



# Brine to Battery:

## Direct Lithium Extraction from Smackover Brine in Arkansas and Texas

Leading a New Era of Responsible Lithium  
Production

NYSE:A SLI TSX.V SLI FSE S51

# Cautionary Statement

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## Forward-Looking Statements

Except for statements of historical fact, this Presentation contains certain "forward-looking information" within the meaning of applicable Canadian securities legislation and "forward-looking statements" within the meaning of the United States Private Securities Litigation Reform Act of 1995 (collectively referred to herein as "forward-looking information"). The statements relate to future events or the Company's future performance. All statements, other than statements of historical fact, may be forward-looking information. Information concerning mineral resource and mineral reserve estimates also may be deemed to be forward-looking information in that it reflects a prediction of mineralization that would be encountered if a mineral deposit were developed and mined. Forward-looking information generally can be identified by the use of words such as "seek", "anticipate", "plan", "continue", "estimate", "expect", "may", "will", "project", "predict", "propose", "potential", "target", "intend", "could", "might", "should", "believe", "scheduled", "implement" and similar words or expressions. These statements involve known and unknown risks, uncertainties and other factors that may cause actual results or events to differ materially from those anticipated in such forward-looking information.

In particular, this Presentation contains forward-looking information, including, without limitation, with respect to the following matters or the Company's expectations relating to such matters: the Company's planned exploration and development programs (including, but not limited to, plans and expectations regarding advancement, testing and operation of the lithium extraction pilot plant); commercial opportunities for lithium products; filing of technical reports; expected results of exploration; accuracy of mineral or resource exploration activity; accuracy of mineral reserves or mineral resources estimates, including the ability to develop and realize on such estimates; whether mineral resources will ever be developed into mineral reserves, and information and underlying assumptions related thereto; budget estimates and expected expenditures by the Company on its properties; regulatory or government requirements or approvals; the reliability of third party information; continued access to mineral properties or infrastructure; payments obligations pursuant to property agreements; fluctuations in the market for lithium and its derivatives; expected timing of the expenditures; performance of the Company's business and operations; changes in exploration costs and government regulation in Canada and the United States; competition for, among other things, capital, acquisitions, undeveloped lands and skilled personnel; changes in commodity prices and exchange rates; currency and interest rate fluctuations; the Company's funding requirements and ability to raise capital; geopolitical instability; war (such as Russia's invasion of Ukraine); the continued impact of the COVID-19 outbreak, including with regard to the health and safety of the Company's workforce; health and safety protocols and their efficacy and impacts on timelines and budgets; and other factors or information.

Forward-looking information does not take into account the effect of transactions or other items announced or occurring after the statements are made. Forward-looking information is based upon a number of expectations and assumptions and is subject to a number of risks and uncertainties, many of which are beyond the Company's control, that could cause actual results to differ materially from those that are disclosed in or implied by such forward-looking information. With respect to forward-looking information listed above, the Company has made assumptions regarding, among other things: current technological trends; ability to fund, advance and develop the Company's properties; the Company's ability to operate in a safe and effective manner; uncertainties with respect to receiving, and maintaining, mining, exploration, environmental and other permits; pricing and demand for lithium, including that such demand is supported by growth in the electric vehicle market; impact of increasing competition; commodity prices, currency rates, interest rates and general economic conditions; the legislative, regulatory and community environments in the jurisdictions where the Company operates; impact of unknown financial contingencies; market prices for lithium products; budgets and estimates of capital and operating costs; estimates of mineral resources and mineral reserves; reliability of technical data; anticipated timing and results of operation and development; inflation; war (such as Russia's invasion of Ukraine); and the impact of health and safety protocols on the Company and its business. Although the Company believes that the assumptions and expectations reflected in such forward-looking information are reasonable, the Company can give no assurance that these assumptions and expectations will prove to be correct. Since forward-looking information inherently involves risks and uncertainties, undue reliance should not be placed on such information.



# Cautionary Statement

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Forward-looking information involves known and unknown risks, uncertainties and other factors that may cause the actual results, performance or achievements of the Company to be materially different from any future results, performance or achievements expressed or implied by the forward-looking information. Such factors include, but are not limited to: general economic conditions in Canada, the United States and globally; industry conditions, including the state of the electric vehicle market; governmental regulation of the mining industry, including environmental regulation; geological, technical and drilling problems; unanticipated operating events; competition for and/or inability to retain drilling rigs and other services and to obtain capital, undeveloped lands, skilled personnel, equipment and inputs; the availability of capital on acceptable terms; the need to obtain required approvals from regulatory authorities; uncertainties associated with estimating mineral resources and mineral reserves, including uncertainties relating to the assumptions underlying mineral resource and mineral reserve estimates; whether mineral resources will ever be converted into mineral reserves; uncertainties in estimating capital and operating costs, cash flows and other project economics; liabilities and risks, including environmental liabilities and risks inherent in mineral extraction operations; health and safety risks; risks related to unknown financial contingencies, including litigation costs, on the Company's operations; unanticipated results of exploration activities; unpredictable weather conditions; unanticipated delays in preparing technical studies; inability to generate profitable operations; restrictive covenants in debt instruments; lack of availability of additional financing on terms acceptable to the Company; intellectual property risk; stock market volatility; volatility in market prices for commodities; liabilities inherent in the mining industry; inflation risks; risks related to war (such as Russia's invasion of Ukraine); global pandemics (such as COVID-19); changes in tax laws and incentive programs relating to the mining industry; other risks pertaining to the mining industry; conflicts of interest; dependency on key personnel; and fluctuations in currency and interest rates, as well as those factors discussed in the section entitled "Risk Factors" in the Company's AIF.

Although the Company has attempted to identify important factors that could cause actual actions, events or results to differ materially from those described in forward-looking information, there may be other factors that cause actions, events or results to differ from those anticipated, estimated or intended.

Readers are cautioned that the foregoing lists of factors are not exhaustive. All forward-looking information in this Presentation speaks as of the date of this Presentation. The Company does not undertake any obligation to update or revise any forward-looking information, whether as a result of new information, future events or otherwise, except as required by law. All forward-looking information contained in this Presentation is expressly qualified in its entirety by this cautionary statement. Additional information about these assumptions and risks and uncertainties is contained in the Company's filings with securities regulators, including the Company's most recent MD&A for our most recently completed financial year and, if applicable, interim financial period, which are available on SEDAR+ at [www.sedar.com](http://www.sedar.com) and EDGAR at [www.sec.gov](http://www.sec.gov).

## Currency

Except where otherwise indicated, all references to currency in this Presentation are to US Dollars ("\$").

## NI 43-101 Disclosure

Scientific and technical information in this Presentation has been reviewed and approved by Steve Ross, P. Geol., Vice President Resource Development, of the Company, who is a "qualified person" under National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* ("NI 43-101").

Further information about the Lanxess Property ("Lanxess") Project, including a description of key assumptions, parameters, methods and risks, is available in the NI 43-101 technical report titled "NI 43-101 Technical Report for the Definitive Feasibility Study for Commercial Lithium Extraction Plant at Lanxess South Plant", dated October 18, 2023 ("Lanxess DFS"), available under the Company's SEDAR+ profile.

Further information about the South West Arkansas ("SWA") Project, including a description of key assumptions, parameters, methods and risks, is available in the NI 43-101 technical report titled "NI 43-101 Technical Report South West Arkansas Project Pre-Feasibility Study" dated September 18, 2023 (the "South West Arkansas PFS"), available under the Company's SEDAR+ profile.

The mineral resources and mineral reserves contained in this Presentation have been prepared in accordance with the requirements of securities laws in effect in Canada, including NI 43-101, which governs Canadian securities law disclosure requirements for mineral properties. NI 43-101 differs from the requirements of the United States Securities and Exchange Commission ("SEC") that are applicable to domestic United States reporting companies. Any mineral resources or reserves reported by the Company herein may not be comparable with information made public by United States companies subject to the SEC's reporting and disclosure requirements.

## Non-GAAP Measures

This Presentation includes certain performance measures ("non-GAAP measures") which are not specified, defined, or determined under generally accepted accounting principles (in the Company's case, International Financial Reporting Standards, or "IFRS").

These are common performance measures in the lithium mining industry, but because they do not have any mandated standardized definitions, they may not be comparable to similar measures presented by other issuers. Accordingly, the Company uses such measures to provide additional information and readers should not consider them in isolation or as a substitute for measures of performance prepared in accordance with generally accepted accounting principles ("GAAP").

# Resource Advantage: Transforming the Global Lithium Landscape

## Smackover Formation: The Future of Responsible Lithium Development Starts Here

- **Highest-Grade Brine Advantage:** North America's highest-grade lithium brines, comparable to select South American resources.
- **Proven Brine Success:** Arkansas' track record in brine extraction provides a foundation for DLE development
- **A Century of Energy Development:** In depth reservoir and geological understanding, specialized drilling contractors, and expertise in brine operations
- **Proactive Business Environment:** A secure, supportive region with strong stakeholder support and a solid social license

### Smackover Key Attributes

#### High-Grade Resource

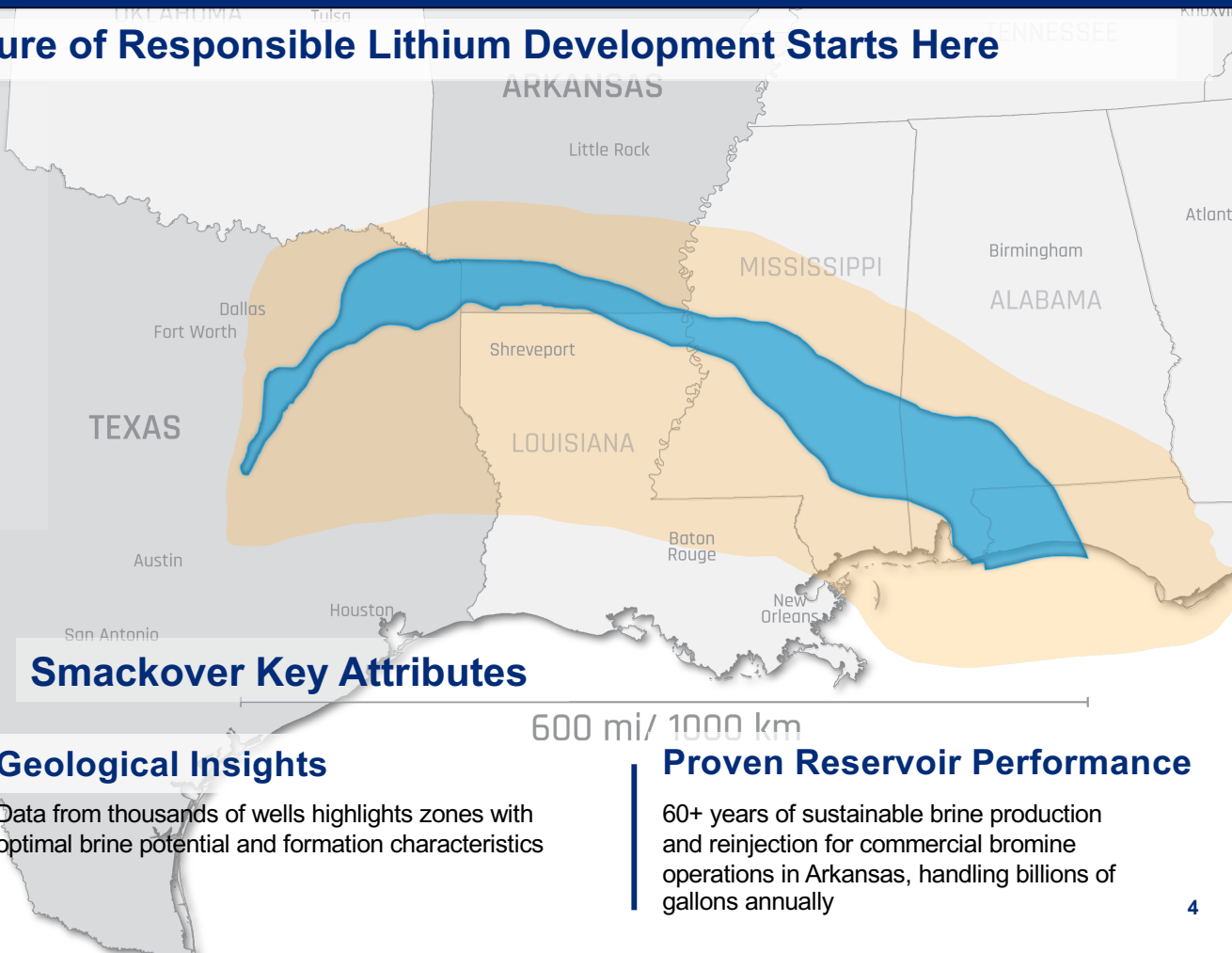
Smackover brine has elevated lithium concentrations, typically ranging from 150-800+mg/L

#### Geological Insights

Data from thousands of wells highlights zones with optimal brine potential and formation characteristics

#### Proven Reservoir Performance

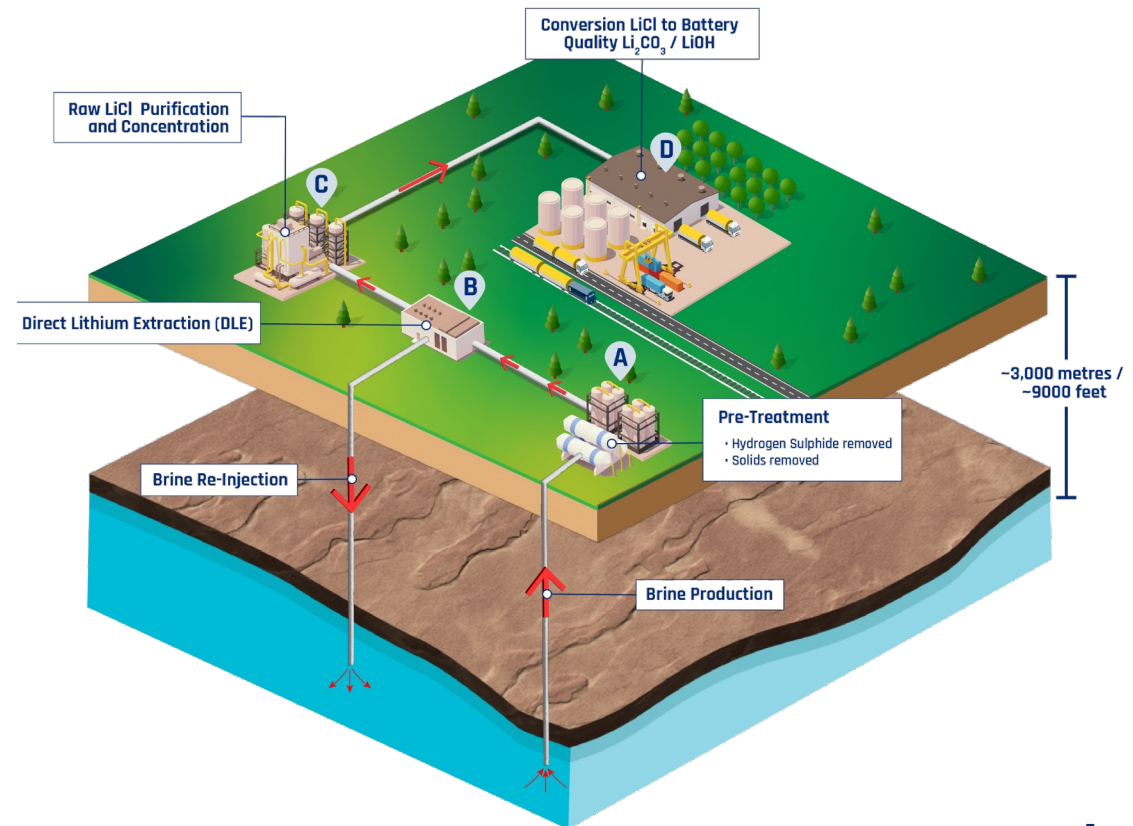
60+ years of sustainable brine production and reinjection for commercial bromine operations in Arkansas, handling billions of gallons annually



# Direct Lithium Extraction | The Right Technology for the Job

## From Brine to Battery – Unlocking North America’s Lithium Opportunity with DLE

- DLE process tailored to the project with pretreatment, extraction, polishing, concentration, and conversion, with continuous optimization to consistently deliver battery-grade lithium products
- Enables scalable production and process adaptability for rapid response to market dynamics, offering advantages over traditional lithium extraction methods
- Smaller footprint and efficient closed-loop system ensure sustainability, while higher recovery rates drive robust economic viability
- Ideal for projects with favorable brine characteristics, including grade, temperature, volume, access to water, power and reagents





# Projects Overview



# Project Snapshot | Arkansas The Optimal Starting Point

## Phase 1A Project<sup>1</sup>

- **Location:** Brownfield bolt-on project with existing commercial brine operations at the LANXESS South Facility
- **Key Feature:** Existing brine flow of roughly 3,000 gallons per minute (GPM) 217 mg/l Li
- **Significance:** Minimal permitting, modest scale up from Direct Lithium Extraction demonstration plant operating on the same site
- **Production:** Initial target commercial production goal of 5,700 tonnes per annum (TPA) battery quality lithium carbonate (BQ  $\text{Li}_2\text{CO}_3$ )

Summary Metrics (USD)<sup>(1)</sup>

Average Annual Production<sup>(2)</sup> **5,400 tonnes  $\text{Li}_2\text{CO}_3$**

Estimated Resource **208 Kt LCE**

Development Capex<sup>(3)</sup> **\$365 million**

Operating Life **25 years**

Average Opex<sup>(4)</sup> **\$6,810 per tonne**

NPV (8%) Pre-Tax **\$772 million**

IRR Pre-Tax **29.5%**

# Project Snapshot | Arkansas The Optimal Starting Point

## South West Arkansas Project<sup>1</sup>

- **Location:** 40 miles west of Phase 1A, immediately adjacent to Albemarle's Magnolia bromine operations and Exxon Mobile lithium project
- **Key Feature:** Average lithium grade of 437 mg/l, substantially higher than other projects in the region. Strategic acquisition of a 118-acre land parcel in Lafayette County, near State Highway 29
- **Significance:** Project economics are directly enhanced by the high average lithium grade. The strategic acquisition of a 118-acre land parcel, previously used for logging operations, offers a potential site for future commercial development
- **Production:** Base case 30,000 TPA battery quality lithium hydroxide (BQ LiOH), upside 35,000 TPA BQ LiOH
- **Definitive Feasibility Study Underway**

(1) SWA Preliminary Feasibility Study, September 18, 2023.

Summary Metrics (USD) <sup>(1)</sup>	Base Case	High Case
Average Annual Production <sup>(2)</sup>	30,000 tonnes LiOH	35,000 tonnes LiOH
Estimated Resource	1.8 Mt LCE	
Development Capex <sup>(3)</sup>	\$1.274 billion	\$1.36 billion
Operating Life	20 years	20 years
Average Opex <sup>(4)</sup>	\$4,073 per tonne	\$3,964 per tonne
NPV (8%) Pre-Tax	\$4.5 billion	\$5.4 billion
IRR Pre-Tax	41.3%	44.4%

(1) d/d/life, Esri.

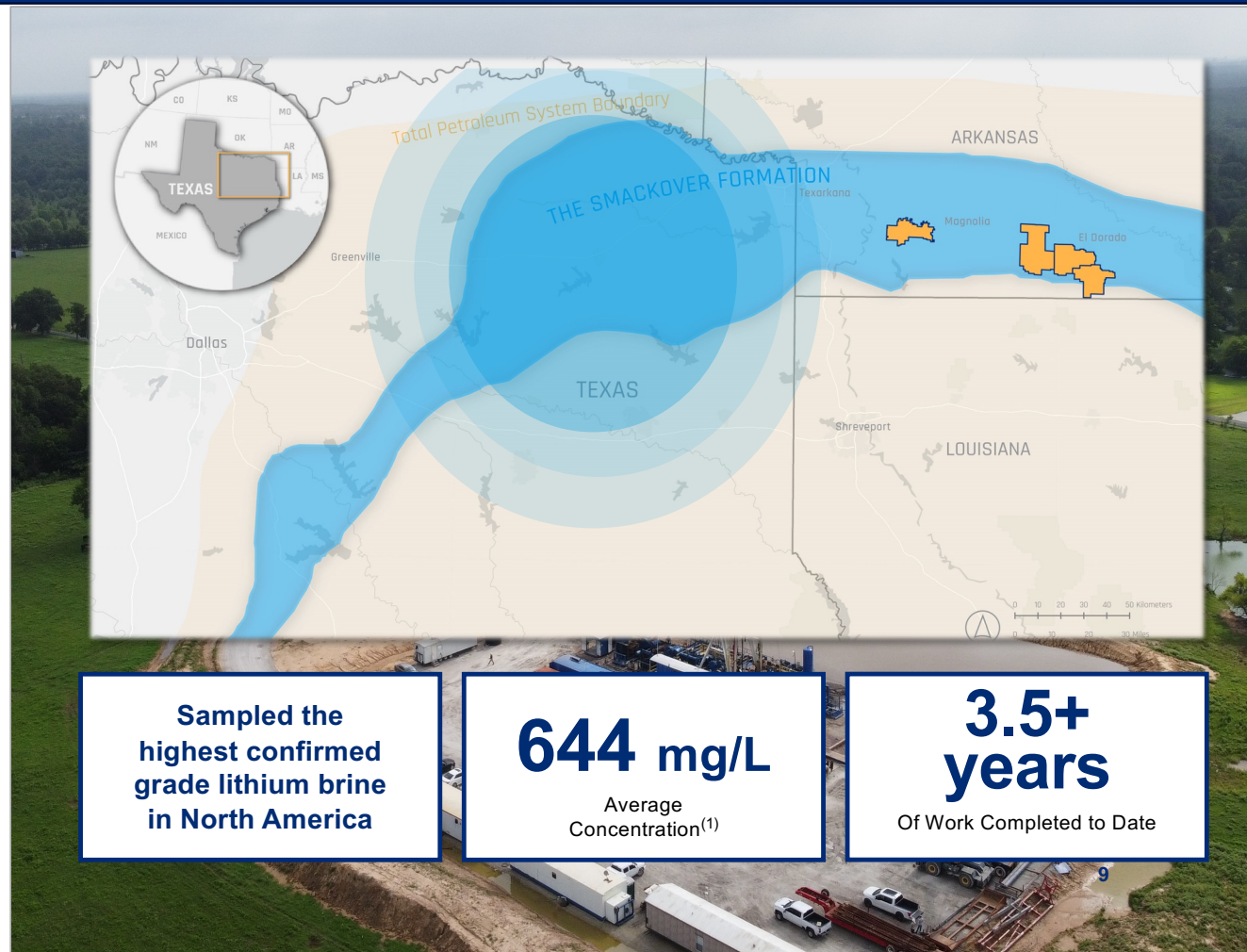


# Project Snapshot | Texas Highest Grade Lithium Brine in North America

## East Texas Expansion Project<sup>1</sup>

- **Location:** Strategically selected land within a highly prospective region of the Smackover Formation. Selection based on four years of geological data analysis and comprehensive brine sampling, drilling confirms significant potential.
- **Key Feature:** Samples collected to date were tested by third parties to confirm lithium **concentrations ranging from 298 to 806 mg/L**, with an average of **644 mg/L**
- **Significance:** To the understanding of management, these are the highest tested lithium brine concentrations in North America, with significant potash and bromine concentrations
- **Objective:** Securing a resource-based capacity for the potential production of **100,000+ TPA LCE**, utilizing a replicable DLE process

(1) Recent drilling has shown a range of lithium concentrations; October 25, 2023 company news release.



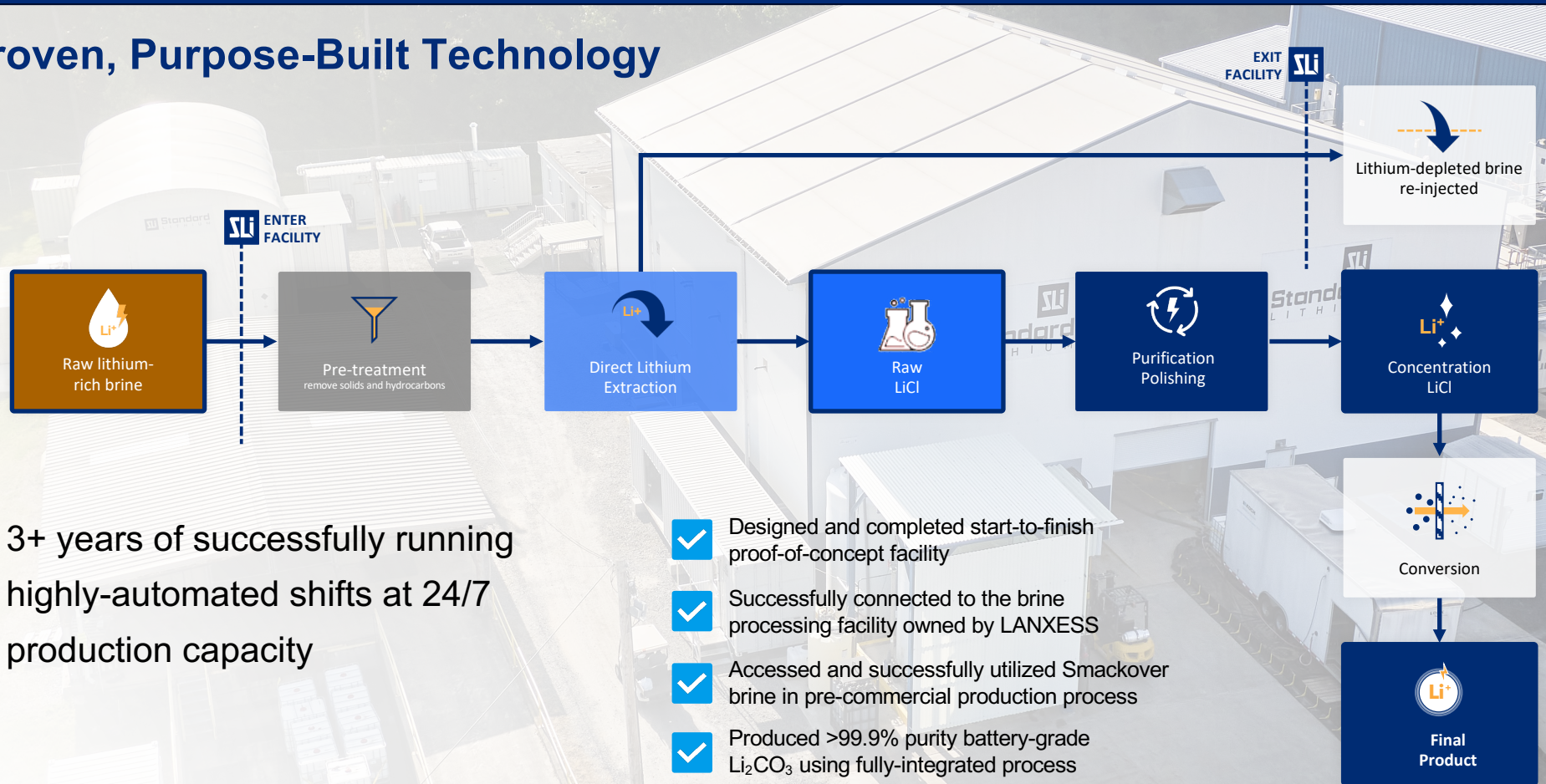
# Direct Lithium Extraction | Technology Overview





# Direct Lithium Extraction | Technology Overview

## Proven, Purpose-Built Technology



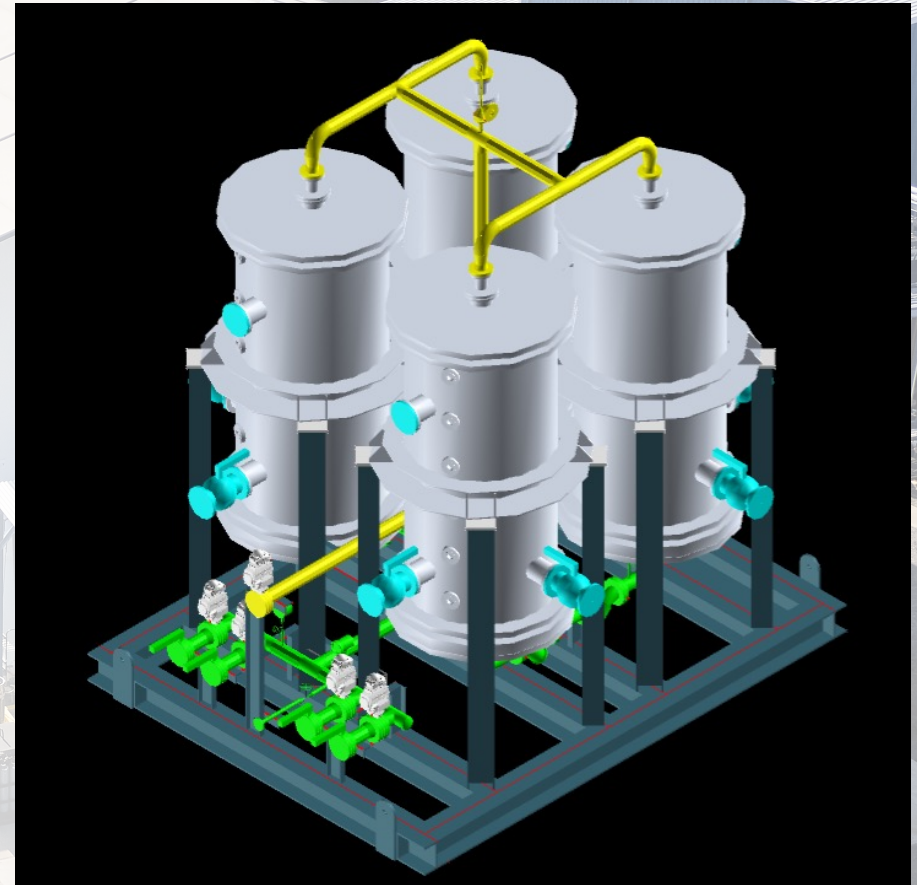
3+ years of successfully running highly-automated shifts at 24/7 production capacity

- ✓ Designed and completed start-to-finish proof-of-concept facility
- ✓ Successfully connected to the brine processing facility owned by LANXESS
- ✓ Accessed and successfully utilized Smackover brine in pre-commercial production process
- ✓ Produced >99.9% purity battery-grade  $\text{Li}_2\text{CO}_3$  using fully-integrated process

# Direct Lithium Extraction | Technology Overview

## LSS – Lithium Selective Sorption

- LSS jointly developed DLE technology leverages expertise from Standard Lithium and Koch Technology Solutions (KTS) for optimized lithium extraction from Smackover brines
- LSS has demonstrated exceptional performance at the Arkansas Demonstration Plant, achieving >97% lithium recovery and >99% rejection of key contaminants (Mg, Ca, Na, K), including >95% boron rejection. This performance is now being validated on the only operational commercial-scale DLE column in North America.
- Joint Development Agreement underway with KTS, considers certain performance guarantees for lithium extraction and contaminant rejection and includes exclusivity provision across the Smackover Formation, reduces project risk and accelerates Standard Lithium's DLE commercialization.
- Sustainable design considers modular construction, resin supplied by Koch, water-based elution, and potential for water recycling, minimizing environmental impact









# Stakeholder Engagement & Sustainability





# Stakeholder Engagement | Being a Good Neighbor

## Building Together: Respectful Engagement and Benefits



### Job Training Opportunity

South Arkansas College, in partnership with local employers, will offer **FREE** training that may qualify participants for great **JOB**s.



**Requirements:**  
High school diploma or GED  
Desire for a career in our local growing companies

### FREE JOB TRAINING

Contact South Arkansas College at 870-864-8451

**Phase I:** 6 weeks on Tuesday and Thursday, 6:30 pm - 8:00 pm.  
Basic skills, problem solving, team interaction, punctuality, attitude, eagerness to learn, and attention to detail.  
**Phase II:** 10 weeks on Tuesday and Thursday, 6 pm - 9 pm  
Hands-on learning of important safety and operation skills specific to the chemical production sector.



### Fostering EV-Friendly Communities

Standard Lithium proudly sponsors south Arkansas first downtown EV charging station at South Ark College Campus, with Governor Asa Hutchinson inaugurating the station by plugging in an electric vehicle

### Unlocking Potential: STEM Education and Employment Training Initiatives

Empowering Futures: We support workforce development through the Catalyst program and inspire STEM education with employee volunteerism in our community.

### Celebrating Together: Our Partnership in Local Festivities

Our sponsorship of local festivities, including music festivals, Santa visits, fireworks displays, and the Mayhaw festival, brings joy to our community



# Stakeholder Engagement | Being a Good Neighbor



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# Leading a new era of responsible lithium production in America

SCIENCE • SCALE • SPEED

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