NeoLithica Ltd.

NI 43 – 101 Technical Report
Lithium Resource Estimate

Peace River Project, NW Alberta

by:

Gordon MacMillan, P.Geol.

Report Date: February 21, 2023

Effective Date: January 30, 2023

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Forward Looking Information

This report contains forward-looking statements regarding NeoLithica Ltd. ("NeoLithica" or "the Company") and the potential of its current and future projects. Generally, forward-looking statements can be identified by the use of forward-looking language such as "plans", "expects", "budgets", "schedules", "estimates", "forecasts", "intends", "anticipates", "believes", or variations of such words and phrases, and statements that certain actions, events, or results "may", "could", "would", "might", "will be taken", "will occur" or "will be achieved". Forward-looking statements are based on the opinions and estimates of NeoLithica as of the date such statements are made. Forward-looking statements are subject to known and unknown risks, uncertainties and other factors that may cause the actual results, levels of activity, performance or achievements of NeoLithica to be materially different from those expressed or implied by such forward-looking statements, including, but not limited to, risks related to: NeoLithica's ability to effectively implement its planned exploration programs; unexpected events and delays in the course of NeoLithica's exploration and drilling programs; changes in project parameters as plans continue to be refined; the ability of NeoLithica to raise the capital necessary to meet its milestones, conduct its planned exploration programs and to continue exploration and development on its properties; the failure to discover any significant amounts of lithium or other minerals on any of NeoLithica's properties; the fact that NeoLithica's properties are in the exploration stage and exploration and development of mineral properties involves a high degree of risk and few properties which are explored are ultimately developed into producing mineral properties; the fact that the mineral industry is highly competitive and NeoLithica will be competing against competitors that may be larger and better capitalized, have access to more efficient technology, and have access to reserves of minerals that are cheaper to extract and process; the fluctuations in the price of minerals and the future prices of minerals; the fact that if the price of minerals deceases significantly, any minerals discovered on any of NeoLithica's properties may become uneconomical to extract; the continued demand for minerals and lithium; that fact that resource figures for minerals are estimates only and no assurances can be given than any estimated levels of minerals will actually be produced; governmental regulation of mining activities and oil and gas in Alberta and elsewhere, including regulations relating to prices, taxes, royalties, land tenure, land use, importing and exporting of minerals and environmental protection; environmental regulation, which mandate, among other things, the maintenance of air and water quality standards and land reclamation, limitations on the general, transportation, storage and disposal of solid and hazardous waste; environmental hazards which may exist on the properties which are unknown to NeoLithica at present and which have been caused by previous or existing owners or operators of the properties; reclamation costs which are uncertain; the fact that commercial quantities of minerals may not be discovered on current properties or other future properties and even if commercial quantities of minerals are discovered, that such properties can be brought to a stage where such mineral resources can profitably be produced therefrom; the failure of plant or equipment processes to operate as anticipated; the inability to obtain the necessary approvals for the further exploration and development of all or any of NeoLithica's properties; Risks inherent in the mineral exploration and development business; the uncertainty of the requirements demanded by environmental agencies; NeoLithica's ability to hire and retain qualified employees and consultants necessary for the exploration and development of any of NeoLithica's properties and for the operation of NeoLithica's business; and other risks related to mining activities that are beyond NeoLithica's control. Although NeoLithica has attempted to identify important factors that could cause actual results to differ materially from those contained in the forward-looking statements in this presentation, there may be other factors that cause results not to be as anticipated, estimated, or intended. There can be no assurance that such statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. Accordingly, readers should not place undue reliance on forward-looking statements contained in this presentation. NeoLithica does not undertake to update any forward-looking statements except in accordance with applicable securities laws. Unless otherwise indicated, Barry Caplan, BSc., President and CEO at NeoLithica Ltd. and a Qualified Person under National Instrument 43-101, has reviewed and is responsible for the technical information contained in this report.

Note: Certain scientific and technical information contained herein is derived from the NI 43-101 Technical Report for the Peace River Lithium Project, Northwest Alberta, Canada prepared by Enlighten Geoscience Ltd. (June 9, 2022).

Certificate of Qualified Person

Effective Date: January 30, 2023

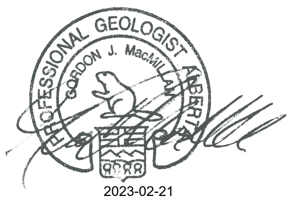
Report Date: February 21, 2023

I, **Gordon MacMillan**, P.Geol., hereby state that:

1. I am a hydrogeologist and was engaged by NeoLithica Ltd. as a Hydrogeological Consultant;
2. I am a graduate of the University of Calgary with a Bachelor of Science in Applied and Environmental Geology (1998);
3. I am a Registered Professional Geologist through the Association of Professional Engineers and Geoscientists of Alberta, Membership Number 63537;
4. I have practiced as a professional in hydrogeology since 2000 and have 23 years of experience in mining, water supply, water injection, and the construction and calibration of numerical models of subsurface flow and solute migration. I have performed three-dimensional numerical modelling of groundwater flow, solute transport, and heat flow. I have completed various investigations into the mass balance of local and regional groundwater flow systems. I have published multiple peer-reviewed papers on the design of water well networks. I have worked with multi-discipline teams to develop and model detailed models of large-scale solute migration. I have prepared resource estimations and a preliminary economic assessment for mineral projects;
5. I have read the definition of "Qualified Persons" set out in National Instrument 43-101 Standards of Disclosure for Mineral Projects (the "Instrument" or "NI 43-101") and certify that by reason, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101;
6. I am responsible for the preparation of Items 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 20, 23, 25.1, and 26.2 of the report entitled "NI 43–101 Technical Report Lithium Resource Estimate Peace River Project, NW Alberta" (the "Technical Report") with effective date of January 30, 2023;
7. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report, or part that I am responsible for, contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading;
8. I do not hold, nor do I expect to receive, any securities or any other interest in any corporate entity, private or public, with interests in the properties that are the subject of this report or in the properties themselves, nor do I have any business relationship with any such entity apart from a professional consulting relationship with the issuer, nor to the best of my knowledge do I have any interest in any securities of any corporate entity with adjacent properties to the subject properties;
9. I am independent of NeoLithica Ltd. according to the criteria stated in Section 1.5 of the Instrument;
10. I have read NI 43-101 and Form NI 43-101F1 and the Technical Report has been prepared in compliance with that instrument and form; and
11. I consent to the public filing of the Technical Report titled "NI 43–101 Technical Report Lithium Resource Estimate Peace River Project, NW Alberta" (the "Technical Report") by

NeoLithica I also consent to any extracts from or a summary of the Technical Report in any type of disclosure document with any stock exchanges or other regulatory authority and any publication by them, including electronic publication in the public company files on the websites accessible by the public, of the Technical Report of NeoLithica Ltd.

DATED this February 21, 2023, at Cochrane, Alberta, Canada



Gordon MacMillan, P.Geol.

1. Summary

1.1 Issuer and Purpose

NeoLithica Ltd. (NeoLithica or the Company) is an emerging lithium resource development company that plans to incorporate innovative direct lithium extraction ("DLE") and refining technologies to produce battery-grade lithium compounds in support of Canada's critical mineral supply chain. The Company is headquartered in Calgary, Alberta.

This inferred resource estimate incorporates previously completed reservoir conceptualization and characterization, volumetric calculation, and technical analysis (geological, petrophysical and core description work), over NeoLithica's expanded mineral tenure holdings at its Peace River Project in northwest Alberta. The previously completed work was published in June 2022 as the Company's initial National Instrument report (Enlighten GeoScience 2022).

This Technical Report has been prepared for the Issuer, NeoLithica Ltd. (NeoLithica or the Company). NeoLithica has acquired 100% interest in 62 contiguous Metallic and Industrial Mineral permits between the Town of Peace River and the City of Grande Prairie in northwest Alberta. This Technical Report focuses on the "Peace River" Property.

The Peace River Property is situated in an area of northwest Alberta where Government and industry hypersaline formation water (or brine) studies have documented anomalous values of lithium in Late Devonian (Frasnian) aquifers associated with carbonate reef buildups in the Leduc Formation of the Devonian Woodbend Group. Access to the Leduc Formation aquifer brine at the Peace River Property will be undertaken by drilling and completing wells to pump the brine from depths of approximately 2,250 m. Once the lithium is extracted, the brine will be injected back down into the Devonian aquifer or into an overlying or underlying aquifer.

At present there is only one well producing hydrocarbons from the Leduc Formation. The lack of currently producing oil and gas wells limits the availability of brine for testing to determine average lithium concentration in the aquifer. As such, NeoLithica is reliant on the historical brine sampling undertaken by the oil and industry and the Alberta Government to provide technical information including brine geochemical assays and hydrogeological information.

It is the QP's opinion that the historical data provides a reasonable assessment of the Leduc Formation aquifer in that the data confirms the presence of high concentrations of lithium in the brine. It is also the QP's opinion that the ongoing mineral processing test work suggests there is a reasonable prospect of the potential to economically extract and process lithium from the brine into merchantable lithium compounds.

1.2 Author and Qualified Persons

NeoLithica retained Gordon MacMillan of Fluid Domains as its Qualified Person (QP) to supervise the work and author this technical report on the resource estimate of the Peace River

Project to conform to National Instrument 43-101 (NI 43-101) standards. Gordon MacMillan was retained as the QP for Sections 1 through 12, 14, 20, 23, 25.1, and 26.2.

A QP was not retained for Section 13 as it did not include metallurgical work exclusive to NeoLithica, but simply described the results of work conducted by NeoLithica's chosen technology partner on brines exhibiting similar characteristics and chemistry to that of Peace River Leduc Formation lithium-brine.

The intent of this Technical Report is to utilize a historical technical and analytical dataset to prepare a mineral resource in accordance with the Canadian Securities Administration's National Instrument 43-101 Standards for Disclosure of Mineral Projects and Canadian Institute of Mining and Metallurgy guidelines and definition standards. The effective date of this report is January 30, 2023.

1.3 Property Location, Description, and Access

The Peace River Project ("the Project") consists of 62 contiguous Metallic and Industrial Mineral (MIM) Permits issued by the Alberta Energy Ministry that overlie the thick Leduc reefal carbonate sediments of the Woodbend Group, which were deposited in a shallow inland sea along the emergent Peace River Arch.

All permits are held 100% by NeoLithica Ltd. and currently the Project is comprised of a total area of 498,289 hectares (ha). The permits were acquired directly from the Government of Alberta through the Province's on-line mineral tenure system.

The Permits extend from Township 74, Range 3 W6M to Township 85, Range 16 W5M. The southern extent of the mineral tenure lies 20 kilometres from the regional centre of the City of Grande Prairie. The northern extent of the mineral tenure lies approximately 20 km north of the Town of Peace River.

1.4 Tenure Maintenance, Permitting, and Royalties

As of the Effective Date of this Technical Report, the Alberta Metallic and Industrial Mineral Permits associated with the Peace River Property are active and in good standing.

In Alberta, rights to metallic and industrial minerals, to bitumen (oil sands), to coal and to oil/gas are regulated under separate statutes, which collectively make it possible for several different 'rights' to coexist and be held by 'different grantees' over the same geographic location. Oil and gas leases and NeoLithica's Alberta Metallic and Industrial Mineral Permits coexist within the Peace River Project area.

On January 1, 2023, a new Metallic and Industrial Minerals Tenure Regulation (AR 265/2022) came into force. This new regulation makes many significant changes to the metallic and industrial minerals tenure system. Most notably it:

- Splits brine-hosted and rock-hosted metallic and industrial minerals into separate agreements; and
- Creates new *brine-hosted* minerals agreements.

NeoLithica's existing minerals permits are eligible to be converted to brine-hosted minerals licence(s) within its permit area by applying for a brine-hosted licence. NeoLithica retains the exclusive right to acquire brine-hosted rights under the area of its existing mineral permits until December 31, 2023. Brine-hosted minerals licences require payment of an annual rental of $3.50 per hectare. Additional detail on the new mineral tenure regulations can be found in Section 4.2.

An Exploration Licence must be obtained before a person or company can apply for or carry out an exploration program in Alberta. The prospector or company must obtain the appropriate approvals and permits from the Government of Alberta. To the best of the author's knowledge, there are no significant factors and risks that may affect access, title, or the right or ability to perform work on the Property.

Government royalty rates associated with any lithium production in Alberta, as administrated by the Department of Energy under the Metallic and Industrial Minerals Royalty Regulation (Province of Alberta, 2020), would be subject to 1% gross mine-mouth revenue before payout, and after payout, the greater of 1% gross mine-mouth revenue and 12% net revenue.

1.5 Geology, Hydrogeology, and Mineralization

The geological focus of this Technical Report is on the aquifer system within the Late Devonian dolomitized reef structure of the Woodbend Group, Leduc Formation, that conformably overlies the carbonates of the Beaverhill Lake Group. The Leduc Formation is host to prolific reserves of oil and gas in Alberta. The Woodbend Group is dominated by basin siltstone, shale, and carbonate of the Majeau Lake, Duvernay and Ireton formations, which surround and cap the Leduc Formation reef complexes. The Leduc Formation reefs are characterized by multiple cycles of reef growth including backstepping reef complexes and isolated reefs.

The Project lies along the eastern edge of the Peace River Arch an emergent landmass that was a topographically prominent element throughout the Devonian Woodbend and Winterburn Groups' deposition. In this area, the Upper Devonian (Frasnian) sediments of the Woodbend Group were deposited in a shallow inland sea bounded by the Peace River Arch to the northwest and the West Alberta Ridge to the southwest, creating a barrier between the sea and the open ancestral Pacific to the west (Potma, et al. 2001ii).

The area of the landmass continued to diminish in size due to gradual subsidence and the onlapping of a series of backstepping fringing reef complexes in the Leduc Formation. The Leduc reef reached a maximum thickness of 300 m, and has been largely replaced by dolomite, a process that enhanced the porosity and permeability of the reservoir (Dix, 1990). In addition, normal block-fault movements in the area affected both Woodbend and Winterburn deposition (O'Connell et al., 1990).

Spatial delineation of the reef complex and formation of a three-dimensional geological model was completed by reviewing individual well wireline logs to denote the top of individual stratigraphic horizons. The top of the Leduc Formation was defined with 258 wells in the Project area. A total of 107 wells were used as control points to construct an isopach of the Leduc Formation. The top of the Beaverhill Lake Group, directly below the Leduc Formation, was defined with 131 wells in the Project area.

The Wabamun Formation, that overlies the Leduc, also exhibits the potential to be a source of lithium-brine and may be added to the resource estimation in an updated report in the near future.

A hydrogeological assessment of the Leduc Formation reef complex was investigated using a variety of public and proprietary data sources. The hydrogeological characterization study – and this resource estimation – placed emphasis solely on the Leduc Formation aquifer and brine in this report.

1.6 Historical Brine Geochemistry and Adequacy of Data

Historical work conducted within, and proximal to, the current boundaries of the Peace River Property include Leduc Formation aquifer brine testing. Published lithium concentrations in, and adjacent to, the Resource Area (RA) were reviewed as part of the resource assessment. Six water samples are considered representative of the Leduc Formation reef aquifer, in an area contiguous with the RA. These water samples were collected from wells drilled for oil and gas exploration and/or production and compiled by government agencies.

The measured lithium concentrations considered representative of the Leduc Formation reef contiguous with the RA, range from 40 mg/L to 100 mg/L with an average lithium concentration of 72 mg/L. The Qualified Person believes a representative lithium concentration of 70 mg/L is a reasonable approximation of the lithium grade throughout the RA.

The QP concludes that the historical brine sampling work suggests the presence of high concentrations of lithium in the RA. The author is not aware of any significant issues or inconsistencies that would invalidate the use of the historical assay data for the resource estimate.

1.7 Mineral Processing

Although NeoLithica was not able to collect representative samples of Leduc Formation brine from within the Peace River Project area due to the lack of available producing wells, metallurgical tests were conducted by LiEP Resources Ltd. (LiEP) using their ion exchange technology on western Canadian Leduc Formation brine with similar characteristics and chemistry to that of Peace River Leduc Formation lithium-brine. Different controlled operating conditions were established to determine loading capacity of the brine at varying temperatures, volumes of sorbent, and duration. In addition, the elution stage was tested at varying pH levels and temperatures.

1.8 Reasonable Prospects

This Technical Report has been prepared by a multi-disciplinary team that includes geologists and hydrogeologists with relevant experience in the geology of the Western Canada Sedimentary Basin, brine geology/hydrogeology, and lithium-brine processing. The team has reviewed critical matters that are likely to influence the prospect of economic extraction of lithium-brine from the Devonian Leduc Formation aquifer such as aquifer dimensions, brine composition, fluid flow, brine access and mining methods, recovery extraction technology, and environmental factors.

The historical data provides a reasonable assessment of the Leduc Formation aquifer in that the data suggests the presence of high concentrations of lithium in the RA, and the pressure and permeability of the Leduc Formation aquifer suggests there is a reasonable prospect of the potential to economically extract brine from the aquifer. The author and QP, Mr. MacMillan, P. Geol. takes responsibility for this statement.

Ongoing mineral processing test work suggests there is a reasonable prospect of the potential to economically extract and process lithium from the brine into merchantable lithium compounds.

1.9 Resource Estimation

The Inferred Mineral Resource estimation methodology involved:

1) Mapping the Leduc Formation top and bottom surfaces;
2) Mapping and interpolating the Leduc isopach across the resource area;
3) The calculation of a net porous interval and the net aquifer volume;
4) Decreasing the net aquifer volume by hydrocarbon saturated pores and historical water volumes injected into the Leduc Formation;
5) Determining a representative lithium grade of the Leduc Formation brine; and
6) Calculation of the lithium mass in the Leduc Formation below the resource area.

The Peace River lithium-brine inferred resource estimation is presented as a total mass and was estimated using the following equation:

$$\mathbf{LRM = ((RA \times b \times n) - V_{oil} - V_{inj}) \times Conc}$$

Where:

LRM - lithium resource mass (tonnes)

RA - resource area (m^2)

b - net porous thickness (m)

n - mean net porosity (fraction)

V_{oil} – volume of oil in RA

V_{inj} – volume of injected water in RA

Conc - representative lithium concentration (kg/m^3)

An average Leduc Formation aquifer brine lithium concentration of 70 mg/L was selected for the resource estimation. This value was determined from six lithium analyses in the Leduc Formation aquifer in an area contiguous with the RA.

The mineral resource estimate for the Peace River Project is 2 million tonnes of elemental lithium (see Section 14.5 Inferred Resource Estimate), at an average lithium concentration of 70 mg/L in 33 km^3 of formation brine volume (Table 1-1). The total lithium carbonate equivalent (LCE) for the resource is 1×10^7 tonnes (10 million tonnes).

It is reasonable to expect that the inferred mineral resource estimate can be upgraded to an indicated or measured mineral resource in part or all of the RA with continued exploration. At that time, modifying factors can be applied to indicated and measures mineral resources, enabling them to be categorized as mineral reserves.

Table 1-1: Peace River Project Leduc Formation lithium-brine inferred resource estimate.
(presented as a global (total) resource)

Reporting Parameter	Leduc Formation Reef Domain
Aquifer volume (km^3)	640
Brine volume (km^3)	32.7
Representative lithium concentration (mg/L)	70
Average porosity (%)	5.7
Total elemental Li resource (tonnes)	2×10^6
Total LCE (tonnes)	1×10^7

Note 1: Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve. The estimate of mineral resources may be materially affected by geology, environment, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.

Note 2: The weights are reported in metric tonnes (1,000 kg or 2,204.6 lbs).

Note 3: Tonnage numbers are rounded to one significant digit.

Note 4: The resource estimation was completed and reported using a cut-off of 50 mg/L lithium which is assumed to be reasonable for a project such as the Peace River Project that needs to pump brine to surface, extract the lithium from the brine, and re-inject the brine into the subsurface.

Note 5: To describe the resource in terms of industry standard, a conversion factor of 5.323 is used to convert elemental Li to Li_2CO_3, or Lithium Carbonate Equivalent (LCE).

1.10 Concluding Qualified Person Statement

This lithium-brine Technical Report has been prepared by a multi-disciplinary team that include geologists, hydrogeologists, and chemical engineers with relevant experience in the geology of the Western Canada Sedimentary Basin, brine geology/hydrogeology, and lithium-brine processing. The team has reviewed critical matters that are likely to influence the prospect of economic extraction of lithium-brine from the Devonian Leduc Formation aquifer such as aquifer dimensions, brine composition, fluid flow, brine access and mining methods, recovery extraction technology, and environmental factors.

An evaluation of NeoLithica's Peace River Project shows that the Devonian Leduc Formation aquifer underlying the Property has high concentrations of lithium and reasonable prospects of potential economic extraction. The inferred resource estimation presented in this Technical Report conveys a property of merit and additional development work is recommended.

There is no guarantee that a company can successfully extract lithium from Alberta's Devonian petroleum system in a commercial capacity. The extraction technology is still at the developmental stage and there is a risk that the scalability of any initial mineral processing bench-scale and/or demonstration pilot test work may not translate to a full-scale commercial operation.

1.11 Recommendations

NeoLithica Ltd. plans to conduct further work in a phased manner. The first work phase should be focussed on the lithium extraction and refining process to be at demonstrated at pilot scale, including the purification and conversion of the lithium chloride concentrate to produce 99.5% battery-grade lithium carbonate. This testing will further refine the process flowsheet. The estimated cost of the first work phase is C$1,540,000 including a 10% contingency.

The second work phase will be focussed on the characterization of the Leduc Formation in the RA. Further data collection and modelling will be required to upgrade the mineral resource and advance the Project, with a focus on further hydrogeologic characterization of the Leduc Formation aquifer with the goal of upgrading some, or all of, the resource to ultimately define a Mineral Reserve, and to support commercial project planning. Advancement to the next phase of work is contingent on the positive results of the first phase of work.

2. Introduction

NeoLithica Ltd. (NeoLithica or the Company) is an emerging lithium resource development company that is incorporating innovative direct lithium extraction ("DLE") and refining technologies to produce battery-grade lithium compounds in support of Canada's critical mineral supply chain. The Company is headquartered in Calgary, Alberta.

This inferred resource estimate incorporates previously completed reservoir conceptualization and characterization, volumetric calculation, and technical analysis (geological, petrophysical and core description work), over NeoLithica's expanded mineral tenure holdings at its Peace River Project in northwest Alberta. The previously completed work was published in June 2022 as the Company's initial National Instrument report (Enlighten GeoScience 2022).

This Technical Report has been prepared for the Issuer, NeoLithica Ltd. (NeoLithica or the Company). NeoLithica has acquired 100% minerals interest in 62 contiguous Metallic and Industrial Mineral permits between the Town of Peace River and the City of Grande Prairie in northwest Alberta. This Technical Report focuses on the "Peace River" Property.

The Peace River Property is situated in an area of northwest Alberta where Government and industry hypersaline formation water (or brine) studies have documented anomalous values of lithium in Late Devonian (Frasnian) aquifers associated with carbonate reef buildups in the Leduc Formation of the Devonian Woodbend Group. Access to the Leduc Formation aquifer brine at the Peace River Property will be undertaken by drilling and completing wells to pump the brine from depths of approximately 2,250 m. Once the lithium is extracted, the brine will be injected back down into the Devonian aquifer or into an overlying or underlying aquifer.

The Government of Alberta recently passed the third reading of Bill 82, the Mineral Resource Development Act (The Legislative Assembly of Alberta 2021), designed to align the authority of the AER with regards to minerals exploration and production to that of other energy resources in the province. This advancement of the fiscal and regulatory framework for minerals development is expected to provide clarity for operators and investors.

2.1 Issuer and Purpose

This Technical Report has been prepared for the Issuer, NeoLithica Ltd. NeoLithica has acquired 100% minerals interest in 62 contiguous Metallic and Industrial Mineral permits between the Town of Peace River and the City of Grande Prairie in northwest Alberta (Figure 2-1). This Technical Report focuses on the "Peace River" Property.

NeoLithica engaged Enlighten GeoScience to describe the regional and local geologic setting for the Peace River property. An independent report "Peace River Project in Northwest Alberta, Canada" was published on June 9, 2022, following NI 43-101 Technical Report standards. The report did not include a resource or reserve estimate. Parts of this updated NI 43-101 Technical Report are taken from the Enlighten GeoScience (2022) report.

The Peace River Property is situated in an area of northwest Alberta where Government and industry hypersaline formation water (or brine) studies have documented anomalous values of lithium in Late Devonian (Frasnian) aquifers associated with carbonate reef buildups in the Leduc Formation of the Devonian Woodbend Group. Access to the Leduc Formation brine at the Peace River Property will be undertaken by drilling and completing wells to pump the brine from depths of approximately 2,250 m below ground surface. Once the lithium is extracted, the brine will be injected back down into the Devonian aquifer or into an overlying or underlying aquifer.

There is presently very little oil and gas activity targeting the Leduc Formation in the area; the Leduc is only producing from one well. This lack on oil and gas activity limits the availability of the Leduc Formation brine for testing to determine hydraulic properties of the formation and lithium concentrations in the aquifer. As such NeoLithica has analyzed historical formation testing and brine sampling undertaken by industry and Government, to provide technical information including brine geochemical assays and hydrogeological information.

NeoLithica retained Gordon MacMillan of Fluid Domains as its Qualified Person (QP) and author for this technical report on the resource estimate of the Peace River Project to conform to National Instrument 43-101 (NI 43-101) standards. Gordon MacMillan was the QP for Sections 1 through 12, 14, 20, 23, 25.1, and 26.2. It is Mr. MacMillan's opinion that the historical data provides a reasonable assessment of the Leduc Formation aquifer in that the data suggests lithium concentrations and aquifer properties with a reasonable prospect of the potential to economically produce the lithium rich brine.

Ongoing mineral processing test work suggests there is a reasonable prospect of the potential to economically extract and process lithium from the brine into merchantable lithium compounds.

The intent of this Technical Report is to utilize the compiled technical and analytical datasets to prepare a mineral resource in accordance with the Canadian Securities Administration's National Instrument 43-101 Standards for Disclosure of Mineral Projects and Canadian Institute of Mining and Metallurgy guidelines and definition standards. The effective date of this report is January 30, 2023.

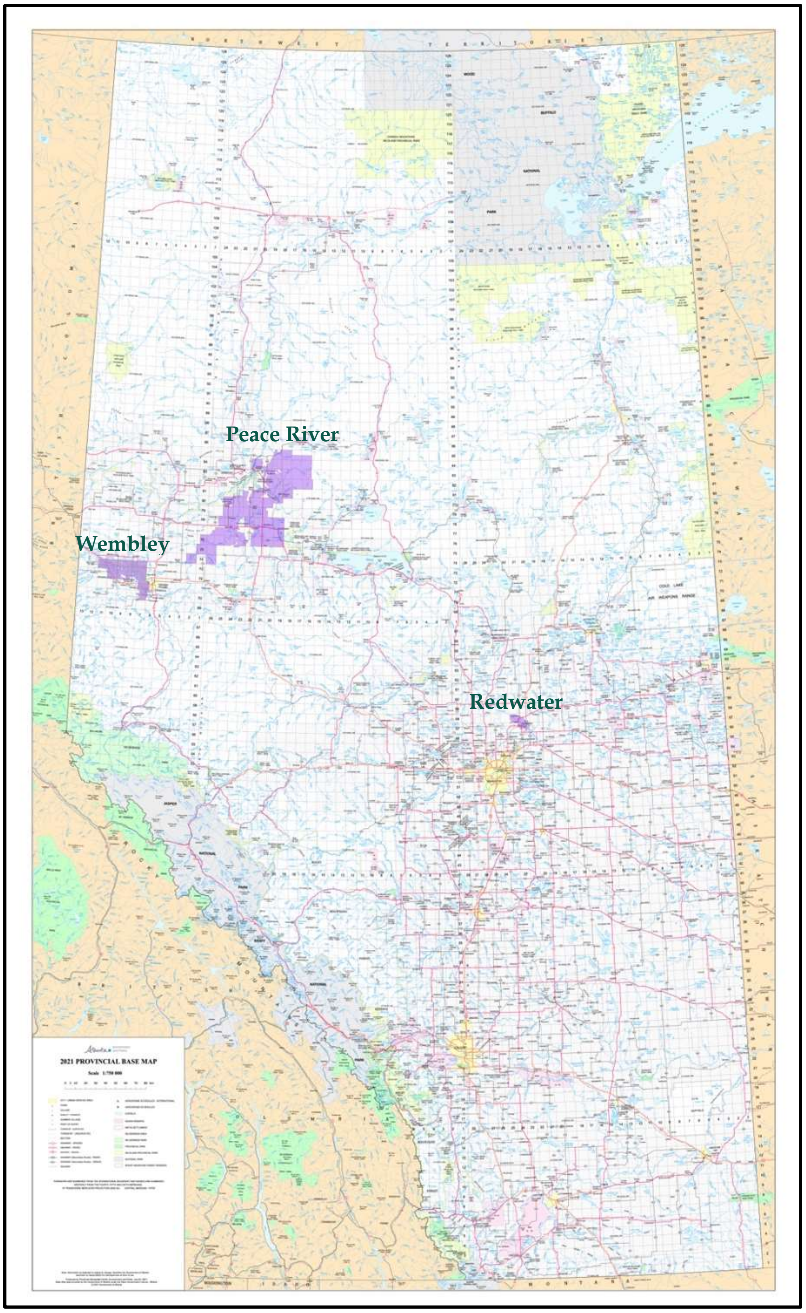


Figure 2-1: Location of NeoLithica's Alberta Metallic & Industrial Mineral permits
This Technical Report focuses on the Peace River Property

2.2 Authors and Site Inspection

A site visit was not required by the QP to validate the geoscience data utilized in the report as the data was sourced from the Alberta Energy Regulator database and collected from decades of oilfield development by various operators. Section 12 summarizes the data verification efforts undertaken by the QP to ensure the validity of the compiled hydraulic and water quality data. The author is independent of NeoLithica Ltd., the Peace River Property, and is a Qualified Person as defined in NI 43-101.

A site visit was not conducted to validate the Section 13 data as the review was done remotely.

2.3 Sources of Information

The report is based upon information and data collected, compiled, and validated by NeoLithica and the QPs. Mineral rights and land ownership information was provided by NeoLithica and confirmed online at the Alberta Energy Metallic and Industrial Mineral Disposition of Mineral Rights data (https://gis.energy.gov.ab.ca/Geoview/Metallic). Information contained within the report was derived from the following:

- NeoLithica-supplied exploration maps, logs, laboratory analyses, third-party reports, and test data;
- Oil and gas data compiled by the Government of Alberta; and
- Published literature are listed in Section 27: References and are acknowledged where referenced in the report text.

Brine geochemical results in this Technical Report include a brine data compilation by hydrogeological staff at the Alberta Geological Survey, and analytical results that were conducted by exploration companies at commercial, accredited laboratories.

The QP has reviewed the available government and miscellaneous reports, and commercial laboratory analytical data. The author has deemed that these reports and information, to the best of his knowledge, are valid contributions. The information was used as background information to provide a geological introduction to the Peace River Property. The author takes ownership of the ideas and values as they pertain to the current Technical Report.

2.4 Units of Measure

With respect to units of measure, unless otherwise stated, this Technical Report uses:

- Abbreviated shorthand consistent with the International System of Units (International Bureau of Weights and Measures, 2006).
- 'Bulk' weight is presented in both United States short tons (tons; 2,000 lbs or 907.2 kg) and metric tonnes (tonnes; 1,000 kg or 2,204.6 lbs).
- Geographic coordinates are projected in the Universal Transverse Mercator (UTM) system relative to Zone 11 of the North American Datum (NAD) 1983.
- Currency in Canadian dollars (C$), unless otherwise specified.

3. Reliance on Other Experts

This report relies on analysis and results from geologic and hydrogeologic data analysis by Fluid Domains Inc., and core logging/facies descriptions by NeoLithica staff (Matt Zakus, P.Geo.). The QPs reviewed third-party information to confirm that it was completed by qualified experts and properly authenticated.

The author is not qualified to provide an opinion or comment on issues related to legal agreements, mineral titles, royalties, permitting and environmental matters. Accordingly, the author disclaims portions of this Technical Report in Section 4, Property Description and Location. More specifically, the author has not attempted to verify the legal status of the Property; however, at the time of the report preparation, the author reviewed the Alberta Energy Metallic and Industrial Mineral Disposition of Mineral Rights data (https://gis.energy.gov.ab.ca/Geoview/Metallic), which showed that the 62 NeoLithica mineral permits are active and in good standing as of January 30, 2023.

4. Property Description and Location

NeoLithica's Peace River Project is located between the Town of Peace River and the City of Grande Prairie in northwest Alberta. The project overlies the reefal deposits of the Leduc Formation, an extensive reservoir for brines containing lithium (Figure 4-1).

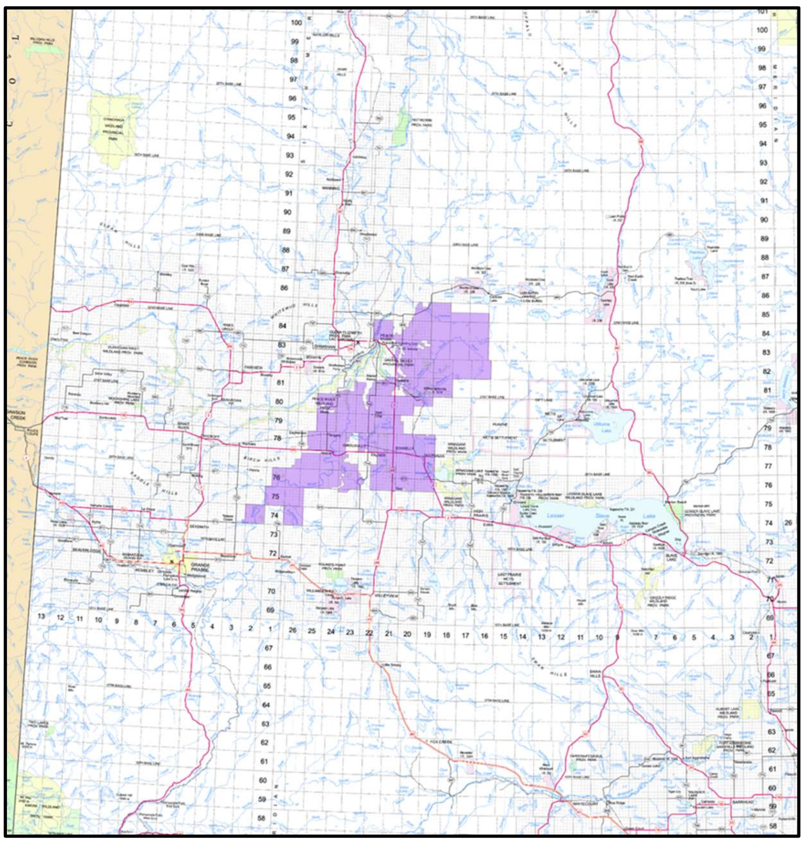


Figure 4-1: General location of NeoLithica's Alberta Metallic & Industrial Mineral permits

4.1 Description and Location

The Peace River Project ("the Project") consists of 62 contiguous Metallic and Industrial Mineral (MIM) Permits, issued by the Alberta Energy Ministry that overlie the Leduc Formation (Table 4-1). All permits are held 100% by NeoLithica Ltd. and currently comprise a total area of 498,289 hectares (ha).

The Permits extend from Township 74, Range 3 W6M to Township 85, Range 16 W5M. The southern extent of the mineral tenure lies approximately 20 km north of the regional centre of the City of Grande Prairie. The northern extent of the mineral tenure lies approximately 20 km north of the Town of Peace River. Both municipalities are serviced by airports (Figure 4-2).

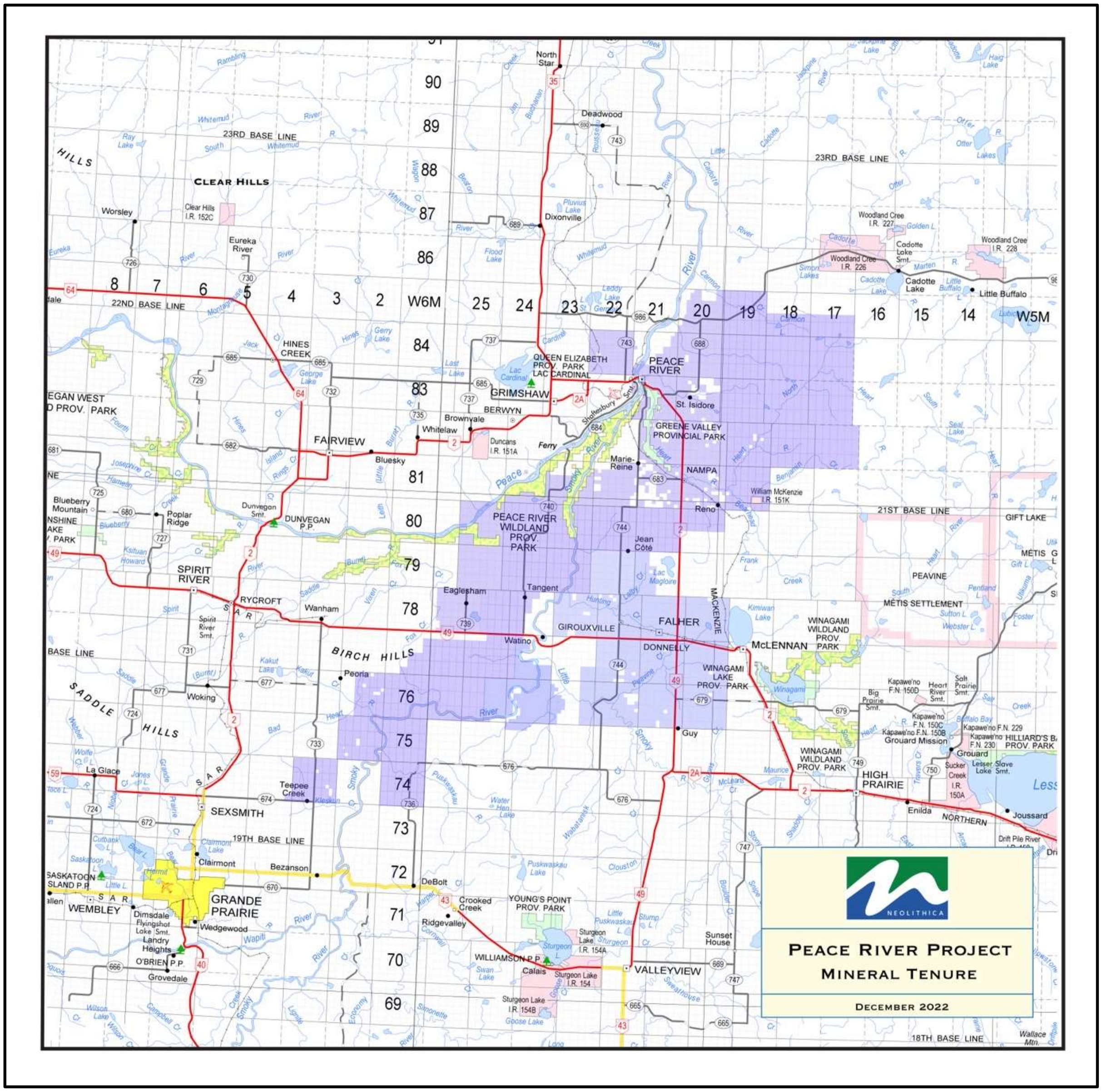


Figure 4-2: Exploration permits at NeoLithica's Peace River Project.

Agreement No.	Status	Designated Representative	Ownership	Size (ha)	Term Date	Expiry Date
9321080094	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080095	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080096	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080097	Active	Total Petroleum Land Services Ltd.	100%	4,608	2021-08-05	2035-08-05
9321080098	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080099	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080100	Active	Total Petroleum Land Services Ltd.	100%	7,808	2021-08-05	2035-08-05
9321080101	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080102	Active	Total Petroleum Land Services Ltd.	100%	8,707	2021-08-05	2035-08-05
9321080103	Active	Total Petroleum Land Services Ltd.	100%	8,896	2021-08-05	2035-08-05
9321080104	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080105	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080106	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080107	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080108	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080109	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080110	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080111	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080112	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080113	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-05	2035-08-05
9321080156	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-18	2035-08-18
9321080157	Active	Total Petroleum Land Services Ltd.	100%	7,086	2021-08-18	2035-08-18
9321080158	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-18	2035-08-18
9321080159	Active	Total Petroleum Land Services Ltd.	100%	5,395	2021-08-18	2035-08-18
9321080160	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-18	2035-08-18
9321080161	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-18	2035-08-18
9321080162	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-18	2035-08-18
9321080163	Active	Total Petroleum Land Services Ltd.	100%	8,979	2021-08-18	2035-08-18
9321080164	Active	Total Petroleum Land Services Ltd.	100%	9,216	2021-08-18	2035-08-18
9321080165	Active	Total Petroleum Land Services Ltd.	100%	5,824	2021-08-18	2035-08-18
9322040098	Active	NeoLithica Ltd.	100%	8,960	2022-04-06	2036-04-06
9322040099	Active	NeoLithica Ltd.	100%	9,024	2022-04-06	2036-04-06
9322040100	Active	NeoLithica Ltd.	100%	9,088	2022-04-06	2036-04-06
9322040101	Active	NeoLithica Ltd.	100%	9,216	2022-04-06	2036-04-06
9322040102	Active	NeoLithica Ltd.	100%	9,088	2022-04-06	2036-04-06
9322040103	Active	NeoLithica Ltd.	100%	9,120	2022-04-06	2036-04-06
9322040104	Active	NeoLithica Ltd.	100%	9,088	2022-04-06	2036-04-06
9322040105	Active	NeoLithica Ltd.	100%	9,216	2022-04-06	2036-04-06
9322040106	Active	NeoLithica Ltd.	100%	8,640	2022-04-06	2036-04-06
9322070266	Active	NeoLithica Ltd.	100%	7,424	2022-07-28	2036-07-28
9322070267	Active	NeoLithica Ltd.	100%	8,512	2022-07-28	2036-07-28
9322070268	Active	NeoLithica Ltd.	100%	9,216	2022-07-28	2036-07-28
9322100185	Active	NeoLithica Ltd.	100%	1,024	2022-10-06	2036-10-06
9322100186	Active	NeoLithica Ltd.	100%	9,088	2022-10-06	2036-10-06
9322100187	Active	NeoLithica Ltd.	100%	9,216	2022-10-06	2036-10-06
9322100188	Active	NeoLithica Ltd.	100%	7,419	2022-10-06	2036-10-06
9322100189	Active	NeoLithica Ltd.	100%	7,808	2022-10-06	2036-10-06
9322100190	Active	NeoLithica Ltd.	100%	5,632	2022-10-06	2036-10-06
9322100191	Active	NeoLithica Ltd.	100%	7,424	2022-10-06	2036-10-06
9322100192	Active	NeoLithica Ltd.	100%	1,728	2022-10-06	2036-10-06
9322100193	Active	NeoLithica Ltd.	100%	4,928	2022-10-06	2036-10-06
9322100194	Active	NeoLithica Ltd.	100%	6,334	2022-10-06	2036-10-06
9322100204	Active	NeoLithica Ltd.	100%	4,928	2022-10-13	2036-10-13
9322100205	Active	NeoLithica Ltd.	100%	5,888	2022-10-13	2036-10-13
9322100206	Active	NeoLithica Ltd.	100%	8,000	2022-10-13	2036-10-13
9322100244	Active	NeoLithica Ltd.	100%	8,256	2022-10-31	2036-10-31
9322100245	Active	NeoLithica Ltd.	100%	7,296	2022-10-31	2036-10-31
9322100246	Active	NeoLithica Ltd.	100%	6,754	2022-10-31	2036-10-31
9322100247	Active	NeoLithica Ltd.	100%	9,024	2022-10-31	2036-10-31
9322100248	Active	NeoLithica Ltd.	100%	4,480	2022-10-31	2036-10-31
9322100249	Active	NeoLithica Ltd.	100%	9,216	2022-10-31	2036-10-31
9322100250	Active	NeoLithica Ltd.	100%	7,200	2022-10-31	2036-10-31
			TOTAL	498,289		

Table 4-1: Permit descriptions and status of NeoLithica's mineral tenure.

4.2 Property Rights and Maintenance

Previously Alberta Metallic and Industrial Mineral Permits granted the owner the exclusive right to explore for metallic and industrial minerals for seven consecutive two-year terms (total of fourteen years), subject to traditional biannual assessment work on Crown Land. Work requirements for maintenance of permits in good standing were C$5.00/ha for the first two-year term, C$10.00/ha for each of the second and third terms, and C$15.00/ha for each the fourth, fifth, sixth and seventh terms.

On January 1, 2023, a new Metallic and Industrial Minerals Tenure Regulation (AR 265/2022) came into force. This new regulation makes many significant changes to the metallic and industrial minerals tenure system. Most notably it:

- Splits brine-hosted and rock-hosted metallic and industrial minerals into separate agreements;
- Creates new *brine-hosted* minerals agreements;
- Updates the rules for maintaining a rock-hosted minerals permit (formerly a metallic and industrial minerals permit); and
- Creates intermediate and continued terms for rock-hosted minerals leases (formerly metallic and industrial minerals leases.

Under the new regulation, brine-hosted minerals licences grant the exclusive right to explore for brine-hosted minerals within and under the location described in the licence. Licences were created solely as a tool to transition brine-hosted mineral rights from former metallic and industrial minerals permits under the previous regulation, to the new brine-hosted minerals tenure regime under the new regulations. Only holders of rock-hosted minerals permits that were issued prior to January 1, 2023 are eligible to acquire a brine-hosted minerals licence.

Brine-hosted rights will no longer be issued together in mineral agreements with rock-hosted rights. Because of this, a one-year period (January 1, 2023 to December 31, 2023) has been designated to transition brine-hosted rights to the new brine-hosted minerals licence. After the one-year transition period, new brine-hosted minerals licences will be unavailable, and new brine-hosted rights will be issued through brine-hosted minerals leases.

NeoLithica’s existing minerals permits are eligible to be converted to brine-hosted minerals licence(s) within its permit area by applying for a brine-hosted licence. NeoLithica retains the exclusive right to acquire brine-hosted rights under the area of its existing mineral permits until December 31, 2023.

Brine-hosted minerals licences require payment of an annual rental of $3.50 per hectare. The first year of rental will be required when the licences are ready to be issued, and Alberta Energy will inform NeoLithica of the total area and rental amount once the licences are ready to be issued. Brine-hosted minerals licences do not have a minimum exploration requirement.

Exploration activity and reporting is not required to keep a brine-hosted licence in good standing.

4.3 Coexisting Oil & Gas, Oil Sands, Coal, and MIM Rights

In Alberta, rights to metallic and industrial minerals, to bitumen (oil sands), to coal and to oil/gas are regulated under separate statutes, which collectively make it possible for several different 'rights' to coexist and be held by 'different grantees' over the same geographic location. Oil and gas leases owned by various oil and gas operators and NeoLithica's Alberta Metallic and Industrial Mineral Permits coexist in the Peace River Project area. A summary of the oil and gas wells in the Peace River Property area is presented in Section 6, History.

4.4 Royalties and Agreements

Government royalty rates on lithium, administrated by the Department of Energy, is subject to 1% gross mine-mouth revenue before payout, and the greater of 1% gross mine-mouth revenue and 12% net revenue after payout (Province of Alberta, 2020).

Alberta Metallic and Industrial Mineral Permits at the Peace River Property were acquired directly via on-line staking from the Government of Alberta. There are no known back-in rights, payments, or other agreements and encumbrances to which the Property is subject.

4.5 Permitting

An Exploration Licence must be obtained before an entity can apply for or carry out an exploration program. The licence is valid throughout Alberta and remains in effect if the company is operating in the province.

Prospecting for Crown minerals is permitted throughout Alberta without a licence, permit, or regulatory approval, if there is no surface disturbance. When prospecting, a prospector may use a vehicle on existing roads, trails and cut lines. Exploration approval is not needed for aerial surveys or ground geophysical and geochemical surveys, providing they do not disturb the land or vegetation cover.

The Company must obtain the appropriate approvals and permits if mechanized equipment is used, or the land surface is disturbed. Following completion of an exploration program, a final report must be submitted to Alberta Environment and Parks.

4.6 Surface Rights

At the early exploration stage, NeoLithica must seek approval by the existing oil and gas operators for access to their surface leases to acquire brine for analysis. Any permits and licences associated with the lease including land use, rigs, pipelines, processing facilities, road permits, water permits, injection wells, surface rights, reservoir rights, etc., have been granted exclusively to the oil and gas operators.

With approval by an oil and gas operator, the collection of the brine may be conducted under the rules and guidance of the oil and gas operator. Brine sampling methodology does not require additional permits or surface and access approval beyond the actual Alberta Metallic and Industrial Mineral Permit.

If NeoLithica were to drill an exploration or production well, or acquire an oilfield, the Company would be required to comply with well licence application requirements as administrated by the Alberta Energy Regulator (AER) who regulates various acts and the regulations focused on energy exploration and production in Alberta.

4.7 Environmental Liabilities and Significant Factors

The author has not documented environmental liabilities as they pertain to the oil and gas leases and licences and hydrocarbon production, which are owned and operated by oil and gas operators. Environmental aspects of oil and gas are regulated by the Alberta Energy Regulator (AER) in accordance with the *Environmental Protection and Enhancement Act (EPEA)*, *Public Lands Act*, and the *Water Act*. Alberta's Liability Management Framework includes a series of mechanisms and requirements to improve and expedite oil and gas reclamation efforts.

As lithium production is not on the list of EPEA "designated activities", EPEA approval is not expected to be required. All environmental mitigations and reporting requirements are expected to be administered within the various applicable AER directives. With respect to early-stage lithium exploration and development, to the best of the author's knowledge there are no other significant factors and risks that may affect access, title or right or ability to perform minerals exploration work at the Peace River Property.

4.8 Property-Related Risks and Uncertainties and Mitigation Strategies

Potential risks and uncertainties exist with any early-stage exploration project, and NeoLithica will reduce risk and uncertainty through effective project management, including engaging technical experts and developing contingency plans.

NeoLithica is reliant on pre-existing oil and gas wells that are managed and operated by current oil and gas companies, and there is some risk associated with a reliance on those operators for access to brine for analysis. To mitigate this, NeoLithica may permit and drill its own wells at the Property or consider purchasing a well or renting the operation of a well.

5. Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Accessibility

Major and secondary provincial highways, and all-weather roads developed to support oil and gas infrastructure occur throughout the permit areas (Figure 4-2). Further access to the properties is provided by secondary one- or two-lane all-weather roads, and numerous all weather and dry weather gravel roads. The Project area can be accessed year-round.

The area is served by two regional airports. The Grande Prairie Airport (International Air Transport Association (IATA code YQU) is approximately 35 km from the southernmost permit and is serviced by Air Canada and WestJet airlines. Additional charter services are provided by companies including Northern Air Charter Inc. The Peace River Regional Airport (IATA code YEP) is a similar distance from the northernmost permit. Two rail lines (Canadian Pacific Railway and the Canadian National Railway) are present throughout the area and connect to the major centers of Edmonton and Calgary, which occur south of the resource area, and then to all North America.

5.2 Site Topography, Elevation and Vegetation

NeoLithica's project area lies within the Peace River Lowland and is dissected by the Smoky River and the Little Smoky River, which are the dominant topographic features in the southern and central portions of the property. Additionally, numerous creeks and wetlands occur throughout the property. Forested regions are dominated by aspen, balsam poplar, lodgepole pine, and white spruce. Vegetation in the wetland areas is characterized by black spruce, tamarack, and mosses.

The Peace River Lowland is a gently rolling lowland that extends east of the Rocky Mountains on both sides of the Peace River, and slopes downward to the north and east. The hills are higher in the foothills east of the Rockies with elevations of about 1,000 metres above sea level (masl), and the plains to the west measure 300 masl. The lowlands are underlain by Upper and Lower Cretaceous sedimentary rocks, and the Peace River and its immediate tributaries have incised almost 200 metres into the Cretaceous bedrock in the west and only about 70 metres to the east.

5.3 Climate

The property straddles the Plant Hardiness Regions 3a and 3b with an Extreme Minimum Temperature averaging -37.2˙C as defined by the Plant Hardiness Zone Maps published by Canadian Forest Service Publications (2002). The Average High Temperature in Grande Prairie of 22.6˙C occurs in July, according to Environment and Climate Change Canada (Government of Canada 2022). Although these temperature ranges may appear extreme, there is a long-established ability to be able to operate year-round in the Grande Prairie to Peace River region.

5.4 Local Resources and Infrastructure

Accommodation, food, fuel, and supplies are readily obtained in the many towns from the Town of Peace River in the north, to the City of Grande Prairie in the south of the Project area. Internet and communications coverage are available throughout. Skilled oil and gas sector workers live in the area, and have the expertise required to support lithium development due to their related experience in the energy industry. Service companies operate locally and will be capable of meeting NeoLithica's needs relating to brine production, disposal, and construction.

The significant amount of infrastructure in the project area is due to over 60 years of oil and gas development, forestry, and agricultural operations. Highways are well maintained and serviced by municipal and provincial governments, and secondary gravel roads are also well maintained. Electricity transmission infrastructure is available throughout the project area and many of the existing oil and gas leases have accessible power.

Hydrocarbons and brine produced from the wells are trucked or transported via underground pipelines to separation facilities, where after the separation of oil, the brines or wastewater is disposed of at injection wells. Apart from the oil sands production from the overlying Bluesky Formation, the Wabamun Formation is the main horizon that produces oil in the Project area, as the Leduc Formation is devoid of hydrocarbons except for one producing well at 16-08-079-22 W5M. The region can accommodate future infrastructure development and upgrades in support of the emerging lithium sector.

6. History

The extensive research that has been performed on the various formations within the Peace River region of the Western Canada Sedimentary Basin, provides a significant advantage to NeoLithica in the development of its lithium resources. A lot of this research has been collected and published in the "Geological Atlas of the Western Canada Sedimentary Basin" (Mossop and Shetsen, 1994). The 'Atlas' has served as a very valuable reference for this section, particularly Halbertsma (1994), Hay (1994), Meijer Drees (1994), O' Connell (1994), Oldale et al. (1994), and Switzer et al. (1994). The Alberta Geological Survey (AGS) Geological Framework (Alberta 3D Model) has been another valuable resource for mapping and understanding the distribution of the Devonian and older formations in the vicinity of the Peace River Project.

6.1 Devonian Oil and Gas Drilling History

Oil and gas well data in the Peace River Project area was analyzed using geoSCOUT, an energy industry GIS software program (geoLOGIC Systems Ltd. 2022). Figure 6-1 depicts the distribution of oil and gas wells in the Property area (n=7,116 wells) and highlights those wells that were used to target Devonian hydrocarbons, primarily the Wabamun Group, followed by the Leduc Formation. The remaining non-Devonian wells in the Project area target mostly Triassic and Cretaceous strata, the aquifers of which are not known to contain elevated levels of lithium.

The Devonian oil and gas pools within the Project area is defined by the Puskwaskau, Peoria, Belloy, Eaglesham North, Culp, Normandville, Harmon Valley, Tangent and Eaglesham pools. A total of 260 wells have produced from Devonian strata within the Project area. Only 1 well in the Project area currently produces from the Leduc Formation at 100/16-08-79-22W5M.

The status, as of 30 September 2022, of the Devonian wells in the Project Area is summarized as follows:

- 25 wells are listed as pumping or flowing oil or gas (10%);
- 54 wells are suspended oil or gas (21%);
- 180 wells are abandoned or zonally abandoned in the Devonian (69%); and
- 1 well is no longer producing and is listed as acid gas disposal.

Actively producing Devonian wells in the Project area are operated by Canadian Natural Resources (n=9); Canamax Energy (n=5), Concourse Petroleum (n=6), Long Run Exploration (n=3), and Goldenkey Oil (n=2).

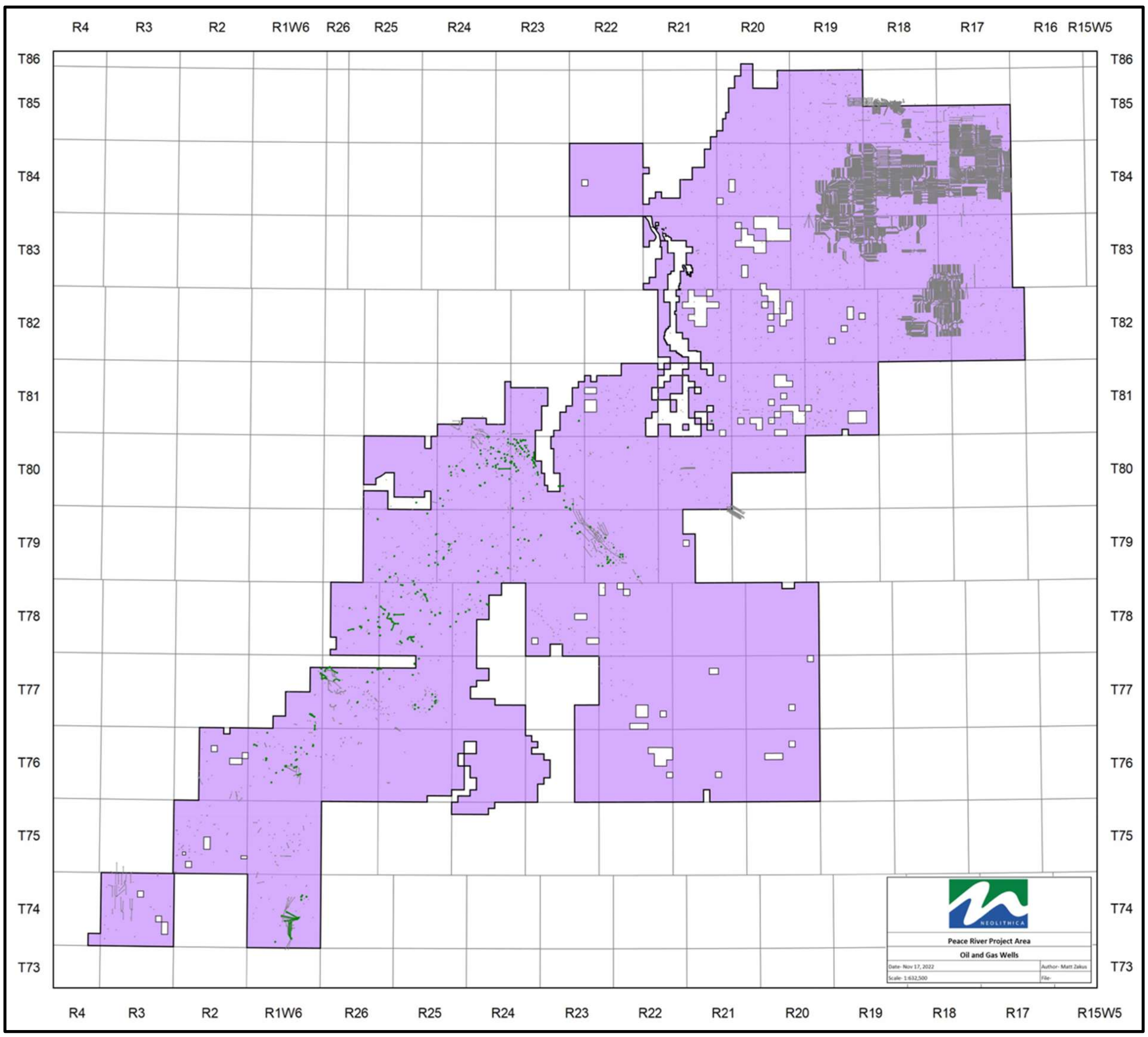


Figure 6-1: Distribution of oil and gas wells within the Peace River Property
(Devonian wells in green)

6.2 Historical Lithium Brine Studies

The first comprehensive overview of Alberta's mineral potential from subsurface formation water was compiled by the Government of Alberta (Hitchon et al., 1995). These authors compiled nearly 130,000 analyses of formation water across Alberta from numerous sources including Alberta Energy Regulator submissions for drilling conducted by the petroleum industry and various Government of Alberta reports (e.g., Hitchon et al., 1971; 1989; Connolly et al., 1990a,b and unpublished detailed analyses collected by the Government of Alberta). An additional source of data includes the Mineral Assessment Reports (MARs) available on the Alberta Energy website, including reports by Dufresne (2011), Eccles (2018), and Eccles and Dufresne (2017).

At the provincial scale, Hitchon et al. (1995) showed that lithium was analyzed and reported in 708 formation water analyses out of the 130,000 total analyses examined. In 2021 the AER published a database of 1,081 formation water analysis containing lithium (Lyster et al., 2021), of those analyses, 319 had lithium concentrations greater than 40 mg/L.

Hitchon et al. (1995) showed the highest concentrations of lithium in formation water occurred within the Beaverhill Lake and/or Woodbend (Leduc) aquifers: 130 mg/L and 140 mg/L, respectively. Modelling by Underschultz, J.R. (Underschultz, J.R. et al (1994) pg 52) depicted areas of *significant lithium resources*, which correspond to areas of thickened Beaverhill Lake and Woodbend Group strata.

In 2010, an expanded lithium-brine dataset of 1,511 analyses was used to show that lithium is concentrated in several areas in northwest Alberta (Eccles and Jean, 2010). Of those analyses, 19 contained >100 mg/L of lithium, reaching a maximum of 140 mg/L (Figure 6-2; Eccles and Jean, 2010). Analytical results of 40 mg/L and 100 mg/L of lithium from wells 11-09-079-22W5M and 01-16-079-22W5M respectively, occurred in brine from two separate wells within the Peace River Property.

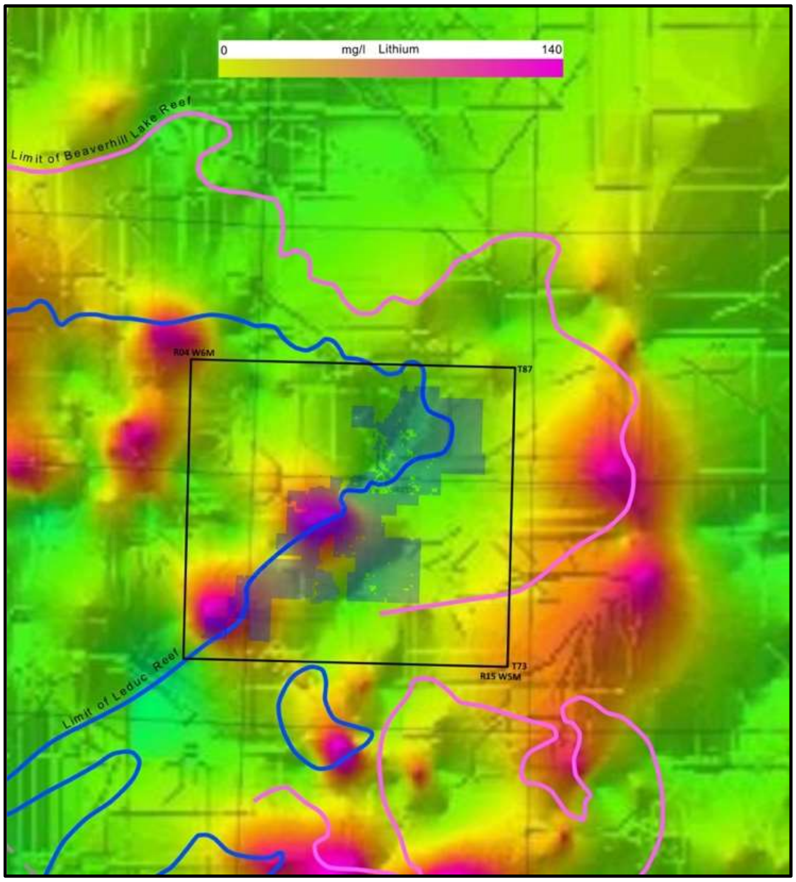


Figure 6-2: Lithium Concentration heat map (Eccles & Jean, 2010)

Hitchon (1995) was the first to identify the Devonian Woodbend as a source of potentially commercial quantities of lithium, and his work was supported by Eccles and Jean (2010) and Huff et. al (2016, 2019).

Published lithium concentrations in, and adjacent to, the Resource Area were reviewed as part of the resource assessment. Six water samples considered representative of the Leduc Formation reef, in an area contiguous with the Resource Area, are summarized in Table 6-1. These water samples were collected from wells drilled for oil and gas exploration and/or production and compiled by government agencies.

Unique Well Identifier	UTM Easting (Nad 83; Zone 11)	UTM Northing (Nad 83; Zone 11)	Lithium (mg/L)	Total Dissolved Solids (mg/L)	Reported Geologic Unit	Top of Leduc (mKB)	Top Depth (mKB)	Bottom Depth (mKB)	Interpreted Tested Formation	Reference
100/07-35-078-24W5/0	462045	6184046	82	NR	Winterburn Group	2045	2024	2070	Leduc	Eccles, D.R., and Jean, G.M., 2010
100/11-09-079-22W5/0	475874	6187750	40	NR	Winterburn Group	2030	2034	2050	Leduc	Eccles, D.R., and Jean, G.M., 2010
100/01-16-079-22W5/0	476737	6188521	100	250,614	Winterburn Group	2036	2054	2056	Leduc	Eccles, D.R., and Jean, G.M., 2010
100/14-16-079-22W5/0	475931	6189775	41	268,000	Leduc	2022	2032	2041	Leduc	Huff, G.F., Lopez, G.P., and Weiss, J.A., 2019
100/04-08-087-03W6/0	410684	6265528	76	NR	Woodbend Group	2169	2210	2216	Leduc	Eccles, D.R., and Jean, G.M., 2010
100/07-21-087-05W6/0	393703	6269371	96	233,911	Winterburn Group	2123	2126	2144	Leduc	Eccles, D.R., and Jean, G.M., 2010
Average			72	250,842						

Table 6-1: Summary of lithium samples considered representative of the Leduc Formation reef contiguous with the Resource Area.

7. Geological Setting and Mineralization

7.1 Regional Geology

NeoLithica's permits are in the northwestern region of the Western Canada Sedimentary Basin. In this area, Devonian sediments of the Leduc reef complex of the Woodbend Group were deposited in a shallow, restricted inland sea (Figure 7-1). A combination of rising sea levels and tectonic subsidence resulted in reef growth that exceeded 300 m over NeoLithica's permits.

The Devonian-age formations within the Peace River region were heavily influenced by the Peace River Arch, a dominant structural high that existed as an island in the western interior seaway. Weathering and the erosion of the of the Peace River Arch sediments formed the Granite Wash, a basal sand rich in lithium minerals that overlies the Precambrian basement in structural lows over NeoLithica's mineral permits.

Overlying the basement is the Elk Point Group, comprised of restricted marine carbonates and evaporites. Overlying the Elk Point Group is carbonate of the Slave Point Formation, which was deposited on an open marine carbonate platform and forms the base for the reef complexes in the region including the Swan Hills Complex and the Peace River Arch Fringing Reef Complex. The Devonian Swan Hills Reef Complex is present beyond the Peace River Arch to the east of the Peace River Property. It is a sequence of shallowing upward reef cycles now composed of dolomite (Mossop and Shetson, 1994). The Swan Hills Complex is hydrogeologically part of the Beaverhill Lake aquifer system, which contains elevated concentrations of lithium (e.g., Hitchon et al., 1995).

Figure 7-1: Diagram showing paleogeography at the time of Leduc Formation deposition relative to NeoLithica's permits (Blakey, 2005)

The upper Devonian Woodbend Group conformably overlies the Beaverhill Lake Group, and is dominated by basin siltstone, shale and carbonates of the Ireton Formation that forms a cap on the Leduc reefs. The Ireton Formation is an aquitard that forms an impermeable cap rock over the Leduc reefs (Hitchon et al., 1995), although within the Peace River property the Ireton is comprised of a significant amount of reefal debris that was likely shed off the Leduc.

The Leduc Formation is part of the Woodbend Group and is host to abundant reserves of oil and gas in Alberta and contains elevated concentrations of lithium (e.g., Hitchon et al., 1995). At the Peace River Property, the Leduc is composed of dolomite and is characterized by multiple cycles of reef growth including backstepping reef complexes (Mossop and Shetson, 1994).

The Woodbend Group is conformably overlain by the Winterburn and Wabamun Groups of upper Devonian age. At the Peace River Property, the Winterburn can be indistinguishable from the underlying Leduc Formation, and these aquifers are probably hydrologically connected.

The Wabamun Group is composed of massive buff to brown limestone interbedded with finely crystalline dolomite and features relatively high lithium analyses in the Project area. The Wabamun Group is unconformably overlain by the Lower Carboniferous Exshaw shale, an aquitard.

Several prominent Alberta Devonian Reef complexes are underlain by and proximal to basement faults that promoted reef growth over long periods of time or served as conduits for dolomitizing fluids within the Wabamun at fault interfaces.

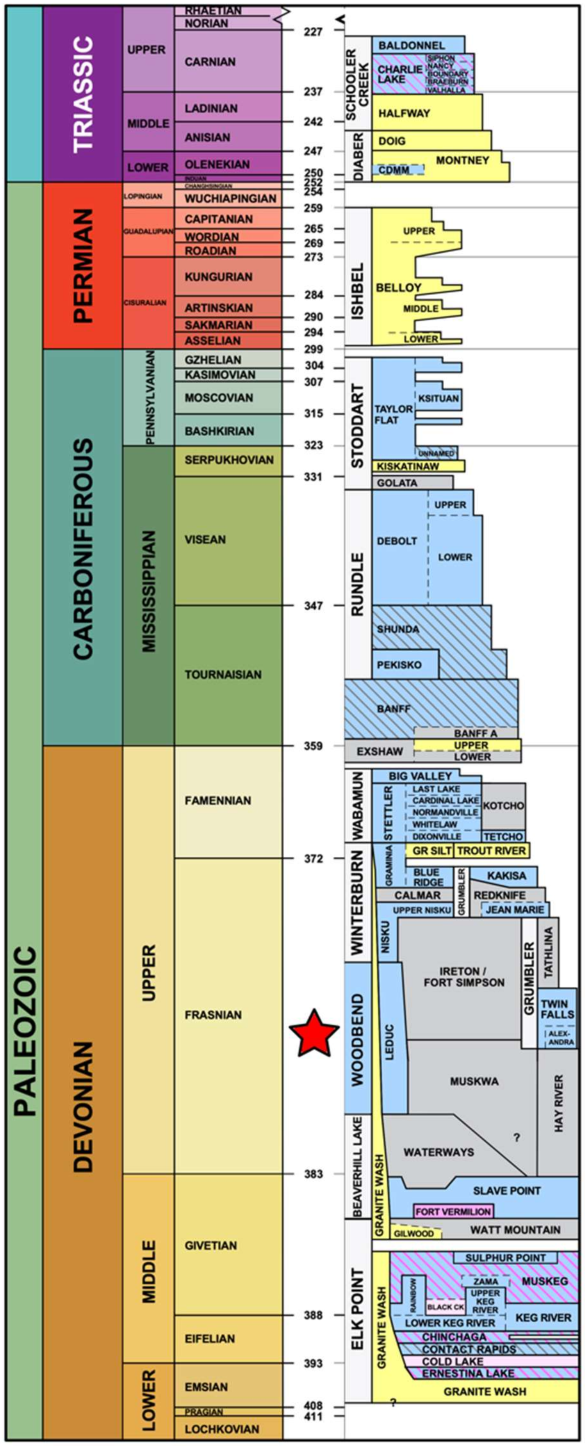
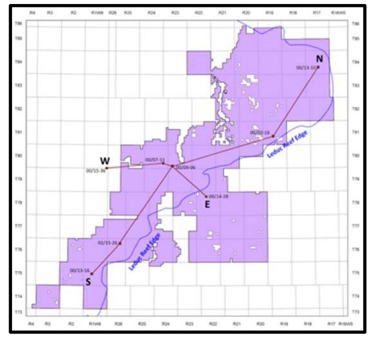


Table 7-1: Table of Formations

7.2 Devonian Geology of the Property

The Woodbend Group is dominated by a vast reef complex that ranges in thickness from slightly less than 200 m in the southwest of NeoLithica's permit area to over 300 m in the northeast. The Leduc is overlain by the shales of the Ireton Formation, a deeper marine deposit that formed after the Leduc reef was drowned by rising sea levels. The thick Leduc reef carbonates across the Peace River Property are illustrated in Figures 7-2 and 7-3.



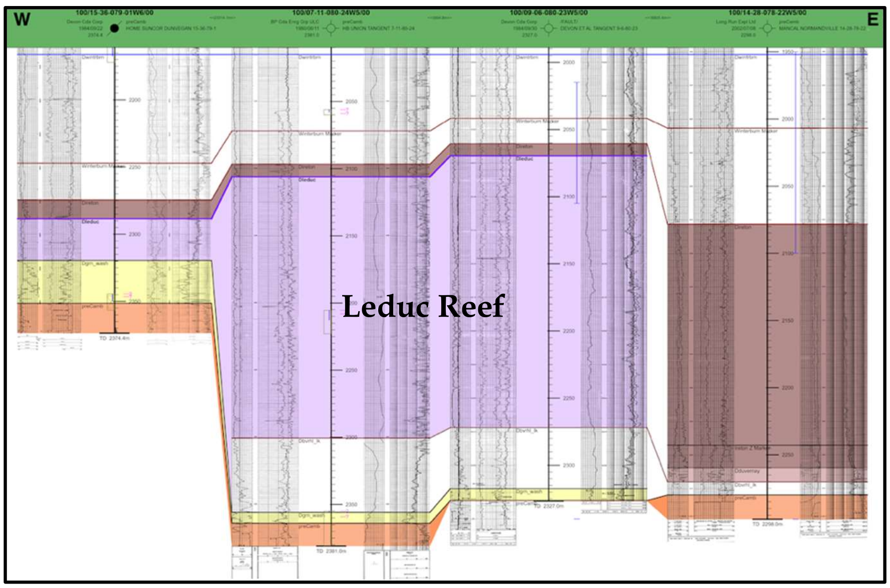


Figure 7-2: Dip-oriented cross section

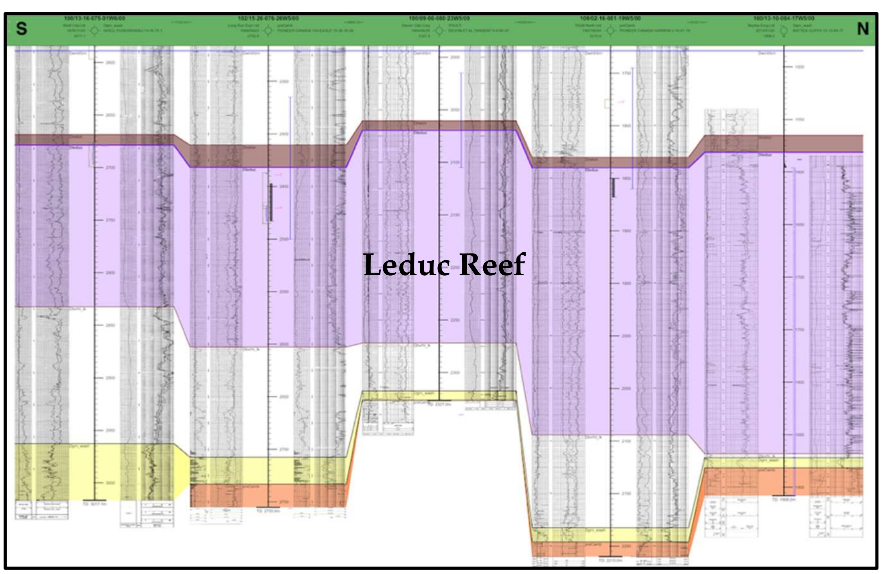


Figure 7-3: Strike-oriented cross section

The Leduc reef build ups along the Peace River Arch is collectively known as the Peace River Arch Fringing Reef Complex (Figure 7-4).

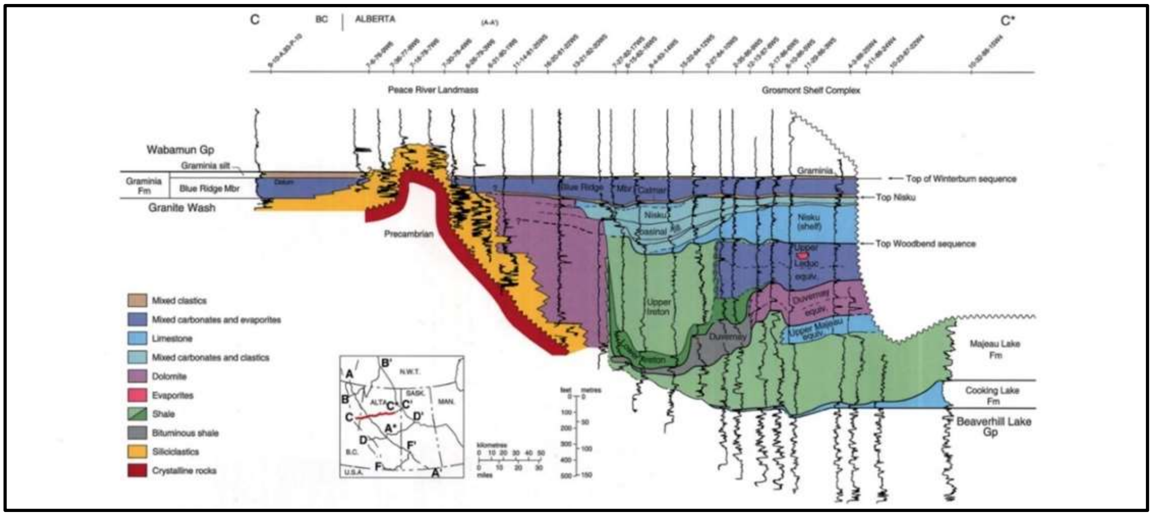


Figure 7-4: Stratigraphic cross-section illustrating the Peace River Arch Fringing Reef Complex
(after Switzer et al., 1994)

Bulbous stromatoporoids make up the bulk of the reef flat and these organisms tend to flatten and spread out when they are deeper in the photic zone (Watts, personal communication 2022). Rugose corals, tabulate corals, megalodon brachiopods, amphipora and a variety of other organisms were also common in the Leduc reef build up.

As sea levels fluctuated, the reef flat repeatedly migrated back and forth across the reef build up, and a variety of reefal facies are observed stacked on top of each other in cores in accordance with Walther's Law of Facies (Middleton, 1973) (Figure 7-5). The reef flat, the reef margin, and the open lagoonal facies were all observed in core, have exceptional levels of visible porosity and permeability, and are interpreted to be laterally extensive along the southeastern edge of the Peace River Arch. Primary porosity is enhanced by the dissolution of fossil and skeletal remains, with expansion of these vugs by hydrothermal dolomitizing fluids and extensive natural fracturing.

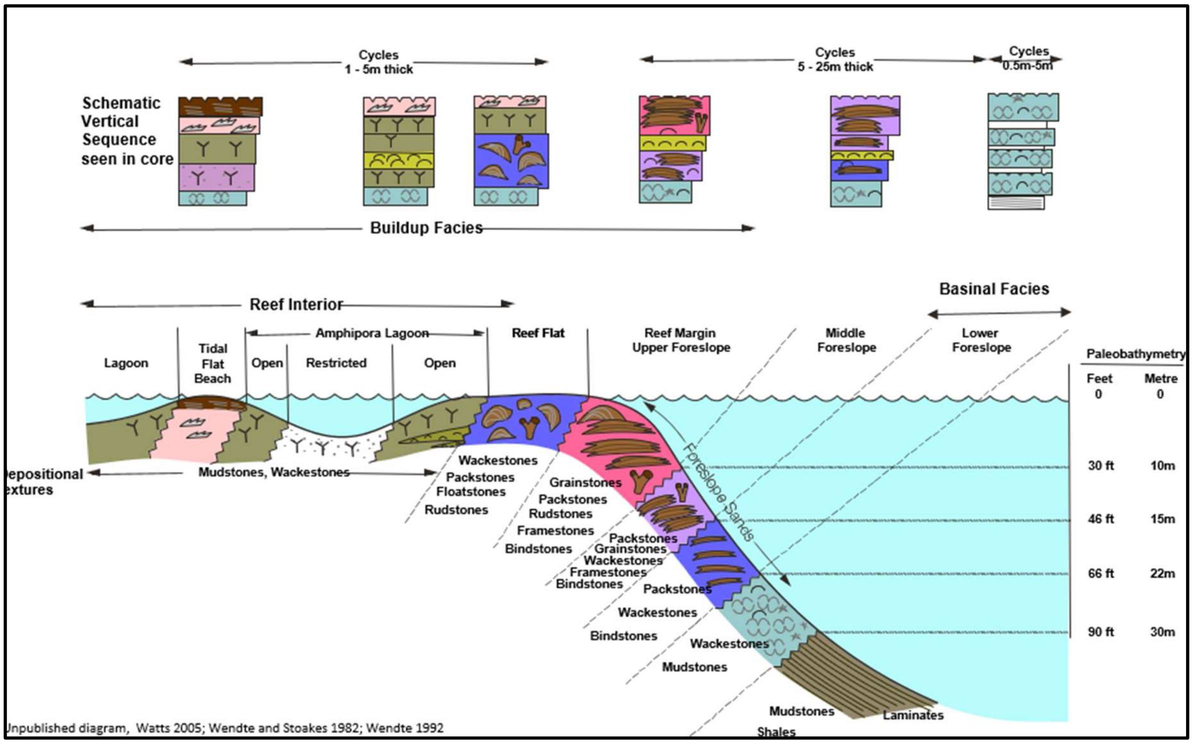


Figure 7-5: Schematic showing reefal facies
(Watts 2005 (unpublished); Wendte and Stoaks, 1982; Wendte, 1992)

7.3 Structural History

The Peace River Arch is the largest positive cratonic feature on the western side of the North American craton and is thought to be the result of tectonic uplift (O'Connell, 1992). The arch is an asymmetrical north-easterly trending structure with a steeply dipping northern edge and a slightly shallower dipping southern edge (Figure 7-6). During the Devonian, the Peace River Arch was emergent and was a positive paleo-topographic relief feature oriented east-northeast from the British Columbia provincial border to at least as far east as Red Earth Creek.

Toward the end of the Devonian and into the Mississippian, the Peace River region strata overlying the Precambrian basement have undergone periodic vertical deformation. The Peace River Arch collapsed (Figure 7-7) and became the Peace River embayment. The embayment filled in during the Mississippian with a thick sequence of siliciclastic rocks along with dolostone and limestone. This pattern of long-lived periodic movement imposed a structural control on the deposition patterns of the reefs and controlled the entrapment of oil and gas found throughout this area.

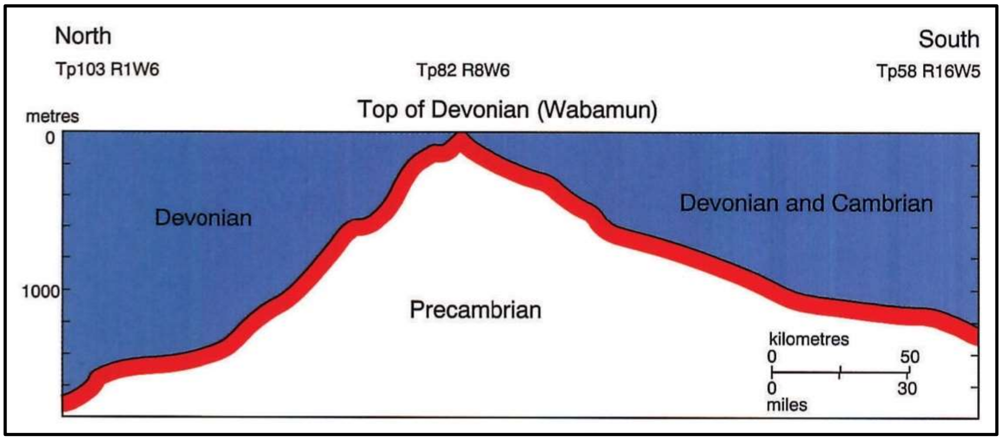


Figure 7-6: North-south section across the Peace River Arch illustrating the steeper dipping northern edge and more shallow dipping southern edge (O'Connell 1994)

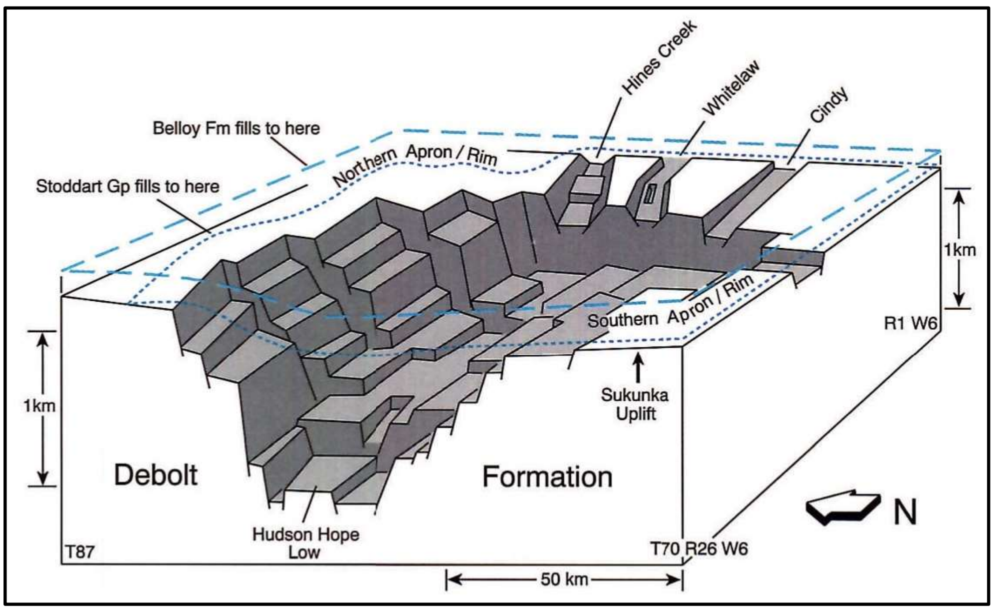


Figure 7-7: Fort St. John Graben complex resulting from the collapse of the Peace River Arch (O'Connell 1994)

7.4 Mineralization

The Alberta Energy Regulator and the Alberta Geological Survey have been gathering data on lithium in formation waters in Alberta from a variety of sources including mineral assessment reports, National Instrument reports, and other direct sources since the 1970s. The data is available in tabular form on the Alberta Energy Regulator's website (see Section 6).

The depth of the Leduc on NeoLithica's permits ranges from 2,500 m in the southwest to 1,000 m in the northeast and the Leduc is only accessible by drilling wells in the same manner as wells are drilled to produce oil and gas.

The Leduc Formation is a prolific oil producer in Alberta, due to its high porosity and permeability and the presence of the Ireton shale, a thick impermeable seal that caps the Leduc reef. In the Peace River region, the faulting and fracturing resulting from the collapse of the Peace River Arch extensively fractured the Ireton Formation, destroying its ability as a seal and providing pathways for oil to migrate from the Leduc to structurally higher elevations. As a result, the Leduc reef at the Peace River Property is largely water bearing, except for three small oil pools.

After deposition and burial, the Leduc Formation was almost completely dolomitized. Dolomitization is the chemical process that alters limestone ($CaCO_3$) and converts it to dolomite ($CaMg(CO_3)_2$). While the timing and processes that caused the conversion of limestone to dolomite are currently the subject of debate, study of the available literature (Stacey et al. 2020, Eccles and Berhane 2011) and cores cut in the Leduc Formation, suggest a two-stage process is responsible for the extensive dolomitization in the Leduc. An initial, early stage of dolomitization may be the result of the flooding of the Leduc reef with invasion of magnesium rich seawater into the reef. Figure 7-8 depicts a second, later stage of dolomitization, may have occurred after the Peace River Arch collapsed and a vast fracture network provided pathways for dolomitizing hydrothermal fluids to intrude into the overlying Leduc Formation.

The conversion of limestone to dolomite is an important part of the development of the Leduc reservoir, as dolomite crystals tend to be larger than limestone crystals and are more resistant to compaction and pressure dissolution. In addition, the migration of hydrothermal fluids through the Leduc aquifer significantly enhanced the dissolution of limestone and enlarged existing moldic and vuggy pores, to create a highly permeable network of large, interconnected vugs.

Further discussion about the migration of hydrothermal fluids through the Leduc and its relationship to high concentrations of lithium is provided in Section 8.

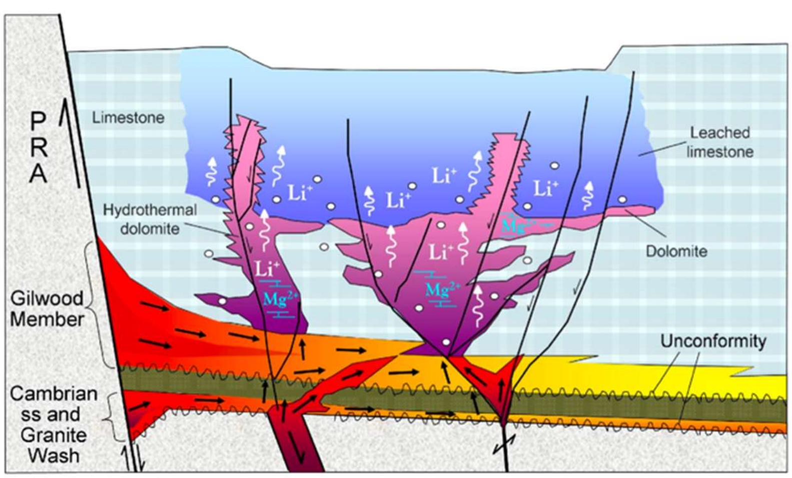


Figure 7-8: Diagram showing faulting, fracturing and the migration of magnesium and lithium bearing fluids into the Leduc Formation (Eccles and Berhane, 2011)

7.5 Core Observations

A study of nine Leduc cores spread across the Peace River Project area was undertaken by Matt Zakus, P.Geo. and Nigel Watts, P.Geol. at the Core Research Centre in Calgary in September 2021. The following observations were made and are summarized below:

- The Leduc Formation is mainly comprised of a high energy reefal facies, that is present along the length of the Peace River Property, resulting in high porosities and permeabilities and low rates of deposition of clays and finer material;
- Primary porosity was enhanced by the dissolution of fossil and skeletal remains, with further expansion of vugs by hydrothermal dolomitizing fluids and extensive natural fracturing. Laboratory core analysis has identified permeabilities of several core samples that exceed 30,000 mD. Correlation of core with core analysis data suggest these high permeability values are the result of dissolution and dolomitization and are not interpreted to have been induced during coring operations; and
- Vertical fractures are present throughout the Peace River Property, suggesting communication between the Leduc reef and basal sediments in the Granite Wash.

Figure 7-9: Core from 14-14-077-25 W5M with 12% porosity and 30,000 mD permeability.

8. Deposit Types

Lithium deposits fall into two broad categories, hard rock deposits (spodumene, hectorite, and pegmatites), and brines enriched in lithium. Hard rock deposits have traditionally been mined in Australia, with new developments in eastern Canada and around the world. Brine-hosted lithium deposits are accumulations of high salinity groundwaters that are enriched in dissolved lithium and other elements. These brine deposits are typically produced through solar evaporation in salars (evaporation pools) in the lithium triangle in South America (Argentina, Chile, Bolivia) and the southern USA.

High concentrations of lithium are also sometimes found in brines occurring in deep-seated aquifers encountered in oilfields and geothermal fields across the globe. The high calcium and bromine content of these brines suggest they are concentrated seawater brines with elevated concentrations of lithium. Lithium-brines in hydrocarbon-bearing reservoirs are typically lower in grade as compared to the major lithium salars in South America and the southern USA. Since solar evaporation is not a viable option in Canada, recovery of lithium from these brines will be reliant on direct extraction technology now in pre-commercial development.

Lithium-enriched brines are present within the Devonian Granite Wash sandstones, and the Devonian Beaverhill Lake, Woodbend, and Winterburn Groups in the Western Canada Sedimentary Basin. Geochemical and isotopic data suggests that the lithium may have been introduced into the Beaverhill Lake and Leduc aquifers through direct mobilization of silicate-bearing fluids from either the crystalline basement or the siliciclastic material deposited above the basement (Eccles and Berhane, 2011).

Huff (2016, 2019) suggested that lithium-enriched brines of the Woodbend and Winterburn Groups were formed by preferential dissolution of lithium-enriched late-stage evaporate minerals, likely from the Middle Devonian Prairie Evaporite, into evapo-concentrated Late Devonian seawater. Tectonic activity also may have contributed to upward movement of the diluted lithium-enriched brines into the Late Devonian carbonate reef complexes of the Leduc Formation.

Supporting the hypothesis of Eccles and Berhane, Huff's isotopic and geochemical modelling suggested that the Devonian brines were formed through halite dissolution and mixing with lithium-enriched fluids expelled from Precambrian crystalline basement rocks via hydrothermal fluids (Huff, 2016, 2019).

The source of lithium-enriched brines, associated with magnesium-rich fluids that has led to the pervasive dolomitization in the Leduc Formation, has also been theorized. Stacey (2020) proposed that deep brines may have migrated from the Prairie Evaporite into aquifers and through conduits created by faulting.

The Peace River Property features all the necessary contributing factors for the occurrence of relatively high lithium concentrations. These include the availability of lithium-rich source rocks, the deposition of porous and permeable aquifers in reefal carbonates, tectonic activity and the collapse of the Peace River Arch, geothermal activity related to basement faulting, and sufficient time to concentrate the lithium in the brine.

9. Exploration

The Issuer has not done any exploration beyond the technical work provided in this report. The exploration information in this report is related to historical data captured through oil and gas exploration methods.

10. Drilling

The issuer has not undertaken any drilling on the Permits with regards to lithium or other minerals. All data considered in this report are derived from oil and gas industry sources.

11. Sample Preparation, Analyses and Security

The issuer has undertaken brine sample collection on the Permits in the Wabamun Group only, which are not relevant to the Leduc Formation inferred resource estimation in this report. All data considered in this report related to the Leduc are derived from oil and gas industry sources (see Section 6).

12. Data Verification

NeoLithica has not collected any of the water samples presented in Table 6-1 and the Qualified Person did not witness any of the sample collection. The Qualified Person designed and executed a quality assurance program to verify the data including reviewing: the sampled interval, geophysical logs, a review of sample collection methods, major ions, consistency between reported data sets, and historical disposal volumes in the vicinity of the collected samples. These data verification efforts are described in the following sections.

12.1 Sampled Intervals

One step in verifying the data was to confirm the well location and completion interval associated with each sample. The primary source of information for each sample was the well location and completion interval compiled in Lopez et al. (2020). This information was then compared to two independent sources of data: geoSCOUT (geoLOGIC 2022) and GeoCarta (Divestco 2022). In three of the six cases the well coordinates and completion interval were confirmed by at least one of the other data sets.

In the case of well 100/11-09-079-22W5/0, the geoSCOUT and GeoCarta databases both suggested a completion interval of 2,034 to 2,050 mKB which is slightly shallower than the interval presented in Lopez et al. (2020). The geoSCOUT and GeoCarta depths were therefore used for this well.

Well 100/14-16-079-22W5/0 did not have a reported completion interval in Lopez et al. (2020) so the GeoCarta completion interval was adopted. Based on the data presented in GeoCarta, no other intervals have been perforated in this well so the samples collected on July 26, 2016, can be confidently assigned to the completion interval in GeoCarta.

Well 100/04-08-087-03W6/0 did not have a reported completion interval in GeoCarta (2022). The data presented in geoSCOUT is consistent with the Lopez et al. (2020) reporting of the Woodbend Group but the Leduc completion in geoSCOUT is shallower than reported in Lopez et al. (2020). The geoSCOUT depths were assumed to be most representative for this well (Table 6-1).

12.2 Geophysical Logs

Once the completion interval for each well was determined, the geological formation associated with that interval was reviewed. The Qualified Person compared the completion interval in the sampled wells to the top of Leduc interpreted in geophysical logs sourced from geoSCOUT and to NeoLithica's other top of Leduc picks in the surrounding wells.

This review suggests all 6 completion intervals in Table 6-1 are in the Leduc Formation and that the sample intervals penetrated the Leduc Formation to a maximum of 47 m at 100/04-08-087-03W6/0.

12.3 Review of Sample Collection Methods

Five of the lithium samples were reported by Eccles et al. (2010) who sourced their data from the AGS oil and gas wells database (AGSDB). Documentation of the sample preparation, analyses, and security is not available for these water samples.

One of the lithium samples (100/14-16-079-22W5M/0) was collected by Rick Huff on behalf of the Alberta Energy Regulator (AER) and published as part of a larger dataset (Huff et al. 2019). Huff collected the sample on July 26, 2016, directly from the wellhead. The brine was filtered and analyzed for pH, density, total dissolved solids, alkalinity, specific conductance and over 30 dissolved constituents, including sodium, potassium, calcium, magnesium, barium, strontium, lithium, iron, manganese, chloride, bromide, sulphate, sulphide, silica, and inorganic carbon, as well as stable oxygen, hydrogen, and strontium isotope composition. Exova Laboratories of Edmonton Alberta (acquired in 2017 by Element Materials Technology) analysed the major, minor, and trace-element concentrations in the sample. Isobrine Solutions of Edmonton, Alberta, analysed the stable-isotope values. The Qualified Person confirmed the data presented by Huff et al. (2019) by reviewing Exova's laboratory report number 2125525, dated August 16, 2016.

12.4 Analysis of Major Ions

In addition to lithium concentrations, three of the water samples also had the concentrations of major cations, major anions, and total dissolved solids (TDS) reported. The major ion analyses for 100/14-16-079-22W5/0 were sourced from Huff et al. (2019). The major ion analyses for 100/01-16-079-22W5/0 and 100/07-21-087-05W6/0 were sourced from Lyster et al. (2022a). Verification of the laboratory data included comparing TDS values between samples to ensure there were no laboratory dilution errors and a comparison of the proportion of major ions to determine whether the water samples reflected the same water type.

TDS values were consistent between the three samples ranging from 233,911 mg/L at 100/07-21-087-05W6/0 to 268,000 mg/L at 100/14-16-079-22W5/0 with an average value of 250,842 mg/L. This consistency suggests there were no laboratory dilution errors and the samples were not contaminated by a fresh water.

The proportions of major ions were compared graphically using a Piper plot (Figure 12-1). All three samples have the same proportions of major ions and reflect a sodium-chloride type water. The consistency between samples suggests the waters were collected from the same hydrostratigraphic unit and are not contaminated by other water types.

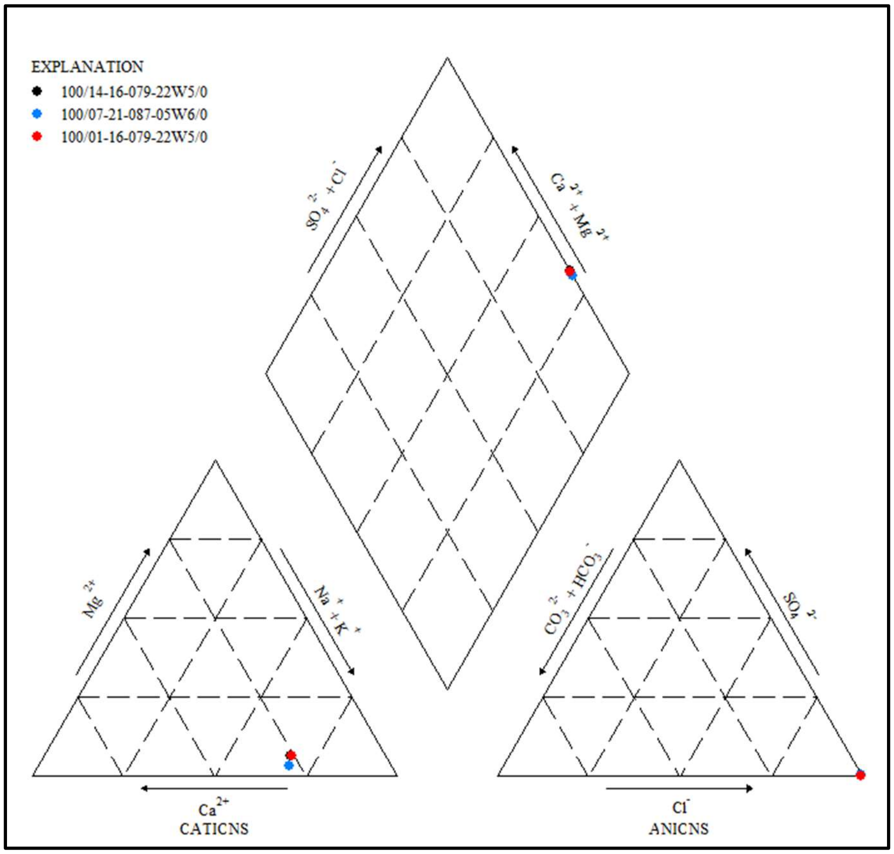


Figure 12-1: Major Ion Analysis of Leduc Formation Water.

12.5 Consistency Between Reported Data Sets

Historical sampling results from oil and gas wells in the vicinity of the Resource Area have been published by multiple authors. In some cases, the results from a single sampling event have been re-published 2 or more times. Multiple datasets including Eccles and Jean (2010), Eccles and Berhane (2011), Huff et al. (2019), Lopez et al. (2020), and Lyster et al. (2022a), were reviewed by the Qualified Person looking for potentially representative water samples and to look for potential inconsistencies in the reported data.

In the case of well 100/14-16-079-22W5/0, three separate concentrations were reported for what is believed to be the same sampling event: Huff et al. (2019) reported a lithium concentration of 40.5 mg/L, Lyster et al. (2022a) reported a concentration of 47.4 mg/L, and Lopez et al. (2020) reported a concentration of 21.5 mg/L. Further investigation into the results confirms the Huff et al. (2019) and Lyster et al. (2022a) sample results are identical except there was confusion over reporting units (ppm versus mg/L) in the Lyster et al. (2022a) results. The Lopez et al. (2020) results appear to have been erroneously reported because the sample date of July 26, 2017, is the same as Huff et al. (2019) and as discussed in Section 11, the Huff et al. (2019) results were confirmed by reviewing the Exova laboratory report.

12.6 Historical Disposal Volumes

Historical oil and gas operations in the vicinity of the Resource Area include water injection into the Leduc Formation for the purposes of wastewater disposal or enhanced hydrocarbon recovery. Historical water injection volumes are discussed in Sections 6 and 14.5. This section focusses specifically on the potential for the injected water to have affected the representativeness of the Leduc Formation water samples (Table 6-1).

Twenty-one (21) injection wells that are reported to be completed in the Leduc Formation have been identified in the Resource Area (Table 12-1). The completion interval at each well and the approximate radius that the injected water may have migrated away from the well, are also summarized in Table 12-1. This estimated radius is based on the following assumptions: the entire cumulative water volume was injected into the Leduc completion interval; a representative Leduc porosity of 5%; and a sweep efficiency of 50%. Based on this first-order estimate, wastewater migration is expected to be less than 2 km at each of the injection wells.

Unique Well Identifier	Kelly Bushing Elevation (m)	Bottom Hole UTM Easting (Nad 83; Zone 11)	Bottom Hole UTM Northing (Nad 83; Zone 11)	Cumulative Water Injection Volume (m³)	Cumulative Injection Hours	Average Injection Rate (m³/day)	Interpreted Completion Formation	Top Depth (mKB)	Base Depth (mKB)	Maximum Completion Interval (m)	Radius of Influence (m)
00/01-23-087-06W6/0	700.3	387733	6269191	16,185	3,039	128	Leduc	2,164	2,177	13	126
00/02-20-085-19W5/0	624.8	502386	6248451	988,832	67,516	352	Leduc	1,571	1,747	176	267
00/03-08-087-09W6/2	743.7	352240	6267112	26,115	55,156	11	Leduc	2,392	2,426	34	99
00/04-29-087-03W6/0	827.9	410866	6270268	397,905	180,678	53	Leduc	2,126	2,152	26	441
00/06-29-084-18W5/2	641.1	511669	6240618	3,443,083	110,898	745	Leduc	1,703	1,811	108	637
00/10-09-084-19W5/0	622.4	503878	6236195	156,214	9,354	401	Leduc	1,782	1,818	36	235
00/10-16-087-05W6/0	720.9	393683	6268248	751,565	7,093	2,543	Leduc	2,099	2,153	54	421
00/10-21-087-07W6/2	695.2	374183	6270547	2,271,172	200,133	272	Leduc	2,237	2,246	9	1,773
00/11-08-079-22W5/0	572.1	474289	6187710	40,252	6	161,008	Leduc	2,070	2,082	12	205
00/11-08-079-22W5/3	572.1	474289	6187710	574,616	117,476	117	Leduc	2,070	2,082	12	774
00/12-22-087-09W6/0	723.3	355218	6270817	251,479	54,364	111	Leduc	2,323	2,342	19	411
00/12-22-087-09W6/2	723.3	355218	6270817	2,442,539	105,228	557	Leduc	2,334	2,342	8	1,972
00/13-10-084-17W5/0	677.2	524433	6236503	230,884	16,802	330	Leduc	1,596	1,908	312	97
00/13-11-084-17W5/0	692.5	525876	6236626	2,878,503	42,013	1,644	Leduc	1,718	1,828	111	576
00/14-18-082-17W5/0	718.6	521493	6218938	1,157,048	84,428	329	Leduc	1,809	1,923	114	359
00/16-27-085-19W5/0	612.0	505784	6251002	452,912	34,515	315	Leduc	1,577	1,777	200	170
02/03-28-087-01W6/0	697.2	432418	6269737	61,363	128,864	11	Leduc	1,885	1,894	9	290
02/14-25-085-19W5/0	612.6	508424	6251096	16,902,808	195,565	2,074	Leduc	1,530	1,835	305	840
02/16-23-085-19W5/0	615.3	507512	6249522	49,163,671	292,310	4,037	Leduc	1,597	1,867	270	1,523
00/06-26-074-01W6/0	625.5	434265	6143880	465,334	208,396	54	Leduc	2,697	2,739	42	378
00/14-14-077-25W5/0	569.1	451706	6170468	339,914	137,029	60	Leduc	2,310	2,322	12	603

Table 12-1: Summary of water injection wells reported to have completions in the Leduc Formation reef contiguous with the RA.

Of the wells with measured lithium concentrations, the 100/11-09-079-22W5/0 well is closest to a water injection well (1.6 km away from 00/11-08-079-22W5/0 and 00/11-08-079-22W5/3). Further investigation may be warranted to determine if the low lithium concentration at 100/11-09-079-22W5/0 (40 mg/L) reflects Leduc Formation water or wastewater, however, at this time the QP does not believe that historical wastewater disposal has affected the measured lithium concentrations in Table 6-1.

13. Mineral Processing and Metallurgical Testing

13.1 Mineral Processing Summary

NeoLithica has entered a joint venture arrangement with LiEP Resources Ltd. (LiEP), the Canadian operating subsidiary of Conductive Energy Inc. (Calgary, Alberta). LiEP has conducted both bench-scale and demonstration pilot-scale testing of its ion exchange sorbent on western Canadian lithium brines that have demonstrated fast reaction times, high lithium selectivity and uptake, and long sorbent life.

LiEP has also completed lithium chloride conversion testing using its refining process to produce battery-grade lithium carbonate.

The key findings of LiEP's ongoing brine test work indicate that:

- LiEP's ion exchange molecular sieve (sorbent) has high selectivity for lithium ions;

- High lithium recovery was achieved from western Canadian brine by LiEP's ion exchange sorbent;
- The ratio of sorbent mass to brine volume is relatively small due to high lithium loading;
- The absorption reaction kinetics of lithium extraction from brine into sorbent occurs rapidly within minutes; and
- LiEP's sorbent has a relatively high life cycle when compared to manganese-based sorbents.

NeoLithica is currently financing the construction and equipping of a pilot-scale demonstration plant by LiEP, which is anticipated to be conducted in mid-2023 to optimize operating parameters and conditions for a commercial operation in Alberta.

13.2 Introduction

Geothermal and oilfield brines have been identified as a potential domestic source of lithium. However, lithium-rich brines are characterized by complex chemistry, high salinity, and relatively high temperatures that pose unique challenges for economic lithium extraction.

NeoLithica is focused on the challenges of applying direct lithium extraction (DLE) technology to its Leduc Formation aquifer brines. The most technologically advanced approach for direct lithium extraction from brines is adsorption of lithium using inorganic sorbents, believed to offer the most likely pathway for the development of economic lithium extraction and recovery from North American lithium brine resources.

DLE is a relatively new technology in the lithium mineral resource sector that is yet to be commercialized at scale. At a non-commercial scale, DLE appears to be effective and has achieved promising results at both bench and demonstration pilot scale.

13.3 Ion Exchange Technology

This ion exchange process involves the use of a lithium selective sorbent material or "molecular sieve" to preferentially pull the lithium from the brine while leaving the majority of other metal ions in solution. Regeneration of the sorbent yields a purified and lithium chloride concentrate that can be more easily refined into battery-grade lithium carbonate or lithium hydroxide.

Metal oxide and hydroxide sorbents are selective for lithium due to crystalline or layered properties that act like molecular sieves that allow lithium to enter ion-exchange sites, whereas larger ions are excluded. These materials adsorb lithium ions while releasing hydrogen ions in high and neutral pH solutions and release lithium ions while adsorbing hydrogen ions in acidic solutions.

The ideal direct lithium extraction technology would be one that can specifically extract lithium ions out of complex brine resources, while leaving most other contaminants in solution. However, selective extraction of lithium from brine can be challenging. Direct extraction processes will require careful attention to competitive operating costs at scale, but it is believed that lithium production, using direct lithium extraction will be competitive within the current global commodity supply curves.

There are several recognized barriers to the application of ion exchange absorption for the recovery of lithium from brines. One limitation is the physical life cycle and chemical stability of the sorbent. To be usable in oilfield aquifer systems, sorbents need to be thermally stable, resistant to harsh chemical conditions, and must be able to be recycled multiple times. In most applications, the sorbent must have physical characteristics, such as particle size, wettability, and porosity, allowing its application in ion-exchange columns.

Regeneration typically involves treating the lithium-impregnated sorbent with an acid solution to displace the absorbed lithium ions with hydrogen ions. In the case of inorganic ion-exchange materials, dissolution, and degradation of materials during uptake in brines is also an issue, especially with manganese-based sorbents. The number of times the sorbent can be reused and regenerated and the stability of the sorbent under brine conditions, including high temperatures, will be a major driver for determining the economic sustainability of any adsorption-based process.

Fluids are complex solutions, and even the most selective molecular sieves may adsorb undesirable minerals from the brine. The initial brine composition will determine the final production process, that could include a pre-treatment step to prepare the brine for efficient lithium extraction (i.e. H_2S removal), and the post-treatment processing to remove impurities from the recovered lithium extract. How ion exchange sorbents perform in the presence of any number of the chemical elements in the brine, including magnesium, calcium, manganese, and base metals, will determine the level of pre-treatment required before the lithium extraction step.

In summary, the selectivity of the sorbent, the tolerance of the sorbent to interfering ions, and the purity of the lithium extracted from the sorbent will be major cost drivers for real-world applications.

13.4 LiEP's Proprietary Molecular Sieve Technology

Inorganic crystalline solids including aluminum, manganese and titanium oxides have been shown to be selective lithium sorbents. The properties of these inorganic crystalline sorbents have been scientifically investigated and efforts are underway to apply these solid sorbents in systems engineered for the selective recovery of lithium from multiple brine resources in North America.

Based upon pilot-scale testing of its ion exchange sorbent on western Canadian lithium brines, LiEP's sorbent features high acid stability and excellent robustness during cycling between sorption and stripping processes, achieving up to 1,400 cycles. In addition, LiEP's sorbent technology has demonstrated faster reaction times, higher lithium selectivity and uptake, and longer sorbent life compared to leading selective adsorption technologies.

13.5 Recommendation

The recent focus of LiEP's DLE test work has been on the primary selective extraction of lithium from western Canadian Leduc Formation brine with similar characteristics and chemistry to that of NeoLithica's Peace River Leduc Formation lithium-brine.

It is recommended that test work be conducted by LiEP to determine the most effective kinetic reaction and equilibrium results on lithium brine sourced within the Peace River Project area to determine the optimal operating conditions for a planned demonstration pilot to be conducted in the second half of 2023, and to determine the possible configuration of future commercial operations.

14. Mineral Resource Estimates

14.1 Introduction

The Mineral Resource estimate was conducted by Fluid Domains Inc. with geologic surfaces provided by NeoLithica. Oil and gas production of the Leduc Formation has occurred in the permit area since 1947. Historical data collection by oil and gas operators has resulted in a considerable amount of geologic data in the form of published maps and downhole geophysical logs (wireline logs). Historical lithium concentrations were sourced from published datasets including Eccles et al. (2010) and Huff et al. (2019). Hydraulic properties including porosity, hydraulic head, and permeability, were also derived from exploration data including drill stem tests (DSTs) and laboratory analysis of cores.

The Inferred Mineral Resource estimation methodology involved:

1) Mapping the Leduc Formation top and bottom surfaces;
2) Mapping and interpolating the Leduc isopach across the resource area;
3) The calculation of a net porous interval and the net aquifer volume;
4) Decreasing the net aquifer volume by hydrocarbon saturated pores and historical water volumes injected into the Leduc;
5) Determining a representative lithium grade of the Leduc Formation brine; and
6) Calculation of the lithium mass in the Leduc Formation below the resource area.

The Inferred Mineral Resource has been estimated using the following equation:

$$\mathbf{LRM = ((RA \times b \times n) - V_{oil} - V_{inj}) \times Conc}$$

Where:

LRM - lithium resource mass (tonnes)

RA - resource area (m^2)

b - net porous thickness (m)

n - mean net porosity (fraction)

V_{oil} – volume of oil in RA

V_{inj} – volume of injected water in RA

Conc - representative lithium concentration (kg/m^3)

Characterization of the Leduc Formation and the data used in the resource estimate is described in the following sections.

14.2 Reservoir Geology of the Leduc Formation

Geologic data collected during historical oil and gas activities is described in Sections 6 and 7.

The Leduc Formation within the Woodbend Group is dominated by a vast reef complex that ranges in thickness from slightly less than 200 m in the southwest of NeoLithica's permit area to over 300 m in the northeast. The Leduc is overlain the Ireton Formation shales that drowned the Leduc reef by rising sea levels.

The Leduc reef build ups along the Peace River Arch, collectively known as the *Peace River Arch Fringing Reef Complex*, features bulbous stromatoporoids, rugose corals, tabulate corals, megalodon brachiopods, amphipora and a variety of other organisms.

As sea levels fluctuated, the reef flat repeatedly migrated back and forth across the reef build up, and a variety of reefal facies are observed stacked on top of each other. The reef flat, the reef margin, and the open lagoonal facies all have exceptional levels of visible porosity and permeability in core and are interpreted to be laterally extensive along the eastern edge of the Peace River Arch. Primary porosity was enhanced by the dissolution of fossil and skeletal remains, with further expansion of these vugs by hydrothermal dolomitizing fluids and extensive natural fracturing (Figure 7-8).

A Leduc Formation isopach was constructed based on NeoLithica's review of 107 well locations with fully penetrating wireline logs, regional mapping of the Leduc zero edge (Mossop, G.D. and Shetsen, I. (comp.), 199, Figure 12-21), and NeoLithica's interpreted Leduc Formation isopach in and adjacent to the Resource Area. The 107 well locations with measured isopach values are posted on Figure 14-1 and were interpolated across the resource area using an inverse distance weighted algorithm. Prior to interpolation, the isopach data was merged with Leduc Zero edge control points and interpreted isopach control points in areas of sparse isopach data. The control points were digitized by Fluid Domains and used to minimize artifacts in the interpolation. The resulting Leduc Formation gross isopach ranges from 304 m thick to absent below NeoLithica's permit areas (Figure 14-1).

The total volume of the Leduc Formation below the RA was estimated by dividing the RA into 32,465 discrete cells and interpolating the isopach onto each cell. The estimated volume is 640 km^3 and reflects the total volume between the top and bottom of the Leduc including: low porosity intervals; brine saturated intervals; and hydrocarbon saturated intervals.

The Leduc Formation is not completely saturated with brine. Hydrocarbons (oil and/or gas) reside in discrete areas in a 1 to 154 m thick interval near the top of the Leduc Formation. The individual hydrocarbon pools were not mapped as part of the Inferred Resource because of the large extent of the RA, the discrete nature of the hydrocarbon pools, and the relatively thin interval of hydrocarbon saturation compared to the thickness of the Leduc Formation. In order to estimate the pore volume occupied by hydrocarbons, the AER's 2021 Crude Oil Reserves Data (AER 2022a) were reviewed by NeoLithica. One-hundred-fifty-four (154) Field and Pool combinations were identified to overlap with the Resource Area. An estimated 32,000,000 m^3 of original oil in place (total volume) was reported for these pools. This hydrocarbon volume is further discussed and incorporated into the Inferred Mineral Resource Estimate in Section 14.5.

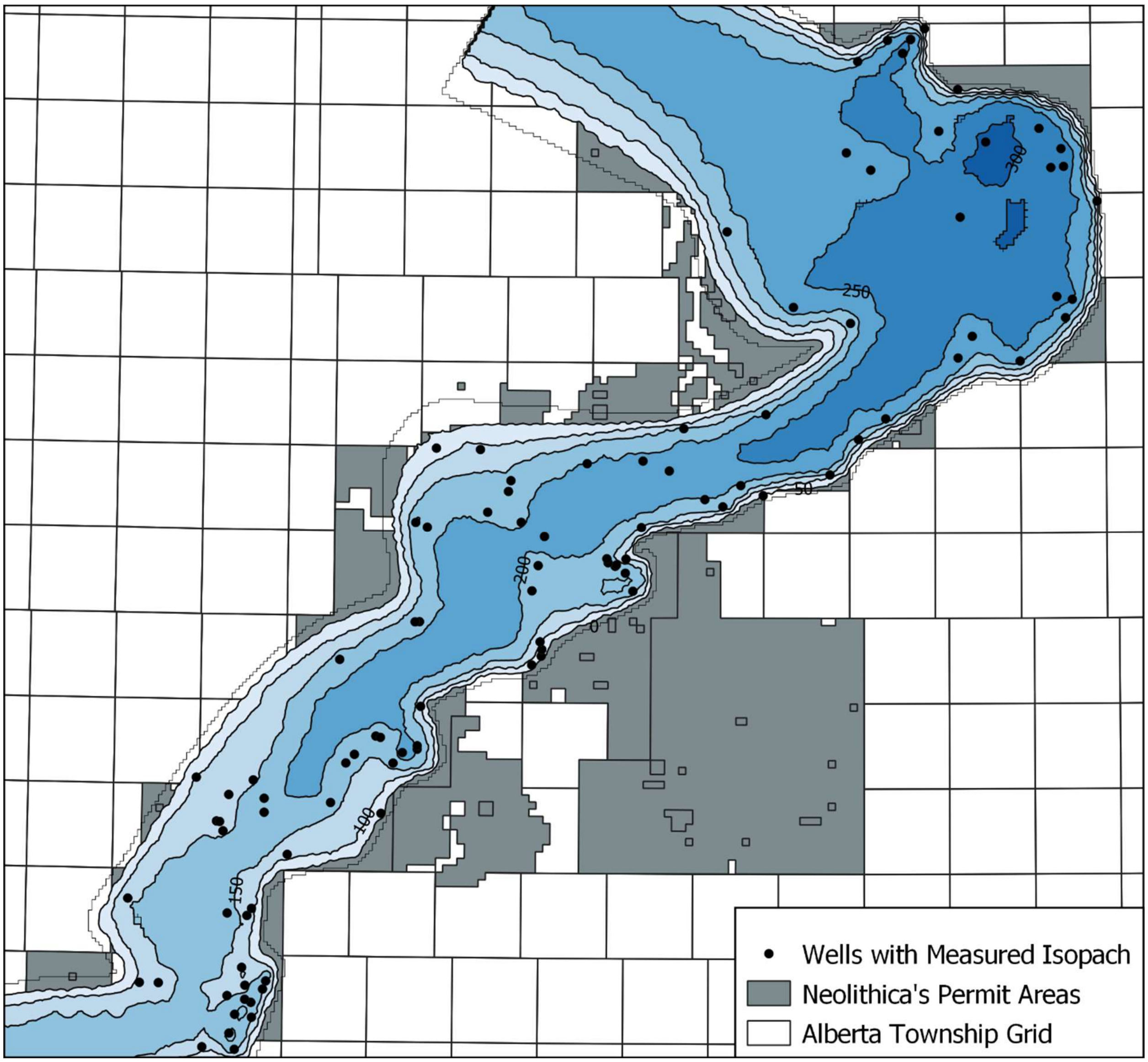


Figure 14-1: The Leduc Formation gross isopach ranges from 304 m in thickness to absent within NeoLithica's Permit Areas

14.3 Aquifer Properties of the Leduc Formation

14.3.1 Net Porosity and Net Porous Intervals

The Leduc Formation reaches up to 304 m in thickness (Figure 14-1) and includes intervals of low porosity and permeability (Figures 7-2 and 7-3). The characterization of Leduc Formation porosity in this assessment follows an approach of identifying the proportion of high porosity intervals in the Leduc Formation that are likely to contribute to groundwater flow (based on wireline logs) and then determining a representative porosity value for the net porous intervals (based on core data and wireline logs).

Two independent types of porosity measurements were used to estimate a representative porosity of the net porous intervals: core analysis and wireline log review.

Wireline logs with both a neutron and density log, provided a continuous measured porosity value with depth. Wells that partially or completely penetrated the Leduc Formation stratigraphic interval were selected for analysis.

The proportion of net porous intervals in the Leduc was determined based on a review of wireline logs including the cross-sections in Figures 7.2 and 7.3. Based on the gross thickness (Section 14.2), a net-to-gross factor representative of the Leduc Formation in the RA was determined to be 90% and a representative porosity value for the net porous interval was determined to be approximately 5%.

Seventeen (17) wells with laboratory analysis of cores were identified in (16 wells) or adjacent to (1 well 200 m away) the Resource Area (Figure 14-2 and Table 14-1). Each well had between 4 and 91 porosity measurements. The core measurements were completed on samples with lengths between 0.06 m and 2.23 m, representing a total sample interval of between 1.1 m and 30.3 m at each well. Representative core porosity estimates for each well were determined by averaging the length weighted porosity at the well and ranged from 2% to 9% with an average value of 4.9% for all core measurements reported to be in the Leduc Formation (Table 14-1).

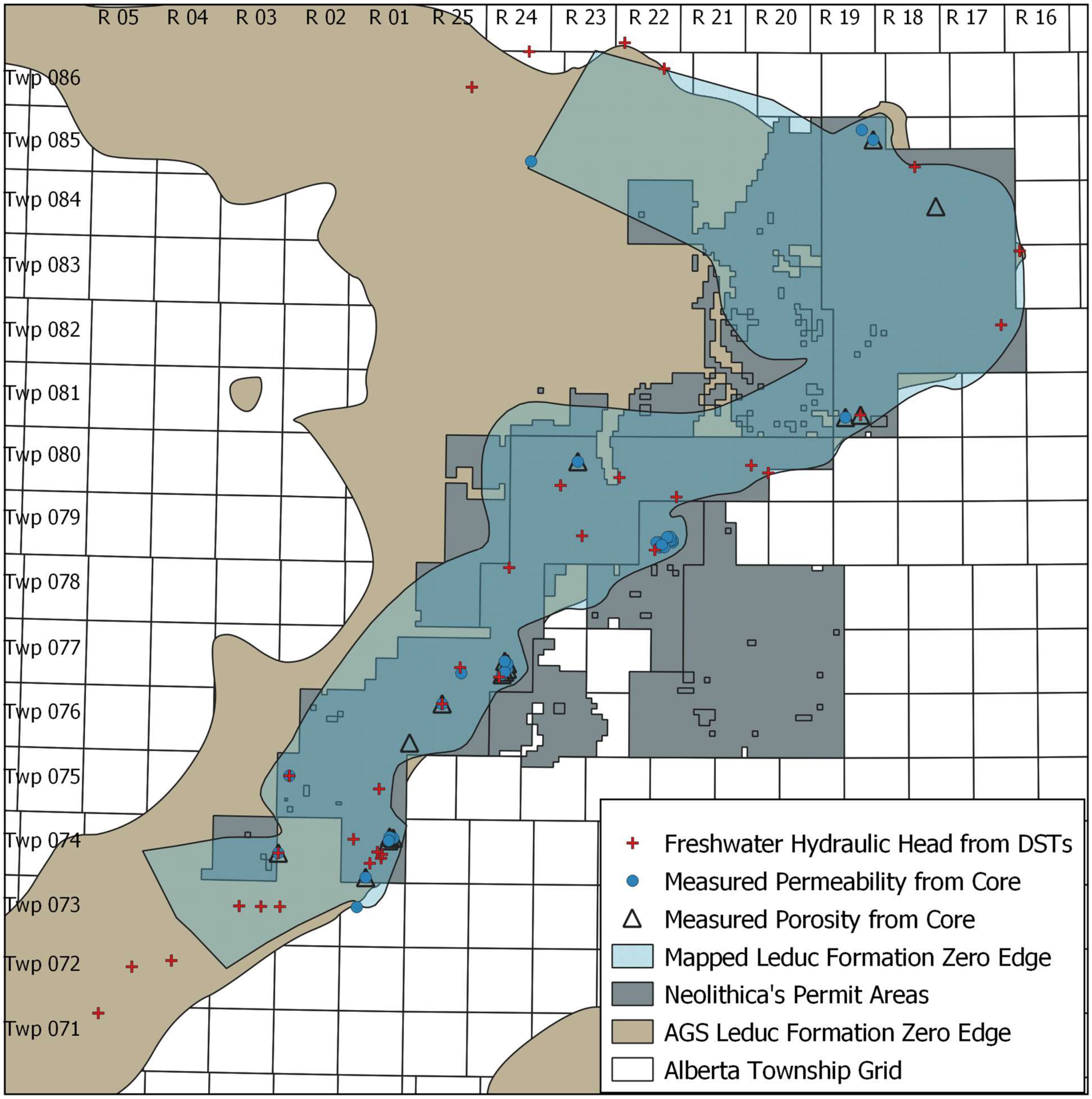


Figure 14-2: Representative pressure, permeability, and porosity data in and adjacent to the Resource Area.

A second step of analysis was then completed to determine a representative porosity value for the net porous intervals. Representative core porosity estimates for the net porous intervals ranged from 2% to 11% with an average value of 5.7% for all core measurements in the porous interval of the Leduc Formation (Table 14-1).

UWI	UTM Nad 83 Zone 11		Gross Interval			Net Porous Interval		
	Easting	Northing	Count of Porosity Measurements	Sum of Sample Length (m)	Length Averaged Porosity (%)	Count of Porosity Measurements	Sum of Sample Length (m)	Length Averaged Porosity (%)
100/01-26-074-01W6	434823	6143706	23	7.5	7.4%	23	7.5	7.4%
100/02-08-076-26W5	437286	6158125	32	11.8	4.3%	31	11.5	4.4%
100/02-14-077-25W5	452094	6169279	26	8.0	3.6%	25	7.9	3.6%
100/02-16-081-19W5	505590	6207812	4	1.1	4.4%	4	1.1	4.4%
100/06-04-074-01W6	430632	6137765	52	19.9	3.3%	52	19.9	3.3%
100/06-26-074-01W6	434265	6143880	91	26.4	2.2%	88	26.1	2.2%
100/10-14-077-25W5	452117	6170110	24	7.6	6.7%	24	7.6	6.7%
100/10-23-084-18W5	516997	6239410	42	10.9	8.7%	40	10.2	9.3%
100/11-19-080-23W5	462773	6200764	7	2.2	6.2%	7	2.2	6.2%
100/12-11-077-25W5	451314	6168460	34	10.6	7.4%	34	10.6	7.4%
100/12-18-074-02W6	417409	6141458	20	7.4	3.7%	20	7.4	3.7%
100/14-11-077-25W5	451690	6168858	26	7.8	5.5%	26	7.8	5.5%
100/14-14-077-25W5	451706	6170468	45	14.9	7.7%	25	6.9	9.8%
100/14-23-074-01W6	434134	6143331	64	25.2	7.8%	46	14.9	10.6%
102/13-08-081-19W5	503307	6207462	9	2.7	4.0%	9	2.7	4.0%
102/15-26-076-26W5	442223	6164029	67	30.3	3.4%	67	30.3	3.6%
102/16-23-085-19W5	507512	6249522	68	17.0	5.2%	68	17.0	5.2%
Mean of representative well porosities					4.9%			5.7%

Table 14-1: Summary of core measured porosity values in the Leduc Formation.

Based on the above porosity data, the total effective porosity of the net porous interval is interpreted to be 5.7%.

The pore volume of the net porous interval below the Resource Area was determined by multiplying the total volume (Section 14.2) by a net-to-gross factor of 90%, and a representative porosity value of 5.7% for the net porous intervals. The resulting total effective pore volume in the Resource Area is estimated to be 33 km^3. As noted in Section 14.1, this pore volume includes oil saturated pores and wastewater that has been historically injected into the Leduc.

14.3.2 Hydraulic Head

Hydraulic head of the Leduc Formation was estimated based on extrapolated pressures recorded during the performance of drill stem tests (DSTs). A data set of Leduc Formation DSTs was exported from geoSCOUT and was reviewed based on: their proximity to the RA, having a minimum of one extrapolated pressure, having consistent extrapolated pressures (within 100 kPa) when two extrapolated pressures were recorded in the same interval, and having the pressure recorder depth within 30 m of the mid-point of perforation. Following these quality control steps, the data set was reviewed one more time for outliers, this resulted in culling 5 wells with anomalously low pressures of less than 300 masl freshwater hydraulic head.

The resulting data set included 36 wells with estimated freshwater hydraulic heads ranging from 637 masl to 986 masl (Table 14-2). The largest heads occur in the southern portion of the reef and the smallest hydraulic heads occur in the northern portion of the reef. It is possible that the northward hydraulic gradient is the result of historical hydrocarbon production because there is a correlation between measurement date and hydraulic head. The cause(s) of the hydraulic gradient, however, were not investigated as part of this Inferred Resource Assessment.

Well Location	KB Elevation (masl)	Test Date	Top Test Interval (mKB)	Bottom Test Interval (mKB)	Mid Point Completion (mKB)	Mid Point Completion (masl)	Freshwater Pressure Head (m)	Freshwater Hydraulic Head (masl)	Bottom Hole UTM Easting (Nad 83; Zone 11)	Bottom Hole UTM Northing (Nad 83; Zone 11)
102/15-26-076-26W5/00	593	5/18/1988	2,437	2,471	2,454	-1,862	2,682	821	442223	6164029
102/15-26-076-26W5/00	593	5/25/1988	2,469	2,486	2,477	-1,885	2,700	816	442223	6164029
100/08-10-077-25W5/00	567	11/18/1962	2,334	2,348	2,341	-1,774	2,561	786	450857	6168081
100/04-18-077-25W5/00	577	10/7/1980	2,435	2,457	2,446	-1,869	2,705	836	444956	6169521
100/10-35-078-25W5/00	571	10/28/1984	2,371	2,385	2,378	-1,807	2,606	799	452381	6184637
100/06-08-079-22W5/00	573	1/26/1993	2,034	2,041	2,038	-1,465	2,117	652	474432	6187328
100/10-18-079-23W5/00	568	2/5/1969	2,106	2,115	2,111	-1,543	2,305	762	463411	6189521
100/09-13-080-21W5/00	632	2/16/1982	2,264	2,282	2,273	-1,641	2,385	744	491609	6199046
100/06-23-080-21W5/00	618	3/12/1962	2,066	2,073	2,069	-1,452	2,202	750	489044	6200198
100/06-03-080-22W5/00	590	2/19/1988	2,152	2,164	2,158	-1,568	2,294	726	477711	6195397
100/04-14-080-23W5/00	572	7/6/1974	2,118	2,163	2,141	-1,569	2,320	751	469070	6198347
100/07-11-080-24W5/00	590	7/19/1980	2,206	2,223	2,214	-1,624	2,374	750	460166	6197163
100/02-16-081-19W5/00	602	6/25/1987	1,775	1,783	1,779	-1,177	1,861	684	505590	6207812
100/07-27-082-17W5/00	737	2/5/1976	1,692	1,719	1,706	-969	1,627	658	526888	6221468
100/06-31-083-16W5/00	697	2/6/1999	1,847	1,859	1,853	-1,157	1,960	804	529707	6232675
100/06-31-083-16W5/00	697	2/7/1999	1,825	1,840	1,833	-1,136	1,936	800	529707	6232675
102/07-09-085-18W5/00	631	3/6/1986	1,734	1,745	1,740	-1,108	1,775	667	513810	6245404
100/06-27-086-22W5/00	612	3/7/1982	1,839	1,843	1,841	-1,229	1,867	637	475866	6260291
100/15-33-086-24W5/00	632	1/12/2003	1,863	1,875	1,869	-1,237	1,907	671	455424	6262877
100/11-15-086-25W5/00	672	10/18/1973	1,961	1,973	1,967	-1,295	1,990	695	446732	6257490
100/16-06-087-22W5/00	622	3/17/1982	1,862	1,883	1,873	-1,251	2,019	768	469893	6264222
100/07-32-071-05W6/00	670	6/14/1972	3,307	3,338	3,322	-2,652	3,638	986	390149	6117238
100/06-28-072-04W6/00	739	2/19/1956	3,243	3,250	3,247	-2,508	3,475	967	401213	6125192
100/10-23-072-05W6/00	726	8/12/1973	3,260	3,263	3,261	-2,536	3,463	928	395220	6124261
100/11-19-073-02W6/00	638	1/26/1966	2,929	2,941	2,935	-2,297	3,221	924	417660	6133349
100/10-21-073-03W6/00	664	1/28/1972	2,972	3,013	2,992	-2,328	3,240	912	411478	6133449
100/10-23-073-03W6/00	655	9/23/1981	2,925	2,952	2,938	-2,283	3,143	860	414781	6133375
100/15-09-074-01W6/00	631	1/14/1970	2,754	2,763	2,759	-2,128	2,960	832	431279	6139907
100/07-15-074-01W6/00	633	1/28/1970	2,708	2,723	2,715	-2,083	2,955	873	432975	6140664
100/09-15-074-01W6/00	630	8/20/1968	2,719	2,723	2,721	-2,091	2,950	859	433122	6141268
100/14-15-074-01W6/00	627	12/25/1958	2,722	2,728	2,725	-2,098	3,009	911	432428	6141617
100/14-15-074-01W6/00	627	1/27/1959	2,699	2,722	2,710	-2,084	2,900	816	432428	6141617
100/04-29-074-01W6/00	616	1/13/1995	2,741	2,753	2,747	-2,131	2,953	822	428803	6143547
100/12-18-074-02W6/00	669	8/1/1959	2,870	2,884	2,877	-2,208	3,118	910	417409	6141458
100/14-15-075-01W6/00	628	1/26/1984	2,734	2,755	2,745	-2,116	2,978	862	432680	6151160
100/13-20-075-02W6/00	645	3/21/1953	2,757	2,764	2,761	-2,115	3,026	911	419084	6153149

Table 14-2: Summary of Leduc Formation fresh water hydraulic heads measured in DSTs completed in and adjacent to the RA.

Historical Leduc Formation water sampling is described in Section 11 and suggests the formation water is a sodium-chloride brine with a TDS of approximately 250,000 mg/L. Based on a formation pressure of 25 MPa and a temperature of 73°C, the brine density and viscosity are estimated to be 1,181 kg/m^3 (Millero et al. 1980) and 0.67 cP (Kestin et al, 1981), respectively.

Formation pressure is related to pressure head based on the water density. Using a formation water density of 1,181 kg/m^3, the formation water pressure head ranges from 1,377 to 3,080 m with an average value of 2,193 m. The relationship between pressure head and potential water production is explored further in Section 14.4.

14.3.3 Permeability

The historical water injection volumes into the Leduc Formation are summarized in Table 12-1 and include an average rate of water injection based on the cumulative injected volume and the reported injection hours. Based on these reported values, the calculated injection rates in wells with more than 1,000 hours of reported injection range from 11 m^3/d to 4,037 m^3/d (Table 12-1). Due to the lack of pressure data during the historical injection, a representative permeability of the Leduc Formation cannot be calculated from this data. A qualitative review of the data, however, suggests the Leduc Formation has relatively high and laterally continuous permeability:

- The Leduc Formation has sufficient permeability to receive large volumes of water over extended periods of injection. This is best evidenced at well 02/16-23-085-19W5/0 where nearly 50,000,000 m^3 of water was injected over 292,310 hours (33 years) of injection;
- Four wells have average injection rates greater than 1,500 m^3/day;
- Seven (7) wells have received more than 1,000,000 m^3 of water; and
- Eleven (11) injection wells have been operated for more than 10 years and 5 of these wells have been operated for more than 20 years.

Two independent types of permeability measurements were used to quantify a representative permeability of the porous Leduc intervals: laboratory core analysis and DST analyses.

Twenty-nine (29) wells with laboratory analysis of core permeability were identified in (26 wells) or adjacent to (3 wells) the Resource Area (Figure 14-2). Each well had between 3 and 164 permeability measurements. The core measurements were completed on samples with lengths between 0.07 m and 17.98 m, representing a total sample interval of between 2 m and 49 m at each well. Representative core permeability estimates for each well were determined by averaging the length weighted permeability at the well and ranged from 3 mD to 3.6 D with a geometric mean of 117 mD (Table 14-3).

Analysis of build-up pressures recorded during DSTs can yield high quality permeability estimates. Eighteen (18) DST charts in the RA were reviewed for permeability analysis. Of the 18 DSTs, 11 records were considered suitable for measuring the permeability of the Leduc Formation. The 11 tests were done on completion intervals ranging from 6 m to 65 m thick. The estimated permeabilities of the net porous interval range from 0.3 mD to 850 mD and have a geometric mean of 17 mD (Table 14-4).

Core and DST measured permeabilities, are summarized in Tables 14-3 and 14-4 respectively.

Well Location	UTM Nad 83 Zone 11		Count of Kmax (mD)	Sum of Interval Length (m)	Length Weighted Perm (mD)
	Easting	Northing			
00/01-17-079-22W5/0	475103	6188530	34	9	16
00/01-26-074-01W6/0	434823	6143706	23	7	2,731
00/02-14-077-25W5/0	452094	6169279	25	8	10
00/02-17-079-22W5/0	474703	6188526	16	7	6
00/04-15-079-22W5/0	477122	6188557	34	9	289
00/05-15-079-22W5/0	477112	6188847	25	8	94
00/06-04-074-01W6/0	430632	6137765	53	20	35
00/06-26-074-01W6/0	434265	6143880	81	25	218
00/08-16-079-22W5/0	476812	6188855	52	19	293
00/09-08-079-22W5/0	475098	6187706	67	23	41
00/09-09-085-24W5/0	455699	6246253	57	19	422
00/09-16-079-22W5/0	476754	6189363	44	15	174
00/10-14-077-25W5/0	452117	6170110	24	8	88
00/10-16-079-22W5/0	476340	6189327	47	14	3
00/10-20-073-01W6/0	429290	6133285	164	44	1,299
00/11-07-077-25W5/0	445134	6168667	17	4	25
00/11-09-079-22W5/0	475874	6187750	126	49	165
00/11-19-080-23W5/0	462773	6200764	7	2	1,232
00/12-11-077-25W5/0	451314	6168460	39	12	1,731
00/12-18-074-02W6/0	417409	6141458	20	7	74
00/13-09-079-22W5/0	475475	6188125	110	36	532
00/13-20-075-02W6/0	419084	6153149	3	45	23
00/14-11-077-25W5/0	451690	6168858	26	8	67
00/14-14-077-25W5/0	451706	6170468	44	14	3,579
00/14-23-074-01W6/0	434134	6143331	58	20	285
00/16-27-085-19W5/0	505784	6251002	34	13	37
02/13-08-081-19W5/0	503307	6207462	9	3	15
02/15-26-076-26W5/0	442223	6164029	33	15	258
02/16-23-085-19W5/0	507512	6249522	68	17	98
Geomean of representative well permeability					117

Table 14-3: Summary of Core derived Permeability Estimates in and Adjacent to the RA.

Well Location	KB Elevation (masl)	Bottom Hole UTM Easting (Nad 83; Zone 11)	Bottom Hole UTM Northing (Nad 83; Zone 11)	DST Number	Top Test Interval (mKB)	Bottom Test Interval (mKB)	Interval Thickness (m)	Measured Gross Permeability (mD)	Net Porosity Thickness (m)	Measured Permeability of Net Porous Interval (mD)
00/01-19-084-17W5/0	670.3	520524	6238682	2	1,602	1,608	6.0	822	6	850
00/12-36-085-19W5/0	615.7	508068	6252363	1	1,515	1,525	9.7	25	10	25
00/07-04-084-17W5/0	672.7	523690	6234140	1	1,612	1,627	15.0	27	8	53
00/15-17-079-22W5/0	575.5	474755	6189689	3	2,057	2,078	20.4	12	16	15
00/12-29-078-24W5/0	563.2	456269	6182989	5	2,182	2,195	12.2	300	9	389
00/09-06-077-25W5/0	579.1	445806	6167065	3	2,460	2,478	18.0	11	10	20
00/04-29-074-01W6/0	616.3	428803	6143547	1	2,741	2,753	12.0	6	12	6
00/10-23-073-03W6/0	655.0	414781	6133375	3	2,925	2,952	26.5	19	17	29
00/08-28-076-01W6/0	639.5	431827	6163631	2	2,584	2,601	17.0	4	17	4
00/10-21-073-03W6/0	663.9	411478	6133449	9	2,972	3,013	40.8	0.7	30.1	0.9
00/04-28-074-02W6/0	637.6	420595	6143734	5	2,798	2,863	64.6	0.2	40.9	0.3
Geomean of measured permeability values										17

Table 14-4: Summary of DST derived Permeability Estimates in and Adjacent to the RA.

The DST measured permeabilities are derived from in-situ tests that typically measure the pressure response during an hour of water flow into the drill stem and once the drill stem is shut-in. As such, they measure permeability over a larger volume of the Leduc Formation than the cores and are considered to provide a more representative estimate of the Leduc Formation permeability. The best permeability estimate of the net porous interval is therefore biased by the DST data and is interpreted to be 20 mD.

The transmissivity of the Leduc Formation is a product of the aquifer permeability, the thickness of the net porous interval, and the formation water properties. Based on a representative net porous interval thickness of 167 m, a permeability of 20 mD, a water density of 1,181 kg/m^3, and a water viscosity of 6.7×10^{-4} Pa s, the representative transmissivity is 4.9 m^2/day.

14.3.4 Storage Estimates

The specific storage of the Leduc Formation was estimated based on the compressibility of water and the compressibility of the rock. The relationship between specific storage (S_s) and compressibility is described by Domenico and Schwartz (1990, page 113).

$$S_s = \rho_w \, g \, (\beta_p + n\beta_w)$$

Where:

ρ_w = density of water (M/L^3)
g = acceleration due to gravity (L/t^2)
β_p = bulk compressibility (L^2/Force)
n = porosity
β_w = compressibility of water (L^2/Force)

Based on a porosity of 5.7%, a water density of 1,181 kg/m^3, a rock compressibility of 3.3×10^{-10} m^2/N, and a water compressibility of 4.8×10^{-10} m^2/N, the specific storage of the Leduc Formation is estimated to be approximately 4×10^{-6} m^{-1}.

Storativity of the aquifer was determined by multiplying the mapped aquifer thickness by the representative specific storage and is therefore spatially correlated with the Leduc Formation isopach. Based on an average Leduc Formation thickness of 186 m below the RA, the average storativity is 7×10^{-4}.

14.4 Estimate of Potential Water Withdrawal

The Farvolden Equation (Farvolden 1959) is commonly applied in Alberta to estimate the long-term rate of deliverability from a water well. The hydraulic properties considered representative of the Leduc Formation are summarized in Table 14-5.

Properties of Net Porous Interval	Value
Porosity (%)	5.7
Permeability (mD)	20
Hydraulic Conductivity (m/s)	3.4E-07
Average thickness (m)	167
Transmissivity (m^2/day)	4.9
Specific Storage (m^{-1})	4E-06
Storativity (-)	7E-04
Available Formation Water Hydraulic Head (m)	2,200

Table 14-5: Summary of Hydraulic Properties considered Representative of the Net Porous Interval in and Adjacent to the RA.

Based on a transmissivity of 4.9 m^2/day and a formation water pressure head of 2,200 m, one vertical water well can deliver 5,000 m^3/day of brine for a period of 20 years without having drawdown exceed the available head. This is a large yield from a single source well and would likely be limited by the effects of well efficiency (skin) or pump capacity.

The prediction of long-term yield is also subject to uncertainty due to the uncertainty associated with the hydraulic parameters in Table 14-5. Despite the prediction uncertainty, the calculated long-term yield suggests there is potential to extract economic quantities of brine from the Leduc Formation.

14.5 Estimate of Lithium Mineral Resource

This Mineral Resource estimate has been prepared to be consistent with the requirements of the NI 43-101 Standards of Disclosure for Mineral Projects (National Instrument, 2016); Form 43-101F1 (National Instrument, 2011); Canadian Institute of Mining (CIM) Definition Standards (2014); and the CIM Best Practice Guidelines for Reporting of Lithium Brine Resource and Reserves (2012).

The technical guidance provided in the CIM Best Practice Guidelines for Reporting of Lithium Brine Resource and Reserves (CIM 2012) is focused on the production of lithium brines in salars which is a very different hydrogeologic setting than the deep, confined aquifers considered in the Resource Area. Examples of the technical guidance that are not applicable to the project include:

- The CIM (2012) guidance is focused on draining the basin (salar) infill which can be unconfined, semi-confined, or confined. Much of the guidance is focused on water released from pore spaces when a water table is lowered. Lowering the water table requires the estimation of specific yield. The Leduc Formation in the Resource Area occurs approximately 2,400 m below ground surface and is confined with approximately 2,200 m of formation water hydraulic head above the top of the aquifer. Because of the large depth and high pressure at the Project, the aquifer will not be drained during the recovery of lithium.

- As described in the guidance (CIM 2012, page 2), salars "tend to be deposited in a typical concentric shell-like sequence from gravel outside, through sand, silt, clay, followed by carbonate, gypsum, and finally halite in the center." This type of setting results in: "a relatively rapid gradient from near-fresh water to brine" (Best Practice Guidelines 2012, page 2); the potential for density driven convection currents; and a brine chemistry that can be variable over time based on the water balance. By contrast, the Leduc Formation is saline throughout the Resource Area and is believed to have a low salinity gradient.
- "Salar brines are contained within a matrix in which the porosity, permeability, brine composition, and hydrostratigraphic characteristics such as conductivity, transmissivity, anisotropy, and resistance may vary with the passage of time." (Best Practice Guidelines 2012, page 4). The hydrogeologic properties such as hydraulic conductivity, transmissivity, anisotropy, and hydraulic resistance of confined aquifers, however, are not as time variant. This is because the aquifer saturation will not change during lithium recovery and if changes in water density occur, they will be much more subtle than the density changes induced in a salar.
- "It is recommended that total porosity and effective porosity are not used for resource estimation since not only is the ratio of total (and effective) porosity to specific yield different for different aquifer materials, but the use of these parameters lead to unrealistic production expectations." As previously stated, specific yield does not come into consideration for this resource estimate because the Leduc Formation is a confined aquifer that will not be dewatered.

Although parts of the Best Practice Guidelines (CIM 2012) are not applicable to the Mineral Resource, the spirit and intent of the guidelines were applied to this Inferred Mineral Resource estimate.

14.5.1 Lithium Grade

Based on the geologic setting, the Leduc Formation is judged to be hydraulically continuous within the Resource Area. The DST-measured lithium concentrations in the Leduc Formation suggest that elevated lithium concentrations occur across the Resource Area (Figure 14-3). Despite the relatively large range of lithium concentrations (40 mg/L to 100 mg/L), and the sparse sample distribution in the Resource Area, the Qualified Person believes a representative lithium concentration of 70 mg/L is a reasonable approximation for the Inferred Resource estimate.

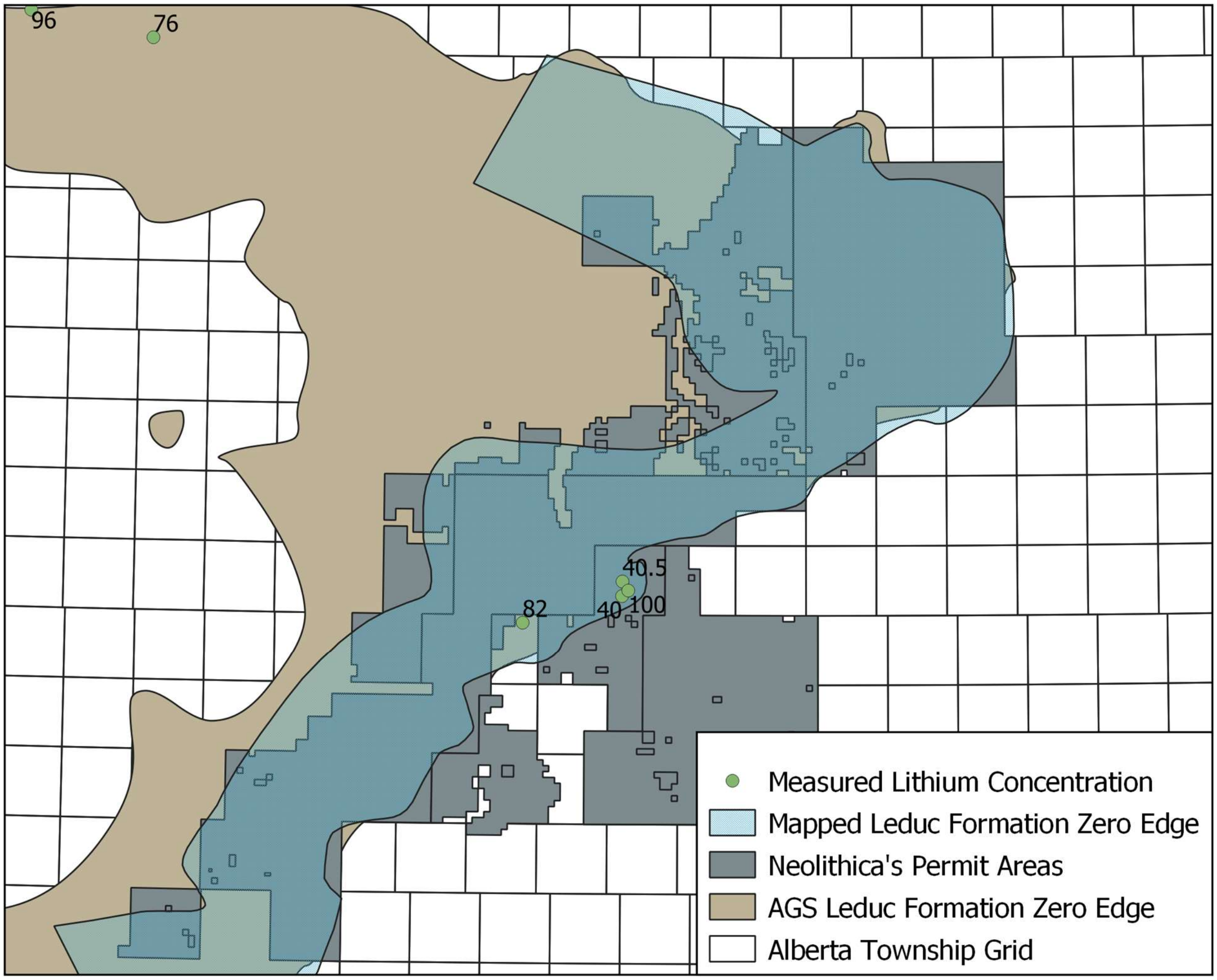


Figure 14-3: Measured Lithium Concentrations Considered Representative of the Leduc Formation.

The determination of a lithium cut-off grade is required by guidance documents (National Instrument 2011, CIM 2012, and CIM 2014). The cut-off grade needs to provide for "reasonable prospects for economic extraction" (page 20 Estimation 2003). This requires the consideration of market price for lithium and the costs associated with producing the brine (including the cost of producing the lithium rich brine, and the cost of extracting lithium from the brine). To date, there hasn't been any commercial production of lithium brine in Alberta. As such, it is difficult to estimate an appropriate lithium grade cut-off. The Qualified Person believes that a cut-off grade of 50 mg/L may be appropriate for a project such as the Peace River Project that needs to pump brine to surface, extract the lithium from the brine, and re-inject the brine into the subsurface. This cut-off value is consistent with the Hitchon et al. (1993, page 7) regional exploration threshold for lithium that was also adopted by Lyster et al. (2022b, page 7).

For the purposes of the Mineral Resource estimate, it is assumed that a value of 70 mg/L is representative of the lithium concentrations throughout the Resource Area and that all the brine in the resource area is above the cut-off grade of 50 mg/L.

14.5.2 Inferred Mineral Resource Estimate

This Mineral Resource estimate is classified as Inferred because the geological evidence is sufficient to imply, but not verify, the lithium grade and continuity across the Resource Area.

The volume of Leduc Formation pore space in the Resource Area was calculated using the net porous thickness and a representative porosity of the Leduc Formation below NeoLithica's permit areas. The volume of lithium-rich brine in the Resource Area was then calculated by subtracting conservative estimates of the volume of oil in place and the volume of historically injected water into the Leduc Formation (Section 14.1). Finally, the volume of lithium-rich brine was multiplied by the best estimate of the lithium grade (Table 14-6).

Lithium Grade (mg/L)	Leduc Volume (km^3)	Ratio of Net Porous Interval to Gross Thickness (%)	Porosity of Net Porous Interval (%)	Adjusted Total Brine Volume (km^3)	Inferred Resource Estimate (tonnes)
60	640	90%	5.7%	32.7	2.0E+06
65	640	90%	5.7%	32.7	2.1E+06
70	640	90%	5.7%	32.7	2.3E+06
75	640	90%	5.7%	32.7	2.5E+06
80	640	90%	5.7%	32.7	2.6E+06

Table 14-6: Summary of Inferred Resource estimates based on Lithium Grade.

It is the Qualified Person's opinion that the largest uncertainty when calculating this Inferred Resource, is the Lithium Grade. By comparison, the total brine volume has less uncertainty due to the large amount of available geologic data and porosity data. Based on a Lithium Grade of 70 mg/L (reported to 1 significant digit due to uncertainty), the Inferred Mineral Resource Estimate is 33 billion m^3 of brine and 2 million tonnes of elemental lithium (Table 14-6).

14.6 Mineral Resource Statement

The two key findings of the Inferred Mineral Resource estimate include:

- The determination that lithium-rich brine water can be withdrawn from the Leduc Formation in potentially economic quantities; and
- The estimation of the mass of lithium in the net porous interval below the Resource Area.

The Leduc Formation is laterally continuous and appears to have been dolomitized throughout most of its thickness. Other than discrete areas of the Leduc Formation where pore space is believed to contain hydrocarbons or injected water, the pore space in the Resource Area is believed to be saturated with a lithium-rich brine.

Despite some variability in measured concentrations, mapping of the lithium grade throughout the Leduc Reef in and adjacent to the Resource Area, suggests the average lithium grade is above a cut-off grade of 50 mg/L, which is assumed to be reasonable for the Peace River Project that needs to pump brine to surface, extract the lithium from the brine, and re-inject the brine into the subsurface. As such, the lithium-rich brine in the Resource Area meets the test of reasonable prospect of economic extraction.

Historical pressure and permeability data compiled by the oil and gas industry, suggests it is possible to withdrawal brine at high rates from a single well. Based on the current estimate of hydraulic properties, it is reasonable to expect that a water well network completed in the Leduc Formation would be capable of producing commercial quantities of brine.

It should be emphasized that the Inferred Resource is not a Mineral Reserve and does not have demonstrated economic viability.

The Inferred Mineral Resource estimate is based on the total volume of water in the net porous interval and the average interpolated lithium concentration within the Resource Area. The Inferred Mineral Resource Estimate is 33 billion m^3 of brine and 2×10^6 (2 million) tonnes of elemental lithium.

Based on a conversion factor of 5.323, the estimated 2×10^6 (2 million) tonnes of elemental lithium is equivalent to a lithium carbonate equivalent (LCE) of 1×10^7 (10 million) tonnes.

15. Mineral Reserve Estimates

Not applicable.

16. Mining Methods

Not applicable.

17. Recovery Methods

Not applicable.

18. Project Infrastructure

Not applicable.

19. Market Studies and Contracts

Not applicable.

20. Environmental Studies, Permitting and Social or Community Impact

20.1 Environmental Studies

To date there have not been any environmental studies completed for the Project. This section describes some of the environment related Acts that are expected to apply to the Project.

Development of a lithium industry in Alberta will impact the surface of the land in the form of transportation, lease construction, pipelines, wellheads and brine processing and refining complexes. In some cases, certain protected areas may require environmental assessments prior to construction for drilling or other surface activities. Some areas may also fall under the federal government jurisdiction of wildlife protection and require studies to ensure minimal disruption to species at risk. These areas can have more stringent guidelines with respect to well drilling and could require additional surveys or may have specific restrictions on the placement and/or the timing in which wells may be drilled.

In all cases, applicants are expected to assess each well site and access road and to develop plans to conserve, reclaim, and mitigate the effects of its activities. These plans should include measures to contain any spills and prevent and control soil and water contamination, soil erosion, siltation of any drainage courses or water bodies, and slope instability.

The AER expects applicants to comply with all relevant requirements of provincial and federal legislation and regulation, including the *Environmental Protection and Enhancement Act*, *Water Act*, *Public Lands Act*, *Fisheries Act*, and the *Navigation Protection Act* and the regulations thereunder, in addition to meeting the requirements and guidelines in all current and applicable AER informational letters.

The AER requires applicants to conduct an H_2S release rate assessment for each well to ensure public safety when developing projects that may contain H_2S gas, and also requires applicants seek approval for any activity that may be located within the boundary of an approved regional plan.

There are no known environmental issues that could materially impact NeoLithica's ability to extract the mineral resources.

20.2 Waste and Tailings Disposal, Site Monitoring and Water Management

The Project will not produce tailings because the Project involves brine-hosted minerals that will be "mined" by pumping water to surface. While the project is currently in the early planning stages and the mineral processing strategy has not been selected, the primary waste disposal product requiring disposal will be lithium-depleted water. Alberta's oil and gas industry has a long history of wastewater disposal, and the AER regulates disposal through AER Directive 56.

Potential environmental impacts associated with the Project are associated with the accidental release of brine at surface. It is anticipated that onsite monitoring will be implemented to provide early detection and mitigation of any accidental releases should they occur. This type of monitoring and risk management is common in the oil and gas industry and there are many qualified contractors in Alberta that can complete this work.

20.3 Permitting

In Alberta, the regulation of water wells is determined by the salinity of the water being withdrawn from a reservoir. Wells that produce water with salinities greater than 4,000 mg/L, such as those in the RA, will follow standard oil and gas regulation through the Alberta Energy Regulator.

The permitting process for a production or injection water well with high salinity will involve obtaining a license with the AER for a Water Source Well and a Water Injection Well under AER Directive 56 (Energy Development Applications and Schedules). Companies are required to consult with various stakeholders and be granted authorization by mineral rights owners, including First Nations, trappers, and surface landowners under a Participant Involvement Program, and obtain an AER business associate (BA) code from the Petroleum Registry of Alberta.

A Well License Application, found in Schedule 4 of Directive 56, is licensed under Regulation Section 2.020 or 2.040 of the Oil and Gas Conservation Regulations (OGCR). Because the water will likely contain various amounts of dissolved H_2S, schedule 4.3 of Directive 56 will be required for the license application. An emergency planning zone (EPZ) will need to be identified and a mitigation strategy outlined to ensure safe operations. A setback from permanent dwellings, public facilities, etc. will be required based upon the wells' H_2S release rate, like that applied to the existing development in the area.

Injection and disposal requirements will also be met as per AER Directive 51. The injection wells will be categorized as Class II for injection of produced water (brine) or brine equivalent fluids. That directive outlines the cementing requirements, testing to ensure zone isolation and monitoring parameters.

20.4 Social or Community Impact

Many communities within and near the Project Area have sustained themselves economically based on decades of oil and gas activity. Many of the hydrocarbon pools in the region currently produce at marginal rates, and only one well in the RA has produced oil from the Leduc Formation.

Lithium development in Alberta will operate in a very similar fashion to oil and gas industry as brine production techniques, including wells, pumps, and pipelines will be the same. Due to the history of oil and gas exploration in the region, NeoLithica will be able to take advantage of the known geology, the available infrastructure, and the industry's skilled workforce and subcontractors to develop the Peace River Project.

NeoLithica anticipates it will be able to hire most of its work force within the region, while leveraging the core competencies in resource extraction. This will have the effect of diversifying opportunities to the energy sector's work force and contributing to Alberta's low carbon future. NeoLithica will deliver significant social and economic benefits by attracting its personnel and contractors from nearby municipalities, local Indigenous communities, and educational institutions.

NeoLithica will also work with key stakeholders to ensure appropriate consultation is completed with local Indigenous communities, which is coordinated through the Government of Alberta Aboriginal Consultation Office, which directs, monitors, and supports all consultation activities in conjunction with the Alberta Energy Regulator (AER) and Alberta Environment and Parks.

20.5 Mine Closure

The Project will recover brine-hosted minerals that are pumped to surface using wells. There will be no mine so a mine closure plan will not be required. Well and surface infrastructure reclamation will be planned during later stages of the Project.

21. Capital and Operating Costs

Not applicable.

22. Economic Analysis

Not applicable.

23. Adjacent Properties

Groupings of mineral permits occur to the southeast and northwest of the Peace River Property in the Fox Creek and Peace River Arch regions, and belong to various mineral companies including Highwood Asset Management Ltd., LithiumBank Resources Corp., Prism Diversified Ltd., Indigo Exploration Inc., and 2098849 Alberta Ltd.

Adjacent Alberta Metallic and Industrial Mineral Permits in the vicinity of the Peace River Property are illustrated in Figure 23.1.

To the best of the author's knowledge there are no known advanced minerals projects in the vicinity of NeoLithica's Peace River Property. In contrast to mineral projects, the area is dominated by the oil and gas sector with operations that include active (pumping oil and flowing gas), suspended, and abandoned wells.

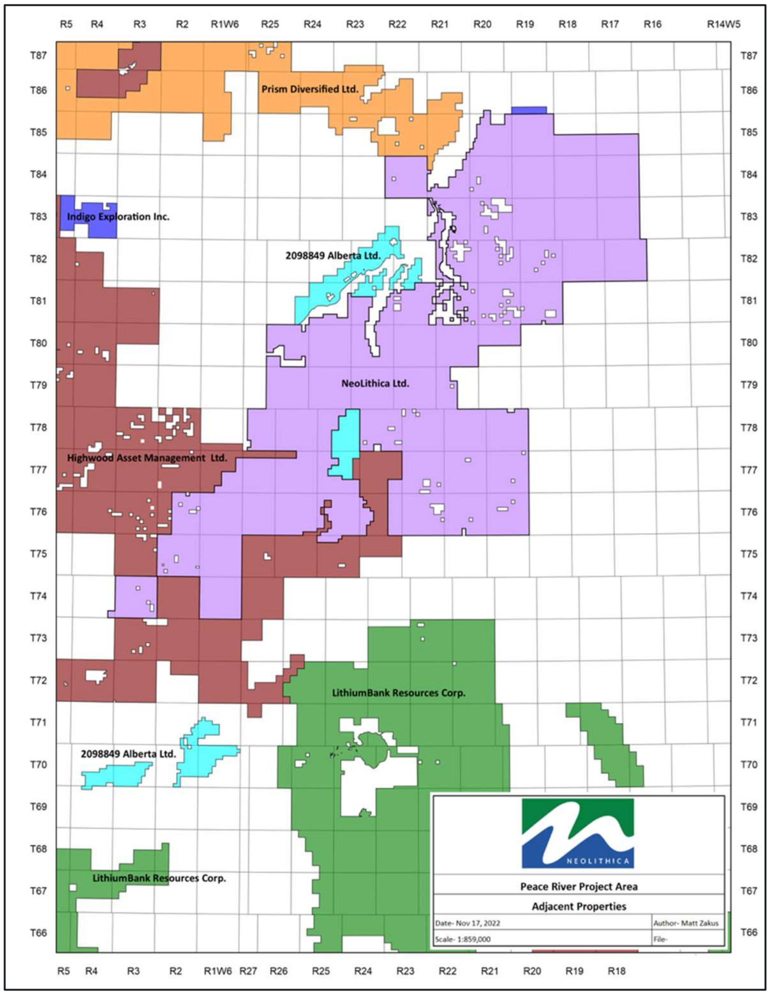


Figure 23-1: Adjacent properties

24. Other Relevant Data and Information

There is currently no other relevant data and information to report.

25. Interpretation and Conclusions

25.1 Geologic Setting and Mineral Resource Estimate

In the opinion of the QP, the Inferred Mineral Resource has been estimated according to the CIM Best Practice Guidelines for Resource and Reserve Estimation for Lithium Brines (2012) and the CIM Definitions Standard (2014).

The following interpretations and conclusions apply to the Mineral Resource estimate:

- The Leduc Formation aquifer is judged to be hydraulically continuous within the mapped isopach below the Project;

- The DST-measured lithium concentrations in the Leduc Formation suggest that lithium concentrations are continuous across the Project and have a representative concentration of 70 mg/L;
- The Mineral Resource classification is that of Inferred based on the geological evidence being sufficient to imply but not to verify geological grade, or quality continuity. Further data and modelling will be required to further characterize the Mineral Resource;
- The Inferred Mineral Resource estimate is based on the total volume of water in the net pay and the interpolated lithium concentration within the RA. The Inferred Mineral Resource Estimate is 33 billion m^3 of brine and 2 million tonnes of elemental lithium;
- Based on a conversion factor of 5.323, the estimated 2 million tonnes of elemental lithium is equivalent to a lithium carbonate equivalent (LCE) of 1 x 10^7 (10 million) tonnes; and
- The large areal extent and the lateral continuity of the aquifer, as well as the aquifer's well-developed porosity and permeability, support the prospect that the Leduc Formation aquifer can be economically extracted.

Given the Project's preliminary stage of characterization there are several Project risks and uncertainties that could affect the Inferred Mineral Resource estimate. In the opinion of the QP, the largest uncertainty is the lithium grade and the continuity of the lithium grade throughout the vertical and areal extent of the RA. Other uncertainties include the representative hydraulic properties (permeability and porosity) of the Leduc Formation aquifer at the scale of a commercial lithium project and the heterogeneity of these properties across the RA.

At present, there are no known environmental, permitting, legal, title, taxation, socio-economic, marketing, or political issues which would adversely affect the Mineral Resource.

25.2 Mineral Processing and Metallurgical Testing

Mineral processing test work conducted on brines exhibiting similar characteristics and chemistry to that of Peace River Leduc Formation lithium-brine suggests there is a reasonable prospect of the potential to economically extract and process lithium from the brine into merchantable lithium compounds.

26. Recommendations

The Mineral Resource classification is that of Inferred based on the geological evidence being sufficient to imply but not to verify geological, grade, or quality continuity. Further data collection and modelling will be required to upgrade the Mineral Resource and advance the Project.

NeoLithica Ltd. plans to conduct further work in a phased manner.

Key areas of additional work and the approximate cost of the first work phase are described in the following sub-sections.

26.1 Lithium Extraction Technology

The first work phase should be focussed on the lithium extraction and refining process. The intent of the work would be to demonstrate effectiveness at pilot scale, including the purification and conversion of the lithium chloride concentrate to produce 99.5% battery-grade lithium carbonate. This testing will further refine the process flowsheet. The estimated cost of the first work phase is C$1,540,000 including a 10% contingency.

Description	Cost estimate (C$)	Sub-Total (C$)
Bench-scale brine processing test work for lithium recovery	$50,000	
Build and Equip Demonstration Pilot	$500,000	
Conduct Demonstration Pilot, PEA	$850,000	**$1,400,000**
	10% contingency	$140,000
	Total	**$1,540,000**

Table 26-1: Estimated costs to complete the first phase of work.

26.2 Hydrogeologic Characterization

The second work phase will be focussed on further characterization of the Leduc Formation aquifer with the goal of upgrading some, or all, of the resource. Advancing the hydrogeologic characterization of the Leduc Formation aquifer will support Project planning, upgrades to the Mineral Resource, and ultimately the ability to define a Mineral Reserve.

Additional geologic mapping of the Leduc Formation will support a conceptual framework on the distribution of porosity and permeability in the RA. Future enhancements to the geologic characterization include incorporating digital well logs to map phi-H (porosity-thickness) and determining the degree of dolomitization to identify the areas with the highest reservoir quality.

An improved understanding of the pressure, porosity, and permeability distributions within the Leduc Formation will enhance the current hydrogeologic characterization and is necessary to design an efficient supply well network capable of recovering economic quantities of brine from the Leduc Formation.

The QP believes, that one of the most important aspects of future characterization work is further characterization of the Leduc Formation aquifer permeability. A pumping test completed in a Leduc Formation water well would characterize the formation permeability across a larger representative aquifer volume, than the current core and DST based permeability measurements. The formation testing should consider the improved geologic mapping and should be completed in a heuristic manner with other characterization work, including the confirmation of lithium grade and distribution.

The current estimate of Leduc Formation lithium grade is derived from water samples collected during DSTs. Additional sampling of the Leduc Formation water needs to be completed before the resource can be upgraded. Outstanding questions that future sampling programs should try to address include the areal and vertical variability of lithium concentrations throughout the RA. The number and locations of brine samples required to upgrade the resource is dependent on how consistent the new lithium concentrations are with historical lithium concentrations and each other.

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