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GEOTECH STUDY CONFIRMS EXCELLENT CONDITIONS FOR POND DEVELOPMENT

Highlights

- **Field investigations and laboratory testwork confirm that lakebed materials are suitable for the application of un-lined evaporation ponds**
- **Geotechnical study confirms that evaporation ponds can be constructed using cut-to-fill which is the lowest cost construction method possible**
- **Preliminary pond design is based on a total area of approximately 50km², representing only 1.5% of Lake Mackay's large lakebed surface area of 3,500km²**
- **Agrimin is advancing its Scoping Study with evaporation trials nearing completion**

Agrimin Limited (**ASX: AMN**) ("**Agrimin**" or "**the Company**") is pleased to announce the completion of a geotechnical study for its 100% owned Mackay Sulphate of Potash ("**SOP**") Project. This is another significant de-risking milestone given that brine extraction and pond development are the largest barriers to the commercial viability of brine potash projects globally.

The outcomes of the geotechnical study confirm that the natural lakebed surface in the south-western area of Lake Mackay has favourable geotechnical conditions for the application of un-lined solar evaporation ponds. The study also confirmed that the in-situ lakebed materials are suitable to construct the evaporation pond walls as cut-to-fill structures.

Importantly, the above assumptions imply that the ponds can be constructed using the lowest cost construction method possible.

The preliminary pond design is based on a total area of approximately 50km² to accommodate the annual brine supply of 68,000,000m³ from the proposed trenching network. This total plan area is comparable to the area used for evaporation ponds throughout Western Australia's solar salt industry, ranging from 16km² at the Lake MacLeod salt operation to 100km² at the Dampier salt operation.

Geotechnical Study

The Mackay Project will extract large volumes of hypersaline brine from a trenching network on the lakebed surface. This brine will be transferred into large-scale solar evaporation ponds in which the brine will be concentrated to facilitate the precipitation of potash salts. After a drying period, the potash salts will be harvested from the ponds as feed material for the processing plant and converted into SOP.

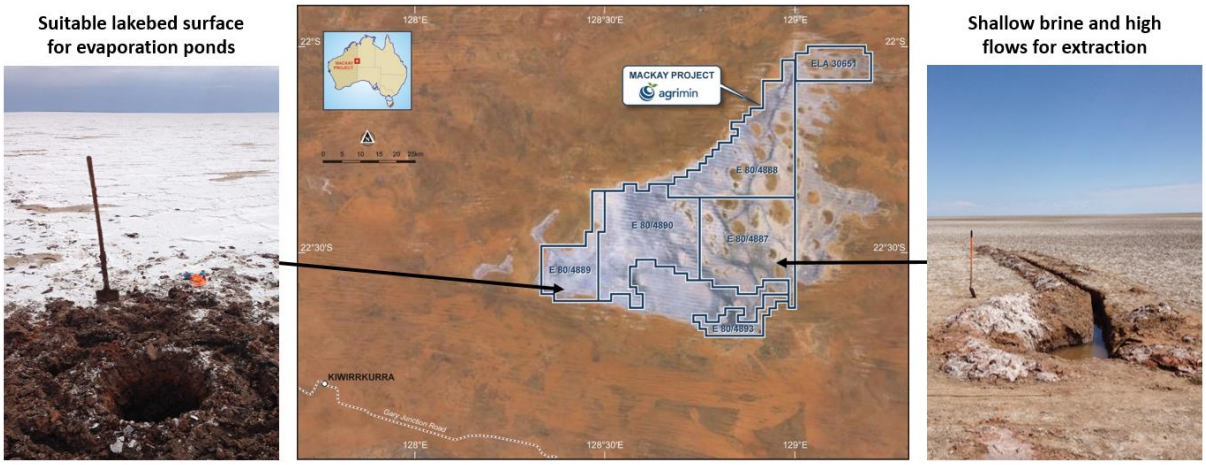
The above method of SOP production currently accounts for approximately 2.3 million tonnes per year, being 40% of global SOP production. This production comes from three main operations which include the Great Salt Lake in the USA, Lop Nur Salt Lake (Luobupo operation) and Lenghu Salt Lake (Bindi operation) in China.

The application of un-lined evaporation ponds is an essential characteristic of brine potash projects and is most often a barrier to the commercial viability of these projects globally. The Mackay Project has the ability to use un-lined ponds given its extensive lakebed surface area with suitable geotechnical conditions.

The lakebed surface area of Lake Mackay is 3,500km^2, which is comparable to the 4,400km^2 Great Salt Lake in the USA and the 5,500km^2 Lop Nur Salt Lake in China.

A key observation from the 2015 field program at the Mackay Project was the distinct difference in zoning between the western and eastern sides of Lake Mackay (**Figure 1**). The south-western area hosts a low energy zone with predominantly higher clay content which is suitable for the construction of evaporation ponds.

Figure 1. Key Features of Lake Mackay



A geotechnical study has been completed by GHD, an independent engineering group. The scope of the study included the determination of the likely construction approach for evaporation ponds and equipment requirements. Importantly, the study will enable site specific cost estimates to be established. The study was based on geotechnical samples taken during the 2015 field program. The sampling was undertaken within 1m of the natural lakebed surface as this material is expected to form the pond walls and floor.

The sampling program included three 100mm diameter push tube (undisturbed) samples and corresponding disturbed samples. The laboratory testwork program included tri-axial permeability, particle size distributions, Atterberg limits, standard compaction and Emerson classifications.

Constant head permeability testing in a tri-axial apparatus measured a permeability of 3.2 x 10^{-8} m/s for an undisturbed sample. This result is a first indication of the in-situ permeability of the foundation material at the likely location of the evaporation ponds. A similar constant head permeability test was also carried out on an undisturbed sample which was air-dried prior to testing. This was intended to simulate the baking process that occurs in the hard pan conditions at Lake Mackay. This test measured a significantly lower permeability of 1.4 x 10^{-10} m/s. These preliminary permeability test results are a very positive outcome.

Table 1. Laboratory Permeability and Compaction Test Results

Material	Sample Description	Dry Density (t/m^3)	Moisture Content (%)	Permeability (m/s)
In-situ lakebed	Silty clay (undisturbed)	1.37	32.2	3.2 x 10^{-8}
Air dried lakebed	Sandy clay (undisturbed)	1.49	30.7	1.4 x 10^{-10}
Compacted lakebed	Sandy silty clay (disturbed)	1.78	16.0	-

Based on the results from the laboratory testwork program, GHD determined that the in-situ materials appear suitable for the application of un-lined evaporation ponds. The following assumptions will be taken forward into the Scoping Study based on the geotechnical study:

- Walls of the evaporation ponds will be constructed as cut-to-fill structures using in-situ materials; and
- Ponds will be un-lined with the natural salt crust surface forming the pond floors.

A range of pond development options were evaluated within the geotechnical study. Importantly, Lake Mackay's large lakebed area provides optionality for the possible low-cost lateral extension of ponds, rather than raising the pond walls higher.

The proposed pond design of approximately 50km^2 is preliminary in nature and intended to demonstrate the requirements to support a large-scale, long-life SOP operation. The ultimate pond system and potash recovery rates will be based on, but not limited to, net evaporation rates, salt phases of the brine as it is concentrated, entrainment factors of the salt phases, pond leakage rates and disposition of waste salts. The data collected from current evaporation trials and from various processing studies will allow many of these parameters to be refined for input into the Scoping Study.

ENDS

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