MAR 20120009: SHUNDA MOUNTAIN

Shunda Mountain - A report on limestone quality near Nordegg.

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GRAYMONT WESTERN CANADA INC.

2011 EXPLORATION AND FIELDWORK WITHIN THE SHUNDA MOUNTAIN METALLIC AND INDUSTRIAL MINERALS PERMIT, WEST-CENTRAL ALBERTA

PART B

Metallic and Industrial Minerals Permit
9308050833

Geographic Coordinates

52°30' N to 52°32'30" N
116°03' W to 116°08'30" W

NTS Sheet 83 C/9

Owner and Operator:	MAIM Permit 9308050833 Graymont Western Canada Inc. 260, 4311 - 12 Street NE Calgary, AB, T2E 4P9
Consultant:	Dahrouge Geological Consulting Ltd. 18, 10509 - 81 Avenue Edmonton, AB, T6E 1X7
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Date Submitted:	May 4, 2012

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PART C

1. SUMMARY

During July and October, 2011, the northern part of Brazeau Range, north of Nordegg and within Metallic and Industrial Minerals (MAIM) Permit 9308050833, was explored for high-quality carbonate rocks. Exploration conducted in 2011 was a follow-up to previous exploration in the area.

Access routes and outcrops were mapped, and a total of 50 rock samples were collected within the Shunda Mountain Permit. 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 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 2011 exploration within the Shunda Mountain 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 9308050833, which encompasses northern parts of Brazeau Range of the Alberta Foothills. Bob Robison, exploration manager for Graymont Western U.S. Inc., authorized this work.

The objectives of the 2011 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 9308050833 encompasses areas within the northern part of Brazeau Range, surrounding and including Shunda Mountain and the western part of Coliseum Mountain, within west-central Alberta (Fig.'s 3.1 & 3.2).

The Shunda Mountain Permit is accessed by traveling north from Highway 11 along Upper Shunda Road, past the Nordegg North subdivision. Upper Shunda Road continues north through the property, within the valley between Shunda and Coliseum mountains. It leads around and up Shunda Mountain to the Baldy Fire Lookout. A gate at the base of Shunda

Mountain blocks truck access but ATV's provide excellent access to the top of the mountain. ATV's may also be utilized to explore cut lines that cross-cut and spur off the lower sections of Upper Shunda Road.

3.2 INFRASTRUCTURE

Accommodations, food, fuel and other necessary services are available in Rocky Mountain House or Nordegg. 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 Hamlet of Nordegg is about 85 km west of Rocky Mountain House, along Highway 11 (Fig. 3.2). Nordegg has a population of about 100.

3.3 TOPOGRAPHY, VEGETATION AND CLIMATE

The Shunda Mountain Permit is included in the Eastern-Slope Montane Forest Ecological Region, and lies 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 the treeline, vegetation consists of dense stands of Aspen, Lodgepole Pine, White Spruce, and less frequent stands of Douglas Fir.

The property is comprised of northwest-trending ridges cut by north- and northeast-trending valleys and drainages. Elevations range from approximately 1,570 m in the valley between Shunda and Coliseum mountains to about 2,050 m atop Shunda Mountain. The property is cut by a number of drainages, including spurs of Shunda Creek, and Dog Creek, which trends north and parallels Upper Shunda Road.

Climate is sub-alpine with average summer temperatures of 20° to 25℃ and winter temperatures of -15° to -20℃, with extremes of 35° C and -40℃. 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 two-person geological crews from Dahrouge Geological Consulting Ltd., based out of the hotel in Nordegg. Transportation to and from the property was

by rented four-wheel-drive truck.

Garmin GPSMAP 62S 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

Graymont Western Canada Inc. acquired MAIM Permit 9308050833 (Shunda Mountain) in the spring of 2008 to cover Paleozoic limestones in the northern part of Brazeau Range, north of Nordegg (Fig.'s 3.2 and 4.1). The Shunda Mountain Permit encompasses 1,232 hectares and is contiguous to the Nordegg North MAIM Lease (9410010457), covering Shunda Mountain and the western part of Coliseum Mountain.

4.2 2011 EXPLORATION SUMMARY

Dahrouge Geological Consulting Ltd., on behalf of Graymont Western Canada Inc., conducted exploration July 16th to 17th and October 3rd to 9th, 2011 for carbonate lithotypes within west-central Alberta. The work was undertaken to determine and identify the location and extent of carbonate units in the permit area.

Carbonate outcrops were examined and a total of 50 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 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 1:10,000 scale map sheets and concentrated on areas surrounding and including Shunda Mountain, along the northern part of Brazeau Range.

4.3 EXPLORATION EXPENDITURES

Expenditures for 2011 totaled $18,208.16 (Appendix 1). The entirety of the Shunda Mountain Permit (MAIM Permit 9308050833) will be retained. Excess expenditures are to be assigned to a future exploration period of the Shunda Mountain Permit.

Expenditures are to be allocated to MAIM Permit 9308050833 as follows:

MAIM Permit	Assessment Period	Expiry Date	Required Expenditures*	Assigned Expenditures
9308050833	Years 3 & 4	May 22, 2012	$11,233.00	$11,233.00
	Years 5 & 6	May 22, 2014	$12,320.00	$6,975.16
				$18,208.16

* Based on an area of 1,232 Ha

5. GEOLOGY

5.1 STRATIGRAPHY

At Brazeau Range, carbonate lithologies are known to occur within both Paleozoic and Mesozoic sequences (Table 5.1, Fig. 4.2).

Paleozoic limestones encountered within the Shunda Mountain Permit were from the Upper Devonian Palliser Formation, Upper Devonian to Lower Carboniferous Banff Assemblage, and the Turner Valley, Shunda and Pekisko formations of the Lower Carboniferous Rundle Assemblage. Mesozoic rocks of the Fernie Group were also noted within the permit area.

Brief stratigraphic descriptions of the various units are provided herein (Pana and Dahrouge, 1998). A detailed review of the regional stratigraphy is provided by Stott and Aitken (1993), Mossop and Shetsen (1994), Halbertsma (1994), and Richards et al. (1994).

5.1.1 Palliser Formation

In west-central Alberta, the Lower to Middle Famennian Palliser Formation consists mainly of outer shelf and basinal carbonates of the Sassenach Basin (Halbertsma, 1994). The Palliser Formation is divisible into the Morro and overlying Costigan members, separated by an unconformity. The Morro Member comprises a lithologic suite dominated by carbonates with significant lateral facies variations. The Costigan Member consists of open-marine fossiliferous limestones and shales, with local evaporitic sedimentation. Within the Foothills and Front Ranges of Alberta, limestones of the Palliser Formation vary from less than 180 m to more than 270 m in thickness (Holter, 1976).

The Palliser Formation is overlain by shales of the Exshaw Formation, and siliciclastics and carbonates of the Banff Formation.

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)

5.1.2 Banff Assemblage

In west-central Alberta, the Exshaw, Banff and Yohin formations comprise the Banff Assemblage (Richards et al. 1994). The Upper Famennian to Lowermost Tournaisian Exshaw Formation is dominated by fine-grained siliciclastics deposited in a euxinic basin to shallow-neritic environment. Large thicknesses of Exshaw shales are generally recessive and therefore are poorly exposed in outcrop. In general, the Lower to Upper Tournaisian Banff Formation unconformably overlies the Exshaw. 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.

5.1.3 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.

5.1.4 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 Shunda Mountain Permit, consist of large thicknesses of shale and calcareous sandstones with minor conglomerate.

5.2 STRUCTURE

In the 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. Near Nordegg, the main structural discontinuity is the northwest- to southeast-trending Brazeau Thrust. The leading edge of the thrust sheet is folded into the asymmetrical to recumbent Brazeau Anticline (Fig. 4.2).

As previously indicated by Pana and Dahrouge (1998; p. 11),

"North of Nordegg the main structural elements within Brazeau Range include Brazeau Anticline, and Coliseum Fault, which is a splay from the Brazeau Thrust... North of Highway 11 the asymmetrical Brazeau Anticline trends northwesterly; one limb dips gently to moderately to the southwest and the other steeply northeast to overturned. Local faults and folds are present on both limbs."

6. RESULTS

Eight and a half days were spent checking property access and outlining carbonate outcrops in detail. The 2011 exploration concentrated on defining stratigraphic unit locations and contacts within previously under-explored areas of the Shunda Mountain Property.

Carbonate lithologies of the Palliser, Banff, and Pekisko formations were examined and sampled within Brazeau Range, near Shunda and Coliseum Mountains (Fig. 4.2). A total of 50 samples were collected, 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.

The majority of the outcrops sampled in 2011 were Palliser Formation. The analyses were quite variable as samples were collected from various members of the formation. Outcrops of the upper Palliser generally consisted of high-calcium limestone, whereas outcrops of the lower/middle Palliser were dolomitic. Sample results from the lower/middle Palliser indicate variable dolomite content, ranging from 12.34% to 44.31% $MgCO_3$, and consistently low silica values no higher than 2.36% SiO_2. Intervals of the lower/middle Palliser were generally grey to brown, very fine-grained to fine-grained, well-bedded, vuggy dolomitic mudstones. Section 2011-04, located along Upper Shunda Road, returned values of 67.01% $CaCO_3$, 31.81% $MgCO_3$, and 0.70% SiO_2 over 6 m (Fig. 4.2). Section 2011-05, also located along Upper Shunda Road, consisted of weakly dolomitic lime mudstones that averaged 84.37 $CaCO_3$, 14.47% $MgCO_3$ and 0.82% SiO_2 over 4 m (Fig. 4.2).

The upper Palliser was sampled extensively during the 2011 program and consisted of light-grey to medium-brown, micritic to cryptocrystalline, massive lime mudstones. Section 2011-01, located along the upper section of the steep valley wall west of Coliseum Mountain, averaged 95.04% $CaCO_3$, 1.33% $MgCO_3$ and 2.39% SiO_2 over 8 m (Fig. 4.2). Sections 2011-06, 2011-07 and 2011-08, all located east of Upper Shunda Road, also targeted the upper Palliser; they returned similar values to Section 2011-01, including elevated levels of SiO_2 (Fig. 4.2).

Several intervals of Banff Formation were examined in 2011. Results from these intervals were poor, with less than 85% $CaCO_3$ and SiO_2 values ranging from 3.1% to 22.47%. Intervals generally consisted of dark-grey, micritic to cryptocrystalline mudstones with rare fossils. The Banff formation is not a high quality carbonate unit of interest due to its low $CaCO_3$ values and

high SiO_2 content.

A few intervals of Pekisko Formation were also examined in 2011. Analytical results were variable, presumably due to the fact that different members within the formation were sampled. This is most evident in Section 2011-09, which was collected from the base of a resistant cliff on the east side of a large, steep valley west of Coliseum Mountain (Fig. 4.2). The lowermost sample (73818) consisted of medium-grey fresh, fine to medium-grained, lime mudstone to wackestone and returned values of 97.25% $CaCO_3$, 1.65% $MgCO_3$, and 0.57% SiO_2. The two samples higher in the section (73819 and 73820) were dolomitic, returning values of 12.97% $MgCO_3$ (86.28% $CaCO_3$) and 16.55% $MgCO_3$ (82.60% $CaCO_3$), respectively.

7. CONCLUSIONS

Carbonate units of the Pekisko, Banff, and Palliser formations were examined and measured along the northern part of Brazeau Range near Shunda Mountain. A total of 50 samples were taken and described in detail. Roads and trails on/near the property were noted, which provide excellent access within the central parts of the property. Based upon the results of the 2011 exploration, the entirety of the Shunda Mountain Permit will be retained.

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 permit area. Drill-testing of the Palliser and Pekisko formations is also recommended.

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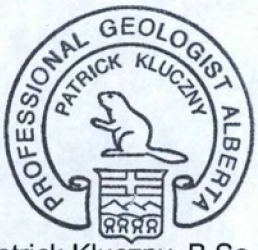
9. STATEMENTS OF QUALIFICATIONS

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, 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 the author of the report entitled "2011 Exploration and Fieldwork within the Shunda Mountain Metallic and Industrial Minerals Permit, West-Central Alberta" and accept responsibility for the veracity of technical data and results.

Dated this 4th day of May, 2012.



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

APEGGA M81985

APPENDIX 1: COST STATEMENT

a) **Personnel**		$ 10,451.00
b) **Food and Accommodation**		$ 2,134.58
c) **Transportation**		$ 1,844.99
d) **Instrument Rental**		$ -
e) **Drilling**	n/a	$ -
f) **Analyses**		$ 1,475.00
h) **Other** (Software, Overhead and Supply, Courier, Supplies)		$ 647.31
Total		$ 16,552.87
Administration (10%)		$ 1,655.29
Total + Administration		**$ 18,208.16**

APPENDIX 2: SAMPLE DESCRIPTIONS AND ASSAY RESULTS FROM THE SHUNDA MOUNTAIN PROPERTY

DAHROUGE GEOLOGICAL CONSULTING LTD.

GRAYMONT

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: Dpa - Palliser Formation; Mbf - Banff Formation; Mpk - Pekisko Formation; Msh - Shunda Formation

Sample	Strat Unit	Strat Tkns (m)	Description	CaCO3 (%)	MgCO3 (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	SrO (ppm)	MnO (ppm)	P2O5 (ppm)
Isolated Samples											
73776	Mpk	1.50	**Lime Grainstone,** light grey to tan weathered, medium grey to medium brown fresh, coarse-grained, fossils: crinoid ossicle, abundant, well-bedded; fossiliferous, strong HCl reaction, structure(s): bedding (approximate), local-scale, strong, 190/11 W	90.22	7.32	1.37	0.234	0.243	350	166	621
73777	Mbf	4.00	**Lime Mudstone,** tan weathered, dark grey fresh, micritic to fine-grained, well-bedded; vuggy, strong HCl reaction, structure(s): bedding (definite), outcrop-scale, strong, 167/19 W **Lime Grainstone,** light grey to tan weathered, medium grey to medium brown fresh, fine-grained, well-bedded; vuggy, structure(s): bedding (definite), outcrop-scale, strong, 167/19 W	72.87	5.02	15.12	1.799	0.724	1064	226	610
73778	Mbf	1.50	**Lime Mudstone,** light grey to tan weathered, dark grey fresh, cryptocrystalline to micritic, moderately-bedded, hard, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, weak; bedding (approximate), outcrop-scale, moderate, 221/7 NW	82.99	4.44	9.78	0.626	0.271	2134	123	303
73782	Dpa	4.00	**Lime Mudstone,** light grey weathered, dark brown-grey fresh, micritic to cryptocrystalline, moderately-bedded, hard, strong HCl reaction, structure(s): calcite vein, outcrop-scale, moderate; bedding (approximate), outcrop-scale, moderate, 205/12 NW	94.99	1.59	1.94	0.402	0.173	312	135	50
73783	Mpk	4.00	**Lime Grainstone,** light grey to tan weathered, light grey to light brown fresh, coarse-grained, fossils: fragment (indeterminate), common; crinoid ossicle, common; crinoid ossicle, common, well-bedded, hard, strong HCl reaction, structure(s): fracture, outcrop-scale, strong; bedding (approximate), outcrop-scale, strong, 203/21 NW	79.76	11.23	6.17	0.885	0.567	1016	215	515
73784	Dpa	0.50	**Lime Mudstone,** light grey to medium grey weathered, light brown-grey fresh, fine-grained to coarse-grained, hard,	91.08	7.53	0.41	0.093	0.070	281	37	50
73785	Dpa	0.50	**Dolomitic Lime Mudstone,** medium brown to tan weathered, dark grey fresh, cryptocrystalline, massive, strong HCl reaction, structure(s): fracture, outcrop-scale	58.01	38.58	2.18	0.439	0.222	144	143	50
73786	Dpa	1.50	**Lime Mudstone,** medium brown to tan weathered, dark grey fresh, cryptocrystalline, massive, strong HCl reaction, structure(s): fracture	95.72	1.92	1.56	0.300	0.153	308	74	50
73787	Mbf	0.30	**Lime Mudstone,** medium brown to tan weathered, very-dark grey fresh, micritic to cryptocrystalline, massive; fissile, strong HCl reaction, structure(s): bedding (possible)	84.24	3.93	8.31	0.925	0.432	1674	129	310
73790	Dpa	0.30	**Lime Mudstone,** white to tan weathered, dark grey fresh, micritic to cryptocrystalline, hard, strong HCl reaction, structure(s): bedding (possible), outcrop-scale, weak, 228/36 NW	95.86	1.38	1.84	0.433	0.145	358	73	50
73791	Mbf	2.00	**Lime Mudstone,** white to tan weathered, very-dark grey fresh, micritic, strong HCl reaction, structure(s): bedding (approximate), outcrop-scale, strong, 187/10 W	58.08	2.99	31.72	0.620	0.334	1294	96	228
73794	Dpa	1.50	**Dolomitic Lime Mudstone,** light grey to tan weathered, dark grey to medium brown fresh, micritic to cryptocrystalline, strong HCl reaction, structure(s): bedding (approximate), outcrop-scale, 56/28 SE; bedding (approximate), outcrop-scale, 236/28 NW	77.92	19.87	0.75	0.220	0.105	186	38	50
73795	Dpa	2.00	**Dolomitic Mudstone,** light grey to tan weathered, medium brown-grey fresh, cryptocrystalline, well-bedded; thickly-bedded; nodular, weak HCl reaction, structure(s): bedding (approximate), outcrop-scale, strong, 50/10 SE	54.37	44.41	0.70	0.178	0.088	78	67	50

Sample	Strat Unit	Strat Tkns (m)	Description	CaCO3 (%)	MgCO3 (%)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	SrO (ppm)	MnO (ppm)	P2O5 (ppm)
73801	Dpa	2.50	**Lime Mudstone,** tan to medium brown weathered, dark grey to medium brown fresh, micritic to cryptocrystalline, well-bedded; massive, strong HCl reaction, structure(s): calcite vein, outcrop-scale, strong; bedding (approximate), outcrop-scale, strong, 46/12 SE	95.11	1.57	2.22	0.413	0.215	323	153	50
73804	Dpa	0.50	**Lime Mudstone,** light grey weathered, dark grey to medium brown fresh, micritic to cryptocrystalline, massive,	96.74	1.19	1.51	0.293	0.166	320	93	50
73809	Dpa	1.00	**Lime Mudstone,** medium grey to tan weathered, medium grey to light grey fresh, micritic to cryptocrystalline, fossils: fragment (indeterminate), rare; crinoid stem, rare; crinoid ossicle, rare,	92.90	4.67	1.58	0.311	0.220	102	86	50
73810	Dpa	1.50	**Lime Mudstone,** light grey to medium brown weathered, dark grey fresh, micritic to cryptocrystalline, strong HCl reaction, structure(s): calcite vein, outcrop-scale, strong	92.83	2.89	2.87	0.578	0.380	323	207	259
73811	Dpa	0.75	**Dolomitic Mudstone,** light grey to tan weathered, medium grey to dark grey fresh, micritic to cryptocrystalline, well-bedded; vuggy, hard,	59.63	36.69	2.36	0.601	0.256	167	52	50
73812	Dpa	3.00	**Lime Mudstone,** light grey to tan weathered, dark grey fresh, micritic to cryptocrystalline, well-bedded,	94.77	2.34	1.79	0.390	0.433	329	161	50
73813	Msh	0.50	**Dolomitic Mudstone,** light grey to tan weathered, medium grey to medium brown fresh, micritic, well-bedded; vuggy, hard,	38.55	24.66	25.23	2.651	0.987	135	273	462
73814	Msh	0.50	**Lime Wackestone to Dolomitic Packstone,** light grey to tan weathered, light grey to medium grey fresh, micritic to coarse-grained, fossils: fragment (indeterminate), common; crinoid ossicle, common, well-bedded; moderately-bedded,	75.48	13.54	8.51	1.001	0.528	412	180	1117
73815	Mpk	0.50	**Recrystallized Limestone,** white to tan weathered, light brown-grey fresh, medium-grained to coarse-grained, fossils: crinoid ossicle, common, well-bedded, soft,	92.74	4.73	1.55	0.207	0.264	366	185	627
73816	Mbf	0.50	**Dolomitic Lime Mudstone,** light brown to tan weathered, medium grey fresh, micritic to cryptocrystalline, massive,	57.77	21.90	13.30	1.761	0.752	241	213	1015
73817	Mbf	1.50	**Strongly Dolomitic Lime Mudstone,** light grey to tan weathered, medium grey fresh, micritic to cryptocrystalline, well-bedded; massive, moderate HCl reaction, structure(s): bedding (approximate), outcrop-scale, strong, 58/22 SE	61.22	18.95	12.59	1.673	0.714	316	197	1891
73821	Mpk	3.00	**Dolomitic Lime Wackestone,** light grey weathered, light brown-grey fresh, fine-grained, fossils: fragment (indeterminate), common; colonial coral, common, well-bedded, hard, moderate HCl reaction, structure(s): bedding (approximate), outcrop-scale, strong, 57/9 SE	64.82	33.87	0.78	0.142	0.083	134	42	50
73822	Mbf	2.00	**Dolomitic Lime Mudstone,** medium grey to tan weathered, dark grey fresh, micritic to cryptocrystalline, well-bedded; massive; laminated, hard, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, weak; calcite vein, outcrop-scale, weak; bedding (approximate), outcrop-scale, strong, 67/8 SE	47.19	20.75	22.47	1.816	0.627	192	194	348
73823	Mbf	3.00	**Dolomitic Lime Mudstone,** medium grey to tan weathered, dark grey fresh, micritic to cryptocrystalline, hard, strong HCl reaction, structure(s): bedding (approximate), outcrop-scale, strong, 69/7 SE	54.99	23.49	14.13	2.063	0.853	246	221	1232
73824	Dpa	3.00	**Dolomitic Mudstone,** light grey to tan weathered, light brown-grey fresh, micritic to cryptocrystalline, well-bedded; moderately-bedded, hard,	55.08	41.40	2.29	0.356	0.155	123	176	50
73825	Dpa	4.50	**Dolomitic Mudstone,** light grey to tan weathered, light brown-grey fresh, micritic to cryptocrystalline, well-bedded; vuggy; moderately-bedded, hard,	57.43	41.99	0.26	0.093	0.065	93	55	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 2011-01 (UTM 562402E, 5818818N)											
73779	Dpa	3.00	**Lime Mudstone**, light grey to tan weathered, dark brown-grey fresh, micritic to cryptocrystalline, fossils: crinoid ossicle, rare; bivalve, very rare, moderately-bedded, hard, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, moderate; bedding (approximate), outcrop-scale, moderate, 103/6 S	94.65	1.63	2.65	0.379	0.198	343	150	50
73780	Dpa	3.00	**Lime Mudstone**, light grey to tan weathered, dark brown-grey fresh, micritic to cryptocrystalline, fossils: crinoid ossicle, rare; bivalve, very rare, moderately-bedded, hard, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, moderate	94.67	1.19	2.50	0.490	0.226	303	146	50
73781	Dpa	2.00	**Lime Mudstone**, light grey to tan weathered, dark brown-grey fresh, micritic to cryptocrystalline, moderately-bedded, hard, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, moderate	96.17	1.07	1.83	0.385	0.221	269	164	50
Section 2011-02 (UTM 560039E, 5820438N)											
73788	Mbf	1.50	**Lime Mudstone**, white to tan weathered, dark grey to very-dark grey fresh, micritic to cryptocrystalline, fossils: crinoid ossicle, rare, well-bedded,	76.68	11.65	8.71	1.282	0.577	1010	198	477
73789	Mbf	4.50	**Lime Grainstone**, white to tan weathered, medium grey to light brown fresh, fine-grained to coarse-grained, fossils: fragment (indeterminate), common; crinoid stem, abundant; crinoid ossicle, abundant; bivalve, rare, well-bedded, moderate,	82.99	10.38	4.75	0.542	0.455	675	198	477
Section 2011-03 (UTM 560107E, 5820589N)											
73792	Mbf	1.50	**Lime Wackestone**, white to tan weathered, dark grey to medium brown fresh, micritic to cryptocrystalline, fossils: fragment (indeterminate), rare; crinoid ossicle, rare,	80.73	8.12	8.25	0.951	0.399	1257	199	384
73793	Mbf	2.00	**Grainstone**, white to tan weathered, light grey to light brown fresh, medium-grained, fossils: fragment (indeterminate), common; crinoid stem, abundant; crinoid ossicle, abundant, massive, strong HCl reaction, structure(s): fracture, outcrop-scale, moderate	84.51	10.23	3.10	0.350	0.362	475	200	677
Section 2011-04 (UTM 560435E, 5819235N)											
73796	Dpa	2.00	**Dolomitic Lime Mudstone**, medium grey to tan weathered, medium brown to medium brown-grey fresh, very fine-grained to fine-grained, well-bedded; vuggy, strong HCl reaction, structure(s): calcite veinlet, outcrop-scale, strong; bedding (approximate), outcrop-scale, strong, 22/7 SE	54.53	44.31	0.59	0.149	0.089	79	56	50
73797	Dpa	2.00	**Dolomitic Lime Mudstone**, medium grey to tan weathered, medium brown to medium brown-grey fresh, very fine-grained to fine-grained, well-bedded; vuggy,	65.23	33.60	0.64	0.148	0.078	97	53	50
73798	Dpa	2.00	**Calcareous Dolomitic Mudstone**, medium grey to tan weathered, medium brown to medium brown-grey fresh, very fine-grained to fine-grained, well-bedded; vuggy, hard, strong HCl reaction, structure(s): bedding (approximate), outcrop-scale, moderate, 32/8 SE	81.26	17.53	0.86	0.116	0.073	150	35	50
Section 2011-05 (UTM 560436E, 5819200N)											
73799	Dpa	2.00	**Lime Mudstone**, light grey to tan weathered, medium brown-grey fresh, micritic to very fine-grained, well-bedded; vuggy, strong HCl reaction, structure(s): bedding (definite), outcrop-scale, strong, 27/11 SE	86.69	12.34	0.76	0.123	0.082	190	43	50
73800	Dpa	2.00	**Lime Mudstone**, light grey to tan weathered, dark brown-grey fresh, micritic to very fine-grained, well-bedded, strong HCl reaction, structure(s): fracture, outcrop-scale; bedding (possible), outcrop-scale, strong, 61/9 SE	82.05	16.59	0.88	0.157	0.068	186	42	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 2011-06 (UTM 560617E, 5818919N)											
73802	Dpa	2.00	**Lime Mudstone,** light grey to tan weathered, dark grey to medium brown fresh, micritic to cryptocrystalline, fossils: bivalve, rare, massive, hard, strong HCl reaction, structure(s): calcite vein, outcrop-scale, moderate	94.43	1.19	2.85	0.567	0.276	321	164	50
73803	Dpa	1.50	**Lime Mudstone,** light grey to tan weathered, dark grey to medium brown fresh, micritic to cryptocrystalline, fossils: crinoid ossicle, rare, massive, hard, strong HCl reaction, structure(s): calcite vein, outcrop-scale, moderate	95.36	1.65	2.15	0.366	0.249	330	156	50
Section 2011-07 (UTM 560985E, 5819060N)											
73805	Dpa	3.00	**Lime Mudstone,** light grey to tan weathered, light grey fresh, micritic to cryptocrystalline, massive,	94.36	2.74	2.05	0.234	0.228	326	80	50
73806	Dpa	3.50	**Lime Mudstone,** light grey to tan weathered, light grey fresh, micritic to cryptocrystalline, massive,	96.45	1.34	1.55	0.283	0.165	338	82	50
Section 2011-08 (UTM 561155E, 5819074N)											
73807	Dpa	2.00	**Lime Mudstone,** light grey to tan weathered, dark grey fresh, micritic to cryptocrystalline, moderately-bedded, hard, strong HCl reaction, structure(s): bedding (approximate), outcrop-scale, moderate, 68/20 SE	96.49	1.28	1.58	0.317	0.186	348	91	50
73808	Dpa	2.00	**Lime Mudstone,** light grey to tan weathered, dark grey fresh, micritic to cryptocrystalline, moderately-bedded, hard,	96.02	1.23	1.79	0.307	0.155	338	87	50
Section 2011-09 (UTM 563086E, 5818445N)											
73818	Mpk	3.00	**Lime Mudstone to Dolomitic Lime Wackestone,** light grey to tan weathered, medium grey fresh, fine-grained to medium-grained, fossils: crinoid ossicle, rare, massive, hard,	97.25	1.65	0.57	0.088	0.090	305	36	50
73819	Mpk	3.00	**Lime Wackestone to Lime Packstone,** light grey to tan weathered, medium grey fresh, very fine-grained to medium-grained, fossils: crinoid stem, common; crinoid stem, common; crinoid ossicle, common,	86.28	12.97	0.32	0.074	0.134	214	50	50
73820	Mpk	2.00	**Lime Packstone to Lime Grainstone,** light grey to tan weathered, medium grey fresh, very fine-grained to medium-grained, fossils: fragment (indeterminate), abundant; crinoid stem, abundant; crinoid ossicle, abundant,	82.60	16.55	0.38	0.071	0.067	191	37	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.:

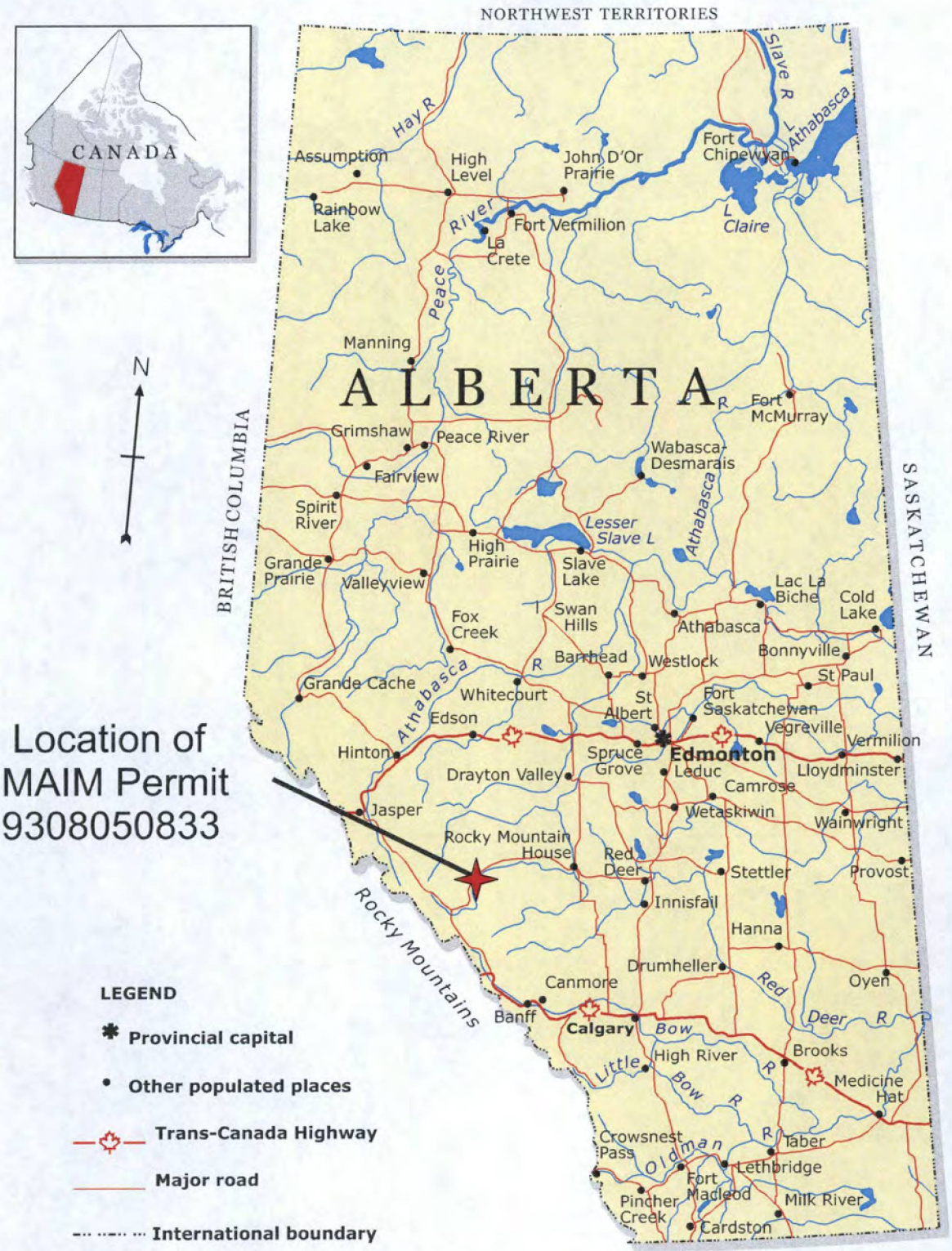
For the ICP sample preparation, 0.5 grams of the sample is mixed with 3 g of lithium carbonate. The sample and the lithium carbonate are then fused together in a muffle furnace at 850℃. Following the fusion process, th e samples are dissolved in 1:1 HCl; a total of 40 mL 1:1 HCl is used in the dissolving 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.



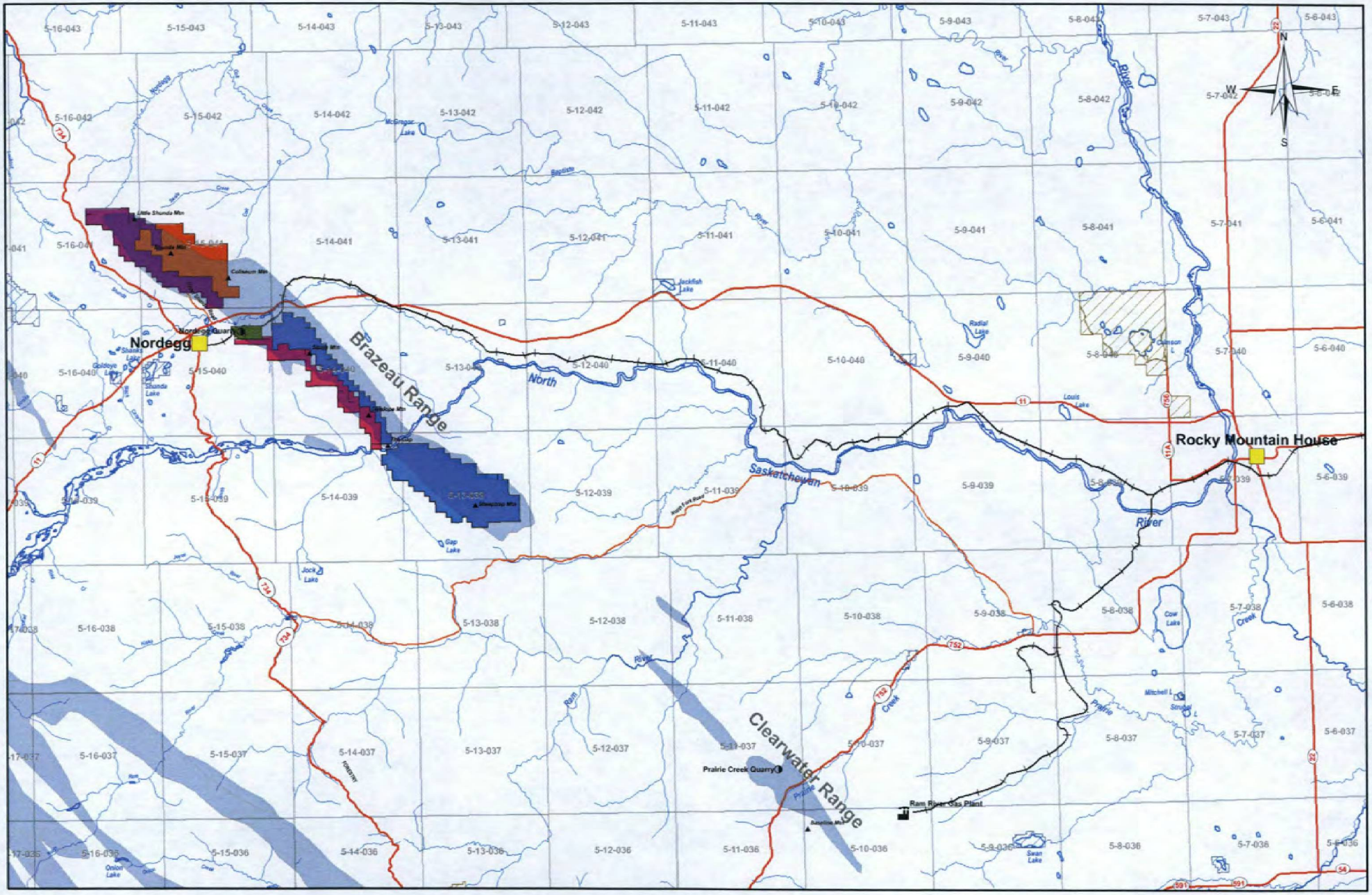
GRAYMONT WESTERN CANADA INC.

Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

BRAZEAU RANGE,
WEST-CENTRAL ALBERTA

Fig. 3.1
Property Location

WM 2012.05



Legend

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

Graymont Land Holdings

- Brazeau Range (9302090596)
- Shunda Mountain (9308050833)
- Nordegg Quarry Leases
- Nordegg South Lease
- Nordegg North Lease

Kilometres

0 5 10 15 20

1:400,000

Coordinate System: UTM NAD83, Zone 11N

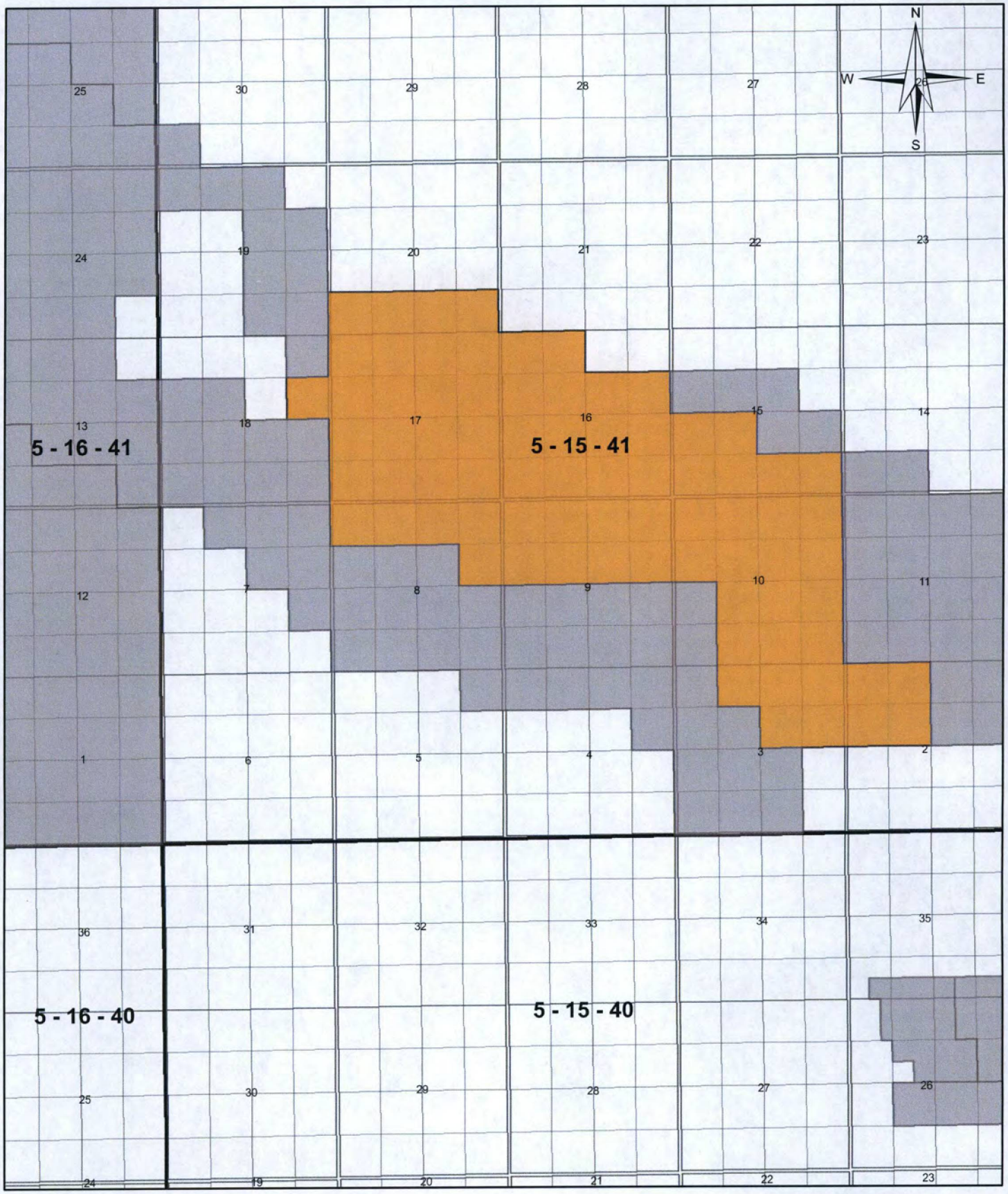
GRAYMONT WESTERN CANADA INC.

Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

BRAZEAU RANGE,
WEST-CENTRAL ALBERTA

Fig. 3.2
Access Map

WM 2012.05



Kilometres

0 1 2 3 4

1:50,000

Coordinate System: UTM NAD83, Zone 11N

NOTE: Faded portions are lands to be surrendered

Legend

Land Holdings

- Shunda Mountain (9308050833)
- Other

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Edmonton, Alberta

SHUNDA MOUNTAIN PERMIT,
WEST-CENTRAL ALBERTA

Fig. 4.1
Shunda Mountain Permit

WM 2012.05

Nordegg North Lease
9410010457

Shunda Mountain
9308050833

Nordegg North Lease
9410010457

Nordegg Quarry
9400100012

South Brazeau
9302090596

Nordegg South Lease
9410010456

Brazeau Range Fault

Brazeau Anticline

Coliseum Fault

Section 2011-03
Section 2011-02
Section 2011-04
Section 2011-05
Section 2011-07
Section 2011-08
Section 2011-06
Section 2011-01

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73814
73813
73824
73825

Nordegg

Shunda Creek
Dog Creek
Cold Creek

FIRE ACCESS RD.
QUAD TRAIL

N
W
E
S

Legend

2011 Samples

% $CaCO_3$

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

Structure

- Faults
- Fold Axis
- Abandoned Railway

Roads

- Highway
- Secondary Road
- Residential Road
- Minor road/trail
- Contours (10 m)
- Creek/Stream
- River/Lake
- Reserved/Withdrawn

MAIM Permits

Graymont Land Holdings

- Shunda Mountain
- Nordegg Leases
- Nordegg Quarry
- South Brazeau
- Other

Bedrock Geology

Formation

- Alexo
- Banff
- Fernie
- Mt Hawk
- Palliser
- Pekisko
- Shunda
- Turner Valley

Kilometres

0 1 2 3

1:15,000

Coordinate System: UTM NAD83, Zone 11N

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SHUNDA MOUNTAIN PROPERTY,
WEST-CENTRAL ALBERTA

Fig. 4.2
Geology & Sample Locations

WM 2012.05