

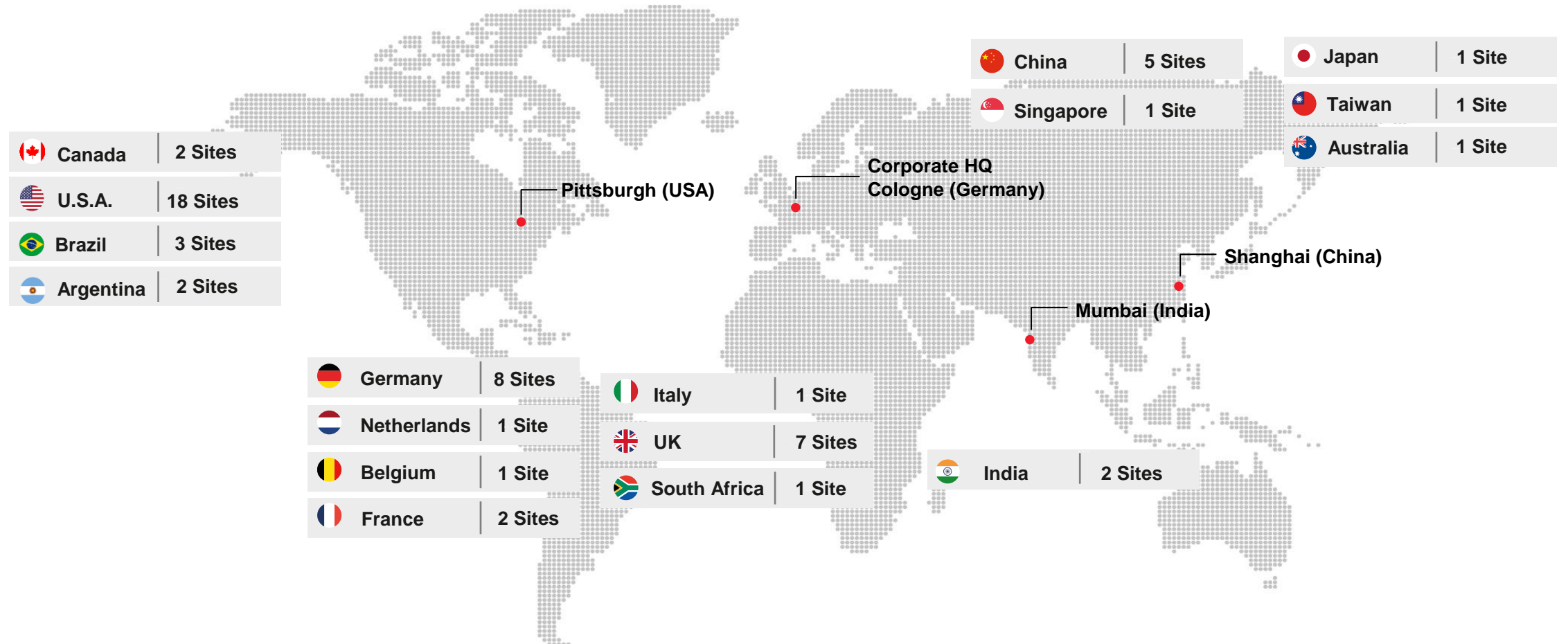


LANXESS – Energizing Chemistry

INTERNAL

LANXESS
Energizing Chemistry

Presence with 58 production sites in 17 countries



* Status 09/2023

North America - Facts and Figures

\$3.1 B
2022 SALES



2,300
EMPLOYEES



14
STATES



20
PRODUCTION
SITES



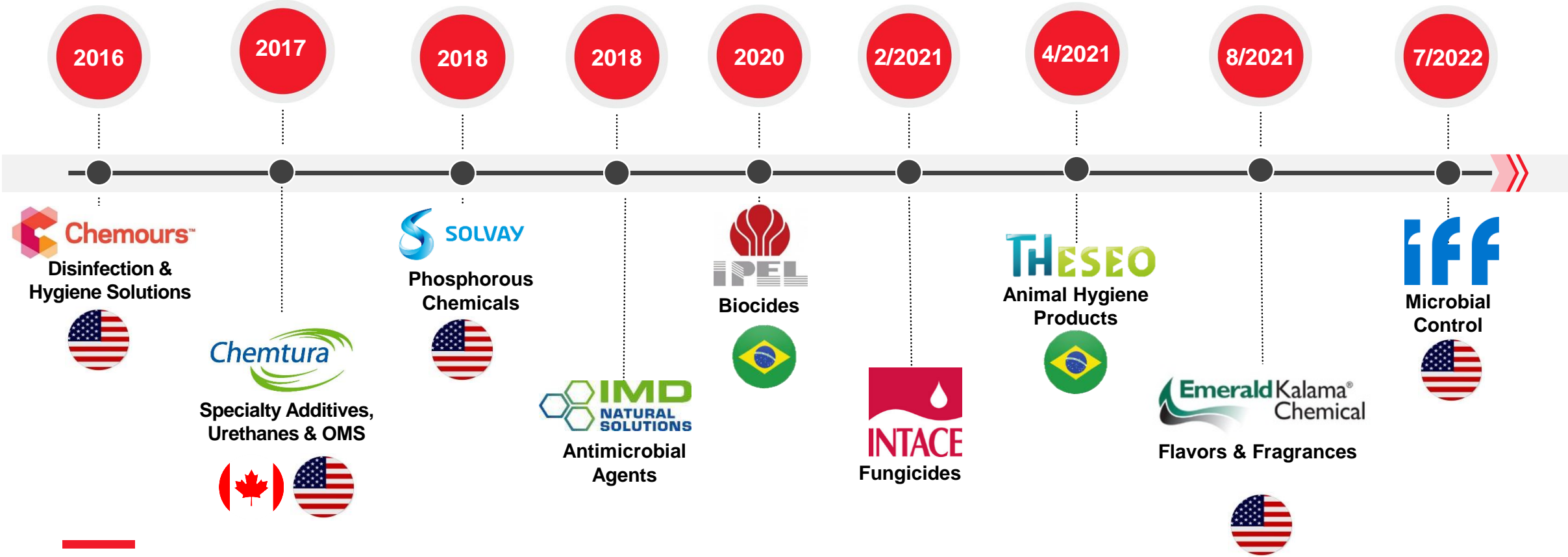
LANXESS in Arkansas

 4 SITES	 512 JOBS	 \$117.5M ECONOMIC IMPACT
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- Arkansas 
- Delaware
- Louisiana
- New Jersey
- North Carolina
- Ohio
- Elmira, Ontario 
- West Hill, Ontario
- Pennsylvania 
- South Carolina
- Tennessee
- Texas
- Washington
- West Virginia

Seven of the last nine acquisitions impacted the region



South Arkansas Manufacturing Sites

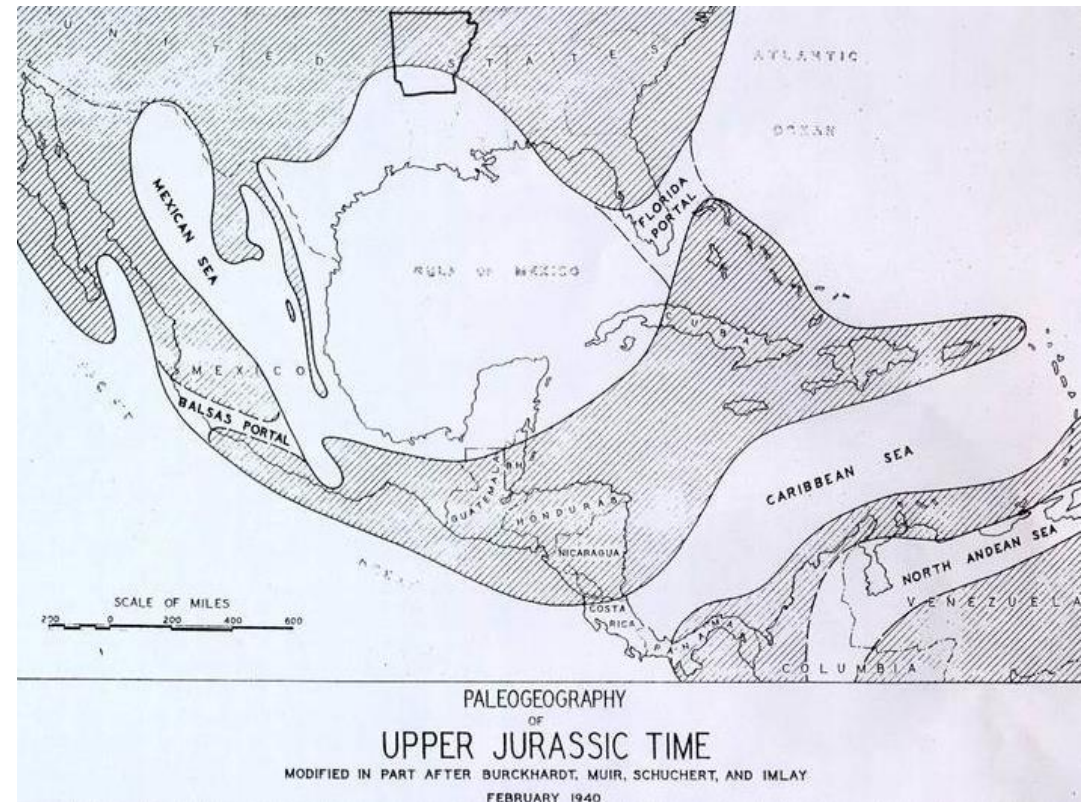
Bromine Solutions



Why we're here...

Abundant natural resource (salt water) with high bromide concentration (brine)

- Located in Union and Columbia counties; Discovered in 1921 with the oil boom
- 7000+ ft in rock formation called The Smackover Limestone Formation; Second largest brine reserve in the world – Dead Sea is the largest
- Limestone formation a result of ancient gulf of Mexico over lower portion of South Arkansas, as it receded, layers of organic matter, salt water and various geologically factors took place to form the reservoir
- Brine extracted from rock formation – sent through series of pipelines to our plants
- Bromine is freed from brine through process using Chlorine, then used in the manufacture of other brominated products
- Salt Water is then re-deposited back into the formation



Bromine Solutions Business

An integrated bromine player

Overview

- **Employees:** ~ 475
- **Production sites:** 3
- **Products:** ~ 70 different products
 - Brominated flame retardants
 - Fumigants
 - Clear brine fluids
 - Bromine and fine chemicals
- **Customers:** more than 270 worldwide



Bromine Solutions Business is an integrated player offering a wide range of bromine-based products.



**West
Plant**

**Central
Plant**

**South
Plant**

South Arkansas Operations

One of the world's leading manufacturers of bromine, bromine intermediates, and brominated flame retardants.

Flame retardants - for electronics and electrical engineering, construction industry, and special textile coatings.

Alkyl bromides - precursors and additives for surfactants, biocides, specialty intermediates, viscosity modifiers, fine chemicals, agrochemicals, biocides, fumigants, pharmaceuticals, and scavengers for lead in gasoline.

Inorganic bromides - precursors and additives for photography, food preservation, road treatment, refrigeration blends, high-performance rubber, mercury control, fine chemicals, and process fluids for oil and gas production.

Bromine and hydrobromic acid - precursors for flame retardants, agrochemicals, fine chemicals, dyes, pharmaceuticals, high-performance rubbers, PTA, mercury control, plasma etching, and biocides.



What is Bromine?

- A reddish-brown liquid, approximately three times heavier than water
- Weighs approx 27 lbs/gallon
- Strong oxidizing agent, corrosive
- Irritating odor and is named from the Greek word “bromos” or stench



Central Plant

Then

- Built in 1965 and began operation with 13 employees
- Started with three processes
 - Bromine
 - EDB
 - MeBr
- Expanded to a Multi-Purpose Plant in Late 70's
 - Flame Retardants
 - Oil Field Completion Fluids

Now

- ~275 employees
- Products:
 - Bromine
 - Emerald Innovation 3000
 - Oligomers
 - HBr
 - Alkyl bromides
 - CaBr_2
- 514 acres (208 ha) with 107 acres fenced



South Plant



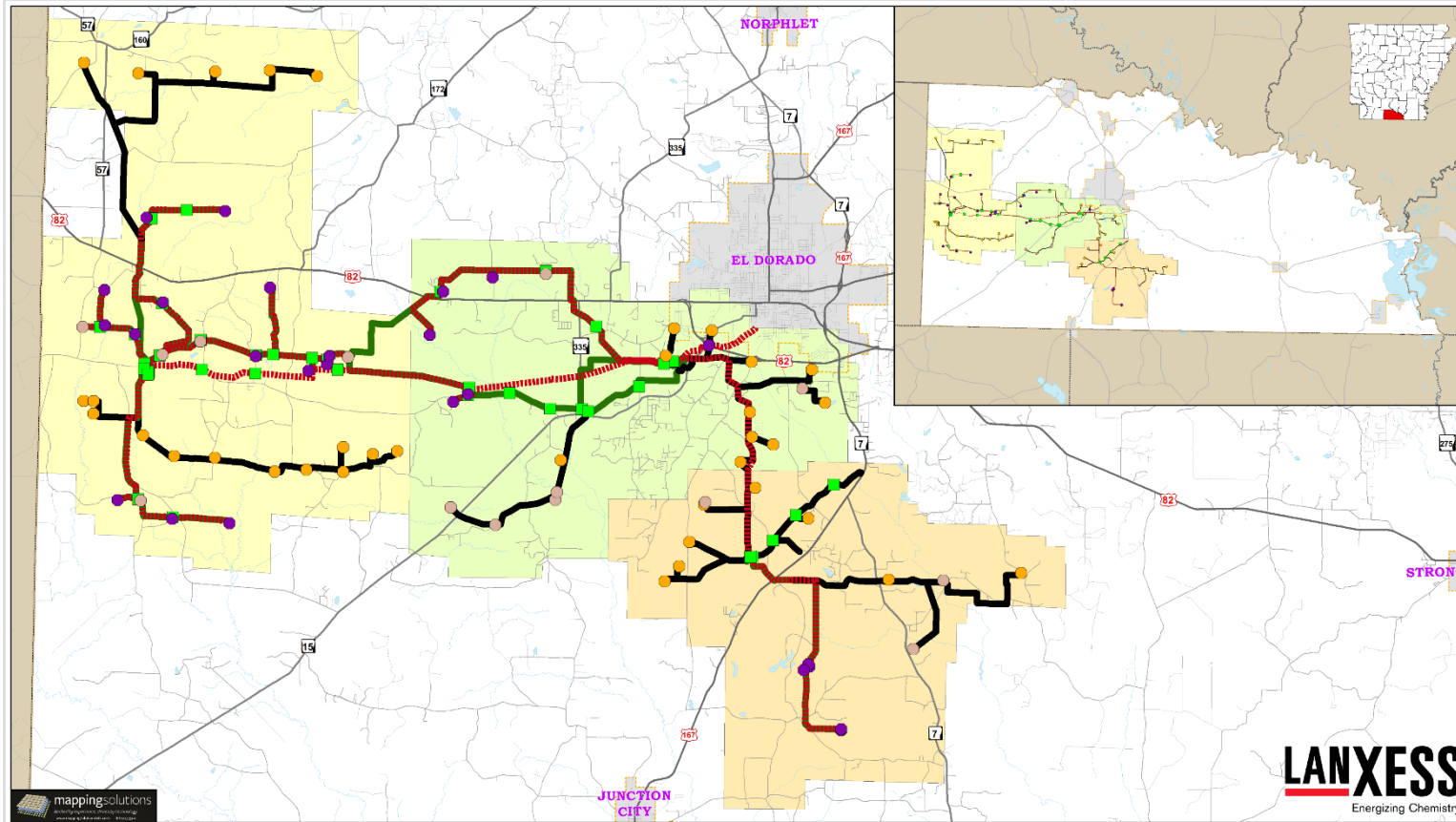
- Built in 1957
- 150 employees
 - Bromine
 - Flame Retardants
 - Oil Field Fluids
- 341 acres (138 ha) with 67 acres fenced

West Plant

- Smallest of the three plants, but largest Bromine-producing plant in South Arkansas
- 25 Employees
- Built in 1974
- 220 acres (89 ha) with 35 acres fenced



Land Operations



- Three Brine Operating “Units” regulated by Arkansas Oil and Gas Commission
- ~10k brine leases and surface agreements managed/maintained locally according to Arkansas mineral law
- ~\$12MM/yr royalty payments to mineral owners
- 143k acres (58k ha) leased

Significant Interaction Required with Regulatory Agency

Major chemical processes: Brine for Bromine

Typical Brine Supply Well



Typical Brine Disposal Well



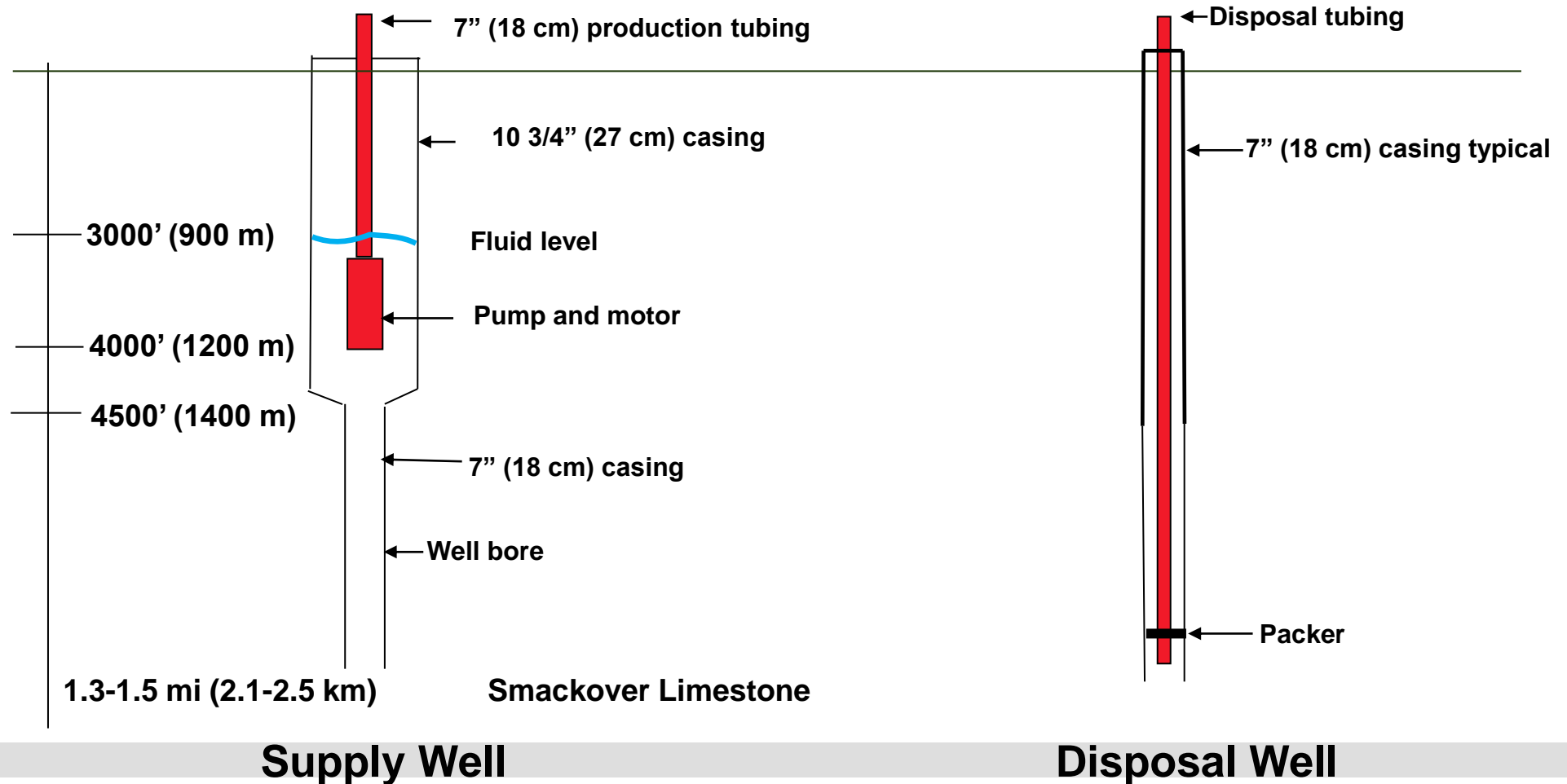
Brine Operations Overview

- 26 Supply Wells, 35 Disposal Wells
- Energy intensive (top 10 electricity consumer in Arkansas)
- 160 miles (257 km) of pipelines
- Maintain 50 miles (80 km) of roads
- Produce ~150MM barrels (24MM m³) of brine/year
- 30 employees

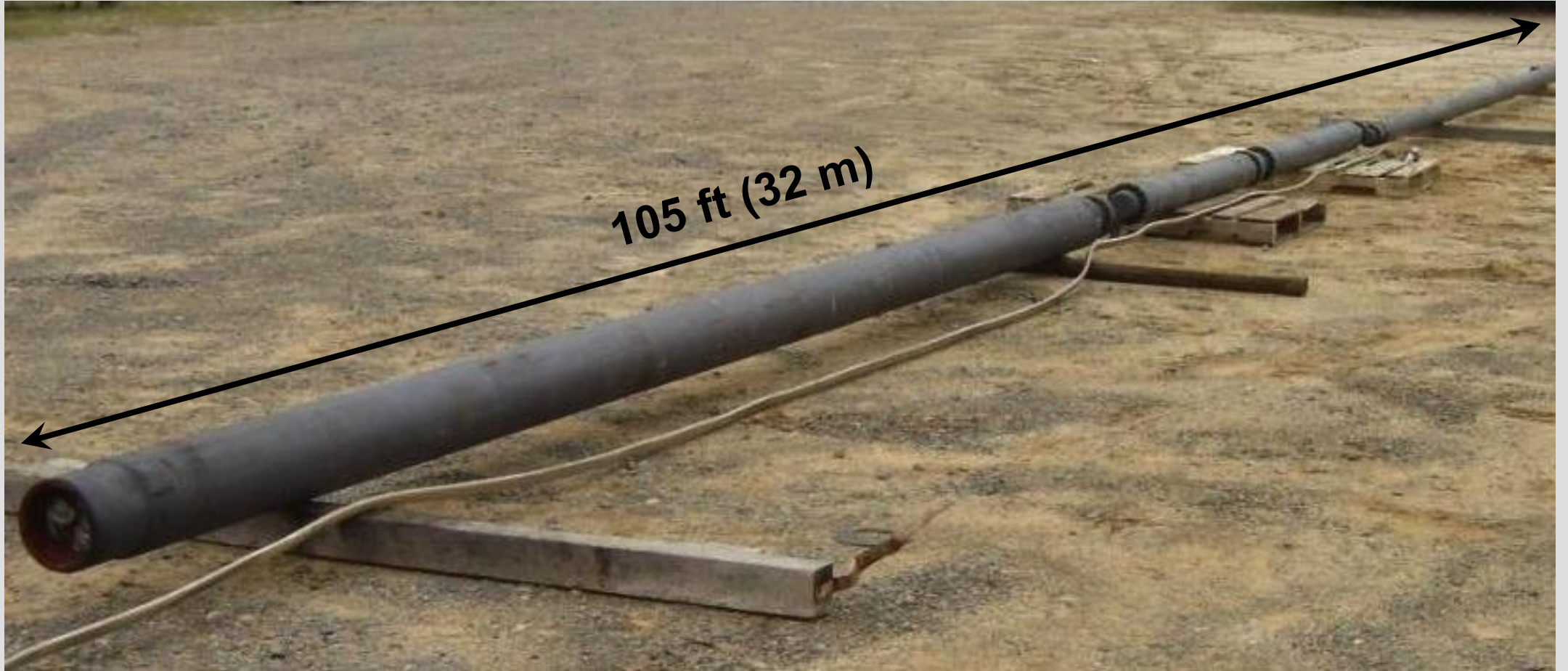


Typical Brine Supply Well

Brine Process Overview (Subsurface)



Down-Hole Pumping Equipment



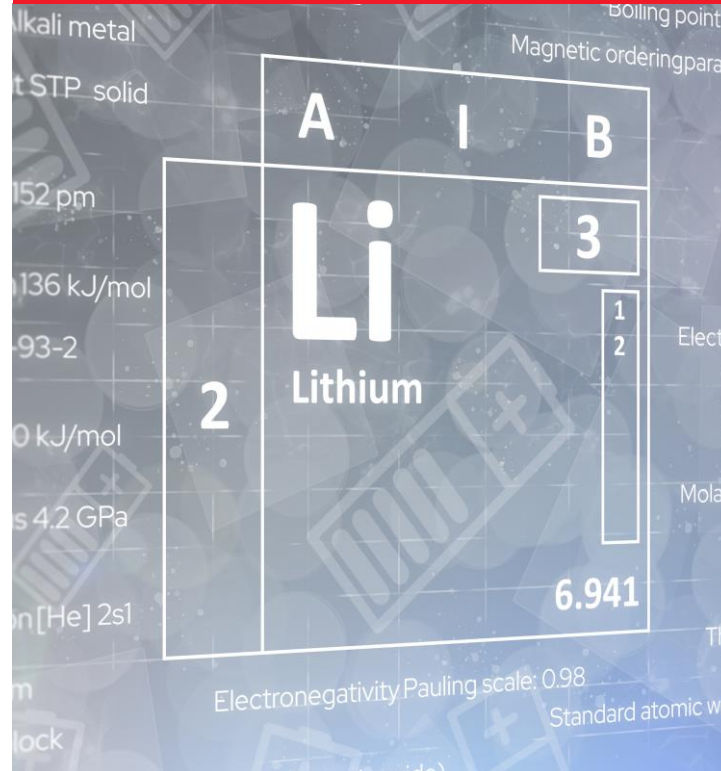
Advanced Lithium-ion Battery Technology

Chemicals for Cathode Materials

Synthetic iron oxides for lithium iron phosphate (LFP)



Lithium extraction & production of battery grade lithium carbonate



Ion exchange resins for sustainable extraction and refining



LANXESS – doing our part...

Providing raw materials to leverage North America's largest brine processing facility



Provides value add in the U.S. by securing domestic lithium and lithium offset supply



Helps to develop and transform Arkansas from oil and gas into the 21st century economy and electro mobility



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