

12<sup>th</sup> December 2017

## RC DRILLING TO COMMENCE ON MEDUSA LITHIUM PROJECT

### *Highlights*

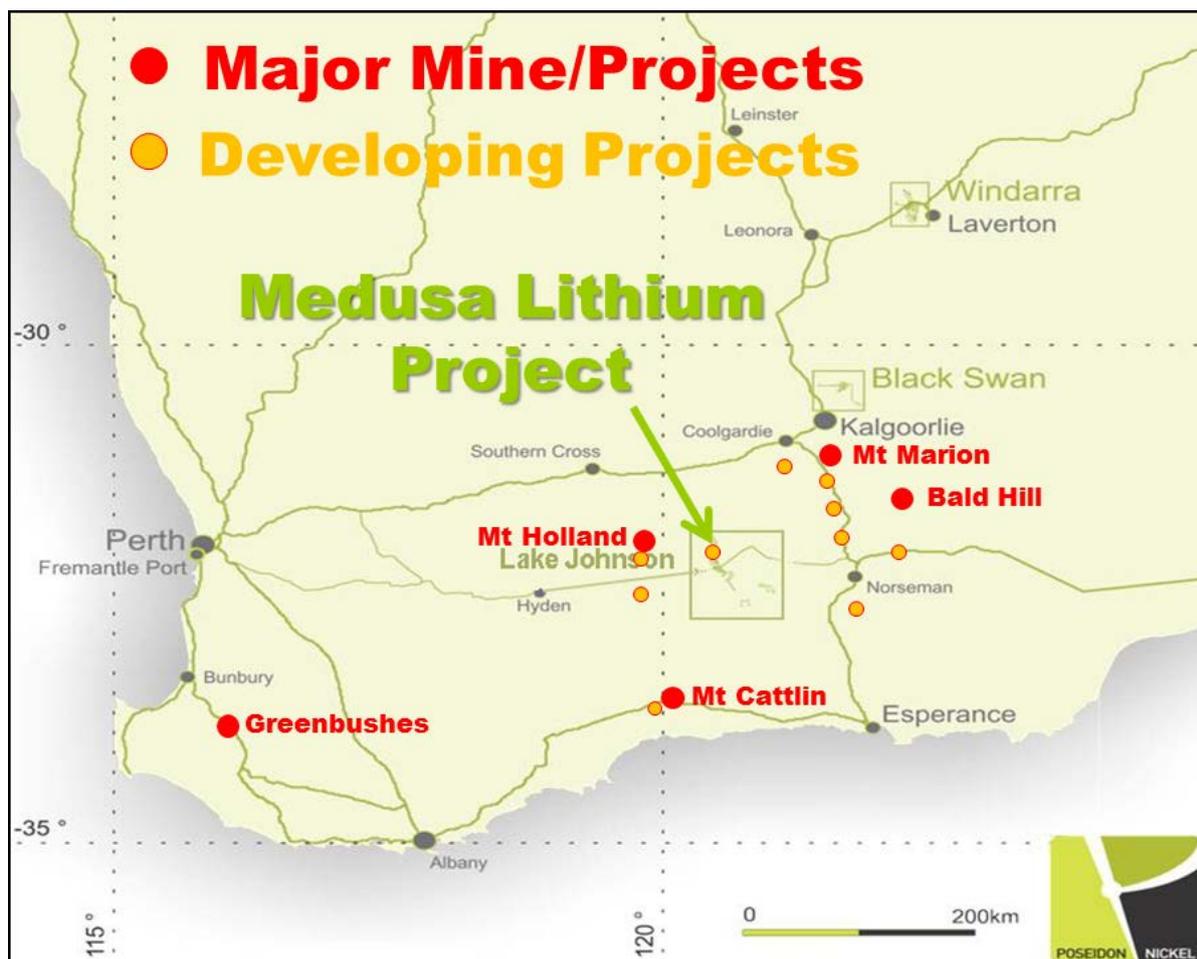
- **RC drilling contract awarded for 4,000m, drill crew to mobilise in January 2018**
- **Primary lithium pegmatite drill targets finalised**
- **Regulatory approvals for line clearing and drilling secured**
- **Rockchip sampling of outcropping pegmatites returned Li<sub>2</sub>O values ranging 2.80-3.85% Li<sub>2</sub>O**
- **Aerial magnetic and radiometric surveys applied to improve the exploration targets selected**
- **Soil samples in prospective “hot spots” align with lithium pegmatite mapping and radiometric survey**
- **Extensive flora survey completed to protect sensitive areas and support lithium exploration at Lake Johnston**
- **Preliminary engineering for co-processing lithium hosted pegmatites and nickel sulphide ores commenced**
- **Progressing patent applications for the co-processing of lithium & nickel ores**

Poseidon Nickel Limited (ASX:POS or the Company) is pleased to update the market on the planned commencement of RC drilling at Lake Johnston’s Medusa Lithium Project and its latest developments.

Poseidon Nickel Chief Operating Officer, Mr Michael Rodriguez said, “The Lake Johnston Medusa Lithium Project lies in a highly prospective area with several ASX listed companies exploring the belt for lithium. Awarding the RC drilling contract for 4,000m of exploratory drill holes will progress lithium exploration at Lake Johnston. This is a key milestone for the Company following significant works completed to date, including the identification and mapping of outcropping pegmatites, initial rock chip sampling, surface geochemistry, definition of high value lithium exploration targets, aerial radiometric and secured regulatory approvals to prepare drill lines for the exploration drilling program”.

Poseidon maintains a significant portfolio of tenements in the Lake Johnston region which are highly prospective for lithium hosted pegmatites. The tenements are adjacent to tenure held by other companies exploring for lithium in the area. Recent activity in the rapidly emerging Lake Johnston lithium province (Figure 1) confirms the prospective nature for the development of a spodumene bearing corridor similar to Kidman Resources’ Mt Holland

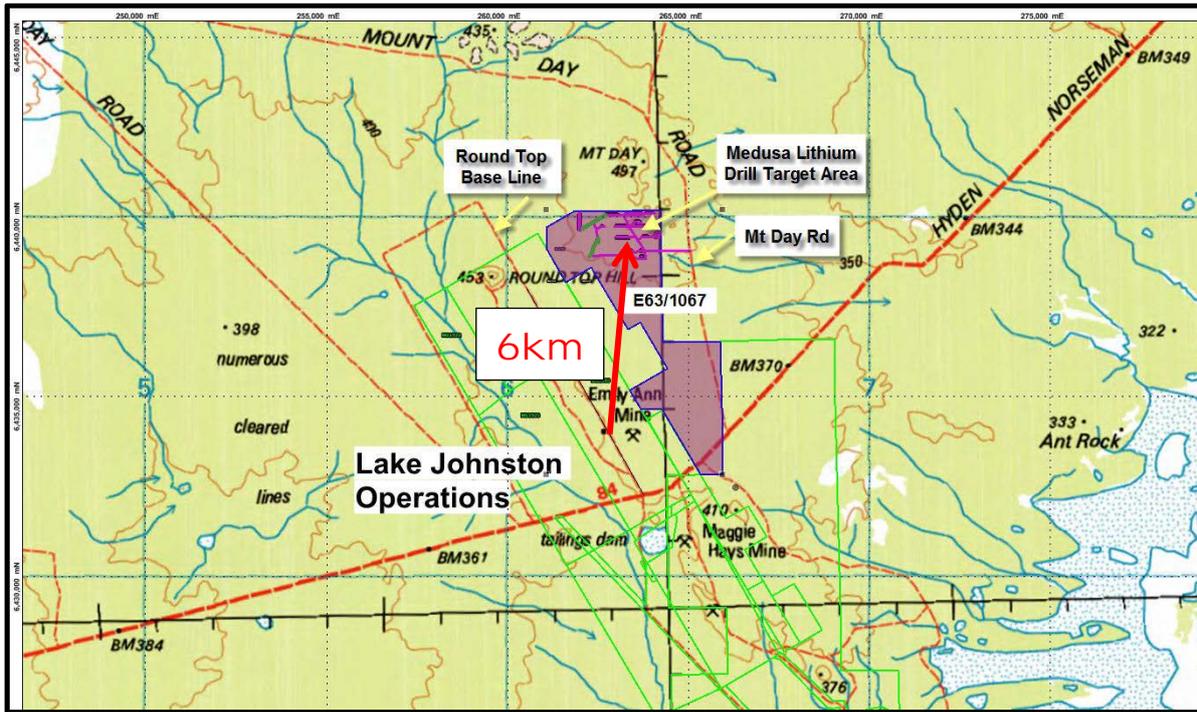
spodumene discovery (ASX:KDR “Mt Holland emerges as significant Lithium discovery,” 15<sup>th</sup> July 2016) which is located 70km to the west of Lake Johnston.



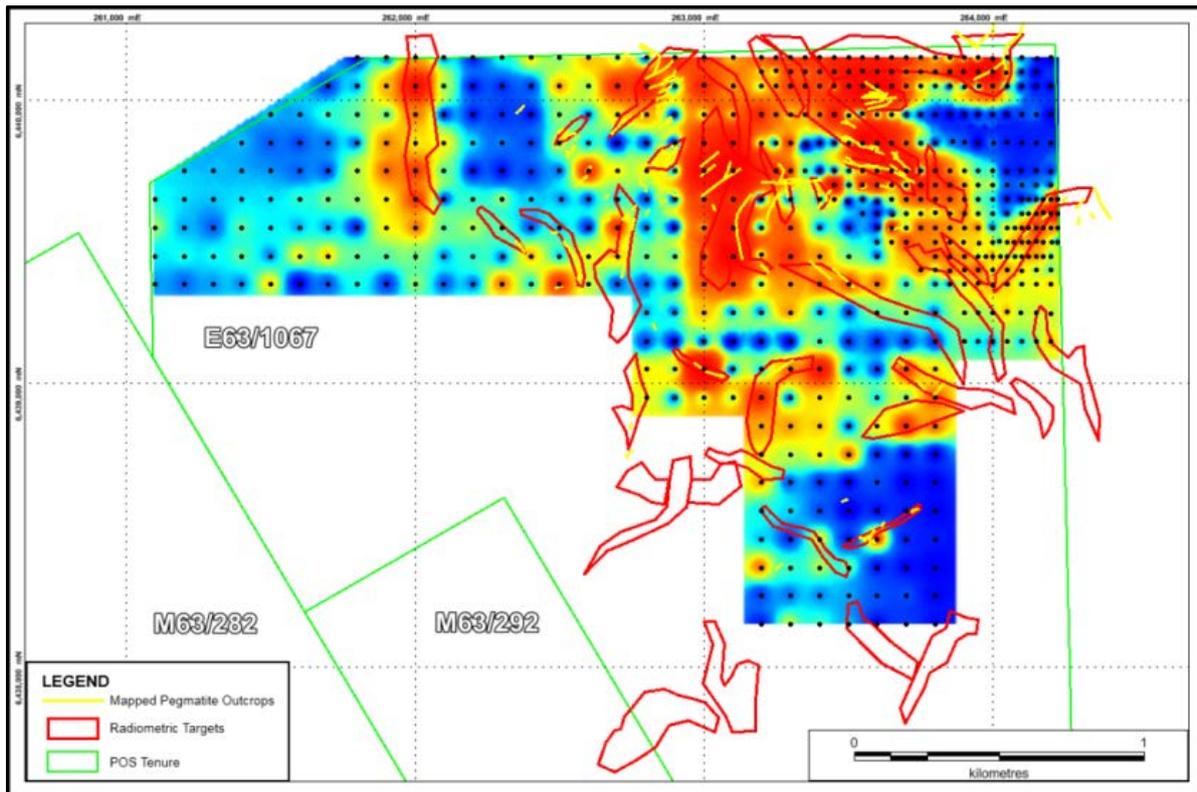
**Figure 1:** Location of Lake Johnston Operation and Medusa Lithium Project which is surrounded by numerous advancing lithium projects.

The Medusa Lithium Project is located 190km south-west of Kalgoorlie (Figure 1) and 6km north of the Company's 100% owned Lake Johnston process plant and infrastructure (Figure 2). Previous rock chip sampling of outcropping pegmatites returned results of up to 3.85%  $\text{Li}_2\text{O}$  and evidence of  $\text{Ta}_2\text{O}_5$ . The Company has progressed aerial and surface exploration for lithium in the northern portion of the tenement package (ASX: High Grade Lithium Bearing Pegmatites Located at Lake Johnston, 23/5/16) and is now drill ready.

In October 2016, Poseidon announced it had completed soil sampling and surface geochemistry analysis over the project area (ASX: Lithium Targets Generated at Lake Johnston). Figure 3 demonstrates the results of geochemical modelling that applies innovative science to establish the prospectivity or “fertility” of specific areas, supporting that Lake Johnston regional area is fertile for lithium hosted pegmatites. This unique geological modelling process returned multiple calculated Li\_Index anomalies of greater than 200ppm and up to 650ppm Li\_Index from soil sample over the area (ASX: Lithium Targets Generated at Lake Johnston, 12/10/16).

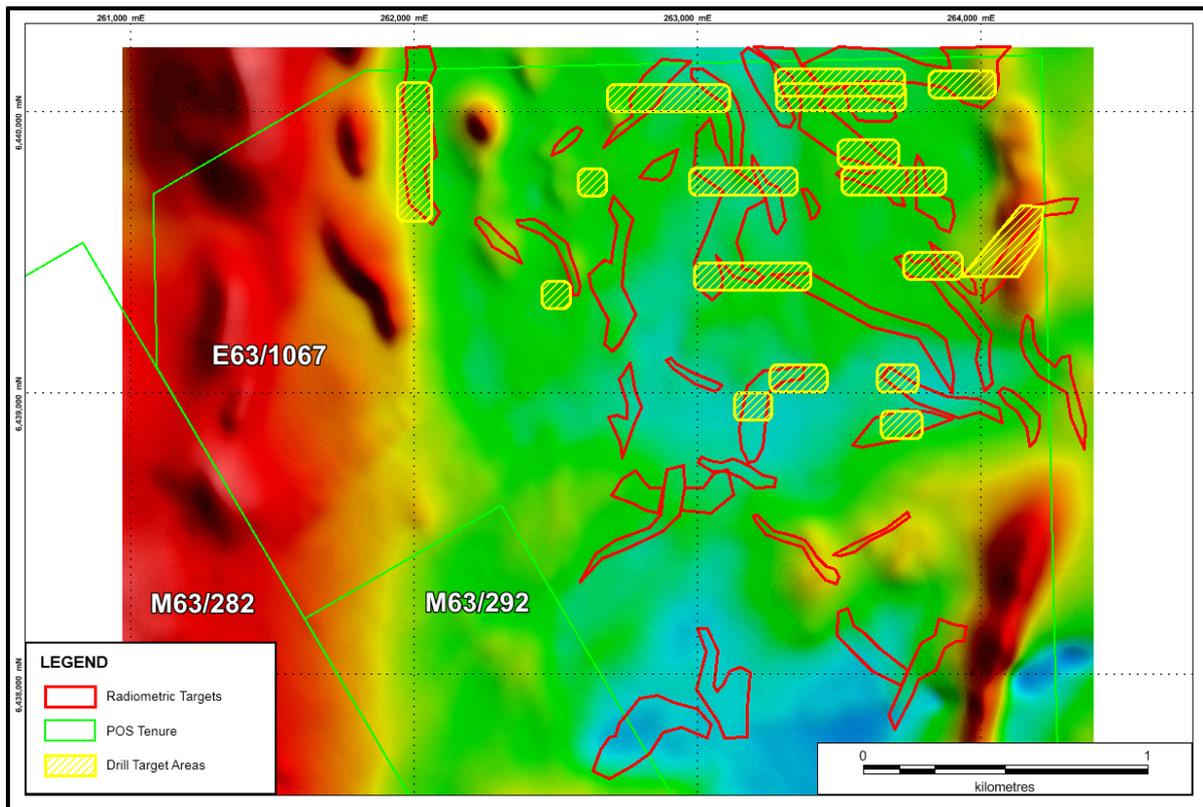


**Figure 2:** Location of Lake Johnston Operation and the Medusa Lithium drill target area.



**Figure 3:** Soil geochemistry sample locations within E63/1067 coloured by Lithium\_Index and showing prospective pegmatite target zones that have been targeted during field investigation and are ready to be drill tested.

Subsequently the Company announced (ASX: Airborne Geophysical Survey and Drill Targeting Completed at Lake Johnston, 27 January 2017), soil sampling, rock chip sampling, aerial magnetic and radiometric surveys have all been completed over the area resulting in the definition of numerous highly prospective lithium exploration targets (Figure 4). Subsequent field checking/mapping of the defined pegmatite outcrop trends supports the position and trends of many of the defined radiometric/soil anomaly targets. The radiometric survey also highlights potential new target zones in the south of the area which had previously not been identified.



**Figure 4:** Drill targets (yellow hatched areas) overlie TMI image and the coincident defined radiometric-soil anomalies (red).

Line clearing, mapping and drill target refinement has been completed in preparation for commencement of the drilling program in mid-January 2018, which will comprise of ~4,000m of RC drilling (Figure 5 below). Core Drilling Service has been contracted utilising a Reverse Circulation (RC) drill rig mounted on a rubber tracked X300-Morrooka base which can traverse the hilling/rocky terrain with minimum environmental impact (Figure 6).



**Figure 5:** Initial line clearing for mapping access and drill targeting has been completed. Minor widening around drill targets is set to commence.



**Figure 6:** Core Drilling Services RC drill rig is mounted on a rubber tracked X300-Morrooka base which can traverse the hilling/rocky terrain with minimum environmental impact.

Lake Johnston is a 1.5 million tonne per annum process plant, including associated existing infrastructure that can process lithium hosted pegmatite ores to produce a spodumene concentrate. Our existing plant, substantial infrastructure and technical team give Poseidon an important advantage in potential speed to market. The Company plans to utilise this advantage to establish Lake Johnston as a central lithium processing hub.

Engineering and testwork confirmed the Lake Johnston concentrator could be operated to process lithium ores to produce a 6% spodumene concentrate. The Company has successfully produced a >99% pure lithium carbonate product from concentrate recovered by flotation of lithium hosted pegmatite rocks obtained from its tenements as previously advised on the 9<sup>th</sup> June 2016. The overall recovery was greater than 98% lithium from the lithium concentrate.

A research and development programme was progressed based on bulk metallurgical samples recovered from pegmatite trenching. The testwork included heavy media separation research using spirals, flotation optimisation, thickening and filtration testwork as well as tantalite recovery. Following the initial laboratory testwork, Poseidon plans to move to a plant trial to investigate the production of a spodumene concentrate at the Lake Johnston concentrator (Figure 7).

Preliminary discussions with third parties for the lithium concentrate offtake have progressed to explore the likely terms offered. The forecast quality and deleterious elements will be investigated from testwork completed from ores recovered from trenching at Lake Johnston. The volume to be delivered to market will depend on the successful resource definition at Lake Johnston.

Poseidon plans to progress its own patent applications for the co-processing of pegmatite and nickel ores at Lake Johnston and continue to investigate downstream processing of a spodumene and other concentrates.



**Figure 7: Lake Johnston 1.5MTPA Concentrator.**

**Notes**

The information in this report that relates to Exploration Results is based on information compiled and reviewed by Mr N Hutchison, General Manager of Geology who is a full-time employee at Poseidon Nickel, and is a Member of The Australian Institute of Geoscientists. Mr Hutchison has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' (the JORC Code 2012). Mr Hutchison has consented to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The Australian Securities Exchange has not reviewed and does not accept responsibility for the accuracy or adequacy of this release.

**CORPORATE DIRECTORY**

**Director / Senior Management**

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David Singleton	Non-Executive Director
Geoff Brayshaw	Non-Executive Director
Robert Dennis	Non-Executive Director
Eryn Kestel	Company Secretary

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**Home Exchange**

The Company's shares are listed on the Australian Securities Exchange and the home exchange is Perth.  
 ASX code : POS