

**2014 GEOLOGICAL AND GEOCHEMICAL EXPLORATION  
ON THE  
WOLF LAKE PROPERTY**

**WHITEHORSE MINING DISTRICT, YUKON**

Grant Numbers: WOLF 3-56 (YF46008-YF46061)

Geographic Coordinates  
60°22' N to 60°25' N  
133°39' W to 133°45' W

NTS Sheet 105C05

Owner: H. Lole (Client ID 4001170)  
18, 10509 - 81 Avenue  
Edmonton, Alberta T6E 1X7

Operator: Graymont Western Canada Inc.  
260, 4311-12 Street NE  
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Consultant: Dahrouge Geological Consulting Ltd.  
18, 10509 - 81 Avenue  
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Authors: H. Lole, B.Sc., FGS  
K. Krueger, B.Sc., Geo.I.T.

Field Work: September 3-6<sup>th</sup>, 2014

Date Submitted: May 4, 2015

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## 1. INTRODUCTION

The Wolf Lake quartz claims were staked by Henry Lole in June 2014; Dahrouge Geological Consulting (Dahrouge) completed a surface sampling program from September 3<sup>rd</sup> to 6<sup>th</sup>, 2014. Exploration consisted of collecting 22 limestone samples, representing approximately 61 m of stratigraphy. The majority of the 2014 work on the claims focused on identifying access routes, mapping geological contacts and identifying high-calcium limestone outcrops on the Wolf Lake Property. This report describes the 2014 exploration and provides an interpretation of the results. Appendix 1 is an itemized cost breakdown of the 2014 work completed on the Wolf Lake Property. The operator for the exploration was Graymont Western Canada Inc.

The Wolf Lake Property is comprised of 54 contiguous quartz claims; the Property has been grouped as per Grouping Certificate HW07573.

Structural measurements were obtained at stations throughout the Property. A magnetic declination of 24° 2' E was used. Attitudes of bedding and other planar features are given as A°/B° NW, where A° is the azimuth of the strike (right-hand rule) and B° is the amount of dip in the direction indicated. Where bedding has been obscured by structure, stratigraphic thicknesses were calculated using orientations from adjacent units. Where more than one bedding orientation was measured, the mean orientation was used.

### 1.1 GEOGRAPHIC SETTING

#### 1.1.1 Location and Access

The Wolf Lake Property is located approximately 95 km southeast of Whitehorse, Yukon and 35 km east of the small community of Tagish, Yukon. Tagish has a population of approximately 390 with minimal amenities. Access to the Wolf Lake Property from Whitehorse is by driving south, then east along Alaska Highway 1 for approximately 95 km. A left turn off of Highway 1 onto the Property is located directly north of Summit Lake (Fig.'s 3.2 & 4.1). A network of well-maintained ATV trails exist and can be used for access within the Property.

#### 1.1.2 Topography, Vegetation, Wildlife and Climate

Topography in the Wolf Lake area is characterized by broad U-shaped glacial valleys and ridges of relatively low relief. Elevations on the Property range from 885 m along Highway 1 up to approximately 1,000 m in the westernmost portion.

Tree cover in the Wolf Lake area is moderate to dense. The most common trees are evergreen (spruce, pine and fir), with common birch, poplar, willow, cottonwood and aspen. There is no evidence of recent clear-cutting and logging in the area.

The abundance of wetlands in the Wolf Lake area make it an ideal habitat for a variety of ungulates, birds and small mammals. The Yukon Government has identified seasonal woodland caribou, riparian raptor and muskrat ranges in the Wolf Lake Property area. To the authors' knowledge, there are no restrictions on the area due to the presence of these animals. During exploration, Dahrouge endeavored to minimize disturbance to local flora and fauna.

The area is part of the Boreal Cordillera Eco-zone with generally dry and cool conditions. Climate is alpine to sub-arctic with average summer temperatures of 20° to 25°C and winter temperatures of -15° to -25°C, with extremes of 32°C and -55°C. Rainfall averages about 15 cm per year and maximum snowfall occurs from November to February with an average total of 128 cm. Snow often falls as early as September and as late as April.

## 1.2 PROPERTY

The Wolf Lake claims are being held in trust for Graymont Western Canada Inc. by Henry Lole of Dahrouge Geological Consulting Ltd., based out of Edmonton, AB. The claims were staked from June 16<sup>th</sup> to 18<sup>th</sup>, 2014 by a four person crew based out of Tagish, YT. The Wolf Lake Property consists of 54 quartz claims (WOLF 3-56) with a combined area of 1,128.6 ha.

**TABLE 1 .1 LIST OF WOLF LAKE CLAIMS**

<b>Grant Number</b>	<b>Claim Name</b>	<b>Original Size (ha)</b>	<b>Record Date</b>	<b>New Good To Date</b>	<b>Required Spending</b>
YF46008	WOLF 3	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46009	WOLF 4	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46010	WOLF 5	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46011	WOLF 6	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46012	WOLF 7	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46013	WOLF 8	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46014	WOLF 9	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46015	WOLF 10	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46016	WOLF 11	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46017	WOLF 12	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46018	WOLF 13	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46019	WOLF 14	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46020	WOLF 15	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46021	WOLF 16	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46022	WOLF 17	20.9	14-Jul-14	14-Oct-18	\$325.00

YF46023	WOLF 18	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46024	WOLF 19	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46025	WOLF 20	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46026	WOLF 21	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46027	WOLF 22	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46028	WOLF 23	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46029	WOLF 24	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46030	WOLF 25	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46031	WOLF 26	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46032	WOLF 27	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46033	WOLF 28	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46034	WOLF 29	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46035	WOLF 30	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46036	WOLF 31	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46037	WOLF 32	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46038	WOLF 33	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46039	WOLF 34	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46040	WOLF 35	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46041	WOLF 36	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46042	WOLF 37	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46043	WOLF 38	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46044	WOLF 39	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46045	WOLF 40	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46046	WOLF 41	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46047	WOLF 42	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46048	WOLF 43	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46049	WOLF 44	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46050	WOLF 45	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46051	WOLF 46	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46052	WOLF 47	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46053	WOLF 48	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46054	WOLF 49	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46055	WOLF 50	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46056	WOLF 51	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46057	WOLF 52	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46058	WOLF 53	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46039	WOLF 54	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46060	WOLF 55	20.9	14-Jul-14	14-Oct-18	\$325.00
YF46061	WOLF 56	20.9	14-Jul-14	14-Oct-18	\$325.00
<b>Total Area:</b>		1128.6	<b>Representation Work Cost:</b>		\$17,550.00
					<b>Certification Cost:</b> \$810.00
					<b>Total: \$18,360.00</b>

### **1.3 HISTORY AND PREVIOUS INVESTIGATIONS**

The Wolf Lake claims were staked in 2014 by Henry Lole and a team from Dahrouge Geological Consulting Ltd. Initial prospecting of the area was completed by Dahrouge during the summer of 2012 to assess the quality of the limestone. Historic exploration in the area surrounding the Wolf Lake Property has dominantly been focused on gold and copper.

The TOG Property is adjacent to the northeast of the Wolf Lake Property and has been explored over the years for vein-hosted gold deposits. The TOG claims were first staked in 1972 by prospector Gord McLeod and are currently held by Dunvegan Exploration Ltd. The Property is now comprised of the TOG and GOT claims. Investigations have been done in 1979 by Archer Cathro and Associates, in 1982 by Noranda Exploration Co. Ltd. From 1985-1988 several geologists and companies sampled the site and reported values of 0.244 ounce/ton gold and higher. Newman Exploration also sampled pits on the Property, but reported low gold values. Dunvegan Exploration began their investigations of the Property in 1989 with road construction, sampling, magnetometer and VLF-EM surveys, as well as detailed mapping. In 1990, they ran an 8-hole (262.5 m) drill program and bulk sampling of the main showing vein. The bulk sample analysis returned values of 3.16 ounce/ton gold. Dunvegan's 2003 exploration program consisted of one day of trench sampling.

The historic MUNG claims, staked in 1971, were located southeast of the Wolf Lake Property, south of the Alaska Highway and west of Wolf Lake. These claims were held by the Wolf Lake Joint Venture Group and explored by Induced Polarization survey in 1972 and found trace copper-molybdenum mineralization.

Adjacent to the northwest corner and extending around the TOG/GOT claims is the MAG Property, which was staked by Sourdough Resources in 2011. Sourdough performed reconnaissance geological mapping and a ground magnetometer survey in 2011, but access to the report is restricted.

### **1.4 PURPOSE OF WORK**

The work described herein was undertaken to accurately identify the location and extent of limestone units throughout the Wolf Lake Property, and consisted of mapping and sampling.

### **1.5 SUMMARY OF WORK**

In September 2014, Dahrouge Geological Consulting Ltd. conducted a 2.5-day geologic mapping and sampling program on the Wolf Lake Property.

A total of 22 limestone samples were obtained within the Wolf Lake Property, representing approximately 61 m of stratigraphy (Fig. 4.2). Samples were collected by chipping outcrops perpendicular to defined or assumed bedding. Bedding was commonly difficult to identify due to the nondescript and cryptocrystalline nature of the limestone. Where bedding was uncertain or had been obscured by structure, stratigraphic thicknesses were calculated using the best estimated orientation from adjacent units. Where more than one bedding orientation was measured, the mean orientation was used.

Geological observations were recorded, including lithologic information, measurements of structural elements, and other pertinent details (Appendix 4). A solution of 10% HCl was used to assess carbonate quality in the field. Samples were shipped from Whitehorse, YT to Graymont's lab in Salt Lake City, Utah for preparation and analyses by standard ICP techniques, and LOI. Analytical procedures are described in Appendix 2 and assay sheets are provided in Appendix 3.

Personnel were based in a cabin resort in Tagish, YT, and access to and from the Property was by rented four-wheel-drive vehicle. Access throughout the Property was by ATV's and extensive hiking.

## **2. REGIONAL GEOLOGY**

### **2.1 STRATIGRAPHY**

The Wolf Lake Property is underlain by Carboniferous to Jurassic Cache Creek Group rocks. The Cache Creek Group is located within the central part of the morpho-tectonic Intermontane Belt of the Canadian Cordillera (Fig. 4.3). It extends almost continuously over a distance of more than 1,000 km, from south-central Yukon Territory, through the Stuart Lake Belt of Armstrong in central British Columbia, to the type area near the village of Cache Creek in the Interior Plateau of south-central British Columbia (Beyers and Orchard, 1991). The Cache Creek Group consists of oceanic shale, siltstone chert, carbonates and ultramafic rocks. These are overlain by Upper Triassic rocks of the Aksala Group northwest of the Property. The Aksala Group consists of mixed clastic and carbonate rocks that are divisible into three dominant facies: calcareous greywacke; thick carbonate; and red-colored clastics (Shaw, 1989).

In the Atlin Terrane of southern Yukon and northern British Columbia, Monger (1969, 1975) included the Kedahda, French Range, Teslin, Nakina, and Horsefeed formations as part of the Cache Creek Group.



### **2.1.1 Horsefeed Formation**

The Late Mississippian to Late Permian Horsefeed Formation generally consists of a basal, massive, pale grey-weathering calcarenite overlain by a thick succession of pale grey, porcelaneous, crinoidal, and foraminiferal calcarenite. This member grades upwards into dark grey, very fine grained detrital limestone and dolomitic limestone. The uppermost member of the Horsefeed Formation is an aggregate of foraminiferal calcarenite and, in the lower part, locally breccia. Between Koshin and Nahlin rivers the most common lithology is pale grey, unsorted, massive limestone breccia (Monger, 1975) (Gabrielse, 1998).

### **2.1.2 Nakina Formation**

The Mississippian to Permian Nakina Formation is tan or brown to green weathering, grey green or rarely maroon, very fine grained altered basalt, in places with small chlorite-filled amygdules and calcite veins. The rocks are generally massive and the only planar structures recognizable are fractures and faults with slickensides. Other less common rock types are diabase and fine-grained basalt porphyry with small feldspar phenocrysts and very rarely, fine-grained gabbro, basaltic flow breccia and tuff (Monger, 1975).

### **2.1.3 Intrusives**

The nearest known intrusive rocks occur 4 km east of the Property and are Early Cretaceous intrusions of the Teslin Suite. They are comprised of leucocratic, fine to coarse-grained, equigranular, hornblende-biotite granite, granodiorite, quartz monzonite and quartz monzodiorite (Shaw, 1989).

## **2.2 STRUCTURE**

The structural geology of the area is dominated by two major sub-parallel, north-northwest trending faults that divide and define the boundaries between the Cache Creek Terrane (to the east) and the Whitehorse Trough and between the Whitehorse Trough and the Yukon-Tanana Terrane (to the west). The Nahlin Fault more or less marks the western extent of the Cache Creek Terrane and eastern extent of the Whitehorse Trough. It is a steeply dipping to vertical fault, or series of faults and has seen intermittent activity from the Late Triassic to Tertiary time. The Llewellyn fault marks the boundary between the regionally metamorphosed Yukon-Tanana Terrane and the Whitehorse Trough. It is also steeply dipping and appears to have been active from Late Triassic to Tertiary time (Shaw, 1989).

**TABLE 2.1 STRATIGRAPHY OF THE WOLF LAKE AREA**

Period	Stage	Stratigraphic Unit			Lithological Description	Approx. Thickness (m)
		Group	Formation/ Member			
Triassic	Norian	Lewes River Gp.	Aksala Fm.	Casca Mbr.	Sandstones, conglomerates and mudstones, limestone	unknown
				Hancock Mbr.	Massive to thick-bedded limestone	Up to 600
	Carnian		Povoas Fm.		Volcanics including basalts and andesites, minor carbonates	
Devonian to Permian		Cache Creek Gp.	Horsefeed Fm.		Massive to thick-bedded limestone, dolomitic limestone	Up to 1,500
			Nakina Fm.		Massive altered basalts, minor diabase	unknown

\*Adapted from Clapham et al., 2002.

### 3. PROPERTY GEOLOGY

#### 3.1 STRATIGRAPHY & LITHOLOGY

As only initial prospecting work has been performed on the Wolf Lake Property, a detailed description of the property geology is not yet possible. During the 2014 exploration, the Horsefeed Formation was the only unit encountered on the Wolf Lake Property. As only the Horsefeed Formation is seen at the Wolf Lake Property, other formation descriptions will not be included in this report.

##### 3.1.1 Horsefeed Formation

Exposures of the Horsefeed Formation were mapped and sampled in 2012 from between 2,900 m to 3,100 m, south of the Alaska Hwy within the Wolf Lake Property. During the 2014 exploration, several outcrops of Horsefeed Formation were encountered. The member consists of light-grey weathered, medium-grey to dark-grey fresh, micritic to coarse-grained lime mudstones. Horsefeed Member limestones are typically massive and somewhat resistant with minor calcite veining.

### **3.2 STRUCTURE**

Given the early stage of exploration on the Property, the structure is currently largely unknown.

## **4. RESULTS OF 2014 EXPLORATION**

The 2014 exploration program was conducted in order to further assess the limestone quality of the Mississippian to Permian Horsefeed Formation limestones and provide more constraint on geologic contacts with other units in the area. A total of 22 samples were collected, primarily from the Horsefeed Formation in the northern half of the Property. Samples collected from the Horsefeed Formation tend to be high-quality, generally averaging in excess of 97% CaCO<sub>3</sub> over substantial thicknesses; the best section averaged 97.58% CaCO<sub>3</sub>, 0.86% MgCO<sub>3</sub> and 0.84% SiO<sub>2</sub> over an estimated 26 m.

The groundwork involved mapping and sampling at several locations on the Property. Limestone outcrops were examined and sampled at six locations (Fig. 4.2).

During the program, geological observations were recorded, including lithologic information, measurements of structural elements, and other pertinent details (Appendix 4). A solution of 10% HCl was used to assess carbonate quality in the field. In some instances, interval thicknesses were determined by measuring outcrops perpendicular to bedding, where it could be identified. In many cases the interval thickness can only be considered approximate (at best) due to the lack of reliable bedding surfaces.

## **5. DISCUSSIONS AND CONCLUSIONS**

Within the Wolf Lake Property, limestones of the Horsefeed Formation of the Cache Creek Group were mapped and tested by measuring and sampling stratigraphic sections. Unfortunately, limited time and outcrop exposure prevented a conclusive analysis of the quality of the Horsefeed Formation throughout the Property. Based on the 2014 exploration, the northern half of the Wolf Lake Property is the most attractive target for future exploration for Horsefeed limestone deposits.

The next phase of exploration on the Wolf Lake Property should consist of additional mapping and sampling, focusing on the northern and middle portions of the Property. Identifying and mapping the contact between the Horsefeed Formation and other geological units should also be a priority.

**6. STATEMENT OF QUALIFICATIONS**

I, Henry Lole, residing at 11023 96 Street, Edmonton, Alberta, do hereby certify that:

- I am a geologist of Dahrouge Geological Consulting Ltd., Suite 18, 10509 - 81 Ave., Edmonton, Alberta, T6E 1X7.
- I am a 2011 graduate of Cardiff University, Cardiff, Wales, with a B.Sc. (Hons) in Exploration and Resource Geology.
- I have practiced my profession as a geologist continuously since 2011.
- I am a registered Fellow of The Geological Society, member 1019264.
- I co-managed the 2014 work described in this report.
- I am co-author of the report entitled "2014 Geological and Geochemical Exploration on the Wolf Lake Property" and accept responsibility for the veracity of technical data and results.
- I hereby consent to the copying or reproduction of this Assessment Report following the confidentiality period.

Dated this 4<sup>th</sup> day of May, 2015.

Henry Lole, B.Sc., FGS

FGS 1019264

I, Kelly Krueger, residing at 1820 Rutherford Rd., Edmonton, Alberta, do hereby certify that:

- I am a geologist of Dahrouge Geological Consulting Ltd., Suite 18, 10509 - 81 Ave., Edmonton, Alberta, T6E 1X7.
- I am a 2012 graduate of the University of Alberta, Edmonton, Alberta with a B.Sc. in Geology.
- I have practiced my profession as a geologist continuously since 2012.
- I am a registered Geologist in Training with the Association of Professional Engineers and Geoscientists of Alberta, member M96506.
- I co-managed the 2014 work described in this report.
- I am co-author of the report entitled "2014 Geological and Geochemical Exploration on the Wolf Lake Property" and accept responsibility for the veracity of technical data and results.
- I hereby consent to the copying or reproduction of this Assessment Report following the confidentiality period.

Dated this 4<sup>th</sup> day of May, 2015.

Kelly Krueger, B.Sc., Geo.I.T.

APEGA M96506

**7. REFERENCES**

- Beyers, J. and Orchard, M.J. (1989) Permian-Triassic boundary beds in the Cache Creek Group, Marble Range, near Jesmond, British Columbia; Geol. Surv. Can., Paper 89-1E, p. 127-132.
- Campbell, R.B. and Tipper, H.W. (1971) Geology of the Bonaparte Lake map area, B.C.; Geol. Surv. Can. Mem. 363, p.23-29, 79-81 and accompanying map 1278A.
- Gordey, S. P. and Makepeace, A. J., 1999. Yukon Digital Geology. Geological Survey of Canada, Open File D3 826.
- Deklerk, R., 2002. Yukon Minfile, 2002, A Database of Mineral Occurrences. Exploration and Geological Services Division, Yukon Region, Indian and Northern Affairs Canada.
- Monger, J.W.H., 1969. Stratigraphy and structure of Upper Paleozoic rocks, northeast Dease Lake map- area, British Columbia (104 J); Geological Survey of Canada, Paper 68-48, 41 p.
- Monger, J.W.H., 1975. Upper Paleozoic rocks of the Atlin Terrane, northwestern British Columbia and south-central Yukon; Geological Survey of Canada, Paper 74-47, 63 p.
- Shaw, D., Taylor, W. and Copeland, D., 1989. Geological Report on the Bug, Phil and TOG-GOT-POT Group of Claims.

## ITEMIZED COST STATEMENT FOR THE 2014 EXPLORATION - WOLF

### a) Personnel

H. Lole, geologist

2.5	days	Field work and travel Sept 3-6		
<u>1.0</u>	days	Office work, reporting		
3.5	days	@ \$ 570.00		\$ 1,995.00

K. Krueger, geologist

2.5	days	Field work and travel Sept 3-6		
<u>7.2</u>	days	Project planning & preparations, reporting		
9.7	days	@ \$ 465.00		\$ 4,510.50

M. Osinowski, geologist

2.5	days	Field work and travel Sept 3-6		
<u>0.7</u>	days	Office work, data compilation		
3.2	days	@ \$ 465.00		\$ 1,488.00

B. Hagen, assistant

<u>2.5</u>	days	Field work and travel Sept 3-6		
2.5	days	@ \$ 410.00		\$ 1,025.00

J. Amundsen, geologist

<u>6.1</u>	days	Data entry, reporting		
6.1	days	@ \$ 490.00		<u>\$ 2,989.00</u>

\$ 12,007.50

**b) Food and Accommodation**

6	man-days @ \$ 169.82	Accommodations	\$ 1,018.90	
10	man-days @ \$ 69.17	Meals	\$ 682.73	
			<u>          </u>	\$ 1,701.63

**c) Transportation**

Vehicles:	SUV Rental (Whitehorse)		\$ 496.91	
	ATV Rental (Whitehorse)		\$ 1,598.10	
	Mileage		\$ 7.52	
	Fuel		\$ 138.90	
			<u>          </u>	\$ 2,241.43

**d) Instrument Rental**

	Laptop		\$ 39.44	
	Radios		\$ 30.89	
	Satellite Phone		\$ 45.59	
	GPS Rental		\$ 36.31	
			<u>          </u>	\$ 152.23

**e) Analyses**

		Central Lab of Graymont Western U.S. Inc.		
		(22 rock samples)		
22	samples @ \$ 4.50	Preparation fee	\$ 99.00	
22	samples @ \$ 25.00	Sample analysis	\$ 550.00	
			<u>          </u>	\$ 649.00

**f) Other**

	Software Rental		\$ 202.75	
	Disposable Supplies		\$ 195.50	
	Courier & Supplies		\$ 16.34	
	Plots & Prints		\$ 40.23	
	Telephone charges		\$ 2.31	
	Overhead & Supply		\$ 406.15	
			<u>          </u>	\$ 863.28

**Total**\$ 17,615.07

Edmonton, Alberta  
May 4, 2015

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Kelly Krueger, B.Sc., Geo. I.T.



## APPENDIX 2: ANALYTICAL LABORATORY INFORMATION AND TECHNIQUES

### Name and Address of the Lab:

Graymont Western US Inc., Central Laboratory.  
670 East 3900 South, Suite 200  
Salt Lake City, Utah, 84107

### Statement of Qualifications:

Jared Leikam obtained a B.S. in Chemistry from the University of Utah in the class of 2003. Jared started working for Graymont in February of 2004 and has been working with the ICP Spectrometer for two and a half years, under the direct supervision of Carl Paystrup (Lab Supervisor).

Vonda Stuart obtained a B.S. in Chemistry from Weber State University in 2004. Vonda started with Graymont in August of 2007 and started working in the ICP Lab the following September.

### Sample Preparation, Procedures, Reagents, Equipment, etc.:

For the ICP sample preparation, 0.5 grams of the sample is mixed with 3 g of lithium carbonate. The sample and the lithium carbonate are then fused together in a muffle furnace at 850°C. Following the fusion process, the samples are dissolved in 1:1 HCl; a total of 40 mL 1:1 HCl is used in the dissolving process. The samples are then diluted to 200 mL and spiked with 10 ppm Co. Cobalt is used as an internal standard. At this point the samples are ready for analysis on the Perkin Elmer, Optima 7300V.

### Mesh Size Fraction, Split and Weight of Sample:

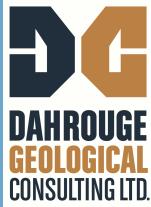
Upon receiving the samples, the prep room technician riffles and then splits the stone down to a manageable size (roughly 200 g). The stone is then dried in an oven at 120°C. Once the samples have been dried they get pulverized to a -200 mesh size. A split of this pulverized material is then sent for testing in the main part of the lab.

### Quality Control Procedures:

The ICP spectrometer is calibrated with two certified reference materials prior to analyzing a batch of samples. A batch typically contains 96 samples. Every 12<sup>th</sup> sample in a batch is a certified limestone reference sample. In addition to the 8 reference samples imbedded in the batch, there are 2 limestone reference samples analyzed at the beginning and at the end of the batch to ensure the accuracy of our Na and P numbers. Every element being analyzed in a sample is backed up by data from the certified reference materials. We also use an internal standard (10 ppm Co) to further ensure the quality and accuracy of the analysis.

**APPENDIX 3: ASSAY RESULTS – CENTRAL ANALYTICAL LABORATORY OF  
GRAYMONT WESTERN U.S. INC**

Lab ID	Sample Date	Plant	Lab Owner	Sample Type	Remarks	% CaCO3	% MgCO3	% Fe2O3	% Al2O3	ppm SrO	ppm MnO	% SiO2	ppm BaO	ppm K2O	ppm Na2O	ppm P2O5	ppm TiO2	% Total	% Sulfur	% LOI(1000)
2014106596	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120026	92.81	5.10	0.166	0.211	1788	131	1.35	50	354	149	112	160	99.9	0.01	43.6
2014106597	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120027	92.88	5.13	0.115	0.201	1801	128	1.36	50	363	142	123	108	100.0	0.01	43.6
2014106598	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120028	92.74	5.21	0.121	0.199	1786	132	1.36	48	358	149	107	64	99.9	0.012	43.5
2014106599	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120029	92.93	5.10	0.11	0.205	1778	123	1.33	50	366	145	102	71	100.0	0.012	43.4
2014106600	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120030	92.83	5.17	0.153	0.206	1814	131	1.33	49	365	142	91	136	100.0	0.011	43.6
2014106601	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120031	92.90	5.10	0.124	0.194	1833	128	1.34	47	357	142	95	74	99.9	0.013	43.6
2014106602	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120032	95.81	2.38	0.072	0.129	8101	26	0.68	40	141	150	37	33	99.9	0.022	43.7
2014106603	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120033	97.65	1.11	0.113	0.171	4433	30	0.46	33	200	118	38	47	100.0	0.011	43.8
2014106604	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120034	97.72	0.75	0.18	0.187	3059	32	0.72	25	233	111	55	70	99.9	0.014	43.8
2014106605	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120035	98.06	0.71	0.072	0.15	3531	16	0.55	20	181	112	56	36	99.9	0.014	43.9
2014106606	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120036	96.59	0.82	0.104	0.147	3344	25	1.95	18	153	110	51	36	100.0	0.012	43.1
2014106607	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120037	97.54	0.84	0.099	0.151	3250	21	0.91	23	153	458	18	42	99.9	0.016	43.7
2014106608	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120038	97.47	0.84	0.098	0.145	3299	20	0.99	28	158	95	27	48	99.9	0.015	43.6
2014106609	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120039	97.50	0.82	0.1	0.179	3059	32	1.03	113	245	89	83	55	100.0	0.01	43.5
2014106610	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120040	97.75	0.73	0.083	0.154	2832	25	0.88	61	190	77	55	65	99.9	0.016	43.6
2014106611	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120041	97.36	0.79	0.105	0.18	3075	41	1.13	99	245	91	97	52	99.9	0.013	43.6
2014106612	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120042	93.51	2.03	0.092	0.061	255	44	4.07	42	63	68	431	15	99.9	0.005	42.1
2014106613	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120043	94.74	1.80	0.076	0.063	244	41	3.16	44	57	71	440	9	99.9	0.01	42.3
2014106614	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120044	95.13	1.76	0.06	0.061	242	36	2.89	43	59	69	500	28	100.0	0.005	42.2
2014106615	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120045	59.40	0.65	0.356	0.066	171	48	25.41	59	35	53	519	9	86.0	0.01	26.9
2014106616	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120046	6.48	16.05	1.485	1.109	38	286	41.48	541	2102	365	239	399	67.0	0.013	11.6
2014106617	9/25/2014	202	202	Limestone	Dahrouge_Yukon_Territory_-_120047	7.03	15.33	1.525	1.185	40	290	43.5	559	2195	357	284	440	69.0	0.016	11.6



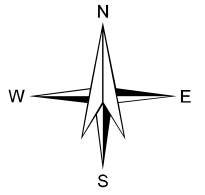
## APPENDIX 4: SAMPLE DESCRIPTIONS AND ASSAY RESULTS FROM THE WOLF LAKE PROPERTY



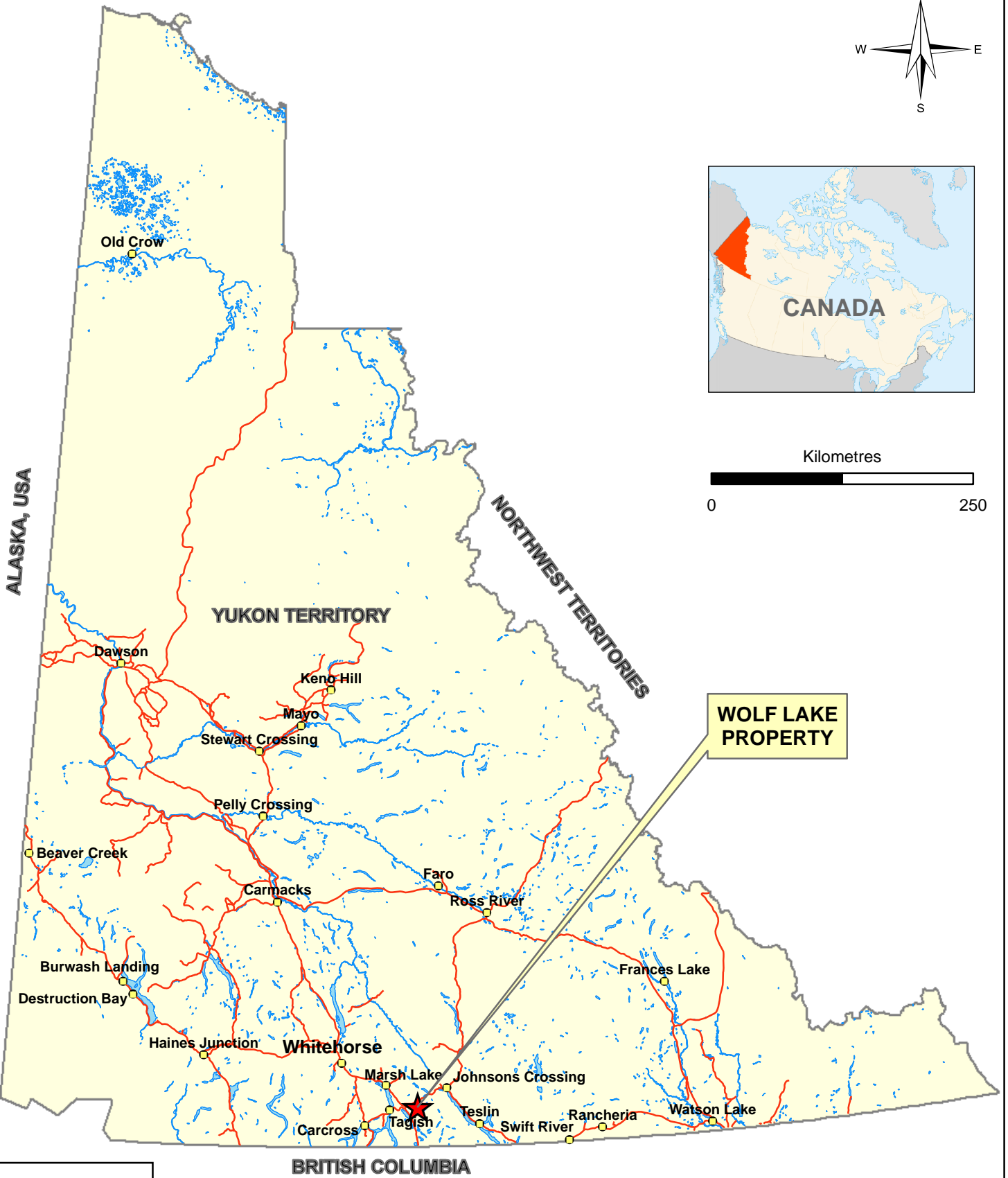
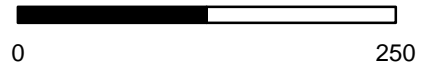
Notes: Stratigraphic thicknesses are based on measured attitudes of bedding listed below, with appropriate interpolations. Attitudes are strike and dip (right-hand rule). Sections are listed in numerical order of samples, which does not necessarily represent stratigraphic order. Most samples consist of chips at 30 cm intervals. UTM coordinates are NAD83, Zone 8N. Section locations are shown in Figure 4.2.  
Stratigraphy Abbreviations: Mh - Mississippian Horsefeed Formation

Sample	Strat Unit	Strat Tkns (m)	Description	CaCO <sub>3</sub> (%)	MgCO <sub>3</sub> (%)	SiO <sub>2</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	Fe <sub>2</sub> O <sub>3</sub> (%)	SrO (ppm)	MnO (ppm)	P <sub>2</sub> O <sub>5</sub> (ppm)
<b>Isolated Samples</b>											
120026	Mh		<b>Dolomitic Lime Mudstone</b> , medium grey to tan weathered, light brown to dark grey fresh, cryptocrystalline, thickly-bedded to massively-bedded, resistant, very weak HCl reaction, structure(s): calcite veinlet weak	92.81	5.10	1.35	0.210	0.170	1788	131	112
120027	Mh		<b>Dolomitic Lime Mudstone</b> , tan to medium grey weathered, medium grey to very-dark grey fresh, cryptocrystalline, resistant, alteration: oxide, fracture-related, moderate intensity, strong HCl reaction, structure(s): calcite veinlet moderate	92.88	5.13	1.36	0.200	0.120	1801	128	123
120046	Mh	3	<b>Shale/Mudstone</b> , dark grey weathered, tan-grey to dark grey fresh, slightly resistant, hard, argillaceous, cherty, alteration: oxide, strong intensity, no HCl reaction,	6.48	16.05	41.48	1.110	1.490	38	286	239
120047	Mh	2	<b>Shale/Mudstone</b> , medium grey weathered, medium grey to dark grey fresh, cryptocrystalline to micritic, massive, resistant, alteration: oxide, weak intensity, weak HCl reaction, structure(s): calcite veinlet moderate	7.03	15.33	43.50	1.190	1.530	40	290	284
<b>Section 2014-01 (UTM 573431E, 6697284N)</b>											
120028	Mh	4.75	<b>Dolomitic Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, weak fetid odour, strong HCl reaction, structure(s): calcite veinlet weak	92.74	5.21	1.36	0.200	0.120	1786	132	107
120029	Mh	5.75	<b>Dolomitic Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, weak fetid odour, strong HCl reaction, structure(s): calcite veinlet weak	92.93	5.10	1.33	0.210	0.110	1778	123	102
120030	Mh	1	<b>Dolomitic Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, weak fetid odour, strong HCl reaction, structure(s): calcite veinlet weak	92.83	5.17	1.33	0.210	0.150	1814	131	91
120031	Mh	2.5	<b>Dolomitic Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, weak fetid odour, strong HCl reaction, structure(s): calcite veinlet weak	92.90	5.10	1.34	0.190	0.120	1833	128	95
120032	Mh	2.25	<b>Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, weak fetid odour, strong HCl reaction, structure(s): calcite veinlet weak	95.81	2.38	0.68	0.130	0.070	8101	26	37
120033	Mh	5.5	<b>Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, weak fetid odour, moderate HCl reaction, structure(s): calcite veinlet weak	97.65	1.11	0.46	0.170	0.110	4433	30	38
120034	Mh	4.25	<b>Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, weak fetid odour, moderate HCl reaction, structure(s): calcite veinlet weak	97.72	0.75	0.72	0.190	0.180	3059	32	55

Sample	Strat Unit	Strat Tkns (m)	Description	CaCO <sub>3</sub> (%)	MgCO <sub>3</sub> (%)	SiO <sub>2</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	Fe <sub>2</sub> O <sub>3</sub> (%)	SrO (ppm)	MnO (ppm)	P <sub>2</sub> O <sub>5</sub> (ppm)
120035	Mh	4.25	<b>Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, moderate HCl reaction, structure(s): calcite veinlet weak	98.06	0.71	0.55	0.150	0.070	3531	16	56
120036	Mh	2.25	<b>Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, moderate HCl reaction, structure(s): calcite veinlet weak	96.59	0.82	1.95	0.150	0.100	3344	25	51
120037	Mh	2.25	<b>Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, moderate HCl reaction, structure(s): calcite veinlet weak	97.54	0.84	0.91	0.150	0.100	3250	21	18
120038	Mh	3	<b>Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, moderate HCl reaction, structure(s): calcite veinlet weak	97.47	0.84	0.99	0.150	0.100	3299	20	27
120039	Mh	4.5	<b>Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, moderate HCl reaction, structure(s): calcite veinlet weak	97.50	0.82	1.03	0.180	0.100	3059	32	83
<b>Section 2014-02 (UTM 573294E, 6697333N)</b>											
120040	Mh	1.5	<b>Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, alteration: oxide, moderate intensity, moderate HCl reaction, structure(s): calcite veinlet weak	97.75	0.73	0.88	0.150	0.080	2832	25	55
120041	Mh	6	<b>Lime Mudstone</b> , medium grey weathered, dark grey to very-dark grey fresh, cryptocrystalline to micritic, massive, resistant, alteration: oxide, moderate intensity, moderate HCl reaction, structure(s): calcite veinlet weak	97.36	0.79	1.13	0.180	0.110	3075	41	97
<b>Section 2014-03 (UTM 573251E, 6697260N)</b>											
120042	Mh	3	<b>Lime Mudstone</b> , light grey to medium grey weathered, light grey fresh, cryptocrystalline to micritic, fossils: solitary rugose coral; crinoid ossicle, massive, resistant, strong HCl reaction, structure(s): joint 105/82 SW	93.51	2.03	4.07	0.060	0.090	255	44	431
120043	Mh	2	<b>Lime Mudstone</b> , light grey to medium grey weathered, light grey fresh, cryptocrystalline to micritic, fossils: solitary rugose coral; crinoid ossicle, massive, resistant, strong HCl reaction, structure(s): joint 105/82 SW	94.74	1.80	3.16	0.060	0.080	244	41	440
<b>Section 2014-04 (UTM 570119E, 6693158N)</b>											
120044	Mh	0.5	<b>Lime Mudstone</b> , tan weathered, tan to medium grey fresh, cryptocrystalline, alteration: oxide, fracture-related, moderate intensity, moderate HCl reaction, structure(s): calcite vein moderate; bedding (possible) 80/14 SE	95.13	1.76	2.89	0.060	0.060	242	36	500
120045	Mh	1	<b>Calcareous Mudstone</b> , tan weathered, tan to medium grey fresh, cryptocrystalline, alteration: oxide, fracture-related, strong intensity, moderate HCl reaction, structure(s): calcite vein moderate; bedding (possible) 80/14 SE	59.40	0.65	25.41	0.070	0.360	171	48	519








Kilometres



**WOLF LAKE  
PROPERTY**

**Legend**

-  Cities/Towns
-  Highway
-  Rivers
-  Lakes
-  Territorial Boundary

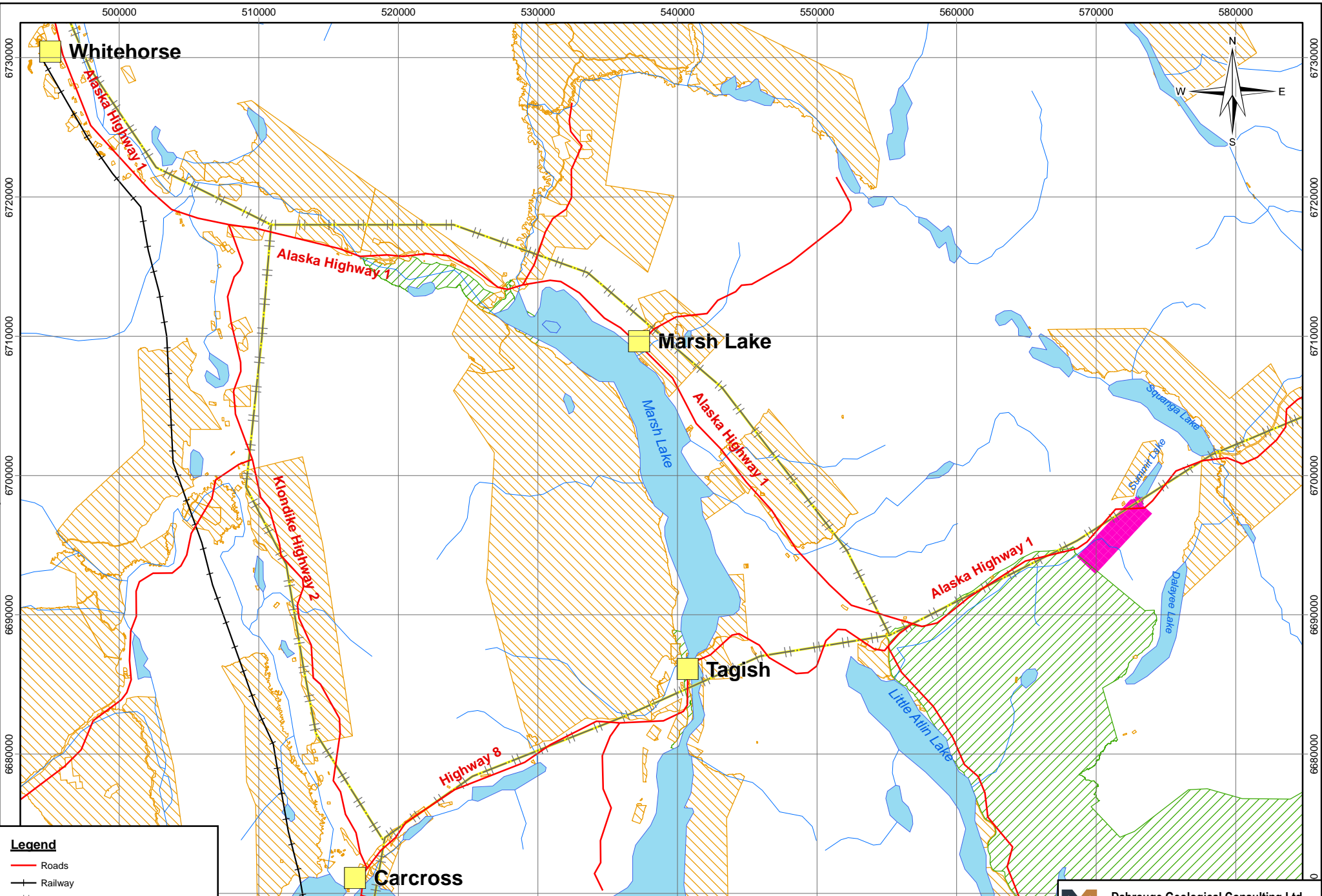
**DG** Dahrouge Geological Consulting Ltd.  
Edmonton, Alberta

YUKON TERRITORY, CANADA

Fig. 3.1  
Property Location

1:5,000,000

Coordinate System: UTM NAD83, Zone 8



**Legend**

- Roads
- +— Railway
- +— Transmission lines
- Rivers
- Lakes
- First Nations Settlement Land Surveyed
- Parks and Protected Areas
- Wolf Lake Property

Kilometres

0      5      10      15      20

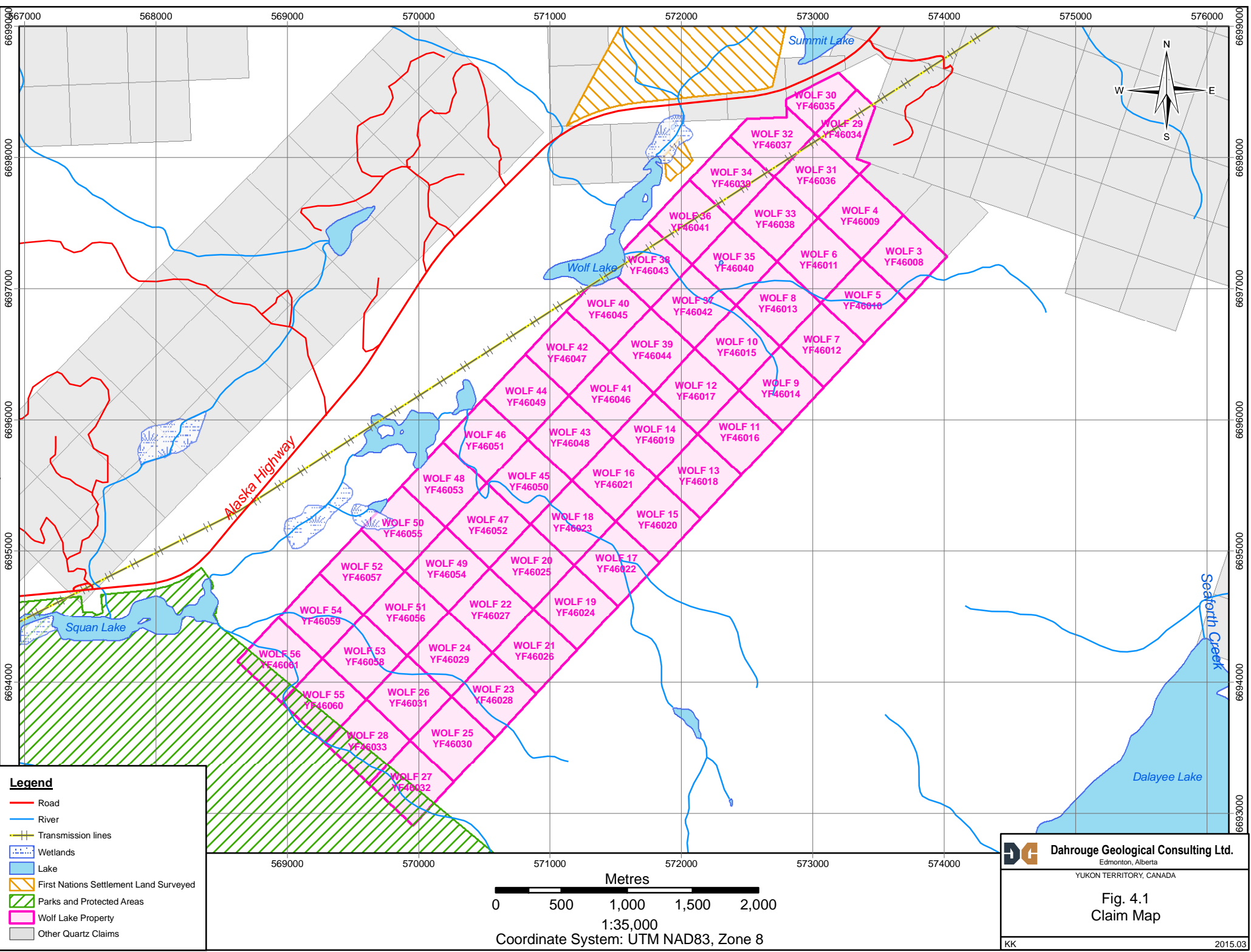
1:350,000

Coordinate System: UTM NAD83, Zone 8

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 YUKON TERRITORY, CANADA

**Fig. 3.2**  
**Access Map**

JA 2015.03

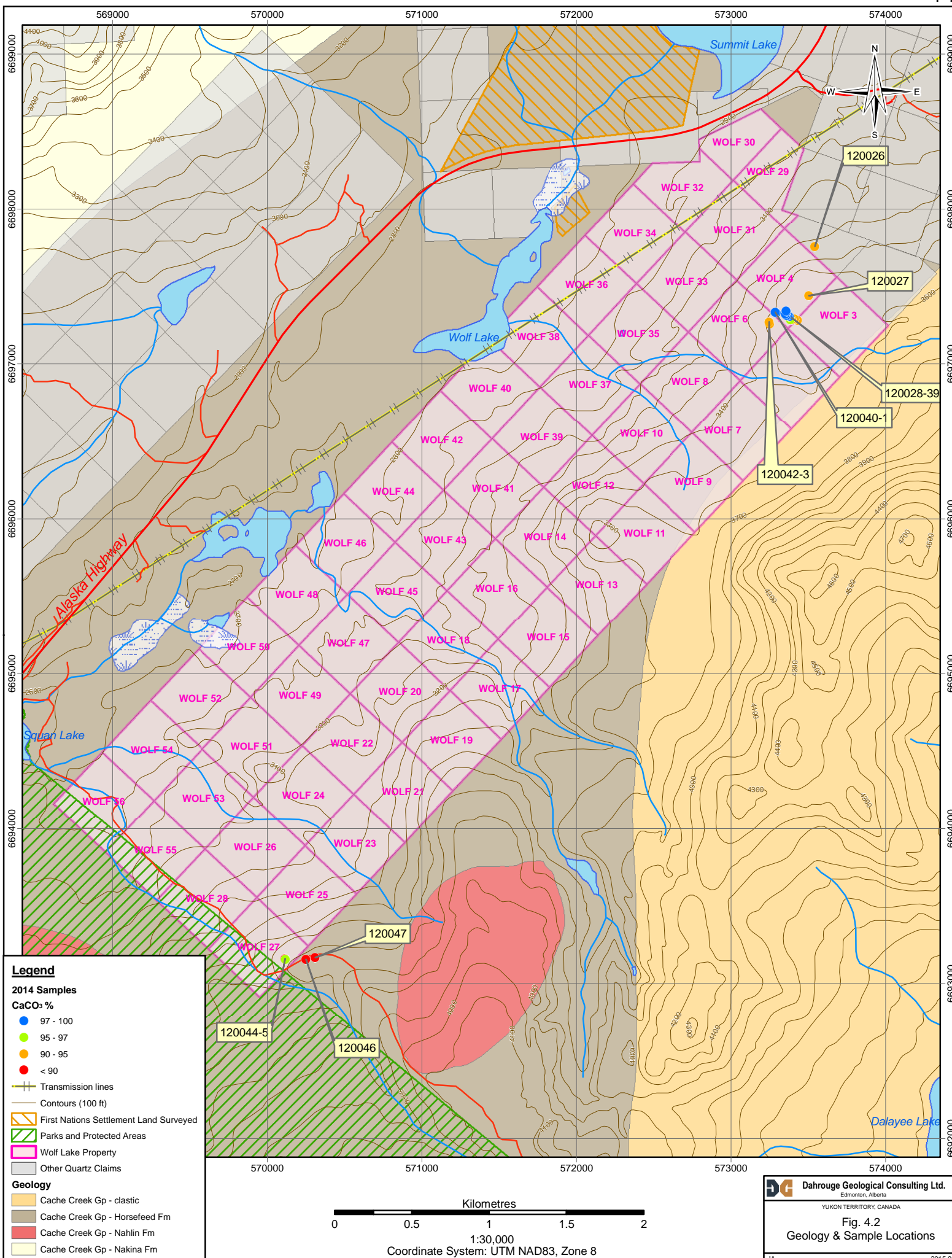


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 YUKON TERRITORY, CANADA

**Fig. 4.1**  
**Claim Map**

KK 2015.03





**Legend**

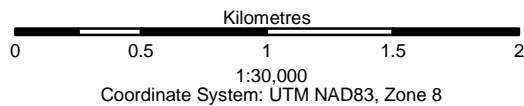
**2014 Samples**  
**CaCO<sub>3</sub> %**

- 97 - 100
- 95 - 97
- 90 - 95
- < 90

- Transmission lines
- Contours (100 ft)
- ▨ First Nations Settlement Land Surveyed
- ▨ Parks and Protected Areas
- ▭ Wolf Lake Property
- ▭ Other Quartz Claims

**Geology**

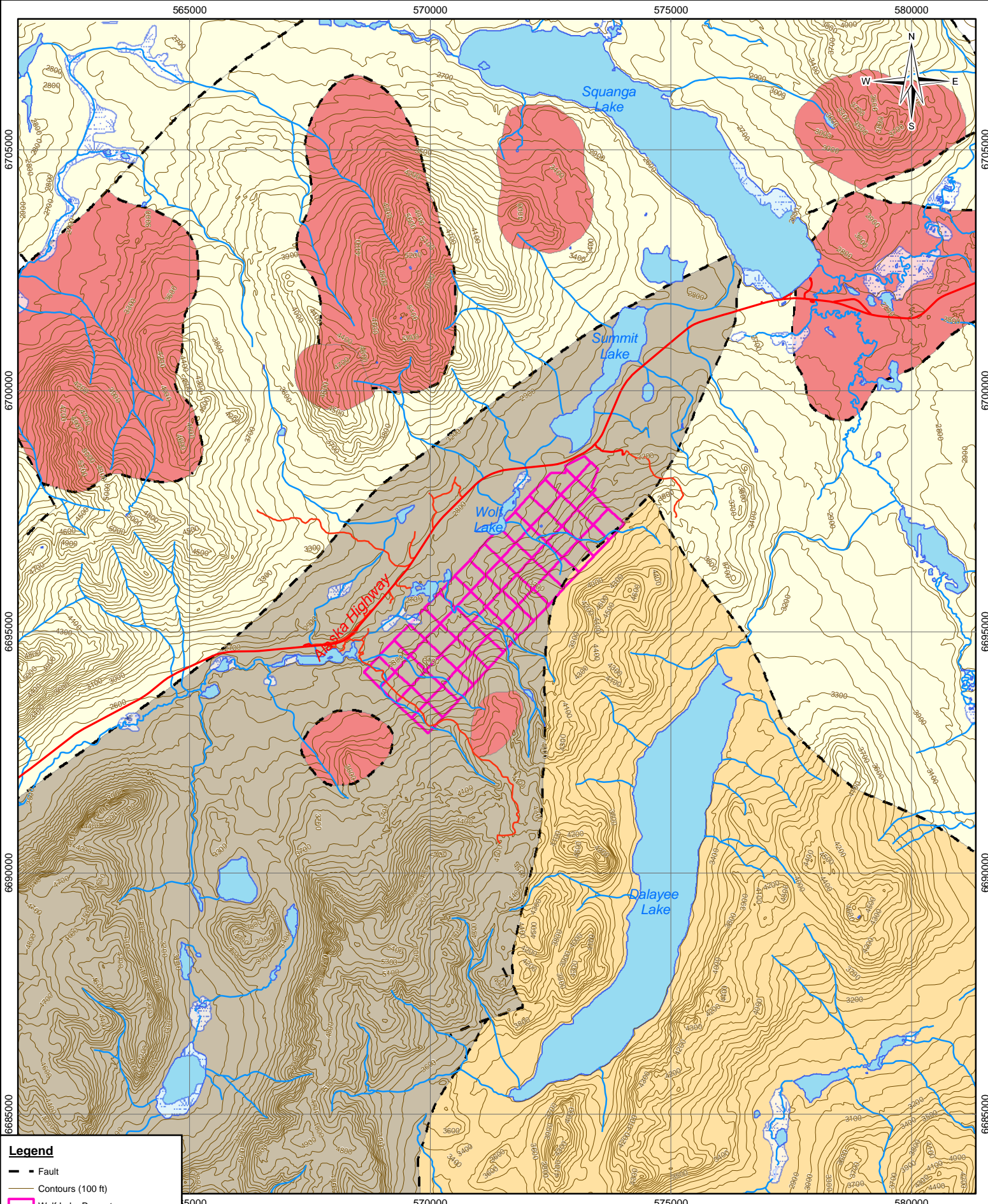
- ▭ Cache Creek Gp - clastic
- ▭ Cache Creek Gp - Horsefeed Fm
- ▭ Cache Creek Gp - Nahlin Fm
- ▭ Cache Creek Gp - Nakina Fm



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 YUKON TERRITORY, CANADA

Fig. 4.2  
 Geology & Sample Locations

JA 2015.03

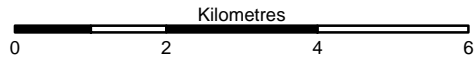


**Legend**

- - Fault
- Contours (100 ft)
- ▭ Wolf Lake Property

**Geology**

- Cache Creek Gp - clastic
- Cache Creek Gp - Horsefeed Fm
- Cache Creek Gp - Nahlin Fm
- Cache Creek Gp - Nakina Fm



1:100,000  
Coordinate System: UTM NAD83, Zone 8

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Edmonton, Alberta  
YUKON TERRITORY, CANADA

Fig. 4.3  
Regional Geology Map