



Northwest Territoriesmi

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MEETING EDE 4-20-24

**STANDING COMMITTEE ON ECONOMIC DEVELOPMENT
AND ENVIRONMENT**

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**FRIDAY, FEBRUARY 23, 2024
EAGLE ROOM
3:30 PM**

AGENDA

1. Prayer
2. Review and Adoption of Agenda
3. Declarations of Conflict of Interest
4. In-Camera Matters
 - a) Committee Business
5. Public Briefing with Loyal Lithium on Lithium Mining in the Northwest Territories
6. New Business
 - a)
7. Date and Time of Next Meeting: Thursday, February 29, 2024 at 10:30 a.m.
8. Adjournment



**A NORTH AMERICAN FOCUSED
LITHIUM LED BATTERY MINERALS COMPANY**

Northwest Territories Government Presentation

February 2024

DISCLAIMER



The material in this presentation has been prepared by Loyal Lithium Ltd (“Loyal Lithium”) and is general background information about Loyal Lithium’s activities current as at the date of this presentation. This information is given in summary form and does not purport to be complete. Information in this presentation, including forecast financial information, should not be considered as advice or a recommendation to investors or potential investors in relation to holding, purchasing or selling securities or other financial products or instruments and does not take into account your particular investment objectives, financial situation or needs.

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The information in this report that relates to Exploration Results is based on information either compiled or reviewed by Mr Darren Allingham FAIG who is an employee of Loyal Lithium Limited. Mr Allingham is a Fellow of the Australian Institute of Geoscientists and has sufficient experience of relevance to the styles of mineralisation and types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves. Mr Allingham consents to the inclusion in this report of the matters based on information in the form and context in which it appears.

This presentation has been approved by the Board of Loyal Lithium Limited.

I would like to acknowledge that the Hidden Lake Lithium Project is situated on the traditional lands of Chief Drygeese, within the Akaitcho Region.



OUR MISSION & VISION



MANAGING DIRECTOR – ADAM RITCHIE BEng (hon), MEng, CPEng

“Loyal Lithium aims to play a key role in the North American lithium supply chain by building a business that attracts development opportunity, whilst also adding value to communities and shareholders.”

“We are passionate about lithium and believe we can do it better.”

Highly experienced lithium and development professional



Over 20 years' experience in the resources sector having held senior positions at Australia's leading resources companies including Pilbara Minerals, FMG, Rio Tinto & BHP



Former Project Director of Pilbara Minerals (ASX: PLS) flagship Pilgangoora Lithium Project



THE NORTH AMERICAN LITHIUM OPPORTUNITY

SET TO PLAY AN ACTIVE ROLE IN OUR SUSTAINABLE FUTURE

LITHIUM IS CHANGING THE
WAY WE TALK, DRIVE & LIVE
THIS IS JUST THE BEGINNING



The Lithium-Ion battery has the highest energy density with battery tech continuing to advance.

Over 400 million registered vehicles in North America - a percentage will transition to electric vehicles (EV)

Spodumene is the king of Lithium Natural Resources

- *SC6 >50% global supply*
- *Investment support*
- *Decouples mining from refining*
- *Small scale traditional mining and processing techniques*

OUR CANADIAN- AUSTRALIAN TEAM

SHARE THE PASSION FOR LITHIUM



**EXECUTIVE
CHAIRMAN**
Peretz Schapiro



**MANAGING
DIRECTOR**
Adam Ritchie



**NON EXECUTIVE
DIRECTOR**
Andrew Graham



**LAND &
COMMUNITY**
Eileen Marlowe



**COMMERCIAL
MANAGER**
Chris Kelly



**GENERAL
MANAGER**
Daniel Campbell



**EXPLORATION
MANAGER**
Darren Allingham



**FINANCIAL
CONTROLLER**
Kevin Berry



**COMPANY
SECRETARY**
Ian Pamensky

HIDDEN LAKE LITHIUM PROJECT
YELLOWKNIFE LITHIUM BELT
NORTHWEST TERRITORIES, CANADA



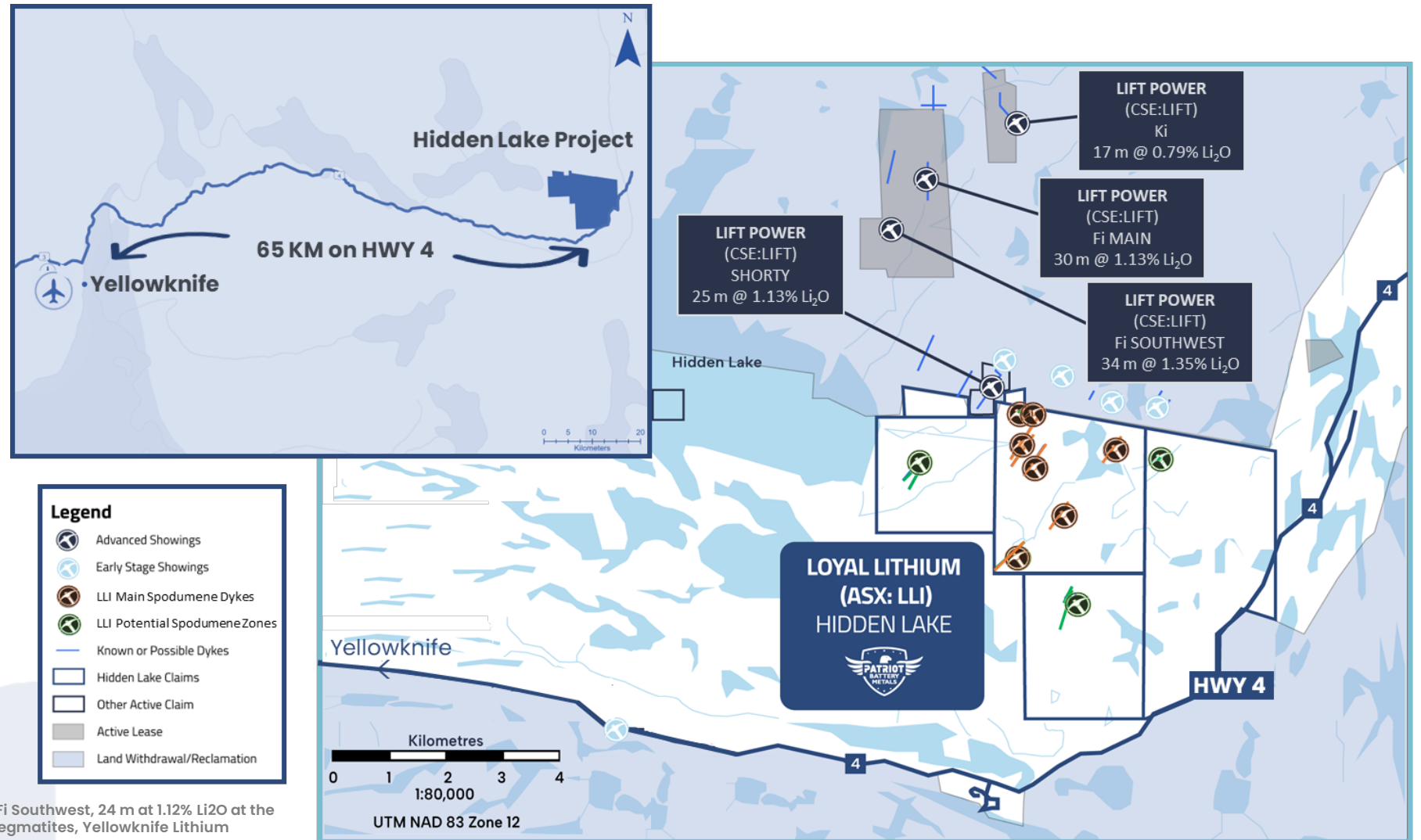
HIDDEN LAKE LITHIUM PROJECT

WE LOVE IT – UNDER EXPLORED YET UNDERSTOOD



“We are excited to bring fresh ambitions to this notable spodumene project alongside our joint venture partners, Patriot Battery Metals.”

Adam Ritchie
Managing Director
Loyal Lithium

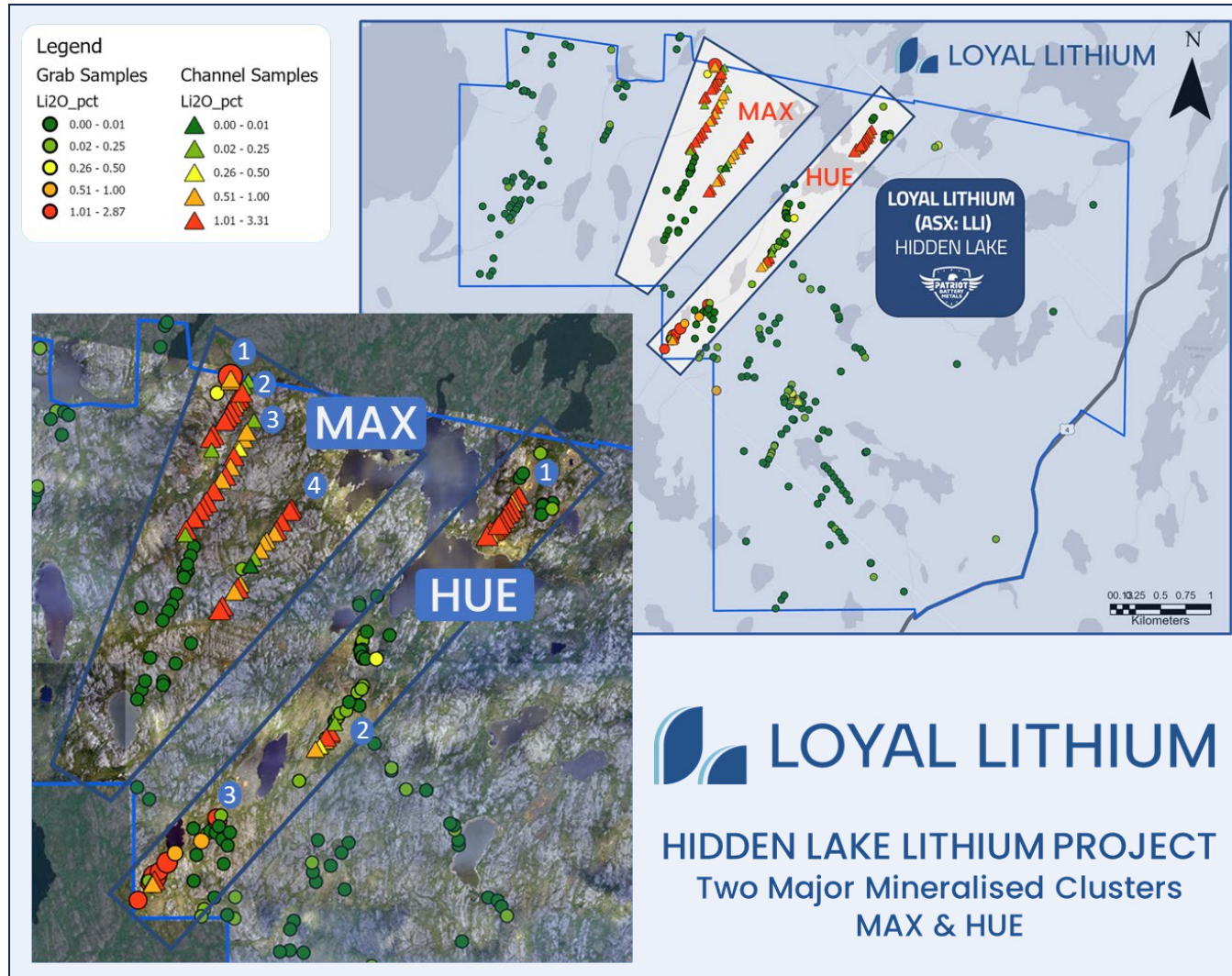


LIFT Drilling Data:

1. September 2023, LIFT Corporate Presentation
2. September 6, 2023 LIFT Intersects 22 m at 1.46% Li₂O at the Fi Southwest, 24 m at 1.12% Li₂O at the Fi Main, and reports first results from BIG East and Shorty Pegmatites, Yellowknife Lithium Project, NWT Intercepts of up to 1.6% Li₂O over 9.2 metres.
3. November 7, 2023, LIFT intersects 21m at 1.40% Li₂O at the BIG East pegmatite and 19m at 1.16% Li₂O at the Shorty pegmatite, Yellowknife Lithium Project, NWT.

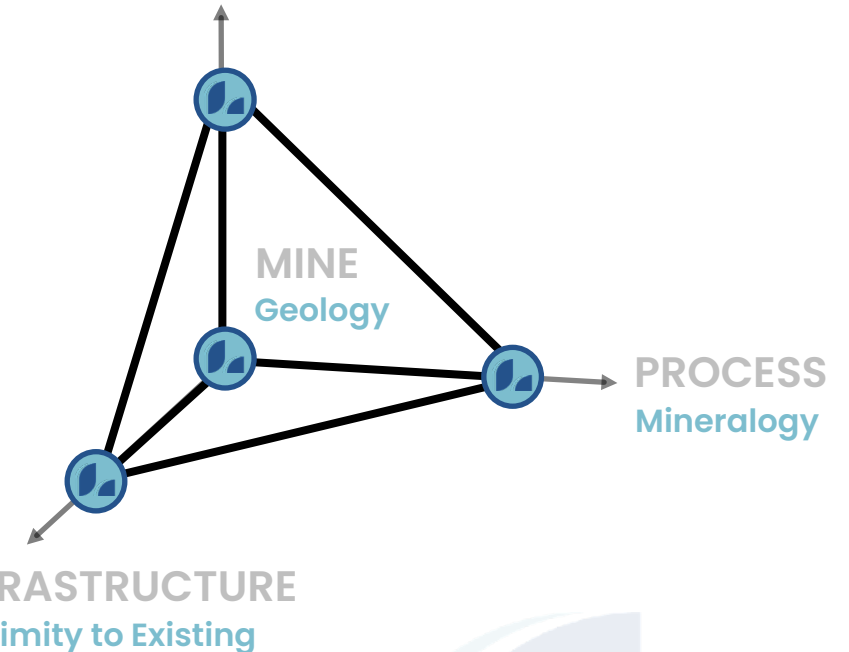
HIDDEN LAKE LITHIUM PROJECT

WHY WE LOVE IT – RESOURCE POTENTIAL



RESOURCE POTENTIAL

Exploration Work

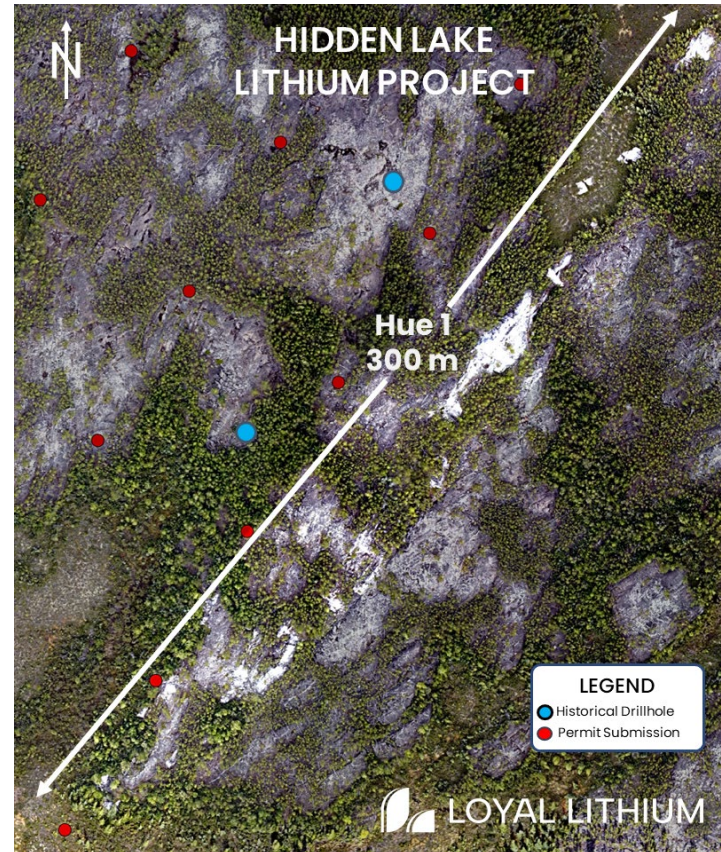
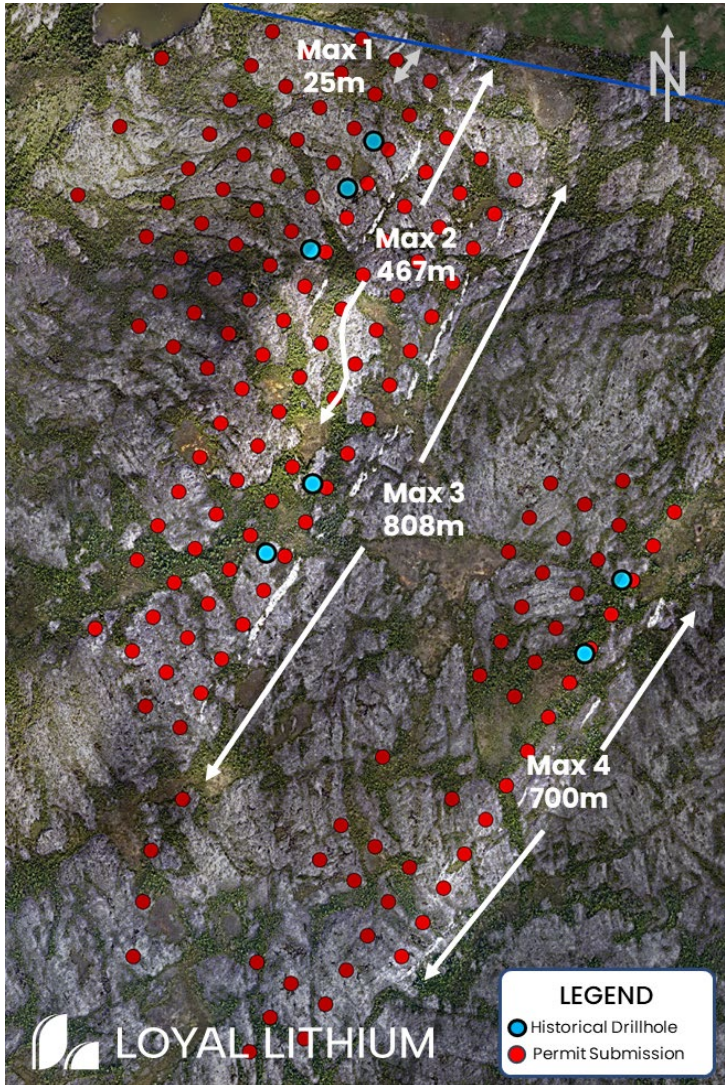


Extensive spodumene bearing pegmatite outcrops identified – 3,250m of Strike Length:

- 2 major mineralized clusters – MAX & HUE
- 4 main spodumene bearing dykes drill tested
- 3 additional spodumene dykes discovered
- Drilling preparations for the Canadian winter

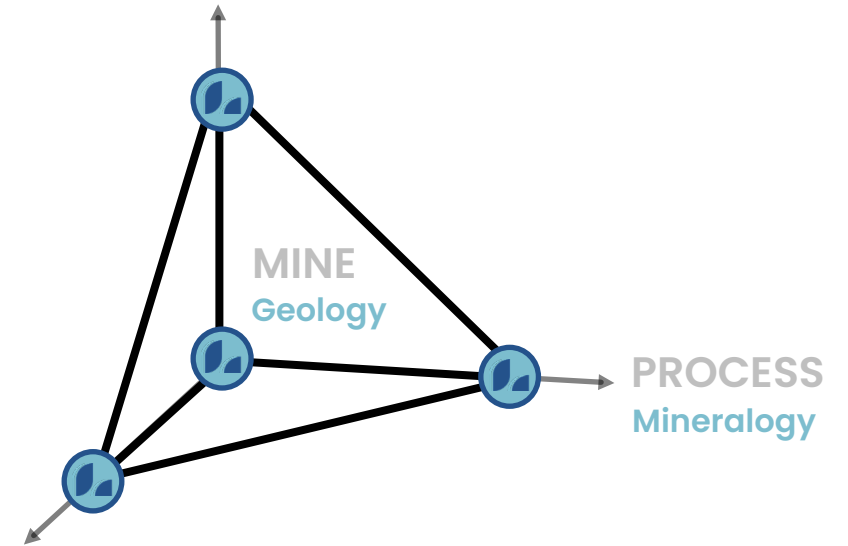
HIDDEN LAKE LITHIUM PROJECT

WHY WE LOVE IT – RESOURCE POTENTIAL



RESOURCE POTENTIAL

Exploration Work



INFRASTRUCTURE

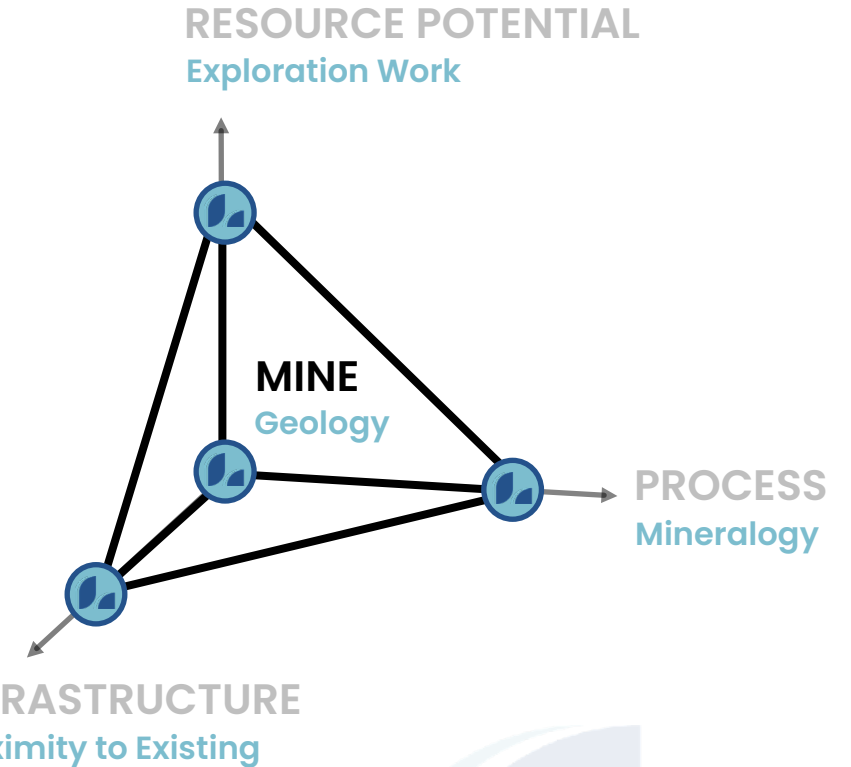
Proximity to Existing

All dykes are clearly visible from surface with the 4 historical Dykes drill tested

- 10 drill holes conducted to 30–50 m vertical confirming mineralisation with grades up to 1.81% Li_2O
- Open along strike and depth

HIDDEN LAKE LITHIUM PROJECT

WHY WE LOVE IT – MINEABLE



Prominent spodumene pegmatite outcrops have a cumulative strike length of ~3,250 m. Surface exposures and drill intercepts imply favourable mining geometries for both open cut and underground operations.

HIDDEN LAKE LITHIUM PROJECT

WHY WE LOVE IT – PROCESSING SIMPLICITY

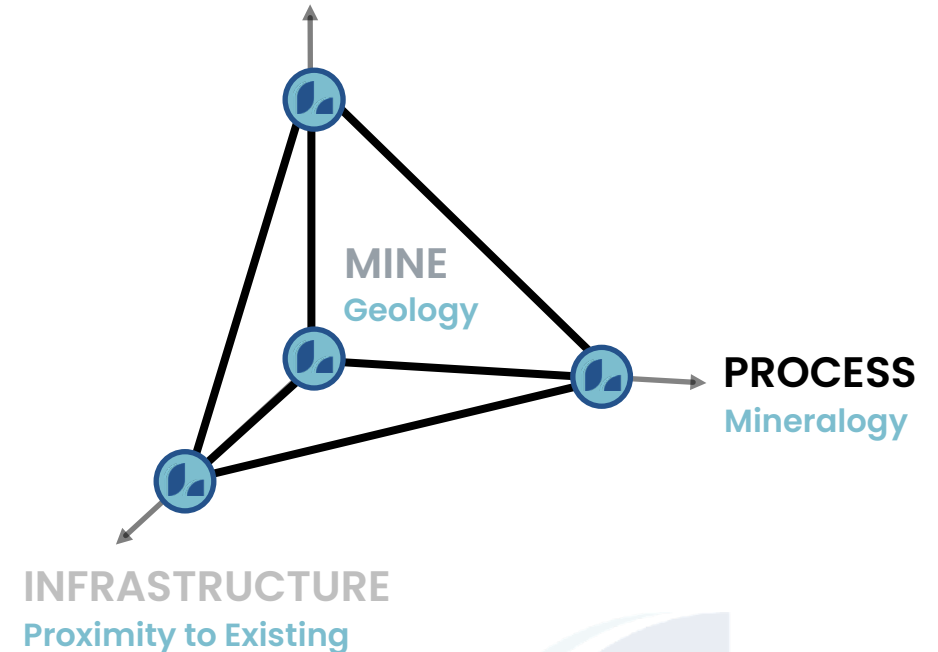
Mineralogy & Metallurgy fundamentals understood

Mineralogy is simple and consistent with low impurities

- Spodumene
+ Quartz
+ Feldspars
- < 0.25% FeO



RESOURCE POTENTIAL
Exploration Work



Metallurgy supports DMS concentration

- DMS concentrate via pilot plant
- Highly liberated
- 50%+ mass rejection < 0.2% Li₂O loss

HIDDEN LAKE LITHIUM PROJECT

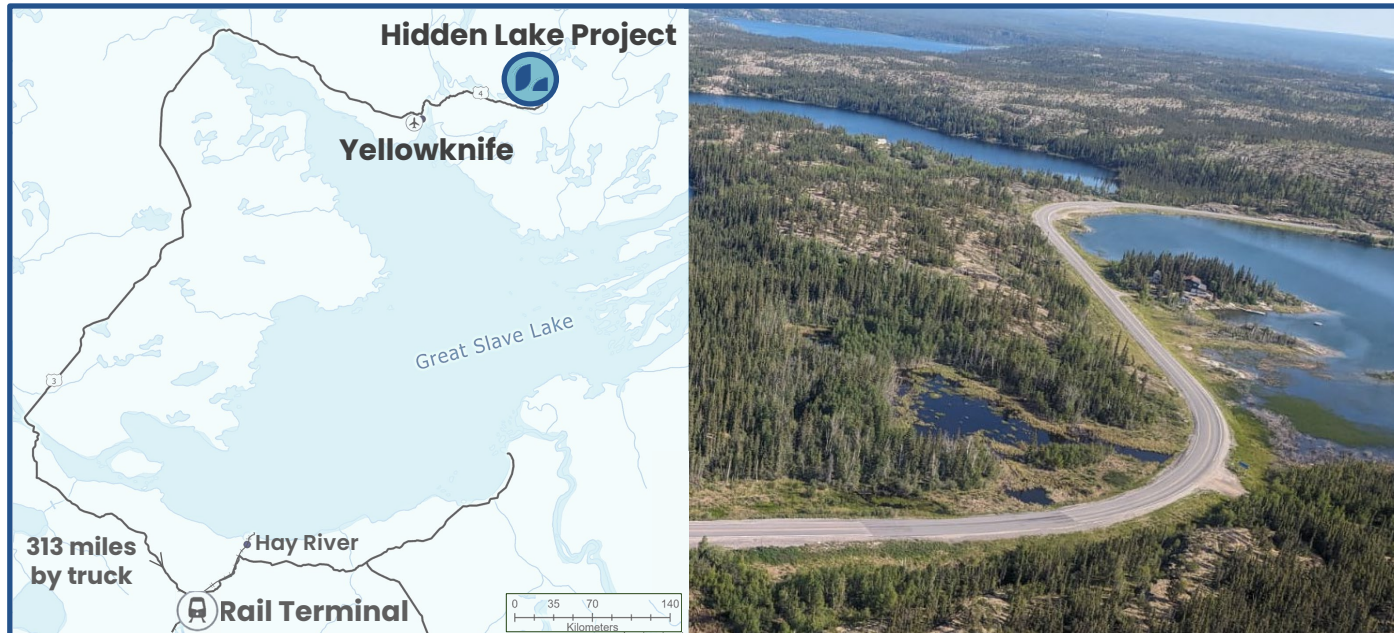
WHY WE LOVE IT – EXISTING INFRASTRUCTURE



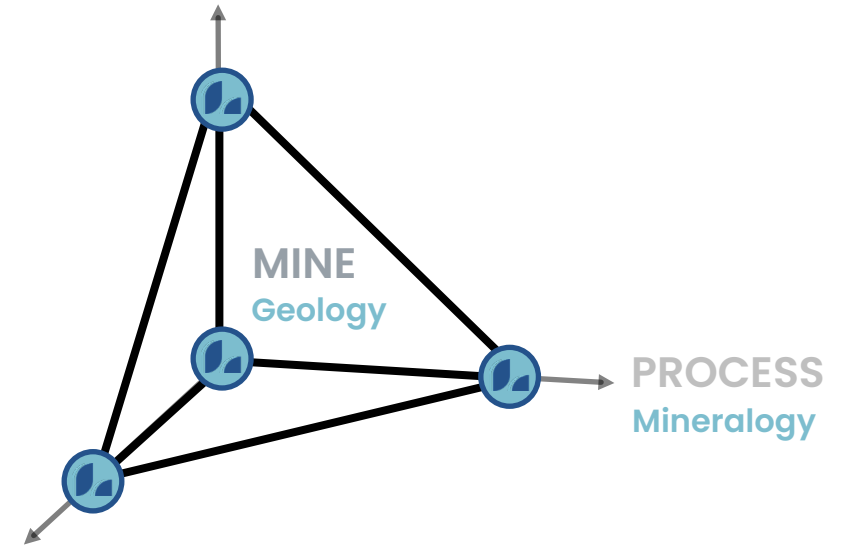
65km drive Highway 4 – Hidden Lake to Yellowknife

Yellowknife – Capital of NWT population of ~20,000

- Well established workforce and support services
- Domestic Airport – daily connections to Canadian cities
- All-weather roads – south to Alberta and British Columbia
- Hydroelectric power – 2030 plans for the Lithium Belt



RESOURCE POTENTIAL
Exploration Work



INFRASTRUCTURE
Proximity to Existing

Hay River Rail Terminal – CN Rail
Canada & United States of America

- Significant backhaul capacity

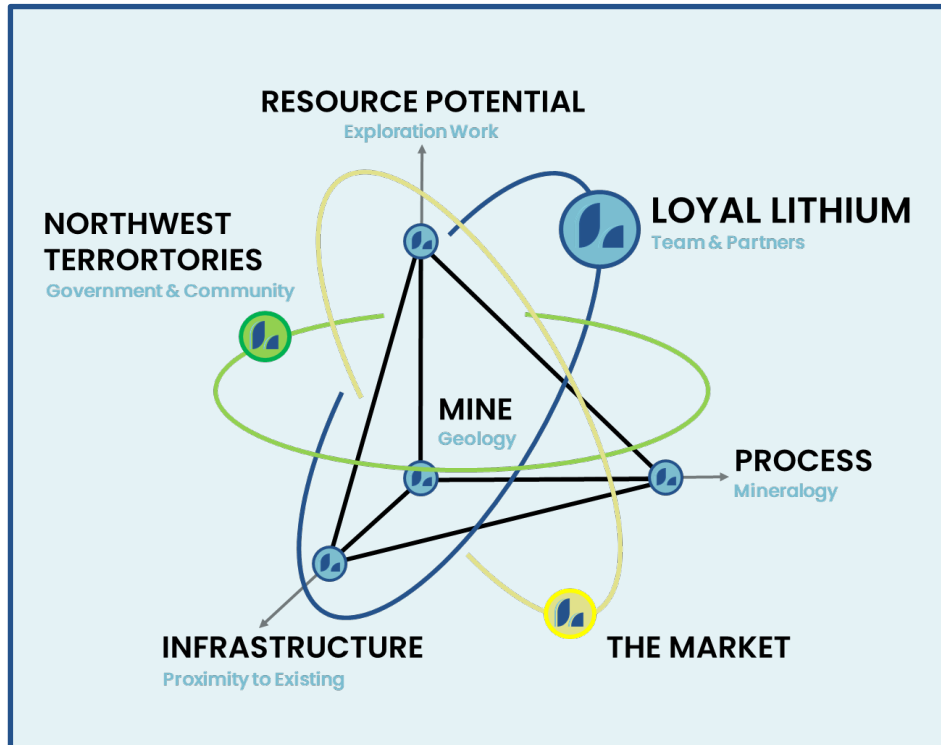
HIDDEN LAKE APPROACH

CONCURRENT WORKSTREAMS IN MOTION

2023 | 2024

LAND & COMMUNITY

- First Nations Engagement
- Yellowknife Community Engagement
- Government & Regulators
- Environmental & Cultural Surveys



EXPLORATION & DRILLING

- Field mapping extends mineralized Strike Length to 3,250m
- 2 major mineralized clusters – MAX & HUE
- Contains 7 mineralised dykes ready for drill testing
- Land Use Permit (exploration permit) obtained
- Drilling program in planning

STUDIES

- Environmental baseline
- Test work & flowsheet
- Scoping

PROJECT DEVELOPMENT – TYPICAL TIMEFRAMES

THE ROAD AHEAD PROVIDES CLEAR SOCIAL AND ECONOMIC BENEFITS

READINESS

3 – 5 years

- Community Engagement
- Exploration
- Test work
- Enviro Studies
- Resource Modelling
- Strategy
- Community Agreements
- Engineering & Design
- Estimating & Scheduling
- Economics
- Optimisation
- Feasibility Studies
- Permits & Approvals

CONSTRUCTION

2 – 3 years

- Early Works
- Infrastructure
- Process Plant
- Project Management
- Project Controls
- Procurement
- Contracts Administration
- Contractor Management
- Construction Management.
- Engineering: Environment, Mining, Civil, Mechanical, Electrical, Comms
- Health & Safety

COMPLETIONS

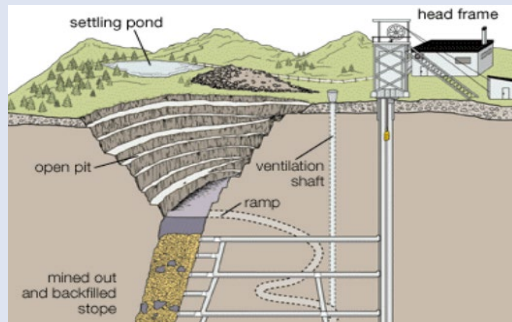
1 year

- Testing
- Certifying
- Modification
- Dry Commissioning
- Wet Commissioning
- Load Test
- Ramp up
- Performance Test
- Defects
- Optimisation
- Improvements
- Nameplate
- Handover to Ops

OPERATIONS

10 – 20 years

- Environmental Monitoring
- Mining
- Infrastructure
- Camp & Catering
- Process Plant
- Laboratory & Qual. Control
- Logistics
- Sales & Marketing
- Major Shutdowns
- Sustaining Capital
- Expansion planning
- Reclamation
- Closure



Example: Open Cut to Underground Mining Concept



Example: Construction of Modular Process Plant



Example: Early Operations of a Crushing Circuit



Rio Tinto: Diavik Diamond Mine

LITHIUM FROM YELLOWKNIFE IS URGENT

SUPPORTIVE ACTION REQUIRED

1. Why Lithium

A sustainable future hinges on renewable energy and energy storage solutions.

The lithium-ion battery stands as the global frontrunner in energy storage technology, driving advancements in communication, transportation, and energy sectors.

2. Why Yellowknife

The availability of raw materials, particularly lithium, is a critical factor in battery production.

Spodumene, a lithium rich mineral, is globally recognised as a superior natural source of lithium and abundantly present in Yellowknife. Spodumene currently supplying over 50% of the world's lithium demand. It enjoys robust investment support and offers the distinct advantage of physically separating the mining and refining processes.

Strategically positioned, Yellowknife could serve as a hub for Spodumene supply to the emerging North American lithium supply chain.

3. Why the Urgency

While lithium is an abundant naturally occurring element, Spodumene, is not as prevalent.

Development plans for alternative natural lithium sources, such as brines, clays, and other hard rock deposits, in other regions and provinces are swiftly progressing. Without urgent supportive action for the sustainable extraction of Yellowknife Spodumene, there is a risk of global funding being diverted to these alternative projects. This could lead to the missed opportunity of developing Yellowknife Lithium.



LOYAL LITHIUM

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