

7 March 2018

## **High-priority bedrock conductors detected at Thackaringa Project, New South Wales**

- **Helicopter-borne electromagnetic survey detects a cluster of geophysical anomalies within Australian Mines' Thackaringa Project**
- **Several of these conductive bodies are classified as *Priority One* and *Priority Two* targets by leading independent geophysical consultant<sup>1</sup>**
- ***Priority One* targets are considered “likely to be due to sulphides (or sulphidic sediments)” according to the consultant’s report<sup>2</sup>**
- **High-resolution Fixed Loop Electromagnetic survey commenced over high priority targets at Thackaringa**
- **Detailed surface sampling program currently in progress over entire Thackaringa tenement package**
- **Results of ground-based geophysical survey and surface sampling program expected by May 2018**
- **100% owned by Australian Mines with no third-party royalties or claw-back measures**

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<sup>1</sup> Mitre Geophysics - see [mitregeophysics.com.au/](http://mitregeophysics.com.au/)

See Appendix 1 of this report for information regarding the classification of individual conductors detected by this helicopter-borne electromagnetic survey over Australian Mines' 100%-owned Thackaringa Project

<sup>2</sup> Mitre Geophysics, Barrier Range Project VTEM Report – Report for Australian Mines

See footnote 5 on page 2 of this report for information supporting this statement



Australian Mines Limited (“**Australian Mines**” or “the Company”) (ASX: AUZ) is pleased to announce that modeling of the helicopter-borne electromagnetic (AEM) data acquired over the Company’s Thackaringa project in late 2017 has identified a total of 18 anomalies, of which more than half were categorized by a leading consulting geophysical company that specialises in base metal exploration<sup>3</sup>, as high priority targets that warrant ground investigation to better define these targets for drill testing.

Australian Mines is particularly pleased to report that included within these prospective conductors is a cluster of anomalies within the northern zone of the project area, with at least one of the bodies identified as a *Priority One* target<sup>4</sup>. This means that, in the opinion of the consulting geophysicist, this particular AEM response is characteristic of sulphides within the underlying bedrock<sup>5</sup>.

Australian Mines is acutely aware that even quite small AEM anomalies can be related to quite significant ore bodies. (Peel Mining – CBH Resources’ Mallee Bull deposit in Central New South Wales is a perfect example of this<sup>6</sup>). As a result, the Company has now commenced a ground-based Fixed Loop Electromagnetic (FLEM) survey over this target zone at its Thackaringa Cobalt Project.

Final results, including the detailed modelling of any resulting anomaly, is expected to be received by the Company in May 2018. Australian Mines would then propose to undertake its maiden drill program at Thackaringa from July 2018 (subject to landholder approval).

In addition to the ground-based FLEM geophysical survey, Australian Mines has also recently commenced a soil and surface sampling program over the entire Thackaringa project area. The Company anticipates receiving the final results of the sampling campaign in May / June, ahead of any planned maiden drilling campaign at Thackaringa.

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<sup>3</sup> Mitre Geophysics - see [mitregeophysics.com.au/](http://mitregeophysics.com.au/)

<sup>4</sup> Mitre Geophysics, Barrier Range Project VTEM Report – Report for Australian Mines

<sup>5</sup> Mitre Geophysics notes that the AEM response is characteristic of sulphides or graphitic shales within the underlying bedrock. However, as graphitic shales are very rare in the Broken Hill / Thackaringa district, the anomaly is indicative of the presence of sulphides within the underlying bedrock. Mitre Geophysics has a long and extensive experience in base metal exploration, including within the Broken Hill District and it forms the core of their business. Their statement that the geophysical response returned from Australian Mines’ AEM survey is characteristic of sulphides is based on their consideration of a range of important factors including; geological setting, the magnitude / amplitude of the anomaly and the decay rate of the electromagnetic response related to the anomaly.

<sup>6</sup> The Mallee Bull copper (+ gold + silver + lead + zinc) deposit, located near Cobar in New South Wales, was discovered by Peel Exploration (PEL: ASX) in 2011 when their exploration team drill tested a confined conductor detected during the airborne electromagnetic survey (by the same contractor and system that undertook Australian Mines’ Thackaringa AEM survey).

See [www.peelmining.com.au/upload/PEX\\_IP\\_1305011.pdf](http://www.peelmining.com.au/upload/PEX_IP_1305011.pdf), particularly slide 10 of this presentation for summary of Mallee Bull (which was initially referred to as the 4-Mile target by Peel Mining).



**Australian Mines Managing Director, Benjamin Bell commented:** *“Australian Mines has an enviable pipeline of high-quality battery material projects located within established mining regions of eastern Australia.*

*“At our flagship Sconi Cobalt-Nickel-Scandium Project in Queensland we secured a major milestone this month through the signing of a binding off-take agreement term sheet with global electric vehicle battery manufacturer SK Innovation for 100% of the cobalt and nickel production<sup>7</sup>.*

*“With Sconi now well down the development path, we are fortunate to have the necessary strength in our balance sheet to systematically evaluate resources and prospectivity at our Flemington Cobalt-Scandium-Nickel Project in New South Wales, and the highly-promising early stage Thackaringa Project to drive medium and long-term value for all Australian Mines shareholders.”*

**\*\*\*ENDS\*\*\***

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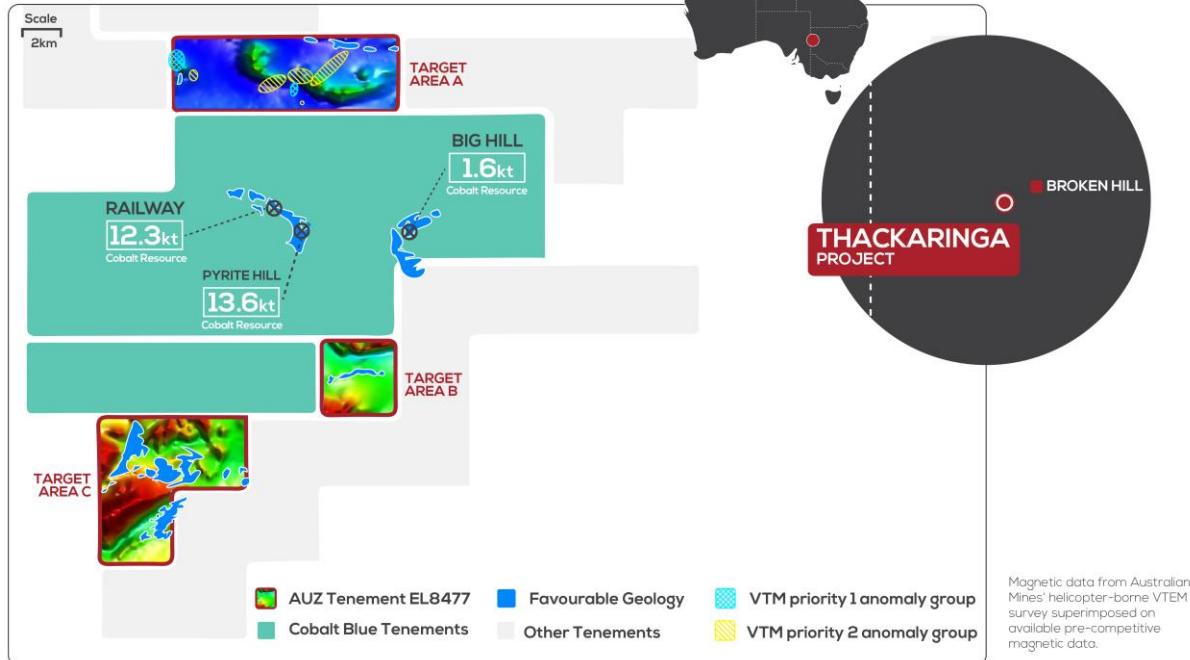
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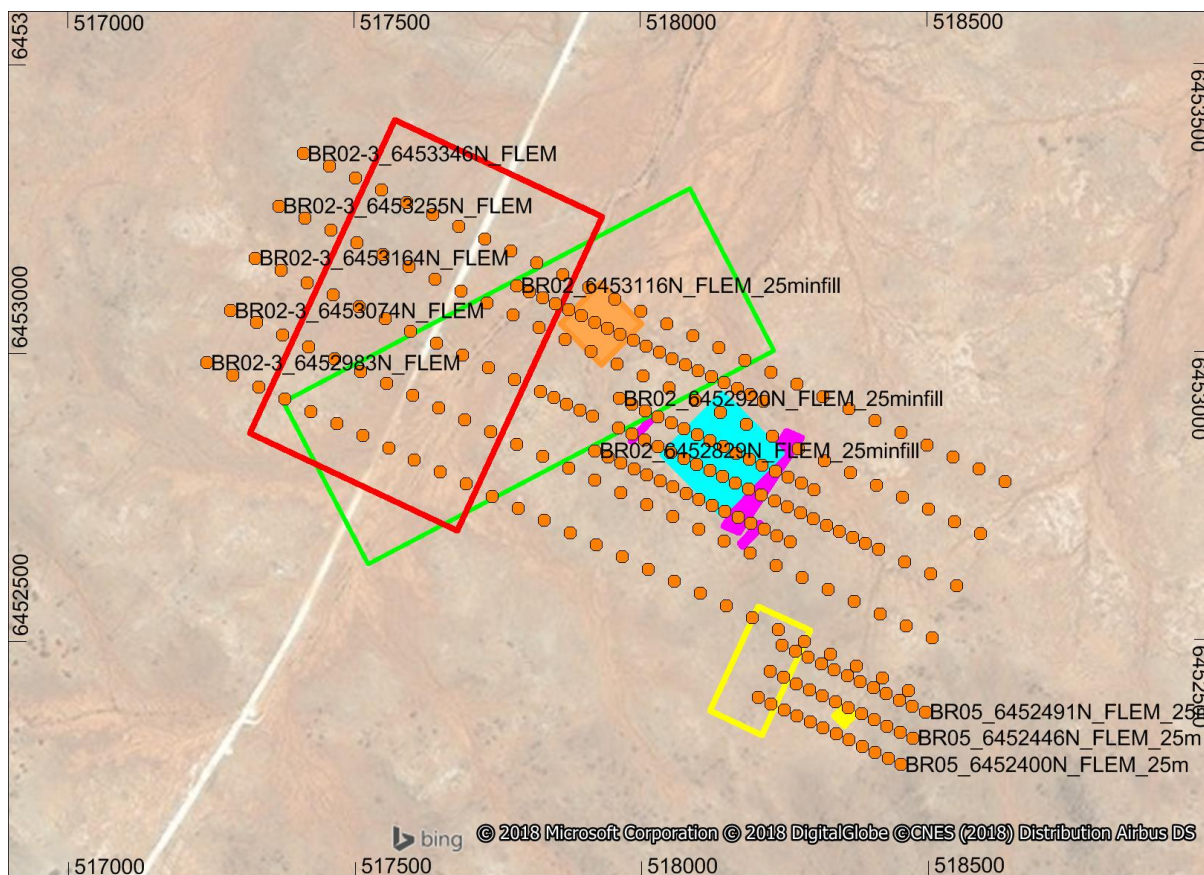
<sup>7</sup> Australian Mines Limited, Australian Mines reaffirms binding off-take agreement term sheet for Sconi Project, Queensland, released 6 March 2018.

**THACKARINGA PROJECT Tenement MAP**



**Figure 1:** Detailed aeromagnetic image of Australian Mines' Thackaringa project overlain with the *Priority One* and *Priority Two* targets as identified via the Company's AEM survey of *Target Area A*. Further conductors have been identified within *Target Area B* and *Target Area C*<sup>8</sup> and it is Australian Mines' intention to commence exploration across these additional anomalies immediately following the FLEM survey that is the subject of this announcement.

<sup>8</sup> Airborne electromagnetic targets within *Target Area B* and *Target Area C* are not shown in this image as further modelling may be required before these results can be released publicly



**Figure 2:** Proposed location of Fixed Loop Electromagnetic (FLEM) ground survey stations (shown as orange dots) and transmitter loop (shown as red polygon) compared to the airborne electromagnetic (AEM) anomalies, which are shown as solid magenta and blue polygons (*Priority One* conductors), solid yellow and orange polygons (*Priority Two* conductors) and outlined in green (*Priority Three* conductors).

## **Appendix 1: Indicative classification scheme (AEM conductors)**

The ranking of Australian Mines' airborne (helicopter-borne) electromagnetic (AEM) anomalies are based on the following rationale:

1. Limited strike length anomalies, strong (*Priority One*) to moderate (*Priority Two*) AEM conductors are considered high priority targets, especially if upgraded by;
  - a. Coincident Induced Polarisation (IP) response
  - b. Proximity to regional structures / known mineralisation / geochemistry
  
2. Limited strike length moderate (*Priority Three*) to weak (*Priority Four*) AEM conductors are considered moderate priority, and high priority if upgraded by;
  - a. Coincident Induced Polarisation (IP) response
  - b. Proximity to regional structures
  
3. Broad, smoothly varying, moderate to high amplitude responses are most often due to conductive overburden, especially if over a large area. However, there is potential that a good conductor is buried beneath this, so these anomalies (*Priority Five*) cannot be ignored.
  
4. Very strike extensive conductors are generally either stratigraphic (e.g. conductive shales) or manmade (fences, railways).
  
5. Very narrow, small but usually high amplitude responses are generally from man-made

## Appendix 2: JORC Code, 2012 Edition

### Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<ul style="list-style-type: none"> <li>Nature and quality of sampling (eg 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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (eg '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 (eg submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<p>UTS Geophysics flew a Versatile Time domain Electromagnetic (VTEM-max) survey over Australian Mines Thackaringa tenement EL8477 on 100 metre spaced northwest-southeast lines as an extension to BHPL/Cobalt Blue's Thackaringa VTEM survey.</p> <p>The VTEM system recorded the total magnetic intensity and the Z and X component of the coil EM response (SF(z,x)). The SF(z,x) which was then transformed to give an estimate of the B-field EM response (BF(z,x)). The Bfield transformation is useful because it highlights the responses from better conductors and dampens the overburden/weathering response.</p> <p>The VTEM data is digitally recorded with 50 channels for each of the Z+X SF coil responses, and 50 channels for each for the (calculated) Z+X BField responses.</p>
<b>Drilling techniques</b>	<ul style="list-style-type: none"> <li>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).</li> </ul>	This report does not contain any drill results
<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	This report does not contain any drill results

Criteria	JORC Code explanation	Commentary
<b>Logging</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>• The total length and percentage of the relevant intersections logged.</li> </ul>	This report does not contain any drill results or core / chip logging
<b>Sub-sampling techniques and sample preparation</b>	<ul style="list-style-type: none"> <li>• If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>• If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>• For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>• Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>• 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.</li> <li>• Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	This report does not contain any drill results or core / chip sampling
<b>Quality of assay data and laboratory tests</b>	<ul style="list-style-type: none"> <li>• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>• 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.</li> <li>• Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<p>This report does not contain any drill results or core / chip sampling</p> <p>During the course of the survey, Mitre Geophysics reviewed all data on a daily basis for quality and completeness.</p> <p>All acquired data was subject to digital processing by Mitre Geophysics to reduce any system noise, following which, base level adjustments were made to the AEM profile data, as required.</p>
<b>Verification of sampling and assaying</b>	<ul style="list-style-type: none"> <li>• The verification of significant intersections by either independent or alternative company personnel.</li> <li>• The use of twinned holes.</li> <li>• Documentation of primary data, data entry procedures, data verification, data</li> </ul>	This report does not contain any drill results or core / chip sampling



Criteria	JORC Code explanation	Commentary
	<p><i>storage (physical and electronic) protocols.</i></p> <ul style="list-style-type: none"> <li>• <i>Discuss any adjustment to assay data.</i></li> </ul>	
<b>Location of data points</b>	<ul style="list-style-type: none"> <li>• <i>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</i></li> <li>• <i>Specification of the grid system used.</i></li> <li>• <i>Quality and adequacy of topographic control.</i></li> </ul>	<p>GPS navigation system utilising the Novatel GPS receiver provided in-flight navigation control. This system determines the absolute position of the helicopter in three dimensions with as many as 11 GPS satellites monitored at any one time. This is deemed to provide an in-flight accuracy of approximately 3 metres.</p> <p>A radar altimeter system records the ground clearance to an accuracy of approximately 1 metre</p> <p>All data is presented in GDA94 / MGA zone 54</p>
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li>• <i>Data spacing for reporting of Exploration Results.</i></li> <li>• <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></li> <li>• <i>Whether sample compositing has been applied.</i></li> </ul>	<p>The AEM data were acquired on tight line spacing of 100m which is deemed suitable for the geological terrain and targeted mineralisation styles.</p>
<b>Orientation of data in relation to geological structure</b>	<ul style="list-style-type: none"> <li>• <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></li> <li>• <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></li> </ul>	<p>The AEM survey was completed on northwest-southeast orientated flight lines being perpendicular to the predominant geological strike.</p>
<b>Sample security</b>	<ul style="list-style-type: none"> <li>• <i>The measures taken to ensure sample security.</i></li> </ul>	<p>No sampling was undertaken</p>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>• <i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<p>No audits or reviews have been carried out.</p>

## Section 2: Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<p>The Thackaringa Project is located 22 kilometres southwest of Broken Hill (New South Wales, Australia) and comprises Exploration Licence numbers (EL) 8477</p> <p>Australian Mines is the registered owner of EL8477 and holds 100% interest in this tenement.</p> <p>There are no third-party agreements, royalties or similar associated with this tenement.</p>
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<p>1970s – MacPhar Frequency Domain IP</p> <p>1984 – Geoterrex FLEM</p> <p>1996 – BHP Geotem</p> <p>2000 – NSW Government magnetic survey</p>
<b>Geology</b>	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<p>The Thackaringa tenement EL8477 lies 22 kilometres southwest of Broken Hill.</p> <p>The tenement is considered prospective for Broken Hill-type lead-zinc-silver, tin, and cobaltiferous pyrite.</p> <p>The area consists of the highly metamorphosed packages of the Thackaringa Group, Sundown Group, and Parnell Formation. Several large retrograde schist shear zones cross cut the tenement</p> <p>Importantly, from the perspective of airborne EM, the area has minimal conductive overburden and graphitic shales have not (yet) been detected. This means that:</p> <ol style="list-style-type: none"> <li>depth of investigation using EM methods is much improved over areas with conductive overburden and</li> <li>there are likely to be less non-prospective responses to distract from sulphide EM responses</li> </ol>
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>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: <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of</li> </ul> </li> </ul>	<p>This report does not contain any drill results</p>

Criteria	JORC Code explanation	Commentary
	<p><i>the drill hole collar</i></p> <ul style="list-style-type: none"> <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> <ul style="list-style-type: none"> <li>● <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></li> </ul>	
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>● <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></li> <li>● <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></li> <li>● <i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i></li> </ul>	This report does not contain any drill results, core / chip sampling or assays
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li>● <i>These relationships are particularly important in the reporting of Exploration Results.</i></li> <li>● <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></li> <li>● <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></li> </ul>	This report does not contain any drill results, core / chip sampling or assays
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>● <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></li> </ul>	Appropriate maps and sections are included in the body of this report.
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>● <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></li> </ul>	This report does not contain any drill results, core / chip sampling or assays

Criteria	JORC Code explanation	Commentary
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li><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></li> </ul>	Other exploration data collected by the company is not considered as material to this report at this stage. Further data collection will be reviewed and reported when considered material.
<b>Further work</b>	<ul style="list-style-type: none"> <li><i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li><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></li> </ul>	Further work may include a Fixed Loop Electromagnetic (FLEM) ground-based geophysical survey over the priority AEM anomalies

### **Appendix 3: Competent Person's Statement**

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#### **Thackaringa Cobalt Project**

Information in this report that relates to the Thackaringa Project's Exploration Results are based on information compiled by Benjamin Bell who is a member of the Australian Institute of Geoscientists. Mr. Bell is a full-time employee and Managing Director of Australian Mines Limited. Mr. Bell has sufficient experience that is relevant to the styles of mineralisation and types 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'. Mr. Bell consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.