

9<sup>th</sup> June 2016

## **Progress on High Grade Lithium Pegmatites at Lake Johnston**

### ***Highlights***

- **Preliminary flotation tests recovered over 90% lithium and 300ppm Tantalum Oxide**
- **Test results indicate that a concentrate can be produced from the existing Lake Johnston plant**
- **Soil sampling planned at Lake Johnston to map additional lithium hosted pegmatites**
- **Permits submitted to support trenching and RC drilling**
- **Drone technology deployed to locate additional pegmatite outcrops**
- **Retesting drill core from Maggie Hays for lithium in zones intersected by existing decline for mine lithium potential**
- **Recommissioning laboratory at Lake Johnston to support R&D lithium programme**
- **Discussions held with third party lithium technology developers**

Following the recent discovery of high grade lithium pegmatites at Lake Johnston, Poseidon Nickel Limited (ASX:POS or the Company) is pleased to update the market on progress.

The Company remains focussed on developing its nickel assets however the Lake Johnston concentrator provides an excellent opportunity to take advantage of its lithium hosted pegmatite discovery. Transitioning from exploration to nickel and lithium producer leverages the existing approvals, processing plant, tailings storage facility and associated infrastructure at Lake Johnston considerably, reducing the timeline to production compared to other potential lithium producers. Furthermore, it provides diversification during the nickel market down turn. As an early entrant into the lithium market, Poseidon will be well poised to secure its position as a producer, underpinned by strong short to medium term market fundamentals.

Consequently the following scope of work will be progressed immediately:

- Optimisation flotation testwork
- Soil sampling and geochemistry analysis
- Shallow trenching and orientation
- Digitise Maggie Hays underground mine face maps to aid lithium understanding
- Maggie Hays core recovery, sampling and assaying for Li
- Recommission the laboratory to support R&D testwork programme
- RC drilling campaign based on successful outcomes from shallow trenching of pegmatite outcrops and Maggie Hays
- Engineering to support parallel processing of both nickel and lithium at Lake Johnston's existing processing plant
- Downstream R&D testwork and engineering to select optimum process flowsheet for maximum value add

Surface pegmatite samples previously collected from Lake Johnston were composited and issued to two NATA accredited commercial laboratories with appropriate experience in the flotation of lithium hosted pegmatites to complete preliminary sighter testwork. The key objective was to determine if a concentrate containing lithium could be recovered from the composite sample. Sub-samples were also taken for preliminary XRD examination. This will allow a quantitative method to establish the predominant lithium minerals in the surface samples recovered from Lake Johnston. Visually there are indications of micas including lepidolite, zinnwaldite, petalite and some spodumene.

Poseidon is pleased to announce preliminary sighter flotation tests completed were positive with over 90% lithium recovered to produce a 3.9%  $\text{Li}_2\text{O}$  and 300ppm  $\text{Ta}_2\text{O}_5$  concentrate (see Figures 1 & 2 below). The testwork is preliminary only and optimisation is required to reduce impurities further however, the results to date provide confidence that the existing Lake Johnston concentrator can be utilised to produce a lithium concentrate.

The laboratory at Lake Johnston will be recommissioned to support an ongoing R&D testwork programme. The laboratory had previously been upgraded in 2014 to support on site nickel analysis expediting exploration work and is suitable for lithium analysis.

Downstream hydrometallurgical testwork will also be completed on the lithium concentrate recovered by flotation to produce a pure lithium carbonate product which is a readily saleable product. Poseidon retains extensive hydrometallurgical experience within the group and will exploit this advantage to review downstream processing options decoupling reliance on off-shore refiners and extracting maximum value from lithium product.



Figure 1: Pegmatite flotation test



Figure 2: Initial head sample and concentrate recovered via flotation

Poseidon has applied to the Department of Mines and Petroleum for works permits to support regional exploration for lithium hosted pegmatites at Lake Johnston. The Company plans to complete a soil geochemistry sampling programme to orientate the prospective areas prior to surface trenching. This sampling programme will be expanded to assist in identifying new target zones beyond the areas discovered to date.

Multi-element analysis on samples is progressing to determine bi-product and trace element geochemistry that will be applied to fingerprint Lake Johnston pegmatites. This information will underpin the planned soil sampling and trenching programmes detailed below prior to drill testing.

The Company has used a remote controlled drone at Lake Johnston to assist in identifying pegmatite zones over a large area. Further drone flights over the exploration licences are planned to target, identify and follow surface outcropping pegmatites. High priority targets will be determined based on drone images such as those shown below (Figures 3 & 4).

Following the mapping of the lithium hosted pegmatites using drone images and trenching, Poseidon intends to undertake an RC drilling programme to better define the thickness, grade and length of the pegmatite zones.

Digitising of Maggie Hays underground face maps will be completed to identify the pegmatite zones at Maggie Hays. Core recovery, sampling and assaying for lithium will be progressed for Maggie Hays.



**Figure 3: Trial drone aerial image of outcropping pegmatites at Lake Johnston**



**Figure 4: Low level drone image showing close up of outcropping pegmatites**

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.*

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