March 28, 2023

Standard Lithium Drills and Samples Highest Confirmed Grade Lithium Brine in North America

Significantly Expands Its Resource Holdings Beyond Arkansas to Texas

EL DORADO, Ark., March 28, 2023 (GLOBE NEWSWIRE) -- **Standard Lithium Ltd.** ("**Standard Lithium**" or the "**Company**") (TSXV: SLI) (NYSE American: SLI) (FRA: S5L), a leading near-commercial lithium company, is pleased to announce that, as part of its significant resource expansion work in the East Texas Smackover region, it has sampled, to the best of its knowledge, the highest confirmed lithium grade brine in North America, with a grade of 634 mg/L lithium. In Standard Lithium's experience, the grade of lithium in brine used for Direct Lithium Extraction (DLE) has a meaningful impact on both capital expenditures and operating costs in connection with the extraction process, with a higher grade typically resulting in lower overall costs.

Dr. Andy Robinson, President and COO of Standard Lithium commented, *"We're excited to discover this outstanding resource and to add it to our expanding portfolio of select projects in the Smackover Formation. We have built a large and technically diverse team of Smackover specialists who have been working for almost three years to understand the most prospective areas to secure the highest quality brine resources in East Texas. The technical group has been supplemented by a strong team of mineral and land professionals who have been securing the extensive brine rights in these key project areas. Based on this work, the Company acquired the rights to one existing well and to drill a new deep well. We are delighted that sampling from the new well has led us to find lithium brine with, to the best of the Company's knowledge, the highest grade in North America."*

"These very high-quality lithium brine resources, located in the heart of the Gulf Coast region, are close to, and highly complementary to, Standard Lithium's existing lithium projects and have the potential to play a key role in future lithium production as part of the Company's development and commercialization program. We look forward to working with the local communities and building our presence in East Texas, and we will be releasing further technical reports defining the project areas in the near future."

Analysis and Testing Details

Over the past three years, the Standard Lithium team has been developing a thorough understanding of the Smackover Formation in Texas, via analysis of existing petro-physical logs, 2D seismic data and existing core sample analysis (retained from previous drilling activity). This understanding has been supplemented by sampling and analytical testing of produced water from existing oil and gas production wells from the Smackover Formation in the East Texas area. As a result of this data gathering and interpretive work, the Company identified a select number of highly prospective lithium brine project areas in the Smackover

Formation in East Texas and began an extensive brine leasing program in the key project areas. The greatest level of effort to date, and the Company's principal brine leasing focus, has been in the region close to the Arkansas and Louisiana state lines. As the Company has been securing brine rights in the key project areas over the last 18 months, it also secured access to a pre-existing oil and gas production well and drilled a new exploration borehole (see news release dated October 27th, 2022).

The pre-existing well was re-entered using a workover rig and the existing production casing was perforated at various depth intervals to gather new brine samples from different levels in the Smackover Formation. The new exploration borehole was advanced and cased using a drill rig, and subsequently sampled using a workover rig. Figures 1 and 2 below show images of the two recent project sites.

Figure 1: Drill rig at the new borehole/well location in East Texas. The drill rig has since demobilized from this location and has been replaced by a workover rig to complete perforations, final testwork and sampling.

Figure 2: Workover rig at the pre-existing production well in East Texas. This rig was used to re-perforate the existing production casing to allow brine sampling from various zones in the Smackover Formation.

Brine samples taken from these two wells, in addition to samples taken from other closely adjacent wells completed in the Smackover Formation in East Texas, are shown in Table 1 below. All brine samples were analyzed at multiple analytical laboratories (both third-party and also at the Company's analytical facility in El Dorado, Arkansas) in order to confirm sample quality and maintain QA/QC procedures. The Standard Lithium data provided in Table 1 below were all analyzed, performed, and reported by Western Environmental Testing Laboratories of Sparks NV, a third-party, accredited testing facility. Additional representative lithium brine analyses from other lithium brine projects in North America are provided for context.

Table 1: East Texas Lithium Brine Analyses in Standard Lithium Project Areas

East Texas Sampling Location Name [1]	**Lithium concentration (mg/L)**	**Average Lithium concentration (mg/L) [2]**
East Texas New Well - Upper Smackover Zone	**634**	
East Texas New Well - Upper Smackover Zone	594	

East Texas New Well - Mid Smackover Zone	572	**603**
East Texas New Well - Mid Smackover Zone	583	
East Texas New Well - Lower Smackover Zone	621	
East Texas New Well - Lower Smackover Zone	612	
East Texas Re-entered well – Upper Smackover Zone	298	**313**
East Texas Re-entered well – Upper Smackover Zone	327	
East Texas Sampled Well #1 in main project area – Upper Smackover Zone	395	**392**
East Texas Sampled Well #1 in main project area – Upper Smackover Zone	414	
East Texas Sampled Well #1 in main project area – Upper Smackover Zone	366	
East Texas Sampled Well #2 in main project area – Upper Smackover Zone	478	**480**
East Texas Sampled Well #2 in main project area – Upper Smackover Zone	500	
East Texas Sampled Well #2 in main project area – Upper Smackover Zone	462	
Reported Lithium Analyses from Other North American Brine Projects		
California Salton Sea Geothermal Brine [3]		204
Alberta Oilfield brine [4]		75
Paradox Basin, Utah [5]		123
Clayton Valley, Nevada [6]		123

Notes:

[1] Smackover Formation descriptors (Upper, Middle, and Lower) are a local project area naming convention.

[2] For East Texas wells, average of all samples taken from the wellbore, including duplicates where applicable to provide a representative brine sample.

[3] Average brine sample from Salton Sea, Table 1, Warren 2021. *Techno-Economic Analysis of Lithium Extraction from Geothermal Brines.* Golden, CO: National Renewable Energy Laboratory. NREL/TP-5700-79178.

[4] Average brine analysis from Table 7, E3 Lithium 43-101 Technical Report: Lithium Resource Estimate, Bashaw District Project, central Alberta, Report date: August 23, 2022, Effective date: July 11,2022

[5] Indicated Resource Concentration, Anson Resources, Paradox Lithium Project, Total JORC Mineral Resource estimation, DFS, September 2022

[6] Average Clayton Valley lithium brine composition, Table 14-3, Pure Energy Minerals, Preliminary Economic Assessment (Rev. 1) of the Clayton Valley Lithium Project Esmeralda County, Nevada, March 23, 2018

Quality Assurance

Steve Ross, P.Geol., a Qualified Person as defined by NI 43-101, has reviewed and approved the relevant scientific and technical information that forms the basis for this news release. Mr. Ross is a consultant to the Company.

About Standard Lithium Ltd.

Standard Lithium is a leading near-commercial lithium development company with a portfolio of projects in process. The Company's flagship projects, the LANXESS Property Project and the South West Arkansas Project, are located in southern Arkansas near the Louisiana stateline. The Company is focused on the evaluation and testing of commercial lithium extraction and purification from brine sourced from approximately 180,000 acres of leases across these two projects. The Company operates a first-of-a-kind industrial-scale Direct Lithium Extraction (DLE) Demonstration Plant at the LANXESS Property Project. 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. A Definitive Feasibility Study (DFS) and Front-End Engineering Study (FEED) for Phase 1A of the LANXESS Property Project commenced in September 2022. A Preliminary Feasibility Study (PFS) of the South West Arkansas Project commenced in May 2022. The Company is also pursuing the resource development of other projects in the Smackover Formation in East Texas, as well as 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.

Neither the TSX Venture Exchange nor its Regulation Services Provider (as that term is defined in policies of the TSX Venture Exchange) accepts responsibility for the adequacy or accuracy of this release.

This news release may contain certain "Forward-Looking Statements" within the meaning of the United States Private Securities Litigation Reform Act of 1995 and applicable Canadian securities laws. When used in this news release, the words "anticipate", "believe", "estimate", "expect", "target, "plan", "forecast", "may", "schedule" and other similar words or expressions identify forward-looking statements or information. These forward-looking statements or information may relate to development of a commercial lithium plant, completion of definitive feasibility study, future prices of commodities, accuracy of mineral or resource exploration and drilling activity, reserves or resources, regulatory or government requirements or approvals, the reliability of third party information, continued access to mineral properties or infrastructure, fluctuations in the market for lithium and its derivatives, changes in exploration costs and government regulation in Canada and the United States, and other factors or information. Such statements represent the Company's current views with respect to future events and are necessarily based upon a number of assumptions and estimates that, while considered reasonable by the Company, are inherently subject to significant business, economic, competitive, political and social risks, contingencies and uncertainties. Many factors, both known and unknown, could cause results, performance or achievements to be materially different from the results, performance or achievements that are or may be expressed or implied by such forward-looking statements. The Company does not intend, and does not assume any obligation, to update these forward-looking statements or information to reflect changes in assumptions or changes in circumstances or any other events affecting such statements and information other than as required by applicable laws, rules and regulations.

Photos accompanying this announcement are available at

https://www.globenewswire.com/NewsRoom/AttachmentNg/16045066-a60a-460b-90f2-74ed2195c78a

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Figure 1

Drill rig at the new borehole/well location in East Texas. The drill rig has since demobilized from this location and has been replaced by a workover rig to complete perforations, final testwork and sampling.

Figure 2

Workover rig at the pre-existing production well in East Texas. This rig was used to re-perforate the existing production casing to allow brine sampling from various zones in the Smackover Formation.

Source: Standard Lithium