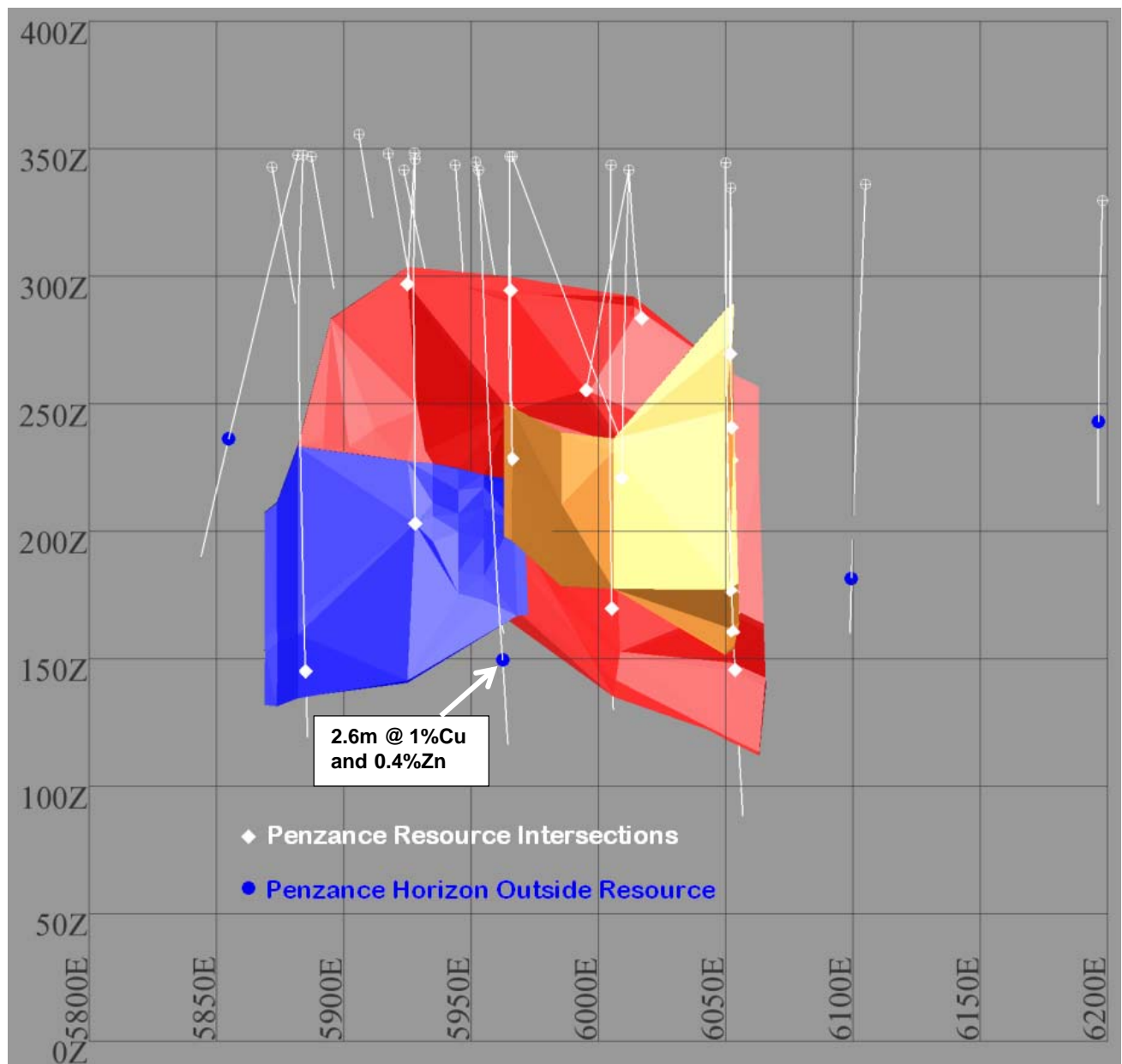
**Figure 3 – Long Section of the Queenslander Morrisons deposits showing drill traces**



**Figure 4 – Plan view of the Queenslander Morrisons deposits showing drill traces (Note several holes that are unmineralised on the Red Cap thrust targeted the Victoria prospect to the west)**

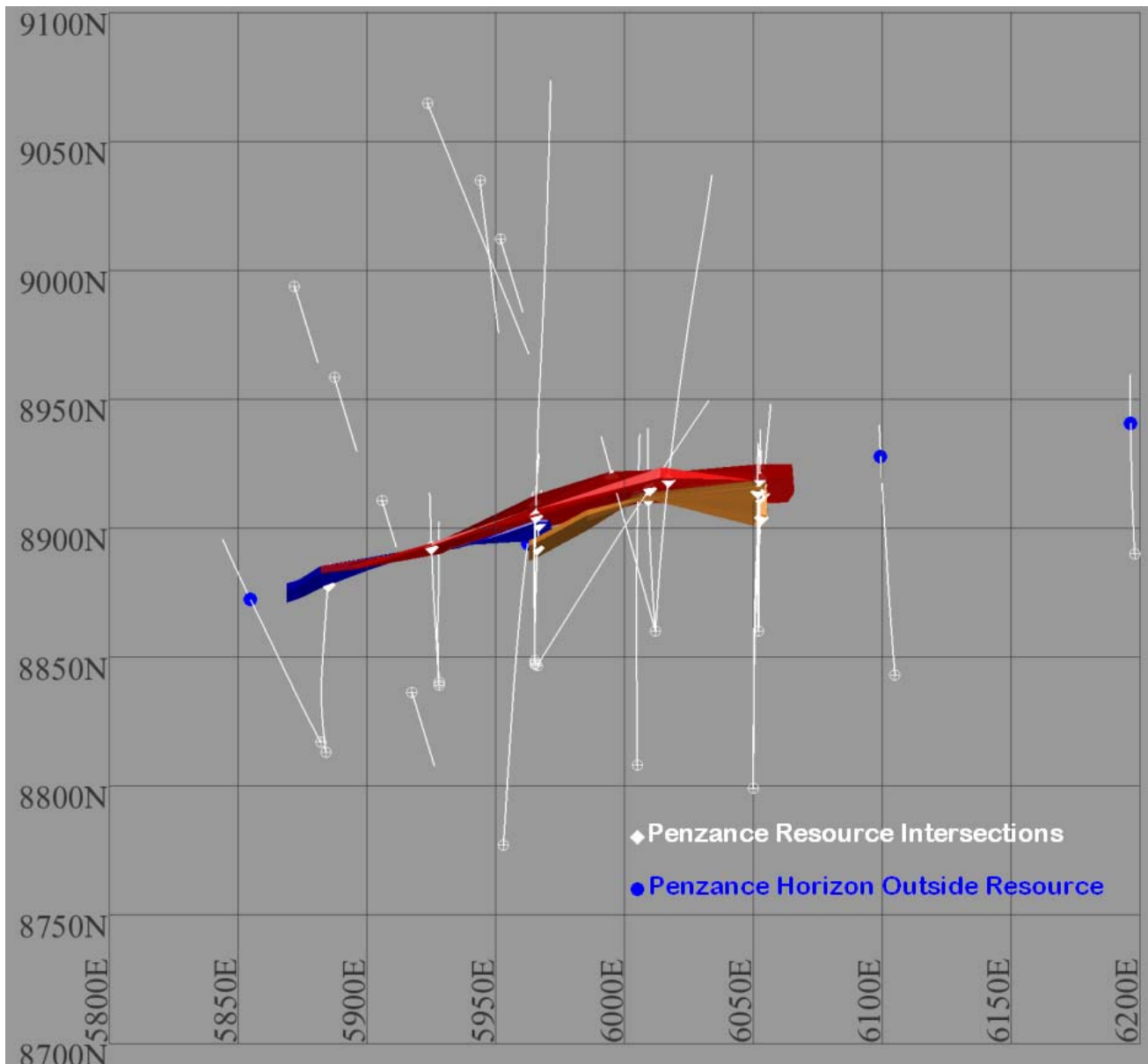
The Penzance deposit is located adjacent to the historical Penzance copper open pit, defined at surface by numerous old copper workings. The Penzance deposit is the last resource discovered by Kagara in 2011 prior to voluntary administration in 2012. Locally the geology comprises a north west trending, steeply dipping sequence of massive chert, intercalated fine to medium grained sandstones/siltstones and marble with variable amounts of garnet (+/- pyroxene) skarn alteration.

Copper and zinc mineralisation is developed primarily within the massive garnet skarn at the contact between marble and basalt. Mineralisation is characterised by semi-massive sulphide composed of chalcopyrite and sphalerite with variable amounts of pyrrhotite and pyrite. Drilling has defined a zone of mineralisation over approximately 200 metres of strike with a central, high grade, copper rich core plunging between 40 and 50 degrees towards the south east.



**Figure 5 – Long Section of the Penzance deposit showing drill traces**

The Penzance deposit has only been drill tested to 200m vertical depth. The resource remains open down dip with only one hole intersecting the prospective horizon below the current outlined resource (drill hole 1221 containing 2.6m @ 1%Cu and 0.4%Zn). Whilst this intersection was not included in the resource estimate it is strong evidence that the mineralised system at Penzance continues at depth. Drilling this field season will target potential depth extensions to the existing mineralisation.



**Figure 6 – Plan view of the Penzance deposit showing drill traces**

**Competent Person's Statement**

*The information in this report that relates to Mineral Resources is based on information compiled by Mr Andrew Beaton. Mr Beaton is a member of the Australasian Institute of Mining and Metallurgy (AusIMM) and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code"). Mr Beaton is a full time employee of Mungana Goldmines Ltd. Mr Beaton consents to the inclusion in this report of the Mineral Resources in the form and context in which they appear.*

**ENDS**

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## SECTION 1 SAMPLING TECHNIQUES AND DATA

Criteria	JORC Code Explanation	Commentary
Sampling techniques	<p><i>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</i></p>	<p>The Penzance, Queenslander and Morrisons deposits have been sampled using diamond core (DD) drilling. Drilling has been carried out on a nominal 50m x 50m grid spacing with minimal drilling at closer spacing.</p> <p>A total of 22 intersections from 16 DD holes (NQ) totalling 3,685.6m were utilised in the Penzance resource estimate. Three of the diamond holes had RC pre-collars with the remainder being cored from surface.</p> <p>A total of 24 intersections from 24 DD holes (NQ) totalling 5,712.5m were utilised in the Queenslander resource estimate. Six of the diamond holes had RC pre-collars with the remainder being cored from surface.</p> <p>A total of 30 intersections from 30 DD holes (NQ) totalling 10,002.6m were utilised in the Morrisons resource estimate. Seven of the diamond holes had RC pre-collars with the remainder being cored from surface.</p> <p>All holes were drilled by Kagara Ltd in the 2008, 2011 and 2012 field seasons.</p> <p>With few exceptions, all holes were drilled towards an azimuth of approximately 37 degrees magnetic (local grid north) to at an average dip of -60 degrees in order to intersect the steep southerly dipping ore zones at the most optimal angle.</p>
	<p><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used</i></p>	<p>Collar locations were picked-up by Kagara staff surveyors using a Trimble RTK GPS unit. All collar locations were recorded in the companies SQL database. One drill hole (1215) was not able to be located during the survey and as such the design co-ordinates have been used.</p> <p>All drill-holes were routinely surveyed with a Ranger Explorer multi-shot digital downhole camera at varying intervals, usually 30 metres but also more closely spaced intervals, depending on the amount of deviation. Two surveyed base stations were used to test all down-hole cameras for accuracy.</p> <p>Certified standards were inserted into sample sequences according to Kagara QAQC procedures. Duplicate samples for selected samples were also taken. Five base metal certified reference materials were utilised as standards. The QAQC results demonstrate that the sample data is of sufficient quality to build a reliable resource estimate.</p>

*Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information*

Mineralised diamond core as well as zones adjacent to mineralisation was split using a diamond saw. Half core samples were taken for analysis from all diamond holes. Remaining core has been kept for reference with some quarter core sent to cold storage for future metallurgical studies. Sample intervals ranged from 0.8m to 2.7m, averaging 1.9m, but were nominally 2m with adjustments made to match lithological contacts. Over 50% of sample intervals utilised in the resource estimate were 2m or more.

All samples were submitted to SGS Laboratories in Townsville for analysis.

Sample preparation involved drying, crushing to 5-6mm and, if necessary, riffle splitting this material to 2.5 to 3kg. The sample was then pulverised in an LM5 bowl pulveriser, such that >85% of the sample was -75 microns, before scooping out a 200gm pulp for analytical determinations.

All samples were assayed for Au, Cu, Pb, Zn, Ag, As, Mo, Bi, Ni, Cr, Sn, W, Sb and Te.

Analysis for Au was by fire assay method FAA505, with lead collection from a 50gm charge, acid digest and AAS finish (detection limit 0.01ppm)

First pass analysis on all samples were conducted for Cu, Pb, Zn, Ag, As, Mo, Bi, Ni and Cr by method ICP21R (perchloric acid digest, ICPOES finish).

First pass analysis for Sn, W, Sb and Te were completed by method IMS40Q (four acid digest – ie as for ICP23Q + hydrofluoric acid, ICPMS finish).

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

Cu, Zn and As > 10,000ppm, Pb > 5,000ppm and Ag > 100ppm by either methods ICP23Q or AAS22D; both triple acid digest methods with 0.2gm charge and ICP finish for ICP23Q, and 1gm charge with AAS finish for method AAS22D;

Mo and Sb > 1,000ppm by method ICP40Q;

Sn > 1,000ppm by either ICP40Q or XRF fusion methods XRF78S or XRF78O.

<b>Drilling techniques</b>	<p><i>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</i></p>	<p>At Penzance Kagara completed 22 diamond drillholes holes in 2 campaigns between 2011 and 2012. Diamond holes ranged in depth from 102.4m to 828.6m. Excluding the deepest hole (1104) which was pushed through to test the Victoria deposit, the average depth of the holes around Penzance is 198m. Of the 22 holes drilled 19 were diamond cored from surface and 3 had RC pre-collars. Of the 22 holes drilled 16 provided intersections that have been used in the resource estimate.</p> <p>At Queenslander and Morrisons Kagara completed a total of 82 diamond drill holes in 3 campaigns between 2008 and 2012. Diamond holes ranged in depth from 104.4m to 667m with an average depth of 349.3m. Approximately 15% of holes were pre-collared. Of the 82 holes drilled 54 provided intersections that have been used in the resource estimate.</p> <p>Kagara diamond holes were HQ or NQ2 sized core. All diamond core was oriented using an ACE tool.</p> <p>Kagara RC percussion pre-collars were drilled with a 140mm face sampling hammer.</p> <p>All Kagara drillholes had magnetic downhole surveys taken using a Ranger explorer multishot digital camera. Survey intervals were nominally 30m. Stainless steel rods were used at the base of the RC percussion rod string for accurate magnetic surveys.</p>
<b>Drill sample recovery</b>	<p><i>Method of recording and assessing core and chip sample recoveries and results assessed</i></p> <p><i>Measures taken to maximise sample recovery and ensure representative nature of the samples</i></p> <p><i>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.</i></p>	<p>Diamond core recovery is logged and recorded in the database. No significant core loss issue exists. The average core recovery is 97.7% and is over 99.6% for samples from the mineralised zones.</p> <p>No RC samples were used in any of the resource estimations.</p> <p>Ground conditions encountered at Penzance, Queenslander and Morrisons were very good for diamond drilling and recoveries consistently high. Diamond core was reconstructed into continuous runs for orientation marking as per the Kagara procedure. Depths were checked against the core blocks.</p> <p>Sample recovery for diamond holes is generally very high (over 99%) within the mineralised zones. Ground conditions for drilling were good. No significant bias is expected.</p>

<b>Logging</b>	<i>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.</i>	<p>Diamond core was geotechnically logged for recovery, RQD, weathering, hardness and strength.</p> <p>All diamond core and RC pre-collars were geologically logged for lithology, mineralogy, and oxidation state and structure. A percentage estimate for key minerals was also recorded along with a summary comment.</p> <p>Diamond core trays and RC chip trays are stored on site for future reference.</p>
	<i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i>	Logging of diamond core and RC chip samples recorded primary and secondary lithology, mineralogy, mineralisation, structure (core only), oxidation, and any other significant feature. Diamond core was photographed after mark up, before sampling with both dry and wet photographs recorded.
	<i>The total length and percentage of the relevant intersections logged</i>	All drillholes were logged in full
<b>Sub-sampling techniques and sample preparation</b>	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i>	Mineralised diamond core as well as zones adjacent to mineralisation was split using a diamond saw. All core was cut in half with half core being sent for analysis. Selected zones were also cut into quarters and some quarter core is being stored in freezers for future metallurgy test work.
	<i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i>	No non-core samples were taken.
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	Sample preparation involved drying, crushing to 5-6mm and, if necessary, riffle splitting this material to 2.5 to 3kg. The sample was then pulverised in an LM5 bowl pulveriser, such that >85% of the sample was -75 microns, before scooping out a 200gm pulp for analytical determinations.
	<i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i>	Field QC procedures involve the use of commercial assay standards. The insertion rate of these averaged 1:20.
	<i>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.</i>	No field duplicates were taken for drill core.
	<i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	The sample sizes are considered to be appropriate to correctly represent the base metal skarn mineralisation at Penzance, Queenslander and Morrisons.

<b>Quality of assay data and laboratory test</b>	<p><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></p>	<p>Analysis for Au was by fire assay method FAA505, with lead collection from a 50gm charge, acid digest and AAS finish (detection limit 0.01ppm)</p> <p>First pass analysis on all samples were conducted for Cu, Pb, Zn, Ag, As, Mo, Bi, Ni and Cr by method ICP21R (perchloric acid digest, ICPOES finish).</p> <p>First pass analysis for Sn, W, Sb and Te were completed by method IMS40Q (four acid digest – ie as for ICP23Q + hydrofluoric acid, ICPMS finish).</p> <p>Samples with results above the upper detection limits were re-assayed by various means as follows;</p> <p>Cu, Zn and As &gt; 10,000ppm, Pb &gt; 5,000ppm and Ag &gt; 100ppm by either methods ICP23Q or AAS22D; both triple acid digest methods with 0.2gm charge and ICP finish for ICP23Q, and 1gm charge with AAS finish for method AAS22D;</p> <p>Mo and Sb &gt; 1,000ppm by method ICP40Q;</p> <p>Sn &gt; 1,000ppm by either ICP40Q or XRF fusion methods XRF78S or XRF78O.</p>
	<p><i>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.</i></p>	<p>A handheld magnetic susceptibility meter (KT-10) was used to measure magnetic susceptibility for every meter. Data is stored in the drilling database.</p>
	<p><i>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.</i></p>	<p>The QAQC data includes standards, blanks, and laboratory checks. Standards have been added at a ratio of 1:20 and blanks 1:25.</p>
<b>Verification of sampling and assaying</b>	<p><i>The verification of significant intersections by either independent or alternative company personnel.</i></p>	<p>All sampling was routinely inspected by senior geological staff. Significant intersections are inspected by senior geological staff and corporate staff.</p>
	<p><i>The use of twinned holes.</i></p>	<p>No holes have been twinned as all resources are at the inferred stage and the deposits are still considered quite immature.</p>
	<p><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></p>	<p>Logging is undertaken by qualified geologists at the Chillagoe core processing facility.</p> <p>Data is initially recorded on paper before being entered into standard Excel templates. Data is then sent to a database administrator for validation and storage in the Datashed relational database.</p>
	<p><i>Discuss any adjustment to assay data.</i></p>	<p>Frequency distribution of the composites resulted in top cuts for Cu, Pb Ag and Au within the Morrisons lode (97.5 percentile) and Zn, Cu and Au within the Queenslander lode (99, 99 and 97.5 percentiles respectively). No adjustments were applied to any of the Penzance assay data.</p>



<b>Location of data points</b>	<i>Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i>	<p>Collar locations were picked-up by Kagara staff surveyors using a Trimble RTK GPS unit. These instruments provide accuracy within 0.6m.</p> <p>All drill-holes have magnetic down-hole surveys taken at approximate 30m intervals using a Ranger explorer multishot digital camera</p>
	<i>Specification of the grid system used.</i>	The grid system is MGA_GDA94, zone 55. A local grid system was established on site.
	<i>Quality and adequacy of topographic control.</i>	AAMHatch Pty Limited (AAM) was commissioned to fly aerial photography of the area in December 2005 to obtain a detailed topographic surface. AAM provided a Digital Terrain Model (DTM) surface with a vertical and horizontal accuracy of 0.1m
<b>Data spacing and distribution</b>	<i>Data spacing for reporting of Exploration Results.</i>	The nominal drill hole spacing for each of the resource estimates is 50m x 50m.
	<i>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.</i>	The data spacing and distribution is sufficient to demonstrate both geological and grade continuity within the mineralised domains to support the definition of Inferred Mineral Resources under the 2012 JORC code.
	<i>Whether sample compositing has been applied.</i>	2m assay composites were utilised.
<b>Orientation of data in relation to geological structure</b>	<i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i>	The majority of holes have been drilled towards grid north to intersect the east-west striking ore zones at near perpendicular angles. Holes are predominantly drilled at -60 towards the skarn units to return intervals with thickness as true as possible.
	<i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i>	No orientation based sampling bias has been identified in the data.
<b>Sample security</b>	<i>The measures taken to ensure sample security.</i>	Samples were stored in sealed polyweave bags at the Chillagoe core processing facility. They were delivered to SGS laboratories in Townsville by a local transport company.
<b>Audits or reviews</b>	<i>The results of any audits or reviews of sampling techniques and data.</i>	Sampling techniques are consistent with industry standards. No external audits or reviews of sampling techniques have been carried out.

## SECTION 2 REPORTING OF EXPLORATION RESULTS

Criteria	JORC Code Explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<i>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.</i>	The Red Cap project which contains the Penzance, Queenslander and Morrison deposits is 100% owned by Mungana Goldmines Limited. The project is located within EPM15458.
	<i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i>	The tenement is in good standing.
<b>Exploration done by other parties</b>	<i>Acknowledgment and appraisal of exploration by other parties.</i>	<p>Mungana Goldmines Ltd secured 100% ownership of EPM15458 as part of the Chillagoe base metals acquisition from Kagara Ltd in July 2014.</p> <p>Kagara purchased the project in 2003 from Nuigini Mining Australia Pty Ltd as part of the Red Dome acquisition. EPM15458 was previously part of the larger EPM10387 held by Nuigini Mining.</p> <p>Whilst the Penzance deposit was a virgin discovery by Kagara, the greater Red Cap project area, which contains Penzance, Queenslander and Morrisons is an historical mining area. The Queenslander and Morrisons mines which were sizeable underground operations and the Penzance (not the same orebody) open cut contributed ore feed to the Chillagoe smelters in the early 1900's.</p> <p>Kagara successfully defined new mineralisation at several other prospects within the Red Cap project area.</p>
<b>Geology</b>	<i>Deposit type, geological setting and style of mineralisation.</i>	Information relating to the geology and interpretation are included in Section 3.
<b>Drill hole information</b>	<p><i>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:</i></p> <ul style="list-style-type: none"> <li><i>• easting and northing of the drill hole collar</i></li> <li><i>• elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></li> <li><i>• dip and azimuth of the hole</i></li> <li><i>• down hole length and interception depth</i></li> <li><i>• hole length.</i></li> </ul> <p><i>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.</i></p>	<p>No exploration results are being reported, and thus, this section is not material to this report on Mineral Resources.</p> <p>Notes relating to drill hole information relevant to the Mineral Resource estimates has been included in Section 1.</p> <p>A table containing all drill intersections utilised in the Mineral Resource estimates is included as Appendix 1.</p>

<b>Data aggregation methods</b>	<i>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</i>	No exploration results are being reported, and thus, this section is not material to this report on Mineral Resources.
	<i>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.</i>	Not applicable.
	<i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i>	Not applicable.
<b>Relationship between mineralisation widths and intercept lengths</b>	<i>These relationships are particularly important in the reporting of Exploration Results.</i>	No exploration results are being reported, and thus, this section is not material to this report on Mineral Resources.
	<i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i>	Drill hole angles and the orientation of mineralisation is covered in Section 1.
	<i>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</i>	Not applicable.
<b>Diagrams</b>	<i>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.</i>	Refer to the diagrams that have been included in the body of the text.
<b>Balanced reporting</b>	<i>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.</i>	No exploration results are being reported, and thus, this section is not material to this report on Mineral Resources.

<b>Other substantive exploration data</b>	<i>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.</i>	No exploration results are being reported, and thus, this section is not material to this report on Mineral Resources.
<b>Further work</b>	<i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i>	No exploration results are being reported, and thus, this section is not material to this report on Mineral Resources.
	<i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i>	No exploration results are being reported, and thus, this section is not material to this report on Mineral Resources.

### SECTION 3 ESTIMATION AND REPORTING OF MINERAL RESOURCES

Criteria	JORC Code Explanation	Commentary
<b>Database integrity</b>	<i>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.</i>	<p>A set of standard Excel templates are used to capture the data. These sheets are then sent to a database administrator for validation and storage in Datashed.</p> <p>Data used in the Mineral Resource estimates is sourced from a dataset provided in the form of an MS Access databases, from the companies Datashed relational database. Relevant tables from the database are exported to the relevant format for use in the Mineral Resource estimate.</p>
	<i>Data validation procedures used.</i>	Validation of data occurs during import into Datashed. The checks include overlapping intervals, missing survey data, missing collars, duplicate sample numbers and incorrectly recorded assay data.
<b>Site visits</b>	<i>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</i>	The competent person has visited the project on numerous occasions. Drill core from the project has been reviewed and multiple visits to the project area have been undertaken.
	<i>If no site visits have been undertaken indicate why this is the case.</i>	Not applicable

Geological interpretation	<p><i>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</i></p>	<p>Confidence in the geological interpretation of the Penzance, Queenslander and Morrison deposits is considered to be good.</p> <p>The Penzance deposit is located on the skarnified sheared contacts and within the sediments of the Chillagoe formation. The sediment sequence is well understood and drill density is sufficient to allow reasonable levels of confidence in the continuity of the massive to semi-massive sulphide lenses that makeup the Mineral Resource.</p> <p>The Queenslander and Morrison lodes are located on the Red Cap thrust, a south-west dipping thrust fault along which the sediments of the Chillagoe Formation have been juxtaposed against the dacitic ignimbrites of the Red Cap volcanics. The thrust can be traced at surface for over 2.5km and drill intersections have pinpointed the thrust over 1.5km allowing reasonable levels of confidence in the continuity of massive to semi-massive sulphide lenses.</p>
	<p><i>Nature of the data used and of any assumptions made.</i></p>	<p>Drilling data has provided information on lithology, alteration and mineralisation that has formed the basis of the geological interpretation.</p>
	<p><i>The effect, if any, of alternative interpretations on Mineral Resource estimation.</i></p>	<p>The diamond drilling to date supports the geological interpretation of the Red Cap project area.</p>
	<p><i>The use of geology in guiding and controlling Mineral Resource estimation.</i></p>	<p>The Penzance, Queenslander and Morrison deposits form part of the Red Cap group of prospects, hosted within the Siluro-Devonian aged Chillagoe Formation of the early to middle Palaeozoic Hodgkinson Province.</p> <p>The Penzance deposit is located adjacent to the historical Penzance copper open pit, defined at surface by numerous old copper workings and dumps. Locally, the geology comprises a north-west trending, steeply dipping sequence of (from south-west to north-east) massive chert, intercalated fine- to medium-grained sandstone / siltstone and marble with variable amounts of garnet ± pyroxene skarn developed at the contacts, and finally massive fine-grained basalt with patchy feldspar-pyroxene skarn alteration.</p> <p>Copper-zinc mineralisation is developed predominately within massive garnet skarn at the contact between marble and basalt, although Zn-rich mineralisation is also sporadically developed at other lithological contacts in the hanging wall. The footwall basalt, although skarn altered in places, does not contain any significant mineralisation. Mineralisation is characterised by disseminated to semi-massive chalcopyrite-sphalerite (± minor galena) with variable amounts of pyrrhotite&gt;pyrite ± magnetite.</p> <p>Drilling has defined a zone of mineralisation over approximately 200m strike, with a central, high-grade, copper-rich core plunging between 40-50 degrees towards the south-east. Two north-south striking faults, defined during surface mapping, appear to have cut the mineralisation off along strike towards the north-west and south-east.</p>



		<p>The Queenslander and Morrison deposits are located below historical workings on the Red Cap thrust where sediments of the Siluro-Devonian Chillagoe Formation have been thrust over the top of the Late Carboniferous dacitic ignimbrites of the Red Cap Volcanics.</p> <p>Zinc-copper (+/- lead) mineralisation is developed within garnet-pyroxene-magnetite skarn at the contact between marble of the Chillagoe Formation and Red Cap Volcanics. Mineralisation is characterised by semi-massive to massive sphalerite (+/- chalcopyrite) with variable amounts of pyrite&gt;pyrrhotite&gt;galena +/- magnetite. Drilling has defined a zone mineralisation over approximately 1500m of strike. The Queenslander lode has a plunge of approximately 30 degrees towards local grid west whilst the Morrisons lode plunges approximately 20 degrees towards local grid south east. Two cross cutting faults have been identified on the Queenslander lode. These faults have displaced the ore horizon by up to 50m.</p>
	<p><i>The factors affecting continuity both of grade and geology.</i></p>	<p>The Penzance deposit remains open at depth but is considered to be closed along strike to a depth of 200m.</p> <p>The Queenslander deposit is open down plunge to the west and also down dip. The Morrisons deposit is open down plunge to the south east.</p>
<p><b>Dimensions</b></p>	<p><i>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</i></p>	<p>The Penzance Mineral Resource is contained within two mineralised lenses. It stretches for approximately 200m along strike. The width of the main lens varies from over 8m to less than 1m, whilst the second lens is about 2m thick. Mineralisation commences at 50m below surface and extends to over 200m below surface.</p> <p>The Queenslander Mineral Resource is contained within three mineralised lenses that are all located on the Red Cap thrust. The lenses are offset by cross cutting faults that have displaced the mineralisation by up to 50m. The Queenslander lode extends for over 750m along strike. The width of the ore varies from 1m at the margins to over 13m at its core and is on average 4.5m thick. Mineralisation commences at 50m below surface and extends to over 450m below surface.</p> <p>The Morrisons Mineral Resource is contained within one continuous mineralised lens on the Red Cap thrust. It extends for over 800m along strike with widths ranging from 1m around the margins to 12m at its thickest with an average width of 4.5m. Mineralisation commences at 60m below surface and extends to over 450m below surface.</p>

## Estimation and modelling techniques

*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*

Grade estimation for Penzance was by Inversed Distance Squared (IDS) using Surpac software. The elements estimated into the block model were Zn%, Pb%, Cu%, As%, Au ppm and Ag ppm.

Grade estimation for Queenslander and Morrisons was by Ordinary Kriging (OK) using Surpac software. The elements estimated into the block model were Zn%, Pb%, Cu%, As%, Au ppm and Ag ppm.

For all three deposits drill hole sample data was flagged using domain codes generated from three dimensional wireframes of the mineralised domains that make up the resources. Sample data was composited to 2m best fit downhole sample lengths.

After reviewing histograms and cumulative frequency plots it was determined that top cuts were not required for Penzance but were suitable in some instances at Queenslander and Morrisons. Top cuts for Cu, Pb Ag and Au within the Morrisons lode (97.5 percentile) and Zn, Cu and Au within the Queenslander lode (99, 99 and 97.5 percentiles respectively) were applied.

Assay and composite data was checked for clustering. Spatial observation of the dataset indicates only minor to no clustering exists and as such, no de-clustering process was deemed necessary.

At Penzance two domains were created within the main lens of mineralisation based on either Cu or Zn being the dominant mineral. A third domain was created for a separate lens of mineralisation.

No domaining was required within the Queenslander or Morrisons lodes.

At Penzance the maximum search distance along the major axis was 100m, based on drill spacing.

At Queenslander the maximum search distance along the major axis was 100.8m based on the variography.

At Morrisons the maximum search distance along the major axis was 147.8m based on the variography.

*The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.*

No mine production records are available for Penzance, Queenslander or Morrisons. This Mineral Resource estimate is based on a previous JORC 2004 estimate carried out by Kagara Ltd.

*The assumptions made regarding recovery of by-products.*

No assumptions have been made.

*Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).*

Estimation of As was carried out as it is a potential penalty element.

	<p><i>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</i></p>	<p>The deposits were each drilled on nominal 50m-spaced north-south (local grid) sections. The block models were constructed using a 5mN by 10mE by 10mRL parent block size with sub-blocking to 1.25mN by 2.5mE by 2.5mRL for domain volume resolution. All estimation was completed at the parent cell scale. Discretisation was set to 3 by 3 by 3 for all domains.</p> <p>For Penzance the size of the search ellipse for each domain was based on the nominal drillhole spacing for the deposit. Along the major axis it was 100m and the vertical distance was 50m.</p> <p>At Queenslander the size of the search ellipse was based on the results of variography. Along the major axis it was 100.8m and the vertical search distance was 50m.</p> <p>At Morrisons the size of the search ellipse was based on the results of variography. Along the major axis it was 147.8m and the vertical search distance was 50m.</p>
	<p><i>Any assumptions behind modelling of selective mining units.</i></p>	<p>No selective mining units were assumed in this estimate</p>
	<p><i>Any assumptions about correlation between variables.</i></p>	<p>No assumptions about correlation between variables has been considered in the estimation.</p>
	<p><i>Description of how the geological interpretation was used to control the resource estimates.</i></p>	<p>The geological interpretation was the basis of the mineralised domains for each of the estimates. These domains were used as hard boundaries to select sample populations for grade estimation.</p>
	<p><i>Discussion of basis for using or not using grade cutting or capping.</i></p>	<p>Histograms, cumulative frequency plots and log probability plots for each element were used to determine if top cutting was necessary. No top cuts were utilised for Penzance but they were deemed suitable in some instances at Queenslander and Morrisons. Top cuts for Cu, Pb Ag and Au within the Morrisons lode (97.5 percentile) and Zn, Cu and Au within the Queenslander lode (99, 99 and 97.5 percentiles respectively) were applied.</p>
	<p><i>The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.</i></p>	<p>A volumetric comparison of the resource wireframes and the block model showed no abnormalities. Domain block estimate grades were compared to average composite grades and showed good correlation. Visual validation of grade trends and metal distributions were carried out. No reconciliation data is available.</p>
<b>Moisture</b>	<p><i>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</i></p>	<p>The tonnages are estimated on a dry basis.</p>
<b>Cut-off parameters</b>	<p><i>The basis of the adopted cut-off grade(s) or quality parameters applied</i></p>	<p>The reported Mineral Resource estimates are reported as the total material within the mineralised domains, so no cut-off grade has been adopted for reporting purposes.</p>

<b>Mining factors or assumptions</b>	<i>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.</i>	Mining of the Penzance, Queenslander and Morrisons deposits would be predominantly by underground mining methods. The geometry of the deposits will make them amenable to sub-vertical narrow ore mining methods currently employed in many operations in similar deposits around the world, including the nearby Mungana deposit which was successfully mined by Kagara over several years. No assumptions in mining methodology have been made when estimating this Mineral Resource.
<b>Metallurgical factors or assumptions</b>	<i>The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.</i>	No assumptions in metallurgical amenability have been made when estimating the Mineral Resources.
<b>Environmental factors or assumptions</b>	<i>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</i>	No assumptions have been made.
<b>Bulk density</b>	<i>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.</i>	Bulk density of the mineralised material was estimated via inverse distance squared at Penzance and ordinary kriging at Queenslander and Morrisons using diamond drillhole bulk density determinations. The density values for each sample were calculated by the Archimedes Principle (mass of the sample in air divided by the difference between the mass of the sample in air and the mass of the sample in water). Density measurements were generally taken on the entire sample interval of uncut drill core within the assay interval. Some later density measurements were taken on the entire sample interval of cut core within the assay interval. A standard rock was used to check reliability of measurements.

	<i>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.</i>	The majority of samples taken were fresh and did not contain voids. Whilst some porosity can be expected the bulk density assigned is considered to be reasonable.
	<i>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</i>	The same methods have been used to assign bulk density values to the various waste rock types.
<b>Classification</b>	<i>The basis for the classification of the Mineral Resources into varying confidence categories.</i>	The Mineral Resource classification of Inferred for Penzance, Queenslander and Morrisons is based on the level of confidence in the geological and grade continuity, along with the drill density.
	<i>Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</i>	The Inferred classification has taken into account all available geological and sampling information, and the classification level is considered appropriate for the current stage of this project.
	<i>Whether the result appropriately reflects the Competent Person's view of the deposit.</i>	The Mineral Resource estimate appropriately reflects the view of the Competent Person.
<b>Audits or reviews</b>	<i>The results of any audits or reviews of Mineral Resource estimates.</i>	No audits of the Mineral Resource estimate have been undertaken at this time.
	<i>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.</i>	The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource to an Inferred classification as per the guidelines of the 2012 JORC Code.
	<i>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.</i>	The statement relates to global estimates of tonnes and grade.
	<i>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</i>	No production data is available.



## Appendix 1: Red Cap Project Mineral Resource Drill Hole Summary

Hole No.	East_Local	North_Local	East_MGA	North_MGA	Azim_M	Dip	Depth	From	To	Interval	Zn %	Cu %	Pb %	Ag g/t	Au g/t	Prospect
947	4663.1	9597.4	225415.4	8110331.5	50	-70	474.7	417.3	420.4	3.1	2.60	0.20	1.73	28	0.02	Queenslander
974	5973.7	9308.9	226175.7	8109224.8	40	-60	426.8	319.1	321.9	2.8	5.03	0.62	0.00	38	0.01	Morrison
977	6100.0	9283.5	226250.6	8109119.9	30	-60	438.8	372.8	374.4	1.6	8.36	0.15	0.02	6	0.01	Morrison
978	6097.6	9280.5	226246.8	8109119.3	10	-75	475.1	422.2	426.7	4.5	5.89	0.20	0.00	3	0.01	Morrison
981	5649.1	9617.1	226149.3	8109671.8	40	-70	252.7	148.6	151.5	2.9	2.22	0.53	0.03	12	0.44	Morrison
1086	4817.0	9634.1	225553.0	8110253.1	37	-60	339.6	304.2	307.3	3.1	2.86	0.57	0.00	5	0.01	Queenslander
1087	4918.5	9603.6	225606.3	8110161.4	37	-65	297.7	236.5	255.4	18.9	4.71	0.66	0.00	13	0.03	Queenslander
1088	5025.4	9618.6	225694.6	8110099.3	45	-65	270.7	207.3	218.0	10.7	7.47	0.53	0.00	6	0.02	Queenslander
1089	5769.5	9383.2	226077.3	8109418.7	37	-57	312.3	288.1	301.0	12.9	2.50	0.27	0.09	10	0.02	Morrison
1090	5769.4	9383.8	226077.7	8109419.1	37	-45	305.7	278.1	285.3	7.2	4.50	0.60	0.00	8	0.15	Morrison
1091	5770.0	9380.7	226076.0	8109416.5	57.5	-51	321.2	280.7	295.5	14.8	7.90	0.72	0.00	19	0.02	Morrison
1099	5908.8	9347.2	226154.5	8109297.2	37	-60	351.5	288.2	303.0	14.8	12.20	1.16	1.78	97	0.01	Morrison
1100	5908.8	9347.0	226154.3	8109297.0	37	-65	350.5	311.7	312.7	1.0	2.70	0.11	0.00	5	0.01	Morrison
1101	5908.4	9347.4	226154.4	8109297.6	26	-45	332.7	305.1	311.0	5.9	2.50	0.39	0.03	7	0.06	Morrison
1102	6032.4	9276.7	226196.5	8109161.2	37	-50	390	361.1	364.2	3.1	4.88	1.71	0.01	69	0.39	Morrison
1103	6032.4	9275.7	226195.9	8109160.4	39	-65	435.6	389.6	398.2	8.6	7.37	0.57	0.10	32	0.05	Morrison
1104	5927.9	8839.6	225821.5	8108913.3	35	-60	828.6	109.0	111.3	2.3	3.33	3.68	0.08	110	0.39	Penzance
1105	5928.0	8839.2	225821.2	8108912.9	35	-68	180.7	152.7	154.2	1.5	3.57	0.46	0.00	9	0.03	Penzance
1127	6099.0	9284.0	226250.6	8109119.9	36	-66	411.6	386.7	390.6	3.9	7.42	0.24	1.09	18	0.04	Morrison
1128	6036.0	9277.0	226200.0	8109159.0	51	-67	417.2	399.8	408.2	8.4	4.07	1.23	0.05	39	0.04	Morrison
1129	6210.3	9085.9	226196.1	8108900.2	35	-56	546.4	514.4	520.4	6.0	4.85	0.15	0.08	7	0.02	Morrison
1130	5908.0	9348.1	226154.5	8109298.4	29	-48	326.5	307.5	312.3	4.8	4.56	0.53	0.14	10	0.05	Morrison
1131	5927.9	8840.1	225821.8	8108913.7	35	-45	102.4	73.6	74.7	1.1	3.98	2.77	0.00	60	0.48	Penzance
1132	4816.7	9631.9	225551.3	8110251.7	35	-77	408.6	386.1	389.6	3.5	2.18	0.44	0.02	6	0.02	Queenslander
1133	4918.6	9602.8	225605.8	8110160.8	35	-68	315.4	273.2	282.6	9.4	4.28	0.72	0.00	5	0.02	Queenslander
1134	5125.4	9668.3	225801.7	8110067.3	37	-60	189.5	132.5	145.5	13.0	8.55	0.93	0.00	12	0.04	Queenslander
1135	5125.4	9669.3	225802.4	8110067.9	37	-45	179.9	131.5	136.4	4.9	3.11	0.52	0.01	7	0.03	Queenslander
1138	4970.9	9536.0	225598.4	8110076.3	35	-48	281.9	266.1	273.2	7.1	0.63	0.67	0.00	8	0.01	Queenslander
1139	4660.3	9592.2	225409.8	8110329.6	20	-69	441.5	421.1	426.8	5.7	4.83	0.11	0.86	22	0.01	Queenslander
1140	5864.0	9505.8	226230.1	8109443.7	27	-67	240.4	210.4	216.6	6.2	2.13	0.49	0.00	5	0.01	Morrison
1142	5863.8	9504.0	226228.8	8109442.5	47	-55	249.4	213.5	217.9	4.4	6.14	0.18	0.00	7	0.01	Morrison
1143	5962.3	9500.3	226298.2	8109372.4	28	-70	252.5	234.7	236.7	2	9.63	0.35	20.20	102	0.02	Morrison
1150	5199.6	9716.2	225888.7	8110051.5	35	-71	138.4	117.6	124.2	6.6	10.86	0.16	0.36	11	0.05	Queenslander
1151	5199.6	9717.9	225889.8	8110052.8	35	-47	125.5	113.7	120.3	6.6	1.40	0.60	0.00	2	0.06	Queenslander
1152	5235.7	9719.1	225917.0	8110029.0	45	-60	132.4	113.5	119.5	6	2.29	0.26	0.01	7	0.02	Queenslander
1153	5040.0	9676.6	225745.0	8110131.7	42	-73	192.7	175.8	183.6	7.8	1.46	0.63	0.32	8	0.04	Queenslander
1154	5040.1	9677.4	225745.6	8110132.2	42	-55	143.9	123.3	129	5.7	14.33	0.85	0.41	14	0.27	Queenslander
1155	4971.1	9535.6	225598.2	8110075.8	50	-55	297.4	274.6	278.6	4	6.83	0.95	0.03	22	0.03	Queenslander
1156	4816.0	9630.3	225549.7	8110251.0	47	-68	351.5	337.6	339.2	1.6	4.12	0.39	0.01	8	0.02	Queenslander
1157	5413.3	9690.6	226027.3	8109886.8	30	-46	158.4	141.1	142.2	1.1	19.00	0.02	0.02	6	0.02	Queenslander
1158	5701.3	9480.9	226094.3	8109536.7	36	-61	279.5	231.4	248.6	17.2	4.37	0.32	0.00	6	0.02	Morrison
1159	5701.3	9481.7	226094.8	8109537.2	36	-47	252.3	222.2	227.6	5.4	5.66	0.34	0.05	6	0.02	Morrison
1162	5565.1	9570.6	226056.1	8109695.3	25	-63	252.4	231.6	237.9	6.3	2.37	0.78	0.00	6	0.44	Morrison
1163	5564.2	9569.2	226054.5	8109694.9	55	-60	234.4	214.6	220.2	5.65	1.87	0.70	0.00	7	0.29	Morrison
1165	5646.6	9613.4	226145.0	8109670.9	35	-81	219.5	198.2	206.8	8.6	2.61	0.61	0.00	5	0.09	Morrison
1166	5549.9	9648.4	226098.2	8109762.5	34	-62	162.4	145.8	153.3	7.5	2.90	0.54	0.00	8	0.28	Morrison
1167	5496.7	9713.9	226104.1	8109846.7	36	-80	153.8	134	137.7	3.7	2.51	0.52	0.00	6	0.01	Morrison
1168	5349.3	9746.3	226018.5	8109971.2	29	-60	129.5	103	104.8	1.8	1.49	0.04	0.14	6	0.01	Queenslander
1169	5294.0	9755.4	225984.3	8110015.6	37	-60	104.4	90.2	96.2	6	2.55	0.32	0.43	9	0.03	Queenslander
1170	5250.2	9669.0	225893.4	8109982.4	34	-65	189.6	169	172.8	3.8	2.54	0.56	0.00	3	0.04	Queenslander
1192	5770.0	9387.2	226080.5	8109421.3	39	-46	296.5	274.8	284.6	9.8	3.75	0.26	0.00	5	0.02	Morrison
1193	6120.3	9164.5	226184.1	8109019.0	36	-65	510.4	484.7	488.8	4.1	3.05	0.27	0.00	3	0.02	Morrison
1194	6120.3	9164.8	226184.3	8109019.3	36	-59	501.4	466.2	470.7	4.5	8.35	0.42	0.70	29	0.03	Morrison
1197	5747.8	9381.8	226060.5	8109432.5	35	-46	303.1	287.4	293.4	6	9.07	0.21	0.00	4	0.01	Morrison
1198	5058.0	9647.0	225738.0	8110098.0	58	-59	182.9	160.2	168.2	8	6.31	0.41	0.03	8	0.01	Queenslander
1199	5058.0	9647.0	225738.0	8110098.0	58	-50	165.1	146.4	147.2	0.8	1.84	0.37	0.05	6	0.01	Queenslander
1200	5965.3	8847.7	225854.2	8108893.6	37	-60	153.6	117	124.8	7.8	1.35	2.51	0.03	49	0.17	Penzance
1201	5058.0	9647.0	225738.0	8110098.0	58	-68	201.3	179.9	191.1	11.2	5.88	0.41	0.00	8	0.03	Queenslander
1202	5968.0	8849.0	225856.0	8108892.0	37	-45	153.3	76.9	78.8	1.9	2.52	0.51	0.76	80	0.06	Penzance
1205	5968.0	8847.5	225856.0	8108892.0	37	-70	189.4	126.8	132.4	5.6	6.86	0.48	0.27	17	0.13	Penzance
and								152.7	154.7	2	10.20	0.67	0.01	11	0.03	Penzance
and								154.7	169	14.3	0.18	2.79	0.00	32	0.05	Penzance
1206	5969.0	8847.5	225856.0	8108892.0	69	-55	210.2	137.8	152.1	14.3	0.82	4.40	0.02	79	0.22	Penzance
1214	6009.4	8864.9	225898.2	8108876.1	42	-45	238.7	75.8	81.6	5.8	1.97	0.54	0.01	2	0.02	Penzance
1215	6012.0	8860.0	225898.0	8108875.0	22	-54	135.1	95.7	110.5	14.8	3.45	0.99	0.05	23	0.05	Penzance
1217	5881.6	8817.0	225772.2	8108928.4	30	-70	240.1	197.7	203.7	6	5.76	0.50	0.54	17	0.04	Penzance
1218	6008.0	8797.5	225851.2	8108827.7	36	-60	249.3	222.9	224.9	2	1.87	5.14	0.01	98	0.11	Penzance
1219	6049.5	8861.9	225925.5	8108846.4	37	-61	162.2	100.1	107.5	7.4	7.47	1.86	0.02	47	0.10	Penzance
and								118.2	123.3	5.1	3.89	1.44	0.07	31	0.93	Penzance
1220	6049.5	8862.4	225925.9	8108846.8	37	-50	114.2	81.9	83.5	1.6	3.91	1.69	0.01	51	0.19	Penzance
1222	6049.0	8801.2	225883.7	8108802.5	37	-56	229.6	204.4	205.2	0.8	2.05	0.63	0.01	18	0.61	Penzance
and								212.9	216.1	3.2	0.56	4.77	0.00	118	0.73	Penzance
1223	6049.0	8800.9	225883.5	8108802.2	37	-62	296.9	210.6	211.8	1.2	6.26	0.03	0.01	1	0.09	Penzance
and								222	230	8	2.22	0.68	0.00	14	0.05	Penzance
1224	6008.5	8863.8	225896.86	8108875.823	33	-68	201.3	120	124.2	4.2	6.65	0.52	0.23	27	0.07	Penzance
and								135.2	144.9	9.7	0.46	4.03	0.02			

Note: The mineralised interval lengths of intercepts shown in the above table are down-hole distances and are not corrected for angle of dip. True width is approximately 60% of downhole width for Penzance and 75% of the downhole width for Queenslander and Morrisons.