

ASX Announcement (**ASX: AXE**)

23 May 2017

Magnesite project development

Highlights

- Bulk sample of Leigh Creek magnesite has been provided to a potential key customer for trial in commercial iron and steel operations.
 - Steel operations bulk trial is progressing well with the magnesite performing as expected.
 - Archer is in discussions with Adelaide Brighton Cement Limited regarding a bulk trial for the manufacture of CCM and/or DBM products.
 - Preparation underway for further commercial trials.
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Archer Exploration Limited (ASX: AXE, the Company) Archer is pleased to provide this review of the Leigh Creek Magnesite Project (**Project**), located approximately 550km north of Adelaide, South Australia.

The Leigh Creek magnesite deposit contains a Mineral Resource of 453Mt @ 41.4% MgO and is the world's largest magnesite deposit of its type. The Leigh Creek magnesite deposit contains characteristics that make it ideal for the manufacture of caustic calcined magnesia (**CCM**) and monolithic dead burn magnesia (**MDBM**).

The Project business plan is based on simple open pit mining and toll processing of the magnesite in third party rotary kilns to make CCM and MDBM products for sale to domestic and international customers.

Commercial trials

Steel Operations Commercial Trial

In late 2016 Archer announced that a bulk sample of Leigh Creek magnesite had been provided to a potential key customer for trial in commercial iron and steel operations. The magnesite was calcined on site using a rotary kiln to make CCM and DBM. The resultant CCM and DBM products are being used by the potential customer in the steel making process.

The potential customer has been successfully using the calcined magnesia in steel making operations and will continue to do so until the CCM and DBM stocks are depleted. Archer understands that the magnesia product behaved as expected in the steelmaking process with the expected benefits demonstrated.

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Adelaide Brighton Cement

As previously announced, Archer is in discussions with Adelaide Brighton Cement Limited regarding a bulk trial for the manufacture of CCM and/or DBM products. Negotiations with Adelaide Brighton Cement are continuing.

Archer target markets

Archer is targeting the refractory (steel making) industrial grade unshaped DBM market which is forecast **to grow by 3.5% during the next 12 months**. The use of DBM in unshaped applications (monolithics) has become increasingly popular over the last decade, especially in mature industrialised economies. Monolithics now account for an increasing proportion of overall refractory production in Europe, Japan and North America.

A large proportion of the world's steel is made using the Basic Oxygen Steel (BOS) making process (e.g. Whyalla Steelworks) where the molten iron from the blast furnace combined with scrap iron is purified from impurities by blowing oxygen through the molten iron either by lances from the top or by blowing oxygen through pipes at the bottom.



Figure 1: Whyalla Steelworks (source: <http://www.arrium.com/> fy13/)

Monolithic (i.e. unshaped) DBM products are used extensively to protect BOS refractory linings against chemical attack. The product is generally applied via gunning techniques, which involves spraying the material through a nozzle at a high speed. At the nozzle, cement accelerators are often added to promote rapid hardening of the material.



Figure 2: Application of magnesia “gunning mix” (source: www.grecianmagnesite.com/.../files).

Leigh Creek magnesite is cryptocrystalline magnesite, which has superior characteristics over macrocrystalline magnesite. The smaller crystal structure and typically higher purity of cryptocrystalline magnesite allow it to produce higher value magnesia products such as high specific surface area (SSA) and high reactivity CCM and high density DBM.

The long life and superior physical and chemical properties of the Leigh Creek cryptocrystalline magnesite deposits provide a unique opportunity to develop and grow a large scale, low cost, high value refractories magnesia business.

The Leigh Creek Magnesite Project

Leigh Creek Magnesite Project is the world’s largest deposit of its type and hosts 48% of world cryptocrystalline (small grained) magnesite resources.

The processing of magnesite is very simple – the magnesite is placed in a kiln or furnace and then heated to a range of temperatures to make different magnesia products. There is no grinding, flotation or other complicated mineral processing required for the Archer magnesite.

Archer’s business plan is based on a simple processing scenario of contract mining at Mount Hutton and then hauling magnesite off-site to pre-existing plants for toll processing using third party kilns and furnaces to make CCM and DBM. There is underutilised infrastructure in the vicinity of the Project and elsewhere in South Australia and Archer is negotiating with potential processors.

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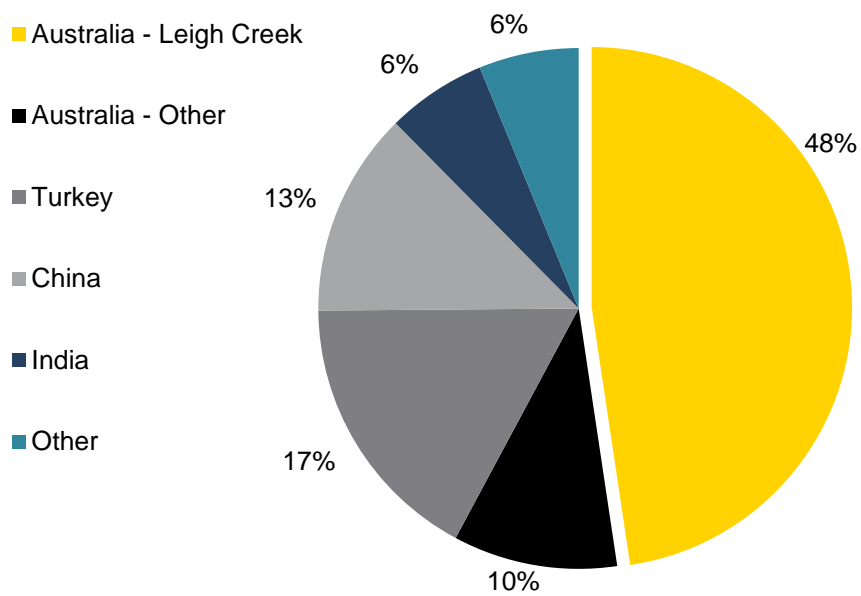


Figure 3: World cryptocrystalline magnesite resources

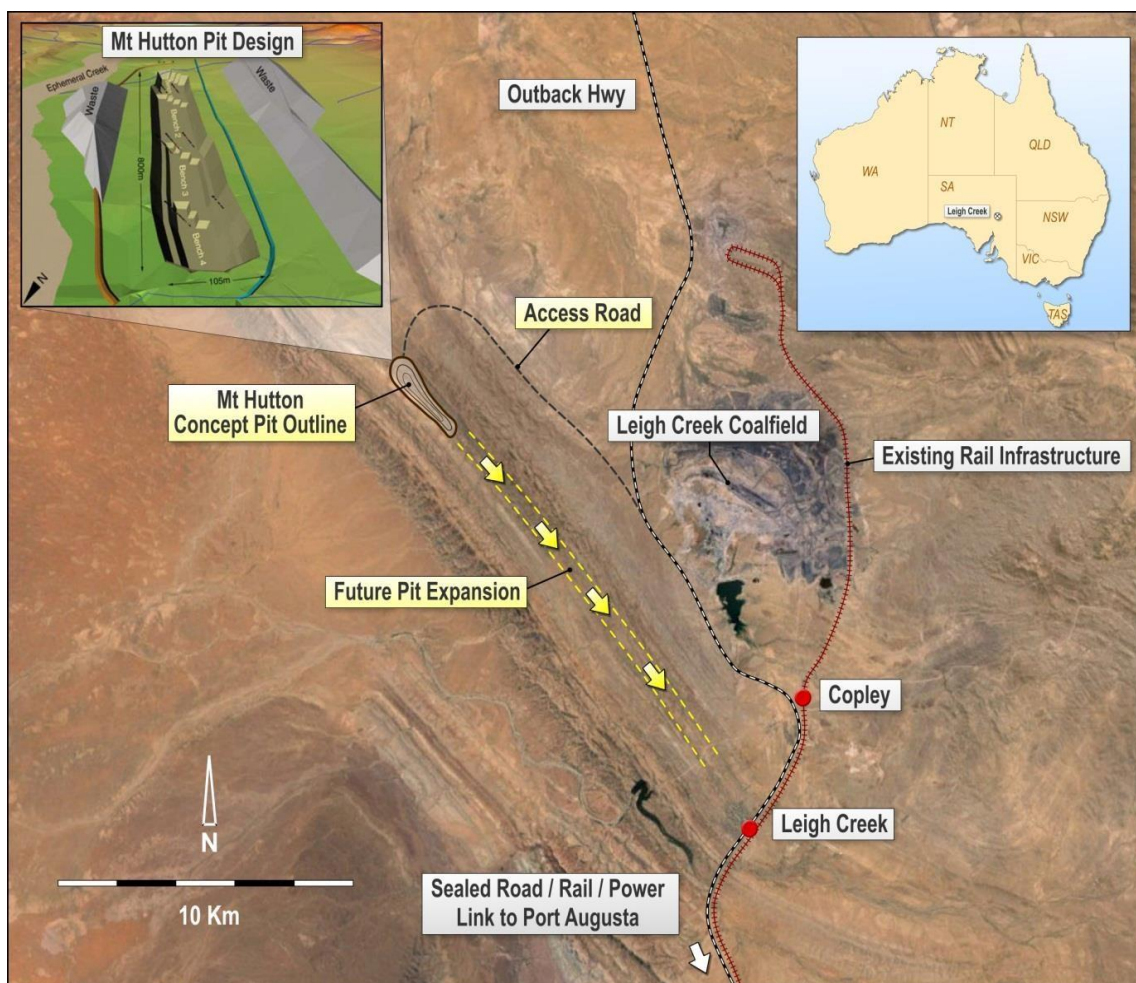


Figure 4: Leigh Creek Magnesite Project conceptual layout

The toll processing of magnesite would allow Archer to get into business quickly for a negligible capital cost. Furthermore, the Company has received a \$200,000 grant from the South Australian Government's Upper Spencer Gulf and Outback Futures Program to assist in the development of the Leigh Creek Magnesite Project.

For clarity, Archer has no intention to build a stand-alone magnesia processing facility (which would cost approximately \$80 - \$120 million) or to make magnesium metal (which would be highly energy intensive).

Next Steps

Archer will announce the results of the bulk trial as the results become available, continue discussion with Adelaide Brighton Cement and continue discussion with potential customers. These results will be announced as soon as they become available.

The toll processing of magnesite provides Archer with the opportunity to commence commercial operations for minimal cost.

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Competent Person Statement

The information in this report that relates to Exploration Results is based on information compiled by Mr Wade Bollenhagen, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy and is a full-time employee of Archer Exploration Limited. Mr Bollenhagen 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 "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Bollenhagen consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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