



## LAKE RESOURCES N.L. (ASX:LKE)

ASX Market Announcements Office

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### PHASE 1 ENGINEERING WORKS CONFIRM HIGH LITHIUM RECOVERIES AT KACHI

- **High lithium recoveries of 80-90% delivered from initial brine samples at Kachi Brine Project using Lilac Solutions process.**
- **Lilac process shows production of greater than 3000 mg/L lithium from average brine samples in a few hours.**
- **Increased recoveries indicate that a 300 mg/L lithium brine would produce similar volumes of final product as a 600 mg/L lithium brine.**
- **Partnership to advance a rapid, low cost method for direct extraction of lithium from brines at Kachi. Process aims to reduce lead time to production, operating costs and significantly increase recoveries.**
- **The new process appears more environmentally sustainable than traditional methods, is easily scalable to increase production and has a smaller footprint.**
- **Lilac now estimating operating costs for commercial lithium production at Kachi for direct production of lithium carbonate or lithium chloride – globally competitive cost anticipated.**

Argentine-focused lithium exploration and project development company **Lake Resources NL (ASX: LKE)** and Lilac Solutions, Inc. (“Lilac”) are pleased to report very high lithium recoveries from brines as part of Phase 1 engineering work to develop Lake’s 100%-owned Kachi Lithium Brine Project in Argentina (“Kachi”).

Lilac has reported high lithium recoveries and high lithium eluate purity from preliminary results from the Phase 1 Engineering. This lithium eluate can be processed downstream into battery-grade lithium carbonate or lithium hydroxide based on conventional processes with a downstream recovery of around 90%.

Lilac has achieved lithium recoveries from the Kachi brine sample into the lithium eluate of 80-90%. After downstream processing, this is estimated to provide an overall project-level lithium recovery of 70-80%. This compares very favourably with project-level lithium recoveries below 50% for conventional operations in the Salar de Atacama, which feature lithium grades above 1,000 mg/L.

Lilac has processed the Kachi brine sample in a single step going from the average raw brine concentrations to a lithium eluate containing 3,000 mg/L Li, 400 mg/L Na, 250 mg/L Ca, 120 mg/L Mg, and 1 mg/L B, which can be readily processed through reverse osmosis and conventional purification technologies and fed into a conventional carbonate plant. Further samples are being tested for refinement of the process.

Lilac is now estimating operating costs for commercial lithium production at Kachi for direct production of lithium carbonate or lithium chloride. Given initial results, Lilac expects a globally-competitive cost of production.

Lilac is performing Phase 1 Engineering to optimise the Lilac system for the Kachi brine’s particular chemistry, establish performance of the system including lithium recoveries and purity of the lithium eluate solution produced by the Lilac system, determine the quantities of chemical reagents needed to drive the lithium extraction process, and estimate operating cost of commercial production of lithium.

This follows the announcement in September where Lake and Lilac entered into a partnership to leverage Lilac’s proprietary ion exchange technology (the “Lilac Technology”) for the Kachi brine with the goal of establishing a rapid, robust, and low-cost process for producing lithium at Kachi.

Lilac Solutions is transforming lithium production with its innovative ion exchange technology for extraction of lithium from brine resources. Lilac deploys unique ion exchange media and related processes to extract lithium from a wide variety of brine resources with high recoveries, minimal costs, and rapid processing times. This approach eliminates the need for evaporation ponds, which are expensive to build, slow to ramp up, and vulnerable to weather fluctuations.

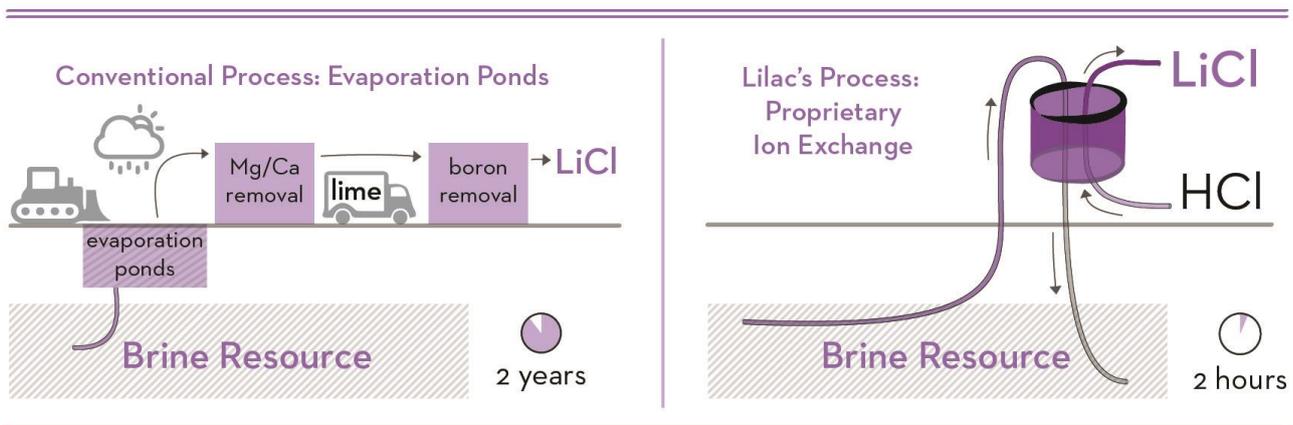
A significant environmental benefit comes from the removal of evaporation ponds as the footprint of the operation is significantly reduced. Further, the method allows for the remaining brine to be re-injected into the same aquifer from where it is sourced, without significantly adjusting the water quality, thereby preserving an aqueous resource in an arid environment.

Lilac’s technology can economically access brines with low lithium concentrations and high concentrations of other salts, such as magnesium. Cost advantages come from reduced time, higher recoveries and a simplified extraction flowsheet with fewer reagents. The technology is modular to suit various project sizes and integrates with conventional plant designs for production of battery-grade lithium carbonate and lithium hydroxide. The technology has been successfully tested with real brine samples across the Americas.

The Kachi Lithium Brine Project covers 54,000 hectares (133,000 acres) over almost an entire lithium-bearing salt lake in Catamarca province, ~100 km (60 miles) south of Livent/FMC’s Hombre Muerto Lithium brine production operation. FMC Corp has been operating its lithium business in Argentina for over 20 years.

Lake and Lilac believe that combining Lake’s scale and project experience with Lilac’s technology and process expertise enables a rapid path to very large-scale commercial production of lithium at Kachi.

*“Lake Resources is delighted to see excellent results showing the potential of the Lilac process to deliver a rapid, direct extraction process of lithium from brines. The potential to reduce the timeline to production at low cost is a major advantage in the current market with a constrained supply of lithium. Increased recoveries indicate that a 300 mg/L lithium brine would produce similar volumes of final product as a 600 mg/L lithium brine,”* said Steve Promnitz, Managing Director of Lake Resources.



**Figure 1. Conventional Process for lithium extraction of brines from evaporation ponds (left) versus Lilac’s innovative Ion Exchange method (right), which promises high recoveries in a few hours versus 9-24 months using evaporation to concentrate the lithium. Lilac’s method allows for the re-injection of brines to the aquifer from where it is sourced without significantly adjusting the water quality.**

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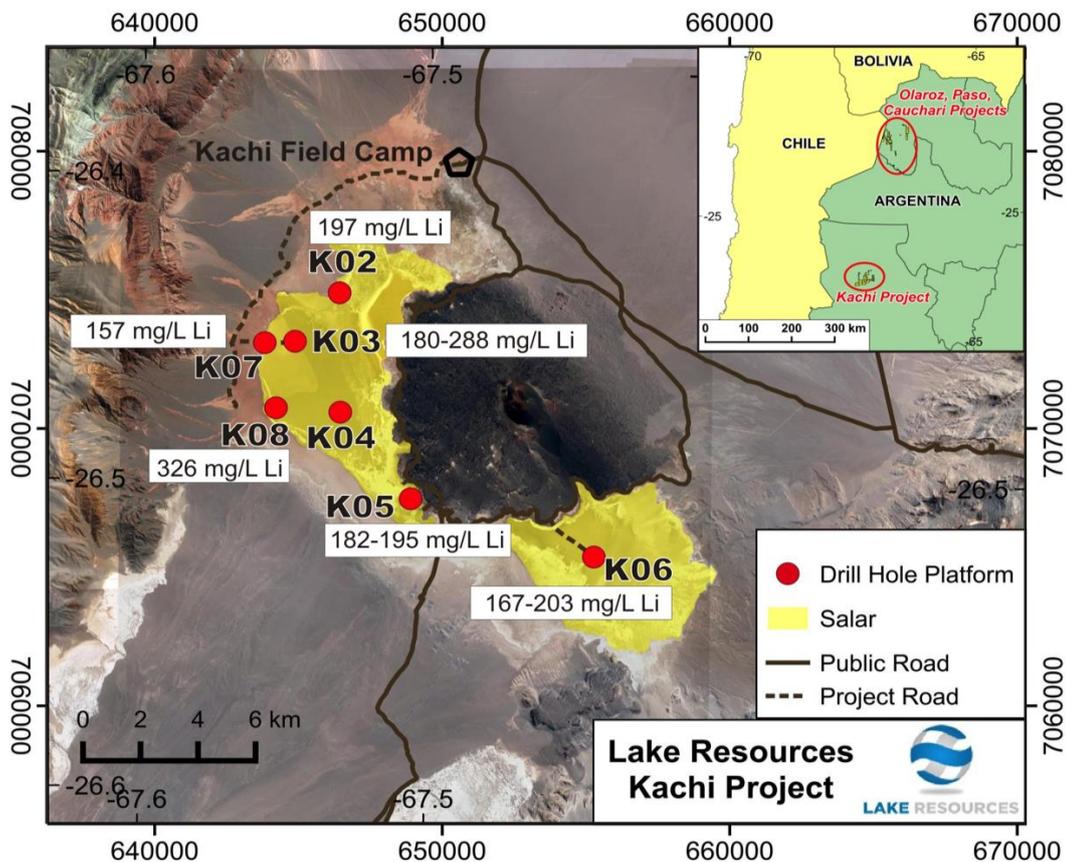
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**Figure 2. Lilac Solutions test laboratory being visited by Lake’s Board with Lilac’s CEO and VP Technology**



**Figure 3. Kachi Lithium Project showing drilling locations, details of the drill hole layout at each location and lithium concentrations for each drill hole which are averaged where multiple brine samples have been taken.**

### **About Lake Resources NL (ASX:LKE)**

Lake Resources NL (ASX:LKE, Lake) is a lithium exploration and development company focused on developing its 3 lithium brine projects and 1 hard rock project in Argentina, all owned 100%. The leases are in a prime location among the lithium sector's largest players within the Lithium Triangle where half of the world's lithium is produced. Lake holds one of the largest lithium tenement packages in Argentina (~180,000Ha) secured in 2016 prior to a significant 'rush' by major companies. The large holdings provide the potential to provide security of supply demanded by battery makers and electric vehicle manufacturers.

The Kachi project covers 50,000 Ha over a salt lake south of FMC's lithium operation and near Albemarle's Antofalla project. Drilling at Kachi has confirmed a large lithium brine bearing basin over 22km long and over 400m deep. Drilling over Kachi is aimed to produce a resource statement in 2018, anticipated in Oct 2018. A direct extraction technique is planned to be trialled on site in tandem with conventional methods as part of a PFS to follow the resource statement. Scope exists to unlock considerable value through partnerships and corporate deals in the near-term.

The three key brine projects, Kachi, Olaroz/Cauchari, and Paso, are located adjacent to major world class brine projects either in production or being developed in the highly prospective Jujuy and Catamarca Provinces. The Olaroz-Cauchari project is located in the same basin as Orocobre's Olaroz lithium production and adjoins Ganfeng Lithium/Lithium Americas Cauchari project, with high grade lithium (600 mg/L) with high flow rates drilled immediately across the lease boundary.

A drill rig has commenced at Cauchari with results anticipated to extend the world class resources in adjoining properties into LKE's area with results anticipated from late October into December 2018. This will be followed by drilling extensions to the Olaroz area in LKE's 100% owned Olaroz leases.

Significant corporate transactions continue in adjacent leases with development of Ganfeng Lithium/Lithium Americas Cauchari project with Ganfeng announcing a US\$237 million for 37% of the Cauchari project previously held by SQM. Nearby projects of Lithium X were recently acquired via a takeover offer of C\$265 million completed March 2018. The northern half of Galaxy's Sal de Vida resource was purchased for US\$280 million by POSCO in June 2018

The demand for lithium continues to be strong for lithium ion batteries in electric vehicles, according to recent data from the leading independent battery minerals consultant - Benchmark Mineral Intelligence. Supply continues to be constrained suggesting good opportunities for upstream lithium companies for many years.



### **About Lilac Solutions**

Lilac Solutions is a mining technology company based in Oakland, California. Lilac offers a full-service ion exchange technology for lithium extraction from brine resources that is cheap, fast, effective, and environmentally friendly, and that is adaptable to a wide variety of brine chemistries.