ASX ANNOUNCEMENT

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Progress for Lithium Australia's revolutionary lithium-phosphate-recovery patent application

HIGHLIGHTS

- **Lithium Australia has received a clear International Preliminary Report on the patentability of the processes described in its patent application for the recovery of lithium phosphate from lithium-bearing solutions.**
- **The International Examiner has indicated that all the claims in the application are novel, involve an inventive step and are applicable to industry.**
- **Production of lithium phosphate is a unit process common to Lithium Australia's SiLeach® and LieNA® technologies, both of which reduce the number of steps required to produce battery cathode powders.**
- **The LP recovery process has been used to retrieve lithium from mixed metal dust and electrolyte materials recovered from spent lithium-ion batteries by Envirostream Australia Pty Ltd (a 90% owned subsidiary of Lithium Australia).**
- **Lithium Australia intends to also apply this lithium phosphate precipitation and refining process to the recovery of lithium from brines.**

Lithium Australia NL (ASX: LIT) ('Lithium Australia' or 'the Company'), together with ANSTO (Australian Nuclear Science and Technology Organisation), is continuing R&D on its revolutionary lithium-recovery technologies for the production of critical battery chemicals. These technologies aim to deliver efficient, sustainable processing and production options for the lithium-ion battery ('LIB') industry while reducing its environmental footprint for the benefit of the planet.

Lithium processing technology

The Company's proprietory SiLeach® and LieNA® processes recover lithium chemicals – as lithium phosphate ('LP') – from a wide range of lithium-bearing materials. Subsequent refining of the LP to the standards required for the production of lithium ferro phosphate ('LFP') LIBs is easily achieved. (LFP LIBs, which are enjoying renewed popularity in China, are the choice of battery for the Tesla Model 3 marketed there). LFP batteries are also ideal for use in energy-storage systems ('ESS') such as those being sold into the Australian market by Company subsidiary Soluna Australia Pty Ltd ('Soluna'), which offers a range of battery storage modules for residential applications.

Together, Lithium Australia's and ANSTO's R&D on SiLeach® and LieNA® led to the unit process enhancements that optimise the recovery of lithium from low-tenor solutions, while managing water-balance challenges, to produce high-quality LP. These give the Company's LP production process definite advantages over conventional recovery methods which result in the production of lithium hydroxide or lithium carbonate.

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Application of LP recovery and refining processes

Lithium Australia's patented processes for the recovery of lithium from silicates have a common thread – the choice of LP as the final product.

- SiLeach® recovers LP and lithium sulphate from lithium-bearing silicates following the application of a fluoride-accelerated acid leach primarily applicable to lithium micas.
- LieNA®, an alkaline pressure conversion process, extracts lithium as LP from silicates without the need for roasting. Importantly, the process converts spodumene (the most mined lithium mineral) to a lithium-rich sodalite. The lithium is easily leached from that sodalite using any acid, with the leach process followed by impurity removal to achieve the required quality. Importantly too, LieNA® can recover lithium from spodumene that is considered too fine for, or contains elements detrimental to, conventional processing methods. The process could therefore be applied to large amounts of lithium material that would otherwise be discarded as waste.

The LP process route has successfully recovered lithium from spent LIBs. Envirostream Australia Pty Ltd ('Envirostream') supplied the active components of recycled LIBs to ANSTO, which then recovered the lithium as LP. That LP was used by VSPC Ltd ('VSPC'), a 100% owned Company subsidiary specialising in the production of battery cathode materials, to produce cathode powders. VSPC subsequently tested those cathode powders in coin-cell LIBs. The results were outstanding. In this way, the application of the Company's LP technology to battery recycling was successfully demonstrated (as was the potential solution to a global waste-management problem).

Patent application

Intellectual property ('IP'), a valuable asset derived from the Company's R&D activities, is managed by way of formal patent processes to retain 'know-how' as trade secrets. Patent application PCT/AU2019/050540 details Lithium Australia's process for recovering LP from lithium-bearing solutions such as brine or pregnant process liquor. The application (and patent, if granted) protects the Company's LP process route, developed during test-work prior to completion of the SiLeach® pilot programme in August/September 2018; the unit process also has direct application to LieNA®.

Being in receipt of a clear report on patentability for the aforementioned application allows the Company's application to progress to national phase assessment in Australia and international jurisdictions.

Recently too, Lithium Australia announced receipt of a 'Certificate of Grant' from IP Australia for its revolutionary first-generation LieNA® technology patent application. Achieving acceptance of this patent application within other international judications is also in progress. Meanwhile, the Company's patent application for its second-generation LieNA® technology within the same jurisdictions continues to progress.

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Comment from Lithium Australia managing director Adrian Griffin

"Lithium Australia's LP extraction and refining process not only gives its proprietary processes for the recovery of lithium from spodumene and mica a further competitive advantage but also appears to be the most efficient means of recovering lithium from spent batteries. And the LP itself is the ultimate feed for the production of LFP cathode materials. With LFP batteries recognised as the safest form of LIB, and regulatory pressure on fire safety in electrical vehicles, we're likely to see enormous expansion in the LFP markets in Europe and North America. In fact, LFP as a LIB type is already prevalent in China, in electric vehicle and heavy transport applications.

Let's not allow valuable lithium to escape in waste streams. We must develop more sustainable operations for the battery industry, which, ultimately, will lead to decarbonisation of the global economy."

Authorised for release by the Board.

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About Lithium Australia NL

Lithium Australia aims to ensure an ethical, sustainable and efficient supply of energy metals to the battery industry (enhancing energy security in the process) by creating a circular battery economy. The recycling of old lithium-ion batteries to new is intrinsic to this plan. While rationalising its portfolio of lithium projects/alliances, the Company continues with R&D on its proprietary extraction processes for the conversion of *all* lithium silicates (including mine waste), and of unused fines from spodumene processing, to lithium chemicals. From those chemicals, Lithium Australia plans to produce advanced components for the battery industry globally, and for stationary energy-storage systems within Australia. By uniting resources and innovation, the Company seeks to vertically integrate lithium extraction, processing and recycling.

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