

ASX Announcement

17 November 2016

Outstanding test results support decision to start bulk trial

Highlights

Results from CSIRO and kiln operator test work show:

- Leigh Creek magnesite can be processed to make a saleable magnesia product.
 - Archer monolithic deadburn magnesia (MDBM) matches or exceeds performance of commercially available magnesia products suggesting potential to gain market acceptance.
 - In addition, results from the kiln operator confirm that caustic calcined magnesia (CCM) can be manufactured in the commercial rotary kiln.
 - Exceptional test results support decision to start bulk processing trial during early December 2016.
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Archer Exploration Limited (ASX: AXE) advises that the latest test work and analysis of the Leigh Creek magnesite is completed. The aim of the Archer test work was:

- To make dead burn magnesia at different temperatures (1450°, 1550° and 1650° Celsius)
- Compare the Leigh Creek magnesia product against commercially available magnesia products.
- Use test results to refine technical parameters for upcoming bulk trial.

In addition to the dead burn test work being completed by Archer, the kiln operator completed separate caustic calcined magnesia (CCM) test work with the results of that test work confirming that CCM should be easily manufactured in the commercial rotary kiln.

Archer test work

CSIRO and other laboratories were engaged by Archer to perform small scale roasting, hydration and density tests on Leigh Creek magnesite.

Small amounts of sized magnesite were roasted in a muffle furnace in air. The samples were gradually heated from room temperature at the rate of heated at 6 °C/min to the desired test temperatures of 1450, 1550 and 1650°C and was held at these temperatures for one and two hours to make monolithic deadburn magnesia (**MDBM**) product. MDBM was produced at all temperature ranges.

Hydration and density tests were then undertaken on the MDBM to determine the quality of the MDBM produced. Parallel tests were conducted on a sample of commercially available MDBM to allow the relative performances of the Archer materials to be evaluated.

The test work showed that the Archer MDBM magnesia product did not show any weakness or tendency to shatter on calcination with low expected dust losses. The results of the test work indicate that Leigh Creek magnesite can be processed at temperatures achievable in a rotary kiln to make a saleable MDBM product.

The Archer MDBM was found to have a lower density than the commercially available MDBM which is an advantage for the MDBM market, as it results in better area coverage per unit weight and can assist the customer to reduce production costs.

It is significant to customers that MDBM has low hydration resistance meaning that the magnesia product does not absorb excessive water during the application process. The Archer MDBM was also found to have better hydration resistance than the commercially available MDBM product.



Removing crucibles from the furnace



Heat 8, crucibles cooling

Kiln operator test work

In addition to the Archer MDBM test work a South Australian based rotary kiln operator undertook independent Leigh Creek magnesite test work. A 5kg magnesite sample was given to the kiln operator who then calcined the magnesite to make a caustic calcined magnesia product (CCM).

The kiln operator test work showed that Archer magnesite is capable of making a good quality CCM product at temperatures and conditions the same as those found in the rotary kiln.

As announced on 8 November 2016, Archer will be undertaking a magnesite processing bulk trial at an operating kiln, with the trial expected to be completed in early December 2016.



Bed 3 heat 3 calcine



Sample after recovery from the pressure cooker and ready for final weighing

The main markets for CCM are agriculture, waste water treatment and other general chemical applications, whereas DBM is used in refractories, electrical insulation and welding fluxes. DBM is the dominant magnesia product sold and accounts for about 70% of global magnesia consumption (CCM approx. 20%).

Archer is targeting the higher value refractory (steel making) industrial grade segment of the DBM market which is forecast to grow by 3.5% during 2017/18.

Archer's Executive Chairman, Mr Greg English:

"We are very pleased with the results of the latest test work which shows that Leigh Creek magnesite is capable of making a quality MDBM product".

"The results from Archer's test work show that the MDBM product produced from the Leigh Creek magnesite is comparable to commercially available MDBM meaning that the Archer MDBM has the potential to gain market acceptance in the expanding MDBM market".

"The upcoming calcining of the magnesite in an operating rotary kiln is a significant step in the development of Archer's Leigh Creek Magnesite Project."

For further information, please contact:

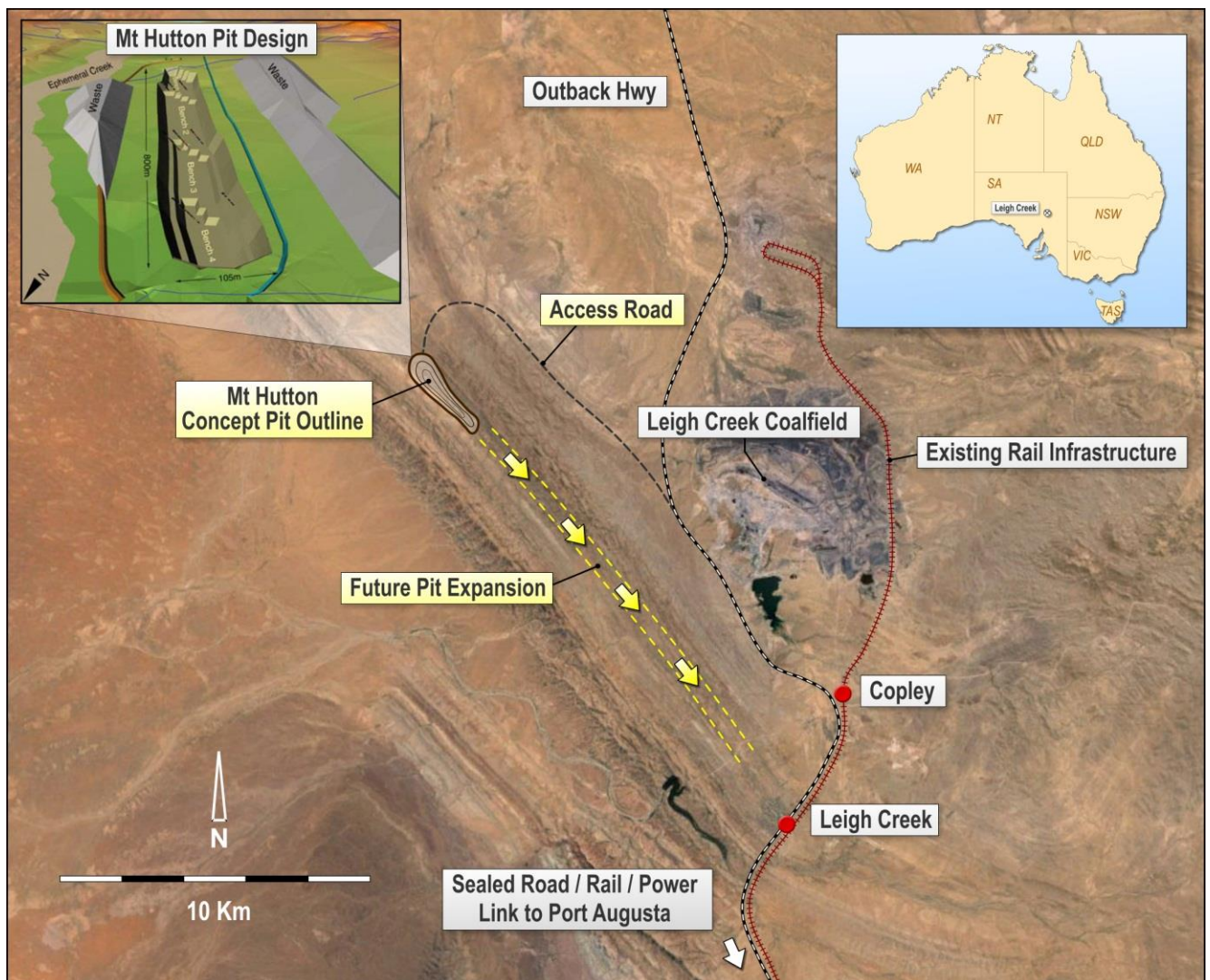
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About the Leigh Creek Magnesite Project

The Leigh Creek Magnesite Project is located approximately 20 kilometres northwest of Leigh Creek Township, South Australia and is the world's largest cryptocrystalline magnesite deposit.

Archer has been developing the Leigh Creek Magnesite Project with the aim of undertaking a simple open pit mining operation, third party processing and the export of high quality caustic calcined magnesia and/or monolithic dead burn magnesia to overseas customers.



Leigh Creek Magnesite Project conceptual development layout