NI 43-101 TECHNICAL REPORT,

GEOLOGICAL INTRODUCTION TO HIGHWOOD OIL COMPANY LTD.'S LITHIUM-BRINE SUB-PROPERTIES IN ALBERTA AND BRITISH COLUMBIA, CANADA

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1 Summary

1.1 Issuer and Purpose

This technical report has been prepared for the issuer, Highwood Oil Company Ltd. (Highwood or the Company). During March-April 2021, Highwood acquired 155 mineral permits/titles encompassing 942,575.09 hectares. Individual groupings of the mineral permits/titles form 28 non-contiguous sub-properties that are scattered throughout the Alberta and northeast British Columbia portions of the Western Canada Sedimentary Basin.

The sub-properties represent an early-stage exploration project in which Highwood is investigating stratigraphically deep (e.g., >2,000 m below surface) Devonian- to Precambrian-aged brine reservoirs, or aquifers, for their lithium-brine (Li-brine) potential. The purpose of this technical report is to:

1. Provide a geological introduction to Highwood's mineral permits.

2. Summarize historical oil and gas infrastructure that can enable Highwood to access the brine as a waste product from existing petro-operations.

3. Summarize historical Li-brine studies.

4. Document 2021 brine sampling exploration work conducted by Highwood.

5. Make work recommendations for future Li-brine studies.

The technical report has been prepared in accordance with the Canadian Securities Administration's National Instrument 43-101 and has an Effective Date of 14 July 2021.

1.2 Author and Qualified Person Site Inspection

This technical report has been prepared by Mr. D. Roy Eccles, M.Sc. P. Geol., of APEX Geoscience Ltd. in Edmonton, AB, who takes overall responsibility for the preparation and publication of this technical report. Mr. Eccles is a Professional Geologist with the Association of Professional Engineers and Geoscientists of Alberta (APEGA) and has worked as a geologist for more than 35 years. His work experience includes exploration and resource estimation on Li-brine projects in the western Canada, southern United States, and central Europe.

Mr. Eccles visited one of Highwood's Li-brine sub-properties on May 28, 2021, as part of a NI 43-101 site inspection. The inspection enabled the author to independently collect and analyze Devonian brine samples from actively producing petro-operations and verify the Li-brine mineralization underlying Highwood's Drumheller Sub-Property.

1.3 Property Location, Description and Access

Highwood's Alberta and British Columbia Li-brine land position is comprised of:

- 141 Alberta Metallic and Industrial Mineral Permits totalling 918,694.84 hectares.
- 14 British Columbia Mineral Titles totalling 23,880.25 hectares.
- Collectively, the total land package is 155 mineral permits and titles, hereafter referred to as mineral permits, totalling 942,575.09 hectares.

The 155 mineral permits are scattered throughout Alberta and northeast British Columbia into individual and non-contiguous groupings of mineral permits that form 28 separate sub-properties, 25 in Alberta and 3 in British Columbia. For reporting purposes, the sub-properties are generally grouped into 6 general areas that include South AB, Central AB, West-Central AB, Northwest AB, Northeast AB, and Northeast BC.

With respect to property access, the energy business in Alberta and northeast British Columbia represents a 70-year plus established industry and is one of the largest hydrocarbon infrastructure development areas in North America. Providing the wells are active and Highwood has approvals in place with the petro-operator to collect brine, there are no temporal accessibility restrictions and exploration can be conducted year-round.

1.4 Tenure Maintenance, Permitting, Surface Rights, and Royalties

Alberta and British Columbia mineral permits/titles were acquired directly via on-line staking from the Government of Alberta. Consequently, there are no known back-in rights, payments, or other agreements and encumbrances to which the Property is subject. 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.

The Alberta mineral permits grant Highwood 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. Work requirements for maintenance of permits in good standing are $5.00/ha for the first term, $10.00/ha for each of the second and third terms, and $15.00/ha for each the fourth, fifth, sixth and seventh terms.

To maintain a mineral title in British Columbia, Highwood must perform exploration and development work on that claim and register the work online, on or before the claim's expiry date. The value of exploration and development required to maintain a mineral claim for one year is $5.00 per hectare during each of the first and second anniversary years, $10.00 per hectare for each of the third and fourth anniversary years, $15.00 per hectare for each of the fifth and sixth anniversary years and $20.00 per hectare for subsequent anniversary years.

At the early exploration stage, Highwood is completely reliant on the petro-operators permission for access to their lease permits to acquire brine for test purposes. Any permits and licences associated with the oil and gas 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 company. Upon approval from the petro-operator, the collection of the brine is conducted under the rules and guidance of the petro-operator lease protocols.

Other than approval from the petro-operator, Highwood's brine sampling methodology does not require additional permits, or surface and access approval beyond the actual mineral permits because brine sampling for assay or mineral processing test work does not disturb the surface by mechanical means. Access to private lands in Alberta and British Columbia, including the use of private roads, does not require a permit, only a written approval by the landowner.

Government royalty rates associated with any lithium-production in Alberta, as administrated by the Department of Energy, 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. The author is not aware of British Columbia royalty rates specific to Li-brine; however, the province has a two-stage mining royalty in which the first stage is based on 2% of net revenue and the second stage is based on 13% of net profit.

1.5 Brine Access Agreement

Lithium-brine exploration companies are typically reliant on existing petro- or geothermal-operators to gain access to brine to conduct early-stage exploration work that involves brine assay testing and/or mineral processing technological test work. In Alberta, access to Devonian or older brine is usually acquired through a request to, and/or an agreement with, the petro-operator.

A formal brine access agreement between Highwood and an active petro-operator producing petroleum from Devonian-aged fields/pools in southern Alberta was reviewed by the Qualified Person. The agreement permits Highwood to access deep subsurface brine via active oil and gas infrastructure for the purpose of analyzing and testing the samples offsite. Highwood has also been permitted brine access for early exploration stage test work via verbal agreements formed between the Company and individual petro-operators. Presently and to the best of the author's knowledge, none of the agreements – documented or verbal – include stipulations related to any potential future operation of a commercial Li-brine facility.

1.6 Environmental and Property-Related Uncertainties

Environmental licences, factors, and issues – as they pertain to minerals exploration – are administered by Alberta Environment and Parks and the British Columbia Environmental Assessment Office. None of Highwood's sub-properties occur in areas where surface access is restricted, or where the minerals are reserved, or withdrawn, by the Crown. Specific restrictions (i.e., temporal or buffer zone limitations) such as waterways, key wildlife and biodiversity zones, archeological areas, and Caribou zones occur through Alberta and British Columbia – but these would not affect the Company's ability to access wells or petro-facilities to acquire brine samples.

As with any early-stage exploration project there exists potential risks and uncertainties. Highwood will attempt to reduce risk/uncertainty through effective project management, engaging technical experts, and developing contingency plans.

Because Highwood is reliant on pre-existing oil and gas wells that are managed and operated by current petro-companies, there is some risk associated with a dependency on the petro-operation and continued brine access. It is possible that situations could arise where the petro-companies shut down well production – for example – due to poor commodity prices, depletion of petroleum product reserves, and/or production well performance of the reservoir. As a mitigation strategy, Highwood could permit and drill their own wells or consider options such as purchasing the well, renting the operation of the well, etc.

1.7 Geology, Hydrogeology, and Mineralization

This technical report focuses on Devonian to Precambrian strata and their specific petro-bearing rock units and associated aquifers. Devonian reefal strata in the Alberta include, from oldest to youngest, Lower Devonian strata, Elk Point Group, Beaverhill Lake Group, Woodbend Group, Winterburn Group, and Wabamun Group. Highwood's exploration strategy is not confined to Devonian reefs and Lower Devonian clastic sedimentary strata. The company is also considering brine associated with Granite Wash sandstone reservoirs that sit unconformably between the Precambrian crystalline basement and the Devonian.

The Devonian petroleum system comprises porous carbonate reservoirs that have accounted for about 51% of all extractable conventional crude oil and about 23% of all marketable gas in the Western Canada Sedimentary Basin. It is recognized that the Devonian petroleum system has been in operation since the late-1940s, and therefore, represents a mature energy system with dwindling reserves. However, the Devonian is still a viable producer of oil and gas, and importantly to Li-brine companies, produces enormous volumes of brine in the waning stages of the hydrocarbon lifecycle.

The mineralization is defined as Li-enriched, sodium-calcium hypersaline brine that is hosted within subsurface, confined, aquifers of Devonian or older aged strata. In contrast and adding to the definition of Li-brine mineralization, Li-enrichment is not documented to occur in aquifers associated with younger strata overlying the Devonian. Some areas of the Western Canada Sedimentary Basin are historically documented to contain higher levels of Devonian-aged Li-brine, possibly due to localized interaction with underlying lithophile-bearing basement rocks and/or siliciclastic pathways that promote lithium into the Devonian system.

1.8 Historical Oil and Gas Infrastructure and Brine Geochemistry

A review of publicly available oil and gas well data on May 1, 2021, showed that approximately 1,100 wells that 1) penetrate to Devonian reservoir depths, and 2) are actively operating within the boundaries of Highwood's sub-properties. The Swan Hills and Judy Creek sub-properties in West-Central Alberta have the highest number of active Devonian wells (301 and 357 wells, respectively) followed by: Kaybob (n=129), Vauxhall (n=105), Mitsue (n=67), Mikwan (n=29), Randall (n=27), Virginia Hills (n=24) Drumheller (n=18), Puskawasku (n=14), Halkirk and Pembina North (n=9), Parkland (n=9), Morinville (n=6), Bashaw (n=5), Dunvegan (n=4), Pembina South (n=3), and Chigwell (n=1 well). The active wells are producing from the following Devonian-Precambrian-aged fields and pools: Wabamun, Arcs/Nisku, Nisku, Nisku/Leduc, Leduc, Beaverhill Lake, Duvernay, and Gilwood pools.

Presently, there are no wells producing from Devonian strata at the Joffre, Kaybob South, Girouxville, Grande Prairie, Pouce, Worsely, Notikewan, and Pouce sub-properties. This does not mean Highwood cannot access brine as there is the possibility of opening a suspended well and/or Highwood drilling their own well.

All the historical Li-brine data results compiled and presented in this technical report occur outside of Highwood's sub-properties. In these instances, the QP has been unable to verify the neighboring property lithium results, and therefore, this information is not necessarily indicative to the lithium mineralization that occurs within the Devonian to Precambrian aquifers situated beneath Highwood's mineral permits that are the subject of this technical report.

The publicly available historical brine geochemical data lithium results show lithium in Devonian to Precambrian brine averages 54 mg/L Li (n=318 analyses) in comparison to lithium in younger Mississippian to Recent formation water samples that average 8 mg/L Li (n=768 analyses). The Beaverhill Lake and Woodbend groups have the highest average values of lithium (63.8 and 62.0 mg/L Li), followed by the Winterburn Group (50.8 mg/L Li), Elk Point Group (40.8 mg/L Li), Granite Wash (34.3 mg/L Li), and Wabamun Group (34.1 mg/L Li).

It is important to point out that the historical brine geochemical data are representative of only a very small portion of the Devonian rocks within the Western Canada Sedimentary Basin. Hence, the proximity of the Li-brine anomalies neighboring some of the Highwood sub-properties, and knowledge that most of the sub-properties produce hydrocarbons from Devonian-aged reservoirs, may be indicative of larger Li-bearing brine aquifer systems.

Accordingly, Highwood has conducted 2021 brine sample programs to determine whether deep-seated aquifer brine within their sub-properties contains elevated concentrations of lithium.

1.9 Highwood's 2021 Exploration Work

During 2021, Highwood commissioned 3 Alberta-based commercial petro-laboratories to 1) conduct brine sampling on behalf of the Company from select petro-operations within their sub-properties, 2) maintain chain-of-custody of the samples, and 3) analyze the brine for lithium and trace metals using industry standard analytical techniques. The labs are independent of Highwood, accredited, and specialized in the field of collecting and analyzing petroleum fluid products including produced water, or brine.

During March-April 2021, Highwood completed a preliminary brine sampling program and collected a total of 20 brine samples from 5 of the 28 sub-properties. The brine represented a variety of Devonian- to Granite Wash-aged aquifers that are situated at depths of between 1,222 m and 3,208 m beneath the earth's surface. The resulting lithium data have a wide range of values from 10.7 mg/L to 52.60 mg/L Li and include:

- Leduc and Nisku formation brine aquifers in the Drumheller sub-property yielded 47.9-52.6 mg/L Li (n=3 samples) and 29.7-32.3 mg/L Li (n=4 samples), respectively.

- Gilwood Formation brine in the Randell sub-property yielded 13.5-28.2 mg/L Li (n=4 samples).

- Beaverhill Lake Group brine in the Judy Creek and Kaybob sub-properties yielded 24.3-29.9 mg/L Li (n=3 samples) and 10.7-13.6 mg/L Li (4 samples), respectively.

Based on these sample results, Highwood completed a May 2021 brine sampling program on Nisku- and Leduc-aged brine within the Drumheller Sub-Property's Wayne-Rosedale and Ghost Pine oil and gas fields. A total of 34 brine samples were collected, which included brine assay samples, quality assurance – quality control samples, and 2 mini-bulk brine samples for mineral processing test work. The analytical assay results of this work showed:

- The Nisku Formation brine from the Wayne-Rosedale oilfield yielded between 22 and 29 mg/L Li (average 24.5 mg/L Li).

- The Nisku-Leduc Formation brine from the Ghost Pine oilfield yielded between 37 and 49 mg/L Li (average 43 mg/L Li).

- The analytical results of individual oil and gas wells correlated with multi-well proration battery Facilities. This is important because the Facilities represent brine collection sites that could yield a continuous and high-volume flow of brine for any future lithium extraction test work.

The mineral processing samples were delivered to metallurgical laboratories, the results of which are not available at the Effective Date of this technical report.

1.10 Conclusions and Recommendations

Highwood Li-brine project is an early-stage exploration project. Highwood has acquired 155 mineral permits/titles (942,575.09 hectares) that form individual groupings of 28 non-contiguous sub-properties scattered throughout Alberta and the northeast British Columbia portions of the Western Canada Sedimentary Basin. The mineral permits were acquired with the intent to explore for Li-brine mineralization. Area selection was conducted through oil and gas well database searches to depict regions with active petro-operations that produce from Devonian- to Precambrian (Granite Wash)-aged reservoirs.

To date, Highwood has collected 54 brine samples from within 5 of their 28 sub-properties with analytical results ranging from 10.7 mg/L to 52.6 mg/L Li. The brine samples were collected and analyzed by independent and accredited laboratories with experience in petroleum fluid products such as hypersaline brine.

Based on the lithium analytical results of some of the brine samples collected by Highwood to date in conjunction with the Qualified Person's verification of Li-brine mineralization, and a review of labs sample collection methods, brine preparation, and analytical results, it is the Qualified Person's opinion that the exploration work conducted by Highwood is reasonable and within standard practices of Li-brine evaluation as presented in this technical report.

The author concludes that Highwood's Li-brine Alberta and British Columbia sub-properties represent properties of merit. A two-phased program is recommended that 1) continues to assess the 28 sub-properties for their Li-brine and Li-from-brine recovery potential, and 2) dependent on the positive results of the Phase 1 work, defines advanced work for one or more of the sub-properties intended to increase the confidence level of the data toward mineral resource estimation(s). The total estimated cost of Phase 1 and Phase 2 of the recommended exploration work, with a 10% contingency, is CDN$225,500 and CDN$236,500. The total estimated cost of the recommended exploration work, with a 10% contingency, is CDN$462,000 (Table 1.1).

Table 1.1 Future work recommendations.

Phase	Item	Activity	Cost estimate (CDN$)	Sub-total (CDN$)
Phase 1	1	Brine geochemical assay sampling programs to assess the individual sub-properties	$85,000	
	2	Brine mineral processing bulk brine sampling program(s) and initial benchtop Li extraction work to produce a lithium concentrate.	$70,000	
	3	Hydrogeological studies on selected sub-properties (x2)	$50,000	**$205,000**
Phase 2	1	Ongoing mineral processing test work that includes adjustments and confirmaton benchtop Li extraction test work along with experimental tests to take the Li concentrate to ltihium hydroxide.	$125,000	
	2	Technical reporting and resource modelling and estimations on selected sub-properties (x2)	$90,000	**$215,000**
			Sub-total	**$420,000**
			Contingency (10%)	**$42,000**
			Total	**$462,000**

2 Introduction

2.1 Issuer and Purpose

This technical report has been prepared for the issuer, Highwood Oil Company Ltd. (Highwood or the Company). Highwood is a Canadian-owned, public oil & natural gas producer headquartered in Calgary, Alberta. Formed in 2012, the Company acquires and develops various energy plays across Alberta, British Columbia, and Saskatchewan.

During March-April 2021, Highwood acquired 100% mineral ownership of 1) 141 Alberta Metallic and Industrial Mineral Permits totalling 918,694.84 ha and 2) 14 British Columbia Mineral Titles totalling 23,880.25 ha (Figure 2.1). Collectively, the land package is 155 mineral permits/titles encompassing 942,575.09 ha. The groupings of mineral permits are scattered throughout Alberta and northeast British Columbia into 28 non-contiguous sub-properties, 25 of which are in Alberta and 3 in British Columbia.

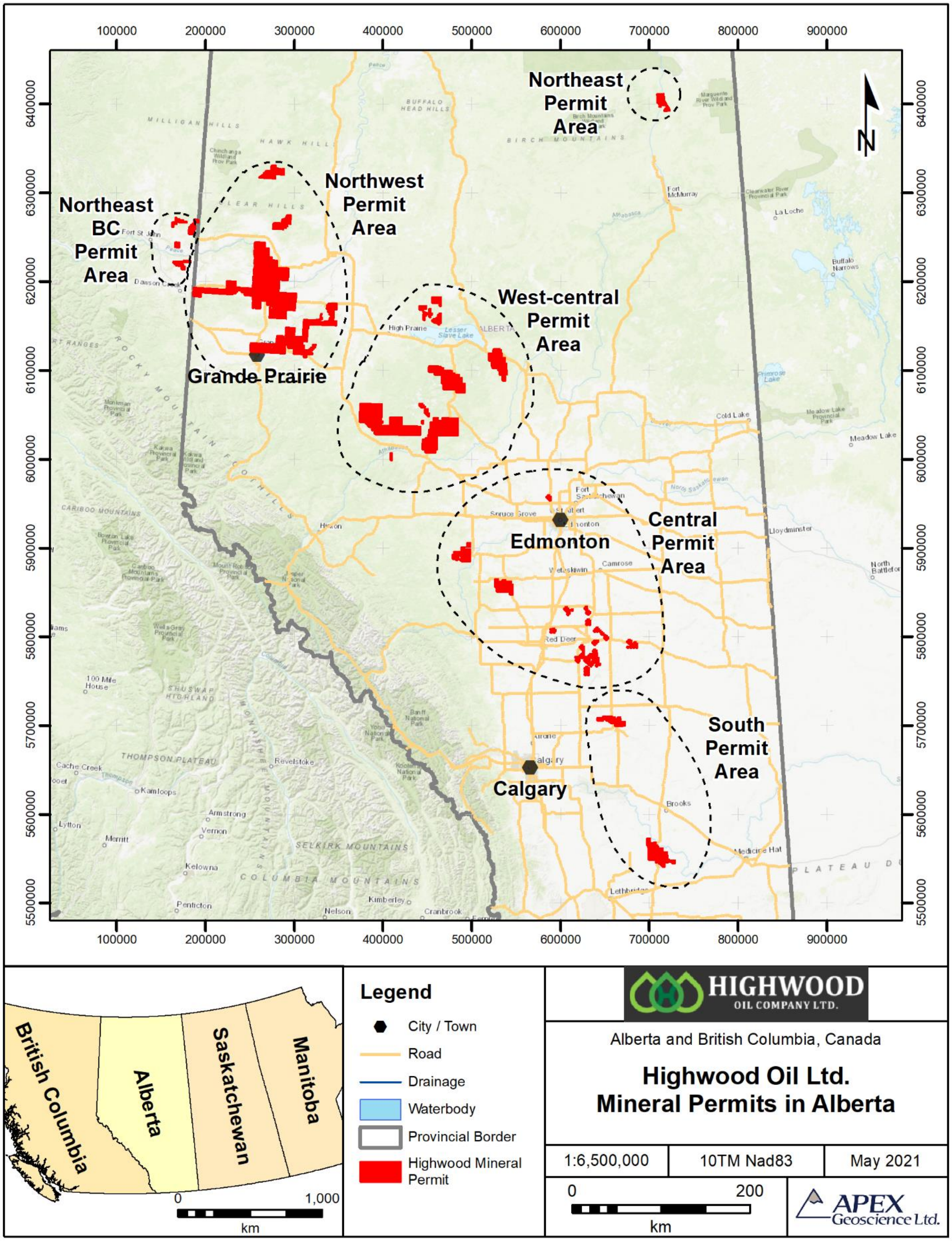
Highwood is investigating their mineral permits for lithium-brine (Li-brine) potential. More specifically, Highwood proposes to assess stratigraphically deep (e.g., >2,000 m below surface) hypersaline formation water, or brine, from oil and gas reservoirs, or aquifers, in Devonian- to Precambrian-aged reef complexes and clastic sedimentary rock units for its lithium potential. The brine is currently pumped from the deep aquifers as a waste produced water product associated with hydrocarbon production (e.g., oil, gas, and condensate). The extracted hydrocarbon and brine are treated by petro-companies to separate and remove petroleum products and then the brine is reinjected back down into the subsurface aquifer. It is conceivable that rapid extraction technologies could be modified to extract lithium from the brine circuit.

Consequently, Li-brine exploration companies are reliant on brine access agreement with the petro-operators to obtain brine for early exploration stage assaying and mineral processing test work. To date, Highwood has obtained permission, or formed agreements, to access brine from petro-operators in the southern and west-central areas of Alberta.

During April-May 2021, Highwood initiated 2 brine assay geochemical sampling programs at some of its mineral permit areas to collect brine samples for lithium assay testing and mineral processing, or lithium extraction, test work at independent commercial laboratories.

The purpose of this technical report, therefore, is to 1) provide a geological introduction to Highwood's mineral permits, 2) summarize historical oil and gas infrastructure and Li-brine studies, 3) document exploration and mineral processing work conducted by the Highwood to the Effective Date of this technical report, and 4) make recommendations for future geological, hydrogeological, and Li-brine mineral resource characterization studies. The technical report has been prepared in accordance with the Canadian Securities Administration's (CSA's) National Instrument 43-101 (NI 43-101) and has an Effective Date of 14 July 2021.

Figure 2.1 General location of Highwood Oil Company Ltd.'s mineral permits in Alberta.



APEX Geoscience Ltd.

2.2 Authors and Site Inspection

This technical report has been prepared by Mr. D. Roy Eccles, M.Sc. P. Geol., of APEX Geoscience Ltd. (APEX). Mr. Eccles, as Qualified Person (QP) for Highwood takes overall responsibility for the preparation and publication of this technical report.

The author is a QP as defined by the CSA's NI 43-101. The Canadian Institute of Mining, Metallurgy and Petroleum (CIM) defines a QP as "*an individual who is a geoscientist with at least 5 years of experience in mineral exploration, mine development or operation or mineral project assessment, or any combination of these; has experience relevant to the subject matter of the mineral project and the technical report; and is a member or licensee in good standing of a professional association*."

Mr. Eccles is a Professional Geologist with the Association of Professional Engineers and Geoscientists of Alberta (APEGA) and has worked as a geologist for more than 35 years since his graduation from university. Mr. Eccles has been involved in all aspects of mineral exploration and mineral resource estimations for metallic and industrial mineral projects and deposits in North America. Mr. Eccles technical experience with respect to Li-brine includes 1) Government geological studies (e.g., Eccles and Jean, 2010; Eccles and Berhane, 2011) and 2) Li-brine exploration and resource estimations in the Western Canada Sedimentary Basin, southeastern and southwestern United States, and central Euroope.

Mr. Eccles visited one of Highwood's mineral permits on May 28, 2021, as part of a NI 43-101 site inspection and to advise the Company on brine sampling protocols including Quality Assurance – Quality Control (QA-QC). The inspection confirmed or validated 1) actively pumping oil and gas infrastructure at the Ghost Pine and Wayne-Rosedale oil and gas field (Highwood's Drumheller sub-property), 2) Highwood's permission from the petro-operator to collect brine samples, and 3) independent validation of lithium mineralization within the Nisku and Leduc formations brine underlying the sub-property.

2.3 Sources of Information

The source of information and data used in this technical report are based on the compilation of publicly available geological and geochemical data as they pertain to Highwood's sub-properties and the surrounding area. The data compilation includes original, historical oil field formation water data. These data were validated and interpreted by APEX staff working under the direct supervision of the author.

Government reports include those that depict the Devonian bedrock stratigraphy of Alberta and the brine geochemistry of Alberta (e.g., Green and Mellon, 1970; Hitchon, 1984; Bloy and Hadley, 1989; Connolly et al., 1990a,b; O'Connell et al., 1990; Hitchon et al., 1993, 1995; Meijer Drees, 1994; Mossop et al., 1994; Switzer et al., 1994; Oldale and Munday, 1994; Bachu et al., 1995; Garrett, 2004; Eccles and Jean, 2010; Eccles and

Berhane, 2011; Huff et al., 2011, 2012; Rokosh et al., 2012; Huff, 2016, 2019, Huff et al., 2019; Lopez et al., 2020).

Miscellaneous journal articles, company news releases, and NI 43-101 Technical Reports were used to corroborate the stratigraphy and formation water potential of Alberta (e.g., Banks, 2017; Hauck et al., 2018; Highwood Oil Company Ltd., 2021).

Oil and gas well fluid and stratigraphic data presented in this technical report were acquired by searching the Alberta Energy Regulator (AER) database; the AER regulates and acts as the custodian for oil and gas data in the province. The oil and gas data are made available via numerous standard oil and gas industry software programs such as GeoSCOUT™ and AbaData (v. 2.0).

The author of this Technical Report, Mr. Eccles, has reviewed all government and miscellaneous reports, and historical oil and gas stratigraphic horizon picks and well fluid geochemical data. Good judgment is required to assess the quality and validity of data and information obtained. The oil and gas stratigraphic data have been reviewed in conjunction with current three-dimensional (3-D) basin modelling performed by the Alberta Geological Survey. The historical fluid geochemical data were prepared via the Alberta Geological Survey. The government reports and journal papers were prepared by a person, or persons, holding post-secondary geology or related degrees.

Geochemical data collected in 2021 by Highwood and the QP, and presented in this Technical Report, were analysed at independent and accredited laboratories: 1) AGAT Laboratories (AGAT) in Calgary, AB, 2) Core Laboratories (Core Lab) in Calgary, AB, and 3) Bureau Veritas Laboratories (Bureau Veritas) in Edmonton, AB. The commercial geochemical laboratories cite national index recognition, governance, and accreditations (e.g., ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc., Standards Council of Canada, and ASTM: American Society for Testing and Materials).

Based on review of these documents and/or information, the author and QP has deemed that these reports and information, to the best of his knowledge, are valid contributions to this technical report, and therefore 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 metric tonnes (tonnes; 1,000 kg or 2,204.6 lbs.).
- Geographic coordinates are projected in the Universal Transverse Mercator (UTM) system relative to Zones 11 and 12 of the North American Datum (NAD) 1983.

Because Alberta is divided into 2 UTM zones, the GIS has been created in NAD 1983 10TM AEP Forest projection.

- Currency in Canadian dollars (CDN$), unless otherwise specified (e.g., U.S. dollars, US$; Euro dollars, €).

3 Reliance of Other Experts

The author of this technical report is not qualified to provide an opinion or comment on issues related to legal agreements, royalties, permitting and environmental matters, and therefore, disclaim certain portions associated with Section 4, Property Description and Location.

The author has not attempted to verify the legal status of the Property; however, the author has reviewed the Alberta Energy and British Columbia Mineral Titles Branch mineral rights management systems, which show that the Highwood mineral permits are either active and in good standing, or in application (19 of 155 permits), as of 14 July 2021. All mineral permits were listed as having 100% ownership by Highwood. The assessment of mineral permit ownership is described in Section 4.1.

A brine access agreement between Highwood and a petro-operator dated May 25, 2021, for the purpose of collecting brine samples for offsite testing, was provided to the QP by Highwood's management team on June 14, 2021. The QP has not verified the agreement with the petro-operators and is reliant on the executed agreement as provided by Highwood together with knowledge that Highwood was allowed to collect brine samples from the petro-operation. Access agreement information is presented in Section 4.3.

4 Property Description and Location

4.1 Description and Location

Highwood's Alberta and British Columbia Li-brine land position is comprised of:

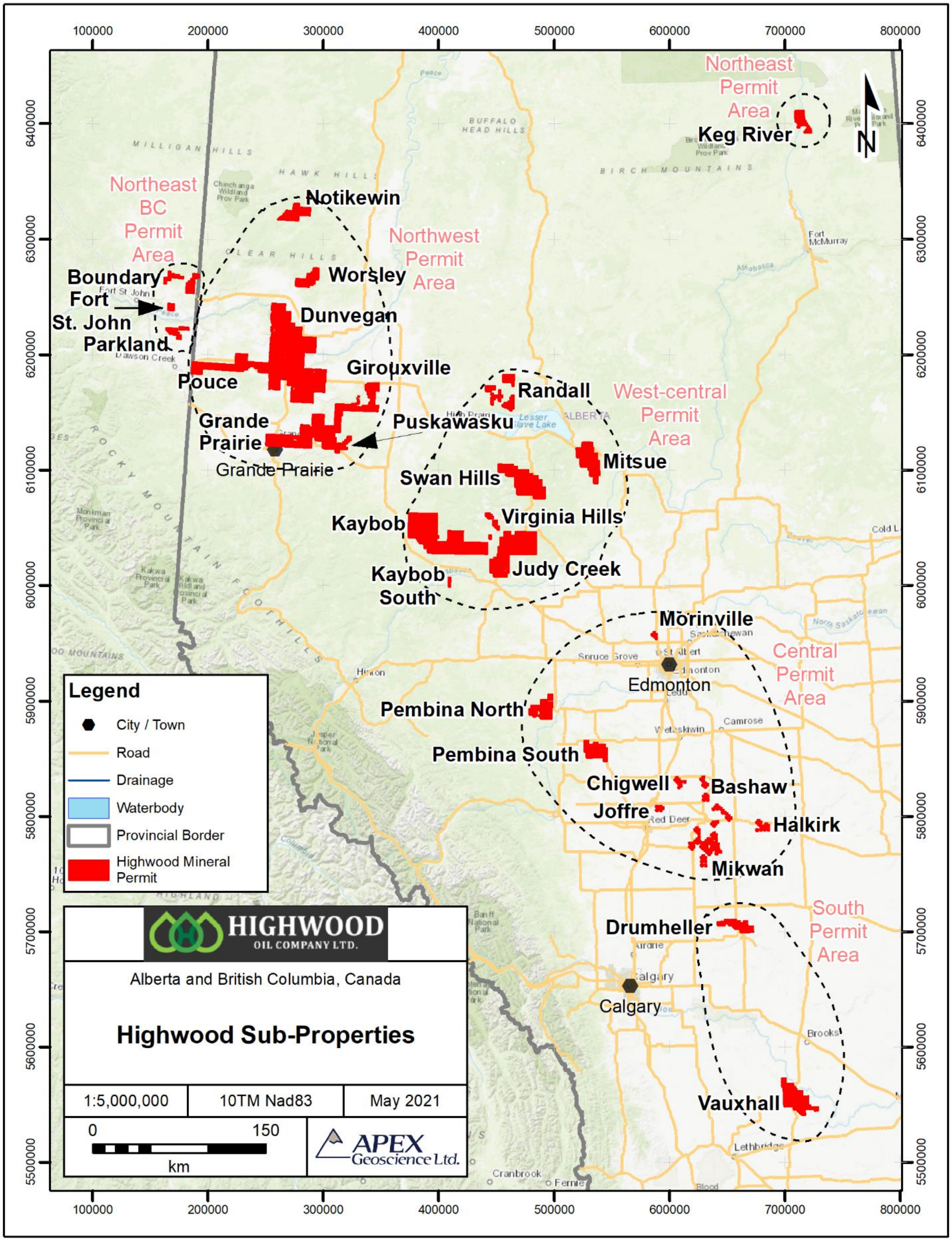
- 141 Alberta Metallic and Industrial Mineral Permits totalling 918,694.84 ha.

- 14 British Columbia Mineral Titles totalling 23,880.25 ha.

- Collectively, the total land package is 155 mineral permits and titles, hereafter referred to as mineral permits, totalling 942,575.09 ha.

The mineral permits are scattered throughout Alberta and northeast British Columbia into 28 separate sub-properties, 25 in Alberta and 3 in British Columbia (Figure 4.1). For reporting, the 28 sub-properties have been grouped into 6 general areas that include South AB, Central AB, West-Central AB, Northwest AB, Northeast AB, and Northeast BC (Figures 2.1 and 4.1).

Figure 4.1 Sub-property nomenclature. Tables 4.1 and 4.2 include the corresponding mineral permit/title IDs for each sub-property.



The permit descriptions, including mineral tenure permit/title ID, centroid sub-property location (in 10TM, NAD83), term date (or lease date), expiry date (or good to date), and area (ha) is presented in Table 4.1 (Alberta mineral permits) and Table 4.2 (British Columbia mineral titles). Fourteen Alberta permits are still 'in application' with 122 permits, or 87%, approved by the Alberta Government at the Effective Date of this report.

The sub-property names generally replicate the underlying Devonian- to Precambrian-aged historical oil and gas field or pool reservoir/aquifer name. The spatial distribution of individual mineral permits within the sub-properties is presented in Figures 4.2 to 4.7. The individual sub-properties are comprised of between 1 and 24 mineral permits. Most sub-properties with numerous mineral permits form contiguous blocks. Non-contiguous mineral permits occur in the following sub-properties: Mikwan, Bashaw, Virginia Hills, Randall, Boundary, and Parkland.

4.2 Property Rights and Maintenance

At the Effective Date of this technical report, the designated 100% owner of all 155 permits is Highwood Oil Company Ltd. The status of all permits is listed as "Active" (Alberta) or "Good" (British Columbia).

The Alberta mineral permits grant Highwood 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. Work requirements for maintenance of permits in good standing are $5.00/ha for the first term, $10.00/ha for each of the second and third terms, and $15.00/ha for each the fourth, fifth, sixth and seventh terms. The statutes also provide for conversion of Alberta Permits to Metallic Minerals Leases once a mineral deposit has been identified. Leases are granted for a renewable term of 15 years and require annual payments of $3.50/ha for rent to maintain them in good standing. There are no work requirements for the maintenance of leases, and they confer rights to minerals. Complete terms and conditions for Alberta mineral exploration permitting and work can be found in the Alberta *Mines and Minerals Act* and Regulations (Metallic and Industrial Minerals Tenure Regulation 145/2005, Metallic and Industrial Minerals Exploration Regulation 213/98). These and other acts and regulations, with respect to mineral exploration and mining, can be found in the Laws Online section of the Government of Alberta Queen's Printer website (www.qp.alberta.ca/Laws_Online.cfm).

In British Columbia, the *Mineral Tenure Act* is the primary statute that authorizes the registration of mineral titles and provides the policy framework for administration (https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/00_96292_01). A free miner has the right to acquire and hold mineral titles, which acquire the subsurface rights that are available at the time of acquisition. Acquisition of mineral claims is done using the Mineral Titles Online (MTO; https://www.mtonline.gov.bc.ca/mtov/home.do). To maintain a mineral title in BC, Highwood must perform exploration and development work on that claim and register the work online, on or before the claim's expiry date. Alternatively, a payment in lieu of work may be made. Only work described in the *Mineral Tenure Act* Regulation is acceptable for registration as assessment credit.

Table 4.1 Description of Highwood's 141 Alberta mineral permits.

No.	Agreement type	Mineral Permit number	Permit area	SubProperty name	Centroid of SubProperty: Easting (m) [10TM, NAD83]	Centroid of SubProperty: Northing (m) [10TM, NAD83]	Status	Designated representative (% ownership)	Application received date	Term date	Expiry date	Area (Ha)	SubProperty area (Ha)
1	93	9321060183	South	Vauxhall	851800	5565150	Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	8,794.41	
2	93	9321060184	South	Vauxhall			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	9,185.01	
3	93	9321060185	South	Vauxhall			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	9,301.63	
4	93	9321060186	South	Vauxhall			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	8,748.67	
5	93	9321060187	South	Vauxhall			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	4,537.74	**40,567.46**
6	93	9321060124	South	Drumheller	797650	5713700	Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	3,106.28	
7	93	9321060182	South	Drumheller			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	4,194.34	
8	93	9321070098	South	Drumheller			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	6,008.25	
9	93	9321070099	South	Drumheller			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	2,905.98	**16,214.86**
10	93	9321070180	Central	Halkirk	817500	5799600	Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	4,130.57	**4,130.57**
11	93	9321070174	Central	Mikwan	768900	5784100	Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	1,550.73	
12	93	9321070181	Central	Mikwan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	1,548.69	
13	93	9321070182	Central	Mikwan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	5,886.42	
14	93	9321060178	Central	Mikwan			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	6,688.40	
15	93	9321060179	Central	Mikwan			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	2,314.23	**17,988.47**
16	93	9321070175	Central	Bashaw	767650	5824400	Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	4,154.40	
17	93	9321070176	Central	Bashaw			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	2,081.69	
18	A93	210037501	Central	Bashaw			In application	Highwood Oil Comany Ltd. (100%)	2021-03-30			1,806.89	**8,042.98**
19	93	9321060117	Central	Joffre	727000	5816600	Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	1,811.12	**1,811.12**
20	93	9321070177	Central	Chigwell	743400	5836150	Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	1,287.98	
21	A93	210037601	Central	Chigwell			In application	Highwood Oil Comany Ltd. (100%)	2021-03-30			1,302.32	**2,590.30**
22	93	9321060116	Central	Pembina South	670650	5862200	Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	4,253.89	
23	93	9321070109	Central	Pembina South			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	6,448.58	
24	93	9321070110	Central	Pembina South			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	7,486.18	
25	93	9321070111	Central	Pembina South			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	2,907.25	**21,095.90**
26	A93	210044701	Central	Pembina North	624500	5897100	In application	Highwood Oil Comany Ltd. (100%)	2021-04-13			7,745.98	
27	93	9321070112	Central	Pembina North			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	9,315.37	
28	93	9321070113	Central	Pembina North			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	6,334.25	**23,395.60**
29	A93	210037801	Central	Morinville	718900	5963900	In application	Highwood Oil Comany Ltd. (100%)	2021-04-13			1,491.30	**1,491.30**
30	93	9321060115	West-central	Kaybob South	540000	6003450	Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	1,282.22	**1,282.22**
31	93	9321060113	West-Central	Kaybob	533190	6035400	Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	6,425.76	
32	93	9321060114	West-Central	Kaybob			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	5,134.53	
33	93	9321060159	West-Central	Kaybob			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	8,980.61	
34	93	9321060168	West-Central	Kaybob			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	6,174.90	
35	93	9321060167	West-Central	Kaybob			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	9,258.86	
36	93	9321060167	West-Central	Kaybob			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	4,629.77	
37	93	9321060180	West-Central	Kaybob			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	8,598.19	
38	93	9321070157	West-Central	Kaybob			Active	Highwood Oil Comany Ltd. (100%)		2021-07-09	2035-07-09	4,358.75	
39	93	9321070158	West-Central	Kaybob			Active	Highwood Oil Comany Ltd. (100%)		2021-07-09	2035-07-09	6,904.15	
40	93	9321070159	West-Central	Kaybob			Active	Highwood Oil Comany Ltd. (100%)		2021-07-09	2035-07-09	9,190.26	
41	93	9321070160	West-Central	Kaybob			Active	Highwood Oil Comany Ltd. (100%)		2021-07-09	2035-07-09	7,682.22	
42	93	9321070161	West-Central	Kaybob			Active	Highwood Oil Comany Ltd. (100%)		2021-07-09	2035-07-09	9,231.86	
43	93	9321070162	West-Central	Kaybob			Active	Highwood Oil Comany Ltd. (100%)		2021-07-09	2035-07-09	7,682.31	
44	93	9321070163	West-Central	Kaybob			Active	Highwood Oil Comany Ltd. (100%)		2021-07-09	2035-07-09	6,165.14	
45	A93	210036001	West-Central	Kaybob			In application	Highwood Oil Comany Ltd. (100%)	2021-03-30			9,264.32	
46	A93	210036101	West-Central	Kaybob			In application	Highwood Oil Comany Ltd. (100%)	2021-03-30			9,139.90	**118,821.53**
47	93	9321060121	West-Central	Virginia Hills	578100	6056000	Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	2,044.42	
48	93	9321060122	West-Central	Virginia Hills			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	2,301.97	
49	93	9321060123	West-Central	Virginia Hills			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	512.83	**4,859.22**
50	93	9321060188	West-Central	Swan Hills	603800	6095700	Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	9,221.48	
51	93	9321060189	West-Central	Swan Hills			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	9,231.08	
52	93	9321060170	West-Central	Swan Hills			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	9,214.29	
53	93	9321060171	West-Central	Swan Hills			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	9,208.39	
54	93	9321060172	West-Central	Swan Hills			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	9,189.52	
55	93	9321060173	West-Central	Swan Hills			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	7,670.46	
56	93	9321060174	West-Central	Swan Hills			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	3,070.22	**56,805.44**
57	93	9321060175	West-Central	Mitsue	658100	6115500	Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	9,080.61	
58	93	9321060176	West-Central	Mitsue			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	9,253.35	
59	93	9321060177	West-Central	Mitsue			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	8,717.65	
60	A93	210036201	West-Central	Mitsue			In application	Highwood Oil Comany Ltd. (100%)	2021-03-30			7,676.35	
61	A93	210036301	West-Central	Mitsue			In application	Highwood Oil Comany Ltd. (100%)	2021-03-30			3,597.28	**38,325.24**
62	93	9321060118	West-Central	Randall	579200	6167600	Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	4,859.68	
63	93	9321060119	West-Central	Randall			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	4,118.87	
64	93	9321060120	West-Central	Randall			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	6,210.28	
65	93	9321060165	West-Central	Randall			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	3,328.49	
66	93	9321060181	West-Central	Randall			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	1,789.36	**20,306.68**
67	A93	210036401	West-Central	Judy Creek	595250	6036300	In application	Highwood Oil Comany Ltd. (100%)	2021-03-30			8,655.64	
68	A93	210036501	West-Central	Judy Creek			In application	Highwood Oil Comany Ltd. (100%)	2021-03-30			9,260.60	
69	A93	210036601	West-Central	Judy Creek			In application	Highwood Oil Comany Ltd. (100%)	2021-03-30			9,264.05	
70	A93	210036701	West-Central	Judy Creek			In application	Highwood Oil Comany Ltd. (100%)	2021-03-30			9,182.89	
71	A93	210036801	West-Central	Judy Creek			In application	Highwood Oil Comany Ltd. (100%)	2021-03-30			9,239.96	
72	A93	210036901	West-Central	Judy Creek			In application	Highwood Oil Comany Ltd. (100%)	2021-03-30			7,782.66	
73	93	9321070092	West-Central	Judy Creek			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	7,711.80	
74	93	9321070093	West-Central	Judy Creek			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	8,111.11	
75	93	9321070094	West-Central	Judy Creek			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	4,114.61	
76	93	9321070095	West-Central	Judy Creek			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	4,771.14	
77	93	9321070096	West-Central	Judy Creek			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	3,577.52	**81,671.98**
78	93	9321060160	Northwest	Puskawasku	443000	6121100	Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	5,946.56	
79	93	9321070097	Northwest	Puskawasku			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	1,293.30	**7,239.86**
80	93	9321070135	Northwest	Girouxville	468400	6158000	Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	7,996.83	
81	93	9321070186	Northwest	Girouxville			Active	Highwood Oil Comany Ltd. (100%)		2021-07-12	2035-07-12	9,321.89	
82	93	9321070187	Northwest	Girouxville			Active	Highwood Oil Comany Ltd. (100%)		2021-07-12	2035-07-12	9,220.89	
83	93	9321070188	Northwest	Girouxville			Active	Highwood Oil Comany Ltd. (100%)		2021-07-12	2035-07-12	7,555.75	**34,095.37**
84	93	9321060161	Northwest	Grande Prairie	413250	6130600	Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	1,808.44	
85	93	9321060162	Northwest	Grande Prairie			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	2,711.70	
86	93	9321060163	Northwest	Grande Prairie			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	2,129.35	
87	93	9321060164	Northwest	Grande Prairie			Active	Highwood Oil Comany Ltd. (100%)		2021-06-25	2035-06-25	5,153.26	
88	93	9321070100	Northwest	Grande Prairie			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	9,312.99	
89	93	9321070101	Northwest	Grande Prairie			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	9,302.91	
90	93	9321070102	Northwest	Grande Prairie			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	8,182.68	
91	93	9321070103	Northwest	Grande Prairie			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	9,271.82	
92	93	9321070104	Northwest	Grande Prairie			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	9,323.55	
93	93	9321070105	Northwest	Grande Prairie			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	6,460.80	
94	93	9321070106	Northwest	Grande Prairie			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	8,011.40	
95	93	9321070107	Northwest	Grande Prairie			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	8,010.21	
96	93	9321070108	Northwest	Grande Prairie			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	4,124.01	
97	A93	210045001	Northwest	Grande Prairie			In application	Highwood Oil Comany Ltd. (100%)	2021-04-13			986.69	
98	93	9321070189	Northwest	Grande Prairie			Active	Highwood Oil Comany Ltd. (100%)		2021-07-12	2035-07-12	6,837.66	**91,627.47**
99	A93	210050601	Northwest	Pouce	333100	6186600	In application	Highwood Oil Comany Ltd. (100%)	2021-04-20			9,242.68	
100	A93	210050701	Northwest	Pouce			In application	Highwood Oil Comany Ltd. (100%)	2021-04-20			8,232.49	
101	93	9321070129	Northwest	Pouce			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	7,793.87	
102	93	9321070130	Northwest	Pouce			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	3,908.51	
103	93	9321070131	Northwest	Pouce			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	8,730.80	
104	93	9321070132	Northwest	Pouce			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	9,254.45	**47,162.80**
105	93	9321070155	Northwest	Dunvegan	393800	6205600	Active	Highwood Oil Comany Ltd. (100%)		2021-07-09	2035-07-09	4,415.45	
106	93	9321070156	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-09	2035-07-09	4,654.26	
107	93	9321070114	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	7,791.45	
108	93	9321070115	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	7,964.08	
109	93	9321070116	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	8,711.99	
110	93	9321070117	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	7,723.13	
111	93	9321070118	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	4,660.94	
112	93	9321070119	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	8,787.46	
113	93	9321070120	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	4,655.69	
114	93	9321070121	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	8,865.24	
115	93	9321070122	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	9,020.26	
116	93	9321070138	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	6,994.38	
117	93	9321070139	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	7,901.16	
118	A93	210049601	Northwest	Dunvegan			In application	Highwood Oil Comany Ltd. (100%)	2021-04-20			9,233.43	
119	93	9321070140	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	9,291.83	
120	93	9321070141	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	9,339.88	
121	93	9321070142	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	8,609.06	
122	93	9321070143	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	7,355.54	
123	93	9321070144	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	9,377.68	
124	93	9321070145	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	8,758.03	
125	93	9321070126	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	8,862.61	
126	93	9321070127	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	8,565.25	
127	93	9321070128	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	4,654.06	
128	93	9321070133	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	3,417.61	
129	93	9321070190	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-12	2035-07-12	8,780.41	
130	93	9321070191	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-12	2035-07-12	9,289.01	
131	93	9321070192	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-12	2035-07-12	8,676.92	
132	93	9321070193	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-12	2035-07-12	9,195.44	
133	93	9321070194	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-12	2035-07-12	9,094.87	
134	93	9321070195	Northwest	Dunvegan			Active	Highwood Oil Comany Ltd. (100%)		2021-07-12	2035-07-12	6,107.01	**230,754.14**
135	93	9321070154	Northwest	Worsley	412850	6262400	Active	Highwood Oil Comany Ltd. (100%)		2021-07-09	2035-07-09	9,005.13	
136	93	9321070136	Northwest	Worsley			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	6,898.49	**15,903.62**
137	93	9321070137	Northwest	Notikewin	397400	6320700	Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	9,244.04	
138	93	9321070134	Northwest	Notikewin			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	7,706.60	
139	A93	210051401	Northwest	Notikewin			In application	Highwood Oil Comany Ltd. (100%)	2021-04-20			3,404.81	**20,355.45**
140	93	9321070178	Northeast	Keg River	833150	6414800	Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	4,686.89	
141	93	9321070179	Northeast	Keg River			Active	Highwood Oil Comany Ltd. (100%)		2021-07-02	2035-07-02	7,468.38	**12,155.27**
												Total AB mineral permit area (Ha)	**918,694.84**

Table 4.2 Description of 14 British Columbia mineral titles.

No.	Mineral title number	Claim Name	Permit area	SubProperty name	Centroid of SubProperty Easting (m) [10TM, NAD83]	Centroid of SubProperty Northing (m) [10TM, NAD83]	Status	Designated representative (% ownership)	Issue Date	Good To Date	Area (ha)	SubProperty area (Ha)
1	1081623	Parkland 1	BC	Parkland	294900	6214900	Good	Highwood Oil Company Ltd. (100%)	2021/Mar/11	2022/Mar/11	1,517.06	
2	1081624	Parkland 2	BC	Parkland			Good	Highwood Oil Company Ltd. (100%)	2021/Mar/11	2022/Mar/11	1,806.86	
3	1081625	Parkland 3	BC	Parkland			Good	Highwood Oil Company Ltd. (100%)	2021/Mar/11	2022/Mar/11	1,807.75	
4	1081626	Parkland 4	BC	Parkland			Good	Highwood Oil Company Ltd. (100%)	2021/Mar/11	2022/Mar/11	1,808.88	**6,940.55**
5	1081694	FSJ 1	BC	Fort St. John	291400	6236500	Good	Highwood Oil Company Ltd. (100%)	2021/Mar/17	2022/Mar/17	1,726.49	
6	1081695	FSJ 2	BC	Fort St. John			Good	Highwood Oil Company Ltd. (100%)	2021/Mar/17	2022/Mar/17	1,079.06	**2,805.55**
7	1081696	Boundary Lake 1	BC	Boundary	307600	6258500	Good	Highwood Oil Company Ltd. (100%)	2021/Mar/17	2022/Mar/17	1,738.62	
8	1081697	Boundary Lake 2	BC	Boundary			Good	Highwood Oil Company Ltd. (100%)	2021/Mar/17	2022/Mar/17	1,791.30	
9	1081698	Boundary Lake 3	BC	Boundary			Good	Highwood Oil Company Ltd. (100%)	2021/Mar/17	2022/Mar/17	1,790.12	
10	1081699	Boundary Lake 4	BC	Boundary			Good	Highwood Oil Company Ltd. (100%)	2021/Mar/17	2022/Mar/17	1,788.80	
11	1081701	Boundary Lake 5	BC	Boundary			Good	Highwood Oil Company Ltd. (100%)	2021/Mar/17	2022/Mar/17	1,733.24	
12	1081702	Siphon 1	BC	Boundary			Good	Highwood Oil Company Ltd. (100%)	2021/Mar/17	2022/Mar/17	1,717.44	
13	1081704	Siphon 2	BC	Boundary			Good	Highwood Oil Company Ltd. (100%)	2021/Mar/17	2022/Mar/17	1,787.18	
14	1081705	Siphon 3	BC	Boundary			Good	Highwood Oil Company Ltd. (100%)	2021/Mar/17	2022/Mar/17	1,787.47	**14,134.17**
									Total BC mineral permit area (Ha)			**23,880.26**

The value of exploration and development required to maintain a mineral title in British Columbia for one year is $5.00 per hectare during each of the first and second anniversary years, $10.00 per hectare for each of the third and fourth anniversary years, $15.00 per hectare for each of the fifth and sixth anniversary years and $20.00 per hectare for subsequent anniversary years. The Company can register work on one or more titles in one statement of work event in MTO if the claims are contiguous (adjoining).

4.3 Royalties and Agreements

Government royalty rates associated with any lithium-production in Alberta, as administrated by the Department of Energy, 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. If a Company operates a mine or own freehold mineral rights in British Columbia, the Company is required to pay taxes and fees. If the Company produces minerals, the Company pays $4.94 mineral land tax per hectare (ha), regardless of the size of your land. The author is not aware of British Columbia royalty rates specific to Li-brine; however, the province has a two-stage mining royalty in which the first stage is based on 2% of net revenue and the second stage is based on 13% of net profit.

Alberta and British Columbia mineral permits/titles were acquired directly via on-line staking from the Government of Alberta. Consequently, there are no known back-in rights, payments, or other agreements and encumbrances to which the Property is subject.

With respect to brine access agreements, Highwood does not own or operate any subsurface reservoir leases or deep subsurface well(s) and equipment that is capable of pumping brine from Devonian to Precambrian aquifer depths to the surface for testing.

In addition, Highwood has no plans to convert their mineral permits to reservoir leases, drill their own well(s) to >2,000 m depth, or purchase a petro-company along with the petro-companies oil and gas infrastructure, leases, permits, and licence approvals.

Figure 4.2 Mineral permits in the South Alberta Permit Area.

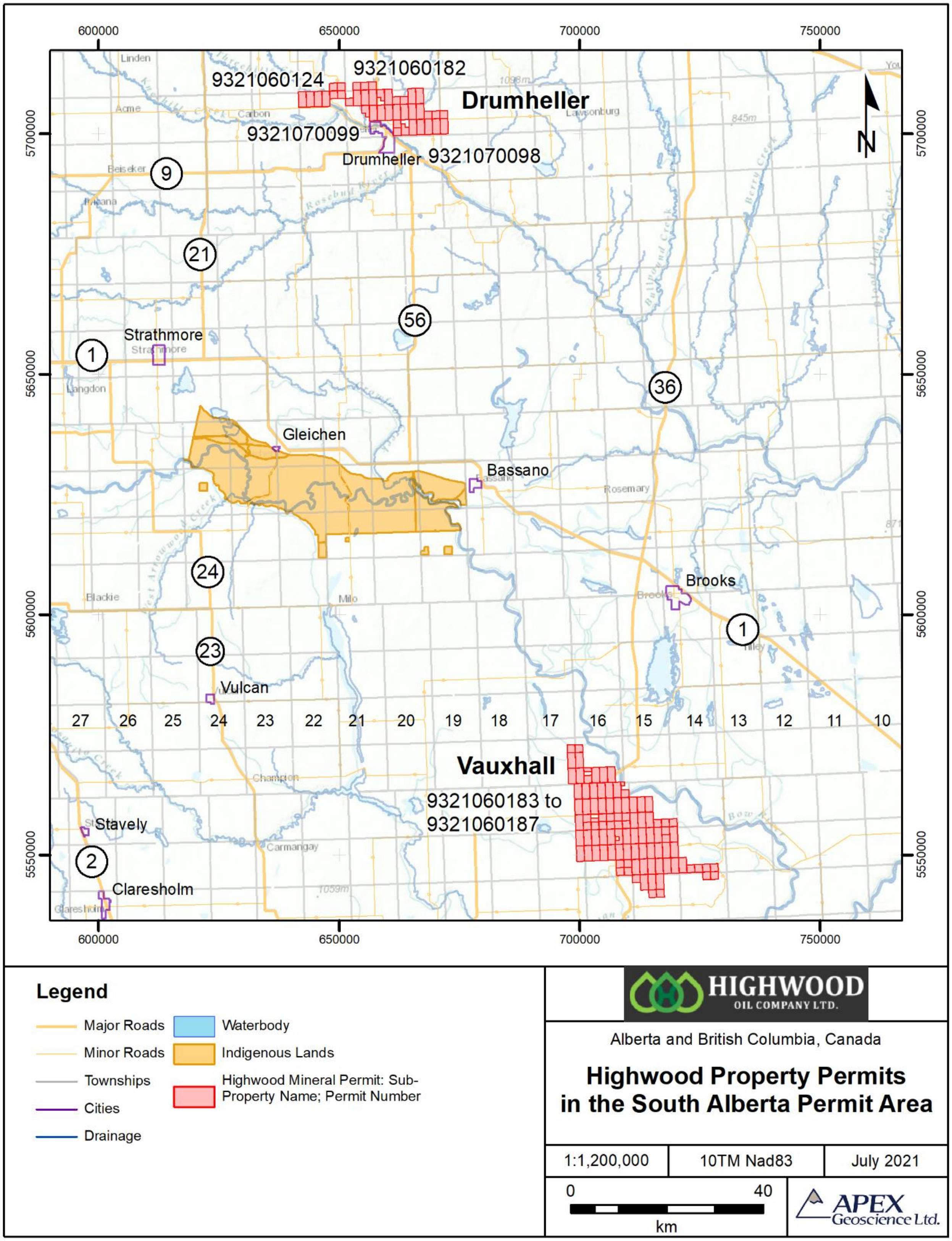


Figure 4.3 Mineral permits in the Central Alberta Permit Area.

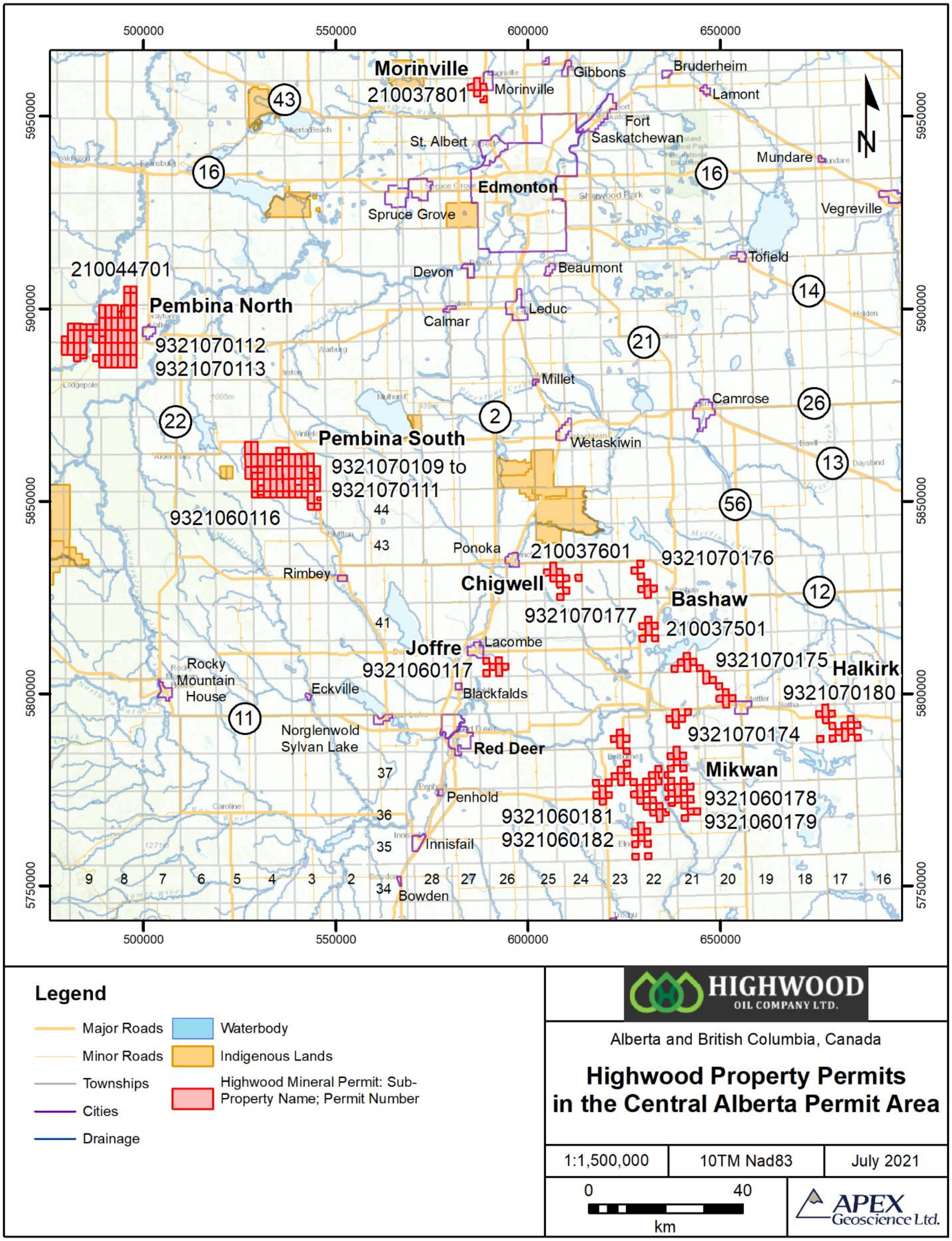


Figure 4.4 Mineral permits in the West-Central Alberta Permit Area.

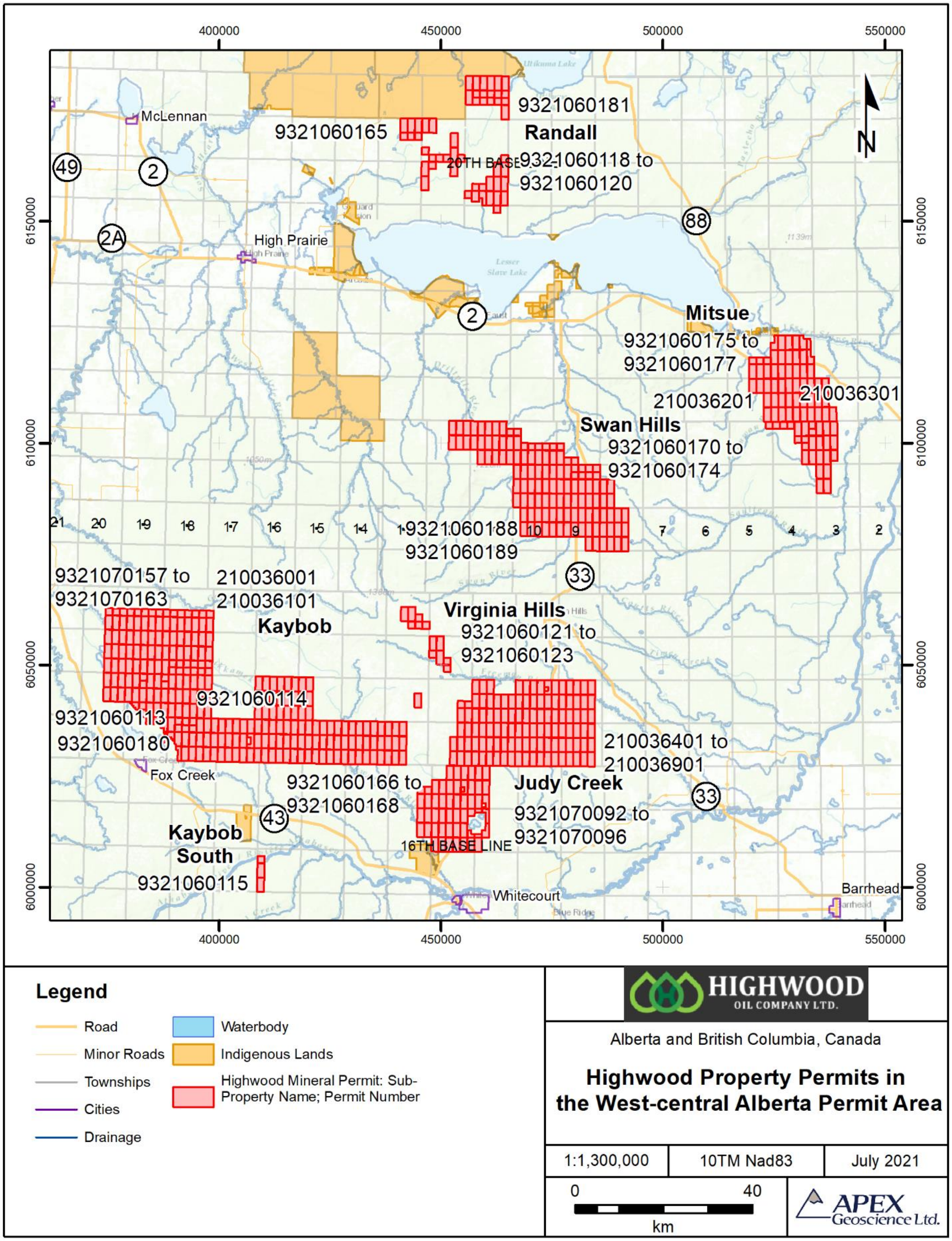


Figure 4.5 Mineral permits in the Northwest Alberta Permit Area.

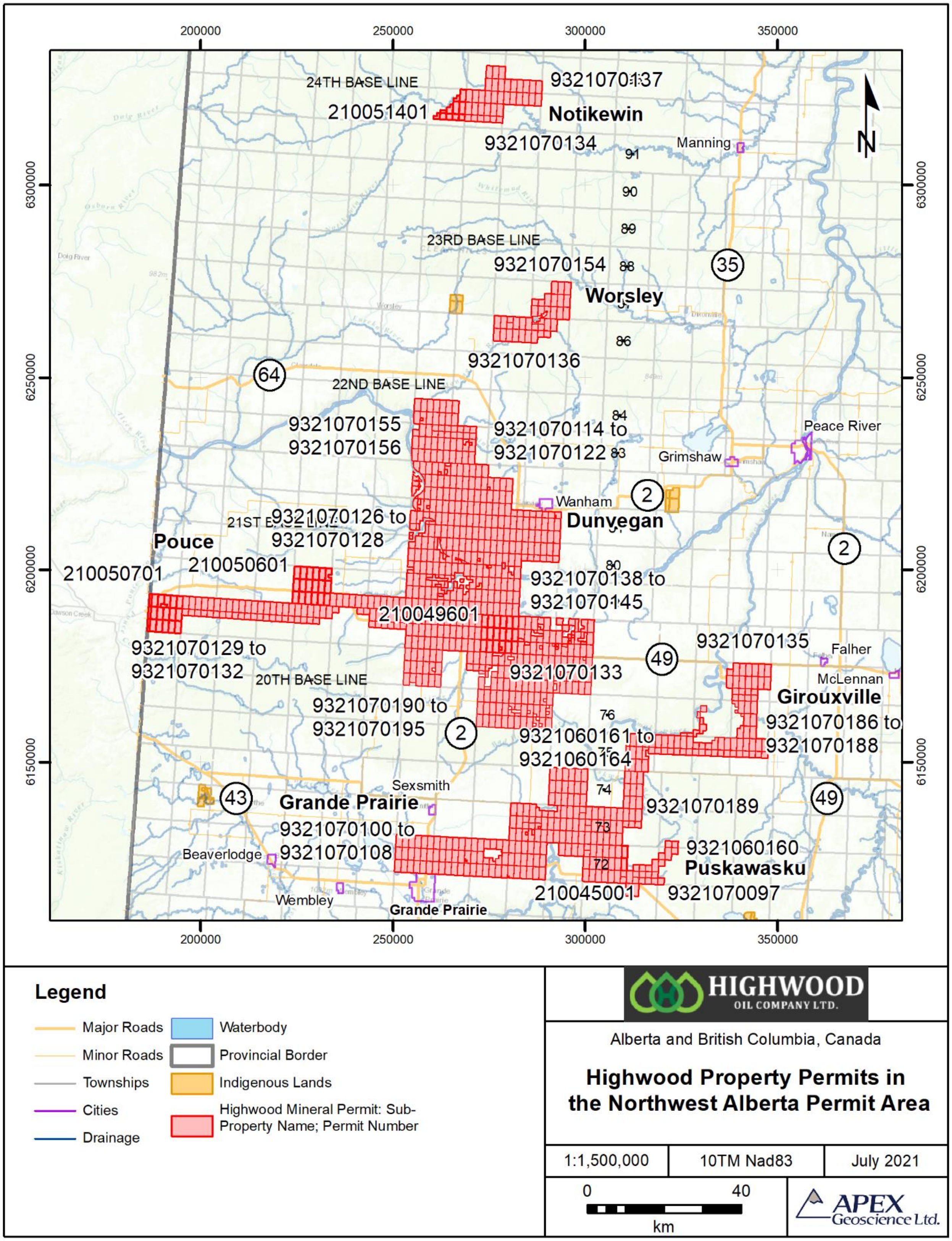


Figure 4.6 Mineral permits in the Northeast Alberta Permit Area.

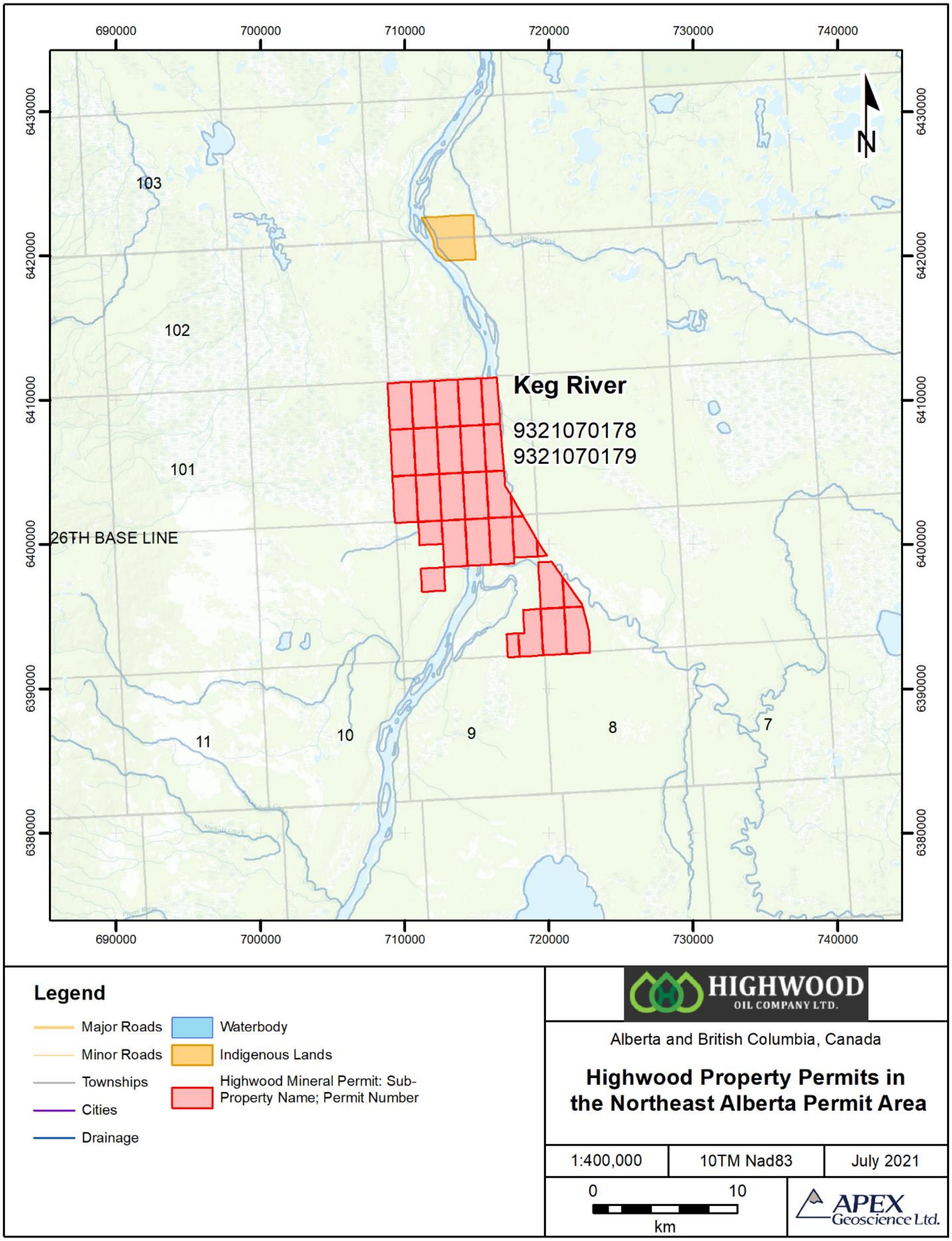
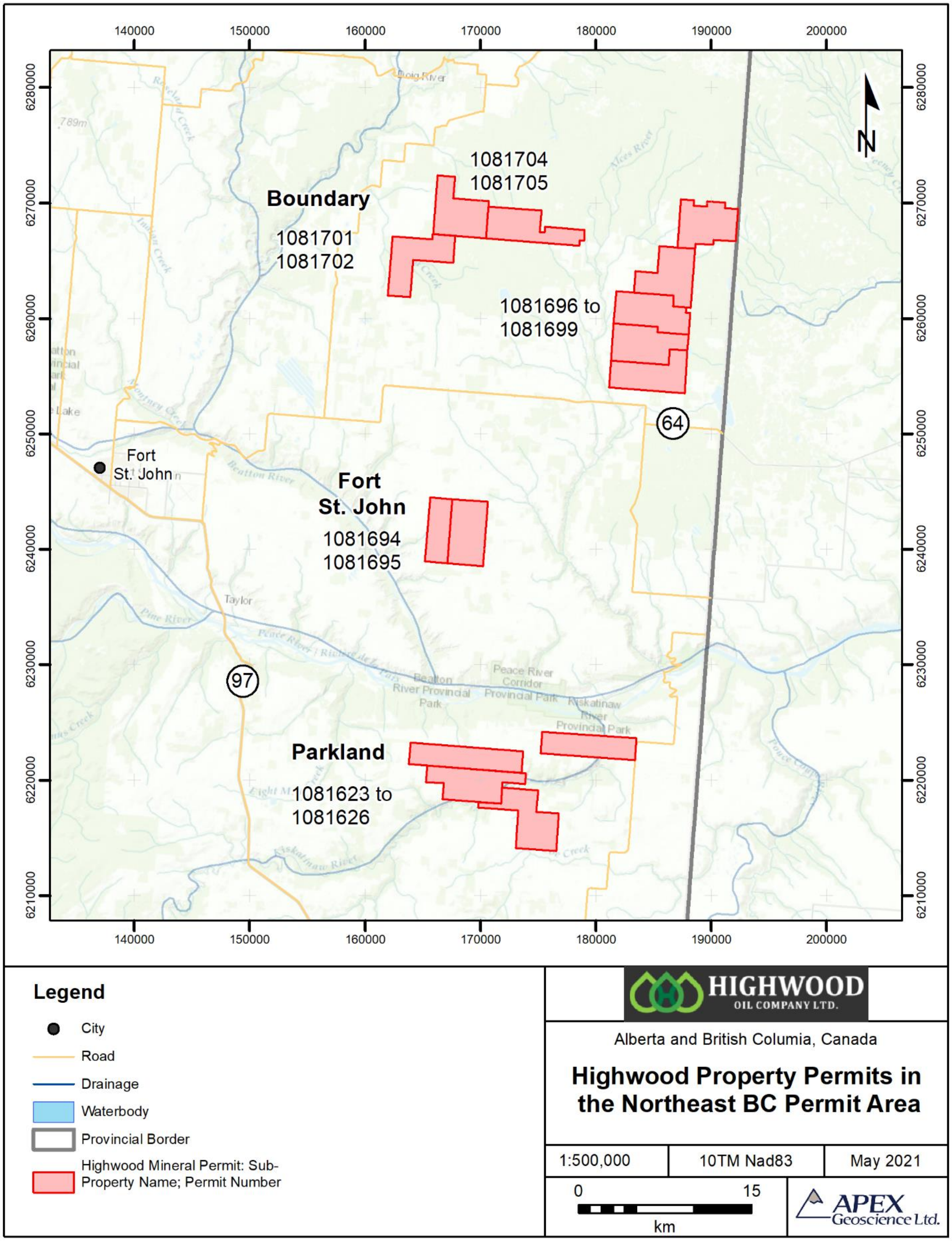


Figure 4.7 Mineral permits in the Northeast British Columbia Permit Area.



Highwood is therefore reliant on existing petro- or geothermal-operators to gain access to brine to conduct early-stage exploration work that involves brine assay testing and/or mineral processing technological test work. In Alberta, access to Devonian or older brine is usually acquired through a request to, and/or an agreement with, the petro-operator.

To date, Highwood has sampled brine from 5 of the Company's 28 sub-properties. A formal brine access agreement between Highwood and an active petro-operator producing petroleum from Devonian-aged fields/pools in southern Alberta was reviewed by the QP. The agreement permits access to deep subsurface brine via active oil and gas infrastructure for the purpose of analyzing and testing the samples offsite. Highwood has also been permitted brine access for early exploration stage test work via verbal agreements formed between the Company and individual petro-operators. None of the agreements – documented or verbal – include stipulations related to any potential future operation of a commercial Li-brine facility.

4.4 Coexisting Oil, Gas and Oil Sands Rights

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.

4.5 Surface Rights

Access to private lands in Alberta and British Columbia, including the use of private roads, does not require a permit, only a written approval by the landowner. Because brine sampling for assay or mineral processing test work does not disturb the surface by mechanical means, permitting is not required to obtain samples – other than approval from the petro-operator.

At the early exploration stage, Highwood is completely reliant on the petro-operators permission for access to their lease permits to acquire brine for test purposes. 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 company.

Upon approval from the petro-operator, the collection of the brine is conducted under the rules and guidance of the petro-operator lease protocols. Highwood's brine sampling methodology does not require additional permits, or surface and access approval beyond the actual mineral permits.

If Highwood were to drill a deep 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), or BC Oil and Gas Commission (BCOGC), who regulate various acts and the regulations focused on energy exploration and production.

4.6 Environmental Liabilities, Permitting and Significant Factors

The author has not documented environmental liabilities as they pertain to the oil and gas leases and licences and petroleum production, which are owned and operated by petro-operators under the conditions of their lease. Environmental aspects of oil and gas are regulated by the AER and BCOGC – who review energy-related land management, air quality, water management, wildlife protection, consultation, etc. in accordance with their respective legislation (e.g., Alberta: *Environmental Protection and Enhancement Act*, *Public Lands Act*, and the *Water Act*; British Columbia: *Environmental Management Act*, *Oil and Gas Activities Act*, *Water Sustainability Act*.

Environmental licences, factors, and issues – as they pertain to minerals exploration – are administered by Alberta Environment and Parks (AEP) and the British Columbia Environmental Assessment Office (EAO). None of Highwood's sub-properties occur in areas where surface access is restricted, or where the minerals are reserved, or withdrawn, by the Crown. Specific restrictions (i.e., temporal or buffer zone limitations) such as waterways, key wildlife and biodiversity zones, archeological areas, and Caribou zones occur through Alberta and British Columbia – but these would not affect the Company's ability to access wells or petro-facilities to acquire brine samples.

With respect to exploration permits, in Alberta and British Columbia, a permit is required for exploration activities that involve any work on a permit that disturbs the surface by any mechanical means including drilling, trenching, excavating, blasting, construction or demolishment of a camp or access, induced polarization surveys using exposed electrodes and site reclamation (e.g., drilling). Hence, permitting is not required for non-surface disturbances such as brine sampling for lithium exploration.

Highwood's Li-brine Alberta and British Columbia properties represent an early-stage exploration project. 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 this stage of the project, which includes brine sampling for assay and mineral processing test work.

4.7 Property-Related Risks and Uncertainties and Mitigation Strategies

As with any early-stage exploration project there exists potential risks and uncertainties. Highwood will attempt to reduce risk/uncertainty through effective project management, engaging technical experts, and developing contingency plans.

Because Highwood is reliant on pre-existing oil and gas wells that are managed and operated by current petro-companies, there is some risk associated with a dependency on the petro-operation and continued brine access. It is possible that situations could arise where the petro-companies shut down well production – for example – due to poor commodity prices, depletion of petroleum product reserves, and/or production well performance of the reservoir. As a mitigation strategy, Highwood could permit and drill their own wells or consider options such as purchasing the well, renting the operation of the well, etc.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

Highwood’s Li-brine project is an early-stage exploration project. Access to Li-brine for assay work and mineral processing test work is dependent on brine access agreements with petro-operators at their various sub-properties. Consequently, and with respect to length of operating season and relevant infrastructure, the oil and gas energy industry in Alberta and northeast British Columbia represents a 70-year plus established industry. The length of the oil and gas operating season is year-round. All road access to oil and gas facilities and individual wells are maintained year-round. Hence there are no time restrictions on when Highwood could collect brine for test work.

In addition, the energy industry has the relevant infrastructure and personnel in place to continually manage the petro-operations, which include pumping the brine from depths of >2,000 m below the surface, processing the petroleum product, and pumping the brine back down into the subsurface reservoir. Accordingly, the project areas have sufficient power, mining personnel, processing facilities, leases, permits/licences, etc. if Highwood were ever to formulate a production agreement with the petro-operator and become an advanced project where Highwood could trial-mine or commercially produce lithium from the deep-seated, confined aquifer, brine.

5.1 Accessibility, Infrastructure, and Local Resources

The traditional focus of Canada's petroleum production has been the Western Canada Sedimentary Basin (WCSB), which stretches from northeast British Columbia, across most of Alberta, the southern portions of Saskatchewan to Manitoba, and a small portion of the Northwest Territories (Figure 5.1). Canada is the 6th largest energy producer worldwide, the 4th largest net exporter, and the 8th largest consumer (Government of Canada, 2020). Apart from nuclear energy (i.e., uranium production), Alberta and northeastern British Columbia are Canada's energy resource leaders with a diverse abundance petro-products that include crude oil, coal, nuclear energy, renewable energy, natural gas (Figure 5.2).

Since the discovery of oil in Leduc No. 1 on February 13, 1947, in what became to be known as the Devonian Winterburn Group, Nisku Formation, Alberta has undergone over 70-years of infrastructure development in relation to petro-development and -production throughout Alberta and northeast British Columbia. As a result, region represents one of the largest hydrocarbon infrastructure development areas in North America.

An example of the scale of Alberta’s infrastructure – as related to Natural Gas (only) – is presented in Figure 5.3. The image illustrates the extensive nature of petroleum-related infrastructure in Alberta as established by the exploration, production, servicing and maintenance and transportation of oil and natural gas in Canada.

Critical infrastructure includes pipeline transport, rail, water, and roads. Pipelines are a critical part of Canada's oil and natural gas transportation infrastructure. Transport of petroleum product via pipelines represents the safest and most efficient way to move large volumes of oil and natural gas from development areas to refineries, petrochemical plants, to homes and businesses, and for export.

Rail complements pipeline transport capacity and provides an alternative for markets without pipeline connections and allows producers the flexibility to move products to different markets in response to demand. In recent years, rail transport of oil has grown as an alternative mode of product transportation to accommodate oil production growth that has exceeded available pipeline capacity. In the first half of 2019, about 237,000 barrels per day (b/d) of oil was moved by rail (Canadian Association of Petroleum Producers, 2021).

With respect to road infrastructure, various oil booms over the 7 plus decades of Alberta's oil and gas production have made it easier for governments to build roads in relation to, and to support, the energy industry. Today, nearly a quarter of Canada's total roadway infrastructure has been built in Alberta — some 473,000 km of single-lane equivalent roads. All the wells referenced in this technical report are road accessible by means of Provincial multi-lane highways, single lane highways, and year-round secondary roads.

The energy industry is dependent on, and necessitates, continuous infrastructure development and upgrading, whether it involves the energy industries exploration, production (upstream, midstream, and downstream), transport, and export. Accordingly, all 28 Highwood sub-properties are easily accessed via major and secondary access routes; this includes any individual oil and gas wells or facilities within the sub-properties (see Figures 4.2 to 4.7). The roads are well-maintained either by the province, or by the petro-operators that own the lease. Access is year-round. Active petroleum lease regions are often monitored with private security forces that monitor, for example, speed, load-requirements, and access permissions.

With respect to local resources and the availability of a knowledgeable and experienced workforce, in 2018 and 2019,

- Canada's energy sector directly employed more than 282,000 people and indirectly supported over 550,500 jobs.
- Canada's energy sector accounted for over 10% of the nominal Gross Domestic Product. Government revenues from energy were over $17.9 billion in 2018.
- More than $1.1 billion was spent on energy research, development, and deployment by governments in 2018-19 (Government of Canada, 2020).

Figure 5.1 Oil and gas well distribution in the Western Canada Sedimentary Basin. Source: Energy Consulting Group (2021).

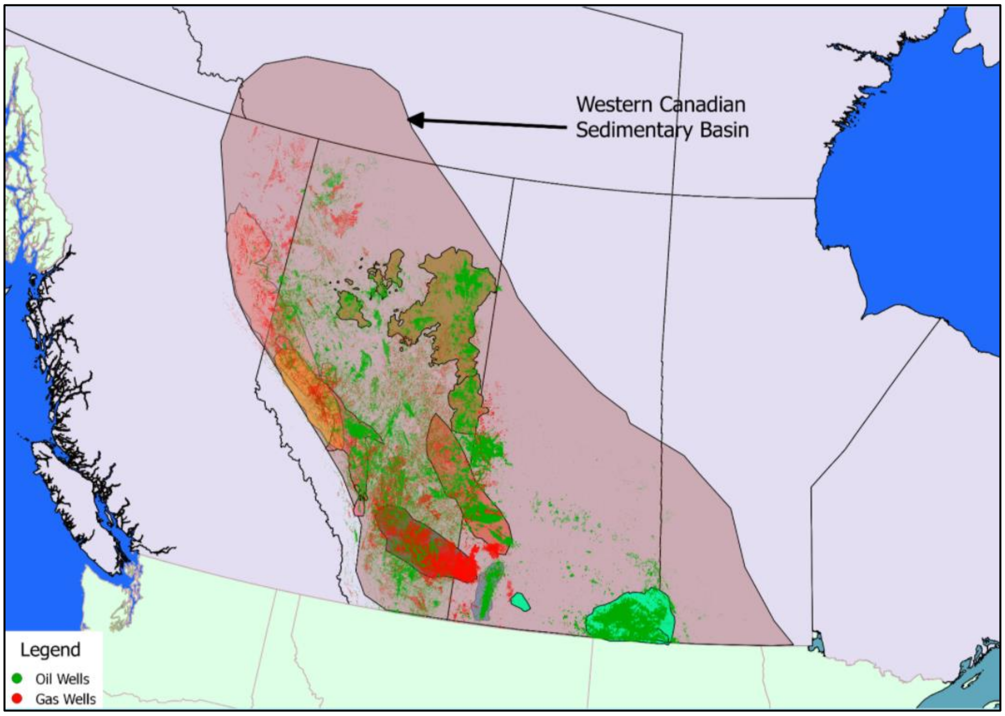


Figure 5.2 Canada's energy production by region and source. Source: Government of Canada (2020).

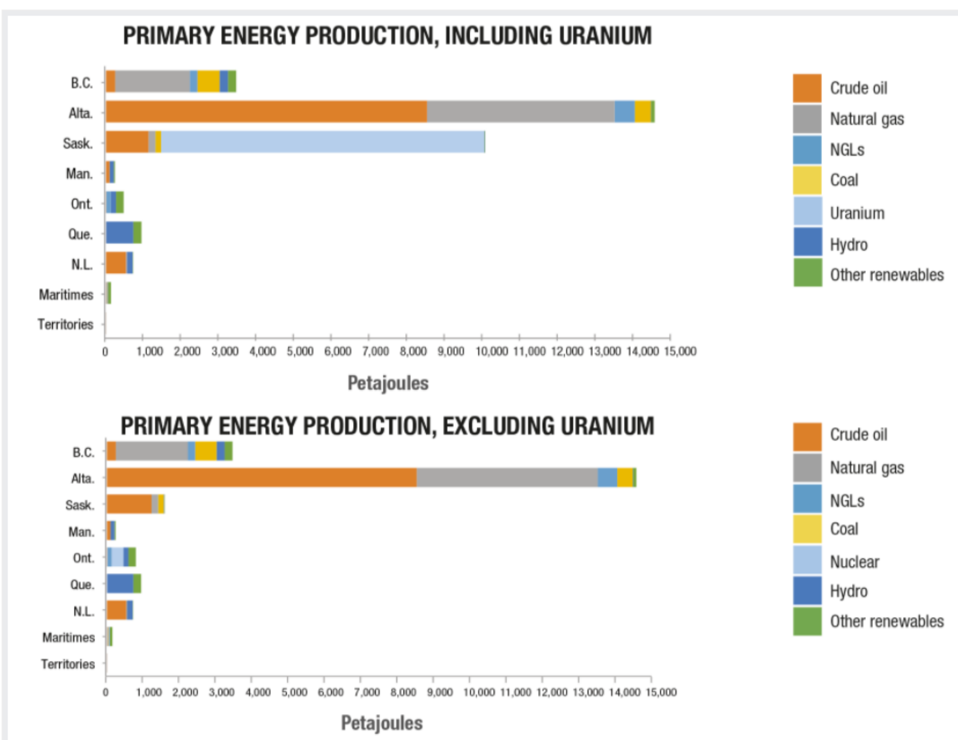
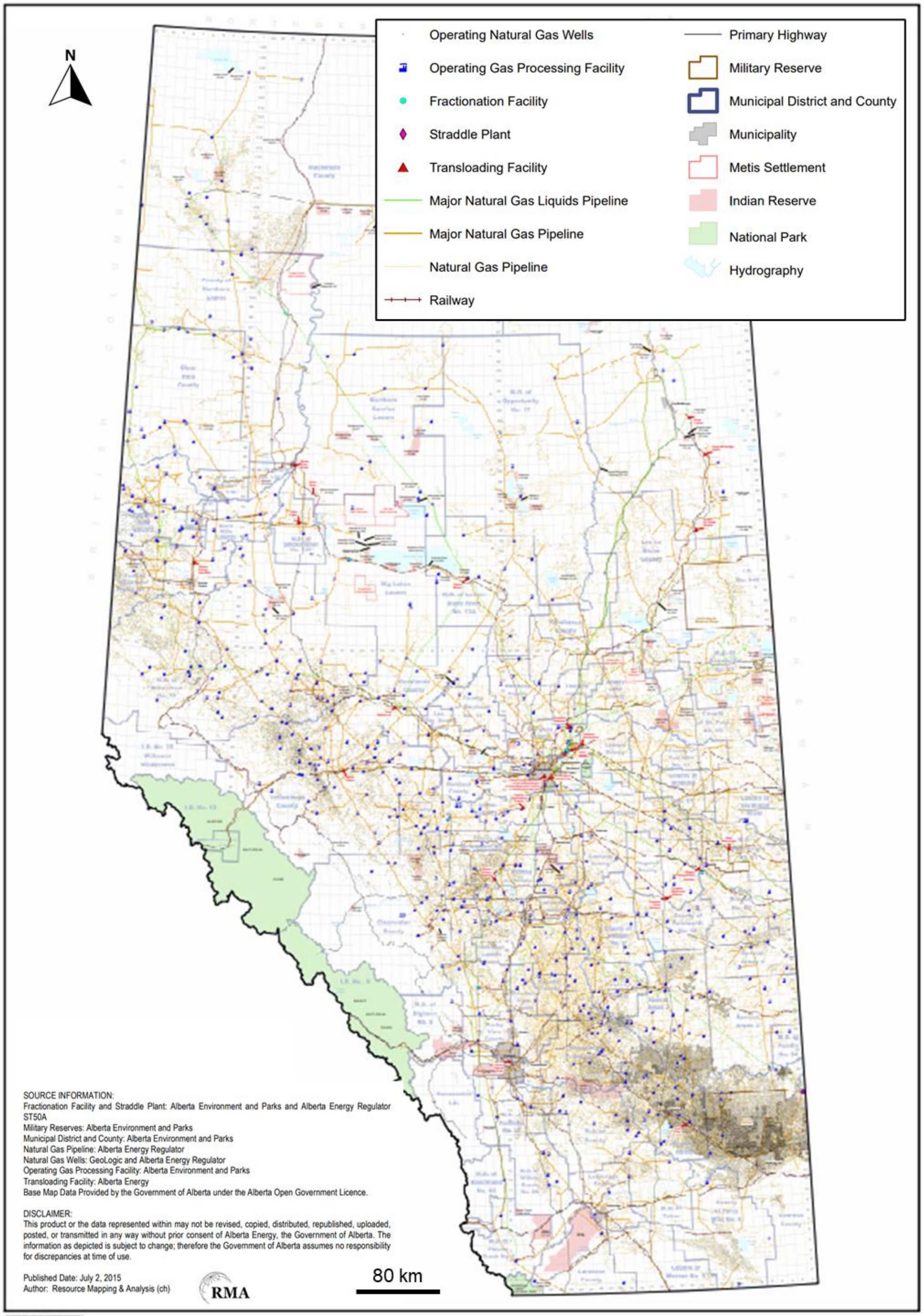


Figure 5.3 Example of Alberta's hydrocarbon infrastructure network: Natural Gas Infrastructure. Source: Government of Alberta (2021).



Amid global efforts to transition away from fossil fuel, Alberta and British Columbia are challenged to find jobs for petro-workers but also to carve out a future in a low-emissions world that supports employment and communities for decades to come. Hence the development of a co-product, or new, industry such as extracting lithium from oilfield wastewater, could extend the life of mature oilfields and provide new green renewable products, that could help put thousands of petro-workers back to work while helping to develop a future low-emission world.

5.2 Site Topography, Elevation and Vegetation

Highwood's sub-properties cover a vast portion of Alberta and small, northeast portion of British Columbia. In broad terms, the area is situated predominantly within Plain's region of the WCSB. Sub-regions include 1) the Grassland Natural Region in southern Alberta, 2) Parkland Natural Region in central Alberta, and 3) the Boreal Forest Natural Region in northern Alberta and northeastern British Columbia.

The overall Highwood Li-brine project area is generally flat lying within a sedimentary basin setting. Elevations above sea level (asl) vary from the northwest to southeast as follows: 1) about 450-550 m asl in northeast British Columbia, 2) about 600-900 m asl in central Alberta, and 3) about 750-850 m asl in southeastern Alberta.

The Grassland Natural Region in southern Alberta is defined by flat to gently rolling landscapes. Most of the region is defined by cropland that provides some of the most productive land in Alberta for farming and ranching. Only 1-2% of the natural region is covered by water (major rivers or small, shallow lakes). About 125 (25%) of Alberta's rare vascular plant species occur in the Grassland Natural Region, and about 55 of these are restricted to this region. Wildlife includes fox, sage-grouse, mountain plover, painted turtle, short-horned lizard, western rattlesnake, and ground rodents (gopher, badger).

The Parkland Natural Region in central Alberta is the most densely populated natural region in Alberta and has been farmed/ranched extensively since the late 1800s. Grasslands represent the main native vegetation type in the southern part of the region with aspen and balsam poplar stands and intermixed grasslands to the north. The Peace, Smoky, North Saskatchewan, Red Deer and Bow rivers are the major watercourses within the Parkland Natural Region. About 100 (20%) of Alberta's vascular plant species are found in the Parkland Natural Region. Wildlife includes a mixture of species found in the Grassland and Boreal Forest natural region situated on either side of the Parkland region.

The Boreal Forest Natural Region is situated in the northern part of Alberta and in an area of northeast British Columbia situated directly east of the Rocky Mountains. It is a vast area that encompasses, for example, the entire northern half of Alberta. Crops are grown only in those areas that have a sufficiently long growing season or in regions with soil profiles defined by flood plains such as the Peace River region. Aspen and balsam poplar are the most common deciduous species in this natural region, while white spruce, black spruce and jack pine are the main conifers. The northern part of the Boreal Forest Natural Region drains into the Mackenzie Valley Basin by way of the Peace, Athabasca, and Slave rivers. The southern part drains into the Saskatchewan River system through the North Saskatchewan River. The Peace-Athabasca Delta is the largest boreal delta in the world. About 110 (25%) of Alberta's vascular plant species occur in the Boreal Natural Region, of which about 25 are restricted to it. Common species found in the Boreal Forest Natural Region include deer, moose, snowshoe hare, beaver, black bear, yellow perch, northern pike, walleye and a plentiful number of shorebirds, songbirds, and raptors. The Boreal Forest also provides habitat for species at risk such as woodland caribou and wood bison.

5.3 Climate

Alberta has a continental climate, with more sunshine than any other Canadian province. Winters are dry, sunny, and cold. Summers are moderately short and warm. The distribution of seasonal precipitation is an extreme variable ranging from about 250 mm in grassland regions to slightly less than 700 mm in humid warm regions of the Prairies.

The warmest and driest part of the grasslands lies in the very southeast corner of Alberta, which receive only a third of that received in the wettest subregion (the Alpine Natural Region). Summers are very warm, and the growing season is longer in the Grassland than in any other natural region. Annual precipitation is approximately 300 mm in the dry southeast.

Climate and average annual precipitation levels in the Parkland Natural Region are between those of the Grassland Natural Region to the south and the Boreal natural regions to the west and north. Central Alberta's mean and extreme temperatures are −14° C and −51° C in January and 16° C and 35° C in July. Annual precipitation in the central region averages 460 mm. About half the precipitation falls from June to August.

The Boreal Natural Region climate is characterized by short warm summers and long cold winters. Only 1 to 2 months in the summer have an average daily temperature that is higher than 15º C. Peak rainfalls occur in July, and about 60-70% of the annual precipitation is received between April and August. In winter, the average daily temperature is below -10º C for four months or more in most Boreal subregions, and below -20º C for 2 months or more in the most northerly subregions.

6 History

Highwood's sub-properties were acquired to assess their Li-brine potential. The lithium-enriched brine is historically known to occur in Devonian or older oil and gas reservoirs, or aquifers, that include, for example, the Elk Point Group (Winnipegosis Formation), Beaverhill Lake Group (Swan Hills Formation), Woodbend Group (Leduc Formation), and Winterburn Group (Nisku Formation; see Section 7, Geology).

The brine is accessible because it is pumped to the surface as waste material associated with oil and gas production. Highwood and other companies interested in testing deep-seated, confined aquifer Li-brine are therefore reliant on being able to access brine that is produced by the energy companies (unless of course the future economics are such that a mineral exploration company can fund energy-type drilling programs that is capable of penetrating to depths of 2,000 m or greater).

Accordingly, the intent of this history section is to 1) summarize the oil and gas infrastructure and status at Highwood's sub-properties, and 2) provide an historical evaluation of the geochemical lithium concentration of the deep aquifer brine in consideration of Highwood's sub-properties.

6.1 Summary of Alberta's Devonian Petroleum System

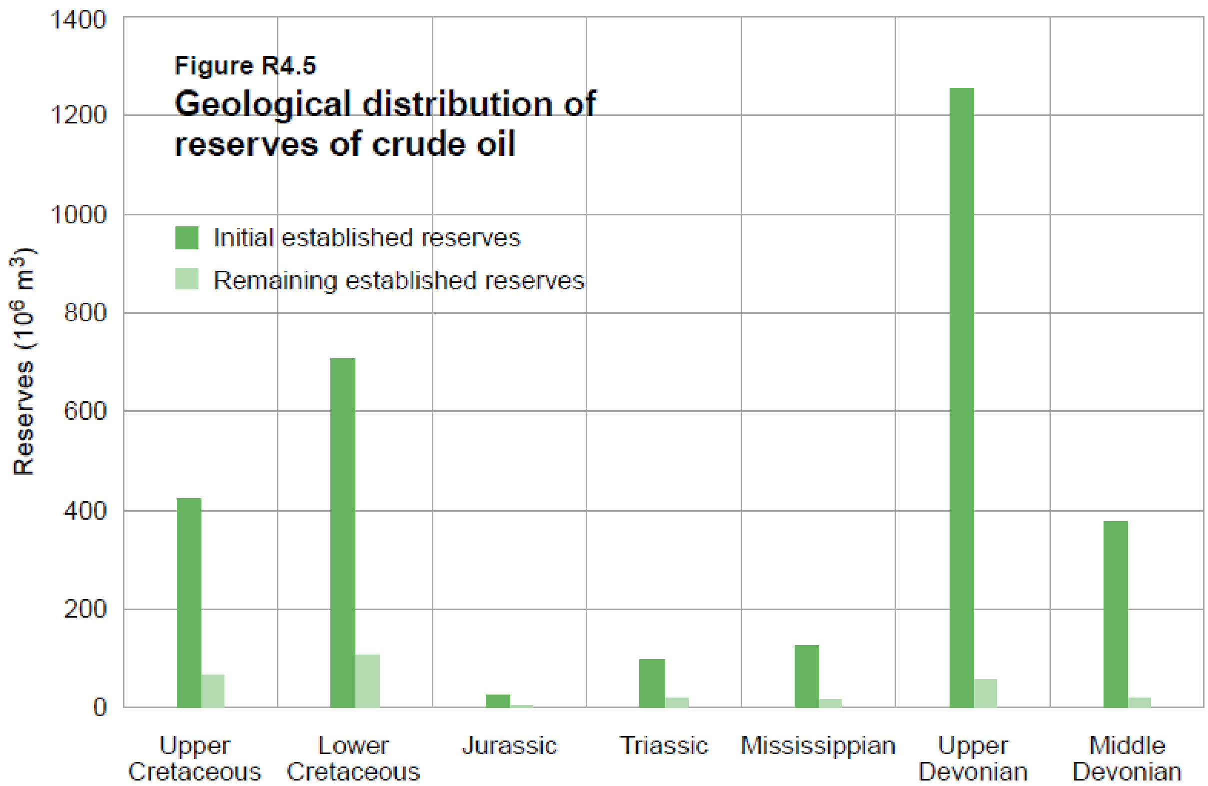
The Devonian petroleum system comprises carbonate reservoirs with estimated 1.4 x 109 m^3 (8.9 x 109 bbl) of conventional initial oil in place (IOIP), which is about 30% of the total IOIP and about 51% of all extractable conventional crude oil in the WCSB (Creaney et al., 1994; Hay, 1994). The Devonian petroleum system also contains about 840 x 109 m^3 (30 x 1012 cubic feet) of natural gas, which is about 23% of all marketable gas in the WCSB (Hay, 1994).

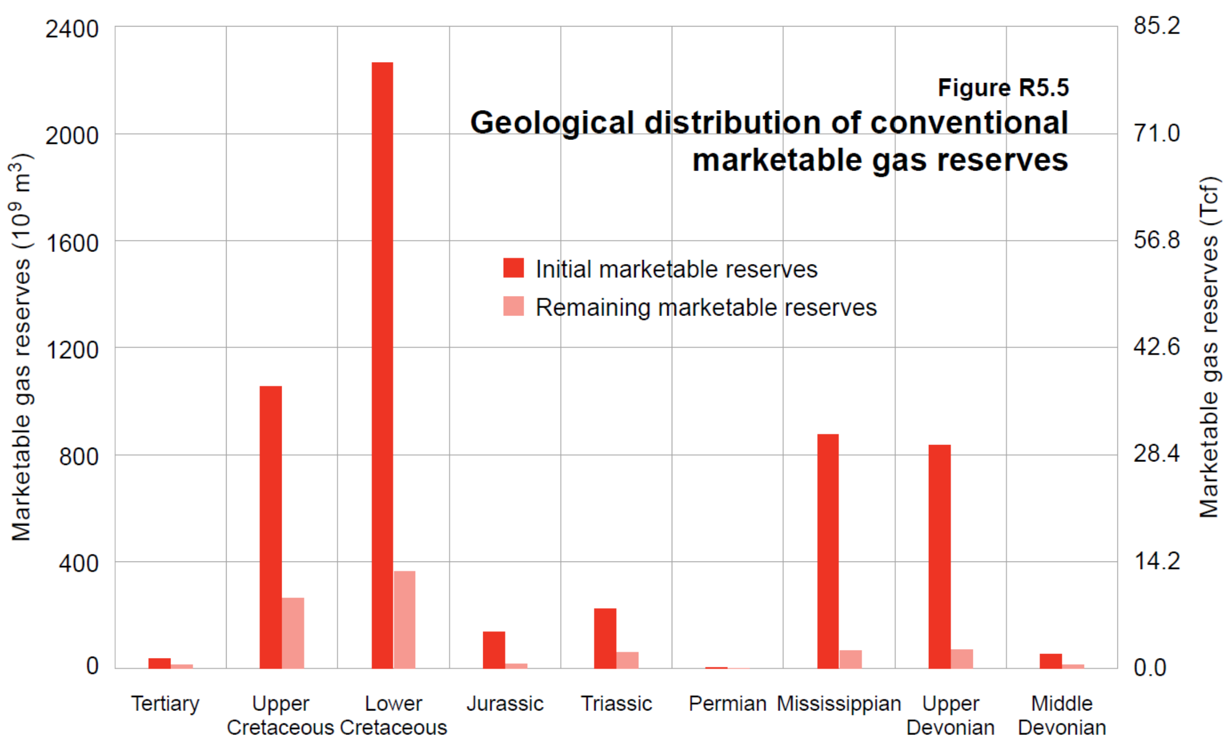
The AER provides yearly updates of Alberta hydrocarbon reserves and estimates that the remaining established reserve of conventional crude oil is about 288.2 106 m^3 – more than one third of Canada's remaining conventional reserves. The Cretaceous and Upper Devonian ages are the major sources for remaining conventional oil (Figure 6.1). Most of the initial and remaining reserves are in the central and foothills regions of the province. On average, 23% of the total oil in place in these pools is expected to be recovered with today's technology and there is potential for increased recovery through enhanced oil recovery or new drilling and completion techniques, such as high-density drilling and multistage fracturing technology. In addition, shale- and siltstone-hosted hydrocarbon resources identified 67,320 106 m^3 of unconventional in-place shale oil resources in six key shale formations in Alberta.

With respect to gas, approximately 4,367 109 m^3 of natural gas remains unproduced in Alberta. With current technologies, 1,009 109 m^3 is still expected to be produced (Alberta Energy Regulator, 2015). The Upper and Lower Cretaceous periods account for about 72% of the province's remaining established reserves of marketable gas and are important as a future source of natural gas (Figure 6.1).

The Devonian petroleum system continues to produce oil, heavy oil, gas and unconventional oil and gas. Figure 6.1 shows that crude oil and conventional marketable gas reserves of the Devonian petroleum system is dwindling, but it is still a viable producer of oil and gas in Alberta. It is recognized that the Devonian systems, some of which have been in operation since the late-1940s, are presently mature fields/pools or have extinguished their hydrocarbon resources. Consequently, an important consideration for Li-brine companies is to investigate the remaining reserves of Devonian petroleum products within their respective target fields/pools to ascertain/estimate the operational lifespan of the hydrocarbon producing wells (i.e., assurance to access Li-brine).

Figure 6.1 Distribution of crude oil and conventional marketable gas reserves in Alberta (Source: Alberta Energy Regulator, 2015).





6.2 Summary of Oil and Gas Wells in Highwood's Permit Areas

This sub-section provides an historical overview of the oil and gas wells in the vicinity of Highwood's permit areas with focus on deeply drilled Devonian to Precambrian WCSB wells. Because Highwood's mineral permits form numerous non-contiguous clusters throughout Alberta, the presentation of historical information has been separated into 5 Highwood permit areas referred to as the South, Central, West-Central, Northwest, and Northeast permit areas (see Figure 2.1).

Regional information presented adjacent and in-between the Highwood mineral permits and sub-properties is included for regional context. In the case of energy- or mineral-focused exploration work that was conducted on neighboring properties not belonging to Highwood, the QP has been unable to verify the information, and accordingly, this information is not necessarily indicative to the mineralization on the Highwood mineral permits that are the subject of the Technical Report.

6.2.1 Well Data Acquisition Methodology

The oil and gas wells presented and discussed in this sub-section were acquired during April-May 2021 via AbaData (version 2.0), an oil and gas mapping software tool. With respect to deep-seated lithium-enriched brine aquifers, the compilation placed emphasis on Devonian and older strata using the following methodology, which is also displayed graphically in Figure 6.2:

1. APEX created a single 3-D geological polygon representative of all strata located between the top of Devonian and top of the Precambrian basement in MicroMine.

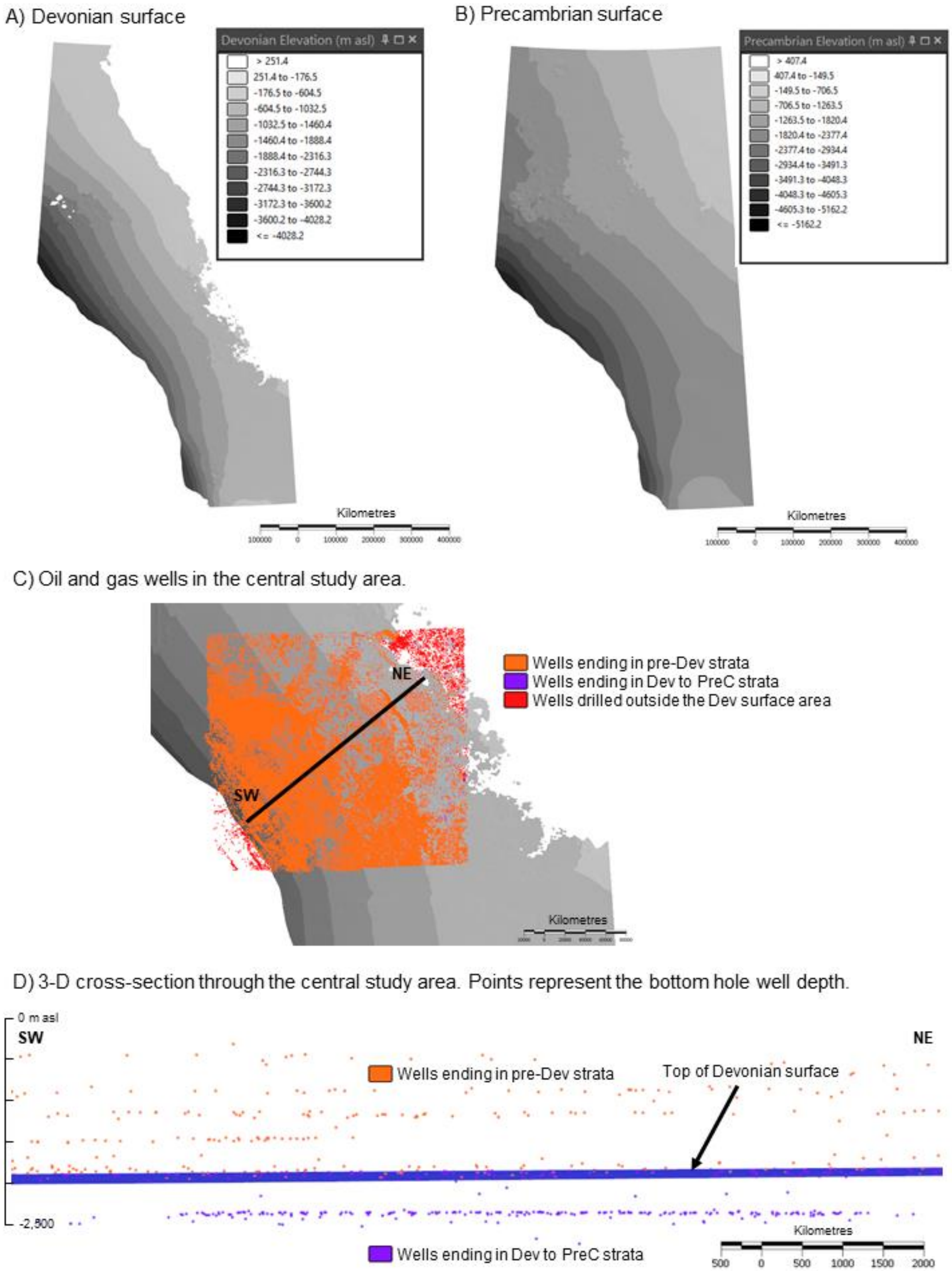
   The polygon was extended horizontally throughout all of Alberta (where the strata is present); vertically, the polygon includes all strata between the top surface of the Devonian and the top surface of the Precambrian. (i.e., All strata of Devonian age and older).

   The top Devonian and top Precambrian grid files were acquired from the Alberta Geological Survey's 3-D provincial geological framework model of Alberta (Alberta Geological Survey, 2019).

2. Individual end of well x,y,z spatial coordinates and elevations were inserted into the 3-D model. The end of well elevation used the Total Vertical Depth (TVD) of the well, or the Vertical Depth (VD) if the TVD was not included or listed as "zero" in the AbaData dataset.

3. All wells that had end of well elevations plotting above the top of the Devonian surface were clipped out of the dataset. The remaining wells included all holes that plot between the top of the Devonian and the top of the Precambrian. These wells are referred to in the figures in this section as Devonian-Precambrian wells.

Figure 6.2 Summary of the workflow used to acquire Devonian to Precambrian wells in the Highwood permit areas. A grid of the top of the Devonian (A) and Precambrian surface (B), and oil and gas wells (C) were imported into a 3-D model (D). All wells penetrating to depths below the top horizon of Devonian strata were selected for this study.



Most of the Devonian-Precambrian wells focus on select set of world-class hydrocarbon-bearing units that include, from stratigraphic top to bottom:

- Upper Devonian: Wabamun Group dolomitic limestone and calcareous dolomite, Winterburn Group (Nisku Formation carbonate reefs), and Woodbend Group (Leduc Formation carbonate reefs)
- Middle to Upper Devonian: Beaverhill Lake Group (Swan Hills carbonate reef)
- Middle Devonian: Elk Point Group (Keg River Formation)
- Cambrian to Devonian: Granite Wash fluvial deltaic sandstone, Gilwood arkosic sandstone (see Section 7.0, Geological Setting).

The author did not review the individual wireline geophysical log information to confirm the end of well stratigraphic horizon nomenclature. The methodology used to select the Devonian-Precambrian wells did include some pre-Devonian wells (e.g., Mississippian Pekisko Formation; Permo-Triassic strata; and Cretaceous Mannville Formation). This is likely a result of the coarse density of the top of Devonian surface grid created by the Alberta Geological Survey and/or misidentification of the strata in the well log, etc. In these instances, the author left the errant data picks in the historical Devonian-Precambrian dataset as the data are only used as a historical reference.

6.2.2 Well Data Summary for Within the Highwood Sub-Properties

The senior author has reviewed the well data within the boundaries of the individual Highwood sub-properties. The results of the review are presented in Figures 6.3 to 6.8 and Table 6.1, which portray or include the following information per sub-property:

- The total number of wells (all ages).
- The number of Devonian to Precambrian wells, which is the focus of this technical report.
- The status of the wells, which has been amalgamated from the well status codes present in AbaData into the following categories: active wells, suspended wells, drilled & cased wells, water injection, water dispersal, and water source.
- Dominate production field and pool as depicted from the active wells.

The Swan Hills and Judy Creek sub-properties in West-Central Alberta have the highest number of active wells (301 and 357 wells, respectively) followed by: Kaybob (n=129), Vauxhall (n=105), Mitsue (n=67), Mikwan (n=29), Randall (n=27), Virginia Hills (n=24) Drumheller (n=18), Puskawasku (n=14), Halkirk and Pembina North (n=9), Parkland (n=9), Morinville (n=6), Bashaw (n=5), Dunvegan (n=4), Pembina South (n=3), and Chigwell (n=1 well).

Table 6.1 Summary of the number of total wells and Devonian to Precambrian wells within the Highwood sub-properties. The table includes the status of the wells and the dominate active well oil and gas production fields and pools.

				Devonian to Precambrian generalized well statistics (generated 1 May 2021)								
Permit area	SubProperty name	Total number of wells (all ages)	Devonian to Precambrian wells	Active wells	Suspended wells	Abandoned wells	Drilled & cased wells	Water: Injection	Water: Dispersal	Water: Source	Dominate field (active wells)	Dominate pool (active wells)
South AB	Vauxhall	994	264	105	52	63	9	34	/	1	Enchant	Arcs/Nisku
South AB	Drumheller	581	76	18	3	51	2	/	2	/	Wayne-Rosdale	Nisku
Central AB	Halkirk	106	104	9	21	70	2	2	/	/	Halkirk	Upper Mannville
Central AB	Mikwan	573	152	29	20	93	6	1	3	/	Mikwan/Elnora	Leduc D-2/Nisku
Central AB	Bashaw	188	53	5	8	38	2	/	/	/	Erskine	Blairmore
Central AB	Joffre	26	9	/	1	8	/	/	/	/	/	/
Central AB	Chigwell	50	10	1	/	9	/	/	/	/	Chigwell North	Mannville
Central AB	Pembina South	268	16	3	2	9	2	/	/	/	Pembina	Duvernay and Beaverhill Lake
Central AB	Pembina North	1154	95	9	30	47	8	1	/	/	Pembina	Nisku
Central AB	Morinville	34	30	6	3	20	1	/	/	/	Morinville	Leduc D-3
West-central AB	Kaybob South	6	/	/	/	/	/	/	/	/	/	/
West-central AB	Kaybob	934	346	129	51	147	16	/	3	/	Kaybob	Duvernay and Beaverhill Lake
West-central AB	Virginia Hills	65	62	24	17	17	/	3	1	/	Virginia Hills	Beaverhill Lake
West-central AB	Swan Hills	777	747	301	121	215	5	95	2	8	Swan Hills	Beaverhill Lake
West-central AB	Mitsue	469	420	67	97	196	2	51	7	/	Mitsue	Gilwood
West-central AB	Randall	182	180	27	37	106	8	1	1	/	Randell/Gift/Little Horse	Gilwood
West-central AB	Judy Creek	1090	873	357	239	224	10	41	2	/	Judy Creek	Beaverhill Lake
Northwest AB	Puskawasku	60	60	14	29	6	6	3	1	1	Puskwaskau	Beaverhill Lake
Northwest AB	Girouxville	19	19	/	1	17	1	/	/	/	/	/
Northwest AB	Grande Prairie	69	68	/	4	62	2	/	/	/	/	/
Northwest AB	Pouce	2	2	/	1	1	/	/	/	/	/	/
Northwest AB	Dunvegan	75	73	4	5	60	4	/	/	/	Dunvegan	Debolt
Northwest AB	Worsley	7	7	/	/	5	2	/	/	/	/	/
Northwest AB	Notikewin	4	4	/	/	4	/	/	/	/	/	/
Northwest AB	Keg River	3	/	/	/	/	/	/	/	/	/	/
Northeast BC	Parkland	456	28	9	6	11	2	/	/	/	Parkland	Wabamun
Northeast BC	Fort St. John	30	14	/	/	13	1	/	/	/	Two Rivers	Wabamun
Northeast BC	Boundary	158	10	1	/	9	/	/	/	/	Boundary Lake/Siphon	Baldonnel

Figure 6.3 A summary of Devonian to Precambrian oil and gas wells in Highwood's South Alberta Permit Area with the status of the wells.

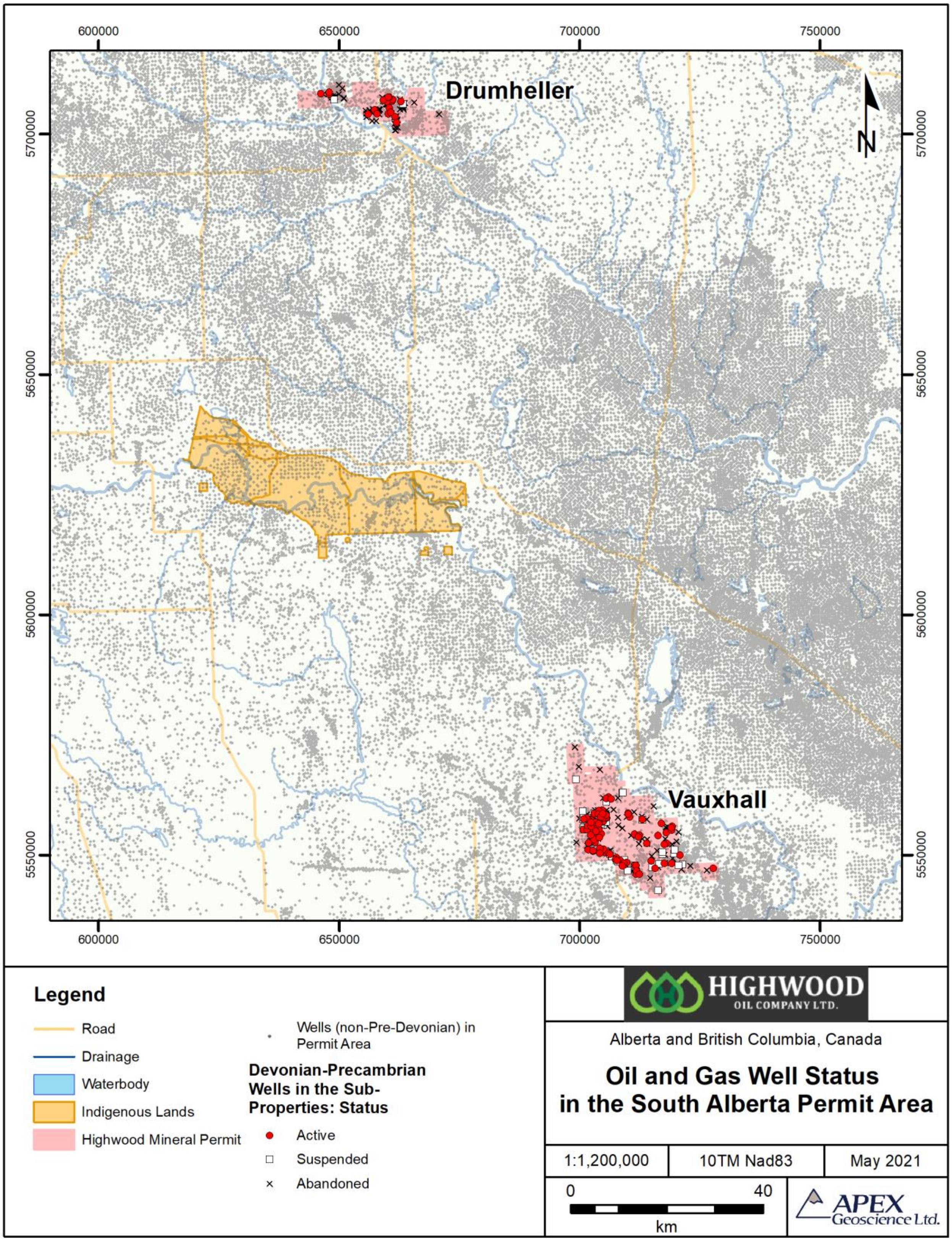


Figure 6.4 A summary of Devonian to Precambrian oil and gas wells in Highwood's Central Alberta Permit Area with the status of the wells.

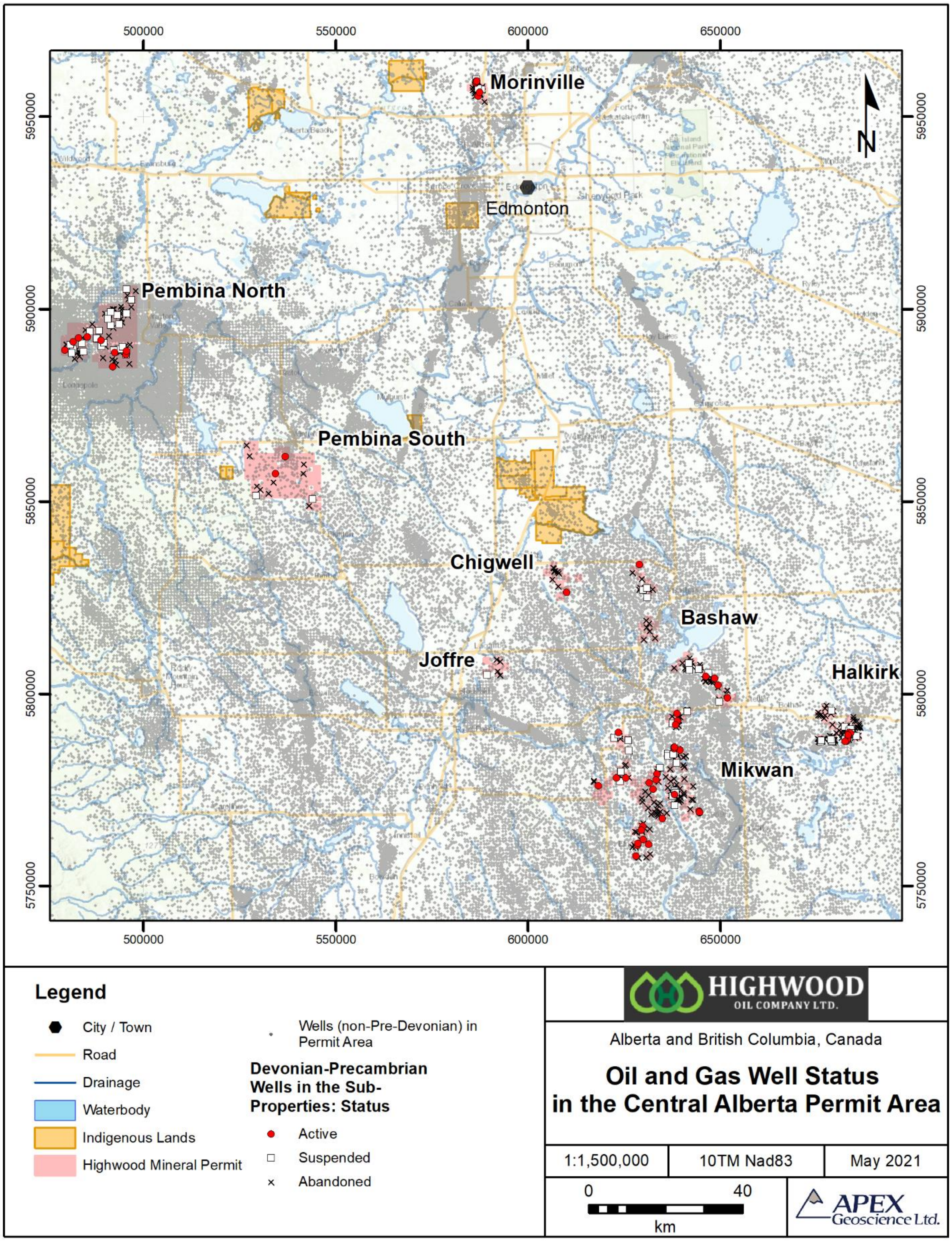


Figure 6.5 A summary of Devonian to Precambrian oil and gas wells in Highwood's West-Central Alberta Permit Area with the status of the wells.

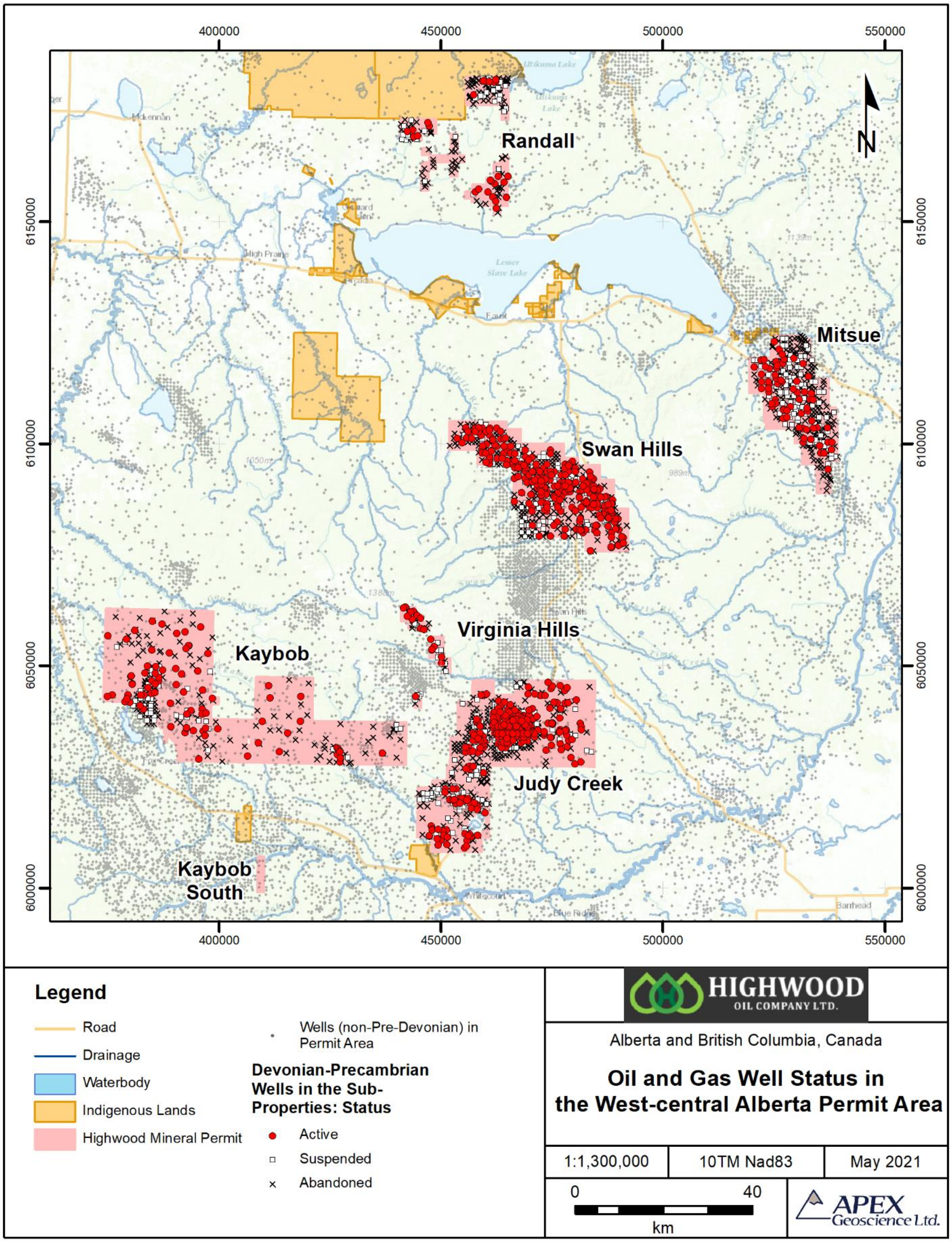


Figure 6.6 A summary of Devonian to Precambrian oil and gas wells in Highwood's Northwest Alberta Permit Area with the status of the wells.

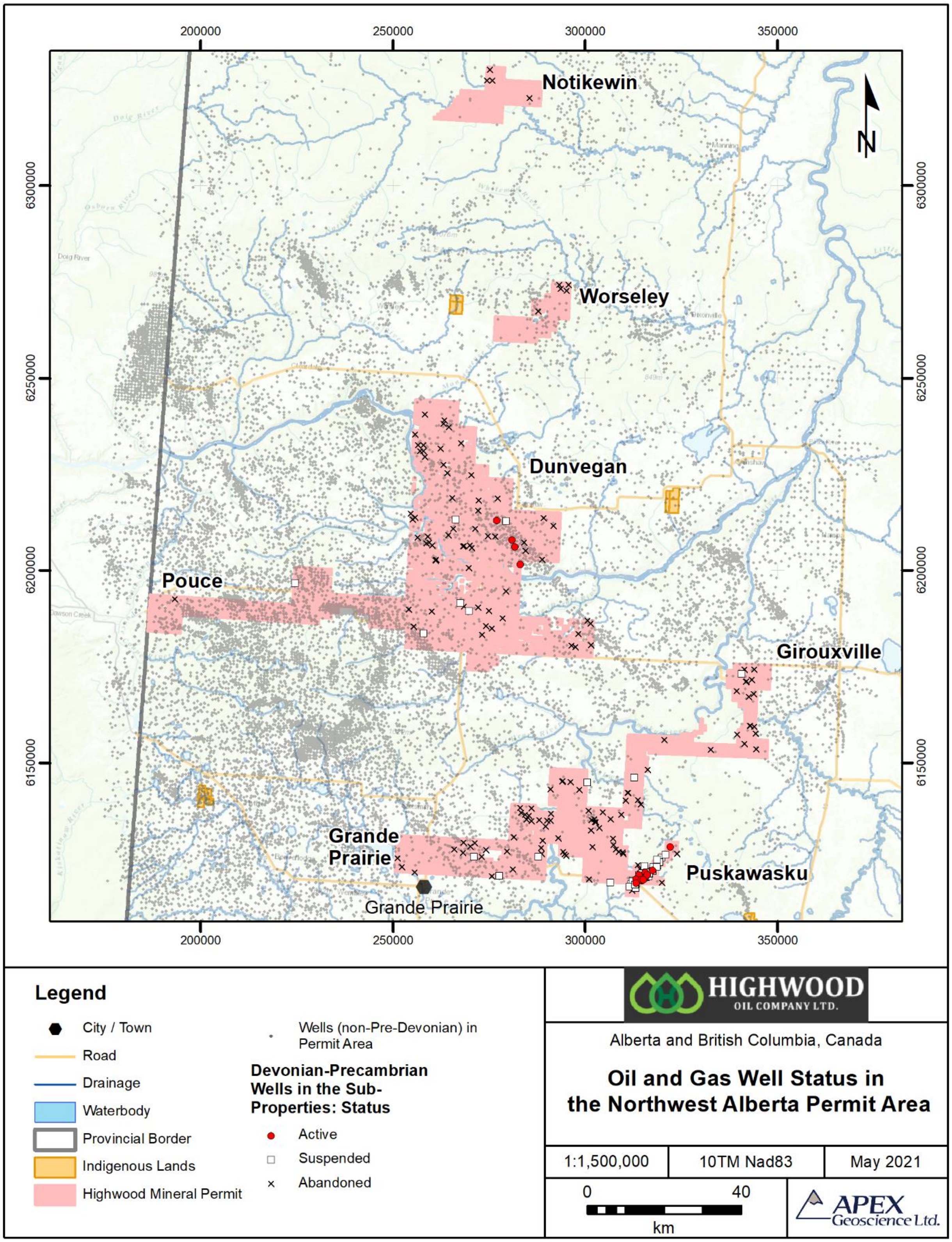


Figure 6.7 A summary of Devonian to Precambrian oil and gas wells in Highwood's Northeast Alberta Permit Area with the status of the wells.

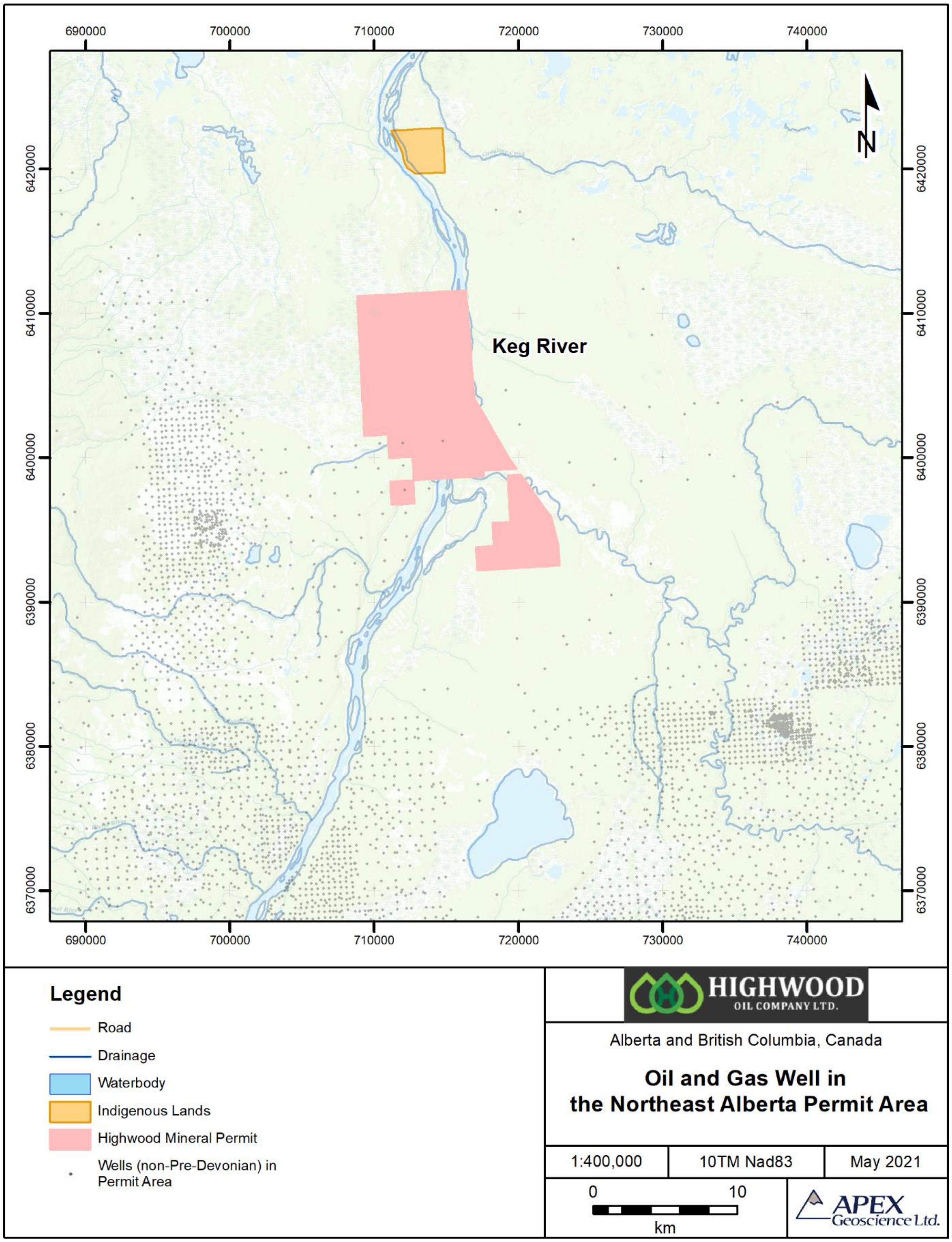
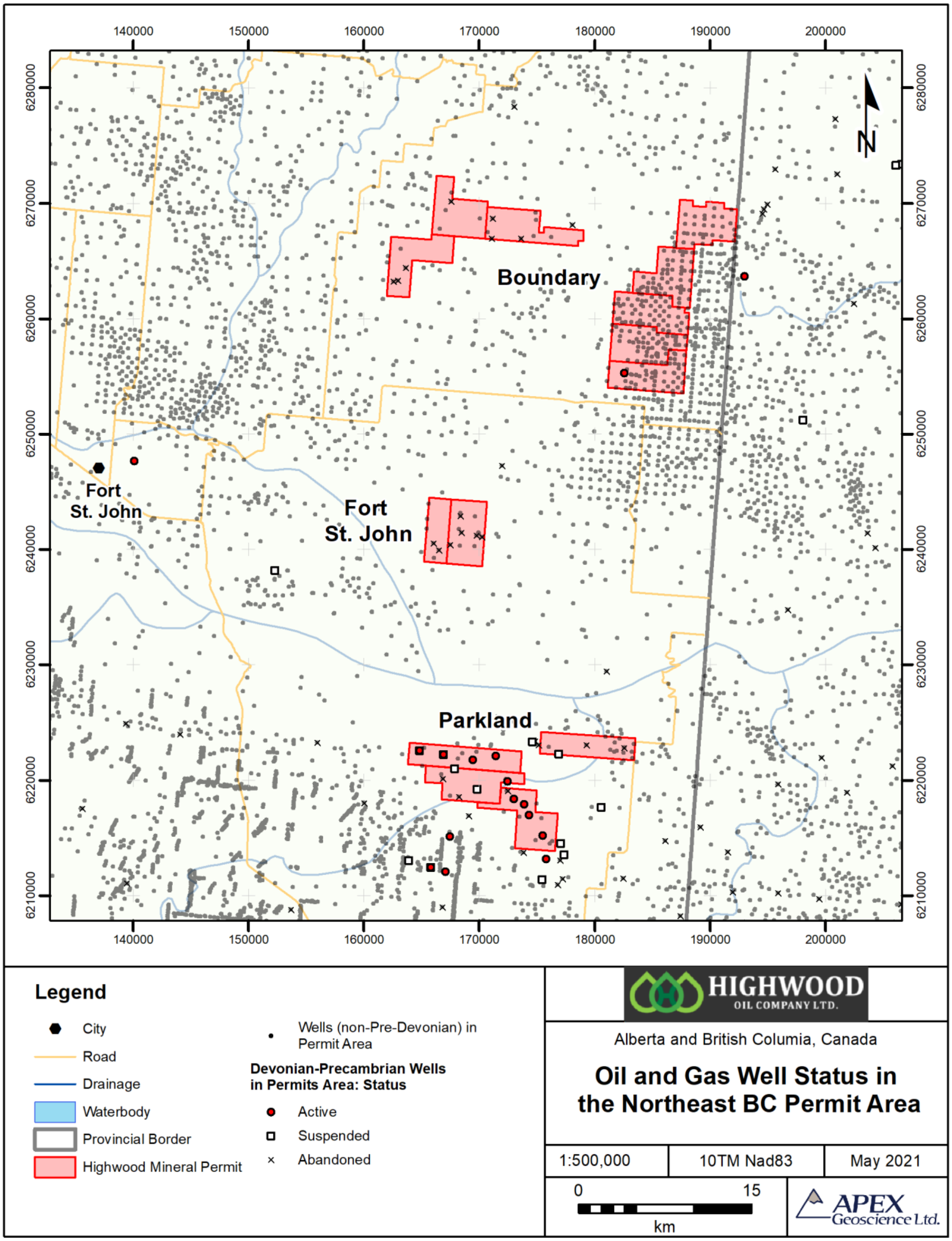


Figure 6.8 A summary of Devonian to Precambrian oil and gas wells in Highwood's Northeast British Columbia Permit Area with the status of the wells.



Presently, there are no active wells at the Joffre, Kaybob South, Girouxville, Grande Prairie, Pouce, Worsely, Notikewan , and Pouce sub-properties. This does not mean Highwood cannot access brine as there is the possibility of opening a suspended well and/or Highwood drilling their own well.

The active wells are producing from the following Devonian-Precambrian-aged fields and pools:

- Arcs/Nisku pools: Vauxhall sub-properties.
- Nisku pool: Drumheller and Pembina North sub-properties.
- Nisku/Leduc pools: Mikwan sub-properties.
- Leduc pools: Morinville sub-properties.
- Beaverhill Lake pools: Virginia Hills, Swan Hills, and Judy Creek, Puskaskau sub-properties.
- Duvernay and Beaverhill Lake pools: Pembina South, and Kaybob sub-properties.
- Gilwood pools: Mitsue and Randall sub-properties.

6.3 Historical Lithium Geochemical Summary

The fluid geochemical data presented in this sub-section are from publicly available well data that were 1) submitted to the AER and are made available via various third-party oil and gas database companies, and 2) created and/or compiled in various government reports (e.g., Hitchon et al., 1995; Eccles and Jean, 2010; Eccles and Berhane, 2011; Huff et al., 2011, 2012, 2019; Huff 2016, 2019; Lopez, 2020).

All the historical Li-brine data results presented in this sub-section occur outside of Highwood's sub-properties. In these instances, the QP has been unable to verify the information, and accordingly, this information is not necessarily indicative to the lithium mineralization that occurs within the Devonian to Precambrian aquifers situated beneath Highwood's mineral permits that are the subject of the Technical Report.

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 brine across Alberta (e.g., Hitchon et al., 1971; 1989; Connolly et al., 1990a,b and unpublished detailed analyses collected by the Government of Alberta). Hitchon et al. (1995) showed the highest concentrations of Li in formation water occurred within the Beaverhill Lake (Swan Hills) and/or Woodbend (Leduc) aquifers: 130 mg/L and 140 mg/L, respectively (Note: one mg/L is equal to one ppm).

In 2010, an expanded Li-brine dataset (n=1,511 analyses) was used to show Li-brine anomalies throughout Alberta (Eccles and Jean, 2010). Of the 1,511 analyses, 19 analyses/wells contained >100 mg/L Li (up to 140 mg/L), all of which were sampled from within the Middle to Late Devonian carbonate complexes. The distribution of lithium occurrences in Alberta from Eccles and Jean (2010) is presented with an overlay of Highwood's sub-properties in Figure 6.9.

The author not aware of detailed Devonian aquifer Li-brine studies in northeastern British Columbia; however, Hitchon et al. (1993) did report lithium values of between 26 and 54 mg/L Li from wells located within 2° longitude west of the British Columbia–Alberta border leading Simandl et al. (2018) suggested that the possibility to discover Li-rich brines in the British Columbia portion of the WCSB should not be discounted.

A recent government compilation by Lopez et al. (2020) has been evaluated by the senior author. The dataset includes lithium values from the surface to the Cambrian. All Devonian to Precambrian Li-brine data were culled from the dataset and are presented with respect to Highwood's regional permit areas in Figures 6.10 to 6.14.

As stated earlier, none of the historically anomalous Li-brine assays (>50 mg/L Li) occur within the High sub-properties. Rather, Highwood has strategized to stake mineral permits in areas where either high Li-brine is present, or there is current Devonian to Precambrian oil and gas production. The QP has been unable to verify the information, and accordingly, this information is not necessarily indicative to the lithium mineralization that occurs within the Devonian to Precambrian aquifers situated beneath Highwood's mineral permits that are the subject of the Technical Report.

Some observations from these figures are presented as follows:

- In the South Alberta Permit Area, 2 anomalous Li-brine assays occur directly west of the Drumheller sub-property.

- In the Central Alberta Permit Area, several anomalous Li-brine assays occur in near the Bashaw, Chigwell, Pembina South and Morinville sub-properties.

- In the West-Central Alberta Permit Area, several anomalous Li-brine assays occur in near the Kaybob South, Kaybob, and Virginia Hills sub-properties.

- In the Northwest Alberta Permit Area, several anomalous Li-brine assays occur in near the Grande Prairie, Girouxville, Dunvegan, and Worsley sub-properties.

- There are no Li-brine assay anomalies in the Northeast Alberta Permit Area.

Highwood is currently conducting brine sample programs in the Company's Alberta sub-properties to determine whether deep-seated aquifer brine contains elevated concentrations of lithium within their sub-properties. A summary of brine assay work completed to date is presented in Section 9, Exploration.

With respect to the lithium potential associated with mineral titles in British Columbia, the author is not aware of any Devonian or older Li-brine compilation work in the public realm. Consequently, the QP has investigated the calculated TDS of brine samples – as a 'proxy' for hypersaline brine that 'could' host Li-enriched brine – in the vicinity of the mineral titles (Figure 6.15). it is interesting to note the presence of high TDS samples in the Parkland sub-property (up to 269,000 mg/L TDS).

While high TDS is by no means a direct indication of elevated lithium in brine, the author has documented high TDS in Alberta brine can be indirectly related to lithium content. And this indirect relationship is better correlated with lithium by using other elements such as potassium (K), bromine (Br), boron (B), iodide (I), etc. (Eccles, 2012).

Unfortunately, there is no corresponding brine geochemical data such as K, Br, B, I, etc. within the BC brine geochemical dataset. A review of the elements that are present are inclusive with respect to any relationship, direct or indirect, with lithium (Figure 6.16).

Accordingly, the only way to properly evaluate brine within Highwood's BC mineral title sub-properties is for Company to conduct their own brine sampling program.

Figure 16.16 Generalized plot of Total Dissolved Solids (calculated) versus potassium, sodium, calcium, and magnesium in produced waters from wells within Highwood's British Columbia sub-properties.

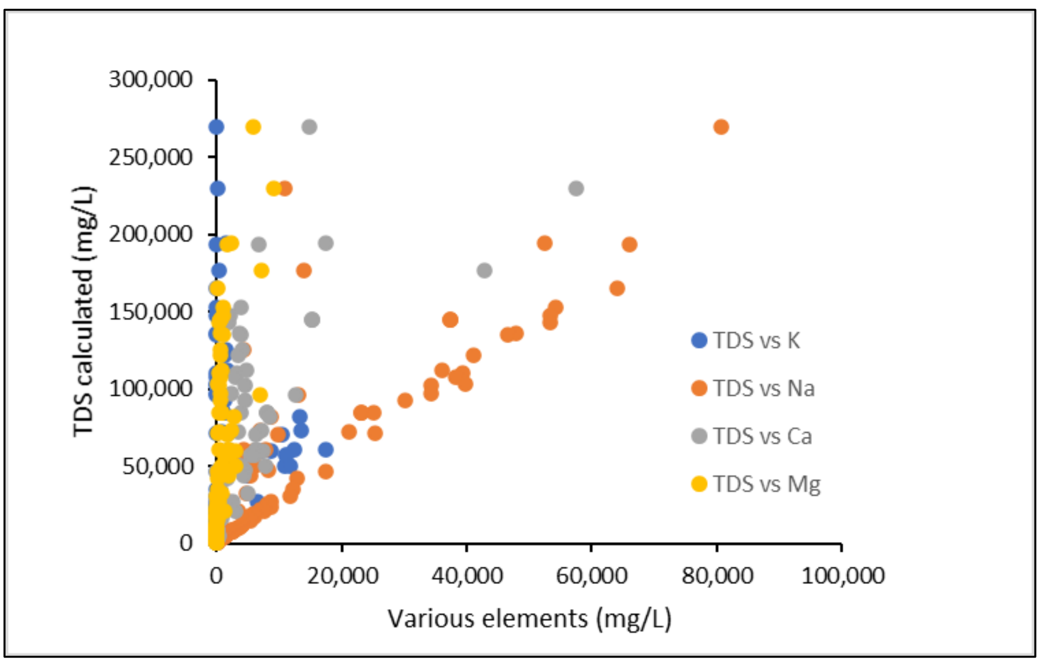


Figure 6.9 Distribution of lithium in Alberta formation waters. Source: Eccles and Jean (2010).

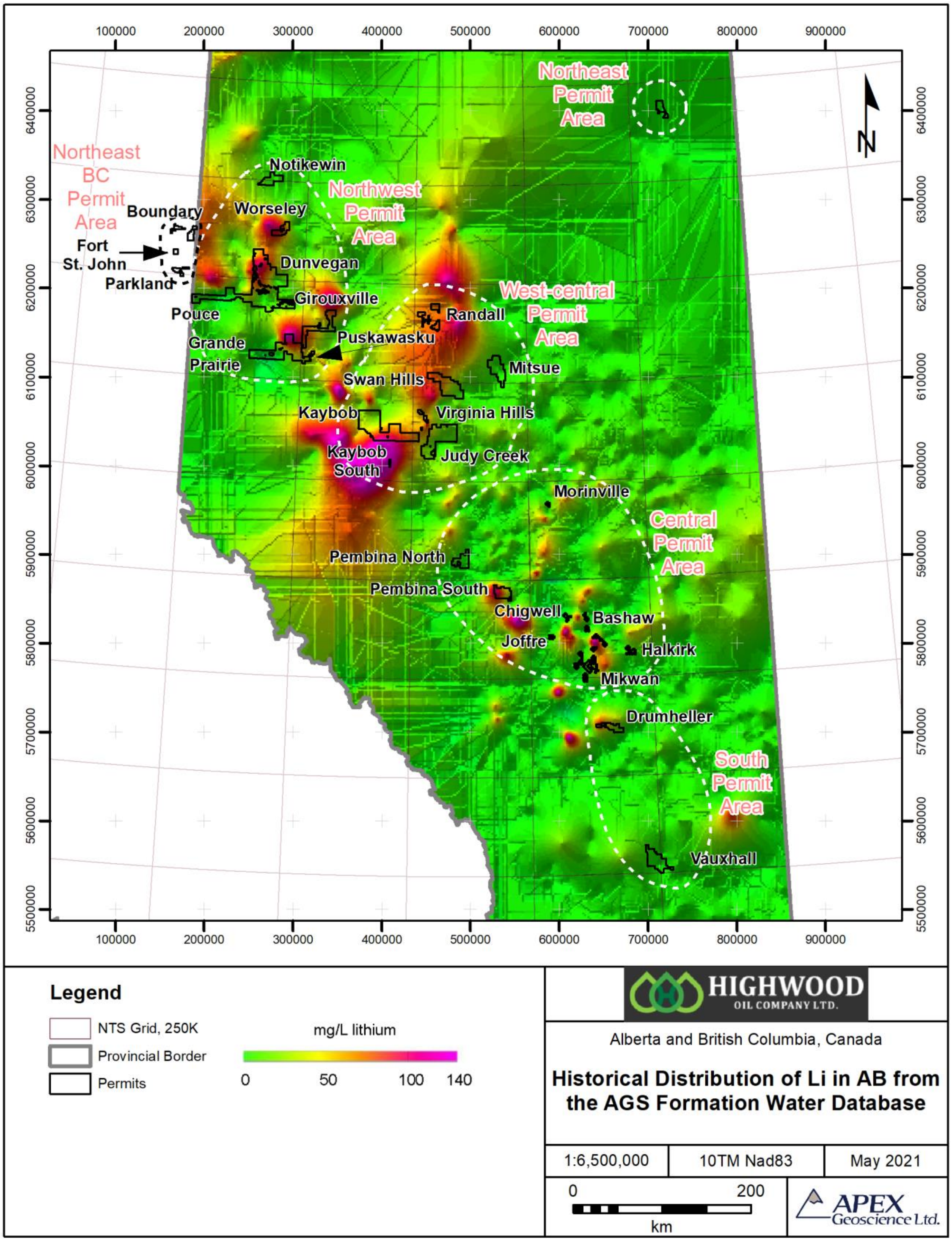


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Figure 6.10 Distribution of historical Devonian to Precambrian Li-brine assays in Highwood's South Alberta permit area.

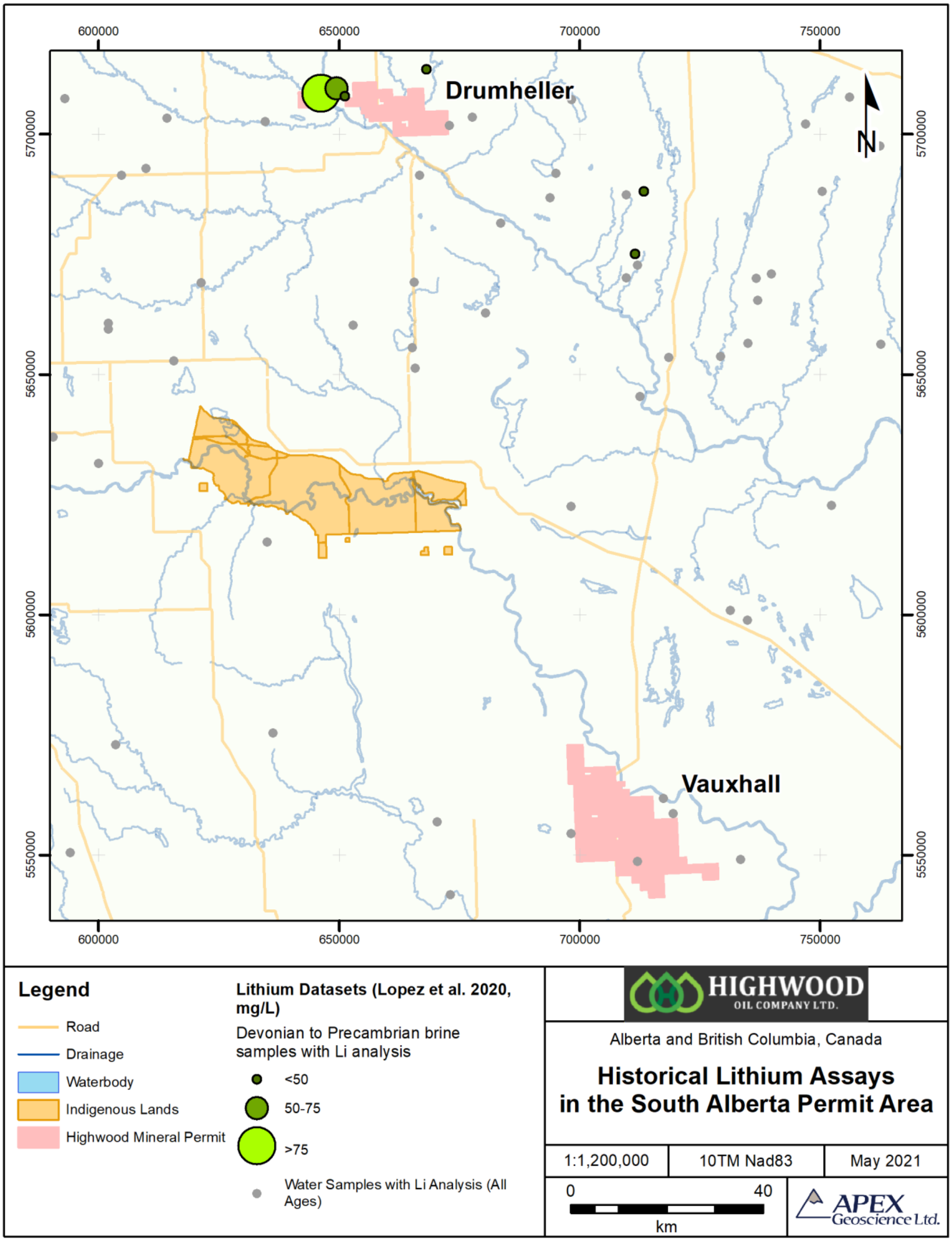


Figure 6.11 Distribution of historical Devonian to Precambrian Li-brine assays in Highwood's Central Alberta permit area.

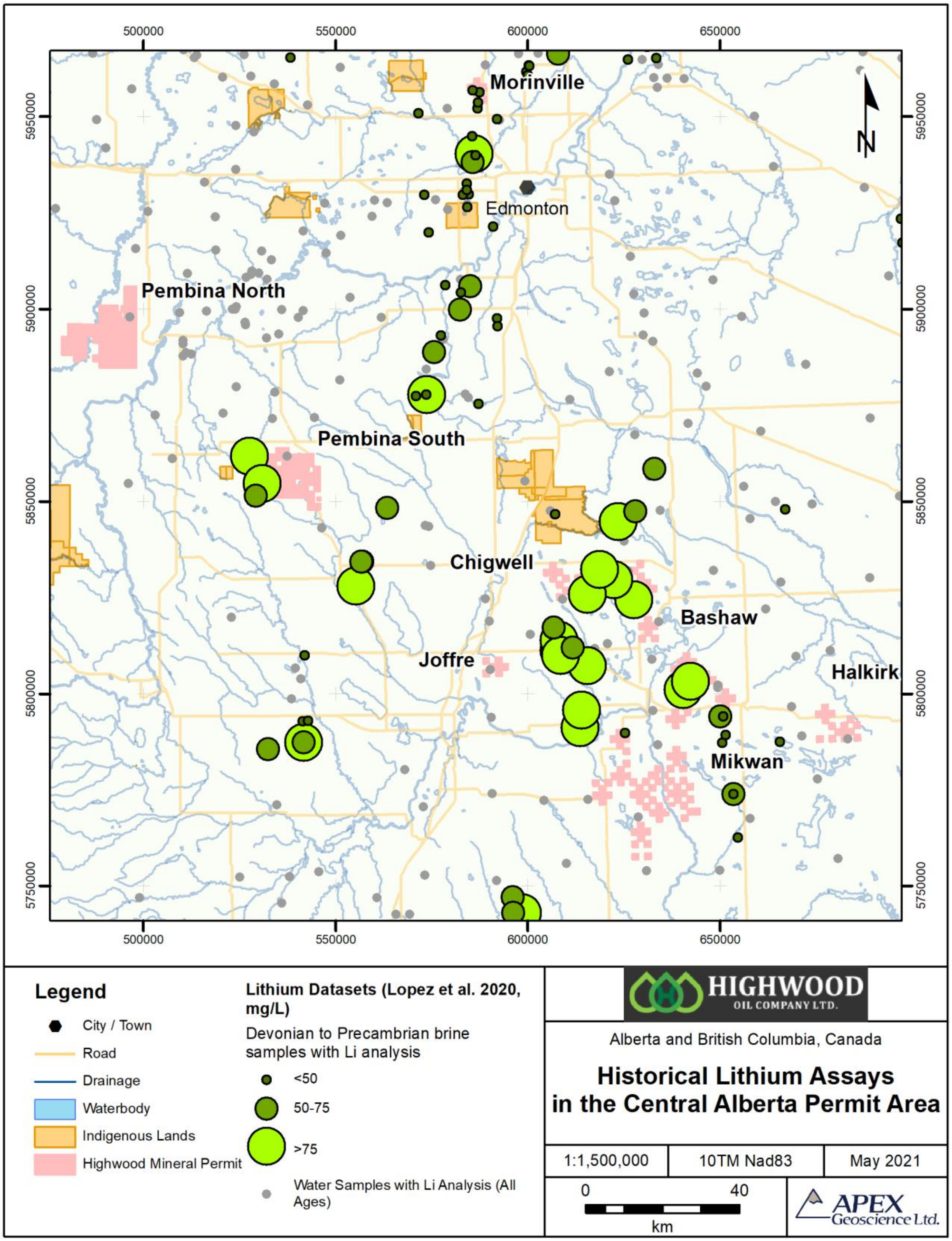


Figure 6.12 Distribution of historical Devonian to Precambrian Li-brine assays in Highwood's West-Central Alberta permit area.

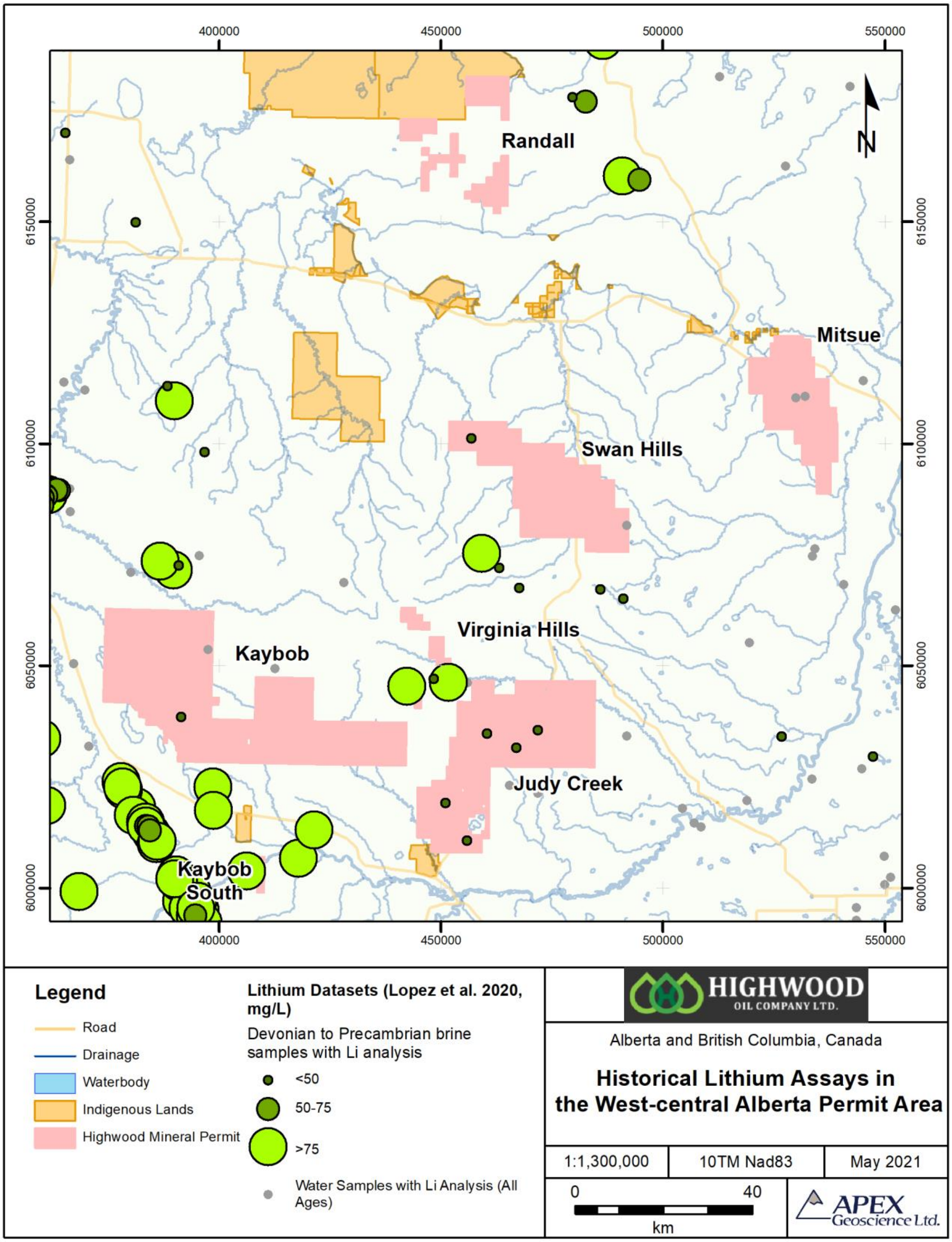


Figure 6.13 Distribution of historical Devonian to Precambrian Li-brine assays in Highwood's Northwest Alberta permit area.

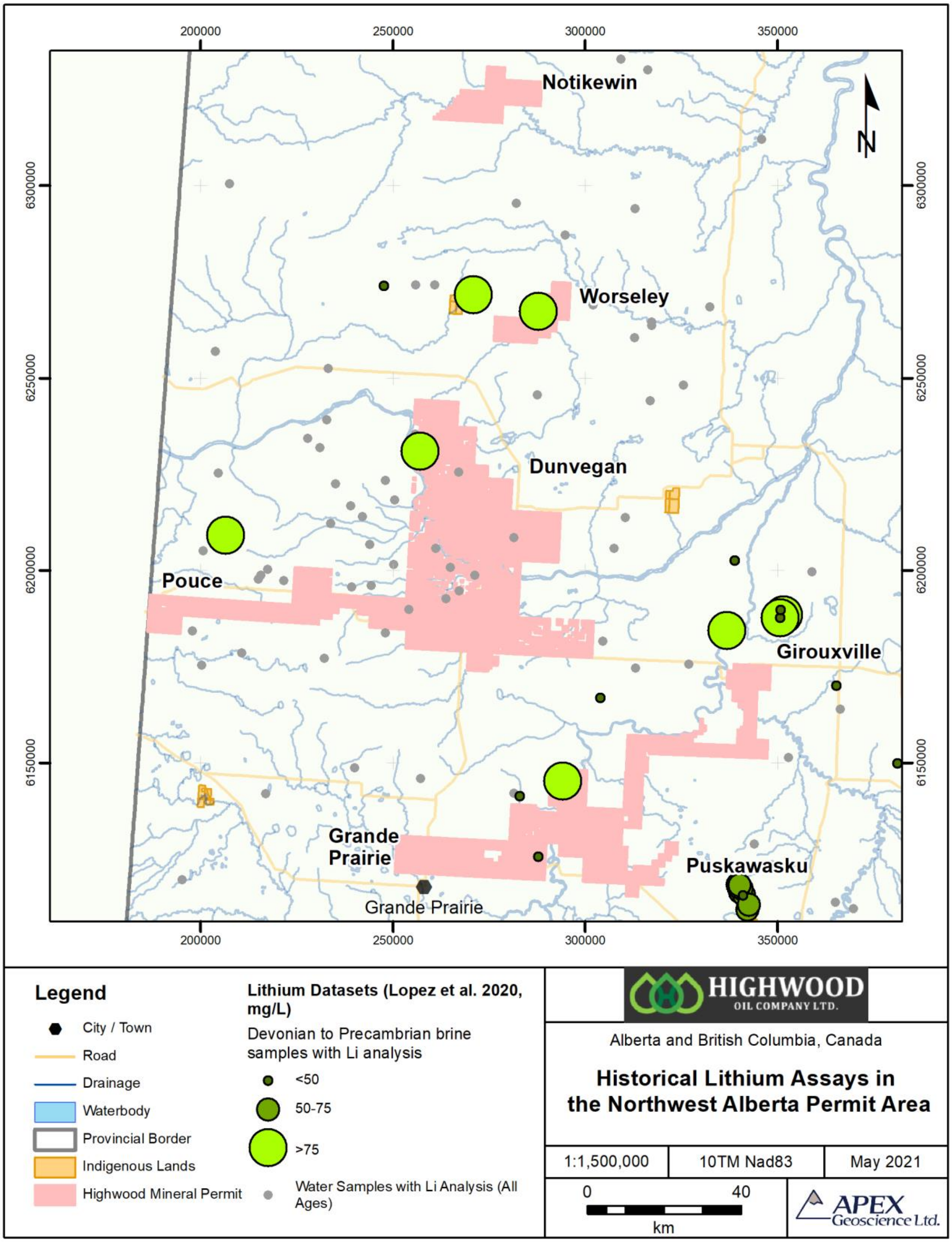


Figure 6.14 Distribution of historical Devonian to Precambrian Li-brine assays in Highwood's Northeast Alberta permit area.

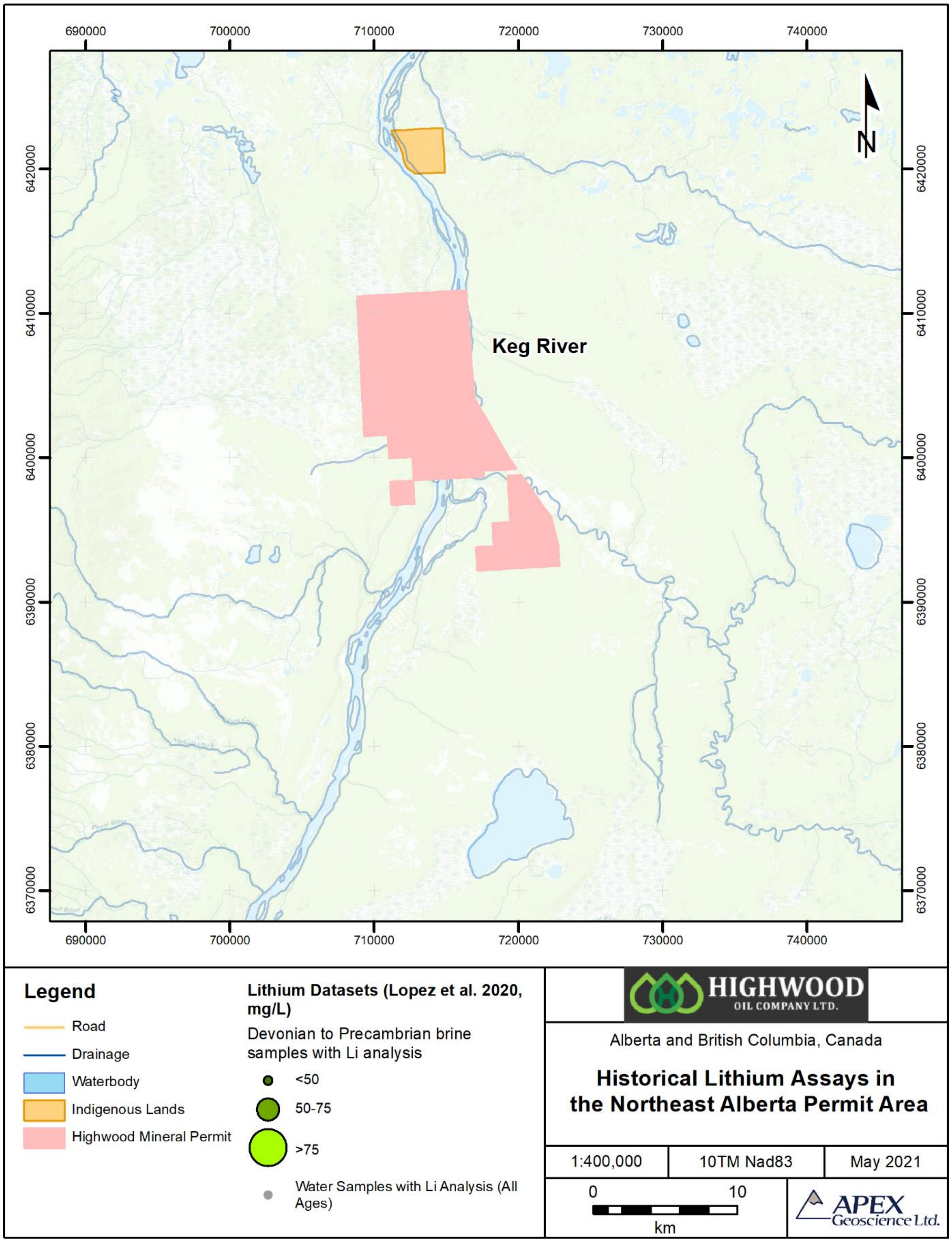
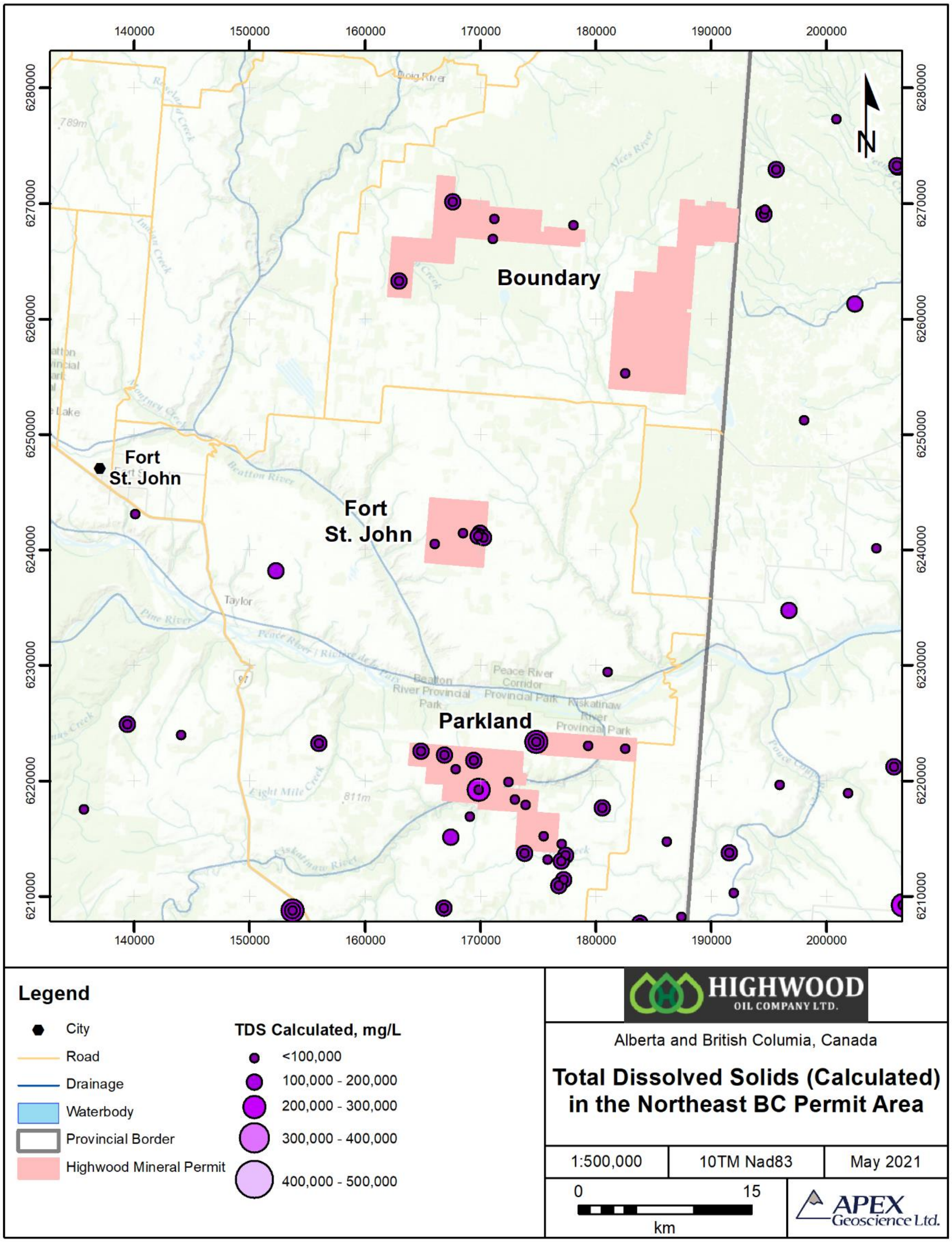


Figure 6.15 Distribution of historical total dissolved solids (calculated) in Highwood's Northeast British Columbia permit area.



7 Geological Setting and Mineralization

7.1 Regional Geology

Geological units of Alberta range in age from Archean to Recent and are exposed as broad northwesterly trending belts, which decrease in age toward the southwest (Figure 7.1; Hamilton et al., 1999). Precambrian rocks are exposed in the northeast and form the basement for a thickening wedge of Phanerozoic strata of the Western Canada Sedimentary Basin (WCSB) that reaches a maximum thickness of about 6,000 m in front of the Cordilleran fold-and-thrust belt to the southwest. Phanerozoic strata have been deposited in the WCSB in two fundamentally different tectono-sedimentary environments: 1) Late Proterozoic to Middle Jurassic passive continental margin; and 2) Middle Jurassic to Oligocene foreland basin. The WCSB contains one of the world's largest reserves of petroleum and natural gas, bitumen (oil sands) and coal.

The Paleozoic to Jurassic platformal succession, which is dominated by carbonate rocks, can be summarized as two periods of continental margin sedimentation separated by cratonic inundations from the west, southeast and northwest (Kent, 1994). During this period, marine inundation, sedimentation, and erosion were strongly influenced by epeirogenic movements on intracratonic arches (e.g., Peace River Arch in northwestern Alberta) that episodically differentiated the region into a complex array of sub-basins and uplifts (Mossop and Shetsen, 1994). As a result, much of the Paleozoic succession consists of unconformity-bounded, thin to thick sequences of carbonate rocks interlayered with predominantly fine- to medium-grained clastic marine sedimentary rocks.

As presented in the History section of this Technical Report, brine within Devonian aquifers tend to be enriched in lithium. In addition, the aquifer brine pumped to the surface in large volumes as waste products associated with oil and gas production. Devonian strata make up some of the thickest accumulations of reef complexes in the WCSB and contain world–class hydrocarbon resources. For example, the Devonian Winterburn-Woodbend, and Elk Point groups contain over 50% and 23% of Western Canada's initial established recoverable oil and gas reserves, and accounts for 54% and 34% of Western Canada's cumulative production oil and gas (Hay, 1994).

Accordingly, this technical report focuses on Devonian strata and their specific petro-bearing rock units and associated aquifers (Figure 7.2; Table 7.1). Devonian strata in the WCSB include siliciclastic and carbonate rocks. Siliciclastic formations are formed predominantly from silicate minerals that have been physically eroded, transported, re – deposited and lithified. Reservoir quality in siliciclastic rocks is defined by the nature of their inter – granular contacts and in – filling cement. Sandstones are generally good reservoirs because their physical composition (i.e., individual sand grains) makes them resistant to compaction. Thus, their primary porosity is often preserved, even when they are found at great depth. The relationship between porosity and permeability in sandstones is also well understood in sandstone via the "Klinkenberg" correlation. Accordingly, it is possible to predict fluid flow behaviour based only on porosity data over a large area.

Figure 7.1 Bedrock geology of Alberta. Source: Prior et al. (2013).

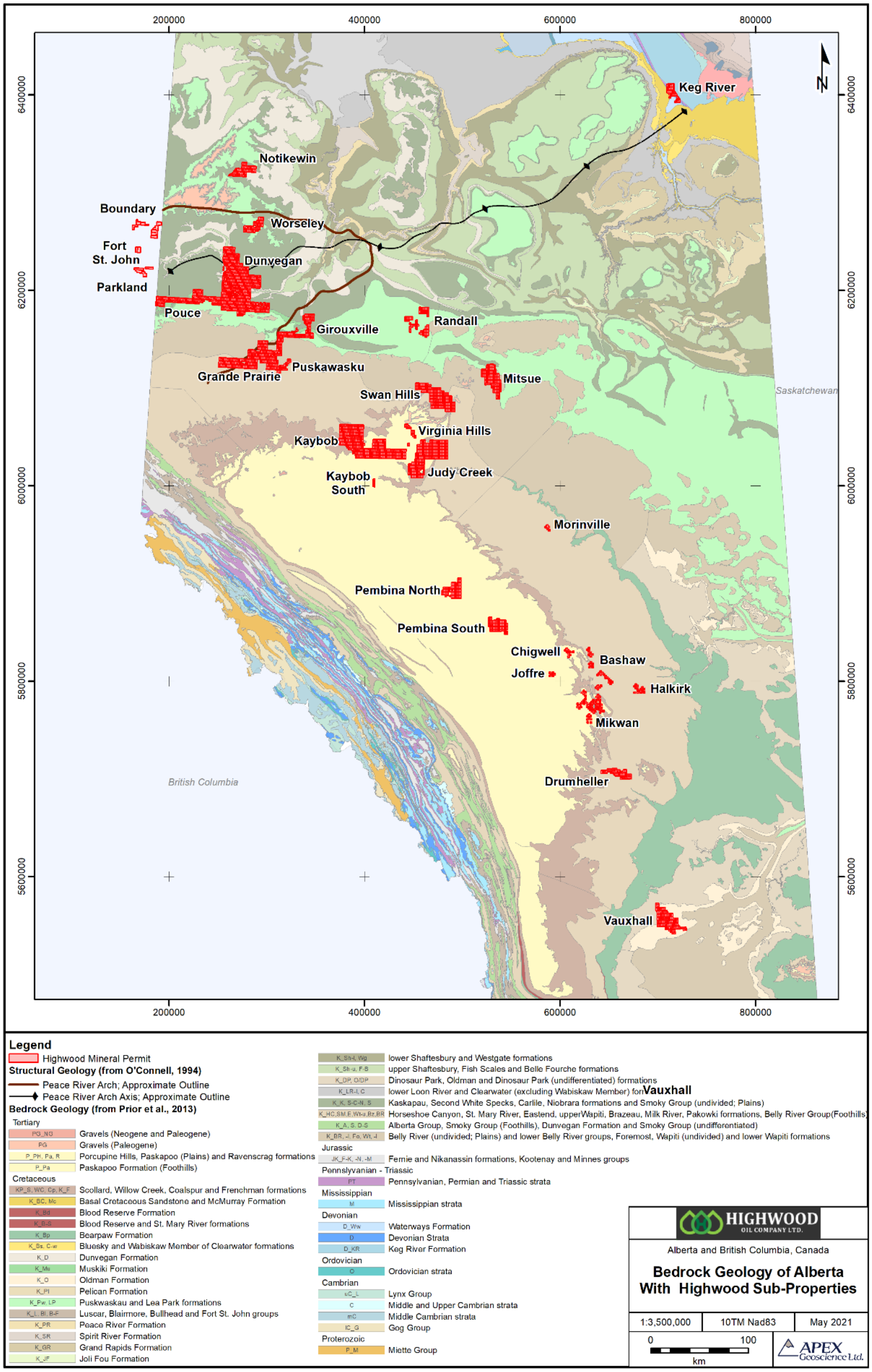


Figure 7.2 Overview of major Devonian oil and gas fields/pools underlain with the outline of the Devonian reef complexes of the Woodbend Group – Leduc Formation. (Sources: Halbertsma, 1994; Meijer Drees, 1994; Oldale and Munday, 1994; and Switzer et al., 1994).

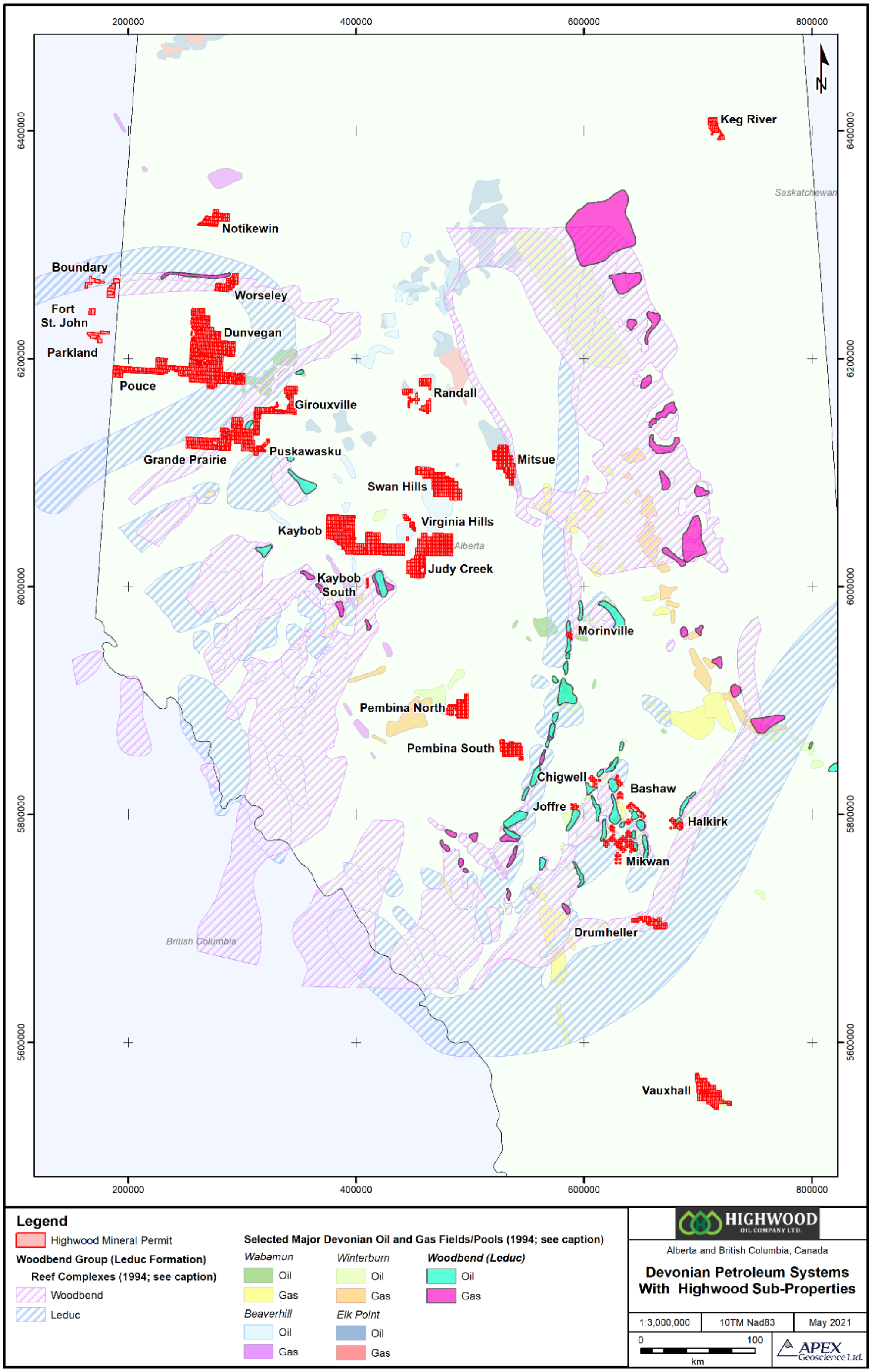
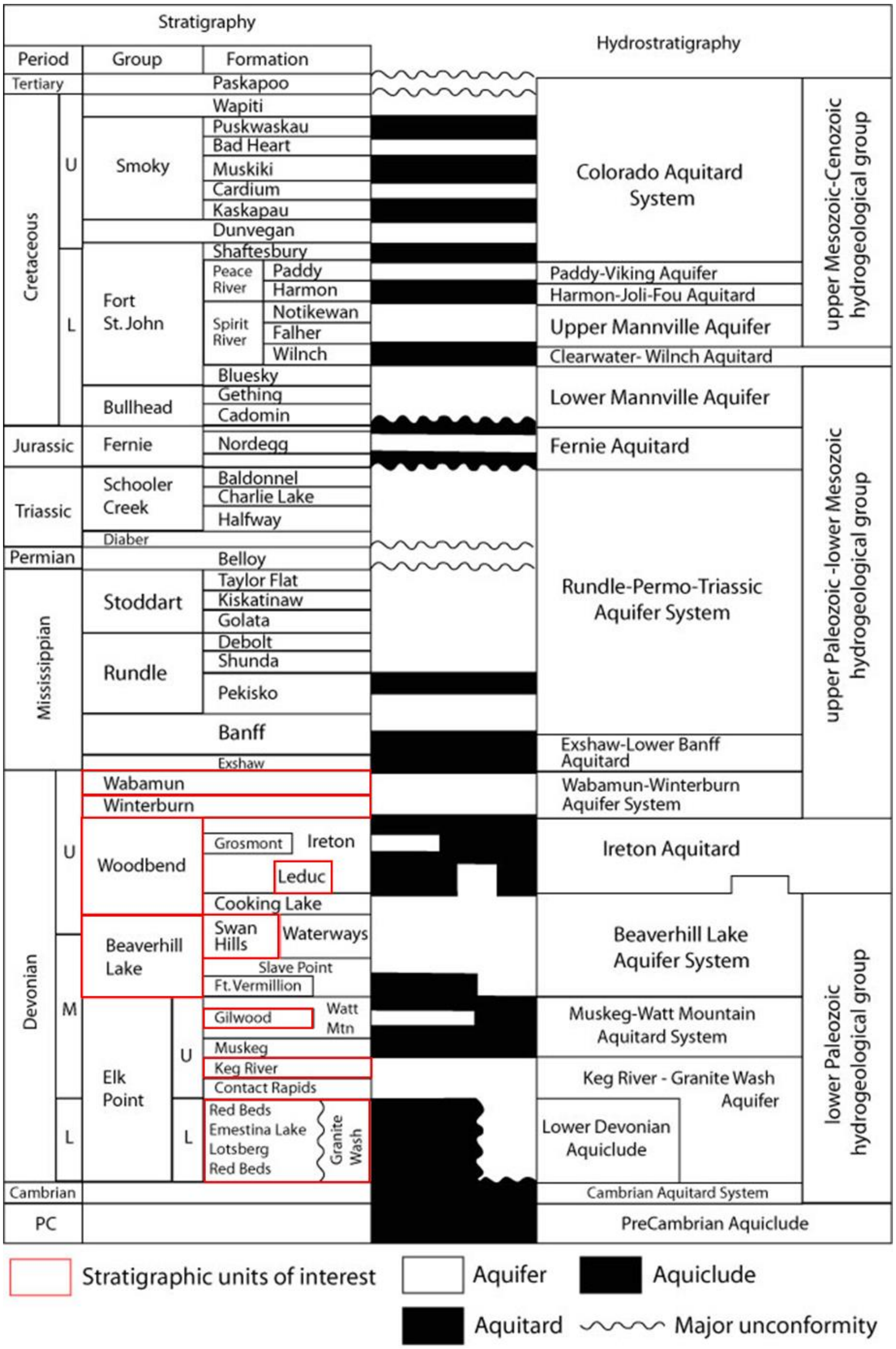


Table 7.1 Devonian to Precambrian stratigraphic and hydrostratigraphic columns. Source: Hitchon et al. (1993).



Carbonate can form from the chemical precipitation of carbonate–bearing minerals (e.g., limestone) from a body of water, or the accumulation of organically–derived carbonate material (e.g., shells) on a substrate. The properties of carbonate rocks vary depending on the environment of their deposition. They can also display significant amounts of secondary porosity, caused either through dolomitization or karstification.

Of the various types of carbonates, reef facies are deemed most favourable for aquifer porosity, permeability, and hydrocarbon storage. Carbonate reefs contain high degrees of both primary and secondary porosity, whereas open marine, shelf and bank carbonates may be severely hydrogeologically restricted. Carbonate reef reservoirs, like sandstone, are generally believed to be water saturated. Devonian reefal strata in the Alberta foothills and plains are represented by, from oldest to youngest, the Lower Devonian strata, the Elk Point Group, the Beaverhill Lake Group, the Woodbend Group, the Winterburn Group, and the Wabamun Group (Table 7.1).

Lastly, Highwood's exploration strategy is not confined to Devonian reefs and Lower Devonian clastic sedimentary strata. The company is also considering brine associated with Granite Wash sandstone reservoirs that sit unconformably between the Precambrian crystalline basement and the Devonian. The Granite Wash forms prospective reservoirs in areas where the Granite Wash pinches out against, or drapes over, numerous positive paleotopographic features on the Precambrian surface.

7.2 Property Geology

This section provides a geological summary of the prospective reservoir clastic sedimentary rock units and reef formations that occur between the Precambrian crystalline basement and the top of the Devonian.

7.2.1 Lowermost Devonian Elk Point Group Strata and Granite Wash

The Lower Devonian has been almost entirely eroded away in the Alberta portion of the WCSB (Glass, 1990; Meijer Drees, 1994). When present, these strata were deposited because of the second major North American transgression, the Tippecanoe Sequence. The Tippecanoe transgression ended a period of early–Appalachian erosion that deposited siliciclastic and carbonate sediments across the North American Craton during the middle Ordovician to the early Devonian (Glass, 1990; Meijer Drees, 1994). This event was followed by a period of erosion during which most of the Lower Devonian in Alberta strata were destroyed.

Remnants of the Lower Devonian are nonetheless found in various regions of Alberta, most notably in the north-central and northwest Alberta, in the form of the Granite Wash sandstone (Rottenfusser and Oliver 1977; Meijer Drees, 1994; Dec et al., 1996). The Granite Wash is an informal term applied to the Paleozoic basal siliciclastic unit that generally sits on top of the Precambrian basement. The Granite Wash includes highly porous and permeable sandstone with minor conglomerate. The unit generally formed by the erosion of rock units associated with the uplifted Peace River Arch and the resulting detritus was deposited locally on Precambrian basement unconformities through a series of alluvial and shallow marine events.

7.2.2 Early to Middle Devonian Elk Point Group

The Lower Elk Point Group was deposited in a restricted-marine environment on top of the pre-Devonian erosional unconformity, and therefore, variously overlies Ordovician and Silurian carbonate, Precambrian igneous and metamorphic rocks, and Cambrian clastic rocks and carbonate (James and Leckie, 1988; Glass, 1990; Meijer-Drees, 1994).

The Elk Point aquifer is defined as those aquifers lying between 1) the Prairie Evaporite aquiclude and the Lotsberg and Cold Lake aquicludes; 2) the Contact Rapids and Keg River aquifers; and 3) the Granite Wash aquifer, which overlies the Precambrian basement (Hitchon et al., 1995). The upper units of the Elk Point group form an aquitard and consist of the Ft. Vermillion, Muskeg and Watt Mountain Formations.

Arkosic sandstone of the Gilwood Member (part of the Watt Mountain Formation) were deposited in a fluvial-deltaic complex along the Peace River Arch (Rottenfusser and Oliver 1977). The Gilwood is a promising sandstone reservoir in the northwest Alberta and northeast British Columbia.

The Upper Elk Point subgroup comprises regionally extensive stratigraphic units, which mark a change from evaporite deposition and a return to normal-marine conditions across the basin. The Keg River Formation carbonates were deposited as an extensive lower platform ramp member and less widespread upper member consisting of reefal buildups (Campbell, 1992; Moore, 1993; Meijer Drees, 1994; Chow et al., 1995). Precambrian basement paleotopography played a large role in the distribution and type of late-stage Keg River buildups, which ultimately controlled the distribution and type of overlying evaporite deposits (Hauck et al., 2017). In northwest Alberta and northeast British Columbia, the Keg River Formation consists of a prominent barrier reef known as the Presqu'ile Barrier.

7.2.3 Middle to Late Devonian Beaverhill Lake Group (Swan Hills Formation)

A rise in relative sea level initiated the beginning of the Beaverhill Lake Group resulted in open marine conditions that marked a significant change in conditions across the Alberta Basin and formed thick accumulations of carbonate and calcareous, fine-grained siliciclastic rocks (Glass, 1990). The Beaverhill Lake Group consists of anhydrite and carbonate rocks at the base (the Fort Vermillion Formation), overlain by interbedded sequences of calcareous shale, argillaceous micritic limestone, limestone, and dolomite.

The Beaverhill Lake Group reaches a maximum thickness of about 220 m in central Alberta (Oldale and Munday, 1994) and 6 paleogeographic areas are recognized for the Beaverhill Lake Group: Horn River Basin; Hay River Basin; Peace River Arch Fringing Reef Complex; Swan Hills Complex; Waterways Basin; and Souris River Shelf.

The Beaverhill Lake Group is divided across northern Alberta. On the east side of the basin, the Eastern Shelf complex (Wendte and Uyeno, 2005) of the is separated from the western Swan Hills Formation carbonate complex by the Waterways sub-basin. The biostromal carbonates of this system form the carbonate-rich members (Calumet and Moberly) of the Waterways Formation

The Swan Hills Complex was deposited on the flank of the West Alberta Ridge and consists of dolomitic shallowing-upward reef cycles (Oldale and Munday, 1994). The Swan Hill Complex is characterized by a stromatoporoid reef composed of micritic and pelletoidal limestone facies or coarse, porous, bioclastic limestone facies that reaches a maximum thickness of 152 m. Porosity development in the Swan Hills area is associated with the high-energy reef margin facies (Wendte and Stoakes, 1982).

The Beaverhill Lake Group in Southeastern Alberta was deposited as a series of northwestern prograding carbonate ramps (i.e., the Souris River Shelf). The ramp complex is time equivalent to the aggrading and backstopping Swan Hills platform which developed to the north and west. At the base of the system, a salt basin was deposited and is surrounded by evaporitic platform interior sediments.

7.2.4 Late Devonian Woodbend- Winterburn Groups (Leduc and Duvernay Formations; Nisku Formation)

The Woodbend Group, which overlies the Beaverhill Lake Group, represents a period of relative sea level rise upward from the Cooking Lake, through the Majeau Lake, Leduc and Duvernay formations (Glass, 1990; Switzer et al., 1994). A number of notable changes occurred during deposition of the Woodbend-Winterburn strata, which as summarized by Switzer et al. (1994) include 1) an apparent increase in the rate of accumulation and preservation of sediment; 2) a dramatic increase in the occurrence of basin-filling shale; 3) the development of thick and extensive reef complexes; 4) the deposition of widespread and prolific hydrocarbon source rocks; and 5) the significant accumulation of economic reserves of hydrocarbons hosted largely by numerous reefal carbonate reservoirs.

The Woodbend Group reaches a maximum thickness of 700 m in northern Alberta (owing to significant reef development), with a typical thickness of 300 m in southern and central Alberta. The two most distinctive features in the Woodbend include the stacked reef complexes of the Leduc Formation, which exceed 275 m in thickness, and the highly bituminous source rocks (Duvernay and Muskwa formations; Switzer et al., 1994). The Leduc Formation sub-unit is comprised of shallow water reef deposits that include mostly dolomitized: stromatoporoid limestone, skeletal mudstone, boundstone, floatstone, packstone and wackestone. The basal Leduc Formation is characterized by dolomitic carbonate from multiple cycles of reef growth, including back-stepping reef rimmed complexes and isolated reefs (Switzer et al. 1994). The Leduc Formation is well known as a host to prolific reserves of oil and gas within Alberta.

The Majeau Lake and Duvernay Formations surround the Leduc reefs. The Majeau Lake Formation consists of isolated reefs and deep-water deposits (shale and limestone). The Duvernay interval is a unique depositional unit within the Woodbend Group. The conditions resulting in its deposition signalled a profound change in the basin. Deposition of the Duvernay is characterized by extensive basinal deposits, synchronous with a significant stage of Leduc reef growth. The Duvernay Formation consists of dark brown bituminous shale and limestone and represents a period of great accumulation and preservation of organic carbon. Consequently, Allan and Creaney (1991) suggested that the Duvernay generated most of the hydrocarbons found within the Upper Devonian reservoirs of the Alberta Basin.

By the end of Woodbend deposition the WCSB was almost filled by mudstone and carbonate, and the Winterburn interval began with an apparent relative rise in sea level. This marine transgression resulted in deposition of a widespread carbonate ramp. The Winterburn succession thickens from less than 20 m in Saskatchewan to more than 380 m in northeast British Columbia. The Winterburn Group is composed, from bottom to top of the Nisku, Calmar, and Graminia Formations. Pinnacle reefs develop in the Nisku Formation.

In northwest Alberta, the Winterburn Group reaches a maximum thickness of 150 m west of the Leduc reef system. In west-central Alberta the Nisku has been subdivided into four off-reef members (Lobstick, Bigoray, Cynthia and Wolf Lake members) and one reefal member (the Zeta Lake Member). The Zeta Lake "pinnacle" reefs are approximately 180 km long by 65 km wide. Porosity and permeability of the Nisku Formation is controlled by a complex sequence of diagenetic processes. The occurrence or absence of intermediate burial dolomitization is the most important factor governing porosity and permeability of the Zeta Lake Member (Watts, 1987; Machel, 1983, 1985; Anderson, 1985).

7.2.5 Late Devonian Wabamun Group

The Late Devonian (Famennian) Wabamun Group lies conformably on the Graminia Formation siltstone of the Winterburn Group. The Wabamun consists of a series of stacked cyclical ramp and shelf carbonates and associated evaporates. It has a stratigraphic thickness of about 50 m in Saskatchewan, thickening to over 200 m in large parts of Alberta (Halbertsma, 1994). The Wabamun Formation reaches a maximum thickness of 240 m in the sub-surface of central Alberta. It thins out and wedges towards the east and thickens towards the Canadian Rockies foothills.

Lithofacies intervals reflect the following generalized trends: shale and argillaceous carbonate in the northwest; limestone in north and west-central Alberta; dolomite and evaporite in southern Alberta; and red bed shale and dolomitic siltstone in southern Saskatchewan and Manitoba (Halbertsma, 1994). Sedimentation represents an overall regressive sequence punctuated by several important transgressive pulses. In the Peace River Arch area of northwestern Alberta, Wabamun Group oil and gas fields occur in and/or are associated with faulted horst structures.

The Wabamun Group is characterized as a regional aquifer but is confined at its base by siliciclastics and carbonates of the underlying Calmar and Graminia formations of the Winterburn Group (Bachu et al., 2008). Locally, the Graminia Formation may act as an aquifer and provide hydraulic communication with the Nisku Formation (Winterburn Group).

The Wabamun Formation is disconformably overlain by the Exshaw Formation in southern Alberta, by the Blairmore Group in western Alberta and by the Mannville Group in eastern Alberta. The Mississipian shale units (Exshaw and Lower Banff formation) form an aquitard at the top of the Wabamun Group.

7.3 Mineralization

Lithium mineralization within Alberta is defined as Li-enriched, Na-Ca hypersaline brine that is hosted within subsurface, confined, aquifers of Devonian or older ages. The mineralization is emphasised in Figure 7.3, which has been created using publicly available historical brine geochemical data lithium results.

Figure 7.3a and 7.3b show a clear distinction between the lithium in Devonian to Precambrian brine (average 53.8 mg/L Li; n=318 analyses) in comparison to lithium in younger Mississippian to Recent formation water samples (average 8.3 mg/L Li; n=768 analyses).

A further review of this dataset that compares Li-brine within the major stratigraphic groups (see Table 7.1) shows that the Beaverhill Lake and Woodbend groups have the highest average values of lithium (63.8 and 62.0 mg/L Li), followed by the Winterburn Group (50.8 mg/L Li), Elk Point Group (40.8 mg/L Li), Granite Wash (34.3 mg/L Li), and Wabamun Group (34.1 mg/L Li; Figure 7.3c).

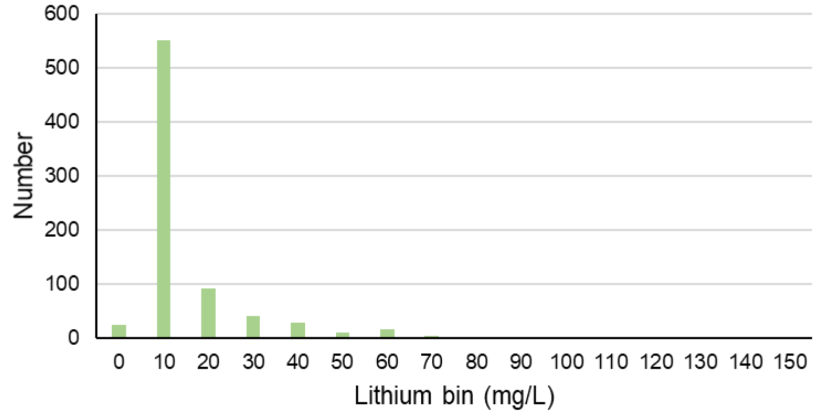
8 Deposit Types

Brine associated with some of the world's oilfields and/or geothermal fields are known to contain anomalous concentrations of Li and are considered potential sources for large tonnages of Li (Garrett, 2004; Tahil, 2007). The Li-brine reservoir, or aquifer, occurs in sedimentary basins at or near the contact with the crystalline basement. In Alberta, this typically occurs at depths of >2,000 m beneath the Earth's surface in deep-seated, pressurized aquifers. The aquifers are typically confined in that the aquifer is bound by aquitards, but in some instances, several aquifers can commingle within a larger confined aquifer system.

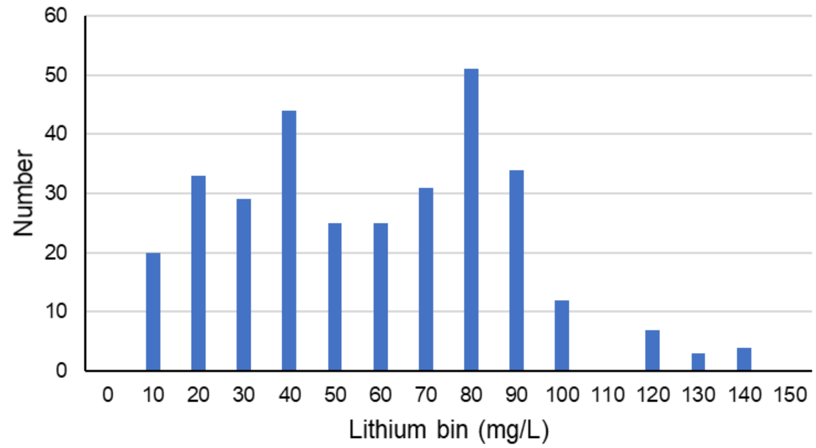
The high Ca and Br content of these brines suggest they are concentrated seawater dolomitization brines with elevated concentrations of Li (typically along with K, Br, B, I, and other trace elements). Because of the aquifer depth, the brine is typically accessed by existing infrastructure such as oil and gas and/or geothermal facilities. Hence the deposit type presents a unique co-product opportunity.

Figure 7.3 Summary of historical and publicly available brine geochemistry in Alberta.

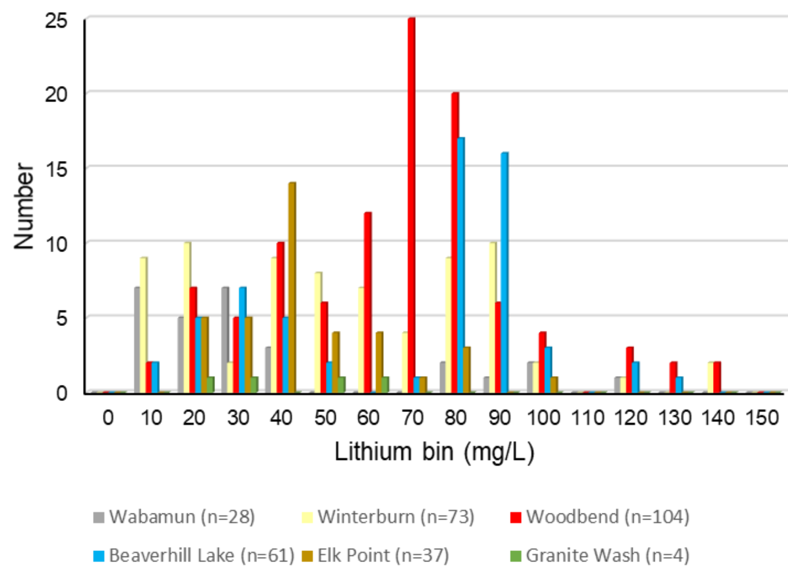
A) Lithium geochemical results in Mississippian to Recent water (n=768 analyses).



B) Lithium geochemical results in Devonian to Precambrian brine (n=318 analyses).



C) Lithium geochemical results for Devonian stratigraphic groups.



Lithium-enriched (>50 mg/kg) brine is present within the Late Devonian Beaverhill Lake (Swan Hills), Winterburn (Nisku) and Woodbend (Leduc) groups (formations) of the WCSB. Early studies proposed a source related to connate water (original sea water) that was altered by diagenesis with selective membrane-filtration of lithium (Billings et al., 1969). Geochemical and isotopic data were used to suggest that any viable lithium-source models should invoke direct mobilization of silicate-bearing fluids from either the crystalline basement or the immature siliciclastic material deposited above the basement, to the Devonian Beaverhill Lake and Leduc aquifers (Eccles and Berhane, 2011).

More recently, Huff (2016, 2019) has shown that two Li-enriched brines with distinctly different geochemical characteristics, and thus distinct evolutionary histories, exist within Late Devonian carbonate of the Alberta Basin. Li-enriched brines of the Nisku and Leduc formations were formed by preferential dissolution of Li-enriched late-stage evaporate minerals, likely from the Middle Devonian Prairie Evaporite, into evapo-concentrated Late Devonian seawater. Laramide tectonics and modern-day upward movement of water through Devonian carbonates has emplaced the diluted Li-enriched brines into the Late Devonian carbonate reef complexes or the Nisku and Leduc Formations.

In addition, isotopic and geochemical modelling has shown that Devonian brine specific to west-central Alberta were formed through halite dissolution and mixing with Li-enriched fluids possibly expelled from Precambrian crystalline basement rocks via hydrothermal fluids (Huff, 2016, 2019), which supports the hypothesis of Eccles and Berhane (2011).

Geological concepts being applied in the investigation and/or exploration of deep-seated, confined Li-brine deposits include a compilation and review of historical oil and gas (or geothermal) geochemical fluid data (if available), and target selection of deep-seated, porous, large-scale, often reef-associated aquifers. Conventional brine assay samples (typically 1-2 litres) are then collected from produced water sample points within the existing oil and gas, or geothermal, infrastructure (e.g., wellhead, separator unit, pipelines, and reinjection points).

Traditional recovery of Li-from-brine – as conducted in South America – utilized solar evaporation to beneficiate the brine to higher levels of lithium prior to finalizing products such as lithium chloride and lithium carbonate. Solar evaporation is not a viable option in regions such as Canada, and hence mini-bulk brine samples are collected to define mineral processing methods that are able to recover lithium from the brine using a quicker extraction technology. Brine sample quantities of 20 liters to 1,000 litres are applicable in bench-scale test work prior to expanding the operation to the pilot plant, and potential commercial application stage.

9 Exploration

To date, Highwood has conducted 2 separate brine geochemical sampling programs at 5 of the Company's 28 Li-brine sub-properties in Alberta and British Columbia. The brine was collected for lithium assay testing and mineral processing test work. The exploration programs are discussed separately in the text that follows.

9.1 Preliminary March-April 2021 Brine Assay Sampling Program

During March-April 2021, Highwood commissioned two Calgary, AB based laboratories to conduct brine sampling from select petro-operations in Alberta, maintain chain-of-custody of the samples, and analyze the brine for lithium using industry standard techniques. The labs included Highwood's primary lab: AGAT Laboratories (AGAT) and a check lab: Core Laboratories (Core Lab). AGAT Laboratories is a specialized science and laboratory service provider with 12 scientific divisions that offer full-service solutions to multiple industry types within the Environmental, Energy, Mining, Industrial, Transportation, Agri-Food and Life Sciences sectors. Core Labs specializes in reservoir description and production enhancement services.

Both laboratories routinely sample and analyze petro-fluids including waste production water, or brine. A description of the sample collection and security, analytical work conducted, and Quality Assurance – Quality Control is described in Section 11. In general, the samples were taken from brine sample points associated with oil and gas wellheads and/or multi-well collection facilities. The brine is representative of the production reservoir from which the well is pumping petro-products and wastewater brine as part of the petro-operation.

A total of 20 brine samples were collected from a variety of Devonian- to Granite Wash-aged aquifers situated at depths of between 1,222 m and 3,208 m beneath the earth's surface. Brine from 5 of the 28 sub-properties were sampled and include Vauxhall, Drumheller, Kaybob, Judy Creek, and Randall sub-properties (Table 9.1, Figure 9.1).

Because of the 1) large spatial distribution between sample points, and 2) knowledge that the samples are from different reservoirs (fields) and geological formations (pools), the resulting lithium analytical data have a wide range of values from 10.7 mg/L to 52.60 mg/L Li.

A summary of the sampling program analytical results to date include:

- Leduc and Nisku formations brine in the Drumheller sub-property yielded 47.9-52.6 mg/L Li (n=3 samples) and 29.7-32.3 mg/L Li (n=4 samples), respectively (Figure 9.2).

- Gilwood Formation brine in the Randell sub-property yielded 13.5-28.2 mg/L Li (n=4 samples; Figure 9.3).

- Beaverhill Lake Group brine in the Judy Creek and Kaybob sub-properties yielded 24.3-29.9 mg/L Li (n=3 samples) and 10.7-13.6 mg/L Li (4 samples), respectively (Figure 9.3).

Table 9.1 Lithium geochemical results of Highwood's March-April preliminary 2021 brine sampling program.

Sample ID	Highwood sub-property mame	Highwood Permit area	Operator	Well ID	Well name	Lat	Long	Total depth (m)	True vertical depth (m)	Field	Pool	Lithium (mg/L) AGAT	Core Lab
02/05-01-030-21W4	Drumheller	South	Bearspaw	102 / 05-01-030-21 W4 / 0	Bearspaw Et Al 102 Drumw 5-1-30-21	51.537933	-112.838289	1,720.00	n/a	Ghost Pine	D-3 A		52.6
13-35-029-21W4	Drumheller	South	Bearspaw	100 / 13-35-029-21 W4 / 0	Bearspaw Et Al Drumw 13-35-29-21	51.530392	-112.861559	1,699.60	n/a	Ghost Pine	D-2 A		49.7
09-34-029-21W4	Drumheller	South	Bearspaw	100 / 09-34-029-21 W4 / 0	Bearspaw Et Al Drumw 9-34-29-21	51.527122	-112.866605	1,688.60	1,688.54	Ghost Pine	D-2 A		47.9
15-07-029-19W4	Drumheller	South	Bearspaw	100 / 15-07-029-19 W4 / 0	Bearspaw Et Al Drum 15-7-29-19	51.473409	-112.664564	1,655.00	n/a	Wayne-Rosedale	Nisku H		29.7
02/02-36-029-20W4	Drumheller	South	Bearspaw	102 / 02-36-029-20 W4 / 0	Bearspaw 102 Drum 2-36-29-20	51.518725	-112.687117	1,700.00	1,699.84	Wayne-Rosedale	Nisku G		32.3
06-19-029-19W4	Drumheller	South	Bearspaw	100 / 06-19-029-19 W4 / 0	Bearspaw Et Al Drum 6-19-29-19	51.494513	-112.667538	1,676.70	n/a	Wayne-Rosedale	Nisku G		30.2
08-21-013-16W4	Vauxhall	South	CNRL	100 / 08-21-013-16 W4 / 0	Norcen Et Al Enchant 8-21-13-16	50.095771	-112.122962	1,425.00	n/a	Enchant	Commingled Pool 006		33.8
13-02-013-14W4	Vauxhall	South	CNRL	100 / 13-02-013-14 W4 / 0	Anadarko Hays 13-2-13-14	50.059694	-111.820327	1,612.00	n/a	Grand Forks	ARCS T		14.2
05-35-078-11W5	Randell	West-central	Summerland	100 / 05-35-078-11 W5 / 0	Summerland Gift 5-35-78-11	55.800460	-115.601487	1,875.00	n/a	Gift	Gilwood H		13.5
09-19-078-11W5	Randell	West-central	Summerland	100 / 09-19-078-11 W5 / 0	Summerland Gift 9-19-78-11	55.776043	-115.683716	2,031.70	1,944.97	Gift	Gilwood K	18.3	
11-02-076-11W5	Randell	West-central	Kinmerc	100 / 11-02-076-11 W5 / 0	Kin Merc Randell 11-2-76-11	55.558096	-115.597815	2,025.00	n/a	Randell	Gilwood D		28.2
08-10-076-11W5	Randell	West-central	Kinmerc	100 / 08-10-076-11 W5 / 0	Kin Merc Randell 8-10-76-11	55.567088	-115.608608	2,028.60	n/a	Randell	Gilwood I		28.2
16-11-076-11W5	Randell	West-central	Kinmerc	16-11-076-11 W5	Randell 16-11-76-11 Multiwell Facility	55.575791	-115.582876	n/a	n/a	Randell	n/a		25.3
16-18-064-011W5	Judy Creek	West-central	Crescent Point	100 / 16-18-064-11 W5 / 0	CPEC Hz Judyck 16-18-64-11	54.543171	-115.641310	4,510.00	2,656.17	Judy Creek	Beaverhill Lake T		24.8
08-17-064-10W5	Judy Creek	West-central	Crescent Point	100 / 08-17-064-10 W5 / 0	CPEC Hz Judyck 8-17-64-10	54.535558	-115.466902	5,298.00	2,580.64	Judy Creek	n/a		24.3
12-02-65-10W5	Judy Creek	West-central	Crescent Point	102 / 12-02-065-10 W5 / 0	CPEC Hz Swanhs 12-2-65-10	54.598651	-115.381534	4,302.00	2,461.78	Judy Creek	n/a		29.9
Kaybob 8-9 Gas Plant	Kaybob	West-central	Paramount	08-09-064-19 W5	Trilogy Kaybob BHL Unit1 Facility 8-9-64-19	54.521604	-116.802140	n/a	n/a	Kaybob	Beaverhill Lake	11.6	
2-9-64-19W5	Kaybob	West-central	Paramount	100 / 02-09-064-19 W5 / 0	Trilogy Kaybob 2-9-64-19	54.517989	-116.808376	3,031.80	n/a	Kaybob	Beaverhill Lake A	13.6	
4-21-64-19W5	Kaybob	West-central	Paramount	100 / 04-21-064-19 W5 / 0	Trilogy Kaybob 4-21-64-19	54.547081	-116.820840	3,029.70	n/a	Kaybob	Beaverhill Lake A	13.2	
10-22-64-19W5	Kaybob	West-central	Paramount	100 / 10-22-064-19 W5 / 2	Trilogy NT Kaybob 10-22-64-19	54.554303	-116.783189	2,984.00	n/a	Kaybob	Commingled Pool 010	10.7	
											Minimum	**10.7**	**13.5**
											Maximum	**18.3**	**52.6**

Figure 9.1 Location of Alberta brine samples collected by Highwood during their 2021 brine sampling programs.

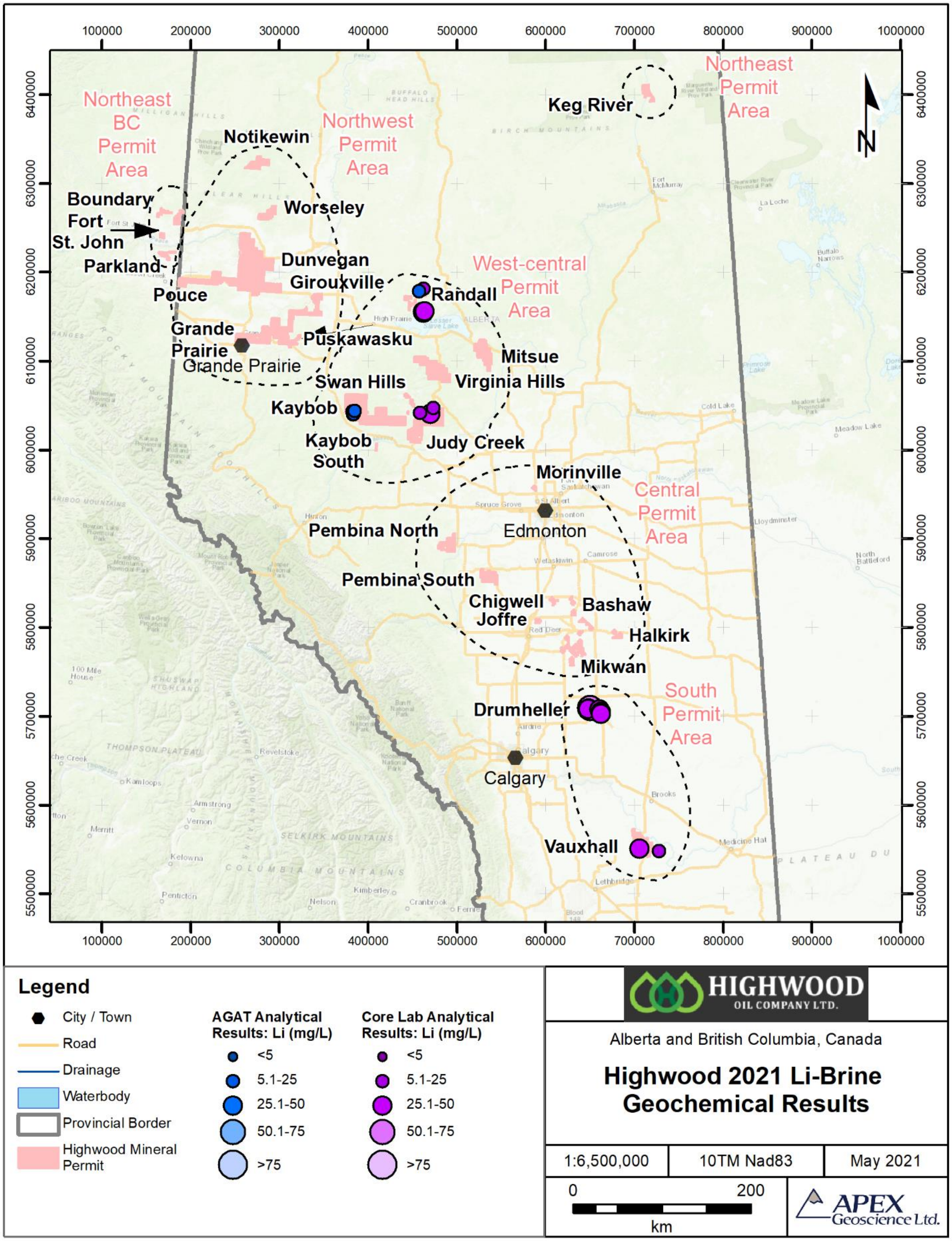


Figure 9.2 Lithium geochemical results of Highwood's 2021 brine samples collected in the South Permit Area.

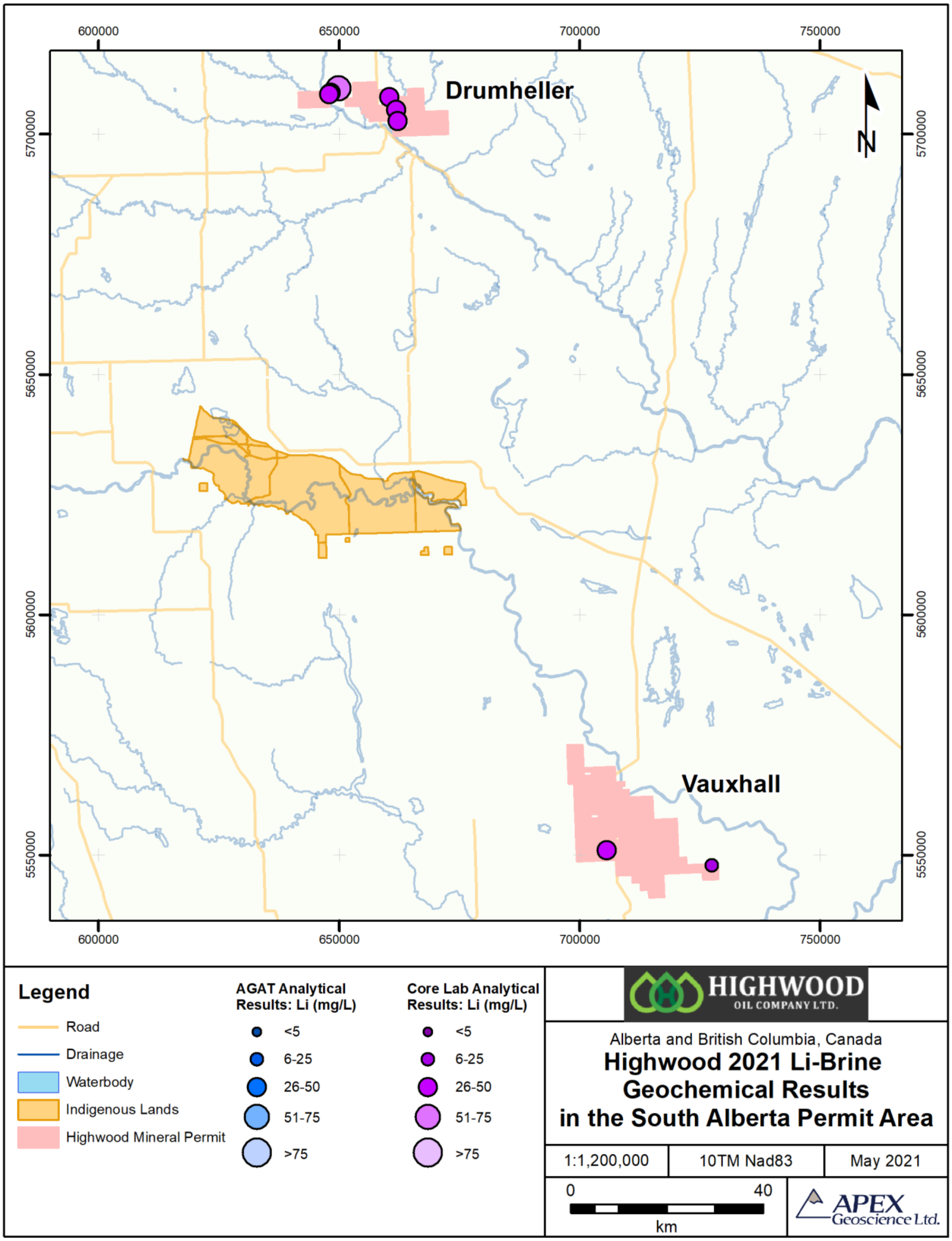
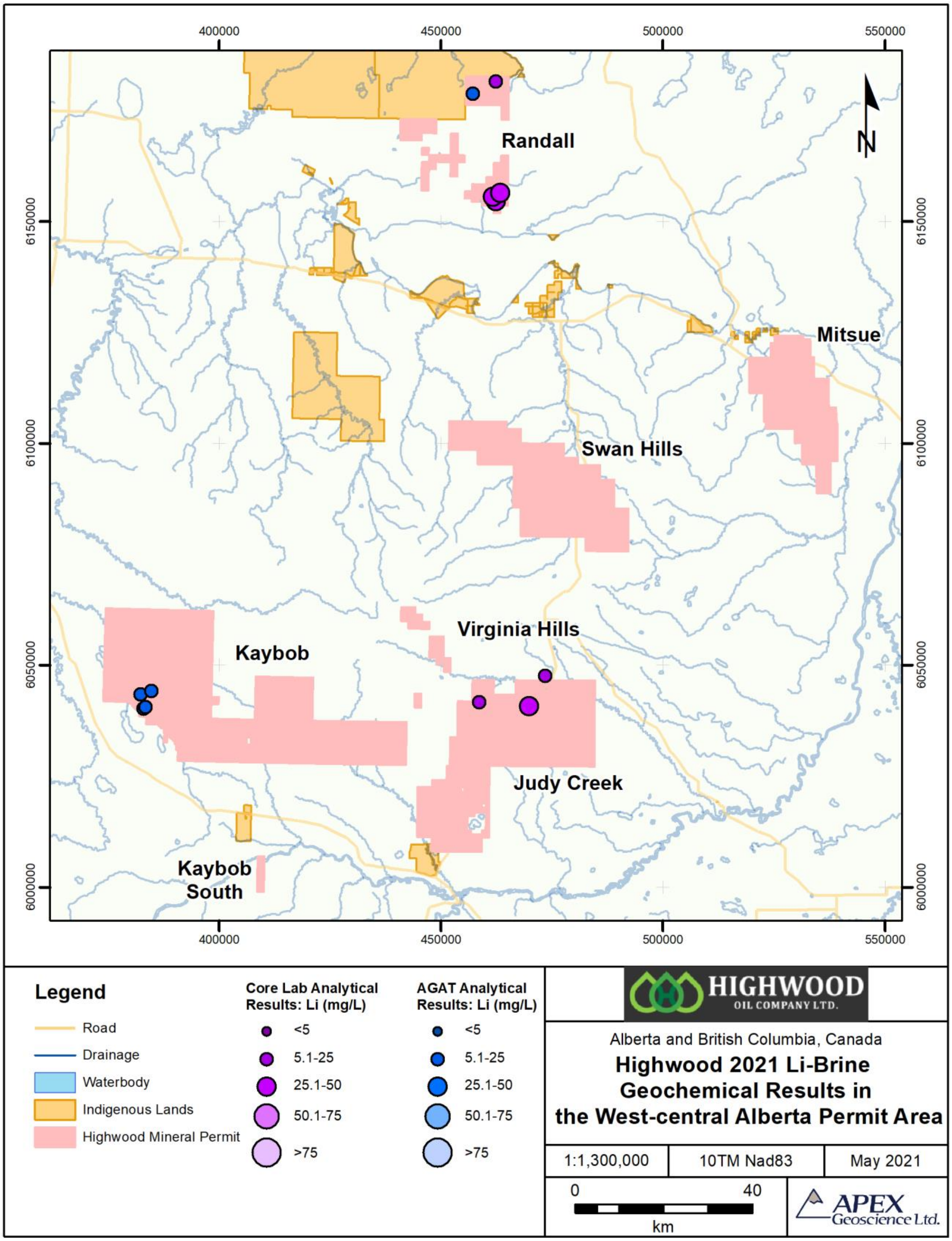


Figure 9.3 Lithium geochemical results of Highwood's 2021 brine samples collected in the West-Central Permit Area.



9.2 Follow-Up May 2021 Brine Assay Sampling Program: Drumheller Sub-Property

On May 28, 2021, Highwood completed a follow-up brine sampling program at the Drumheller Sub-Property with the objective to 1) sample additional wells in the Wayne-Rosedale and Ghost Pines oil and gas fields for assay testing, and 2) collect mini-bulk brine samples (40-litres) for mineral processing test work to assess the extractability of lithium from the Nisku- and Leduc-aged brines.

A total of 10 oil and gas wells or Facilities were selected for brine assay testing and include Nisku- and Leduc-aged brines from the Wayne-Rosedale and Ghost Pine oil and gas fields (Table 9.2). In addition to 8 oil and gas wells, the Facilities included 1) the Crude Oil Multi-Well Proration Battery and Gas Plant (Wayne-Rosedale) at 04-30-029-19W4, and 2) the Crude Oil Multi-Well Proration Battery (Ghost Pine) at 03-02-030-21W4. One well, 100/07-15-029-20W4/0, was shut-in at the time of the sampling program and no brine was collected at this site.

A total of 34 brine samples were collected, which included 32 brine assay samples and 2 mini-bulk brine samples. The brine assay samples included original samples from each of the wells/facilities (n=10), duplicate samples (n=8 sites), blank standard samples (n=3), lab-prepared certified standard samples (n=6), and lab-check samples (n=5).

The mini-bulk mineral processing samples included 20-litre samples (n=2). The mineral processing samples were delivered to metallurgical laboratories, the results of which are not available at the Effective Date of this technical report. The sample preparation, security, analyses, and QA-QC procedures are described in detail in Section 11.

All samples were collected from wellheads or brine sample nipple points at the facilities. The brine assay samples were collected in 1-litre, plastic, screw-cap sample bottles, which were labelled and sealed with electrician tape. The initial appearance of the brine collected in most of the well samples was slightly oily; when the sample jug remained undisturbed for about 30 minutes, the fluids separated, and it became evident that there was only between <1% and approximately 5% oil in the samples with the remaining fluid being brine.

Two separate mini-bulk samples were collected from well 100/13-35-029-21W4/0. The mineral processing samples were collected in 20-litre, steel, bung-sealed pails. The brine assay samples were analyzed by ICP-OES at AGAT Laboratories in Calgary, AB and Bureau Veritas Laboratories in Edmonton, Alberta.

The geochemical assay results of the original, duplicate, and lab check samples are presented in Table 9.3 and Figure 9.4. The Nisku Formation brine from the Wayne-Rosedale oilfield yielded between 22 and 29 mg/L Li (average 24.5 mg/L Li). This includes brine from the fields multi-well proration battery, which yielded between 23 and 28 mg/L Li.

Table 9.2 Drumheller Property well descriptions. Two mini-bulk brine samples (40-litres total) were collected from well 13-35 for mineral processing test work (highlighted).

UWI	Licensee and operator	Surface hole Latitude (NAD27)	Surface hole Longitude (NAD27)	True Vertical Depth (m)	Producing Zone	Field Name	Pool Name
04-30-029-19W4	Bearspaw Petroleum Ltd.	51.504727	-112.673389	Crude Oil Multiwell Proration Battery and Gas Plant (Wayne-Rosedale)			
100/11-07-029-19W4/0	Bearspaw Petroleum Ltd.	51.470902	-112.667835	1575.4	Nisku	Wayne-Rosedale	Nisku H
100/07-30-029-19W4/0	Bearspaw Petroleum Ltd.	51.508287	-112.661981	1675.0	Nisku	Wayne-Rosedale	Nisku G
100/11-24-029-20W4/0	Bearspaw Petroleum Ltd.	51.498888	-112.688513	1683.2	Nisku	Wayne-Rosedale	Nisku G
102/02-36-029-20W4/0	Bearspaw Petroleum Ltd.	51.518844	-112.687260	1699.8	Nisku	Wayne-Rosedale	Nisku G
100/09-34-029-21W4/0	Bearspaw Petroleum Ltd.	51.527135	-112.866595	1688.5	Nisku	Ghost Pine	Nisku A
100/13-35-029-21W4/0	Bearspaw Petroleum Ltd.	51.530392	-112.861559	1699.6	Nisku	Ghost Pine	Nisku A
100/14-35-029-21W4/0	Bearspaw Petroleum Ltd.	51.530387	-112.855758	1709.0	Nisku	Ghost Pine	Nisku A
03-02-030-21W4	Bearspaw Petroleum Ltd.	51.534186	-112.855754	Crude Oil Multiwell Proration Battery (Ghost Pine)			
102/05-01-030-21W4/0	Bearspaw Petroleum Ltd.	51.537933	-112.838289	1720.0	Leduc	Ghost Pine	Leduc A

Table 9.3 Selected geochemical results from follow-up brine assay testing at the Drumheller Sub-Property. Sample RE21-HOC-WR-008 was not collected because the well was shut-in. Samples RE21-HOC-GP-007 and RE211-HOC-GP-008 were collected for mineral processing test work.

A) Wayne-Rosedale Oilfield

Sample ID	UWI	Sample type	Lab	Total Li (mg/L)	Total B (mg/L)	Total Ca (mg/L)	Total Mg (mg/L)	Total Na (mg/L)	Total K (mg/L)
RE21-HOC-WR-001	100/11-07-029-19W4/0	Original	AGAT	25.7	59.0	3,700	851	15,300	1,450
RE21-HOC-WR-002	100/11-07-029-19W4/0	Duplicate	AGAT	24.3	62.0	3,590	814	14,500	1,410
RE21-HOC-WR-003	100/11-07-029-19W4/0	Original	Bureau Veritas	21.7	55.0	3,310	692	14,200	1,540
RE21-HOC-WR-004	100/11-07-029-19W4/0	Duplicate	Bureau Veritas	22.1	56.1	3,380	682	14,300	1,580
RE21-HOC-WR-005	100/07-30-029-19W4/0	Original	AGAT	28.7	64.0	4,460	1,050	16,800	1,690
~~RE21-HOC-WR-008~~	~~100/07-15-029-20W4/0~~	No sample taken: well down		/	/	/	/	/	/
RE21-HOC-WR-011	100/11-24-029-20W4/0	Original	AGAT	24.3	59.0	3,830	834	14,500	1,410
RE21-HOC-WR-012	100/11-24-029-20W4/0	Duplicate	AGAT	26.9	62.0	4,250	921	16,000	1,570
RE21-HOC-WR-013	100/11-24-029-20W4/0	Original	Bureau Veritas	22.0	55.8	3,670	738	14,100	1,570
RE21-HOC-WR-014	100/11-24-029-20W4/0	Duplicate	Bureau Veritas	22.5	55.4	3,620	764	15,400	1,600
RE21-HOC-WR-016	102/02-36-029-20W4/0	Original	AGAT	25.2	62.0	3,900	893	15,000	1,450

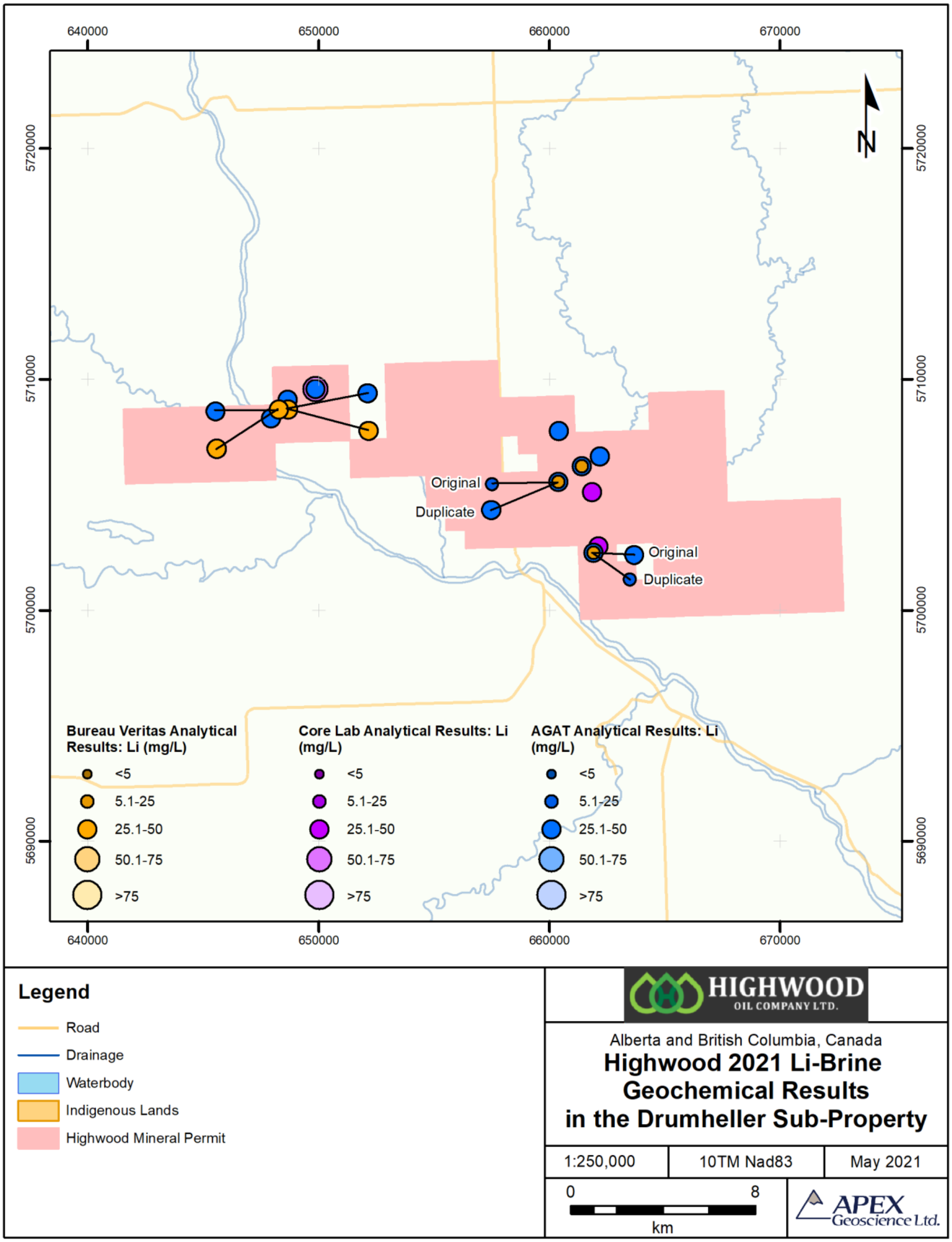
B) Ghost Pine Oilfield

Sample ID	UWI	Sample type	Lab	Total Li (mg/L)	Total B (mg/L)	Total Ca (mg/L)	Total Mg (mg/L)	Total Na (mg/L)	Total K (mg/L)
RE21-HOC-GP-001	100/09-34-029-21W4/0	Original	AGAT	43.7	113.0	10,400	1,940	25,800	2,530
RE21-HOC-GP-003	100/13-35-029-21W4/0	Original	AGAT	46.6	117.0	11,000	2,420	30,500	2,960
RE21-HOC-GP-004	100/13-35-029-21W4/0	Duplicate	AGAT	42.1	125.0	10,100	2,230	27,300	2,770
RE21-HOC-GP-005	100/13-35-029-21W4/0	Original	Bureau Veritas	37.0	111.0	10,500	2,040	24,400	2,750
RE21-HOC-GP-006	100/13-35-029-21W4/0	Duplicate	Bureau Veritas	36.5	108.0	10,600	2,090	24,600	2,690
RE21-HOC-GP-007	100/13-35-029-21W4/0	Mineral processing	SRC	/	/	/	/	/	/
RE21-HOC-GP-008	100/13-35-029-21W4/0	Mineral processing	Recion	/	/	/	/	/	/
RE21-HOC-GP-010	100/14-35-029-21W4/0	Original	AGAT	43.4	110.0	9,410	1,810	26,000	2,480
RE21-HOC-GP-011	100/14-35-029-21W4/0	Duplicate	AGAT	45.8	101.0	9,830	1,900	27,500	2,590
RE21-HOC-GP-012	100/14-35-029-21W4/0	Original	Bureau Veritas	38.9	104.0	10,300	1,910	27,400	2,840
RE21-HOC-GP-013	100/14-35-029-21W4/0	Duplicate	Bureau Veritas	38.4	103.0	10,200	1,890	27,100	2,820
RE21-HOC-GP-016	03-02-030-21W4	Original	AGAT	48.2	105.0	10,300	2,000	30,200	2,870
RE21-HOC-GP-017	102/05-01-030-21W4/0	Original	AGAT	49.0	107.0	9,830	1,930	30,800	2,930
RE201-HOC-BPF-001	04-30-029-19W4	Original	Bureau Veritas	22.8	56.7	4,150	778	15,700	1,590
RE201-HOC-BPF-002	04-30-029-19W4	Original	AGAT	28.3	63.0	4,530	1,030	17,400	1,670

Wayne-Rosedale Oilfield: Original and duplicate brine samples	Total Li (mg/L)	Total B (mg/L)	Total Ca (mg/L)	Total Mg (mg/L)	Total Na (mg/L)	Total K (mg/L)
Minimum	21.7	55.0	3,310.0	682.0	14,100.0	1,410.0
Maximum	28.7	125.0	11,000.0	2,420.0	30,800.0	2,960.0
Mean	24.5	83.2	6,907.0	1,400.3	21,078.3	2,120.0
Median	24.3	64.0	4,530.0	1,050.0	17,400.0	1,690.0

Ghost Pine Oilfield: Original and duplicate brine samples	Total Li (mg/L)	Total B (mg/L)	Total Ca (mg/L)	Total Mg (mg/L)	Total Na (mg/L)	Total K (mg/L)
Minimum	36.5	101.0	9,410.0	1,810.0	24,400.0	2,480.0
Maximum	49.0	125.0	11,000.0	2,420.0	30,800.0	2,960.0
Mean	42.7	109.5	10,224.5	2,014.5	27,418.2	2,748.2
Median	43.4	108.0	10,300.0	1,940.0	27,300.0	2,770.0

Figure 9.4 Summary of Devonian brine assay sampling and analytical results at the Drumheller Sub-Property.



The Nisku-Leduc Formation brine from the Ghost Pine oilfield yielded between 37 and 49 mg/L Li (average 43 mg/L Li). This includes brine from the fields multi-well proration battery, which yielded between 49 mg/L Li. The Nisku and Leduc formations in the Drumheller Sub-Property are generally believed to be in hydrogeological communication. Similarities in the geochemical data between the Nisku and Leduc brine as presented in Table 9.3 suggest the 2 aquifers are connected, but it is worth noting that the Leduc brine samples from well 102/05-01-030-21W4/0 does yield the highest Li-brine value, albeit only slightly, in this dataset (49.0 mg/L Li).

9.3 Brine Mineral Processing Sampling Program: Drumheller Sub-Property

As part of the follow-up Drumheller Sub-Property brine sampling program, Highwood collected two 20-litre brine samples from well 100/13-35-029-21W4.

The brine samples were sent to independent laboratories for mineral processing test work, the results of which, are not available at the Effective Date of this technical report.

10 Drilling

Highwood has not drilled any wells and is reliant on current petro-operators and infrastructure associated with their petro-operations and petroleum production to access deep Devonian to Precambrian aquifer brine within the Alberta and British Columbia portions of the WCSB.

11 Sample Preparation, Analyses and Security

Highwood's preliminary March-April 2021 brine sampling programs were conducted by AGAT Laboratories (AGAT) and Core Laboratories (Core Lab) from Calgary, AB – both labs of which, completed sample collection and analytical work. Highwood's follow-up May 2021 sampling program at the Drumheller Sub-Property was commissioned to Bureau Veritas, who collected the brine samples with AGAT and Bureau Veritas analyzing the samples as the primary and check laboratories.

A description of AGAT, Bureau Veritas, and Core Labs sample collection, preparation, security, and analytical procedures is summarized in the text that follows. The QP ensured QA-QC procedures were included in Highwood's brine sampling programs and these results are also included in this section.

11.1 Sample Collection, Preparation and Security

The brine samples were collected from oil and gas well produced water sample points that include the wellhead, test separator, and the operator's facilities such as multi-well proration batteries, free-water knockouts, etc. The first procedure is to ensure the sample point is associated with flowing brine and that the brine sample point is not representative of stagnant brine. Typically, a one-litre, plastic, screw top sample bottle, or jug, is used to collect the brine. The sample jug is then secured by wrapping electrical tape around the screw top. The sample jug is labelled by using black permanent marker and laboratory prepared one-sided sticky sample labels. The top lid of the jug is also labelled.

The 20-litre brine samples for mineral processing are collected using the sample methodology, except: 1) the sample vessel is a 20-litre, metal, bung-seal pail, and 2) the brine is mitigated of H_2S using a Zinc Acetate Reagent. One hundred grams of Zn Acetate powder was measured and applied to each 20-litre pail.

The brine sample for assay and mineral processing test work is not filtered, and no acid is added to the sample as per typical routine water analysis sample collection procedure. The idea is to collect – and then analytically measure or perform Li extraction technologies – on as representative of a brine sample as possible.

The brine assay samples, which were collected by the respective laboratories, were transported by vehicle directly to the labs. Hence the only chain of custody person was the laboratory technician who collected the brine samples. The mineral processing brine samples were shipped by the laboratory to the respective commercial laboratories for mineral extraction test work. The appropriate Chain of Custody sheets, and sign-off date and times, has been reviewed by the author with no apparent issues.

11.2 Analytical Procedures

AGAT, Bureau Veritas, and Core Labs are independent of Highwood and are well-known and reputable laboratories within the energy sector. AGAT is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC). Bureau Veritas is accredited to ASTM: American Society for Testing and Materials ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories. Core Labs is certified in Quality Management System, which complies with the requirements of ISO 9001:2015. Accreditations and certificates for AGAT and Core Labs are for the provision of specific drinking water tests and rock and fluid analyses related to the oil and gas industry.

The 3 laboratories performed the following analytical techniques on the brine samples:

- Routine water analysis for cations and anions, measured and calculated total dissolved solids (TDS), observed pH, relative density, resistivity, salinity, and total alkalinity as $CaCO_3$.

- At AGAT, a total of 27 metallic elements were analyzed as total metals by ICP-OES after an acid digestion procedure. Reported elements include aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, calcium, chromium, cobalt, copper, iron, lead, lithium, manganese, magnesium, molybdenum, potassium, phosphorous, nickel, selenium, silicon, silver, sodium, strontium, thallium, tin, titanium, uranium, vanadium, and zinc. The minimum limit of detection for lithium at AGAT is 1.0 mg/L Li.

- At Core Labs the metallic analytical results included the same elements listed above (for the AGAT metal results) plus cesium, rubidium, tellurium, tungsten, and zirconium. The analysis was conducted as total metals by ICP-mass spectrometry (ICP-MS) after the brine sample was digested with nitric and hydrochloric acids. The Certificate of Analysis indicates the analysis was performed by ALS Environmental.

- At Bureau Veritas the metallic analytical results include a suite of 32 metal elements. The analysis was conducted as total metals by Total Acid Digestion for Metals (ASTM D5708) followed by ICP-OES 32 element scan for total metals (EPA SW-846 6010C).

- The analytical procedures followed nitric acid digestion (SM 3030 E), Metals by Plasma Emission Spectroscopy, Inductively Coupled Plasma (ICP) Method (SM 3120 B), Procedure for Spectrochemical Determination of Total Recoverable Metals (EPA 200.2), and ICP-mass spectrometry (EPA 6020A).

11.3 Quality Assurance – Quality Control

Initially, Highwood QA-QC procedures were limited to 7 lab-check samples collected during the March-April 2021 brine sampling program. These samples were analyzed at AGAT and Core Labs, the results of which are presented in sub-section 11.3.4.

Upon commissioning APEX, the QA-QC brine sampling protocol included the random insertion of duplicate samples, sample blanks, and pre-lab-prepared brine standard samples. The duplicate samples, sample blanks and lab-prepared standard samples were inserted as part of the Drumheller Sub-Property brine sampling program in which a total of 34 brine samples were collected (32 brine assay samples and 2 mini-bulk brine samples). The brine assay sample stream for the Drumheller Sub-Property program included:

- Original samples from each of the wells/facilities (n=10).
- Duplicate samples (n=8 sites).
- Blank standard samples (n=3).
- Lab-prepared certified standard samples (n=6).
- Lab-check samples (n=5).
- Mini-bulk mineral processing samples included 20-litre samples (n=2; Table 11.1).

The Drumheller Sub-Property assay sample set was sent to Highwood's primary lab (AGAT) and their secondary lab (Bureau Veritas). The results of the QA-QC data analyses are presented in the text that follows.

Table 11.1 Summary of QA-QC samples entered into the Drumheller Sub-Property sample stream. Colour code: Grey – duplicate samples (n=8); blue – Sample Blanks (n=3); red – lab-prepared Sample Standards (n=6); and yellow – lab check samples (n=5).

Sample ID	UWI	Sample type	Lab
RE21-HOC-WR-001	100/11-07-029-19W4/0	Original	AGAT
RE21-HOC-WR-002	100/11-07-029-19W4/0	Duplicate	AGAT
RE21-HOC-WR-003	100/11-07-029-19W4/0	Lab check	Bureau Veritas
RE21-HOC-WR-004	100/11-07-029-19W4/0	Duplicate	Bureau Veritas
RE21-HOC-WR-005	100/07-30-029-19W4/0	Original	AGAT
RE21-HOC-WR-006	Blank	Blank standard	AGAT
RE21-HOC-WR-007	Blank	Blank standard	Bureau Veritas
~~RE21-HOC-WR-008~~	~~100/07-15-029-20W4/0~~	No sample taken: well down	
RE21-HOC-WR-009	Certified Standard	Certified Standard	AGAT
RE21-HOC-WR-010	Certified Standard	Certified Standard	Bureau Veritas
RE21-HOC-WR-011	100/11-24-029-20W4/0	Original	AGAT
RE21-HOC-WR-012	100/11-24-029-20W4/0	Duplicate	AGAT
RE21-HOC-WR-013	100/11-24-029-20W4/0	Lab check	Bureau Veritas
RE21-HOC-WR-014	100/11-24-029-20W4/0	Duplicate	Bureau Veritas
RE21-HOC-WR-015	Certified Standard	Certified Standard	AGAT
RE21-HOC-WR-016	102/02-36-029-20W4/0	Original	AGAT
RE21-HOC-GP-001	100/09-34-029-21W4/0	Original	AGAT
RE21-HOC-GP-002	Blank	Blank standard	AGAT
RE21-HOC-GP-003	100/13-35-029-21W4/0	Original	AGAT
RE21-HOC-GP-004	100/13-35-029-21W4/0	Duplicate	AGAT
RE21-HOC-GP-005	100/13-35-029-21W4/0	Lab check	Bureau Veritas
RE21-HOC-GP-006	100/13-35-029-21W4/0	Duplicate	Bureau Veritas
RE21-HOC-GP-007	100/13-35-029-21W4/0	Mineral processing	SRC
RE21-HOC-GP-008	100/13-35-029-21W4/0	Mineral processing	Recion
RE21-HOC-GP-009	Certified Standard	Certified Standard	AGAT
RE21-HOC-GP-010	100/14-35-029-21W4/0	Original	AGAT
RE21-HOC-GP-011	100/14-35-029-21W4/0	Duplicate	AGAT
RE21-HOC-GP-012	100/14-35-029-21W4/0	Lab check	Bureau Veritas
RE21-HOC-GP-013	100/14-35-029-21W4/0	Duplicate	Bureau Veritas
RE21-HOC-GP-014	Certified Standard	Certified Standard	AGAT
RE21-HOC-GP-015	Certified Standard	Certified Standard	Bureau Veritas
RE21-HOC-GP-016	03-02-030-21W4	Original	AGAT
RE21-HOC-GP-017	102/05-01-030-21W4/0	Original	AGAT
RE201-HOC-BPF-001	04-30-029-19W4	Lab check	Bureau Veritas
RE201-HOC-BPF-002	04-30-029-19W4	Original	AGAT

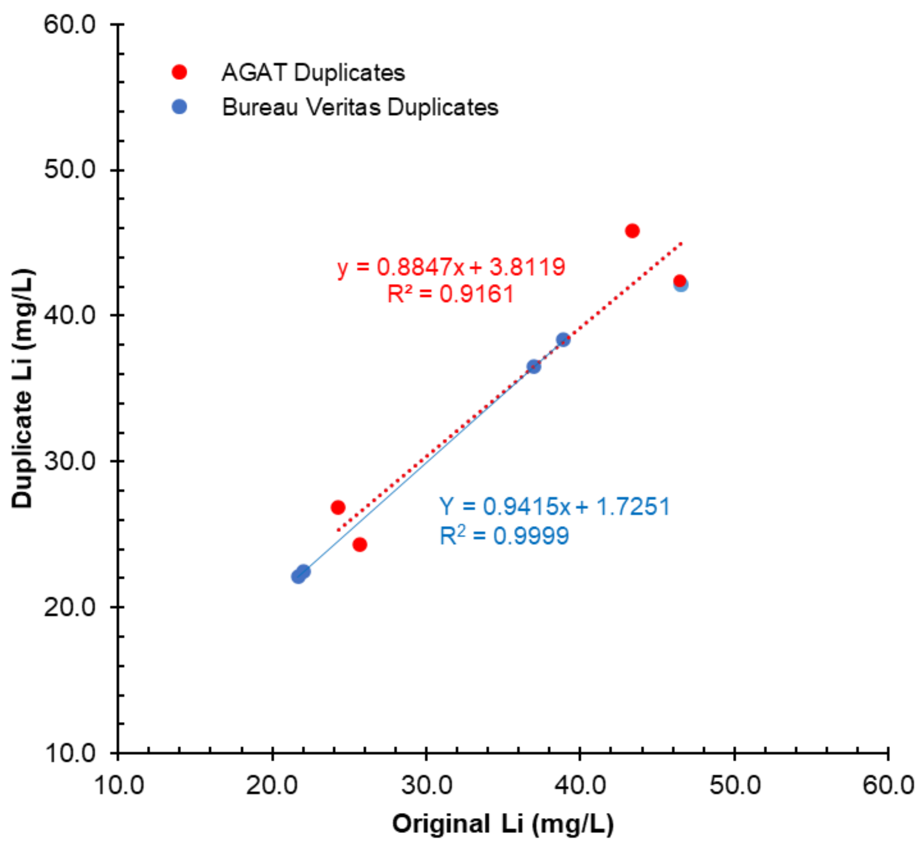
11.3.1 Results of Duplicate Samples

During Highwood's Drumheller Sub-Property brine sampling program, a total of 8 duplicate brine samples were collected with 4 duplicate pairs being analyzed at both AGAT and Bureau Veritas. The analytical results for the duplicate pairs are presented in Figure 11.1 and described in the text that follows.

The quality of the duplicate pair data from AGAT and Bureau Veritas is assessed using average percent relative standard deviation (% coefficient of variation), or average RSD% as an estimate of precision or reproducibility of the analytical results. The RSD% value is calculated using the formula: *RSD% = standard deviation/mean x 100*. It is the author's opinion that average RSD% values below 30% are considered to indicate very good data quality; between 30 and 50%, moderate quality and over 50%, poor quality.

The RSD% values for AGAT and Bureau Veritas range between 3.8% and 7.2%, and 0.9% and 1.3%, respectively. It is concluded that there is very good data quality for Highwood's 2021 Li-brine analytical results at both of these independent laboratories. This positive analytical relationship between the duplicate samples pairs for both labs is shown graphically on Figure 11.1 with best-fit reliability trends of 0.9161 (AGAT) and 0.9999 (Bureau Veritas).

Figure 11.1 Comparison of duplicate samples.



11.3.2 Results of Sample Blank Samples

Sample Blanks composed of distilled water were inserted into the sample stream (n=3 samples). The analytical results for all 3 sample blanks yielded lithium at below the minimum detection. This is an accurate result as the sample standard blanks contained no lithium.

11.3.3 Results of Lab-Prepared Brine Standard Samples

To further evaluate brine analytical accuracy, a laboratory prepared Sample Standard prepared by the University of Alberta was randomly inserted into the sample stream of the 2021 brine sampling program. Highwood commissioned the University of Alberta to prepare a laboratory prepared Sample Standard by adding a measured amount of elemental lithium to an assimilated hypersaline brine concoction.

Components of the Highwood's Sample Standard include pre-measured powdered quantities of LiCl, $CaCl_2.2H_2O$, $MgCl_2.6H_2O$, NaCl, KCl, Na_2SO_4, $FeCl_3.6H_2O$, $Na_2SiO_3.9H_2O$ together with 9.8 L MilliQ water; and 0.200 L 70% HNO_3.

All chemical reagents were weighed and mixed in a bucket. Ultrapure water (9.8-litres) was added to the bucket followed by stirring at room temperature for several minutes. Once thoroughly mixed, 200 ml of 70% HNO_3 was added to the bucket and the solution was re-mixed. Adding acid to water/brine samples is routine in aqueous geochemistry as it prevents adsorption of metal ions and their precipitation.

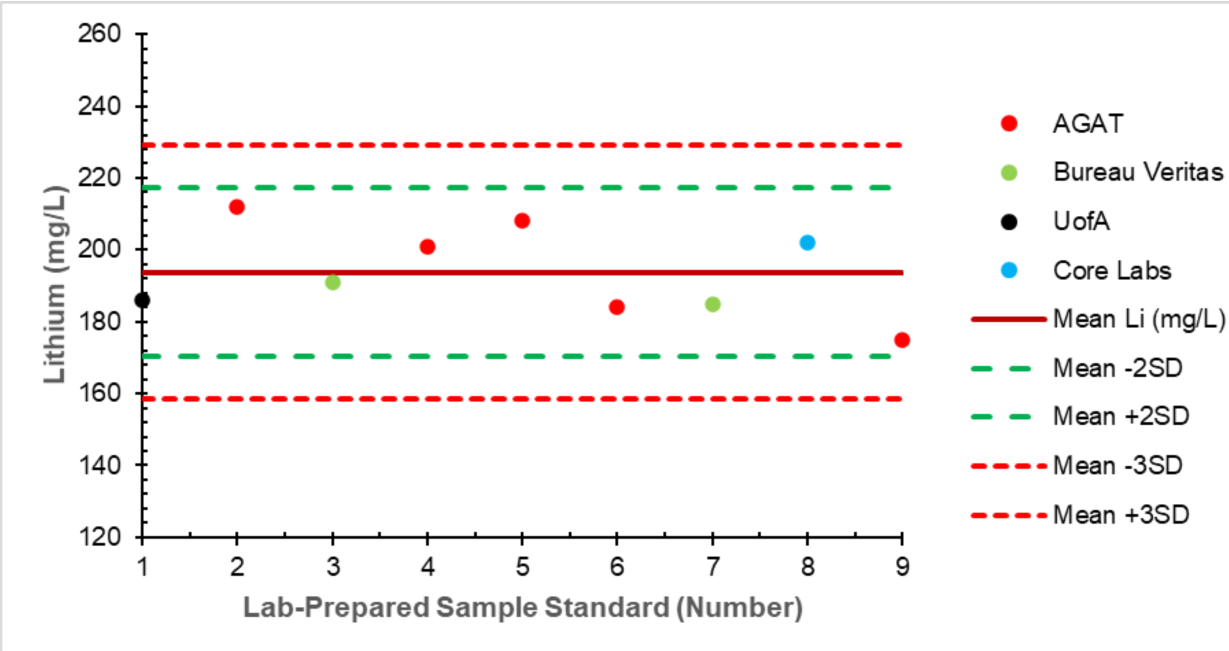
The Sample Standard has a conceived mean of 186±7 mg/L Li. This value is derived from the University of Alberta using ICP-MS instrumentation after routine calibration of the instrument.

A total of 8 lab-prepared Sample Standard samples were submitted as part of the brine sample stream to AGAT (n=5 samples), Bureau Veritas (n=2 samples), and Core Labs (n=1 sample). The analytical results ranged between 175 and 212 mg/L Li (average 194 mg/L Li), which within the analytical error of the University of Alberta CIP-MS measured value (186±7 mg/L Li).

The RSD% of the 8 Sample Standard analysis is 6.1% indicative of very good data quality. The Sample Standard analytical results from all laboratories plot within 2 standard deviations of the mean (194 mg/L Li) and within the University of Alberta measured value of 186±7 mg/L Li (Figure 11.2).

It is concluded that the laboratories used by Highwood are within error of the lab-prepared brine standard and therefore, the analytical data presented are suitable for reporting purposes in this technical report and for use in potential future resource estimation reporting.

Figure 11.2 Sample Standard analytical results.



11.3.4 Laboratory Check Samples

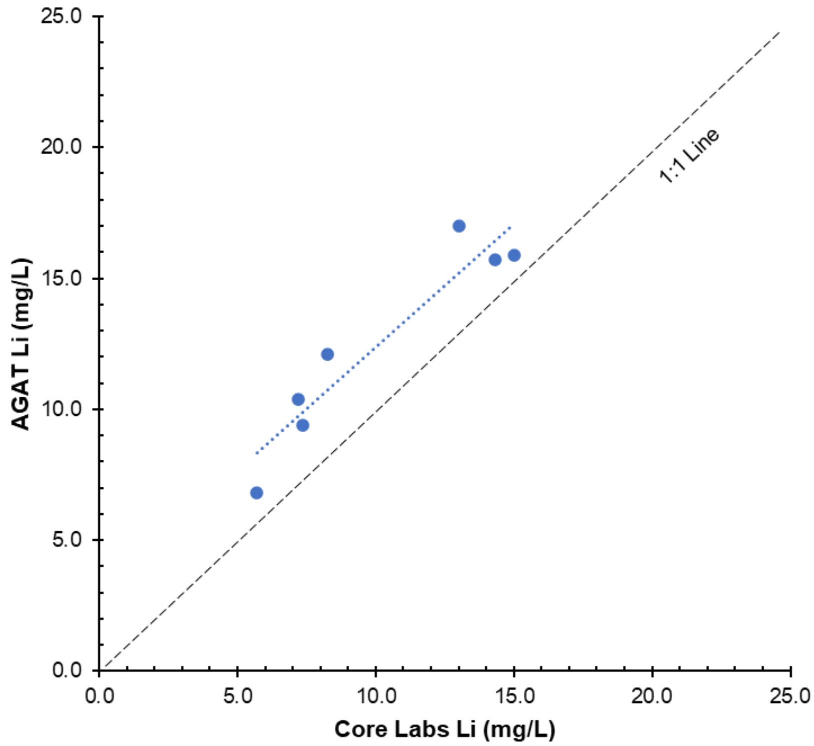
During the March-April 2021 preliminary sampling program, a total of 7 sample sites were duplicated with samples sent to both AGAT and Core Lab. Comparative results are presented in Figure 11.3a and show that the AGAT brine analysis consistently yielded higher lithium results in comparison to the Core Lab results. The senior author and QP investigated this discrepancy and concluded that the difference between the two labs is a result of analytical technique. AGAT analyzed the brine by ICP-OES while Core Lab used ICP-MS.

Presently, ICP-OES is the technique of choice for liquids including hypersaline brine. The advantages of using ICP-OES over other elemental analysis techniques such as ICP-MS or atomic absorption spectrometry (AAS) include its wide linear dynamic range, high matrix tolerance, and the enhanced speed of analysis that can be achieved.

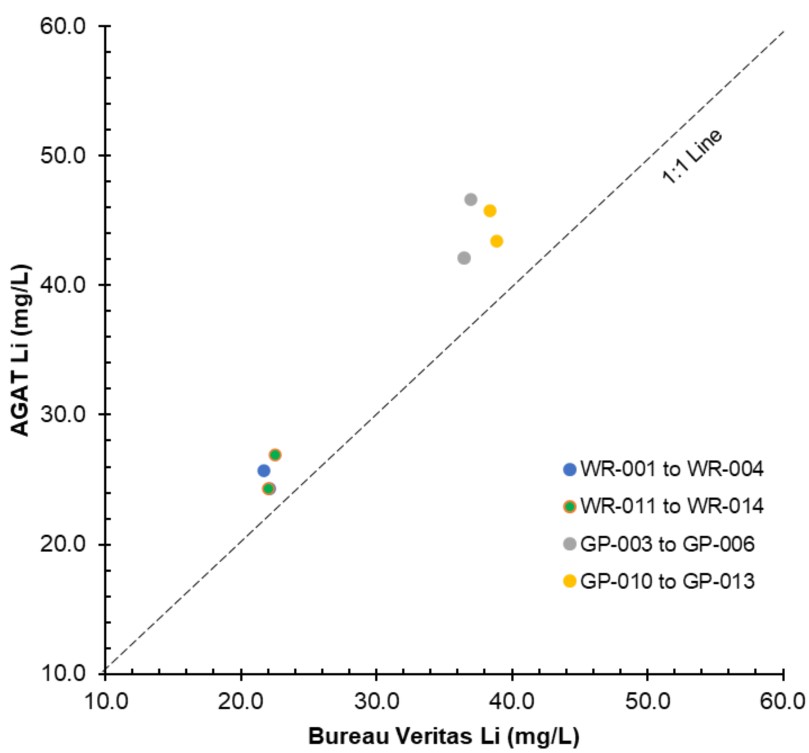
During the May 2021 follow-up sampling program at the Drumheller Sub-Property, a total of 4 (of 10) sample sites were duplicated with samples sent to both AGAT and Bureau Veritas. Comparative results are presented in Figure 11.3b and show a similar trend in that the AGAT lab analyses continue to yield higher lithium results in comparison to both Bureau Veritas and Core Labs.

Figure 11.3 Comparison of lithium from duplicate field brine samples that were analyzed at AGAT, Core Lab and Bureau Veritas.

A) AGAT versus Core Labs



B) AGAT versus Bureau Veritas



11.4 Adequacy of Sample Collection, Preparation, Security and Analytical Procedures

These analytical brine data were prepared by independent and accredited third-party laboratories. The analytical methods carried out by the laboratories is standard and routine in the field of Li-brine geochemical analytical test work. All work conducted has been done using accepted standard protocols, and generally accepted practices and methods.

The author and QP has reviewed the adequacy of the sample preparation, security, and analytical procedures and found no significant issues or inconsistencies that would cause one to question the validity of the data. The QP is satisfied with the adequacy of the procedures as implemented by Highwood.

It is the QP's opinion that Highwood should continue to use laboratories that implement ICO-OES for total metals. This would include AGAT as Highwood's primary lab with check samples being analyzed at a secondary laboratory such as Bureau Veritas. It is the QP's opinion that the analytical results produced from these laboratories are sufficient for any future resource estimation work conducted by Highwood in accordance with NI 43-101 and CIM Definition Standards and Guidelines (CIM, 2014, 2019).

12 Data Verification

Highwood's Li-brine Alberta and British Columbia sub-properties represent an early-stage exploration project. The primary datasets evaluated by the author in the preparation of this geological introduction technical report include publicly available oil and gas well data, and brine geochemical data related to Highwood's initial 2021 brine sampling programs. The author and QP completed a site inspection to Highwood's Drumheller sub-property on May 28, 2021.

12.1 Oil and Gas Well Data Verification Procedure

The well data were acquired from a third-party oil and gas data management company AbaData, who was developed Abacus Datagraphics and has managed and supplied WCSB petroleum data and maps to industry for over 25 years. AbaData features more than 100 data layers displaying information on energy, forestry, government, the environment, property, utilities, and many others. The AbaData data update cycles range from yearly, monthly, weekly, daily and in some cases, data is updated multiple times a day.

Under Directive 059: Well Drilling and Completion Data Filing Requirements, oil and gas companies exploring/producing in Alberta must record and submit data to the AER throughout the drilling phase of any well and update the well's status throughout its life cycle. These data are available in general well data reports generated by the AER, which is also used by third-party oil and gas data management companies to build their respective databases.

As a data verification step, the author compared the well status between AbaData and the AER's general well data reports for a select number of wells (approximately 30 wells) within Highwood's sub-properties. There were no issues to indicate that there is a discrepancy between the well status datasets and the AbaData are deemed appropriate and reliable by the QP for the context of the background geological information used in this technical report.

12.2 Geochemical Data Verification Procedure

The QP reviewed a geochemical dataset provided by Highwood against the original AGAT and Core Labs Certificate of Analysis, which are not produced without the approval of the respective laboratories. Apart from one sample (RE21-HOC-WR-014), no discrepancies were observed.

With respect to the discrepancy mentioned in the text above, upon reviewing the initial analytical results, a single sample (RE21-HOC-WR-014) yielded a lithium value of below the limit of detection ("0") in comparison to its duplicate pair, which had 22.0 mg/L Li. Accordingly, Highwood instructed Bureau Veritas to reanalyze this sample, which returned 22.5 mg/L Li indicative of an original lab error.

The QP participated in a meeting with AGAT laboratory lab managers and asked questions related to accreditation, experience, and laboratory methodologies and techniques. AGAT is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC), and ASTM: American Society for Testing and Materials. The lithium content (and trace elements) of the brine samples were analyzed by ICP-OES, which is a standard analytical technique and industry standard for the measurement of lithium-in-brine.

12.3 Qualified Person Site Inspection

The QP conducted a site inspection of the Drumheller Sub-Property on May 28, 2021. The author drove to, stepped on the Sub-Property, observed active oil and gas wells that were producing from the Nisku and Leduc reservoirs/aquifers, and acquired independent brine samples to validate the lithium content of the brine.

A total of 32 1-litre brine samples were collected by the QP in conjunction with Highwood's commissioned brine sample hander, a technician from Bureau Veritas. The samples were transported from the field, and on the same day, to AGAT and Bureau Veritas. Both labs routinely process high TDS brine and perform trace element analysis for lithium. The labs comply with the data quality objectives of the industry, Canadian Regulators, U.S. EPA, and the International Standards Organization (ISO/IEC 17025). The lithium content (and trace elements) of the brine samples were analyzed by ICP-OES, which is a standard analytical technique and industry standard for the measurement of lithium-in-brine.

A summary of the QP brine sample analytical results is presented in Section 9.3. the QA-QC measures applied by the QP on the Drumheller Sub-Property brine samples are discussed in Section 11.3. The analytical results of the brine samples collected by the QP confirm that the Nisku- and Leduc-aged brine at the Drumheller Sub-Property is enriched in lithium. The Nisku Formation brine from the Wayne-Rosedale oilfield yielded between 22 and 29 mg/L Li (average 24.5 mg/L Li). The Nisku-Leduc Formation brine from the Ghost Pine oilfield yielded between 37 and 49 mg/L Li (average 43 mg/L Li).

12.4 Validation Limitations

Apart from using a check lab, there were minimal QA-QC protocols established by Highwood, or the laboratories commissioned by Highwood, to collect the Company's March-April 2021 preliminary brine samples. Hence the number of QA-QC comparative sample data are minimal from this time-period and represent an initial limitation of the Highwood dataset.

As the sampling program developed, and APEX was commissioned to prepare this technical report, the QP made QA-QC recommendations as part of a sub-property site inspection that included unique sample ID's together with the random insertion of sample duplicates, sample blanks, and sample standards into the sample stream. While this work was conducted during the preparation of this technical report, the resulting QA-QC information did help the QP to evaluate and validate the laboratory data.

Future brine sampling programs initiated by Highwood should adhere to the new QA-QC protocol. This would enable a higher-level confidence in the data in the event Highwood wants to advance the sub-properties and/or evaluate Li-brine resources in accordance with NI 43-101 and CIM Definition Standards and Best Practice Guidelines (2014, 2019).

12.5 Adequacy of the Data

The senior author and QP has reviewed the adequacy of the information presented in this technical report, including oil and gas well data and geochemical data, and found no significant issues or inconsistencies that would cause one to question the validity of the data. The QP is satisfied to include the information and data as presented in this geological introduction technical report.

13 Mineral Processing and Metallurgical Testing

Highwood's Alberta and British Columbia Li-brine project is an early-stage exploration project. On May 28, 2021, the Company initiated mineral processing test work to investigate the recovery of lithium from the Devonian brine by collecting two 20-litre brine samples from the Drumheller Sub-Property. The brine has been sent to independent laboratories for mineral processing test work, the results of which, are not available at the Effective Date of this technical report.

14 Mineral Resource Estimates

Highwood's Alberta and British Columbia Li-brine project is an early-stage exploration project, and the Company has yet to conduct resource estimate modelling or estimation work.

**** NI 43-101 Items 15 to 22 are not included in this technical report because Highwood's sub-properties do not represent advanced project ****

23 Adjacent Properties

This section discusses mineral properties that occur outside of the Highwood sub-properties. The QP has been unable to verify information pertaining to mineralization on the competitor properties, and therefore, the QP and Highwood advocate that the information is not necessarily indicative to the mineralization on the sub-properties that are the subject of the Technical Report.

Alberta has experienced several waves of Li-brine staking since 2010, including a current interest in Devonian to Precambrian aged aquifer brines in which brine access is entirely through oil and gas infrastructure. Figure 23.1 shows there are many competitors with mineral permits near or adjacent to the Highwood sub-properties (competitor mineral permits in grey).

Competitor Li-brine companies in the vicinity of Highwood's mineral permits include, for example, Prism Diversified Ltd., Empire Metals Corp., E3 Metals Corp., and Lithiumbank Resources Corp. The websites of these companies show an interest in Li-brine (E3 Metals Corp., 2021a; Empire Metals Corp., 2021; LithiumBank Resources Corp., 2021; Prism Diversified Ltd., 2021).

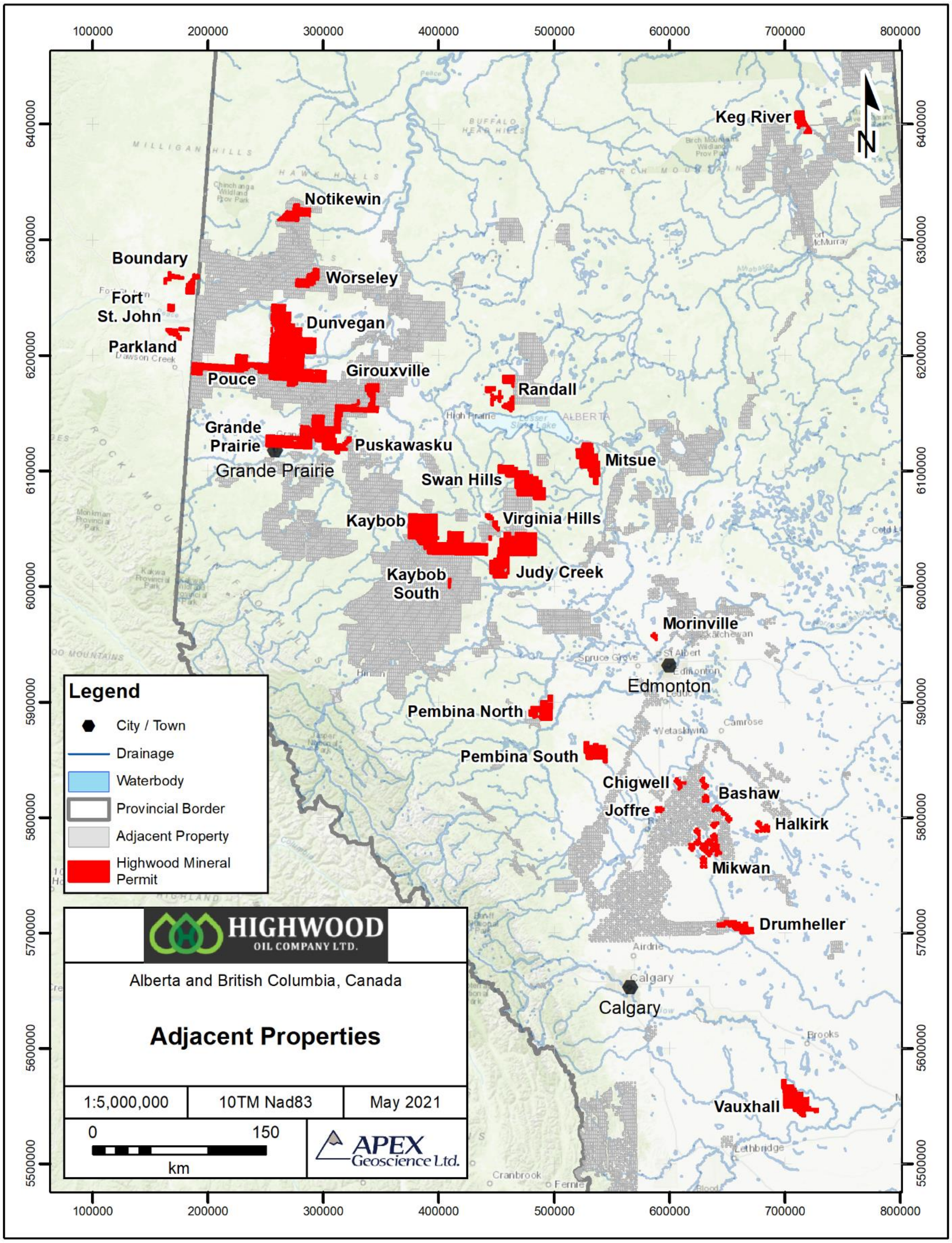
Most of these companies are early-stage exploration projects. E3 Metals Corp. was awarded a $1.8 million Alberta innovates grant for development of a Direct Lithium Extraction technology and announced the opening of their Calgary Testing Facility as the Company works toward their objective of a field pilot plant (E3 Metals Corp., 2021b, 2021c).

At present, most of the mineral production in Alberta occurs in the form of industrial minerals (e.g., aggregate, limestone, etc.). Aggregate quarries are scattered throughout northern Alberta with their activity level dependent on proximal roadbuilding and/or municipal and energy industry infrastructure projects.

24 Other Relevant Data and Information

None to report at the Effective Date of this technical report.

Figure 23.1 Adjacent mineral permits in the vicinity of Highwood's sub-properties.



25 Interpretation and Conclusions

25.1 Results and Interpretations

Highwood's Alberta- and British Columbia-based Li-brine project is an early-stage exploration project. Highwood has acquired 155 mineral permits/titles (942,575.09 hectares) that form individual groupings of 28 non-contiguous sub-properties scattered throughout Alberta and the northeast British Columbia portions of the Western Canada Sedimentary Basin. The mineral permits were acquired with the intent to explore for Li-brine mineralization. Area selection was conducted through oil and gas well database searches to depict regions with active petro-operations that produce from Devonian- to Precambrian (Granite Wash)-aged reservoirs.

Li-brine exploration companies are reliant on brine access agreement with the petro-operators to obtain brine for early exploration stage assaying and mineral processing test work. To date, Highwood has obtained permission, or formed agreements, to access brine from petro-operators in the southern and west-central areas of Alberta.

In a preliminary March-April 2021 sampling program, Highwood collected brine from 5 of the 28 sub-properties that included a variety of Devonian- to Granite Wash-aged aquifers situated at depths of between 1,222 m and 3,208 m beneath the earth's surface. Because of the 1) large spatial distribution between sample points, and 2) knowledge that the samples are from different reservoirs (fields) and geological formations (pools), the resulting preliminary lithium analytical data have a wide range of values from 10.7 mg/L to 52.60 mg/L Li.

A summary of the sampling program analytical results to date include:

- Leduc and Nisku formations brine in the Drumheller sub-property yielded 47.9-52.6 mg/L Li (n=3 samples) and 29.7-32.3 mg/L Li (n=4 samples), respectively.

- Gilwood Formation brine in the Randell sub-property yielded 13.5-28.2 mg/L Li (n=4 samples).

- Beaverhill Lake Group brine in the Judy Creek and Kaybob sub-properties yielded 24.3-29.9 mg/L Li (n=3 samples) and 10.7-13.6 mg/L Li (4 samples), respectively.

Highwood conducted a May 2021 follow-up brine sampling program at their Drumheller Sub-Property, in which the Company collected 32 brine samples for assay and QA-QC testing and two 20-litre brine samples for mineral processing test work. The analytical results of this work showed:

- The Nisku Formation brine from the Wayne-Rosedale oilfield yielded between 22 and 29 mg/L Li (average 24.5 mg/L Li).

- The Nisku-Leduc Formation brine from the Ghost Pine oilfield yielded between 37 and 49 mg/L Li (average 43 mg/L Li).

- The analytical results of individual oil and gas wells correlated with multi-well proration battery Facilities. This is important because the Facilities represent brine collection sites that could yield a continuous and high-volume flow of brine for any future lithium extraction test work.

The QP conducted a site inspection at Highwood's Drumheller sub-property on May 28, 2021. The inspection confirmed or validated 1) actively pumping oil and gas infrastructure at the Ghost Pine and Wayne-Rosedale oil and gas field (Highwood's Drumheller sub-property), 2) Highwood's permission from the petro-operator to collect brine samples, and 3) lithium mineralization within Nisku and Leduc formations brine from the sub-property as established by the independent brine sample collection and analytical work. The analytical results verify the historical Li-brine mineralization in the region.

In addition, the QP observed Highwood's collection of two 20-litre samples of representative Nisku Formation brine from a well within the Drumheller sub-property for mineral processing work at independent laboratories. This work is underway, and results are not available at the Effective Date of this technical report.

It is the QP's opinion that the exploration work conducted by Highwood to date is reasonable and within the standard practices of Li-brine evaluation with deep-seated confined aquifers as presented in this technical report. This contention is based on 1) the QP's site inspection and independent verification of Li-brine mineralization, 2) a review of Highwood's primary and check laboratories that included discussion on the labs brine sample collection and brine preparation methods, and 3) a review of the analytical results in conjunction with laboratory certificates.

25.2 Risks and Uncertainties

As with any early-stage exploration project there exists potential risks and uncertainties. Highwood will attempt to reduce risk/uncertainty through effective project management, engaging technical experts, and developing contingency plans.

Because Highwood is reliant on pre-existing oil and gas wells that are managed and operated by current petro-companies, there is some risk associated with a dependency on the petro-operation and continued brine access. It is possible that situations could arise where the petro-companies shut down well production – for example – due to poor commodity prices, depletion of petroleum product reserves, and/or production well performance of the reservoir. As a mitigation strategy, Highwood could permit and drill their own wells or consider options such as purchasing the well, renting the operation of the well, etc.

26 Recommendations

The author concludes that Highwood's Li-brine sub-properties represent properties of merit. A two-phased program is recommended that continues to assess the 28 sub-properties for their Li-brine potential and defines advanced work for one or more of the sub-properties intended to increase the confidence level of the data toward mineral resource estimation(s).

The total estimated cost of Phase 1 and Phase 2 of the recommended exploration work, with a 10% contingency, is CDN$225,500 and CDN$236,500. The total estimated cost of the recommended exploration work, with a 10% contingency, is CDN$462,000 (Table 26.1).

Phase 1 work recommendations include the following activities intended to explore and define the reasonable prospects of potential economic extraction.

- To the Effective Date of this technical report, Highwood has collected brine samples for assay testing from 5 of their 28 sub-properties. Hence the first recommendation is for Highwood to continue to sample brine from Devonian to Precambrian wells from a select number of sub-properties that have yet to be tested. In addition, follow-up brine sampling can be conducted on selected sub-properties toward advancement to the mineral resource classification stage. The brine sampling involves obtaining permission from the petro-operator and contracting technicians to travel to the field/pools and collect the brine. This is done in conjunction with the petro-operator and entails collecting brine at sample points that include the wellhead, test separator unit, and processing facilities. A one-litre sample is typically collected for the assay testing that can include routine water analysis and total metals by ICP-OES. The cost of the brine assay sampling program(s) is estimated at CDN$85,000.

- Highwood suggest collect additional brine fluid from selected sub-properties for the Company's initial benchtop lithium extraction test work. The goal of this work is to produce a lithium concentrate from the Devonian to Precambrian brine. The size of the brine sample can vary from 10-litres to 100-litres dependent on the lab. The work is typically conducted at commercial and/or private laboratories. The estimated cost of this initial mineral processing test work is CDN$70,000 including sample collection, H_2S mitigation, shipping, and analytical test work.

- A hydrogeological assessment and characterization of the aquifer(s) is required as per CIM Best Practice Guidelines for Resource and Reserve Estimation for Lithium Brines (1 November 2012). This work includes investigation and definition of porosity, permeability, transmissivity, storativity, etc., within a deep-seated, confined aquifer. The work is typically conducted by hydrogeological consultants. The estimated cost of hydrogeological studies on 2 separate sub-properties is CDN$50,000.

The Phase 2 work recommendations are subject to the positive results of the Phase 1 work initiatives. Phase 2 work recommendations include the following activities intended to refine the lithium recovery processes and conduct mineral resource modelling and estimations.

- As the project advances, the QP recommends ongoing mineral processing test work that includes 1) adjustments to the initial benchtop extract process, 2) develop additional confidence in the development of a Li concentrate, and 3) take the concentrate to a lithium hydroxide form to evaluate the brine and the lithium extraction process to produce battery grade lithium product. The estimated cost of the laboratory-scheduled mineral processing test work is CDN$125,000.

- Technical reporting toward resource estimations that are compliant with National Instrument 43-101 and Canadian Institute of Mining and Metallurgy definition standards and best practice guidelines (2014, 2019). The estimated cost of mineral resource modelling and estimation technical reports on 2 separate sub-properties is CDN$90,000, or CDN$45,00 per report.

Table 26.1 Future work recommendations.

Phase	Item	Activity	Cost estimate (CDN$)	Sub-total (CDN$)
Phase 1	1	Brine geochemical assay sampling programs to assess the individual sub-properties	$85,000	
	2	Brine mineral processing bulk brine sampling program(s) and initial benchtop Li extraction work to produce a lithium concentrate.	$70,000	
	3	Hydrogeological studies on selected sub-properties (x2)	$50,000	**$205,000**
Phase 2	1	Ongoing mineral processing test work that includes adjustments and confirmaton benchtop Li extraction test work along with experimental tests to take the Li concentrate to ltihium hydroxide.	$125,000	
	2	Technical reporting and resource modelling and estimations on selected sub-properties (x2)	$90,000	**$215,000**
			Sub-total	**$420,000**
			Contingency (10%)	**$42,000**
			Total	**$462,000**

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28 Certificate of Author

I, **D. Roy Eccles**, P. Geol., do hereby certify that:

1. I am a Senior Consulting Geologist and Chief Operations Officer of APEX Geoscience Ltd., #100 11450-160 Street, Edmonton, Alberta T5M 3Y7.
2. I graduated with a B.Sc. in Geology from the University of Manitoba in Winnipeg, Manitoba in 1986 and with a M.Sc. in Geology from the University of Alberta in Edmonton, Alberta in 2004.
3. I am and have been registered as a Professional Geologist with the Association of Professional Engineers and Geoscientists of Alberta (APEGA) since 2003, and Newfoundland and Labrador Professional Engineers and Geoscientists (PEGNL) since 2015.
4. I have worked as a geologist for more than 35 years since my graduation from university and have been involved in all aspects of mineral exploration, mineral research, and mineral resource estimations for metallic, industrial, specialty, and rare-earth element mineral projects and deposits.
5. I have read the definition of "Qualified Person", as set out in National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101). By reason of my education, affiliation with a professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101. My technical experience includes exploration and preparation of mineral resource estimates for lithium-brine projects in western Canada, southeastern and southwestern United States, and central Europe.
6. I prepared this technical report, and accept, responsibility for all items in "***NI 43-101 Technical Report, Geological Introduction to Highwood Oil Company Ltd.'s Lithium-Brine Mineral Sub-Properties in Alberta and British Columbia, Canada***, with an effective date of 14 July 2021 (the "Technical Report). I performed a site inspection at one of Highwood's Drumheller sub-property on 28 May 2021 verifying Highwood's land position, active oilfield infrastructure, access to collect brine for lithium assay and mineral processing test work, and verification of the lithium-brine mineralization.
7. To the best of my knowledge, information and belief, the Technical Report contains all relevant scientific and technical information that is required to be disclosed, to make the Technical Report not misleading.
8. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
9. I am independent of Highwood Oil Company Ltd. and the Company's sub-properties, applying all the tests in section 1.5 of NI 43-101 and Companion Policy 43-101CP.
10. Other than research-orientated lithium-brine geological studies performed as a geologist with the Alberta Government (2010-2011), I have not had any prior involvement with the Highwood Oil Company Ltd.'s sub-properties that are the subject of the Technical Report.
11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files or their websites.

Effective Date: 14 July 2021
Signing Date: 14 July 2021
Edmonton, Alberta, Canada

PROFESSIONAL GEOLOGIST D. ROY ECCLES ALBERTA

14 July 2021

PERMIT TO PRACTICE
APEX GEOSCIENCE LTD.
RM SIGNATURE:
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D. Roy Eccles, M.Sc., P. Geol. P. Geo