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This presentation also includes certain estimates and projections that are based on internal models. Although the estimates are based upon assumptions and analysis that we believe to be reasonable, there can be no assurance that actual results will not differ, perhaps materially, from the estimates presented in this presentation.

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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 resource and

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.

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Cautionary Statement



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 reserves 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; other risks pertaining to the mining industry; conflicts

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. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information. The Company does not undertake any obligation to update or revise any forward-looking information to update or revise any

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").

Why Standard Lithium?

Right Projects, Right Place, Right Strategy



North America's Premier Lithium Brine Projects

Portfolio of high-grade lithium brine projects, advantageously located in a region with a longstanding history of commercial brine operations, with a significant expansion underway aiming to achieve globally significant production capacity



Phased Development Allowing for Alignment with Market Dynamics

Our projects are designed for staged development, allowing for alignment with evolving market conditions. This approach grants us the flexibility to scale operations in response to the fluctuating demands of the lithium market, ensuring a grounded and adaptable growth strategy amid market shifts



Project Development Pipeline Strengthened by Strategic Partnerships

Established strong partnerships with industry leaders provide technical, operational, and financial strengths to our development strategy. As our projects progress towards commercial development, they continue to attract interest for further strategic partnership opportunities



Differentiated by Strong Stakeholder Support and Regional Advantages

Our projects are uniquely positioned with the advantage of robust stakeholder support, a distinctive feature not commonly found in U.S. projects. This support, coupled with regional infrastructure and a skilled workforce, differentiates our approach and strengthens our project execution



Experienced and Proven Leadership Team

Our leadership team brings extensive experience from a wide spectrum of industries, offering diverse expertise and a track record of successful project execution



Snapshot | Highest Grade Lithium Brine Projects Outside of South America

Standard Lithium: Leading the Way to New U.S. Lithium Production with Advanced, Sustainable and

OKLAHOMA

Development Area

Tuiso

SLi Texas

Ready-to-Scale DLE Technology

Phase 1A(1)

Brownfield Project, bolt-on with existing commercial brine

operations

Location

Kev Feature

Existing brine flow: 3,000 GPM source, 217 mg/l lithium

Significance

Minimal permitting, modest scale-up from demonstration plant

Initial production goal of **5,700 TPA** BQ Li₂CO₃

South West Arkansas⁽²⁾ ("SWA")

Location

40 mi. west of Phase 1A, near Albemarle's brine operations

Key Feature

Lithium grade 437 mg/L, (2X Phase 1A)

Base case 30.000 TPA BQ LiOH

Upside **35,000 TPA BQ LiOH**

Significance

Project economics improve directly with lithium grade

Smackover Expansion⁽³⁾

Opportunity

East Texas up to 806 mg/L amongst world's highest grade, significant potash and bromine values

Objective

Securing a resource-based capacity for the potential production of 100,000+ TPA LCE, utilizing a replicable DLE process

Project Area **East Texas** Average⁽³⁾ Birmingham 644 ma/L Li TEXAS **SWA** Average⁽²⁾ 437 mg/L Li 600 mi/ 1000 km **Partnerships Leveraging Social License Unlocking Growth Community Engagement Potential with Scalable** Infrastructure for for Strong Local Support **High-Grade Projects Success**

Asset Base on the Country's Largest Lithium Brine Aquifer

ARKANSAS

SLi Arkansas

⁽¹⁾ LANXESS Definitive Feasibility Study, October 18, 2023.

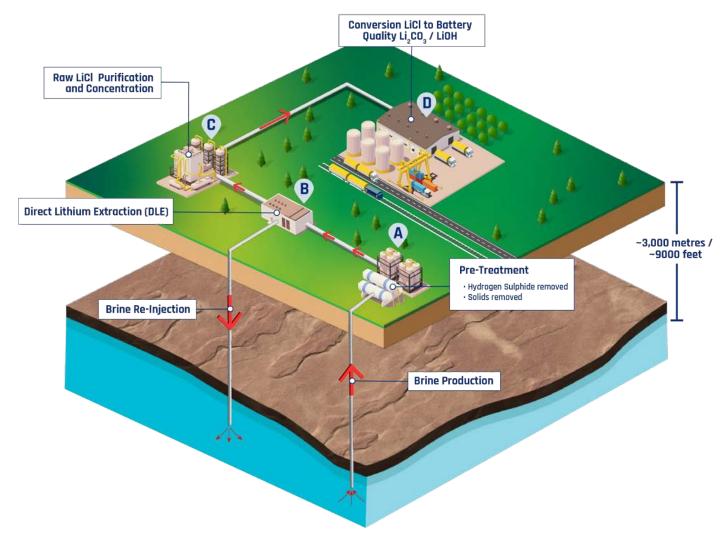
⁽²⁾ SWA Preliminary Feasibility Study, September 18, 2023.

⁽³⁾ Recent drilling has shown a range of lithium concentrations; October 25, 2023 company news release.

Direct Lithium Extraction | Technology Overview

Substantial Evolution in Lithium Production

- Continuous pumping of brine, selective extraction of lithium, and re-injection of the brine to the formation
- Higher lithium recovery compared to evaporation ponds (90+% vs 50% and less)
- Ensures consistent final purity through continuous control and optimization
- Smaller footprint than evaporation ponds, efficient closed-loop system ensures sustainability and higher recovery enables robust economic viability



Direct Lithium Extraction | Right Project – Right Place – Right Strategy

Critical Success Elements

Not all DLE projects are equal. Direct Lithium Extraction demands critical components for commercial lithium production



Location

Business-friendly state, ample water, and nearby access to necessary chemical reagents



Formation

Elevated lithium concentrations paired with optimal temperature and reservoir conditions



Technology

Extraction technology developed to fit the brine chemistry and environmental criteria of the resource



Workforce

A local workforce with requisite skills, including knowledge of chemical processing



Social License

Support from local communities and government is essential for project success

SMACKOVER BRINES: ARKANSAS/ TEXAS

- ✓ Highest grade lithium brine outside of South America typically 150 – 800+ mg/L
- ✓ Elevated temperature (not hostile like geothermal) improves DLE process
- Existing brine industry, mature regulatory system for brine supply and disposal wells
- ✓ Significant stakeholder support



GEOTHERMAL BRINES: SALTON SEA

- x Low grade typically sub 200 mg/L
- x Highly dissolved with problematic metals and impurities
- x High temperature, 390 660 degree Fahrenheit
- x Community resistance from both indigenous and local communities on environmental impact and water use

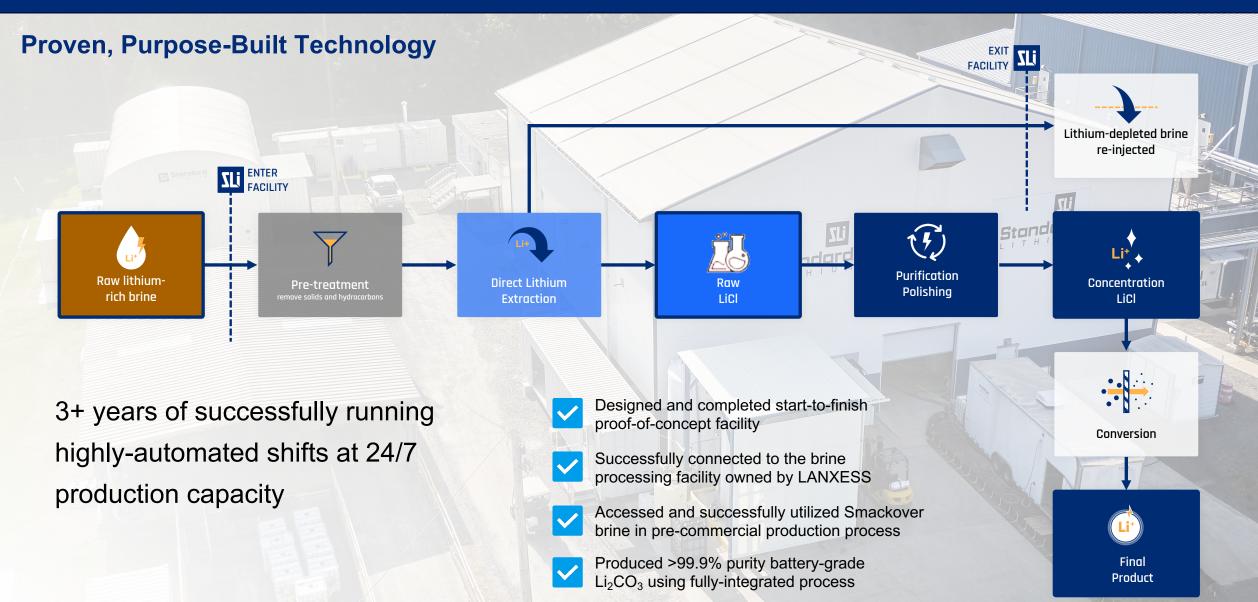


OIL FIELD BRINES: ALBERTA - PENNSYLVANIA

- x Very low grade typically sub 100/mg/L
- x High contaminant level including heavy metals and organic compounds
- x Because of the very low lithium concentration and volumes of brine required to process, capex and opex become extremely high



Direct Lithium Extraction | Technology Overview

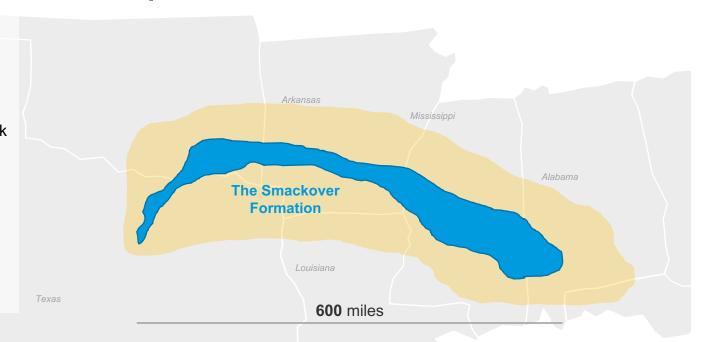




North America's Premiere Lithium Brine Resource

Smackover Formation: Lithium concentrations comparable to select South American brines

- Globally Significant Resource: A pivotal and responsible lithium source, addressing U.S. critical mineral needs
- Highest-Grade: Home to North America's only high-grade lithium brines
- Established Brine Industry: Arkansas boasts a well-established track record in brine extraction, with six decades of experience, backed by mature operational expertise and a supportive regulatory environment
- Rich Resource Heritage: A century-long legacy in energy resource development, provides strong infrastructure and deep geological expertise
- Business-Friendly: A secure, supportive region with strong stakeholder support and a solid social license



Smackover Attributes

Ideal Concentrations

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

Geology Fundamentals

Geological data from thousands of wells demonstrates regional formation homogeneity in thickness, continuity, and chemistry

Significant Brine Capacity

8+ billion gallons of brine pumped, processed and reinjected annually in south Arkansas for bromine



Why Arkansas | The Optimal Starting Point

Arkansas is the ideal location to develop a new U.S. commercial lithium business. The state's established brine operations, led by industry leaders like Albemarle and LANXESS, provide a solid foundation for the application Direct Lithium Extraction (DLE) technology. With a legacy of oil and gas experience, and six decades of brine processing for bromine, Arkansas offers an environment optimized for successful DLE lithium extraction.











Efficient Permitting & Regulatory Compliance

Oversight by the state-level Arkansas Oil and Gas Commission (AOGC) ensures streamlined permitting, a key factor for expeditious project development



Proven Expertise in Closed- Loop Brine Systems

Arkansas' extensive experience in maintaining closed-loop brine systems aligns perfectly with DLE requirements, minimizing environmental impact and maximizing operational efficiency



Standard Lithium and Lanxess Partnership

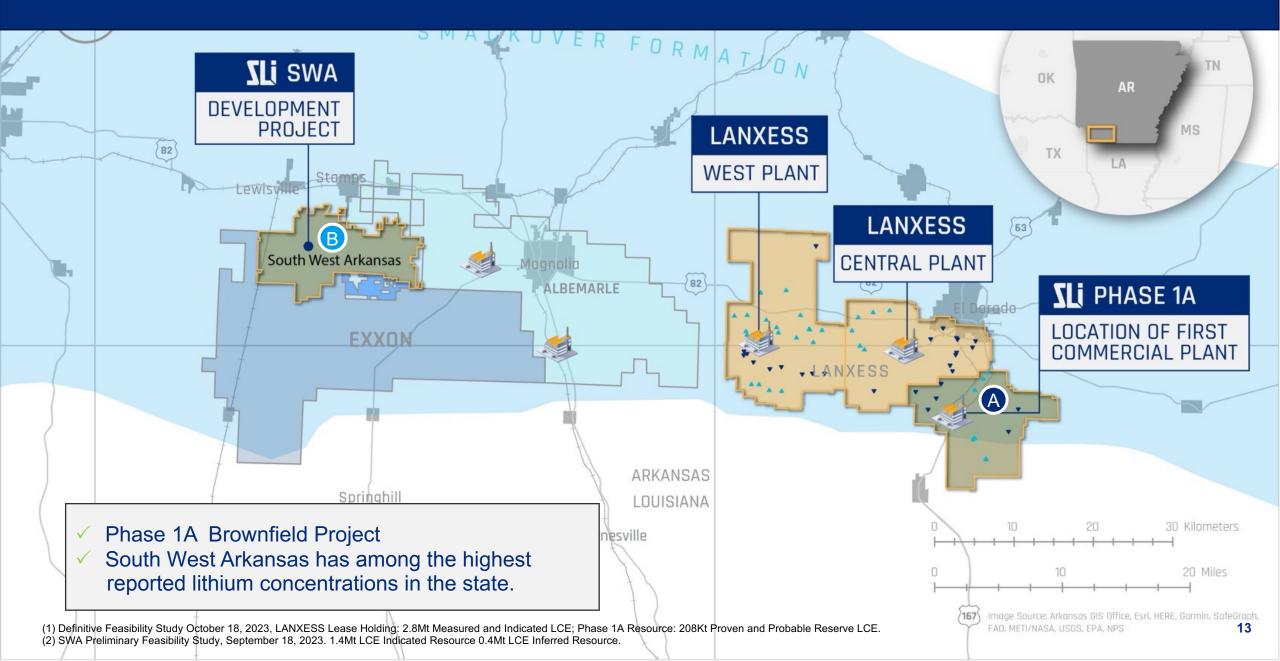
The two companies have an established framework that leverages Lanxess' existing brine infrastructure and permits to fast-track lithium production



Historical DLE Initiatives

Albemarle, the world's largest lithium producer, ran a DLE pilot in 2011, underscoring the region's potential

Arkansas Projects Asset Map



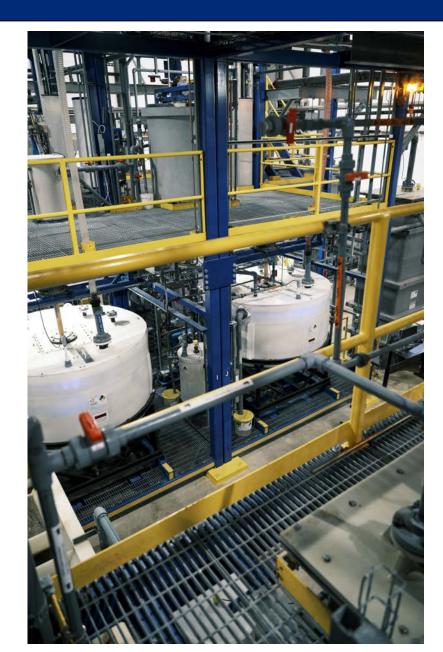


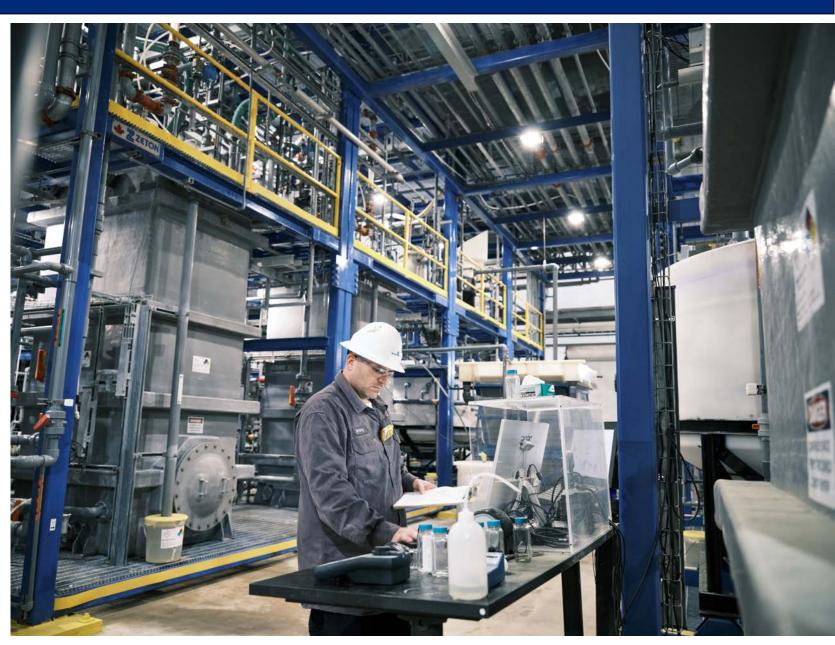




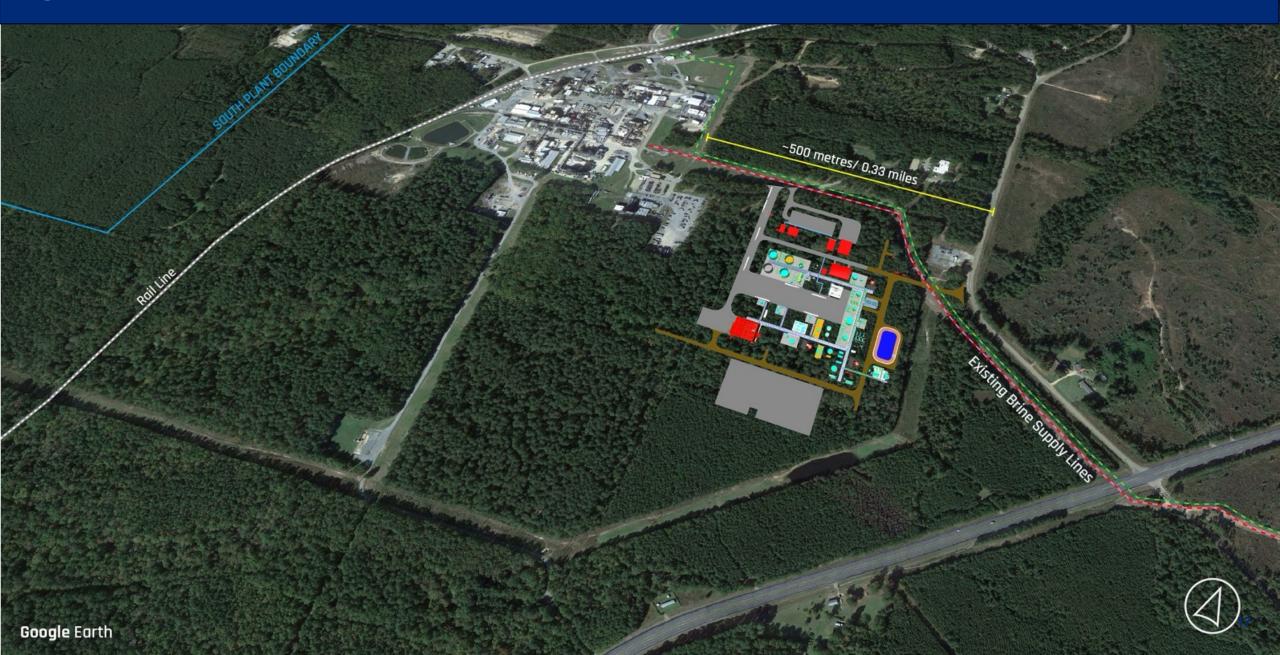














Phase 1A is the ideal launchpad for commercial DLE production, utilizing a well-established brownfield site with six decades of brine and bromine extraction operations, accompanied by an existing 3,000 GPM brine supply and extensive on-site amenities.

Summary Metrics (USD) ⁽¹⁾	
Average Annual Production ⁽²⁾	5,400 tonnes Li ₂ CO ₃
Estimated Resource	208 Kt LCE
Development Capex ⁽³⁾	\$365 million
Operating Life	26 years
Average Opex ⁽⁴⁾	\$6,810 per tonne
NPV (8%) Pre-Tax	\$772 million
IRR Pre-Tax	29.5%





Phase 1A is the ideal launchpad for commercial DLE production, utilizing a well-established brownfield site with six decades of brine and bromine extraction operations, accompanied by an existing 3,000 GPM brine supply and extensive on-site amenities.

Access to Existing Resources:

- Brine Supply & Disposal Network
- Electricity
- Fresh Water
- Natural Gas
- Paved Highway
- Rail
- Skilled Labor
- 60+ years of brine production and mine life

Project has local support and license to operate:

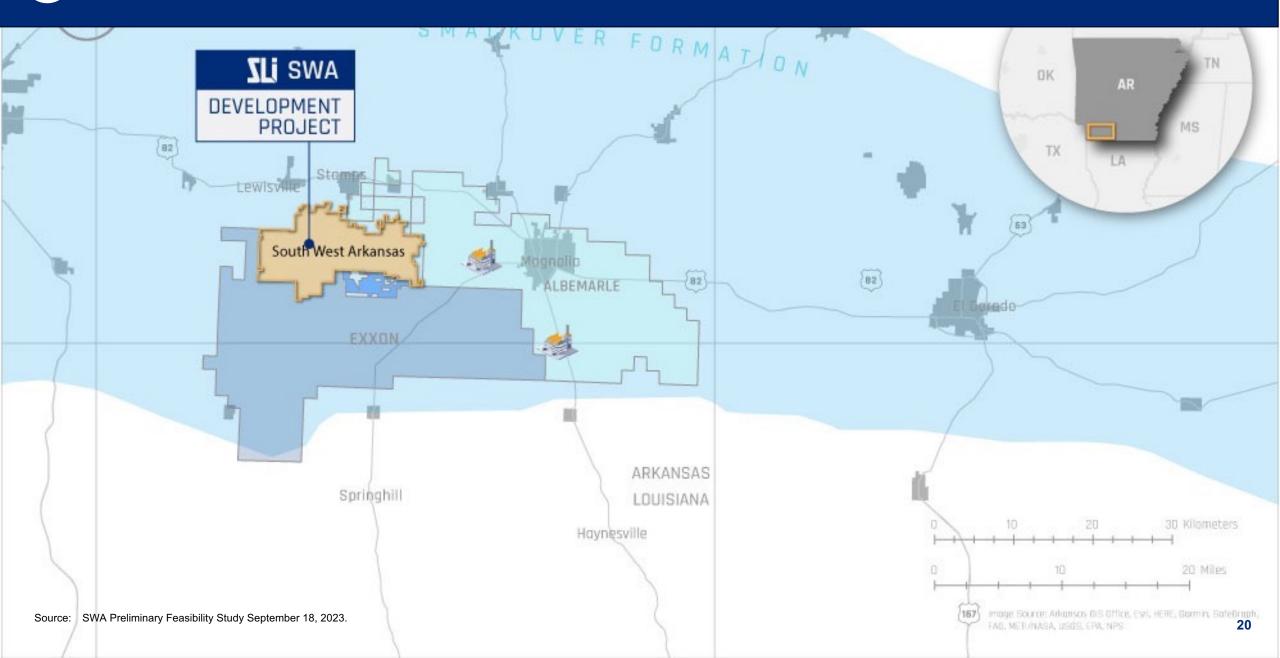
- Not subject to local planning and zoning ordinances
- Union County does not regulate industrial siting and construction
- Minimal permits required



Source: Lanxess Definitive Feasibility Study October 18, 2023.

В

South West Arkansas Project



South West Arkansas Project

With lithium grades averaging 437 mg/L, double those of Phase 1A, this project marks a significant step in our de-risked expansion, solidifying the region as a sustainable U.S. lithium hub

Location

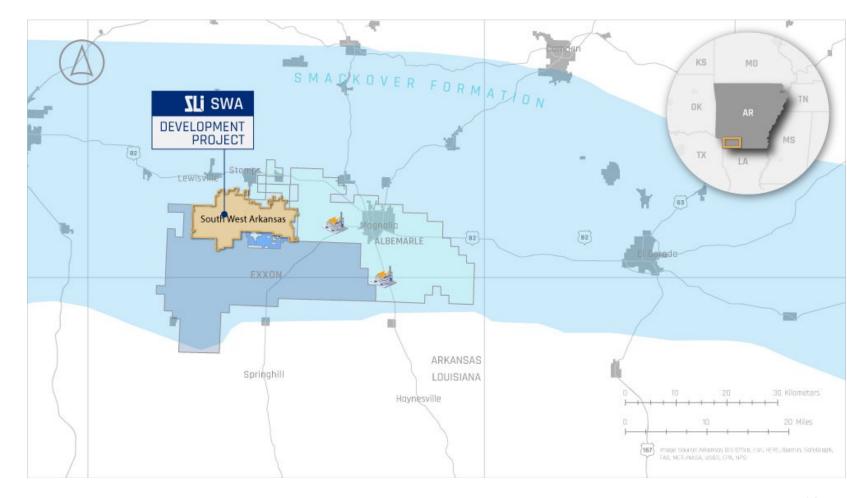
 Adjacent to Albemarle's existing brine operations, the SWA project benefits from the same regional expertise and regulatory advantages

Lithium Grade

 The SWA Project boasts a lithium grade of 437 mg/L, substantially higher than the Lanxess 1A Project

Significance

 Projected base case production of 30,000 tonnes per annum of battery-quality LiOH, with an upside potential of 35,000 tonnes per annum. This earlierstage project leverages the same regional expertise and regulatory advantages, building upon the success of Phase 1A



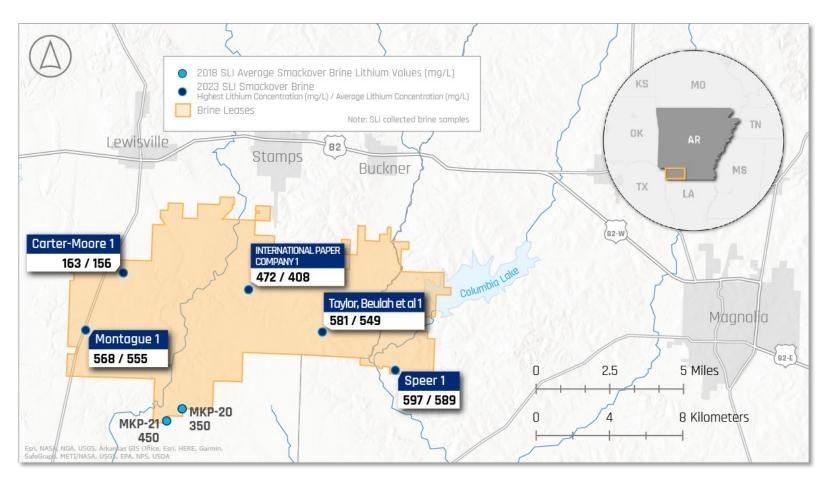
Source: SWA Preliminary Feasibility Study September 18, 2023.



South West Arkansas Project

With lithium grades averaging 437 mg/L, double those of Phase 1A, this project marks a significant step in our de-risked expansion, solidifying the region as a sustainable U.S. lithium hub

Summary Metrics (USD) ⁽¹⁾	Base Case	High Case
Annual Production	30,000 tonnes LCE	35,000 tonnes LCE
Estimated Resource ⁽²⁾	1.8 Mt LCE	1.8 Mt LCE
Development Capex ⁽³⁾	\$1.274 billion	\$1.360 billion
Operating Life		
Operating Life	20 years	20 years
Average Opex ⁽⁴⁾	20 years \$4,073 per tonne	20 years \$3,964 per tonne



⁽¹⁾ SWA Preliminary Feasibility Study September 18, 2023; all model outputs are expressed on a 100% project ownership basis.

⁽³⁾ Includes 20% contingency on capital costs.

⁽⁴⁾ Operating cost per tonne over life of the project.



South West Arkansas Project

The 118-acre parcel, strategically located in Lafayette County, near state highway 29, has a history of use for logging operations. This site has been carefully selected for its ideal location, setting the stage for potential future developments

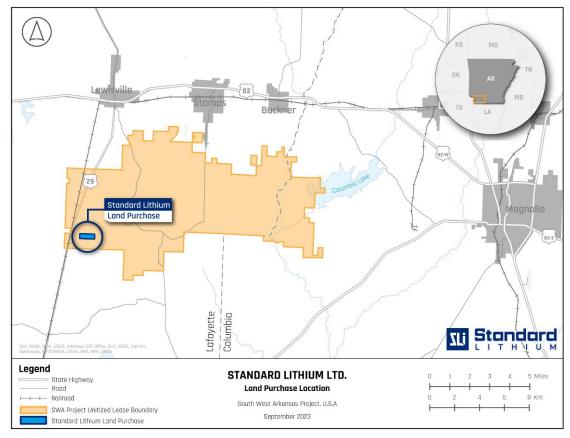


Figure 1: Overview of South West Arkansas Project and Land Purchase

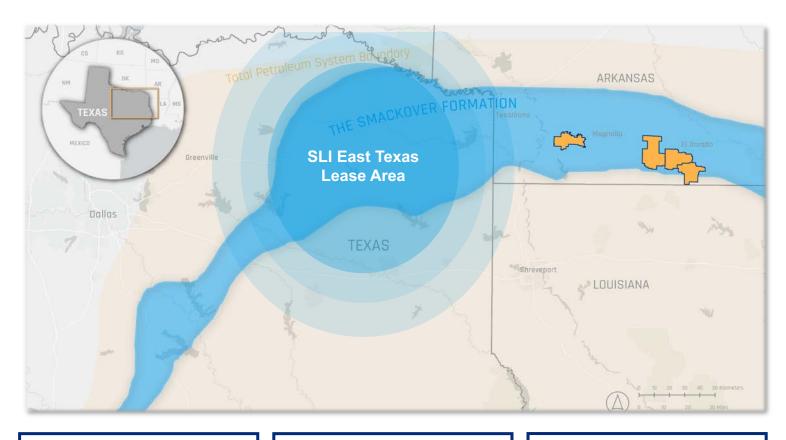


Figure 2: 118-acre Land Purchase Bird's Eye View

Smackover Expansion Opportunity | East Texas

- Secured land, drilled and sampled lithium brine showing significant potential
- Nearly four years spent securing geological data, analyzing brine samples and reviewing mineral ownership
- Defined areas of the Smackover Formation with optimal brine conditions
- · Collaborating with state authorities
- Clear vision for the future
- Significant Potash and Bromine Opportunity





Sampled the highest confirmed grade lithium brine in North America

644 mg/L

Average Concentration⁽¹⁾

3.5+ years

Of Work Completed to Date

Smackover Expansion Opportunity | East Texas

Targeting locations over optimal brine resources to secure a foothold for large-scale production.

Status: Confirming Resource

- Team of Smackover specialists have been working for the past
 3.5 years to identify the most prospective areas to secure highquality brine resources in East Texas
- Acquiring prospective brine rights in key project areas
- Acquired the rights to one existing well and a new deep well
- 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⁽¹⁾
- To the understanding of management, these are the highest tested lithium brine concentrations in North America
- Significant Potash and Bromine concentrations



(1) East Texas samples from October 25, 2023 news release.

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Stakeholder Engagement & Sustainability



Stakeholder Engagement | Being a Good Neighbor

Building Together: Respectful Engagement and Benefits













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

<u>Phase I</u>: 6 weeks on Tuesday and Thursday, 6:30 pm - 8:00 pm.

Basic skills, problem solving, team interaction, punctuality, attitude,

Hands-on learning of important safety and operation skills specific to the

Phase II: 10 weeks on Tuesday and Thursday, 6 pm - 9 pm

eagerness to learn, and attention to detail

chemical production sector

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



NYSE: SLI TSX.V: SLI FSE: S5I

Leading a new era of responsible lithium production in America

SCIENCE • SCALE • SPEED

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