

28 July 2016

## **STRONG MASSIVE NICKEL-COPPER SULPHIDE TARGETS CONFIRMED AT INVESTIGATORS**

### **HIGHLIGHTS:**

- **Two drill holes – MAD29 and MAD30 - completed as part of the maiden drilling programme at the Investigators Prospect**
- **The drill holes tested the modelled EM plates for Anomaly 2 and Anomaly 3 however remodelling using new data from a downhole electromagnetic (DHEM) survey in MAD29 has repositioned the EM anomalies just to the northeast and east of MAD29 and MAD30 respectively**
- **Results from the DHEM survey in MAD29 have upgraded the conductivity of Anomaly 2 from 47,204 Siemens to 86,500 Siemens and modelled the conductor at a shallower depth of 110m**
- **MAD29 intersected an ultramafic unit at the same depth as the new strong off-hole DHEM conductor providing additional support for the target to represent nickel-copper sulphide mineralisation**
- **Anomaly 3 is now modelled at a shallower depth of 100m and 30m to the west of Anomaly 2 which could indicate some continuity of any mineralisation**
- **Drilling of MAD31 to test Anomaly 2 is underway**

### **STRONG DRILL TARGETS AT INVESTIGATORS**

St George Mining Limited (ASX: **SGQ**) ('St George Mining' or 'the Company') is pleased to provide an update on the latest exploration results from its ongoing drill programme at the Mt Alexander Project in Western Australia.

Two drill holes have been completed at the previously unexplored Investigators Prospect and have confirmed favourable geology for massive nickel-copper sulphide mineralisation.

MAD29 was drilled to a downhole depth of 201.6m to test Anomaly 2 (initially modelled with conductivity of 47,204 Siemens at 145m depth) and MAD30 was drilled to a downhole depth of 172.6m to test Anomaly 3 (initially modelled with conductivity of 9,837 Siemens at 144m depth). Both EM anomalies were identified by surface moving loop EM (MLEM) surveys completed by St George in March 2016.

MAD29 intersected an ultramafic unit from 97.75 to 105.65m hosted within granites. This is the first ultramafic intersected west of the Stricklands Prospect which is located 900m to the east in the highly mineralised Cathedrals Belt.

Confirmation that ultramafics occur this far west in the previously unexplored Investigators Prospect supports the prospectivity of this area for further discoveries of massive nickel-copper sulphides.

The MLEM surveys in the Cathedrals Belt have been effective in identifying conductive bodies, but constraining the precise location of these targets has sometimes required DHEM surveys of completed drill holes.

A DHEM survey has been carried out in MAD29, which was drilled to test Anomaly 2. The survey data has been interpreted and modelled by Newexco, and has resulted in revised modelling of Anomalies 2 and 3.

The new data has modelled a very strong off-hole EM conductor at 110m below surface with an extreme conductivity of 86,500 Siemens. The off-hole EM conductor represents the revised Anomaly 2 and is directly to the northeast of the ultramafic intersected in MAD29, which is a favourable host for massive sulphide mineralisation.

The new modelling places the revised Anomaly 2 approximately 30m to the east of Anomaly 3, with both conductors at a similar depth from surface. The proximity of the conductors could indicate some continuity of any mineralisation identified in the Investigators ultramafic.

**St George Mining Executive Chairman, John Prineas** said:

“The new EM data continues to indicate that the conductors at Investigators are outstanding targets for massive nickel-copper sulphides.

“The drilling data from MAD29 and MAD30 has confirmed the presence of prospective ultramafic at Investigators, and that provides even more encouragement for potential new discoveries there.

“Drilling of MAD31 to test the re-modelled Anomaly 2 commenced yesterday afternoon, and we look forward to announcing results early next week.”

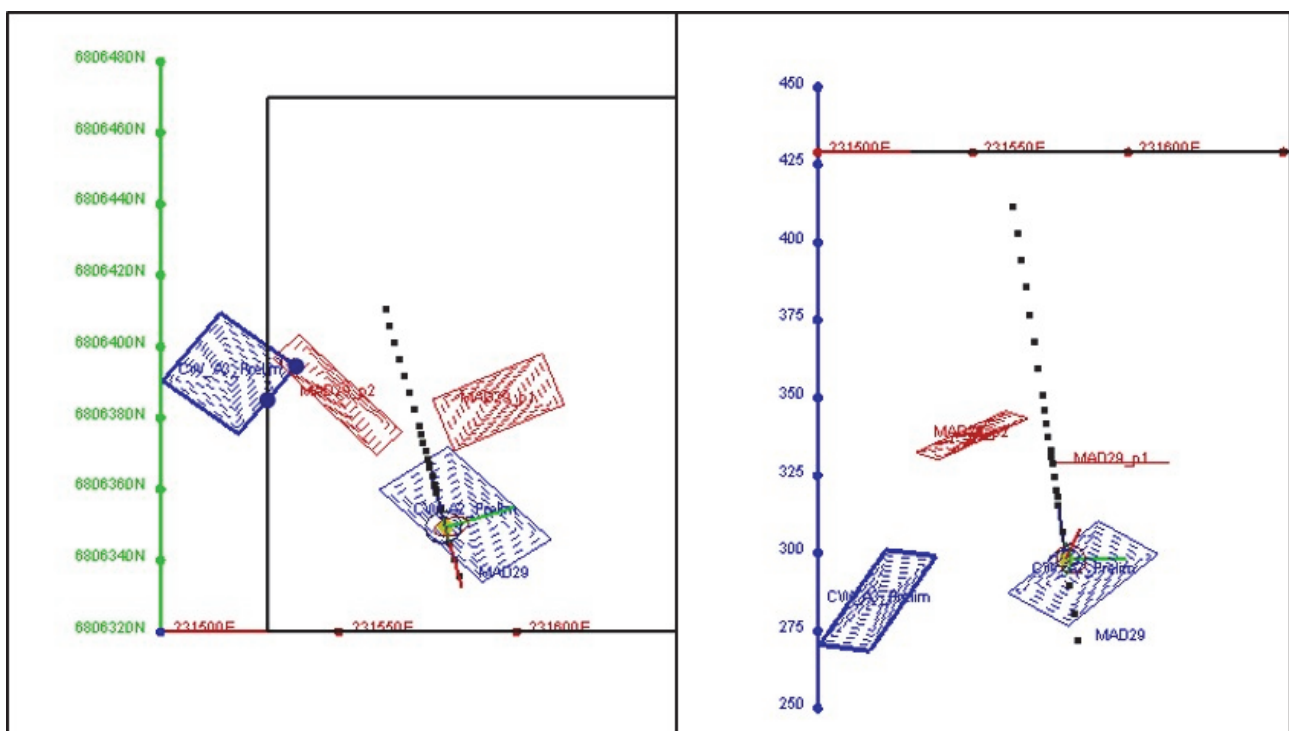


Figure 1 – the new DHEM plates (red) from the MAD29 DHEM survey and previous MLEM plates (blue) for Anomaly 2 and Anomaly 3 at Investigators. Image on the left shows the plan view and on the right is a cross section looking north. The MAD29 drill hole is in black.

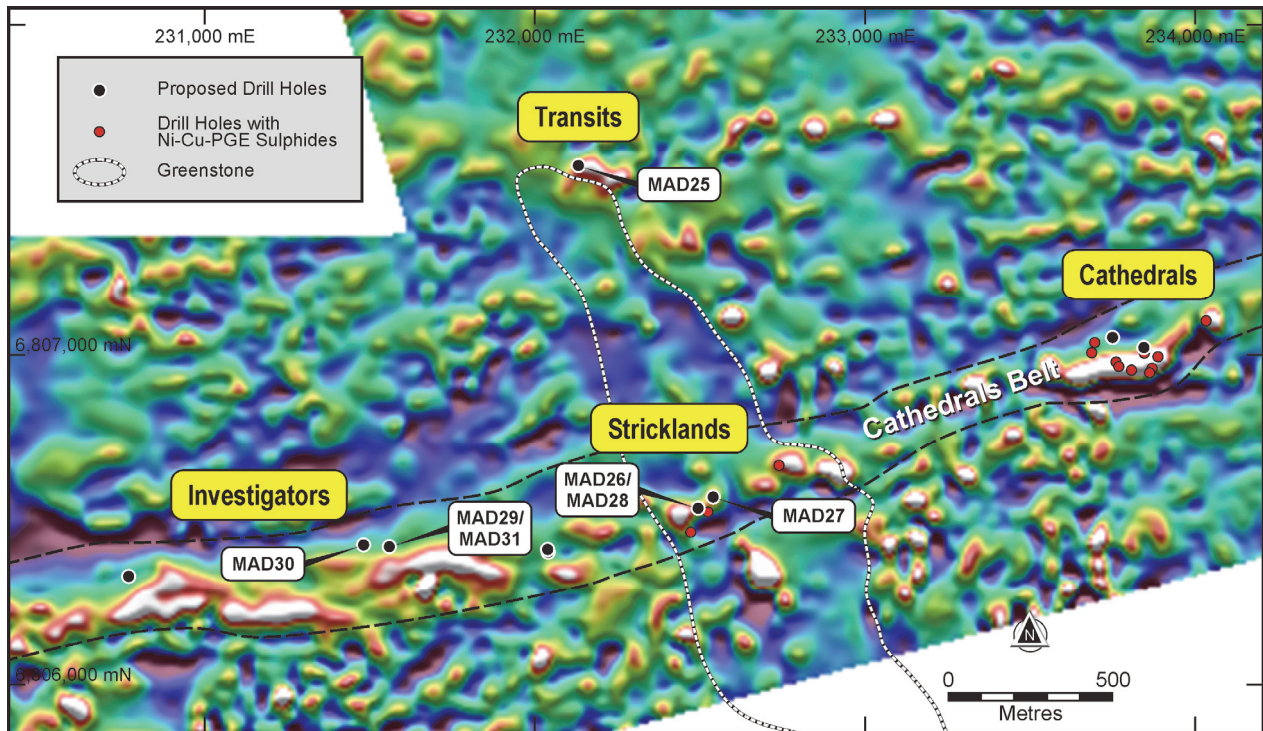


Figure 2 – a plan view of the Cathedrals Belt over TMI magnetics showing the drill hole collar locations in the current programme. MAD25-MAD30 are the drill holes completed to date.

Hole ID	Target	GDA94_51 East	GDA 94_51 North	RL	Dip	Azim	Depth (m)	Target Depth (m)
MAD25*	FLEM/mag anomaly	232131	6807573	433	-60	115	109	47
MAD26*	MAD22_1 DHEM plate	232495	6806535	445	-60	75	105.1	56
MAD27*	MAD22_2 DHEM plate	232540	6806570	445	-60	90	148	60
MAD28*	MAD22_1 DHEM plate	232497.5	6806535	445	-60	75	66.1	56
MAD29*	MLEM Anomaly 2	231560	6806420	429	-60	160	201.6	145
MAD30*	MLEM Anomaly 3	231482	6806425	429	-70	130	172.6	144
MAD31	MAD29_DHEM p1	231558	6806418	429	-63	133	160	110
InvProp_2	MAD24_1 DHEM plate	232040	6806403	429.8	-73	220	90	50
InvProp_1	MAD24_2 DHEM plate	232038	6806412	429.8	-57	330	130	92
InvProp_5	MLEM Anomaly 5	230770	6806330	429	-70	25	150	108
CathProp_1	MAD16 DHEM plate	233844	6807022	420	-60	180	100	61
CathProp_2	MAD19 DHEM plate	233750	6807053	420	-57	176	200	153

Table 1 – Planned drill holes for the July-August 2016 diamond drill programme at Mt Alexander (\* denotes a completed hole. MAD31 is currently being drilled. Other holes listed with planned ID)

## **ABOUT THE MT ALEXANDER PROJECT:**

The Mt Alexander Project is located 120km south-southwest of the Agnew-Wiluna belt which hosts numerous world class nickel deposits. The Project comprises three granted exploration licences – E29/638, E29/548 and E29/962.

The Cathedrals nickel-copper discovery as well as the Stricklands and Investigators Prospects are located on E29/638, which is held in joint venture by Western Areas Limited (25%) and St George (75%). St George is the Manager of the Project with Western Areas retaining a 25% non-contributing interest in the Project (in regard to E29/638 only) until there is a decision to mine.

## **For further information, please contact:**

### **John Prineas**

Executive Chairman  
St George Mining Limited  
(+61) 411 421 253  
[John.prineas@stgm.com.au](mailto:John.prineas@stgm.com.au)

### **Colin Hay**

Professional Public Relations  
(+61) 08 9388 0944 mob 0404 683 355  
[colin.hay@ppr.com.au](mailto:colin.hay@ppr.com.au)

## **Competent Person Statement:**

The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Matthew McCarthy, a Competent Person who is a Member of The Australian Institute of Geoscientists. Mr McCarthy is employed by St George Mining Limited.

Mr McCarthy has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr McCarthy consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The following sections are provided for compliance with requirements for the reporting of exploration results under the JORC Code, 2012 Edition.

**Section 1 Sampling Techniques and Data**

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<i>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.</i>	The sections of the core that are selected for assaying are marked up and then recorded on a sample sheet for cutting and sampling at the certified assay laboratory. Samples of HQ or NQ2 core are cut just to the right of the orientation line using a diamond core saw, with half core sampled lengthways for assay.
	<i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i>	Wherever possible the same side of the drill core is sampled to ensure sample is representative. Appropriate QAQC samples are inserted into the sequences as per industry best practice.
	<i>Aspects of the determination of mineralisation that are Material to the Public Report.</i>  <i>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.</i>	Diamond core (both HQ and NQ2) is half-core sampled to geological boundaries no more than 1.2m and no less than 20cm. Samples less than 3kg are crushed to 10mm, dried and then pulverised to 75µm. Samples greater than 3kg are first crushed to 10mm then finely crushed to 3mm and input into the rotary splitters to produce a consistent output weight for pulverisation.  Pulverisation produces a 40g charge for fire assay. Elements determined from fire assay are gold (Au), platinum (Pt) and palladium (Pd) with a 1ppb detection limit. To determine other PGE concentrations (Rh, Ru, Os, Ir) a 25g charge for nickel sulphide collect fire assay is used with a 1ppb detection limit.  Other elements will be analysed using an acid digest and an ICP finish. These elements are: Ag, Al, As, Bi, Ca, Cd, Co, Cr, Fe, K, Li, Mg, Mn, Mo, Nb, Ni, P, Pb, S, Sb, Sn, Te, Ti, V, W, Zn. The sample is digested with nitric, hydrochloric, hydrofluoric and perchloric acids to effect as near to total solubility of the sample as possible. The sample is then analysed using ICP-AES or ICP-MS.  LOI (Loss on Ignition) will be completed on selected samples to determine the percentage of volatiles released during heating of samples to 1000°C.
<b>Drilling techniques</b>	<i>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).</i>	Diamond drilling is completed using HQ sized coring equipment through the weathered zone (mostly saprock) with 3m barrels, and then HQ or NQ2 in fresh rock with 3m or 6m barrels as required. The core is oriented using ACT II electric core orientation.
<b>Drill sample recovery</b>	<i>Method of recording and assessing core and chip sample recoveries and results assessed.</i>	Diamond core recoveries are recorded during drilling and reconciled during the core processing and geological logging. The core length recovered is measured for each run and recorded which is used to calculate core recovery as a percentage.

Criteria	JORC Code explanation	Commentary
	<i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i>	Measures taken to maximise core recovery include using appropriate core diameter and shorter barrel length through the weathered zone, which at Cathedrals and Investigators is mostly <25m and Stricklands <40m depth. Primary locations for core loss in fresh rock are on geological contacts and structural zones, and drill techniques are adjusted accordingly, and if possible these zones are predicted from the geological modelling.
	<i>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</i>	No sample recovery issues have yet been identified that would impact on potential sample bias in the competent fresh rocks that host the mineralised sulphide intervals.
<b>Logging</b>	<i>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</i>	Geological logging is completed for all drill holes with lithology, alteration, mineralisation, structure and veining recorded. The logging is recorded digitally and imported in the St George Mining central database.
	<i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i>	Logging is both qualitative and quantitative depending on the field being captured. Core is photographed with one tray per photo and stored digitally.
	<i>The total length and percentage of the relevant intersections logged.</i>	All drill holes are geologically logged in full.
<b>Sub-sampling techniques and sample preparation</b>	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i>	The HQ and NQ2 core is cut in half length ways just to the right of the orientation line using a diamond core saw. All samples are collected from the same side of the core where practicable.
	<i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i>	No non-core holes are planned for the current drill program.
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	The entire sample is pulverised to 75µm using LM5 pulverising mills. Samples are dried, crushed and pulverized to produce a homogenous representative sub-sample for analysis. A grind quality target of 90% passing 75µm is used.
	<i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i>	Quality control procedures include submission of Certified Reference Materials (standards), duplicates and blanks with each sample batch. QAQC results are routinely reviewed to identify and resolve any issues.
	<i>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</i>	Duplicate samples are selected during sampling. Samples comprise two quarter core samples.
	<i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	The sample sizes are considered to be appropriate for base metal sulphide mineralisation and associated geology.
<b>Quality of assay data and laboratory tests</b>	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i>	Diamond core samples are analysed for Au, Pt and Pd using a 40g lead collection fire assay; for Rh, Ru, Os, Ir using a 25g nickel sulphide collection fire assay; and for Ag, Al, As, Bi, Ca, Cd, Co, Cr, Fe, K, Li, Mg, Mn, Mo, Nb, Ni, P, Pb, S, Sb, Sn, Te, Ti, V, W, Zn using a four acid digest and ICP-AES or MS finish. The assay method and detection limits are appropriate for analysis of the elements required.

Criteria	JORC Code explanation	Commentary
	<i>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i>	A handheld XRF instrument (Olympus Innov-X Spectrum Analyser) is used to systematically analyse the drill core onsite. One reading is taken per meter, however for any samples with matrix or massive sulphide mineralisation then two to five samples are taken at set intervals per meter. The instruments are serviced and calibrated at least once a year. Field calibration of the XRF instrument using standards is periodically performed.  The handheld XRF results are only used for preliminary assessment and reporting of element compositions, prior to the receipt of assay results from the certified laboratory.
	<i>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</i>	Laboratory QAQC involves the use of internal lab standards using certified reference material (CRMs), blanks and pulp duplicates as part of in house procedures. The Company will also submit a suite of CRMs, blanks and some duplicates.  Sample preparation checks for fineness are performed by the laboratory to ensure the grind size of 90% passing 75µm is being attained.
<b>Verification of sampling and assaying</b>	<i>The verification of significant intersections by either independent or alternative company personnel.</i>	Significant intersections are verified by the Exploration Manager of St George Mining.
	<i>The use of twinned holes.</i>	One twin hole (MAD28) was completed in the current drill program.
	<i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i>	Primary data is captured onto a laptop using acquire software and includes geological logging, sample data and QA/QC information. This data, together with the assay data, is entered into the St George Mining central SQL database which is managed by external consultants.
	<i>Discuss any adjustment to assay data.</i>	No adjustments or calibrations will be made to any primary assay data reported.
<b>Location of data points</b>	<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>	Drill holes have been located and pegged using a DGPS system with an expected accuracy of +/-0.05mmm for easting, northing and elevation.  Downhole surveys are conducted using a single shot camera approximately every 30m during drilling to record and monitor deviations of the hole from the planned dip and azimuth. Post-drilling downhole gyroscopic surveys will be conducted, which provide much more accurate survey results.
	<i>Specification of the grid system used.</i>	The grid system used at the Mt Alexander project is GDA94 (MGA), zone 51.
	<i>Quality and adequacy of topographic control.</i>	Elevation data has been acquired using DGPS surveying at individual collar locations and entered into the central database. A topographic surface has been created using this elevation data.
<b>Data spacing and distribution</b>	<i>Data spacing for reporting of Exploration Results.</i>	The planned diamond drill program is targeting modelled EM conductors and other geological criteria for massive nickel-copper-PGE sulphide mineralisation. The spacing and distribution of the drill holes is appropriate to test the defined targets.
	<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>	Drilling is still largely reconnaissance exploration. The completed drilling at Cathedrals, Stricklands and Investigators is not sufficient to establish the degree of geological and grade continuity to support the definition of Mineral Resource and Reserves and the classifications applied under the 2012 JORC code.

Criteria	JORC Code explanation	Commentary
	<i>Whether sample compositing has been applied.</i>	No compositing has been applied to the exploration results.
<b>Orientation of data in relation to geological structure</b>	<i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i>	Drill holes are planned as perpendicular as possible to the target EM plates to approximate true width. Most of the ultramafic units dip shallow to the north and where possible drill holes have been planned to intersect perpendicular to dip. The orientation of key structures may be locally variable.
	<i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i>	No orientation based sampling bias has been identified in the data to date.
<b>Sample security</b>	<i>The measures taken to ensure sample security.</i>	Chain of custody is managed by St George Mining. Core samples will be stored in the secure facilities at Bureau Veritas laboratory in Perth. Transportation of core is managed by St George contractors and Bureau Veritas and actively track monitored.
<b>Audits or reviews</b>	<i>The results of any audits or reviews of sampling techniques and data.</i>	No audits or reviews have been conducted at this stage.

## Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
<b>Mineral Tenement and Land Status</b>	<p><i>Type, name/reference number, location and ownership including agreements or material issues with third parties including joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i></p> <p><i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i></p>	<p>The Mt Alexander Project is comprised of three granted Exploration Licences (E29/638, E29/548 and E29/962). Tenement E29/638 is held in Joint Venture between St George (75% interest) and Western Areas (25% interest). E29/638 and E29/548 are also subject to a royalty in favour of a third party that is outlined in the ASX Release dated 17 December 2015 (as regards E29/638) and the ASX release dated 18 September 2015 (as regards E29/548).</p> <p>No environmentally sensitive sites have been identified on the tenements. A registered Heritage site known as Willsmore 1 (DAA identification 3087) straddles tenements E29/548 and E29/638.</p> <p>All three tenements are in good standing and no known impediments exist.</p>
<b>Exploration Done by Other Parties</b>	<i>Acknowledgment and appraisal of exploration by other parties.</i>	<p>Exploration on tenements E29/638 and E29/962 has been largely for komatiite-hosted nickel sulphides in the Mt Alexander Greenstone Belt. Exploration in the northern section of E29/638 (Cathedrals Prospect) and also limited exploration on E29/548 has been for komatiite-hosted Ni-Cu sulphides in granite terrane.</p> <p>The target lithological unit in the Mt Alexander Greenstone belt has historically been the Central Ultramafic Unit, which has been explored by a number of parties, most recently by Nickel West.</p> <p>High grade nickel-copper sulphides were discovered at the Mt Alexander Project in 2008. Drilling was completed to test co-incident electromagnetic (EM) and magnetic anomalies associated with nickel-PGE enriched gossans in the northern section of current tenement E29/638. The drilling identified high grade nickel-copper mineralisation in granite-hosted ultramafic units and the discovery was named the Cathedrals Prospect. The tenements remain underexplored.</p>
<b>Geology</b>	<i>Deposit type, geological setting and style of mineralisation</i>	The Mt Alexander Project is at the northern end of a western bifurcation of the Mt Ida Greenstones. The greenstones are bound to the west by the Ida Fault, a significant Craton-scale structure that marks the boundary between the Kalgoorlie Terrane (and Eastern



Criteria	JORC Code explanation	Commentary
		<p>Goldfields Superterrane) to the east and the Youanmi Terrane to the west.</p> <p>The Mt Alexander Project is prospective for further high-grade komatiite-hosted nickel-copper-PGE mineralisation (both greenstone and granite hosted) and also precious metal mineralisation (i.e. orogenic gold) that is typified elsewhere in the Yilgarn Craton.</p>
<b>Drill hole information</b>	<p>A summary of all information material to the understanding of the exploration results including tabulation of the following information for all Material drill holes:</p> <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 meters) of the drill hole collar</li> <li>• Dip and azimuth of the hole</li> <li>• Down hole length and interception depth</li> <li>• Hole length</li> </ul>	Drill hole details for the current diamond drill programme are tabulated in the ASX release.
<b>Data aggregation methods</b>	<p>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</p>	Reported assay intersections are length and density weighted. Significant intersections are determined using both qualitative (i.e. geological logging) and quantitative (i.e. lower cut-off) methods. For massive sulphide intersections the nominal lower cut-off is 2% for either nickel or copper. For disseminated, matrix and stringer sulphide intersections the nominal lower cut-off for nickel is 0.3%.
	<p>Where aggregated 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.</p>	Any high grade sulphide intervals internal to broader zones of sulphide mineralisation are reported as <i>included</i> intervals.
	<p>The assumptions used for any reporting of metal equivalent values should be clearly stated.</p>	No metal equivalent values have yet been used for reporting exploration results.
<b>Relationship between mineralisation widths and intercept lengths</b>	<p>These relationships are particularly important in the reporting of exploration results.</p> <p>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. down hole length, true width not known).</p>	Assay intersections are reported as down hole lengths. Drill holes were planned as perpendicular as possible to intersect the target EM plates so downhole lengths are near true width. Results from recent and ongoing drill programs will be reviewed further to confirm the relationship between downhole lengths and true widths.
<b>Diagrams</b>	<p>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 plane view of drill hole collar locations and appropriate sectional views.</p>	Relevant maps and sections are shown in the ASX release.
<b>Balanced Reporting</b>	<p>Where comprehensive reporting of all Exploration Results is not practical, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting Exploration Results.</p>	The exploration results reported are representative of the mineralisation style with grades and/or widths reported in a consistent manner.
<b>Other substantive exploration</b>	<p>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observation; geophysical</p>	No other exploration data collected to date is considered material or meaningful at this stage.

Criteria	JORC Code explanation	Commentary
<b>data</b>	<i>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>	
<b>Further Work</b>	<p><i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large – scale step – out drilling).</i></p> <p><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></p>	Further exploration will be planned from the results of the previous and current diamond drill programs, and additional geophysical programs.