Arkansas Lithium

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ARKANSAS ENERGY & ENVIRONMENT

OIL

- Originally discovered in 1920 in Stephens, AR
- Commercial production of oil begins with the Busey
 #1 well in January of 1921
- 3,879,593 barrels of oil produced in 2024





NATURAL GAS

- Originally discovered in 1887 in Fort Smith, AR
- Commercial development began in 1902
- 357.900 bcf produced in 2024

BROMINE

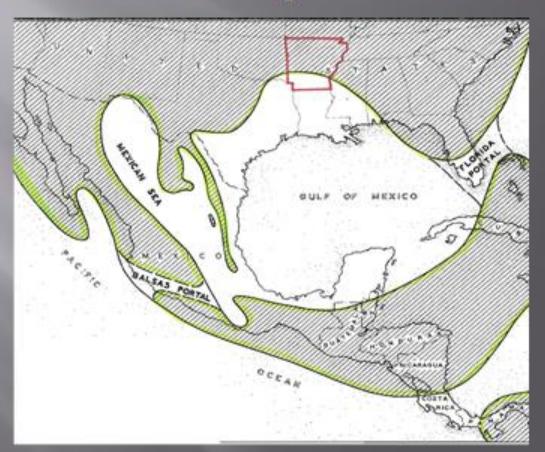
- Arkansas began producing bromine in Union County in 1957
- Arkansas is the world's second largest producer of bromine
- Arkansas produced 198.528 million barrels of brine in 2023
- Bromine has several uses but is primarily used a flame retardant.



Smackover Brine - A Unique Resource

- Dead Sea in Israel is the world's largest surface bromine brine resource.
- Smackover in Columbia and Union Counties Arkansas is world's largest sub-surface bromine brine resource 8,000 ft.
- Bromine is used in agricultural and water treatment chemicals, flame retardants, cleaning products, pharmaceuticals.
- Smackover Brine could also potentially be a world class "battery grade" lithium resource.

Smackover Brine A Unique Arkansas Resource





LITHIUM

- Arkansas is in the beginning stages of setting a framework to produce lithium
- The Oil and Gas Commission already has authority to regulate through the Brine Act
- USGS conducted a study with the E&E's Office of State Geologist and concluded there was approximately 5-19 million tons of lithium in the Smackover Formation

OGC Office of State Geologist and USGS Joint Lithium Resource Project







- Safety controls for H₂S
- Field parameters
- Major cations / anions
- Trace elements
- Isotopesof H,O, S, Sr, Li



Collecting samples at the OSG warehouse in Little Rock, AR







NATIONAL NEWS RELEASE

Unlocking Arkansas' Hidden Treasure: USGS **Uses Machine Learning to Show Large** Lithium Potential in the Smackoverkover **Formation Formation**

SCIENCE



OIL AND GAS COMMISSION









ABOUT

DOCUMENT IMAGING

FAYETTEVILLE SHALE

FORMS. HEARING & RULES

LITHIUM NAPS OPERATORS PIPELINES REPORTS LEASE & WELL DATA

Commission Actions

Frequently Asked Questions

Standard Lithium **Pilot Plant**

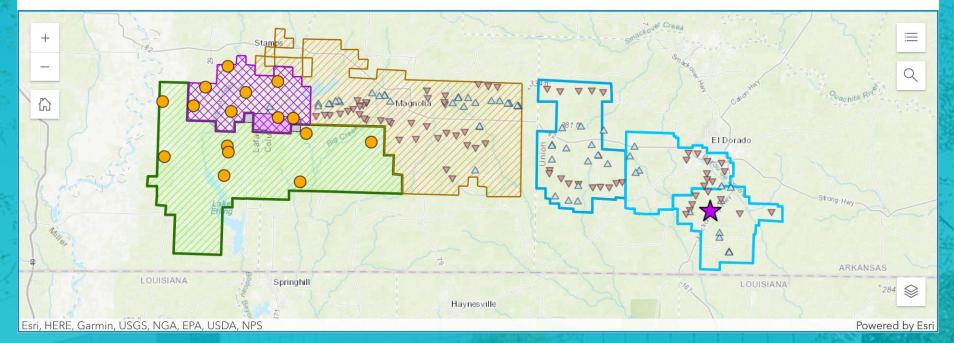
Lithium Development Map



Lithium from Brine

The brine production industry is well established in Arkansas and has been continuously producing brine for the extraction of specific elements Smackover Formation from brine, such as Bromine and other elements since the 1950's. Lithium extraction will be an additional element extracted from the brine and will be regulated under the Arkansas Brine Production Act and in accordance with the Arkansas Brine Production Regulatory Program. Leasing for Lithium extraction and test well activity to define the Lithium potential from the Smackover Formation is currently occurring, however no commercial Lithium production has been initiated. To date, the Commission has issued well permits and several Orders dealing with a specific Lithium "pilot project" and the creation of a Brine Unit, and anticipates future Commission proceedings dealing with additional Brine Units and Lithium royalty determination.

Lithium Bromine Area Map





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LITHIUM

DLE METHOD, ADVANTAGES& CURRENT UNITS



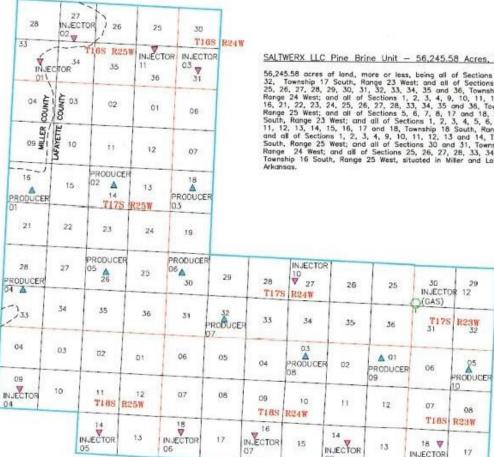
TETRA (Evergreen – 6183 and Expansion 815 acres)

POTENTIAL LOCATIONS FOR FUTURE SUPPLY WELLS





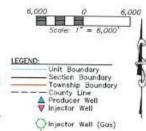
Pine Brine Production Unit



SALTWERX LLC Pine Brine Unit - 56.245.58 Acres, more or less

56,245.58 acres of land, more or less, being all of Sections 29, 30, 31 and Range 24 West; and all of Sections 25, 26, 27, 28, 33, 34, 35 and 36, Township 16 South, Range 25 West, situated in Miller and Lafayette Counties,

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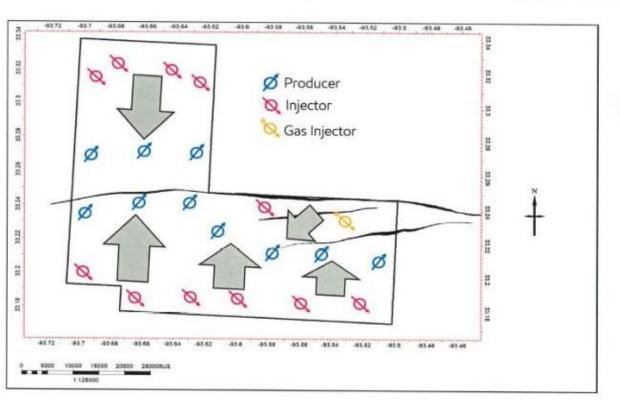
Key Metrics:

- 56,245.58 acres
- 165,000 barrels per day (avg)
- 10 producer wells
- 12 injector wells



Pine Brine Unit Development Plan

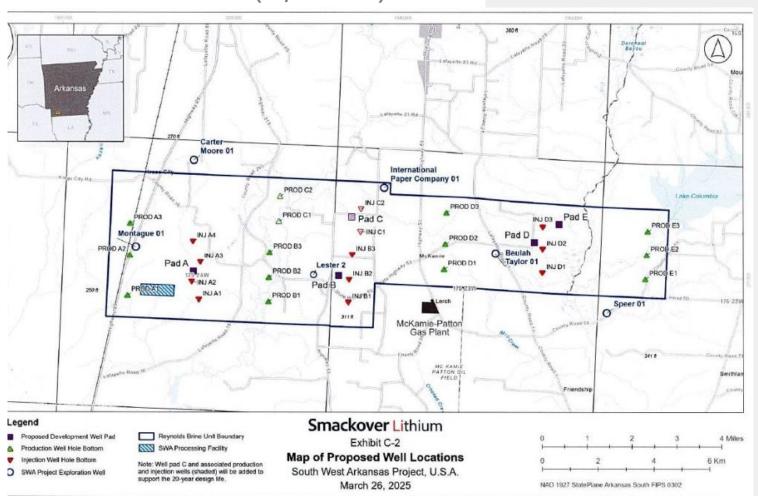
Intentional well placement to efficiently drain the Pine Brine Unit and protect correlative rights



- To drain efficiently the area of the unit and to protect the correlative rights of each owner therein
 - Line drive, 2-4 mile spacing between injectors and producers
 - Pressure support from unit perimeter to centralized production wells
 - Wells spaced one-half (1/2) mile from Unit boundary



REYNOLDS UNIT (20,854 acres)



Symbols

Mineral Locations

Last Updated: 06\08\2022 Digital Compilation By: Kerstein Finan

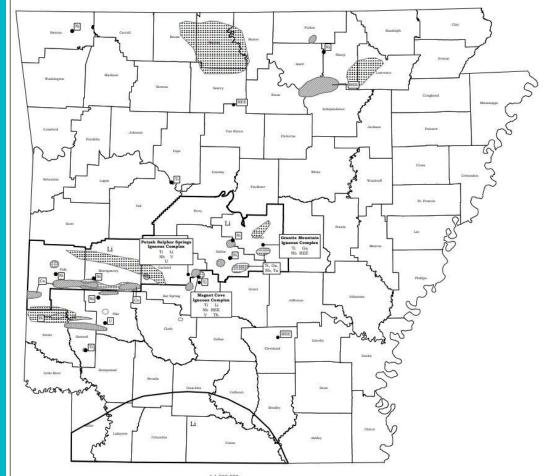
President Trump and Secretary of the Interior issued orders (Executive Office of the President, 2017; U.S. Department of the Interior, 2017) that directed the U.S. Geological Survey to develop a plan to improve the Nation's understanding of domestic critical mineral resources. In response, a list of 50 critical minerals with a high risk for supply disruption were identified by the National Minerals Information Center.

Critical Minerals:

REE-bearing deposits, Al, C, Co, Li, Nb, PGE, Sn, Ta, Ti, W, As, BaSO4, Be, Bi, CaF₂, Cr, Cs, Ga, Ge, He, Hf, In, KCl, Mg, Mn, Re, Rb, Sb, Sc, Sr, Te, U, V, Zn, and Zr)



Arkansas Critical Minerals, 2020



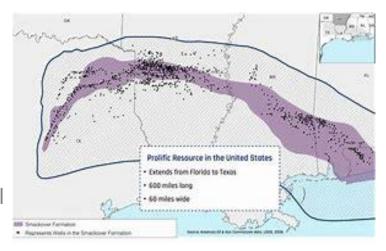
LITHIUM

WHAT'S NEXT – MAY 28TH



PORE SPACE

- The Smackover Formation (and possibly other formations in AR) have the potential to act as storage for carbon capture
- In 2025, E&E took the next step in establishing the framework for a carbon capture, utilization, and storage (CCUS) regulatory framework with the goal of seeking primacy from U.S. E.P.A.



KEEP IN TOUCH

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