May 23, 2023

Standard Lithium Drills and Samples Highest Confirmed Grade Lithium Brine in Arkansas

Samples from Four Zones at its South West Arkansas Project Average 563 mg/L Lithium and Include a Sample of 581 mg/L

EL DORADO, Ark., May 23, 2023 (GLOBE NEWSWIRE) -- **Standard Lithium Ltd.** ("**Standard Lithium**" or the "**Company**") (TSXV: SLI) (NYSE American: SLI) (FRA: S5L), a leading near-commercial lithium company, announced that, as part of the resource definition work at its South West Arkansas Project (see news release dated 20th March 2023) it has sampled, to the best of its knowledge, the highest confirmed lithium grade brine in Arkansas, with a grade of 581 mg/L. These sampling data follow similar high-grade results from the Company's resources in Texas (see news release dated 28th March 2023).

Dr. Andy Robinson, President and COO of Standard Lithium commented, *"We continue to be very pleasantly surprised by the lithium grades sampled from our projects in Arkansas and Texas. We previously developed the Preliminary Economic Assessment (PEA) for the SWA Project using a conservative assessment of the lithium brine grades across the project area. Using that conservative resource basis still yielded a PEA with very attractive project economics (after-tax NPV US$1.97 Billion and IRR of 32% at 8% discount rate; see news release dated 12th October 2021). This recent infill drilling work to further define the lithium resource has resulted in a marked upside to the in-situ lithium grade. In our 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, so a higher grade typically results in lower overall costs and should have a positive effect on project economics in the forthcoming Preliminary Feasibility Study (PFS). We are delighted that sampling from this recent well has led us to find lithium brine with the highest confirmed grade in Arkansas, and we look forward to incorporating these into the forthcoming PFS."*

Analysis and Testing Details

The lithium brine samples were taken from a pre-existing well located in the central-eastern portion of Standard's project area (see Figure 1 below). This well (the Beulah-Taylor #1) was first drilled in July 1982 and subsequently decommissioned in August 1982. Standard Lithium's drilling team commenced drilling on 21st February, 2023 and deepened the hole to a total measured depth of 8,940 ft on 8th March, 2023 (see news release dated 20th March 2023).

Examples of high porosity Smackover Formation rocks recently recovered from the Montague #1 well (that is part of Standard Lithium's current drilling program) are also shown in Figure 2.

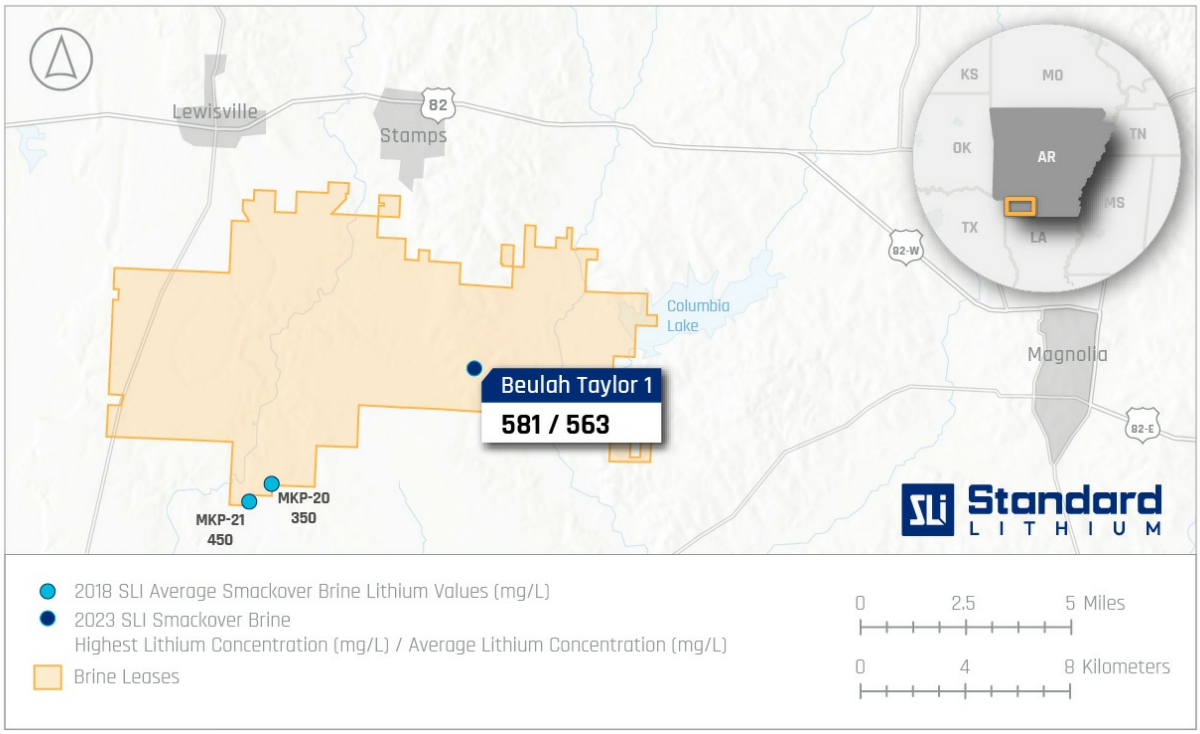

Figure 1: South West Arkansas (SWA) Project overview map showing the location of the re-entered well (Beulah-Taylor #1) with associated lithium concentrations in brines sampled from the Smackover Formation. Other data on the map are lithium concentrations in brines sampled by the Company in 2018 from existing wells on the southern edge of Standard's project area.

Figure 2: Examples of high porosity oolitic limestones from the Smackover Formation recovered from the Montague Well. This well is part of Standard Lithium's current drilling program in the South West Arkansas Project.

Brines from the Beulah-Taylor#1 were sampled using a workover rig from several different zones in the Smackover Formation during March and early April, and the lithium concentrations of those samples are reported 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.

Table 1: Beulah-Taylor#1 Lithium Brine Analyses in South West Arkansas Project Area

Smackover Sampling Name [1]	**Lithium concentration (mg/L) [2]**	**Average Lithium concentration (mg/L) [3]**
Zone 1 (Upper Smackover)	531 / 569	**563**
Zone 2 (Upper Smackover)	**581 / 574**	
Zone 3 (Upper Smackover)	570	
Zone 4 (Middle Smackover)	551	

Notes:
[1] Smackover Formation descriptors (Upper, Middle, and Lower) are a local project area naming convention.
[2] Where two lithium analyses are provided, they represent the main sample and a blind duplicate for QA/QC purposes.
[3] Unweighted mean lithium concentration from the four representative brine samples (plus duplicates) from Beulah-Taylor#1.

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/e8255d52-4648-4659-9760-983f8a504f39

https://www.globenewswire.com/NewsRoom/AttachmentNg/da2a0eab-5f15-48d1-ace9-c4718be0848e

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Figure 1

South West Arkansas (SWA) Project overview map showing the location of the re-entered well (Beulah-Taylor #1) with associated lithium concentrations in brines sampled from the Smackover Formation. Other data on the map are lithium concentrations in brines sampled by the Company in 2018 from existing wells on the southern edge of Standard's project area.

Figure 2

Examples of high porosity oolitic limestones from the Smackover Formation recovered from the Montague Well. This well is part of Standard Lithium's current drilling program in the South West Arkansas Project.

Source: Standard Lithium