Lake Resources NL: Pilot Plant Engineering Underway at Kachi Lithium Project

07.05.2019 | ABN Newswire

Brisbane, Australia - Lithium exploration and project development company Lake Resources NL (ASX:LKE) announced today the commencement of design and engineering works for the Company's planned pilot plant at its 100% owned Kachi Lithium Brine Project in Argentina. Based on U.S. partner Lilac Solutions' direct extraction production technology, the pilot plant will test the potential for rapid, low-cost production with high recoveries and minimal environmental impact, at a pilot scale, offering a significant competitive advantage.

This follows December's release of a successful Phase 1 Engineering Study conducted by the Silicon Valley-backed Lilac Solutions, with the study showing its direct extraction process has the potential to rapidly produce very high lithium concentrations from Kachi brines with low impurities (refer ASX announcement 10 December 2018).

- First steps towards pilot plant testing with design and engineering underway at Lake's Kachi Lithium Project, Argentina based on high-productivity, high-purity Lilac Solutions direct extraction technology.

- Design and engineering phase expected to take three months. This will then lead to an estimated 3 months of construction, with delivery of the pilot plant on-site at Kachi and commissioning expected in late 2019.

- Pilot plant forms part of pre-feasibility study (PFS), as a precursor to full-scale commercial project offering rapid, low-cost production with minimal environmental impact.

- Phase 1 Engineering Study showed potential for production costs to be in the lowest quartile of global lithium production costs; high lithium concentrations of 30,000 mg/L produced after 3 hours of processing from ~300 mg/L brines, with recoveries of 85-90% confirmed from multiple samples.

Lithium concentrates of 30,000 mg/L have been produced using the Lilac technology in just three hours from Kachi brines, with trials up to 50,000 parts per million (ppm), together with evaporative dewatering. Significantly, high lithium recoveries of 85-90% were obtained compared to the typical 40-50% recoveries using conventional evaporation processes, maximising the resource.

Importantly, the study showed globally competitive production costs of US$2,600/tonne (+/-30%), which is in the lowest cost quartile for lithium carbonate production, using a commercial-sized Lilac Solutions production plant. (Note: The estimated costs of production are preliminary estimates based on the Phase 1 Engineering study.) The lithium concentrate stream could then be processed downstream into battery-grade lithium product using conventional purification technologies (either a conventional lithium carbonate plant or hydroxide plant).

This compares favourably with conventional brine operations in South America, which use evaporation that requires a lengthy 9 to 24 month waiting period for the process to produce a suitable lithium brine concentrate for processing, and have lithium recoveries typically below 50%.

Lilac's extraction technology also offers the potential for reduced environmental impact compared to traditional processes used in Argentina, due to the removal of evaporation ponds. In addition, the remaining brine would be reinjected into the aquifer from which it is sourced without significantly affecting the water quality, thereby preserving an aqueous resource in an arid environment.

Lilac's Chief Executive Officer, David Snydacker said: "We are confident that combining Lilac's high-performance, next-generation lithium extraction technology with the massive lithium resource at Kachi will result in the most modern, efficient, reliable, and environmentally friendly lithium project in the world."

Lake's Managing Director, Steve Promnitz said: "The commencement of the pilot plant process is a milestone event, not only for Lake but also for the lithium industry more broadly, as we work to unlock the benefits of direct extraction technology. By combining cutting-edge Silicon Valley innovation with established mining industry know-how, there is potential for the creation of a sustainable competitive advantage in an industry that is at the centre of a global revolution in energy and transport."

The PFS process for Kachi has already commenced (refer ASX announcement 9 April 2019), under which a

leading international engineering firm has been engaged to examine its technical and economic viability, including both conventional and direct extraction methods, project engineering design, product specifications, optimisation of recovery and operating and capital costs.

Lilac has commenced the detailed design and engineering phase of the pilot plant, together with an international engineering firm, which is expected to take approximately three months. This will be followed by the build and transport of the plant to site at Kachi, where it will be installed and commissioned.

The pilot plant is expected to be capable of producing around 10 tonnes per annum of lithium carbonate equivalents. The planned approach is to produce a concentrate of purified lithium brine on-site and then convert it to lithium carbonate and/or lithium hydroxide at a location with more established infrastructure and workforce. Most reagents can be easily sourced locally, and Lilac will provide its proprietary ion exchange media. Based on the current timeline, the plant could be operating in late 2019, expected to be a precursor to a full-scale commercial project.

The Kachi project has an Indicated and Inferred Resource of 4.4 Mt LCE (Indicated 1.0Mt and Inferred 3.4Mt) within a much larger Exploration Target (refer ASX release 27 November 2018), covering some 69,000 hectares over almost an entire lithium-bearing salt lake in Catamarca Province.

Based on market feedback, Lake considers there is potential for Lilac's technological solution to attract support from Silicon Valley-based and/or downstream investors, given Lilac's investor base and the recent U.S. drive to develop its lithium industry. New U.S. legislation aims to speed the development of lithium and other electric vehicle (EV) supply chain minerals, facilitating increased EV output in the United States.

Demand forecasts point to the need for an eight-fold rise in lithium supply over the next nine years, on the back of the EV revolution, battery storage and other applications. With supply from major producers continuing to fall short of projections, new projects and technologies will be essential to support the industry's growth.

Recent merger and acquisition (M&A) activity, both at the corporate level and in projects adjacent to Lake's in Argentina, also points to a bright outlook for the sector as investors re-evaluate its potential.

Lake's Mr Promnitz added: "Lake's Argentina projects are in the heart of the Lithium Triangle, home to half the world's lithium output and at the lowest cost.

"With our Kachi project now gaining momentum with the benefit of an innovative technological process and drilling underway at the Cauchari project (refer ASX announcement 1 May 2019), Lake is entering a significant new phase of its evolution as we work to deliver wealth for shareholders and benefits for all industry stakeholders."

To view figures, please visit:
http://abnnewswire.net/lnk/AO68AY26

About Lake Resources NL:

Lake Resources NL (ASX:LKE) is a lithium exploration and development company focused on developing its three lithium brine projects and 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 (~200,000Ha) secured in 2016 prior to a significant 'rush' by major companies. The large holdings provide the potential to provide consistent security of supply demanded by battery makers and electric vehicle manufacturers.

The Kachi project covers 69,000 ha over a salt lake south of FMC's lithium operation and near Albemarle's Antofalla project in Catamarca Province. Drilling at Kachi has confirmed a large lithium brine bearing basin over 20km long, 15km wide and 400m to 800m deep. Drilling over Kachi (currently 16 drill holes, 3100m) has produced a maiden indicated and inferred resource of 4.4 Mt LCE (Indicated 1.0Mt and Inferred 3.4Mt) within a 8-17 Mt LCE exploration target (refer ASX announcement 27 November 2018).

A direct extraction technique is being tested in partnership with Lilac Solutions, which has shown 80-90% recoveries and lithium brine concentrations in excess of 3000 mg/L lithium and 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.

Source:

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Dieser Artikel stammt von Rohstoff-Welt.de
Die URL für diesen Artikel lautet:
https://www.rohstoff-welt.de/news/325422--Lake-Resources-NL~-Pilot-Plant-Engineering-Underway-at-Kachi-Lithium-Project.html

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