

ASX Release 23 August 2016

# POSITIVE SCOPING STUDY FOR THE MACKAY SOP PROJECT

Agrimin Limited (**ASX: AMN**) ("**Agrimin**" or "**the Company**") is pleased to announce that the Scoping Study ("**Study**") for its 100% owned Mackay Sulphate of Potash ("**SOP**") Project in Western Australia has delivered positive outcomes. The Board of Agrimin has approved the Project's progression to a Pre-Feasibility Study.

#### **Scoping Study Parameters – Cautionary Statement**

The Study's results, production target and forecast financial information referred to in this ASX Release are based on low accuracy level technical and economic assessments that are insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage.

Of the Mineral Resources scheduled for extraction in the Scoping Study's production plan, approximately 95% are Indicated Mineral Resources and 5% are Inferred Mineral Resources. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or the eventual conversion to Ore Reserves or that the production target itself will be realised.

The consideration of all JORC modifying factors is sufficiently progressed. Hydrogeological studies and process studies support material operating assumptions. Engineering studies support capital and operating cost estimates and are based on standard extraction and processing techniques. Discussions with third party infrastructure providers are underway. Environmental baseline studies and Native Title negotiations are progressing and no social, environmental, legal or regulatory impediments to development have been identified. The Company has concluded it has a reasonable basis for providing the forward-looking statements included in this ASX Release and believes it has a reasonable basis to expect it will be able to fund the development of the Project upon successful delivery of key development milestones. The detailed reasons for these conclusions, and material assumptions on which the forecast financial information is based, are outlined throughout this ASX Release and in Appendix 2. Additionally, the assumptions for the Mineral Resources are disclosed in the JORC Code (2012) Table 1 included in the Company's ASX Release on 15 December 2015.

## **Highlights**

- The Scoping Study supports a SOP production rate of 370,000 tonnes per year over a 20 year life
- Average operating cash cost estimated to be US\$256/t FOB (±35%), and on a mine gate basis
  places the Project in the bottom quartile of the industry cost curve
- Development capital cost estimated to be US\$259 million (±35%), inclusive of all indirects and a US\$52 million contingency, providing an industry low capital intensity of US\$700/t



- The Study only considers brine extraction from trenches in the top 5.5m of the deposit
- Inferred Mineral Resources extend to a depth of 24.7m and remain largely open at depth, thereby providing potential to increase the Project's planned life and/or capacity
- The Study confirms the use of a conventional SOP production process, including standard types of plant equipment
- Successful completion of a positive Scoping Study is a significant milestone towards development and the Board has approved the progression to a Pre-Feasibility Study
- Infill drilling is already underway to enable conversion of the Indicated and Inferred Mineral Resources included in the Study's production plan to the Measured and Indicated categories

The Scoping Study was compiled by Lycopodium Minerals Pty Ltd ("Lycopodium") of Perth, Western Australia.

Mark Savich, CEO of Agrimin commented: "We are delighted with the positive outcomes identified by this Scoping Study, which reinforces the potential for the Mackay SOP Project to become a world-class SOP operation and deliver strong returns for shareholders."

"This Study is another step towards the development of a sustainable SOP operation which will be leveraged to increasing food demand and the global challenge of achieving food security. Agrimin is now focused on rapidly progressing the activities that are on the critical path for development."

## Scoping Study Parameters and Material Assumptions

The Study has been completed on the basis of steady-state brine extraction of 66.5 gigalitres ("**GL**") per year over a 20 year life. The Mackay brine deposit commences just below the surface and the Study incorporates extraction trenches to a depth of only 5.5m into the lakebed.

SOP production begins with pumping brine from trenches into a series of solar evaporation ponds. It is planned to dry harvest crystallised Potassium salts from the ponds. The process route consists of flotation followed by crystallisation for SOP recovery. The process plant has been designed for a production target of 370,000 tonnes per annum ("tpa") of SOP.

The key operating assumptions which underpin the production target are an annual brine extraction rate of 66.5GL, an average Potassium concentration of 3,603mg/L of brine and an average overall Potassium recovery of 69.3%. Pure SOP contains 44.87% Potassium by weight percentage.

The SOP products will be transported in bulk by road trains to a rail load-out located in Alice Springs and then railed to one of the port options for shipment.

The Study was completed to an overall approximate  $\pm 35\%$  level of accuracy using the operating assumptions set out in **Table 1**.



Table 1. Material Assumptions and Outcomes

| Parameter  | Unit       | Value   |
|--|------------|---------|
| Development Period                                     | months     | 24      |
| Operating Life   | years      | 20      |
| Brine Extracted Over Operational Life                  | GL         | 1,330   |
| Annual Brine Extraction Rate                           | GL         | 66.5    |
| Potassium Concentration                                | mg/L       | 3,603   |
| Potassium Recovery                                     | %          | 69.3    |
| SOP Production Rate                                    | tpa        | 370,000 |
| Average Total Cash Cost                                | US\$/t FOB | 256     |
| Average All-In Sustaining Cash Cost (Exc. Royalties)   | US\$/t FOB | 277     |
| Development Capital Cost (Inc. Contingency of US\$52m) | US\$m      | 259     |

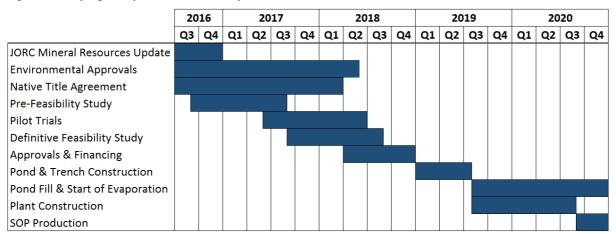
#### Notes:

- 1. Development capital cost includes working capital, EPCM, owner's costs and a 25% contingency applied to all items
- 2. Average total cash cost is on a free-on-board (FOB) basis, including mine gate costs, transportation and ship loading costs
- 3. Average total cash cost is based on drying, compacting and glazing all SOP production
- 4. Average all-in sustaining cash cost does not include royalties as no income projections have been disclosed
- 5. Potassium recovery is the estimated overall recovery rate achieved through the ponds and process plant
- 6. USD/AUD exchange rate of 0.75 has been used to convert Australian dollar amounts to US dollars
- 7. Potassium content can be converted to SOP using a conversion factor of 2.23 (i.e. SOP contains 44.87% Potassium)

Agrimin is in a strong financial position with no debt, its Board has a financing track record and its substantial shareholders include supportive institutional funds. Additionally, the Company has support in writing from one of Australia's largest mid-cap resource financiers. The Company's Mackay SOP Project has strong economic metrics, a clean 100% ownership structure and low geopolitical risk. Therefore, successful delivery of key development milestones, such as planned feasibility studies with appropriate economic metrics, is expected to support ongoing convergence of the Company's market capitalisation with its future funding requirements.

Upon a final investment decision and securing the necessary approvals and financing, the Project's construction and ramp-up is currently estimated to take 24 months to reach full production. The Study contemplates the start of construction in early 2019 with the first SOP production to occur in late 2020, as set out in **Figure 1**.

Figure 1. Scoping Study Indicative Development Timeline





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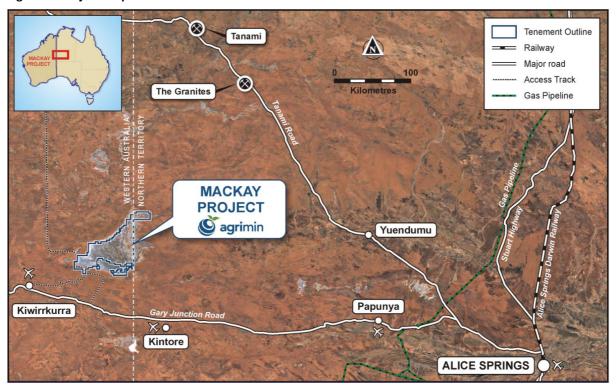
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## **Project Overview**

The Mackay SOP Project covers the majority of Lake Mackay which is located in Western Australia just north of the Tropic of Capricorn. The Project covers an area of 2,560km² and is approximately 540km northwest of Alice Springs, Northern Territory. This is a large and remote area and the closest town is the Kiwirrkurra community approximately 60km southwest of the Project. Agrimin shares a strong working relationship with the local community and Traditional Owners. The Project's tenements are set out in **Table 2**.

Figure 2. Project Map



Lake Mackay is the largest known SOP-bearing salt lake in Australia and is the low point of an enormous groundwater and surface water catchment area that is approximately 87,000km<sup>2</sup>. The lakebed itself covers an area of approximately 3,500km<sup>2</sup> and measures approximately 100km east-west and north-south. The lakebed surface is comparable to the lakebed areas at two major sources of SOP production, being the 4,400km<sup>2</sup> Great Salt Lake in the USA and the 5,500km<sup>2</sup> Lop Nur (Luobupo operation) in China.

The Project currently has Indicated Mineral Resources of 4.3 million tonnes and Inferred Mineral Resources of 18.9 million tonnes of SOP based on specific yield. These Mineral Resources have been defined to an average depth of 24.7m, however the Study incorporates brine extraction from only the top 5.5m of the deposit.

The Project comprises seven Exploration Licences, of which the five key licences covering the Mineral Resources were granted in 2015. The Project is situated on a native title determination area and a Land Access Agreement has been executed with the Tjamu Tjamu (Aboriginal Corporation) RNTBC ("Tjamu Tjamu").



**Table 2. Schedule of Tenement Interests** 

| Tenement Ref. | Project | Licence Holder         | State | Status      | Interest |
|---------------|---------|------------------------|-------|-------------|----------|
|               |         | Exploration Licence    | ces   |             |          |
| E80/4887      | Mackay  | Agrimin Potash Pty Ltd | W.A.  | Granted     | 100%     |
| E80/4888      | Mackay  | Agrimin Potash Pty Ltd | W.A.  | Granted     | 100%     |
| E80/4889      | Mackay  | Agrimin Potash Pty Ltd | W.A.  | Granted     | 100%     |
| E80/4890      | Mackay  | Agrimin Potash Pty Ltd | W.A.  | Granted     | 100%     |
| E80/4893      | Mackay  | Agrimin Potash Pty Ltd | W.A.  | Granted     | 100%     |
| E80/4995      | Mackay  | Agrimin Potash Pty Ltd | W.A.  | Application | 100%     |
| EL30651       | Mackay  | Agrimin Limited        | N.T.  | Application | 100%     |
|               |         | Miscellaneous Lice     | nces  |             |          |
| L80/87        | Mackay  | Agrimin Potash Pty Ltd | W.A.  | Application | 100%     |

## **Study Team**

A team of experienced consultants, as listed in **Table 3**, have worked closely with Agrimin's management on the Study. The Study is based on data which has been collected and generated by Agrimin over the past two years.

The Indicated and Inferred Mineral Resources were estimated by Hydrominex Geoscience Consulting. The hydrogeological model was completed by Groundwater Exploration Services and reviewed by Hydrominex Geoscience Consulting. These estimates and models utilised extensive field and laboratory data collected during 2015, which included 66 drill holes, 17 well completions and two test trenches.

An initial evaporation trial was undertaken by Independent Metallurgical Operations at its laboratory facility in Perth, using a brine sample collected from the Mackay SOP Project during trench pump testing activities. The trial was overseen by Mr Peter Ehren, a highly regarded process engineer with significant brine experience.

Knight Piesold undertook the civil engineering and geotechnical design aspects of the Project. Global Potash Solutions undertook the interpretation of the process testwork data and completion of the mass balance and process flowsheet components. Lycopodium was responsible for leading the Study and estimating the capital and operating costs.

**Table 3. Key Consultants** 

| Area of Responsibility           | Consultant                                 | Location                           |
|----------------------------------|--|------------------------------------|
| Lead Engineer                    | Lycopodium Minerals                        | Perth, Australia                   |
| Mineral Resource Estimation      | Hydrominex Geoscience Consulting           | Sydney, Australia                  |
| Geotechnical Evaluation          | GHD  | Perth, Australia                   |
| Hydrogeological Modelling        | Groundwater Exploration Services           | Sydney, Australia                  |
| Process Water Evaluation         | Hydrominex Geoscience Consulting           | Sydney, Australia                  |
| Trench & Pond Design             | Knight Piesold                             | Perth, Australia                   |
| Mass Balance & Process Flowsheet | Global Potash Solutions                    | Saskatoon, Canada                  |
| Evaporation Testwork             | PEC & Independent Metallurgical Operations | Santiago, Chile & Perth, Australia |
| Environmental                    | Ecologia                                   | Perth, Australia                   |



## Hydrogeology and Mineral Resources

Brine deposits, such as the Mackay SOP Project, are fundamentally different from hard rock deposits.

Brine (hypersaline groundwater) is contained within the void space of salt lake sediments and is a fluid that is subject to movement. It is the ability for groundwater to flow in response to pumping from extraction trenches which is important in exploiting the brine deposit. In addition, the groundwater flow beyond the Project area is important as inflows of brine may naturally recharge the deposit. This is different from hard rock deposits which are progressively mined out.

Mineral Resources of brine are not specifically addressed in reporting codes such as the JORC Code (2012). However, building on experience exploring and reporting on lithium and potash brine deposits in the Americas, procedures for reporting have been proposed by hydrogeologists and regulators that are applicable to Australian potash brine deposits (refer to Houston et. Al., 2011<sup>1</sup> and The Ontario Securities Commission<sup>2</sup>). This practice was applied when estimating the Mineral Resources for the Mackay SOP Project.

The in-situ Mineral Resources are based on the dimensions of the salt lake sediments, the variations in total porosity (void space) and the concentration of Potassium within the brine. However, an understanding of the physical properties of the salt lake sediments and the overall aquifer hydraulics is critical when assessing the Mineral Resources. A hydrogeological model is therefore the key production planning tool which determines the proportion of Mineral Resources which are extracted.

Agrimin's hydrogeological model was developed to simulate the sustainable brine extraction of 2,150 litres per second from trenches across Lake Mackay. This was input into the Scoping Study and supports a steady-state brine extraction of 66.5GL per year, equating to a total of 1,330GL of brine over a 20 year life. The Company's independent hydrogeological consultants estimate that approximately 95% of the brine extracted is from flows within the top 2.5m of the deposit, which are classified as Indicated Mineral Resources. The remaining 5% of the brine extracted are scheduled from Inferred Mineral Resources.

Data from field pumping tests on trenches and wells, and from laboratory testwork on drill core was used to construct the Project's hydrogeological model (numerical groundwater model). The model is preliminary in nature and falls within the Class 2 confidence level as classified under the Australian Government's National Water Commission guidelines. The modelling was undertaken using the Groundwater Vistas software interface in conjunction with the MODFLOW-SURFACT program, an advanced version of the MODFLOW code. The trenches were implemented within the model using the Drain Package to predict extraction over a nominal 20 year period.

## **Development Plan**

The Scoping Study indicates that conventional techniques used at existing SOP operations internationally are appropriate for the Mackay SOP Project. SOP production will commence by pumping brine from extraction trenches into a series of solar evaporation ponds. Crystallised Potassium salts will then be dry harvested and

<sup>&</sup>lt;sup>1</sup> Houston, J; Butcher, A; Ehren, E, Evans, K and Godfrey, L. The Evaluation of Brine Prospects and the Requirement for Modifications to Filing Standards. Economic Geology. V 106 pp 1225-1239.

<sup>&</sup>lt;sup>2</sup> Mineral Brine Projects and National Instrument 43-101. Standards of Disclosure for Mineral Projects. Ontario Securities Commission Staff Notice 43-704, July 22, 2011.



trucked to the process plant for processing into SOP. The SOP products will be transported in bulk by road trains to a rail load-out located in Alice Springs and then railed to a selected port for shipment.

Pond Feed Channel

Evaporation Ponds

Process Plant

Process Plant

Figure 3. Proposed Site Layout

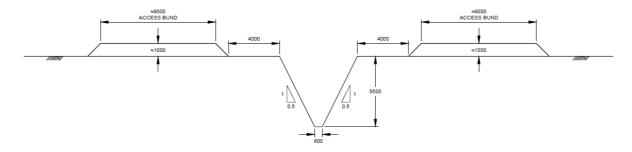
# **Extraction Trenches**

Knight Piésold

The Study has been completed on the basis of steady-state brine extraction of 66.5GL per year which is planned to be extracted via a 250km trench network, as shown in **Figure 3**. The Study assumes 98% availability of the brine feed to account for trench maintenance and operational down time. The Potassium concentration has been estimated at 3,603mg/L of brine. The trench design is based on a depth of only 5.5m as shown in the cross-section in **Figure 4**.

MACKAY POTASH PROJECT LAKE MACKAY SITE LAYOUT

Figure 4. Typical Extraction Trench



Ref: PE801-00321 M16001 Figure 1.1a

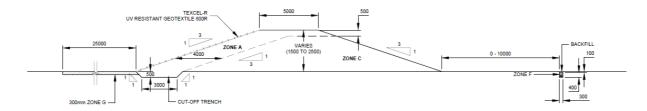


## **Solar Evaporation Ponds**

Evaporation within a series of ponds facilitates fractional crystallisation of the targeted Potassium salts. The pond system is estimated to cover an area of 34km² upon commencement and is anticipated to expand to 59km² over a 20 year life. The proposed pond design for a 20 year life is shown in **Figure 3**.

A geotechnical study for the Project indicates that the natural lakebed surface in the south-western area of Lake Mackay has favourable geotechnical conditions for the application of un-lined evaporation ponds. The study also indicates that the in-situ lakebed materials are expected to be suitable to construct the evaporation pond walls as cut-to-fill structures. A cross-section of a typical external pond wall is shown in **Figure 5.** 

Figure 5. Typical External Pond Wall



Once Potassium salts are crystallised in the ponds, dry harvesting is planned to deliver them to stockpiles as feed material for the process plant. The pond design incorporates retention of waste salts within the ponds which creates the requirement for expansion of the ponds over time.

Further information on the results from the geotechnical testwork can be found in the ASX Release dated 4 May 2016.

#### **Process Plant**

The process plant components are planned to be prefabricated, pre-assembled, standard types of mechanical and electrical equipment, either mobile or fixed.

Stockpiled Potassium salts from the ponds will be coarsely crushed, screened and fed into a flotation process to separate the bulk of the Potassium salts from halite and other minor materials. Concentrated Potassium salts will then be sent to the SOP crystallisers where process water is added to dissolve excess magnesium sulphate to produce SOP. The SOP crystals will be dried, compacted and glazed to meet desired product specifications. The simplified process flow diagram for the production of SOP from the Project's brine is presented in **Figure 6**.

The selected process flowsheet for the Scoping Study incorporates results from an initial 92 day evaporation trial which was completed in April 2016. X-ray diffraction analysis on the harvested salt samples showed that the trial successfully produced the targeted Potassium bearing salts, being Leonite ( $K_2SO_4$ .MgSO<sub>4</sub>.4H<sub>2</sub>O) and Kainite (KCl.MgSO<sub>4</sub>.3H<sub>2</sub>O). These salts are processed for production of SOP ( $K_2SO_4$ ) at existing SOP brine operations around the world.



**Brine Extraction Evaporation Potassium Salts** Stockpile Trenches **Pond System** Flotation Stack **Process** Crystallisation Water Standard SOP **SOP Drying** & Sizing Loadout Granular SOP Loadout

Figure 6. Simplified Process Flow Diagram

#### Site Infrastructure

The Project is accessible all year around via sealed and unsealed roads from Alice Springs. All existing roads to the Project are in good condition and well-maintained. A new site access road and airstrip are planned.

An accommodation camp on site will house all staff for evaporation, plant, administration and transport operations. The Scoping Study indicates that a total of approximately 125 staff, excluding transport contractors, will be required for the operations.

#### Water Supply

The total water requirements for the process plant and other uses is estimated to be 2.3GL per year. Groundwater of the required quality is planned to be sourced from a borefield south of the proposed plant site.

An independent hydrogeological study has successfully identified a large target area within 15km of the proposed plant site with potential to host significant groundwater resources of suitable quality to meet process water needs for the Project.

The study involved a review of historical data from more than 100 drill holes and airborne geophysical surveys which were completed to the south of Lake Mackay between 2009 and 2013. Existing groundwater wells located within the target area currently provide freshwater supply. Well installation, pump testing and water sampling is required to establish the aquifer properties.

The Project includes a Miscellaneous Licence application to allow a search for groundwater. Agrimin will undertake initial groundwater investigations during the current field program.



## **Power Supply**

The overall site installed power load will be nominally 9.5 megawatts ("MW") with an average continuous draw of 5.8MW. The process plant will include two 10.0MW water heaters for the SOP crystallisers. Based primarily on cost and long-term reliability of power supply, the Study contemplates a gas-fired power plant and gas-fired water heaters. It was assumed that gas is delivered via pipeline to the Project from the Amadeus Gas Pipeline under a Build-Own-Operate ("BOO") contract. Agrimin has commenced high-level discussions with potential power providers.

Diesel will be used as fuel for remote diesel-fired generators to power the brine and fresh water pumping stations, which will have an average continuous draw of 2.3MW. Diesel will also be used in mobile equipment.

The Pre-Feasibility Study will provide additional definition to the Project's power supply requirements. In addition, renewable energy options will be further evaluated to investigate any potential economic improvements.

# **Product Transportation**

Transportation of granular and standard SOP products from the Mackay process plant will be in bulk by road trains to a rail load-out located in Alice Springs. The total road transport distance is 650km. This will involve 510km along well-maintained unsealed roads and then 140km along the Stuart Highway and Tanami Road, both of which are sealed.

Once the products are delivered to Alice Springs they will be transported on the Adelaide-to-Darwin transcontinental railway to a selected port. The products are contemplated to either be loaded bulk into wagons and railed 1,410km to Darwin Port or back-loaded into containers and railed 1,550km to Port Adelaide or 1,380km to Port Pirie. These ports have the capability to export both bulk and containerised materials. Agrimin has commenced discussions with contract transport companies and is assessing various options.

The operating cost estimated in the Study is based on an indicative rate provided by a contract transport company and other rates based on current market access to additional infrastructure (interstate rail lines and ports). The Study assumes transporting bulk product in quad road trains with 105 tonne payload to a rail load-out in Alice Springs, then loaded into containers and taken to Port Adelaide for shipment. The capital cost estimated in the Study has an allowance for the construction of product storage facilities at both the rail load-out and the port.

#### **Capital Costs**

A summary of the capital cost estimate provided by Lycopodium is presented in **Table 4**. The development capital cost estimate of US\$259.4 million (A\$345.8 million) includes a 25% contingency on all direct and indirect line items and is at an accuracy of ±35%.

Lycopodium did not include in its capital cost estimate the cost associated with the gas delivery pipeline, as this is expected to be provided under a BOO contract and has been accounted for in the power unit cost applied in the operating cost estimate.



Sustaining capital costs are not included in **Table 4**. These costs have been presented in **Table 5** and are also included within the all-in sustaining cash cost estimate. Off-site infrastructure includes product storage facilities at both the rail load-out and the port.

**Table 4. Estimated Development Capital Costs** 

| Main Area                                   | A\$m               | US\$m |  |
|---|--------------------|-------|--|
| Product Harvesting & Processing             |                    |       |  |
| Trenches, Channels, Ponds & Haul Roads      | 65.2               | 48.9  |  |
| Process Plant                               | 71.5               | 53.6  |  |
| Reagents & Plant Services                   | 11.0               | 8.3   |  |
| Plant Buildings                             | 2.1                | 1.6   |  |
| Harvesting & Mobile Equipment               | 13.0               | 9.8   |  |
| Product Harvesting & Processing Total       | 162.8              | 122.1 |  |
| Infrastructure                              |                    |       |  |
| Road Upgrades                               | 6.5                | 4.9   |  |
| Airstrip                                    | 4.5<br>10.8<br>1.6 | 3.4   |  |
| Power Station                               |                    | 8.1   |  |
| Communications                              |                    | 1.2   |  |
| Mining Maintenance Facilities               | 2.1                | 1.6   |  |
| Product Handling & Storage at Rail Load-out | 8.2                | 6.2   |  |
| Product Storage at Port                     | 9.8                | 7.4   |  |
| Infrastructure Total                        | 43.5               | 32.6  |  |
| Project Indirects                           |                    |       |  |
| Accommodation Camp                          | 6.4                | 4.8   |  |
| Accommodation & Messing                     | 4.6                | 3.5   |  |
| Construction Indirects                      | 15.0               | 11.3  |  |
| Owners Costs                                | 13.6               | 10.2  |  |
| Working Capital                             | 14.0               | 10.5  |  |
| EPCM  | 16.8               | 12.6  |  |
| Project Indirects Total                     | 70.4               | 52.8  |  |
| Contingency                                 | 69.1               | 51.8  |  |
| Total Capital Cost                          | 345.8              | 259.4 |  |

#### Notes:

- 1. USD/AUD exchange rate of 0.75 has been used to convert Australian dollar amounts to US dollars
- 2. Errors are due to rounding

# **Operating Costs**

A summary of the operating cost estimate provided by Lycopodium is presented in **Table 5**. The total cash cost of US\$256/t of SOP (A\$342/t of SOP) is considered to have an accuracy of  $\pm 35\%$ . The operating cost estimate has been determined for an operation with a SOP production target of 370,000tpa, based on a 24 hour per day operation and running 365 days per year.



The total cash cost estimate is based on a production mix of 50% granular and 50% standard product. The SOP transportation cost is quoted on a free-on-board ("FOB") basis and includes all components of haulage, road maintenance, handling and port charges.

The pond design allows for the retention of waste salts within the ponds which creates the requirement for expansion of the ponds over time. This accounts for the majority of sustaining capital costs over the 20 year life.

**Table 5. Estimated Operating Cash Costs** 

| Main Area                           | A\$m/y | US\$m/y | US\$/t SOP |
|-------------------------------------|--------|---------|------------|
| Site Processing                     | 46.7   | 35.0    | 94.7       |
| Direct General & Administration     | 9.2    | 6.9     | 18.6       |
| Transportation & Ship Loading       | 70.6   | 53.0    | 143.1      |
| Average Total Cash Cost             | 126.5  | 94.9    | 256.4      |
| Corporate Overheads                 | 2.0    | 1.5     | 4.1        |
| Average Sustaining Capital Cost     | 8.3    | 6.2     | 16.8       |
| Average All-In Sustaining Cash Cost | 136.6  | 102.5   | 277.3      |

#### Notes:

- 1. A USD/AUD exchange rate of 0.75 has been used to convert Australian dollar amounts to US dollars
- 2. Average total cash cost is on a FOB basis, including mine gate costs, transportation and ship loading costs
- 3. Average total cash cost is based on drying, compacting and glazing all SOP production
- 4. Average all-in sustaining cash cost does not include royalties as no income projections have been disclosed

## **Financial Analysis**

The Scoping Study included financial modelling based on the assumptions detailed above. This involved the assessment of post-tax cash flows, net present value and internal rate of return for the Board's internal decision making purposes.

At the date of the Scoping Study, Agrimin does not have any forward sales contracts or offtake agreements in place for the sale of its SOP production target. Accordingly, the Company has concluded not to disclose forecasted future sales prices and corresponding income projections.

#### Social and Environmental

The Project is located approximately 60km from the nearest community and there is little current use of the land in the Project area. The Project is located within the Kiwirrkurra native title determination area and is managed by Tjamu Tjamu (Aboriginal Corporation) RNTBC. Agrimin and Tjamu Tjamu executed a Land Access Agreement in 2015 and formal negotiations for a Mining Agreement are anticipated to commence upon delivery of this Scoping Study.

Agrimin's discussions with local members of the Kiwirrkurra community indicate strong support for a SOP operation at the Project and there is a high degree of interest in the job opportunities the Project would create. If the Project proceeds forward it has the potential to be one of the largest employers in the area and to provide substantial long-term benefits. Agrimin values its relationship with the Kiwirrkurra people and is committed to maintaining an enduring partnership to ensure the Project can bring a range of benefits to the local community.



Agrimin has commenced baseline environmental surveys in order to obtain data across the Project area and immediate surroundings. Several environmental studies will be required to support the environmental impact assessment and to facilitate the approvals process.

## **Project Implementation**

Upon a final investment decision and securing financing, the Project's construction and ramp-up is estimated to take 24 months to reach full production.

Seven months have been allowed to develop the extraction trenches, pond feed channel and evaporation ponds to a stage adequate for evaporation and saturation of brine to commence. Following the construction of trenches and the initial two evaporation ponds, pond construction plus fill should be a similar time frame to plant construction of 13 months.

Initial harvesting of Potassium salts is estimated to begin 20 months after construction activities commence. This is desired to allow commissioning and plant ramp-up to full capacity over four months.

## **Project Funding**

Agrimin has only recently completed a Scoping Study for the Mackay SOP Project and is not currently funded for the estimated development capital cost of A\$345.8 million.

Over the past 12 months, the Company's market capitalisation has grown from A\$17.1 million to A\$67.8 million, reflecting the achievement of key milestones in relation to its only asset, the Mackay SOP Project. A key dimension of the Company's strategy is the staged development and funding of the Mackay SOP Project. Successful delivery of key development milestones, such as Pre-Feasibility and Definitive Feasibility Studies with appropriate economic metrics, are expected to support ongoing convergence of the Company's market capitalisation with its future funding requirements.

Agrimin is in a strong position with cash of A\$3.2 million and no debt. The Company has a history of successful capital raisings and its substantial shareholders comprise high-quality institutional investors, including Eye Investment Fund, Paragon Funds Management and Walloon Securities, all of which participated in the Company's recent share placement.

Agrimin has received support in writing from Euroz Securities Ltd ("Euroz"), which was Lead Manager for its most recent capital raising. Euroz confirms that it is reasonable for the Company to anticipate that equity financing will be available to further develop the Mackay SOP Project. Euroz has raised in excess of A\$9 billion in new equity over 14 years, a substantial percentage of which has been applied to financing the development of resources projects.

The Project's positive technical and economic fundamentals as delivered in the Scoping Study, together with favourable SOP prices, provide a platform for Agrimin to advance discussions with potential strategic partners and traditional financiers. The SOP price is currently trading at approximately US\$540/t³, which compares favourably to the Project's estimated all-in sustaining cash cost.

<sup>&</sup>lt;sup>3</sup> NW Europe FOB price sourced from Integer Potash Seminar Presentation, May 2016.



The Company's Board has a financing track record and experience in developing projects. Mr Brad Sampson, Chairman of Agrimin, was previously the Managing Director of Discovery Metals Limited, where he led that company's project financing of approximately US\$320 million and its substantial growth from a small-cap company into a S&P/ASX 200 copper mining company.

Given the above, including the Project's economic metrics and its low-risk location in Western Australia, the Company has concluded it has a reasonable basis to expect that the Project's development capital cost could be funded following the completion of a positive Definitive Feasibility Study and obtaining the necessary project approvals.

## **Conclusions and Next Steps**

The Scoping Study has delivered positive outcomes and the Board of Agrimin has approved the progression to a Pre-Feasibility Study.

The Company has already commenced an infill drilling program aimed at upgrading the Indicated and Inferred Mineral Resources included in the Study's production plan to the Measured and Indicated categories. The current field program is also designed to provide key datasets for project permitting and the Pre-Feasibility Study.

Agrimin has submitted salt samples generated from the evaporation trial to the Saskatchewan Research Council for the production of SOP. The primary objective of this testwork program is to demonstrate that the proposed process of crushing, flotation and decomposition of Project's salts can be converted to SOP product. The Company is also currently designing further evaporation trials to test the variability of several key parameters, and subsequent flotation and crystallisation testwork.

The Scoping Study has allowed the Project's scope and footprint to now be clearly defined. The Company is focused on the delivery of key milestones that it believes are currently on the critical path for the Project's development. These include environmental studies, Mining Agreement negotiations, long-term pumping tests and pilot evaporation trials. The Pre-Feasibility Study will also provide additional definition to the Project's infrastructure requirements such as product transportation, power and water supply.

#### **ENDS**

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## Appendix 1. Competent Persons Statements

The Scoping Study was compiled by independent engineering firm, Lycopodium Minerals Pty Ltd. Lycopodium has consented to the inclusion in this ASX release of information extracted from the Scoping Study in the form and context in which it appears. Lycopodium was responsible for oversight of the Scoping Study and reviewed or compiled the capital and operating cost estimates. Mr David Gordon, a fellow of AusIMM and an employee of Lycopodium, consents to the inclusion of such information in this statement in the form and context in which it appears.

The information in this ASX Release that relates to interpretation of process testwork data and selection of the process flowsheet in the Scoping Study was undertaken by Mr Don Larmour who is a full-time employee of Global Potash Solutions Inc. Mr Larmour is a chemical engineer with over 30 years experience working in potash processing and is an independent consultant to Agrimin. Mr Larmour consents to the inclusion of such information in this statement in the form and context in which it appears.

The information in this ASX Release that relates to groundwater modelling in the Scoping Study was undertaken by Mr Andrew Fulton who is a full-time employee of Groundwater Exploration Services Pty Ltd. Mr Fulton is a hydrogeologist with over 15 years experience and is an independent consultant to Agrimin. Mr Fulton consents to the inclusion of such information in this statement in the form and context in which it appears.

The information in this ASX Release that relates to exploration results and Mineral Resources Estimates is extracted from the ASX Release entitled Mackay Project Resource Update and Path to Production released on 15 December 2015 ("Original Release") and is available on www.asx.com.au and Company's website on www.agrimin.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the Original Release and, in the case of the Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the Original Release continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the Original Release.

## Appendix 2. Forward-Looking Statements

The results of the Scoping Study are based on forward-looking information that are subject to a number of known and unknown risks, uncertainties, and other factors that may cause actual results to differ materially from those presented here. Forward-looking information includes exchange rates; the proposed production plan; projected brine concentrations and recovery rates; uncertainties and risks regarding the estimated capital and operating costs; uncertainties and risks regarding the development timeline, including the need to obtain the necessary approvals.

This ASX Release has been prepared in compliance with the current JORC Code (2012) and the ASX Listing Rules. All material assumptions on which the Study's production target and forecast financial information is based have been included in this ASX Release and disclosed in the JORC Code (2012) Table 1 which was included in the Company's ASX Release on 15 December 2015.

The Company notes that Inferred Mineral Resources have a lower level of confidence than Indicated Mineral Resources and that the JORC Code (2012) advises that to be Inferred Mineral Resources it is reasonable to expect that the majority of the Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration. Based on advice from relevant Competent Persons, the Company is confident that the



Inferred Mineral Resources that account for 5% of the brine to be extracted in the Study's proposed production plan will be upgraded to Indicated Mineral Resources with further exploration work.

The Board of Agrimin believes it has a reasonable basis for making the forward-looking statements in this ASX Release, including with respect to the production target and forecast financial information. The following information is specifically provided in support of the Board's belief:

- (a) The Scoping Study was led by Lycopodium, an independent and well regarded engineering firm. Lycopodium has compiled the capital and operating cost estimates and provided sign-off for the Scoping Study cost estimates. The Study is sufficient to be considered Scoping level with an accuracy of ±35%.
- (b) Agrimin's key technical team of Mr Murray Brooker, consulting hydrogeologist, and Mr Peter Ehren, consulting process engineer, have been involved with the Mackay SOP Project for the past two years. They have recently been principally involved with the construction and commissioning of Olaroz brine operation. Both individuals have significant international experience in mineral exploration, resource definition, project evaluation and development, particularly for brine projects.
- (c) This deposit characteristic, being a fluid, is fundamentally different from a hard rock deposit. Data to date indicates the deposit has a high level of homogeneity. This provides Agrimin and its Competent Persons with a high level of confidence it understands the characteristics of the deposit that is projected to be exploited over the Project's life.
- (d) Agrimin has already commenced an infill drilling program aimed at converting Indicated and Inferred Mineral Resources within the Study's proposed production plan to the Measured and Indicated categories. Based on advice from its Competent Persons, the Company has a high degree of confidence that the current Indicated and Inferred Mineral Resources for the Mackay SOP Project will be converted to the Measured and Indicated Mineral categories with further exploration work.
- (e) The numerical groundwater modelling was undertaken by Groundwater Exploration Services, an independent hydrogeological consultancy, and has been reviewed by Hydrominex Geoscience Consulting. Both consultants were on-site to supervise the 2015 exploration and pump testing activities.
- (f) The process flowsheet and mass balance were undertaken by Global Potash Solutions, an independent consulting firm which has 30 years of potash processing expertise. Lycopodium's internal process engineers reviewed the selected process flowsheet for incorporation into the Scoping Study.
- (g) The geotechnical testwork was overseen by GHD, an independent engineering firm. GHD completed a geotechnical study based on the testwork results. The trench and pond design was undertaken by Knight Piesold, an independent engineering firm which has experience on similar projects.
- (h) Discussions with third party infrastructure providers for gas power and product transportation have indicated that the assumptions in the Scoping Study are reasonable for the current stage of the Project.
- (i) The Mackay SOP Project is located on five granted Exploration Licences and has a Native Title Land Access Agreement in place. All the Exploration Licences are in good standing and all statutory requirements are up to date.



- (j) The Company has engaged a specialist environmental consulting firm in Perth, Ecologia, to undertake activities in relation to an environmental impact assessment and advise on all aspects of the environmental approvals process.
- (k) The Mackay SOP Project has excellent support from the Traditional Owners of the land and Agrimin has established a very strong working relationship with their representative body, being Tjamu Tjamu (Aboriginal Corporation) RNTBC.
- (I) Agrimin has 100% ownership of the Mackay SOP Project, with no private royalties, encumbrances or other claims. This very simple and clean ownership structure enhances opportunities and provides maximum flexibility for potential funding structures for the Project's development.
- (m) The Company's Board has a financing track record and experience in developing projects. Mr Brad Sampson, Chairman of Agrimin, was previously the Managing Director of Discovery Metals Limited, where he led that company's project financing of approximately US\$320 million and its substantial growth from a small-cap company into a S&P/ASX 200 copper mining company.
- (n) Over the past 12 months, the Company's market capitalisation has grown from A\$17.1 million to A\$67.8 million which reflects the achievement of key milestones in relation to its only asset, the Mackay SOP Project. Successful delivery of key development milestones is expected to facilitate ongoing convergence of the Company's market capitalisation with its future funding requirements. The Study has provided positive economic metrics and the planned timetable of activities to deliver key development milestones is conducive to the staged funding of the Company.
- (o) The Company is in a strong position with cash of A\$3.2 million and no debt. Agrimin has a history of successful capital raisings. The Company's substantial shareholders comprise high-quality institutional investors, including Eye Investment Fund, Paragon Funds Management and Walloon Securities, all of which participated in the most recent share placement announced on 2 June 2016.
- (p) Agrimin's recent equity capital raising was managed by Euroz Securities Ltd, one of Australia's largest mid-cap resource finance businesses. Euroz confirmed in writing that the Project is of a high standard and it is reasonable to believe that equity financing will be available to further develop the Project.
- (q) The Mackay SOP Project's positive technical and economic fundamentals, as delivered by the Scoping Study, provide a platform for Agrimin to continue to advance discussions with potential offtakers, strategic partners and traditional financiers to fund the Project's development.

For the reasons outlined above in (I) to (q), and for the reasons set out under the heading Project Funding above, the Board believes that there is a reasonable basis to expect that future funding will be available upon the delivery of a positive Definitive Feasibility Study and obtaining the necessary project approvals.

# Appendix 3. Key Project Risks

Key risks identified during the Study include, but are not limited to:

- Adverse movements in global SOP prices;
- Adverse movements in the USD/AUD exchange rate;

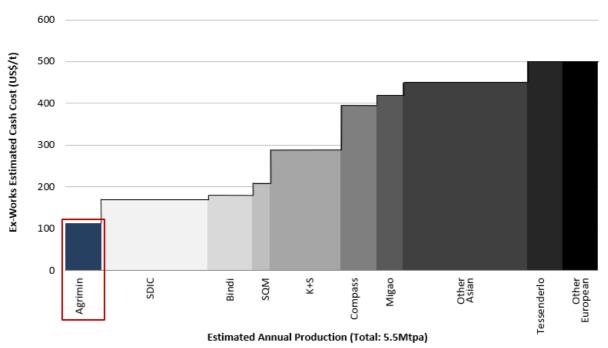


- Material increases to capital and/or operating cost estimates;
- Conversion of Inferred Mineral Resources to Measured and Indicated Mineral Resources, and eventual conversion to Ore Reserves;
- Results of a future Pre-Feasibility Study and Definitive Feasibility Study;
- Access to government and third party owned transport infrastructure;
- Access to adequate power supply and groundwater supply;
- Ability to secure project funding;
- Ability to attract and retain key management personnel and consultants;
- Obtaining the various Native Title, environmental and regulatory approvals;
- Changes to government royalty and taxation rates; and
- General economic conditions.

## Appendix 4. Industry Comparison Charts

The SOP industry cost curve on a mine gate basis is shown in **Figure 7**. This graph has been compiled from information sourced from company reports and research undertaken by Agrimin. Reliable transportation cost data and the breakdown of domestic sales and export sales are not available for each producer, which is why mine gate cost comparisons only are shown here.

Figure 7. SOP Industry Mine Gate Cost Curve





The capital intensity (US\$ capital spend per tonne of annual production capacity) for other selected large-scale undeveloped SOP projects globally is shown in **Figure 8**. This graph has been compiled from capital cost information sourced from company scoping and feasibility studies.

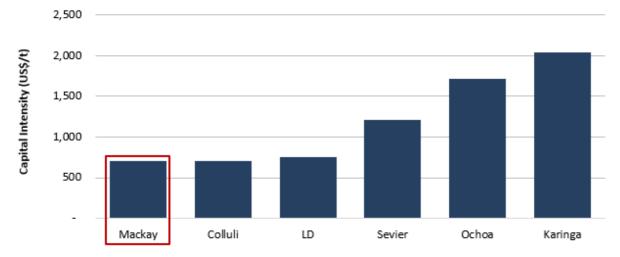


Figure 8. Capital Intensity for Undeveloped SOP Projects

Notes:

- 1. Included 25% contingency to the capital cost of A\$320m reported in the LD Scoping Study, April 2015
- 2. A USD/AUD exchange rate of 0.75 has been used to convert Australian dollar amounts to US dollars

The current installed production capacity for the top 10 global producers of SOP is shown in **Figure 9**, along with the production target determined in Agrimin's Scoping Study. This graph has been compiled from information sourced from company reports and research undertaken by Agrimin.

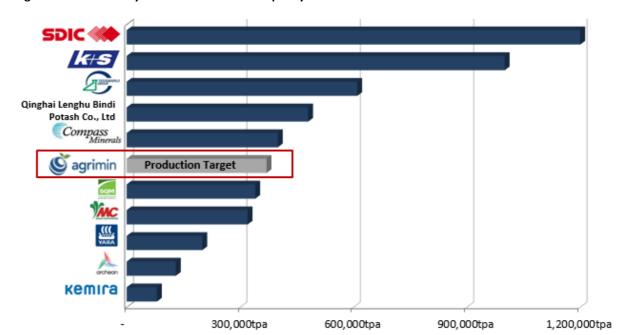


Figure 9. SOP Industry Installed Production Capacity