27 May 2014 **ASX: AOH, FSE: A2O**

JORC 2012 RESOURCE ESTIMATE FOR THE LITTLE EVA DEPOSIT

Altona Mining Limited ("Altona" or the "Company") has completed a JORC 2012 compliant Mineral Resource estimate for its 100% owned Little Eva copper-gold deposit in north-western Queensland. The estimate is based upon a new geological model derived from an extensive programme of re-logging and data validation. There has been no new drilling and there is no material change from the previous estimate which was reported on 19 December 2011.

The updated Little Eva resource at a 0.2% copper cut-off grade is tabulated below:

	Tonnes (million)	Copper (%)	Gold (g/t)	Contained Copper (tonnes)	Contained Gold (ounces)
Measured	37.1	0.60	0.09	222,000	112,000
Indicated	45.0	0.46	0.08	205,000	108,000
Inferred	23.9	0.50	0.10	119,000	75,000
Total	**105.9**	**0.52**	**0.09**	**546,000**	**295,000**

A full tabulation at different cut-off grades is given in Appendix 1 and a description of the assessment and reporting criteria used in the estimation reflecting those detailed in Table 1 of The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2012) and is provided in Appendix 2.

The prior estimate in December 2011 was 100.3 million tonnes at 0.53% copper and 0.09g/t gold for 534,000 tonnes of copper and 284,000 ounces of gold.

Compared to the prior estimate, tonnage has increased by 6%, contained copper metal by 2% and gold metal by 4%. Confidence in the estimate has improved with 78% now in the Measured and Indicated categories, up from 69% in the 2011 estimate. Both estimates exclude oxide mineralisation.

An extensive re-logging programme covering 84% of all resource drilling and data validation programme focused upon:

- Further validation and corrections to drill collar locations, down hole surveys and assay data.
- Unifying descriptions and coding of lithology, alteration, mineralisation and weathering.
- Identifying controls for mineralisation.
- Creating a 3D geological model from interpreted sections.
- Creating a resource model based upon the new geological interpretation and utilising the same (MIK) estimation methodology as the 2011 estimate.

The Little Eva deposit is a Proterozoic Iron-Oxide-Copper-Gold style deposit which is common in the region (e.g. Ernest Henry mine). It is hosted within a steeply dipping lensoid metamorphosed igneous complex (Little Eva Igneous Complex) some 1.2 kilometres long and up to 500 metres wide. The complex is dominated by variably amygdaloidal and feldspar-phyric intermediate igneous rock with minor felsic intrusives.

Primary lithologies are variably altered to assemblages dominated by albite, calcite, quartz, magnetite, haematite, epidote ,chlorite, chalcopyrite, pyrite and chalcocite. The most intense mineralisation is variably veined and brecciated and intensely altered zones which vary from 1 to 40 metres thick and dip steeply to the east in the north of the deposit and to the northwest in the central and southern portions of the deposit. Grades vary up to 5% copper and 1.6g/t gold in these zones averaging 0.84% and 0.13g/t respectively. The majority of the igneous complex is altered and mineralised with low-grade copper mineralisation widespread.

The igneous complex is bound by later structures and is crosscut by a number of minor structures.

The igneous complex is situated within fine-grained and frequently calcareous metasediments. Metasediments adjacent to the igneous complex can be altered to similar assemblages to the igneous complex.

Primary mineralisation is capped by a 15 to 30 metre thick layer of copper oxide mineralisation (goethite, malachite).

Geology and mineralisation are illustrated in Figures 1-5.

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About Altona

Altona Mining Limited is a copper producer in Finland and has a major copper development project in Australia.

The Company's Outokumpu Project in south-east Finland commenced production in early 2012. The project comprises the 600,000 tonnes per annum Kylylahti underground decline mine and the Luikonlahti mill. The annual production rate averages 9,000 tonnes of copper, 9,000 ounces of gold and 1,600 tonnes of zinc with potential to expand production under consideration. Regional resources are hosted in 2 closed mines and 4 unmined resources, all within 30 kilometres of the Luikonlahti mill. Finland is a Eurozone country and has a long history of mining, an attractive corporate tax regime (20%) and no royalties.

Altona's other core asset is the Cloncurry Copper Project near Mt Isa in Queensland and is one of Australia's largest undeveloped copper projects. The first development envisaged is the 7 million tonnes per annum Little Eva open pit copper-gold mine and concentrator. Little Eva is fully permitted with proposed annual production[1] of 38,800 tonnes of copper and 17,200 ounces of gold for a minimum of 11 years. A Definitive Feasibility Study was completed in May 2012, and a review of costs was provided in March 2014. Altona is engaged in discussions with potential partners to enable the funding of this major development.

Altona Mining is listed on the Australian Securities Exchange and the Frankfurt Stock Exchange.

[1]*Refer to the ASX release 'Cost Review Delivers Major Upgrade to Little Eva' dated 13 March 2014 which outlines information in relation to this production target and forecast financial information derived from this production target. The release is available to be viewed at www.altonamining.com or www.asx.com.au. The Company confirms that all the material assumptions underpinning the production target and the forecast financial information derived from the production target referred to in the above-mentioned release continue to apply and have not materially changed.*

JORC 2012 and Competent Persons Statement

The Company has reported Resources and Reserves according to the 2012 edition of the JORC Code and a full "Table 1" is appended.

1. *Mineral Resources estimation*: The Little Eva Mineral Resource Estimate that is reported in this ASX Release is based on information compiled by Mr Jani Impola, MSc, MAusIMM who is a full time employee of Altona Mining Limited and Mr Ian Glacken, MSc, FAusIMM(CP), CEng, who is a full time employee of Mineral Resource advisory firm Optiro, and who both have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are 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 Impola and Mr Glacken consent to the inclusion in the release of the statement of their undertaking the resource estimation process in the form and context in which it appears.

2. *Responsibility for entire release*: Information in this ASX Release that relates to Exploration Results, Mineral Resources or Ore Reserves and commentary in Table 1 on mining, metallurgy and environment is based on information compiled by Dr Alistair Cowden BSc (Hons), PhD, MAusIMM, MAIG and Dr Iain Scott PhD Min. Processing, BSc Met. (Hons), MAusIMM who are both a full time employee of the Company and who have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are 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'. Dr Alistair Cowden and Dr Iain Scott consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.

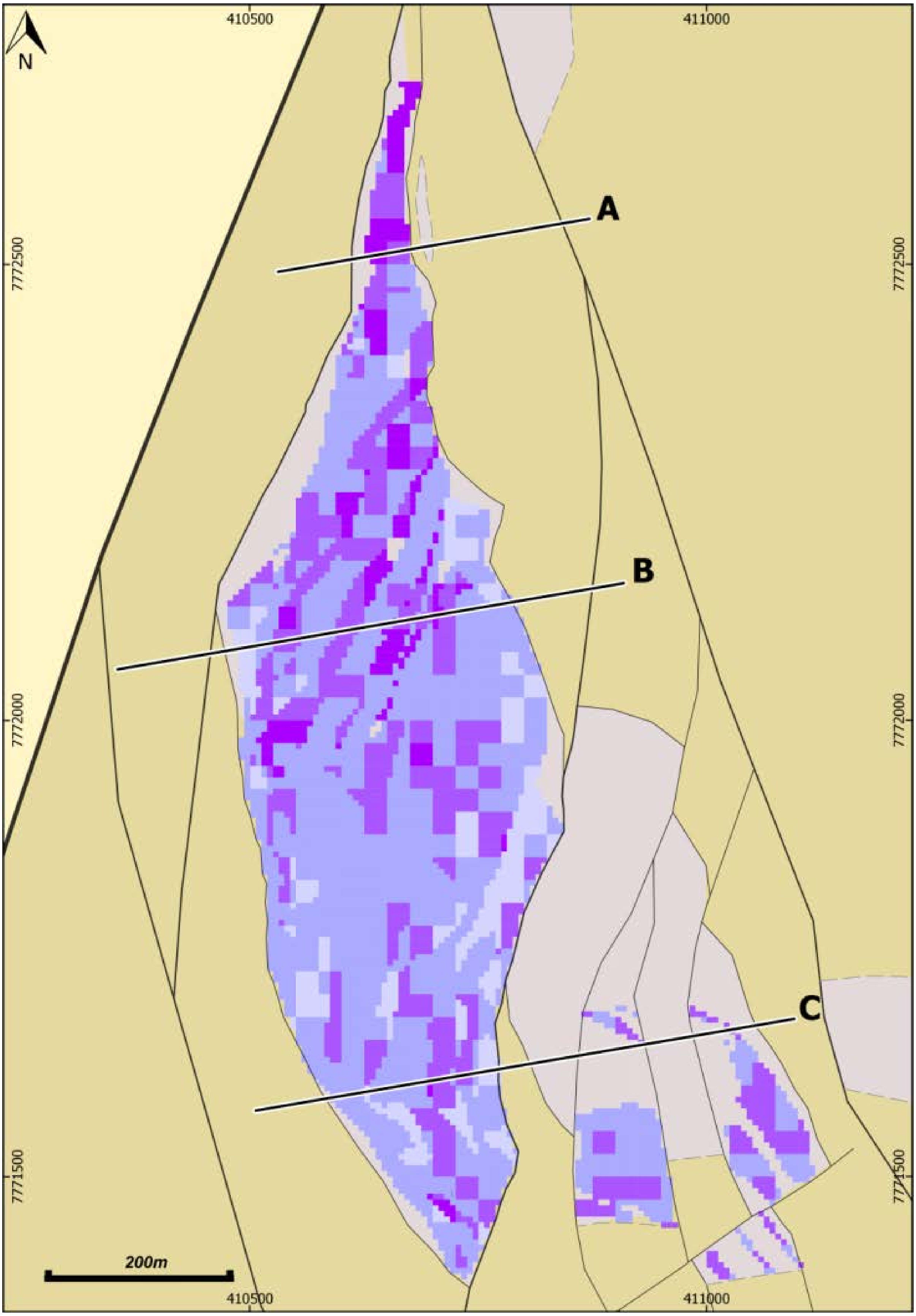


Figure 1: Plan of interpreted Geology and block model of copper grade distribution for the Little Eva deposit

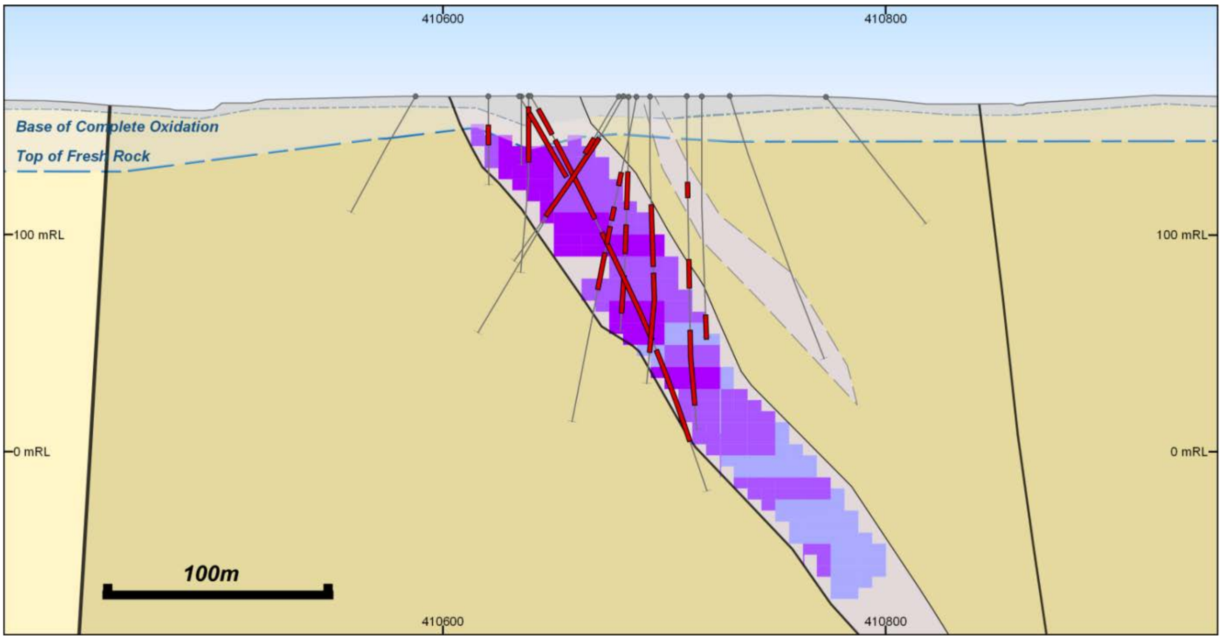


Figure 2: Cross Section A showing geology, drilling and block model of copper distribution (refer Figure 1)

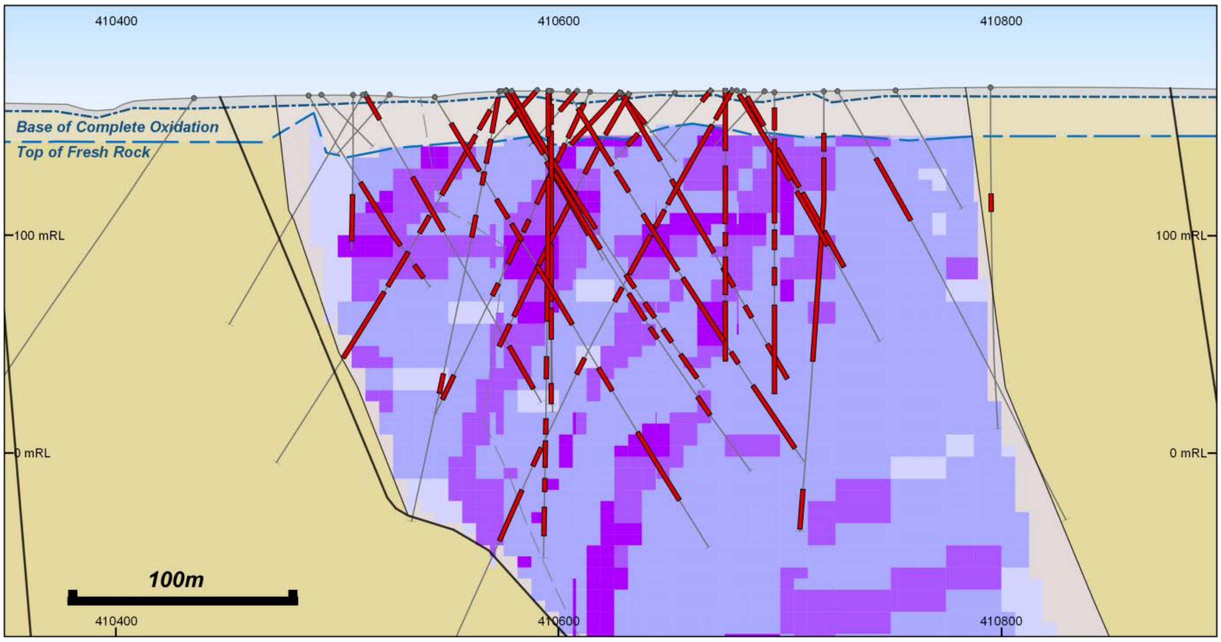


Figure 3: Cross Section B showing geology, drilling and block model of copper distribution (refer Figure 1)

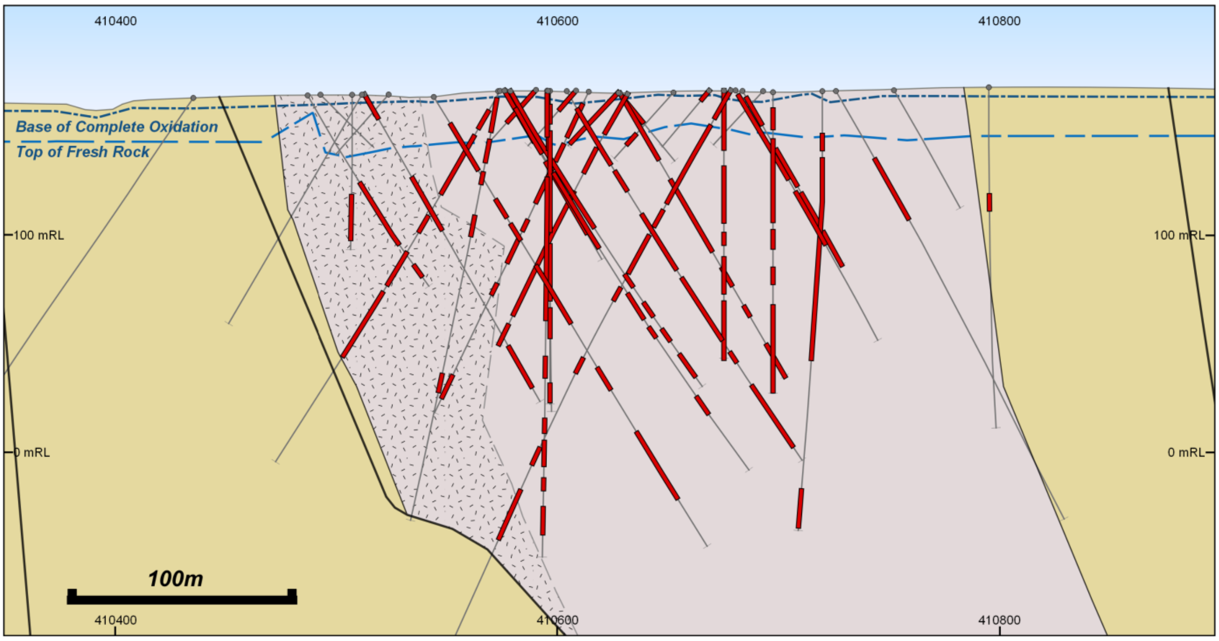


Figure 4: Cross Section B showing geology and drilling (refer Figures 1 and 3)

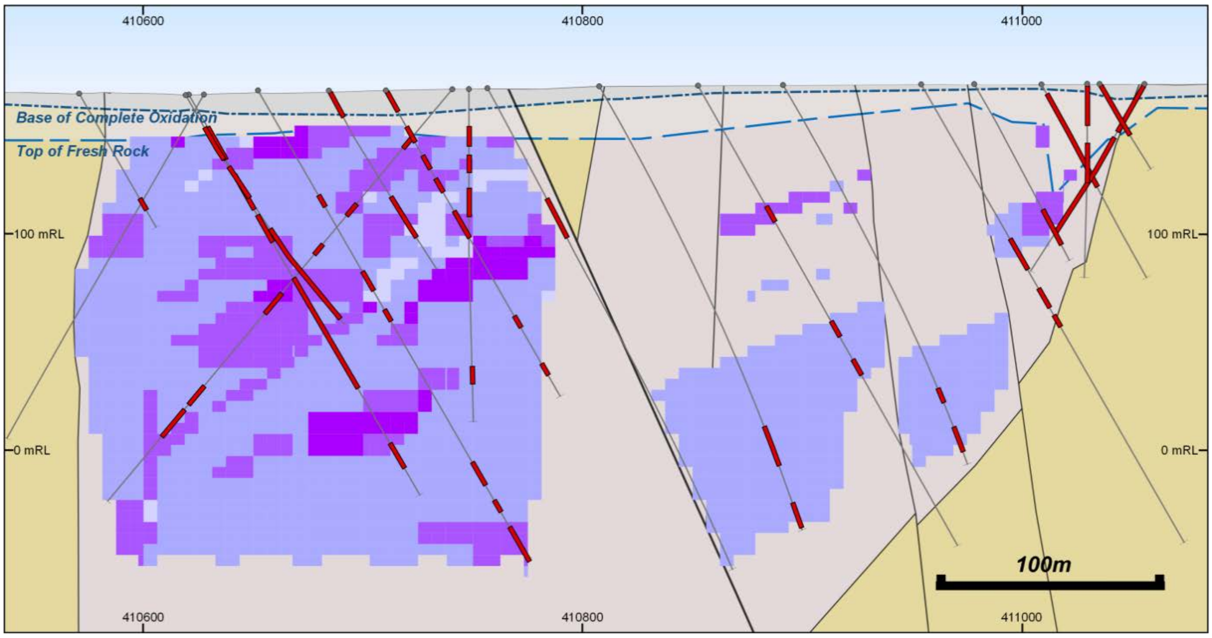
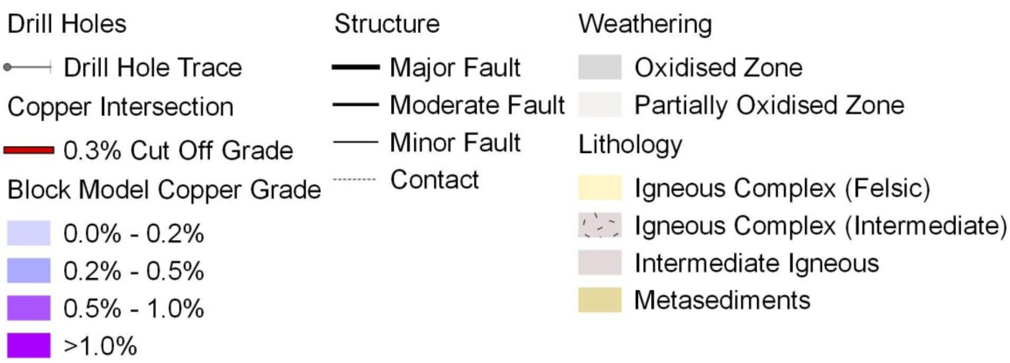


Figure 5: Cross Section C showing geology, drilling and block model of copper distribution (refer Figure 1)



Appendix 1

Table 1: May 2014 Little Eva Mineral Resource Estimate at 0.20% copper cut-off grade

	Tonnes (million)	Copper (%)	Gold (g/t)	Contained Copper (tonnes)	Contained Gold (ounces)
Measured	37.1	0.60	0.09	222,000	112,000
Indicated	45.0	0.46	0.08	205,000	108,000
Inferred	23.9	0.50	0.10	119,000	75,000
Total	**105.9**	**0.52**	**0.09**	**546,000**	**295,000**

Table 2: May 2014 Little Eva Mineral Resource Estimate at 0.30% copper cut-off grade

	Tonnes (million)	Copper (%)	Gold (g/t)	Contained Copper (tonnes)	Contained Gold (ounces)
Measured	24.6	0.78	0.12	192,000	94,000
Indicated	26.8	0.60	0.10	160,000	84,000
Inferred	14.6	0.66	0.13	96,000	60,000
Total	**66.1**	**0.68**	**0.11**	**448,000**	**238,000**

Table 3: December 2011 Little Eva Mineral Resource Estimate at 0.20% copper cut-off grade (provided for comparative purposes only)

	Tonnes (million)	Copper (%)	Gold (g/t)	Contained Copper (tonnes)	Contained Gold (ounces)
Measured	36.3	0.63	0.08	227,000	99,000
Indicated	32.7	0.48	0.08	156,000	81,000
Inferred	31.5	0.48	0.10	150,000	104,000
Total	**100.3**	**0.53**	**0.09**	**534,000**	**284,000**

Table 4: December 2011 Little Eva Mineral Resource Estimate at 0.30% copper cut-off grade (provided for comparative purposes only)

	Tonnes (million)	Copper (%)	Gold (g/t)	Contained Copper (tonnes)	Contained Gold (ounces)
Measured	24.6	0.81	0.10	198,000	76,000
Indicated	20.5	0.62	0.09	127,000	62,000
Inferred	18.5	0.64	0.13	119,000	79,000
Total	**63.6**	**0.70**	**0.11**	**444,000**	**217,000**

Note: Totals may not match sub-totals due to rounding.

Table 5: Summary of Mineral Resource Estimates for the Cloncurry Copper Project

DEPOSIT	TOTAL			CONTAINED METAL		MEASURED			INDICATED			INFERRED		
	Tonnes	Grade		Copper	Gold	Tonnes	Grade		Tonne	Grade		Tonnes	Grade	
	million	Cu %	Au g/t	tonnes	ounces	million	Cu %	Au g/t	million	Cu %	Au g/t	million	Cu %	Au g/t
COPPER GOLD DEPOSITS														
Little Eva	105.9	0.52	0.09	546,000	295,000	37.1	0.60	0.09	45.0	0.46	0.08	23.9	0.50	0.10
Ivy Ann	7.5	0.57	0.07	43,000	17,000	-	-	-	5.4	0.60	0.08	2.1	0.49	0.06
Lady Clayre	14.0	0.56	0.20	78,000	85,000	-	-	-	3.6	0.60	0.24	10.4	0.54	0.18
Bedford	1.7	0.99	0.20	17,000	11,000	-	-	-	1.3	1.04	0.21	0.4	0.83	0.16
Sub-total	129.1	0.53	0.10	684,000	409,000	37.1	0.60	0.09	55.3	0.49	0.09	36.7	0.51	0.12
COPPER ONLY DEPOSITS														
Blackard	76.4	0.62	-	475,000	-	27.0	0.68	-	6.6	0.60	-	42.7	0.59	-
Scanlan	22.2	0.65	-	143,000	-	-	-	-	18.4	0.65	-	3.8	0.60	-
Longamundi	10.4	0.66	-	69,000	-	-	-	-	-	-	-	10.4	0.66	-
Legend	17.4	0.54	-	94,000	-	-	-	-	-	-	-	17.4	0.54	-
Great Southern	6.0	0.61	-	37,000	-	-	-	-	-	-	-	6.0	0.61	-
Caroline	3.6	0.53	-	19,000	-	-	-	-	-	-	-	3.6	0.53	-
Charlie Brown	0.7	0.40	-	3,000	-	-	-	-	-	-	-	0.7	0.40	-
Sub-total	136.7	0.61	-	840,000	-	27.0	0.68	-	25.0	0.64	-	84.7	0.59	-
TOTAL	**265.8**	**0.57**	**0.05**	**1,524,000**	**409,000**	**64.1**	**0.63**	**0.05**	**80.3**	**0.54**	**0.06**	**121.4**	**0.56**	**0.04**

See ASX release of 23 October 2007 and 26 July 2011 (Longamundi, Great Southern, Caroline and Charlie Brown), 23 April 2012 (Bedford, Ivy Ann and Lady Clayre), 03 July 2012 (Blackard and Scanlan) and 22 August 2012 (Legend) for full details of resource estimation methodology and attributions.

Note: All figures may not sum exactly due to rounding.

Little Eva is reported above a 0.2% copper lower cut-off grade, all other deposits are above 0.3% lower copper cut-off grade.

JORC Table 1

The table below is a description of the assessment and reporting criteria used in the Little Eva Resource and Reserve Estimation that reflects those presented in Table 1 of The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2012).

Criteria	Commentary
Sampling Techniques and Data	
Sampling techniques	• The dataset incorporates 316 Reverse Circulation (RC) and 34 RC holes with diamond tails holes for a total of 57,559 metres of drilling. • 3,845 of a total 53,911 (7.1%) samples were drill core and 50,066 (92.9%) samples were RC chips. • No other sample types were used in the resource estimate. • Holes were nominaly drilled at dip angles of either 60^{o} or 90^{o}. Wherever possible, holes were planned to intersect mineralisation at optimal true width angles. • 94% of RC drilling was sampled at one metre intervals with the remainder sampled at either 2, 3, 4 or partial metre lengths. Approximately 2kg of each interval was submitted for geochemical analysis. • Each sample was crushed and pulverised to produce a representative charge for assay. • 67% of diamond core was sampled at 1 metre intervals with a further 22% sample at 2 metre intervals and the remainder sampled at variable lengths according to geology. • Drill core sampling was guided by geology. Either half or quarter core was submitted for analysis to the laboratory.
Drilling techniques	• RC drilling included 5.25″, 5.375″, 5.5″ and 6″ size face-sampling hammers. • HQ, HQ3, NQ, NQ2, NQ3 and BQ core sizes were used in diamond drillholes. • Most recent diamond drill core has been marked using inner tube inlaid systems such as 'Ezy-Mark' while the method for orientation of core sourced from older generation holes is uncertain.
Drill sample recovery	• Diamond Core recovery is good, averaging 94%. • RC samples were visually checked for moisture and contamination and recoveries estimated from the sample volume. • Best practice methods were used for diamond coring to ensure the return of high quality core samples. • During RC drilling, the cyclone and splitter were routinely cleaned, ensuring no material build up. • Due to the subjective nature of RC sample recovery estimation, no reliable relationship with grade variation has been established. No relationship between drill core recovery and grade has been established.
Logging	• A re-logging campaign was completed during 2013. A total of 48,725 metres (64% of drilling were re-logged for lithology, alteration, mineralisation characteristics, weathering/oxidation and structure. Logging information was recorded on paper and was later transferred into the database.

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Criteria	Commentary
	• Diamond core was geologically logged using predefined logging codes for lithological, mineralogical and physical characteristics (such as colour, weathering and lithology). In addition, structural measurements of major features were collected. • RC logging was completed in single or multi-metre intervals. • Earlier drilling was logged onto paper and transferred to a digital form for loading into the drill hole database. More recently logging was completed directly onto a laptop in the field using a proprietary geological logging package with in-built validation. Logging information was reviewed by the responsible geologist prior to the final database upload. • Chip trays were collected for each of the RC intervals and core trays were photographed. • Geotechnical logging of diamond core consisted of recording core recovery, RQD, fracture frequency and nature, core state (i.e. whole, broken) and hardness. • Logging was generally qualitative in nature with the exception of structural and geotechnical measurements and the estimation of sulphide percentages. • Drill core was photographed and digitally stored for visual reference. • Lithological logs exist for 100% of the Little Eva database. Approximately 64% of all metres were relogged during 2013; this equates to approximately 84% of holes used in the resource estimation.
Sub-sampling techniques and sample preparation	• CRA Exploration (CRAE) diamond drill core collected during the period 1963-1996 was sampled as sawn half core on approximately 2 metre intervals. • Sampling of diamond core generated by later exploration companies was guided by logged visual mineralisation. Samples were mostly 1 metre intervals, except where sampling was more selective to preserve geological boundaries. Core was generally halved for initial assay sampling. If later umpire or additional metallurgical sampling was required, the remaining half core was split to yield quarter core samples. • For Altona RC drilling, a trailer mounted cyclone and triple deck splitter were used to collect representative chip samples from the drill rig in 1 or 2 metre intervals. Wet intervals were sub-sampled with a scoop or spear. • There is little information available on the RC sampling procedures used by CRAE in the period 1963-1996. 11% of the RC drillholes used in the estimate are CRAE RC holes from the period 1988-1996. • Drillholes with identified quality issues have been excluded from the estimation data set. • The preparation techniques employed for the diamond and RC samples followed industry best practice and were completed by the relevant laboratory. • While peparation techniques vary they usually comprise oven drying, crushing and pulverising samples to established parameters. • There is little information available on the RC Quality Assurance and Quality Control (QAQC) sampling procedures employed by CRAE in the period 1963-1996. • From 2002 to 2006 the following QAQC practices applied:

Criteria	Commentary
	– Regular field duplicate sampling of RC samples at a ratio of 1:37; in 2004 duplicates were sent to both the primary and secondary laboratory. – Post campaign duplicate re-sampling of 5% to 10% of bulk rejects (2004 only). – Insertion of standard samples at a 1:40 ratio (2004 only). – Insertion of blank samples at a 1:40 ratio (2004). – Screen fire assay checks against fire assay for gold on a campaign basis. • From 2006 more rigorous QAQC practices applied: – RC field duplicates were collected either directly from the cyclone or as a second sample from the riffle splitter. Drill core duplicates were either collected by halving the sampled half core or were split from pulped half core. – Primary field duplicates were collected at a 1:20 ratio, with a second duplicate collected at a 1:40 ratio. These second duplicates were then submitted to a check laboratory for umpire testing. – Universal field QAQC procedures included the insertion of certified reference standards at a 1:20 ratio to samples. Standards included multiple elemental abundances reflecting the variations of those elements in the Little Eva mineralisation. – Certified or in-house quartz sand blanks were inserted at regular intervals of 1:40 samples. • Duplicate scatter plots for data generated later than 2003 indicate fair to excellent precision for copper and gold results. • Control plots for Standards submitted after 2003 show few outliers, indicating good to excellent accuarcy. • The mass of RC chip samples received by laboratories averaged 2.136 kg. This is an appropriate sample size for this style of mineralisation and elemental abundance.
Quality of assay data and laboratory tests	Copper assaying was completed at a variety of different laboratories utilising various preparation and direct analytical methodologies. • Laboratories – Australian Laboratory Services (ALS) – Australian Mineral Development Laboratories (AMDEL) – AMMTEC Laboratory – Classic Laboratory Services – SGS / Analytical Laboratories (ANALAB) – Ultra Trace Pty Ltd • Preparation Methods – Aqua Regia (~36% of total) – Perchloric Acid – Mixed Acid (Hydrochloric, Perchloric, Hydrofluoric) (~57% of total) – 4 Acid (Near Total) (~4% of total) – Total Digest • Analytical Methods – Atomic Adsorption Spectroscopy (AAS) (~57% of total) – Inductively coupled plasma mass spectroscopy (ICPMS)

Criteria	Commentary
	– Inductively coupled plasma optical emission spectrometry (ICPOES) (~4% of total) – Inductively coupled plasma atomic emission spectroscopy (ICPAES) (~33.7% of total). Gold assaying was completed at two laboratories with the following preparation and analytical methods. • Laboratories – Australian Laboratory Services (ALS) – SGS / Analytical Laboratories (ANALAB) • Preparation Method – 3 Acid – Fire Assay • Analytical Method – Atomic Adsorption Spectroscopy (AAS) • No geophysical tools were used for collection of elemental assay data relevant to the Little Eva 2014 resource. • Laboratory QAQC involves the use of external company and internal lab standards using certified reference material, blanks, splits and replicates as part of the in-house procedures. Specific QAQC protocols vary across organisations. • Umpire laboratory check samples were submitted from 2004 to indepentently verify reported results. • The umpire sample checks indicate a high degree of precision for primary copper assay results generated after 2004, with little evidence for bias. • Umpire checks upon gold assays indicate some discordance in 2004 drilling results (a minor proportion of the database) and good reliability since that year.
Verification of sampling and assaying	• Several assay validation checks have been completed at different stages of the exploration process. Numerous external parties have reviewed significant intersections during the life of the project. • There are 10 sets of twinned drillholes at Little Eva dataset. Overall mineralisation trends are replicated in twin holes, though variation exists in tenor and location of mineralisation. This may sometimes be attributed to downhole survey issues or in other instances drill directions relative to mineralisation dip or discontinuity in small scale mineralisation pods. In isolated cases diamond drilling suggests thin, high grade material may be reflected as broader, moderate zones of mineralisation. The discontinuity is largely reflected in the nugget effect highlighted by variography. • Historic paper delivered assay results have been retained in hard copy format and/or converted to scanned digital versions. More recent assay results were delivered in electronic format. • Data is entered into the database using standardised protocols which preserve the upload user ID and time/date stamping. • Subpopulations of historic database records have been verified against original paper records • Delivered digital results and the entire database are stored upon company servers which are protected by multiple tiers of backup protocols. Additional data storage and protection is provided by the current

Criteria	Commentary
	laboratory provider ALS - which retains a digital copy of data generated. • No assay results have been adjusted prior to upload to the database.
Location of data points	• Three dimensional spatial locations were calculated using collar locations and downhole survey measurements with curved path geometries. • In 2002, all historic drill collars except four were surveyed by contractor Hugh Patterson with a Differential Global Positioning System (DGPS). During the period 2003-2011, licensed surveyors M H Lodewyk carried out DGPS collar surveys at the conclusion of annual programs. Altona purchased a DPGS unit in 2011 and has surveyed all holes since this time. • All drillhole collar spatial locations are recorded within the resource database using the Map Grid of Australia (MGA) Zone 54 datum. • A summary of downhole survey methods at Little Eva is given below. – Most collars have been surveyed by both magnetic and gyroscopic means. – 12% of holes have a compass survey at the drillhole collar only. This was common practice for historic holes, drilled prior to the year 2000. – 11% of holes have a gyro survey at the drillhole collar only; – 56% of holes have magnetic downhole camera surveys, usually at 50 metre intervals. – 3% of holes have magnetic downhole multi-shot surveys, usually at 10 metre intervals. – 18% of holes have downhole gyroscopic surveys, usually at 3 or 5 metre intervals. • Variable quantities of magnetite present in the rocks at Little Eva affects magnetic survey and compass readings, particularly within the intermediate host rock. • The resource estimate was completed using the MGA54 Zone 54 national grid as datum. • The majority of drilling was completed within the 'Local Eva New' local grid which has its northing axis oriented parallel to the strike of the ore body. Drillhole collar locations were transformed from the local grid to the MGA54 Zone 54 national grid within the database using the two common point method. • The surface topography was constructed from survey data in the form of 0.5 metre contours, collected by licensed surveyors Bennett & Bennett Surveyors and Planners. The DGPS collar survey location for Little Eva drillholes was compared to this topographic surface, and the average variation was 16cm. This confirms that the topographic surface is high quality.
Data spacing and distribution	• Drilling has dominantly been completed on 50 metre spaced lines oriented east-west in local grid orientation. • 50% of the drilling is aligned at 55-60 degrees to east. • 33% of the drilling is subvertical or vertical. • 13% of the drilling is aligned at 55-60 degrees to west. • 4% of the drilling is aligned in other directions. • 27 sections between local grid coordinates 25400mN-26450mN have been drilled to a 50m x 40m drilling density. This represents 1,300 metres

Criteria	Commentary
	of strike length across 95% of the resource, which is deemed appropriate for establishing geological continuity and to understand grade continuity. Local scale variability has been addressed by selecting a suitable estimation method - Multiple Indicator Kriging. • CRAE composited 5,586 single metre RC chip samples into two metre intervals for holes LE034-LE076, representing 9.6% of all sampling metres. • Universal Resources composited all samples in its 2002 RC programme as two metre intervals. Specific intervals of interest were then resplit as 1 metre samples following the result of intial assays. • RC holes drilled after 2002 were sampled as single metre intervals and no compositing applied.
Orientation of data in relation to geological structure	• Nominal east-west drill sections are normal to the strike of the mineralisation. • The dip of the mineralisation varies from 50 degrees to the east to subvertical. Local grade continuity follows the dip of the mineralisation in the north; flatter local grade continuity is noted in the central and southern domains. The bulk of the drilling intersects local grade continuity at between 60 and 90 degree angles. • A small number of drillholes were drilled parallel to mineralisation trends, mostly in the strongly mineralised northern portions of Little Eva. These drillholes were excluded from the estimation process. As such, no biases are expected from the drilling direction.
Sample security	• Industry standard sample security measures were employed. Samples were transported to the Company depot at the end of each working day and secured. Sample dispatch through reputable commercial freight companies was completed as soon as was practically possible.
Audit or reviews	• A comprehensive audit of the sampling and assaying procedures used by the company and of the results of the quality control sampling programme was carried out by independent consultants McDonald Speijers in 2006, with no significant adverse findings. • Sampling and QC procedures employed by CRAE prior to 1996 have been poorly documented. Reports state that procedures conformed to the CRAE standards of the time.
Estimation and Reporting of Mineral Resources	
Database integrity	• Data used for estimation is stored within a SQL Server database and is managed using DataShed software. The structure of the drilling and sampling data is based on the Maxwell Data Model. • Prior to 2006 data was logged onto field sheets which were then entered into the data system by data capture technicians. • Since 2006 data has been logged directly into digital logging systems and uploaded to the database by the database administrator. • Laboratory data has been received in digital format and uploaded directly to the database since 2002. • In both cases the data was validated on entry to the database, or on upload from the earlier MS Access databases, by a variety of means, including the enforcement of coding standards, constraints and triggers.

Criteria	Commentary
	These are features built into the data model that ensure that the data meets essential standards of validity and consistency. • Original data sheets and files have been retained and are used to validate the contents of the database against the original logging. • Certain drillholes, such as those associated with unreliable or non-representative data including auger holes, open percussion holes, trenches or poorly located holes, were excluded for resource calculation purposes. • Extensive validation of existing collar, downhole survey and assay data was completed in 2013/2014. Validation steps included: – All collar surveys were compared against original records. – Downhole surveys were compared against original records. – A representative population (11.5%) of copper and gold assays in the database were validated against original records. Selected assays represent all main drilling programmes by different owners between 1978 and 2011. Errors were identified in less than 0.001% of the database, confirming that the copper and gold assays in the database are of high quality. – Drillhole collar locations were compared to the topographic surface. – Downhole deviations of all drillhole traces were examined and problematic surveys were excluded. – The downhole survey datum was checked to ensure grid transformations were correctly applied. – All data (e.g. assay, bulk density, RQDs, core recovery) was checked for incorrect values by deriving minimum and maximum values. – Lithology data was checked to ensure standard rock type codes were used. – Meta-data fields were checked to ensure they were populated and that the data recorded was consistent.
Site visits	• Multiple site visit have been completed by the Competent Persons other than Mr Ian Glacken.
Geological interpretation	• Confidence in the geological interpretation of the deposit is moderate to high. The spatial extent and geometry of separate lithological components is well constrained by geological knowledge acquired through the relogging of historic drill core and chips completed in 2013. • The deposit is characterised by an Iron-Oxide-Copper-Gold style of mineralisation common in the local region and is hosted within a metamorphosed igneous complex dominated by variably amygdaloidal and feldspar-porphyritic intermediate igneous rock crosscut by later felsic intrusives. The igneous complex is situated within Proterozoic age fine grained, frequently calcareous metasediments. • Primary lithologies have been altered to varying degrees of intensity to assemblage comprising of haematite, albite, carbonate, silica, magnetite, epidote, chlorite, chalcopyrite, pyrite and chalcocite.. • The lithologies are inferred to have been cross cut by several generations of faults. • The geological context has been defined by diamond and RC drilling. This information is supported by surface mapping and geophysical

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	interpretation, including magnetics and gravity. • A new geological interpretation was completed for 13 detailed 100 metre spaced sections. Prior interpretations were used for other sections. • Geological surfaces were interpolated to creation of three dimensional solids for mineralisation and lithology. • All holes, including those between detailed sections, were then used to snap lithological and mineralisation contacts in three dimensional space • There are no alternative detailed interpretations of geology. The geology interpretation has been refined and is believed to be highly robust. • The current geology model was updated in 2013 after an extensive re-logging campaign. • Economic mineralisation is mostly hosted within a fault-bounded package of dominantly intermediate igneous rocks. This package is mostly well-mineralised; however, a weakly mineralised to barren 'halo' exists at its eastern and southern margin with metasediments. The western mineralisation boundary is generally parallel to the contact between the igneous package with metasediments. Thus in less densely drilled areas (mostly at depth), the wireframe of the igneous package was used to constrain mineralisation. • A felsic intrusive body is present along the faulted western contact between the igneous package and meta-sediments. Mineralisation within this felsic intrusive varies to that in the nearby intermediate igneous rock. Strongly mineralised zones recognised in adjacent intermediate rocks can be traced into the felsic intrusive. The mineralisation that surrounds these strongly mineralised zones is not as well developed within the felsic intrusive; thus this was separated into a unique weakly mineralised domain for grade estimation. • The main mineralisation domains, North, Central, South and Southeastern were defined using grade constraints in conjunction with lithological contacts between the igneous complex and metasedimentary rocks. – A general grade cut-off of 0.15% copper was used to define the boundaries between mineralised and weakly-mineralised or unmineralised domains. – The North domain is defined by generally higher copper grade averaging approximately 1% and hosted by steaply east dipping sheet of intensly altered igneous complex. Southern and western contacts are interpreted to be fault structures. – The Central domain is defined by moderate (0.3% to 0.5% copper) grade mineralisation hosted by the altered igneous complex and bounded by fault structures to the north, south, and west. Subdomains of breccia hosted high grade mineralisation (modelled using 0.5% copper cut off) strike northeast and dip steeply to the northwest. – The South domain is generally low (<0.3% copper) to moderate (0.3% to 0.5% copper) grade mineralisation hosted by the altered igneous complex and bounded by fault contacts. Dip of mineralisation is shallower than the in the central domain. – The Southeastern domain forms a block of igneous complex

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	seperated from the main mineralisation by fault structures. Internaly this block is structurally divided into several low, moderate or high grade sheets of mineralisation with varying strikes and dips, though generally to the southwest. All domains were subdivided using a base of oxidation surface to separate oxide mineralisation and primary sulphide mineralisation.
Dimensions	• The main zone of mineralisation inclusive of the North, Central and South domains, strikes north-south to NNW-SSE and the dip varies between 60 degrees to East in the north to subvertical in the central and south domains. • Mineralisation has a strike length of 1300 metres and the width varies from 20 metres (north) to over 300 metres (central). Mineralisation has been intersected between the elevations of 165mRL and -200mRL. • The deposit remains open to the south and at depth.
Estimation and modelling techniques	• Multiple Indicator Kriging (MIK) was used to estimate copper grades into parent blocks (25m x 25m x 10m) using up to eleven indicator cut-offs with associated indicator variograms per domain for primary mineralisation. Ordinary block kriging was used to interpoloate indicators. Indicators were post-processed to calculate e-type mean grades (for validation) and the grades and fractions above cut-offs for a selective mining method. An Indirect lognormal support correction was applied for the change of support from points to Selective Mining Unit (SMU) support (6.25m x 6.25m x 5m). The distribution above the topmost threshold was modelled using a hyberbolic extrapolation which was fitted to the actual composite data from the bin threshold up to a top cut value. The MIK copper grades at the panel support were post-processed to yield SMU-support grades using a local MIK (LMIK) algorithm based upon the local Uniform Conditioning (LUC) algorithm. Gold grades were estimated at SMU support using the copper and gold grades and a collocated cokriging method, which preserves the generally-high copper-gold correlation. Both copper and gold were reported above a 0.2% copper cut-off at the SMU support. • Ordinary Kriging (OK) estimates for copper were also made at the SMU scale to provide a ranking model for the LMIK post-processing • 14 unique domains have been estimated. Two estimation passes were used for all the domains. The first pass has search radii of 150m x 150m x 30m with a minimum of 12 and a maximum of 24 samples in search. The second pass searched 250m x 250m x 50m with a minimum of 6 and maximum of 24 samples. Search ellipse orientations were the same as variography orientations. No octant restrictions were used, and as such the maximum distance of extrapolation from data points is equal to the search radii specified above. Most of the blocks were informed in the 1st pass and commonly the 24 sample restriction was met before reaching maximum search distances. • Sample data was composited to a one metre length. A minor quantity of small composite lengths remained and these were excluded from grade estimation. • Composites were declustered using a 50 x 50 x 40 cell declustering

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	method. • Extreme outliers of the gold sample population were top cut. No top cut was applied to copper. • Directional variograms were modelled for whole domains and indicator variograms for selected indicator percentiles (up to 11). Modelled indicator variograms showed 50-70 metre variogram ranges with 20-45% nuggets variances. • Geovariance's Isatis and Snowden's Supervisor software was used for variography. • The public domain Stanford University GSLIB software was used for resource estimation. Dassault Systemes' Surpac software provides a front-end interface for GSLIB, and this was used to run GSLIB's DOS executables. • Isatis was used for the LMIK copper post-processing and the collocated kriging for gold estimation. • An OK estimation was compiled and comparison with the E-type (panel average) estimate was within acceptable limits. • Comparison with the previous May 2011 Little Eva MIK model showed no material change. • No by-product metallurgical assumptions have been built into the estimate. These are not relevant to the extraction of copper and gold by conventional means. • No internal, external dilution or ore loss due to deleterious elements or other non-grade variables of economic significance were modelled. • The block model was constructed using 25m x 25m x 10m parent block size with standard subcelling to 6.25m x 6.25m x 5m , which represents the mining SMU. Kriging Neighbourhood Analysis was performed to optimise the block size, search distances and sample numbers. • The selective mining unit (SMU) size was defined at 6.25m x 6.25m x 5m . This is in line with assumptions made regarding current mine plans, production rates and equipment sizes. • Only copper and gold were integrated in the resource calculation. Correlation between these two variables is moderate to good, with domain sample correlation coefficients varying between 0.6 and 0.7. The collocated cokriging of gold makes use of the copper-gold correlation to pair high copper and gold grades. • Top cut analysis was carried out for all the domains for copper and gold. The top cut was decided using the following criteria: – Continuity of the high grade tail in the grade histogram – Log probability plots – Change in the coefficient of variation (CV) – Spatial location and clustering of high grade samples – Mean and variance plot analysis for sensitivity of mean grade to top cutting • Top cuts were applied to gold as top cut analysis indicated that extreme outliers had some influence on the sample population. • No top cut was applied to the copper as top cut analysis indicated minimal influence from extreme outliers on the sample population. However,

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	copper top cuts were selected and used for the maximum data value allowed for upper tail extrapolation, a parameter used during MIK post-processing to calculate the recoverable resource. • An external and independent review of this Mineral Resource estimate was undertaken by Optiro Consultants. Internal validation was carried out by Altona, comparing the MIK E-type and the OK panel estimates and this was reviewed by Optiro and found to be satisfactory. SMU-level gold estimates were validated against gold composites and the copper-gold correlation at the SMU scale was compared to the composite correlation. Visual validation of all models was carried out in plan and section.
Moisture	• Tonnes have been estimaed on a dry basis.
Cut-off parameters	• Resources are reported above 0.20% and 0.30% copper cut-offs using a recoverable resource technique with the change of support to the SMU scale. By definition this reflects the planned scale of mining and production. • These cut-off grades have been adopted as they permit a bulk tonnage operation.
Mining factors or assumptions	• The resources are estimated and reported using a recoverable resource technique (LMIK) which assumes selective mining at the scale of the SMU. • The SMU selected was 6.25m x 6.25m x 5m. • The selected SMU is compatible with a large scale bulk tonnage mining operation.
Metallurgical factors or assumtpions	• Extensive mineralogical and metallurgical testwork has been completed on the Little Eva resource. • Testwork indicates that a 96% copper recovery will be achieved at a concentrate grade of 25% copper. Gold recovery is 85% at a concentrate grade of 4 g/t. • No metallurgical assumptions have been built into the resource estimate and none are necessary.
Environmental factors or assumptions	• The Little Eva resource is a component of the Little Eva Development Project and accordingly is encapsulated within the granted Environmental Management Plan (EMP). • The EMP considers a broad range of environmental considerations including: – Flora and Fauna – Soils – Radiation – Atmospheric Emissions – Hydrogeology • Baseline and ongoing studies form part of EMP requirements. • Analysis of simulated tailings fluids and solids prepared through laboratory scale test work indicates favourable environmental results. Simulated sulphide and oxide tailings were found to be benign in terms of potential for formation of acidic, saline or metalliferous drainage. • Consequently, no adverse environmental considerations have been built into the resource model.
Bulk density	• In total 1,862 bulk density measurements have been taken from Little Eva

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	core.
	• Samples were sourced from multiple holes across the extent of the deposit in both the oxide and sulphide mineralisation zones. Spatially, samples cover 1,000m of strike length and 200m of depth extent.
	• Measurements were completed using the industry standard weight in air / weight in water method.
	• The mean bulk density value for each modelled lithology was used for tonnage calculations.
	  – The lithology wireframes and oxidation surfaces were used to flag the block model and the bulk density samples.
	  – For each lithology within fresh rock, the mean bulk density value was calculated from sample data and assigned to the block model. A value of 2.8 t/m3 was assigned to intermediate rock; 2.63 t/m3 for felsic intrusive; and 2.7 t/m3 for meta-sediments.
	  – Insufficient bulk density measurements existed within the oxide zone, and a nominal value of 2.5 t/m3 was assigned to the block model. The oxide zone is not included in the Mineral Resource.
	• Bulk density has no correlation with copper or gold grades.
	• Bulk density has a broad correlation with lithology and alteration.
	• Bulk density averages for fresh rock were calculated from statistically signficant volumes of samples. A total of 1386 samples were used for intermediate rock; 371 for meta-sediments; and 70 for felsic intrusive. The felsic intrusive comprises a relatively small volume of the Mineral Resource.

Classification	• Classification for Little Eva is based upon the continuity of geology, mineralisation and grade, using drillhole and density data spacing and quality, variography and estimation statistics (number of samples used, estimation pass, and slope of regression).
	• Mineral resources have been classified on the basis of confidence in geological and grade continuity using the drilling density, geological model, modelled grade continuity and conditional bias measures (slope of the regression and Kriging efficiency) as criteria.
	  – Measured Mineral Resources have been defined in areas of 50m x 40m drill spacing with low variance in grade and good grade and geological continuity.
	  – Indicated Mineral Resources have been defined in areas of 50m x 40m drill spacing where grade variance is moderate.
	  – Inferred Mineral Resources have defined generally in areas of 100m x 100m drill spacing. Inferred Mineral Resources have been modelled down to 100m RL (250 metres below surface).
	• The classification appropriately reflects the quality of and confidence in the grade estimates expressed by the Competent Persons.

Audits or reviews	• An external and independent review of the resource estimate was undertaken by Optiro consultants.
Discussion or relative accuracy/confidence	• No formal confidence intervals have been derived by geostatistical or other means; however, the use of quantitative measures of estimation quality such as the Kriging efficiency and the slope of regression allow the Competent Person to be assured that appropriate levels of precision have

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	been attained within the relevant resource confidence categories. • These levels of confidence and accuracy relate to the quarterly estimates of grade and tonnes for the deposit, which have been used in the Definitive Feasibility Study updated and released on 13 March 2014.