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Standard Lithium Successfully Commissions First Direct Hydroxide Conversion Pilot Plant

Provides Additional Updates for Project Sites in Arkansas and Expansion Activities

EL DORADO, Ark., Oct. 27, 2022 (GLOBE NEWSWIRE) -- **Standard Lithium Ltd.** ("Standard Lithium" or the "Company") (TSXV: SLI) (NYSE American: SLI) (FRA: S5L), an innovative lithium project development company, today provided an update on its commercial development activities in El Dorado, Arkansas.

First-of-its-kind direct chloride-to-hydroxide Pilot Plant installed

The Hydroxide Pilot plant was designed and constructed by a third-party global water and process technology vendor earlier in 2022, and was successfully installed and commissioned in early October at the Project site. The technology is housed in a self-contained unit and takes the lithium chloride feed produced by the Company's existing Direct Lithium Extraction (DLE) Demonstration Plant; it then converts this feed directly into a lithium hydroxide solution using a novel ion-exchange process. The lithium hydroxide solution generated by the Hydroxide Pilot will be sent offsite to another location operated by the third-party vendor to complete evaporation and crystallization work to produce battery quality lithium hydroxide. This Hydroxide Pilot will be operated at the Project location for several months, and will be used by the Company to assess different technology options for lithium hydroxide production at the Company's South West Arkansas Lithium Project ([see news release dated May 2nd, 2022](#)).

Dr. Andy Robinson, President of Standard Lithium, commented, *"The successful installation and commissioning of this Hydroxide Pilot is another example of the Company's approach to using novel technological solutions to build a new generation of lithium plants in North America. The testing and operation of this Pilot gives our design team and project partners greater flexibility when we come to design the commercial plant at our South West Arkansas Project."*

To the Company's knowledge, the Project location at Lanxess' South Plant in Arkansas is the only location in North America where lithium is continuously being extracted from brine using a modern DLE process and being converted into both lithium carbonate and lithium hydroxide.

Recent Corporate Developments

In addition, Standard Lithium is also pleased to provide the following updates with respect to key milestones the Company has been working towards.

Drilling work commenced for resource expansion

Standard Lithium conducted an extensive geological, geochemical and geophysical review of large regions of the Smackover Formation with a focus on significantly expanding the Company's resource holdings. The Company and its contractors are currently re-drilling an existing production well deeper into the Smackover Formation, which is located west of the Company's South West Arkansas Project. The Company will be releasing further information concerning this significant resource expansion program as third-party validated results and data become available.

"Our first 1A Project at Lanxess' South Plant is intended to be the first of many Standard Lithium plants in the region, and as a result, we are working to actively expand our resources in a strategic manner to capture the highest quality brine assets available in the Smackover. Based on the successful operation of our DLE plant, and our knowledge of extracting lithium from the Smackover brines and producing battery-quality lithium products, our resource team and our Smackover Formation experts have spent almost 2 years identifying key areas in the Smackover Formation that we believe are the most prospective for large-scale, high quality lithium brine resources," Dr. Robinson said.

Front End Engineering Design (FEED) and Definitive Feasibility Study (DFS) work successfully underway for first commercial project

The FEED/DFS study awarded to OPD LLC, a Koch-owned business based in Katy, Texas, is now fully underway ([see news release dated September 7th, 2022](#)), and trade-off studies are being completed to refine the full-scale process flowsheet, simplify the design and improve procurement and constructability, all with the goal of keeping CAPEX and OPEX as low as possible. The FEED/DFS study is being completed for Standard Lithium's first commercial lithium plant (Phase 1A) which contemplates processing the brine that is currently being handled by Lanxess at its South Facility, where the Company's continuously operating pre-commercial DLE Demonstration Plant is located. The existing brine flow at this location is approximately 3,000 US gallons per minute (usgpm), and using the design criteria of 90% lithium recovery during the DLE process, results in expected annual production of between 5,000 to 6,000 tonnes per annum (TPA) of battery quality lithium carbonate.

The FEED/DFS study is on schedule, and the results of the FEED study will be summarized in a NI 43-101 DFS report in H1 2023.

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 (DLE) 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>.

Twitter: @standardlithium

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