

ASX: ADV

#### Capital structure:

Ordinary shares 433.5m

Options (Unlisted) 68.5m (various)

#### **Shareholders:**

Institutional 13% Board/Mgt 19% Retail 68%

Top 20: 56%

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# EXCEPTIONAL GRAPHITE GRADES CONFIRMED IN OUTCROP ALONG 19km STRIKE LENGTH

Grades of up to 13.6% graphite returned from recent sampling program at Ardiden's Manitouwadge Jumbo Flake Graphite Project in Canada

#### **Key Points:**

- Outstanding results received from September 2015 ground sampling program over priority electromagnetic ("EM") conductors has identified graphite in outcrop with grades up to 13.6% graphite.
- Graphite grades in excess of 10% were confirmed in outcrop samples both within existing prospects (Thomas Lake Road – 11.4%) and in two previously unexplored zones (Silver Star (11.8%) and Silver Birch (13.6%)).
- Drilling of priority areas following the surface sampling program is planned to commence during the current quarter. The total strike length of EM conductors with graphite prospectivity is 19km.
- Previous metallurgical testing on graphite at Manitouwadge indicated a premium product with jumbo and large flake graphite distribution of up to 80%.
- Jumbo and large flake graphite is the highest value flake size of graphite and is expected to be in high demand for use in new technologies such as electric vehicles and home/industrial battery storage.
- Metallurgical testwork has confirmed that the jumbo flake graphite at Manitouwadge is amenable to low-cost flotation and gravity beneficiation with grades of 95.6% returned. The beneficiated product can be further purified up to >99.95%.
- Additional metallurgical testing on Manitouwadge graphite was successful in producing high value expandable graphite and was able to produce a high quality graphene and graphene oxide with similar quality characteristics to synthetic graphene.

Ardiden Limited (ASX: ADV) is pleased to advise that it has achieved exceptional grades of up to 13.6% graphite from a sampling program undertaken at its 100%-owned Manitouwadge Jumbo Flake Graphite Project in Ontario, Canada.

The samples were taken from outcrop targets based on a recent geophysical review by CSA Global which identified **19.3km of EM conductors** with graphite prospectivity. The recent results have significantly upgraded the scale and potential of the Manitouwadge Project.

During recent testing, a 150kg bulk sample (grading 11.4% graphite) was taken from existing known graphite outcrop at Thomas Lake (1.2km long EM conductor) and surface samples were also taken from the Silver Star showing (2.6km long EM conductor grading up to 11.8% graphite) and the Silver Birch showing (5.6km long EM conductor grading up to 13.6% graphite) – see Figure 1 below.

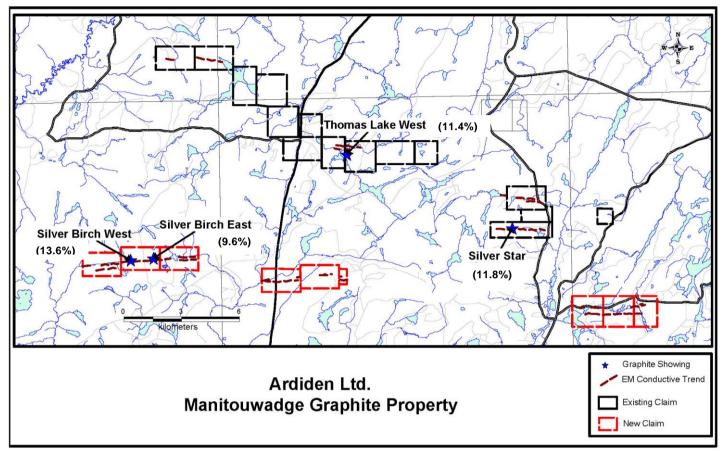


Figure 1: Manitouwadge Graphite Project showing 19km of EM anomalies (in dotted dark red) with graphite prospectivity and maximum grades from surface sampling achieved at each of the Thomas Lake, Silver Star and Silver Birch graphite showings. Surface samples are not necessarily representative.

Confirmation that high-grade outcropping graphite is present both at existing and new zones at Manitouwadge will be used in planning for the upcoming drill program at high priority EM targets. The recent geophysical review highlighted multiple zones of high EM conductivity and confirmation of graphite outcrop along strike provides further confidence in the EM survey results. The total strike length with prospectivity for graphite mineralization is 19kms. The planned drilling program will test multiple high priority zones with high EM conductivity including:

- 1) Thomas Lake West (1.2km strike length) (Figure 2);
- 2) Silver Star (2.6km strike length) (Figure 3);
- 3) Silver Birch West and East (5.6km strike length) (Figure 4).

Full details of the grades achieved from graphite samples are set out in Appendix 1.

The area from which the 150kg bulk sample (yielding 11.4% graphite) was taken is the same as that drilled in March 2015 (see Figure 2 below). Significant conductive zones were also identified at Thomas Lake just to the north of the area previously drilled.

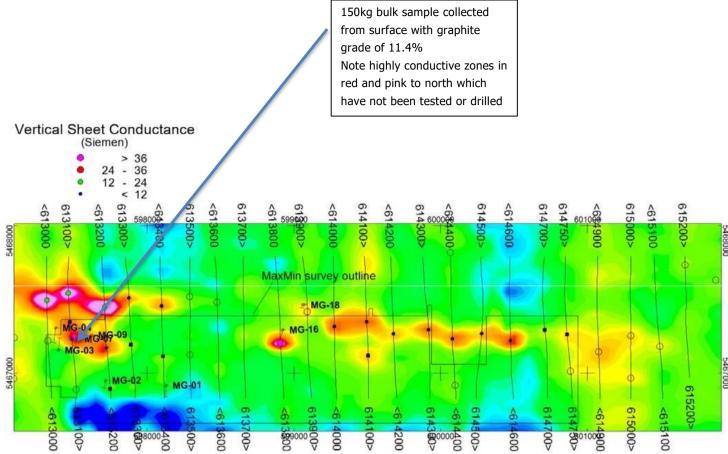


Figure 2: "Thomas Lake Road" Target - DIGHEM vertical coaxial 900 Hz image with OGS conductor picks, drill hole collars and outline of a previous ground electromagnetic survey. Solid circles are "dike"-like conductors and open circles are "surficial", as defined by the OGS.

The >2.6 km long Silver Star anomaly consists of two continuous zones, one which is 480m long and the other 1770m long (Figure 3). The character of the DIGHEM responses, particularly within the longer western zone, also resembles that observed in the mineralised zone tested by MG-07 and MG-09 at Thomas Lake. Outcrop was located in the centre of the anomaly on the edge of a highly conductive zone.

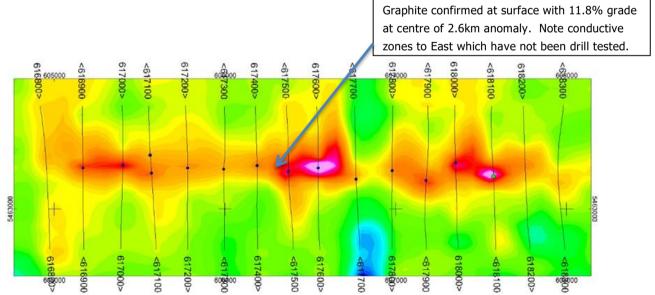


Figure 3: Silver Star" Target – image of 900Hz vertical coaxial in-phase response with OGS anomaly picks

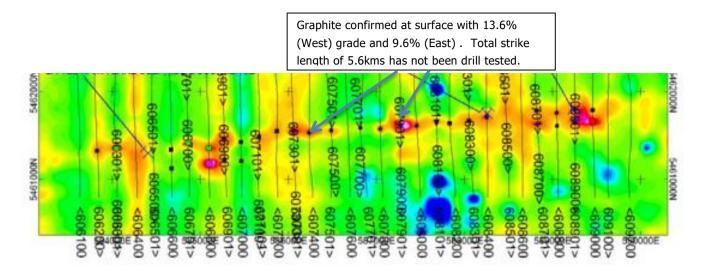


Figure 4: "Silver Birch" Target image of 900Hz VCA in-phase response with OGS anomaly picks and mineral occurrence locations (OGS, 2015)

#### **Manitouwadge Graphite Characteristics**

The recent encouraging results and high grades achieved from surface sampling further supports Ardiden's development strategy for the Project. Ardiden has undertaken detailed metallurgical test work at multiple facilities in North America, Asia and Australia using graphite sourced from a surface bulk sample and drilling undertaken earlier this year. Given that end-user markets for graphite are specific to customer needs it is vital that multiple end-user products can be produced efficiently.

To date the metallurgical testing has confirmed the following characteristics:

- 1) Manitouwadge graphite has a large proportion of jumbo and large flake graphite (up to 80%);
- 2) It is amenable to low-cost gravity and flotation beneficiation work yielding grades of 95.6% for jumbo flake:
- 3) Testwork has also shown that the graphite can be purified to >99.95% purity by using proven caustic bake purification methods;
- 4) Recent testwork has demonstrated that high value expandable graphite can be produced which is suitable for applications requiring high thermal and electrical conductivity Expandable graphite has multiple high-value applications including in fire retardant, batteries, gaskets, foils, foams and as a foundry material; and
- 5) Graphene and graphene oxide can be produced with graphene quality equivalent to synthetic graphene.

The high quality of the Manitouwadge graphite makes it amenable to multiple end uses and allows for improvement of the raw product with value-add processing. The in-situ flake sizes are the largest and most valuable flake size of graphite, and are expected to be in high demand by new technologies such as **lithium-ion batteries for use in the rapidly growing electric vehicle and home/industrial battery storage markets**.

Recent successful exploration and mining claim acquisition activity at the project has seen Ardiden triple the strike length of EM anomalies with graphite prospectivity now recognized along a 19km strike length within Ardiden's 100% owned 5,300 Ha mining claim package.

The results of the ground sampling program announced today will be used to focus and refine a drill program which is planned to be undertaken during the December 2015 Quarter.

#### **Share Purchase Plan Update**

The Company announced on 29 September a Share Purchase Plan (SPP), providing existing shareholders with an opportunity to increase their holdings in the Company as it advances the development of the Manitouwadge Graphite Project in Ontario, Canada. Funds raised will be used for further sampling, trenching and drilling of high priority targets as identified by CSA Global in a recent geophysical review of the Company's tenements.

Shareholders who are recorded on the share register as at 28 September 2015 with a registered address in either Australia or New Zealand will be eligible to participate in the SPP. Under the SPP, each eligible shareholder will be entitled to apply for up to \$15,000 of new shares (irrespective of the quantum of their current shareholding) without incurring brokerage or transaction costs.

Full details of the SPP including acceptance forms were sent to shareholders on 2 October 2015 and are available from the Company and Computershare. The SPP will close on 14 October 2015 and is not subject to shareholder approval. Directors will be participating in the SPP.

Further updates will be provided as the program develops.

Board of Directors Ardiden Limited

#### **ENDS**

#### **About the Manitouwadge Project**

The 5,300 Ha Manitouwadge Jumbo Flake Graphite Project is located in Ontario, Canada. The Project has been confirmed as an attractive near-term development opportunity following a highly successful diamond drilling program in March 2015 and favourable metallurgical test work.

Metallurgical test work has indicated that up to 80% of the graphite is high value jumbo or large flake graphite. Testing has also indicated that simple, low cost gravity and flotation beneficiation techniques can result in graphite purity levels of up to 95.6% for jumbo flake and 94% for large flake. Testing using the proven caustic bake process was able to produce ultra-high purity (>99.95%) graphite. The graphite can also be processed into high value expandable graphite and produces a high quality graphene and graphene oxide.

The information in this report has been reviewed by Mr Paul Nielsen who is a member of the Association of Professional Geoscientists of Ontario. 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". 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.

Appendix 1 – Graphite Grades and Co-ordinates

Sample No	Easting	Northing	С%
172508	606156	5463232	6.91%
172509	606158	5463231	6.69%
172513	587385	5461690	1.53%
172514	587373	5461683	3.95%
172515	587371	5461684	3.14%
172516	587354	5461693	9.63%
172517	607431	5464628	2.87%
172518	606158	5463240	10.30%
172519	605951	5463247	11.80%
172521	586133	5461574	9.27%
172522	586153	5461593	1.74%
172523	586174	5461588	5.53%
172524	586177	5461589	4.18%
172525	586179	5461590	3.60%
172526	586213	5461597	3.41%
172527	586253	5461612	13.60%
172528	597359	5461695	1.97%

## **JORC Code, 2012 Edition – Table 1**

## **Section 1 Sampling Techniques and Data**

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <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>	<ul> <li>Samples taken from the Silver Birch and Silver Star showings were grab samples on exposed outcrop observed to be mineralised in graphite.</li> <li>A bulk sample at the Thomas Lake West showing was obtained by cutting a series of 2.5 – 3 inch channel samples approximately 6 inches deep across the mineralised outcrop measuring about 1.5 by 1.5 metre area.</li> </ul>
Drilling techniques	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).	Not applicable – no drilling undertaken
Drill sample recovery	<ul> <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>	Not applicable – no drilling undertaken
Logging	<ul> <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>	Not applicable – no drilling undertaken
Sub-sampling techniques and sample preparation	<ul> <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-</li> </ul>	Not applicable

Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	<ul> <li>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> <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>	Grab samples were analysed by Actlabs in Thunder Bay, Ontario Canada a SCC (Standards Council of Canada) accredited laboratory.      Metallurgical test work was carried out by AGAT Laboratories located in and is accredited by the following organizations; The Standards Council of Canada (SCC), The Canadian Association for Laboratory Accreditation (CALA) and QMI-SAI Global to the following standard ISO/IEC 17025:2005      Not applicable
sampling and assaying	<ul> <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>	Not applicable
Location of data points	<ul> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	UTM NAD83 Zone 16 projection using handheld GPS.
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	100m line spacing
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	Flight lines are orientated perpendicular to stratigraphy in the areas of interest.
Sample security	The measures taken to ensure sample security.	Samples were bagged and tagged by contract personell and transported directly to the respective accredited laboratories.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	The DIGHEM data have been reviewed and interpreted by a qualified geophysicist, Mr. Dave Johnson.

## **Section 2 Reporting of Exploration Results**

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

Criteria

JORC Code explanation

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status  Exploration done by other parties	<ul> <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> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul> <li>All claims are in good standing and are 100% owned by Ardiden. These include claims 4268977, 4268978, 4268979, 4268934, 4268933, 4268952, 4268932, 4268953, 4268975, 4268976,4268935, 4279101, 4279121, 4279124, and 4279125.</li> <li>The previous ground horizontal EM survey was carried out by Rare Earth Minerals Inc. and reported by Felix, 2012, Technical report on the Manitouwadge graphite exploration property at Manitouwadge, Ontario, Canada. 35 p.</li> </ul>
Geology	Deposit type, geological setting and style of mineralisation.	Archean meta-sedimentary graphite
Drill hole Information	<ul> <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> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) 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> </li> <li>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.</li> </ul>	An assessment of the helicopter EM data has indicated a general correlation between electromagnetic conductance and the presence of graphite mineralization in bedrock, as described by Johnson, 2015, Ranking of airborne electromagnetic targets, Manitouwadge graphite project, Ontario, Canada, 25 p.
Data aggregation methods	<ul> <li>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.</li> <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>	Not applicable
lationship between mineralisation widths and intercept lengths	<ul> <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>	Not applicable
ms	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should	See body of the release for the locations of EM conductors relative to Ardiden claims.

Criteria	JORC Code explanation	Commentary
	include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	
Balanced reporting	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.	The EM data shown in this release is only a small part of a much larger dataset compiled by the Ontario Geological Survey in 2002 and released as Geophysical Data Set 1205 - Revised.
Other substantive exploration data	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.	Emphasis has been placed on determining grain size characteristics of graphite flakes and beneficiation testing, as per Item 49 of the 2012 edition of the JORC Code. The results of these tests have previously been reported.
Further work	<ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	Further drilling of geophysical targets is planned following ground surveys to try and confirm the airborne EM targets.