



**ARDIDEN**

23 January 2017

## **DRILLING RESUMES AT MANITOUWADGE GRAPHITE PROJECT WITH THICK MINERALISED ZONES INTERSECTED IN INITIAL HOLES**

*First six diamond drill holes completed with strong zones of visual mineralisation encountered*

### **HIGHLIGHTS:**

- **Drilling resumes at Manitouwadge Graphite Project, Canada following Christmas/New Year break**
- **Several graphite mineralisation zones intersected in first six holes**
- **Graphitic zones up to 50m thick identified**

Lithium and graphite explorer Ardiden Limited (ASX: ADV) is pleased to advise that its maiden resource delineation diamond drilling program re-commenced shortly after the new year at its 100%-owned Manitouwadge Graphite Project in Ontario, with the initial holes intersecting a number of visible high quality graphitic mineralisation zones.



**Figure 1.** Diamond drill on site at the Manitouwadge Graphite project in Ontario, Canada.

Ardiden confirms that, despite the poor weather conditions, the Company's geological and drilling teams have made good progress with the drilling program since its re-commencement earlier this month.

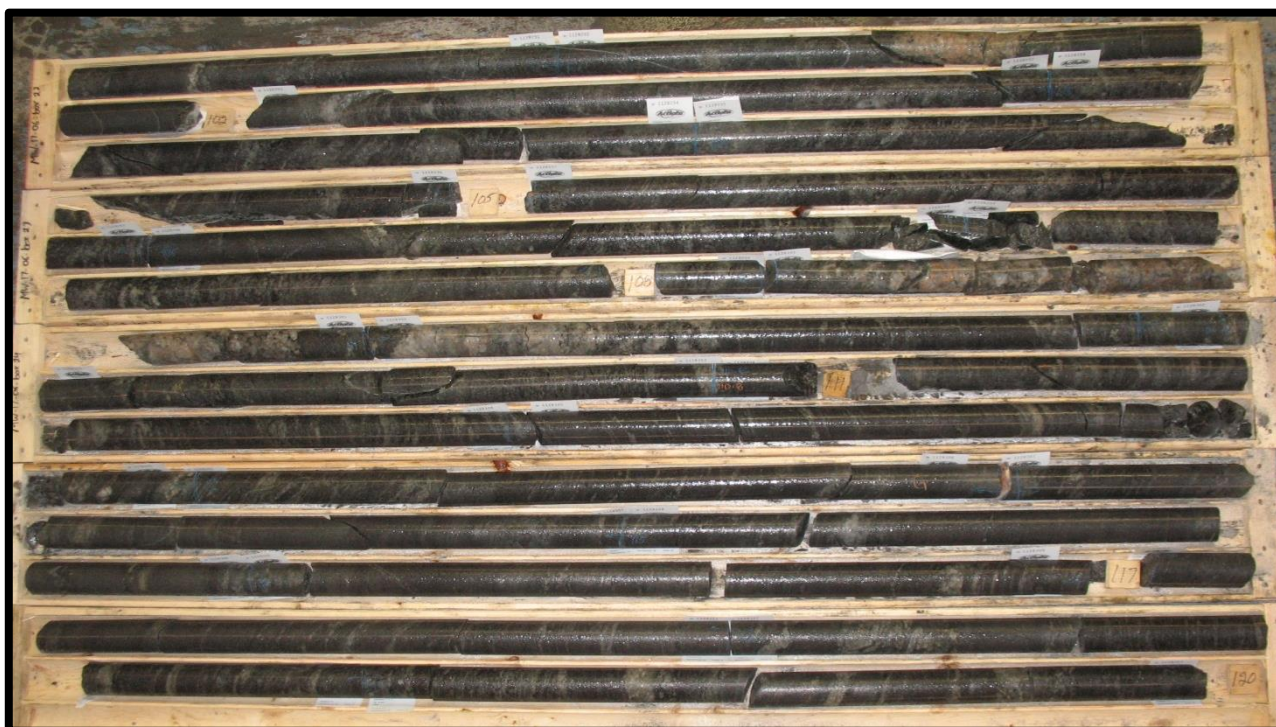
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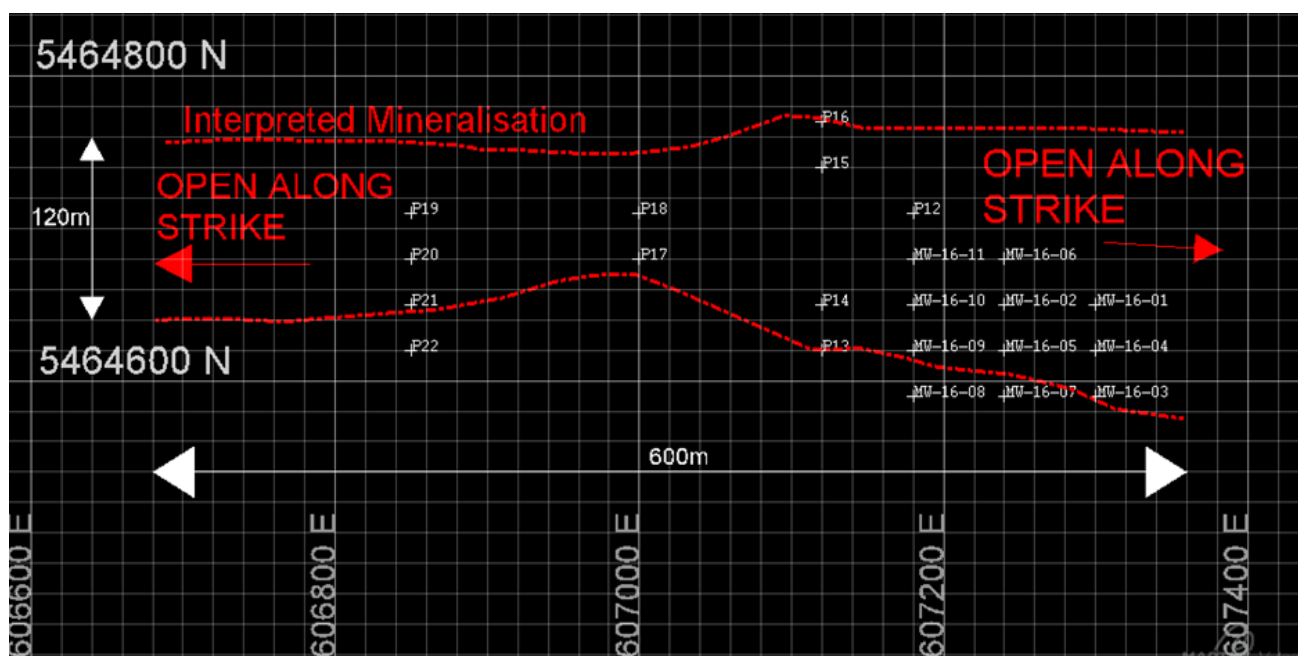
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Initial visual inspections of the diamond drill core by Ardiden’s geological team have identified a number of thick graphitic mineralisation zones of up to 50 metres thick (MW-16-01).



**Figure 2.** Drill core (MW-16-06) showing substantial graphite mineralisation.

Ardiden will provide a more detailed update to the market shortly, once the QAQC review, logging and reconciliation has been completed on each of the drill holes.



**Figure 3.** Overview of the drill hole locations at Manitouwadge graphite project.

Once the drill core has been logged, cut and prepared, the drill samples will be sent to Activation Laboratories in Thunder Bay for assay and metallurgical testing.

As previously advised, the diamond drilling program is designed to target the immediate project area around the Silver Star North prospect, which had previously intersected a number of high grade graphite mineralisation zones in 2015.

The first phase of the diamond drilling program will be undertaken to confirm the grade and continuity of these graphite zones and to estimate a Mineral Resource, which is targeted for completion in Q2 2017.

Ardiden looks forward to providing further updates as they come to hand.

## ENDS

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### About Ardiden Ltd

Ardiden Limited (ASX: ADV) is an emerging international strategic metals company which is focused on the exploration, evaluation and development of two 100 per cent owned projects located in the established mining jurisdiction of Ontario, Canada.

The Seymour Lake Lithium Project comprises 7,019 Ha of mining claims and has over 4,000m of historic drilling. Mineralisation is hosted in extensive outcropping spodumene-bearing pegmatite structures with widths up to 26.13m and grades of up to 6.01% Li<sub>2</sub>O. These high-grade pegmatite structures have been defined over a 5km strike length. Drilling program to establish a maiden JORC resource is scheduled to commence in October 2016.

The 100%-owned Root Lake Lithium Project is located in Ontario, Canada. The project comprises 1,013 Ha of mining claims and has over 10,000m of historic drilling. Mineralisation is hosted in extensive outcropping spodumene-bearing pegmatite structures with widths up to 19m and grades of up to 5.10% Li<sub>2</sub>O. In addition, tantalum grades of up to 380 ppm were intersected.

The 100%-owned Root Bay lithium project is strategically located approximately 5km to the east of the recently acquired Root Lake Lithium Project and consists of three claim areas, totalling 720 hectares. The project was staked by Ardiden as part of its regional exploration focus in and around the Root Bay spodumene-bearing pegmatite. Initial observations of the exposed pegmatite is characterized by coarse white albite, grey quartz and pale grey-green spodumene crystals up to 10cm long.

The 100%-owned Manitouwadge Jumbo Flake Graphite Project covers an area 5,300 Ha and has a 20km strike length of EM anomalies with graphite prospectivity. Following systematic field exploration programs, Ardiden is planning to commence its maiden resource drilling program in November 2016 to underpin economic development studies.

Previous preliminary metallurgical testwork indicated that up to 80% of the graphite at Manitouwadge is high value jumbo or large flake graphite. Testwork also indicated that simple, gravity and flotation beneficiation can produce graphite purity levels of up to 96.8% for jumbo flake and 96.8% for large flake. With the proven caustic bake process ultra-high purity (>99.95%) graphite can be produced. The graphite can also be processed into high value expandable graphite, high quality graphene and graphene oxide.

All projects located in an established mining province, with good access to infrastructure (road, rail, power, phone and port facilities) and local contractors and suppliers

**Competent Person's Statement**

The information in this report that relates to exploration results for the Manitouwadge project and is based on, and fairly represents, information and supporting geological information and documentation in this report has been reviewed by Mr Paul Nielsen who is a member of the Association of Professional Geoscientists of Ontario. Mr Nielsen is not a full-time employee of the Company. Mr Nielsen is employed as a Consultant Geologist. Mr Nielsen has more than five years relevant exploration experience, and qualifies 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 Nielsen consents to the inclusion of the information in this report in the form and context in which it appears.

**Forward Looking Statement**

This announcement may contain some references to forecasts, estimates, assumptions and other forward-looking statements. Although the company believes that its expectations, estimates and forecast outcomes are based on reasonable assumptions, it can give no assurance that they will be achieved. They may be affected by a variety of variables and changes in underlying assumptions that are subject to risk factors associated with the nature of the business, which could cause actual results to differ materially from those expressed herein. All references to dollars (\$) and cents in this presentation are to Australian currency, unless otherwise stated. Investors should make and rely upon their own enquires and assessments before deciding to acquire or deal in the Company's securities.



## Table 1: Manitouwadge Graphite Project (Claim 4268975)

### Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<ul style="list-style-type: none"> <li>• <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></li> <li>• <i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></li> <li>• <i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></li> <li>• <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></li> </ul>	<ul style="list-style-type: none"> <li>• Diamond Core was split using a hydraulic splitter along a plane perpendicular to the foliation within the gneissic host rock.</li> <li>• Bagging of the half core samples was supervised by a geologist to ensure there are no numbering mix-ups.</li> <li>• One tag from a triple tag book was inserted in the core tray in the position of the sample interval.</li> <li>• Standard sample intervals averaged 1 m.</li> <li>• Where multiple zones of graphitic mineralisation were intersected, sampling was continuous from intersection of the upper zone to the End of Hole</li> <li>• The sample preparation and assaying techniques are industry standard and appropriate for this type of mineralisation.</li> </ul>
<b>Drilling techniques</b>	<ul style="list-style-type: none"> <li>• <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></li> </ul>	<ul style="list-style-type: none"> <li>• Diamond wireline core drilling.</li> <li>• The drill core size is CHD 76, core diameter is 43.5 millimeters</li> <li>• Drillholes were orientated using the Reflex ACT II RD core orientation tool</li> </ul>
<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <li>• <i>Method of recording and assessing core and chip sample recoveries and results assessed.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The sample interval of core was measured and recorded along with a description and</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <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>	<p>incorporated in the completed drill logs.</p> <ul style="list-style-type: none"> <li>Core within the mineralised zone tended to be uniform and competent so loss was minimal and samples represent the true nature of the mineralisation</li> <li>No relationship between sample recovery and grade is evident.</li> </ul>
<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>	<ul style="list-style-type: none"> <li>All core is geologically and geotechnically logged.</li> <li>Samples represent half the core width, and are logged in detail to support appropriate Mineral Resource estimation later in 2017</li> </ul>
<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>	<ul style="list-style-type: none"> <li>½ core split over a 1 m interval.</li> <li>Core samples will be jaw-crushed and 100 g split for pulverisation for C in graphite analysis.</li> <li>Coarse crusher split duplicates will be used to monitor sampling precision.</li> <li>Individual core samples are estimated to weigh 2 kg.</li> <li>Certified graphite reference material will be submitted with the samples at the rate of 1 in 20 samples.</li> <li>Blanks consisting of barren material will be submitted at the rate of 1 in 50 samples.</li> </ul>
<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</li> </ul>	<ul style="list-style-type: none"> <li>All samples will be analyzed by Actlabs in Thunder Bay, Ontario using preparation and</li> </ul>

Criteria	JORC Code explanation	Commentary
	<p><i>whether the technique is considered partial or total.</i></p> <ul style="list-style-type: none"> <li>• <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></li> <li>• <i>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.</i></li> </ul>	<p>assay techniques RX1- graphite, 4F – C,S and 4F-C-graphite</p> <ul style="list-style-type: none"> <li>• An induction furnace is used following acid treatment of prepared 0.5kg samples to remove all non-graphite C. The CO2 generated from the high temperature combustion of graphite is measured by absorption of infrared radiation. Accuracy of the analyses was monitored using a graphite certified reference materials and precision monitored using pulp duplicate analyses. Both are acceptable.</li> <li>• Metallurgical testing used semi-quantitative scanning electron microscopy with a Mineral Liberation Analyzer. Beneficiation tests included a 3 stage flotation cycle followed two passes over a gravity table. The techniques are both appropriate and relevant.</li> </ul>
<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 storage (physical and electronic) protocols.</li> <li>• Discuss any adjustment to assay data.</li> </ul>	<ul style="list-style-type: none"> <li>• Drill logs and sample information is documented and stored digitally in field laptop units and backed up on the Ardiden server..</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>	<ul style="list-style-type: none"> <li>• Drill hole collar positions were located with handheld WAAS enabled handheld GPS units set for recording UTM NAD83 Zone 16N projection coordinates and drilled collars were picked up using a Trimble DGPS.</li> <li>• Drillholes were orientated using the Reflex ACT II RD core orientation tool</li> </ul>
<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</i></li> </ul>	<ul style="list-style-type: none"> <li>• Continuity of graphite horizons has been tested over a strike length of approximately 600 m</li> <li>• Further testing of electromagnetic conductors by diamond drilling is underway and will test the</li> </ul>

Criteria	JORC Code explanation	Commentary
	<p><i>Resource and Ore Reserve estimation procedure(s) and classifications applied.</i></p> <ul style="list-style-type: none"> <li>• <i>Whether sample compositing has been applied.</i></li> </ul>	<p>strike length up to 800 m.</p> <ul style="list-style-type: none"> <li>• No sample compositing has been applied</li> </ul>
<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>	<ul style="list-style-type: none"> <li>• All holes were drilled perpendicular to the interpreted strike and dip of the graphite horizons . Sample thickness will be close to true mineralisation width</li> <li>• Drill holes are orientated perpendicular to the strike of the conductors and inclined at 045. They are designed to intersect the graphitic horizons at approximately 045 degrees.</li> </ul>
<b>Sample security</b>	<ul style="list-style-type: none"> <li>• <i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All samples collected are taken directly from the field to the Activation Laboratories Ltd facility in Thunder Bay, Ontario for preparation and assay</li> </ul>
<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>	<ul style="list-style-type: none"> <li>• No audits or reviews have been taken of the sampling techniques and data.</li> </ul>

## Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<ul style="list-style-type: none"> <li>• <i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i></li> <li>• <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></li> </ul>	<ul style="list-style-type: none"> <li>• All claims are in good standing and are 100% owned by Ardiden: 4268952, 4268953, 4268977, 4268978, 4268979, 4268932, 4268933, 4268935, 4268934, 4279125, 4279101, 4279121, 4279124, 4274285, 4274286, 4274287, 4271613, 4271624, 4279611, 4274282, 4274283, 4274284, 4275721, 4274288, 4274289, 4268975, 4268976 and 4279892</li> </ul>
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li>• <i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Other parties have not appraised the work undertaken by Ardiden to date</li> </ul>



Criteria	JORC Code explanation	Commentary
<b>Geology</b>	<ul style="list-style-type: none"> <li>• <i>Deposit type, geological setting and style of mineralisation.</i></li> </ul>	<ul style="list-style-type: none"> <li>• The Manitouwadge Graphite property is located within the Quetico Metasedimentary Suprovince of the Archean Superior Province of the Canadian Shield The Property area is underlain by dipping, approximately east-west-striking, gneissic and migmatitic metasedimentary rocks of the Quetico Metasedimentary Suprovince of the Archean Superior Province of the Canadian Shield The country rock generally is composed of primarily granulite facies paragneiss and biotite migmatite. Local geology seen at the project is typically of the quartz feldspar gneiss with varying amounts of hornblende, garnets and biotite hosting graphite bearing schists. In some cases pegmatitic dykes crosscut both the gneisses and graphite bearing schists.</li> </ul>
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>• <i>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:</i> <ul style="list-style-type: none"> <li>○ <i>easting and northing of the drill hole collar</i></li> <li>○ <i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></li> <li>○ <i>dip and azimuth of the hole</i></li> <li>○ <i>down hole length and interception depth</i></li> <li>○ <i>hole length.</i></li> </ul> </li> <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>	<ul style="list-style-type: none"> <li>• See Figure 3 for the location of the drilled and planned collar locations</li> <li>• Once the drill program is complete, full details of the drill hole information will be reported</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> </ul>	<ul style="list-style-type: none"> <li>• No assay results are reported</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li>• 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.</li> <li>• The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li>• These relationships are particularly important in the reporting of Exploration Results.</li> <li>• If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>• 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').</li> </ul>	<ul style="list-style-type: none"> <li>• Graphitic horizons strike approximately east-west and dip approximately 45 degrees to the North</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• See Figure 3 for the drilled and planned collar locations. Once assay results are received, collated and interpreted, appropriate sections will be prepared and reported as they become available</li> </ul>
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• No assay results are reported</li> </ul>
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Once sample analyses are received, the determination of grain size characteristics of graphite flakes and beneficiation testing, as per Item 49 of the 2012 edition of the JORC Code will be undertaken</li> </ul>

Criteria	JORC Code explanation	Commentary
<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>	<ul style="list-style-type: none"> <li>• A further phase of drilling will be planned on receipt and interpretation of the assay results from the current drilling program</li> </ul>