

Standard Lithium Provides Project Update

- The Standard Lithium Demonstration Plant produces first-of-its-kind start-to-finish DLE to battery quality lithium carbonate in a single integrated process;
- Standard Lithium expands team and retains one of North America's largest engineering and construction companies to complete all necessary Pre-FEED studies for first commercial plant; and,
- Improves performance of proprietary sorbent and works with global manufacturer to secure domestic commercial supply

EL DORADO, Ark., Jan. 20, 2022 (GLOBE NEWSWIRE) -- **Standard Lithium Ltd.** ("Standard Lithium" or the "Company") (TSXV: SLI) (NYSE American: SLI) (FRA: S5L), an innovative technology and lithium project development company, today offered an update on several project and other related developments.

SiFT Lithium Carbonate Plant

The 'SiFT' lithium carbonate plant was installed at the site in Q3 2021 ([see September 1st news release](#)) and has been successfully commissioned and used to produce battery quality lithium carbonate at the plant. The lithium carbonate was produced at the SiFT Plant in a single crystallization stage (contrasting with multiple stages in a typical process). The crystals were washed twice using hot deionized water to attain battery-quality (>99.83% purity) lithium carbonate. This is the first of its kind demonstration of a continuous Direct Lithium Extraction (DLE) plant being operated at scale, producing a concentrated lithium chloride intermediate product and directly converting to battery quality lithium carbonate in a single crystallization step. Completion of this phase of work is another important milestone for the Company and its technology-driven approach to development.

The current iteration of the Company's proprietary LiSTR DLE demonstration plant in El Dorado, Arkansas also uses a novel osmotically assisted High Pressure Reverse Osmosis (HPRO) unit to concentrate the LiCl solution prior to carbonation. This HPRO unit was successfully integrated into the plant and has been operating according to design criteria since September 2021 and consistently producing LiCl solutions containing approximately 7,000 mg/L lithium.

First Commercial Plant Design and Planning

Standard Lithium has expanded its internal team and retained additional consulting services to advance all necessary project definition work for the Company's first commercial lithium plant, intended to be constructed at Lanxess's South Facility. The Company has completed initial site selection work within the available property envelope to determine a suitable location(s), and initial environmental and permitting screening has been completed with no significant issues noted. The Company has also retained one of North America's largest and most respected engineering and construction organizations to complete a Preliminary Front End Engineering and Design (Pre-FEED) study. The Pre-FEED was commenced in Q4 2021 and is scheduled to be completed in Q2 2022. The study will be used to develop the initial design for the first commercial plant, as well as to provide all supporting engineering and

costing data.

The findings from the Pre-FEED will be reviewed by the expanded Standard Lithium team and will be directly integrated into and form the basis for the next substantial phase of design work, the FEED study, which is intended to commence in Q2 2022. The FEED study will significantly advance the level of engineering design, constructability and associated costing of the first commercial project, and its main findings will be publicly reported as a NI 43-101 Definitive Feasibility Study (DFS). It is also expected that the FEED study will be converted into a lump-sum turnkey (LSTK) estimate that can be used for any future project financing activities that may be required. The Company will provide additional updates once the FEED study is awarded.

Commercial Supply of Lithium-Selective Sorbent

The Company's LiSTR DLE process uses a bespoke, custom-formulated lithium-selective sorbent based on a titanate architecture. The sorbent that has been successfully running in the demonstration plant for the past 20 months was manufactured outside of North America and represents the first generation of the material.

Since Q1 2021, Standard Lithium has been working with one of the world's largest industrial material suppliers, with a specialization in ceramics and catalyst compounds, to optimize the performance of the sorbent, and to develop a scalable commercial manufacturing process in North America. This work has been successfully completed at various R&D facilities in North America and Europe and substantial improvements in the performance of the sorbent have been achieved. The next generation of the material will be produced using a full-scale commercial production process and is expected to arrive at the El Dorado, Arkansas Demonstration Plant during Q2 2022.

Dr. Andy Robinson, President and COO of Standard Lithium commented, *"The Standard Lithium team has been extremely busy over the last quarter. We've continued to integrate processes into our El Dorado Demonstration plant, so that we now have the only continuous, 24/7 start-to-finish brine-to-carbonate plant in North America. Owing to the keystone investment into the Company by Koch Strategic Platforms in Q4 last year, we've been able to grow our team and commission intensive studies that start us on the real path towards commercialization. We and our partners have significantly increased our knowledge of the scale-up process and have a better understanding of what the first commercial plant will look like. We have a lot of exciting work to complete in 2022 and we look forward to providing updates as we continue to grow our team, bring on new project execution partners and move Standard Lithium on its path of delivering the first new commercial lithium project in the United States for several decades."*

Quality Assurance

Dr. Ron Molnar, Professional Metallurgical Engineer (Ontario P.E.# 100111288), is a qualified person as defined by NI 43-101, is independent of the Company, and has reviewed and approved the scientific and technical information that forms the basis for this news release.

About Standard Lithium Ltd.

Standard Lithium is an innovative technology and lithium development company. The Company's flagship project is located in southern Arkansas, where it is engaged in the testing and proving of the commercial viability of lithium extraction from over 150,000 acres

of permitted brine operations. The Company operates its first-of-a-kind industrial-scale direct lithium extraction demonstration plant at Lanxess's south plant facility in southern Arkansas. The demonstration plant utilizes the Company's proprietary LiSTR technology to selectively extract lithium from Lanxess's tail brine. The demonstration plant is being used for proof-of-concept and commercial feasibility studies. The scalable, environmentally friendly process eliminates the use of evaporation ponds, reduces processing time from months to hours and greatly increases the effective recovery of lithium. The Company is also pursuing the resource development of over 30,000 acres of separate brine leases located in southwest Arkansas, referred to as the South West Arkansas Lithium Project, and approximately 45,000 acres of mineral leases located in the Mojave Desert in San Bernardino County, California.

Standard Lithium is jointly listed on the TSX Venture Exchange and the NYSE American under the trading symbol "SLI"; and on the Frankfurt Stock Exchange under the symbol "S5L". Please visit the Company's website at <https://www.standardlithium.com>.

On behalf of the Board of Standard Lithium Ltd.
Robert Mintak, CEO & Director

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