BRITISH COLUMBIA

Ministry of Energy & Mines
Energy & Minerals Division
Geological Survey Branch

ASSESSMENT REPORT
TITLE PAGE AND SUMMARY

TITLE OF REPORT [type of survey(s)]	TOTAL COST
2008 GEOLOGICAL MAPPING AND SAMPLING NEAR CROWSNEST PASS, BRITISH COLUMBIA	$ 62,163.28

AUTHOR(S) **Jocelyn Klarenbach, P.Geol.** SIGNATURE(S) ______

Patrick Kluczny, Geol. I.T.

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S) ______ YEAR OF WORK **2008**

STATEMENT OF WORK - CASH PAYMENT EVENT NUMBER(S)/DATE(S) **Event No. 4252552 (December 18, 2008)**

PROPERTY NAME **CMM Claims**

CLAIM NAME(S) (on which work was done) **Claims CMM 8, 9, 10, 16, and 17**

COMMODITIES SOUGHT **Limestone**

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN ______

MINING DIVISION **Fort Steele** NTS **82G/10**

LATITUDE **49** ° **40** ' ______ " LONGITUDE **115** ° **42** ' ______ " (at centre of work)

OWNER(S)

1) **Graymont Western Canada Inc.** 2) ______

MAILING ADDRESS

190, 3025 - 12 Street NE

CALGARY, AB. T2E 7J2

OPERATOR(S) [who paid for the work]

1) **Graymont Western Canada Inc.** 2) ______

MAILING ADDRESS

190, 3025 - 12 Street NE

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PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

Carbonates, limestone, Mississippian, Rundle Group, Mount Head Formation, Livingstone Formation, Crowsnest Pass

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS ______

1995: Ass. Rpt.'s 24182 & 24210; 2006: Ass. Rpt. 28082

(OVER)

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping	**1:5,000 and 10,000 scale, approx.1000 ha**	**CMM 8, 9, 10, 16, and 17**	**$ 29,108.45**
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for ...)			
Soil			
Silt			
Rock	**120 samples analyzed for major oxides**	**CMM 8**	**$ 33,054.83**
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY/PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST	**$ 62,163.28**

GRAYMONT WESTERN CANADA INC.

2008 GEOLOGICAL MAPPING AND SAMPLING NEAR CROWSNEST PASS, BRITISH COLUMBIA

Fort Steele Mining Division

CMM 1-2, 2A, 3-5, 8-18, and Tenure 513344

Geographic Coordinates
49° 40' N
115° 42' W
NTS Sheet 82 G/10NE

Owner & Operator: Graymont Western Canada Inc.
190, 3025 - 12 Street NE
Calgary, Alberta T2E 7J2

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

Author: J. Klarenbach, P.Geol.
P. Kluczny, Geol. I.T.

Date Submitted: 2009 03 18

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1. INTRODUCTION

Summit Lime Works Ltd. (Summit Lime) in Alberta has been in operation since 1905 when a plasterer, Edward George Hazell, obtained the land and used the lime for his business at Fernie, British Columbia. Summit Lime was placed in his daughters' names in 1938 and it remained in the family until it was sold to Continental Lime in 1990. The plant was operated by Ecowaste Industries Ltd. (Ecowaste), an associated company of Continental Lime and a wholly-owned subsidiary of Graymont Western Canada Inc. (Graymont); the name was transferred in 2007 to Graymont, who remains the current plant owner and operator.

Ecowaste acquired the CMM claims, adjoining Summit Lime on the B.C. side of the border, from 1994 through 1997. Some claims were dropped in 1999 and some were grouped and converted to a cell claim in 2005. All of the Ecowaste claims were converted to the property of Graymont in 2007 for consistency of their B.C. properties.

Dahrouge Geological Consulting Ltd. (Dahrouge), on behalf of Graymont, carried out a mapping and sampling program at the CMM claims in September, 2008. Detailed mapping was conducted in order to better define the locations and characteristics of the Livingstone Formation, the Mount Head Formation, which consists of the Baril-Wileman, Salter, Loomis, Marston, Opal, and Carnarvon members, the Etherington Formation and the Rocky Mountain Formation. A geological map was compiled from the 2008 field work and previously collected analytical and geological data.

The Carnarvon, Opal and Loomis members of the Mount Head Formation and the Upper Massive Member of the Livingstone Formation host potentially large tonnages of high-quality limestone. A total of 131 rock samples were collected from units of interest to assess the limestone quality in the Deadman Pass area. This report describes the 2008 exploration program and provides an interpretation of the results. The 2008 exploration was authorized by Bob Robison of Graymont Western Canada Inc.

A statement of work has been filed with respect to the exploration described in this report (event number 4252552). The total assessment credit has been allocated amongst all of the contiguous CMM claims; however, the 2008 work was concentrated on claims CMM 8, 9, 10, 16, and 17. Therefore, a detailed description of the entire claim group is not included in this report; this information is available in previously submitted assessment reports on the area.

1.1 GEOGRAPHIC SETTING

1.1.1 Location, Infrastructure and Access

The CMM claims are located in southeastern British Columbia. They extend northerly for about 12 km from Crowsnest Pass and are generally no more than 4 km west of the British Columbia - Alberta border (Fig.'s 1.1 & 1.2). The parts of the CMM claims explored in 2008 and described in this report are in the northern portion of the property, within about 1 km north and 3 km south of Deadman Pass, and within 4 km of the interprovincial boundary.

A convenient reference point is the entrance to Crowsnest Provincial Park, which is on Highway 3 about 2 km west of the B.C. - Alberta border, and adjoins to the southwest of the CMM claims. The Forestry Road corner in Coleman is 17 km east of Crowsnest Provincial Park and Sparwood is about 19 km westerly. Blairmore is 5 km east of Coleman. All three locations are historically coal mining towns and are located along Highway 3. Nearly all supplies and resources are available in these towns, including fuel, groceries, phone and internet access, laundry, and accommodations. The Elk Valley Regional Airport serves Sparwood. Coleman is about 215 km southwest of Calgary, Alberta, which is the location of the nearest international airport.

The southern line of the Canadian Pacific Railway (CPR), a natural gas pipeline of Alberta Natural Gas (ANG), and two electric power transmission lines, the northerly with aluminum towers, pass through the property.

In 1996, Crestbrook Forest Industries Ltd. (Crestbrook) constructed the Scale House Logging Road (SHR), about 4 km long, starting near the weigh scale on Highway 3 about 1 km westerly from the entrance to Crowsnest Provincial Park. The SHR leads north and connects, or turns into, a road previously named Norman Road, which follows Norman Creek. The SHR-Norman Road crosses the beginning of the potential access trail flagged up Norman Creek in 1995, at the western boundary of CMM 5. In addition, the road provides easy access to the southwestern part of the CMM claims, the powerlines, and the east-west ANG pipeline road. Trails along the power transmission lines, and access to them, have gradients commonly reaching 14°, locally 18°, and even 22°. Cattle or game trails along Norman Creek and tributary creeks provide easier walking for accessing northerly and easterly areas of the property.

Access within the property and surrounding area was investigated in past exploration programs and briefly in 2008. Several routes that lead northerly from Highway 3, on both sides of the British Columbia-Alberta border, provide access to the CMM claims.

A trail that leads northerly from Crowsnest Provincial Park only continues for about 300 metres before it is blocked by a berm. The trail, which runs along the ANG pipeline, eventually reaches the southeastern portion of the CMM claims. Although B.C. Parks has denied vehicle access through the park, the ANG pipeline road is accessible along Highway 3 in Alberta, at the east end of Crowsnest Lake.

Access to the western side of Deadman Pass is possible by turning onto the Alexander Main Line logging road from Highway 3, approximately 4 km northwest of the interprovincial border, and following it north for approximately 8 km. Once at the northwest end of the pass, there are several smaller roads and ATV trails that can be utilized to explore Deadman Pass and the surrounding area. The eastern part of Deadman Pass is accessible via a 4-wheel-drive logging road within 1 km east of Alexander Creek. The Deadman Pass trails were not accessible with truck during the 2008 work program; ATV's are recommended if the access trails are of interest for future programs and road rehabilitation would be required for extensive use.

The rest of the CMM claims, particularly the higher parts, are accessible by helicopter, which is based in Fernie, B.C., and by extensive hiking and climbing.

1.1.2 Topography, Vegetation and Climate

The CMM claims are on the western slopes of High Rock Range, which straddles the boundary between British Columbia and Alberta. In this part of High Rock Range, Allison Peak reaches an elevation of 2,644 m, but the highest elevation within the property is 2,560 m on an unnamed ridge 500 m further west, within claim CMM 12. The lowest elevations on the property are about 1,400 m, where Norman Creek crosses the southern edge of the claim block, and along the pipeline road at the western boundary of claim CMM 4. Within the area explored in 2008, the mountain slopes are steep and rugged.

Vegetation consists of poplar, pine, and spruce, some of which reach diameters of ½ m on lower slopes. Undergrowth is generally sparse except at lower elevations on some northerly facing slopes; rock exposure is generally greater on southerly facing slopes. The treeline is at about 1,950 m elevation. 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.

Climate is sub-alpine and alpine with average summer temperatures of 20° to 25°C and winter temperatures of -10° to -15°C, with extremes of 35°C and -40°C. Rainfall averages about 40 cm per year; snowfall averages 180 cm with the majority falling on the mountain tops from November through March.

1.2 PROPERTY

The CMM Property consists of 20 contiguous mineral claims totalling 103 units, covering approximately 2,575 ha within the Fort Steele Mining Division, NTS Map Sheet 82 G/10 (Table 1.1, Fig. 1.2). These claims are registered in the name of Graymont Western Canada Inc.

Ecowaste obtained claims CMM 1 through 7, totalling 32 units, by staking in September and October, 1994. The claims adjoin land held by Graymont in Alberta. Fifteen additional adjoining claims (CMM 8-13, 16-24), totalling 65 units, were staked in June of 1995, a single one-unit claim (CMM 2A) in June of 1996, and eight more (CMM 14, 15, 25A, 25B, 25C, 26, 27 and 28) one-unit claims in May, 1997. A few claims (CMM 19-24) were dropped in 1999, and some claims (CMM 6-7, 25 A-C, 26-28) were grouped, expanded, and converted to a cell claim (Tenure 513344) in May, 2005. In 2007, all of the active CMM claims were converted to the property of Graymont.

The land south of latitude 49°43'N was granted to the Southern British Columbia Railway in 1898. The present holder of the land comprising this grant is Tembec Inc. Although Graymont's CMM claims provide the mineral rights to the area, Tembec Inc. owns the surface rights south of latitude 49°43'N, including the timber.

TABLE 1.1: LIST OF CMM CLAIMS

Claim Name	Tenure Number	Units	Size (ha)	Record Date	Current Expiry Date	Expected Expiry Date
CMM 1	331238	1	25	1994 09 18	2008 12 31	2011 12 31
CMM 2	331239	1	25	1994 09 18	2008 12 31	2011 12 31
CMM 2A	347228	1	25	1996 06 11	2008 12 31	2011 12 31
CMM 3	331956	1	25	1994 10 11	2008 12 31	2011 12 31
CMM 4	331242	12	300	1994 09 20	2008 12 31	2011 12 31
CMM 5	331243	15	375	1994 09 21	2008 12 31	2011 12 31
CMM 8	337304	15	375	1995 06 21	2008 12 31	2011 12 31
CMM 9	337305	4	100	1995 06 21	2008 12 31	2011 12 31
CMM 10	337306	16	400	1995 06 22	2008 12 31	2011 12 31
CMM 11	337307	6	150	1995 06 22	2008 12 31	2011 12 31
CMM 12	337308	6	150	1995 06 22	2008 12 31	2011 12 31
CMM 13	337309	9	225	1995 06 22	2008 12 31	2011 12 31
CMM 14	356358	1	25	1997 05 23	2008 12 31	2011 12 31
CMM 15	356359	1	25	1997 05 23	2008 12 31	2011 12 31
CMM 16	337314	1	25	1995 06 21	2008 12 31	2011 12 31
CMM 17	337315	1	25	1995 06 22	2008 12 31	2011 12 31
CMM 18	337316	1	25	1995 06 19	2008 12 31	2011 12 31
	513344	10.98	274.5	2005 05 26	2008 12 31	2011 12 31
		103	2,574.5			

1.3 HISTORY AND PREVIOUS INVESTIGATIONS

Lime has been produced at the present site of Summit Lime, located on the Alberta side of the border, since 1905 (Gresl, 2005). The first owner of the land was Archibald Macmott McVittie, a dominion government land surveyor, in 1903. The property was purchased from McVittie by Edward George Hazell, a plasterer by trade, in 1905. He initially obtained approximately 63 acres and continued to purchase additional land in the area over the next 33 years. Hazell hauled lime from Summit to Fernie, B.C., as he was involved in the rebuilding of the town after the fire of 1903 (Gresl, 2005).

Summit Lime was transferred to Hazell's three daughters, Bessie, Nellie, and Minnie, in 1938. The family kept the business until 1990, when they sold it to Continental Lime, an associated company of Ecowaste and wholly owned subsidiary of Graymont.

Several quarries have operated in strata of the Livingstone and Mount Head Formations (Holter, 1994). Currently, two vertical kilns exist at Summit Lime. Other than lime production, the limestone is screened for size and shipped out to various markets. The rock is used in beet-sugar factories, coal-washing plants, glass-making, coal mine dusting, stock feeds and other agricultural purposes, poultry grit, stucco dash, and road material.

Goudge (1945) described and presented chemical analyses of limestone at and near Summit Lime at the time of his examination, believed to be in the 1930's.

Price (1962) described the geology of the Fernie map area (east half), which includes Summit Lime and the CMM claims.

Between 1960 and 1990, the geology and other features of the area at, and surrounding, Summit Lime have been investigated by several geologists and engineers including Crabb (1966), Van Raalte (1969), Pelletier (1973), Brasher (1974), Pool (1974), and Sherman (1990).

Holter (1976) described the limestone resources of Alberta including those of Summit Lime and briefly mentioned Crowsnest Pass and Summit Lime in his 1994 review of Alberta limestone.

MacDonald and Hamilton (1981) described limestone prospects near the Crowsnest Pass including some that are now within the CMM claims. Hamilton (1987) investigated carbonate rocks of the Devonian Fairholme Group in Phillipps Pass for use as filler material.

Riprap was the subject of two reports in 1988. Seymour and Schindler (1990) evaluated the economic potential of Summit Lime. Their work included 16 percussion drill holes and 10 diamond drill holes.

Richard T. Brandley (1993) completed a Graduate Thesis on the lithostratigraphy, sedimentologic relationships and depositional characteristics within the Mount Head Formation of southwestern Alberta and southeastern British Columbia.

Knox and Schindler (1995) reported a drill program involving 10 diamond drill holes at, and near, Summit Lime's #8 Quarry in Alberta. Schindler (1995) spent a few days in the latter part of 1994 examining and sampling limestone from the British Columbia - Alberta border near Crowsnest Pass north to, and beyond, Deadman Pass, an area now included in the CMM claims.

In 1995, approximately 3,830 m of a potential access trail was flagged in preparation for a future drill program. The route was selected so that it could serve as a future haul road for quarried stone. In addition, 263 m were flagged for a possible access trail connecting the pipeline access road to a powerline access trail just east of Crowsnest Provincial Park. Gradients of the access trail along the powerline with aluminum towers were measured to assess it's suitability.

Potential drill sites were checked for archeological and timber concerns and none were found. Since approval of the B.C. Government was only obtained for a helicopter-supported drill program north of the pipeline corridor, the planned drilling was deferred.

In addition to the trail flagging in 1995, a total stratigraphic thickness of nearly 4,000 m was measured and 634 samples of limestone were chipped from 1,400 m of outcrops at 125 stations. Samples were analysed by Inductively Coupled Plasma (ICP) techniques in the Central Laboratory of Graymont Inc. in Salt Lake City, Utah.

In 2005, a detailed mapping program was conducted from Phillips Pass north to Deadman Pass with a focus on claims CMM 4, 5, 8, 14, 15, and tenure 513344. A total of 253 mapping stations were examined, and geological observations and other pertinent information were recorded.

1.4 PURPOSE OF WORK

The work described in this report was undertaken as a continuation of the detailed mapping program conducted in 2005 to provide information on the quality and extent of limestone within and surrounding the CMM claims. The mapping continued to the north, along Rudolf Ridge to an unnamed ridge about 1 km north of Deadman Pass. Samples were collected along Rudolf Ridge from specific members of the Mount Head Formation.

The purpose of the detailed mapping and sampling programs is to determine the location and character of currently quarriable units in Summit Lime to the north of the plant area within the CMM claims.

1.5 SUMMARY OF WORK

From September 2 to 11, 2008, a four-person crew conducted a mapping and rock sampling program at the CMM Property with a focus on claims CMM 8, 9, 10, 16, and 17.

A total of 83 mapping stations were examined and 131 rock samples were collected (Fig. 1.3). Geological observations were recorded, including lithologic information, measurements of structural elements, and other pertinent details (Appendices 4 & 5). Samples were collected by chipping outcrops perpendicular to defined or assumed bedding. Where bedding was inevident or had been obscured by structure, stratigraphic thicknesses were calculated using orientations from adjacent units. Where more than one bedding orientation was measured, the mean orientation was used.

A solution of 6% HCl was used to assess carbonate quality in the field. Samples were shipped to Graymont's lab in Salt Lake City, Utah for preparation and analyses by standard ICP techniques, and LOI. Unfortunately, 11 samples were lost in transit by the shipping company when a pail broke open on their conveyor system. The samples were never recovered and the file has since been closed. Analytical procedures are described in Appendix 2 and assay sheets are provided in Appendix 3.

Field maps were completed on 1:10,000 scale map sheets and concentrated on the area north of the 2005 mapping area, within approximately 3 km south and 1 km north of Deadman Pass. Garmin GPSmap 60Cx instruments were used to mark outcrop locations and record access information. Compasses were set at a magnetic declination of 16°15' east.

Personnel were based in a motel in Coleman, Alberta. Transportation to and from the property was by a rented four-wheel-drive vehicle.

Notes were compiled regarding access and current road status, as roads in the area are occasionally rehabilitated and overgrown or reactivated for logging purposes. Initially, an attempt was made to utilize roads and trails in the property area; however, many of the trails leading to and through the Deadman Pass area were muddy, overgrown and not accessible by truck. Therefore, the majority of the program was conducted utilizing a helicopter for access, contracted from Bighorn Helicopters Inc. based out of Fernie, B.C., about 65 km west of Coleman. The crew met the helicopter in the Summit Lime plant area for transportation to the ridge tops.

2. REGIONAL GEOLOGY

Except for the Mount Head Formation, the majority of the following regional geology description is summarized from Price (1962). Although other formations are present in High Rock Range north of Crowsnest Pass, only Devonian, Mississippian, Pennsylvanian, Permian, and Triassic formations are included in Table 2.1. At and near Crowsnest Pass, the formations listed in Table 2.1 comprise a northerly trending band in the Lewis Thrust Sheet. They unconformably overly Upper Cretaceous strata and outcrop to the east in Alberta. Although they outcrop in Alberta within the Lewis Thrust Sheet, none of the Devonian Formations, nor the Exshaw Formation, outcrop in High Rock Range in British Columbia for at least 30 km north of Crowsnest Pass; therefore, they are not described further in this report.

TABLE 2.1 PERTINENT STRATIGRAPHY IN HIGH ROCK RANGE, CROWSNEST PASS *

Age	Group	Formation	Member
Triassic	Spray River		
Permian - Pennsylvanian	Rocky Mountain	Rocky Mountain	
Mississippian	Rundle	Etherington	
		Mount Head	Carnarvon Opal Marston Loomis Salter Baril-Wileman
		Livingstone Banff Exshaw	
Devonian		Palliser Alexo Fairholme	

*modified after Price, 1962

2.1 STRATIGRAPHY

2.1.1 Banff Formation

According to Price (1962), the Banff Formation is 320 m thick at Tornado Pass, about 38 km north of Crowsnest Pass in High Rock Range. It consists mostly of thinly-bedded black and brownish-black shale and calcareous shale, black cherty limestone, cherty siltstone and banded black chert in its lower part. The middle part consists of thinly-bedded, dark-grey and black, dense, cherty argillaceous limestone. The upper part consists mainly of medium- to dark-grey, fine- to medium-crystalline limestone with disseminated skeletal fragments and bands, lenses, and patches of grey calcareous chert. The limestone in the upper part of the Banff Formation weathers darker grey than limestone in the lower part of the overlying Livingstone Formation.

2.1.2 Livingstone Formation

The Livingstone Formation is about 350 m thick at Tornado Pass. Price (1962) notes

> “It consists mainly of light-grey skeletal calcarenites and calcarenitic fine-crystalline limestone. Cherty limestone beds are common in the lower part ... and interbeds of light-grey fine-crystalline dolomite, commonly silty (are present in the upper part)”.

Beds of porous sucrosic dolomite appear to be the dolomitized equivalents of calcarenites (Price, 1962).

2.1.3 Mount Head Formation

The Mount Head Formation is about 300 m thick at Tornado Pass. To the northeast of Crowsnest Pass, near Gap and Mount Head in Alberta, the Mount Head Formation was originally divided into six members from bottom to top: Wileman, Baril, Salter, Loomis, Marston, and Carnarvon (Douglas, 1953); to the west, facies changes in the Marston and lower two-thirds of the Carnarvon Member led Macqueen and Bamber (1968) to introduce the Opal Member for this interval. In High Rock Range, the lithology of the Baril Member appears to alternate with that of the Wileman Member, so that stratigraphic units of each lithology are present (Knox and Schindler, 1995); therefore, in this report, the Baril-Wileman is considered one unit for simplicity.

The most recent comprehensive account of the stratigraphy of the Mount Head Formation in southwest Alberta and southeast British Columbia is that of Brandley (1993). He described and measured 27 sections from Upper Exshaw Creek north of Bow Valley to Overfold Mountain southeast of Fernie, B.C. Information on five wells in southwest Alberta was also included. The thickness of the Mount Head Formation ranges from 84 to 516 m. Brandley critically reviewed previous stratigraphic studies and confirmed the seven members previously described by Douglas (1953, 1958) and Macqueen and Bamber (1968). Not all members are present at every section. In seven isopach maps, one for each of the seven members, Brandley (1993) shows considerable irregular variations in thickness of the seven members. In general, the Wileman, Salter, Marston, and Carnarvon Member thicken to the west. The sections and stratigraphic thicknesses described by Brandley (1993) closest to the CMM claims are at Racehorse Pass and Mount Ptolemy (Table 2.2), which are about 14½ km northerly and 12½ km southerly from Crowsnest Peak, respectively. Brief descriptions of the members, as determined in the property area, are available in the following section entitled “Property Geology”.

TABLE 2.2 COMPARISON OF MEMBER THICKNESSES OF THE MOUNT HEAD FORMATION

Member	Racehorse Pass (m)	Mount Ptolemy (m)	Range of Thicknesses in Brandley’s Area (m)
Carnarvon	32	20½	2-117
Opal	311½	158½	0-320
Marston	42½	14	0-60
Loomis	81½	57½	4-125
Salter	9½	21	0-64
Baril	not present	43	3-27
Wileman	not present	11½ +	6-38

2.1.4 Etherington Formation

The Etherington Formation is about 185 m thick at Crowsnest Pass. According to Price (1962), the lowest part

> ...“consists mainly of medium grey, fine-crystalline to cryptocrystalline limestone with variable amounts of skeletal calcarenite, mainly as disseminated echinoderm fragments in the dense limestone matrix. Nodules and bands of medium grey chert are abundant and silicified brachiopods are common. Thin interbeds of green and greenish grey shale are characteristic. The limestone is typically thinly bedded and commonly has faint lamination etched into relief on weathered surfaces. These beds appear to be gradational over a few feet into those of the Carnarvon Member of the Mount Head Formation. The middle part of the Etherington Formation consists mainly of medium and light grey skeletal calcarenites. Medium- to very coarse-grained echinoderm fragments occur in association with foraminifera, and less commonly contain lenses and nodules of medium grey chert. The calcarenites are generally thickly bedded or massive and commonly contain lenses and nodules of medium grey chert. ... The upper part ... is characterized by silty and sandy fine-crystalline dolomite”.

Brandley (1993) designated the first greenish shale as the base of the Etherington Formation.

2.1.5 Rocky Mountain Group/Formation

The Rocky Mountain Group/Formation is about 300 m thick at Tornado Pass. Studies of the area are inconclusive as to whether it is classified as a Group or Formation. For the purposes of this report, it is considered a Formation.

According to Price (1962), the

> "lower and by far the greater part ... consists of a monotonous succession of light-coloured quartzitic, dolomitic or calcareous, fine-grained, quartz sandstone. ... The sandstone succession is overlain by approximately 50 feet of grey, fine-crystalline dolomite, silty dolomite, and cherty dolomite with interbeds of yellow and brown shale, grey chert, cherty quartz-pebble conglomerate, and conglomeratic sandstone. The dolomites are most abundant".

2.2 STRUCTURE

The pertinent parts of the High Rock Range are at, or near, the eastern limit of the Lewis Thrust Sheet. The Lewis Thrust is a major feature of the southern Canadian Rocky Mountains. It has been traced for more than 300 km along the strike of the Rocky Mountains. The maximum stratigraphic separation across it may reach 9,000 m, and the maximum thickness of strata within the thrust sheet is about 6,000 m. Within the Lewis Thrust Sheet, the strata constituting High Rock Range form a west-dipping homoclinal succession. Some are repeated not far to the west by the Alexander and other faults. Price (1962) notes

> "North of Crowsnest Pass the Lewis Thrust Sheet has been folded, essentially concordantly, with the underlying Mesozoic strata ... ".

3. PROPERTY GEOLOGY

Strata of the Banff, Livingstone, Mount Head, Etherington, and Rocky Mountain formations were mapped in 2008. Based on this exploration and previously collected data, geological contacts shown on previous maps (Halferdahl, 1995; Tanton and Dahrouge, 2005) pertinent to the CMM claims were adjusted (Fig. 3.1).

3.1 STRATIGRAPHY

The focus of the 2008 exploration program was the detailed lithostratigraphic mapping of the members of the Mount Head Formation, as well as their contact relation to the Livingstone and Etherington formations.

3.1.1 Livingstone Formation

Of the claims examined in 2008, the Livingstone Formation outcrops in portions of claims CMM 8, 10, 16, and 17. Along Rudolf Ridge, the Livingstone Formation outcrops along the eastern crest on the Alberta side of the border where it is underlain by the Banff and Palliser formations. Along the northeastern crest of Rudolf Ridge, the contact between the Livingstone and Mount Head formations trends northwesterly and northerly back into British Columbia. The contact continues to the north across Deadman Pass where the unit outcrops as an extensive exposure along an unnamed ridge on the Alberta side of the border. Grainstone, and some wackestone - packstone in the upper part of the Livingstone Formation were examined in 2008 (Appendix 5); however, no samples were collected from the unit.

The Livingstone Formation consists of grainstones with interbeds of dolomitic wackestones to packstones, all generally light-grey in color. The grainstones are quite thick-bedded to massive, with a homogeneous bioclast content; typically they are very rich in crystalline crinoid stems and ossicles, with minor bryozoans. Larger bioclasts are generally not present in the Livingstone Formation, which aids in distinguishing the unit from the more heterogeneous Baril-Wileman Member of the Mount Head Formation. The massive and resistant grainstones of the Livingstone Formation react well with HCl and are considered to be limestones of a high quality in Summit Lime. Some platy, or “oozy”, chert is present within occasional beds of lime or dolomitic mudstones. Covered intervals seen in the field are likely thin-bedded mudstone units, as they tend to be more recessive than the grainstone layers.

3.1.2 Mount Head Formation

In the Deadman Pass area explored in 2008, the Mount Head Formation outcrops within claims CMM 8, 9, 10, and 16. The mapping focused on distinguishing the individual members and outlining the upper and lower contacts with the Etherington and Livingstone formations, respectively. About 55 mapping stations were examined and a total of 131 samples were collected within the Mount Head Formation. The sampling focused on members within the Mount Head Formation that are considered quarriable units at Summit Lime. Lithologies include lime grainstone, packstone, wackestone, and mudstone, some of which is dolomitic or chert-bearing or both (Appendices 4 & 5). Descriptions of the different members of the Mount Head Formation follow.

The Baril-Wileman Member is a grouping of the originally defined Baril and Wileman members. It consists of alternating sequences of the Baril and Wileman lithotypes.

The Wileman Member is defined as the first approximately 5 m of recessive fine-grained, dolomitic mudstone above the resistant coarse-grained limestone of the Livingstone Formation. The basal contact is disconformable, gradational and bioturbated. It is olive-grey to light-grey to brown dolomudstone that commonly contains 10 to 30 percent silt. The rocks are massive or bioturbated, or may show ripple cross lamination. Chert is locally common as nodules and along beds.

The Baril Member is a relatively thin unit in sharp contact with the Wileman Member, and consists of moderately resistant, grey-weathering, coarse-grained limestone with chert nodules and scattered dolomite crystals. It's lithology includes bioclastic packstone, generally cross-bedded grainstone and packstone, with interbeds of mudstone to wackestone. Locally, up to 40 percent of the rock is dolomitized or extensively neomorphosed to crystalline limestone. The packstone and grainstone are coarse-grained, poorly sorted, resistant layers. They are generally medium-grey to brown fresh, and contain a variety of bioclasts, including crinoids, bryozoans, solitary corals and brachiopods. Algal mat bindstones were observed at one location in the 2005 mapping program along the northern powerline traverse (Station 1BB); however, algal mats have not been noted at any other locations.

No samples were collected from the Baril-Wileman, as it is generally not a unit of interest for high-calcium limestone.

The Salter Member disconformably overlies the Baril Member. It is a recessive succession of tan- to olive-grey weathered, medium-grey and dark-brown fresh, silty, microcrystalline dolostone (less silty than the Wileman Member). The unit includes bioturbated microcrystalline dolo and lime mudstone, grading to wackestone at the base, with interbeds of grainstone and packstone. Chert is present throughout the Salter Member as large nodules and along beds. The large amount of chert distinguishes the Salter from the Baril-Wileman and Loomis members and aids in determining contacts between the units. Commonly, the Salter Member is not exposed in the field due to its recessive nature and therefore contacts are often placed at the start and end of covered sections. Locally, abundant gypsum and/or anhydrite indicate an evaporitic depositional environment.

The Loomis Member is in disconformable sharp contact with the underlying Salter Member. It is a thick, mostly resistant, coarse-grained, ooid-rich limestone sequence. The Loomis is dominated by packstone and grainstone with thin interbeds of bioturbated microcrystalline dolostone, bioclastic mudstone to wackestone, and thin chert beds and nodules. The rocks are commonly neomorphosed to crystalline limestone, particularly near faults, or locally dolomitized, with dolomite rhombohedrons.

The majority of the Loomis Member examined in 2008 consisted of light-grey weathered, light-grey and brownish-grey fresh, homogeneous, fine- to medium-grained, bioclastic packstones and grainstones. The Loomis appears to become less ooid-rich towards the northern part of the property. The rocks still contained abundant ooids but the unit is not as dominantly ooilitic as in the quarry at Summit Lime and along the powerline traverses in the southern part of the property.

The Loomis Member is a quarriable unit of interest at Summit. Therefore, samples were collected to assess the quality of the unit in the Deadman Pass area atop, and along the northern flank of, Rudolf Ridge (Fig. 1.3, Appendix 4). A total of 50 rock samples were collected from the Loomis Member in 2 locations, representing approximately 175 m of stratigraphy. The section atop the eastern crest of Rudolf Ridge averaged 87.71% $CaCO_3$, 6.96% $MgCO_3$, and 4.10% SiO_2. Within a bowl-shaped valley on the northern side of Rudolf Ridge, the samples averaged 93.37% $CaCO_3$, 4.88% $MgCO_3$, and 0.91% SiO_2.

The Marston Member overlies the Loomis following a sharp disconformity. It consists of a recessive succession of tan to brown to light-grey, microcrystalline dolostone, silty dolostone, limestone with well-developed dissolution-collapse breccias, and sparse paleosol interlayers. Within the upper part, chert is present as large nodules and along beds, similar to the Salter Member. Alike the Salter, the Marston is a recessive sequence that doesn't always outcrop. Contacts are often placed at the beginning and end of covered sections.

The Opal Member is generally comprised of thick massive grainstone with packstone to grainstone and mudstone in upper sections.

The lower portion is a resistant, thick, generally high-quality limestone unit of massive, homogeneous, medium- to dark-greyish-brown, fossiliferous packstone to grainstone. The majority of the bioclasts are indeterminate, or fragmented; however, ooids and crinoids are commonly visible. Minor, small interbeds of dolomitic wackestone to packstone are commonly present near the centre of the section.

Some sections consist of wackestone to packstone with occasional silty or mudstone beds containing either bioclasts or chert. Distinctive beds of pelleted or fenestral limestone have been noted. The uppermost parts are well bedded, cryptocrystalline to micritic, argillaceous lime mudstone, and dolomitic and calcareous shales.

The dark color of the Opal Member results dominantly from organic matter disseminated throughout the rock. The very top of the Opal Member is very well bedded with interbeds of black, organic-rich, shaly layers, cryptocrystalline to micritic lime mudstone, and sparse beds of tan weathered, brown fresh dolostone with cherty layers.

Some field sections of Opal were entirely homogeneous ooid packstone or grainstone, making it difficult to distinguish from the Loomis Member. The Opal Member appears to become more ooid-rich towards the northern part of the property. Other fossils were noted in heterogeneous sections, such as crinoid ossicles and stems, shell fragments, rugose corals, and rare snail shells.

The lower portion of the Opal is commonly a quarriable unit of interest. A total of 37 samples were collected in 2 locations from the lower section of the Opal Member representing approximately 122½ m of stratigraphy (Appendix 4). The section atop the eastern crest of Rudolf Ridge averaged 90.95% $CaCO_3$, 6.86% $MgCO_3$, and 1.26% SiO_2. Within a bowl-shaped valley on the northern side of Rudolf Ridge, the samples averaged 88.77% $CaCO_3$, 9.76% $MgCO_3$, and 0.48% SiO_2.

The Carnarvon Member consists of well bedded, dark-grey to greyish-brown lime mudstones and siltstones with shaly, black carbonaceous interbeds. It grades upwards to a dark-grey wackestone to packstone to peloidal grainstone with a variety of fossils, such as large rugose corals, brachiopods, bryozoans, crinoids, and very rare blastoids.

In the southern part of the property, the Carnarvon Member is a high-calcium unit of interest. A total of 44 samples were collected from the Carnarvon Member atop Rudolf Peak, representing approximately 119½ m of stratigraphy. Due to the relatively shallow bedding and similar topography, the total stratigraphy may be slightly exaggerated. The samples were collected in one section along the top of Rudolf Ridge and averaged 93.70% $CaCO_3$, 3.22% $MgCO_3$, and 1.64% SiO_2.

3.1.3 Etherington Formation

In the Deadman Pass area, on the claims explored in 2008, the Etherington Formation outcrops within the central part of claims CMM 8 and 10, and the western part of CMM 9. The upper contact was observed at one location along the southwestern crest of Rudolf Ridge where massive sandstone beds of the Rocky Mountain Formation were encountered.

Lithologies noted include packstone, wackestone, grainstone, limestone conglomerate, cherty dolomudstone or dolosiltstone, and shale. Within packstones of the lower Etherington, a unique crinoid was observed in a section near Highway 3, just west of the northern portion of Island Lake, as well as in float along the northwestern crest of Rudolf Ridge. The cross section of the crinoid ossicles exposed a five chamber, or pentamerally symmetrical, flower-like columnar centre. Along the southwestern crest of Rudolf Ridge, distinctive siliceous brachiopod shells were noted in a 1 m horizon of clast-rich wackestone.

3.1.4 Rocky Mountain Formation

During the mapping of 2008, the Rocky Mountain Formation was encountered along the western part of the property within claims CMM 8 and 10.

The rocks were dominantly massive, well sorted, fine- to medium-grained, dolomitic and non-calcareous sandstones with variable other clastic rocks, including siltstones and conglomerates. The Rocky Mountain Formation is not a unit of interest for limestone within the CMM Property.

3.2 STRUCTURE

The structure of the CMM Property is summarized by Pana and Dahrouge (1998),

> "The strata of the western slope of High Rock Range form a westerly dipping homocline and are affected by several sets of joints.
>
> Faults are sub-parallel to bedding and show steeper dips. They are related to the general eastward thrusting within the Foothills and Front Ranges of the Rocky Mountains. Of the faults within the property, the thrust fault crossing Vaughan Ridge at an elevation of about 1980 m repeats strata of the Mount Head and Livingstone formations as observed from the Initial Post of claim CMM 15. Its trace is based on an attitude of 0°/52° W. Other faults suggested within the property are based on stratigraphic considerations. A local minor fault along Kirsten Creek was observed with a strike of 30° and a dip of 33° SE. The orientation of this fault is opposite to the general vergence and steep dip of thrusting along Kirsten Creek, suggesting that normal detachment accompanied Late Tertiary to Recent uplift of the High Rock Range."

4. DISCUSSION AND CONCLUSIONS

Within the CMM claims, exposures of the Livingstone, Mount Head, Etherington, and Rocky Mountain formations were examined in the Deadman Pass area of High Rock Range. The fall 2008 fieldwork concentrated within/near claims CMM 8, 9, 10, 16, and 17. A total of 83 stations were included in the mapping and described in detail; a total of 131 rock samples were collected at more than 5 locations representing approximately 420 metres of stratigraphy. Analyses were completed on 120 samples.

The 2008 work was undertaken to develop an accurate geological map of the area and define the locations of high quality carbonate units. Mapping concentrated within an area approximately 3 km south and 1 km north of Deadman Pass. Various lithologies are present, such as fossiliferous grainstones, packstones and wackestones, lime mudstones, and cherty dolomudstones. A large assortment of fossils were noted, including crinoid ossicles and stems, ooids, bryozoans, brachiopods, solitary rugose corals, colonial corals, and rare snail shells.

The sampling program was conducted in order to assess the limestone quality and quarry potential of the northern part of the CMM Property. Overall, the results were disappointing in comparison to correlative exposures in the Summit Lime quarry area. Three members of the Mount Head Formation were sampled, the Loomis, Opal and Carnarvon members; all were significantly lower in $CaCO_3$ than samples taken from these members at Summit Lime. In addition, all the members were significantly higher in $MgCO_3$, ranging from an average of 3.22% in the Carnarvon sample section to nearly 10% in one of the Opal sample sections. This suggests that the abundance of primary dolomite in the Mount Head Formation increases to the north, which is supported by mapping observations. The SiO_2 content was quite low, much like samples from Summit Lime; the only exception was from a Loomis Member sample section (Section 2008-02), which had an average SiO_2 content of 4.10%. The increased abundance of SiO_2 was not apparent in the other Loomis sample section, so this is likely a localized feature.

More work is required to complete the geological map initiated in 1995 in order to better interpret the stratigraphy, structure and outlines of the targeted stratigraphic units within the Livingstone and Mount Head formations throughout the entire property. The next phase of exploration should consist of additional geological mapping and sampling with a focus on the ridges north of Deadman Pass in the northern part of the property.

J. Klarenbach, B.Sc., P.Geol.

P. Kluczny, B.Sc., Geol. I.T.

Edmonton, Alberta
2009 03 18

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Scale

100 km — 0 — 100 — 200 — 300 km

LEGEND

- ○ Provincial capital
- ● Other populated places
- Trans-Canada Highway
- Major road
- Ferry route
- International boundary
- Provincial boundary

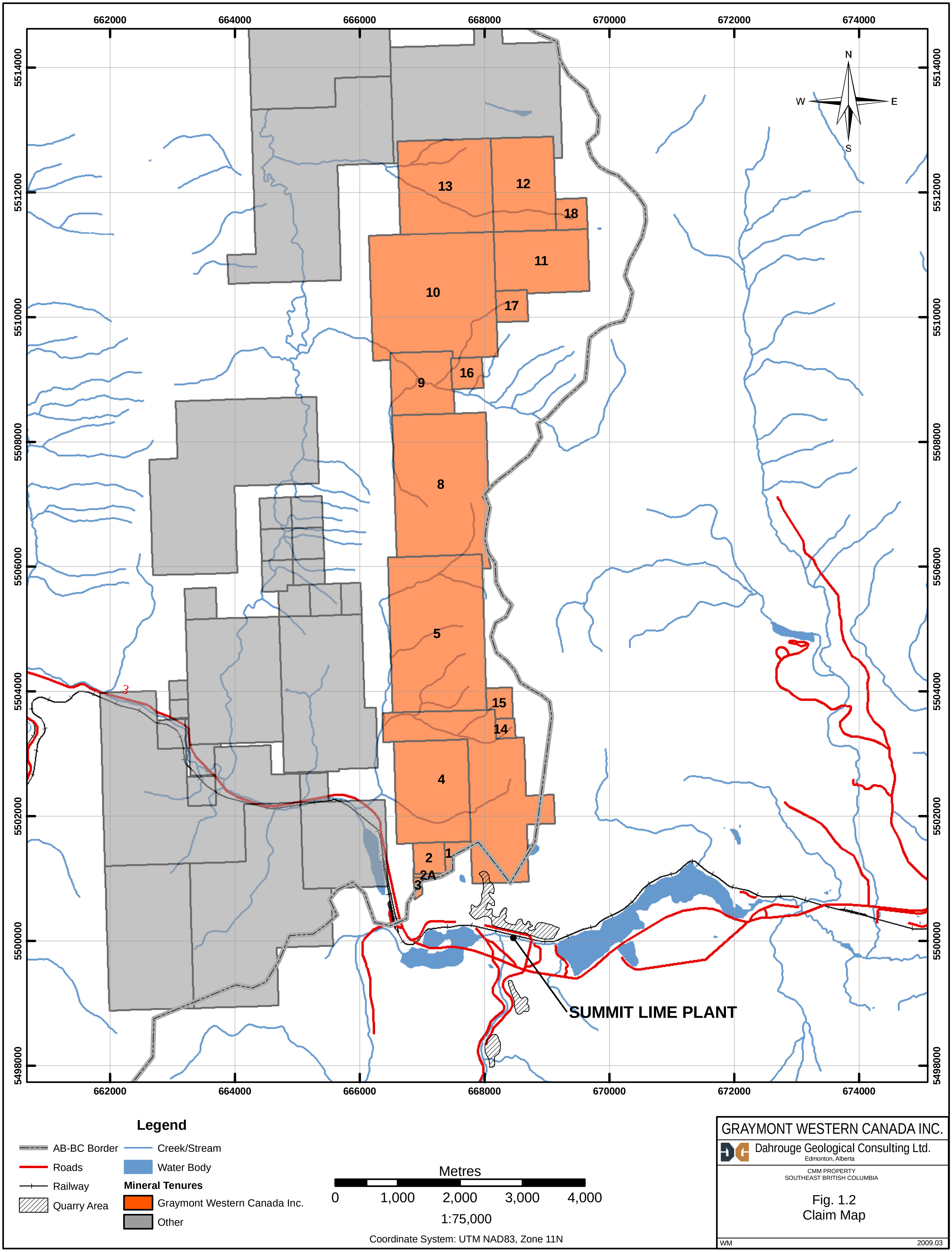
GRAYMONT WESTERN CANADA INC.

Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

CROWNEST PASS AREA,
SOUTHEASTERN BRITISH COLUMBIA

Fig. 1.1 Location Map

JK 2009.02



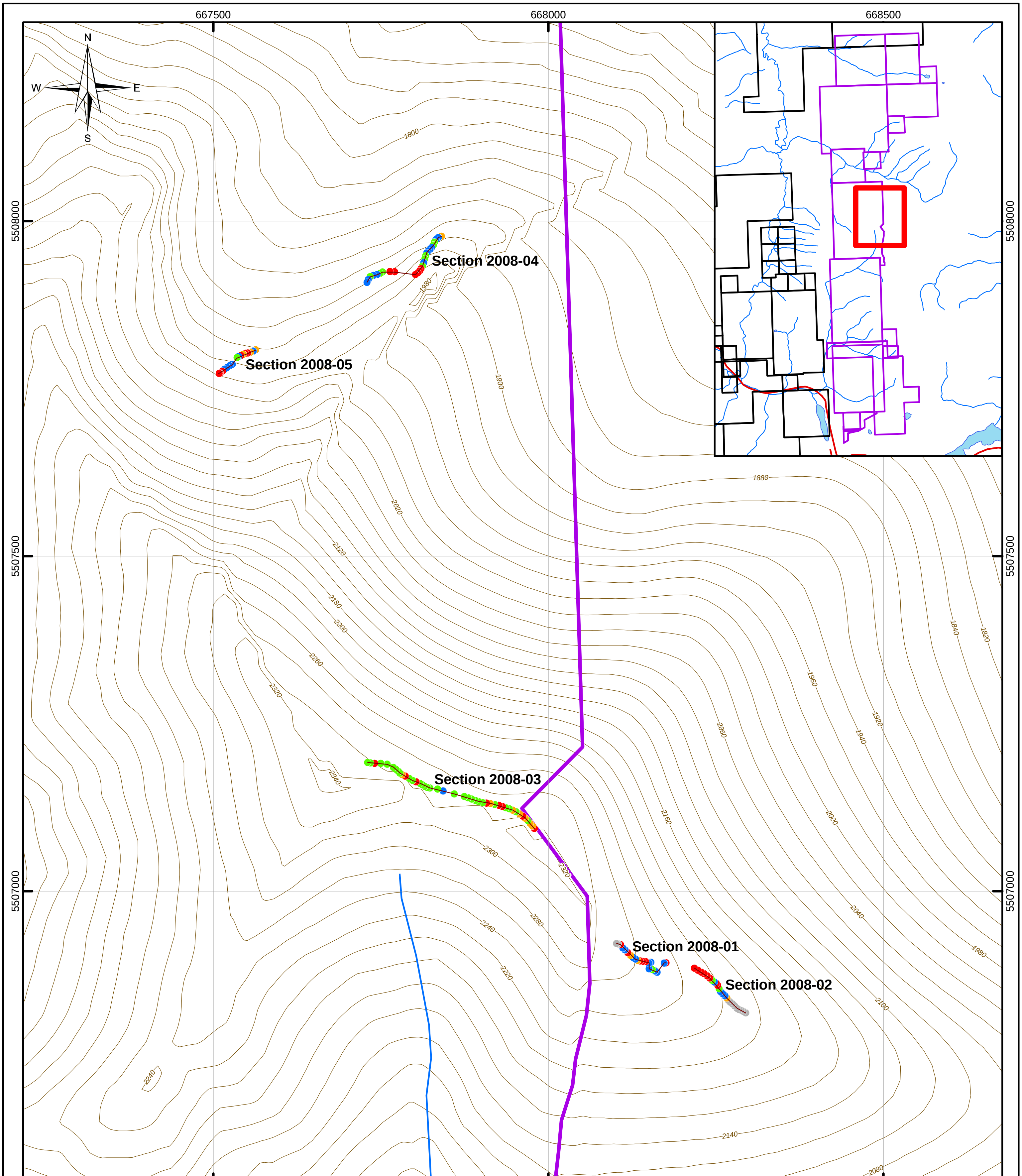
GRAYMONT WESTERN CANADA INC.

Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

CMM PROPERTY
SOUTHEAST BRITISH COLUMBIA

Fig. 1.2
Claim Map

WM 2009.03



Legend

2008 Sections
$CaCO_3$ (%)

- 97-100
- 94-97
- 90-94
- <90
- samples lost in transit

- Roads
- Topographic contours (20 m)
- Creek/Stream
- Water Body

Mineral Tenures

- Graymont Western Canada Inc.
- Other

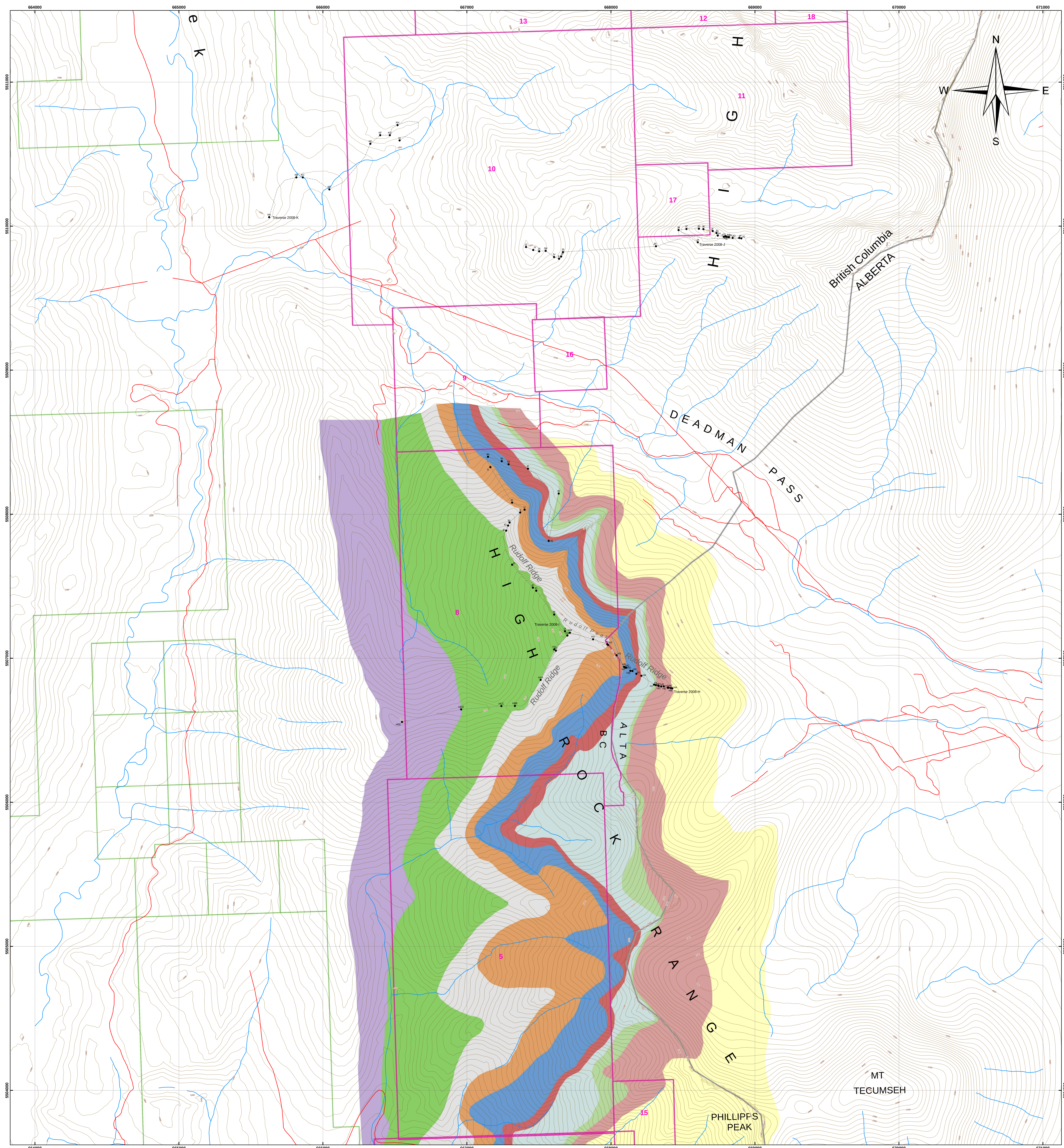
Metres
0 100 200 300 400
1:7,500
Coordinate System: UTM NAD83, Zone 11N

GRAYMONT WESTERN CANADA INC.
Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

CMM PROPERTY
SOUTHEAST BRITISH COLUMBIA

Fig. 1.3
2008 Section Locations

PK 2009.03



Legend

- 2008 Traverse Points
- 2008 Traverses
- Road/trail
- Creek/stream
- Topographic Contours

Mineral Tenures

- Graymont
- Other

Formation/Member

- Rocky Mountain
- Etherington
- Carnarvon
- Upper Opal
- Middle Opal
- Marston
- Loomis
- Salter
- Baril-Wileman
- Livingstone

Metres

0 500 1,000 1,500 2,000

1:10,000

Coordinate System: UTM NAD83, Zone 11N
Contour Interval 20 m

GRAYMONT WESTERN CANADA INC.

Dahrouge Geological Consulting Ltd.
Edmonton, Alberta

CMM PROPERTY
SOUTHEAST BRITISH COLUMBIA

Fig. 3.1
2008 Mapping Station Locations
& Property Geology

JK 2009.03

APPENDIX 1: ITEMIZED COST STATEMENT FOR THE 2008 CMM EXPLORATION

a) Personnel

J. Dahrouge, geologist							
1.20	days			supervision, meetings			
1.20	days	@	$ 577.70		$	693.24	
D. Anderson, geologist							
3.00	days			supervision, meetings, site visit			
3.00	days	@	$ 577.70		$	1,733.10	
J. Klarenbach, geologist							
8.00	days			Field work and travel Sept 2-9 Project supervision, geological mapping			
14.10	days			Project supervision & preparations, GIS compilation, budgeting, bookings, review & interpret data, reporting			
1.10	days	@	$ 503.50		$	553.85	
14.10	days	@	$ 525.00		$	7,402.50	
6.90	days	@	$ 546.00		$	3,767.40	
M. Guo, geologist							
10.00	days			Field work and travel Sept 2-11 Rock sampling			
10.00	days	@	$ 525.00		$	5,250.00	
P. Kluczny, geologist							
10.00	days			Field work and travel Sept 2-11 Geological mapping, supervise rock sampling			
11.90	days			Project planning & preparations, prepare maps, data compilation			
1.00	days	@	$ 434.60		$	434.60	
20.90	days	@	$ 483.00		$	10,094.70	
G. Flach, assistant							
10.00	days			Field work and travel Sept 2-11 Rock sampling			
10.00	days	@	$ 367.50		$	3,675.00	
M. Rausch, assistant							
2.70	days			Field preparations, data entry, equipment maintenance			
0.90	days	@	$ 357.00		$	321.30	
1.80	days	@	$ 378.00		$	680.40	
W. Miller, assistant							
2.80	days			Field preparations, data entry, ship samples			
1.30	days	@	$ 357.00		$	464.10	
1.50	days	@	$ 378.00		$	567.00	
W. McGuire, draftsman							
0.80	days			Drafting, prepare maps			
0.30	days	@	$ 482.30		$	144.69	
0.50	days	@	$ 504.00		$	252.00	
							$ 36,033.88

FIELD WORK SUMMARY:
CMM Geological Mapping & Rock Sampling

Claims CMM 8, 9, 10, 16, and 17; 925 hectares
131 rock samples collected
Field Personnel: J. Klarenbach, P. Kluczny, M. Guo, G. Flach

b) **Food and Accommodation**					
38 man-days @ $ 68.54	accommodations			$ 2,604.36	
38 man-days @ $ 60.50	meals, groceries and other			$ 2,299.00	
					$ 4,903.36
c) **Transportation**					
Flights:	Helicopter: Bighorn Helicopters Inc. (Fernie, B.C.)			$ 13,752.54	
Vehicles:	4x4 Truck			$ 1,039.50	
	Mileage			$ 385.00	
	Fuel			$ 313.28	
	Taxi			$ 60.50	
					$ 15,550.82
d) **Instrument Rental**	Radios			$ 346.50	
	Garmin GPS			$ 138.60	
	Laptop			$ 288.75	
					$ 773.85
e) **Drilling**	n/a				
f) **Analyses**					
	Central Lab of Graymont Western U.S. Inc. (120 rock chip samples)				
	Sample shipping via Purolator			$ 162.26	
120 samples @ $ 4.50	preparation fee			$ 540.00	
120 samples @ $ 25.00	sample analysis			$ 3,000.00	
					$ 3,702.26
h) **Other**					
	Courier and Shipping			$ 244.12	
	Disposable Supplies			$ 95.72	
	Telephone Charges			$ 147.29	
	Plots - E-size			$ 711.98	
					$ 1,199.11
Total					$ 62,163.28

Jocelyn Klarenbach
B.Sc., P.Geol.

Edmonton, Alberta
March 18, 2009

APPENDIX 2: ANALYTICAL LABORATORY INFORMATION AND TECHNIQUES

Name and Address of the Lab:

Graymont Western US Inc., Central Laboratory.
670 East 3900 South, Suite 200
Salt Lake City, Utah, 84107

Statement of Qualifications:

Jared Leikam obtained a B.S. in Chemistry from the University of Utah in the class of 2003. Jared started working for Graymont in February of 2004 and has been working with the ICP Spectrometer for two and a half years, under the direct supervision of Carl Paystrup (Lab Supervisor).

Vonda Stuart obtained a B.S. in Chemistry from Weber State University in 2004. Vonda started with Graymont in August of 2007 and started working in the ICP Lab the following September.

Sample Preparation, Procedures, Reagents, Equipment, etc.:

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

APPENDIX 3:

ANALYTICAL RESULTS FOR THE 2008 SAMPLES BY

CENTRAL LABORATORY OF GRAYMONT WESTERN U.S. INC.

10/Can Geo/Stone

Sample		Sample Date	% CaCO3	% CaO	% MgCO3	% MgO	% Fe2O3	% Al2O3	ppm SrCO3	ppm MnO	% SiO2	ppm BaO	ppm K2O	ppm Na2O	ppm P2O5	ppm TiO2	% S	% LOI	% Total
CMM Claims 2008 Mapping & Sampling Program	62951	9/16/2008	83.02	**46.52**	14.14	**6.76**	0.106	0.226	222	56	1.40	9	821	188	176	159	0.015	44.28	99.47
CMM Claims 2008 Mapping & Sampling Program	62952	9/16/2008	97.60	**54.68**	1.35	**0.64**	0.065	0.031	275	30	0.33	5	154	136	177	39	0.017	43.94	99.79
CMM Claims 2008 Mapping & Sampling Program	62953	9/16/2008	97.33	**54.53**	0.83	**0.40**	0.058	0.013	289	27	0.42	5	125	129	150	29	0.017	43.90	99.41
CMM Claims 2008 Mapping & Sampling Program	62954	9/16/2008	97.40	**54.57**	1.27	**0.61**	0.073	0.000	286	29	0.20	5	87	124	139	22	0.017	43.98	99.52
CMM Claims 2008 Mapping & Sampling Program	62955	9/16/2008	96.99	**54.34**	1.16	**0.55**	0.079	0.023	292	31	0.38	4	153	123	183	40	0.016	43.83	99.31
CMM Claims 2008 Mapping & Sampling Program	62956	9/16/2008	97.41	**54.58**	0.88	**0.42**	0.053	0.024	315	28	0.49	5	203	144	348	36	0.015	43.79	99.47
CMM Claims 2008 Mapping & Sampling Program	62957	9/16/2008	97.61	**54.69**	0.84	**0.40**	0.093	0.050	291	40	0.79	7	299	135	178	58	0.017	43.65	99.79
CMM Claims 2008 Mapping & Sampling Program	62958	9/16/2008	97.20	**54.46**	0.88	**0.42**	0.087	0.047	285	40	0.95	6	256	113	237	66	0.017	43.53	99.62
CMM Claims 2008 Mapping & Sampling Program	62959	9/16/2008	67.86	**38.02**	25.65	**12.26**	0.185	0.519	181	92	4.88	16	2746	238	261	374	0.013	43.17	99.44
CMM Claims 2008 Mapping & Sampling Program	62960	9/16/2008	83.51	**46.79**	8.79	**4.20**	0.222	0.708	276	82	5.64	21	3953	230	249	540	0.022	40.98	99.10
CMM Claims 2008 Mapping & Sampling Program	62961	9/16/2008	58.92	**33.01**	34.10	**16.30**	0.247	0.546	144	93	5.21	17	2791	266	203	378	0.006	43.30	99.01
CMM Claims 2008 Mapping & Sampling Program	62962	9/16/2008	92.06	**51.58**	6.77	**3.24**	0.090	0.036	243	37	0.83	3	252	229	<100	46	0.010	44.14	100.00
CMM Claims 2008 Mapping & Sampling Program	62963	9/16/2008	98.44	**55.16**	0.90	**0.43**	0.059	0.008	252	31	0.37	3	102	181	<100	24	0.015	43.80	99.90
CMM Claims 2008 Mapping & Sampling Program	62964	9/16/2008	98.47	**55.17**	0.86	**0.41**	0.065	0.010	275	29	0.35	4	118	132	209	26	0.015	43.80	99.90
CMM Claims 2008 Mapping & Sampling Program	62965	9/16/2008	91.79	**51.43**	7.30	**3.49**	0.142	0.020	243	44	0.42	4	154	165	183	38	0.008	44.24	99.83
CMM Claims 2008 Mapping & Sampling Program	62966	9/16/2008	86.93	**48.71**	11.97	**5.72**	0.085	0.054	262	40	0.70	5	299	219	380	56	0.013	44.53	99.94
CMM Claims 2008 Mapping & Sampling Program	62967	9/16/2008	97.10	**54.41**	1.42	**0.68**	0.088	0.052	330	32	1.01	5	287	164	168	42	0.031	43.50	99.87
CMM Claims 2008 Mapping & Sampling Program	62968	9/16/2008	97.48	**54.62**	1.26	**0.60**	0.094	0.035	373	35	0.69	6	247	132	135	40	0.031	43.69	99.85
CMM Claims 2008 Mapping & Sampling Program	62969	9/16/2008	89.03	**49.88**	8.07	**3.86**	0.157	0.167	338	45	1.68	10	842	168	107	110	0.030	43.79	99.73
CMM Claims 2008 Mapping & Sampling Program	62981	9/16/2008	92.77	**51.98**	6.13	**2.93**	0.072	0.046	189	33	0.57	4	224	178	429	48	0.007	44.21	99.92
CMM Claims 2008 Mapping & Sampling Program	62982	9/16/2008	97.84	**54.82**	1.41	**0.68**	0.038	0.022	261	25	0.39	4	142	158	434	37	0.013	43.96	100.02
CMM Claims 2008 Mapping & Sampling Program	62983	9/16/2008	98.60	**55.25**	0.70	**0.33**	0.034	0.000	232	25	0.19	3	84	177	437	15	0.014	43.95	99.87
CMM Claims 2008 Mapping & Sampling Program	62984	9/16/2008	98.41	**55.14**	0.85	**0.41**	0.065	0.014	264	32	0.38	5	160	175	254	24	0.020	43.89	100.00
CMM Claims 2008 Mapping & Sampling Program	62985	9/16/2008	96.06	**53.82**	2.10	**1.01**	0.104	0.147	313	50	1.30	7	788	169	328	91	0.023	43.51	100.09
CMM Claims 2008 Mapping & Sampling Program	62986	9/16/2008	83.00	**46.50**	10.59	**5.06**	0.169	0.521	239	67	5.00	16	2607	256	768	347	0.015	42.04	99.74
CMM Claims 2008 Mapping & Sampling Program	62987	9/16/2008	75.72	**42.42**	12.36	**5.91**	0.205	0.622	260	95	7.82	22	3329	283	389	440	0.028	40.31	97.80
CMM Claims 2008 Mapping & Sampling Program	62988	9/16/2008	97.60	**54.68**	1.16	**0.55**	0.107	0.040	277	38	0.66	4	296	172	229	40	0.019	43.68	99.85
CMM Claims 2008 Mapping & Sampling Prograr	62989	9/16/2008	95.94	**53.76**	2.28	**1.09**	0.136	0.080	332	35	1.23	5	508	212	552	64	0.023	43.56	100.04
CMM Claims 2008 Mapping & Sampling Program	62990	9/16/2008	89.07	**49.90**	5.84	**2.79**	0.135	0.421	359	63	3.72	16	1929	372	647	318	0.033	42.33	99.71
CMM Claims 2008 Mapping & Sampling Program	62991	9/16/2008	88.97	**49.85**	6.73	**3.22**	0.138	0.367	347	47	3.17	13	1583	298	559	234	0.032	42.63	99.71
CMM Claims 2008 Mapping & Sampling Program	62992	9/16/2008	84.15	**47.15**	10.13	**4.84**	0.232	0.503	278	74	4.30	15	2187	272	435	330	0.036	42.31	99.74
CMM Claims 2008 Mapping & Sampling Program	62993	9/16/2008	82.63	**46.30**	8.64	**4.13**	0.158	0.483	329	82	6.88	15	2116	256	791	294	0.046	41.07	99.45
CMM Claims 2008 Mapping & Sampling Program	62994	9/16/2008	70.81	**39.68**	18.84	**9.00**	0.224	0.866	314	101	8.23	23	3494	278	559	515	0.039	40.66	99.23
CMM Claims 2008 Mapping & Sampling Program	62995	9/16/2008	61.39	**34.40**	19.09	**9.12**	0.390	0.668	199	363	17.40	19	2607	237	326	433	0.035	36.26	98.69
CMM Claims 2008 Mapping & Sampling Program	62996	9/16/2008	89.38	**50.08**	3.48	**1.66**	0.398	1.044	640	92	4.24	27	4192	623	215	575	0.080	41.18	99.32
CMM Claims 2008 Mapping & Sampling Program	62997	9/16/2008	93.53	**52.40**	2.15	**1.03**	0.377	0.607	687	92	2.76	17	2555	409	150	333	0.081	42.32	100.00
CMM Claims 2008 Mapping & Sampling Program	62998	9/16/2008	93.84	**52.58**	2.18	**1.04**	0.304	0.574	659	62	2.43	17	2485	342	<100	312	0.083	42.49	99.88
CMM Claims 2008 Mapping & Sampling Program	62999	9/16/2008	95.20	**53.34**	1.63	**0.78**	0.184	0.405	639	50	1.87	12	1734	233	<100	230	0.048	42.95	99.87
CMM Claims 2008 Mapping & Sampling Program	63000	9/16/2008	93.67	**52.48**	1.55	**0.74**	0.326	0.607	688	69	2.45	16	2494	267	<100	256	0.057	42.59	99.63
CMM Claims 2008 Mapping & Sampling Program	63001	9/16/2008	85.87	**48.11**	9.51	**4.54**	0.405	0.516	613	80	2.14	12	2108	301	<100	210	0.079	43.26	99.39
CMM Claims 2008 Mapping & Sampling Program	63002	9/16/2008	91.82	**51.44**	3.04	**1.45**	0.271	0.618	660	62	2.80	16	2688	361	221	264	0.107	42.26	99.38
CMM Claims 2008 Mapping & Sampling Program	63003	9/16/2008	95.36	**53.43**	1.55	**0.74**	0.168	0.473	614	71	1.92	16	2179	295	129	203	0.049	42.90	100.04
CMM Claims 2008 Mapping & Sampling Program	63004	9/16/2008	93.15	**52.19**	3.67	**1.75**	0.224	0.402	582	52	1.49	12	1790	291	161	162	0.066	43.19	99.62
CMM Claims 2008 Mapping & Sampling Program	63005	9/16/2008	96.64	**54.15**	1.50	**0.72**	0.097	0.225	606	30	0.82	7	1065	255	<100	90	0.046	43.54	99.80
CMM Claims 2008 Mapping & Sampling Program	63006	9/16/2008	94.71	**53.07**	1.54	**0.74**	0.171	0.467	860	51	1.62	13	2023	317	<100	195	0.055	43.05	99.51
CMM Claims 2008 Mapping & Sampling Program	63007	9/16/2008	85.06	**47.66**	9.37	**4.48**	0.337	0.691	591	61	2.56	17	2962	429	<100	277	0.120	43.00	99.28
CMM Claims 2008 Mapping & Sampling Program	63008	9/16/2008	76.44	**42.83**	20.38	**9.74**	0.325	0.473	512	62	1.37	11	2014	367	<100	198	0.054	44.55	99.65
CMM Claims 2008 Mapping & Sampling Program	63009	9/16/2008	94.32	**52.85**	1.76	**0.84**	0.242	0.451	791	61	1.73	10	1915	226	<100	173	0.047	42.94	99.42
CMM Claims 2008 Mapping & Sampling Program	63010	9/16/2008	90.37	**50.63**	6.75	**3.23**	0.279	0.455	663	52	1.64	10	1975	291	<100	177	0.083	43.40	100.03
CMM Claims 2008 Mapping & Sampling Program	63011	9/16/2008	88.89	**49.80**	9.33	**4.46**	0.155	0.162	830	40	0.56	13	739	196	<100	81	0.056	44.17	99.55
CMM Claims 2008 Mapping & Sampling Program	63012	9/16/2008	95.46	**53.49**	1.91	**0.91**	0.151	0.441	812	33	1.51	11	2163	219	173	138	0.084	43.26	100.19
CMM Claims 2008 Mapping & Sampling Program	63013	9/16/2008	96.77	**54.22**	1.61	**0.77**	0.118	0.244	753	32	0.88	8	1100	243	215	98	0.084	43.63	100.19
CMM Claims 2008 Mapping & Sampling Program	63014	9/16/2008	96.48	**54.06**	1.47	**0.70**	0.115	0.199	779	30	0.92	8	890	209	179	86	0.065	43.71	99.98
CMM Claims 2008 Mapping & Sampling Program	63015	9/16/2008	95.99	**53.78**	1.54	**0.74**	0.159	0.379	699	32	1.38	11	1603	252	164	147	0.097	43.36	100.18
CMM Claims 2008 Mapping & Sampling Program	63016	9/16/2008	96.35	**53.98**	1.95	**0.93**	0.155	0.229	827	38	0.77	7	923	221	<100	83	0.066	43.67	100.01
CMM Claims 2008 Mapping & Sampling Program	63017	9/16/2008	94.99	**53.22**	3.67	**1.75**	0.072	0.135	904	30	0.55	6	484	194	271	48	0.041	44.06	100.03
CMM Claims 2008 Mapping & Sampling Program	63018	9/16/2008	95.89	**53.73**	2.85	**1.36**	0.114	0.170	704	42	0.62	5	696	222	191	57	0.052	43.84	100.08
CMM Claims 2008 Mapping & Sampling Program	63019	9/16/2008	97.26	**54.50**	1.51	**0.72**	0.089	0.120	929	39	0.74	6	489	196	295	45	0.055	43.71	100.14
CMM Claims 2008 Mapping & Sampling Program	63020	9/16/2008	96.02	**53.80**	1.67	**0.80**	0.171	0.301	911	49	1.37	12	1377	197	319	111	0.057	43.36	100.15
CMM Claims 2008 Mapping & Sampling Program	63021	9/16/2008	95.75	**53.65**	1.32	**0.63**	0.135	0.200	731	52	2.19	9	820	154	374	140	0.031	43.06	100.12
CMM Claims 2008 Mapping & Sampling Program	63022	9/16/2008	95.86	**53.71**	1.95	**0.93**	0.096	0.197	912	45	1.21	6	976	215	391	199	0.044	43.53	99.99
CMM Claims 2008 Mapping & Sampling Program	63023	9/16/2008	96.46	**54.04**	1.89	**0.90**	0.144	0.226	862	56	1.01	7	1070	177	288	93	0.041	43.58	100.20
CMM Claims 2008 Mapping & Sampling Program	63024	9/16/2008	94.59	**53.00**	3.03	**1.45**	0.134	0.276	985	57	1.46	6	1411	239	<100	95	0.053	43.50	100.15

CMM Claims 2008 Mapping & Sampling Program	63025	9/16/2008	95.58	**53.55**	1.47	**0.70**	0.117	0.222	882	48	2.16	7	1104	217	167	88	0.053	43.08	100.13
CMM Claims 2008 Mapping & Sampling Program	63026	9/16/2008	93.33	**52.29**	4.41	**2.11**	0.096	0.119	354	43	1.62	7	546	171	458	49	0.026	43.46	99.88
CMM Claims 2008 Mapping & Sampling Program	63027	9/16/2008	97.67	**54.72**	0.93	**0.44**	0.058	0.056	254	31	0.52	5	217	136	321	29	0.016	43.58	99.50
CMM Claims 2008 Mapping & Sampling Program	63028	9/16/2008	98.35	**55.10**	0.85	**0.41**	0.057	0.037	248	28	0.35	4	122	126	487	17	0.012	43.50	99.57
CMM Claims 2008 Mapping & Sampling Program	63029	9/16/2008	95.64	**53.59**	3.02	**1.44**	0.074	0.039	206	26	0.24	5	100	131	639	18	0.015	43.63	99.14
CMM Claims 2008 Mapping & Sampling Program	63030	9/16/2008	95.78	**53.67**	2.93	**1.40**	0.062	0.032	217	24	0.21	4	68	131	344	14	0.011	43.65	99.11
CMM Claims 2008 Mapping & Sampling Program	63031	9/16/2008	98.19	**55.02**	0.77	**0.37**	0.111	0.023	288	31	0.28	6	83	174	410	15	0.017	43.60	99.52
CMM Claims 2008 Mapping & Sampling Program	63032	9/16/2008	98.56	**55.22**	0.73	**0.35**	0.084	0.033	284	30	0.15	5	62	144	478	14	0.014	43.55	99.51
CMM Claims 2008 Mapping & Sampling Program	63033	9/16/2008	98.65	**55.27**	0.74	**0.35**	0.065	0.037	255	27	0.38	5	76	129	552	11	0.014	43.47	99.69
CMM Claims 2008 Mapping & Sampling Program	63034	9/16/2008	97.76	**54.77**	1.63	**0.78**	0.060	0.164	256	30	0.25	6	88	128	255	22	0.013	43.55	99.67
CMM Claims 2008 Mapping & Sampling Program	63035	9/16/2008	95.00	**53.23**	3.59	**1.71**	0.062	0.064	221	31	0.61	7	115	151	339	34	0.011	43.52	99.30
CMM Claims 2008 Mapping & Sampling Program	63036	9/16/2008	96.88	**54.28**	2.14	**1.02**	0.086	0.033	229	32	0.35	4	74	159	317	16	0.009	44.13	99.99
CMM Claims 2008 Mapping & Sampling Program	63037	9/16/2008	98.20	**55.02**	0.92	**0.44**	0.084	0.032	248	32	0.39	5	59	139	316	11	0.017	44.02	100.08
CMM Claims 2008 Mapping & Sampling Program	63038	9/16/2008	96.85	**54.26**	2.12	**1.01**	0.140	0.042	283	44	0.55	7	129	122	325	25	0.018	43.96	100.08
CMM Claims 2008 Mapping & Sampling Program	63039	9/16/2008	84.89	**47.56**	10.84	**5.18**	0.211	0.270	227	75	2.79	46	1614	141	429	142	0.013	43.18	99.48
CMM Claims 2008 Mapping & Sampling Program	63040	9/16/2008	74.97	**42.00**	20.57	**9.83**	0.223	0.302	136	95	2.82	10	1322	229	549	157	0.006	43.83	99.26
CMM Claims 2008 Mapping & Sampling Program	63041	9/16/2008	87.37	**48.95**	10.05	**4.81**	0.100	0.257	214	46	1.21	6	378	183	563	75	0.011	43.97	99.46
CMM Claims 2008 Mapping & Sampling Program	63042	9/16/2008	78.00	**43.70**	18.62	**8.90**	0.247	0.279	210	69	2.43	9	998	216	932	127	0.014	43.88	99.71
CMM Claims 2008 Mapping & Sampling Program	63043	9/16/2008	79.49	**44.54**	17.08	**8.16**	0.110	0.231	171	50	2.48	8	811	195	554	251	0.007	43.88	99.61
CMM Claims 2008 Mapping & Sampling Program	63044	9/16/2008	88.05	**49.34**	9.28	**4.44**	0.067	0.115	206	37	1.73	6	459	186	638	111	0.015	43.82	99.68
CMM Claims 2008 Mapping & Sampling Program	63045	9/16/2008	96.29	**53.95**	1.47	**0.70**	0.086	0.052	227	35	1.10	3	133	156	467	22	0.014	43.48	99.49
CMM Claims 2008 Mapping & Sampling Program	63046	9/16/2008	96.76	**54.21**	1.71	**0.82**	0.098	0.063	253	34	0.60	4	151	165	431	27	0.017	43.67	99.59
CMM Claims 2008 Mapping & Sampling Program	63047	9/16/2008	97.49	**54.62**	0.99	**0.47**	0.079	0.038	233	32	0.34	3	102	141	569	15	0.011	43.74	99.41
CMM Claims 2008 Mapping & Sampling Program	63048	9/16/2008	98.06	**54.94**	0.98	**0.47**	0.050	0.044	251	27	0.42	22	86	142	434	16	0.018	43.75	99.79
CMM Claims 2008 Mapping & Sampling Program	63049	9/16/2008	96.90	**54.29**	2.03	**0.97**	0.049	0.025	253	25	0.25	4	69	159	479	13	0.015	43.84	99.55
CMM Claims 2008 Mapping & Sampling Program	63050	9/16/2008	98.44	**55.16**	0.78	**0.37**	0.053	0.033	257	25	0.24	4	89	157	611	16	0.014	43.74	99.73
CMM Claims 2008 Mapping & Sampling Program	63051	9/16/2008	97.63	**54.70**	0.82	**0.39**	0.057	0.053	267	25	0.42	4	184	153	465	72	0.017	43.75	99.51
CMM Claims 2008 Mapping & Sampling Program	63052	9/16/2008	91.24	**51.12**	7.44	**3.56**	0.135	0.037	228	41	0.33	3	90	178	127	70	0.007	44.30	99.57
CMM Claims 2008 Mapping & Sampling Program	63053	9/16/2008	97.56	**54.66**	1.40	**0.67**	0.129	0.023	282	33	0.21	3	49	145	<100	127	0.016	43.91	99.68
CMM Claims 2008 Mapping & Sampling Program	63054	9/16/2008	91.56	**51.30**	7.06	**3.37**	0.064	0.056	251	29	0.50	4	116	144	162	138	0.012	44.23	99.62
CMM Claims 2008 Mapping & Sampling Program	63055	9/16/2008	68.66	**38.47**	30.66	**14.66**	0.132	0.043	108	48	0.24	3	82	285	<100	111	0.000	45.96	99.57
CMM Claims 2008 Mapping & Sampling Program	63056	9/16/2008	75.77	**42.45**	23.51	**11.24**	0.153	0.031	113	54	0.13	2	66	282	130	16	0.001	45.39	99.45
CMM Claims 2008 Mapping & Sampling Program	63057	9/16/2008	93.64	**52.47**	5.18	**2.48**	0.160	0.042	240	39	0.27	3	150	149	<100	21	0.010	43.96	99.44
CMM Claims 2008 Mapping & Sampling Program	63058	9/16/2008	88.96	**49.84**	9.35	**4.47**	0.084	0.050	358	40	0.30	4	122	165	230	23	0.003	44.18	99.03
CMM Claims 2008 Mapping & Sampling Program	63059	9/16/2008	97.11	**54.41**	1.30	**0.62**	0.083	0.065	302	44	0.46	6	148	93	229	118	0.011	43.65	99.39
CMM Claims 2008 Mapping & Sampling Program	63060	9/16/2008	96.78	**54.23**	1.35	**0.65**	0.078	0.070	288	40	0.74	6	281	125	126	29	0.015	43.65	99.51
CMM Claims 2008 Mapping & Sampling Program	63061	9/16/2008	98.29	**55.07**	0.85	**0.41**	0.089	0.022	274	32	0.17	3	60	133	296	14	0.012	43.69	99.54
CMM Claims 2008 Mapping & Sampling Program	63062	9/16/2008	97.80	**54.79**	0.99	**0.47**	0.036	0.033	283	23	0.19	4	72	116	275	63	0.014	43.71	99.33
CMM Claims 2008 Mapping & Sampling Program	63063	9/16/2008	97.12	**54.41**	1.25	**0.60**	0.062	0.112	332	31	0.61	6	427	173	239	158	0.018	43.79	99.74
CMM Claims 2008 Mapping & Sampling Program	63064	9/16/2008	97.35	**54.55**	1.00	**0.48**	0.178	0.046	281	33	0.31	4	143	123	253	104	0.016	43.70	99.37
CMM Claims 2008 Mapping & Sampling Program	63065	9/16/2008	64.66	**36.23**	34.02	**16.26**	0.224	0.107	103	69	0.65	4	262	259	285	50	0.000	45.88	99.45
CMM Claims 2008 Mapping & Sampling Program	63066	9/16/2008	77.16	**43.23**	18.95	**9.06**	0.176	0.315	232	55	2.22	12	1660	227	261	166	0.008	43.98	99.25
CMM Claims 2008 Mapping & Sampling Program	63067	9/16/2008	77.91	**43.65**	19.74	**9.43**	0.139	0.203	195	55	0.97	9	861	221	342	97	0.006	44.56	99.14
CMM Claims 2008 Mapping & Sampling Program	63101	9/16/2008	88.45	**49.56**	8.36	**3.99**	0.135	0.252	920	50	1.63	6	1669	200	293	96	0.030	43.73	99.66
CMM Claims 2008 Mapping & Sampling Program	63102	9/16/2008	96.72	**54.19**	1.41	**0.68**	0.131	0.123	785	47	0.88	4	799	189	299	58	0.033	43.64	99.89
CMM Claims 2008 Mapping & Sampling Program	63103	9/16/2008	95.93	**53.75**	1.23	**0.59**	0.100	0.180	837	46	1.59	4	1208	184	128	76	0.035	43.25	99.74
CMM Claims 2008 Mapping & Sampling Program	63104	9/16/2008	86.30	**48.35**	7.83	**3.74**	0.235	0.580	692	61	2.69	10	4047	211	212	242	0.023	42.89	99.07
CMM Claims 2008 Mapping & Sampling Program	63105	9/16/2008	93.72	**52.51**	2.80	**1.34**	0.132	0.230	929	53	2.09	6	1436	149	150	90	0.018	43.12	99.72
CMM Claims 2008 Mapping & Sampling Program	63106	9/16/2008	96.95	**54.32**	1.00	**0.48**	0.091	0.128	687	43	0.94	3	865	144	283	101	0.027	43.62	99.81
CMM Claims 2008 Mapping & Sampling Program	63107	9/16/2008	96.09	**53.84**	1.12	**0.54**	0.147	0.155	827	50	0.98	3	1055	190	240	49	0.027	43.55	99.47
CMM Claims 2008 Mapping & Sampling Program	63108	9/16/2008	94.94	**53.20**	1.26	**0.60**	0.117	0.206	819	44	1.91	5	1239	184	213	176	0.040	43.19	99.52
CMM Claims 2008 Mapping & Sampling Program	63109	9/16/2008	94.15	**52.75**	1.35	**0.64**	0.163	0.265	972	47	2.56	6	1634	174	326	106	0.045	42.75	99.51
CMM Claims 2008 Mapping & Sampling Program	63110	9/16/2008	95.35	**53.42**	1.24	**0.59**	0.098	0.170	825	53	1.92	5	1085	161	240	157	0.041	43.23	99.72
CMM Claims 2008 Mapping & Sampling Program	63111	9/16/2008	94.57	**52.98**	2.34	**1.12**	0.119	0.270	1053	48	1.67	7	1592	186	120	107	0.033	43.33	99.84
CMM Claims 2008 Mapping & Sampling Program	63112	9/16/2008	89.59	**50.20**	6.93	**3.31**	0.125	0.298	1114	52	1.73	9	1882	168	<100	113	0.019	43.55	99.57
CMM Claims 2008 Mapping & Sampling Program	63113	9/16/2008	96.94	**54.31**	0.95	**0.45**	0.077	0.100	1306	53	0.92	11	437	108	<100	51	0.025	43.57	99.66
CMM Claims 2008 Mapping & Sampling Program	63114	9/16/2008	96.36	**53.99**	1.17	**0.56**	0.176	0.125	919	64	1.12	6	750	147	396	43	0.034	43.49	99.72

Samples 62970 thru 62980 were lost by FedEx in shipment.

APPENDIX 4: 2008 SAMPLE DESCRIPTIONS AND ASSAY SUMMARY FROM THE CMM AREA

Notes: Stratigraphic thicknesses are based on measured attitudes of bedding listed below, with appropriate interpolations.

Attitudes are strike and dip (right-hand rule). Sections are listed from north to south; samples are listed in order from stratigraphic top to bottom within each section.

Most samples consist of chips at 30 cm intervals. UTM coordinates are NAD83. Section locations are shown in Fig. 1.3.

Stratigraphy Abbreviations (Mount Head Formation): Carn - Carnarvon Member, Opal - Opal Member (middle), Loomis - Loomis Member

Sample	Formation Member	Strat. Thick. (m)	Description	$CaCO_3$ (%)	$MgCO_3$ (%)	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	$SrCO_3$ (ppm)	MnO (ppm)	P_2O_5 (ppm)
Section 2008-01: Along Rudolf Ridge, south of Deadman Pass (UTM 668100E, 5506922N at top)											
62971	Opal	3½	**Lime Grainstone interbedded with Mudstone and Wackestone**, same as 62970, less mudstone, bedding 184°/42° W	Samples lost/destroyed in transit							
62970	Opal	3½	**Lime Grainstone interbedded with Mudstone and Wackestone**, fossils common (ooids, solitary coral), rare irregular chert nodule, weakly bedded to massive, resistant, weak to moderate reaction with HCl, bedding 188°/50° W	Samples lost/destroyed in transit							
62969	Opal	2¾	**Lime Grainstone and Dolomitic Lime Packstone**, fossils throughout (ooids, solitary coral, crinoid ossicles & stems), rare chert nodules (up to 8 cm), moderate to strong reaction with HCl, bedding 186°/40° W	89.03	8.07	1.68	0.17	0.16	338	45	107
62968	Opal	4½	**Lime Grainstone to Packstone**, same as 62967, abundant ooids and crinoids locally, resistant, strong reaction with HCl, bedding 186°/54° W	97.48	1.26	0.69	0.03	0.09	373	35	135
62967	Opal	4	**Ooid Lime Grainstone with minor Packstone**, minor crinoids, resistant, moderately bedded (40 cm), moderate to strong reaction with HCl, bedding 192°/44° W	97.10	1.42	1.01	0.05	0.09	330	32	168
62966	Opal	6¼	**Lime Grainstone interbedded with Dolomitic Mudstone to Wackestone**, recessive, weakly to moderately bedded, weak to strong reaction with HCl, bedding 204°/36° W	86.93	11.97	0.70	0.05	0.09	262	40	380
62965	Opal	3¾	**Lime Grainstone**, same as 62963, bedding 200°/38° W	91.79	7.30	0.42	0.02	0.14	243	44	183
62964	Opal	4¼	**Lime Grainstone**, same as 62963, bedding 188°/44° W	98.47	0.86	0.35	0.01	0.07	275	29	209
62963	Opal	4	**Ooid Crinoid Lime Grainstone**, tan to light-grey weathered, brownish-grey fresh, medium-grained, massive, resistant, weakly bedded, moderate to strong reaction with HCl, bedding 188°/50° W	98.44	0.90	0.37	0.01	0.06	252	31	<100
62962	Opal	3	**Ooid Lime Grainstone with minor Dolomitic Packstone**, massive, resistant, weakly bedded, moderate to strong reaction with HCl, bedding 184°/44° W	92.06	6.77	0.83	0.04	0.09	243	37	<100
62961	Opal	4½	**Strongly Dolomitic Mudstone**, tan to light-grey weathered, light-brownish-grey fresh, micritic, moderately bedded (15 cm), weak reaction with HCl, powder reacts strongly with HCl, recessive, bedding 178°/54° W	58.92	34.10	5.21	0.55	0.25	144	93	203

62960	Opal	2	**Ooid Lime Grainstone with minor Dolomitic Mudstone and Wackestone near top**, grainstone has a strong reaction with HCl; mudstone & wackestone are resistant, well-bedded (30-40 cm), weak reaction with HCl; bedding 190°/42° W	83.51	8.79	5.64	0.71	0.22	276	82	249
62959	Opal	2¾	**Ooid Lime Grainstone and Dolomitic Mudstone**, grainstone is brownish-grey, medium-grained, moderately bedded, strong reaction with HCl; dolomitic mudstone is tan to light-brownish-grey, moderately bedded, weak reaction with HCl, recessive; bedding 180°/30° W	67.86	25.65	4.88	0.52	0.18	181	92	261
62958	Opal	1¾	**Ooid Lime Grainstone with minor Packstone**, light-tan to medium-grey weathered, light-brownish-grey to medium-grey fresh, fine- to medium-grained, massive, strong reaction with HCl	97.20	0.88	0.95	0.05	0.09	285	40	237
62957	Opal	1	**Ooid Lime Packstone to Grainstone**, same as 62956	97.61	0.84	0.79	0.05	0.09	291	40	178
62956	Opal	4	**Ooid Lime Packstone to Grainstone**, same as 62955, weakly bedded to massive, abundant ooids locally, moderate to strong reaction with HCl, bedding 196°/32° W	97.41	0.88	0.49	0.02	0.05	315	28	348
62955	Opal	4	**Ooid Lime Packstone to Grainstone**, same as 62954, weakly bedded in middle of interval, ooids less abundant, occasional crinoids, strong reaction with HCl, bedding 202°/30° W	96.99	1.16	0.38	0.02	0.08	292	31	183
62954	Opal	4	**Ooid Lime Packstone to Grainstone**, same as 62953	97.40	1.27	0.20	0.00	0.07	286	29	139
62953	Opal	4	**Ooid Lime Packstone to Grainstone**, same as 62952, massive, no visible bedding, strong reaction with HCl	97.33	0.83	0.42	0.01	0.06	289	27	150
62952	Opal	4	**Ooid Lime Packstone to Grainstone**, tan to brownish-grey weathered, light-brownish-grey fresh, fine- to medium-grained, moderately bedded to massive (1 m thick), abundant ooids, occasional crinoids, rare chert nodules up to 2 cm, moderate to strong reaction with HCl, bedding 192°/42° W	97.60	1.35	0.33	0.03	0.07	275	30	177
62951	Opal	2	**Dolomitic Lime Mudstone to Packstone**, light-brownish-grey weathered, tan to medium-brownish-grey fresh, highly variable, heterogeneous, micritic to coarse-grained, fossils up to 1 cm (snail shells, ooids, brachs, crinoids), moderately bedded (5-30 cm), weak to moderate reaction with HCl, resistant, bedding 170°/50° W (undulating)	83.02	14.14	1.40	0.23	0.11	222	56	176
Section 2008-02: Along Rudolf Ridge, east & downslope of Section 2008-01 (UTM 668215E, 5506886N)											
62995	Loomis	4½	**Dolomitic Lime Mudstone, Wackestone, and Packstone**, abundant brachiopods, locally cherty, moderately bedded, weak to moderate reaction with HCl, bedding 186°/38° W	61.39	19.09	17.40	0.67	0.39	199	363	326
62994	Loomis	3½	**Dolomitic Lime Mudstone to Wackestone**, light-brownish-grey to tan weathered, brownish-grey fresh, cherty, recessive, weakly bedded, weak to moderate reaction with HCl, bedding 190°/42° W	70.81	18.84	8.23	0.87	0.22	314	101	559
62993	Loomis	4	**Ooid Crinoid Lime Grainstone with minor Dolomitic Lime Wackestone-Packstone**, same as 62990, bedding 188°/44° W	82.63	8.64	6.88	0.48	0.16	329	82	791

62992	Loomis	3¾	**<u>Ooid Crinoid Lime Grainstone with minor Dolomitic Wackestone-Packstone</u>**, same as 62990, rare solitary coral, bedding 184°/38° W	84.15	10.13	4.30	0.50	0.23	278	74	435
62991	Loomis	4	**<u>Ooid Crinoid Lime Grainstone with minor Dolomitic Wackestone-Packstone</u>**, same as 62990, bedding 189°/40° W	88.97	6.73	3.17	0.37	0.14	347	47	559
62990	Loomis	4½	**<u>Ooid Crinoid Lime Grainstone with minor Dolomitic Wackestone-Packstone</u>**, massive to moderately bedded, bedding 188°/38° W	89.07	5.84	3.72	0.42	0.13	359	63	647
62989	Loomis	4½	**<u>Ooid Crinoid Lime Grainstone</u>**, same as 62988 but medium- to coarse-grained, bedding 198°/46° W	95.94	2.28	1.23	0.08	0.14	332	35	552
62988	Loomis	4	**<u>Ooid Crinoid Lime Grainstone</u>**, medium-grained, massive, weakly bedded, bedding 184°/50° W	97.60	1.16	0.66	0.04	0.11	277	38	229
62987	Loomis	3½	**<u>Ooid Crinoid Lime Grainstone interbedded with Dolomitic Packstone and Wackestone</u>**, same as 62986, bedding 204°/40° W	75.72	12.36	7.82	0.62	0.21	260	95	389
62986	Loomis	3¼	**<u>Ooid Crinoid Lime Grainstone interbedded with Dolomitic Wackestone-Packstone,</u>** grainstone is medium-grained, massive; wackestone-packstone is well-bedded, laminated, bedding 200°/46° W	83.00	10.59	5.00	0.52	0.17	239	67	768
62985	Loomis	3½	**<u>Ooid Crinoid Lime Grainstone</u>**, same as 62984, bedding 188°/44° W	96.06	2.10	1.30	0.15	0.10	313	50	328
62984	Loomis	4	**<u>Ooid Crinoid Lime Grainstone</u>**, same as 62983 but no noted bryozoans, bedding 186°/46° W	98.41	0.85	0.38	0.01	0.06	264	32	254
62983	Loomis	4.¾	**<u>Ooid Crinoid Lime Grainstone</u>**, medium- to coarse-grained, rare bryozoan, massive, weakly bedded, bedding 200°/34° W	98.60	0.70	0.19	0.00	0.03	232	25	437
62982	Loomis	4¼	**<u>Ooid Crinoid Lime Grainstone</u>**, same as 62979, bedding 198°/40° W	97.84	1.41	0.39	0.02	0.04	261	25	434
62981	Loomis	3¾	**<u>Ooid Crinoid Lime Grainstone</u>**, same as 62979, bedding 188°/38° W	92.77	6.13	0.57	0.05	0.07	189	33	429
62980	Loomis	4¼	**<u>Ooid Crinoid Lime Grainstone</u>**, same as 62979, bedding 204°/36° W	Samples lost/destroyed in transit							
62979	Loomis	4½	**<u>Ooid Crinoid Lime Grainstone</u>**, fine- to coarse-grained, rare solitary coral (~2 cm), massive, bedding 192°/40° W	Samples lost/destroyed in transit							
62978	Loomis	2¼	**<u>Ooid Crinoid Lime Packstone to Grainstone</u>**, rare solitary coral, weakly bedded, bedding 188°/38° W	Samples lost/destroyed in transit							
62977	Loomis	5¾	**<u>Lime Grainstone</u>**, same as 62976 but mostly massive, weakly bedded at base, bedding 186°/44° W	Samples lost/destroyed in transit							
62976	Loomis	3¾	**<u>Lime Grainstone</u>**, light-grey to tan weathered, brownish-grey fresh, fine-grained, moderately bedded (5 cm to 50 cm), moderate to strong reaction with HCl, bedding 190°/42° W	Samples lost/destroyed in transit							
62975	Loomis	2¾	**<u>Lime Grainstone</u>**, same as 62974, bedding 204°/46° W	Samples lost/destroyed in transit							
62974	Loomis	4¼	**<u>Lime Grainstone</u>**, same as 62973, bedding 196°/38° W	Samples lost/destroyed in transit							
62973	Loomis	4¼	**<u>Ooid Lime Grainstone interbedded with minor Packstone</u>**, same as 62972 but interbedded with minor packstone, bedding 194°/44° W	Samples lost/destroyed in transit							
62972	Loomis	4¼	**<u>Ooid Lime Grainstone</u>**, light-grey to tan weathered, brownish-grey fresh, fine-grained, homogeneous, weakly bedded to massive, moderate to strong reaction with HCl, bedding 200°/40° W	Samples lost/destroyed in transit							

Section 2008-03: Along Rudolf Ridge, west & upslope of Section 2008-01 (UTM 667730E, 5507193N)

63114	Carn	2	**Lime Wackestone to Packstone**, same as 63113, dominantly medium-grey packstone, bedding 179°/23° W	96.36	1.17	1.12	0.13	0.18	919	64	396
63113	Carn	4¾	**Lime Wackestone to Packstone**, same as 63111, resistant	96.94	0.95	0.92	0.10	0.08	1306	53	<100
63112	Carn	5¼	**Lime Wackestone to Packstone**, same as 63111	89.59	6.93	1.73	0.30	0.12	1114	52	<100
63111	Carn	7	**Lime Wackestone to Packstone**, same as 63110, majority dark-grey wackestone, recessive	94.57	2.34	1.67	0.27	0.12	1053	48	120
63110	Carn	4¾	**Lime Wackestone to Packstone**, same as 63109, more medium-grey packstone, rugose corals noted, resistant	95.35	1.24	1.92	0.17	0.10	825	53	240
63109	Carn	¾	**Lime Wackestone to Packstone**, same as 63108, recessive	94.15	1.35	2.56	0.26	0.16	972	47	326
63108	Carn	3½	**Lime Wackestone to Packstone**, same as 63106, slightly recessive	94.94	1.26	1.91	0.21	0.12	819	44	213
63107	Carn	3½	**Lime Wackestone to Packstone**, same as 63106	96.09	1.12	0.98	0.15	0.15	827	50	240
63106	Carn	3	**Lime Wackestone to Packstone**, same as 63104, more dark-grey wackestone, no rugose corals noted, resistant, bedding not obvious	96.95	1.00	0.94	0.13	0.09	687	43	283
63105	Carn	3¼	**Lime Wackestone to Packstone**, same as 63104	93.72	2.80	2.09	0.23	0.13	929	53	150
63104	Carn	3¼	**Lime Wackestone to Packstone**, same as 63101, large (2 cm) rugose coral noted, recessive	86.30	7.83	2.69	0.58	0.23	692	61	212
63103	Carn	3½	**Lime Wackestone to Packstone**, same as 63101, good reaction with HCl	95.93	1.23	1.59	0.18	0.10	837	46	128
63102	Carn	3	**Lime Wackestone to Packstone**, same as 63101	96.72	1.41	0.88	0.12	0.13	785	47	299
63101	Carn	5¼	**Lime Wackestone to Packstone**, same as 63025	88.45	8.36	1.63	0.25	0.13	920	50	293
63025	Carn	3½	**Lime Wackestone to Packstone**, same as 63022, more dark-grey fresh, bedding 177°/39° W (undulating)	95.58	1.47	2.16	0.22	0.12	882	48	167
63024	Carn	3	**Lime Wackestone to Packstone**, same as 63022	94.59	3.03	1.46	0.28	0.13	985	57	<100
63023	Carn	2¾	**Lime Wackestone to Packstone**, same as 63022	96.46	1.89	1.01	0.23	0.14	862	56	288
63022	Carn	3¼	**Lime Wackestone to Packstone**, same as 63021, more medium-grained bioclasts	95.86	1.95	1.21	0.20	0.10	912	45	391
63021	Carn	3¼	**Lime Wackestone to Packstone**, same as 63020, some medium-grey, bedding 178°/38° W	95.75	1.32	2.19	0.20	0.13	731	52	374
63020	Carn	2	**Lime Wackestone to Packstone**, same as 63019, less packstone, slightly recessive	96.02	1.67	1.37	0.30	0.17	911	49	319
63019	Carn	4¼	**Lime Wackestone to Packstone**, tan-grey weathered, medium- to dark-grey fresh, fine- to medium-grained, crinoid ossicles, shell fragments, very good reaction with HCl, bedding 184°/38° W	97.26	1.51	0.74	0.12	0.09	929	39	295
63018	Carn	¼	**Crinoidal Lime Packstone**, same as 63017, medium- to dark-grey fresh, overall fine- to medium-grained, rare coarse-grained, more mud content than 63017, bedding 186°/33° W	95.89	2.85	0.62	0.17	0.11	704	42	191

63017	Carn	1¾	**Crinoidal Lime Packstone to Grainstone**, medium-grey weathered, medium- to dark-grey fresh, majority fine-grained, minor coarse-grained, abundant crinoid ossicles & stems, brachiopods, shell fragments, rare bryozoan, moderately to thickly bedded (up to 75 cm), good reaction with HCl, bedding undulating & irregular	94.99	3.67	0.55	0.13	0.07	904	30	271
63016	Carn	2¼	**Lime Packstone and Mudstone**, same as 63014, packstone is medium-grey fresh, crinoid ossicles, shell fragments (brachiopods?); mudstone is dark-grey fresh, bedding 185°/36° W	96.35	1.95	0.77	0.23	0.16	827	38	<100
63015	Carn	1½	**Lime Mudstone**, dark-grey fresh, fine-grained, conchoidal fracture, well-bedded (<15 cm), good reaction with HCl, bedding 182°/31° W	95.99	1.54	1.38	0.38	0.16	699	32	164
63014	Carn	2	**Lime Mudstone to Packstone**, mostly dark-grey mudstone, minor medium-grey, fine- to medium-grained packstone, moderately to well bedded, bedding 182°/33° W	96.48	1.47	0.92	0.20	0.11	779	30	179
63013	Carn	1½	**Lime Mudstone**, same as 63012, no packstone, dark throughout, well-bedded (<10 cm), bedding 179°/38° W	96.77	1.61	0.88	0.24	0.12	753	32	215
63012	Carn	1¾	**Lime Wackestone to Packstone and Mudstone**, same as 63011 except ~half is fine-grained dark-grey lime mudstone, bedding 185°/34° W	95.46	1.91	1.51	0.44	0.15	812	33	173
63011	Carn	1	**Crinoidal Dolomitic Lime Wackestone to Packstone**, light-grey weathered, medium-grey fresh, fine- to medium-grained, crinoid ossicles, shell fragments, moderately bedded, bedding 184°/36° W	88.89	9.33	0.56	0.16	0.15	830	40	<100
63010	Carn	1¾	**Dolomitic Lime Mudstone**, same as 63009, no packstone, some medium- to dark-grey, very good reaction with HCl, bedding 183°/37° W	90.37	6.75	1.64	0.46	0.28	663	52	<100
63009	Carn	1¾	**Lime Mudstone to Wackestone**, minor packstone (as 63008), very-dark-grey fresh, less resistant, bedding 182°/38° W	94.32	1.76	1.73	0.45	0.24	791	61	<100
63008	Carn	2	**Dolomitic Lime Packstone**, brownish-grey weathered, medium-brownish-grey fresh, fine- to medium-grained, visible bioclasts (crinoid ossicles, shell fragments, bryozoans, brachiopods), thickly bedded (up to ½ m), more resistant than surrounding mudstone, moderate reaction with HCl, minor dark-grey mudstone present, bedding 181°/34° W	76.44	20.38	1.37	0.47	0.33	512	62	<100
63007	Carn	1½	**Dolomitic Lime Mudstone**, same as 63006, very-dark-grey, moderately bedded (up to 40 cm), bedding 178°/27° W	85.06	9.37	2.56	0.69	0.34	591	61	<100
63006	Carn	1¾	**Lime Mudstone**, same as 63005, no wackestone, very well bedded (<10 cm), slightly recessive, very good reaction with HCl, bedding 183°/31° W	94.71	1.54	1.62	0.47	0.17	860	51	<100
63005	Carn	1¾	**Lime Mudstone**, same as 63004, some medium-grey mudstone to wackestone, bedding 175°/38° W	96.64	1.50	0.82	0.23	0.10	606	30	<100
63004	Carn	2¼	**Lime Mudstone**, same as 63003, very minor medium-grey fine-grained wackestone (crinoid ossicles & shell fragments), bedding 182°/34° W	93.15	3.67	1.49	0.40	0.22	582	52	161
63003	Carn	2¼	**Lime Mudstone**, same as 63001, some medium-grey, bedding 181°/33° W	95.36	1.55	1.92	0.47	0.17	614	71	129
63002	Carn	2½	**Lime Mudstone**, same as 63001, very good reaction with HCl, bedding 179°/29° W	91.82	3.04	2.80	0.62	0.27	660	62	221

63001	Carn	2	**Dolomitic Lime Mudstone**, light-tan-grey weathered, very-dark-grey fresh, very-fine-grained, homogeneous, rare shell fragments & crinoid ossicles, conchoidal fracture, minor calcite smear, slightly shaly & recessive, well-bedded (1-10 cm)	85.87	9.51	2.14	0.52	0.41	613	80	<100
63000	Carn	2¼	**Lime Mudstone to Wackestone**, same as 62999, more wackestone, minor bioclast-poor packstone with crinoids and shell fragments, recessive, very well-bedded	93.67	1.55	2.45	0.61	0.33	688	69	<100
62999	Carn	2	**Lime Mudstone**, same as 62996, minor fine-grained wackestone (shell fragments & crinoid ossicles), bedding 184°/35° W	95.20	1.63	1.87	0.40	0.18	639	50	<100
62998	Carn	2¾	**Lime Mudstone**, same as 62996, bedding 178°/28° W	93.84	2.18	2.43	0.57	0.30	659	62	<100
62997	Carn	2¼	**Lime Mudstone**, same as 62996	93.53	2.15	2.76	0.61	0.38	687	92	150
62996	Carn	2	**Lime Mudstone**, light-grey to tan weathered, dark-grey fresh, very-fine-grained, very pristine mud, rare brachiopod, conchoidal fracturing, somewhat recessive, well-bedded (5-20 cm thick), moderate to strong reaction with HCl	89.38	3.48	4.24	1.04	0.40	640	92	215

Section 2008-04: Within bowl-shaped valley north of previous sections, south of Deadman Pass (UTM 667729E, 5507907N)

63051	Loomis	3¾	**Crinoidal Lime Grainstone**, same as 63045, bedding 185°/38° W	97.63	0.82	0.42	0.05	0.06	267	25	465
63050	Loomis	3	**Crinoidal Lime Grainstone**, same as 63045, bedding 186°/42° W	98.44	0.78	0.24	0.03	0.05	257	25	611
63049	Loomis	2½	**Crinoidal Lime Grainstone**, same as 63045, bedding 200°/36° W	96.90	2.03	0.25	0.02	0.05	253	25	479
63048	Loomis	3¼	**Crinoidal Lime Grainstone**, same as 63045, crinoids, bedding 183°/32° W	98.06	0.98	0.42	0.04	0.05	251	27	434
63047	Loomis	2¾	**Ooid Crinoid Lime Grainstone**, same as 63045, bedding 186°/40° W	97.49	0.99	0.34	0.04	0.08	233	32	569
63046	Loomis	2½	**Ooid Crinoid Lime Grainstone**, same as 63045, bedding 204°/38° W	96.76	1.71	0.60	0.06	0.10	253	34	431
63045	Loomis	1¾	**Ooid Crinoid Lime Grainstone**, fine-grained, massive	96.29	1.47	1.10	0.05	0.09	227	35	467
63044	Loomis	4	**Lime Grainstone with Dolomitic Mudstone**, majority grainstone, crinoids, brachiopods, bedding 196°/32° W	88.05	9.28	1.73	0.12	0.07	206	37	638
63043	Loomis	5	**Dolomitic Lime Mudstone with fine-grained Grainstone**	79.49	17.08	2.48	0.23	0.11	171	50	554
63042	Loomis	1½	**Lime Grainstone interbedded with Dolomitic Mudstone**, same as 63041, rare chert, bedding 190°/26° W	78.00	18.62	2.43	0.28	0.25	210	69	932
63041	Loomis	3¼	**Lime Grainstone interbedded with Dolomitic Mudstone**, grainstone is fine-grained, massive; mudstone is weakly bedded	87.37	10.05	1.21	0.26	0.10	214	46	563
63040	Loomis	3¼	**Lime Grainstone interbedded with Dolomitic Mudstone and Wackestone**, same as 63039	74.97	20.57	2.82	0.30	0.22	136	95	549
63039	Loomis	3½	**Lime Grainstone interbedded with Dolomitic Mudstone and Wackestone**, same as 63038, mudstone is dolomitic	84.89	10.84	2.79	0.27	0.21	227	75	429
63038	Loomis	2¾	**Lime Grainstone interbedded with Mudstone and Wackestone**, same as 63037, conchoidal fracture in mudstone and wackestone	96.85	2.12	0.55	0.04	0.14	283	44	325
63037	Loomis	3	**Lime Grainstone interbedded with Mudstone and Wackestone**, weakly bedded (30 cm), moderate reaction with HCl	98.20	0.92	0.39	0.03	0.08	248	32	316
63036	Loomis	3	**Lime Grainstone**, same as 63034, bedding 120°/30° W	96.88	2.14	0.35	0.03	0.09	229	32	317

63035	Loomis	2½	**Lime Grainstone**, same as 63034	95.00	3.59	0.61	0.06	0.06	221	31	339
63034	Loomis	2¾	**Lime Grainstone**, fine- to medium-grained, ooids, crinoids, massive	97.76	1.63	0.25	0.16	0.06	256	30	255
63033	Loomis	4	**Lime Grainstone**, same as 63030, bedding 170°/32° W	98.65	0.74	0.38	0.04	0.06	255	27	552
63032	Loomis	3½	**Lime Grainstone**, same as 63030	98.56	0.73	0.15	0.03	0.08	284	30	478
63031	Loomis	3¼	**Lime Grainstone**, same as 63030	98.19	0.77	0.28	0.02	0.11	288	31	410
63030	Loomis	2½	**Lime Grainstone**, same as 63028, minor wackestone interbeds	95.78	2.93	0.21	0.03	0.06	217	24	344
63029	Loomis	2¼	**Lime Grainstone**, same as 63028	95.64	3.02	0.24	0.04	0.07	206	26	639
63028	Loomis	3¼	**Lime Grainstone**, same as 63026, fine- to medium-grained, ooids, crinoids, bedding 184°/32° W	98.35	0.85	0.35	0.04	0.06	248	28	487
63027	Loomis	2	**Lime Grainstone**, same as 63026, bedding 180°/20° W	97.67	0.93	0.52	0.06	0.06	254	31	321
63026	Loomis	1¾	**Lime Grainstone**, grey to tan weathered, brownish-grey fresh, fine-grained, ooids, crinoids, occasional brachiopod, massive, moderate reaction with HCl, bedding 200°/20° W	93.33	4.41	1.62	0.12	0.10	354	43	458

Section 2008-05: Within bowl-shaped valley, southwest & upslope of Section 2008-04 (UTM 667677E, 5507614N)

63067	Opal	¼	**Ooid Dolomitic Lime Packstone**, tan weathered, medium-brownish-grey fresh, fine- to medium-grained, poorly sorted, majority ooids, some crinoids & shell fragments, moderately bedded (5-20 cm), moderate reaction with HCl, bedding 175°/36° W (undulating)	77.91	19.74	0.97	0.20	0.14	195	55	342
63066	Opal	2¼	**Ooid Dolomitic Lime Grainstone**, same as 63065, moderate reaction with HCl, bedding 182°/26° W	77.16	18.95	2.22	0.32	0.18	232	55	261
63065	Opal	2¾	**Ooid Dolomitic Lime Grainstone**, same as 63064, more medium-grained bioclasts, rubbly, medium-bedded (5-30 cm), weak reaction with HCl	64.66	34.02	0.65	0.11	0.22	103	69	285
63064	Opal	4	**Ooid Lime Grainstone**, same as 63062, some medium-grained crinoids, bedding 179°/23° W	97.35	1.00	0.31	0.05	0.18	281	33	253
63063	Opal	3½	**Ooid Lime Grainstone**, same as 63062	97.12	1.25	0.61	0.11	0.06	332	31	239
63062	Opal	3½	**Ooid Lime Grainstone**, same as 63061, nearly all ooids, massive	97.80	0.99	0.19	0.03	0.04	283	23	275
63061	Opal	3¼	**Ooid Lime Grainstone with minor Ooid Packstone**, same as 63060, less mud, more resistant, thickly bedded (20 cm to 1 m), bedding 186°/22° W	98.29	0.85	0.17	0.02	0.09	274	32	296
63060	Opal	2	**Ooid Lime Grainstone with Ooid Packstone**, same as 63059, more packstone, more abundant crinoid ossicles	96.78	1.35	0.74	0.07	0.08	288	40	126
63059	Opal	2¾	**Ooid Lime Grainstone with minor Ooid Packstone**, same as 63058 but less mud content, slightly more resistant, bedding 185°/28° W (undulating)	97.11	1.30	0.46	0.06	0.08	302	44	229
63058	Opal	3¼	**Ooid Lime Grainstone with Ooid Packstone**, same as 63057, bedding 183°/33° W	88.96	9.35	0.30	0.05	0.08	358	40	230
63057	Opal	3	**Ooid Lime Grainstone with Ooid Packstone**, same as 63056 but some ooid packstone, medium-bedded, partially covered outcrop, bedding 176°/25° W	93.64	5.18	0.27	0.04	0.16	240	39	<100

63056	Opal	2¼	**Ooid Dolomitic Lime Grainstone**, same as 63055, light-brownish-grey fresh, nearly all ooids, crumbly, bedding 184°/33° W	75.77	23.51	0.13	0.03	0.15	113	54	130
63055	Opal	3½	**Ooid Dolomitic Lime Grainstone**, same as 63054, very abundant ooids, minor crinoid ossicles, good reaction with HCl, bedding 185°/28° W (approximate)	68.66	30.66	0.24	0.04	0.13	108	48	<100
63054	Opal	4½	**Ooid Dolomitic Lime Grainstone**, same as 63053, bedding 168°/30° W (rough and uneven)	91.56	7.06	0.50	0.06	0.06	251	29	162
63053	Opal	2¾	**Ooid Lime Grainstone**, same as 63052 but more ooids than crinoids, less medium-grained bioclasts overall, moderate irregular cleavage, massive	97.56	1.40	0.21	0.02	0.13	282	33	<100
63052	Opal	1½	**Crinoidal Dolomitic Lime Grainstone**, light-tan-grey weathered, medium-brownish-grey fresh, fine- to medium-grained, abundant crinoid ossicles & stems, some ooids, shell fragments, rare rugose coral, resistant, massive, medium to thickly bedded (½-3 m), good reaction with HCl, bedding 168°/14° W	91.24	7.44	0.33	0.04	0.14	228	41	127

APPENDIX 5: 2008 MAPPING STATION DESCRIPTIONS

Notes: Bedding attitudes are strike and dip, right-hand rule. Traverses and traverse points are listed chronologically. Traverse locations are shown on Fig. 3.1.

Abbreviations: Sst - Sandstone, Sltst - Siltstone, Mdst - Mudstone, Wkst - Wackestone, Pkst - Packstone, Grst - Grainstone, Ca - Calcite, HCl - Hydrochloric Acid

Liv - Livingstone Formation; MH - Mounthead Formation, BW - Baril-Wileman Member (B - Baril; W - Wileman), Sa - Salter Member, Lo - Loomis Member, Ma - Marston Member, mOp - Middle Opal Member, uOp - Upper Opal Member, Cn - Carnarvon Member; Et - Etherington Formation; RM - Rocky Mountain Group/Formation

Traverse 2008-H

Traverse H starts near the eastern end of Rudolf Ridge south of Deadman Pass. The traverse proceeds upslope (west), then south and west along Rudolf Ridge towards the westernmost peak.

Location	Unit	Type	Description
HA	Liv-BW	contact	**Lime Grainstone (E) vs Dolomudstone (W)**, Grst: light-grey weathered, light-brownish-grey fresh, fine- to medium-grained, well sorted, homogeneous, resistant, crinoids, crumbly; Mdst: tan-grey weathered and fresh, chert nodules, recessive
HB	W-B	contact	**Dolomudstone (E) vs Crinoidal Lime Grainstone (W)**, Mdst: same as HA; Grst: light-grey weathered, light-brown fresh; medium- to coarse-grained, moderately sorted, crinoid-rich
HC	B-W	contact	**Lime Grainstone (E) vs Dolomudstone (W)**, Grst: same as HB; Mdst: same as HA, bedding 186°/33°W
HD	W-B	contact	**Dolomudstone (E) vs Lime Grainstone (W)**, Mdst: same as HA; Grst: same as HB
HE	B-W	contact	**Crinoidal Lime Grainstone (E) vs Dolomudstone (W)**, Grst: same as HB; Mdst: same as HA
HF	W-B	contact	**Dolomudstone (E) vs Crinoidal Lime Grainstone (W)**, Mdst: same as HA; Grst: same as HB
HG	B-W	contact	**Crinoidal Lime Grainstone (E) vs Dolomudstone (W)**, Grst: same as HB; Mdst: same as HA
HH	W-B	contact	**Dolomudstone (E) vs Crinoidal Lime Grainstone (W)**, Mdst: same as HA; Grst: same as HB
HI	BW-Sa	contact	**Crinoidal Lime Grainstone (E) vs Cherty Dolomudstone (W)**, Grst: same as HB; Mdst: tan-grey weathered, large (up to 5 cm wide by 50 cm long) distinctive chert nodules elongated along bedding, recessive, Salter is thinner than expected
HJ	Sa-Lo	contact	**Dolomudstone (E) vs Crinoid Ooid Lime Grainstone (W)**, Mdst: same as HI; Grst: light-grey weathered, medium-brownish-grey fresh, fine- to medium-grained, overall very well sorted and homogeneous, crinoids, ooids, minor shell fragments, massive, minor cherty beds (up to ½ m thick), bedding 144°/44°SW
HK	Lo-Ma	contact	**Crinoid Ooid Lime Grainstone (E) vs Cherty Dolomudstone (W)**, Grst: same as HJ; Mdst: tan-grey weathered, micritic, abundant chert along bedding planes and thin laminae
HL	Ma-mOp	contact	**Cherty Dolomudstone (E) vs Ooid Lime Grainstone (W)**, Mdst: same as HK; Grst: light-brownish-grey weathered, medium-brown fresh, fine- to medium-grained, abundant ooids, some crinoid ossicles, dominantly homogeneous, minor sections of heterogeneous pkst to grst with crinoid ossicles and stems, shell fragments, ooids and rare snail shells, overall massive, ooids easily recognized, minor dolomitic wkst to pkst beds
HM-HN	mOp	outcrop	**Cherty Dolomudstone**, small section within Middle Opal, tan weathered, well-bedded, recessive, bedding 153°/38°SW
HO-HP	mOp	outcrop	**Cherty Dolomitic Lime Wackestone to Packstone**, tan weathered, poorly sorted, rugose coral, crinoid ossicles and stems, no reaction with HCl
HQ	mOp-uOp	contact	**Ooid Lime Grainstone (E) vs Crinoid Ooid Lime Packstone (W)**, transition from ooid-rich grst to crinoid ooid pkst; Pkst: light-grey to tan weathered, less homogeneous, variable fossils (ooids, crinoids, rugose coral), more well-bedded
HR	uOp	outcrop	**Crinoid Ooid Colonial Coral Lime Packstone**, bed within Upper Opal with abundant colonial corals, large chert nodules (up to 5 cm x 20 cm) in ~½ m thick bed just above colonial corals, tan weathered dolomite intervals, chert common throughout, localized calcite nodules (up to ~10 cm wide)
HS	uOp	outcrop	**Dolomitic Lime Mudstone**, commonly tan weathered where dolomitic, dominantly mudstone, less chert than HR, some shaly beds, thin-bedded (cm-scale)

Location	Unit	Type	Description
HT	uOp-Cn	contact	**Dolomitic Lime Mudstone (E) vs Lime Mudstone (W)**, Dolomitic Mdst: tan weathered, shaly, weak reaction with HCl; Mdst: dark-grey weathered, dark-brownish-grey and dark-grey fresh, conchoidal fracturing, very good reaction with HCl, moderately to well-bedded, bedding 175°/29°W
HU	Cn	outcrop	**Peloidal Lime Grainstone**, grst beds ¼-¾ m thick, interbedded with lime mdst
HV	Cn	outcrop	**Interbedded Lime Mudstone and Bioclastic Lime Wackestone to Packstone**, Wkst/Pkst: appearance of large fossils (bivalves, solitary rugose, crinoids, peloids, gastropods, bryozoans), interbeds of lime mudstone and packstone, very good reaction with HCl
HW	Cn-Et	contact	**Lime Mudstone and Wackestone (E) vs Lime Mudstone (W)**, Mdst/Wkst: localized pkst, dolomitic?, appearance of chert; Mdst: variable coloring, light-grey and tan/light-brownish-grey weathered, dark-grey and dark-brownish-grey fresh, micritic/cryptocrystalline, lacks conchoidal fractures as seen in Cn
HX	Cn-Et	contact	attempt to trace along saddle ridge but majority covered
HY	Et	outcrop	**Cherty Lime Wackestone**, abundant large chert nodules, large solitary rugose corals
HZ	Cn	outcrop	western edge of outcropping Cn
HAA	Cn-Et	contact	**Lime Mudstone and Wackestone (E) vs Cherty Lime Mudstone (W)**, Mdst: abundant chert nodules and beds
HBB	Et	outcrop	**Crinoidal Lime Grainstone**
HCC	Et	outcrop	**Brachiopod Crinoid Lime Wackestone**, pale-green weathered, abundant well preserved fossils (brachiopods, crinoid ossicles and stems, bryozoans), minor greenish shales, overall Etherington is dominantly crinoid grst and mdst (commonly shaly) with minor greenish shales and light- to medium-brownish-grey wkst, bedding 176°/30°W
HDD	Et-RM	contact	**Cherty Dolomudstone (E) vs Dolomitic Siltstones and Sandstones (W)**, abundant blocky dolomitic sst up hill to west
HEE		end	**END OF TRAVERSE**

Traverse 2008-I

Traverse I starts on Rudolf Peak south of Deadman Pass. The traverse proceeds downhill along a northwest-trending portion of Rudolf Ridge and wraps back to the east into a large bowl-shaped valley on the south side of the pass.

IA	Et	outcrop	**Lime Wackestone**, tan weathered, medium-brown fresh, very-fine- to medium-grained, mud-rich, chert nodules throughout, bedding 185°/35°W
IB	Et	outcrop	**Cherty Lime Mudstone and Lime Wackestone to Grainstone**, fine- to medium-grained; fossils include crinoids, brachiopods, solitary rugose coral, peloids, bryozoans, colonial coral, traversing along Etherington dipslope
IC	Et	outcrop	**Cherty Lime Mudstone to Wackestone**, large chert nodules (up to 30 cm), variable float (some shaly, some mdst to grst, abundant chert), bedding 188°/35°W
ID	Et	outcrop	**Cherty Brachiopod Lime Wackestone**, well-preserved brachiopod shells 1-2 cm in size (up to 3 cm)
IE	Et	outcrop	**Cherty Lime Mudstone to Wackestone**, "flower-centre" crinoid ossicles noted in float
IF	Et-Cn	contact	**Cherty Lime Mudstone to Wackestone (S) vs Lime Packstone to Grainstone (N)**, contact at top of large resistant section of Cn pkst-grst; Pkst/Grst: light-grey weathered, dark-grey fresh, fine- to coarse-grained, fossils include peloids, crinoids, bryozoans, brachiopods, moderately bedded, very good reaction with HCl
IG	Cn	outcrop	**Lime Mudstone**, ~1 m bed of cherty lime mdst with ½ m shale below (cherty horizon in Cn?); Mdst: brownish-grey weathered, very-dark-grey fresh, abundant chert as nodules or thin beds, good reaction with HCl, becomes well-bedded and more recessive; below cherty zone back into very-dark-grey, moderately bedded lime mdst
IH	Cn	outcrop	**Lime Wackestone and Packstone**, very-dark-grey and limey since IG, Wkst: very-coarse-grained; Pkst: fine- to coarse-grained, small bed (<~¼ m) with chert nodules, some thinly bedded sections
II	Cn-uOp	contact	**Lime Mudstone and Wackestone (S) vs Dolomitic(?) Lime Mudstone and Wackestone (N)**, change noted in float, changes from very-dark-grey to dark-brown (dolomitic?), becomes platy/shaly, no noticeable change in HCl reaction
IJ	uOp	outcrop	**Dolomitic(?) Lime Mudstone and Wackestone,** thinly-bedded chert layers/beds, bedding 188°/26°W
IK	uOp	outcrop	**Cherty Lime Mudstone and Wackestone**, solitary and colonial corals, shaly and cherty

Location	Unit	Type	Description
IL	uOp	outcrop	**Cherty Lime Mudstone to Wackestone**, light-grey and brownish-grey weathered, abundant chert in float and large chert bed in outcrop, no visible ooids; ~10 m downhill: lime wkst bed with large preserved brachiopod shells (much like Etherington from ID)
IM	mOp	outcrop	**Lime Packstone**, contact with Upper Opal suspected about 10 m uphill, heterogeneous, visible ooids, also crinoids, solitary rugose coral, brachiopods, no chert
IN	Ma (?)	outcrop	below cliff outcrop of Middle Opal, suspected to be recessive part of the Marston
IO	mOp(?)-Ma(?)	contact	**Lime Grainstone**, fine-grained, crinoids, bioclast fragments, abundant ooids in places, massive and resistant; recessive area below outcrop (Marston?)
IP	Ma(?)-Lo(?)	contact	**Cherty Dolomudstone and Dolomitic(?) Lime Wackestone (S) vs Lime Packstone to Grainstone**, Mdst: cherty, rugose corals; Pkst/Grst: fine-grained, homogeneous, bioclasts indeterminate, occasional crinoid ossicle
IQ	Ma-mOp	contact	**Cherty Dolomudstone (N) vs Massive Lime Packstone and Wackestone (S)**, Mdst: recessive, lack of outcrop in bowl, Pkst/Wkst: resistant, massive cliff-former
IR		end	**END OF TRAVERSE**

Traverse 2008-J

Traverse J starts on an unnamed ridge just north of Deadman Pass. The traverse initially proceeds along the ridge to the east; however, the stratigraphy encountered directs the traverse back to the west, down into a valley and ends atop a small knob just north of Deadman Pass.

JA		start	
JB	Liv	outcrop	**Lime Grainstone**, light-brownish-grey weathered and fresh, very-fine- to fine-grained, homogeneous, moderately to well-bedded, good reaction with HCl
JC	Liv	outcrop	**Dolomudstone to Dolomitic Wackestone interbedded with Lime Packstone to Grainstone**, tan weathered, light-brownish-grey fresh, interbedded with pkst/grst, variable grain size (homogeneous very-fine- to fine-grained and heterogeneous medium- to coarse-grained), solitary rugose coral, crinoid ossicles, shell fragments, bryozoans, some rusty nodules (replaced bioclasts?), pkst/grst more massive, very minor but large chert nodules (up to 5 cm x 20 cm), good reaction with HCl
JD	Liv	outcrop	**Dolomudstone to Dolomitic Wackestone interbedded with Lime Packstone to Grainstone**, same as JC, massive, undulating bedding 197°/34°W
JE	Liv	outcrop	**Dolomudstone to Dolomitic Wackestone interbedded with Lime Packstone to Grainstone**, same as JC, well fractured (cleavage), base of resistant pkst/grst (recessive area below)
JF	Liv	outcrop	**Lime Packstone to Grainstone**, base of resistant lithology; fine- to medium-grained, relatively homogeneous, major crinoid ossicles, also bryozoans, shell fragments, very minor/thin dolomitic wackestone to fine-grained dolomitic packstone horizons up to ~1 m thick; recessiveness more due to increase in cleavage/fracturing than lithology change
JG	Liv	outcrop	**Dolomudstone**, start of recessive section (small outcrop); tan weathered and fresh, some fine-grained dolomitic packstones
JH	Liv	outcrop	**Lime Packstone and Grainstone**, end of small recessive section; fine- to medium-grained, abundant crinoid ossicles and stems, some shell fragments, minor bryozoans, very consistent
JI	Liv	outcrop	**Cherty Dolomitic Wackestone and Dolomitic Packstone**, recessive
JJ	Liv	outcrop	**Cherty Dolomitic Wackestone and Dolomitic Packstone**, same as JI
JK	Liv	outcrop	**Cherty Dolomitic Wackestone and Packstone**, bryozoans common, some coral, recessive
JL	Liv	outcrop	**Cherty Dolomitic Wackestone and Packstone**, same as JK
JM	Liv	outcrop	**Cherty Dolomitic Wackestone to Packstone**, recessive
JN	Liv	outcrop	**Cherty Dolomitic Wackestone to Packstone**, same as JM
JO	Liv	outcrop	**Cherty Dolomitic Wackestone to Packstone**, tan weathered, abundant oozy chert
JP	Liv	outcrop	**Cherty Dolomitic Wackestone to Packstone**, same as JO
JQ	Liv	outcrop	**Cherty Dolomitic Wackestone to Packstone**, eastern edge of traverse - consistently Livingstone Formation
JR		traverse point	base of large resistant outcrop
JS	Liv-BW	contact	**Ooid Lime Packstone to Grainstone (E) vs Lime Packstone to Grainstone (W)**, Ooid Pkst/Grst: light-grey weathered; Pkst/Grst: fine- to medium-grained, peloids and crinoids, appearance of abundant chert as nodules along and across bedding
JT	W-B	contact	**Cherty Dolomudstone (E) vs Lime Packstone to Grainstone (W)**, Pkst/Grst: light-grey weathered and fresh, heterogeneous sections, crinoids, solitary and colonial corals, ooids

Location	Unit	Type	Description
JU	B-W	contact	**Lime Packstone to Grainstone (E) vs Cherty Dolomudstone (W)**, lack of outcrop uphill, appears to be large recessive section
JV	Sa(?)	outcrop	**Cherty Lime Mudstone**, Salter(?) or Baril-Wileman(?)
JW	Sa-Lo	contact	**Cherty Lime Mudstone (E) vs Lime Grainstone (W)**, Mdst: dolomitic(?), recessive section, limited outcrop; Grst: light-grey weathered and fresh, visible ooids, crinoid ossicles, shell fragments, massive and resistant, some moderately bedded sections
JX	Lo-Ma	contact	**Lime Grainstone vs Cherty Lime Mudstone to Wackestone**, Grst: same as JW; Mdst/Wkst: 1½ m bed of cherty lime mdst to wkst changes upward into ~2 m of very-fine-grained lime grst, then back into cherty lime mdst, rugose and colonial corals, abundant chert in nodules and along beds, recessive atop hill
JY	Ma-mOp	contact	**Cherty Lime Mudstone to Wackestone (E) vs Ooid Lime Packstone (W)**, Mdst/Wkst: same as JX; Pkst: medium-brownish-grey weathered and fresh, relatively homogeneous but heterogeneous sections, ooids visible, crinoid ossicles and solitary rugose, massive and resistant
JZ	mOp	outcrop	**Crinoidal Lime Grainstone**, fine- to coarse-grained, heterogeneous, abundant crinoids and solitary rugose coral, crumbly, bedding 196°/38°W **END OF TRAVERSE**

Traverse 2008-K

Traverse K begins near the northwest end of Deadman Pass atop a large hill. The traverse continues to the northeast and ends within a valley.

Location	Unit	Type	Description
KA	RM	outcrop	**Dolomitic Sandstone**, pale-greenish-grey weathered, white-grey fresh, fine- to medium-grained, relatively well-sorted and homogeneous, generally thick-bedded (up to 1 m), some cm-scale laminations visible, no reaction with HCl, large blocky boulder field below cliff, bedding(1) 140°/38°SW, bedding(2) 160°/28°W
KB-KE		no outcrop	forested area with no outcrop and minor float
KF	RM	outcrop	**Conglomerate**, light-brown clay and silt matrix, very poorly sorted, well cemented, large (up to ½ m) clasts of medium-grey lime grst and green-grey dolomitic sst, clasts are subrounded to subangular
KG	RM	outcrop	**Conglomerate**, same as KF, lime grst clasts more abundant near top of cliff outcrop
KH	RM	outcrop	**Conglomerate**, light-grey weathered, light-brownish-grey fresh, abundant lime pkst to grst clasts with cm-scale chert nodules and rugose corals 1-2 cm in length, matrix is much coarser than in KF (fine- to medium-grained)
KI		end	**END OF TRAVERSE**

APPENDIX 6: STATEMENT OF QUALIFICATIONS

The field work described in this report was supervised by Jocelyn Klarenbach.

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