

## Flash Note – Ardiden Limited (ASX: ADV)

### *Excellent Metallurgical Test Results – High Proportion of High Purity Jumbo and Large Flake Graphite Confirmed at Manitouwadge*

July 2, 2015

#### **EVENT**

- Metallurgical beneficiation testwork completed on samples from the recent drilling campaign at the 100% owned Manitouwadge Graphite Project:
  - Up to 80% of graphite classified as premium jumbo and large flake;
  - Total Graphitic Carbon (“TGC”) grades of up to 95.6% for jumbo flake and 93.7% for large flake from simple, low cost gravity and flotation concentration;
  - Subsequent caustic bake purification testwork on jumbo flake has returned grades of > 99.95% TGC, comparable to high purity, high value synthetic graphite;
  - Bulk sample being prepared to provide representative samples to prospective customers and for further testwork samples;
  - Potentially ideally placed to take advantage of the anticipated increasing demand (and prices) for the premium larger flake and higher purity products.

#### **BREAKAWAY COMMENTS**

Ardiden has completed an initial 10 hole, 833m diamond drilling and metallurgical testwork programme on their Manitouwadge Graphite Project, located in Ontario, Canada. The Project covers 17 staked claims for 3,400ha located 30km NE of the town of Manitouwadge, and was acquired earlier this year for a total consideration of C\$159,000 and a 2% gross production royalty.

The Project is readily accessible along logging roads and is within 50km of both the Trans-Canada Highway and Railway in a historic mining district. A number of other graphite projects are located in the region, including Zenyatta Venture’s Albany deposit, ~100km from the Manitouwadge Project.

Previous work has included airborne and ground electromagnetic (“EM”) surveying by Noranda, which identified six conductors up to 1.6km in strike length during exploration for massive sulphide base metal mineralisation. Ardiden and the vendor carried out trenching over some zones and preliminary metallurgical testwork on the trench samples as part of the due diligence.

The recent drilling intersected downhole intervals of up to 9.7m (~5m true width), containing up to 4.06% TGC, and averaging around 2% TGC in the limited strike length tested. These results confirm the presence of mineralisation at depth, and although these grades are relatively low compared to most companies in our universe of ASX and TSX listed graphite explorers and developers, they are comparable with other Canadian projects, including Zenyatta Ventures’ Albany (45.2Mt @ 3.14% TGC, A\$87m capitalisation) and Northern Graphite’s Bissett Creek projects (93.8Mt @ 1.72% TGC, A\$27m capitalisation).

We do see, given the limited strike tested to date at Manitouwadge, the potential for higher grade mineralisation in the identified graphitic horizons. In addition the overall drill intercepts contain individual 1 metre assay intervals up 10.8% TGC.

A key attribute are the excellent results from metallurgical testwork carried out on the drill core. These indicate that up to 80% of the graphite is in the premium large to jumbo flake size ranges, with simple gravity and flotation beneficiation producing concentrate grades of up to 95.6% for jumbo flake and 93.7% for large flake. Preliminary purification testwork on the jumbo flake fraction using a caustic soda bake process has returned grades of >99.95% TGC comparable to ultra-high purity synthetic graphite, making this a potentially very high value premium product.

Flotation results are presented below.

*Flotation testwork results*

Size	Sample 1390492 - 3.69% TGC		Sample 1390037 - 7.81% TGC	
	% Mass Recovery	Graphite Grade (% TGC)	% Mass Recovery	Graphite Grade (% TGC)
<b>Jumbo (+300µm)</b>	30.35%	95.6%	41.92%	94.9%
<b>Large (+180µm)</b>	50.41%	93.6%	16.55%	93.7%
<b>Medium (+150µm)</b>	5.92%	92.6%	9.51%	90.7%
<b>Fine (-150µm)</b>	13.32%	92.4%	32.02%	88.8%

Source: Ardiden Limited

The flotation results rank near the top when compared with our dataset of metallurgical results from 16 projects (which range from 0% to 84% large flake or larger), and are comparable to figures from Northern Graphite's Bissett Creek project.

Graphite market analysts forecast a shortage of jumbo size flake going forward (largely driven by forecast growing demand for batteries), with concomitant significant price increases, with some forecasts indicating a jumbo flake price as high as US\$6,175/tonne in 2020 (compared to the current price of around US\$2,300/tonne). High purity products, including synthetic graphite, attract a significant premium, and can trade for over US\$10,000/tonne.

As an example of the battery demand, Tesla took US\$800m worth of orders for its Powerpack and Powerwall home and office storage devices in the first week after they were announced in April 2014. Tesla, which is building its US\$5bn battery giga-factory in Reno, Nevada, some 3,000km by rail from the project, has stated that it will be looking to source as much of its raw materials as possible from North America.

Although it is early days, the exploration and metallurgical results to date are very encouraging, and we do see the potential for Manitowadge to host a "boutique" operation producing a high purity concentrate to feed the forecast growing demand for premium products.

**Given the above we continue to rate ADV as a Speculative Buy.**

### Company Information

ASX Code:	ADV
Share Price:	A\$0.008
MCAP:	A\$3.5m
Cash:	~A\$0.2m
Debt:	A\$0.0m
EV:	A\$3.3m

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## **Analyst Verification**

We, Grant Craighead and Mark Gordon, as the Research Analysts, hereby certify that the views expressed in this research accurately reflect our personal views about the subject securities or issuers and no part of analyst compensation is directly or indirectly related to the inclusion of specific recommendations or views in this research.

## **Disclosure**

Breakaway Investment Group (AFSL 290093) may receive corporate advisory fees, consultancy fees and commissions on sale and purchase of the shares of Ardiden Limited and may hold direct and indirect shares in the company. It has also received a commission on the preparation of this research note.

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