

MAR 20080010: CLEARWATER

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APR 21 2008

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GRAYMONT WESTERN CANADA INC.
2007 EXPLORATION AND FIELDWORK
WITHIN THE CLEARWATER GROUP
METALLIC AND INDUSTRIAL MINERALS PERMITS,
WEST-CENTRAL ALBERTA

PART B

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

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 9305090646, 9306031167, 9396020019, and 9398100125 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
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Date Submitted:	April 18, 2008

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1.**SUMMARY**

During July, 2007, the central part of Clearwater Range, west of Rocky Mountain House and within Metallic and Industrial Minerals (MAIM) Permits 9305090646 and 9306031167, was explored for high-quality carbonate rocks. Exploration conducted in 2007 was a follow-up to previous exploration conducted in the area.

Access and outcrops were mapped, and rock samples were collected where available. 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. A magnetic declination of 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.

No work was performed on MAIM Permits 9396020019 and 9398100125. They have been included for grouping purposes only and will not be described in detail in this report.

2.**INTRODUCTION**

The 2007 exploration within the Prairie Creek and Corkscrew West 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 9305090646 and 9306031167, which encompass the central part of Clearwater Range within the Alberta Foothills. Bob Robison, exploration manager for Graymont Western U.S. Inc., authorized this work.

The objectives of the 2007 exploration were to locate 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 area.

3.**GEOGRAPHIC SETTING AND ACCESS****3.1 LOCATION AND ACCESS**

MAIM Permits 9305090646 and 9306031167 encompass the central parts of Clearwater Range (Fig. 3.1). The permits include lands to the south of the quarry of Prairie Creek Quarries Ltd., including Baseline Mountain, to Seven Mile Creek, northwest of Corkscrew Mountain, within west-central Alberta.

Parts of Clearwater Range, northwest of Corkscrew Mountain, are 50 km southwest of Rocky Mountain House along secondary highway 752 (Fig. 3.2). The Baseline Fire Tower access road is commonly gated to prevent truck use but provides excellent ATV access to the top of Baseline Mountain and surrounding ridge tops to the south and southeast. The Tay Mainline Road and Clearwater Road provide access through the central and southern parts of the property. Several logging roads and cut lines spurring off the main roads provide valuable ATV access throughout the property area.

Clearwater Range can also be accessed from Caroline, by travelling about 30 km west on secondary road 591, and then northwest along Forestry Trunk Road 734.

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 about 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 VEGETATION AND CLIMATE

The Prairie Creek and Corkscrew West permit areas 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.

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 with maximum snowfall in December and January, which averages 35 to 45 cm.

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 hiking where necessary. Extensive roads and trails accommodated ATV use.

Garmin 76 GPS instruments were used to mark outcrop locations and record access information. Compasses were set at a magnetic declination of 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 to cover Paleozoic limestones at Corkscrew and Idlewilde mountains, west of Caroline, Alberta (Fig. 3.2 and 4.1). The permit is divided into two 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 MAIM Permit 9396020019 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 to cover Paleozoic limestones adjacent to the Corkscrew permit (Fig. 3.2 and 4.1). The 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.

A third MAIM Permit, Corkscrew West (9305090646), is contiguous to the north of the Corkscrew MAIM Permit and was obtained on September 9, 2005. It encompasses 3,231 hectares.

The Prairie Creek 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. 3.2 and 4.1). Following the recently conducted exploration, the permit will be reduced (Section 4.3).

4.2 2007 EXPLORATION

From July 9th to 24th, 2007, 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 within easily accessible areas of MAIM Permits 9305090646 and 9306031167.

Carbonate outcrops were examined and a total of 25 samples were collected. 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. Geological observations were recorded, including lithologic information, measurements of structural elements, and other pertinent details (Appendix 2). 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 scale map sheets and concentrated on areas surrounding and including Baseline Mountain, south to Corkscrew Mountain, along Clearwater Range.

4.3 EXPLORATION EXPENDITURES

Expenditures for 2007 totaled **\$60,504.95**.

No expenditures will be applied to MAIM Permit 9305090646. The permit remains in good standing to September 9, 2009.

MAIM Permit 9306031167 will be amended (Fig. 4.1). The reduced area (2,184 hectares) will include:

Land Description (Tp-RW5)	Reduced Size (Ha)
37-11W5 (Sections: 01S, L10S, L10NW, L11, L12, L13SE, L14; 02L1E, L8SE)	2,184
36-11W5 (Sections: 25NE, L1, L8; 35L7, L8, L9, L10S, L10NE, L16; 36)	
36-10W5 (Sections: 03W, L2, L7, L10, L15; 04E, L14; 08L16; 09N, SE, L3, L5, L6; 16W; 17E, L11, L14; 19NE, L1, L8, L11, L14; 20; 30W)	
35-10W5 (Sections: 27L4, L5, L12, L13; 34NW, L4, L5)	

Expenditures are allocated to MAIM permits 9306031167, 9396020019, and 9398100125 as follows:

MAIM Permit	Permit Area (ha)	Required Expenditures	Assigned Expenditures	New Expiry Date
9306031167	2,184*	\$10,920*	\$10,920*	Mar. 30, 2010
9396020019	2,400	\$3,469	\$3,469	Feb. 24, 2010 (Term Expiry)
9398100125	2,416	\$36,240	\$46,115.95	Oct. 30, 2010

*Based on reduced area

5.

GEOLOGY

5.1 STRATIGRAPHY

Due to the limited work conducted within the Prairie Creek and Corkscrew permits, a detailed account of the local geology is not included herein.

At Clearwater Range, carbonate lithologies are known to occur within both Paleozoic and Mesozoic sequences (Table 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 Prairie Creek and Corkscrew West MAIM permits were from the Turner Valley, Shunda and Pekisko formations of the Rundle Assemblage. Mesozoic carbonate rocks have been noted in the Nordegg Member of the Fernie Group.

**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
		Turner Valley
		¹ Livingstone Shunda
		Pekisko
Upper Devonian	Banff Assemblage	Banff
		Exshaw
	Fairholme Group	¹ Palliser
		Alexo
		Southesk Mounthawk
Cambrian	Fairholme Group	Cairn
		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).

¹Current limestone production (from Holter, 1994)

5.1.1 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). In southern Alberta, the Pekisko grades laterally into the uppermost Banff Formation. 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.

5.1.2 Nordegg Member of the 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.

Near the base of the Fernie Group, the Nordegg Member consists of a thin radioactive shale-limestone unit, overlain by a massive, light-grey chert and limestone unit (Poulton et al., 1994). The Nordegg Member thins to the west and also to the east, in part due to deposition and in part due to subsequent erosion. Within the area of Tawadina Creek, the Fernie Group has an estimated thickness of 109¾ to 134¼ m (Erdman, 1950). Within Clearwater River Basin, the Fernie Group is subdivided into the Nordegg Member at the base and a collection of units informally designated the "upper members" above (Ollerenshaw, 1968).

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

Approximately two weeks were spent checking property access and outlining carbonate outcrops in detail.

Carbonate lithologies of the Rundle Assemblage and Fernie Group were examined and measured within Clearwater Range, north and south of Tay River (Fig. 3.2). A total of 25 intervals were examined and sampled, representing more than 41¼ 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 visible outcrops consisted of very weakly to moderately calcareous mudstones and sandstones of the Fernie Group. Where present, the Fernie rocks are not of sufficient carbonate quality to encourage further exploration.

Where examined, the Rundle Assemblage included marginal quality carbonate rocks of the Turner Valley, Shunda, and Pekisko formations. The dolomitic limestones of the Turner Valley Formation contained 27.96% to 42.97% MgCO_3 and 0.53% to 7.83% SiO_2 . The Turner Valley rocks may provide potential for high-quality dolomite in the area. One sample of Pekisko lime mudstone returned 90.56% CaCO_3 , 4.87% MgCO_3 , and 2.74% SiO_2 . The Shunda Formation is commonly recessive, which results in limited outcrop. One Shunda calcareous mudstone outcrop was sampled and proved quite siliceous, containing 38.52% SiO_2 .

Based on the large area of poor quality lime mudstones and sandstones encountered in the 2007 exploration, the Prairie Creek Permit will be reduced.

7. CONCLUSIONS

Carbonate units of the Rundle Assemblage and Fernie Group were examined and measured along the central part of Clearwater Range at Baseline Mountain and areas to the south, within MAIM Permits 9305090646 and 9306031167. A total of 25 discrete intervals were measured and described in detail.

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

Within MAIM Permits 9305090646 and 9306031167, carbonate exposures have been mapped in detail. 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.

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9. STATEMENT OF QUALIFICATIONS

I, Jocelyn Tanton, 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 Technical Report following the one-year confidentiality period.
- I am the author of the report entitled "2007 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 18th day of April, 2008.



Jocelyn Tanton, B.Sc., P.Geol.
APEGGA M67719

APPENDIX 1: COST STATEMENT FOR THE 2007 EXPLORATION

a) <u>Personnel</u>	\$ 28,767.87
b) <u>Food and Accommodation</u>	\$ 8,335.66
c) <u>Transportation</u>	\$ 14,699.56
d) <u>Instrument Rental</u>	\$ 1,119.36
e) <u>Analyses</u>	\$ 737.50
f) <u>Report</u>	\$ 93.50
g) <u>Other</u>	\$ 1,251.05
<u>Total</u>	<u>\$ 55,004.50</u>
 <u>Administration (10%)</u>	 \$ 5,500.45
<u>Total + Administration</u>	<u>\$ 60,504.95</u>

c

APPENDIX 2: 2007 SAMPLE DESCRIPTIONS AND ASSAY RESULTS FROM THE CLEARWATER RANGE

Notes: Stratigraphic thicknesses are based on measured attitudes of bedding listed below, with appropriate interpolations. Those provided in brackets [10] are horizontal distances. Attitudes are strike and dip (right-hand rule). Most samples consist of chips at 30 cm intervals.

Sample	UTM NAD83		Group	Strat.	Description	CaCO ₃	MgCO ₃	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	SrCO ₃	MnO	P ₂ O ₅
	Easting	Northing	Formation	Thick. (m)		(%)	(%)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
26826	614610	5766247	Fernie	grab	Calcareous Sandstone , dark-grey-brown weathered, orange and dark-brown fresh, fine to medium grained, calcareous matrix, minor calcite veinlets (<1 mm), some mm-scale laminations, beds (?) cm scale, weak prolonged reaction with HCl, possible attitude of bedding of 335°/39° NE, picture 050	17.49	4.53	27.69	2.47	4.43	269	861	2670
26827	606401	5777412	Fernie	3	Lime Mudstone , beige and light-grey weathered, medium-grey to dark-grey fresh, micritic to fine grained, smells like sulfur (organic material), minor calcite veining, weakly fractured, weak to strong reaction with HCl, beds 5-50 cm thick, some possible secondary dolomite, bedding of 131°/29° SW	28.20	1.86	28.07	0.35	0.74	322	865	12442
26828	606449	5777470	Fernie	grab	Lime Mudstone , light-orange and grey weathered, medium-brownish grey fresh, micritic to fine grained, reeks of sulfur, medium calcite veining, moderately fractured, bedding not apparent, moderate to strong reaction with HCl	45.72	1.29	26.42	0.29	0.67	472	795	5759
26829	606563	5777373	Fernie	grab	Lime Mudstone , tan and light-grey weathered, medium- to dark-brown and grey fresh, cryptocrystalline to fine grained, moderately fractured, minor calcite veining, bedding not apparent, reeks of sulfur, moderate to strong reaction with HCl	46.72	3.52	27.67	0.32	0.53	486	620	8765
26830	606574	5777352	Fernie	2	Lime Mudstone , tan to white weathered, dark-grey fresh, micritic, laminated (1-2 cm), slight sulfur smell, minor calcite veining, moderately fractured, strong reaction with HCl, attitude of bedding of 347°/42° E	37.46	4.77	33.36	0.58	0.62	399	604	3580
26831	606583.5	5777343.4	Fernie	1.5	Lime Mudstone , tan to white weathered, dark-grey fresh, cryptocrystalline to micritic, laminated (1-2 cm), slight sulfur smell, minor calcite veining, moderately fractured, slightly fissile, strong reaction with HCl, attitude of bedding of 347°/42° E, slightly slumped	32.15	4.36	32.28	0.55	1.20	353	1552	3808

Sample	UTM NAD83		Group	Strat.	Description	CaCO ₃	MgCO ₃	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	SrCO ₃	MnO	P ₂ O ₅
	Easting	Northing	Formation	Thick. (m)		(%)	(%)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
26832	606667	5777269	Fernie	1.5	<u>Calcareous Mudstone</u> , tan to brown weathered, medium- to dark-grey fresh, cryptocrystalline to micritic, reeks of sulfur, moderately fractured, no calcite veining, weak to absent reaction with HCl, possible but unlikely bedding of 288°/45° N, more realistic bedding of 143°/29° SW, contact between lime mudstone and siliceous mudstone between 26831 and 26832 (float only)	12.62	4.27	32.24	0.63	1.14	229	1229	12496
					<u>26833-26850: NO SAMPLES</u>								
26851	613421	5763337	Fernie	grab	<u>Calcareous Sandstone</u> , tan weathered, medium-brown fresh, fine to medium grained, well-laminated, some cross bedding, feldspar-rich, mica, quartz, weak to moderately slow reaction with HCl, possible beddings of 167°/27° W and 173°/26° W	10.87	2.55	30.70	4.14	1.72	203	875	1028
26852	613813	5764904	Fernie	4	<u>Carbonaceous Lime Mudstone</u> , well-bedded (3-10 cm thick), tan weathered, very dark-grey fresh, cryptocrystalline, homogeneous, sulfur smell, hard, occasional visible crinoid ossicles and bioclasts fragments on weathered surface, excellent reaction with HCl, attitude of bedding 181°/36° W, joint 082°/80° S (~0.5 m spacing), other variable joint sets present	45.22	6.92	28.20	0.64	0.58	432	536	3382
26853	613846	5765873	Fernie	grab	<u>Calcareous Sandstone</u> , orange to tan weathered, medium-brown fresh, visible laminations, fine to medium grained, quartz rich, feldspar, biotite, minor white crystalline calcite veinlets, weak to moderate reaction with HCl, possible bedding of 044°/24° SE maybe slumped, calcite likely due to post-depositional fluids	26.94	5.79	32.20	1.43	1.81	287	577	4680
26854	607549	5776566	Fernie	0.25	<u>Calcareous Mudstone</u> , tan weathered, medium- to dark-grey fresh, cryptocrystalline to micritic, homogeneous, carbonaceous, sulfur smell, slight laminations, weak reaction with HCl, attitude of bedding 126°/07° SW	17.73	3.88	32.69	0.41	0.84	188	1030	2859
26855	607819	5776192	Fernie	1	<u>Carbonaceous Lime Mudstone</u> , mottled-cherty light-brown and medium-grey weathered, dark-grey fresh, carbonaceous, sulfur smell, homogeneous, micritic to cryptocrystalline, occasional carbon bits (<3 mm), moderate white calcite veining, weak to moderate reaction with HCl, wavy undulose bedding of 329°/50° NE	68.71	0.81	23.46	0.26	0.34	485	265	13840

Sample	UTM NAD83		Group	Strat.	Description	CaCO ₃	MgCO ₃	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	SrCO ₃	MnO	P ₂ O ₅
	Easting	Northing				(%)	(%)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
26856	607819.7	5776191.1	Fernie	0.5	<u>Lime Mudstone</u> , dark-brown weathered, dark-brown and very-dark-grey fresh, minor white calcite veinlets, homogeneous, moderate to very good reaction with HCl, shaley and platy, attitude of bedding is 316°/55° NE	60.07	1.07	24.39	1.99	0.85	713	105	19360
26857	607803	5776033	Fernie	4	<u>Lime Mudstone</u> , tan and light-grey weathered, very-dark-grey fresh, micritic, homogeneous, very well-bedded, 1-8 cm thick beds, carbonaceous, sulfur smell, interbedded, well-laminated and massive beds, minor calcite veinlets, good reaction with HCl, bedding of 132°/10° SW, cleavage of 218°/87° NW, cleavage is a bit variable but all striking ~NE to SW	44.14	3.57	31.31	0.67	0.76	418	792	2709
26858	607807.4	5776018.1	Fernie	4.5	<u>Lime Mudstone</u> , tan and light-grey weathered, very-dark-grey fresh, micritic, homogeneous, very well-bedded, 1-8 cm thick beds, carbonaceous, sulfur smell, interbedded, some laminations and massive beds, more prominent and less weathered than 26857, pweakly dolomitic, minor calcite veinlets, good reaction with HCl, bedding of 132°/10° SW, cleavage of 218°/87° NW, cleavage is a bit variable but all striking ~NE to SW	31.25	4.51	35.59	0.44	0.87	325	1092	4371
26859	608121	5775747	Fernie	2	<u>Calcareous Mudstone</u> , well-bedded (<6 cm thick), tan weathered, medium-brown to dark-grey fresh, cryptocrystalline, homogeneous, very-dark-grey carbon laminations, moderate reaction with HCl, bedding of 126°/20° SW	23.20	2.76	34.35	0.40	0.85	296	1050	5349
26860	609436	5775093	Shunda?	2	<u>Calcareous Mudstone</u> , tan and dark-grey weathered, dark-grey fresh, cryptocrystalline to very fine grained, homogeneous, well-bedded (<3 cm), very weak reaction with HCl, bedding of 136°/43° SW	18.28	7.68	38.52	0.28	0.79	157	962	6067
26861	609465	5775077	Turner Valley	grab	<u>Dolomitic Lime Mudstone</u> , tan and whitish weathered, minor rusty orange weathered patches, light- to medium-brown fresh, very fine grained to medium grained, very small bioclast fragments, well fractured, very good reaction with HCl, bedding is indeterminate	54.21	31.87	7.83	0.33	0.21	237	305	1543

Sample	UTM NAD83		Group	Strat.	Description	CaCO ₃	MgCO ₃	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	SrCO ₃	MnO	P ₂ O ₅
	Easting	Northing				(%)	(%)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
26862	609477	5775176	Turner Valley	2.5	<u>Dolomitic Crinoidal Lime Packstone to Grainstone with minor Lime Mudstone</u> , tan and light-grey weathered, light-brownish to grey fresh, beds ~20 cm thick (some covered), mudstone is very fine grained (indeterminate bioclasts), grainstone is fine grained to coarse grained, crinoid ossicles up to 1 cm, weakly to moderately fractured, good to very good reaction with HCl, bedding of 145°/42° SW	69.37	27.96	1.42	0.19	0.21	204	99	221
26863	609848	5774638	Turner Valley	0.75	<u>Dolomitic Lime Grainstone with minor Micritic Lime Mudstone</u> , tan and light-grey weathered, light-grey fresh, very fine grained to medium grained, majority of bioclasts are indeterminate, but crinoids, bryozoans, shell fragments, and ooids can be seen, weakly fractured, minor to moderate white calcite veinlets that appear to be random, very weak to weak reaction with HCl, bedding of 130°/24° SW	56.59	36.00	4.95	0.85	0.35	204	127	352
26864	609964	5774454	Turner Valley	3	<u>Dolomitic Mudstone</u> , light-grey weathered, light-brown fresh, cryptocrystalline, pitted weathered surface, very small voids (mm), beds ~20-50 cm thick, visible laminations on weathered surface, very minor white calcite veinlets, very weak reaction with HCl, attitude of bedding of 140°/25° SW	54.06	42.93	1.81	0.21	0.13	126	116	177
26865	610472	5774047	Pekisko?	2	<u>Lime Mudstone</u> , light-grey weathered, dark-grey fresh, micritic, homogeneous, minor white calcite veinlets, very good reaction with HCl, bedding of 133°/18° SW	90.56	4.87	2.74	0.55	0.25	537	85	281
26866	610252	5774703	Turner Valley	6	<u>Dolomitic Coral Wackestone</u> , light-grey weathered, light-brown fresh, cryptocrystalline to fine grained, mud-rich, solitary rugose and colonial corals throughout, very small voids, very minor packstone and grainstone, moderate to very good (powder) reaction with HCl, very good powder reaction with HCl could indicate dolostone, bedding varies from 346°/65° E, 338°/72° E, but not entirely certain that this is bedding	55.91	42.97	0.53	0.06	0.09	102	51	152
26867	608843	5772948	Fernie	0.75	<u>Lime Mudstone</u> , tan and rusty brown weathered, medium-grey and medium-brownish grey fresh, cryptocrystalline to fine grained, weakly fractured, minor white calcite veining, hard to break the rock, good reaction with HCl, wavy bedding of 177°/18° W	33.23	4.46	29.64	1.70	2.93	542	1029	4763

Sample	UTM NAD83		Group	Strat.	Description	CaCO ₃	MgCO ₃	SiO ₂	Al ₂ O ₃	Fe ₂ O ₃	SrCO ₃	MnO	P ₂ O ₅
	Easting	Northing	Formation	Thick. (m)		(%)	(%)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)
26868	609313	5773411	Fernie	grab	<u>Calcareous Mudstone</u> , very competent, medium-brown weathered, medium-grey and medium-brown grey fresh, cryptocrystalline to very fine grained, thinly bedded <3cm, weakly fractured, minor calcite veining, occasional carbon stringers and blebs, moderate to very good reaction with HCl, surrounded by shaley float, attitude of bedding is 141°/06° SW	27.43	4.05	36.33	3.44	1.30	481	765	2726

APPENDIX 3: ANALYTICAL LABORATORY INFORMATION AND TECHNIQUES

Name and address of the Lab:

Graymont Western US inc, Central Laboratory.
670E 3900S. Suite 200, Salt Lake City, Utah, 84107

Statement of qualifications of the chemist:

Jared Leikam, B.S. in chemistry from the University of Utah, class of 2003. Jared started working for Graymont Western in Feb 2004 and has been working with the ICP spectrometer for one and a half years, under the direct supervision of Carl Paystrup (Lab Supervisor).

Sample preparation , procedures, reagents, equipment, etc.:

For the ICP sample preparation, 0.5 grams of the sample is mixed with 3g of lithium carbonate. The sample and the lithium carbonate are then fused together in a muffle furnace at 850C. After the fusion process the samples are dissolved in 1:1 HCl, a total of 40ml 1:1 HCl is used in the dissolving process. The samples are then diluted to 200ml and spiked with 10ppm Co. The cobalt is used as an internal standard. At this point the samples are ready for analysis on the Perkin Elmer, Optima 3000.

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 200g). The stone is then dried in an oven at 100C. 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.

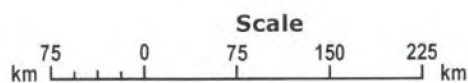
Quality control Procedures:

The ICP spectrometer is calibrated with two certified reference materials prior to analyzing a batch of samples. A batch typically contains 96 samples. Every 12th 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(10ppm Co) to further ensure the quality and accuracy of the analysis.



Location of
MAIM Permits
9306031167,
9305090646,
9398100125,
and 9396020019

- LEGEND**
- Provincial capital
 - Other populated places
 - Trans-Canada Highway
 - Major road
 - International boundary
 - Provincial boundary



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Edmonton, Alberta

CLEARWATER RANGE, WEST-CENTRAL ALBERTA

Fig. 3.1 Location Map

SYMBOLS

-  Limestone Mountain Permit, (2,416 Ha)
MAIM Permit 9398100125
-  Corkscrew Mountain Permit, (2,400 Ha)
MAIM Permit 9396020019
-  Corkscrew West Permit, (3,231 Ha)
MAIM Permit 9305090646
-  Prairie Creek Permit, (5,688 Ha)
MAIM Permit 9306031167; ORIGINAL
-  Prairie Creek Permit, (2,184 Ha)
MAIM Permit 9306031167; REDUCED

GRAYMONT WESTERN CANADA INC.

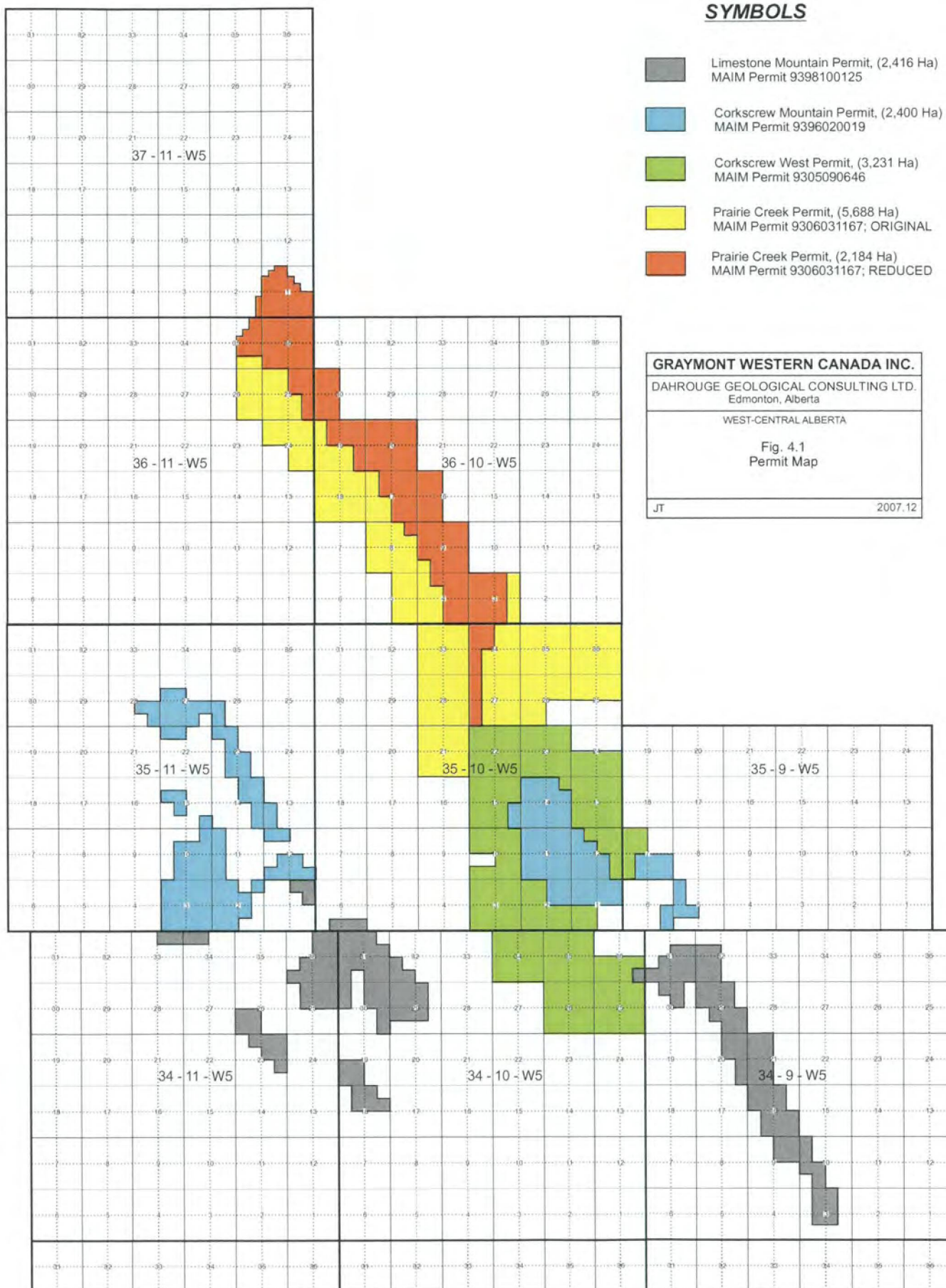
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Edmonton, Alberta

WEST-CENTRAL ALBERTA

Fig. 4.1
Permit Map

JT

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