

7 September 2018

ASX ANNOUNCEMENT

SILEACH® PILOT PLANT TRIAL PRODUCES OUTSTANDING RESULTS

HIGHLIGHTS

- **Stage 1 of SiLeach® pilot plant trial at ANSTO completed**
- **Stage 2 to commence next week**
- **Lithium Australia will convert mine waste to lithium-ion batteries – a world first**

Lithium Australia NL (ASX: LIT) [advised on 25 July 2018](#) that it was commencing the first of a two-stage SiLeach® pilot plant trial at the ANSTO's minerals piloting facility in NSW. The concentrate used as feed for the trial was prepared in Perth, under the supervision of Independent Metallurgical Operations Pty Ltd and consisted of lepidolite recovered from mine waste. Stage 1, now complete, produced a lithium pregnant liquor from lepidolite feed. Stage 2 will process the liquor to produce lithium chemicals.

During Stage 1 of that trial, which ran from 6-16 August 2018, the plant operated in continuous mode for five days, processing lepidolite concentrate at approximately **4 kg** per hour through leach, pre-neutralisation and impurity removal stages.

Preliminary data indicate that lithium extraction in the leach circuit peaked at 97.5% and averaged 94% for the duration of the trial. Acid addition was 1,300 kg/t and fluorspar (CaF₂) addition 180 kg/t of concentrate feed. Leach results exceeded target, supporting the opportunity for concentrate grind size and reagent optimisation during design of the proposed large-scale pilot plant (LSPP).

Run in an integrated manner, the trial successfully demonstrated continuous operation of Lithium Australia's proprietary SiLeach® process, including full recycle of intermediate process streams.

All unit processes operated robustly, with minimal stoppages. Practical solid/liquid separation was achieved for all circuits tested. Samples were provided to multiple vendors in order to complete solid/liquid separation test work, as well as confirm equipment selection and sizing and support a cost estimation for the SiLeach® LSPP front end engineering and design (FEED) study currently being conducted by CPC Project Design Pty Ltd.

Operation of the multi-stage impurity removal circuit confirmed the expected rejection of aluminium fluoride (AlF₃) in the first stage and encouraged further investigation into the feasibility of recovering an AlF₃ by-product from this residue. (AlF₃, an important additive in the production of aluminium by electrolysis, has recently gained immense traction in the global market, due to its beneficial properties and broad range of applications. Indeed, the AlF₃ market is projected to expand at a CAGR of 4.6% during the period 2018-28.)



The lithium rich liquor produced during Stage 1 of the trial met purity targets and will be processed through to lithium chemicals in Stage 2 of the trial, due to commence on 10 September 2018. At that stage, calcium and fluorine will be removed and a lithium phosphate produced as a final product. Subsequently, a sub-sample of that product will be further processed at VSPC Ltd (a wholly owned subsidiary of Lithium Australia) to create cathode material for use in the production of lithium-ion batteries. VSPC will make samples of that material available for testing by potential off-take partners.

Lithium Australia will also investigate converting SiLeach[®]-produced lithium phosphate to a lithium hydroxide product.

In addition, Lithium Australia is assessing the implications of the federal government's policy change in capping its Research and Development rebate scheme, a move with the potential to negatively affect the new energy metals processing industry proposed for Western Australia. (Background to that proposal can be found in the excellent Regional Development Australia publication, *Lithium Valley*.) Lithium Australia is considering relocating its successful R&D activities elsewhere – perhaps Germany, which has a target date for the demise of internal combustion engines and is facilitating that by way of attractive R&D financial support.

COMMENT FROM LIT MANAGING DIRECTOR ADRIAN GRIFFIN

“We are extremely pleased with the outcome of the first stage of the two-stage SiLeach[®] pilot plant trial at ANSTO Minerals. We anticipate that stage 2 will result in the production of a lithium chemical from waste material sourced near Kalgoorlie. We will then apply VSPC's proprietary process to that lithium chemical and, ultimately, produce a lithium-ion battery: a world first. And we'll do so whether the Australian federal government chooses to back the Lithium Valley concept or just ignore it.

The official recommissioning of VSPC's Brisbane cathode powder pilot plant occurred yesterday, with an opening ceremony to celebrate the occasion.”

Adrian Griffin - Managing Director

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About Lithium Australia

Lithium Australia aspires to 'close the loop' on the energy-metal cycle. Its disruptive technologies are designed to furnish the lithium battery industry with ethical and sustainable supply solutions. Lithium Australia's technology comprises the SiLeach[®] and LieNA[®] lithium extraction processes, along with superior cathode material production courtesy of VSPC Ltd (a wholly owned subsidiary of Lithium Australia) and enhanced recycling techniques for battery materials. By uniting resources and the best available technology, Lithium Australia seeks to establish a vertically integrated lithium processing business.

For more information visit:

www.lithium-au.com

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Figure 1 Lithium Australia's employee Mr Andrew Skalski gives the thumbs up for LIT's pilot plant at ANSTO's facility

11 September 2018

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SILEACH® PILOT PLANT TRIALS SUCCESSFULLY PRODUCE LITHIUM CHEMICALS

HIGHLIGHTS

- **Stage 1 of SiLeach® pilot plant trial achieved 94% lithium extraction on continuous run**
- **Stage 2 of SiLeach® pilot plant trial begins on time and produces lithium phosphate within 16 hours of start-up**
- **Lithium Australia aims to convert mine waste to lithium-ion batteries, a world-first**

SiLeach® is Lithium Australia's proprietary lithium processing technology. Stage 1 and 2 trials of the process commenced at the ANSTO's minerals piloting facility in NSW shortly after commissioning of the second generation, purpose built pilot plant.

In Stage 1 of the trial, SiLeach® succeeded in generating lithium solutions from mine waste to feed Stage 2 of the trial, designed to generate lithium chemicals from those solutions.

The Stage 2 trial began as planned on 10 September 2018. During that trial, SiLeach® was used to separate and remove calcium and fluorine impurities from the lithium solutions generated during Stage 1. The impurities were precipitated as solids prior to the subsequent precipitation of high-purity lithium phosphate, while the barren liquor from that process will be further vendor tested for the recovery of potassium sulphate.

COMMENT FROM LITHIUM AUSTRALIA MANAGING DIRECTOR ADRIAN GRIFFIN

"The success of the new pilot plant facility at ANSTO augurs well for our scale-up aspirations. It's encouraging to note the relative ease with which we've achieved targets to date, particularly in view of the feed material used – in this case, contaminated mine waste from the Kalgoorlie region. SiLeach® is ideal for recovering lithium from such materials. We're also enthusiastic about other applications for some of these process steps; in particular, the recovery of lithium from brine, which currently involves lengthy solar evaporation and is subject to the vagaries of the weather."

Adrian Griffin - Managing Director

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Second generation SiLeach® Stage 2 pilot plant in operation at ANSTO's mineral piloting facilities in NSW

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