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# PROJECT MONTHLY UPDATE

## LMG'S DEMONSTRATION PLANT

### 30 October 2023

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#### Highlights:

- \* The Demonstration Plant continues to progress with no health, safety, or environmental incidents to date.
- \* Magnesium Oxide production strategy is on track with construction labour expanded to 40+ local trade contractors engaged onsite.
- \* Spray Roaster reactor vessel installation completed, unlocking multiple work fronts to drive completion of Pyrohydrolysis area.

#### 1. Stage 1 Demonstration Plant Progress Update

##### Engineering & Procurement

The core engineering team, comprising four to six personnel will continue to support the construction team, and complete vendor closeout and commissioning handover documentation. Procurement will support the construction phase by procuring necessary site consumables and mobile equipment as required.

##### Construction

##### **Magnesium Oxide (MgO) Strategy**

The project is currently focused on fast-tracking the construction of key areas, including ash handling, leaching, pyrohydrolysis, and magnesite, to produce one-ton bulk bags of MgO, an intermediate product for customer sales, prior to the production of magnesium metal.

The purchase of the MgO Bagging Plant and other essential components for pneumatic piping delivery is now complete, with this equipment being expedited through to fabrication.

This strategy is devised to generate both earlier revenue and familiarise the operations teams with the patented hydromet process. This approach will validate LMG's intellectual property, particularly in extracting magnesium metal from brown coal fly ash and creating saleable byproducts, reinforcing the company's value to all shareholders, investors, the community, the government, and all stakeholders.

##### **Site**

The site team has mobilised a workforce of over 40 local trades comprising of fitters, welders, riggers, scaffolders, electricians, instrument technicians, supervisors, technical assistance, completions work pack engineers and QA/QC inspectors from two major local contractors. Mechanical Maintenance Services (MMS) are responsible for all Structural Mechanical Piping (SMP) installation and Operations and Maintenance (O&M) are responsible for Electrical and Instrumentation installation.



*Figure: SMP & E&I teams collaboratively engaged in effective simultaneous operations coordination*

### Civil

The primary civil and concrete works have been completed with only localised miscellaneous concrete foundations and pedestals remaining. The civil work for the LPG tank and Gases (Oxygen, Carbon Dioxide & Argon) installation is completed and final concrete pours were completed at the end of the October.



*Figure: LPG tank concrete footings completed*



*Figure: Gas footing concrete pour*

### **Structural, Mechanical and Piping**

The fabrication and assembly of the Spray Roaster reactor vessel has been successfully completed by the local contractor, Stable Engineering, and the vessel has been transported to LMG's site for final installation. Stable Engineering continues to progress the fabrication of the Oxide Bin expected to be completed by end of November.



*Figure: Spray Roaster reactor vessel workshop fabrication complete*



*Figure: Spray Roaster reactor vessel transported to site*



*Figure: Spray Roaster reactor vessel dual crane lift*



*Figure: Spray Roaster reactor vessel installed in final position*

The primary SMP focus of the work fronts has been the completion of the steel erection for the Spray Roaster, a critical path of the Project. The erection has proven to be intricate with the SMP team erecting preassembled platforms and stair tower modules lifted into place as larger segments to expedite installation time.

The structural steelwork erection has been successfully completed, allowing for the positioning and installation of the Spray Roaster reactor vessel in its designated location. Subsequently, additional pre-assembled platforms will be installed on top of the vessel.

This progress has now paved the way for the commencement of piping and electrical work, commencing with the installation of pipe and cable tray supports and concluding with pipe installation and equipment termination. Concurrently, the installation of mechanical equipment, including tanks, pumps, blowers, fans, absorber towers, and stack, is in progress.



*Figure: Assembly and erection of modularised Spray Roaster structural stair tower (top) & platform (bottom)*





**Figure:** *Spray Raster Structural Steelwork complete to receive Reactor Vessel*

Following from the completion of the main cable and pipe rack installation, the SMP team continue to progress with the erection of the Ferrosilicon and Magnesite Hopper and Bag Breaker units.

Additionally, the Steam Boiler and Acid Area Scrubber have had their 12m exhaust stacks successfully installed and the SMP team are targeting to start piping installation of the hydromet areas in the next few weeks.



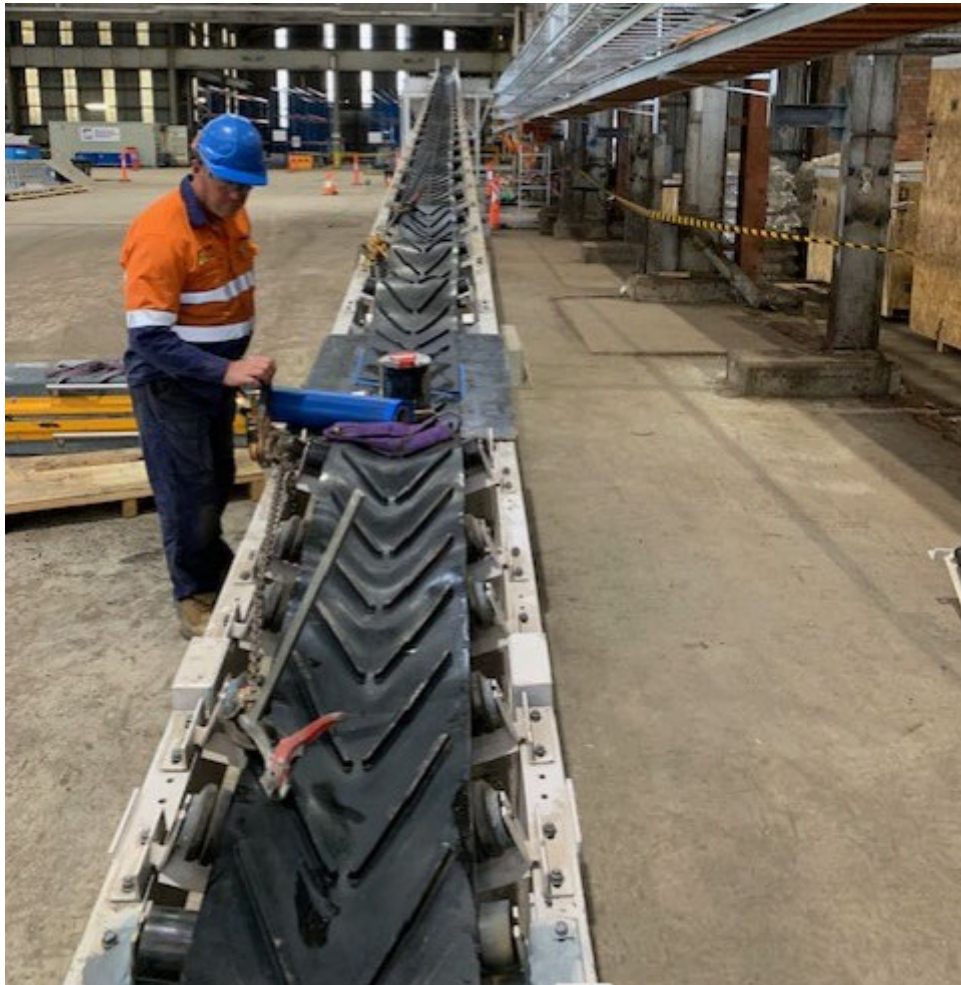
**Figure: Magnesite Hopper & Bag Breaker erection**



**Figure: Erection of Acid Area Scrubber exhaust stack**



Belt splicing services have commenced on Briquette Loading conveyors, followed by the Ash Handling conveyor.



*Figure: Conveyor belt splicing commenced*

### Electrical & Instrumentation

The electrical and instrumentation (EI) work is well progressed with all three main switch rooms, along with the main switchboard all successfully cabled. The EI team is progressing with construction of local junction boxes, local control stations, instrumentation cable pulls and planning for the major replacement of the main switchboard scheduled with AusNet next month.

### Schedule

The schedule, as reported in last month's update, remains on course. Persistent challenges have arisen but are actively addressed to maintain schedule. Specifically, labour availability continues to pose an ongoing obstacle, closely monitored daily. The emphasis towards interim MgO production, prioritising the installation of the Spray Roaster, which is the critical path to the schedule remains critical. Despite this shift, our target for the **first magnesium production in March 2024 remains unchanged.**

Any further changes to this timetable will be included in future monthly updates.



*Figure: Electrical and instrumentation cable installation in cable trays & local junction boxes*

## **2. Operations**

Work on developing operational support systems such as payroll, health and safety and asset and maintenance systems is underway. Operational procedures have commenced with a training program starting to be developed to implement to the operational team.

Then process for obtaining operations permits has commenced ahead of the first reagent delivery, Ferrosilicon, later this month.

## **3. Summary**

Overall, the project remains on schedule despite ongoing pressure on labour availability. The challenges being faced by the project are being reflected around Australia and the project team are working diligently to respond to each challenge and adjust the strategy as needed.

**David Paterson**  
Chief Executive Officer

10 November 2023

## About Latrobe Magnesium

Latrobe Magnesium is developing a magnesium production plant in Victoria's Latrobe Valley 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 resource from Yallourn brown coal power generation.

LMG has completed a feasibility study validating its combined hydrometallurgical / thermal reduction process that extracts the metal. Early construction has commenced on its Stage 1, initial 1,000 tonne per annum magnesium plant with commissioning targeted to commence end of Q1 2024.

A commercial plant will then be developed, with a capacity of +10,000 tonne per annum magnesium, shortly thereafter. Further plant capacity expansion will be determined once Geotech works have been completed on the existing Yallourn landfill due for completion in 2024. 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 USA 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 CO<sub>2</sub> emitter. LMG adopts the principles of an industrial ecology system.