

QUARTERLY ACTIVITIES REPORT

30 September 2018

LATROBE MAGNESIUM PROJECT

1. Fast Cycle Retorts

In July and August, LMG completed rebuilding the retort and making some improvements to the fast cycle furnace (FCR).

The new retort and improved facilities were commissioned at CSIRO Clayton, in late August.

A hot test on August 24, with an inert bed of magnesia briquettes was successful. Many of the previous difficulties were overcome. The retort lining was inspected subsequently and found to be in good shape.

On August 28 a test using Dolime briquettes was conducted to demonstrate the separate collection of magnesium and sodium in the condenser train. Unfortunately, having charged the briquettes and closed the top door, a vacuum could not be established through the retort and condenser. Attempts were made to stop the leak – thought to be at the retort bottom door – without success. The run was terminated, but not before part of the bed had reached a temperature around in excess of 1400°C.

When cold, the retort was inspected. Much of the bed of solids had fused together and was unable to be moved. Little of the tiling was visible, but there were some new cracks. Attempts to remove the bed with minimum impact on the tiles, by using chemicals, were unsuccessful. A combination of drilling and repeated heating and cooling, was required. Nearly three weeks were spent, working through this problem.

The retort and its arm were found to have a large number of cracked tiles and some broken tiles. We are currently replacing these tiles.

The August 28 run proved that we can get a reaction in the retort, reach the desired temperatures in the condenser train and capture Mg and Na metal in the condenser train.

The two areas contributing to the failure of this run were:

- Design errors – mainly the bottom door clamping allowed oxygen into the system and the retort arm mitred tiles were not a good fit
- Operational aspects were deficient – vacuum and argon atmosphere needs to be established in the retort before loading, aspects of the briquette loading needs to be reviewed to minimise any oxygen ingress into the retort.

Five weeks will be required to purchase more tiles, reline the retort, complete welding repairs and recommissioning of the FCR.

2. Hambach Project

LMG made a large sample of RWE fly ash to process through the FCR when it has been successfully commissioned. It is expected to process this fly ash through the retort at the end of October.

3. Latrobe Valley Project

The next stage of the Latrobe Valley Project is to complete the FCR test work, discussed in point 1, complete some pilot scale test work, make a large sample and then process the Yallourn fly ash through the FCR.

4. Indian Patent

The Australian, USA, China and Indonesian patents have already been granted for 20 years starting from August 2011.

The process is 100% owned by LMG.

In March 2013, a patent application was lodged for India. There is a formal hearing of the patent application on 11 October 2018. As the hearing notice only raised formal issues, we believe that the patent will be granted shortly.

All the above countries are known to have large lignite / brown coal deposits.

5. Funding

In March 2018, LMG's Directors and its Project Director decided to provide loans to the Company to cover the costs of their monthly fees until 30 September 2018. These loans will be converted into equity in the Company upon the approval of shareholders at this year's Annual General Meeting.

In addition, two Directors of the Company have provided an unsecured lending facility to the Company of up to \$200,000. To date some \$100,000 of these facilities have been drawn.

The Company has executed agreements with RnD Funding to provide up to \$2.15 million to assist with financing its 2019 activities.

The Directors believe that with the current funds available and these additional loans the Company will have the necessary funds to complete the FCR test work, complete feasibility studies on its Hambach project and its Latrobe Valley project and conduct its activities required up to the construction phase of its Latrobe Valley Project.



David Paterson
Chief Executive Officer

10 October 2018

About Latrobe Magnesium

Latrobe Magnesium is developing a magnesium production plant in Victoria's Latrobe Valley and another plant near Cologne in Germany using its world-first patented extraction process. LMG intends to extract and sell magnesium metal and cementitious material from industrial fly ash, which is currently a waste stream from brown coal power generation.

LMG has completed a preliminary feasibility study validating its combined hydromet / thermal reduction process that extracts the metal. Construction is estimated to start on its initial 3,000 tonne per annum magnesium plant in the fourth quarter of 2019 year with production commencing 12 months later. The plant will then be expanded to 40,000 tonne per annum magnesium 18 months later. The plant will be in the heart of Victoria's coal power generation precinct, providing immediate access to feedstock, infrastructure and labour.

LMG plans to sell the refined magnesium under long-term contracts to Australian and overseas customers. Currently, Australia imports 100% of the 8,000 tonnes annually consumed.

Magnesium has the best strength-to-weight ratio of all common structural metals and is increasingly used in the manufacture of car parts, laptop computers, mobile phones and power tools.

The LMG project is at the forefront of environmental benefit – by recycling power plant waste, avoiding landfill and is a low CO₂ emitter. LMG adopts the principles of an industrial ecology system.