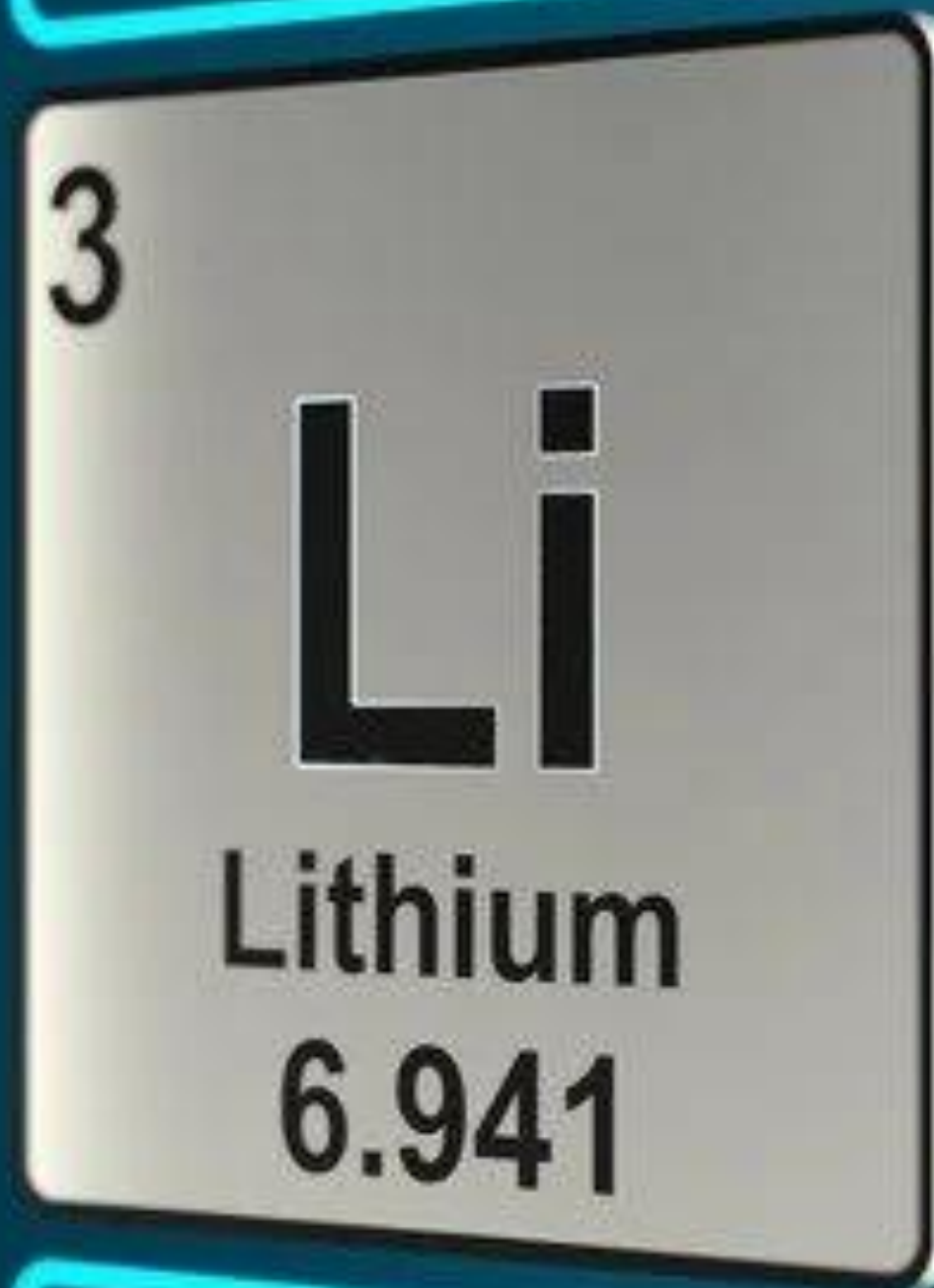


**Utah Lithium Project**  
September 2024



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## Competent Persons Statement

The technical information in this announcement complies with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code) and has been compiled and assessed under the supervision of Mr James Allchurch, Managing Director of Mandrake Resources. Mr Allchurch is a Member of the Australian Institute of Geoscientists. He has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Allchurch consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears. To the best of the Competent Person's knowledge, the information in the announcement is an accurate representation of the available data and studies.

The information in this announcement that relates to geology, exploration results and Exploration Target was compiled by Ms. Sabina Kraushaar, a Competent Person whom holds an M.Sc in Geology specialising in Structural Geology and is a Member of the Australian Institute of Geoscientists (Member #8940) and a consultant to Mandrake Resources. Ms. Kraushaar has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Ms. Kraushaar consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

## Exploration Target Cautionary Statement

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# Corporate Snapshot



ASX Code	Shares on Issue	Share price	Market Cap	Cash	Debt
<b>MAN</b>	<b>617m</b>	<b>\$0.027</b>	<b>\$16.6m</b>	<b>\$15m</b>	<b>NIL</b>

## Overview

\$15m in cash (June 2024)

100%-owned large-scale lithium brine (DLE) asset with access to historic wells

DoE grant secured as US seeks to secure domestic critical mineral supply

1.7 to 5.6 Mt of LCE Exploration Target<sup>1</sup> (JORC 2012)

Mineral Resource Estimate imminent

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# Board of Directors & Management



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**James Allchurch**  
Managing Director

Over 20 years' experience in mineral exploration, geotechnical assessment and mining operations. Mr Allchurch has held various Board positions over the previous 15 years and has considerable expertise in the identification and assessment of resource projects over a broad range of commodities.



**Lloyd Flint**  
Non-Executive Chairman

Chartered Accountant with over 25 years' experience in the corporate and financial services arena. He has held a number of management and senior administrative positions as well as providing corporate advisory services as a consultant to corporate clients.



**Roger Fitzhardinge**  
Non-Executive Director

More than 20 years' experience in the exploration and mining industry. Mr Fitzhardinge was instrumental in identifying, acquiring and developing the Jaguar Nickel Sulphide Project for Centaurus Metals (ASX:CTM) propelling the company's market capitalisation more than 20 times to over \$500M.



**Ricardo Garzon**  
Chief Operations Officer

MSc in Energy Economics and Management  
+ 15 years' experience in mineral and oil and gas exploration.  
Has held various Board positions including with ASX-listed Baraka Petroleum Ltd.



**Jake Cammack**  
Exploration Manager USA

MSc in Geochemistry  
Developed a Lithium brine geochemistry database from public and private sources.  
Specialist in using GIS databases to identify and evaluate new prospects.



**Sabina Kraushaar**  
Geologist USA

MSc in Geology  
Expertise in mapping subsurface geology utilizing Petra software.  
Has consulted on numerous oil and gas projects in the Four Corners region.

# US Energy Revolution

## Decarbonization

Electric Vehicle future inevitable

Energy storage is fundamental

Albemarle forecasting 5x Lithium demand growth from 2022 to 2030<sup>1</sup>

## US Critical Minerals Self-Sufficiency

US government focused on reducing Chinese influence

Battery Gigafactories and Data Centres growth

Different US government initiatives pushing US Lithium supply

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<sup>1</sup> Albemarle forecast from January 23, 2023 strategic update



# US – The Place to be for Critical Minerals

## Oil Majors enter the Lithium brine scene *Utilising in-house know-how to position themselves*



US\$100 Million purchase of oilfield brines  
First lithium well drilled (January 2024)  
100k ton lithium supply commitment to SK On (June 2024)



US\$70 Million into Standard Lithium (May 2024)

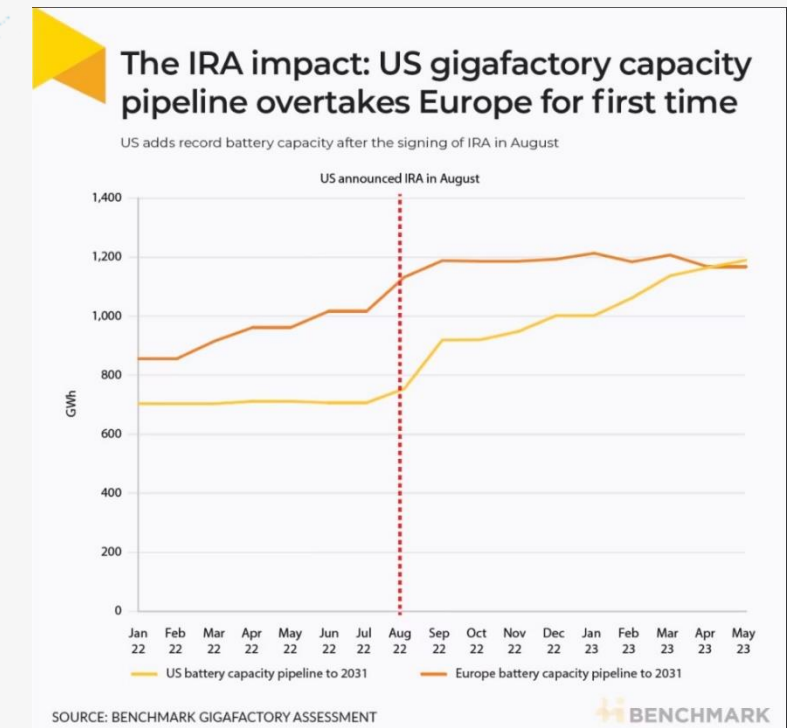
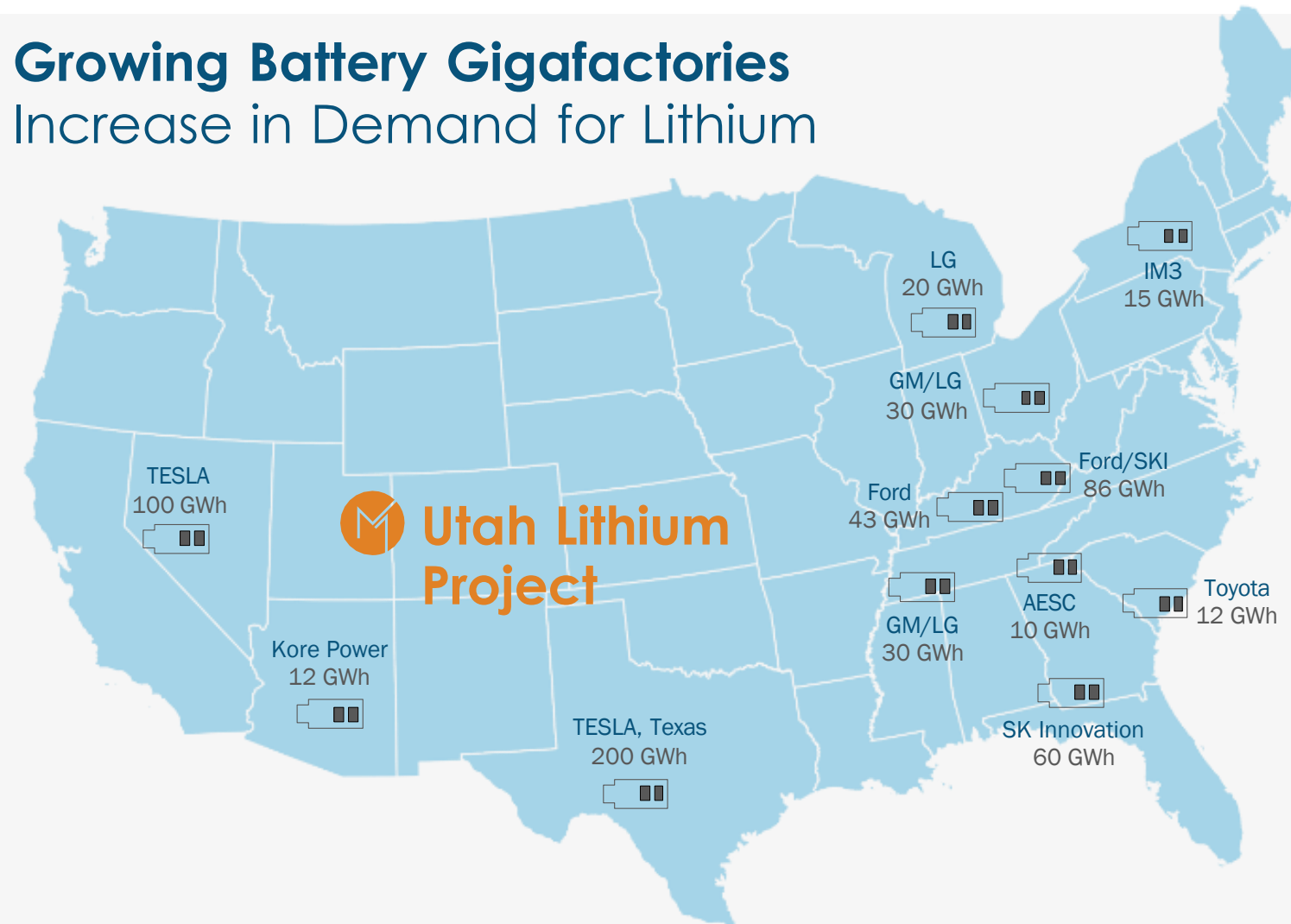


Occidental and Berkshire Hathaway Energy form a JV to commercialize TerraLithium (May 2024)



Imperial Oil expands E3 Lithium's Alberta project (May 2024)

## Growing Battery Gigafactories Increase in Demand for Lithium



Inflation Reduction Act 2022 (IRA) – US\$391 billion for energy security and climate change

Toyota's US\$8 billion Gigafactory plant  
October 2023

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# Funding from the US Department of Energy

US\$1 Million grant awarded to a consortium of:

- Mandrake;
- Idaho National Laboratories (INL);
- National Renewable Energy Laboratory (NREL); and
- University of Utah

## Project Objectives

- Assemble existing data on lithium brine
- Sampling multiple wells to obtain lithium data
- Commerciality of lithium production using Direct Lithium Extraction (DLE)

“Partnering with INL, NREL and the University of Utah will give Mandrake access to the foremost U.S. scientists and sophisticated U.S.-funded laboratories”



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# Large-scale US Lithium Brine Project

Commanding total acreage position of 93,755 acres (379km<sup>2</sup>)

Outstanding infrastructure with nearby rail, road power and water infrastructure in the heart of the US

**Exploration Target<sup>1</sup> Estimate of between 1.7 and 5.6 Mt of Lithium Carbonate Equivalent**

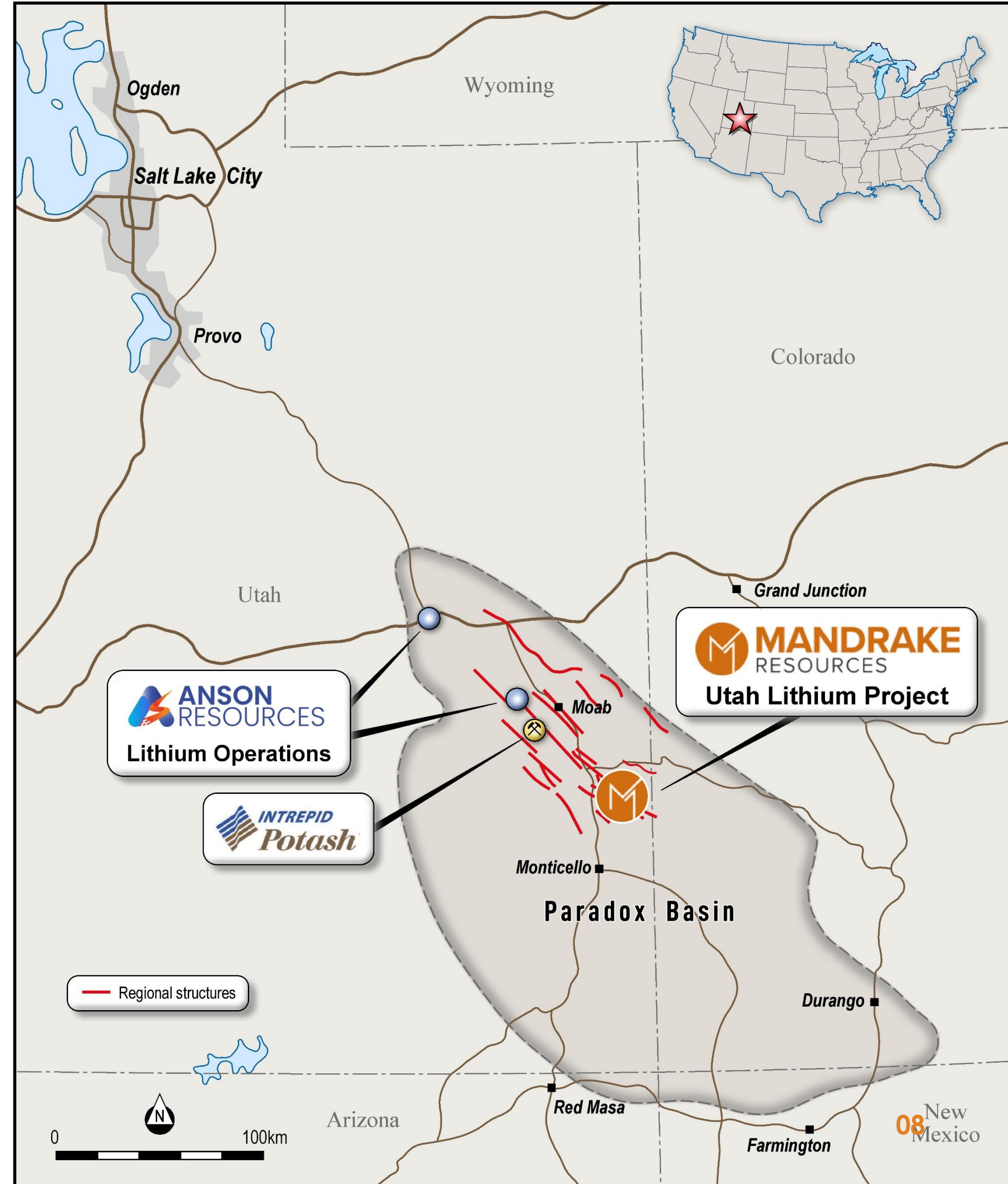
Prolific oil and gas producing area with hundreds of active, suspended and abandoned wells with potential to access lithium brines

Sampling lithium brines from existing wells is a significant cost saving to drilling

Demonstrating the viability of lithium extraction through partnership with two separate DLE providers

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# Utah Lithium Project - Premier Position

Oversaturated brines (40% minerals, 60% water) discovered during oil exploration 80 years ago

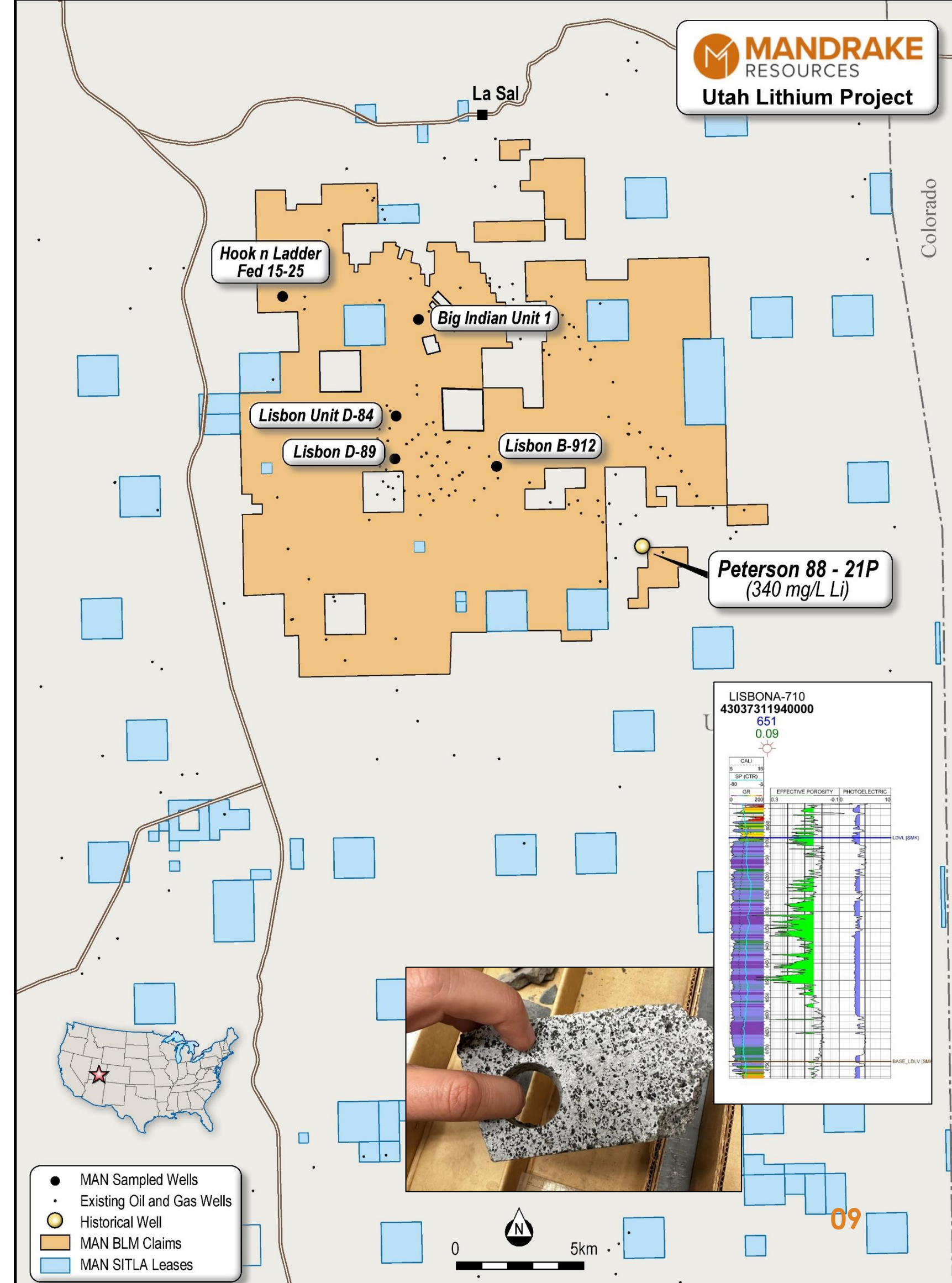
Brines hosted by the Paradox formation (>4,000 ft thick interbedded salt/clastic) and the 400ft thick Leadville Formation – enormous brine reservoirs

Abundance of legacy oil and gas data enables strong geological understanding (over 150 well logs, 3D seismic, bottom hole pressures, drill cores)

US's largest potash producer, Intrepid Potash, (NYSE: IPI) operate the Cane Creek potash mine 50km north

60km to the northwest, Anson Resources (ASX: ASN; market cap: \$120M) have a Mineral Resource of 1.5Mt of LCE at 112mg/L Li

A Tier-1 mining jurisdiction, **Utah is ranked 1<sup>st</sup> in the Fraser Institute's Global Investment Attractiveness Index (2023)**



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# Brine sampling completed

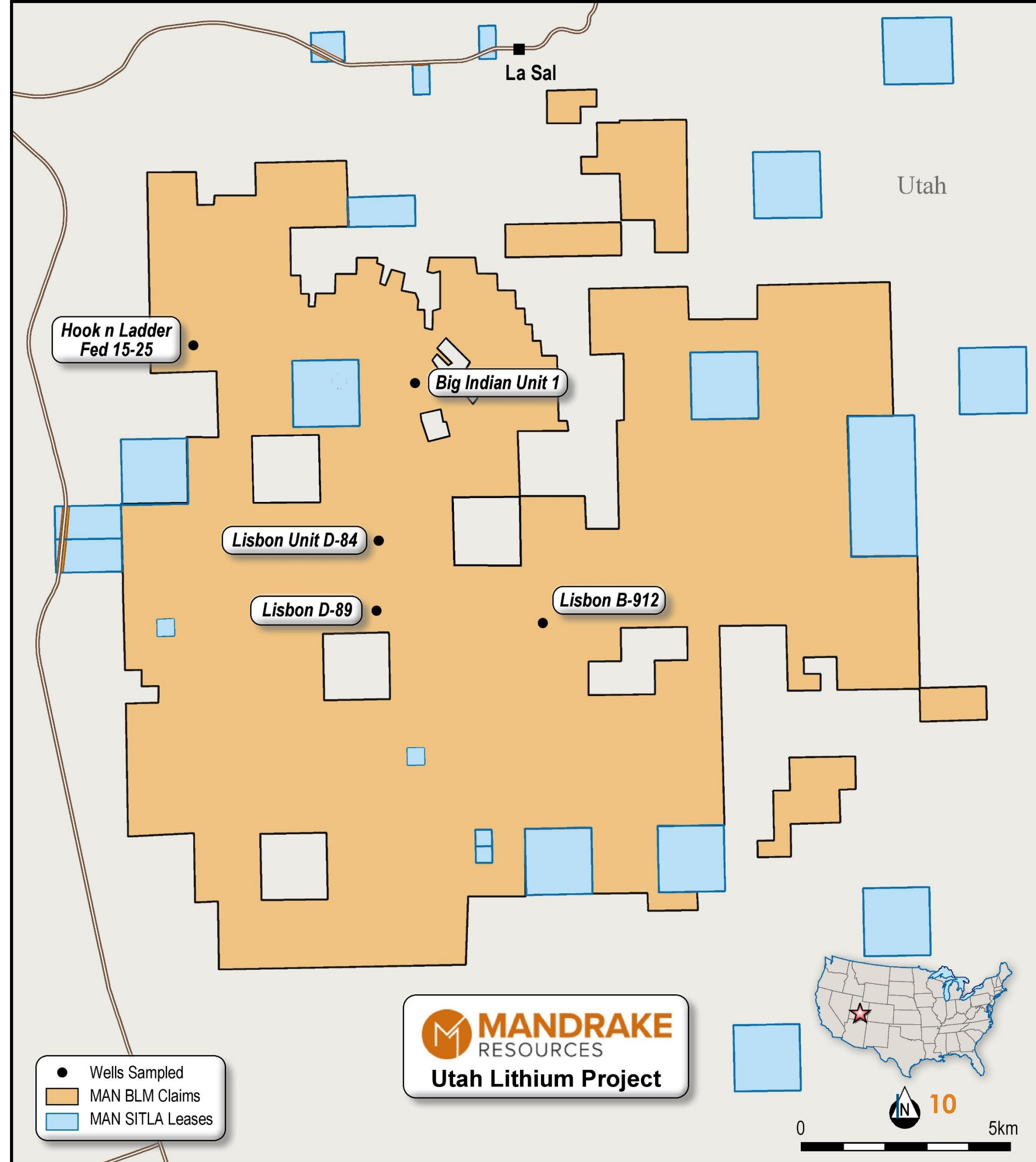
Inexpensive sampling completed at five wells utilising legacy perforations designed to access hydrocarbons

Exceptional lithium concentrations up to 147mg/L Li from Mandrake sampling

Detailed geological modelling identifies higher lithium concentrations in reservoirs yet to be accessed – huge lithium concentration upside

Outstanding bromine and potassium (potash) values up to 3,480mg/L and 33,600mg/L respectively representing potentially valuable by-products

Larger bulk samples collected and sent to two Direct Lithium Extraction (DLE) providers



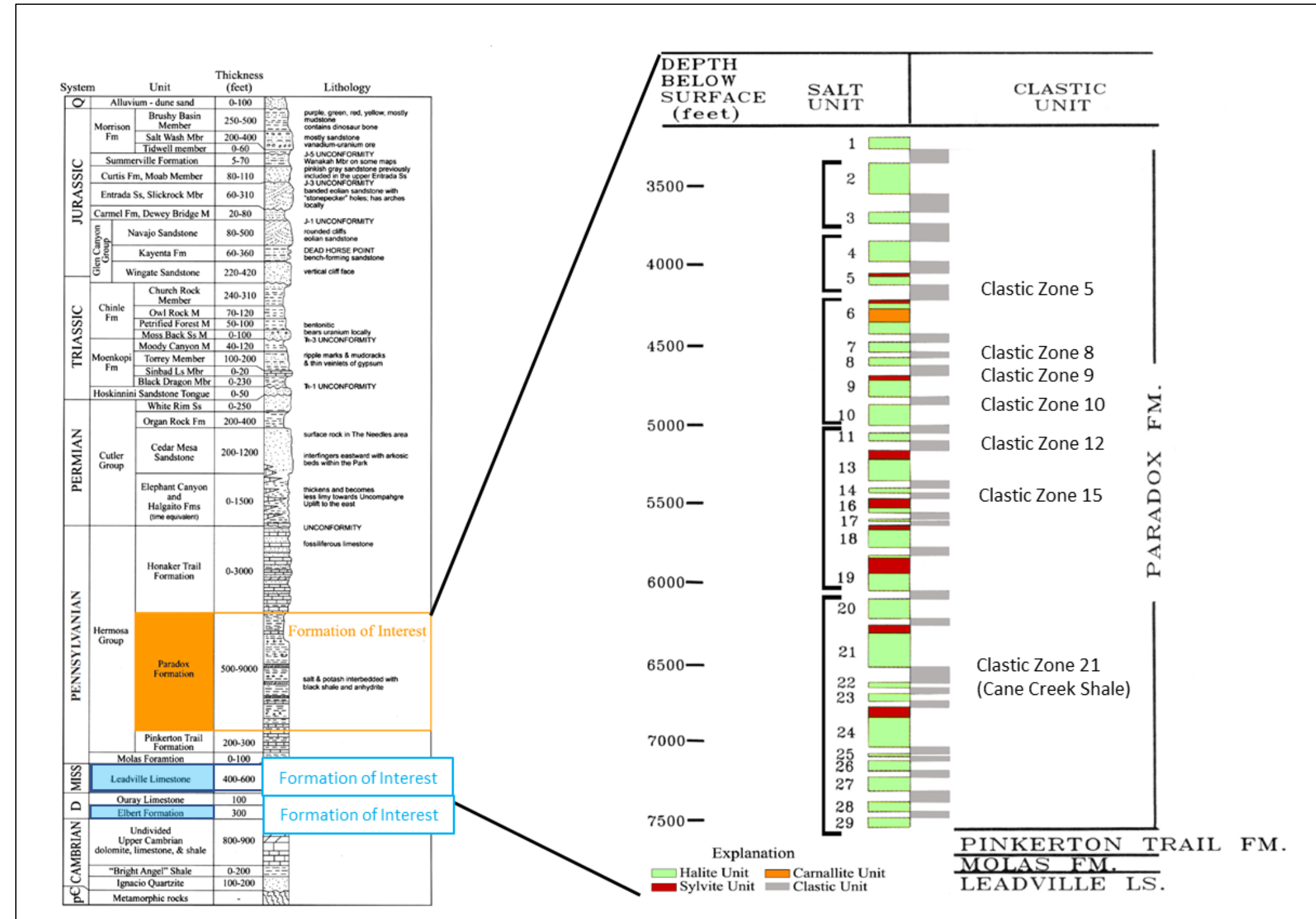
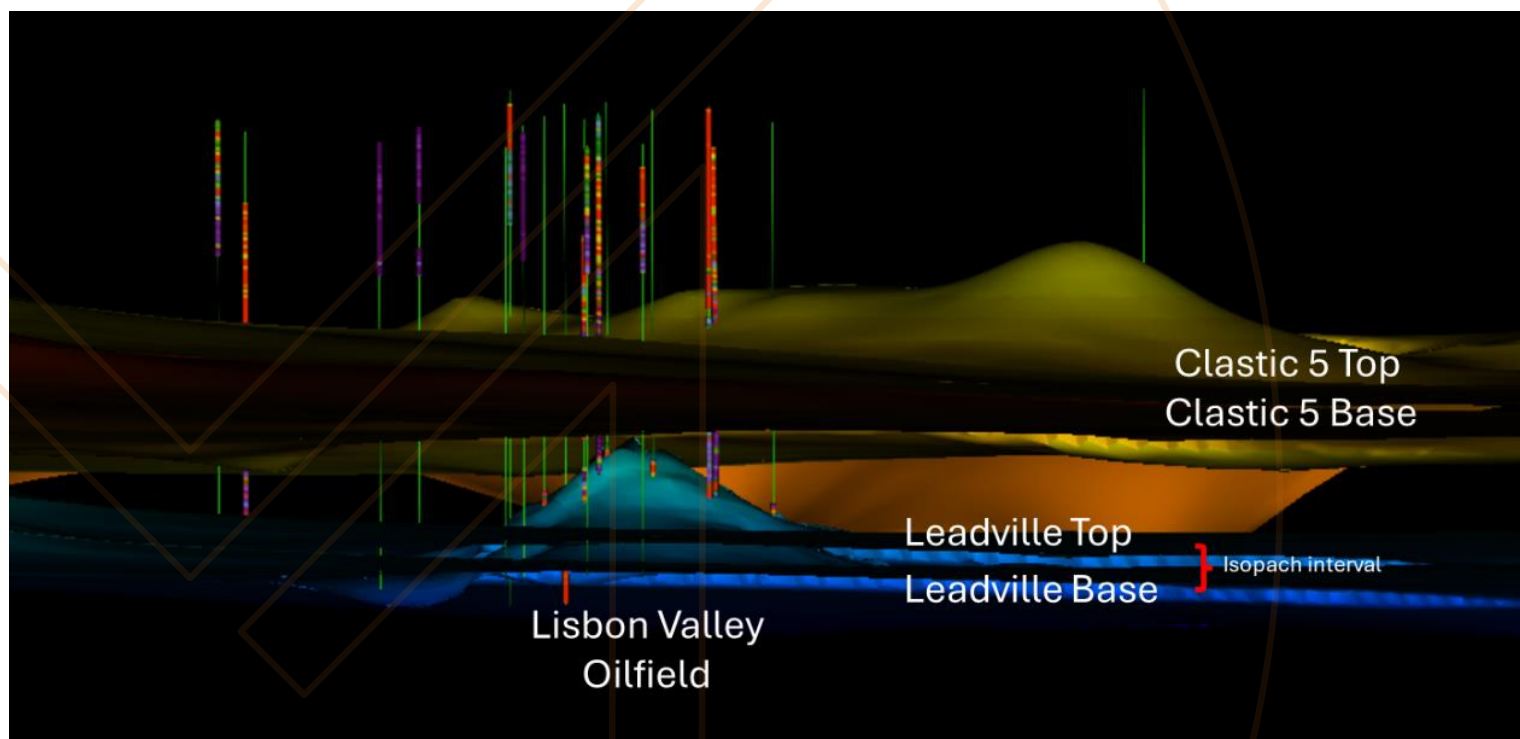
# 1.7 to 5.6 Mt of LCE (Exploration Target<sup>1</sup>)

Exploration Target Estimate (JORC 2012) calculated for the Leadville and McCracken Formations and Clastic Zones 5, 8, 9, 10, 12, 15, 21

Mandrake's extensive, modern 3D seismic and historical oil and gas well logs dataset offers a level of significant reliability to the estimate

Determination of JORC (2012) Mineral Resource Estimate due Q3 2024

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## Demonstrated lithium extraction

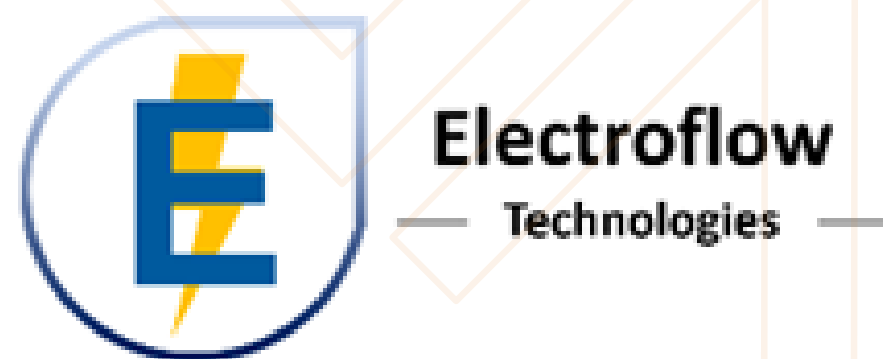
Rio Tinto-backed Direct Lithium Extraction (DLE) and Refining company ElectraLith successfully produced 99.9% pure battery-grade Lithium Hydroxide

US-based, Bill Gates Breakthrough Energy Fellows-funded Electroflow Technologies produced outstanding repeatable recoveries of 98% pure battery-grade Lithium Hydroxide

Production of battery-grade Lithium Hydroxide direct from brine revolutionises DLE

Both ElectraLith and Electroflow to set up pilot plants to process Mandrake brines at their own cost

Lithium Brine Supply Agreement (LBSA) signed with Electroflow to supply Mandrake brine for pilot plant processing



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# Near-Term Newsflow

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**JORC 2012  
Mineral Resource Estimate**

**Direct lithium extraction (DLE)  
pilot plant development**

**Scoping Study and elevation  
to Indicated Resource**

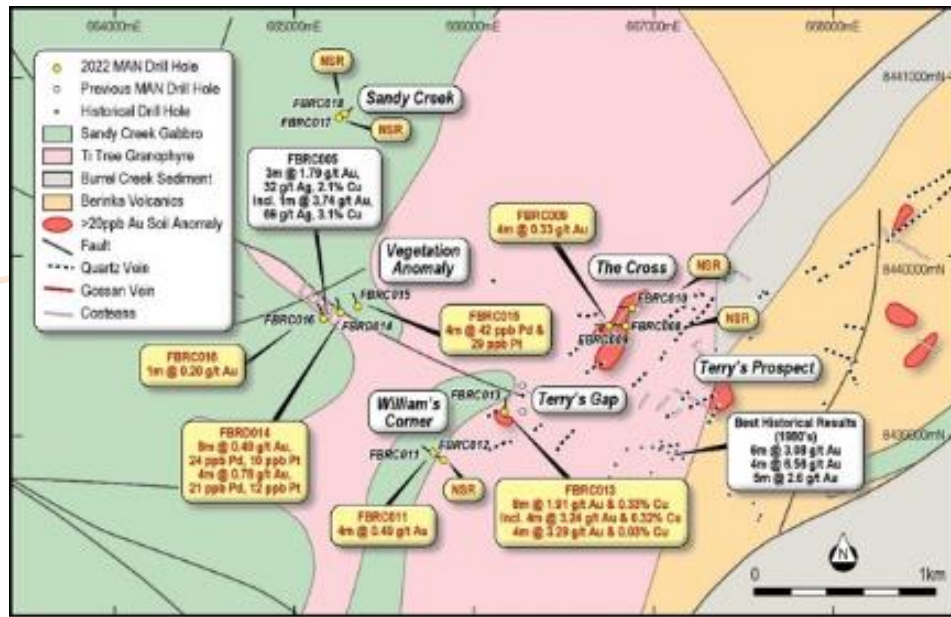
**Brine Sampling Campaign –  
Li concentrations and pump  
testing**

**Additional government funding  
(US govt grant/ loan)**

**Offtake discussions**

# Other Projects

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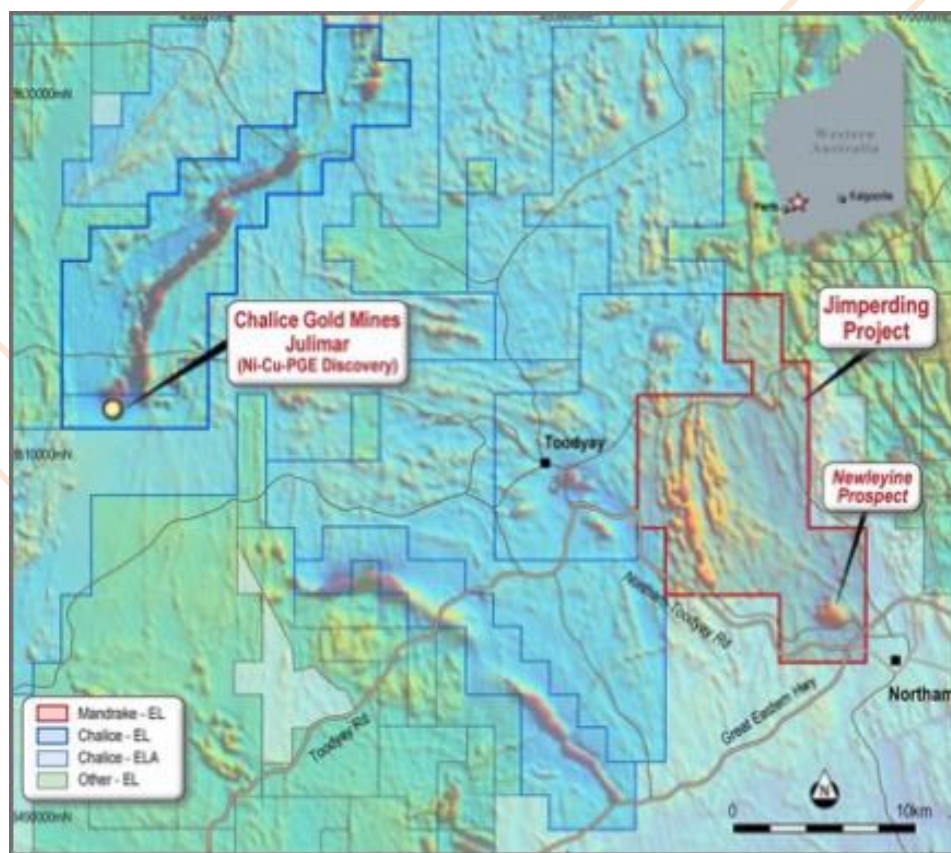
## Berinka Au-Ag-Cu Project

Northern Territory

100%-owned Berinka Pine Creek Project is a highly prospective frontier high grade Au-Ag-Cu prospect that has received little modern exploration

Mandrake's drilling has returned high grade gold and unexpected high grade copper and silver results

Drilling has defined gold mineralisation over a strike length of greater than 2km and also identified platinum and palladium anomalism for the first time in the Sandy Creek Complex gabbro host rock



## Jimperding PGE-Ni-Cu Project

Western Australia

142km<sup>2</sup> EL - 100% owned by Mandrake

Located 30km east of Chalice's Julimar PGE-Ni-Cu discovery

Identified and pegged on its compelling PGE-Ni-Cu potential prior to the Julimar discovery in March 2020

Newleyne Prospect has received all the work to date

Strong EM conductor (8,750 siemens) remains undrilled at Newleyne with multiple identified ultramafic intrusives remaining untested across the tenure



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