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# SPECTACULAR DRILL RESULTS AT KYLYLAHTI DEPOSIT

- Intercept of 108 metres at 2.4% copper including 58 metres at 4.2% copper
- Best drillhole result at Kylylahti deposit since discovery in 1984

Altona Mining Limited ("Altona") is pleased to announce the results of the first four drillholes of the programme designed to test for extensions to the Kylylahti mine. The drilling has extended resources by 50-100 metres vertically to 850 metres deep and demonstrates that high grades continue at depth.

Prior drilling at the bottom of the deposit is sparse and resource and reserve tonnes decline quickly below a vertical depth of 650 metres. This drilling not only extends mineralisation at depth but will increase the grade, width and confidence in the poorly defined resource model below 650 metres depth. Highlights of the drilling include:

KU 902	108 metres at 2.4% copper, 1.0g/t gold, 0.8% zinc
Including	58 metres at 4.2% copper, 1.2g/t gold, 1.0% zinc
KU 901	107 metres at 1.0% copper, 1.4g/t gold, 0.4% zinc
Including	34 metres at 2.0% copper, 0.7g/t gold, 0.6% zinc
KU 900	87 metres at 1.1% copper, 0.8g/t gold, 0.6% zinc
Including	15 metres at 1.8% copper, 0.4g/t gold, 1.0% zinc
KE 1	102 metres at 0.8% copper, 1.0g/t gold, 0.2% zinc
Including	12 metres at 2.0% copper, 2.6g/t gold, 0.7% zinc

True width of intercepts ranges from 20 to 60 metres (see Figures 2 and 3). Notable are elevated gold grades well above the usual 0.5-0.7g/t range usually reported. Full results are appended in Table 1 and JORC requirements in Table 3.

KU-902 L-74	1 F	
9.6% 1.8ppm	1	
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Carling and a state	MER BY BY	7.8% 1.3ppm
	<u>(</u> ***219	20/307846 33000 54 55,5% 1 7ppm
		<
		337 MS (ccf+4f+16+50) 331.20 SNS (Ay+ccf

High grade semi-massive sulphide drill core averaging 8.1% copper and 2g/t gold.



Dr Alistair Cowden, Managing Director of Altona said, "Kylylahti is a great orebody and it is a delight to report the best drillhole yet from the deposit since its discovery by Outokumpu in 1984. The drilling is spectacular providing a clear demonstration of high grades persisting at depth. These results provide the support to consider expanding production to 700,000 tonnes per annum, some 27% higher than the Feasibility Study design. Revised guidance will be issued when mine planning is completed and upon receipt of a revised resource and reserve estimate which will be released in conjunction with half year reporting early in 2014."

The deposit is structurally complex, however, knowledge from mining the deposit and detailed underground drilling has given a better understanding of structure and permits a reasonable interpretation of geometry at depth.

The type example deposit in the Outokumpu copper field, Keretti, is some 4 kilometres long, up to 300 metres across plunge and up to 40 metres thick. Consistent high grades and elevated gold are characteristics of the better parts of Keretti, a deposit which produced over 1 million tonnes of copper and 1 million ounces of gold. Kylylahti is some 1.3 kilometres long from surface to the limit of drilling. At surface mineralisation is thin and weak and the deposit increases in grade and size with depth. The deposit remains open and there is a crude trend of improving grades and metal content with depth. Further drilling will be planned to test the deposit to 1 kilometre vertical depth. Given the analogy with Keretti and other deposits, there is no reason to expect the deposit will not extend further and that mining will only be limited by economics and ground conditions.

## **Excellent Infill Definition Drilling**

In addition to the extensional drilling at depth, extensive definition drilling has taken place in the Wombat zone from depths between 410 metres and 470 metres below surface. This has further clarified structure, confirmed continuity of high grade zones and defined gold-rich zones in the hangingwall. Full results are appended in table 2. Highlights are **33 metres at 3.2% copper and 1.0g/t gold and 35 metres at 2.1% copper and 1.1g/t gold.** 

#### Please direct enquiries to:

Alistair Cowden Managing Director Altona Mining Limited Tel: +61 8 9485 2929 altona@altonamining.com James Harris Professional Public Relations Perth Tel: +61 8 9388 0944 james.harris@ppr.com.au Jochen Staiger Swiss Resource Capital AG Tel: +41 71 354 8501 js@resource-capital.ch



### 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 550,000 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 up to 11 to 12,000 tonnes of copper 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 Roseby 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's proposed annual production is 38,800 tonnes of copper and 17,000 ounces of gold for a minimum of 11 years. A Definitive Feasibility Study has been completed and the project is fully permitted. 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.

#### **Competent Persons Statement**

The information in this report that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Dr Alistair Cowden BSc (Hons), PhD, MAusIMM, MAIG and Mr Jari Juurela, MSc, MAusIMM who are full time employees of the Company and 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'. Messrs Cowden and Juurela consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.

Details of assaying and sampling methodology for the Kylylahti mine are detailed on the attached disclosure of sampling techniques and data management (Table 1 extract).

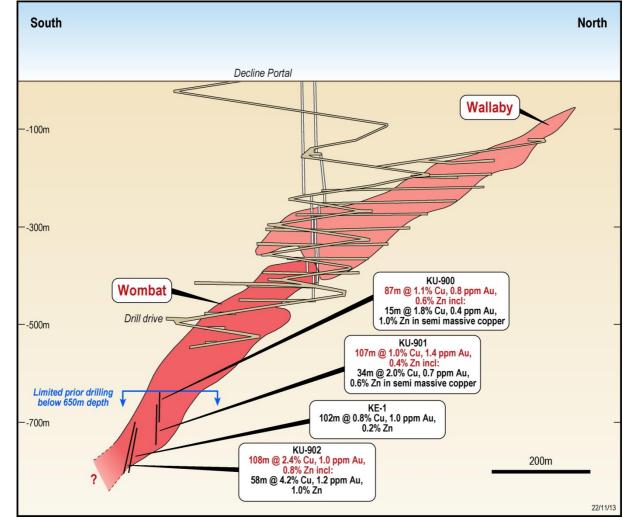


Figure 1: Longitudinal projection of the Kylylahti deposit showing the location of the drilling detailed on Figures 2 and 3 in relation to current mine development.

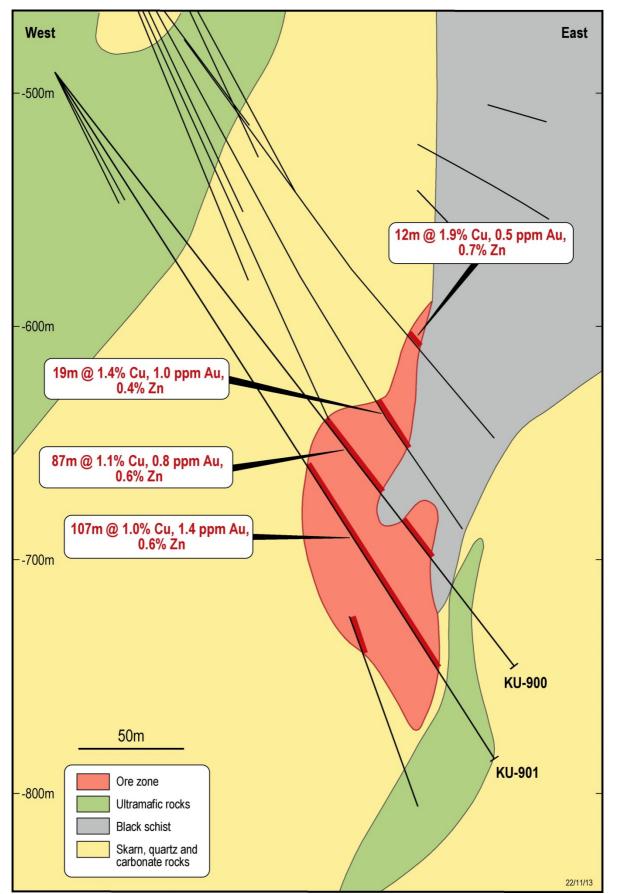
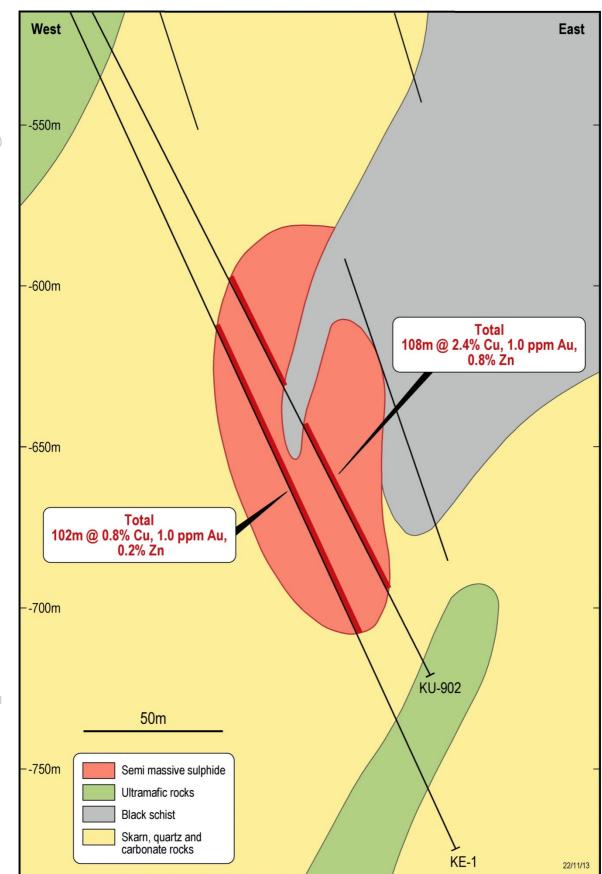


Figure 2: Cross Section 6972 600mN showing drillholes KU-900 and KU-901 and the complex geometry surrounding a fold structure in the footwall black shales.



**Figure 3:** Cross Section 6972 540mN showing drillholes KU-902 and KE-1 and the complex geometry surrounding a fold structure in the footwall black shales. Note the drillhole that limits the deposit to the east is a 1980's drillhole and its actual location is uncertain.

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Table 1: Tabulation of drill results, November 2013 - extensional drilling.

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Hole	From	Width	Copper	Gold	Zinc
	(m)	(m)	(%)	(g/t)	(%)
KE-1	245	102	0.8	1.0	0.2
Including:					
KE-1	251	12	2.0	2.6	0.7
KE-1	263	85	0.6	0.8	0.1
КU-900	189	87	1.1	0.8	0.6
Including:					
KU-900	194	19	0.7	1.5	0.3
KU-900	214	9	0.5	1.0	0.4
KU-900	223	15	1.8	0.4	1.0
KU-900	252	25	1.9	0.8	0.9
KU-902	163	5	2.1	0.8	0.2
KU-902	237	108	2.4	1.0	0.8
Including:					
KU-902	237	5	0.2	5.1	0.0
KU-902	243	30	0.5	0.2	0.7
KU-902	287	58	4.2	1.2	1.0
KU-901	192	107	1.0	1.4	0.4
Including:					
KU-901	192	12	0.1	3.6	0.0
KU-901	218	17	0.6	2.0	0.6
KU-901	236	5	1.1	4.4	0.2
KU-901	250	29	0.5	0.6	0.5
KU-901	279	34	2.0	0.7	0.6

Drillhole intersections are reported using 0.4% copper cutoff and 2 metres minimum width and maximum 5 metres internal waste. Massive copper domain is reported using 1.0% copper cutoff, disseminated domain 0.4% copper cutoff and hangingwall gold-zone with 1ppm gold cutoff. Gold assays are top cut to 15 ppm.

Drillhole collar locations are not reported as this has no meaning in the context of drillholes collared in an underground mine opening. An understanding of drill geometry and intercept true thickness can be gained from the figures attached to this release.

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Hole	From (m)	Width (m)	Copper (%)	Gold (g/t)	Zinc (%)
KU-366	2	7.0	0.2	3.0	0.0
KU-366	40	35.0	2.1	1.1	0.6
KU-367	60	37.0	1.9	0.7	0.7
KU-381	68	33.0	3.2	1.0	1.3
KU-385	7	8.0	0.0	2.1	0.0
KU-385	23	11.0	0.3	3.9	0.0
KU-385	81	33.0	1.9	0.7	0.4
KU-386	38	17.0	2.5	0.2	1.2
KU-401	84	7.0	0.7	1.2	0.5
KU-403	68	18.0	0.8	1.5	0.5
KU-404	63	23.0	1.0	1.5	0.4

**Table 2:** Tabulation of drill results, October-November 2013 - infill drilling.

Drillhole intersections are reported using 0.4% copper cutoff and 2 metres minimum width and maximum 2 metres internal waste. Massive copper domain is reported using 1.0% copper cutoff, disseminated domain 0.4% copper cutoff and hangingwall gold-zone with 1ppm gold cutoff. Gold assays are top cut to 15 ppm.

Drillhole collar locations are not reported as this has no meaning in the context of drillholes collared in an underground mine opening. An understanding of drill geometry and intercept true thickness can be gained from the figures attached to this release.



## Table 3: Extract from JORC Table 1.

The table below is a description of the sampling techniques and data handling used at the Kylylahti mine. It is an extract from Altona's wider reporting in Table 1 of The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2012) and this portion relates to drilling and other sampling.

Criteria	Commentary			
Sampling Technique	s and Data			
Sampling techniques	<ul> <li>The deposit is sampled using diamond drillholes and face samples of the underground development.</li> <li>Diamond core drilled before 2011 has been cut or sawn to half core or quarter core, which has been sent for assaying. 45% of the diamond core drilled after 2011 has been cut to half core before submitting to assaying and 55% has been assayed as full core.</li> <li>Extensional drilling diamond core is all cut to half core prior submitting to assaying.</li> <li>Sampling in the diamond core is predominantly at 1 metre intervals with sample breaks matching geological contacts.</li> <li>Face sampling lines have been laid out horizontally and perpendicular to ore contacts. Samples have been collected as chip samples using rock hammers at predominantly 1 metre intervals. Sample breaks match geological contacts.</li> <li>Diamond holes and face samples are picked up for collar location and downhole surveyed with relevant instrument. Underground diamond drilling is designed in a nominal 20 x 20 metre grid to intersect mineralisation at the best available angle. Logging and sampling of the diamond holes and face samples are undertaken in accordance with Altona's protocols. QAQC samples are inserted for both diamond sample and face sample batches as per Altona's protocols follow industry best practice.</li> <li>Determination of mineralisation and representativeness is based on the visual amounts of sulphides and lithological contrasts</li> <li>All samples are crushed, split and pulverized to produce a 100-250g subsample for base metal assaying by acid digestion and a 25g subsample for fire assay for gold.</li> </ul>			
Drilling techniques	<ul> <li>Diamond drilling is used to define the Kylylahti Resources. About 93,000 metres was drilled before production (-2011) and about 42,200 metres have been drilled after that. Drilling after 2011 has been carried out to infill to the required density before development, for stope grade control and to explore deep extensions of the ore.</li> <li>Face samples are collected using a rock hammer from horizontal lines perpendicular to ore zones. 446 faces with 2,400 metres of sampling have been collected.</li> </ul>			
Drill sample recovery	<ul> <li>Core losses are recorded as intervals on the core logging sheets. Core recovery is regarded to be high in Kylylahti drilling and exceeds 99%.</li> <li>Face sample chips are collected and a representative amount is recovered to assaying. The quality of sampling and representivity is systematically monitored using QQ-plot comparisons against diamond core data.</li> </ul>			

Criteria	Commentary			
	<ul> <li>Diamond core samples are used to achieve good recovery data for estimation. Diamond core is reconstructed and oriented to continuous core and length of the core is measured and checked against meter marks of the drillers. Face sample quality and recovery is continuously monitored with geostatistical tools against the diamond core data.</li> <li>Recovery of the diamond core and face samples are regarded as good and there is no indication of bias from the sample losses in the dataset.</li> </ul>			
Logging	<ul> <li>All diamond core is geologically logged. Geological logging contains all the required detail for defining geological and ore boundaries and is appropriate for resource estimation.</li> <li>About 25% of the exploration and underground grade control diamond core is geotechnically logged. 100% of the extensional diamond core is geotechnically logged.</li> <li>All face samples are geologically logged. Geological logging contains all the required detail for defining geological and ore boundaries and is appropriate for resource estimation.</li> <li>Logging of the diamond core records geological unit, lithology, texture, grain size, sulphides and sulphide textures. All core is photographed.</li> <li>Logging of the face samples records geological unit and lithology.</li> <li>All diamond core and face samples are geologically logged. About 25% of</li> </ul>			
Subcompling	<ul> <li>the diamond core is geotechnically logged.</li> <li>Exploration diamond core is sampled by generating half or guarter core.</li> </ul>			
Sub-sampling techniques and sample preparation	<ul> <li>Exploration diamond core is sampled by generating half or quarter core.</li> <li>Underground grade control core is submitted as full core samples (55% of the holes) or half core samples (45% of the holes).</li> <li>Underground extensional diamond core is submitted as half core samples.</li> <li>Face sampling comprises rock chip samples. Full samples are sent for assaying.</li> <li>Diamond core sample preparation is done by crushing the whole sample, splitting the sample by rifle splitter to 1,000g and pulverising the 1,000g subsample.</li> <li>Face sample preparation is done by crushing the whole sample, splitting by riffle splitter to a subsample size of 150g and then pulverizing the whole subsample.</li> <li>Industry best practice procedures are followed in the sample preparation for diamond core and face samples.</li> <li>Core duplicates and check assay repeats are systematically assayed to ensure the quality of sampling and subsampling.</li> <li>Duplicate face sample lines have been collected to ensure the quality of the face sample batches.</li> <li>QAQC samples are inserted on a 1:10 ratio.</li> <li>Core duplicates and duplicate face sample lines are taken to monitor the representativity of sampling. Underground development has mined several drillholes and intersected drillholes have been used to monitor representativeness of sampling</li> </ul>			

 Sample sizes are considered to be appropriate for the Kylylahti style of ore.



	Criteria	Commentary
		<ul> <li>Collar locations points for surface holes are measured using DGPS instrument. Kylylahti is underground mine which does not have surface exposure. Topography DTM accuracy is irrelevant for underground mining purposes.</li> </ul>
AJUO BSN	Data spacing and distribution	<ul> <li>The Wallaby zone, the Wallaby-Wombat Gap and upper part of the Wombat are diamond drilled to a minimum of 20 metres x 20 metres spacing on to long section plane of the ore and down to 540 metres vertical depth from a combination of underground definition drilling and surface drilling. Below 540 metres vertical depth drilling is more sparse. Resource classification reflects this. Underground diamond holes drilled between 540-700 has confirmed interpreted geology and ore zones based on the surface drilling.</li> <li>Face sampling covers about 70% of available ore faces in the Wallaby orebody down to 450 metres vertical depth. Sampling is done on 4 metres ore cuts on 25-30 metres development levels.</li> <li>Resources below 540 metres depth are drilled on a 40 x 40 metre grid.</li> <li>Data spacing is considered sufficient to define geological and grade continuity for grade control purposes, Mineral Resources and Ore Reserves (above 540 metres depth) and sufficient for Mineral Resources and Ore</li> </ul>
		Reserves (below 540 metres depth).
DGLSONA	Orientation of data in relation to geological structure Sample security	<ul> <li>Samples are composited downhole to 2 metres for estimation purposes.</li> <li>Face samples are collected wherever possible perpendicular to the orebody and are regarded as having the correct orientation to produce a representative sample.</li> <li>Underground diamond drilling is completed in fans from the drilling positions in the footwall of the orebody. Orebody intersection angles are predominantly orthogonal to mineralisation and are suitable for collecting unbiased samples.</li> <li>Exploration diamond drilling is collared from surface. Deeper diamond holes from the surface to intersect a subvertical orebody are drilled with moderate to poor drilling angles for the ore contacts. No major biases are seen from the exploration drilling after the upper orebody has been redrilled with better orientation from underground drill cuddies. Minor variations seen at drilling are mainly positive with higher grade and thicker intersections in the new drilling.</li> <li>A chain of custody is maintained for the Kylylahti samples.</li> </ul>
		<ul> <li>Diamond core is drilled by an underground drilling contractor. The drilling contractor delivers core from underground drilling sites to Altona's logging facilities close to the mine site. Core is logged in Altona's logging facilities by full-time Altona employees and collected samples are delivered by full-time Altona employees to global laboratory.</li> <li>Face samples are collected by Altona's geologists who are full-time employees. Samplers deliver core from underground drives to Altona's logging facilities close to the mine site. Samples are prepared by full-time Altona employees in the sample preparation room of the logging facility and subsamples are delivered by full-time Altona employees to global by full-time Altona employees to the onsite laboratory.</li> </ul>

laboratory.



Criteria	Commentary
Audits or reviews	• The initial estimations for the Definitive Feasibility Study were undertaken by Optiro with subsequent updates by Altona. This estimate was audited by Snowden. No external audits or reviews of the sampling technique or data have been undertaken since the feasibility study. Sampling techniques have not changed since the study. The Competent Person(s) has reviewed both the sampling technique and database and considers both to be at required levels. Altona's senior resource geologist based in Australia has completed an internal audit of the Kylylahti estimate.

