MAR 20090020: CLEARWATER

Received date: Nov 05, 2009

Public release date: Jan 04, 2011

FINAL REPORT

GRAYMONT WESTERN CANADA INC.

2009 EXPLORATION AND FIELDWORK WITHIN THE CLEARWATER GROUP METALLIC AND INDUSTRIAL MINERALS PERMITS, WEST-CENTRAL ALBERTA

PART B

Metallic and Industrial Minerals Permits
9396020019, 9398100125, 9305090646 and 9306031167

Geographic Coordinates

51°54' N to 52°09' N
115°12' W to 115°30' W

NTS Sheets 82 O/13 and O/14, 83 B/3 and B/4

Owner and Operator:	MAIM Permits 9396020019, 9398100125, 9305090646 and 9306031167 Graymont Western Canada Inc. 190, 3025 - 12 Street N.E. Calgary, AB, T2E 7J2
Consultant:	Dahrouge Geological Consulting Ltd. 18, 10509 - 81 Avenue Edmonton, Alberta T6E 1X7
Authors:	J. Klarenbach, B.Sc., P.Geol. P. Kluczny, B.Sc., Geol.I.T.
Date Submitted:	November 4, 2009

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

PART C

1. SUMMARY

During July, 2009, parts of Limestone and Clearwater ranges, west of Rocky Mountain House and within Metallic and Industrial Minerals (MAIM) Permits 9396020019, 9298100125, 9305090646, and 9306031167, were explored for high-quality carbonate rocks. Exploration conducted in 2009 was a follow-up to previous exploration conducted in the area.

Access and outcrops were mapped, and a total of 53 rock samples were collected within the Clearwater Group permits, representing approximately 138¼ m of stratigraphy. Samples were sent to a laboratory for whole-rock analysis.

Throughout this report attitudes of bedding and other planar features are given as A°/B° SW, where A° is the azimuth of the strike and B° is the amount of dip in the direction indicated (right-hand rule). A magnetic declination of 16°17' east was used. Where bedding is not evident, stratigraphic thicknesses were calculated using orientations from adjacent units. Where more than one bedding orientation was measured, the mean orientation is used.

2. INTRODUCTION

The 2009 exploration within the Clearwater Group permits was conducted by Dahrouge Geological Consulting Ltd. on behalf of Graymont Western Canada Inc. (Graymont). This assessment report describes the exploration conducted within MAIM Permits 9396020019, 9398100125, 9305090646, and 9306031167, which encompass large parts of Limestone and Clearwater ranges of the Alberta Foothills. Bob Robison, exploration manager for Graymont Western U.S. Inc., authorized this work.

The objectives of the 2009 exploration were to expand on the previously explored areas to locate and better define high-quality carbonate rocks throughout the property. This report includes information on the geology and quality of carbonates encountered while mapping and sampling outcrops within the permit group area.

3. GEOGRAPHIC SETTING AND ACCESS

3.1 LOCATION AND ACCESS

MAIM Permits 9396020019, 9398100125, 9305090646, and 9306031167 encompass areas within Limestone and Clearwater ranges, surrounding and including Baseline Mountain, Corkscrew Mountain, Limestone Mountain, Idlewilde Mountain and Marble Mountain, within west-central Alberta (Fig. 3.1).

Access to the central parts of Clearwater Range is from Rocky Mountain House,

approximately 30 km southerly on Highway 22, continuing 30 km westerly on secondary road 591 to a southerly branch of Forestry Trunk Road 734 (Fig. 3.2). This branch of Forestry Trunk Road, located about 5 km east of Burnco Quarry, continues southerly, approximately parallel to Marble Mountain at an average distance of about 3 km. ATV access to Marble Mountain is provided by cut lines running perpendicular to Clearwater Range.

From Burnco Quarry, at the south end of Corkscrew Mountain, Forestry Trunk Road 734 continues northwest along the west flank of Corkscrew Mountain and onward to the junction with Secondary Highway 752, north of Idlewilde Mountain. There it turns west and north away from the property and eventually reaches Nordegg.

Approximately 7 km northwest of Burnco Quarry along Forestry Trunk Road 734, Cutoff Creek Forestry Road heads westerly and provides access to the central part of Limestone Range, between Idlewilde and Limestone mountains.

The northern parts of Clearwater Range, northwest of Corkscrew Mountain near Baseline Mountain, can be accessed from Rocky Mountain House by travelling approximately 55 km southwest along Secondary Highway 752 (Fig. 3.2).

Clearwater Range can also be accessed from Caroline, by travelling about 35 km west on Secondary Highway 591, and then utilizing Forestry Trunk Road 734.

Access to and throughout the property area is by truck, all-terrain vehicles, helicopter, and extensive hiking. Several logging roads and cut lines spurring off the main roads provide valuable ATV access throughout the property area.

3.2 INFRASTRUCTURE

Accommodations, food, fuel and other necessary services are available in Rocky Mountain House or Caroline. The local economy is primarily based on agriculture, forestry, and energy-based industries.

Rocky Mountain House, with a population of about 7,000, is accessed by traveling 67 km west of Red Deer along the David Thompson Highway (Highway 11), and then 12 km north along Highway 22.

The village of Caroline is about 49 km from Rocky Mountain House, 37 km south along Highway 22 and 12 km east along Highway 54. Caroline has a population of about 500.

3.3 TOPOGRAPHY, VEGETATION AND CLIMATE

The Clearwater Group permits are included in the Eastern-Slope Montane Forest Ecological Region, and lie within the Rocky-Clearwater District of the Alberta Forest Reserve. In the subalpine zone, vegetation consists of stunted subalpine fir and Englemann Spruce, and alpine

foliage above the treeline. Vegetation in areas of rugged limestone outcroppings is generally sparse, and commonly consists of junipers, other low brush, and grasses. Below treeline, vegetation consists of dense stands of Aspen, Lodgepole Pine, White Spruce, and less frequent stands of Douglas Fir. Areas of lowest relief are covered with dense stands of Black Spruce and thick undergrowth, with local muskegs and swamps.

The property is comprised of a series of northwest-trending ridges and valleys where elevations range from approximately 1,320 m along Clearwater River to about 2,200 m atop Marble Mountain. The property is cut by a number of creeks and rivers, including Prairie, Seven Mile, Cutoff, Rocky, Limestone, and Moose creeks, and Tay and Clearwater rivers.

Climate is sub-alpine with average summer temperatures of 20° to 25°C and winter temperatures of -15° to -20°C, with extremes of 35°C and -40°C. Rainfall averages about 35 cm per year; snowfall averages 35 to 45 cm with the majority falling in December and January.

3.4 FIELD OPERATIONS

Field operations were conducted by a four-person geological crew from Dahrouge Geological Consulting Ltd., based in a hotel in Rocky Mountain House.

Transportation to and from the property was by four-wheel-drive truck. Access throughout the property was by truck and ATV's where possible, and by extensive hiking. One day of the program was conducted utilizing a helicopter to access remote areas of interest. The helicopter was contracted from Kananaskis Mountain Helicopters Ltd. based out of the Cline River Heliport, about 120 km west and south from Rocky Mountain House.

Garmin GPSmap 60Cx instruments were used to mark outcrop locations and record access information. Compasses were set at a magnetic declination of 16°17' east.

4. PROPERTY, EXPLORATION AND EXPENDITURES

4.1 PROPERTY SUMMARY

In 1996, Graymont Western Canada Inc. (nee: Continental Lime Ltd.) acquired MAIM Permit 9396020019 (Corkscrew Mountain) to cover Paleozoic limestones at Corkscrew and Idlewilde mountains, west of Caroline, Alberta (Fig.'s 3.2 and 4.1). The permit is divided into two main parts: the eastern part covers Paleozoic limestones along the central part of Clearwater Range at Corkscrew Mountain and Oradea Ridge, while the western part covers Paleozoic limestones at the north end of Limestone Range at Idlewilde Mountain.

The original area of the Corkscrew Mountain Permit totaled 8,816 hectares. Based on

exploration conducted in 1997, 1999 and 2001, the permit area was reduced to 2,400 hectares (Dahrouge, 2002).

In 1998, Graymont (nee: Continental Lime Ltd.) acquired MAIM Permit 9398100125 (Limestone Mountain) to cover Paleozoic limestones adjacent to the Corkscrew Mountain Permit (Fig.'s 3.2 and 4.1). The Limestone Mountain Permit covers the central and southern part of Limestone Range, and the southernmost portions of Clearwater Range. The permit has been reduced from an original area of 8,592 hectares to its current size of 2,416 hectares following exploration conducted prior to 2002.

MAIM Permit 9305090646 (Corkscrew West) is contiguous to the east parts of the Corkscrew Mountain and Limestone Mountain permits; it was obtained on September 9, 2005 and encompasses 3,231 hectares (Fig.'s 3.2 and 4.1).

The Prairie Creek Permit (MAIM Permit 9306031167) was obtained on March 30, 2006, to cover open ground within Clearwater Range. The permit initially encompassed 5,688 hectares and adjoins to the north of the Corkscrew West Permit (Fig.'s 3.2 and 4.1). Following exploration conducted in 2007, the permit was reduced to 2,184 hectares.

Based on the recent exploration conducted in the summer of 2009, each permit within the Clearwater Group will be reduced (Section 4.3, Fig. 4.1).

4.2 2009 EXPLORATION SUMMARY

From July 6th to 15th, 2009, Dahrouge Geological Consulting Ltd., on behalf of Graymont Western Canada Inc., conducted exploration for carbonate lithotypes within west-central Alberta. The work was undertaken to determine and identify the location and extent of carbonate outcrops in the permit group area with a focus within MAIM permits 9396020019 and 9398100125.

Carbonate outcrops were examined and a total of 53 samples were collected (Fig.'s 4.2 through 4.4). Geological observations were recorded, including lithologic information, measurements of structural elements, and other pertinent details (Appendix 2). A solution of 6% HCl was used to assess carbonate quality in the field, and rock samples were shipped to Central Lab of Graymont Western U.S. Inc. in Utah for analyses (Appendix 3). In some instances, interval thicknesses were determined by measuring outcrops perpendicular to bedding, where it could be identified. Field maps were completed on 1:20,000 and 1:30,000 scale map sheets and concentrated on areas surrounding and including Corkscrew Mountain, Limestone Mountain, Marble Mountain, and Idlewilde Mountain, along Clearwater and Limestone ranges.

4.3 EXPLORATION EXPENDITURES

Expenditures for 2009 totaled $47,381.72 (Appendix 1).

Each of the Clearwater Group permits will be amended (Fig. 4.1). The retained areas of each permit are described as follows:

Corkscrew Permit (9396020019):

Land Description (Mer-Rg-Tp)	Reduced Size (Ha)
5-09-035: 5L5, L6, L12, L13; 6L1, L8; 7L1-L3, L6, L7	2,128
5-10-035: 1N; 2L9, L15, L16; 11N, SE, L3, L5, L6; 12SW, L2, L7, L11-L13; 14S, NW, L9, L10, L15; 15L1, L8	
5-11-035: 2NW, L4-L7, L10; 3SE, L3, L9, L11, L14, L16; 10SE, L3, L6, L9-L11, L16; 11L4, L5, L12, L13; 12L1, L2, L6, L7, L13, L14; 13L4, L5; 14NE, L8; 15L6, L11, L12; 22L13, L14; 23L2, L3, L6, L7, L11, L13, L14; 26L4, L5; 27SW, L2, L7, L8, L11; 28L1, L7, L8	

Limestone Mountain Permit (9398100125):

Land Description (Mer-Rg-Tp)	Reduced Size (Ha)
5-09-034: 3L6, L7, L10, L11, L14, L15; 9NE; 10L3, L5, L6, L12, L13; 16SE, NW, L3, L6, L10, L15; 20NE, L1, L8; 21W; 29SE, NW, L6, L10, L15; 30L10, L14, L15; 31SE, L3, L4, L6, L9, L10; 32SW, L11, L12	2,336
5-10-034: 18L9-L11, L14, L15; 19SW; 29NW, L5-L7, L10, L15; 30NE, L8, L12, L13; 31SE, NW, L4-L6, L9, L10, L15; 32L3-L5; 36L1	
5-11-034: 23L8, L9, L14-L16; 25NE, L11, L14; 26L3, L5, L6; 34L13, L14; 36E, L3, L4, L6	
5-10-035: 6L1-L3	
5-11-035: 1L9, L15, L16	

Prairie Creek Permit (9306031167):

Land Description (Mer-Rg-Tp)	Reduced Size (Ha)
5-11-036: 35L16; 36NE, L13, L14	316
5-11-037: 1S, L10S, L10NW, L11, L12, L13SE, L14; 2L1E, L8SE	

Corkscrew West Permit (9305090646):

Land Description (Mer-Rg-Tp)	Reduced Size (Ha)
5-10-034: 35NE, L8; 36L2, L5-L8	288
5-10-035: 1SW; 2SE	

Expenditures are allocated among the Clearwater Group MAIM permits as follows:

MAIM Permit	Permit Area (ha)	Reduced Permit Area (ha)	Required Expenditures*	Assigned Expenditures	Expiry Date
9396020019	2,400	2,128	$31,920	$31,920	Feb. 24, 2010 (Term Expiry)
9398100125	2,416	2,336	$25,164[1]	$1,521	Oct. 30, 2010
9305090646	3,231	288	$2,880	$2,880	Sept. 9, 2011
9306031167	2,184	316	$3,160	$11,060	Mar. 30, 2014

* Based on reduced areas
[1] Calculated from $35,040 - previous credit of $9,876

5. GEOLOGY

5.1 STRATIGRAPHY

At Clearwater Range, carbonate lithologies are known to occur within both Paleozoic and Mesozoic sequences (Table 5.1, Fig. 5.1). Paleozoic limestones are described in the Upper Devonian Palliser Formation, Upper Devonian to Lower Carboniferous Banff Formation and the Lower Carboniferous Rundle Assemblage. The Paleozoic limestones encountered within the Clearwater Group permits were from the Turner Valley, Shunda and Pekisko formations of the Rundle Assemblage, and from the Banff Formation. Mesozoic rocks of the Fernie Group have been noted within the permit group area.

TABLE 5.1 GENERALIZED PALEOZOIC STRATIGRAPHY OF FOOTHILLS AND FRONT RANGES, WEST-CENTRAL ALBERTA*

System or Subsystem	Stratigraphic Unit		
	Assemblage Group	Formation	
		S	N
Jurassic	Fernie Group		
Lower Carboniferous	Rundle Assemblage	Mount Head	
		[1]Livingstone	Turner Valley
			Shunda
			Pekisko
	Banff Assemblage	Banff	
		Exshaw	
Upper Devonian		[1]Palliser	
		Alexo	
	Fairholme Group	Southesk	Mounthawk
		Cairn	
Cambrian		Pika	
		Eldon	
		Stephen	
		Cathedral	

* Compiled from Mackenzie 1969, Richards et al. 1994, Switzer et al., 1994., and Holter, 1994.
Fairholme Group of Mackenzie (1969) is partly equivalent to the Woodbend Group (Switzer et al., 1994).
[1]Current limestone production (from Holter, 1994)

5.1.1 Banff Assemblage

In west-central Alberta, the Exshaw, Banff and Yohin formations comprise the Banff Assemblage (Richards et al. 1994). Only exposures of the Banff Formation appear within the Clearwater Group permits. The Banff Formation is a heterogeneous association of carbonates and fine-grained siliciclastics deposited on poorly differentiated carbonate platforms. Westward, the uppermost Banff Formation grades laterally into the Rundle Assemblage.

5.1.2 Rundle Assemblage

The Lower Carboniferous Rundle Assemblage extends from MacKenzie Mountains in the Arctic, south through the Peace River Embayment to southeastern British Columbia. In west-central Alberta, it comprises shallow-marine platform and ramp carbonates, which prograded westward over deeper water shales and carbonates of the Banff Assemblage. The lower Rundle Assemblage is subdivided into the transgressive carbonate Pekisko Formation, and two regressive successions of restricted-marine carbonates and subordinate anhydrite assigned to the Shunda and Turner Valley formations (Richards et al. 1994). The Turner Valley Formation extends from east-central British Columbia to southwest Alberta. According to Richards et al. (1994), the Turner Valley Formation thickens to the southwest and for most of its length is 50 m to 120 m thick. The type section near Turner Valley is 152 m thick and divisible into four beds.

Earlier work by Douglas (1958), and MacQueen and Bamber (1968) indicate that the eastern peritidal sequences of the uppermost Pekisko, Shunda and lower Turner Valley grade south and southwestward into the more open-marine sequence of the Livingstone Formation (Table 5.1).

The upper Rundle Assemblage includes the transgressive Mount Head Formation.

5.1.3 Fernie Group

The Fernie Group includes all but the uppermost Jurassic strata of western Alberta and eastern British Columbia. Although treated as a Group, the Fernie is divided into a number of members and informal units with uncertain mutual relations and continuity. The Fernie Group thickens gently and irregularly west and southwest.

Outcrops of the Fernie Group, noted within the Clearwater Group permits, consist of large thicknesses of shale and calcareous sandstones with minor conglomerate.

5.2 STRUCTURE

In Front Ranges and Foothills of west-central Alberta, Paleozoic and Mesozoic strata are repeated along several major thrust faults. Displacements along these faults are interpreted to be tens of kilometres. Within individual thrust sheets, regional-scale folds exhibit a spatial relation to their leading edges.

6. RESULTS

Ten days were spent checking property access and outlining carbonate outcrops in detail.

Carbonate lithologies of the Rundle Assemblage and Banff Formation were examined and sampled within Clearwater and Limestone ranges, near Corkscrew Mountain, Marble Mountain,

and southwest of Idlewilde Mountain (Fig.'s 4.2 through 4.4). A total of 53 intervals were examined and sampled, representing more than 138¼ m of stratigraphy (Appendix 2). Where bedding could not be identified, stratigraphic measurements were taken based on the previously determined regional trend or deduced from surrounding measurements where possible.

The 2009 exploration concentrated on defining stratigraphic unit locations and contacts. Where examined, the Rundle Assemblage included marginal and high-quality carbonate rocks of the Turner Valley, Shunda, and Pekisko formations.

Dolomitic limestones of the Turner Valley Formation were encountered along the southern part of the Corkscrew Mountain ridgetop. A section of eight samples (2009-07), representing 24¼ m of stratigraphy, was collected and averaged 54.57% $CaCO_3$, 44.52% $MgCO_3$, and 0.52% SiO_2 (Fig. 4.3). The entire section consisted of light-brownish-grey weathered, light- to medium-brown fresh, dominantly fine-grained, strongly dolomitic lime packstones. Due to the consistently low silica values, the Turner Valley rocks in the area may have potential for significant tonnages of high-quality dolomite.

Only two samples of the Shunda Formation were collected at the base of Section 2009-04, near the top of Marble Mountain along the west-southwestern flank (Fig. 4.4). The two samples, representing 5½ m of stratigraphy, averaged 53.81% $CaCO_3$, 28.45% $MgCO_3$, and 10.34% SiO_2. The rocks were typical of the Shunda Formation, consisting of well-bedded, tan, micritic to very-fine-grained, strongly dolomitic and siliceous lime mudstones. The Shunda Formation is commonly recessive, which results in limited outcrop. It is not considered a high-quality carbonate unit of interest.

The majority of the outcrops visited in 2009 were within the Pekisko Formation. The analyses were quite variable as samples were collected from various members of the formation. All of the samples were low in silica but some were dolomitic, elevated in $MgCO_3$. Several high-quality sections were obtained within the Pekisko Formation. The lower part of Section 2009-01, collected just north of the intersection of Cutoff Creek Forestry Road and Cutoff Creek, averaged 96.97% $CaCO_3$, 1.89% $MgCO_3$, and 0.51% SiO_2 over 20½ m (Fig. 4.2). Section 2009-02, taken along a northwestern slope from Forestry Trunk Road 734 near the lower part of the southwestern flank of Corkscrew Mountain, averaged 98.01% $CaCO_3$, 1.19% $MgCO_3$, and 0.30% SiO_2 over 10 m (Fig. 4.3). The lower portion of Section 2009-05, taken from the base of the southwestern flank of Corkscrew Mountain within the Clearwater River valley, averaged 97.80% $CaCO_3$, 1.24% $MgCO_3$, and 0.29% SiO_2 over 8¼ m (Fig. 4.3). Section 2009-06, collected from the south side of Marble Mountain, averaged 98.24% $CaCO_3$, 0.94% $MgCO_3$, and 0.33% SiO_2 over 6¼ m (Fig. 4.4).

The high-quality Pekisko samples were resistant limestones of the Gap Member. Nearly all

of the samples consisted of medium-grey and brownish-grey fresh, fine- to medium-grained, clast-rich lime packstones and grainstones with various bioclasts, such as crinoids, ooids, shells and shell fragments, and minor rugose corals.

Three isolated samples (68634-68636) of the Banff Formation were taken along the southern slope of Marble Mountain (Fig. 4.4). All three samples were moderately to well-bedded, light- to dark-grey fresh, cryptocrystalline to micritic, homogeneous mudstones with minor wackestone in sample 68636. The resulting analyses varied but all three samples proved siliceous. The $MgCO_3$ content ranged from 3.13% to 32.41% and the SiO_2 content ranged from 3.66% to 17.95%. The Banff Formation is not generally a high-quality carbonate unit.

7. CONCLUSIONS

Carbonate units of the Rundle Assemblage and Banff Formation were examined and measured along the lower part of Clearwater Range at Corkscrew and Marble mountains and areas to the west within the central part Limestone Range, within MAIM Permits 9396020019, 9298100125, 9305090646, and 9306031167. A total of 53 discrete intervals were sampled and described in detail. Based on the samples collected in the 2009 exploration and overall property assessment, the permit group will be reduced.

Access roads and trails were noted, which provide excellent access throughout the property.

Future exploration will expand on work already conducted in the area, confirming or redefining past geological interpretations and determining the potential for high-calcium limestone and/or high-quality dolomite within the area.

8. REFERENCES

Dahrouge, J.R. (2000) Exploration for High-Calcium Limestone at Clearwater and Limestone Ranges of West-Central Alberta; Ass. Rpt. on MAIM Permits 9396020019 and 9398100125 for Continental Lime Ltd., Dahrouge Geological Consulting Ltd., 20 p., 10 fig., 5 app.

Dahrouge, J.R. (2002) 2001 Exploration for High-Calcium Limestone at Clearwater and Limestone Ranges of West-Central Alberta; Ass. Rpt. on MAIM Permits 9396020019 and 9398100125 for Graymont Western Canada Inc., Dahrouge Geological Consulting Ltd., 10 p., 8 fig., 4 app.

Dahrouge, J.R. (2005) 2004 Exploration and Fieldwork at the Limestone Mountain Metallic and Industrial Minerals Permit, West-Central Alberta; Ass Rpt. on MAIM Permit 9398100125 for Graymont Western Canada Inc., Dahrouge Geological Consulting Ltd., 9 p., 4 fig., 4 app.

Dahrouge, J.R. and Halferdahl, L.B. (1995) 1994 and Early 1995 Exploration for High-Calcium Limestone in West-Central Alberta, unpublished rpt. for Continental Lime Ltd., Halferdahl and Associates Ltd., 53 p., 67 fig., 24 app.

Dahrouge, J. and Tanton, J. (2006) 2005 Exploration and Diamond Drill Program at the Corkscrew Mountain Property, West-Central Alberta; Ass Rpt. on MAIM Permits 9396020019 and 9305090646 for Graymont Western Canada Inc., Dahrouge Geological Consulting Ltd., 10 p., 4 fig., 3 app.

Dahrouge, J. and Tanton, J. (2006) 2006 Exploration and Fieldwork at the Limestone Mountain and Corkscrew Mountain Metallic and Industrial Minerals Permits, West-Central Alberta; Ass. Rpt. on MAIM Permits 9398100125 and 9396020019 for Graymont Western Canada Inc., Dahrouge Geological Consulting Ltd., 9 p., 4 fig., 1 app.

Dahrouge, J.R. and Wolbaum, R. (2003) 2003 Exploration and Fieldwork at the Corkscrew Mountain Metallic and Industrial Minerals Permit, West-Central Alberta; Ass. Rpt. on MAIM Permit 9396020019 for Graymont Western Canada Inc., Dahrouge Geological Consulting Ltd., 8 p., 4 fig., 3 app.

Dahrouge, J.R. and Wolbaum, R. (2005) 2004 Exploration and Fieldwork at the Baseline Ridge Metallic and Industrial Minerals Permit, West-Central Alberta; Ass. Rpt. on MAIM Permit 9301010011 for Graymont Western Canada Inc., Dahrouge Geological Consulting Ltd., 11 p., 3 fig., 3 app.

Douglas, R.J.W. (1958) Chungo Creek map-area, Alberta; Geol. Surv. Can. Paper 58-3.

Erdman, O.A. (1950) Alexo and Saunders map-areas, Alberta; Geol. Surv. Can. Mem. 254.

Holter, M.E. (1994) A Review of Alberta Limestone Production, Marketing, Distribution and Future Development Possibilities. Alta. Geol. Surv., EUB, Open File Rept. 1994-15., 95 p., 57 fig.

Kluczny, P. and Tanton, J. (2008) 2007 Exploration and Fieldwork within the Clearwater Group Metallic and Industrial Minerals Permits, West-Central Alberta; Ass. Rpt. on MAIM Permits 9305090646, 9306031167, 9396020019, and 9398100125 for Graymont Western Canada Inc., Dahrouge Geological Consulting Ltd., 14 p., 3 fig., 3 app.

Mackenzie, W.S.(1969) Stratigraphy of the Devonian Southesk Cairn carbonate complex and associated strata, eastern Jasper National Park, Alberta. Geol. Surv. Bull. 184.

MacQueen, R.W., and Bamber, E.W. (1968) Stratigraphy and facies relationships of the Upper Mississippian Mount Head Formation, Rocky Mountains and Foothills, south western Alberta; Bull. Can. Petr. Geol., v. 16, p. 225-287.

Ollerenshaw, N.C. (1968) Preliminary Account of the Geology of Limestone Mountain map-area, Southern Foothills, Alberta; GSC Paper 68-24.

Poulton, T.P., Christopher, J.E., Hayes, B.J.R, Losert, J., Tittemore, J. and Gilchrist, R.D. (1994) Jurassic and lowermost Cretaceous strata of the Western Canada Sedimentary Basin; Chapter 18 Geological Atlas of the Western Canada Sedimentary Basin.

Richards, B.C., Barclay, J.E., Bryan, D., Hartling, A., Henderson, C.M. and Hinds, R.C. (1994) Carboniferous strata of the Western Canada Sedimentary Basin *in* Geological Atlas of the Western Canada Sedimentary Basin. G.D. Mossop and I. Shetsen (compilers), Can. Soc. Petr. Geol. And Alberta Res. Coun., p. 221-250.

Switzer, S.B., Holland, W.G., Christie, S.D., Graf, G.C., Hedinger, A.S., McAuley, R.J., Wierezbicki, R.A and Packard, J.J. (1994) Devonian Woodbend-Winterburn Strata of the Western Canadian Sedimentary Basin *in* Geological Atlas of the Western Canada Sedimentary Basin. G.D. Mossop and I. Shetsen (compilers), Can. Soc. Petr. Geol. and Alberta Res. Coun., p. 165-202.

9. STATEMENTS OF QUALIFICATIONS

I, Jocelyn Klarenbach, residing at 130 Rue Marquet, Beaumont, 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 2003 graduate of the University of Alberta, Edmonton, Alberta with a B.Sc. in Geology.
- I have practiced my profession as a geologist continuously since 2003.
- I am a registered Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta, member M67719.
- I hereby consent to the copying or reproduction of this Assessment Report following the one-year confidentiality period.
- I am a co-author of the report entitled "2009 Exploration and Fieldwork within the Clearwater Group Metallic and Industrial Mineral Permits, West-Central Alberta" and accept responsibility for the veracity of technical data and results.

Dated this 4th day of November, 2009.

Jocelyn Klarenbach, B.Sc., P.Geol.

APEGGA M67719

I, Patrick Kluczny, residing at 14815 - 39 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 2006 graduate of the University of Alberta, Edmonton, Alberta with a B.Sc. in Geology.
- I have practiced my profession as a geologist continuously since 2006.
- I am a registered Geologist-in-Training with the Association of Professional Engineers, Geologists and Geophysicists of Alberta, member M81985.
- I hereby consent to the copying or reproduction of this Assessment Report following the one-year confidentiality period.
- I am a co-author of the report entitled "2009 Exploration and Fieldwork within the Clearwater Group Metallic and Industrial Mineral Permits, West-Central Alberta" and accept responsibility for the veracity of technical data and results.

Dated this 4th day of November, 2009.

Patrick Kluczny, B.Sc., Geol.I.T.
APEGGA M81985

APPENDIX 1: COST STATEMENT FOR THE 2009 EXPLORATION WITHIN THE CLEARWATER GROUP PERMITS

a) **Personnel**		$ 22,900.50
b) **Food and Accommodation**		$ 4,365.72
c) **Transportation**		$ 13,179.89
d) **Instrument Rental**		$ 187.11
e) **Drilling**	n/a	
f) **Analyses**		$ 1,563.50
h) **Other** (Software Rental, Data, Field maps, Courier & Shipping)		$ 877.57
Total		$ 43,074.29
Administration (10%)		$ 4,307.43
Total + Administration		**$ 47,381.72**

APPENDIX 2: 2009 SAMPLE DESCRIPTIONS AND ASSAY RESULTS FROM THE CORKSCREW MOUNTAIN AREA

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 order from stratigraphic top to bottom.
Most samples consist of chips at 30 cm intervals. UTM coordinates are NAD83, Zone 11N. Section locations are shown in Figures 4.2 to 4.4.
Stratigraphy Abbreviations: TV - Turner Valley Formation, Sh - Shunda Formation, Pek - Pekisko Formation, B - Banff Formation

Sample	Strat. Unit	Strat. Thick. (m)	Description	$CaCO_3$ (%)	$MgCO_3$ (%)	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	$SrCO_3$ (ppm)	MnO (ppm)	P_2O_5 (ppm)
Section 2009-01: (603470 E, 5762545 N)											
68611	Pek	2¾	**Dolomitic Crinoidal Lime Packstone to Grainstone**, same as 68610, easily visible bioclasts: crinoid ossicles and stems, rugose corals, minor shells, abundant bioclast fragments	80.27	17.83	1.42	0.14	0.07	332	29	<100
68610	Pek	1½	**Dolomitic Crinoidal Lime Packstone to Grainstone**, same as 68609, some medium- to dark-grey mud-rich lime packstone, scattered outcrop	87.51	10.92	0.89	0.10	0.06	368	27	147
68609	Pek	2¼	**Slightly Dolomitic Crinoidal Lime Packstone to Grainstone**, same as 68608, scattered outcrop	90.51	8.38	0.54	0.08	0.12	344	33	<100
68608	Pek	2¼	**Crinoidal Lime Packstone to Grainstone**, same as 68607	98.26	0.96	0.29	0.04	0.13	389	29	<100
68607	Pek	2¼	**Crinoidal Lime Packstone to Grainstone**, same as 68606	98.56	0.90	0.17	0.03	0.12	382	30	189
68606	Pek	2¾	**Crinoidal Lime Packstone to Grainstone**, dominantly light-grey weathered, minor rugose coral, bedding 214°/02° NW (very shallow, wavy)	97.68	1.88	0.14	0.02	0.06	367	24	<100
68605	Pek	4	**Crinoidal Lime Packstone to Grainstone**, same as 68604, tan weathered much more common than light-grey weathered, still very good reaction with HCl	98.09	1.33	0.15	0.02	0.06	333	25	102
68604	Pek	2	**Crinoidal Lime Packstone to Grainstone**, same as 68603, clast-rich, visible ooids, no noted rugose corals	97.50	1.43	0.19	0.04	0.05	341	26	<100
68603	Pek	2¾	**Lime Packstone to Grainstone**, same as 68602, fine- to medium-grained, crinoids more common, very good reaction with HCl, bedding 284°/04° N	97.85	1.59	0.26	0.03	0.06	366	32	<100
68602	Pek	2½	**Slightly Dolomitic Lime Packstone to Grainstone**, same as 68601, appearance of rugose corals	93.25	5.81	0.39	0.06	0.10	337	42	134
68601	Pek	2	**Lime Packstone to Grainstone**, light-grey weathered, minor tan weathering (crust) on some surfaces, medium-grey fresh, fine-grained, abundant bioclasts: peloid(?)-rich, very minor crinoids, very minor shell fragments, minor brachiopods; fetid odor, moderately to well bedded, 3 cm to ½ m thick, visible laminae common, good slow reaction with HCl, beddings (wavy): 274°/05° N, 264°/08° N, 267°/03° N; joint sets: 041°/72° SE, 132°/vert	93.39	1.18	3.12	0.75	0.47	571	116	<100
Section 2009-02: (615527 E, 5760731 N)											
68615	Pek	¼	**Slightly Dolomitic Crinoidal Lime Packstone to Grainstone**, same as 68614, medium-brownish-grey fresh, visible ooids/pellets (cannot see internal structure), brachiopod cast noted, non-penetrative cleavage/jointing: 215°/65° NW	92.07	6.52	0.60	0.05	0.09	299	37	<100

68614	Pek	3¾	**Crinoidal Lime Packstone to Grainstone**, same as 68613, continues to be less crumbly up strat, also finer-grained up strat, some very-fine-grained	97.82	0.95	0.44	0.04	0.04	356	24	<100
68613	Pek	3	**Crinoidal Lime Packstone to Grainstone**, same as 68612, continues to be less crumbly up strat	98.45	1.00	0.21	0.06	0.06	346	33	<100
68612	Pek	3	**Crinoidal Lime Grainstone**, medium-grey and light-brown weathered, light-brownish-grey fresh, fine- to medium-grained, abundant crinoid ossicles (all? ooids?), crumbly but less so up stratigraphy, bedding wavy & difficult to see, bedding 078°/32° S (highly approximate)	98.29	1.22	0.19	0.04	0.05	325	34	<100
Isolated Sample: (615344 E, 5760636 N)												
68616	Pek	4	**Dolomitic Crinoidal Lime Packstone to Grainstone**, medium-grey weathered, medium-brownish-grey fresh, very similar appearance to previous section but a bit more heterogeneous, fine- to medium-grained, minor coarse-grained, dominantly crinoids, some brachiopods, rare rugose coral, approximate bedding 152°/18° SW	87.38	11.38	0.50	0.05	0.08	290	39	273
Isolated Sample: (615368 E, 5760637 N)												
68617	Pek	4	**Fossiliferous Lime Packstone**, medium-grey weathered, medium-brownish-grey fresh, strongly heterogeneous, very-fine-grained to very-coarse-grained, abundant fossils visible on weathered surface: crinoid ossicles, bryozoans, brachiopods, rugose corals; minor wackestone, approximate bedding 202°/32° W (wavy, highly variable), bedding appears to form hillside	95.50	3.38	0.62	0.05	0.11	370	24	176
Section 2009-03: (615399 E, 5760587 N)												
68619	Pek	3	**Dolomitic Crinoidal Lime Packstone**, same as 68618, very minor dark-brownish-grey mudstone near the very ~15 cm top of section	87.38	11.12	0.99	0.10	0.08	331	27	129
68618	Pek	3¾	**Dolomitic Crinoidal Lime Packstone**, light-grey weathered, light-grey and light-brownish-grey fresh, heterogeneous, fine- to medium-grained, minor coarse-grained, dominantly crinoid ossicles, some crinoid stems and brachiopods, minor mud-rich wackestone, moderately bedded, massive up to 1 m thick, bedding 152°/12° SW (wavy, variable)	80.96	17.70	0.83	0.12	0.11	315	37	<100
Isolated Sample: (615414 E, 5760594 N)												
68620	Pek	2¼	**Strongly Dolomitic Lime Mudstone with minor Mud-rich Lime Wackestone and very minor Crinoidal Lime Packstone**, medium-grey and tan weathered, highly variable: dominantly light- to medium-brownish-grey and tan fresh; mudstone is micritic; wackestone contains visible crinoids, brachiopods and bryozoans; packstone at base; moderately bedded up to ~½ m	63.95	33.32	1.67	0.17	0.13	217	42	262
Isolated Sample: (615452 E, 5760622 N)												
68621	Pek	2¼	**Dolomitic Lime Mudstone**, medium-grey and medium-brownish-grey weathered, medium- to dark-grey fresh, homogeneous, micritic, indescript, well bedded - forms benches, visible laminae, beds ~5 cm to ½ m, bedding 140°/14° SW	88.01	11.00	0.45	0.05	0.09	539	31	<100

Section 2009-04: (622957 E, 5752360 N)

68652	Pek	1¾	**Lime Mudstone with Lime Packstone**, light- to medium-grey weathered and fresh, majority indescript micritic mudstone, visible crinoids on weathered surface of packstone, weakly bedded locally, good reaction with HCl	97.28	1.37	0.36	0.03	0.07	273	48	<100
68651	Pek	4¾	**Dolomitic Fossiliferous Lime Packstone to Grainstone**, same as 68625 but no coarse-grained fossils, reappearance of very minor lime mudstone, very good reaction with HCl	86.33	12.65	0.66	0.05	0.10	253	53	<100
68625	Pek	4	**Dolomitic Fossiliferous Lime Packstone to Grainstone**, same as 68624, dominantly light-grey	81.80	17.19	0.56	0.06	0.11	254	54	<100
68624	Pek	3	**Slightly Dolomitic Fossiliferous Lime Packstone to Grainstone**, light- to medium-grey weathered and fresh, strongly heterogeneous, very-fine-grained to very-coarse-grained, crinoids, ooids/pellets, brachiopods, shell fragments, rugose and colonial corals, fetid odor, very good reaction with HCl, moderately to thickly bedded up to ~1 m, bedding 130°/57° SW	91.50	6.19	1.42	0.49	0.12	390	67	<100
68623	Sh	2¾	**Strongly Dolomitic Lime Mudstone**, same as 68622	51.37	32.08	10.33	1.63	0.45	404	130	<100
68622	Sh	2¾	**Strongly Dolomitic Lime Mudstone**, medium-grey and tan weathered, highly variable but majority tan fresh, micritic to very-fine-grained, indescript, some fine-grained oxidized sulphides, well-bedded, visible laminae and cross-bedding, weak to slow reaction with HCl, bedding 150°/47° SW	56.24	24.81	10.35	1.72	0.63	327	128	119

Section 2009-05: (615068 E, 5760862 N)

68633	Pek	2	**Dolomitic Mud-rich Lime Wackestone to Clast-rich Packstone**, light- and medium-brownish-grey weathered, light-grey to medium-brownish-grey fresh, fine- to medium-grained, crystalline, bioclasts difficult to identify in wackestone, packstone: crinoid ossicles and stems, shell fragments, peloids(?); very good reaction with HCl, bedding not obvious, bedding 202°/16° NW (slumped?)	87.53	11.13	0.63	0.07	0.09	290	34	<100
68632	Pek	4½	**Lime Grainstone**, tan and light- to medium-grey weathered, light- to medium-grey fresh, fine- to medium-grained, crystalline, very crumbly, crinoid ossicles, peloids, shell fragments, ooids(?), good reaction with HCl, large resistant outcrop, massive, no clear bedding	94.76	4.12	0.58	0.03	0.08	336	33	115
68631	Pek	3	**Strongly Dolomitic Lime Mudstone to Wackestone**, tan and light-grey weathered, light- to medium-brownish-grey fresh, micritic to fine-grained, bioclasts fairly rare, shell fragments & crinoid ossicles noted, moderate to good reaction with HCl, beds not obvious, joints 039°/80° SE	61.76	37.03	0.69	0.12	0.14	168	62	291
68630	Pek	3¾	**Dolomitic Lime Wackestone to Packstone**, same as 68628, some light-brown fresh, more fine-grained, good reaction with HCl, massive, bedding not obvious	84.68	14.39	0.48	0.06	0.08	259	45	<100
68629	Pek	1¾	**Lime Wackestone to Packstone**, same as 68628, clast-rich packstone more common, grainier, bioclasts more noticeable, very good reaction with HCl, massive, bedding not obvious	98.20	0.78	0.30	0.03	0.09	351	39	<100

68628	Pek	3¼	**Lime Mudstone to Packstone**, tan and light-grey weathered, light- to medium-grey fresh, fine-grained, rare medium-grained bioclast, crystalline, bioclasts difficult to identify: crinoid ossicles, shell fragments; fetid odor, very good reaction with HCl, resistant cliff-former, jointed (same as 68627), quite massive, difficult to identify bedding, approximate bedding 042°/30° SE	97.33	1.54	0.38	0.06	0.08	349	39	173
68627	Pek	1	**Lime Packstone to Grainstone**, same as 68626, light-grey (less brown) fresh, ooids more apparent, closely spaced joints (5-50 cm): 228°/80° NW, lower metre moderately bedded 148°/19° SW (wavy), massive above	97.37	1.90	0.31	0.04	0.11	312	37	<100
68626	Pek	2¼	**Lime Packstone to Grainstone**, mottled tan and light-grey weathered, light-brownish-grey fresh, fine- to medium-grained, crystalline, crinoid ossicles & stems, shell fragments, pellets/ooids?, fetid odor, very good reaction with HCl, resistant cliff-former, moderately bedded, beds 10-50 cm thick, beddings (wavy): 090°/05° S (least dependable), 122°/17° SW, 118°/20° SW	98.36	0.86	0.14	0.03	0.08	326	36	<100
Isolated Sample: (623840 E, 5751090 N)												
68634	B	1½	**Strongly Dolomitic Lime Mudstone**, mottled tan and light-grey weathered, medium-grey fresh, homogeneous, cryptocrystalline, minor micritic, no noted bioclasts, moderate to good reaction with HCl, well-bedded (2-20 cm) and fissile, recessive	68.96	25.78	3.66	0.45	0.33	294	128	<100
Isolated Sample: (623848 E, 5751096 N)												
68635	B	1	**Strongly Dolomitic Calcareous Mudstone**, tan and light-grey weathered, light-grey fresh, cryptocrystalline to micritic, no noted bioclasts, well-bedded (cm-scale) and laminated, recessive, weak to moderate reaction with HCl, excellent bedding surfaces 101°/22° S	45.37	32.41	17.95	1.67	0.64	200	274	666
Isolated Sample: (623859 E, 5751105 N)												
68636	B	1½	**Lime Mudstone to Wackestone**, tan and medium-grey weathered, dark-grey fresh, cryptocrystalline to micritic, rare shell fragment or crinoid ossicle, moderately bedded (5 to 30 cm), less fissile than 68634-35, good reaction with HCl	90.77	3.13	4.39	0.38	0.20	837	98	182
Section 2009-06: (623809 E, 5751163 N)												
68639	Pek	1½	**Lime Packstone**, same as 68637, clast-rich, no reliable bedding surfaces, very good reaction with HCl	98.52	0.85	0.28	0.03	0.06	352	28	<100
68638	Pek	2½	**Lime Packstone**, same as 68637, clast-rich packstone more common, very good reaction with HCl, moderately to thickly bedded (30 cm - 1 m), bedding 144°/07° SW (wavy)	98.13	0.93	0.34	0.03	0.07	326	34	<100
68637	Pek	2¼	**Lime Packstone**, tan and light-grey weathered, light- to medium-brownish-grey fresh, fine- to medium-grained, mud-rich to clast-rich, crystalline, crinoid ossicles, shell fragments, peloids(?), very good reaction with HCl, massive and resistant, bedding difficult to identify	98.19	1.01	0.34	0.04	0.08	413	33	100

Isolated Sample: (623982 E, 5751264 N)												
68640	Pek	1½	**Clast-rich Lime Packstone**, buff-grey weathered, light- to medium-brownish-grey fresh, fine- to medium-grained, crystalline, crinoid ossicles and stems, shell fragments, rare bryozoan and brachiopod shell, very strong fetid odor, very good reaction with HCl, massive, difficult to identify bedding, hard and moderately resistant	98.03	1.19	0.28	0.04	0.10	364	33	160
Isolated Sample: (623970 E, 5751249 N)												
68641	Pek	1½	**Lime Packstone to Grainstone**, same as 68640 except locally grainier and more medium-grained bioclasts, moderate to good reaction with HCl	97.93	0.90	0.18	0.03	0.07	411	30	139
Section 2009-07: (616881 E, 5760322 N)												
68666	TV	1½	**Strongly Dolomitic Lime Packstone**, same as 68665, overall lighter: light-brown and light-brownish-grey fresh, bedding 293°/13° N (wavy)	57.00	41.94	0.60	0.07	0.09	140	82	<100
68665	TV	2¾	**Strongly Dolomitic Lime Packstone**, same as 68664, bedding 310°/29° NE (wavy)	54.50	44.47	0.68	0.06	0.08	117	65	120
68664	TV	3¾	**Strongly Dolomitic Lime Packstone**, same as 68663	53.90	45.29	0.48	0.04	0.07	124	156	<100
68663	TV	4¾	**Strongly Dolomitic Lime Packstone**, same as 68662, remains light- to medium-brown fresh but overall lighter than samples stratigraphically below	53.83	45.39	0.40	0.05	0.06	119	187	<100
68662	TV	3½	**Strongly Dolomitic Lime Packstone**, same as 68661, occasional calcite nodule noted, corals common but dominantly fine-grained packstone	55.63	43.53	0.42	0.06	0.12	163	309	<100
68661	TV	3	**Strongly Dolomitic Lime Packstone**, same as 68660, minor wackestone/bindstone: light-brown fresh, very-fine- to fine-grained bound material, large colonial and solitary rugose corals	55.50	43.81	0.37	0.03	0.09	140	175	<100
68660	TV	2	**Strongly Dolomitic Lime Packstone**, same as 68659	53.99	45.03	0.60	0.05	0.06	137	97	<100
68659	TV	3	**Strongly Dolomitic Lime Packstone**, light-grey and light-brownish-grey weathered, pockety weathered surface, medium-brown fresh, dominantly fine- to medium-grained, minor coarse-grained, majority of bioclasts indeterminate, visible crinoid ossicles and stems, rugose corals, ooids; colonial corals noted in float, black carbonaceous material/flecks common throughout, weak reaction with HCl, powder fizzes well, crumbly, weakly bedded, cannot get bedding measurement	53.68	45.06	0.82	0.09	0.13	163	134	114
Section 2009-08: (617081 E, 5760051 N)												
68668	Pek	2	**Lime Mudstone**, same as 68667	96.96	1.13	1.03	0.08	0.07	600	26	<100
68667	Pek	2	**Lime Mudstone**, light-grey weathered, medium- to dark-brown fresh, homogeneous, cryptocrystalline to micritic, very-fine-grained black carbon flecks, small (<½ cm diameter) nodular white calcite throughout, moderate reaction with HCl, moderately to well bedded, beddings: 084°/11° S, 131°/17° SW; joint sets: 018°/68° E, 282°/85° N	93.78	2.99	1.35	0.15	0.09	561	25	<100

APPENDIX 3: 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^{th} 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.

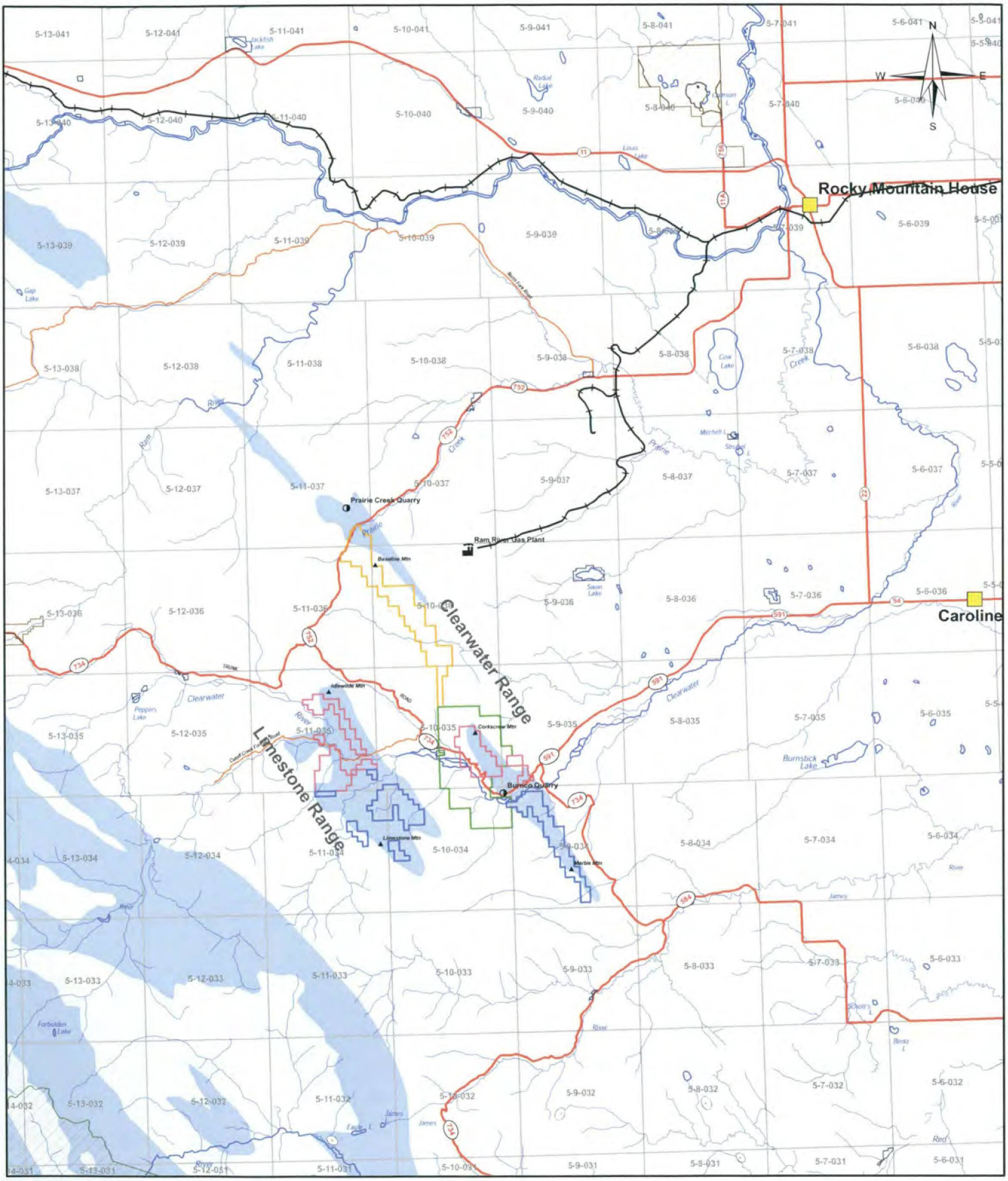
GRAYMONT WESTERN CANADA INC.

Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

CLEARWATER-LIMESTONE RANGES,
WEST-CENTRAL ALBERTA

Fig. 3.1
Property Location

JT 2009.10



Legend

- Highway
- Secondary Road
- Provincial Recreation Area
- Provincial Park
- National Park
- Approximate Paleozoic Limestone

Land Holdings

Graymont Land Holdings

- Corkscrew Mtn
- Corkscrew West
- Prairie Creek
- Limestone Mtn

Kilometres

0 5 10 15 20

1:400,000

Coordinate System: UTM NAD83, Zone 11N

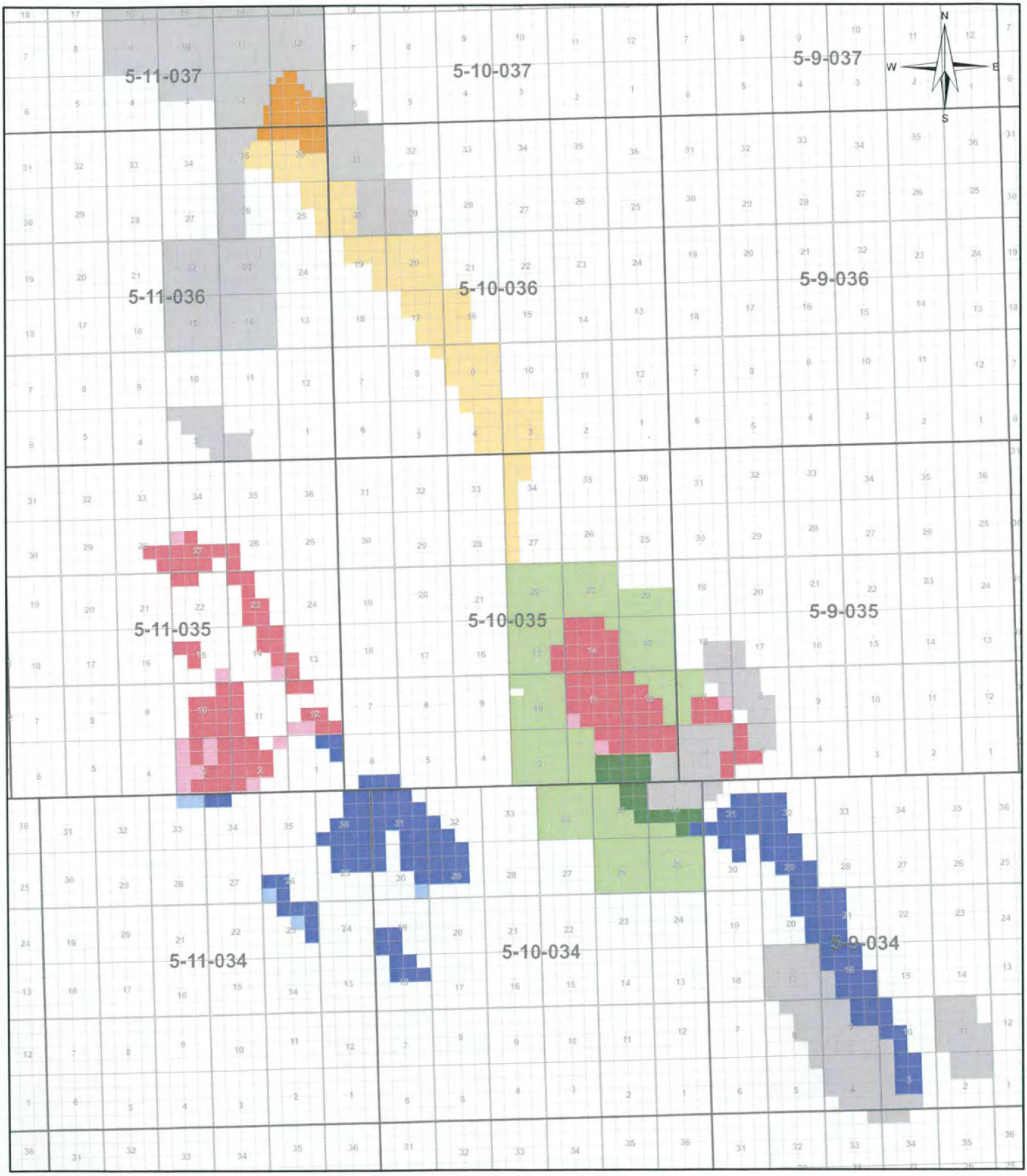
GRAYMONT WESTERN CANADA INC.

Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

WEST-CENTRAL ALBERTA

Fig 3.2
Access Map

PK 2009.10



Legend

MAIM Permits

- Corkscrew Mountian (9396020019)
- Limestone Mountain (9398100125)
- Corkscrew West (9305090646)
- Prairie Creek (9306031167)
- Other

Kilometres

0 2 4 6 8

1:150,000

Coordinate System: UTM NAD83, Zone 11N

NOTE: Faded portions are lands to be surrendered

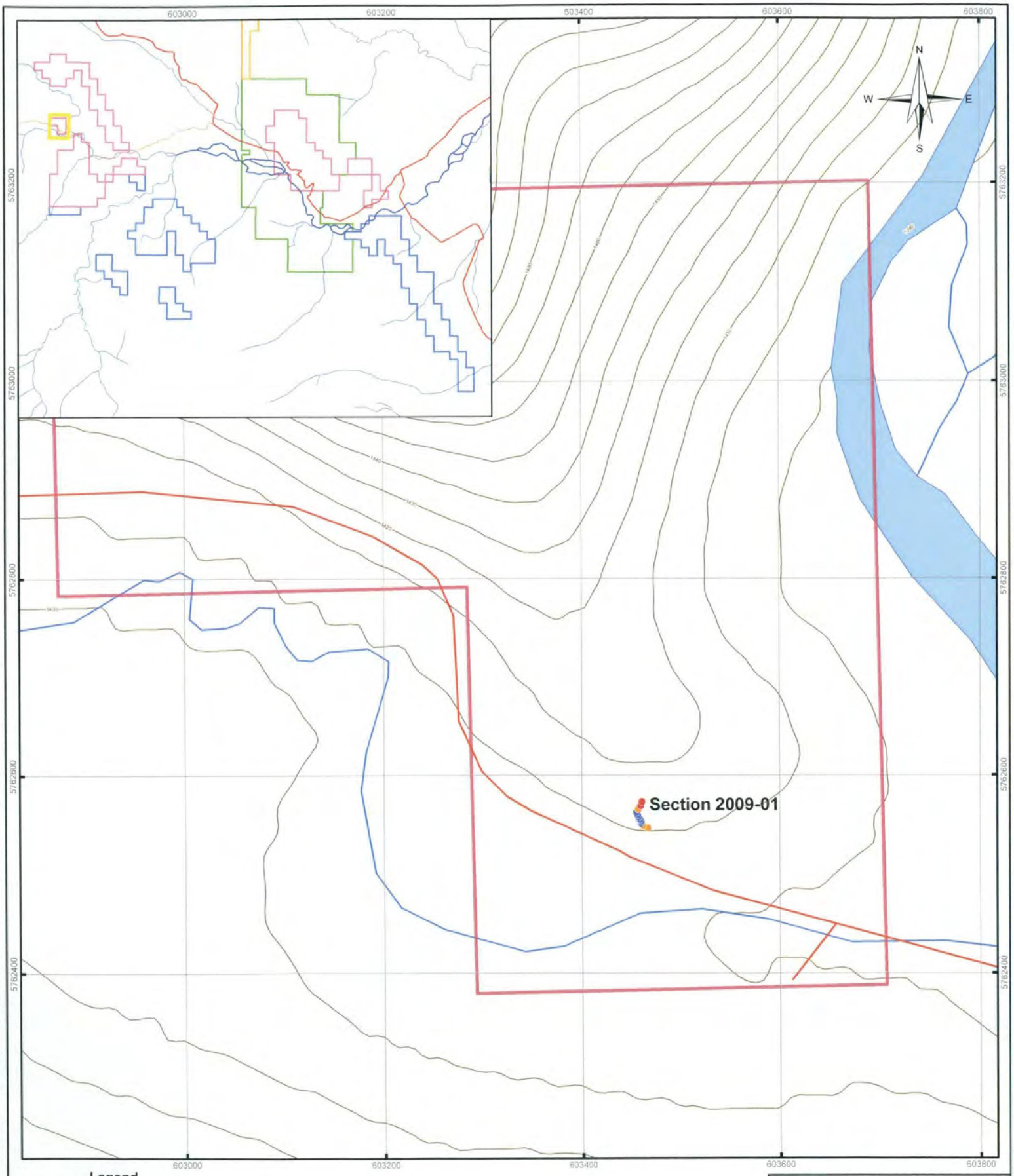
GRAYMONT WESTERN CANADA INC.

Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

CLEARWATER-LIMESTONE RANGES
WEST-CENTRAL ALBERTA

Fig. 4.1
Clearwater Group Permits

JK 2009.10



Legend

2009 Samples

% $CaCO_3$
- 97-100
- 95-97
- 90-95
- <90

Land Holdings
- Corkscrew Mtn
- Corkscrew West
- Prairie Creek
- Limestone Mtn

Metres

0 100 200 300 400

1:5,000

Coordinate System: UTM NAD83, Zone 11N

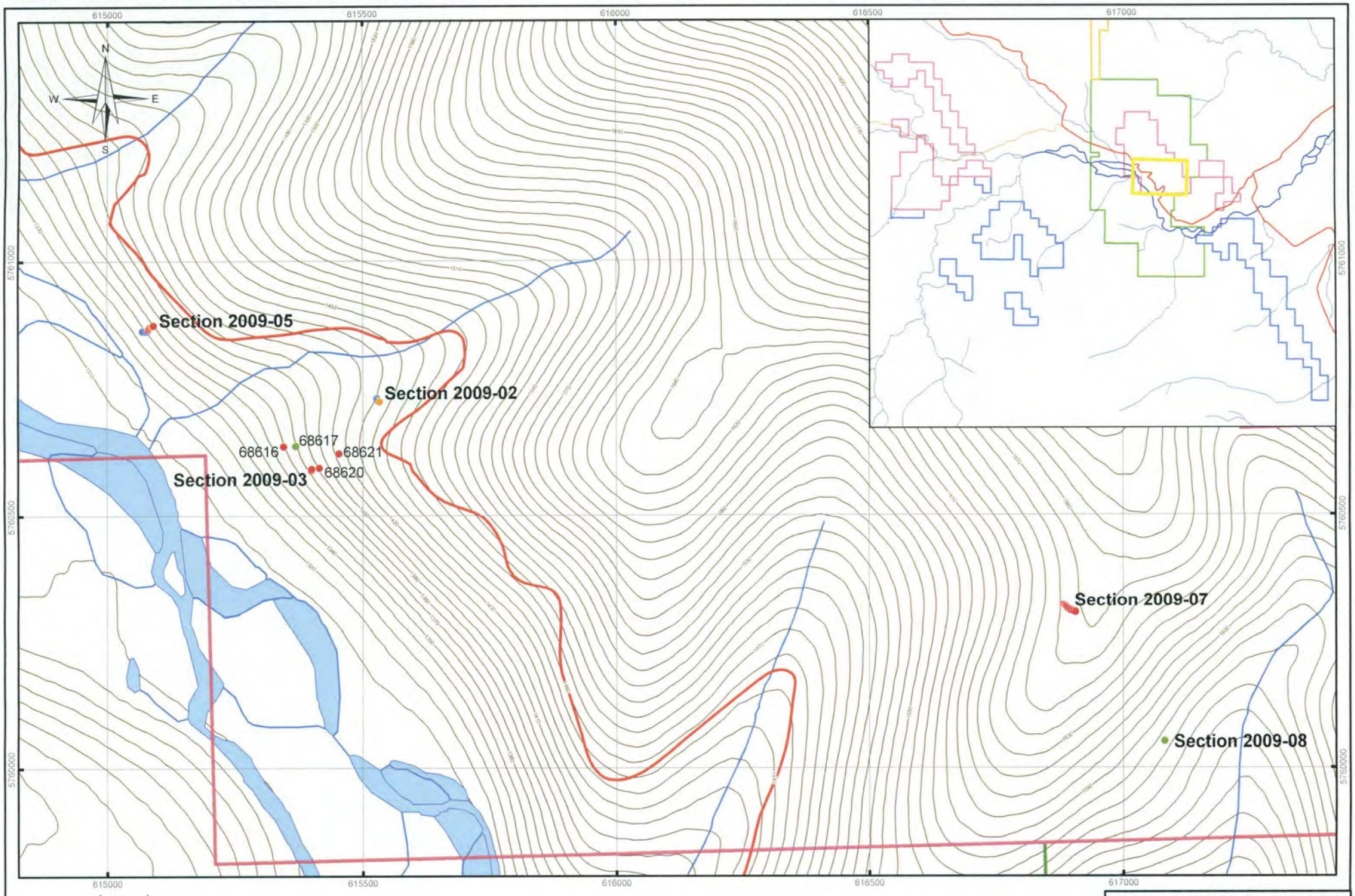
GRAYMONT WESTERN CANADA INC.

Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

CLEARWATER PERMIT GROUP
WEST-CENTRAL ALBERTA

Fig 4.2
Sample Locations - Area "A"

PK 2009 10



Legend

2009 Samples

% $CaCO_3$

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

Land Holdings

- Corkscrew Mtn
- Corkscrew West
- Prairie Creek
- Limestone Mtn

Metres

0 100 200 300 400 500

1:10,000

Coordinate System: UTM NAD83, Zone 11N

GRAYMONT WESTERN CANADA INC.

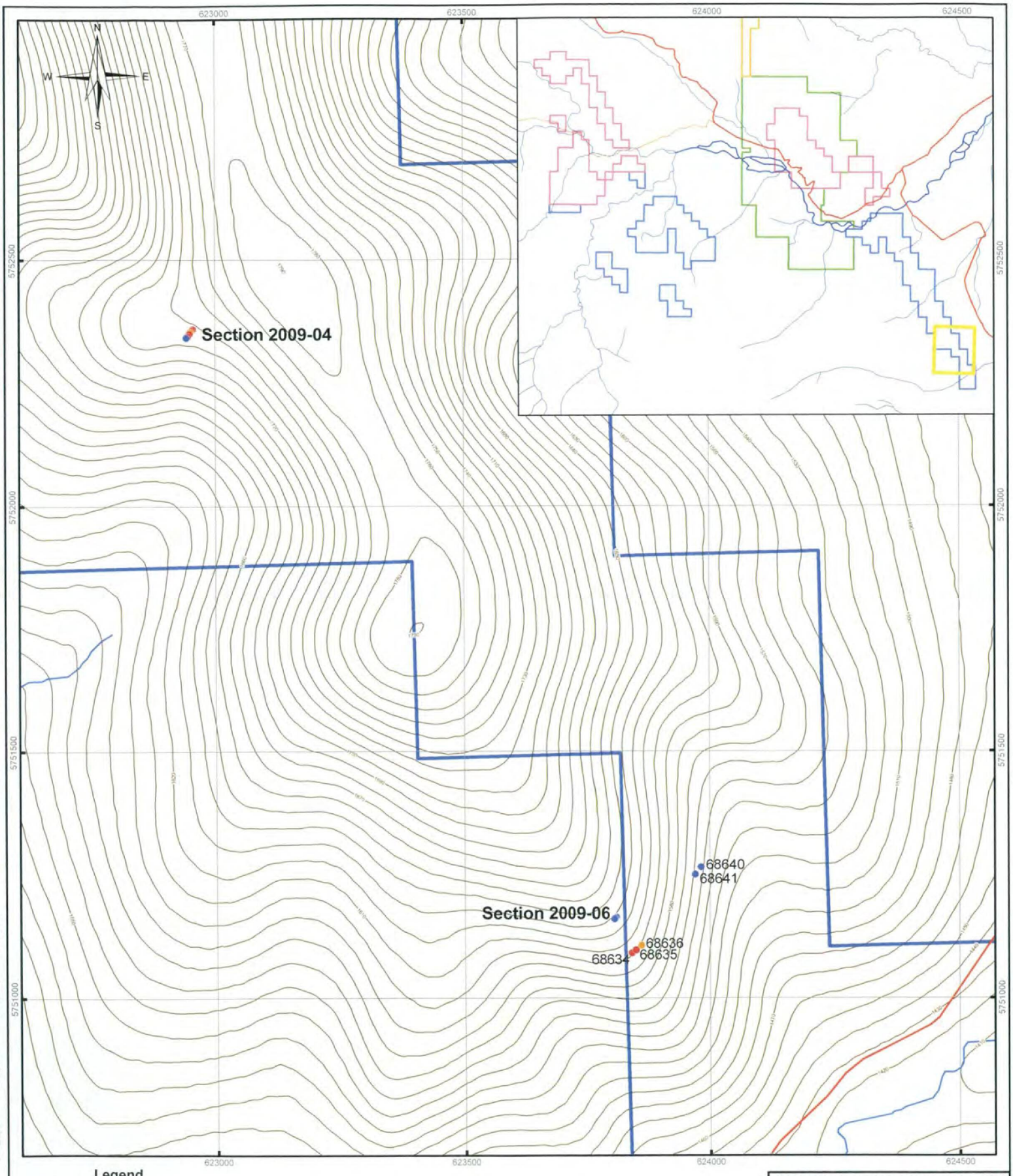
Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

CLEARWATER PERMIT GROUP
WEST-CENTRAL ALBERTA

Fig 4.3
Sample Locations - Area "B"

PK 2009.10

C11



Legend

2009 Samples Land Holdings

% $CaCO_3$	
97-100	Corkscrew Mtn
95-97	Corkscrew West
90-95	Prairie Creek
<90	Limestone Mtn

Metres

0 100 200 300 400 500

1:10,000

Coordinate System: UTM NAD83, Zone 11N

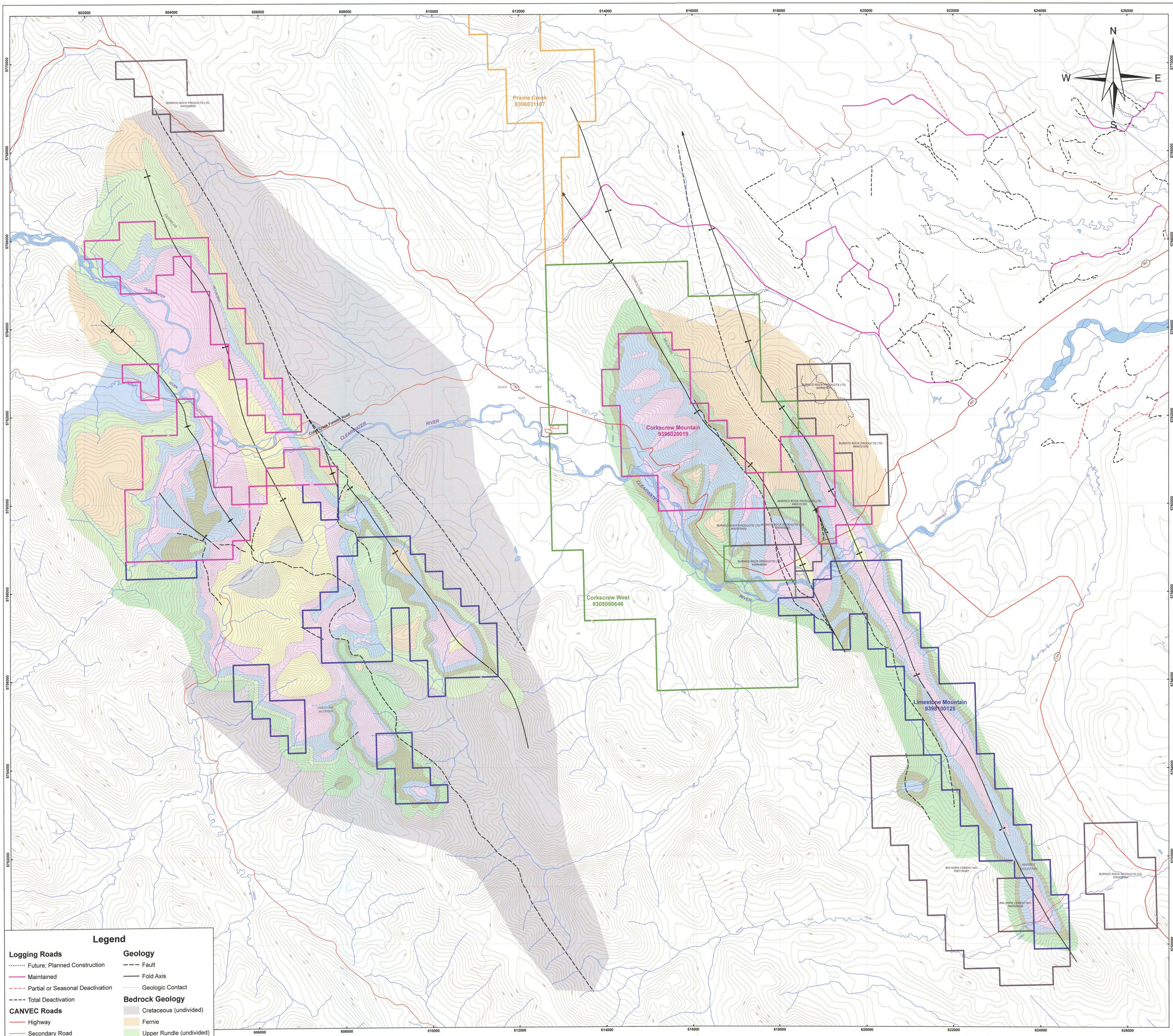
GRAYMONT WESTERN CANADA INC.

Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

CLEARWATER PERMIT GROUP
WEST-CENTRAL ALBERTA

Fig 4.4
Sample Locations - Area "C"

PK 2009.10



Legend

Logging Roads
- Future; Planned Construction
- Maintained
- Partial or Seasonal Deactivation
- Total Deactivation

CANVEC Roads
- Highway
- Secondary Road
- Minor road/trail
- Topographic Contour (20 m)
- Creek/stream
- River/lake
- Park

MAIM Permits
- Corkscrew Mountain
- Limestone Mountain
- Corkscrew West
- Prairie Creek
- Other

Geology
- Fault
- Fold Axis
- Geologic Contact

Bedrock Geology
- Cretaceous (undivided)
- Fernie
- Upper Rundle (undivided)
- Turner Valley
- Shunda
- Pekisko
- Banff
- Palliser
- Alexo
- Mt Hawk

Kilometres

0 2 4 6 8

1:30,000

Coordinate System: UTM NAD83, Zone 11N

GRAYMONT WESTERN CANADA INC.

Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

CORKSCREW PROPERTY
WEST-CENTRAL ALBERTA

Fig. 5.1
Geology Map

PK 2009.10