MAR 20130002: BASELINE RIDGE

Baseline Ridge- A report on Carbonate Rock exploration near Rocky Mountain House, West-Central Alberta.

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GRAYMONT WESTERN CANADA INC.

2012 EXPLORATION AND FIELDWORK AT THE BASELINE RIDGE METALLIC AND INDUSTRIAL MINERALS PERMIT, WEST-CENTRAL ALBERTA

PART B

Metallic and Industrial Minerals Permit
9301010011

Geographic Coordinates

52°09' N to 52°19' N
115°29' W to 115°40' W

NTS Sheets 83 B/04 and B/05

Owner and Operator:	Graymont Western Canada Inc. 260, 4311 - 12 Street N.E. Calgary, Alberta T2E 4P9
Consultant:	Dahrouge Geological Consulting Ltd. 18, 10509 - 81 Avenue Edmonton, Alberta T6E 1X7
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Date Submitted:	January 11, 2013

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PART C

1. SUMMARY

During June 2012, the northern part of Clearwater Range, west of Rocky Mountain House and within Metallic and Industrial Minerals (MAIM) Permit 9301010011, was explored for high-quality carbonate rocks. Exploration conducted in 2012 was a follow-up to previous exploration conducted in the area.

Access routes and outcrops were mapped, and a total of 33 rock samples were collected, representing approximately 100 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°41' east was used. Where bedding was 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 2012 exploration within the Baseline Ridge Permit was conducted by Dahrouge Geological Consulting Ltd. (Dahrouge) on behalf of Graymont Western Canada Inc. (Graymont). This assessment report describes the exploration conducted within MAIM Permit 9301010011, which encompasses the northern part of Clearwater Range of the Alberta Foothills. Bob Robison, exploration manager for Graymont Western U.S. Inc., authorized this work.

The objectives of the 2012 exploration were to expand on the previously explored areas, and to locate and better define carbonate units throughout the property. This report includes information on the geology and quality of carbonates encountered while mapping and sampling outcrops within the permit area.

3. GEOGRAPHIC SETTING AND ACCESS

3.1 LOCATION AND ACCESS

MAIM Permit 9301010011 encompasses the northern parts of Clearwater Range (Fig. 3.1). It includes lands to the northwest of the quarry of Prairie Creek Quarries Ltd. on Baseline Ridge

to Ram River and Tawadina Ridge, within west-central Alberta (Fig. 3.2). The quarry of Prairie Creek Quarries Ltd. is approximately 10 km from the south end of Baseline Ridge.

The northern part of Clearwater Range lies within Prairie Creek and Ram-Clearwater Resource Management areas (Alberta Forestry and Wildlife 1986 and 1988), and is mostly within Multiple Land Use Zone 5. The northern parts of Baseline Ridge along Ram River, Fall Creek and Prairie Creek are within Critical Land Use Zone 2.

Ram River and Tawadina Ridge, within the northern parts of Clearwater Range, are accessible via secondary highway 752 and north on Northfork Road, an improved gravel road 25 km southwest of Rocky Mountain House. Northfork Road continues to the northwest and west for approximately 40 km to a private, all-weather logging road belonging to Sunpine Forest Products Ltd. The Sunpine Road continues to the southeast for approximately 32 km to secondary highway 752; both the north and south ends of the road are commonly barred by gates. A network of logging roads and cutlines that branch from or cross the Sunpine Road provide good access to the Ram River and Tawadina Ridge areas.

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

Unfortunately, the logging roads that previously accessed an area of interest north of Ram River have since been reclaimed and are impassable with ATV.

3.2 INFRASTRUCTURE

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

Rocky Mountain House, with a population of about 6,500, 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 550.

3.3 TOPOGRAPHY, VEGETATION AND CLIMATE

The Baseline Ridge permit area is included in the Eastern-Slope Montane Forest Ecological Region, and lies within the Rocky-Clearwater District of the Alberta Forest Reserve. In the sub-alpine zone, vegetation consists of stunted sub-alpine fir and Englemann spruce. Above the treeline and along rocky slopes, vegetation is restricted to alpine foliage and grasses. 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, particularly along Fall Creek, have extensive meadows and are covered with sparse 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 1,180 m along Ram River to almost 2,000 m atop Baseline Ridge. The property is cut by a number of east-trending tributaries of the Ram River drainage basin, including, from south to north, Fall Creek, Ram River and Tawadina Creek.

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, 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. Several roads and trails of interest were reclaimed and no longer accessible.

Garmin GPSmap 60Cx instruments were used to mark outcrop locations and record access information. Compasses were set at a magnetic declination of 16°41' east.

4. PROPERTY, EXPLORATION AND EXPENDITURES

4.1 PROPERTY SUMMARY

In early 2001, Graymont (nee: Continental Lime Ltd.) acquired MAIM Permit 9301010011, west of Rocky Mountain House, Alberta. This permit covers Paleozoic limestones along the northern part of Clearwater Range at Baseline Ridge and Tawadina Ridge (Fig.'s 3.2 and 4.1).

In 2012, the permit was reduced from an original size of 5,888 hectares to 2,832 hectares, based on the 2001 and 2002 exploration. Exploration programs conducted in 2004, 2006, and 2008 resulted in a further reduction of the permit to its current 2,048 hectares.

Based on the samples collected during the 2012 exploration, the entirety of MAIM Permit 9301010011 will be retained.

4.2 2012 EXPLORATION SUMMARY

From June 13 to June 19, 2012, Dahrouge Geological Consulting Ltd., on behalf of Graymont, conducted exploration for carbonate lithotypes within west-central Alberta. The work was undertaken to determine the location and extent of carbonate units in the permit area.

Carbonate outcrops were examined and a total of 33 samples were collected (Fig. 4.2). Geological observations were recorded, including lithologic information, measurements of structural elements, and other pertinent details (Appendix 2). A solution of 10% 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 1:10,000 and 1:20,00 scale map sheets and concentrated on areas both north and south of Ram River, along Baseline and Tawadina ridges.

4.3 EXPLORATION EXPENDITURES

Expenditures for 2012 totalled $34,921.06. The entirety of the Baseline Ridge (MAIM Permit 9301010011) will be retained. Excess expenditures are to be assigned to future exploration periods.

Expenditures are allocated to MAIM permit 9301010011 as follows:

Assessment Period MAIM Permit 9301010011	Required Expenditures	Assigned Expenditures	Expiry Date
Years 11 & 12	$18,725.00[1]	$18,725.00	January 15, 2013
Years 13 & 14	$30,720.00	$16,196.06	January 15, 2015[2]

[1] Calculated from $30,720 - previous credit of $11,995

[2] Term expiry

5. REGIONAL GEOLOGY

5.1 STRATIGRAPHY

At Clearwater Range, carbonate lithologies are known to occur within both Paleozoic and Mesozoic sequences (Table 5.1, Fig. 4.2). 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 Baseline Ridge Permit were from the Turner Valley and Pekisko formations of the Rundle Assemblage, and the Banff Formation of the Banff Assemblage. 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
Lower Carboniferous	Rundle Assemblage	Mount Head		
		[1] Livingstone	Turner Valley	
			Shunda	
			Pekisko	
	Banff Assemblage	Banff		
		Exshaw		
Upper Devonian		[1] Palliser		
		Alexo		
	Fairholme Group°	Southesk	Mount Hawk	
		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 Baseline Ridge Permit. 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 relations and continuity. The Fernie Group thickens gently and irregularly west and southwest.

Outcrops of the Fernie Group, noted within the Baseline Ridge Permit, consist of large thicknesses of shale and calcareous sandstones with minor conglomerate.

5.2 STRUCTURE

The northern portions of Clearwater Range, including Baseline Ridge, are along the leading edge of the Seven Mile Creek Thrust plate, the northwest continuation of the Fallentimber Thrust Sheet (Dahrouge and Smith, 2003). Seven Mile Creek Thrust plate, bordered to the east by the Baseline Thrust, is an assemblage of folded and faulted Paleozoic and Jurassic strata (Dahrouge and Halferdahl, 1995). North of Prairie Creek, along Clearwater Range, the relevant structural elements, from west to east include the northwesterly trending Prairie Creek Anticline with its axis along Baseline Ridge, the northerly trending Baseline Syncline, the northerly trending Baseline Anticline with its axis along the east flank of Baseline Ridge and Tawadina Ridge, and Baseline Thrust, which marks the eastern boundary of Clearwater Range.

In general, Prairie Creek Anticline is nearly symmetrical and upright with fairly steeply dipping limbs that has undergone no major tilting. In the Fall Creek area, the Prairie Creek Anticline plunges very slightly to the northwest (Dahrouge and Smith, 2003). Baseline Anticline, to the east, is asymmetrical with the east limb nearly vertical and the west limb dipping at a more shallow angle (Dahrouge and Smith, 2003, after Erdman, 1950).

6. RESULTS

Six days were spent checking property access and mapping carbonate outcrops in detail. The 2012 exploration concentrated on defining stratigraphic unit locations and contacts within previously under-explored areas of the property.

Carbonate lithologies of the Rundle Assemblage were examined and sampled within MAIM Permit 9301010011, on both Baseline and Tawadina ridges (Fig. 4.2). A total of 33 discrete intervals were examined and sampled, representing more than 100 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.

Rundle Assemblage outcrops included limey and dolomitic rocks of the Pekisko Formation, argillaceous mudstones of the Shunda Formation, and dolomitic rocks of the Turner Valley Formation. No Fernie Group outcrops were noted during the 2012 exploration.

The majority of the outcrops visited in 2012 were within the Pekisko Formation. Analytical results were variable, presumably due to the fact that different members within the formation were sampled. The highest-quality sample section was 2012-03, which averaged 97.53% $CaCO_3$, 1.65% $MgCO_3$ and 0.49% SiO_2 over approximately 11.25 m; it was collected along the NE flank of

Baseline Ridge (Fig. 4.2). Section 2012-05, containing both the Coliseum and Gap members, also returned favourable results, averaging 96.58% $CaCO_3$, 1.84% $MgCO_3$ and 1.05% SiO_2 over approximately 26.75 m. Several other sample sections and isolated intervals returned values in excess of 95% $CaCO_3$ over several metres. $MgCO_3$ impurities were common in many intervals of the Coliseum Member. The high-quality Pekisko intervals generally consist of resistant and massive, light- to medium-brownish-grey, fine- to coarse-grained crinoidal lime wackestone to packstone. The silica content was consistently low, with all but one sample returning less than 1.5% SiO_2. Lower quality intervals generally consisted of less resistant, medium- to dark-brownish-grey, micritic to fine-grained lime mudstone to packstone. Overall, the Pekisko Formation has the greatest high-calcium limestone potential in the area.

Several intervals of Shunda Formation were sampled, all of which were strongly siliceous, ranging from 22.11 to 34.47% SiO_2 over 15-18 m. They generally consisted of medium-brown to dark-brown, moderately dolomitic argillaceous mudstone. The Shunda Formation is not considered a unit of interest in the permit area.

A single outcrop of Turner Valley Formation was examined in 2012 to test for high-quality dolomite potential. The outcrop was strongly dolomitic, averaging 44.35% $MgCO_3$ and 1.41% SiO_2 over 2.5 m (Appendix 2). Turner Valley Formation outcrops consisted of vuggy, medium-brown to medium-grey, moderately to strongly dolomitic mudstone with minor wackestone to packstone. The Turner Valley Formation has the greatest potential for high-quality dolomite in the permit area.

7. CONCLUSIONS

Paleozoic carbonate units of the Rundle Assemblage were examined and measured along the northern part of Clearwater Range at Baseline Ridge and at Tawadina Ridge, within MAIM Permit 9301010011. A total of 33 discrete intervals were measured and described in detail.

Based on a compilation of past exploration data and the field program conducted in 2012, the entirety of the permit will be retained.

Currently, access to the property is limited. For future programs, a compilation of roads and trails in the area just prior to the field program is highly recommended, as road status in the area changes frequently due to forestry and hydrocarbon exploration activities.

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

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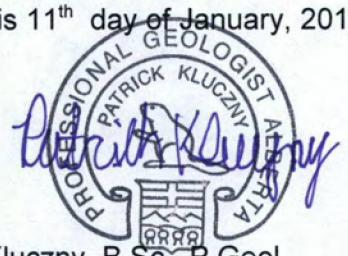
9. STATEMENT OF QUALIFICATIONS

I, Patrick Kluczny, residing at [redacted] 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 Professional Geologist with the Association of Professional Engineers and Geoscientists of Alberta, member M81985.
- I hereby consent to the copying or reproduction of this Assessment Report following the one-year confidentiality period.
- I am the author of the report entitled "2012 Exploration and Fieldwork at the Baseline Ridge Metallic and Industrial Minerals Permit, West-Central Alberta" and accept responsibility for the veracity of technical data and results.

Dated this 11th day of January, 2013.



Patrick Kluczny, B.Sc., P.Geol.

APEGA M81985

APPENDIX 1: COST STATEMENT

a) **Personnel**		$ 19,206.00
b) **Food and Accommodation**		$ 4,554.19
c) **Transportation**		$ 5,500.54
d) **Instrument Rental**		$ 114.02
e) **Drilling**	n/a	$ -
f) **Analyses**		$ 973.50
h) **Other** (Software Rental, Data, Field maps, Courier & Shipping)		$ 1,398.18
Total		$ 31,746.42
Administration (10%)		$ 3,174.64
Total + Administration		**$ 34,921.06**

C

APPENDIX 2: SAMPLE DESCRIPTIONS AND ASSAY RESULTS FROM THE BASELINE RIDGE PROPERTY

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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 11N. Section locations are shown in Figure 4.2.
Stratigraphy Abbreviations: Mpk - Mississippian Pekisko Formation; C - Coliseum Member (Mpk); G - Gap Member (Mpk); Msh - Mississippian Shunda Formation; Mtv - Mississippian Turner Valley Formation

Sample	Strat Unit	Strat Tkns (m)	Description	$CaCO_3$ (%)	$MgCO_3$ (%)	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	SrO (ppm)	MnO (ppm)	P_2O_5 (ppm)
Isolated Samples											
73926	Msh	4	**Calcareous Dolomitic Mudstone**, tan to medium brown-grey weathered, medium brown-grey to dark brown-grey fresh, very fine-grained, laminated to moderately-bedded, resistant, hard, strong fetid odour, weak HCl reaction, structure(s): bedding (definite) 153/37 SW	74.94	1.51	20.02	0.144	0.081	298	34	1485
73934	Msh		**Argillaceous Dolomitic Mudstone**, tan to medium brown-grey weathered, medium brown-grey to dark brown-grey fresh, very fine-grained, slightly resistant, alteration: oxide, strong fetid odour, moderate HCl reaction, structure(s): calcite vein moderate	57.72	0.75	26.55	0.324	0.217	481	66	8589
73935	Mpk C	2	**Lime Wackestone to Lime Packstone**, medium brown-grey to dark brown-grey weathered, light brown-grey fresh, very fine-grained to fine-grained, fossils: crinoid ossicle; colonial coral; brachiopod, moderately-bedded, strong fetid odour, strong HCl reaction, structure(s): calcite vein weak	94.15	4.10	1.41	0.090	0.095	144	38	102
73936	Mpk C	1.5	**Lime Wackestone to Lime Packstone**, medium brown-grey to dark brown-grey weathered, light brown-grey fresh, very fine-grained to fine-grained, fossils: crinoid ossicle; brachiopod, moderately-bedded, weak fetid odour, strong HCl reaction, structure(s): calcite vein weak	94.40	5.04	0.45	0.054	0.099	171	37	50
73937	Mpk C	3	**Lime Wackestone to Lime Packstone**, medium brown-grey to dark brown-grey weathered, light brown-grey fresh, very fine-grained to fine-grained, fossils: crinoid ossicle; brachiopod, moderately-bedded, strong HCl reaction, structure(s): calcite vein weak	77.57	22.11	0.29	0.037	0.100	141	45	50
73938	Mpk G	2	**Lime Packstone to Lime Grainstone**, medium brown-grey weathered, light brown-grey fresh, very fine-grained to fine-grained, moderately-bedded, slightly resistant, hard, strong fetid odour, strong HCl reaction, structure(s): calcite veinlet very weak	94.20	5.00	0.53	0.021	0.074	224	49	50
73939	Mpk C	4	**Lime Mudstone to Lime Packstone**, medium brown-grey weathered, light brown-grey fresh, cryptocrystalline to fine-grained, fossils: fragment (indeterminate); crinoid ossicle, moderately-bedded, resistant, hard, strong HCl reaction, structure(s): calcite vein weak	68.88	30.27	0.40	0.068	0.119	128	63	50
73940	Mpk C	1.25	**Lime Mudstone to Lime Packstone**, medium brown-grey weathered, light brown-grey fresh, cryptocrystalline to fine-grained, fossils: solitary rugose coral, rare; fragment (indeterminate); crinoid ossicle, moderately-bedded, resistant, hard, structure(s): calcite vein weak	71.95	26.80	0.88	0.116	0.124	145	56	50
73951	Mtv	2.5	**Dolomitic Mudstone**, tan to light grey weathered, tan to light tan-grey fresh, micritic to very fine-grained, resistant, massive, weak (powder) HCl reaction	53.69	44.35	1.41	0.083	0.142	128	212	347
73952	Msh	3	**Argillaceous Dolomitic Mudstone**, tan to medium brown-grey weathered, light brown-grey fresh, cryptocrystalline to very fine-grained, laminated, strong fetid odour, moderate HCl reaction, structure(s): calcite veinlet very weak; bedding (definite) 314/49 NE	70.45	0.92	22.53	0.435	0.456	450	196	12631

Sample	Strat Unit	Strat Tkns (m)	Description	$CaCO_3$ (%)	$MgCO_3$ (%)	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	SrO (ppm)	MnO (ppm)	P_2O_5 (ppm)
Section 2012-01 (UTM 597100E, 5792107N)											
73927	Msh	1.5	**Argillaceous Dolomitic Mudstone**, tan to light brown-grey weathered, medium brown-grey to dark brown-grey fresh, very fine-grained, laminated to thinly-bedded, lenticular, alteration: oxide, localized, 20-40% intensity, strong fetid odour, weak HCl reaction, structure(s): calcite vein very weak	36.34	4.50	32.70	0.373	0.198	296	47	4439
73928	Msh	3	**Argillaceous Dolomitic Mudstone**, tan to medium brown-grey weathered, medium brown-grey to dark brown-grey fresh, very fine-grained, laminated to thinly-bedded, lenticular, alteration: oxide, localized, 20-40% intensity, strong fetid odour, weak HCl reaction, structure(s): calcite vein very weak; bedding (definite) 338/72 NE	54.65	4.04	31.00	0.347	0.193	316	51	4938
73929	Msh	3.5	**Argillaceous Dolomitic Mudstone**, medium grey to medium brown-grey weathered, medium brown-grey to dark brown-grey fresh, very fine-grained, laminated to moderately-bedded, lenticular, alteration: oxide, localized, 20-40% intensity, strong fetid odour, weak HCl reaction, structure(s): calcite vein very weak	34.14	2.78	29.35	0.302	0.158	197	37	5146
73930	Msh	3.5	**Argillaceous Dolomitic Mudstone**, tan to medium brown-grey weathered, medium brown-grey to dark brown-grey fresh, very fine-grained, laminated to thinly-bedded, lenticular, alteration: oxide, 20-40% intensity, strong fetid odour, weak HCl reaction, structure(s): calcite vein very weak; bedding (definite) 142/72 SW	52.06	4.54	31.01	0.362	0.188	351	45	4928
73931	Msh	2	**Argillaceous Dolomitic Mudstone**, tan to medium brown-grey weathered, very-dark grey fresh, very fine-grained, laminated to thinly-bedded, lenticular, alteration: oxide, localized, 20-40% intensity, strong fetid odour, weak HCl reaction, structure(s): calcite vein very weak	40.62	2.74	31.31	0.310	0.160	233	38	3861
73932	Msh	0.5	**Argillaceous Dolomitic Mudstone**, tan to medium brown-grey weathered, medium brown-grey to dark brown-grey fresh, very fine-grained, laminated to moderately-bedded, lenticular, alteration: oxide, localized, 20-40% intensity, strong fetid odour, weak HCl reaction, structure(s): calcite vein very weak	73.73	1.99	22.11	0.187	0.101	337	41	1921
73933	Msh	3.5	**Argillaceous Dolomitic Mudstone**, tan to medium brown-grey weathered, medium brown-grey to dark brown-grey fresh, very fine-grained, laminated to thinly-bedded, lenticular, alteration: oxide, localized, 20-40% intensity, strong fetid odour, weak HCl reaction, structure(s): calcite vein very weak; bedding (definite) 144/72 SW	47.40	1.76	34.47	0.350	0.183	253	56	12053
Section 2012-02 (UTM 600103E, 5784401N)											
73941	Mpk C	1.75	**Lime Wackestone to Lime Packstone**, light brown to medium brown weathered, light brown-grey to medium brown-grey fresh, micritic to coarse-grained, fossils: solitary rugose coral; fragment (indeterminate); crinoid ossicle; brachiopod, moderately-bedded, slightly resistant, hard, strong HCl reaction, structure(s): calcite veinlet very weak	88.74	10.56	0.51	0.056	0.101	144	52	50
73942	Mpk C	2	**Lime Packstone to Lime Grainstone**, dark grey to medium brown weathered, light brown-grey to medium brown-grey fresh, micritic to coarse-grained, fossils: solitary rugose coral; fragment (indeterminate); crinoid ossicle; brachiopod, moderately-bedded, slightly resistant, hard, strong HCl reaction, structure(s): calcite veinlet very weak	87.69	11.69	0.38	0.044	0.076	164	54	50
73943	Mpk C	1	**Lime Packstone to Lime Grainstone**, light brown to medium brown weathered, light brown-grey to medium brown-grey fresh, micritic to coarse-grained, fossils: solitary rugose coral; fragment (indeterminate); crinoid ossicle; brachiopod, moderately-bedded, slightly resistant, hard, weak fetid odour, very strong HCl reaction, structure(s): calcite veinlet very weak	90.88	7.01	1.10	0.153	0.142	167	61	50
73944	Mpk C	1.75	**Lime Mudstone**, dark brown weathered, dark brown-grey fresh, cryptocrystalline, fossils: solitary rugose coral; fragment (indeterminate), thinly-bedded, strong fetid odour, strong HCl reaction, structure(s): calcite vein moderate	90.13	6.05	2.98	0.260	0.146	281	64	50

Sample	Strat Unit	Strat Tkns (m)	Description	$CaCO_3$ (%)	$MgCO_3$ (%)	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	SrO (ppm)	MnO (ppm)	P_2O_5 (ppm)
Section 2012-03 (UTM 599958E, 5784433N)											
73945	Mpk G	5.5	**Lime Packstone to Lime Grainstone**, medium brown-grey weathered, light brown-grey fresh, fine-grained to medium-grained, fossils: fragment (indeterminate); crinoid stem; crinoid ossicle, thickly-bedded, resistant, strong fetid odour, strong HCl reaction, structure(s): calcite vein very weak; bedding (undulatory) 314/62 NE	97.86	1.30	0.43	0.042	0.064	264	27	121
73946	Mpk G	4	**Lime Packstone to Lime Grainstone**, medium brown-grey weathered, light brown-grey fresh, fine-grained to medium-grained, fossils: fragment (indeterminate); crinoid stem; crinoid ossicle, thickly-bedded, resistant, strong fetid odour, strong HCl reaction, structure(s): calcite vein very weak; bedding (undulatory) 318/58 NE	96.70	2.43	0.48	0.054	0.050	259	24	50
73947	Mpk G	1.75	**Lime Packstone to Lime Grainstone**, medium brown-grey weathered, light brown-grey fresh, fine-grained to medium-grained, fossils: fragment (indeterminate); crinoid stem; crinoid ossicle, thickly-bedded, resistant, strong fetid odour, strong HCl reaction, structure(s): calcite vein very weak	98.04	1.23	0.57	0.041	0.064	269	26	160
Section 2012-04 (UTM 600813E, 5783926N)											
73948	Msh	5.75	**Argillaceous Dolomitic Mudstone**, tan to medium brown-grey weathered, dark brown-grey to light brown fresh, cryptocrystalline to very fine-grained, fossils: fragment (indeterminate), very rare, laminated to moderately-bedded, strong fetid odour, moderate HCl reaction, structure(s): calcite vein weak; bedding (undulatory) 310/49 NE	26.38	3.01	34.02	0.394	0.252	201	39	4625
73949	Msh	4.75	**Argillaceous Dolomitic Mudstone**, tan to medium brown-grey weathered, dark brown-grey to light brown fresh, cryptocrystalline to very fine-grained, fossils: fragment (indeterminate), very rare, laminated to moderately-bedded, strong fetid odour, moderate HCl reaction, structure(s): calcite vein weak	22.88	1.34	25.48	0.329	0.242	268	33	44657
73950	Msh	4.5	**Argillaceous Dolomitic Mudstone**, tan to medium brown-grey weathered, dark brown-grey to light brown fresh, cryptocrystalline to very fine-grained, fossils: fragment (indeterminate), very rare, laminated to moderately-bedded, strong fetid odour, moderate HCl reaction, structure(s): calcite vein weak	16.88	0.73	26.58	0.439	0.271	226	33	34232
Section 2012-05 (UTM 600803E, 5783568N)											
73953	Mpk C	6.75	**Lime Wackestone to Lime Packstone**, light brown-grey to medium brown-grey weathered, medium brown-grey fresh, micritic to very fine-grained, fossils: fragment (indeterminate); crinoid ossicle, thickly-bedded, resistant, strong fetid odour, strong HCl reaction, structure(s): calcite vein very weak; bedding (approximate)/65 NE	89.92	5.61	3.37	0.466	0.173	261	65	155
73954	Mpk C	7.75	**Lime Wackestone to Lime Packstone**, light brown-grey to medium brown-grey weathered, medium brown-grey fresh, micritic to very fine-grained, fossils: fragment (indeterminate); crinoid ossicle, thickly-bedded, resistant, strong fetid odour, strong HCl reaction, structure(s): calcite vein very weak	98.20	1.00	0.27	0.036	0.075	331	29	50
73955	Mpk C	2	**Lime Wackestone to Lime Packstone**, light brown-grey to medium brown-grey weathered, medium brown-grey fresh, micritic to very fine-grained, thickly-bedded, resistant, strong fetid odour, strong HCl reaction, structure(s): calcite vein very weak	96.31	1.57	1.54	0.147	0.093	386	37	50
73956	Mpk C	7.5	**Lime Wackestone to Lime Packstone**, light brown-grey to medium brown-grey weathered, medium brown-grey fresh, micritic to very fine-grained, fossils: fragment (indeterminate); crinoid ossicle, thickly-bedded, resistant, strong fetid odour, strong HCl reaction, structure(s): calcite vein very weak; bedding (undulatory) 309/55 NE	97.56	1.05	0.91	0.064	0.077	351	30	50
73957	Mpk G	1.75	**Lime Packstone to Lime Grainstone**, light grey to medium grey weathered, light brown-grey to medium brown-grey fresh, micritic to fine-grained, fossils: fragment (indeterminate); crinoid ossicle, thickly-bedded, resistant, massive, strong HCl reaction, structure(s): calcite veinlet very weak; bedding (definite) 318/56 NE	98.70	0.84	0.08	0.021	0.067	298	23	50

Sample	Strat Unit	Strat Tkns (m)	Description	$CaCO_3$ (%)	$MgCO_3$ (%)	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	SrO (ppm)	MnO (ppm)	P_2O_5 (ppm)
73958	Mpk G	1	**Lime Packstone to Lime Grainstone**, light grey to medium grey weathered, light brown-grey to medium brown-grey fresh, micritic to fine-grained, fossils: fragment (indeterminate); crinoid ossicle, resistant, massive, strong HCl reaction, structure(s): calcite veinlet very weak	98.79	0.94	0.14	0.036	0.110	326	28	50

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 120ºC. 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.

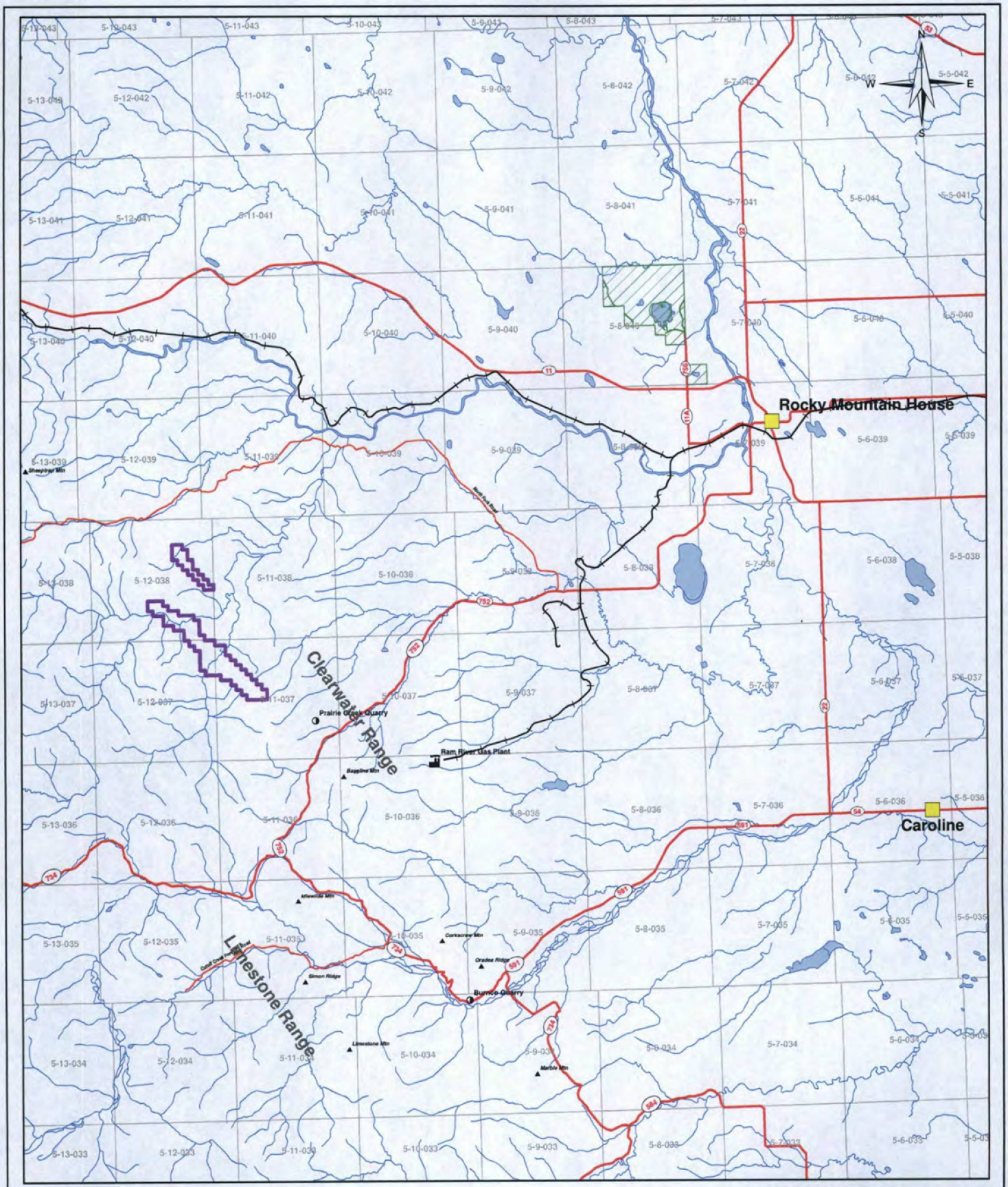
GRAYMONT WESTERN CANADA INC.

Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

CLEARWATER RANGE,
WEST-CENTRAL ALBERTA

Fig. 3.1
Property Location

JT 2012.12



Legend

- Highway
- Secondary Road
- Railway
- Provincial Park
- MAIM Permit 9301010011

Kilometres

0 10 20 30

1:400,000

Coordinate System: UTM NAD83, Zone 11N

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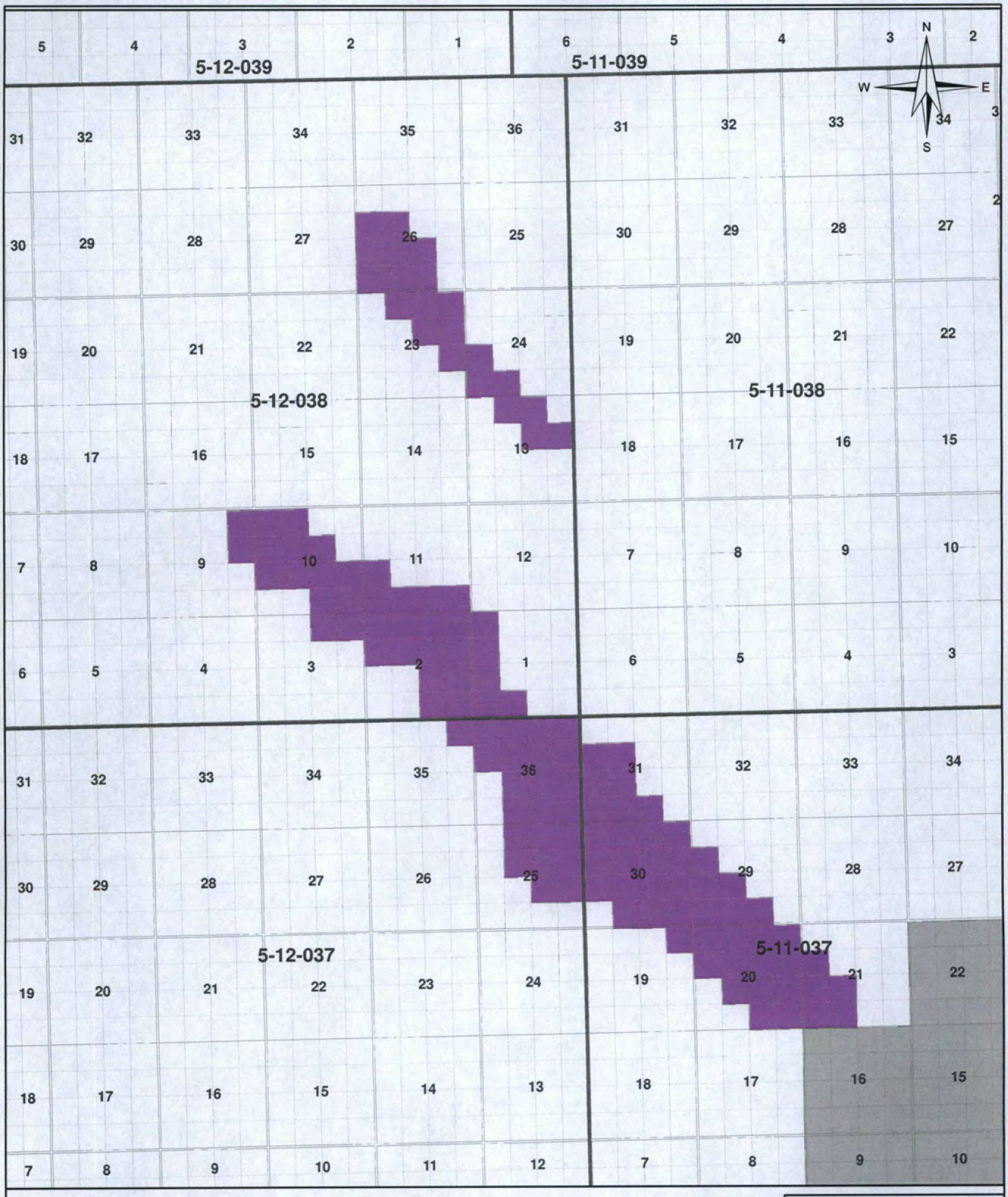
Edmonton, Alberta

CLEARWATER RANGE,
WEST-CENTRAL ALBERTA

Fig. 3.2
Access Map

PK 2012.12



Legend

- MAIM # 9301010011 (2,048 ha)
- Other Claims

Kilometres

0 2 4 6

1:75,000

Coordinate System: UTM NAD83, Zone 11N

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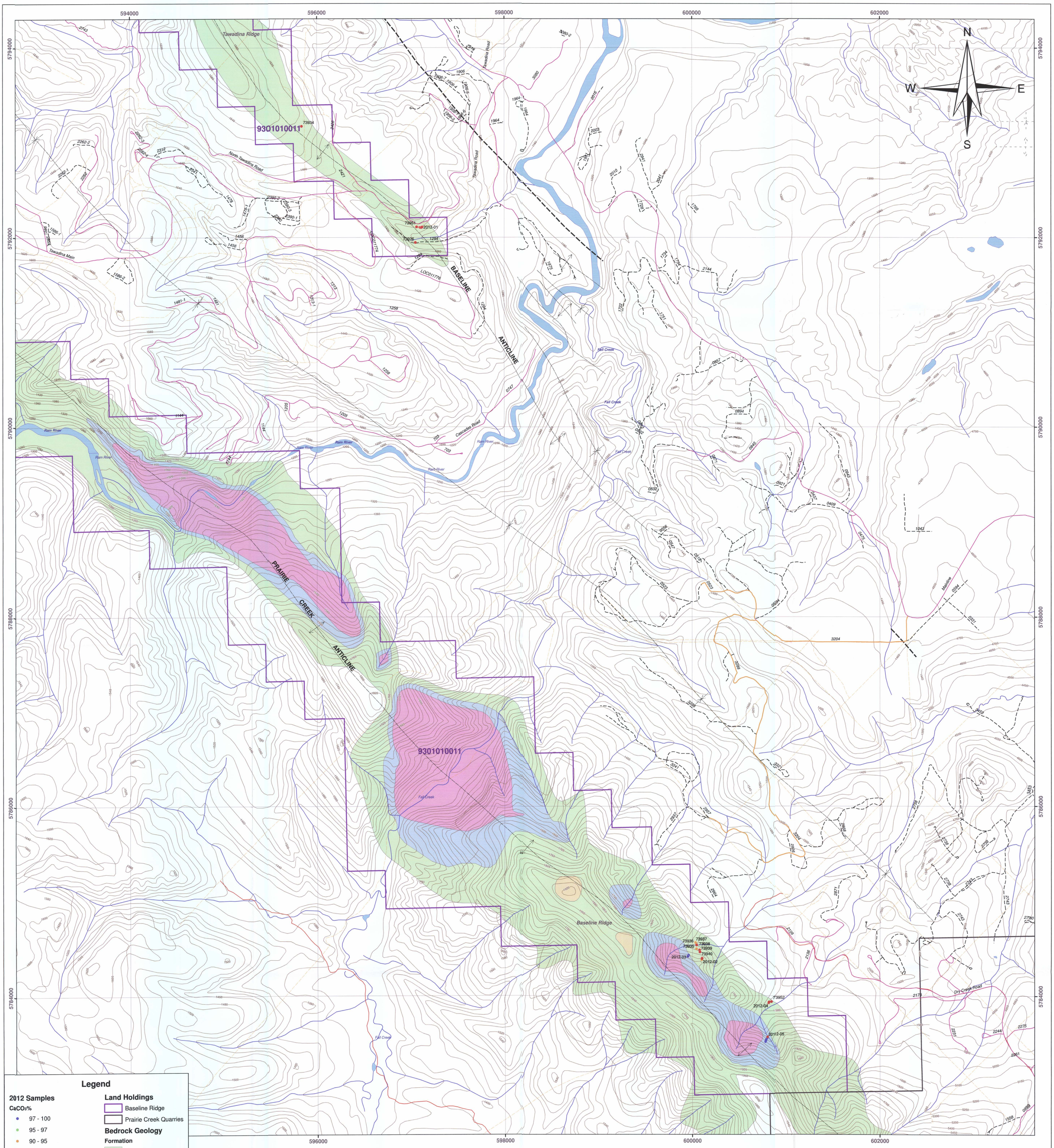
Fig. 4.1
Permit Map

KK 2012.12



Legend

2012 Samples

$CaCO_3$%

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

Roads

- Main Road
- Maintained Road
- Reclaimed Raod
- Stabilized Road
- Cutline
- Faults
- Folds
- Topographic Contour (20 m)
- Creek/stream
- River/lake

Land Holdings

- Baseline Ridge
- Prairie Creek Quarries

Bedrock Geology

Formation

- Upper Rundle
- Pekisko
- Banff
- Fernie

Kilometres

0 1 2 4

1:15,000

Coordinate System: UTM NAD83 Zone 11N

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Edmonton, Alberta

CLEARWATER RANGE,
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Fig. 4.2
Geology & Sample Locations

KK 2013.01