

**2015 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  
Calgary, Alberta T2E 4P9

Consultant: Dahrouge Geological Consulting Ltd.  
18, 10509 - 81 Avenue  
Edmonton, Alberta T6E 1X7

Authors: K. Krueger, B.Sc., Geo. I.T.  
H. Lole, B.Sc., FGS

Field Work: September 9-10, 2015

Date Submitted: April 4, 2016

## TABLE OF CONTENTS

	<u>Page</u>
1. Introduction .....	1
1.1 Geographic Setting .....	1
1.1.1 Location and Access .....	1
1.1.2 Topography, Vegetation, Wildlife and Climate .....	1
1.2 Property .....	2
1.3 History and Previous Investigations .....	4
1.4 Purpose of Work .....	4
1.5 Summary of Work .....	4
2. Regional Geology .....	5
2.1 Stratigraphy .....	5
2.1.1 Horsefeed Formation .....	6
2.1.2 Nakina Formation .....	6
2.1.3 Intrusives .....	6
2.2 Structure .....	6
3. Property Geology .....	7
3.1 Stratigraphy and Lithology .....	7
3.1.1 Horsefeed Formation .....	7
3.2 Structure .....	7
4. Results of 2015 Exploration .....	8
5. Discussion and Conclusions .....	8
6. Statement of Qualifications .....	10
7. References .....	12

## LIST OF TABLES

	<u>Page</u>
Table 1.1 List of Wolf Lake Claims .....	2
Table 2.1 Stratigraphy of the Wolf Lake Area .....	7

## LIST OF APPENDICES

Appendix 1: Itemized Cost Statement.....	A1
Appendix 2: Analytical Laboratory Information and Techniques.....	A3
Appendix 3: Assay Results – Central Analytical Laboratory of Graymont Western U.S. Inc.....	A4
Appendix 4: 2015 Sample Descriptions and Assay Results from the Wolf Lake Property .....	A8

## LIST OF FIGURES

Fig. 3.1 Property Location .....	F1
Fig. 3.2 Access Map .....	F2
Fig. 4.1 Claim Map .....	F3
Fig. 4.2 Geology & Sample Locations.....	F4
Fig. 4.3 Regional Geology Map .....	F5

## 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 9-10, 2015. Exploration consisted of collecting 24 limestone samples, representing approximately 45.5 m of stratigraphy. A traverse totalling 4.57 km was completed on the Property in order to map geologic units and identify outcrops. The majority of the 2015 work on the Property focused on identifying access routes, mapping geological contacts and identifying high-calcium limestone outcrops on the Wolf Lake Property. This report describes the 2015 exploration and provides an interpretation of the results. Appendix 1 is an itemized cost breakdown of the 2015 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-2014	14-Oct-2020	\$200.00
YF46009	WOLF 4	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46010	WOLF 5	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46011	WOLF 6	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46012	WOLF 7	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46013	WOLF 8	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46014	WOLF 9	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46015	WOLF 10	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46016	WOLF 11	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46017	WOLF 12	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46018	WOLF 13	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46019	WOLF 14	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46020	WOLF 15	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46021	WOLF 16	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46022	WOLF 17	20.9	14-Jul-2014	14-Oct-2020	\$200.00

YF46023	WOLF 18	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46024	WOLF 19	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46025	WOLF 20	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46026	WOLF 21	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46027	WOLF 22	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46028	WOLF 23	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46029	WOLF 24	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46030	WOLF 25	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46031	WOLF 26	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46032	WOLF 27	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46033	WOLF 28	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46034	WOLF 29	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46035	WOLF 30	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46036	WOLF 31	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46037	WOLF 32	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46038	WOLF 33	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46039	WOLF 34	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46040	WOLF 35	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46041	WOLF 36	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46042	WOLF 37	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46043	WOLF 38	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46044	WOLF 39	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46045	WOLF 40	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46046	WOLF 41	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46047	WOLF 42	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46048	WOLF 43	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46049	WOLF 44	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46050	WOLF 45	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46051	WOLF 46	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46052	WOLF 47	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46053	WOLF 48	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46054	WOLF 49	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46055	WOLF 50	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46056	WOLF 51	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46057	WOLF 52	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46058	WOLF 53	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46039	WOLF 54	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46060	WOLF 55	20.9	14-Jul-2014	14-Oct-2020	\$200.00
YF46061	WOLF 56	20.9	14-Jul-2014	14-Oct-2020	\$200.00
<b>Total Area:</b>		1128.6	<b>Representation Work Cost:</b>		\$10,800.00
					<b>Certification Cost:</b> \$2,720.00
					<b>Total: \$13,520.00</b>

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

Initial prospecting of the area was completed by Dahrouge during the summer of 2012 to assess the quality of the limestone; the Wolf Lake Property was later staked in 2014. Dahrouge completed a sampling program in September 2014 to investigate carbonate quality on the Property. Historic exploration in the Wolf Lake Property area 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, who performed an induced polarization survey in 1972 and found trace copper and molybdenum mineralization.

Adjacent to the northwest corner and extending around the TOG/GOT claims is the MAG Property, which was staked by Sourdough Resources (Sourdough) 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. The 2015 exploration program is a follow-up to work completed in 2014 by Dahrouge (Krueger and Lole, 2014).

## **1.5 SUMMARY OF WORK**

In September 2015, Dahrouge Geological Consulting Ltd. conducted a 2-day geologic mapping and sampling program on the Wolf Lake Property.

A total of 24 limestone samples were obtained within the Wolf Lake Property, representing approximately 45.50 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 hotel in Whitehorse, Yukon, and access to and from the Property was by rented four-wheel-drive vehicle. Access throughout the Property was by 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/Age	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. As only the Horsefeed Formation is seen at the Wolf Lake Property, other formation descriptions will not be included in this report. During 2015 exploration, the Horsefeed Formation was the only unit encountered on the Wolf Lake Property.

##### 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 2015 exploration program, 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 with rare amounts of carbonaceous material. Horsefeed Member limestones are typically massive and somewhat resistant with minor calcite veining and rare oxide alteration.

### **3.2 STRUCTURE**

Given the early stage of exploration on the Property, the structure is currently largely unknown. Mapping in the northeast of the Property indicate steeply dipping beds up to 68° to the southeast.

## **4. RESULTS OF 2015 EXPLORATION**

The 2015 exploration program was conducted in order to further assess the 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 24 samples were collected from the Horsefeed Formation in the northern half of the Property.

The groundwork involved sampling at nine locations on the Property and completing a 4.57 km traverse to map geologic units and identify outcrops (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. 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. Samples collected from the Horsefeed Formation in 2015 varied substantially in quality. The best section (2015-05) averaged 96.87% CaCO<sub>3</sub>, 1.06% MgCO<sub>3</sub> and 1.04% SiO<sub>2</sub> over an estimated 12 m. Another section of note was 2015-02, which averaged 96.52% CaCO<sub>3</sub>, 1.04% MgCO<sub>3</sub> and 1.23% SiO<sub>2</sub> over an estimated 10.25 m. The variability in quality of samples (Fig 4.2) may indicate abrupt compositional changes between interbeds of the Horsefeed Formation.

## **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. The best section (2015-05) averaged 96.87%  $\text{CaCO}_3$ , 1.06%  $\text{MgCO}_3$  and 1.04%  $\text{SiO}_2$  over approximately 12 m. Based on the 2015 exploration, the northern-most portion of the Wolf Lake Property is the most attractive target for future exploration of 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, 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 managed the 2015 work described in this report.
- I am co-author of the report entitled "2015 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> of April, 2016.



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

APEGA M96506

I, Henry Lole, residing at 11140 36a Ave, 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 2015 work described in this report.
- I am co-author of the report entitled "2015 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 April, 2016.

A handwritten signature in black ink that reads "Henry Lole". The signature is written in a cursive style with a large, stylized 'H' and 'L'.

Henry Lole, B.Sc., FGS

FGS 1019264

**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.
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- 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 2015 EXPLORATION - WOLF LAKE**

**a) Personnel**

J. Dahrouge, geologist

0.04 days      Project management  
0.04 days @ \$ 990.00

\$ 39.60

P. Kluczny, geologist

0.08 days      Project management  
0.08 days @ \$ 795.00

\$ 63.60

H. Lole, geologist

1.50 days      Field work and travel Sept 9-10  
0.12 days      Office work, reporting  
1.62 days @ \$ 580.00

\$ 939.60

K. Krueger, geologist

1.50 days      Field work and travel Sept 9-10  
0.43 days      Project planning & preparations, reporting  
1.93 days @ \$ 520.00

\$ 1,003.60

D. Hayes, geologist

3.21 days      Office work, data entry, reporting  
3.21 days @ \$ 475.00

\$ 1,524.75

A. Molella, receptionist

0.64 hours      Data entry, research, reporting  
0.64 hours @ \$ 42.00

\$ 26.88

\$ 3,494.83



**b) Food and Accommodation**

3	man-days @ \$ 177.10	Accommodations	\$	531.30	
4	man-days @ \$ 60.50	Meals	\$	233.59	
					\$ 764.89

**c) Transportation**

Vehicles:	SUV Rental (Whitehorse)	\$	335.09	
	ATV Rental (Whitehorse)	\$	386.49	
	Parking	\$	26.54	
	Fuel	\$	35.12	
				\$ 783.24

**d) Instrument Rental**

	GPS Rental (2)	\$	11.82	
	SPOT Locator (1)	\$	5.91	
	Satellite Phone (1)	\$	21.27	
				\$ 39.00

**e) Analyses**

		Central Lab of Graymont Western U.S. Inc.			
		(24 rock samples)			
24	samples @ \$ 4.50	Preparation fee	\$	108.00	
24	samples @ \$ 25.00	Sample analysis	\$	600.00	
					\$ 708.00

**f) Other**

	Software Rental	\$	123.88	
	Disposable Supplies	\$	61.84	
	Overhead & Supply	\$	110.44	
				\$ 296.16

**Total**

				<u>\$ 6,086.12</u>
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 Kelly Krueger, B.Sc., Geo. I.T.

Edmonton, Alberta  
March 24, 2016

## 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:

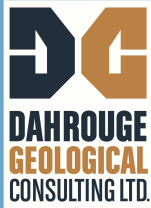
Upon receiving the samples, the prep room technician riffles and then splits the stone down to a manageable size (roughly 200 g). The stone is then dried in an oven at 120°C. Once the samples have been dried they get pulverized to a -200 mesh size. A split of this pulverized material is then sent for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

LabID	Location	Tag #	% CaCO <sub>3</sub>	% CaO	% MgCO <sub>3</sub>	% MgO	% Fe2O3	% Al2O3	ppm SrO	ppm MnO	% SiO2	ppm BaO	ppm K2O	ppm Na2O	ppm P2O5	ppm TiO2	% ICP Total	% LOI	% Sulfur
2015122062	Wolf Lake	127052	12.5	7.0	5.21	2.49	0.25	0.23	68	123	34.50	78	616	152	7229	136	52.7	7.91	0.003
2015122063	Wolf Lake	127053	4.1	2.3	2.43	1.16	0.24	0.23	16	71	25.90	90	993	64	198	93	32.9	3.38	0.000
2015122064	Wolf Lake	127054	1.2	0.7	0.40	0.19	0.21	0.07	8	33	20.63	57	254	53	1098	36	22.6	0.97	0.000
2015122065	Wolf Lake	127055	0.5	0.3	0.10	0.05	0.15	0.15	5	20	23.99	86	794	41	1064	56	24.9	0.43	0.000
2015122066	Wolf Lake	127056	97.1	54.4	1.02	0.49	0.20	0.08	201	89	0.82	181	124	227	1209	24	99.2	43.71	0.000
2015122067	Wolf Lake	127057	95.5	53.5	1.11	0.53	0.40	0.21	234	102	1.63	272	458	323	854	467	98.8	43.40	0.004
2015122068	Wolf Lake	127058	97.3	54.5	1.05	0.50	0.40	0.06	156	88	0.64	80	74	200	528	13	99.4	43.72	0.000
2015122069	Wolf Lake	127059	95.5	53.5	0.92	0.44	0.21	0.06	194	80	2.68	121	85	165	352	36	99.4	42.94	0.002
2015122070	Wolf Lake	127060	96.2	53.9	1.26	0.60	0.42	0.28	185	201	1.10	206	585	224	734	558	99.3	43.40	0.012
2015122071	Wolf Lake	127061	97.3	54.5	0.98	0.47	0.28	0.08	180	95	0.62	120	138	216	2028	155	99.2	43.64	0.002
2015122072	Wolf Lake	127062	52.8	29.6	0.86	0.41	0.16	0.16	302	72	30.91	244	362	179	900	53	84.9	23.12	0.000
2015122073	Wolf Lake	127063	41.9	23.5	0.79	0.38	0.36	0.33	194	112	27.27	308	1360	144	753	375	70.7	19.00	0.007
2015122074	Wolf Lake	127064	1.2	0.7	0.19	0.09	0.31	0.37	12	29	24.04	306	1690	<20	303	126	26.2	0.90	0.022
2015122075	Wolf Lake	127065	94.1	52.7	2.13	1.02	0.11	0.12	298	65	3.29	283	265	300	773	30	99.7	42.44	0.000
2015122094	Wolf Lake	127084	97.4	54.6	1.90	0.91	0.23	0.10	405	25	0.16	50	84	187	<100	94	99.8	43.74	0.000
2015122095	Wolf Lake	127085	98.0	54.9	0.94	0.45	0.13	0.14	815	28	0.37	61	286	223	<100	40	99.6	43.84	0.006
2015122096	Wolf Lake	127086	97.4	54.6	1.55	0.74	0.11	0.11	696	27	0.51	63	220	244	<100	9	99.7	43.73	0.001
2015122097	Wolf Lake	127087	97.6	54.7	0.77	0.37	0.20	0.23	1596	44	0.53	22	419	251	<100	77	99.4	43.61	0.002
2015122098	Wolf Lake	127088	97.4	54.6	0.86	0.41	0.10	0.19	2481	31	0.66	18	304	256	<100	49	99.3	43.62	0.002
2015122099	Wolf Lake	127089	96.4	54.0	0.92	0.44	0.11	0.20	3045	31	1.64	34	403	204	<100	56	99.2	43.10	0.000
2015122100	Wolf Lake	127090	97.1	54.4	1.02	0.49	0.18	0.20	2826	34	0.84	22	308	309	123	200	99.3	43.43	0.003
2015122101	Wolf Lake	127091	96.9	54.3	1.11	0.53	0.17	0.32	3248	31	0.71	68	530	324	<100	158	99.2	43.44	0.009
2015122102	Wolf Lake	127092	96.9	54.3	1.11	0.53	0.12	0.22	3235	27	1.14	13	322	294	<100	158	99.5	43.15	0.010
2015122103	Wolf Lake	127093	96.6	54.1	1.00	0.48	0.26	0.27	3115	28	1.45	29	448	287	<100	219	99.5	42.97	0.002



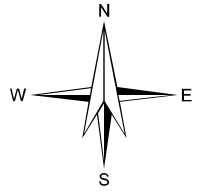
## APPENDIX 4: 2015 SAMPLE DESCRIPTIONS AND ASSAY RESULTS FROM THE WOLF LAKE PROPERTY



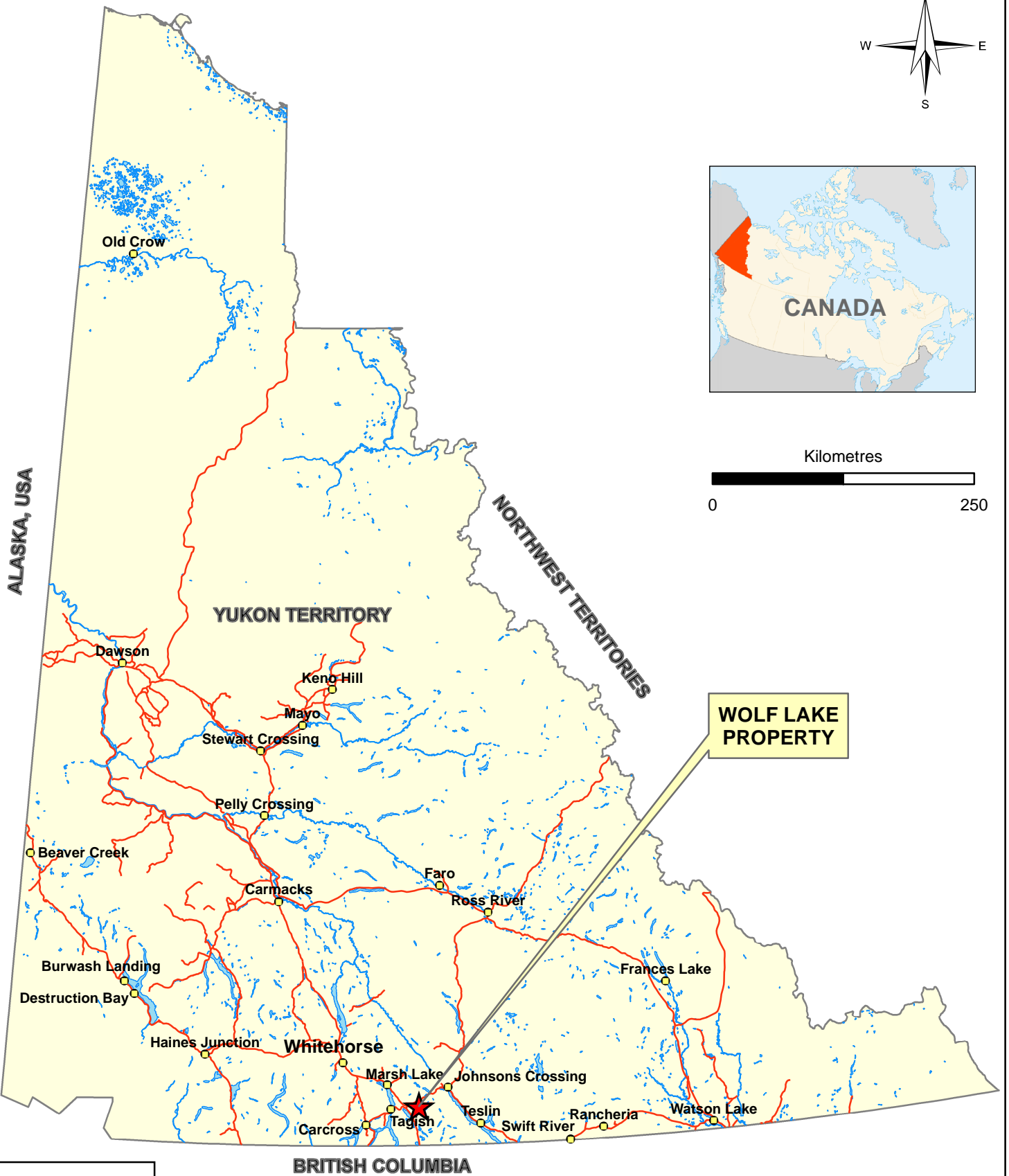
Notes: Stratigraphic thicknesses are based on measured attitudes of bedding listed below, with appropriate interpolations. Attitudes are strike and dip (right-hand rule). Sections are listed in numerical order of samples, which does not necessarily represent stratigraphic order. Most samples consist 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>											
127084	Mh	2	<b>Lime Mudstone</b> , very-light grey weathered, light grey fresh, micritic, resistant, hard, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, weak	97.45	1.90	0.16	0.100	0.230	405	25	50
UTM 573519E, 6697913N											
127085	Mh	1	<b>Lime Mudstone</b> , light grey weathered, light grey to dark grey fresh, micritic, moderately-bedded, resistant, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, weak	97.98	0.94	0.37	0.140	0.130	815	28	50
UTM 573474E, 6697739N											
127086	Mh	1.5	<b>Lime Mudstone</b> , light grey weathered, light grey to dark grey fresh, micritic, moderately-bedded, resistant, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, weak	97.45	1.55	0.51	0.110	0.110	696	27	50
UTM 573469E, 6697733N											
127087	Mh	1	<b>Lime Mudstone</b> , medium grey weathered, medium grey to dark grey fresh, cryptocrystalline to micritic, moderately-bedded, slightly resistant, alteration: oxide, localized, weak intensity, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, weak	97.63	0.77	0.53	0.230	0.200	1596	44	50
UTM 573420E, 6697509N											
<b>Section 2015-01 (UTM 572267E, 6696516N)</b>											
127052	Mh	1.5	<b>Mudstone</b> , medium grey to dark grey weathered, medium grey fresh, micritic, slightly resistant, hard, very weak HCl reaction, structure(s): fracture, outcrop-scale, moderate	12.49	5.21	34.50	0.230	0.250	68	123	7229
127053	Mh	1	<b>Mudstone</b> , medium grey to dark grey weathered, medium grey fresh, micritic, slightly resistant, hard, no HCL reaction, structure(s): fracture, outcrop-scale, moderate	4.10	2.43	25.90	0.230	0.240	16	71	198
127054	Mh	1.75	<b>Mudstone</b> , medium grey to dark grey weathered, medium grey fresh, micritic, slightly resistant, hard, no HCL reaction, structure(s): fracture, outcrop-scale, moderate	1.25	0.40	20.63	0.070	0.210	8	33	1098
127055	Mh	1.5	<b>Mudstone</b> , medium grey to dark grey weathered, black fresh, micritic, slightly resistant, hard, no HCL reaction, structure(s): fracture, outcrop-scale, moderate; calcite veinlet, outcrop-scale, weak; bedding (definite), outcrop-scale, 56/68 SE	0.54	0.10	23.99	0.150	0.150	5	20	1064
<b>Section 2015-02 (UTM 572220E, 6696532N)</b>											
127056	Mh	2	<b>Lime Mudstone</b> , light grey weathered, light grey to medium grey fresh, micritic, thickly-bedded, resistant, moderate HCl reaction, structure(s): calcite veinlet, outcrop-scale, moderate	97.09	1.02	0.82	0.080	0.200	201	89	1209
127057	Mh	1.75	<b>Lime Mudstone</b> , light grey weathered, light grey to medium grey fresh, micritic, thickly-bedded, resistant, moderate HCl reaction, structure(s): calcite veinlet, outcrop-scale, moderate	95.49	1.11	1.63	0.210	0.400	234	102	854
127058	Mh	2.25	<b>Lime Mudstone</b> , light grey weathered, light grey to medium grey fresh, micritic, thickly-bedded, resistant, alteration: oxide, fracture-related, moderate intensity, moderate HCl reaction, structure(s): calcite veinlet, outcrop-scale, moderate	97.27	1.05	0.64	0.060	0.400	156	88	528

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)
127059	Mh	1.75	<b>Lime Mudstone</b> , light grey weathered, light grey to medium grey fresh, micritic, thickly-bedded, resistant, hard, alteration: oxide, fracture-related, moderate intensity, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, moderate	95.49	0.92	2.68	0.060	0.210	194	80	352
127060	Mh	1	<b>Lime Mudstone</b> , light grey weathered, light grey to medium grey fresh, micritic, thickly-bedded, resistant, alteration: oxide, fracture-related, weak intensity, moderate HCl reaction, structure(s): calcite veinlet, outcrop-scale, moderate	96.20	1.26	1.10	0.280	0.420	185	201	734
127061	Mh	1.5	<b>Lime Mudstone</b> , light grey weathered, light grey to medium grey fresh, micritic, thickly-bedded, resistant, moderate HCl reaction, structure(s): calcite veinlet, outcrop-scale, moderate	97.27	0.98	0.62	0.080	0.280	180	95	2028
<b>Section 2015-03 (UTM 572218E, 6696390N)</b>											
127062	Mh	2	<b>Calcareous Mudstone</b> , light grey weathered, light grey to dark grey fresh, micritic, resistant, moderate HCl reaction, structure(s): calcite vein, outcrop-scale, moderate	52.83	0.86	30.91	0.160	0.160	302	72	900
127063	Mh	2.25	<b>Calcareous Mudstone</b> , light grey weathered, light grey to dark grey fresh, micritic, resistant, moderate HCl reaction, structure(s): calcite vein, outcrop-scale, moderate	41.94	0.79	27.27	0.330	0.360	194	112	753
127064	Mh	1.75	<b>Mudstone</b> , black weathered, dark grey to black fresh, very fine-grained, moderately-bedded to massively-bedded, resistant, hard, alteration: oxide, localized, weak intensity, no HCl reaction	1.25	0.19	24.04	0.370	0.310	12	29	303
127065	Mh	2.5	<b>Lime Mudstone to Lime Packstone</b> , very-light grey to light grey weathered, light grey to medium grey fresh, fine-grained to very coarse-grained, fossils: crinoid ossicle, common; colonial coral, rare, thickly-bedded to massively-bedded, resistant, hard, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, weak	94.06	2.13	3.29	0.120	0.110	298	65	773
<b>Section 2015-04 (UTM 573371E, 6697497N)</b>											
127088	Mh	2.25	<b>Lime Mudstone</b> , medium grey weathered and fresh, micritic, fossils: crinoid stem, rare; crinoid ossicle, rare, thinly-bedded to moderately-bedded, resistant, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, weak	97.45	0.86	0.66	0.190	0.100	2481	31	50
127089	Mh	1.25	<b>Lime Mudstone</b> , medium grey weathered, medium grey to dark grey fresh, micritic, moderately-bedded, resistant, alteration: oxide, localized, weak intensity, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, weak	96.38	0.92	1.64	0.200	0.110	3045	31	50
<b>Section 2015-05 (UTM 573393E, 6697574N)</b>											
127090	Mh	3	<b>Lime Mudstone</b> , medium grey weathered, medium grey to dark grey fresh, micritic, moderately-bedded, resistant, alteration: oxide, localized, weak intensity, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, weak	97.09	1.02	0.84	0.200	0.180	2826	34	123
127091	Mh	3	<b>Lime Mudstone</b> , medium grey weathered, medium grey to dark grey fresh, micritic, moderately-bedded, resistant, alteration: oxide, localized, weak intensity, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, weak	96.91	1.11	0.71	0.320	0.170	3248	31	50
127092	Mh	3	<b>Lime Mudstone</b> , medium grey weathered, medium grey to dark grey fresh, micritic, moderately-bedded, resistant, alteration: oxide, localized, weak intensity, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, weak	96.91	1.11	1.14	0.220	0.120	3235	27	50
127093	Mh	3	<b>Lime Mudstone</b> , medium grey weathered, medium grey to dark grey fresh, micritic, moderately-bedded, resistant, alteration: oxide, localized, moderate intensity, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, weak	96.56	1.00	1.45	0.270	0.260	3115	28	50








Kilometres



**WOLF LAKE PROPERTY**

### Legend

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

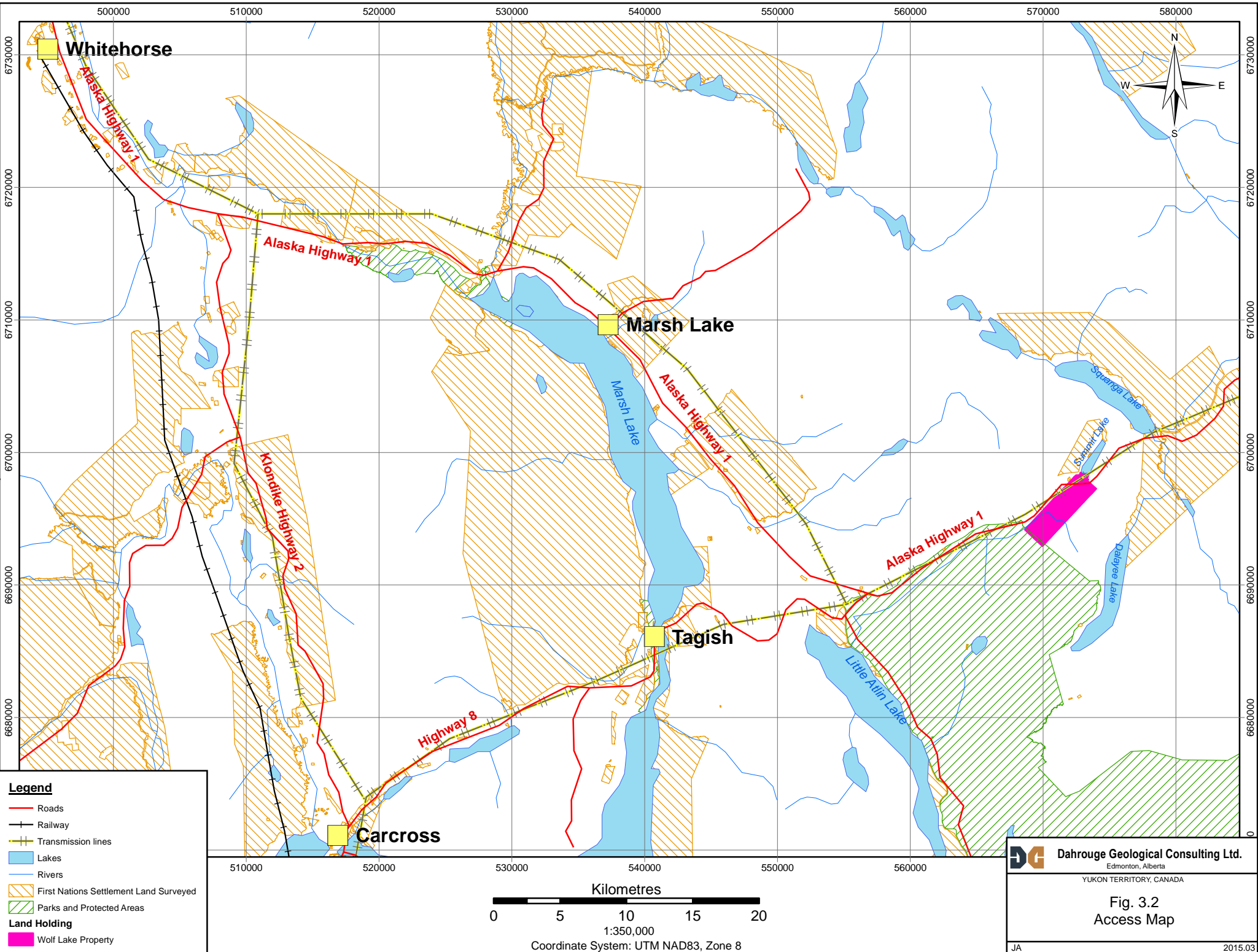
**DG** Dahrouge Geological Consulting Ltd.  
Edmonton, Alberta

YUKON TERRITORY, CANADA

Fig. 3.1  
Property Location

1:5,000,000

Coordinate System: UTM NAD83, Zone 8



**Legend**

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

**Land Holding**

- Wolf Lake Property

**Kilometres**

0      5      10      15      20

1:350,000

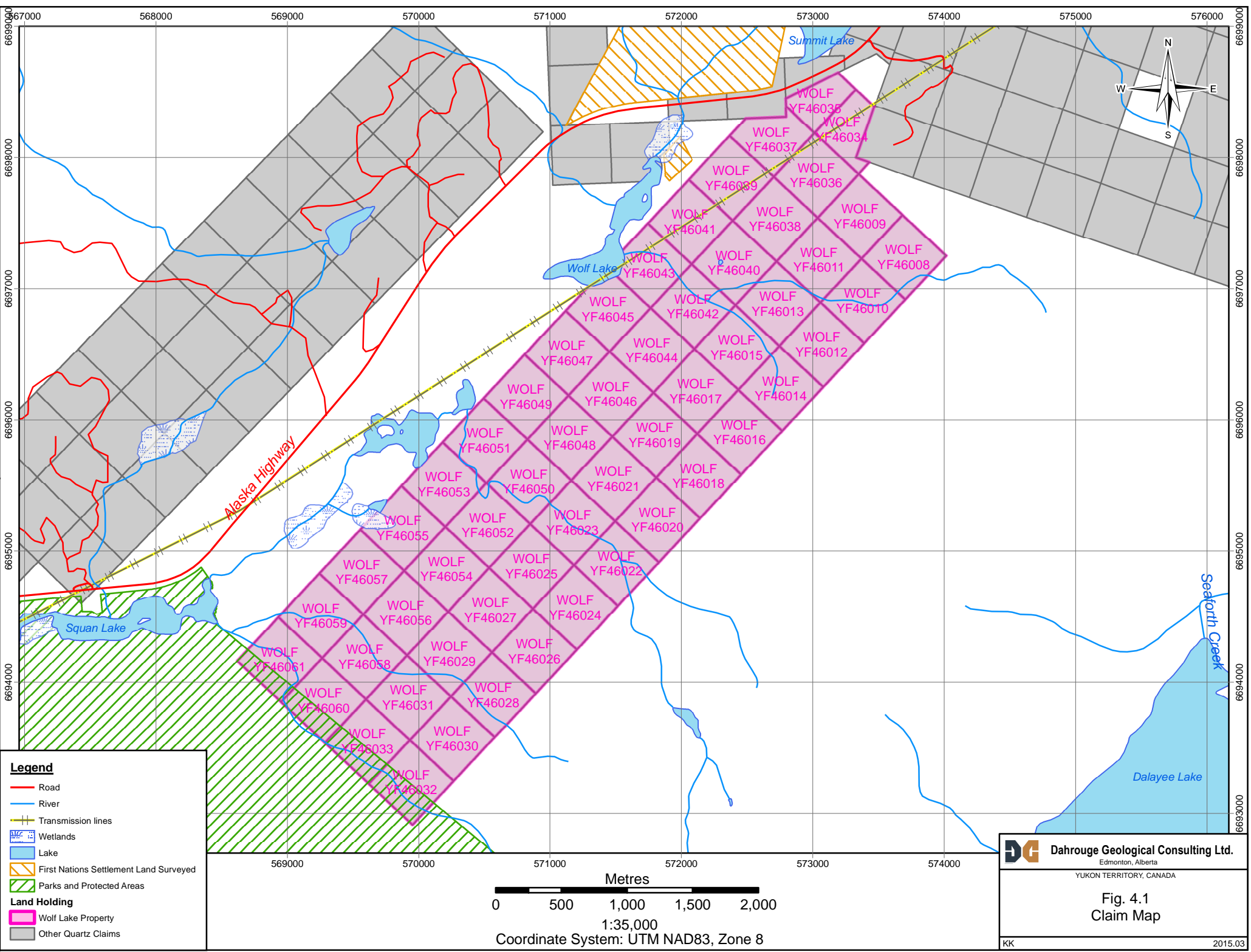
Coordinate System: UTM NAD83, Zone 8

**DG Dahrouge Geological Consulting Ltd.**  
 Edmonton, Alberta  
 YUKON TERRITORY, CANADA

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

JA 2015.03





**Legend**

- Road
- River
- Transmission lines
- Wetlands
- Lake
- First Nations Settlement Land Surveyed
- Parks and Protected Areas

**Land Holding**

- Wolf Lake Property
- Other Quartz Claims

Metres

0    500    1,000    1,500    2,000

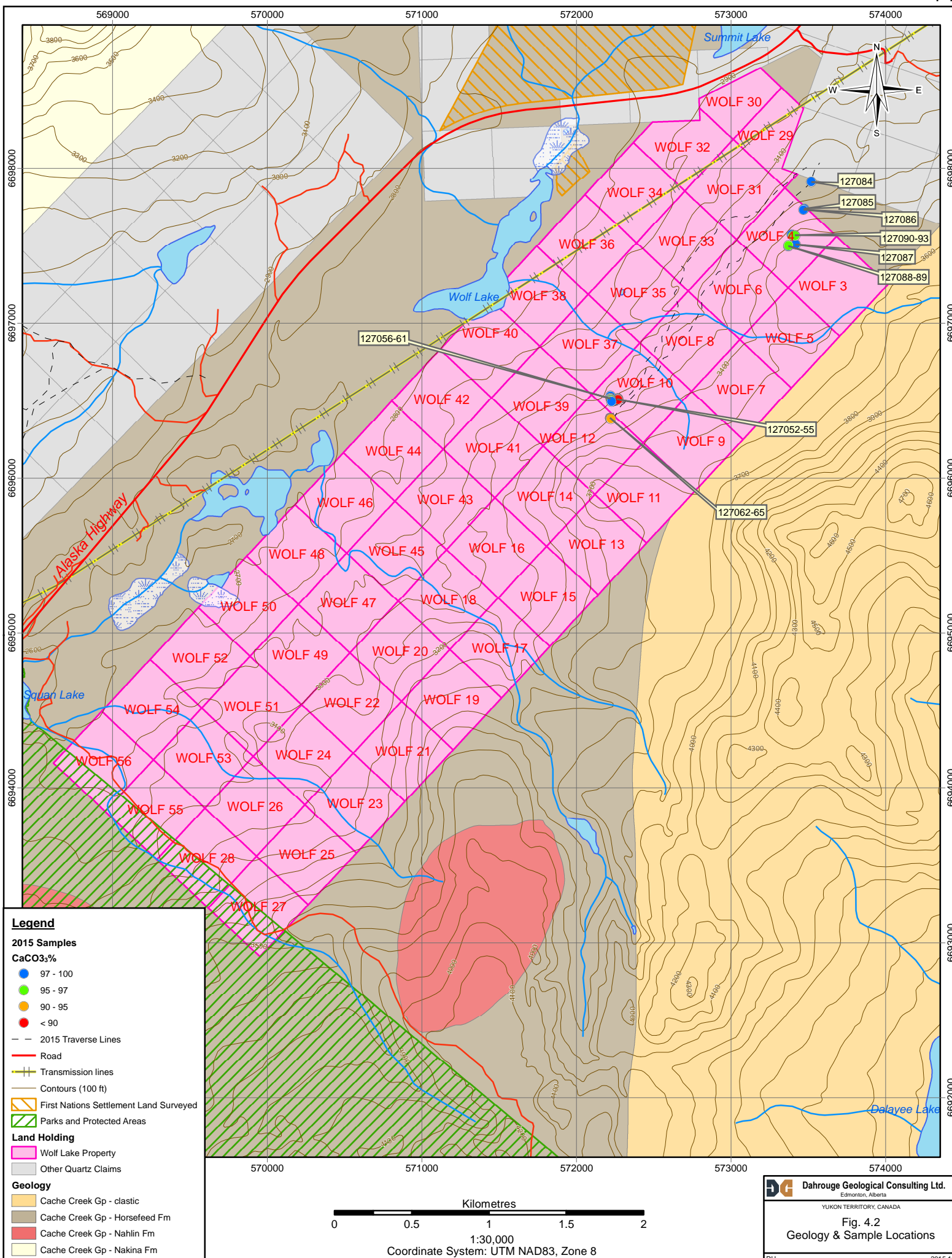
1:35,000

Coordinate System: UTM NAD83, Zone 8

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 Edmonton, Alberta  
 YUKON TERRITORY, CANADA

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

KK 2015.03



**Legend**

**2015 Samples**

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

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

— 2015 Traverse Lines

— Road

— Transmission lines

— Contours (100 ft)

▨ First Nations Settlement Land Surveyed

▨ Parks and Protected Areas

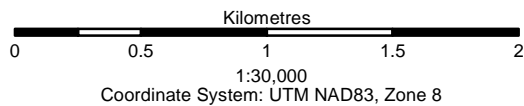
**Land Holding**

▨ Wolf Lake Property

▨ Other Quartz Claims

**Geology**

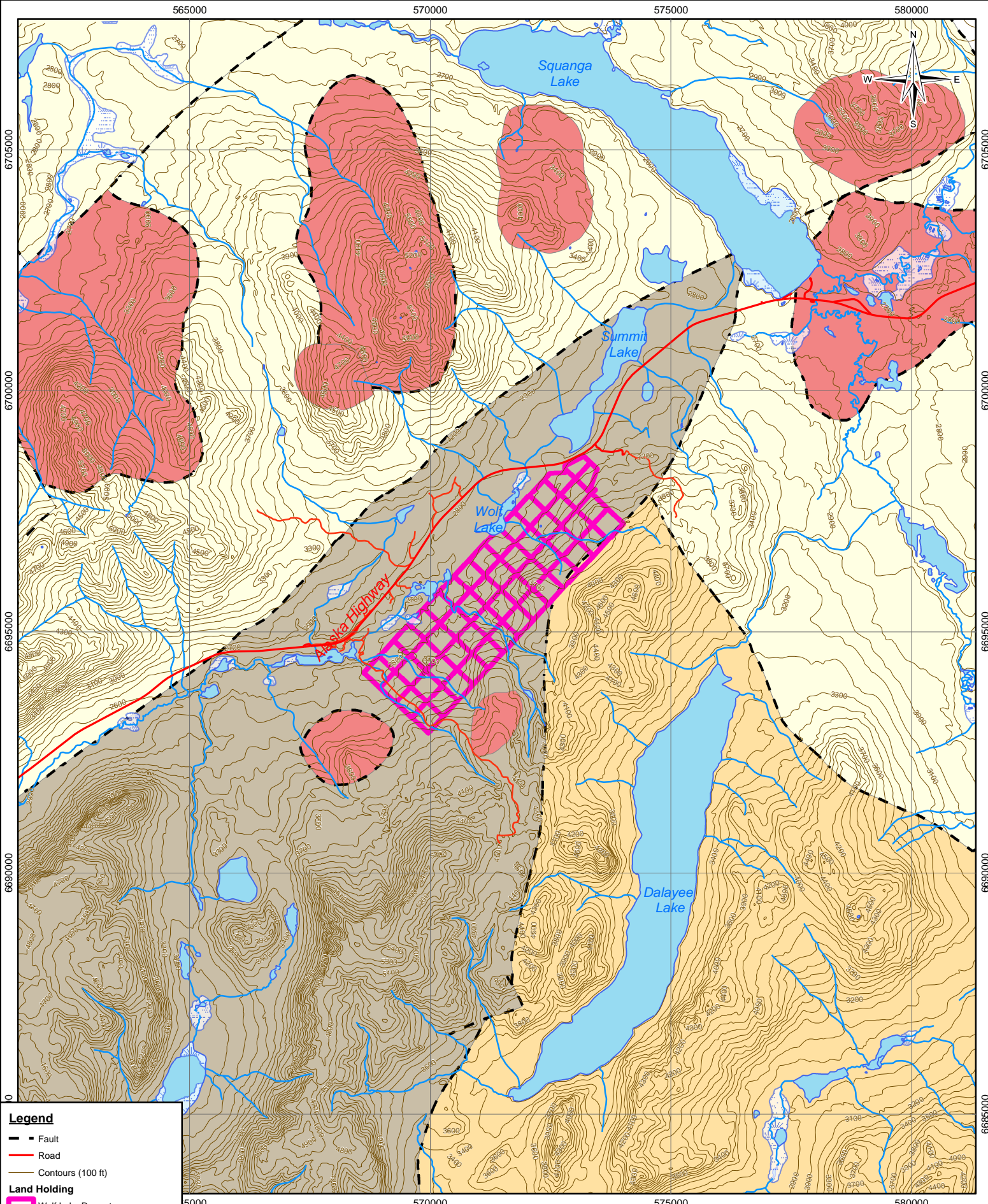
- ▨ Cache Creek Gp - clastic
- ▨ Cache Creek Gp - Horsefeed Fm
- ▨ Cache Creek Gp - Nahlin Fm
- ▨ Cache Creek Gp - Nakina Fm



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Edmonton, Alberta  
YUKON TERRITORY, CANADA

Fig. 4.2  
Geology & Sample Locations

DH 2015.10



**Legend**

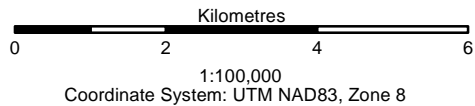
- - Fault
- Road
- Contours (100 ft)

**Land Holding**

- Wolf Lake Property

**Geology**

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



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**Fig. 4.3**  
**Regional Geology Map**

KK 2015.04