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CONTINENTAL LIME LTD.

GEOLOGY AND SAMPLING IN 1993 OF  
THE KELLY LAKE LIMESTONE DEPOSITS,  
MARBLE RANGE,

WEST OF CLINTON, BRITISH COLUMBIA

CLAIMS STAG 1 AND 2, MARY 1, WILLIAM 1,  
MAR 1-75, 78-86, 88-95, 104, 110-112

Geographic Coordinates

51° 07' N  
121° 51' W

NTS Sheet 92/P4 W

Owner of STAG 1 and 2, MARY 1, WILLIAM 1, MAR 104, 110 to 112:  
B.M.C. Lime Derivatives Ltd.,  
215, 10451 Shellbridge Way, Richmond, B.C.

Owner of MAR 1-75, 78-86, 88-95 (at time of work):  
Continental Lime Ltd.,  
215, 10451 Shellbridge Way, Richmond, B.C.

Operator: Continental Lime Ltd.  
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Date Submitted: 1993 12 29

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

23,224

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## INTRODUCTION

Parts of the Kelly Lake limestone deposits were acquired in mid 1992 by Continental Lime Ltd., partly by staking and partly by purchase. Other parts were staked in 1993. In this report the Kelly Lake limestone deposits are within the first two mountain ridges on the southwest side of the Marble Range in a band about 19 km long by up to 4 km wide. They include the Jesmond Quarry in District Lot 1284, the Columbia Lime deposit in District Lot 2203, and the South Porcupine deposit which is on strike with the Columbia Lime deposit, southeast of Porcupine Creek. This report combines information on 444 rock samples from the Kelly Lake limestone deposits, collected during August 1993, with geological observations noted during the sampling, and interpretation of some of the geological information obtained in 1992. This report also includes brightness measurements on 14 samples collected in 1992 and earlier. The exploration in 1993 was authorized by Continental Lime Ltd.

Throughout this report attitudes of bedding and other planar features are given as  $A^\circ/B^\circ$  SW, where  $A^\circ$  is the azimuth of the strike and  $B^\circ$  is the amount of dip in the direction indicated.

### 1.1 GEOGRAPHIC SETTING

#### 1.1.1 Location

The Kelly Lake limestone deposits are in the Intermontane Belt of southwestern British Columbia about 230 km northeasterly from Vancouver and about 16 km west of the Town of Clinton (Fig. 1.1). Clinton is 381 km from Vancouver via Highways 1 and 97, and 124 km from Kamloops also via Highways 1 and 97. It is 327 km from North Vancouver via the British Columbia Railway. Clinton has a population of about 700; its facilities include motels, gas and service stations, and stores. It is economically based on ranching, forestry, and highway traffic.

#### 1.1.2 Access

From Clinton, the Kelly Lake limestone deposits may be reached by driving southwesterly on a two-lane paved road which more or less parallels the BCR track for about 18 km and then northwesterly on the gravel road to Jesmond (Fig. 1.2), which is a rural postal station only. The turnoff onto the Jesmond road is about  $\frac{1}{2}$  km northeasterly from Kelly Lake. Kelly Lake is 310 km from North Vancouver on the BCR and 246 km from tidewater at Squamish. The Kelly Lake limestone deposits include the two southwestern ridges of the Marble Range but not its eastern nor northeastern parts. From their southeast end about 5 km northwest of the turnoff on the Jesmond road, the Kelly Lake limestone deposits trend



about 19 km northwesterly more or less parallel to the Jesmond road and about 2 to 5 km northeast of it. The ridge closest to the Jesmond road is here termed the First Ridge and the next ridge to the northeast, the Second Ridge.

Between the Jesmond road and the First Ridge of the Marble Range are two corridors for powerlines of the British Columbia Hydro and Power Authority. Another powerline along one of these corridors was being constructed during the summer and fall of 1993. BC Hydro operates a large transformer station about 3 km northeasterly from Kelly Lake on the paved road to Clinton.

Local access on the ground to the Kelly Lake limestone deposits is by several four-wheel-drive (two-wheel-drive in dry conditions) powerline, logging, and mining roads, which turn northeasterly off the Jesmond road (Fig. 1.2, 2.1, 2.4, 2.7-2.9). Many of the powerline roads have been improved and extended in 1993 for access to the powerline then under construction.

From the Jesmond road, one mining road, here called the Porcupine Creek road, leads to the Columbia Lime deposit. From its turnoff approximately 5½ km from the beginning of the Jesmond road, the Porcupine Creek road follows along the powerline corridors northwesterly for about 2.7 km before turning northeasterly to follow along the southeast side of the Porcupine Creek valley. It crosses Porcupine Creek approximately 4 km up from the Jesmond road, and continues a short distance up Steady Creek and after a few switchbacks reaches the site of drillhole 1-73, about 5½ km along the Porcupine Creek road from the Jesmond road turnoff. A fork in the Porcupine Creek road about 100 m before reaching drillhole 1-73 branches off southwesterly and continues for 200 m along the mountainside to a point 45 to 50 m in elevation below drillhole 2-73 (Fig. 2.4, 2.5). Steep slopes on the Porcupine Creek road near the 1973 drillholes require four-wheel-drive vehicles.

A second mining road, here termed the Lot-1284 road, leads to the site of the Jesmond Quarry. From its turnoff about 14 km up the Jesmond road from near Kelly Lake, it winds its way across the First Ridge for about 3½ km to reach the Jesmond Quarry at the base of extensive limestone outcrops near the base of the Second Ridge at an elevation of about 5820 feet (1775 m) (Fig. 2.7).

A logging road, here called the Stable Creek road, turns off the Jesmond road about 30 km northwesterly from Kelly Lake and leads to the northwest end of Ewe Ridge (Fig. 2.9).

Trails used by outfitters and perhaps ranchers cross the Second Ridge along Crossover and Trail Creeks, and Porcupine Creek beyond the Porcupine Creek road. A

similar trail crosses the First Ridge along Koshead Creek and joins a trail along the valley of Steady Creek to reach the Porcupine Creek road. An infrequently used trail ascends Indecision Creek at least as far as the First Ridge. A trail bulldozed in the early 1970s climbs southeasterly from the Porcupine Creek road up the Quill Creek valley between the First and Second Ridges (Fig. 2.1, 2.3).

Access to the high mountains and those areas not close to existing roads or trails is generally via helicopter, or on foot.

### 1.1.3 Geographic Names, Topography, Vegetation, and Climate

Several creeks, mountains, and other features presently without names on published maps have been assigned informal names in this report to facilitate references to geographic locations (see Fig. 1.2, 2.1-2.9).

Information on topography, vegetation, and climate is included in a previous assessment report (Halferdahl, 1992) and is not repeated here. Boundaries of treed areas are shown on parts of some of the maps for this report. Trees have been cleared along powerlines and in logged areas; they are almost absent above treeline at about 2070 m.

## 1.2 PROPERTY

At the time of the work, the Kelly Lake limestone deposits consisted of 217 claim units and two-post claims in the Marble Range west of Clinton, B.C. (Fig. 1.3). The property is within the Clinton Mining Division with some claim details as of September 17, 1993 listed in Appendix 1, which includes claims Mar 1-31, 36-75, 78-86, and 88-95.

Following September 17, 1993 claims Mar 1-31, 36-41, 43-65, 70-75, 78-86, and 88-95 were abandoned under Section 32 of the Mineral Tenure Act and restaked under Section 33 so that the current claims are listed in Table 1 (Fig. 1.3).

As of September 22, 1993, the claims listed in Table 1 are held as follows:

#### B.M.C. Lime Derivatives Ltd.

Stag 1-2  
William 1  
Mary 1  
Mar 104  
Mar 110-112

#### Continental Lime Ltd.

Mar 42  
Mar 66-69  
Mar 101-102  
Mar 105-109  
Mar 113.

**TABLE 1: CURRENT MINERAL CLAIMS COVERING THE KELLY LAKE LIMESTONE DEPOSITS**

Claim Name	Tenure Number	Units/Claims	Record Date	Expected Expiry Date
Stag 1	208 888	20	1989 09 30	2001 09 30
Stag 2	208 889	20	1989 09 29	1996 09 29
William 1	208 932	12	1989 11 24	2001 11 24
Mary 1	208 933	12	1989 11 24	2000 11 24
Mar 42	309 898	1	1992 05 21	2000 05 21
Mar 66-69	310 968-71	1 each	1992 06 22	1997 06 22
Mar 101	321 061	4	1993 09 22	1997 09 22*
Mar 102	321 062	20	1993 09 22	1997 09 22
Mar 104	320 198	12	1993 08 07	1997 08 07
Mar 105	321 063	20	1993 09 22	1999 09 22
Mar 106	321 064	18	1993 09 22	1999 09 22
Mar 107	321 065	12	1993 09 21	1995 09 21*
Mar 108	321 066	15	1993 09 22	1997 09 22
Mar 109	321 067	20	1993 09 22	1998 09 22
Mar 110	320 199	18	1993 08 10	1997 08 10
Mar 111	320 200	15	1993 08 10	1997 08 10
Mar 112	320 201	20	1993 08 10	1997 08 10
Mar 113	321 068	6	1993 09 22	2000 09 22*
		249		

\* to be confirmed

### 1.3 HISTORY AND PREVIOUS INVESTIGATIONS

Previous investigations and the exploration history are included in a previous assessment report (Halferdahl, 1992) and are not repeated here. Subsequent to filing the 1992 assessment report, Mr. Ernest Taylor-Smith provided additional information and details relating to the Kelly Lake limestone deposits.

Apparently, in the late 1960s, Mr. Taylor-Smith became interested in the limestones of the Marble Range west of Clinton because of a report (perhaps unpublished) by G.M. Dawson of the Geological Survey of Canada. The Dawson report, prior to 1900, apparently mentioned the high quality of some limestones in the Marble Range. Mr. Taylor-Smith obtained dispositions under the Land Act for what became District Lots 1284 and 1285; only District Lot 1284 was surveyed. He tried to obtain similar dispositions for an additional eight to ten square miles adjoining District Lots 1284 and 1285 but was advised that only two square miles were permitted under the then current policy of the B.C. Land Department. He

attempted to obtain interests in this additional ground by staking it as claims under the Mineral Act. Some of the posts for these claims were encountered during the 1992 and 1993 field seasons.

Mr. Taylor-Smith was apparently involved in some way with the Jesmond Limestone Corporation and Ramshead Quarries Ltd., the companies which explored District Lot 1284 during 1970 (Fishl, 1992) and with Malibu Metals Ltd., which continued this exploration in 1971 under the direction of Mr. T.A. Rourke (1971a, 1971b). His Zone C was mapped in 1993 at a scale of 1:1 000 (Fig. 1.4). As some of Rourke's (1971b) 1971 analyses are illegible on the copies of his Fig. 3 available to the writers, a legible copy of the analytical report was obtained (Appendix 2). Apparently samples 4 to 10 are outcrop samples (Fig. 1.4). Sample 11 is from Rourke's Zone A (sampled Section C-4, Fig. 2.7). The locations of samples 1 to 3 are not known and Rourke (1971b) did not report analyses of samples from any of his 1971 drillholes. The limestone sample whose chemical analysis is reported in Appendix 15 of the previous assessment report (Halferdahl, 1992) probably came from District Lot 1284, not from the Columbia Lime deposit as previously thought.

Subsequent to 1971, Mr. Taylor-Smith learned of the excellent quality limestone in the Columbia Lime deposit and was able to exchange his interest, or the interest of the companies involved, in District Lot 1285 for a lease of District Lot 2203, which covers this deposit. Mr. Taylor-Smith was involved with the 1973 work on the Columbia Lime deposit contracted by Consolidated African Selection Trust Ltd. to W.G. Wahl Ltd. of Toronto.

Instead of keeping limestone rights to District Lots 1284 and 2203 under the Land Act, in 1989 Mr. Taylor-Smith arranged for them to be staked within claims Stag 1 and 2, William 1, and Mary 1 under the Mineral Tenure Act. His company, B.M.C. Lime Derivatives Ltd. along with these four claims, was sold to Continental Lime Ltd. in 1992.

#### **1.4 PURPOSE OF SURVEY**

The work described in this report was undertaken to provide additional information on the extent of the limestone in the Marble Range that is of high enough quality for the manufacture of lime, and to select the parts most favorable for immediate development as quarries. Particular attention was given to the South Porcupine and Columbia Lime Ridges.

#### **1.5 SUMMARY OF WORK DONE**

During the period August 8 to 26, 1993, geological crews collected 444 samples of

limestone, each chipped across lengths from 2 m to 15 or 20 m or more but mostly 10 to 15 m on claims Stag 1-2, Mary 1, and Mar 24-31, 50-51, 79, 84, 93, 110-112. These 444 samples were analyzed chemically by ICP techniques. Parts of these claims were mapped geologically at scales of 1:5 000 or 1:2 000 or both. In addition some geology was observed on parts of other claims, so the area mapped is estimated at about 10 km<sup>2</sup>. Brightness was measured on seven samples collected in 1992 from claims Stag 2, Mar 31, and Mar 79, and on seven collected earlier by Mr. Taylor-Smith, probably all from claim Stag 2.

## 1.6 FIELD OPERATIONS

The field work was conducted by a crew of up to eight people and a helicopter pilot during August, 1993. This crew was based in a motel in Clinton with transportation mostly by four-wheel-drive vehicles but by helicopter as appropriate. Supplies were obtained mostly in Kamloops, but a few in Clinton.

## 2. GEOLOGY

### 2.1 STRATIGRAPHY

The map units in Fig. 2.1 to 2.9 have been slightly modified from those in the previous assessment report (Halferdahl, 1992) because of the identification of the southwest carbonate, map unit C6, as follows:

Trettin (1980)		Halferdahl (1992)	This Report		
Unit	Maximum Thickness (m)	Unit	Unit	Maximum Thickness (m)	
not described	--	D6	D7	thin	--
6cb	7	not noted	C6	34	(Section B-32)
6	not given	N5	N5	380-	(scaled from Fig. 3.3)
4	not given	C4	C4	332+	(Section C-3)
5	not given	N3	N3	311+	(Lot-1284 road)
4	263	C2	C2	303(?)	(Sections E-1, E-2)
3	90±	N1	N1	not known	--
2	197	beyond claims	beyond claims	--	--
1	152	beyond claims	beyond claims	--	--

As explained (Halferdahl, 1992), Trettin's map unit 4 has been divided into map units C2 (Second Ridge carbonates) and C4 (First Ridge carbonates) for the explorations in 1992 and

1993. Trettin (1980) assigned his map units 2 to 4 or units 2 and 4 to the Upper Permian Marble Canyon Formation, and depending on the structures actually present, preferred his map unit 5 to be a repeat of his map unit 3, so his map units 2 to 5 would then be part of the Upper Permian strata in the Marble Range. Trettin's map indicates that no parts of his map units 1 nor 2 are within the Mar claims, nor claims Stag 1 and 2, William 1, and Mary 1, so they are discussed very little in this report.

Trettin's map unit 6 forms part of his Western Belt of the Cache Creek Group. Fossils from his unit 6cb (unit C6 of this report) near the legal corner post of claim Stag 1 seemed to indicate to Trettin that his map unit 6 may include deep-water facies equivalents to his map units 2 to 4. Other fossils from the Western Belt at Big Bar Creek on the Fraser River seem to indicate a Middle to Late Triassic age for some strata of the Western Belt of the Cache Creek Group.

The writers of this report are not paleontologists, and the exploration crews collected no fossils from the Marble Range in 1992 nor 1993. However, Trettin's discussions of fossils from the Marble Range appear compatible with all of his units 2 to 6 being Upper Permian, including his unit 6cb (unit C6 of this report).

#### **2.1.1 Map Units N1, N3, and N5**

The only new data obtained in 1993 on map unit N1 are that it includes basic volcanics locally with chloritic alteration along parts of the northern boundary of claim Mar 107. Map unit N3 includes some slaty to silty carbonaceous rocks with a satiny lustre on the mountainside southwest of Quill Creek, and schists higher up this northeast side of the South Porcupine Ridge. On the southwest side of the South Porcupine Ridge, some of the lithologies of map unit N5 are schists.

#### **2.1.2 Map Unit C2 (Second Ridge Carbonates)**

The preceding thickness listed for map unit C2 was obtained by adding the stratigraphic thicknesses for sampled sections E-1 and E-2 (Appendix 3) on Mount Bowman without any additions for covered intervals or allowances for faults. Depending on the structures on the Second Ridge, the thickness of map unit C2 may be considerably thicker than 303 m, if adding strata from other sampled sections is appropriate. Very preliminary observations suggest that strata in the Second Ridge not far north of Porcupine Creek and on the northwestern spur of Trail Mountain may be stratigraphically below those on Mount Bowman. Even the 303 m indicated on Mount Bowman is more than the 263 m reported by Trettin for a section near Trail Creek, based on his photogrammetric studies.

### 2.1.3 Map Unit C4 (First Ridge Carbonates)

The maximum thickness of 332+ m for unit C4 is based on section C-3 north of Indecision Creek, mostly sampled in 1992. It compares with about 324+ m at the Columbia Lime deposit drilled by Wahl (1973) and sampled in 1992, but the 324 m does not include an unknown thickness at its stratigraphic base. It can also be compared with an estimated 310 m mostly sampled along Koshead Creek in 1992 (Section B-6). Although a stratigraphic thickness of 449½ m is listed in Table 2 for Section B-24 (Appendix 3) sampled in 1993 on the southern flank of the Columbia Lime Ridge, Section B-24 includes more than an estimated 100 m in covered intervals near the base of the Columbia Lime Ridge and appears to be in a faulted block, so the actual stratigraphic thickness for Section B-24 is uncertain. Trettin (1980) did not report any stratigraphic thicknesses for his unit 4 on the main part of the First Ridge, only 37+ m at his Section 6 at Two Mile Creek, from what may be another lens of limestone or perhaps part of unit C6 of this report.

The similarity of stratigraphic thicknesses for unit C4 at the Columbia Lime deposit, along Koshead Creek, and sampled Section C-3 suggests that its maximum stratigraphic thickness is about 350 m. Of this thickness, an estimated 220 m constitutes the very high quality limestone of Zone A at the Columbia Lime deposit (Wahl, 1973; Halferdahl, 1992). About 2 km northwest of the Columbia Lime deposit, Zone A seems to lens out before reaching Dome Mountain, but the geology along the northwestern part of the Columbia Lime Ridge is complicated by faults. Along strike to the southeast on the South Porcupine Ridge, Zone A appears to thin to a stratigraphic thickness of 120 to 150 m. At the Columbia Lime deposit, Zone B, stratigraphically below Zone A and less pure, is about 45 m thick. Below Zone B at the Columbia Lime deposit, are more than 60 m of Zone C, some of which contain appreciable MgO.

On the northeast side of unit C4 on the South Porcupine Ridge is another layer of limestone up to about 20 m thick, an estimated 90 to 100 m stratigraphically below unit C4, too thin to be designated as a separate map unit within the enclosing schists. It has not been found along strike northwest of Porcupine Creek, perhaps because of the fault shown on Trettin's map.

### 2.1.4 Map Unit C6 (Southwest Carbonates)

Some 34 m of map unit C6 were sampled at Section B-32 in 1993. This thickness is greater than the 7 m reported by Trettin (1980) for this limestone layer, his unit 6cb. This

discrepancy in thickness remains unexplained. However, Trettin (1980) reported 37+ m of limestone at Two Mile Creek in what may be a faulted extension of map unit C6. Although much thinner than unit C4, unit C6 may be part of unit C4, repeated on the southwest limb of the syncline noted in 1992 along the southeast side of Porcupine Creek between units C4 and C6. This possible correlation is regarded as very improbable.

#### **2.1.5 Map Unit D7 (Dykes)**

No new data were obtained on map unit D7 (D6 of Halferdahl, 1992) in 1993. The relations of fine-grained dark-colored rocks resembling volcanics intruding limestones of map unit C2 near the southeast end of the Second Ridge (Fig. 2.1) indicate that map unit D7 is younger than map unit C2, perhaps constituting feeders for some of the Tertiary volcanics in that part of British Columbia.

#### **2.1.6 Depositional Sequences**

As indicated previously (Halferdahl, 1992), the writers do not agree with Trettin's correlation of the carbonate units on the First Ridge with those on the Second Ridge. Rather, they favor a geological environment in which various non-carbonate rocks: argillite, siltstone, conglomerate, tuff and agglomerate, greenstone, and volcanics, were deposited. Later tectonism metamorphosed some of these lithologies to schists. Periodically, the deposition of the non-carbonate rocks was interrupted by buildups of carbonate rocks, some very thick, chiefly limestones. According to this interpretation, Trettin's unit 2 might be a lower carbonate buildup below the strata under consideration in this report. Within the property, however, the rest of the stratigraphic units were deposited in sequence from N1 at the bottom to C6 at the top. In one exposure at the base of the limestone on the southwest side of the South Porcupine Ridge, unit N5 appears conformable with unit C4: unit N5 schists appear to have been moulded to fit an irregular surface at the stratigraphic top of unit C4. The thicknesses and lateral extents of the carbonate units are likely to vary. In this connection, the knobs of limestone near the extreme southeast end of the South Porcupine Ridge, one sampled as Section A-1 in 1992 (Fig. 2.1), may be erosional remnants of another lens of carbonate within non-carbonate strata, at or above or below the stratigraphic level of unit C4 within the South Porcupine Ridge. Or, they may be parts of an extension of unit C6, perhaps displaced by a fault. These limestone knobs are no longer regarded as roof pendants in the enclosing schists as suggested by Halferdahl (1992).



## 2.2 STRUCTURE

Folding, faulting, and related plastic deformation, followed by later periods of tectonism, and perhaps uniform conditions of original deposition, have rendered bedding difficult to find and recognize in many places in the limestones of the First and Second Ridges of the Marble Range. Joints are easily confused with bedding. In some places, bedding may be visible from a distance, rather than by examining outcrops closely. In a few outcrops, bedding can be recognized by partings along bedding planes, by color differences in fresh rock even when sharp contacts are not seen, or by distinguishing gently undulating surfaces from regular parallel planar surfaces resulting from later tectonism. In this report, some measured planar surfaces have been interpreted as bedding if they fit the generally accepted structure, if known, in that part of the Marble Range. If they do not fit the generally accepted structure, they have been noted as planar features or joints. This procedure may bias some interpretations of bedding and planar features, but it is regarded as preferable to having to introduce probably spurious folds and faults to explain some differences in measured attitudes.

Trettin (1980) showed an early thrust fault, whose surface trace is generally along the northeast side of the Second Ridge for a distance of 16½ km. During the explorations in 1992 and 1993, primarily to learn the quality of the limestones throughout the First and Second Ridges of the Marble Range, no evidence for or against the presence of this early thrust fault was obtained. Accordingly, it is not shown in Fig. 2.1 to 2.9.

### 2.2.1 First Ridge

The observations from the 1992 and 1993 explorations are interpreted to indicate that the First Ridge on the southwest side of the Marble Range consists of a homoclinal succession of strata from unit N3 at the base to unit N5 at the top, or perhaps even including unit C6. The strata strike northwesterly, and stratigraphic tops face southwesterly. Dips range from a little below 40° SW to vertical, and steeply to the northeast along the northeast side of unit C4. Trettin (1980) interpreted these northeasterly dips to be on the northeastern limb of an anticline comprising the First Ridge, but such northeasterly dips are here regarded as overturning probably resulting from drag along one or more northwesterly striking faults between the First and Second Ridges. This drag indicates that such a fault or faults have displacement of southwest side down, and so serves to suggest that unit C4 is stratigraphically above unit C2. Trettin's (1980) map shows parts of this fault, or these faults, in the southeastern parts of the valley between the First and Second Ridges. Also, an extension of such a fault is required to explain the structural changes just southwest of section

C-4, sampled in 1992, near the upper end of the Lot-1284 road. Overturning near the stratigraphic base of section C-3, sampled in 1992, suggests an extension of this fault at least as far northwesterly as section C-3.

A fault observed on the Columbia Lime Ridge probably explains the bulge in limestone on its southwest side, where excellent quality limestone of Zone A is at an elevation of about 5500 feet (1676 m). Another fault probably terminates Zone A limestone before it extends northwesterly to the peak of Dome Mountain. The nearly vertical fault in the cleft about 60 m northwest of drillhole 3-73 at the Columbia Lime deposit with more than 30 m of left-hand movement was noted by Halferdahl (1992). Other faults were observed on Dome Mountain, but they have not yet been mapped there. A fault shown on Trettin's (1980) map near the southeast end of the South Porcupine Ridge may offset part of unit C6 to place it as an extension to the First Ridge just northwesterly from Two Mile Creek.

### **2.2.2 Second Ridge**

Although the structure of the Second Ridge is not yet well known, most of it appears to be synclinal or a synclinorium including a few small anticlines and synclines. One such anticline was observed in the canyon where Porcupine Creek cuts through the Second Ridge.

If Sections B-13 and B-19 (Fig. 2.4), both sampled in 1992, can be correlated with part of Section D-7 on the northwestern spur of Trail Mountain sampled in 1993 (Fig. 2.8), based on their higher contents of  $P_2O_5$ , it is possible that the strata on Mount Bowman may be higher stratigraphically than those in Sections B-13, B-19, and D-7.

A major northwesterly striking fault was noted near the base of Section C-8 in 1992 (Fig. 2.7). It has been extended northwesterly to join Trettin's fault near Trail Creek in the valley between the Second Ridge and Trettin's Third Ridge Anticline, and southeasterly to join Trettin's fault along Mary Creek (Fig. 2.4), which seems to offset the contact between units C2 and N1 there. These extensions are also based partly on interpretations of aerial photographs.

Another northwesterly striking fault is present near the top of Mount Bowman on its southwest side. It may lie along strike from some coarse white calcite on the mountainside on the eastern boundary of claim Mar 107, north of Trail Creek. This fault has been extended southeasterly as interpreted from aerial photographs. The other faults on the Second Ridge (Fig. 2.4, 2.7 to 2.9) are based on coarse white calcite observed in outcrops and extensions of these faults based on topography. The faults cutting the Second Ridge not far north of Porcupine Creek are based mostly on interpretations of aerial photographs.

## **2.3 INTRUSIONS**

Map unit D7 may represent a feeder dyke for Tertiary volcanic extrusions. It is discussed in Section 2.1.5 of this report.

A few indications of small granitic intrusions were noted on the Second Ridge south of Trail Creek in 1992 (Halferdahl, 1992). No new information on them was obtained in 1993.

## **3. QUALITY OF LIMESTONE**

### **3.1 SAMPLING**

Some 444 samples (Appendix 3) were collected by chipping outcrops perpendicular to the bedding, if it could be identified. Where bedding could not be identified, the chips were taken in directions appropriate to the topography with the stratigraphic thickness deduced from other measurements where possible. These samples came from nineteen sections from map unit C4 on the First Ridge representing more than 2384 m of strata plus another 23 + m from isolated outcrops, one section of 34 m from map unit C6 and others from isolated outcrops, and from seven sections from map unit C2 on the Second Ridge representing 653½ m of strata plus another 35 + m from isolated outcrops (Table 2).

### **3.2 ANALYTICAL PROCEDURES**

The 444 samples collected in 1993 were analyzed by Acme Analytical Laboratories Ltd. (Appendix 4) according to inductively coupled plasma techniques which are much less expensive than wet chemical analytical techniques, and seem to give as satisfactory results, although many analyses require adjustments. For ICP analyses the samples were crushed, ground, and pulverized, with 0.2 g then fused with  $\text{LiBO}_2$ , and dissolved in 100 ml 5%  $\text{HNO}_3$ .

### **3.3 ADJUSTMENTS TO REPORTED ANALYSES**

Perusal of the analytical reports in Appendix 4 indicates that some of the determinations for CaO and LOI are not accurate. Of the 444 samples analyzed, 181 determinations of CaO exceed 56 per cent, the maximum possible for pure  $\text{CaCO}_3$ . Some of those for LOI are too low for some of the very high quality limestone samples analyzed. These low LOI determinations probably arise from the fact that the decomposition temperature of  $\text{CaCO}_3$  is about 894°C, not much below the usual ignition temperature of 1000°C, which may not be reached by all the limestone samples in the furnace, if the temperature calibration of the furnace is not accurate, or if temperature gradients in the furnace are significant.

**TABLE 2: SECTIONS SAMPLED IN 1993 AND ISOLATED SAMPLES**

Section or Samples	Number of Samples	Sampled Length (m)	Stratigraphic Thickness Sampled (m)	Total Stratigraphic Thickness (m)
<u>Southwest Carbonate (Unit C6)</u>				
B-32	4	34	34	34
Isolated	4	80	11½	11½
	<u>8</u>	<u>114</u>	<u>69½</u>	<u>69½</u>
<u>First Ridge Carbonate (Unit C4)</u>				
A-6	3	28	28	28
A-7	25	348	114½	142
A-8	8	125	117	125
A-9	25	339	92	97½
A-10	13	192	181½	185½
A-11	23	323	116½	152½
A-12	24	342	203½	208½
A-13	18	280	106	129
B-24	34	483	267	449½ (?)
B-25	15	237	65	68
B-26	13	195	163½	163½
B-27	2	35	17½	17½
B-28	13	290	44½	57
B-29	16	258	161	171
B-30	23	397	29½	54
B-31	11	159	64	64
B-33	16	155	49	123
B-34	9	80	51½	76½
B-35	7	92	72	72
	<u>298</u>	<u>4358</u>	<u>1943½</u>	<u>2384</u>
Isolated	4	45	23 +	23 +
	<u>302</u>	<u>4403</u>	<u>1966½ +</u>	<u>2407 +</u>
<u>Second Ridge Carbonate (Unit C2)</u>				
A-14	25	367	81(?)	130
D-6	32	480	54½	57
D-7	17	167	63	63
E-1	12	145	102½	145½
E-2	32	575	201	204
E-3	4	94	29(?)	29(?)
E-4	5	45	26(?)	26(?)
	<u>127</u>	<u>1873</u>	<u>557</u>	<u>654½</u>
Isolated	7	56	35 +	35 +
	<u>134</u>	<u>1929</u>	<u>592 +</u>	<u>689½ +</u>
Totals	444	6446	2628 +	3166 +

Chemical analyses of limestone can be checked by subtracting the carbon dioxide equivalent to CaO plus that equivalent to MgO (total carbon dioxide equivalents are indicated CO<sub>2</sub> EQ) from the determined LOI (Appendix 5). If P<sub>2</sub>O<sub>5</sub> has been determined, the percentage of CaO to use in this calculation is the determined CaO minus 1.31693 P<sub>2</sub>O<sub>5</sub>. LOI should exceed CO<sub>2</sub> EQ by a small amount to allow for moisture, oxidation of any pyrite, and other factors. Of the 444 samples analyzed, LOI minus CO<sub>2</sub> EQ is positive in only 34 (Appendix 5, code 1). The sums of constituents in these 34 samples range from 97.42 to 100.46 per cent (mean 99.464%, standard deviation 0.786%) with the sums of two samples less than 98 per cent, and the sums of six samples between 98 and 99 per cent. Four of these samples with very low sums (Appendix 5) contain sufficient MgO or SiO<sub>2</sub> or both (Appendix 6) so that their quality is too low for further consideration. The low sums for the other four samples (8822, 9044, 9135, and 9164, Appendix 5), however, are not easily explained, except perhaps that the determinations of CaO in them are erroneously low. Accordingly the preferred value for CaO in these four samples has been arbitrarily and reluctantly raised to 55.00 per cent, a value somewhat less than calculated by either the LOI-based or impurity-based adjustments (Appendix 5). The LOI values for three of these samples have been raised concomitantly. Of the other 30 samples with positive differences of LOI minus CO<sub>2</sub> EQ, the determined values of CaO and LOI have not been adjusted; they are accepted as the preferred values.

For analyses of the other 410 samples, adjustments to determined values of CaO and LOI have been calculated by two methods: LOI-based and impurity-based. The LOI-based method involves lowering the determined CaO and concomitantly raising the determined LOI so that with the adjusted values of CaO and LOI, LOI minus CO<sub>2</sub> EQ equals 0.2. The equations for LOI-based adjustments follow:

$$\text{CaO}_f = \frac{99.80 - 0.21522 \text{ CaO} - 2.09175 \text{ MgO} - \text{SiO}_2 - \text{R}_2\text{O}_3 - \text{others} + 0.983 \text{ P}_2\text{O}_5}{1.56956}$$

$$\text{LOI}_f = \frac{1}{2} ( 100.20 - 0.21522 \text{ CaO} + 0.09175 \text{ MgO} - \text{SiO}_2 - \text{R}_2\text{O}_3 - \text{others} - 0.983 \text{ P}_2\text{O}_5 )$$

where the subscript <sub>f</sub> refers to the adjusted or calculated percentage (final) of CaO or LOI;  
 R<sub>2</sub>O<sub>3</sub> is the sum of Al<sub>2</sub>O<sub>3</sub> + Fe<sub>2</sub>O<sub>3</sub> + TiO<sub>2</sub> + P<sub>2</sub>O<sub>5</sub> + MnO + Cr<sub>2</sub>O<sub>3</sub> as determined; and  
 others is the sum of the rest of the constituents as determined in the analytical reports (Appendix 4) not already appearing in the equations.

The impurity-based method involves subtracting the sum of all the determined impurities from 100.00 per cent, assigning the remainder to CaCO<sub>3</sub>, and calculating adjusted values for CaO and LOI based on this remainder. The equations for impurity-based adjustments follow:

$$\text{CaO}_F = \frac{99.80 - 2.09175 \text{ MgO} - \text{SiO}_2 - \text{R}_2\text{O}_3 - \text{others} + 0.983 \text{ P}_2\text{O}_5}{1.78478}$$

$$\text{LOI}_F = \frac{100.2548 + 0.39115 \text{ MgO} - 1.2526 \text{ P}_2\text{O}_5 - \text{SiO}_2 - \text{R}_2\text{O}_3 - \text{others}}{2.2742}$$

where the subscript  $F$ ,  $\text{R}_2\text{O}_3$ , and *others* have the same meanings as for the previous two equations.

Perusal of the values adjusted for CaO and LOI (Appendix 5) indicates that for the 410 samples (codes 2 to 6), the CaO and LOI values adjusted by either method are very close. These small differences between the values adjusted by the two methods and the acceptable sums of the constituents from Appendix 6 for these 410 samples, provide confidence that the adjusted values may be satisfactory.

In 393 of the 410 samples (Appendix 5, codes 2 to 4), the CaO values adjusted by the LOI-based method are a little lower than those adjusted by the impurity-based method, and both adjusted values are lower than the determined CaO values. In the other 17 samples (Appendix 5, codes 5, 6, and 7), the CaO values adjusted by the impurity-based method are a little lower than the LOI-based values (difference: mean 0.033%, standard deviation 0.033%, range 0.01 to 0.12%), but the CaO values adjusted by the impurity-based method are higher than the determined values (difference: mean 0.232%, standard deviation 0.251%, range 0.04 to 0.90%). In 4 of these 17 samples, the determined CaO values are less than 53 per cent, so their quality is too low for further consideration. In another 10 of these 17 samples the increases in the adjusted values from the determined values do not exceed 0.21 per cent for samples with determined CaO values of at least 54.61 per cent; such small increases are not considered significant. In only 3 of the 17 samples (9000, 9062, and 9066, Appendix 5) are the adjusted values increased by 0.45, 0.73, and 0.90 per cent, with the sums of all determined constituents 98.67, 97.83, and 98.11 per cent, respectively. These low sums appear to be the causes for the larger increases in CaO values in these 3 samples. For each of the 17 samples, if the preferred value of CaO is raised to the impurity-based adjusted value, the resulting sum of the constituents is less than 100.00 per cent. Hence, to be conservative, the lower of the CaO values adjusted by either method becomes the preferred CaO value for the 393 samples with adjusted values lower than determined CaO values, rather than the average of both adjusted values. Similarly, for the 17 samples in which the adjusted CaO value is higher than the determined value, the lower of the CaO values adjusted by either

method (the impurity-based method for all 17 samples) also becomes the preferred CaO value.

The preferred LOI values have been obtained in ways similar to those for the preferred CaO values (Appendix 5).

### **3.4 LOCATIONS WITH HIGH-QUALITY LIMESTONE**

#### **3.4.1 First Ridge**

The very high quality of the limestone in Zone A in the Columbia Lime Ridge was shown by Wahl's (1973) drilling. Halferdahl (1992) estimated a stratigraphic thickness of about 220 m of limestone in Zone A averaging more than 55 per cent CaO, based on Wahl's drilling and the 1992 sampling. The 1993 sampling shows that the high-quality limestone in Zone A extends northwesterly along the Columbia Lime Ridge with thicknesses similar to that estimated in 1992, but there the continuity of Zone A is interrupted by one fault, that may repeat part of Zone A, and another that may terminate it.

Farther to the northwest, a stratigraphic thickness of only about 13 m of limestone with more than 55 per cent CaO, was sampled in the lower part of Dome Mountain in 1993. On the northwestern spur of Dome Mountain (Section B-35) the limestone contains more than 1 per cent MgO similar to that sampled in 1992 just to the northwest along Koshead Creek. Hence, the thick limestone of Zone A on the Columbia Lime Ridge apparently does not extend onto Dome Mountain.

Zone A of the Columbia Lime Ridge extends southeasterly along strike onto the South Porcupine Ridge where the greatest stratigraphic thickness of limestone with more than 55 per cent CaO sampled in 1993 (Section A-11) was 152 m. At Section A-6 near the southeast end of the continuous outcrop of limestone on the South Porcupine Ridge, Zone A appears thinner with an increased amount of MgO present in the northeasternmost sample. This suggests that Zone A may lens out there.

Two samples collected in 1993 at the site of Rourke's (1971b) drilling in District Lot 1284 (Fig. 1.4, 2.7) show 0.61 and 0.89 per cent MgO, so the stone there is not of as good quality as that in Zone A in the Columbia Lime Ridge.

#### **3.4.2 Southwest Carbonate**

Some limestone in the Southwest Carbonate (unit C6) contains more than 55 per cent CaO, but in some strata and places, its quality is less, and the sampled sections with high-quality stone are much thinner than those in the Columbia Lime and South Porcupine Ridges.

### 3.4.3 Second Ridge

Section A-14, sampled in 1993 southeast of Porcupine Creek in the Second Ridge, is all in limestone with more than 55 per cent CaO. The stratigraphic thickness sampled there is estimated at 81 m, or perhaps 130 m including 49 m covered, but no bedding was observed nor measured there, so these stratigraphic thicknesses are uncertain.

Two sections, D-6 and D-7 (Fig. 2.8), were sampled and measured on Trail Mountain in 1993 with high-quality stone as follows:

D-6			D-7		
Stratigraphic Thickness (m)		Quality of Stone	Stratigraphic Thickness (m)		Quality of Stone
54 - 57	CaO	55.05 - 55.43	48	CaO	55.03 - 55.34
	MgO	0.22 - 0.38		MgO	0.30 - 0.43
	SiO <sub>2</sub>	<0.05 - 0.75		SiO <sub>2</sub>	<0.05 - 0.31
			5	CaO	53.97
				MgO	0.32
				SiO <sub>2</sub>	2.47
			10	CaO	55.30 - 55.37
				MgO	0.23 - 0.32
				SiO <sub>2</sub>	<0.05.

Two sections, E-1 and E-2 (Fig. 2.9), were sampled on Mount Bowman and one, E-4 (Fig. 2.9), on Ewe Ridge in 1993 with high-quality stone as follows:

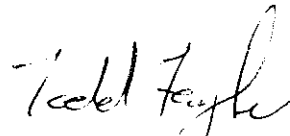
E-1			E-2			E-4			
Stratigraphic Thickness (m)		Quality of Stone	Stratigraphic Thickness (m)		Quality of Stone	Stratigraphic Thickness (m)		Quality of Stone	
43½	CaO	55.08 - 55.13	125	CaO	55.11 - 55.39	26(?)	CaO	55.09 - 55.32	
	MgO	0.37 - 0.42		MgO	0.17 - 0.36		MgO	0.20 - 0.40	
	SiO <sub>2</sub>	<0.05		SiO <sub>2</sub>	<0.05		SiO <sub>2</sub>	<0.05	
9	CaO	53.85	½	CaO	54.77				
	MgO	0.78		MgO	0.22				
	SiO <sub>2</sub>	0.56		SiO <sub>2</sub>	0.71				
50	CaO	54.97 - 55.21	19½	CaO	54.97 - 55.21				
	MgO	0.30 - 0.47		MgO	0.31 - 0.36				
	SiO <sub>2</sub>	<0.05		SiO <sub>2</sub>	<0.05 - 0.19				
			3½	CaO	53.96				
				MgO	0.36				
				SiO <sub>2</sub>	1.68				
			52½	CaO	55.05 - 55.17				
				MgO	0.28 - 0.35				
				SiO <sub>2</sub>	<0.05.				




Within considerable stratigraphic thicknesses of limestone on both Trail Mountain and Mount Bowman are short intervals with  $\text{SiO}_2$  up to 2.47 per cent on Trail Mountain, and up to 1.68 per cent on Mount Bowman, both probably from small amounts of chert.

### 3.5 BRIGHTNESS TESTS

Brightness tests (Appendix 7) on 14 samples collected in 1992 and earlier from the Kelly Lake limestone deposits range from 71.48 to 82.85, values too low for use in coating paper.

  
T.A. Faragher

  
L.B. Halford, P.Eng

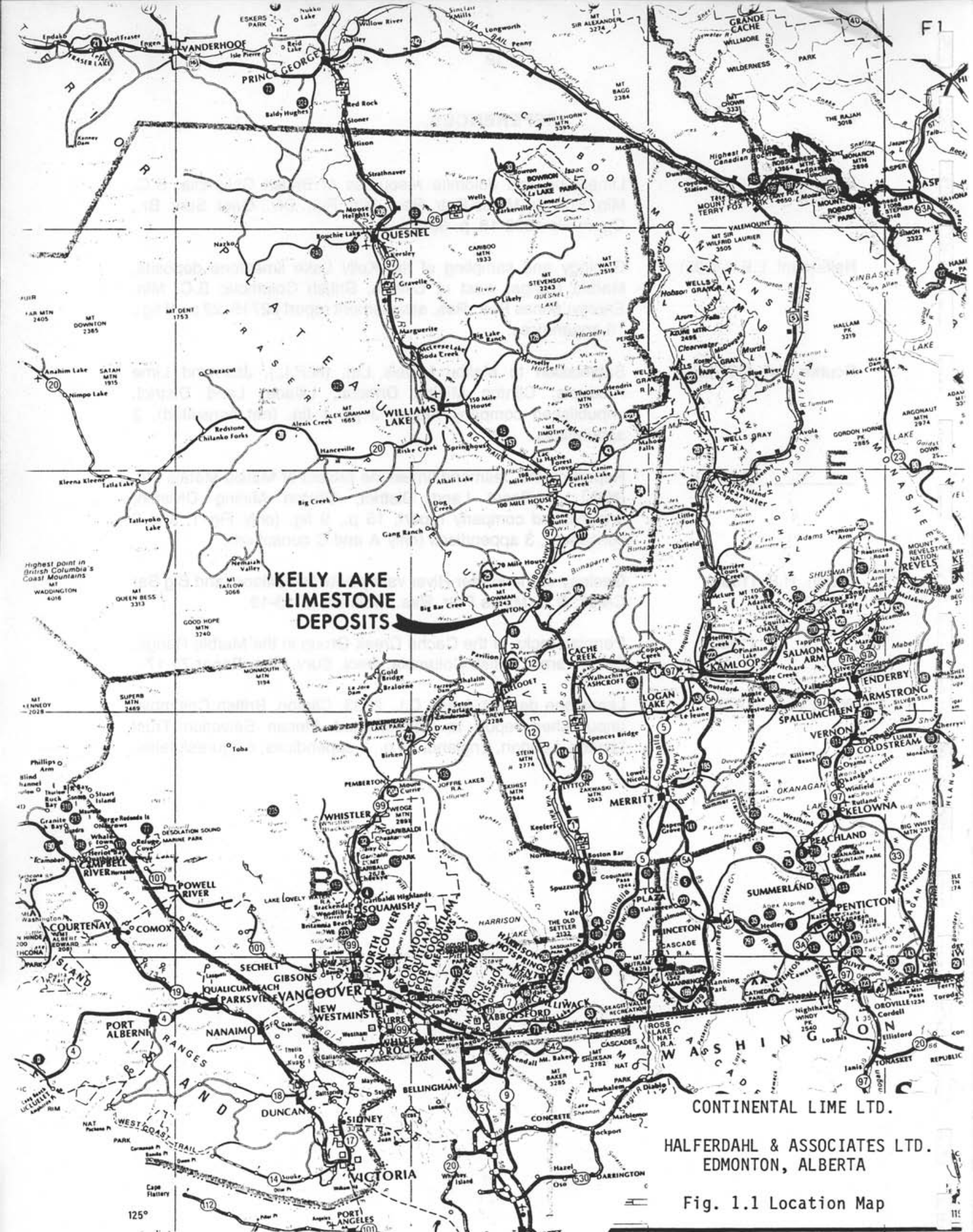
Edmonton, Alberta

1993 12 23

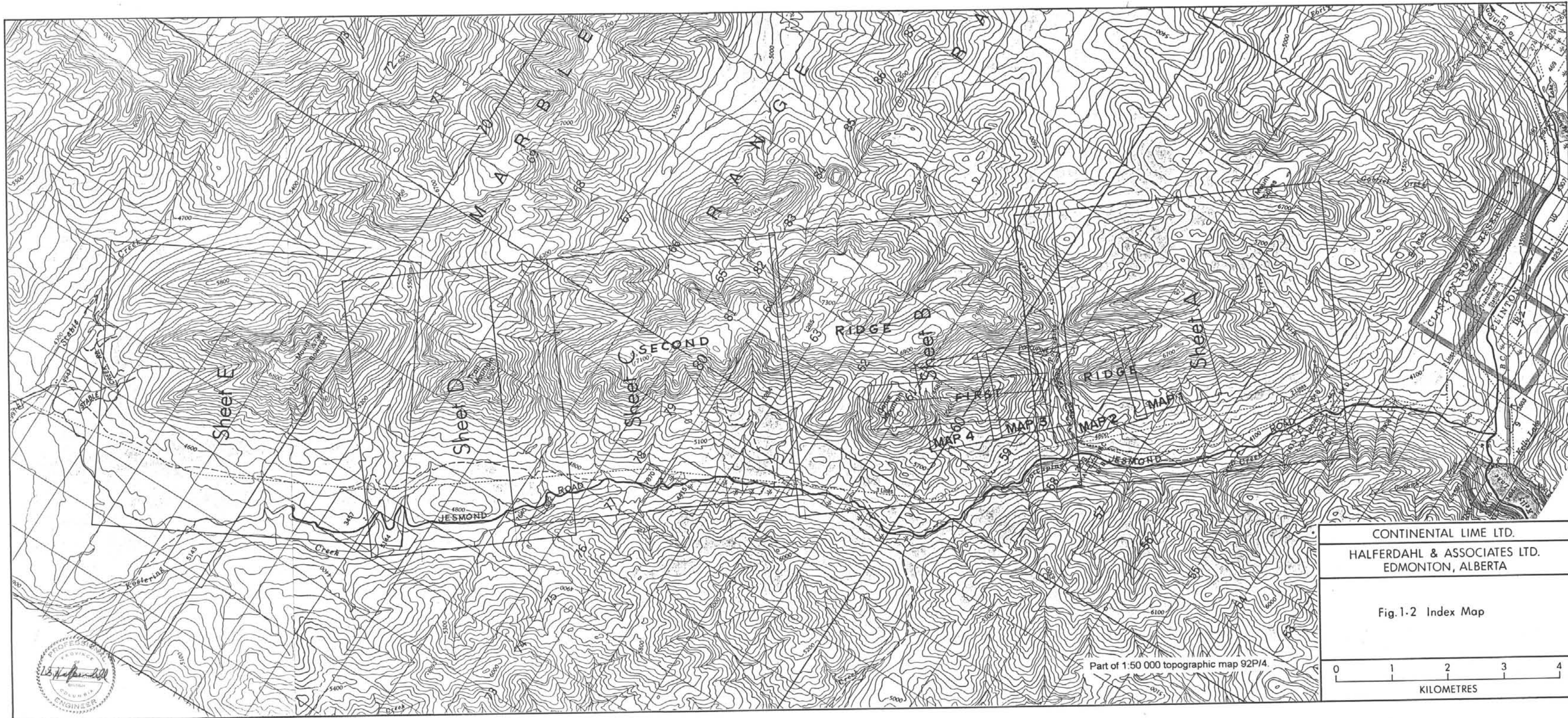
## 4.

## REFERENCES

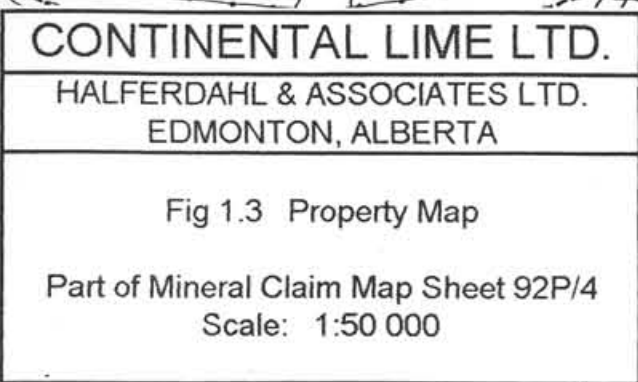
- Fishl, Peter (1992) Limestone and dolomite resources of British Columbia; B.C. Min. Energy, Mines Petr. Res., Min. Res. Div., Geol. Surv. Br., Open File 1992-18, p. 68-70.
- Halferdahl, L.B. (1992) Geology and sampling of the Kelly Lake limestone deposits, Marble Range, west of Clinton, British Columbia; B.C. Min. Energy, Mines Petr. Res. assessment report 22715, 22 p., 8 fig., 18 appendices.
- Rourke, T.A. (1971a) Submission to Malibu Metals Ltd. (N.P.L.), Jesmond Lime Products, Clinton Mining Division, Lillooet Land District, unpublished company report, 3 p., 1 fig. (not consulted), 2 appendices.
- \_\_\_\_\_ (1971b) Report on the Jesmond limestone project of Malibu Metals Ltd. (N.P.L.), Lillooet Land District, Clinton Mining Division, unpublished company report, 15 p., 9 fig. (only Fig 1, and 3 consulted), 3 appendices (only A and C consulted).
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- \_\_\_\_\_ (1980) Permian rocks of the Cache Creek Group in the Marble Range, Clinton area, British Columbia; Geol. Surv. Can. Paper 79-17.
- Wahl, W.G. (1973) Limestone deposit, lease D.L. 2203, Clinton, British Columbia; unpublished report to Consolidated African Selection Trust Limited, London, England, 84 p., 2 appendices, 6 figures/plates.











Notes:

1. Drillhole 71-1 was located, but its inclination could not be measured in 1993. Rourke (1971b) reported  $-50^\circ$ .
2. Rourke (1971b) reported an inclination of  $-45^\circ$  for drillhole 72-2, but  $-20^\circ$  was measured at its collar in 1993.
3. According to Rourke (1971b) drillholes 71-3 and 71-4 were drilled from the same setup. Only the collar of 71-3 with an inclination of  $-45^\circ$  was observed in 1993. Rourke (1971b) reported 71-4 inclined at  $-20^\circ$ .

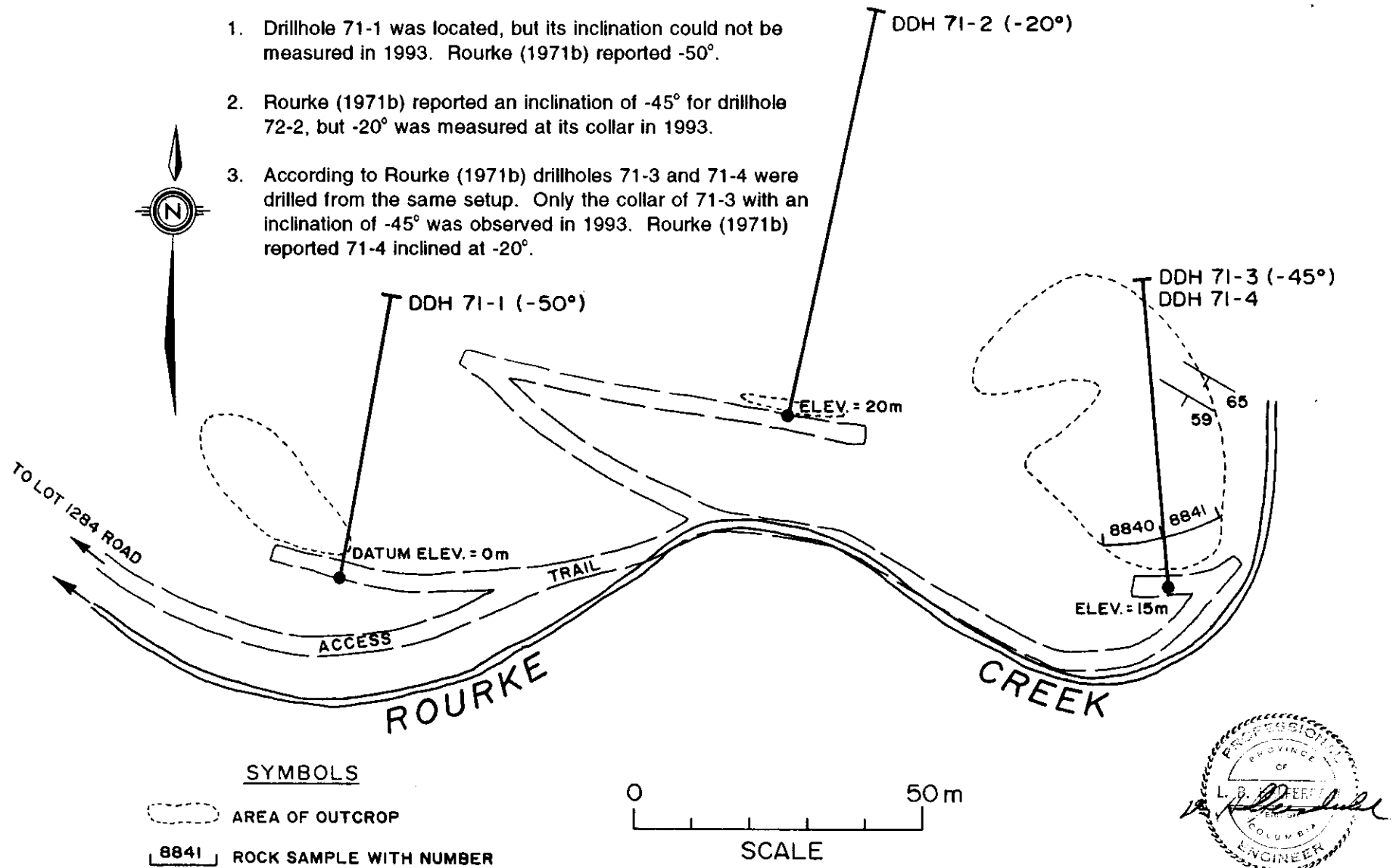


Fig. 1.4 Plan of Rourke's Zone C, Lot 1284.

**APPENDIX 1: MINERAL CLAIMS COVERING THE KELLY LAKE LIMESTONE DEPOSITS  
IN THE SUMMER OF 1993**

Claim Name	Tenure Number	Units/Claims	Record Date	Expected Expiry Date
Stag 1	208 888	20	1989 09 30	2001 09 30
Stag 2	208 889	20	1989 09 29	1996 09 29
William 1	208 932	12	1989 11 24	2001 11 24
Mary 1	208 933	12	1989 11 24	2000 11 24
Mar 1-3,5	309 869-71,-73	1 each	1992 05 20	2002 05 20
Mar 4,6	309 872,-74	1 each	1992 05 20	1997 05 20
Mar 7,9,12,13	309 875,-77,-80,-81	1 each	1992 05 21	2002 05 21
Mar 8,10,11,14,15	309 876,-78,-79,-82,-83	1 each	1992 05 21	1997 05 21
Mar 16	309 884	1	1992 05 21	1998 05 21
Mar 17	309 885	1	1992 05 21	2003 05 21
Mar 18	309 886	1	1992 05 22	2003 05 22
Mar 19,21,23	309 887,-89,-91	1 each	1992 05 22	2002 05 22
Mar 20	309 888	1	1992 05 22	1997 05 22
Mar 22	309 890	1	1992 05 22	2003 05 22
Mar 24-31	310 952-59	1 each	1992 06 21	1997 06 21
Mar 36-41,43	310 892-97,-99	1 each	1992 05 21	1997 05 21
Mar 42	309 898	1	1992 05 21	2000 05 21
Mar 44,46,47	309 900,-02,-03	1 each	1992 05 22	2000 05 22
Mar 45	309 901	1	1992 05 22	1997 05 22
Mar 48-49	310 964-65	1 each	1992 06 21	1997 06 21
Mar 50-55	309 904-09	1 each	1992 05 20	1997 05 20
Mar 56-63	309 910-17	1 each	1992 05 21	1997 05 21
Mar 64-69	310 966-71	1 each	1992 06 22	1997 06 22
Mar 70	312 058	1	1992 07 31	2003 07 31
Mar 71	312 059	1	1992 07 31	1999 07 31
Mar 72-75	312 060-63	1 each	1992 07 31	1997 07 31
Mar 78-79	312 066-67	1 each	1992 07 31	2002 07 31
Mar 80-81	312 068-69	1 each	1992 07 31	2001 07 31
Mar 82-83	312 070-71	1 each	1992 07 31	1997 07 31
Mar 84	312 072	1	1992 08 04	2003 08 04
Mar 85-86	312 073-74	1 each	1992 08 04	1997 08 04
Mar 88,90	312 075,-77	1 each	1992 08 01	1997 08 01
Mar 89	312 076	1	1992 08 01	2003 08 01
Mar 91-93	312 087-89	1 each	1992 08 01	1997 08 01
Mar 94	312 090	1	1992 08 01	1997 08 01
Mar 95	312 091	1	1992 08 01	1999 08 01
Mar 104	320 198	12	1993 08 07	1997 08 07
Mar 110	320 199	18	1993 08 10	1997 08 10
Mar 111	320 200	15	1993 08 10	1997 08 10
Mar 112	320 201	20	1993 08 10	1997 08 10

**APPENDIX 2: ANALYTICAL REPORTS FROM LAKEFIELD RESEARCH FOR ROURKE'S  
1971 SAMPLES FROM DISTRICT LOT 1284**

June 25, 1971

**Malibu Metals Limited,  
c/o W.J. Weymark,  
2863 Balfour,  
Vancouver 9, B.C.**

7119544

9500

<u>Sample No.</u>	<u>% SiO<sub>2</sub></u>	<u>% Al<sub>2</sub>O<sub>3</sub></u>	<u>% CaO</u>	<u>% MgO</u>	<u>% Fe<sub>2</sub>O<sub>3</sub></u>	<u>% S</u>
1	0.30	0.047	56.00	0.134	0.087	0.024
2	1.16	0.115	53.84	0.207	0.205	0.108
3	0.64	0.072	55.40	0.169	0.120	0.019
4	0.32	0.066	55.64	0.44	0.059	0.027
5	0.20	0.045	56.00	0.317	0.047	0.020
6	0.21	0.066	53.72	1.65	0.053	0.019
7	0.21	0.072	55.84	0.56	0.057	0.022
8	0.17	0.060	55.52	0.84	0.053	0.017
9	0.23	0.095	54.88	1.16	0.187	0.020
10	0.25	0.115	55.60	0.374	0.083	0.024
11	0.12	0.032	55.92	0.413	0.047	0.021

Added by Halferdahl & Associates Ltd.

Sample	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
Total with LOI	100.202	97.865	100.090	100.072	100.059	99.198
CO2 EQ to CaO	43.94	42.24	43.47	43.66	43.94	42.15
CO2 EQ to MgO	0.15	0.23	0.18	0.48	0.35	1.80
Total CO2 EQ	44.09	42.47	43.65	44.14	44.29	43.95
LOI - CO2 EQ	-0.48	-0.24	0.02	-0.62	-0.86	-0.47
	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	
Total with LOI	100.111	100.060	100.062	99.976	99.963	
CO2 EQ to CaO	43.81	43.56	43.06	43.63	43.88	
CO2 EQ to MgO	0.61	0.92	1.27	0.41	0.45	
Total CO2 EQ	44.42	44.48	44.33	44.04	44.33	
LOI - CO2 EQ	-1.07	-1.08	-0.84	-0.51	-0.92	

c.c. Dr. W.G. Wahl



A.G. Scobie, P. Eng.



## APPENDIX 2: CONTINUED

June 29, 1971

Malibu Metals Limited,  
c/o W.J. Weymark,  
1063 Balfour,  
VANCOUVER 9, B.C.

7119544

9502

Sample No.% Loss on ignition at 1100°C

1	43.61
2	42.23
3	43.67
4	43.52
5	43.43
6	43.48
7	43.35
8	43.40
9	43.49
10	43.53
11	43.41

c.c. Dr. W.G. Wahl



A.G. Scobie, P. Eng.

### APPENDIX 3: DESCRIPTIONS OF ANALYZED CHIP SAMPLES

Some 444 rock samples representing about 3165 m of limestone strata were obtained by collecting chips from outcrops perpendicular to bedding, where bedding was recognized. Where bedding was not visible, the chips were collected in directions of assumed bedding or down-slope with topography. Each sample consists of chips of roughly equal size at intervals of mostly 30 to 35 cm along slope distances of 15 m or otherwise as noted. Outcrops which weather rusty were interpreted to be partly dolomitic and were generally not sampled. The samples in each section start at the stratigraphic top of the section and end at the stratigraphically lowest part, even if this reverses the topographic order. The absence of bedding and the difficulty in recognizing it make the stratigraphic order uncertain in some sections. Hence any stratigraphic thicknesses based on measured attitudes of planar features interpreted as bedding or extrapolated attitudes are approximate only. Elevations reported are altimeter readings without corrections: altimeters were set at known elevations daily and fluctuations are expected with changes in barometric pressure.

Samples were collected from 27 numbered sections including eight sections on the South Porcupine Ridge, which is the First Ridge south of Porcupine Creek representing at least 1068 m of strata, one section from the Second Ridge south of Porcupine Creek where stratigraphic directions were not identified, seven sections representing at least 980 m from the Columbia Lime Ridge, which is part of the First Ridge north of Porcupine Creek, four sections from Dome Mountain representing about 335 m of strata, two sections from Trail Mountain representing about 120 m of strata, and three sections from Mount Bowman representing about 378 m of strata, plus other samples from isolated outcrops.

The sections are arranged in geographic order from the southeast to northwest on the First Ridge, then on the Second Ridge for each of Sheets A, B, C, D, and E (Fig 2.1, 2.4, 2.7, 2.8, and 2.9). Isolated samples are generally in the same order, before or after a nearby sampled section. Sections sampled in 1993 are numerically continuous from those described in Halferdahl (1992).

<u>Section or Sample</u>	<u>Sample Numbers</u>	<u>Page</u>
A-6	8819-8821 .....	A6
A-7	9049-9039, 9000-8989, 8900, 8899 .....	A7
A-8	9103-9110 .....	A10
A-9	9100-9076 .....	A11
A-10	9026-9038 .....	A13
A-11	9060-9051, 8950-8938 .....	A15
A-12	9128, 9126, 9127, 9129-9149 .....	A18
Isolated	8818, 8925 .....	A20
A-13	9102, 9101, 9075-9061, 9050 .....	A21
A-14	9252-9228 .....	A23

<u>Section or Sample</u>	<u>Sample Numbers</u>	<u>Page</u>
B-24	9202, 9201, 9175-9169, 8937, 8936, 9168-9166, 8935, 9162, 9161, 8934-8931, 9158-9160, 9157-9154, 8930, 8929, 9153, 9152, 8928, 8927 .....	A26
B-25	8926, 8975-8964, 8875, 8874 .....	A30
B-26	9176-9188 .....	A32
Isolated	8817 .....	A33
B-27	9164, 9165 .....	A34
Isolated	9163 .....	A34
B-28	9150, 9189-9200 .....	A35
B-29	9111-9125, 9151 .....	A37
B-30	8898-8876 .....	A39
Isolated	8977, 8976 .....	A41
B-31	8988-8978 .....	A42
B-32	8822-8825 .....	A43
B-33	8916-8901 .....	A44
B-34	8801-8809 .....	A46
B-35	8857-8851 .....	A48
Isolated	8840, 8841 .....	A49
D-6	9227, 9226, 8850-8844, 9225-9203 .....	A50
D-7	9270-9254 .....	A53
Isolated	9253 .....	A54
E-1	8826, 8827, 8842, 8828-8835, 8843 .....	A55
Isolated	8836-8839 .....	A56
E-2	8920-8917, 8872-8858, 8963-8951 .....	A58
E-3	8924-8921 .....	A61
Isolated	8815, 8816 .....	A62
E-4	8810-8814 .....	A63

**SECTION A-6 SOUTHEAST END OF SOUTH PORCUPINE RIDGE  
(PART OF FIRST RIDGE), SHEET A (FIG. 2.1, 2.2)**

The section is along the base of a cliff which marks the southeast end of limestone outcrops on the South Porcupine Ridge. Stratigraphic thicknesses are based on the attitude of bedding measured at sample 8819.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8819	45°	147°/75° SW	--	10	-	10
8820	45°	-	--	10	-	10
8821	45°	-	--	8	-	8
				<u>28</u>		<u>28</u>

Sample	Stratigraphic Thickness (m)	Description
8819	10	medium- to light-grey <u>limestone</u> , cryptocrystalline, white <u>calcite</u> veins, minor red to orange-brown material associated with veins, attitude of bedding 147°/75° SW
8820	10	dark- to medium-grey <u>limestone</u> , cryptocrystalline to fine-grained, white <u>calcite</u> veins, some orange-brown material
8821	8	dark- to light-grey <u>limestone</u> , cryptocrystalline to fine-grained, white <u>calcite</u> veins, orange-brown material on joints

**SECTION A-7 NEAR CREST OF SOUTH PORCUPINE RIDGE  
(PART OF FIRST RIDGE), SHEET A (FIG 2.1, 2.2)**

Stratigraphic thicknesses are based on measured attitudes of bedding as listed below with appropriate interpolations.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9049	0°	140°/30° SW	~20°	10	9	~2
9048	70°	--	~15°	3	3	1
9047	70°	--	~20°	25	23	8
9046	45°	145°/45° SW	~35°	30	24	5
9045	40°	140°/60° SW	~30°	10	9	5
9044	40°	--	~30°	15	13	6½
9043	40°	--	~35°	15	12	4
9042	40°	--	~35°	15	12	4
9041	40°	--	~35°	15	12	4
9040	40°	--	~35°	15	12	3
9039	40°	140°/40° SW	~35°	15	12	1½
9000	40°	--	~35°	15	12	3
8999	60°	150°/50° SW	~35°	15	12	4
8998	60°	--	~35°	15	12	6
8997	60°	125°/65° SW*	~35°	15	12	7
8996	60°	--	~35°	15	12	~ 6
8995	60°	--	~35°	15	12	~ 5
8994	60°	--	~35°	15	12	~ 5
8993	10°	--	~30°	15	13	~ 6
8992	10°	--	~30°	15	13	~ 6
8991	10°	--	~30°	15	13	~ 6
8990	15°	--	~25°	15	13	~ 6
8989	15°	115°/45° SW	~2°	5	5	3½
8900	45°	--	~2°	5	5	3½
8899	40°	145°/45° SW*	~2°	5	5	3½
				348		114½

\* platy cleavage

Sample	Stratigraphic Thickness (m)	Description
9049	~2	light-brownish-grey <u>limestone</u> , cryptocrystalline, black stringers, attitude of bedding 140°/30° SW, elevation 5820'
--	2	covered

Sample	Stratigraphic Thickness (m)	Description
9048	1	medium-grey <u>limestone</u> , cryptocrystalline, offset 10 m at 100° from sample 9049
--	6½	covered
9047	8	light-grey <u>limestone</u> , few chips rose to yellow, cryptocrystalline, fractured, <u>calcite</u> veinlets, rust stains along fractures, offset 25 m at 70° from sample 9048
--	5	covered
9046	5	light- to medium-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 145°/45° SW, offset 40 m at 25° from sample 9047
--	5½	covered
9045	5	light- to medium-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 140°/60° SW, offset 20 m at 35° from sample 9046, elevation 6180'
9044	6½	light- to medium-grey <u>limestone</u> , cryptocrystalline
9043	4	light- to medium-grey <u>limestone</u> , cryptocrystalline
9042	4	light- to medium-grey <u>limestone</u> , cryptocrystalline
9041	4	light- to medium-grey <u>limestone</u> , cryptocrystalline
9040	3	light- to medium-grey <u>limestone</u> , cryptocrystalline
9039	1½	light- to medium-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 140°/40° SW
9000	3	light- to medium-grey <u>limestone</u> , cryptocrystalline
8999	4	light-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 150°/50° SW, attitude of joints 40°/80° NW and 125°/45° NE, elevation 6270'
8998	6	light-grey <u>limestone</u> , cryptocrystalline
8997	7	light-grey <u>limestone</u> , cryptocrystalline, attitude of joints 35°/85° NW, attitude of platy cleavage 125°/65° SW
8996	~6	light-grey <u>limestone</u> , cryptocrystalline

Sample	Stratigraphic Thickness (m)	Description
8995	~5	light-grey <u>limestone</u> , cryptocrystalline
8994	~5	medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
8993	~6	medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
8992	~6	medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
8991	~6	light-grey <u>limestone</u> , cryptocrystalline, black stringers, weakly developed platy cleavage
8990	~6	light-grey <u>limestone</u> , cryptocrystalline, black stringers, weakly developed platy cleavage
--	~1	covered
8989	3½	medium- to dark-grey <u>limestone</u> , cryptocrystalline, black patches and stringers, attitude of bedding 115°/45° SW, offset 50 m at 90° from sample 8990
--	~4	covered
8900	3½	light-grey <u>limestone</u> , cryptocrystalline, offset 20 m at 325° from sample 8989
--	3½	covered
8899	3½	white- to light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> coatings, pervasive jointing, weakly developed cleavage 145°/45° SW, offset 15 m at 70° from sample 8900, elevation 6720'

**SECTION A-8 NEAR CREST OF SOUTH PORCUPINE RIDGE  
(PART OF FIRST RIDGE), SHEET A (FIG. 2.1, 2.2)**

No bedding was identified; stratigraphic thicknesses are based on an assumed bedding attitude of 150°/50° SW and are uncertain.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9103	210°	--	~30°	15	13	12½(?)
9104	210°	--	~30°	15	13	12½(?)
9105	240°	--	~30°	15	13	14½(?)
9106	240°	--	~30°	15	13	14½(?)
9107	230°	--	~30°	15	13	14½(?)
9108	230°	--	~30°	15	13	14½(?)
9109	230°	--	~30°	15	13	14½(?)
9110	230°	--	~30°	20	17	19½(?)
				125		117(?)

Sample	Stratigraphic Thickness (m)	Description
9103	12½(?)	medium-grey <u>limestone</u> , sugary texture
9104	12½(?)	medium-grey <u>limestone</u> , sugary texture, attitude of planar feature 130°/62° NE
9105	14½(?)	medium-grey <u>limestone</u> , cryptocrystalline
9106	14½(?)	dark-grey <u>limestone</u> , cryptocrystalline, black and white <u>calcite</u> veins, attitude of planar feature 120°/33° NE
9107	14½(?)	dark-grey <u>limestone</u> , cryptocrystalline, black and white <u>calcite</u> veins
9108	14½(?)	dark-grey <u>limestone</u> , cryptocrystalline, black and white <u>calcite</u> veins, attitude of planar feature 145°/48° NE
9109	14½(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins, 4 m wide zone of <u>limestone</u> breccia with angular fragments, offset 20 m at 155° from sample 9110
--	8(?)	covered
9110	19½(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> stringers, elevation 6460'



**SECTION A-9 ON SOUTHWEST FLANK OF SOUTH PORCUPINE RIDGE  
(PART OF FIRST RIDGE), SHEET A (FIG. 2.1, 2.2)**

Stratigraphic thicknesses are based on measured attitudes of bedding or planar features interpreted as bedding as listed below with appropriate interpolations.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9100	90°	--	~36°	12	10	~2½
9099	10°	--	~36°	12	10	~3
9098	10°	130°/54° SW	~36°	12	10	~3
9097	340°	--	~36°	12	10	~2
9096	340°	--	~36°	12	10	~2
9095	340°	--	~36°	12	10	~2
9094	340°	--	~36°	12	10	~2
9093	340°	--	~36°	12	10	~2
9092	340°	--	~36°	12	10	~2
9091	340°	--	~36°	12	10	~2
9090	340°	--	~36°	12	10	~2
9089	340°	--	~36°	12	10	~2
9088	90°	--	~38°	15	12	~2½
9087	90°	--	~38°	15	12	~2½
9086	90°	--	~38°	15	12	~2½
9085	90°	--	~38°	15	12	~2½
9084	75°	--	~38°	15	12	~3
9083	75°	--	~38°	15	12	~3
9082	75°	--	~38°	15	12	~3
9081	80°	160°/40° SW	~38°	15	12	~1
9080	70°	--	~38°	15	12	5½
9079	70°	160°/80° SW	~38°	15	12	10
9078	70°	--	~38°	15	12	10
9077	80°	--	~38°	15	12	10
9076	80°	--	~38°	15	12	10
				339		92

Sample	Stratigraphic Thickness (m)	Description
9100	~2½	light-grey <u>limestone</u> , cryptocrystalline, elevation 5990'
9099	~3	light-grey <u>limestone</u> , cryptocrystalline, highly fractured

Sample	Stratigraphic Thickness (m)	Description
9098	~3	light- to dark-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 130°/54° SW
9097	~2	light- to dark-grey <u>limestone</u> , cryptocrystalline, broken and fractured
9096	~2	medium- to dark-grey <u>limestone</u> , cryptocrystalline
9095	~2	light-grey <u>limestone</u> , cryptocrystalline, fractured and broken material
9094	~2	light-grey <u>limestone</u> , cryptocrystalline
9093	~2	light-grey <u>limestone</u> , cryptocrystalline, locally fractured
9092	~2	light-grey <u>limestone</u> , cryptocrystalline
9091	~2	light-grey <u>limestone</u> , cryptocrystalline, massive
9090	~2	white <u>limestone</u> , few chips light-grey, cryptocrystalline
9089	~2	light-grey <u>limestone</u> , cryptocrystalline
9088	~2½	light-grey <u>limestone</u> , cryptocrystalline, highly fractured, brown stains along fractures, offset 90 m at 135° from sample 9089
9087	~2½	light-grey <u>limestone</u> , cryptocrystalline, fractured, brown stains on fractures
9086	~2½	light-grey <u>limestone</u> , cryptocrystalline, fractured, brown stains on fractures
9085	~2½	light-grey <u>limestone</u> , cryptocrystalline, locally fractured
9084	~3	light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
9083	~3	light-grey <u>limestone</u> , cryptocrystalline
--	~1½	covered
9082	~3	light-grey <u>limestone</u> , cryptocrystalline, offset 40 m at 180° from sample 9083
9081	1	light-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 160°/40° SW, offset 20 m at 180° from sample 9082
--	~4	covered

Sample	Stratigraphic Thickness (m)	Description
9080	5½	light-grey <u>limestone</u> , cryptocrystalline, fractured, offset 50 m at 350° from sample 9081
9079	10	light-grey <u>limestone</u> , cryptocrystalline, fractured, attitude of bedding 160°/80° SW
9078	10	light-grey <u>limestone</u> , cryptocrystalline, fractured, brown stains on fractures
9077	10	light-grey <u>limestone</u> , cryptocrystalline, fractured, brown stains along fractures, offset 25 m at 350° from sample 9078
9076	10	light-grey <u>limestone</u> , cryptocrystalline, fractured, <u>calcite</u> veinlets, elevation 6540'

**SECTION A-10 WEST FLANK OF SOUTH PORCUPINE RIDGE  
(PART OF FIRST RIDGE), SHEET A (FIG. 2.1, 2.2, 2.3)**

Stratigraphic thicknesses are based on measured attitudes of bedding or planar features interpreted as bedding with 120°/48°SW used for samples 9028-38.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9026	35°	110°/40° SW	~2°	7	7	4
9027	160°	120°/48° SW	~30°	15	13	11
9028	35°	--	~35°	15	12	~15
9029	35°	--	~38°	15	12	~15(?)
9030	35°	--	~38°	15	12	~15(?)
9031	35°	--	~38°	15	12	~15(?)
9032	35°	--	~38°	15	12	~15(?)
9033	65°	--	~25°	15	14	~11½(?)
9034	25°	--	~38°	15	12	15(?)
9035	25°	--	~38°	15	12	15(?)
9036	30°	--	~40°	15	11	15(?)
9037	40°	--	~40°	15	11	15(?)
9038	35°	--	~35°	20	16	~20(?)
				192		181½

Sample	Stratigraphic Thickness (m)	Description
9026	4	light-grey <u>limestone</u> , few chips dark-grey, cryptocrystalline, <u>calcite</u> patches and stringers, attitude of bedding 110°/40° SW, offset 4 m at 135° from sample 9027, elevation 6560'
9027	11	light-grey <u>limestone</u> , few chips dark-grey, cryptocrystalline, <u>calcite</u> patches and veins, attitude of bedding 120°/48° SW, offset 5 m at 135° from sample 9028
9028	~15	medium-grey <u>limestone</u> , cryptocrystalline, black stringers
9029	~15(?)	medium-grey <u>limestone</u> , few chips rose colored, cryptocrystalline, attitude of planar feature 140°/37° NE
9030	~15(?)	medium-grey <u>limestone</u> , cryptocrystalline
9031	~15(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline, black stringers, rusty material on surfaces, 1 m wide zone of weathered white tuff (?) with <u>calcite</u> stringers
9032	~15(?)	medium-grey <u>limestone</u> , cryptocrystalline, attitude of planar feature 145°/40° NE
9033	~11½	medium-grey <u>limestone</u> , cryptocrystalline
9034	15?	medium-grey <u>limestone</u> , cryptocrystalline
9035	15?	medium- to dark-grey <u>limestone</u> , few chips yellow- to rose-colored, cryptocrystalline, offset 10 m at 210° from sample 9036
9036	15?	medium- to dark-grey <u>limestone</u> , few chips yellow- to rose-colored, cryptocrystalline
9037	15(?)	medium-grey <u>limestone</u> , cryptocrystalline, locally dolomitic, <u>calcite</u> stringers, offset 10 m at 290° from sample 9038
--	~4	covered
9038	~20(?)	light-grey <u>limestone</u> , few chips white to yellowish, cryptocrystalline, <u>calcite</u> stringers, elevation 6180'

**SECTION A-11 SOUTHWEST FLANK OF SOUTH PORCUPINE RIDGE  
(PART OF FIRST RIDGE), SHEET A (FIG. 2.1, 2.3)**

Stratigraphic thicknesses are based on measured attitudes of bedding or planar features interpreted as bedding is listed below with appropriate interpolations.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9060	240°	125°/63° SW	~38°	16	12	6
9059	256°	--	~20°	12	11	~6(?)
9058	310°	--	~2°	18	18	~1½(?)
9057	262°	--	~15°	12	11	~6(?)
9056	293°	--	~32°	18	16	~10(?)
9055	330°	--	~30°	12	10	~2(?)
9054	245°	164°/76° SW	~30°	12	10	7½
9053	269°	--	~30°	12	10	6½(?)
9052	291°	--	~29°	12	10	~4½(?)
9051	291°	--	~29°	12	10	~4½(?)
8950	250°	--	~30°	14	8	~3½(?)
8949	228°	134°/46° SW	~30°	14	10	~4
8948	240°	--	~30°	12	10	~4(?)
8947	277°	--	~43°	16	11	~1½(?)
8946	303°	--	~45°	16	11	~½(?)
8945	258°	--	~45°	18	12	~5½(?)
8944	258°	--	~40°	16	12	~8(?)
8943	323°	134°/86° SW	~37°	17	13	2
8942	227°	--	~25°	12	11	~10(?)
8941	209°	--	~15°	14	13	~11(?)
8940	171°	157°/78° SW	~15°	14	13	3
8939	182°	--	~15°	14	13	5(?)
8938	183°	156°/70° SW	~2°	10	10	~4
				323		116½

Sample	Stratigraphic Thickness (m)	Description
9060	6	greyish-buff <u>limestone</u> , cryptocrystalline, black stringers and blebs, attitude of bedding 125°/63° SW, attitude of joints 16°/82° SE, elevation 5690'
9059	~6(?)	greyish-buff <u>limestone</u> , cryptocrystalline, black blebs and stringers in matrix, offset 10 m at 144° from sample 9060
--	~1(?)	covered

Sample	Stratigraphic Thickness (m)	Description
9058	~1½(?)	greyish-buff <u>limestone</u> , cryptocrystalline, few black blebs and patches, offset 3 m at 76° from sample 9059, elevation 5740'
9057	~6(?)	light-grey-buff <u>limestone</u> , cryptocrystalline, black patches
9056	~10(?)	light-greyish-buff <u>limestone</u> , cryptocrystalline, minor black surface stain, attitude of planar surface 5°/53° NW, attitude of joints 33°/68° SE, offset 40 m at 150° from sample 9057
9055	~2(?)	light-grey-buff <u>limestone</u> , few chips medium-grey, cryptocrystalline, massive, few <u>calcite</u> stringers, trace rusty stains on fractures
9054	7½	light-grey-buff <u>limestone</u> , few chips medium-grey, cryptocrystalline, few coarse <u>calcite</u> stringers, trace rusty stains on fractures and joints, attitude of bedding 164°/76° SW, attitude of joints 42°/52° SE with ~20/m, elevation 5820'
9053	~6½(?)	whitish-grey-buff <u>limestone</u> , cryptocrystalline, few coarse <u>calcite</u> blebs and stringers, black stains
9052	~4½(?)	whitish-grey-buff <u>limestone</u> , cryptocrystalline, few coarse <u>calcite</u> blebs and veinlets, black stains, attitude of joints 52°/76° NW, chips at 75 cm
9051	~4½(?)	greyish-buff <u>limestone</u> , cryptocrystalline, massive, few coarse <u>calcite</u> bands, lenses, and stringers, banding at 23°/18° SW, elevation 5870', chips at 75 cm
--	~5½(?)	covered
8950	~3½(?)	greyish-buff <u>limestone</u> , cryptocrystalline, offset 30 m at 95° from sample 8951, elevation 5980'
8949	~4	greyish-buff <u>limestone</u> , cryptocrystalline, attitude of bedding 134°/46° SW, attitude of joints 53°/85° SE with ~20/m, elevation 5995'
--	~9½(?)	covered
8948	~4(?)	light-grey-buff <u>limestone</u> , cryptocrystalline, few coarse <u>calcite</u> lenses and stringers to 2 mm, trace black stains, attitude of joints 44°/86° NW and 11°/80° NW, offset 40 m at 74° from sample 8949, elevation 6085'
--	~6½(?)	covered

Sample	Stratigraphic Thickness (m)	Description
8947	~1½(?)	light-greyish-buff <u>limestone</u> , cryptocrystalline, minor rusty stains, matrix stained black, offset 25 m at 20° from sample 8948, elevation 6175'
8946	~½(?)	light-greyish-buff <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets, minor rusty stains, black stains, attitude of planar feature (?) 29°/72° NW, elevation 6205'
--	~4(?)	covered
8945	~5½(?)	medium- to greyish-buff <u>limestone</u> , cryptocrystalline, minor coarse <u>calcite</u> blebs, offset 10 m at 125° from sample 8946, elevation 6190'
8944	~8(?)	medium- to greyish-buff <u>limestone</u> , cryptocrystalline, minor coarse <u>calcite</u> blebs, attitude of joints 68°/80° SE and 110°/70° NE, attitude of planar surface 152°/77° NE, elevation 6265'
8943	2	light-greyish-buff <u>limestone</u> , cryptocrystalline, few coarse <u>calcite</u> blebs and stringers <3 mm, attitude of bedding 134°/86° SW, offset 15 m at 175° from sample 8944
8942	~10(?)	light-greyish-buff <u>limestone</u> , cryptocrystalline, minor coarse <u>calcite</u> blebs and veinlets <3 mm
8941	~11(?)	light-greyish-white to greyish-buff <u>limestone</u> , few chips dark-grey, cryptocrystalline, trace rusty and black stains, attitude of planar surface 133°/90°, elevation 6330'
8940	3	light-greyish-buff <u>limestone</u> , few chips dark-grey, cryptocrystalline, minor coarse crystalline <u>calcite</u> blebs and stringers, attitude of bedding 157°/78° SW, attitude of joints 104°/72° NE
8939	5(?)	light-greyish-buff <u>limestone</u> , few chips dark-grey, cryptocrystalline, local coarse crystalline <u>calcite</u> blebs and stringers, attitude of joints 104°/72° NE
--	~9½	covered
8938	~4	light-grey to greyish-buff <u>limestone</u> , cryptocrystalline, trace rusty stains, attitude of bedding 156°/70° SW, attitude of joints 119°/78° SW with ~15/m, offset 15 m at 2° from sample 8939, elevation 6340'

**SECTION A-12 NORTHEAST SIDE OF SOUTH PORCUPINE RIDGE  
(PART OF FIRST RIDGE), SHEET A (FIG. 2.1, 2.3)**

Stratigraphic thicknesses are based on the attitudes of planar features which are interpreted as overturned bedding as listed below with appropriate interpolations and extrapolations.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9128	0°	--	~15°	10	9	~9(?)
9126	0°	106°/81° NE	~20°	10	9	8½
9127	0°	--	~20°	10	9	8½(?)
9129	330°	--	~20°	10	9	~6(?)
9130	330°	--	~20°	10	9	~5½(?)
9131	330°	106°/75° NE	~20°	10	9	~5½
9132	330°	--	~20°	10	9	~5½(?)
9133	20°	--	~20°	10	9	~8(?)
9134	5°	--	~20°	10	9	~8(?)*
9135	10°	--	~20°	10	9	~8½(?)*
9136	300°	--	~20°	10	9	~2(?)*
9137	300°	--	~20°	10	9	~2(?)*
9138	45°	105°/81° NE	~20°	30	29	24
9139	45°	--	~20°	20	19	~16(?)*
9140	100°	--	~20°	10	9	~1(?)*
9141	60°	--	~20°	12	11	~7½(?)*
9142	30°	--	~20°	15	14	~12½(?)
9143	30°	--	~20°	15	14	~12½(?)
9144	0°	--	~20°	15	14	~12½(?)
9145	0°	--	~20°	15	14	~12½(?)
9146	45°	--	~20°	20	19	~15(?)
9147	45°	--	~20°	20	19	~15(?)
9148	25°	--	~20°	20	19	~17(?)
9149	25°	--	~20°	30	29	~26(?)
				342		203½

\* strata covered by other samples so not included in total

Sample	Stratigraphic Thickness (m)	Description
9128	~9(?)	medium- to dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
9126	8½	medium- to dark-grey <u>limestone</u> , cryptocrystalline, locally spotted, attitude of bedding (?) 106°/81° NE



Sample	Stratigraphic Thickness (m)	Description
9127	8½(?)	light-grey <u>limestone</u> , cryptocrystalline
9129	~6(?)	light-grey <u>limestone</u> , cryptocrystalline
9130	~5½	light-grey <u>limestone</u> , cryptocrystalline, rusty stains
--	~5	covered
9131	~5½	light-grey <u>limestone</u> , cryptocrystalline, attitude of bedding (?) 106°/75° NE, offset 15 m at 5° from sample 9130
9132	~5½(?)	white- to light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
9133	~8(?)	white- to light-grey <u>limestone</u> , cryptocrystalline
9134	~8(?)	light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets, attitude of planar feature 28°/81° NW, offset 30 m at 290° from sample 9133
9135	~8½(?)	white- to light-grey <u>limestone</u> , cryptocrystalline
9136	~2(?)	light-grey <u>limestone</u> , cryptocrystalline
9137	~2(?)	light-grey <u>limestone</u> , cryptocrystalline
9138	24	light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets, attitude of bedding (?) 105°/81° NE, offset 60 m at 128° from sample 9137
9139	~16(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
9140	~1(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
9141	~7½(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline
9142	~12½(?)	dark-grey <u>limestone</u> , few chips light-grey, cryptocrystalline
9143	~12½(?)	dark-grey <u>limestone</u> , few chips light-grey, cryptocrystalline
9144	~12½(?)	dark-grey <u>limestone</u> , few chips light-grey, cryptocrystalline, <u>calcite</u> veinlets
9145	~12½(?)	light-grey <u>limestone</u> , cryptocrystalline
9146	~15(?)	dark-grey <u>limestone</u> , cryptocrystalline

Sample	Stratigraphic Thickness (m)	Description
9147	~15(?)	dark-grey <u>limestone</u> , cryptocrystalline
9148	~17(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets, offset 90 m at 110° from sample 9147
9149	~26(?)	dark-grey <u>limestone</u> , cryptocrystalline

**ISOLATED SAMPLES ON LOWER WEST SIDE OF SOUTH PORCUPINE RIDGE  
(SOUTHWEST OF FIRST RIDGE), SHEET A (FIG. 2.1, 2.3)**

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8818	225°	145°/34° SW	~43°	40	29	~6
8925	--	--	--	--	10	(?)

Sample	Stratigraphic Thickness (m)	Description
8818	~6	light- to medium-grey <u>limestone</u> , cryptocrystalline, white <u>calcite</u> veins, attitude of bedding (?) 145°-153°/34° SW, elevation 5000', chips at 1-2 m down almost dip slope
8925	(?)	medium-grey <u>limestone</u> , fine-grained, locally white with <u>calcite</u> veins 4-5 mm, material may be from a block fallen from ridge above, elevation 5080', chips at 50-100 cm intervals where rock was available

**SECTION A-13    SOUTHWEST FLANK OF SOUTH PORCUPINE RIDGE  
(PART OF FIRST RIDGE), SHEET A (FIG. 2.1, 2.3)**

Stratigraphic thicknesses are based on measured attitudes of bedding as listed below with appropriate interpolations.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9102	45°	100°/38° SW	~25°	25	22	~4½
9101	45°	--	~25°	15	14	4(?)
9075	45°	110°/47° SW	~30°	15	13	4
9074	45°	--	~30°	15	13	6(?)
9073	45°	--	~30°	15	13	7½(?)
9072	30°	--	~20°	15	14	11½(?)
9071	50°	120°/76° SW	~2°	15	15	13½
9070	110°	--	~35°	15	12	~2(?)
9069	110°	120°/85° SW	~35°	15	12	2
9068	110°	--	~35°	15	12	~2(?)
9067	10°	--	~2°	15	15	13½(?)
9066	10°	--	~2°	15	15	13(?)
9065	40°	120°/65° SW	~35°	15	12	~7½
9064	40°	--	~35°	15	12	~5½(?)
9063	40°	130°/48° SW	~35°	15	12	~3½
9062	40°	--	~35°	15	12	3(?)
9061	80°	100°/46° SW	~30°	15	13	1½
9050	80°	--	~30°	15	13	1½(?)
				280		106

Sample	Stratigraphic Thickness (m)	Description
9102	~4½	medium-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 100°/38° SW, elevation 5270'
9101	4(?)	medium-grey <u>limestone</u> , cryptocrystalline
9075	4	light-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 110°/47° SW
9074	6(?)	light-grey <u>limestone</u> , cryptocrystalline
9073	7½(?)	light-grey <u>limestone</u> , cryptocrystalline

Sample	Stratigraphic Thickness (m)	Description
--	~7½(?)	covered
9072	11½(?)	light-grey <u>limestone</u> , few chips dark-grey, cryptocrystalline, offset 20 m at 325° from sample 9073
9071	13½	light-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 120°/76° SW, offset 35 m at 120° from sample 9072
9070	~2(?)	light-grey <u>limestone</u> , cryptocrystalline
9069	2	medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins, attitude of bedding 120°/85° SW, elevation 5590'
9068	~2(?)	light-grey <u>limestone</u> , cryptocrystalline
--	15½(?)	covered
9067	13½(?)	light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins, offset 15 m at 45° from sample 9068
9066	13(?)	light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins
9065	~7½	light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins, attitude of bedding 120°/65° SW
9064	5½(?)	light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins
9063	~3½	light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins, attitude of bedding 130°/48° SW
9062	3(?)	light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins
9061	1½	white- to light-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 100°/46° SW
9050	1½(?)	light- to dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins, elevation 5850'

**SECTION A-14    SOUTHWEST SIDE OF SECOND RIDGE, SOUTH OF  
PORCUPINE CREEK, SHEET A (FIG. 2.1)**

Bedding was not identified. Stratigraphic thicknesses are based on an assumed bedding attitude of 135°/45° SW and are uncertain.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9252	grab	--	--	--	--	--
9251	240°	--	~30°	15	13	~4(?)
9250	240°	--	~30°	15	13	~4(?)
9249	240°	--	~45°	15	10	~½(?)
9248	240°	--	~35°	15	12	2½(?)
9247	235°	--	~30°	15	13	~4(?)
9246	235°	--	~40°	15	11	~1½(?)
9245	235°	--	~40°	15	11	~1½(?)
9244	235°	--	~40°	15	11	~1½(?)
9243	260°	--	~30°	15	13	~3(?)
9242	260°	--	~30°	15	13	~3(?)
9241	260°	--	~35°	15	12	~2(?)
9240	260°	--	~35°	15	12	~2(?)
9239	270°	--	~25°	22	20	~5½(?)
9238	230°	--	~35°	15	12	~2½(?)
9237	230°	--	~30°	15	13	~4(?)
9236	230°	--	~20°	15	14	~6½(?)
9235	280°	--	~20°	15	14	~3½(?)
9234	280°	--	~20°	15	14	~3½(?)
9233	280°	--	~20°	15	14	~3½(?)
9232	280°	--	~20°	15	14	~3½(?)
9231	270°	--	~20°	15	14	4½(?)
9230	270°	--	~20°	15	14	4½(?)
9229	270°	--	~20°	15	14	4½(?)
9228	270°	--	~20°	15	14	4½(?)
				367		81(?)

Sample	Stratigraphic Thickness (m)	Description
9252	grab	medium-grey <u>limestone</u> , cryptocrystalline, elevation 6260'
--	~49(?)	covered
9251	~4(?)	medium-grey <u>limestone</u> , cryptocrystalline, coarse <u>calcite</u> veins, rusty-red stringers, elevation 6410'

Sample	Stratigraphic Thickness (m)	Description
9250	~4(?)	medium-grey <u>limestone</u> , cryptocrystalline, black and white <u>calcite</u> veins, rusty stains
9249	~½(?)	medium-grey <u>limestone</u> , cryptocrystalline, white to dark-grey <u>calcite</u> veins
9248	2½(?)	medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins, rusty stains
9247	~4(?)	medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
9246	~1½(?)	medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> stringers, rusty stains
9245	~1½(?)	light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins, rusty stains
9244	~1½(?)	medium-grey <u>limestone</u> , cryptocrystalline, white and black <u>calcite</u> stringers, rusty stains
9243	~3(?)	medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
9242	~3(?)	medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> stringers
9241	~2(?)	brownish-grey <u>limestone</u> , cryptocrystalline, white and black <u>calcite</u> stringers
9240	~2(?)	medium-grey <u>limestone</u> , cryptocrystalline, white and black <u>calcite</u> stringers
9239	~5½(?)	dark-grey <u>limestone</u> , cryptocrystalline, black and rusty stringers, offset 30 m at 135° from sample 9240
9238	~2½(?)	light-grey <u>limestone</u> , cryptocrystalline, black and rusty veinlets, offset 8 m at 330° from sample 9239, elevation 6790'
9237	~4(?)	brownish-grey <u>limestone</u> , cryptocrystalline, black and rusty stringers
9236	~6½(?)	light-grey <u>limestone</u> , cryptocrystalline, black and rusty-red stringers
9235	~3½(?)	light-grey <u>limestone</u> , cryptocrystalline, black and rusty veinlets, small mudstone inclusions, offset 15 m at 340° from sample 9236
9234	~3½(?)	light-grey <u>limestone</u> , cryptocrystalline, black and rusty stringers
9233	~3½(?)	light-grey <u>limestone</u> , cryptocrystalline, black and rusty stringers

Sample	Stratigraphic Thickness (m)	Description
9232	~3½(?)	light-grey <u>limestone</u> , cryptocrystalline, black and rusty stringers, small mudstone inclusions
9231	4½(?)	light-grey <u>limestone</u> , cryptocrystalline, schistose, sparse chert veins, rusty weathering patches, attitude of schistosity 135°/60° SW
9230	4½(?)	light-grey <u>limestone</u> , cryptocrystalline
9229	4½(?)	brownish-grey <u>limestone</u> , cryptocrystalline
9228	4½(?)	light-grey <u>limestone</u> , cryptocrystalline, elevation 7010'

**SECTION B-24 SOUTHERN FACE OF COLUMBIA LIME RIDGE  
(PART OF FIRST RIDGE), SHEET B (FIG. 2.4, 2.5, 2.6)**

Stratigraphic thicknesses are based on measured attitudes of bedding as listed below with appropriate interpolations.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9202	60°	110°/38° SW	~20°	15	14	3½
9201	60°	--	~2°	15	15	~7(?)
9175	60°	--	~2°	15	15	~7(?)
9174	180°	--	~2°	15	15	~8½(?)
9173	180°	--	~2°	15	15	~8½(?)
9172	180°	--	~2°	15	15	~8½(?)
9171	25°	--	~90°	5	5	~4(?)
9170	45°	--	~20°	15	14	~10½(?)
9169	45°	--	~20°	15	14	~10½(?)
8937	190°	--	~34°	14	11	~5(?)
8936	150°	--	~26°	12	11	~½(?)
9168	50°	145°/66° SW	~20°	15	14	~10½(?)
9167	50°	--	~20°	15	14	~11½(?)
9166	50°	--	~20°	15	14	~11½(?)
8935	215°	--	~10°	11	8	8½(?)
9162	50°	--	~15°	15	14	~6(?)
9161	50°	--	~15°	15	14	~6(?)
8934	190°	--	~10°	20	19	11½(?)
8933	214°	--	~2°	14	14	9(?)
8932	195°	--	~2°	12	12	8(?)
8931	198°	--	~2°	12	12	8(?)
9158	10°	--	~2°	20	20	13½(?)
9159	30°	105°/45° SW	~2°	15	15	~10
9160	30°	--	~2°	13	13	8½(?)
9157	20°	--	~2°	10	10	6(?)
9156	70°	145°/50° SW	~20°	20	19	~9½
9155	70°	--	~25°	15	14	~6(?)
9154	70°	--	~20°	15	14	~7(?)
8930	195°	--	~30°	15	13	~6(?)
8929	240°	151°/74° SW	~40°	10	8	5½
9153	20°	--	~25°	15	14	8½(?)
9152	20°	--	~25°	15	14	8½(?)
8928	238°	--	~40°	15	10	~8½(?)
8927	246°	--	~40°	10	10	5½(?)
				483		267



Sample	Stratigraphic Thickness (m)	Description
9202	3½	light-grey <u>limestone</u> , cryptocrystalline, homogeneous, attitude of bedding 110°/38° SW
9201	~7(?)	light-grey <u>limestone</u> , cryptocrystalline, homogeneous
9175	~7(?)	light-grey <u>limestone</u> , cryptocrystalline, homogeneous
--	35(?)	covered
9174	~8½(?)	light-grey <u>limestone</u> , cryptocrystalline, offset 60 m at 45° from sample 9175
9173	~8½(?)	light-grey <u>limestone</u> , cryptocrystalline
9172	~8½(?)	light-grey <u>limestone</u> , cryptocrystalline, elevation 5260'
--	15(?)	covered
9171	4(?)	dark-grey <u>limestone</u> , cryptocrystalline, homogeneous, <u>calcite</u> veins, rusty patches on weathered surfaces, offset 150 m at 305° from sample 9172
--	65(?)	covered
9170	10½(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins, rusty weathering, offset 90 m at 85° from sample 9171
9169	~10½(?)	medium-grey <u>limestone</u> , cryptocrystalline
8937	~5(?)	medium- to brownish-grey <u>limestone</u> , cryptocrystalline, massive, rusty stains on fractures, offset 20 m at 270° from sample 9168, smooth outcrop surface so chips at 1-m intervals,
8936	~½(?)	medium- to brownish-grey <u>limestone</u> , cryptocrystalline, massive, rusty stains on fractures, attitude of planar feature 15°/34° NW, chips at 1-m intervals
9168	~10½	light- to dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins, minor rusty stains, attitude of bedding 145°/66° SW, offset 20 m at 10° from sample 9169
--	11½(?)	covered
9167	~11½(?)	light-grey <u>limestone</u> , cryptocrystalline, homogeneous, offset 50 m at 350° from sample 8936

Sample	Stratigraphic Thickness (m)	Description
9166	~11½(?)	light-grey <u>limestone</u> , cryptocrystalline, homogeneous, elevation 5800'
--	3(?)	covered
8935	8½(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline, minor fractures, rusty stains along fractures, attitude of joints 18°/77° NW, offset 30 m at 65° from sample 9166
--	2½(?)	covered
9162	~6(?)	light-brownish-grey <u>limestone</u> , cryptocrystalline, homogeneous, offset 20 m at 295° from sample 8935, elevation 6000'
9161	~6(?)	light-brownish-grey <u>limestone</u> , cryptocrystalline, homogeneous
8934	11½(?)	light- to greyish-buff <u>limestone</u> , cryptocrystalline, few coarse <u>calcite</u> stringers to 2 mm, section partly covered (50% sampled), offset 5 m at 135° from sample 9161, elevation 6000'
8933	9(?)	light- to buff-grey <u>limestone</u> , cryptocrystalline, fractured, few <u>calcite</u> stringers to 2 mm
8932	8(?)	light-grey to greyish-buff <u>limestone</u> , cryptocrystalline, few coarse <u>calcite</u> stringers to 2 mm
8931	8(?)	light-buff-grey <u>limestone</u> , cryptocrystalline, few <u>calcite</u> stringers, attitude of joints 189°/73° NW with ~10/m, elevation 6000'
9158	13½(?)	light-brownish-grey <u>limestone</u> , cryptocrystalline, black stringers
9159	~10	light-brownish-grey <u>limestone</u> , cryptocrystalline, black stringers, attitude of bedding 105°/45° SW, offset 50 m at 130° from sample 9158
9160	8½(?)	light-brownish-grey <u>limestone</u> , cryptocrystalline, black stringers
--	~7(?)	covered
9157	6(?)	light-brownish-grey <u>limestone</u> , cryptocrystalline, black stringers, offset 15 m at 320° from sample 9160, elevation 6070'
9156	~9½	light-brownish-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> stringers and veins, spotty rusty inclusions, attitude of bedding 145°/50° SW, offset 85 m at 295° from sample 9157
9155	~6(?)	light-grey to brownish-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins

Sample	Stratigraphic Thickness (m)	Description
9154	~7(?)	light-grey to brownish-grey <u>limestone</u> , cryptocrystalline, homogeneous, elevation 6190'
8930	~6(?)	light-greyish-buff <u>limestone</u> , cryptocrystalline, few <u>calcite</u> stringers, elevation 6210'
--	~9½(?)	covered
8929	5½	light-greyish-buff <u>limestone</u> , cryptocrystalline, few coarse <u>calcite</u> stringers parallel bedding, attitude of bedding 151/74° SW, attitude of joints 21°/78° NW, offset 15 m at 88° from sample 8930, elevation 6220'
9153	8½(?)	light- to brownish-grey <u>limestone</u> , cryptocrystalline, homogeneous, offset 15 m at 125° from sample 8929
9152	8½(?)	light- to brownish-grey <u>limestone</u> , cryptocrystalline, homogeneous
--	~34(?)	covered
8928	~8½(?)	light-grey to greyish-buff <u>limestone</u> , cryptocrystalline, fractured, few crystalline <u>calcite</u> blebs, rusty and black (manganese ?) stains on fractures, attitude of joints 50°/85° NW with ~4/m, offset 90 m at 20° from sample 9152, elevation 6400'
8927	5½(?)	light-grey to buff <u>limestone</u> , cryptocrystalline, dolomitic (?), fractured, local white <u>calcite</u> blebs, rusty stains on fractures, attitude of joints 31°/82° NW, elevation 6465'

**SECTION B-25    SOUTHWEST SLOPE OF COLUMBIA LIME RIDGE  
(PART OF FIRST RIDGE), SHEET B (FIG. 2.4, 2.5, 2.6)**

Stratigraphic thicknesses are based on measured attitudes of bedding or planar features interpreted as bedding as listed below with appropriate interpolations.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8926	240°	131°/33° SW	~50°	20	13	5½
8975	230°	--	~50°	16	10	~3(?)
8974	230°	129°/72° SW	~30°	17	16	11
8973	225°	--	~30°	15	13	10(?)
8972	225°	--	~40°	16	12	~8½(?)
8971	265°	122°/58° SW	~40°	14	10	~2½
8970	250°	110°/86° SW	~40°	17	13	~8
8969	250°	--	~40°	18	14	~5(?)
8968	250°	130°/35° SW	~45°	17	12	2½
8967	270°	--	~45°	11	8	1½(?)
8966	240°	153°/36° SW	~45°	13	9	2
8965	240°	--	~45°	16	11	2½(?)
8964	240°	--	~32°	15	12	1(?)
8875	240°	--	~32°	16	13	~1(?)
8874	240°	--	~32°	16	16	~1(?)
				237		65(?)

Sample	Stratigraphic Thickness (m)	Description
8926	5½	light- to buff-grey <u>limestone</u> , cryptocrystalline, fractured, few coarse <u>calcite</u> stringers to 2 mm, attitude of bedding 131°/33° SW, attitude of joints 69°/80° SE, elevation 5910'
8975	~3(?)	light- to buff-grey <u>limestone</u> , cryptocrystalline, offset 3 m at 80° from sample 8926, elevation 5950'
--	3(?)	covered
8974	11	light-greyish-buff <u>limestone</u> , cryptocrystalline, minor fracturing, few coarse <u>calcite</u> blebs and stringers, rusty stains along fractures, attitude of bedding 129°/72° SW, attitude of joints 38°/76° NW, offset 10 m at 354° from sample 8975

Sample	Stratigraphic Thickness (m)	Description
8973	10(?)	light-grey <u>limestone</u> , cryptocrystalline, fractures, attitude of joints 31°/74° NW with ~20/m, elevation 6150'
8972	~8½(?)	light- to buff-grey <u>limestone</u> , cryptocrystalline, dolomitic (?), many fractures with some filled with coarse <u>calcite</u> , rusty stains along fractures, offset 130 m at 298° from sample 8973, elevation 6160'
8971	~2½	light-grey to greyish-buff <u>limestone</u> , cryptocrystalline, upper portion fractured with rusty stains, attitude of bedding 122°/58° SW, offset 15 m at 307° from sample 8972
8970	~8	light-grey to greyish-buff <u>limestone</u> , cryptocrystalline, sparse coarse <u>calcite</u> veinlets <4 mm, attitude of bedding 110°/86° SW, attitude of joints 124°/40° SW, 35°/68° NW, and 57°/72° NW, elevation 6205'
8969	~5(?)	light-greyish-buff <u>limestone</u> , cryptocrystalline, minor rusty stains on fractures
8968	2½	light-greyish-buff <u>limestone</u> , cryptocrystalline, few coarse <u>calcite</u> stringers 2 mm wide, rusty stains on joints, attitude of bedding 130°/35° SW, attitude of joints 34°/85° SE, elevation 6295'
8967	1½(?)	light-grey <u>limestone</u> , cryptocrystalline, offset 10 m at 110° from sample 8968
8966	2	light-grey to buff <u>limestone</u> , cryptocrystalline, local coarse <u>calcite</u> blebs some filling fractures, rusty stains on fractures and joints, attitude of bedding 153°/36° SW, attitude of joints 169°/67° NE with ~4/m
8965	2½(?)	light-grey to buff <u>limestone</u> , cryptocrystalline, coarse <u>calcite</u> blebs some filling fractures, trace rusty stains on fractures, attitude of joints 169°/76° NE with ~4/m, elevation 6380'
8964	1(?)	light-grey to buff <u>limestone</u> , cryptocrystalline, many fractures, local coarse <u>calcite</u> blebs, top of sample intersected by fault plane with attitude 161°/67° SW, about 20 m of fractured and rusty limestone on both sides of this fault, attitude of planar surface 112°/58° SW, offset 50 m at 305° from sample 8965
8875	~1(?)	light-grey <u>limestone</u> , cryptocrystalline, dolomitic (?), moderately to intensely fractured, rusty stains, attitude of joints 72°/52° NW and 152°/82° NE, offset 3 m at 74° from sample 8964
8874	~1(?)	very light grey to buff <u>limestone</u> , cryptocrystalline, fractured, rusty stains, attitude of joints 121°/51° NE and 33°/71° NW, offset 10 m at 320° from sample 8875

**SECTION B-26 NORTHEAST FACE OF COLUMBIA LIME RIDGE  
(PART OF FIRST RIDGE), SHEET B (FIG. 2.4, 2.5, 2.6)**

Stratigraphic thicknesses are based on a measured attitude of bedding of 165°/41° SW for samples 9176-78, and an assumed attitude of 150°/80° NE for the rest.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9176	240°	165°/41° SW	~20°	15	14	~12½
9177	240°	--	~20°	15	14	~12½(?)
9178	240°	--	~20°	15	14	~12½(?)
9179	270°	--	~20°	15	14	~11(?)
9180	250°	--	~20°	15	14	~13(?)
9181	250°	--	~20°	15	14	~13(?)
9182	250°	--	~20°	15	14	~13(?)
9183	265°	--	~20°	15	14	~12(?)
9184	225°	--	~20°	15	14	12½(?)
9185	225°	--	~20°	15	14	12½(?)
9186	230°	--	~20°	15	14	~13(?)
9187	230°	--	~20°	15	14	~13(?)
9188	240°	--	~20°	15	14	13(?)
				195		163½(?)

Sample	Stratigraphic Thickness (m)	Description
9176	~12½	light-grey <u>limestone</u> , cryptocrystalline, attitude of planar feature 165°/41° SW, elevation 6500'
9177	~12½(?)	light-grey <u>limestone</u> , cryptocrystalline
9178	~12½(?)	light-grey <u>limestone</u> , cryptocrystalline
9179	~11(?)	light-grey <u>limestone</u> , cryptocrystalline, offset 8 m at 154° from sample 9178
9180	~13(?)	light-grey <u>limestone</u> , cryptocrystalline
9181	~13(?)	light-grey <u>limestone</u> , cryptocrystalline
9182	~13(?)	light-grey <u>limestone</u> , cryptocrystalline

Sample	Stratigraphic Thickness (m)	Description
9183	~12(?)	light-grey <u>limestone</u> , cryptocrystalline
9184	12½(?)	light-grey <u>limestone</u> , cryptocrystalline, attitude of planar feature 135°/48° NE
9185	12½(?)	brownish-grey <u>limestone</u> , cryptocrystalline
9186	~13(?)	light-grey <u>limestone</u> , cryptocrystalline, offset 10 m at 335° from sample 9185
9187	~13(?)	brownish-grey <u>limestone</u> , cryptocrystalline
9188	13(?)	dark-grey <u>limestone</u> , cryptocrystalline, elevation 6340'

**ISOLATED SAMPLE ON SOUTHWEST SLOPE OF COLUMBIA LIME RIDGE  
(PART OF FIRST RIDGE), SHEET B (FIG. 2.4, 2.5)**

No bedding was observed.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8817	214°	--	~0°	15	15	~15

Sample	Stratigraphic Thickness (m)	Description
8817	~15	white- to very light-grey <u>limestone</u> , cryptocrystalline

**SECTION B-27 SOUTHWEST SLOPE OF COLUMBIA LIME RIDGE  
(PART OF FIRST RIDGE), SHEET B (FIG. 2.4, 2.6)**

Stratigraphic thicknesses are based on one measured attitude of bedding: 135°/33° SW.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9164	30°	--	~2°	15	15	7½(?)
9165	30°	135°/33° SW	~2°	20	20	10
				35		17½

Sample	Stratigraphic Thickness (m)	Description
9164	7½(?)	light-grey <u>limestone</u> , cryptocrystalline, homogeneous
9165	10	light-grey <u>limestone</u> , cryptocrystalline, homogeneous, attitude of bedding 135°/33° SW, elevation 5900'

**ISOLATED SAMPLE ON LOWER SOUTHWEST SLOPE OF COLUMBIA LIME RIDGE  
(PART OF SOUTHWEST CARBONATE), SHEET B (FIG. 2.4)**

Stratigraphic thicknesses are based on one measured attitude of bedding.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9163	30°	145°/41° SW	~2°	10	10	~5½

Sample	Stratigraphic Thickness (m)	Description
9163	~5½	dark-grey <u>limestone</u> , cryptocrystalline, white <u>calcite</u> banding, attitude of bedding 145°/41° SW, elevation 5160'



**SECTION B-28 SOUTHWEST FLANK OF COLUMBIA LIME RIDGE NEAR CLOSE CREEK  
(PART OF FIRST RIDGE), SHEET B (FIG. 2.4, 2.6)**

No bedding was identified, therefore stratigraphic thicknesses are based on an assumed bedding attitude of 140°/40° SW and are uncertain.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9150	45°	--	~32°	30	25	~4(?)
9189	60°	--	~30°	20	17	3½(?)
9190	60°	--	~30°	30	26	~5(?)
9191	30°	--	~38°	15	12	½(?)
9192	30°	--	~32°	30	25	4(?)
9193	45°	--	~30°	20	17	~3½(?)
9194	25°	--	~30°	30	26	~4½(?)
9195	45°	--	~30°	30	26	~5(?)
9196	60°	--	~30°	20	17	3½(?)
9197	60°	--	~30°	20	17	3½(?)
9198	60°	--	~30°	15	13	2½(?)
9199	60°	--	~30°	15	13	2½(?)
9200	60°	--	~30°	15	13	2½(?)
				290		44½(?)

Sample	Stratigraphic Thickness (m)	Description
9150	~4(?)	light-grey <u>limestone</u> , cryptocrystalline
9189	3½(?)	light-grey <u>limestone</u> , cryptocrystalline
9190	~5(?)	light-grey <u>limestone</u> , cryptocrystalline, fractured and broken
9191	½(?)	light-grey <u>limestone</u> , cryptocrystalline
9192	4(?)	light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
--	~3½(?)	covered
9193	~3½(?)	light-grey <u>limestone</u> , cryptocrystalline, offset 140 m at 125° from sample 9192
--	~5(?)	covered

Sample	Stratigraphic Thickness (m)	Description
9194	~4½(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets, offset 30 m at 45° from sample 9193
--	4½(?)	covered
9195	~5(?)	light-grey <u>limestone</u> , cryptocrystalline, offset 30 m at 27° from sample 9194
9196	3½(?)	light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
9197	3½(?)	brownish-grey <u>limestone</u> , cryptocrystalline
9198	2½(?)	light-grey <u>limestone</u> , cryptocrystalline
9199	2½(?)	light-grey <u>limestone</u> , cryptocrystalline
--	~3(?)	covered
9200	2½(?)	light-grey to brownish-grey <u>limestone</u> , cryptocrystalline, offset 50 m at 115° from sample 9199

**SECTION B-29    NORTHEAST CREST OF COLUMBIA LIME FIRST RIDGE  
(PART OF FIRST RIDGE), SHEET B (FIG. 2.4, 2.6)**

Stratigraphic thicknesses are based on measured attitudes of bedding or planar features interpreted as bedding as listed below with appropriate interpolations.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9111	240°	--	~20°	15	14	11(?)
9112	220°	110°/53° SW	~30°	15	13	14
9113	280°	--	~35°	15	12	~3½(?)
9114	280°	120°/85° SW	~35°	23	19	5
9115	210°	--	~35°	15	12	~9½(?)
9116	210°	--	~35°	15	12	~9½(?)
9117	240°	--	~35°	15	12	~8½(?)
9118	240°	--	~35°	20	16	~11(?)
9119	240°	--	~25°	15	13	13(?)
9120	240°	--	~35°	15	12	11½(?)
9121	240°	--	~35°	15	12	11½(?)
9122	230°	--	~35°	15	12	11½(?)
9123	230°	145°/79° NE	~40°	15	11	~9½
9124	240°	--	~40°	20	15	12½(?)
9125	240°	--	~40°	20	15	12½(?)
9151	270°	--	~20°	10	9	7(?)
				258		161

Sample	Stratigraphic Thickness (m)	Description
9111	11(?)	light- to dark-grey <u>limestone</u> , cryptocrystalline, black and white <u>calcite</u> stringers
9112	14	light- to dark-grey <u>limestone</u> , cryptocrystalline, black and white <u>calcite</u> veins, attitude of bedding 110°/53° SW, offset 14 m at 300° from sample 9111
9113	~3½(?)	light- to dark-grey <u>limestone</u> , cryptocrystalline, black and white <u>calcite</u> veins
9114	5	medium- to dark-grey <u>limestone</u> , cryptocrystalline, small light-grey oval nodules throughout, attitude of bedding 120°/85° SW
--	10(?)	covered

Sample	Stratigraphic Thickness (m)	Description
9115	~9½(?)	dark-grey <u>limestone</u> , cryptocrystalline, offset 30 m at 320° from sample 9114
9116	~9½(?)	dark-grey <u>limestone</u> , cryptocrystalline, locally dolomitic
9117	~8½(?)	dark-grey <u>limestone</u> , cryptocrystalline
9118	~11(?)	dark-grey <u>limestone</u> , cryptocrystalline
--	~10	covered
9119	13(?)	dark-grey <u>limestone</u> , cryptocrystalline
9120	11½(?)	dark-grey <u>limestone</u> , cryptocrystalline
9121	11½(?)	dark-grey <u>limestone</u> , cryptocrystalline
9122	11½(?)	medium- to brownish-grey <u>limestone</u> , cryptocrystalline, black <u>calcite</u> veins
9123	~9½	medium- to brownish-grey <u>limestone</u> , cryptocrystalline, black <u>calcite</u> veins, attitude of bedding (?) 145°/79° NE
9124	12½(?)	medium- to brownish-grey <u>limestone</u> , cryptocrystalline, black <u>calcite</u> veins
9125	12½(?)	medium- to brownish-grey <u>limestone</u> , cryptocrystalline, black <u>calcite</u> stringers
9151	7(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline

**SECTION B-30 NORTHWEST FLANK OF COLUMBIA LIME RIDGE NEAR  
CLOSE CREEK (PART OF FIRST RIDGE), SHEET B (FIG. 2.4, 2.6)**

Stratigraphic thicknesses are based on one attitude of bedding: 160°/40° SW.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8898	140°	--	~35°	30	25	1(?)
8897	140°	--	~35°	30	25	1(?)
8896	140°	--	~35°	30	25	1(?)
8895	140°	--	~35°	30	25	1(?)
8894	140°	--	~35°	15	12	~1(?)
8893	100°	--	~35°	15	12	~1(?)
8892	100°	--	~35°	15	12	~1(?)
8891	100°	--	~35°	15	12	~1(?)
8890	100°	--	~35°	15	12	~1(?)
8889	100°	--	~35°	15	12	~1(?)
8888	100°	--	~35°	15	12	~1(?)
8887	100°	--	~35°	15	12	~1(?)
8886	100°	--	~35°	15	12	~1(?)
8885	100°	--	~35°	15	12	~1(?)
8884	100°	--	~35°	15	12	~1(?)
8883	100°	--	~35°	15	12	~1(?)
8882	100°	--	~35°	15	12	~1(?)
8881	100°	--	~35°	15	12	~1(?)
8880	100°	--	~35°	15	12	~1(?)
8879	100°	--	~35°	15	12	~1(?)
8878	100°	--	~15°	15	14	5½(?)
8877	100°	--	~25°	13	12	~3(?)
8876	100°	160°/40° SW	~30°	9	8	~1½
				397		29½(?)

Sample	Stratigraphic Thickness (m)	Description
8898	1(?)	mostly light-grey <u>limestone</u> , few chips medium-grey, cryptocrystalline, elevation 6120'
8897	1(?)	medium-brown-grey <u>limestone</u> , cryptocrystalline

Sample	Stratigraphic Thickness (m)	Description
8896	1(?)	medium-brown-grey <u>limestone</u> , cryptocrystalline, jointed and broken, rust stains and orange spots along joints
8895	1(?)	light-brownish-grey <u>limestone</u> , cryptocrystalline, broken and fragmented
8894	~1(?)	light-brownish-grey <u>limestone</u> , cryptocrystalline
8893	~1(?)	light-brownish-grey <u>limestone</u> , cryptocrystalline, fractured and broken
8892	~1(?)	light- to medium-grey <u>limestone</u> , sugary texture, orange stains on fractures
8891	~1(?)	light- to medium-grey <u>limestone</u> , sugary texture, orange stains on fractures
8890	~1(?)	light- to medium-grey <u>limestone</u> , sugary texture, orange stains along fractures
8889	~1(?)	light- to medium-grey <u>limestone</u> , sugary texture, orange stains along fractures
8888	~1(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline
8887	~1(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline
8886	~1(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline
8885	~1(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline
8884	~1(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline
8883	~1(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline, highly fractured and broken, <u>calcite</u> veins, light greenish-to-grey calcareous shale bed 2 m thick in centre of interval, attitude of planar feature 175°/70° NE
8882	~1(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline
8881	~1(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline
8880	~1(?)	medium- to light-grey <u>limestone</u> , sugary texture, locally fractured, <u>calcite</u> veinlets and black stringers, rusty stains along fractures
8879	~1(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline

Sample	Stratigraphic Thickness (m)	Description
8878	5½(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline to sugary, black grains and spots throughout
8877	~3(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline
--	24½(?)	covered
8876	~1½	medium- to light-grey <u>limestone</u> , sugary texture, attitude of bedding 160°/40° SW, offset 45 m at 90° from sample 8877, elevation 6780'

**ISOLATED SAMPLES ON THE SOUTH FLANK OF DOME MOUNTAIN  
(PART OF SOUTHWEST CARBONATE), SHEET B (FIG 2.4)**

Stratigraphic thicknesses are based on one measured attitude of bedding: 125°/85°SW.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8977	2°	125°/85° SW	~10°	15	14	~12
8976	2°	--	~10°	15	14	~12(?)
				30		24

Sample	Stratigraphic Thickness (m)	Description
8977	~12	dark-grey <u>limestone</u> , sugary texture, <u>calcite</u> veinlets, attitude of bedding 125°/85° SW, elevation 5300'
8976	~12(?)	dark-grey <u>limestone</u> , sugary texture, <u>calcite</u> veinlets

**SECTION B-31 WEST BANK OF CLOSE CREEK BETWEEN DOME MOUNTAIN  
AND THE COLUMBIA LIME RIDGE (PART OF FIRST RIDGE), SHEET B (FIG. 2.4, 2.6)**

Stratigraphic thicknesses are based on measured attitudes of bedding: 100°/60° SW, 110°/55° SW, 85°/40° SW with appropriate interpolations.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8988	40°	100°/60° SW	~35°	9	7	~3½
8987	40°	--	~2°	15	15	11(?)
8986	60°	--	~2°	15	15	~9(?)
8985	60°	--	~35°	15	12	4½(?)
8984	60°	--	~25°	15	14	6½(?)
8983	60°	110°/55° SW	~25°	15	14	6½
8982	60°	--	~25°	15	14	6(?)
8981	60°	--	~25°	15	14	~4(?)
8980	10°	--	~25°	15	14	~5(?)
8979	10°	85°/40° S	~25°	15	14	~4
8978	10°	--	~25°	15	14	~4(?)
				159		64

Sample	Stratigraphic Thickness (m)	Description
8988	~3½	medium-grey <u>limestone</u> , cryptocrystalline, fractured and broken, <u>calcite</u> patches, attitude of bedding 100°/60° SW, attitude of slip plane 135°/55° SW, sample elevation 6120'
8987	11(?)	medium-grey <u>limestone</u> , cryptocrystalline, fractured, <u>calcite</u> patches
8986	~9(?)	dark-grey <u>limestone</u> , few chips light-grey, cryptocrystalline, fractured, rust stains along fractures
8985	4½(?)	dark-grey <u>limestone</u> , few chips light-grey, cryptocrystalline, fractured, rusty stains on fractures
8984	6½(?)	light-grey <u>limestone</u> , cryptocrystalline
8983	6½	light-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 110°/55° SW, elevation 5580'
8982	6(?)	light-grey <u>limestone</u> , cryptocrystalline



Sample	Stratigraphic Thickness (m)	Description
8981	~4(?)	light-grey <u>limestone</u> , cryptocrystalline
8980	~5(?)	light-brownish-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
8979	~4	light-brownish-grey <u>limestone</u> , cryptocrystalline, fractured, <u>calcite</u> veinlets, attitude of bedding (?) 85°/40° S
8978	~4(?)	light-brownish-grey <u>limestone</u> , cryptocrystalline, fractured and broken, <u>calcite</u> veinlets, elevation 5760'

**SECTION B-32 KNOLL SOUTHWEST OF DOME MOUNTAIN  
(SOUTHWEST OF FIRST RIDGE), SHEET B (FIG 2.4)**

Stratigraphic thicknesses are based on one measured attitude of bedding: 152°/75° SW.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8822	45°	--	~10°	10	--	10
8823	45°	--	~10°	10	--	10
8824	45°	152°/75° SW	~10°	9	--	9
8825	45°	--	~10°	5	--	5
				34		34

Sample	Stratigraphic Thickness (m)	Description
8822	10	light- to medium-grey <u>limestone</u> , cryptocrystalline to fine-grained, orange-brown filling of fractures
8823	10	medium-grey <u>limestone</u> , cryptocrystalline to fine-grained
8824	9	<u>limestone</u> , cryptocrystalline, medium-grey in lower 6 m, upper 3 m dark-grey, attitude of colored banding 152°/75° SW

Sample	Stratigraphic Thickness (m)	Description
8825	5	medium-grey <u>limestone</u> , cryptocrystalline to fine-grained, few green 2-3 mm spots, elevation 5700'

**SECTION B-33 SOUTHWEST SPUR OF DOME MOUNTAIN  
(PART OF FIRST RIDGE), SHEET B (FIG. 2.4)**

Stratigraphic thicknesses are based on measured attitudes of bedding as listed below with appropriate interpolations.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8916	144°	124°/44° SW	~10°	10	9	2
8915	144°	130°/48° SW	~10°	10	9	1½
8914	112°	--	~20°	10	9	~2½(?)
8913	112°	145°/56° SW	~20°	10	9	~3
8912	112°	120°/65° SW	~20°	10	9	1
8911	92°	--	~15°	10	9	2½(?)
8910	92°	--	~15°	10	9	1½(?)
8909	92°	108°/28° SW	~15°	10	9	~½
8908	18°	174°/48° W	~15°	5	5	~1
8907	18°	--	~15°	10	9	5½(?)
8906	18°	--	~18°	10	9	5(?)
8905	18°	--	~20°	10	9	~4½(?)
8904	18°	108°/48° SW	~20°	10	9	~4½
8903	18°	--	~20°	10	9	~4½(?)
8902	18°	--	~18°	10	9	~5(?)
8901	18°	132°/47° SW	~18°	10	9	4½
				155		49

Sample	Stratigraphic Thickness (m)	Description
8916	2	light-grey <u>limestone</u> , cryptocrystalline to fine-grained, strong reaction with HCl, attitude of bedding 124°/44° SW, elevation 6180'
--	~7½(?)	covered

Sample	Stratigraphic Thickness (m)	Description
8915	1½	light-grey <u>limestone</u> , cryptocrystalline to fine-grained, massive, attitude of bedding 130°/48° SW, offset 10 m at 45° from sample 8916
8914	~2½(?)	light-grey <u>limestone</u> , cryptocrystalline, jointed and broken, offset 30 m at 315° from sample 8915
8913	~3	light-grey <u>limestone</u> , cryptocrystalline, fragmented and broken, <u>calcite</u> veinlets, attitude of bedding 145°/56° SW, attitude of joints 7°/60° E
8912	1	light-grey <u>limestone</u> , cryptocrystalline to fine-grained, broken into large pieces by planar features, attitude of bedding 120°/65° SW, attitude of joints 12°/52° W, elevation 6260'
--	8½(?)	covered
8911	2½(?)	light-grey <u>limestone</u> , cryptocrystalline, massive and competent, offset 40 m at 310° from sample 8912
8910	1½(?)	light-grey <u>limestone</u> , cryptocrystalline, massive, <u>calcite</u> veinlets
8909	~½	light-grey <u>limestone</u> , cryptocrystalline, massive and competent, attitude of bedding 108°/28° SW, elevation 6420'
--	62(?)	covered
8908	~1	light-grey <u>limestone</u> , cryptocrystalline, broken and fragmented, attitude of bedding 174°/48° W, offset 130 m at 350° from sample 8909
8907	5½(?)	light-grey <u>limestone</u> , cryptocrystalline, broken and fragmented, <u>calcite</u> veinlets, 1.2 m wide shear zone 4.2 m from top of sample cuts outcrop at 172°/36° E, gouge and <u>calcite</u> crystals within shear
8905	5(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline, fractured and broken, <u>calcite</u> veinlets
8906	~4½(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
8904	~4½	medium- to light-grey <u>limestone</u> , few chips dark-grey, cryptocrystalline, <u>calcite</u> crystals on fractures, attitude of bedding 108°/48° SW
8903	~4½(?)	light-grey <u>limestone</u> , few chips yellowish-grey, cryptocrystalline, massive and competent

Sample	Stratigraphic Thickness (m)	Description
8902	~5(?)	light- to yellowish-grey <u>limestone</u> , cryptocrystalline, massive, <u>calcite</u> crystals on fractures
8901	4½	light-grey <u>limestone</u> , cryptocrystalline to very fine grained, <u>calcite</u> veinlets, attitude of bedding 132°/47°SW, elevation 6750'

**SECTION B-34 PEAK OF DOME MOUNTAIN  
(PART OF FIRST RIDGE), SHEET B (FIG. 2.4)**

Stratigraphic thicknesses are based on two measured attitudes of bedding: 141°/81° SW and 163°/43° W.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8801	260°	--	~15°	10	10	9(?)
8802	260°	--	~27°	9	8	7(?)
8803	0°	141°/81° SW	~30°	6	5	3
8804	315°	--	~30°	3	3	3(?)
8805	250°	163°/43° SW	~27°	9	8	2½
8806	250°	--	~27°	11	10	7(?)
8807	265°	--	~25°	10	10	7(?)
8808	265°	--	~30°	12	10	7(?)
8809	265°	--	~30°	10	9	6(?)
				80		51½

Sample	Stratigraphic Thickness (m)	Description
8801	9(?)	light- to medium-grey <u>limestone</u> , few chips dark-grey, cryptocrystalline to fine-grained
8802	7(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline, few irregular white <u>calcite</u> veinlets and buffish masses (dolomitic ?)
--	?	covered

Sample	Stratigraphic Thickness (m)	Description
8803	3	light-grey <u>limestone</u> , few chips dark- to medium-green, cryptocrystalline, attitude of bedding 141°/81° SW, offset 40 m at 210° from sample 8802
--	?	covered
8804	3(?)	light-grey <u>limestone</u> , cryptocrystalline, orange-brown coating on joints, offset 30 m at 70° from sample 8803
--	?	covered
8805	2½(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline, coarse white <u>calcite</u> at east end, trace yellowish quartz banding, attitude of bedding (?) 163°/43° W, offset 50 m at 184° from sample 8804
8806	7(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline to fine grained, few white <u>calcite</u> veinlets and masses
--	25(?)	covered
8807	7(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline to fine-grained, minor coarse <u>calcite</u> , offset 60 m at 115° from sample 8806
8808	7(?)	mostly dark-grey <u>limestone</u> , cryptocrystalline, few white <u>calcite</u> veins, buff-yellow patches, fetid odor in topographic lower section, upper section mostly medium-grey with white <u>calcite</u> masses
8809	6(?)	mostly medium- to dark-grey <u>limestone</u> , few chips light-grey towards the east, cryptocrystalline to fine grained

**SECTION B-35 WESTERLY SPUR OF DOME MOUNTAIN  
(PART OF FIRST RIDGE), SHEET B (FIG. 2.4)**

Stratigraphic thicknesses are based on measured attitudes of bedding or planar features interpreted as bedding as listed below.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8857	232°	--	~25°	12	10	10(?)
8856	232°	142°/82° SW	~25°	15	12	12½
8855	200°	--	~25°	14	10	~10½(?)
8854	220°	139°/85° SW	~25°	14	12	12
8853	267°	144°/72° SW	~25°	14	12	8½
8852	267°	--	~25°	12	11	~8½(?)
8851	267°	177°/71° SW	~15°	12	12	10
				92		72

Sample	Stratigraphic Thickness (m)	Description
8857	10(?)	light- to buff-grey <u>limestone</u> , cryptocrystalline, coarse <u>calcite</u> in fractures and veinlets, elevation 6640'
8856	12½	light-grey <u>limestone</u> , cryptocrystalline, few coarse <u>calcite</u> veinlets randomly oriented up to 2 mm wide, attitude of bedding 144°/82° SW, offset 2 m at 139° from sample 8857
8855	~10½(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline to very fine grained, offset 15 m at 120° from sample 8856, elevation 6705'
8854	12	medium- to dark-grey <u>limestone</u> , cryptocrystalline, massive with local fractures, few coarse <u>calcite</u> veinlets to 5 mm, attitude of bedding 139°/85° SW, offset 2 m at 319° from sample 8855
8853	8½	dark-grey <u>limestone</u> , few chips light-grey, cryptocrystalline to very fine grained, few small crystalline <u>calcite</u> veinlets to 3 mm, attitude of bedding 144°/72° SW, offset 3 m at 324° from sample 8854
8852	~8½(?)	dark-grey <u>limestone</u> , partly light- to buff-grey, cryptocrystalline, massive, few coarse <u>calcite</u> veinlets to 1 mm in width, offset 4 m at 357° from sample 8853, elevation 6740'

Sample	Stratigraphic Thickness (m)	Description
8851	10	light- to buff-grey <u>limestone</u> , cryptocrystalline to very fine grained, minor coarse <u>calcite</u> stringers and veinlets to 2 mm, attitude of bedding 177°/71° SW, attitude of joints 53°/45° SE with ~6/m, offset 2 m at 180° from sample 8852, elevation 6780'

**ISOLATED SAMPLES AT THE 1971 DRILL SITES ALONG ROURKE CREEK  
(PART OF FIRST RIDGE), SHEET C (FIG. 2.7)**

Stratigraphic thicknesses are based on a bedding attitude of 150°/70° SW.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8840	290°	150°/70° SW	~30°	10	9	~4
8841	290°	--	~30°	10	9	~4(?)
				20		8

Sample	Stratigraphic Thickness (m)	Description
8840	~4	dark-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 150°/70° SW
8841	~4(?)	dark-grey <u>limestone</u> , cryptocrystalline

**SECTION D-6 SOUTHERN SPUR OF TRAIL MOUNTAIN  
(PART OF SECOND RIDGE), SHEET D (FIG. 2.8)**

Stratigraphic thicknesses are based on measured attitudes of bedding: 120°/23° NE for samples 9227-26, 8850-49; 125°/25° SW for samples 8848-44, 9225-14; 120°/33° SW for samples 9213-10; and 115°/20° SW for samples 9209-03.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9227	0°	120°/23° NE	~2°	15	15	5
9226	0°	--	~2°	15	15	5(?)
8850	0°	--	~10°	15	15	7(?)
8849	0°	--	~20°	15	14	~9(?)
8848	330°	--	~30°	15	13	½(?)
8847	330°	--	~30°	15	13	½(?)
8846	330°	--	~35°	15	12	1(?)
8845	330°	--	~30°	15	13	½(?)
8844	0°	--	~30°	15	13	1(?)
9225	0°	--	~25°	15	14	½(?)
9224	0°	--	~25°	15	14	½(?)
9223	0°	--	~25°	15	14	½(?)
9222	5°	125°/25° SW	~25°	15	14	½
9221	5°	--	~25°	15	14	½(?)
9220	5°	--	~25°	15	14	½(?)
9219	5°	--	~25°	15	14	½(?)
9218	345°	--	~30°	15	13	~1(?)
9217	345°	--	~30°	15	13	~1(?)
9216	345°	--	~25°	15	14	½(?)
9215	345°	--	~25°	15	14	½(?)
9214	5°	--	~20°	15	14	~1(?)
9213	5°	--	~20°	15	14	3(?)
9212	5°	--	~20°	15	14	3(?)
9211	5°	--	~20°	15	14	3(?)
9210	10°	120°/33° SW	~30°	15	13	~½
9209	350°	--	~30°	15	13	2(?)
9208	350°	--	~25°	15	14	1(?)
9207	350°	--	~25°	15	14	1(?)
9206	340°	115°/20° SW	~25°	15	14	1
9205	340°	--	~25°	15	14	1(?)
9204	340°	--	~25°	15	14	1(?)
9203	340°	--	~25°	15	14	1(?)
				480		54½



Sample	Stratigraphic Thickness (m)	Description
9227	5	dark-grey <u>limestone</u> , cryptocrystalline, attitude of bedding (?) 120°/23° NE, elevation 6350'
9226	5(?)	dark-grey <u>limestone</u> , cryptocrystalline
8850	7(?)	dark- to medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets and crystals, rusty stains on fractures
8849	~9(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets and crystals, rusty stains on fractures
8848	½(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> banding, black <u>calcite</u> crystals on fractures, rusty stains throughout
8847	½(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> crystals on fractures
8846	1(?)	dark-grey <u>limestone</u> , cryptocrystalline, black <u>calcite</u> crystals on fractures
8845	½(?)	dark-grey <u>limestone</u> , cryptocrystalline, black crystalline <u>calcite</u> faces
8844	1(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins, elevation 6180'
9225	½(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins
9224	½(?)	medium-grey <u>limestone</u> , few chips dark-grey, cryptocrystalline, <u>calcite</u> veins
9223	½(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins
9222	½	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets, attitude of bedding 125°/25° SW
9221	½(?)	dark-grey <u>limestone</u> , few chips light-grey, cryptocrystalline
9220	½(?)	medium- to dark-grey <u>limestone</u> , cryptocrystalline
9219	½(?)	dark-grey <u>limestone</u> , few chips light-grey, cryptocrystalline
9218	~1(?)	medium-grey <u>limestone</u> , cryptocrystalline, elevation 6000'
9217	~1(?)	medium-grey <u>limestone</u> , cryptocrystalline
9216	½(?)	dark-grey <u>limestone</u> , cryptocrystalline
9215	½(?)	medium-grey <u>limestone</u> , cryptocrystalline

Sample	Stratigraphic Thickness (m)	Description
9214	~1(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> banding, rusty stains on fractures
--	~2½(?)	covered
9213	3(?)	dark-grey <u>limestone</u> , cryptocrystalline, offset 15 m at 180° from sample 9214
9212	3(?)	dark-grey <u>limestone</u> , cryptocrystalline
9211	3(?)	dark-grey <u>limestone</u> , cryptocrystalline
9210	~½	dark-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 120°/33° SW, elevation 5750'
9209	2(?)	medium-grey <u>limestone</u> , cryptocrystalline, offset 15 m at 90° from sample 9210
9208	1(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline
9207	1(?)	medium-grey <u>limestone</u> , cryptocrystalline
9206	1	dark- to medium-grey <u>limestone</u> , few chips light-grey, cryptocrystalline, rusty spots, attitude of bedding 115°/20° SW
9205	1(?)	light-grey <u>limestone</u> , few chips dark-grey, cryptocrystalline
9204	1(?)	light-grey <u>limestone</u> , few chips dark-grey, cryptocrystalline
9203	1(?)	light-grey <u>limestone</u> , cryptocrystalline, dark-grey banding, elevation 5520'

**SECTION D-7 NORTHWESTERN SPUR OF TRAIL MOUNTAIN  
(PART OF SECOND RIDGE), SHEET D (FIG. 2.8)**

Stratigraphic thicknesses are based on one measured attitude of bedding: 115°/42° SW.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9270	230°	--	~35°	10	8	1(?)
9269	230°	--	~35°	15	12	~1½(?)
9268	230°	--	~35°	15	12	~1½(?)
9267	230°	--	~35°	15	12	~1½(?)
9266	230°	115°/42° SW	~30°	7	6	~1½
9265	230°	--	~30°	15	13	~3(?)
9264	230°	--	~30°	15	13	~3(?)
9263	230°	--	~30°	15	13	~3(?)
9262	230°	--	~30°	15	13	~3(?)
9261	230°	--	~30°	15	13	~3(?)
9260	185°	--	~10°	15	15	7½(?)
9259	185°	--	~2°	15	15	9(?)
9258	185°	--	~2°	15	15	9(?)
9257	180°	--	~20°	15	14	5(?)
9256	260°	--	~25°	15	14	2½(?)
9255	260°	--	~25°	15	14	2½(?)
9254	260°	--	~2°	15	15	5½(?)
				167		63

Sample	Stratigraphic Thickness (m)	Description
9270	1(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veining and oval shaped nodules
9269	~1½(?)	dark-grey <u>limestone</u> , cryptocrystalline
9268	~1½(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
9267	~1½(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> stringers
9266	~1½	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> stringers, attitude of bedding 115°/42° SW, offset 25 m at 315° from sample 9267
9265	~3(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> stringers

Sample	Stratigraphic Thickness (m)	Description
9264	~3(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
9263	~3(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> bands
9262	~3(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> bands
9261	~3(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins, rusty stringers
9260	7½(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins
9259	9(?)	medium- to dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins
9258	9(?)	dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veins
9257	5(?)	medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> stringers, 2-m interval of medium-grey <u>limestone</u> breccia and chert nodules within white <u>calcite</u> stockwork orientated at 73°/76° NW
9256	2½(?)	medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
9255	2½(?)	medium- to dark-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets
9254	5½(?)	medium-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> stringers, elevation 5770'

**ISOLATED SAMPLE LOWER NORTHWEST SIDE OF TRAIL MOUNTAIN  
(PART OF SECOND RIDGE), SHEET D (FIG. 2.8)**

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
9253	grab	--	--	--	--	--

Sample	Stratigraphic Thickness (m)	Description
9253	grab	light-grey <u>limestone</u> , cryptocrystalline, homogeneous, elevation 5000'

**SECTION E-1 NEAR SOUTHEASTERLY PEAK OF MOUNT BOWMAN  
(PART OF SECOND RIDGE), SHEET E (FIG. 2.9)**

All samples consist of chips collected at ~50 cm intervals measured along slopes. Stratigraphic thicknesses are based on measurements of bedding or planar features interpreted as bedding as listed below.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8826	60°	--	~35°	17	17	~3*
8827	75°	--	~35°	18	18	5
8842	135°	--	~35°	22	18	11
8828	60°	120°/26° SW	~38°	12	?	~11
8829	90°	170°/19° W	~36°	9	?	8½
8830	90°	--	~36°	8	5	~8
8831	60°	--	~42°	9	7	~9
8832	60°	--	~36°	10	5	~10
8833	60°	--	~36°	10	6	~10
8834	60°	--	~36°	10	6	~10
8835	60°	--	~36°	10	6	~10
8843	60°	--	~36°	10	6	~10
				145		102½

\* same strata as sample 8827 so omitted from total

Sample	Stratigraphic Thickness (m)	Description
8826	~3	light- to medium-grey <u>limestone</u> , cryptocrystalline, coarse white <u>calcite</u> , chips at 50 cm
8827	5	light- to medium-grey <u>limestone</u> , cryptocrystalline, white <u>calcite</u> veins, chips at 50 cm
8842	11	light-grey <u>limestone</u> , cryptocrystalline, offset 25 m at 358° from sample 8827

Sample	Stratigraphic Thickness (m)	Description
8828	~11	medium-grey <u>limestone</u> , cryptocrystalline to fine grained, attitude of bedding 120°/26° SW, offset 170 m at 335° from sample 8842
8829	8½	light-grey <u>limestone</u> , cryptocrystalline, thin <u>calcite</u> veinlets, attitude of bedding (?) 170°/19° W
8830	~8	light-grey <u>limestone</u> , cryptocrystalline, locally fractured and broken
--	~43	covered
8831	~9	light-grey <u>limestone</u> , cryptocrystalline, offset 80 m at 266° from sample 8830
8832	~10	light-grey <u>limestone</u> , cryptocrystalline
8833	~10	light-grey <u>limestone</u> , cryptocrystalline
8834	~10	light-grey <u>limestone</u> , cryptocrystalline
8835	~10	light-grey <u>limestone</u> , cryptocrystalline
8843	~10	light-grey <u>limestone</u> , cryptocrystalline

**ISOLATED SAMPLES NEAR PEAK OF MOUNT BOWMAN  
(PART OF SECOND RIDGE), SHEET E (FIG. 2.9)**

Stratigraphic thicknesses are based on one measured attitude of bedding: 175°/35° E.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8836	30°	--	~36°	8	10	~7
8837	30°	175°/35° E	~36°	7	4	~6
8838	45°	--	~36°	9	9	?
8839	45°	--	~36°	10	10	?
				34		13+

Sample	Stratigraphic Thickness (m)	Description
8836	~7	medium-dark-grey <u>limestone</u> , cryptocrystalline, few chips coated with orange-brown material, veins of massive white <u>calcite</u> at several orientations, sheared at 133°/90°
8837	~6	dark-grey <u>limestone</u> , fine-grained, part recrystallized to coarse light-grey <u>calcite</u> , attitude of bedding (?) 175°/35° E
--	?	covered
8838	?	medium- to light-grey <u>limestone</u> , coarse grained, recrystallized, attitude of prominent foliation 138°/73° SW with some dipping 46° SW, offset 90 m at 252° from sample 8837
8839	?	medium- to light-grey <u>limestone</u> , coarse grained, recrystallized as sample 8838, medium-grey on gweathered surface

**SECTION E-2 WESTERN FLANK OF MOUNT BOWMAN  
(PART OF SECOND RIDGE), SHEET E (FIG. 2.9)**

The samples consist of chips collected at ~1 m intervals along slopes. Stratigraphic thicknesses are based on attitudes of bedding as listed below.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8920	250°	--	~15°	18	17	~7(?)
8919	250°	--	~15°	20	19	7½(?)
8918	236°	--	~15°	20	19	~8(?)
8917	236°	144°/38° SW	~15°	20	19	~8
8872	226°	--	--	12	10	~7(?)
8871	226°	130°/75° SW	--	13	10	10½
8870	226°	--	--	13	10	10(?)
8869	300°	--	--	16	13	2(?)
8868	278°	--	--	13	10	~5(?)
8867	256°	--	--	12	10	7½(?)
8866	256°	--	--	12	10	7½(?)
8865	252°	130°/65° SW	--	13	10	~8
8864	252°	--	--	13	10	7½(?)
8863	220°	--	--	12	10	~7(?)
8862	290°	--	--	12	10	~4(?)
8861	257°	--	--	12	10	~5½(?)
8860	262°	--	--	12	10	~5(?)
8859	290°	165°/40° SW	--	12	10	~3½
8858	282°	--	--	12	10	~3½(?)
8963	306°	--	~38°	23	18	~½(?)
8962	306°	--	~28°	17	15	~2(?)
8961	310°	--	~30°	20	17	~2(?)
8960	302°	--	~30°	20	17	~2½(?)
8959	290°	--	~28°	14	12	~2½(?)
8958	244°	--	~27°	22	20	~5(?)
8957	270°	--	~27°	26	23	~5½(?)
8956	270°	--	~30°	22	19	~3½(?)
8955	270°	--	~18°	25	24	9(?)
8954	270°	--	~27°	27	24	~6(?)
8953	270°	--	~15°	24	23	~10(?)
8952	270°	--	~15°	32	31	13(?)
8951	270°	--	~15°	36	35	~14½(?)
				575		201



Sample	Stratigraphic Thickness (m)	Description
8920	~7(?)	light-grey <u>limestone</u> , cryptocrystalline, <u>calcite</u> veinlets, attitude of joints 170°/38° E, elevation 5990'
8919	7½(?)	light-grey <u>limestone</u> , few chips yellowish-grey, cryptocrystalline, attitude of joints 8°/82° E
8918	~8(?)	light-grey <u>limestone</u> , few chips yellowish-grey, cryptocrystalline, massive and competent, attitude of joints 54°/76° W and 102°/52° S
8917	~8	light-grey <u>limestone</u> , cryptocrystalline, broken and fractured, <u>calcite</u> veinlets, ½-m wide shear zone 12 m down-slope from top of sample along 158°/60° E plane, shear with gouge and <u>calcite</u> crystals, attitude of bedding 144°/38° SW, attitude of joints 32°/12° N and 132°/90°, 35 m at 108° from I.D. post MAR 110 - 3N5W, elevation 6120'
8872	~7(?)	light- to medium-grey <u>limestone</u> , few chips buff, cryptocrystalline, fine <u>calcite</u> veinlets, trace of rust on fractures, attitude of planar surface 105°/55° SW, offset 10 m at 315° from sample 8917, elevation 6100'
8871	10½	light- to medium-grey <u>limestone</u> , few chips buff, cryptocrystalline, fine <u>calcite</u> veinlets, trace of rust along fractures, attitude of bedding 130°/75° SW, attitude of joints 27°/85° NW
8870	10(?)	medium-grey <u>limestone</u> , cryptocrystalline, offset 5 m at 130° from sample 8871
8869	2(?)	medium-grey <u>limestone</u> , cryptocrystalline, locally dolomitic (?), fine <u>calcite</u> veinlets, rusty stains on fractures, attitude of joints 164°/86° SW, offset 2 m at 4° from sample 8870
8868	~ 5(?)	medium-grey <u>limestone</u> , cryptocrystalline, offset 4 m at 0° from sample 8869
8867	7½(?)	medium-grey <u>limestone</u> , cryptocrystalline, offset 5 m at 0° from sample 8868
8866	7½(?)	medium-grey <u>limestone</u> , cryptocrystalline, few coarse <u>calcite</u> veinlets to 3 mm, attitude of joints 24°/54° SE and 82°/20° SE
8865	~8	light-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 130°/65° SW
8864	7½(?)	medium-grey <u>limestone</u> , cryptocrystalline to microcrystalline, massive

Sample	Stratigraphic Thickness (m)	Description
8863	~7(?)	medium-grey <u>limestone</u> , cryptocrystalline, offset 8 m at 135° from sample 8864
8862	~4(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline, upper 3 m of sample interval with few coarse <u>calcite</u> stringers to 2 mm, attitude of planar surface 105°/14° SW, pervasive joints at 55°/76° NW, 104°/86° NE
8861	~5½(?)	light-grey <u>limestone</u> , cryptocrystalline, coarse <u>calcite</u> bands 1-3 mm parallel to joints, attitude of planar feature 20°/60° SE, attitude of joints 55°/55° NW, 55°/80° NW, 155°/25° NE, offset 10 m at 90° from sample 8862
--	2(?)	covered
8860	~5(?)	medium-grey <u>limestone</u> , cryptocrystalline, massive with minor fractures, local coarse crystalline <u>calcite</u>
8859	~3½	medium- to dark-grey <u>limestone</u> , cryptocrystalline, attitude of bedding 165°/40° SW, attitude of joints 95°/30° NE, 25°/80° NW
8858	~3½(?)	medium- to dark-grey <u>limestone</u> , cryptocrystalline, dolomitic (?), local coarse crystalline <u>calcite</u> matrix, black (manganese ?) and rusty stains along fractures and joints, attitude of joints 45°/81° NW and 8°/22° SE with frequency ~14/m
8963	~½(?)	medium-grey <u>limestone</u> , cryptocrystalline
8962	~2(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline
8961	~2(?)	medium-grey <u>limestone</u> , cryptocrystalline
8960	~2½(?)	medium-grey <u>limestone</u> , cryptocrystalline
8959	~2½(?)	medium-grey <u>limestone</u> , cryptocrystalline
--	1(?)	covered
8958	~5(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline, offset 3 m at 45° from sample 8959
8957	~5½(?)	medium- to dark-grey <u>limestone</u> , cryptocrystalline
8956	~3½(?)	light-grey <u>limestone</u> , cryptocrystalline
8955	9(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline, coarse <u>calcite</u> crystals near base of sample

Sample	Stratigraphic Thickness (m)	Description
8954	~6(?)	medium-grey <u>limestone</u> , cryptocrystalline
8953	~10(?)	medium-grey <u>limestone</u> , cryptocrystalline
8952	13(?)	light- to medium-grey <u>limestone</u> , cryptocrystalline
8951	~14½(?)	light-grey <u>limestone</u> , cryptocrystalline

**SECTION E-3 WESTERN FLANK OF MOUNT BOWMAN TOPOGRAPHICALLY BELOW SECTION E-2 (PART OF SECOND RIDGE), SHEET E (FIG. 2.9)**

Stratigraphic thicknesses are based on measured attitudes of bedding or features interpreted as bedding as listed below.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8924	235°	174°/48° W	~20°	32	30	13
8923	224°	--	~20°	20	18	8(?)
8922	224°	8°/06° W	~20°	20	18	~3
8921	224°	--	~20°	<u>22</u>	20	<u>5(?)</u>
				94		29(?)

Sample	Stratigraphic Thickness (m)	Description
8924	13	light-grey <u>limestone</u> , cryptocrystalline, massive and competent, <u>calcite</u> veinlets, attitude of bedding (?) 174°/48° W, elevation 5680'
8923	8(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline, upper 7 m massive, lower 3 m broken and shattered, lower zone sheared along 40°/54° W plane with gouge, <u>calcite</u> crystals and rusty stains, offset 20 m at 25° from sample 8924

Sample	Stratigraphic Thickness (m)	Description
8922	~3	medium- to light-grey <u>limestone</u> , cryptocrystalline, massive, <u>calcite</u> crystals on fractures, along base of outcrop 5-8 cm thick horizontal beds (?) which grade into a massive unit above, attitude of bedding 8°/06° W, elevation 5880'
8921	5(?)	medium- to light-grey <u>limestone</u> , cryptocrystalline to fine-grained, massive and competent with small zones of pervasive joints, attitude of joints 18°/90°, 48°/76° N, and 154°/86° N, offset 70 m at 90° from sample 8922

**ISOLATED SAMPLES AT CAVE ON RIDGE EXTENDING NORTHERLY  
FROM MOUNT BOWMAN (PART OF SECOND RIDGE), SHEET E (FIG. 2.9)**

Stratigraphic thicknesses are based on measured attitudes of bedding: 163°/48° E and 178°/35° E.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8815	250°	163°/48° E	--	10	--	10
8816	250°	178°/35° E	--	12	--	12
				22		22

Sample	Stratigraphic Thickness (m)	Description
8815	10	medium-grey <u>limestone</u> , few chips dark-grey, cryptocrystalline to fine-grained, orange-brown stains on joints, attitude of bedding 163°/48°E
8816	12	mostly dark-grey <u>limestone</u> , few chips mottled with medium-brown material, attitude of bedding 178°/35° E

## SECTION E-4 ACROSS EWE RIDGE (PART OF SECOND RIDGE), SHEET E (FIG 2.9)

Stratigraphic thicknesses are uncertain, because the limestone on this ridge is sheared and foliated, with one questionable attitude of bedding.

Sample	Sample Orientation	Bedding Attitude	Sample Slope	Measured Length (m)	Horizontal Length (m)	Stratigraphic Thickness (m)
8810	225°	--	~15°	11	11	6(?)
8811	225°	--	~15°	10	10	6(?)
8812	225°	--	~15°	10	10	6(?)
8813	225°	134°/35° NE	~15°	7	7	4(?)
8814	225°	--	~15°	7	7	4(?)
				45		26(?)

Sample	Stratigraphic Thickness (m)	Description
8810	6(?)	medium-grey <u>limestone</u> , fine-grained, becoming massive to the NE, coarse <u>calcite</u> along fractures
8811	6(?)	medium-grey <u>limestone</u> , fine-grained, variably sheared, brown alteration on joints
8812	6(?)	medium- to dark-grey <u>limestone</u> , fine-grained, few <u>calcite</u> veinlets to 5 mm, brown stains on joints
8813	4(?)	medium- to dark-grey <u>limestone</u> , fine-grained, spotty coarse <u>calcite</u> , locally sheared, attitude of bedding (?) 134°/35° NE
8814	4(?)	medium- to dark-grey <u>limestone</u> , fine-grained, sheared and foliated, argillaceous (?)

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## WHOLE ROCK ICP ANALYSIS

Halferdahl &amp; Associates Ltd. File # 93-1981 Page 1

18 - 10509 - 81st Ave, Edmonton AB T6E 1X7

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SAMPLE#	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Sr	Zr	Y	Nb	Sc	LOI	SUM
	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	%	%
8801	<.05	.22	<.05	.41	56.44	.11	<.05	.01	.05	.01	.006	17	125	<10	<10	<10	<1	42.4	99.67
8802	.06	.19	<.05	.23	56.82	.16	.06	<.01	<.01	.01	.005	17	155	<10	<10	<10	<1	42.0	99.56
8803	.14	.48	.10	.30	55.80	.07	.09	.02	<.01	.01	.005	8	136	<10	<10	<10	<1	42.6	99.63
8804	<.05	.08	<.05	.16	56.01	<.05	<.05	.01	<.01	.01	.004	<5	88	<10	<10	<10	<1	42.4	98.75
8805	<.05	.13	<.05	.83	54.95	<.05	<.05	.02	.02	.01	.003	9	192	<10	<10	<10	<1	42.8	98.85
8806	<.05	.18	<.05	.27	56.07	<.05	<.05	.01	.02	.01	.004	<5	115	<10	<10	<10	<1	42.9	99.56
8807	<.05	.13	<.05	.40	56.01	<.05	<.05	.02	.02	.01	.004	8	393	<10	<10	<10	<1	42.8	99.49
8808	<.05	.25	<.05	1.67	54.28	<.05	.11	.01	.01	.01	<.002	10	178	<10	<10	<10	<1	43.1	99.51
8809	<.05	.19	<.05	.97	55.45	<.05	<.05	.01	<.01	.01	.003	14	170	<10	<10	<10	<1	42.9	99.58
8810	<.05	.07	<.05	.35	56.40	<.05	<.05	<.01	<.01	.01	.003	<5	230	<10	<10	<10	<1	42.4	99.30
8811	<.05	<.05	<.05	.25	56.64	<.05	<.05	.01	.04	.01	.002	6	237	<10	<10	<10	<1	42.3	99.37
8812	<.05	.08	<.05	.40	56.61	<.05	<.05	.01	.02	.01	.004	9	230	<10	<10	<10	<1	42.2	99.43
RE 8812	<.05	.08	<.05	.40	56.46	<.05	<.05	.01	.01	.01	.006	9	232	<10	<10	<10	<1	42.4	99.42
8813	<.05	<.05	<.05	.23	56.63	<.05	<.05	.01	.02	.01	.003	7	232	<10	<10	<10	<1	42.2	99.21
8814	<.05	<.05	<.05	.20	56.82	<.05	.09	<.01	.08	<.01	.002	<5	262	<10	<10	<10	<1	42.1	99.38
8815	<.05	.09	<.05	.37	56.51	<.05	.11	.01	<.01	<.01	.002	8	219	<10	<10	<10	<1	42.2	99.34
8816	<.05	.29	<.05	3.09	52.81	<.05	.10	.01	.02	.01	<.002	11	223	<10	<10	<10	<1	42.4	98.78
8817	<.05	<.05	<.05	2.57	54.63	<.05	<.05	<.01	.04	.01	.003	<5	76	<10	<10	<10	<1	42.1	99.42
8826	<.05	<.05	<.05	.37	56.75	<.05	<.05	<.01	<.01	<.01	<.002	10	161	<10	<10	<10	<1	42.1	99.26
8827	<.05	<.05	<.05	.39	56.70	<.05	<.05	<.01	<.01	<.01	<.002	12	172	<10	<10	<10	<1	42.1	99.29
8828	<.05	<.05	<.05	.42	56.60	<.05	<.05	<.01	.02	<.01	<.002	14	143	10	<10	<10	<1	42.2	99.35
8829	<.05	<.05	<.05	.39	56.76	<.05	<.05	<.01	<.01	.01	<.002	20	164	<10	<10	<10	<1	42.0	99.21
8830	<.05	<.05	<.05	.38	56.63	<.05	<.05	<.01	<.01	<.01	<.002	11	136	24	<10	<10	<1	42.2	99.26
8831	.56	.39	.65	.78	54.60	<.05	<.05	.16	.07	.01	.004	8	128	10	<10	<10	<1	42.3	99.57
8832	<.05	.10	.09	.47	56.28	<.05	<.05	.04	.02	.01	<.002	52	167	17	<10	<10	<1	42.3	99.35
8833	<.05	<.05	<.05	.44	56.42	<.05	<.05	.03	.03	.01	.003	9	159	25	<10	<10	<1	42.4	99.42
8834	<.05	<.05	<.05	.36	56.57	<.05	<.05	<.01	.02	<.01	<.002	<5	126	21	<10	<10	<1	42.4	99.41
8835	<.05	<.05	<.05	.30	56.85	<.05	<.05	.01	<.01	<.01	<.002	<5	104	20	<10	<10	<1	42.1	99.32
8836	<.05	<.05	<.05	.26	56.34	<.05	<.05	.01	.03	<.01	<.002	<5	134	<10	<10	<10	<1	42.6	99.30
8837	<.05	<.05	<.05	.28	56.86	<.05	<.05	.01	.15	<.01	<.002	<5	135	<10	<10	<10	<1	42.1	99.48
8838	<.05	<.05	<.05	.19	56.84	<.05	<.05	<.01	<.01	<.01	<.002	<5	132	<10	<10	<10	<1	42.1	99.16
8839	<.05	<.05	<.05	.17	56.85	<.05	<.05	<.01	<.01	<.01	<.002	<5	137	<10	<10	<10	<1	42.1	99.16
8840	<.05	.24	<.05	.61	55.60	<.05	<.05	.01	<.01	<.01	<.002	<5	196	<10	<10	<10	<1	42.4	98.96
8841	<.05	.14	<.05	.89	55.30	<.05	<.05	.02	<.01	<.01	<.002	<5	185	68	<10	<10	<1	42.3	98.74
8842	<.05	<.05	<.05	.37	56.88	<.05	.08	.01	<.01	<.01	<.002	13	191	<10	<10	<10	<1	42.1	99.50
8843	<.05	<.05	<.05	.31	56.72	<.05	<.05	<.01	<.01	<.01	<.002	<5	140	23	<10	<10	<1	42.3	99.40
8851	<.05	.09	.10	4.51	50.04	<.05	<.05	<.01	.05	.01	<.002	<5	102	<10	<10	<10	<1	43.9	98.73
STANDARD LIMESTONE	6.51	1.28	.56	.43	49.86	<.05	.26	.06	.01	.02	.003	49	207	37	<10	<10	<1	39.9	98.96

.200 GRAM SAMPLES ARE FUSED WITH 1.2 GRAM OF LiBO2 AND ARE DISSOLVED IN 100 MLS 5% HNO3. Ba IS SUM AS BaSO4 AND OTHER METALS ARE SUM AS OXIDES.  
LOI AT 1025 DEG. C FOR 2 HOURS WHICH OUR REGULAR LOI ARE AT 1000 DEG. C FOR 1 HOUR.

- SAMPLE TYPE: LIMESTONE Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: AUG 16 1993 DATE REPORT MAILED: Aug 20/93. SIGNED BY: C. Leong, D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

APPENDIX 4: ANALYTICAL REPORTS FOR WHOLE ROCK ANALYSES  
FROM ACME ANALYTICAL LABORATORIES LTD.

SAMPLE#	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
8852	.88	.29	.15	8.21	45.56	.09	.08	.02	.29	.01	.003	25	125	<10	11	<10	<1	44.4	100.00
8853	.59	.19	.09	3.81	51.16	<.05	<.05	.02	.19	<.01	<.002	13	124	16	<10	<10	<1	43.8	99.96
8854	.67	.17	.08	6.55	48.10	<.05	.12	.01	.19	<.01	<.002	<5	111	23	<10	<10	<1	43.9	99.86
8855	.06	.16	<.05	5.22	48.51	<.05	.27	.03	.10	<.01	<.002	<5	121	<10	<10	<10	<1	44.0	98.43
8856	.06	.08	<.05	2.97	52.83	<.05	.21	.01	.19	<.01	<.002	<5	101	<10	<10	<10	<1	43.0	99.41
8857	<.05	.09	<.05	2.53	53.24	<.05	.22	.03	.08	<.01	<.002	<5	129	11	<10	<10	<1	43.1	99.37
8858	<.05	<.05	<.05	.34	56.89	<.05	.08	.02	<.01	<.01	<.002	<5	165	<10	<10	<10	<1	42.0	99.35
8859	<.05	<.05	<.05	.36	56.36	<.05	.13	.01	.01	<.01	<.002	<5	201	<10	<10	<10	<1	42.4	99.34
8860	<.05	<.05	<.05	.35	56.69	<.05	.12	.01	.02	<.01	<.002	25	204	<10	<10	<10	<1	42.0	99.28
8861	<.05	<.05	<.05	.29	55.79	<.05	.14	.01	<.01	<.01	<.002	<5	183	<10	<10	<10	<1	42.9	99.21
RE 8861	<.05	<.05	<.05	.28	56.10	<.05	.10	.01	.01	<.01	<.002	<5	185	<10	<10	<10	<1	42.9	99.45
8862	<.05	<.05	<.05	.30	56.37	<.05	.18	.01	.01	<.01	<.002	<5	166	26	<10	<10	<1	42.4	99.32
8863	<.05	<.05	<.05	.27	56.27	<.05	.06	.01	.03	<.01	<.002	<5	155	<10	<10	<10	<1	42.7	99.38
8864	<.05	<.05	<.05	.29	56.39	<.05	.13	.02	.01	<.01	<.002	<5	139	<10	<10	<10	<1	42.5	99.38
8865	<.05	<.05	<.05	.29	56.43	<.05	.08	.01	.06	<.01	<.002	<5	121	106	<10	<10	<1	42.4	99.33
8866	<.05	<.05	<.05	.28	56.47	<.05	.13	.01	.02	<.01	<.002	<5	123	<10	<10	<10	<1	42.4	99.35
8867	<.05	<.05	<.05	.28	56.53	<.05	.10	.01	<.01	<.01	<.002	<5	109	<10	<10	<10	<1	42.4	99.35
8868	<.05	<.05	<.05	.28	56.25	<.05	.17	.01	.02	<.01	<.002	<5	109	<10	<10	<10	<1	42.6	99.36
8869	<.05	<.05	<.05	.28	56.50	<.05	.19	<.01	.03	<.01	<.002	<5	124	<10	<10	<10	<1	42.3	99.32
8870	<.05	<.05	<.05	.28	56.51	<.05	.16	.01	<.01	<.01	<.002	<5	107	<10	<10	<10	<1	42.4	99.38
8871	<.05	<.05	<.05	.27	56.69	<.05	.13	.01	.01	<.01	<.002	<5	131	<10	<10	<10	<1	42.2	99.37
8872	<.05	<.05	<.05	.26	56.65	<.05	.17	<.01	.01	<.01	<.002	<5	129	<10	<10	<10	<1	42.2	99.35
8874	<.05	<.05	<.05	.28	56.45	<.05	.10	.01	.01	<.01	<.002	<5	89	<10	<10	<10	<1	42.4	99.30
8875	<.05	<.05	<.05	.26	56.61	<.05	<.05	.02	<.01	<.01	<.002	5	83	<10	<10	<10	<1	42.3	99.28
8876	<.05	<.05	<.05	2.15	54.55	<.05	.10	<.01	.01	<.01	<.002	<5	102	<10	<10	<10	<1	42.5	99.38
8877	.10	.10	<.05	1.14	55.25	<.05	.14	.01	<.01	<.01	<.002	<5	126	<10	<10	<10	<1	42.7	99.47
8878	.19	.13	<.05	2.73	52.99	<.05	.22	.01	.01	<.01	<.002	<5	143	<10	<10	<10	<1	43.2	99.56
8879	.12	.10	<.05	2.40	53.84	<.05	.20	.02	.02	<.01	<.002	<5	121	17	<10	<10	<1	42.8	99.53
8880	.33	.13	.10	1.17	54.78	<.05	.26	.04	.05	<.01	<.002	<5	117	<10	<10	<10	<1	42.8	99.69
8881	.10	<.05	<.05	1.09	55.68	<.05	.13	.01	<.01	<.01	<.002	<5	111	<10	<10	<10	<1	42.4	99.48
8882	.17	<.05	<.05	.42	56.31	<.05	.19	<.01	<.01	<.01	<.002	<5	119	<10	<10	<10	<1	42.4	99.57
8883	.18	.07	<.05	2.82	53.25	<.05	.21	<.01	<.01	<.01	<.002	<5	119	<10	<10	<10	<1	43.0	99.59
8884	.96	.31	.30	2.48	52.28	<.05	.19	.07	.03	<.01	<.002	19	167	<10	<10	<10	<1	43.2	99.87
8885	.36	.16	.07	.72	55.77	<.05	.18	.03	.02	<.01	<.002	15	176	<10	<10	<10	<1	42.4	99.74
8886	.37	.16	.08	2.07	53.89	<.05	<.05	.02	.02	<.01	<.002	<5	139	<10	<10	<10	<1	43.1	99.78
8887	.25	.13	.06	2.05	54.30	<.05	<.05	.03	.02	<.01	<.002	6	138	<10	<10	<10	<1	42.7	99.63
8888	.15	.09	<.05	.45	55.83	<.05	.15	.02	.03	<.01	<.002	7	106	<10	<10	<10	<1	42.7	99.50
STANDARD LIMESTONE*	6.99	1.26	.51	.35	50.74	<.05	.35	.07	.02	.01	.003	57	213	24	<10	<10	<1	39.9	100.28

Sample type: LIMESTONE. Samples beginning 'RE' are duplicate samples.

SAMPLE#	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
8901	.68	.18	.08	.32	55.13	<.05	.21	.01	.03	<.01	.005	17	161	10	<10	<10	<1	42.5	99.19
8902	.75	.29	.09	.95	53.63	<.05	.25	.01	.04	<.01	.003	16	144	<10	<10	<10	<1	43.3	99.34
8903	1.55	.34	.15	1.64	52.35	.10	.29	.01	.07	<.01	.003	16	157	<10	<10	<10	<1	42.8	99.33
8904	.35	.20	.10	1.60	53.49	<.05	.26	<.01	.04	<.01	.003	10	123	16	<10	<10	<1	43.3	99.36
8905	.33	.19	.06	1.66	53.85	<.05	.29	<.01	.03	<.01	.003	14	261	<10	<10	<10	<1	43.0	99.45
8906	.84	.41	.12	3.59	50.31	<.05	.18	.01	.03	<.01	.003	13	143	<10	<10	<10	<1	43.9	99.43
8907	.77	.35	.13	4.32	49.98	<.05	<.05	.01	.06	<.01	.005	11	145	<10	<10	<10	<1	43.6	99.29
8908	.75	.37	.12	.89	54.10	<.05	<.05	.02	.06	<.01	.003	12	162	<10	<10	<10	<1	42.9	99.24
8909	<.05	.07	<.05	.41	56.03	<.05	<.05	<.01	<.01	<.01	.004	13	106	<10	<10	<10	<1	42.7	99.26
8910	<.05	.07	.06	.35	55.93	<.05	.06	<.01	.01	<.01	.002	38	127	<10	<10	<10	<1	42.8	99.32
8911	<.05	.08	<.05	.32	55.85	<.05	<.05	<.01	.01	<.01	.004	21	112	<10	<10	<10	<1	42.8	99.14
8912	.07	.09	.08	.29	55.53	<.05	<.05	<.01	.03	<.01	.004	33	143	11	<10	<10	<1	43.1	99.26
8913	.20	.09	<.05	.32	55.80	<.05	.09	<.01	<.01	<.01	.006	30	146	<10	<10	<10	<1	42.8	99.37
8914	<.05	<.05	<.05	.30	56.23	<.05	<.05	<.01	<.01	<.01	.006	20	123	<10	<10	<10	<1	42.5	99.20
8915	<.05	<.05	<.05	.26	56.09	<.05	<.05	<.01	.04	<.01	.004	33	100	<10	<10	<10	<1	42.7	99.20
8916	<.05	<.05	<.05	.27	56.22	<.05	.06	<.01	.04	<.01	.003	41	100	<10	<10	<10	<1	42.7	99.37
8917	<.05	<.05	<.05	.21	56.44	<.05	<.05	<.01	.04	<.01	.002	10	95	<10	<10	<10	<1	42.6	99.40
8918	<.05	<.05	<.05	.19	56.65	<.05	<.05	<.01	.05	<.01	.002	11	89	<10	<10	<10	<1	42.4	99.38
8919	<.05	.06	<.05	.18	56.57	<.05	.07	<.01	.07	<.01	.003	9	100	<10	<10	<10	<1	42.4	99.40
8920	<.05	<.05	<.05	.17	56.65	<.05	.16	<.01	.04	<.01	.004	6	115	<10	<10	<10	<1	42.1	99.21
8921	<.05	<.05	<.05	.25	56.37	<.05	<.05	<.01	.04	<.01	.002	12	149	<10	<10	<10	<1	42.4	99.16
8922	2.21	.30	<.05	.21	54.87	<.05	<.05	.01	.16	<.01	.006	20	108	<10	<10	<10	<1	41.5	99.38
8923	.76	.21	.34	.27	55.22	<.05	.08	.07	.03	<.01	.003	21	118	<10	<10	<10	<1	42.3	99.31
8924	.17	.09	.15	.33	56.39	<.05	.11	.01	.04	<.01	.004	19	120	<10	<10	<10	<1	42.0	99.31
8926	.55	.07	.10	.30	56.13	<.05	<.05	.01	.01	.01	.004	18	79	<10	<10	<10	<1	41.9	99.15
8951	<.05	.07	<.05	.28	56.58	<.05	.19	.01	.06	<.01	.005	14	118	<10	<10	<10	<1	42.1	99.39
8952	<.05	<.05	<.05	.33	56.41	<.05	.19	<.01	.02	<.01	.004	15	154	<10	<10	<10	<1	42.2	99.25
8953	<.05	<.05	<.05	.35	56.60	<.05	.13	.01	.03	<.01	.003	16	151	<10	<10	<10	<1	42.0	99.22
RE 8953	<.05	<.05	<.05	.34	56.74	<.05	.16	<.01	.03	<.01	.003	17	152	<10	<10	<10	<1	41.8	99.16
8954	<.05	<.05	<.05	.33	56.71	<.05	.25	.01	.02	<.01	.003	15	167	<10	<10	<10	<1	41.8	99.21
8955	<.05	<.05	<.05	.28	56.47	<.05	.26	<.01	.05	<.01	.006	14	168	33	<10	<10	<1	42.0	99.18
8956	1.68	.41	.20	.36	54.26	.08	.25	.01	.03	.01	.004	25	189	12	15	<10	<1	41.9	99.23
8957	.17	.12	.06	.36	56.41	<.05	.17	.02	.04	<.01	.005	17	189	23	<10	<10	<1	41.9	99.31
8958	.19	.10	<.05	.35	56.57	<.05	.17	<.01	.06	<.01	.002	19	169	<10	<10	<10	<1	41.8	99.33
8959	<.05	<.05	<.05	.35	56.42	<.05	<.05	.01	.03	<.01	.006	16	157	<10	<10	<10	<1	42.2	99.13
8960	<.05	<.05	<.05	.35	56.78	<.05	<.05	.01	.03	<.01	.005	21	151	<10	<10	<10	<1	42.0	99.27
8961	<.05	<.05	<.05	.36	56.46	<.05	.15	.01	.03	<.01	.003	24	141	<10	<10	<10	<1	42.1	99.21
STANDARD LIMESTONE	6.23	1.16	.57	.38	50.82	<.05	.30	.05	.02	.01	.004	53	179	16	<10	<10	<1	39.9	99.48

Sample type: LIMESTONE. Samples beginning 'RE' are duplicate samples.



SAMPLE#	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
8962	<.05	<.05	<.05	.31	56.27	<.05	.15	.01	.03	<.01	<.002	22	132	<10	<10	<10	<1	42.4	99.23
8963	.71	.06	.15	.22	55.57	<.05	.39	.02	.02	<.01	<.002	16	130	<10	<10	<10	<1	42.4	99.56
8964	<.05	<.05	<.05	.20	56.45	<.05	.16	<.01	.02	<.01	<.002	14	70	<10	<10	<10	<1	42.4	99.25
8965	<.05	<.05	<.05	.24	56.40	<.05	.25	<.01	.02	<.01	<.002	26	98	<10	<10	<10	<1	42.3	99.26
8966	<.05	<.05	<.05	.22	56.31	<.05	.22	.01	.02	<.01	.002	22	106	<10	<10	<10	<1	42.6	99.40
8967	<.05	<.05	<.05	.23	56.35	<.05	.27	<.01	.02	<.01	<.002	21	103	13	<10	<10	<1	42.4	99.30
8968	<.05	<.05	<.05	.23	56.61	<.05	.24	<.01	.02	<.01	<.002	33	117	<10	<10	<10	<1	42.3	99.44
8969	<.05	<.05	<.05	.23	56.09	<.05	.21	<.01	.01	<.01	<.002	18	87	<10	<10	<10	<1	42.8	99.36
8970	<.05	<.05	<.05	.21	56.65	<.05	.16	<.01	.02	<.01	<.002	20	90	<10	<10	<10	<1	42.3	99.36
RE 8970	<.05	<.05	<.05	.21	56.59	<.05	.18	<.01	.02	<.01	<.002	17	90	<10	<10	<10	<1	42.2	99.21
8976	<.05	<.05	<.05	.35	56.60	<.05	.08	<.01	.01	<.01	.002	55	142	<10	<10	<10	<1	42.4	99.50
8977	<.05	<.05	<.05	.37	56.36	<.05	.14	.01	.04	<.01	.002	41	147	<10	<10	<10	<1	42.4	99.40
8978	<.05	<.05	<.05	.22	56.55	<.05	.12	<.01	.02	<.01	<.002	16	72	<10	<10	<10	<1	42.4	99.33
8979	<.05	<.05	<.05	.29	56.77	<.05	<.05	<.01	.02	<.01	.002	20	89	<10	<10	<10	<1	42.1	99.25
8980	<.05	<.05	<.05	.31	56.88	<.05	<.05	<.01	.03	<.01	.002	23	94	<10	<10	<10	<1	42.1	99.41
8981	<.05	<.05	<.05	.32	56.66	<.05	.06	<.01	.03	<.01	.003	21	95	<10	<10	<10	<1	42.0	99.19
STANDARD LIMESTONE	6.76	1.13	.51	.33	50.38	<.05	.63	.06	.03	.01	.003	72	194	22	<10	<10	<1	39.9	99.78

Sample type: LIMESTONE. Samples beginning 'RE' are duplicate samples.

Note: Due to very low level of  $SiO_2$ ,  $Al_2O_3$ ,  $Fe_2O_3$ , they may be contaminated during pulverizing. If the oxides are of most important to you, suggest to pulverize sample by ceramic pulverizer in the future.



## WHOLE ROCK ICP ANALYSIS

Halferdahl & Associates Ltd. File # 93-2033 Page 1  
18 - 10509 - 81st Ave, Edmonton AB T6E 1X7



SAMPLE#	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Sr	Zr	Y	Nb	Sc	LOI	SUM
	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	%	%
8818	.24	.09	.07	.62	55.37	<.05	.10	<.01	.08	<.01	.002	71	167	<10	<10	<10	<1	43.5	100.12
8889	<.05	.06	<.05	.37	55.68	<.05	.06	<.01	.09	.01	.002	21	147	18	<10	<10	<1	43.8	100.15
8890	.13	<.05	<.05	.30	55.83	<.05	<.05	<.01	.05	<.01	<.002	22	165	<10	<10	<10	<1	43.7	100.18
RE 8890	.13	<.05	<.05	.29	55.68	<.05	<.05	<.01	.04	<.01	<.002	20	163	<10	<10	<10	1	43.7	99.98
8891	.59	<.05	.10	.32	55.88	<.05	.06	<.01	.07	<.01	.002	19	124	<10	<10	<10	<1	43.1	100.18
8892	.30	<.05	<.05	.32	55.68	<.05	<.05	.01	.06	.01	.002	29	139	<10	<10	<10	<1	43.7	100.20
8893	.06	<.05	<.05	.30	55.99	<.05	.15	<.01	.09	.01	<.002	26	136	<10	<10	<10	<1	43.5	100.19
8894	<.05	<.05	.09	.27	55.65	<.05	<.05	<.01	.09	.01	.003	21	107	<10	<10	<10	<1	43.9	100.12
8895	<.05	<.05	.06	.30	55.96	<.05	<.05	<.01	.12	.01	<.002	29	128	<10	<10	<10	<1	43.7	100.22
8896	.49	<.05	<.05	.29	55.72	<.05	<.05	<.01	.12	.01	<.002	24	115	<10	<10	<10	<1	43.4	100.15
8897	<.05	<.05	.08	.31	55.83	<.05	<.05	<.01	.09	.01	<.002	45	130	<10	<10	<10	<1	43.7	100.13
8898	.07	<.05	<.05	.28	55.98	<.05	<.05	<.01	.08	.01	<.002	27	106	<10	<10	<10	<1	43.6	100.13
8899	.37	<.05	<.05	.25	56.09	<.05	<.05	<.01	.04	<.01	<.002	32	146	<10	<10	<10	<1	43.3	100.20
8900	.86	.12	.06	.34	55.75	<.05	<.05	<.01	.11	<.01	<.002	35	199	<10	<10	<10	<1	42.9	100.17
8927	.06	.08	<.05	.24	56.17	<.05	<.05	<.01	.09	<.01	<.002	28	102	169	<10	<10	<1	43.4	100.14
8928	<.05	<.05	<.05	.21	56.47	<.05	<.05	<.01	.04	<.01	<.002	21	94	<10	<10	<10	<1	43.3	100.15
8929	<.05	<.05	<.05	.36	56.14	<.05	<.05	<.01	.12	.01	.003	11	105	<10	<10	<10	<1	43.5	100.23
8930	<.05	<.05	<.05	.33	55.88	<.05	<.05	<.01	.06	.01	<.002	24	143	<10	<10	<10	<1	43.8	100.17
8931	<.05	<.05	<.05	.27	56.39	<.05	.08	.01	.04	<.01	<.002	18	127	<10	<10	<10	<1	43.3	100.17
8932	<.05	<.05	<.05	.27	56.39	<.05	.13	<.01	.04	<.01	<.002	19	116	<10	<10	<10	<1	43.3	100.23
8933	.65	<.05	<.05	.28	56.07	<.05	.11	<.01	.04	<.01	<.002	14	97	17	<10	<10	<1	42.9	100.15
8934	.17	<.05	<.05	.28	56.32	<.05	<.05	<.01	.04	<.01	.002	12	89	<10	<10	<10	<1	43.2	100.13
8935	<.05	<.05	<.05	.25	56.07	<.05	.27	<.01	.04	<.01	<.002	18	86	<10	<10	<10	<1	43.4	100.14
8936	<.05	<.05	<.05	.23	56.07	<.05	.21	<.01	.05	.01	<.002	38	94	<10	<10	<10	<1	43.5	100.19
8937	<.05	<.05	.06	.27	56.26	<.05	<.05	<.01	.04	.01	<.002	16	99	<10	<10	<10	<1	43.4	100.13
8938	<.05	<.05	<.05	.22	55.99	<.05	.14	<.01	.02	<.01	<.002	20	174	<10	<10	<10	<1	43.7	100.17
8939	<.05	<.05	<.05	.20	56.29	<.05	<.05	<.01	.01	<.01	<.002	11	158	16	<10	<10	<1	43.6	100.21
8940	<.05	<.05	<.05	.21	56.25	<.05	<.05	<.01	.03	<.01	<.002	9	142	<10	<10	<10	<1	43.6	100.17
8941	<.05	<.05	<.05	.20	56.36	<.05	.15	<.01	.02	<.01	.002	10	144	<10	<10	<10	<1	43.4	100.21
8942	<.05	<.05	.08	.21	56.05	<.05	.10	<.01	.03	<.01	<.002	6	143	<10	<10	<10	<1	43.6	100.12
8943	<.05	<.05	<.05	.19	56.22	<.05	<.05	<.01	.01	<.01	.002	11	147	<10	<10	<10	<1	43.6	100.12
8944	<.05	<.05	<.05	.21	56.25	<.05	<.05	<.01	.02	<.01	<.002	10	148	<10	<10	<10	<1	43.6	100.18
8945	<.05	<.05	<.05	.19	56.46	<.05	<.05	<.01	.02	<.01	<.002	8	134	11	<10	<10	<1	43.4	100.16
8946	<.05	<.05	<.05	.20	56.43	<.05	<.05	<.01	.02	<.01	.002	9	135	<10	<10	<10	<1	43.4	100.15
8947	<.05	<.05	<.05	.20	56.16	<.05	.20	<.01	.03	<.01	<.002	9	126	23	<10	<10	<1	43.5	100.18
8948	<.05	<.05	<.05	.20	56.40	<.05	<.05	<.01	.03	<.01	<.002	10	130	<10	<10	<10	<1	43.5	100.24
STANDARD LIMESTONE	6.89	1.23	.59	.36	50.67	<.05	.40	.05	.05	.02	.004	78	251	23	<10	<10	2	39.9	100.23

.200 GRAM SAMPLES ARE FUSED WITH 1.2 GRAM OF LiBO2 AND ARE DISSOLVED IN 100 MLS 5% HNO3. Ba IS SUM AS BaSO4 AND OTHER METALS ARE SUM AS OXIDES.  
LOI AT 1025 DEG. C FOR 2 HOURS WHICH OUR REGULAR LOI ARE AT 1000 DEG. C FOR 1 HOUR.

- SAMPLE TYPE: LIMESTONE Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: AUG 19 1993 DATE REPORT MAILED: Aug 27/93. SIGNED BY: C. Leong, J. Wang; CERTIFIED B.C. ASSAYERS

A 68



ACME ANALYTICAL



ACME ANALYTICAL

SAMPLE#	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
8949	.06	<.05	<.05	.17	56.21	<.05	.12	.02	.02	<.01	<.002	13	102	<10	<10	<10	<1	43.2	99.92
8950	.06	<.05	<.05	.20	56.49	<.05	<.05	.01	.02	<.01	<.002	14	110	<10	<10	<10	<1	43.1	100.00
8971	.08	<.05	<.05	.22	56.23	<.05	.15	.01	.03	<.01	.002	35	110	12	<10	<10	<1	43.0	99.86
8972	<.05	<.05	<.05	.21	56.33	<.05	<.05	<.01	.03	<.01	<.002	23	81	<10	<10	<10	<1	43.3	99.99
8973	.09	<.05	<.05	.25	56.34	<.05	<.05	<.01	.02	.01	<.002	22	99	11	<10	<10	<1	43.3	100.15
8974	<.05	<.05	<.05	.21	56.11	<.05	.11	<.01	.02	.01	.005	28	103	10	<10	<10	<1	43.3	99.89
8975	.22	<.05	<.05	.25	55.81	<.05	.08	<.01	.06	.01	<.002	28	99	<10	<10	<10	<1	43.4	99.92
8982	<.05	<.05	.07	.31	55.98	<.05	<.05	<.01	.02	.01	<.002	23	101	<10	<10	<10	<1	43.6	100.10
RE 8982	.07	.06	.07	.32	55.50	<.05	<.05	.01	.02	.01	<.002	23	99	<10	<10	<10	<1	43.7	99.83
8983	<.05	.06	<.05	.33	55.93	<.05	<.05	.02	.03	.01	.002	26	106	<10	<10	<10	<1	43.7	100.19
8984	<.05	<.05	.07	.30	55.89	<.05	<.05	.01	.02	<.01	<.002	26	111	<10	<10	<10	<1	43.7	100.05
8985	.17	.06	.09	.35	54.90	<.05	<.05	.01	.03	.01	<.002	40	133	<10	<10	<10	<1	44.4	100.04
8986	.10	.08	.14	.32	55.07	<.05	<.05	.01	.06	.01	<.002	46	107	<10	<10	<10	<1	44.4	100.21
8987	.34	.06	.17	.33	54.75	<.05	<.05	<.01	.15	.01	<.002	53	151	<10	<10	<10	<1	44.3	100.18
8988	.11	.07	.08	.32	55.46	<.05	<.05	<.01	.07	.01	.002	60	175	<10	<10	<10	<1	44.0	100.15
8989	.70	.11	<.05	.39	54.87	<.05	.19	.01	.04	<.01	.002	30	195	<10	<10	<10	<1	43.6	99.99
8990	.15	.07	<.05	.84	54.97	<.05	.07	<.01	.03	<.01	<.002	16	122	<10	<10	<10	<1	43.6	99.80
8991	.27	.09	.06	.36	55.60	<.05	.06	<.01	.05	<.01	.002	23	147	<10	<10	<10	<1	43.5	100.02
8992	.26	<.05	<.05	.32	55.81	<.05	<.05	<.01	.02	<.01	<.002	20	151	<10	<10	<10	<1	43.4	99.93
8993	.15	.08	<.05	.34	55.80	<.05	.15	.01	.06	<.01	.002	21	153	<10	<10	<10	<1	43.2	99.86
8994	.11	<.05	<.05	.31	56.27	<.05	<.05	.02	.02	<.01	<.002	17	380	<10	<10	<10	<1	43.0	99.87
8995	<.05	<.05	<.05	.22	56.65	<.05	<.05	<.01	.01	<.01	.002	16	137	<10	<10	<10	<1	42.8	99.77
8996	<.05	<.05	<.05	.22	56.64	<.05	<.05	<.01	<.01	<.01	<.002	14	156	<10	<10	<10	<1	42.7	99.68
8997	<.05	<.05	<.05	.22	56.24	<.05	.40	<.01	<.01	<.01	<.002	14	125	<10	<10	<10	<1	42.7	99.68
8998	<.05	<.05	<.05	.22	56.51	<.05	<.05	<.01	.02	<.01	<.002	16	172	<10	<10	<10	<1	43.0	99.87
8999	<.05	<.05	<.05	.22	56.50	<.05	<.05	<.01	.01	<.01	<.002	17	151	<10	<10	<10	<1	43.0	99.89
9026	<.05	<.05	<.05	.22	56.36	<.05	<.05	<.01	.04	<.01	.002	20	632	<10	<10	<10	<1	43.1	99.94
9027	.08	<.05	<.05	.31	56.11	<.05	<.05	<.01	.16	<.01	<.002	17	341	<10	<10	<10	<1	43.1	99.88
9028	.35	.15	.11	.33	55.42	<.05	.11	<.01	.23	<.01	.002	30	206	<10	<10	<10	<1	43.1	99.84
9029	.52	.12	.08	.37	55.54	<.05	<.05	.02	.10	<.01	<.002	34	332	<10	<10	<10	<1	43.2	100.00
9030	.37	.07	<.05	.45	55.74	<.05	<.05	<.01	.07	<.01	<.002	30	304	53	<10	<10	1	43.2	100.00
9031	.64	.24	.12	2.81	51.85	<.05	<.05	<.01	.15	<.01	.003	45	360	15	<10	<10	<1	43.8	99.68
9032	.90	.12	<.05	2.26	53.15	<.05	<.05	<.01	.06	<.01	.003	35	292	<10	<10	<10	<1	43.2	99.79
9033	.87	.22	.12	2.94	51.64	<.05	<.05	<.01	.21	<.01	.003	36	413	<10	<10	<10	<1	43.8	99.86
9034	.68	.17	.09	3.90	50.95	<.05	<.05	<.01	.09	<.01	<.002	25	518	<10	<10	<10	<1	43.8	99.76
9035	.62	.13	.09	1.16	54.90	<.05	<.05	<.01	.07	<.01	<.002	25	480	<10	<10	<10	<1	42.8	99.84
STANDARD LIMESTONE	6.58	1.12	.49	.36	50.90	<.05	.30	.05	.03	.02	.005	89	237	26	<10	<10	1	40.3	100.21

Sample type: LIMESTONE. Samples beginning 'RE' are duplicate samples.

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SAMPLE#	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Sr	Zr	Y	Nb	Sc	LOI	SUM
	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	%	%
9036	.84	.25	.09	2.38	52.87	<.05	.17	.03	.10	<.01	.004	31	876	<10	<10	<10	<1	43.5	100.38
9037	2.26	.65	.25	7.15	45.42	<.05	<.05	.03	.09	.01	.005	52	235	<10	<10	<10	<1	43.9	99.85
9038	.99	.20	.10	.44	55.00	<.05	.13	.01	.06	<.01	.003	45	284	<10	<10	<10	<1	43.4	100.41
9051	.72	.09	<.05	.33	55.99	<.05	<.05	.02	.19	.01	.002	28	126	<10	<10	<10	<1	43.2	100.62
9052	.30	.07	<.05	.35	56.49	<.05	<.05	<.01	.05	.01	.002	23	120	<10	<10	<10	<1	43.2	100.54
9053	<.05	.06	<.05	.24	56.87	<.05	<.05	.03	.02	.01	.002	23	132	<10	<10	<10	<1	43.0	100.32
RE 9053	<.05	<.05	<.05	.24	56.48	<.05	<.05	.02	.02	<.01	.002	23	131	<10	<10	<10	<1	43.2	100.11
9054	<.05	.07	<.05	.24	57.28	<.05	<.05	.02	.03	<.01	<.002	24	132	<10	<10	<10	<1	42.8	100.56
9055	<.05	<.05	<.05	.26	56.30	<.05	.27	<.01	.02	<.01	<.002	17	133	<10	<10	<10	<1	43.6	100.56
9056	<.05	<.05	<.05	.20	56.56	<.05	.27	.01	.03	<.01	.002	20	141	<10	<10	<10	<1	43.2	100.41
9057	<.05	<.05	<.05	.22	56.48	<.05	<.05	.01	.02	.01	<.002	49	113	<10	<10	<10	<1	43.6	100.43
9058	<.05	.06	.06	.24	56.47	<.05	.07	.02	.09	.01	<.002	37	106	19	<10	<10	<1	43.4	100.48
9059	<.05	.06	<.05	.21	56.15	<.05	.12	.02	.04	<.01	<.002	34	104	<10	<10	<10	<1	43.6	100.27
9060	<.05	<.05	<.05	.14	56.48	<.05	<.05	.02	.02	<.01	.002	18	250	<10	<10	<10	<1	43.4	100.19
STANDARD LIMESTONE	6.94	1.25	.52	.38	50.35	<.05	.46	.06	.03	.02	.005	81	238	35	<10	<10	1	39.9	99.97

Sample type: LIMESTONE. Samples beginning 'RE' are duplicate samples.

\*\* Due to very low level of  $\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ , samples may be contaminated during pulverizing. Pulverizing with ceramic box is suggested.



## WHOLE ROCK ICP ANALYSIS



Halferdahl &amp; Associates Ltd. File # 93-2163 Page 1

18 - 10509 - 81st Ave, Edmonton AB T6E 1X7

SAMPLE#	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
8819	.60	.09	.09	.34	55.50	<.01	.17	.01	.03	<.01	<.002	30	232	<10	<10	<10	<1	43.1	99.97
8820	.53	.12	.08	.40	55.76	<.01	.10	<.01	.02	<.01	<.002	39	243	<10	<10	<10	<1	43.0	100.05
8821	.38	.15	.09	1.14	54.54	<.01	.10	<.01	.09	<.01	<.002	36	225	<10	<10	<10	<1	43.0	99.53
8822	<.05	<.05	<.05	.35	53.49	<.01	.19	<.01	.01	<.01	.002	51	146	<10	<10	<10	<1	43.3	97.42
8823	<.05	<.05	<.05	.51	55.79	<.01	.07	<.01	.02	<.01	.002	38	137	<10	<10	<10	<1	43.4	99.88
8824	<.05	<.05	<.05	.82	55.03	<.01	.13	<.01	.02	<.01	.003	63	229	<10	<10	<10	<1	43.3	99.45
8825	<.05	<.05	<.05	1.27	54.78	<.01	.07	<.01	.02	<.01	.003	59	232	<10	<10	<10	<1	43.3	99.57
8844	.08	<.05	<.05	.32	56.28	<.01	.13	<.01	<.01	<.01	<.002	24	383	<10	<10	<10	<1	43.1	100.06
8845	.33	.06	<.05	.34	54.95	<.01	.13	<.01	.10	<.01	<.002	36	326	<10	<10	<10	<1	43.1	99.10
8846	.44	.06	<.05	.38	55.88	<.01	<.05	<.01	.07	<.01	<.002	28	328	<10	<10	<10	<1	42.9	99.82
8847	.75	.07	.06	.31	55.73	<.01	<.05	<.01	.12	<.01	<.002	23	198	<10	<10	<10	<1	42.8	99.92
8848	.58	.07	<.05	.30	55.77	<.01	<.05	<.01	.14	<.01	<.002	27	197	<10	<10	<10	<1	42.8	99.78
8849	.72	.08	<.05	.31	56.14	<.01	.15	<.01	.09	<.01	<.002	30	210	<10	<10	<10	<1	42.4	99.98
8850	.34	<.05	.07	.35	56.01	<.01	.10	<.01	.08	<.01	.004	35	211	<10	<10	<10	<1	42.9	99.92
8925	.24	.09	<.05	1.60	52.57	<.01	.15	<.01	.05	<.01	<.002	16	227	<10	<10	<10	<1	43.5	98.28
9000	<.05	<.05	<.05	.22	55.04	<.01	.10	<.01	.06	<.01	<.002	11	146	<10	<10	<10	<1	43.1	98.67
9039	<.05	<.05	<.05	.25	55.42	<.01	.20	<.01	.05	.01	<.002	6	138	<10	<10	<10	<1	43.2	99.19
9040	<.05	<.05	<.05	.27	56.43	<.01	.06	<.01	.06	.01	<.002	5	126	<10	<10	<10	<1	43.1	100.02
9041	<.05	<.05	<.05	.22	56.25	<.01	.09	<.01	.09	.01	<.002	5	110	<10	<10	<10	<1	43.2	99.93
9042	<.05	<.05	<.05	.22	55.44	<.01	.12	<.01	.10	.01	.002	6	110	<10	<10	<10	<1	43.2	99.20
9043	<.05	<.05	<.05	.24	56.24	<.01	<.05	<.01	.09	.01	<.002	9	104	<10	<10	<10	<1	43.2	99.89
9044	<.05	<.05	<.05	.22	54.15	<.01	.09	<.01	.14	.01	<.002	8	84	<10	<10	<10	<1	42.9	97.59
9045	.11	<.05	<.05	.25	56.48	<.01	.07	<.01	.16	.01	<.002	14	115	<10	<10	<10	<1	42.8	99.95
9046	<.05	<.05	<.05	.27	56.49	.01	.06	<.01	.10	.01	<.002	17	145	<10	<10	<10	<1	42.9	99.95
9047	1.22	.06	<.05	.22	55.90	<.01	.10	<.01	.18	.01	<.002	14	141	<10	<10	<10	<1	42.1	99.85
9048	.07	<.05	<.05	.31	55.93	<.01	<.05	<.01	.09	.01	<.002	26	135	<10	<10	<10	<1	42.8	99.34
9049	.11	<.05	.07	.34	55.79	<.01	<.05	<.01	.08	.01	<.002	37	126	<10	<10	<10	<1	43.0	99.47
9050	.11	.07	<.05	.46	56.05	<.01	.18	.01	.18	.01	<.002	19	109	<10	<10	<10	<1	42.8	99.94
RE 9050	.10	.07	<.05	.45	56.25	<.01	.14	<.01	.19	.01	.002	20	107	<10	<10	<10	<1	42.8	100.08
9061	.11	<.05	<.05	.44	55.85	<.01	.14	<.01	.14	<.01	<.002	34	122	<10	<10	<10	<1	42.8	99.57
9062	<.05	<.05	<.05	.43	54.54	<.01	<.05	.01	.01	<.01	<.002	19	123	<10	<10	<10	<1	42.7	97.83
9063	<.05	<.05	<.05	.22	55.94	<.01	.10	<.01	.02	.01	.002	15	119	<10	<10	<10	<1	43.0	99.39
9064	<.05	<.05	<.05	.23	56.67	<.01	<.05	.01	.02	.01	<.002	11	117	<10	<10	<10	<1	42.8	99.87
9065	<.05	<.05	<.05	.22	56.39	<.01	.11	<.01	.04	.01	<.002	8	109	<10	<10	<10	<1	43.0	99.84
9066	<.05	<.05	<.05	.21	54.63	<.01	.06	.01	.02	.01	<.002	8	114	<10	<10	<10	<1	43.1	98.11
STANDARD LIMESTONE	6.63	1.16	.51	.47	50.57	.01	.25	.05	.04	.02	<.002	69	244	21	<10	<10	1	39.9	99.66

.200 GRAM SAMPLES ARE FUSED WITH 1.2 GRAM OF LiBO2 AND ARE DISSOLVED IN 100 MLS 5% HNO3. Ba IS SUM AS BaSO4 AND OTHER METALS ARE SUM AS OXIDES.  
LOI AT 1025 DEG. C FOR 2 HOURS WHICH OUR REGULAR LOI ARE AT 1000 DEG. C FOR 1 HOUR.

- SAMPLE TYPE: LIMESTONE Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: AUG 26 1993

DATE REPORT MAILED:

SIGNED BY: C. Leong

D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS



SAMPLE#	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Sr	Zr	Y	Nb	Sc	LOI	SUM
	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	%	%
9067	<.05	<.05	<.05	.24	55.10	<.01	.10	.01	.02	.01	<.002	18	125	<10	<10	<10	<1	43.8	99.36
9068	<.05	<.05	.06	.21	55.49	<.01	.15	<.01	.05	<.01	.005	18	121	<10	<10	<10	<1	43.7	99.72
9069	<.05	<.05	.06	.20	55.65	<.01	.15	<.01	.07	<.01	.004	20	141	<10	<10	<10	<1	43.5	99.67
9070	<.05	<.05	<.05	.20	55.43	<.01	.08	<.01	.03	<.01	<.002	23	142	<10	<10	<10	<1	44.1	99.91
9071	<.05	<.05	<.05	.21	55.54	<.01	.07	<.01	.01	<.01	<.002	18	130	<10	<10	<10	<1	43.9	99.78
9072	<.05	<.05	<.05	.23	55.31	<.01	.17	<.01	.13	.01	.002	21	80	<10	<10	<10	<1	43.9	99.84
9073	<.05	<.05	<.05	.24	55.61	<.01	<.05	.01	.05	.01	<.002	19	95	<10	<10	<10	<1	43.8	99.79
9074	<.05	<.05	.07	.25	55.36	.01	<.05	<.01	.08	.01	.002	18	82	<10	<10	<10	<1	43.8	99.67
9075	<.05	<.05	<.05	.25	55.26	.01	.10	.02	.06	.01	<.002	18	78	<10	<10	<10	<1	43.9	99.69
9076	<.05	<.05	.06	.28	55.69	<.01	.09	.01	.08	<.01	<.002	18	108	<10	<10	<10	<1	43.5	99.79
9077	.36	<.05	<.05	.27	55.35	<.01	.19	<.01	.07	<.01	<.002	26	147	<10	<10	<10	<1	42.9	99.22
9078	.06	<.05	<.05	.27	55.25	<.01	.29	<.01	.02	<.01	<.002	20	142	<10	<10	<10	<1	43.7	99.67
9079	<.05	<.05	.06	.27	56.06	<.01	<.05	<.01	.03	<.01	<.002	20	132	<10	<10	<10	<1	43.2	99.74
9080	<.05	<.05	<.05	.21	55.73	<.01	.09	<.01	.04	<.01	<.002	20	149	<10	<10	<10	<1	43.6	99.74
9081	<.05	<.05	<.05	.23	55.56	<.01	<.05	<.01	.08	<.01	<.002	18	154	<10	<10	<10	<1	43.9	99.87
9082	<.05	<.05	<.05	.22	55.79	<.01	.07	<.01	.03	<.01	<.002	19	148	<10	<10	<10	<1	43.5	99.67
9083	<.05	<.05	<.05	.21	55.82	<.01	.07	<.01	.04	<.01	<.002	22	178	<10	<10	<10	<1	43.4	99.65
9084	<.05	<.05	<.05	.19	55.83	<.01	<.05	.01	.03	<.01	<.002	20	137	<10	<10	<10	<1	43.5	99.63
9085	.07	<.05	<.05	.19	55.66	<.01	.12	.01	.06	<.01	<.002	18	121	82	<10	<10	<1	43.6	99.81
9086	1.50	<.05	<.05	.21	54.83	<.01	<.05	<.01	.03	<.01	<.002	20	127	<10	<10	<10	<1	43.0	99.64
9087	<.05	<.05	<.05	.21	55.99	<.01	<.05	<.01	.01	<.01	<.002	20	136	<10	<10	<10	<1	43.4	99.68
9088	<.05	<.05	<.05	.19	55.70	<.01	<.05	<.01	.03	<.01	<.002	18	151	<10	<10	<10	<1	43.7	99.68
9089	<.05	<.05	<.05	.20	55.35	<.01	.11	.01	.04	<.01	<.002	19	151	<10	<10	<10	<1	43.4	99.18
RE 9089	<.05	<.05	<.05	.19	55.71	<.01	.08	<.01	.02	<.01	<.002	19	143	<10	<10	<10	<1	43.6	99.66
9090	<.05	<.05	<.05	.19	56.17	<.01	.08	<.01	.01	<.01	<.002	23	141	<10	<10	<10	<1	43.3	99.85
9091	<.05	<.05	<.05	.20	55.89	.01	<.05	<.01	.03	<.01	<.002	18	134	<10	<10	<10	<1	43.6	99.81
9092	<.05	<.05	<.05	.20	55.79	<.01	.11	.02	.03	<.01	<.002	19	126	62	<10	<10	<1	43.5	99.72
9093	<.05	<.05	<.05	.20	55.79	<.01	.19	<.01	.01	<.01	.002	19	108	<10	<10	<10	<1	43.6	99.87
9094	<.05	<.05	<.05	.20	56.05	<.01	<.05	<.01	.01	<.01	<.002	21	171	<10	<10	<10	<1	43.4	99.74
9095	<.05	<.05	<.05	.21	55.84	<.01	<.05	<.01	.03	<.01	.002	19	144	<10	<10	<10	<1	43.5	99.65
9096	.08	<.05	<.05	.22	55.73	<.01	<.05	.01	.04	.01	.005	22	156	<10	<10	<10	<1	43.5	99.67
9097	.09	<.05	<.05	.23	55.82	<.01	<.05	.01	.04	.01	<.002	26	196	<10	<10	<10	<1	43.5	99.82
9098	.09	<.05	<.05	.23	55.69	<.01	.24	.01	.03	.01	.002	26	149	<10	<10	<10	<1	43.4	99.76
9099	.32	<.05	<.05	.20	55.60	<.01	<.05	.01	.05	.01	<.002	24	131	<10	<10	<10	<1	43.6	99.85
9100	<.05	<.05	<.05	.17	55.75	<.01	<.05	.01	.14	.01	<.002	19	82	<10	<10	<10	<1	43.5	99.69
STANDARD LIMESTONE	6.50	1.23	.50	.46	50.74	.02	.26	.04	.03	.02	.004	58	233	19	<10	<10	1	40.3	100.14

Sample type: LIMESTONE. Samples beginning 'RE' are duplicate samples.

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SAMPLE#	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
9101	<.05	<.05	.10	.23	55.85	<.01	<.05	<.01	.03	.01	<.002	20	63	<10	<10	<10	<1	44.0	100.30
9102	<.05	<.05	.07	.22	55.85	<.01	<.05	<.01	.04	.01	<.002	16	60	<10	<10	<10	<1	44.0	100.22
9103	.13	<.05	<.05	.27	55.94	<.01	<.05	<.01	.09	<.01	<.002	23	333	<10	<10	<10	<1	43.7	100.26
9104	<.05	<.05	<.05	.27	55.97	<.01	<.05	<.01	.03	<.01	<.002	18	552	<10	<10	<10	<1	43.7	100.09
9105	.17	.07	<.05	.33	55.92	<.01	<.05	<.01	.05	<.01	<.002	20	173	<10	<10	<10	<1	43.8	100.39
9106	.51	.12	.07	1.18	54.36	<.01	<.05	.01	.04	<.01	<.002	29	192	<10	<10	<10	<1	43.8	100.16
9107	.33	.06	<.05	.39	55.58	<.01	<.05	.01	.03	<.01	<.002	27	219	<10	<10	<10	<1	43.7	100.17
9108	.48	.08	.06	.32	55.70	<.01	<.05	.01	.04	<.01	<.002	32	181	<10	<10	<10	<1	43.5	100.22
9109	.62	.10	.06	.34	55.60	<.01	<.05	<.01	.04	<.01	<.002	29	200	<10	<10	<10	<1	43.5	100.29
9110	.70	.13	.06	.38	55.96	<.01	<.05	.01	.04	<.01	<.002	40	235	<10	<10	<10	<1	43.1	100.45
9111	<.05	.06	<.05	.64	55.72	<.01	<.05	.01	.01	<.01	<.002	24	599	<10	<10	<10	<1	43.6	100.17
9112	.12	.12	.06	.91	55.32	<.01	<.05	.01	.10	<.01	<.002	17	584	<10	<10	<10	<1	43.7	100.41
9113	.08	.07	.07	1.11	55.04	<.01	<.05	<.01	.04	<.01	<.002	13	494	<10	<10	<10	<1	43.8	100.28
9114	<.05	<.05	<.05	.32	55.72	<.01	<.05	.01	.02	<.01	<.002	14	531	<10	<10	<10	<1	44.0	100.27
9115	.93	.34	.14	3.12	50.78	<.01	.07	.02	.06	<.01	<.002	19	174	<10	<10	<10	<1	44.0	99.49
9116	.60	.24	.11	2.08	52.93	<.01	<.05	.02	.05	<.01	<.002	21	221	<10	<10	<10	<1	44.1	100.21
9117	.45	.18	.09	1.89	52.95	<.01	<.05	<.01	.05	<.01	<.002	17	187	<10	<10	<10	<1	44.1	99.75
9118	.63	.27	.11	3.24	50.30	<.01	.15	.01	.09	<.01	<.002	19	166	11	<10	<10	<1	44.5	99.33
9119	.36	.14	.07	1.18	54.07	<.01	<.05	<.01	.02	<.01	<.002	21	284	<10	<10	<10	<1	44.3	100.18
9120	.72	.17	.07	.40	54.92	<.01	<.05	.02	.04	<.01	<.002	26	239	<10	<10	<10	<1	43.8	100.23
9121	.48	.20	.09	.82	54.62	<.01	.07	.01	.05	<.01	<.002	19	160	<10	<10	<10	<1	44.1	100.46
9122	.78	.26	.12	1.87	52.85	<.01	<.05	.01	.06	<.01	<.002	20	203	<10	<10	<10	<1	44.2	100.18
9123	.54	.22	.12	1.78	53.26	<.01	<.05	.01	.05	<.01	<.002	21	156	<10	<10	<10	<1	44.2	100.21
9124	.39	.15	.08	.49	55.11	<.01	<.05	.01	.05	<.01	<.002	33	289	<10	<10	<10	<1	44.0	100.35
9125	.89	.31	.12	1.56	53.08	<.01	.07	.01	.09	<.01	<.002	37	249	<10	<10	<10	<1	43.8	99.97
9126	<.05	<.05	<.05	.50	55.91	<.01	.06	<.01	.05	<.01	<.002	21	138	<10	<10	<10	<1	43.7	100.32
9127	<.05	<.05	<.05	.43	56.22	<.01	<.05	<.01	.04	<.01	<.002	16	128	<10	<10	<10	<1	43.6	100.36
9128	<.05	.06	<.05	.48	55.92	<.01	<.05	<.01	.04	<.01	<.002	21	128	<10	<10	<10	<1	43.6	100.16
9129	.10	.09	.07	.76	55.64	<.01	<.05	.01	.09	<.01	.002	38	143	<10	<10	<10	<1	43.6	100.43
9130	.09	.09	.11	.30	56.01	<.01	.08	.01	.04	<.01	.011	31	134	<10	<10	<10	<1	43.5	100.27
RE 9130	.10	.09	.06	.31	56.17	<.01	<.05	.01	.03	<.01	<.002	33	138	<10	<10	<10	<1	43.5	100.32
9131	<.05	.06	<.05	.29	56.07	<.01	<.05	<.01	.05	<.01	<.002	24	140	<10	<10	<10	<1	43.6	100.14
9132	<.05	.06	<.05	.33	56.18	<.01	<.05	.01	.06	<.01	<.002	42	145	<10	<10	<10	<1	43.6	100.35
9133	<.05	<.05	<.05	.28	56.21	<.01	<.05	<.01	.07	<.01	<.002	34	143	<10	<10	<10	<1	43.6	100.31
9134	<.05	<.05	<.05	.32	56.16	.01	<.05	<.01	.07	<.01	.003	26	123	105	<10	<10	<1	43.6	100.33
STANDARD LIMESTONE	6.70	1.24	.54	.43	50.92	.02	.23	.05	.03	.02	<.002	68	204	30	<10	<10	1	40.3	100.52

Sample type: LIMESTONE. Samples beginning 'RE' are duplicate samples.



SAMPLE#	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
9135	<.05	<.05	<.05	.27	54.25	.01	.13	<.01	.01	<.01	<.002	16	120	<10	<10	<10	<1	43.4	98.14
9136	<.05	<.05	<.05	.25	56.00	<.01	.08	<.01	.02	<.01	<.002	18	127	<10	<10	<10	<1	43.5	99.93
9137	<.05	<.05	<.05	.34	55.34	<.01	<.05	<.01	.03	<.01	<.002	7	108	<10	<10	<10	<1	43.5	99.33
9138	<.05	<.05	<.05	.28	55.48	<.01	<.05	.01	.02	<.01	<.002	7	112	<10	<10	<10	<1	43.5	99.37
9139	.87	.23	.12	.75	53.94	<.01	.17	<.01	.07	<.01	<.002	87	290	<10	<10	<10	<1	43.5	99.71
9140	.27	.07	<.05	.43	56.09	.01	.08	<.01	.03	<.01	<.002	15	329	<10	<10	<10	<1	43.5	100.56
RE 9140	.26	.06	<.05	.42	55.70	<.01	.12	<.01	.03	<.01	<.002	10	326	<10	<10	<10	<1	43.3	99.96
9141	.07	<.05	<.05	.24	55.80	<.01	<.05	<.01	.06	<.01	.002	79	485	11	<10	<10	<1	43.3	99.62
9142	.32	.14	.07	.50	55.67	.01	.12	<.01	.03	<.01	<.002	21	195	<10	<10	<10	<1	43.5	100.39
9143	.14	.08	<.05	1.02	55.18	<.01	.19	.01	.05	<.01	.003	10	484	<10	<10	<10	<1	43.6	100.39
9144	.28	.11	<.05	.98	55.23	<.01	.12	<.01	.08	<.01	<.002	20	233	<10	<10	<10	<1	43.5	100.37
9145	.65	.14	.06	.37	55.82	<.01	<.05	.01	.03	<.01	<.002	26	220	<10	<10	<10	<1	43.3	100.46
9146	.37	.11	.06	.64	54.61	<.01	<.05	.01	.01	<.01	.005	33	201	<10	<10	<10	<1	43.5	99.37
9147	.57	.16	.08	.70	54.97	<.01	.11	<.01	.02	<.01	<.002	79	200	<10	<10	<10	<1	43.4	100.05
9148	.64	.23	.12	2.58	51.83	.01	.15	.01	.05	<.01	<.002	55	219	<10	<10	<10	<1	44.0	99.66
9149	.34	.09	<.05	.33	54.57	<.01	.08	.01	<.01	<.01	<.002	24	334	<10	<10	<10	<1	43.9	99.42
9150	.09	<.05	<.05	.21	55.61	<.01	.07	<.01	.02	<.01	<.002	29	133	<10	<10	<10	<1	43.8	99.91
9151	<.05	<.05	<.05	.58	55.03	.01	<.05	<.01	.05	<.01	<.002	17	289	81	<10	<10	<1	43.6	99.40
9152	<.05	<.05	<.05	.27	56.11	<.01	.07	<.01	.14	<.01	<.002	6	84	14	<10	<10	<1	43.4	100.06
9153	<.05	<.05	<.05	.30	55.72	<.01	.16	<.01	.12	<.01	<.002	<5	86	<10	<10	<10	<1	43.5	99.85
9154	<.05	<.05	<.05	.27	56.27	<.01	.09	<.01	.01	<.01	.003	20	121	<10	<10	<10	<1	43.8	100.52
9155	<.05	<.05	<.05	.25	56.15	<.01	<.05	<.01	.10	<.01	<.002	40	101	<10	<10	<10	<1	43.7	100.26
9156	<.05	<.05	<.05	.22	56.47	<.01	.09	.01	.01	<.01	<.002	47	81	<10	<10	<10	<1	43.6	100.49
9157	<.05	<.05	<.05	.24	55.11	<.01	<.05	.01	.08	<.01	<.002	5	82	<10	<10	<10	<1	43.7	99.22
9158	<.05	<.05	<.05	.24	56.47	<.01	.09	<.01	.05	<.01	<.002	18	105	<10	<10	<10	<1	43.6	100.52
9159	<.05	<.05	<.05	.23	56.47	<.01	<.05	.01	.04	<.01	<.002	25	81	<10	<10	<10	<1	43.6	100.44
9160	<.05	<.05	<.05	.24	55.40	.01	<.05	<.01	.05	<.01	.002	10	86	<10	<10	<10	<1	43.7	99.48
9161	<.05	<.05	<.05	.22	55.48	<.01	<.05	<.01	.02	<.01	<.002	<5	62	<10	<10	<10	<1	43.8	99.57
9162	<.05	<.05	<.05	.23	56.34	<.01	<.05	<.01	.01	<.01	<.002	<5	66	<10	<10	<10	<1	43.6	100.26
9163	.11	<.05	<.05	.28	55.23	<.01	<.05	.01	.03	<.01	<.002	59	453	<10	<10	<10	<1	43.4	99.25
9164	<.05	<.05	<.05	.17	54.87	<.01	<.05	<.01	.02	<.01	<.002	12	98	<10	<10	<10	<1	43.8	98.95
9165	<.05	<.05	<.05	.20	56.06	<.01	.06	.01	.04	<.01	<.002	12	82	<10	<10	<10	<1	43.9	100.40
9166	<.05	<.05	<.05	.22	55.58	<.01	<.05	<.01	.02	<.01	<.002	17	83	<10	<10	<10	<1	43.8	99.75
9167	<.05	<.05	<.05	.19	56.20	<.01	<.05	<.01	.01	<.01	<.002	19	63	<10	<10	<10	<1	43.8	100.35
9168	.25	<.05	<.05	.23	54.82	<.01	.11	<.01	.02	.01	<.002	75	82	<10	<10	<10	<1	43.8	99.34
STANDARD LIMESTONE	6.72	1.22	.53	.42	50.44	.01	.25	.05	.03	.02	.002	60	204	21	<10	<10	1	39.9	99.63

Sample type: LIMESTONE. Samples beginning 'RE' are duplicate samples.





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SAMPLE#	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
9169	<.05	<.05	<.05	.20	55.88	<.01	.08	<.01	.01	.01	<.002	13	85	<10	<10	<10	<1	43.0	99.27
9170	.18	.06	.09	.31	55.60	<.01	.10	<.01	.02	.01	<.002	31	108	<10	<10	<10	<1	42.9	99.29
9171	<.05	<.05	<.05	.19	56.13	.01	.08	<.01	.02	.01	<.002	21	106	<10	<10	<10	<1	42.8	99.31
9172	<.05	<.05	<.05	.20	56.08	<.01	<.05	<.01	.01	.01	<.002	17	81	<10	<10	<10	<1	42.9	99.28
9173	<.05	<.05	<.05	.21	55.98	<.01	.12	<.01	.01	.01	<.002	8	74	<10	<10	<10	<1	42.8	99.20
9174	<.05	<.05	<.05	.22	55.88	<.01	<.05	<.01	.04	.01	<.002	13	82	<10	<10	<10	<1	42.7	98.97
9175	<.05	<.05	<.05	.24	56.11	<.01	<.05	<.01	.02	.01	<.002	<5	69	<10	<10	<10	<1	42.7	99.19
9176	<.05	<.05	<.05	.23	56.21	<.01	.07	<.01	.03	<.01	<.002	12	120	<10	<10	<10	<1	42.7	99.32
9177	<.05	<.05	<.05	.22	56.20	.01	<.05	<.01	.07	<.01	<.002	14	120	<10	<10	<10	<1	42.8	99.41
9178	<.05	<.05	<.05	.22	55.99	<.01	.06	<.01	.02	<.01	.003	16	118	<10	<10	<10	<1	42.8	99.20
9179	.18	.08	<.05	.56	55.43	.01	<.05	<.01	.06	<.01	<.002	11	131	<10	<10	<10	<1	42.8	99.19
9180	<.05	<.05	<.05	.30	55.84	<.01	.07	<.01	.06	<.01	<.002	5	139	<10	<10	<10	<1	42.9	99.31
9181	.15	<.05	<.05	.28	55.73	<.01	<.05	<.01	.04	<.01	<.002	8	142	<10	<10	<10	<1	42.8	99.09
9182	<.05	<.05	<.05	.27	55.96	<.01	<.05	<.01	.03	<.01	<.002	<5	175	<10	<10	<10	<1	42.9	99.28
9183	<.05	<.05	<.05	.27	56.15	.01	<.05	<.01	.01	<.01	<.002	<5	133	<10	<10	<10	<1	42.6	99.11
9184	<.05	<.05	<.05	.28	55.90	<.01	<.05	<.01	.02	<.01	<.002	<5	151	<10	<10	<10	<1	43.0	99.29
9185	<.05	<.05	<.05	.41	55.80	.02	<.05	<.01	.03	<.01	<.002	<5	104	<10	<10	<10	<1	42.8	99.14
9186	<.05	<.05	<.05	.26	56.00	<.01	.06	<.01	.05	<.01	<.002	<5	104	<10	<10	<10	<1	42.8	99.23
RE 9186	<.05	<.05	<.05	.25	55.89	<.01	.10	<.01	.04	<.01	<.002	<5	102	<10	<10	<10	<1	42.9	99.27
9187	<.05	<.05	<.05	.27	55.73	<.01	.09	<.01	.03	<.01	<.002	<5	105	<10	<10	<10	<1	43.0	99.19
9188	.10	.06	.06	1.10	54.59	<.01	<.05	<.01	.02	<.01	<.002	5	136	<10	<10	<10	<1	43.2	99.17
9189	<.05	<.05	<.05	.26	55.92	<.01	<.05	<.01	.01	<.01	<.002	20	94	<10	<10	<10	<1	42.9	99.18
9190	<.05	<.05	<.05	.23	55.88	.01	<.05	<.01	.04	<.01	<.002	7	81	<10	<10	<10	<1	42.9	99.15
9191	<.05	<.05	<.05	.24	55.94	<.01	<.05	<.01	.02	<.01	<.002	16	105	<10	<10	<10	<1	42.9	99.20
9192	<.05	<.05	<.05	.24	56.13	<.01	<.05	<.01	.02	<.01	.002	14	111	<10	<10	<10	<1	42.8	99.30
9193	.06	<.05	<.05	.22	56.06	<.01	.11	<.01	<.01	<.01	<.002	20	98	<10	<10	<10	<1	42.8	99.32
9194	.45	<.05	<.05	.25	55.68	<.01	.09	<.01	.03	.01	<.002	23	148	<10	<10	<10	<1	42.8	99.42
9195	1.06	.19	.30	.32	55.02	<.01	.08	.03	.04	.02	.002	34	195	<10	<10	<10	<1	42.3	99.39
9196	.58	<.05	.10	.24	55.34	<.01	.07	<.01	.05	.01	.003	22	115	47	<10	<10	<1	42.7	99.17
9197	<.05	<.05	<.05	.23	56.02	<.01	<.05	<.01	.02	<.01	<.002	11	77	<10	<10	<10	<1	43.0	99.39
9198	<.05	<.05	<.05	.27	55.96	<.01	.06	<.01	.03	<.01	<.002	7	104	<10	<10	<10	<1	42.9	99.29
9199	.14	<.05	<.05	.26	56.09	<.01	<.05	<.01	.03	<.01	<.002	12	118	<10	<10	<10	<1	42.7	99.33
9200	<.05	<.05	<.05	.24	55.92	<.01	.06	<.01	.02	.01	<.002	8	84	<10	<10	<10	<1	43.1	99.42
9201	<.05	<.05	<.05	.25	55.79	<.01	<.05	<.01	.02	.01	<.002	8	82	<10	<10	<10	<1	43.1	99.28
9202	<.05	<.05	<.05	.25	55.49	<.01	<.05	<.01	.04	.01	<.002	14	90	<10	<10	<10	<1	43.3	99.20
STANDARD LIMESTONE	6.88	1.24	.46	.43	49.80	.02	.22	.05	.03	.02	.003	64	215	16	<10	<10	1	39.3	98.49

Sample type: LIMESTONE. Samples beginning 'RE' are duplicate samples.

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SAMPLE#	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Sr	Zr	Y	Nb	Sc	LOI	SUM
	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	%	%
9204	.25	<.05	<.05	.31	55.75	.01	.06	.02	.01	<.01	<.002	15	249	<10	<10	<10	<1	43.6	100.10
9205	.67	<.05	<.05	.27	55.46	<.01	<.05	.01	.01	<.01	<.002	12	365	<10	<10	<10	<1	43.5	100.04
9206	.43	.09	.06	.30	55.67	.01	<.05	<.01	.05	<.01	<.002	18	173	<10	<10	<10	<1	43.4	100.09
9207	<.05	<.05	<.05	.25	56.24	<.01	<.05	.01	.02	<.01	.002	14	132	<10	<10	<10	<1	43.4	100.04
9208	<.05	<.05	<.05	.28	56.28	.02	<.05	.01	.01	<.01	<.002	13	126	<10	<10	<10	<1	43.3	100.03
9209	<.05	<.05	<.05	.27	56.21	<.01	<.05	.01	.13	<.01	<.002	19	141	<10	<10	<10	<1	43.3	100.08
9210	.15	.06	<.05	.28	55.98	<.01	<.05	<.01	.20	<.01	.002	18	165	<10	<10	<10	<1	43.3	100.03
9214	.11	.06	<.05	.29	55.74	<.01	<.05	<.01	.06	<.01	<.002	17	194	<10	<10	<10	<1	43.7	100.03
9215	.08	<.05	<.05	.28	55.99	<.01	<.05	<.01	.07	<.01	<.002	16	179	<10	<10	<10	<1	43.5	100.03
9216	.36	.06	<.05	.32	55.58	.01	.10	<.01	.18	<.01	<.002	20	210	<10	<10	<10	<1	43.4	100.07
9218	<.05	<.05	<.05	.26	56.22	.02	<.05	<.01	.02	<.01	<.002	13	117	<10	<10	<10	<1	43.4	100.03
RE 9218	<.05	<.05	<.05	.24	56.21	.01	.09	<.01	.03	<.01	<.002	15	121	<10	<10	<10	<1	43.4	100.07
9219	.10	<.05	<.05	.26	56.30	<.01	<.05	<.01	.08	<.01	<.002	15	127	<10	<10	<10	<1	43.2	100.08
9220	.20	.06	<.05	.28	56.16	.02	<.05	<.01	.04	<.01	<.002	20	142	<10	<10	<10	<1	43.2	100.06
9222	<.05	<.05	<.05	.30	56.16	<.01	<.05	<.01	.02	<.01	<.002	14	300	<10	<10	<10	<1	43.4	100.06
9223	.06	<.05	<.05	.26	56.27	.01	<.05	.01	.08	<.01	<.002	8	284	175	<10	<10	<1	43.2	100.02
9224	.07	<.05	<.05	.24	56.05	<.01	<.05	<.01	.02	<.01	<.002	13	684	<10	<10	<10	<1	43.5	100.03
9225	.20	.07	<.05	.30	55.84	<.01	<.05	<.01	.04	<.01	<.002	21	380	<10	<10	<10	<1	43.5	100.05
9226	<.05	<.05	<.05	.28	56.09	.01	<.05	<.01	.04	<.01	<.002	26	154	<10	<10	<10	<1	43.5	100.03
9227	<.05	<.05	<.05	.22	56.17	<.01	<.05	<.01	.05	<.01	<.002	19	133	<10	<10	<10	<1	43.5	100.08
STANDARD LIMESTONE	6.61	1.23	.54	.42	50.30	.01	.17	.05	.06	.02	<.002	59	203	44	<10	<10	1	39.9	99.35

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Sample type: LIMESTONE. Samples beginning 'RE' are duplicate samples.



## WHOLE ROCK ICP ANALYSIS



Halferdahl &amp; Associates Ltd. File # 93-2211 Page 1

18 - 10509 - 81st Ave, Edmonton AB T6E 1X7

SAMPLE#	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
9203	.11	<.05	<.05	.26	55.85	<.01	<.05	.01	<.01	<.01	<.002	7	423	<10	<10	<10	<1	43.6	99.98
9211	.19	<.05	<.05	.34	55.38	<.01	.08	.01	.07	<.01	.002	12	183	<10	<10	<10	<1	43.8	99.97
9212	.22	<.05	<.05	.31	55.74	.01	.10	.02	.09	<.01	<.002	11	196	<10	<10	<10	<1	43.5	100.11
9213	.26	<.05	<.05	.29	55.43	<.01	.19	.01	.04	<.01	<.002	11	186	<10	<10	<10	<1	43.6	99.92
9217	<.05	<.05	<.05	.26	55.71	.01	<.05	.01	.01	<.01	<.002	8	152	<10	<10	<10	<1	43.6	99.76
9221	.11	<.05	<.05	.32	55.69	.01	.06	.01	.06	<.01	<.002	20	176	<10	<10	<10	<1	43.6	99.94
9228	<.05	<.05	<.05	.31	55.87	<.01	.11	<.01	.02	<.01	<.002	11	130	<10	<10	<10	<1	43.5	99.91
9229	<.05	<.05	<.05	.31	55.87	<.01	<.05	<.01	.01	<.01	<.002	7	130	<10	<10	<10	<1	43.6	99.94
9230	.35	.10	.06	.41	55.24	.01	.12	.01	.10	<.01	<.002	18	160	<10	<10	<10	<1	43.5	99.92
9231	.17	<.05	<.05	.33	55.66	<.01	.09	<.01	<.01	<.01	<.002	<5	113	<10	<10	<10	<1	43.6	99.90
9232	.17	<.05	<.05	.30	55.40	.01	.18	.01	<.01	<.01	<.002	5	138	<10	<10	<10	<1	43.7	99.84
9233	.26	<.05	<.05	.31	55.63	<.01	<.05	<.01	.02	<.01	<.002	9	142	<10	<10	<10	<1	43.5	99.80
9234	.15	<.05	<.05	.29	55.74	<.01	.15	<.01	<.01	<.01	<.002	6	155	<10	<10	<10	<1	43.5	99.93
9235	.33	.07	.06	.33	55.27	<.01	.13	<.01	.03	<.01	<.002	9	158	<10	<10	<10	<1	43.6	99.85
9236	.16	<.05	<.05	.29	55.77	<.01	<.05	.01	<.01	<.01	<.002	5	149	<10	<10	<10	<1	43.7	100.00
9237	.08	<.05	<.05	.30	55.56	<.01	.13	<.01	.01	<.01	.003	<5	129	<10	<10	<10	<1	43.7	99.85
9238	.07	<.05	<.05	.27	55.52	<.01	<.05	.01	<.01	<.01	<.002	<5	111	<10	<10	<10	<1	43.8	99.77
9239	.36	<.05	.06	.31	55.93	.02	<.05	.01	.01	<.01	.002	6	142	<10	<10	<10	<1	43.0	99.79
9240	.28	<.05	<.05	.33	56.14	<.01	<.05	<.01	.01	<.01	<.002	<5	132	<10	<10	<10	<1	43.0	99.85
9241	.12	<.05	<.05	.30	56.18	<.01	<.05	.01	.05	<.01	<.002	8	167	<10	<10	<10	<1	43.1	99.88
9242	.42	<.05	<.05	.25	55.92	<.01	.17	.01	.02	<.01	<.002	8	143	<10	<10	<10	<1	43.0	99.86
9243	.09	<.05	<.05	.29	56.10	<.01	<.05	<.01	.02	<.01	<.002	17	204	30	<10	<10	<1	43.1	99.74
9244	.44	<.05	<.05	.25	55.80	<.01	.07	<.01	.01	<.01	<.002	28	179	<10	<10	<10	<1	43.2	99.86
9245	.42	<.05	<.05	.29	55.94	<.01	.06	<.01	.02	<.01	<.002	22	150	<10	<10	<10	<1	43.0	99.83
9246	.40	.17	.08	.38	55.67	.01	.16	<.01	.14	<.01	<.002	17	163	<10	<10	<10	<1	43.0	100.04
9247	.32	.11	<.05	.35	55.46	.01	.14	<.01	.06	<.01	<.002	9	137	<10	<10	<10	<1	43.3	99.82
9248	.13	<.05	<.05	.36	55.93	.01	<.05	<.01	.03	<.01	<.002	<5	121	<10	<10	<10	<1	43.3	99.86
9249	.14	.06	<.05	.37	55.80	<.01	<.05	<.01	.04	<.01	<.002	<5	153	27	<10	<10	<1	43.5	99.97
9250	.12	<.05	<.05	.41	55.88	<.01	.09	<.01	.02	<.01	<.002	<5	127	<10	<10	<10	<1	43.4	100.01
RE 9250	.12	<.05	<.05	.42	55.68	<.01	.06	<.01	.03	<.01	<.002	<5	127	<10	<10	<10	<1	43.4	99.82
9251	.22	.09	<.05	.37	55.80	.01	<.05	<.01	.04	<.01	.003	<5	133	<10	<10	<10	<1	43.3	99.95
9252	.55	<.05	.06	.29	55.73	<.01	.06	<.01	.01	<.01	.002	6	142	<10	<10	<10	<1	43.1	99.86
9253	1.09	.34	.17	5.54	46.88	.01	<.05	<.01	.04	<.01	.003	184	186	10	<10	<10	<1	44.4	98.54
9254	<.05	<.05	<.05	.32	56.07	.02	<.05	<.01	.02	<.01	<.002	18	166	<10	<10	<10	<1	43.4	99.90
9255	<.05	<.05	<.05	.29	56.01	<.01	.06	<.01	.04	<.01	<.002	20	174	<10	<10	<10	<1	43.3	99.78
STANDARD LIMESTONE	6.72	1.26	.57	.45	50.70	.03	.28	.04	.03	.02	.002	54	217	16	<10	<10	1	39.9	100.04

.200 GRAM SAMPLES ARE FUSED WITH 1.2 GRAM OF LiBO2 AND ARE DISSOLVED IN 100 MLS 5% HNO3. Ba IS SUM AS BaSO4 AND OTHER METALS ARE SUM AS OXIDES.  
LOI AT 1025 DEG. C FOR 2 HOURS WHICH OUR REGULAR LOI ARE AT 1000 DEG. C FOR 1 HOUR.

- SAMPLE TYPE: LIMESTONE Samples beginning 'RE' are duplicate samples.

DATE RECEIVED: AUG 30 1993

DATE REPORT MAILED:

Sept 10/93

SIGNED BY: C. Leong

D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS



ACME ANALYTICAL



ACME ANALYTICAL

SAMPLE#	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
9256	<.05	<.05	<.05	.23	56.43	.02	<.05	<.01	.05	<.01	<.002	27	175	<10	<10	<10	<1	42.8	99.73
9257	2.47	.06	<.05	.32	54.50	<.01	<.05	<.01	.10	<.01	<.002	41	200	<10	<10	<10	<1	41.9	99.41
9258	.08	<.05	<.05	.30	55.90	<.01	<.05	<.01	.06	<.01	<.002	30	167	<10	<10	<10	<1	43.3	99.74
RE 9258	.10	<.05	<.05	.31	55.78	.01	<.05	<.01	.06	<.01	<.002	32	170	<10	<10	<10	<1	43.4	99.73
9259	<.05	<.05	<.05	.33	55.99	.01	<.05	<.01	.10	<.01	<.002	33	169	<10	<10	<10	<1	43.2	99.73
9260	.29	<.05	<.05	.35	56.71	.01	<.05	<.01	.06	<.01	<.002	30	170	<10	<10	<10	<1	43.9	101.40
9261	.25	<.05	<.05	.30	55.83	<.01	<.05	<.01	.22	<.01	<.002	31	231	<10	<10	<10	<1	43.0	99.73
9262	.19	<.05	<.05	.37	55.46	.01	<.05	<.01	.14	<.01	<.002	37	228	46	<10	<10	<1	43.4	99.71
9263	.09	<.05	<.05	.38	55.40	<.01	<.05	<.01	.30	<.01	<.002	90	201	<10	<10	<10	<1	43.4	99.70
9264	.31	.08	.06	.37	55.40	<.01	<.05	<.01	.23	<.01	<.002	73	211	<10	<10	<10	<1	43.2	99.70
9265	.25	.09	<.05	.43	55.21	<.01	<.05	<.01	.27	<.01	<.002	59	190	<10	<10	<10	<1	43.4	99.72
9266	<.05	<.05	<.05	.32	56.48	.01	<.05	<.01	.41	<.01	<.002	43	162	<10	<10	<10	<1	43.8	101.12
9267	.13	.06	<.05	.40	55.50	.01	<.05	<.01	.17	<.01	<.002	47	215	<10	<10	<10	<1	43.4	99.74
9268	.22	.06	<.05	.36	55.56	.01	<.05	<.01	.26	<.01	<.002	40	200	<10	<10	<10	<1	43.2	99.73
9269	.06	<.05	<.05	.32	55.66	<.01	<.05	.01	.20	<.01	<.002	41	166	183	<10	<10	<1	43.4	99.77
9270	.12	<.05	<.05	.36	55.60	<.01	<.05	<.01	.20	<.01	<.002	36	180	<10	<10	<10	<1	43.4	99.78
STANDARD LIMESTONE	6.81	1.29	.59	.45	50.96	.02	.26	.05	.03	.02	<.002	69	220	23	<10	<10	1	39.9	100.42

Sample type: LIMESTONE. Samples beginning 'RE' are duplicate samples.

# APPENDIX 5: DETERMINED, ADJUSTED, AND PREFERRED ANALYSES FOR CaO AND LOI IN THE 1993 SAMPLES FROM THE KELLY LAKE LIMESTONE DEPOSITS

Det'd - determined; adjustments: LOI - LOI based, Imp - impurity based, Pref - preferred

Code	Number of Samples
1 LOI - CO <sub>2</sub> EQ > 0.00	34
2 LOI - CO <sub>2</sub> EQ ≤ 0.00; CaO (Imp) ≥ CaO (LOI); LOI (Imp) ≥ LOI (LOI)	347
3 LOI - CO <sub>2</sub> EQ ≤ 0.00; CaO (Imp) ≥ CaO (LOI); LOI (Imp) < LOI (LOI) with difference > 0.02	26
4 LOI - CO <sub>2</sub> EQ ≤ 0.00; CaO (Imp) ≥ CaO (LOI); LOI (Imp) < LOI (LOI) with difference of 0.01 or 0.02	20
5 LOI - CO <sub>2</sub> EQ ≤ 0.00; CaO (Imp) < CaO (LOI); LOI (Imp) < LOI (LOI)	10
6 LOI - CO <sub>2</sub> EQ ≤ 0.00; CaO (Imp) < CaO (LOI); LOI (Imp) ≥ LOI (LOI)	7
	444
7 LOI - CO <sub>2</sub> EQ ≤ 0.00; CaO (pref) > CaO (det'd); LOI (pref) > LOI (det'd)	17
8 LOI - CO <sub>2</sub> EQ ≤ 0.00; CaO (pref) < CaO (det'd); LOI (pref) < LOI (det'd)	7

Sample	Code	LOI - CO <sub>2</sub> EQ	CaO %				LOI %				SUM %
			Det'd	LOI	Imp	Pref	Det'd	LOI	Imp	Pref	
8801	2	-2.49	56.44	54.97	55.14	54.97	42.40	43.75	43.88	43.75	99.67
8802	2	-3.03	56.82	55.13	55.33	55.13	42.00	43.69	43.87	43.69	99.56
8803	2	-1.71	55.80	54.94	55.04	54.94	42.60	43.62	43.72	43.62	99.63
8804	2	-1.92	56.01	55.49	55.55	55.49	42.40	43.91	43.97	43.91	98.75
8805	2	-1.41	54.95	54.70	54.73	54.70	42.80	43.96	44.05	43.96	98.85
8806	2	-1.58	56.07	55.27	55.37	55.27	42.90	43.84	43.93	43.84	99.56
8807	2	-1.77	56.01	55.11	55.22	55.11	42.80	43.85	43.96	43.85	99.49
8808	2	-1.51	54.28	53.56	53.65	53.56	43.10	43.91	44.12	43.91	99.51
8809	2	-1.87	55.45	54.41	54.54	54.41	42.90	43.87	44.05	43.87	99.58
8810	2	-2.43	56.40	55.18	55.33	55.18	42.40	43.85	44.00	43.85	99.30
8811	2	-2.58	56.64	55.29	55.46	55.29	42.30	43.84	43.96	43.84	99.37
8812	2	-2.68	56.53	55.09	55.26	55.09	42.30	43.83	43.99	43.83	99.43
8813	2	-2.67	56.63	55.32	55.48	55.32	42.20	43.85	43.98	43.85	99.21
8814	2	-2.83	56.82	55.31	55.49	55.31	42.10	43.80	43.89	43.80	99.38
8815	2	-2.74	56.51	55.09	55.26	55.09	42.20	43.80	43.97	43.80	99.34
8816	2	-2.60	52.81	51.85	51.97	51.85	42.40	43.98	44.34	43.98	98.78
8817	2	-3.74	54.63	52.49	52.75	52.49	42.10	43.96	44.37	43.96	99.42
8818	2	-0.75	55.37	54.78	54.85	54.78	43.50	43.81	43.85	43.81	100.12
8819	2	-1.00	55.50	54.88	54.95	54.88	43.10	43.61	43.67	43.61	99.97
8820	2	-1.38	55.76	54.84	54.95	54.84	43.00	43.63	43.74	43.63	100.05
8821	2	-1.16	54.54	54.09	54.14	54.09	43.00	43.79	43.85	43.79	99.53
8822	1	0.75	53.49	55.53	55.29	55.00 *	43.30	44.13	43.96	43.44 *	97.42
8823	2	-1.12	55.79	55.08	55.17	55.08	43.40	43.94	44.04	43.94	99.88
8824	2	-0.96	55.03	54.73	54.76	54.73	43.30	43.97	44.06	43.97	99.45
8825	2	-1.26	54.78	54.20	54.27	54.20	43.30	44.00	44.16	44.00	99.57
8826	2	-3.03	56.75	55.12	55.32	55.12	42.10	43.83	44.01	43.83	99.26
8827	2	-3.01	56.70	55.10	55.30	55.10	42.10	43.83	44.02	43.83	99.29
8828	2	-2.86	56.60	55.08	55.26	55.08	42.20	43.84	44.01	43.84	99.35
8829	2	-3.16	56.76	55.09	55.30	55.09	42.00	43.83	44.02	43.83	99.21
8830	2	-2.85	56.63	55.13	55.31	55.13	42.20	43.84	44.02	43.84	99.26
8831	2	-1.53	54.60	53.85	53.94	53.85	42.30	43.24	43.39	43.24	99.57
8832	2	-2.56	56.28	54.97	55.13	54.97	42.30	43.81	43.98	43.81	99.35
8833	2	-2.53	56.42	55.06	55.23	55.06	42.40	43.85	44.00	43.85	99.42
8834	2	-2.57	56.57	55.16	55.33	55.16	42.40	43.85	44.00	43.85	99.41
8835	2	-3.03	56.85	55.21	55.40	55.21	42.10	43.83	44.00	43.83	99.32

\* specially adjusted

A80  
APPENDIX 5: CONTINUED

Sample	Code	LOI - CO2 EQ	CaO %				LOI %				SUM %
			Det'd	LOI	Imp	Pref	Det'd	LOI	Imp	Pref	
8836	2	-2.07	56.34	55.33	55.45	55.33	42.60	43.88	43.98	43.88	99.30
8837	2	-2.88	56.86	55.23	55.43	55.23	42.10	43.82	43.86	43.82	99.48
8838	2	-2.90	56.84	55.35	55.53	55.35	42.10	43.83	43.98	43.83	99.16
8839	2	-2.89	56.85	55.38	55.56	55.38	42.10	43.83	43.98	43.83	99.16
8840	2	-2.09	55.60	54.84	54.93	54.84	42.40	43.85	43.97	43.85	98.96
8841	2	-2.26	55.30	54.56	54.65	54.56	42.30	43.91	44.06	43.91	98.74
8842	2	-3.13	56.88	55.08	55.30	55.08	42.10	43.80	44.00	43.80	99.50
8843	2	-2.74	56.72	55.21	55.39	55.21	42.30	43.84	44.00	43.84	99.40
8844	2	-1.61	56.28	55.20	55.33	55.20	43.10	43.84	43.96	43.84	100.06
8845	5, 7	-0.50	54.95	55.19	55.16	55.16	43.10	43.85	43.77	43.77	99.10
8846	2	-1.50	55.88	54.99	55.10	54.99	42.90	43.73	43.79	43.73	99.82
8847	2	-1.36	55.73	54.90	55.00	54.90	42.80	43.59	43.59	43.59	99.92
8848	3	-1.36	55.77	55.02	55.11	55.02	42.80	43.68	43.65	43.65	99.78
8849	2	-2.11	56.14	54.80	54.96	54.80	42.40	43.51	43.59	43.51	99.98
8850	2	-1.56	56.01	55.04	55.16	55.04	42.90	43.75	43.80	43.75	99.92
8851	6, 7	-0.45	50.04	50.47	50.42	50.42	43.90	44.32	44.65	44.32	98.73
8852	2, 8	-0.23	45.56	45.41	45.43	45.41	44.40	44.05	44.54	44.05	100.00
8853	2	-0.52	51.16	50.84	50.88	50.84	43.80	43.91	44.11	43.91	99.96
8854	2	-1.01	48.10	47.54	47.61	47.54	43.90	44.06	44.53	44.06	99.86
8855	1	0.13	48.51	49.56	49.44	48.51	44.00	44.32	44.61	44.00	98.44
8856	2	-1.72	52.83	52.07	52.16	52.07	43.00	44.03	44.20	44.03	99.41
8857	2	-1.57	53.24	52.58	52.66	52.58	43.10	43.99	44.22	43.99	99.37
8858	2	-3.21	56.89	55.12	55.33	55.12	42.00	43.80	43.99	43.80	99.35
8859	2	-2.41	56.36	55.14	55.28	55.14	42.40	43.83	43.97	43.83	99.34
8860	2	-3.05	56.69	55.11	55.30	55.11	42.00	43.80	43.97	43.80	99.28
8861	2	-1.51	55.94	55.30	55.37	55.30	42.90	43.88	43.97	43.88	99.33
8862	2	-2.36	56.37	55.19	55.33	55.19	42.40	43.81	43.94	43.81	99.32
8863	2	-1.92	56.27	55.32	55.43	55.32	42.70	43.88	43.97	43.88	99.38
8864	2	-2.26	56.39	55.22	55.36	55.22	42.50	43.83	43.97	43.83	99.38
8865	2	-2.34	56.43	55.25	55.39	55.25	42.40	43.85	43.93	43.85	99.33
8866	2	-2.40	56.47	55.23	55.38	55.23	42.40	43.83	43.95	43.83	99.35
8867	2	-2.46	56.53	55.25	55.40	55.25	42.40	43.84	43.98	43.84	99.35
8868	2	-2.03	56.25	55.24	55.36	55.24	42.60	43.83	43.94	43.83	99.36
8869	2	-2.52	56.50	55.19	55.35	55.19	42.30	43.79	43.92	43.79	99.32
8870	2	-2.44	56.51	55.21	55.37	55.21	42.40	43.81	43.95	43.81	99.38
8871	2	-2.77	56.69	55.22	55.39	55.22	42.20	43.80	43.96	43.80	99.37
8872	2	-2.73	56.65	55.21	55.38	55.21	42.20	43.79	43.94	43.79	99.35
8874	2	-2.40	56.45	55.26	55.40	55.26	42.40	43.85	43.98	43.85	99.30
8875	2	-2.60	56.61	55.29	55.45	55.29	42.30	43.85	44.00	43.85	99.28
8876	2	-2.85	54.55	53.03	53.21	53.03	42.50	43.96	44.30	43.96	99.38
8877	2	-2.09	55.25	54.18	54.31	54.18	42.70	43.86	44.06	43.86	99.47
8878	2	-1.56	52.99	52.25	52.34	52.25	43.20	43.93	44.25	43.93	99.56
8879	2	-2.25	53.84	52.64	52.79	52.64	42.80	43.91	44.24	43.91	99.53
8880	2	-1.62	54.78	53.92	54.02	53.92	42.80	43.68	43.84	43.68	99.69
8881	2	-2.68	55.68	54.23	54.41	54.23	42.40	43.85	44.08	43.85	99.48
8882	2	-2.44	56.31	54.95	55.12	54.95	42.40	43.75	43.91	43.75	99.57
8883	2	-2.06	53.25	52.14	52.28	52.14	43.00	43.94	44.30	43.94	99.59
8884	2	-0.71	52.28	51.89	51.94	51.89	43.20	43.40	43.67	43.40	99.87
8885	2	-2.33	55.77	54.41	54.58	54.41	42.40	43.62	43.81	43.62	99.74
8886	2	-1.63	53.89	52.95	53.07	52.95	43.10	43.83	44.09	43.83	99.78
8887	2	-2.33	54.30	53.02	53.18	53.02	42.70	43.86	44.17	43.86	99.63
8888	2	-1.78	55.83	54.99	55.09	54.99	42.70	43.80	43.90	43.80	99.50
8889	4	-0.41	55.68	55.26	55.31	55.26	43.80	43.93	43.92	43.92	100.15
8890	2	-0.53	55.75	55.30	55.36	55.30	43.70	43.90	43.93	43.90	100.08
8891	2	-1.23	55.88	54.93	55.04	54.93	43.10	43.63	43.68	43.63	100.18

A81  
APPENDIX 5: CONTINUED

Sample	Code	LOI - CO2 EQ	CaO %				LOI %				SUM %
			Det'd	LOI	Imp	Pref	Det'd	LOI	Imp	Pref	
8892	2	-0.49	55.68	55.18	55.24	55.18	43.70	43.82	43.85	43.82	100.20
8893	2	-0.88	55.99	55.25	55.34	55.25	43.50	43.86	43.87	43.86	100.19
8894	3	-0.18	55.65	55.38	55.42	55.38	43.90	43.93	43.90	43.90	100.12
8895	4	-0.63	55.96	55.32	55.40	55.32	43.70	43.91	43.89	43.89	100.22
8896	3	-0.73	55.72	55.09	55.17	55.09	43.40	43.73	43.70	43.70	100.15
8897	4	-0.56	55.83	55.31	55.37	55.31	43.70	43.92	43.91	43.91	100.13
8898	2	-0.76	55.98	55.34	55.42	55.34	43.60	43.91	43.92	43.91	100.13
8899	2	-1.15	56.09	55.17	55.28	55.17	43.30	43.75	43.82	43.75	100.20
8900	2	-1.31	55.75	54.73	54.85	54.73	42.90	43.49	43.51	43.49	100.17
8901	2	-1.28	55.13	54.80	54.84	54.80	42.50	43.53	43.57	43.53	99.19
8902	1	0.01	53.63	54.03	53.98	53.63	43.30	43.55	43.56	43.30	99.34
8903	6, 7	-0.20	52.35	52.64	52.61	52.61	42.80	43.15	43.21	43.15	99.33
8904	2	-0.59	53.49	53.48	53.48	53.48	43.30	43.77	43.88	43.77	99.36
8905	2	-1.24	53.85	53.37	53.43	53.37	43.00	43.74	43.92	43.74	99.45
8906	1	0.33	50.31	50.86	50.79	50.31	43.90	43.70	43.95	43.90	99.43
8907	6, 7	-0.48	49.98	50.09	50.07	50.07	43.60	43.83	44.16	43.83	99.29
8908	2	-0.67	54.10	54.09	54.09	54.09	42.90	43.54	43.57	43.54	99.24
8909	2	-1.91	56.03	55.16	55.26	55.16	42.70	43.90	44.01	43.90	99.26
8910	2	-1.67	55.93	55.24	55.32	55.24	42.80	43.90	43.99	43.90	99.32
8911	2	-1.57	55.85	55.30	55.36	55.30	42.80	43.92	43.99	43.92	99.14
8912	2	-0.97	55.53	55.34	55.36	55.34	43.10	43.92	43.94	43.92	99.26
8913	2	-1.53	55.80	55.17	55.25	55.17	42.80	43.82	43.90	43.82	99.37
8914	2	-2.15	56.23	55.29	55.40	55.29	42.50	43.89	44.00	43.89	99.20
8915	2	-1.76	56.09	55.36	55.45	55.36	42.70	43.91	43.97	43.91	99.20
8916	2	-1.88	56.22	55.32	55.43	55.32	42.70	43.89	43.96	43.89	99.37
8917	2	-2.08	56.44	55.38	55.51	55.38	42.60	43.87	43.96	43.87	99.40
8918	2	-2.42	56.65	55.38	55.53	55.38	42.40	43.85	43.95	43.85	99.38
8919	2	-2.32	56.57	55.39	55.53	55.39	42.40	43.85	43.91	43.85	99.40
8920	2	-2.70	56.65	55.34	55.49	55.34	42.10	43.80	43.90	43.80	99.21
8921	2	-2.27	56.37	55.34	55.46	55.34	42.40	43.88	43.96	43.88	99.16
8922	3	-1.83	54.87	54.06	54.16	54.06	41.50	42.83	42.78	42.78	99.38
8923	2	-1.50	55.22	54.67	54.74	54.67	42.30	43.38	43.45	43.38	99.31
8924	2	-2.77	56.39	55.02	55.19	55.02	42.00	43.71	43.84	43.71	99.31
8925	1	0.35	52.57	53.87	53.71	52.57	43.50	44.07	44.05	43.50	98.28
8926	2	-2.67	56.13	54.94	55.09	54.94	41.90	43.62	43.75	43.62	99.15
8927	2	-1.05	56.17	55.34	55.44	55.34	43.40	43.87	43.89	43.87	100.14
8928	2	-1.41	56.47	55.38	55.51	55.38	43.30	43.87	43.96	43.87	100.15
8929	2	-1.03	56.14	55.22	55.33	55.22	43.50	43.90	43.90	43.90	100.23
8930	2	-0.55	55.88	55.30	55.37	55.30	43.80	43.93	43.96	43.93	100.17
8931	2	-1.41	56.39	55.29	55.42	55.29	43.30	43.86	43.95	43.86	100.17
8932	2	-1.41	56.39	55.26	55.39	55.26	43.30	43.83	43.93	43.83	100.23
8933	2	-1.57	56.07	54.92	55.06	54.92	42.90	43.58	43.68	43.58	100.15
8934	2	-1.47	56.32	55.23	55.36	55.23	43.20	43.82	43.92	43.82	100.13
8935	2	-1.04	56.07	55.24	55.34	55.24	43.40	43.80	43.87	43.80	100.14
8936	2	-0.90	56.07	55.30	55.40	55.30	43.50	43.83	43.88	43.83	100.19
8937	2	-1.21	56.26	55.32	55.43	55.32	43.40	43.88	43.96	43.88	100.13
8938	2	-0.66	55.99	55.37	55.44	55.37	43.70	43.87	43.94	43.87	100.17
8939	2	-0.98	56.29	55.41	55.52	55.41	43.60	43.89	43.98	43.89	100.21
8940	2	-0.94	56.25	55.41	55.51	55.41	43.60	43.89	43.97	43.89	100.17
8941	2	-1.23	56.36	55.34	55.46	55.34	43.40	43.83	43.93	43.83	100.21
8942	2	-0.79	56.05	55.38	55.46	55.38	43.60	43.87	43.93	43.87	100.12
8943	2	-0.92	56.22	55.44	55.53	55.44	43.60	43.90	43.98	43.90	100.12
8944	2	-0.95	56.25	55.41	55.51	55.41	43.60	43.89	43.98	43.89	100.18
8945	2	-1.30	56.46	55.41	55.53	55.41	43.40	43.87	43.97	43.87	100.16
8946	2	-1.28	56.43	55.40	55.52	55.40	43.40	43.87	43.98	43.87	100.15

A82  
APPENDIX 5: CONTINUED

Sample	Code	LOI - CO2 EQ	CaO %				LOI %				SUM %
			Det'd	LOI	Imp	Pref	Det'd	LOI	Imp	Pref	
8947	2	-0.96	56.16	55.34	55.44	55.34	43.50	43.83	43.90	43.83	100.18
8948	2	-1.15	56.40	55.40	55.52	55.40	43.50	43.88	43.97	43.88	100.24
8949	2	-1.28	56.21	55.41	55.51	55.41	43.20	43.86	43.94	43.86	99.92
8950	2	-1.63	56.49	55.38	55.52	55.38	43.10	43.86	43.97	43.86	100.00
8951	2	-2.75	56.58	55.17	55.34	55.17	42.10	43.77	43.88	43.77	99.39
8952	2	-2.61	56.41	55.13	55.29	55.13	42.20	43.80	43.93	43.80	99.25
8953	2	-3.13	56.67	55.10	55.29	55.10	41.90	43.79	43.95	43.79	99.19
8954	2	-3.25	56.71	55.05	55.25	55.05	41.80	43.74	43.91	43.74	99.21
8955	2	-2.77	56.47	55.14	55.30	55.14	42.00	43.76	43.86	43.76	99.18
8956	2	-1.25	54.26	53.96	54.00	53.96	41.90	42.91	42.95	42.91	99.23
8957	2	-2.92	56.41	54.97	55.14	54.97	41.90	43.70	43.84	43.70	99.31
8958	2	-3.12	56.57	54.98	55.17	54.98	41.80	43.69	43.82	43.69	99.33
8959	2	-2.63	56.42	55.19	55.34	55.19	42.20	43.86	43.99	43.86	99.13
8960	2	-3.11	56.78	55.14	55.34	55.14	42.00	43.83	43.99	43.83	99.27
8961	2	-2.77	56.46	55.11	55.28	55.11	42.10	43.81	43.95	43.81	99.21
8962	2	-2.27	56.27	55.21	55.33	55.21	42.40	43.84	43.94	43.84	99.23
8963	2	-1.63	55.57	54.77	54.87	54.77	42.40	43.41	43.49	43.41	99.56
8964	2	-2.30	56.45	55.33	55.46	55.33	42.40	43.82	43.93	43.82	99.25
8965	2	-2.40	56.40	55.22	55.36	55.22	42.30	43.78	43.90	43.78	99.26
8966	2	-2.01	56.31	55.28	55.40	55.28	42.60	43.80	43.90	43.80	99.40
8967	2	-2.25	56.35	55.23	55.36	55.23	42.40	43.77	43.88	43.77	99.30
8968	2	-2.56	56.61	55.21	55.38	55.21	42.30	43.76	43.90	43.76	99.44
8969	2	-1.66	56.09	55.30	55.40	55.30	42.80	43.83	43.92	43.83	99.36
8970	2	-2.54	56.62	55.28	55.44	55.28	42.30	43.79	43.93	43.79	99.28
8971	2	-1.54	56.23	55.31	55.42	55.31	43.00	43.83	43.91	43.83	99.86
8972	2	-1.31	56.33	55.40	55.51	55.40	43.30	43.89	43.97	43.89	99.99
8973	2	-1.37	56.34	55.32	55.44	55.32	43.30	43.86	43.97	43.86	100.15
8974	2	-1.14	56.11	55.39	55.47	55.39	43.30	43.88	43.95	43.88	99.89
8975	2	-0.81	55.81	55.29	55.35	55.29	43.40	43.84	43.86	43.84	99.92
8976	2	-2.59	56.60	55.15	55.32	55.15	42.40	43.83	44.00	43.83	99.50
8977	2	-2.39	56.36	55.12	55.27	55.12	42.40	43.83	43.94	43.83	99.40
8978	2	-2.40	56.55	55.31	55.46	55.31	42.40	43.83	43.95	43.83	99.33
8979	2	-2.95	56.77	55.23	55.42	55.23	42.10	43.83	43.99	43.83	99.25
8980	2	-3.05	56.88	55.19	55.39	55.19	42.10	43.82	43.99	43.82	99.41
8981	2	-2.99	56.66	55.20	55.38	55.20	42.00	43.84	43.98	43.84	99.19
8982	2	-0.66	55.74	55.32	55.37	55.32	43.60	43.92	43.98	43.92	99.96
8983	2	-0.72	55.93	55.28	55.36	55.28	43.70	43.91	43.98	43.91	100.19
8984	2	-0.67	55.89	55.32	55.39	55.32	43.70	43.92	43.98	43.92	100.05
8985	1	0.76	54.90	55.30	55.25	54.90	44.40	43.94	43.92	44.40	100.04
8986	1	0.69	55.07	55.31	55.28	55.07	44.40	43.93	43.88	44.40	100.21
8987	1	0.92	54.75	55.18	55.13	54.75	44.30	43.83	43.68	44.30	100.18
8988	4, 8	0.00	55.46	55.29	55.31	55.29	44.00	43.91	43.89	43.89	100.15
8989	2	-0.05	54.87	54.81	54.82	54.81	43.60	43.60	43.61	43.60	99.99
8990	2	-0.63	54.97	54.65	54.69	54.65	43.60	43.93	44.01	43.93	99.80
8991	2	-0.68	55.60	55.12	55.17	55.12	43.50	43.81	43.85	43.81	100.02
8992	2	-0.93	55.81	55.19	55.26	55.19	43.40	43.83	43.90	43.83	99.93
8993	2	-1.10	55.80	55.15	55.23	55.15	43.20	43.82	43.86	43.82	99.86
8994	2	-1.68	56.27	55.21	55.34	55.21	43.00	43.84	43.96	43.84	99.87
8995	2	-2.09	56.65	55.34	55.50	55.34	42.80	43.85	43.99	43.85	99.77
8996	2	-2.18	56.64	55.34	55.50	55.34	42.70	43.85	43.99	43.85	99.68
8997	2	-1.87	56.24	55.17	55.30	55.17	42.70	43.72	43.83	43.72	99.68
8998	2	-1.77	56.51	55.36	55.49	55.36	43.00	43.86	43.98	43.86	99.87
8999	2	-1.77	56.50	55.36	55.50	55.36	43.00	43.86	43.99	43.86	99.89
9000	5, 7	-0.48	55.04	55.55	55.49	55.49	43.10	44.02	43.93	43.93	98.67
9026	2	-1.53	56.36	55.35	55.47	55.35	43.10	43.85	43.94	43.85	99.94



A83  
APPENDIX 5: CONTINUED

Sample	Code	LOI - CO2 EQ	CaO %				LOI %				SUM %
			Det'd	LOI	Imp	Pref	Det'd	LOI	Imp	Pref	
9027	3	-1.32	56.11	55.26	55.36	55.26	43.10	43.88	43.83	43.83	99.88
9028	3	-0.73	55.42	55.02	55.07	55.02	43.10	43.71	43.56	43.56	99.84
9029	2	-0.89	55.54	54.91	54.98	54.91	43.20	43.66	43.66	43.66	100.00
9030	2	-1.17	55.74	54.93	55.02	54.93	43.20	43.75	43.81	43.75	100.00
9031	6, 7	-0.01	51.85	51.98	51.97	51.97	43.80	43.81	43.91	43.81	99.68
9032	2	-1.12	53.15	52.50	52.58	52.50	43.20	43.66	43.88	43.66	99.79
9033	1	0.07	51.64	51.70	51.70	51.64	43.80	43.72	43.78	43.80	99.86
9034	2	-0.55	50.95	50.69	50.72	50.69	43.80	43.88	44.18	43.88	99.76
9035	2	-1.68	54.90	53.86	53.99	53.86	42.80	43.63	43.77	43.63	99.84
9036	2	-0.69	52.87	52.18	52.27	52.18	43.50	43.53	43.73	43.53	100.38
9037	1	0.34	45.42	45.70	45.67	45.42	43.90	43.22	43.77	43.90	99.85
9038	2	-0.38	55.00	54.48	54.54	54.48	43.40	43.40	43.43	43.40	100.41
9039	4	-0.72	55.42	55.40	55.40	55.40	43.20	43.92	43.91	43.91	99.19
9040	2	-1.62	56.43	55.32	55.46	55.32	43.10	43.89	43.96	43.89	100.02
9041	2	-1.30	56.25	55.39	55.50	55.39	43.20	43.89	43.91	43.89	99.93
9042	5, 7	-0.65	55.44	55.49	55.48	55.48	43.20	43.96	43.89	43.89	99.20
9043	2	-1.31	56.24	55.40	55.50	55.40	43.20	43.91	43.93	43.91	99.89
9044	1	0.10	54.15	55.68	55.50	55.00	42.90	44.12	43.86	43.29	97.59
9045	4	-1.84	56.48	55.30	55.44	55.30	42.80	43.85	43.83	43.83	99.95
9046	2	-1.83	56.49	55.31	55.45	55.31	42.90	43.88	43.92	43.88	99.95
9047	3	-2.03	55.90	54.68	54.83	54.68	42.10	43.33	43.30	43.30	99.85
9048	2	-1.54	55.93	55.33	55.40	55.33	42.80	43.93	43.93	43.93	99.34
9049	2	-1.28	55.79	55.27	55.33	55.27	43.00	43.91	43.92	43.91	99.47
9050	4	-1.79	56.15	54.99	55.13	54.99	42.80	43.82	43.80	43.80	100.01
9051	3	-1.11	55.99	54.82	54.96	54.82	43.20	43.55	43.52	43.52	100.62
9052	2	-1.67	56.49	55.02	55.19	55.02	43.20	43.72	43.85	43.72	100.54
9053	2	-1.82	56.68	55.29	55.46	55.29	43.10	43.83	43.98	43.83	100.22
9054	2	-2.58	57.28	55.21	55.46	55.21	42.80	43.76	43.96	43.76	100.56
9055	2	-1.05	56.30	55.19	55.33	55.19	43.60	43.77	43.89	43.77	100.56
9056	2	-1.58	56.56	55.24	55.40	55.24	43.20	43.75	43.87	43.75	100.41
9057	2	-1.14	56.48	55.36	55.50	55.36	43.60	43.87	43.98	43.87	100.43
9058	2	-1.29	56.47	55.30	55.44	55.30	43.40	43.84	43.89	43.84	100.48
9059	2	-0.86	56.15	55.36	55.46	55.36	43.60	43.86	43.92	43.86	100.27
9060	2	-1.26	56.48	55.45	55.58	55.45	43.40	43.86	43.96	43.86	100.19
9061	4	-1.57	55.85	55.08	55.18	55.08	42.80	43.87	43.85	43.85	99.57
9062	5, 7	-0.76	54.54	55.37	55.27	55.27	42.70	44.09	44.04	44.04	97.83
9063	2	-1.32	55.94	55.43	55.49	55.43	43.00	43.92	43.97	43.92	99.39
9064	2	-2.10	56.67	55.35	55.51	55.35	42.80	43.87	44.00	43.87	99.87
9065	2	-1.65	56.39	55.36	55.49	55.36	43.00	43.87	43.95	43.87	99.84
9066	5, 7	-0.18	54.63	55.65	55.53	55.53	43.10	44.08	43.99	43.99	98.11
9067	1	0.12	55.10	55.52	55.47	55.10	43.80	44.01	43.98	43.80	99.36
9068	4	-0.23	55.49	55.46	55.47	55.46	43.70	43.94	43.92	43.92	99.72
9069	3	-0.52	55.65	55.46	55.48	55.46	43.50	43.92	43.89	43.89	99.67
9070	1	0.21	55.43	55.54	55.52	55.43	44.10	43.98	43.97	44.10	99.91
9071	2	-0.11	55.54	55.52	55.52	55.52	43.90	43.98	44.00	43.98	99.78
9072	1	0.17	55.31	55.46	55.44	55.31	43.90	43.95	43.84	43.90	99.84
9073	4	-0.25	55.61	55.48	55.50	55.48	43.80	43.98	43.97	43.97	99.79
9074	5, 7	-0.04	55.36	55.49	55.47	55.47	43.80	44.00	43.94	43.94	99.67
9075	1	0.12	55.26	55.48	55.45	55.26	43.90	43.99	43.94	43.90	99.69
9076	4	-0.63	55.69	55.38	55.42	55.38	43.50	43.94	43.93	43.93	99.79
9077	4	-0.96	55.35	55.19	55.21	55.19	42.90	43.78	43.76	43.76	99.22
9078	6, 7	-0.13	55.25	55.33	55.32	55.32	43.70	43.89	43.89	43.89	99.67
9079	2	-1.26	56.06	55.37	55.45	55.37	43.20	43.92	43.99	43.92	99.74
9080	2	-0.53	55.73	55.48	55.51	55.48	43.60	43.95	43.96	43.95	99.74
9081	3	-0.07	55.56	55.50	55.51	55.50	43.90	43.98	43.94	43.94	99.87

\* specially adjusted

A84  
APPENDIX 5: CONTINUED

Sample	Code	LOI - CO2 EQ	CaO %				LOI %				SUM %
			Det'd	LOI	Imp	Pref	Det'd	LOI	Imp	Pref	
9082	2	-0.69	55.79	55.47	55.51	55.47	43.50	43.95	43.98	43.95	99.67
9083	2	-0.80	55.82	55.48	55.52	55.48	43.40	43.95	43.96	43.95	99.65
9084	2	-0.69	55.83	55.52	55.55	55.52	43.50	43.96	43.98	43.96	99.63
9085	4	-0.43	55.66	55.48	55.50	55.48	43.60	43.93	43.91	43.91	99.81
9086	2	-0.43	54.83	54.70	54.72	54.70	43.00	43.34	43.35	43.34	99.64
9087	2	-0.96	55.99	55.47	55.53	55.47	43.40	43.94	44.00	43.94	99.68
9088	2	-0.39	55.70	55.53	55.55	55.53	43.70	43.97	43.98	43.97	99.68
9089	2	-0.47	55.53	55.51	55.51	55.51	43.50	43.96	43.96	43.96	99.42
9090	2	-1.18	56.17	55.45	55.54	55.45	43.30	43.91	43.99	43.91	99.85
9091	2	-0.65	55.89	55.49	55.54	55.49	43.60	43.95	43.98	43.95	99.81
9092	2	-0.67	55.79	55.46	55.50	55.46	43.50	43.92	43.95	43.92	99.72
9093	2	-0.59	55.79	55.42	55.47	55.42	43.60	43.89	43.94	43.89	99.87
9094	2	-1.00	56.05	55.47	55.54	55.47	43.40	43.93	44.00	43.93	99.74
9095	2	-0.72	55.84	55.49	55.53	55.49	43.50	43.96	43.98	43.96	99.65
9096	2	-0.64	55.73	55.47	55.50	55.47	43.50	43.95	43.96	43.95	99.67
9097	2	-0.72	55.82	55.43	55.48	55.43	43.50	43.93	43.96	43.93	99.82
9098	2	-0.73	55.69	55.33	55.38	55.33	43.40	43.86	43.89	43.86	99.76
9099	4	-0.40	55.60	55.36	55.39	55.36	43.60	43.85	43.84	43.84	99.85
9100	3	-0.50	55.75	55.56	55.58	55.56	43.50	43.97	43.87	43.87	99.69
9101	2, 8	-0.25	55.85	55.43	55.48	55.43	44.00	43.93	43.97	43.93	100.30
9102	2, 8	-0.23	55.85	55.47	55.51	55.47	44.00	43.95	43.97	43.95	100.22
9103	2	-0.61	55.94	55.33	55.40	55.33	43.70	43.89	43.89	43.89	100.26
9104	2	-0.69	55.97	55.36	55.44	55.36	43.70	43.92	43.98	43.92	100.09
9105	2	-0.60	55.92	55.23	55.31	55.23	43.80	43.87	43.92	43.87	100.39
9106	2, 8	-0.31	54.36	54.04	54.08	54.04	43.80	43.79	43.90	43.79	100.16
9107	2	-0.51	55.58	55.09	55.15	55.09	43.70	43.83	43.88	43.83	100.17
9108	2	-0.72	55.70	55.06	55.13	55.06	43.50	43.73	43.78	43.73	100.22
9109	2	-0.67	55.60	54.94	55.02	54.94	43.50	43.66	43.72	43.66	100.29
9110	2	-1.39	55.96	54.77	54.91	54.77	43.10	43.56	43.67	43.56	100.45
9111	2	-1.02	55.72	54.90	54.99	54.90	43.60	43.92	44.05	43.92	100.17
9112	2	-0.81	55.32	54.50	54.60	54.50	43.70	43.88	43.95	43.88	100.41
9113	2	-0.77	55.04	54.33	54.42	54.33	43.80	43.95	44.08	43.95	100.28
9114	2, 8	-0.26	55.72	55.33	55.38	55.33	44.00	43.94	44.00	43.94	100.27
9115	1	0.60	50.78	51.48	51.39	50.78	44.00	43.72	43.89	44.00	99.49
9116	1	0.14	52.93	52.87	52.88	52.93	44.10	43.77	43.93	44.10	100.21
9117	1	0.33	52.95	53.28	53.24	52.95	44.10	43.90	44.00	44.10	99.75
9118	1	1.38	50.30	51.60	51.44	50.30	44.50	43.93	44.02	44.50	99.33
9119	1	0.40	54.07	54.16	54.15	54.07	44.30	43.88	43.97	44.30	100.18
9120	1	0.10	54.92	54.83	54.84	54.92	43.80	43.63	43.65	43.80	100.23
9121	1	0.19	54.62	54.43	54.46	54.62	44.10	43.74	43.79	44.10	100.46
9122	1	0.54	52.85	53.04	53.01	52.85	44.20	43.69	43.79	44.20	100.18
9123	1	0.31	53.26	53.28	53.28	53.26	44.20	43.80	43.91	44.20	100.21
9124	1	0.06	55.11	54.90	54.93	55.11	44.00	43.78	43.80	44.00	100.35
9125	1	0.33	53.08	53.30	53.27	53.08	43.80	43.59	43.63	43.80	99.97
9126	2	-0.87	55.91	55.09	55.18	55.09	43.70	43.93	44.01	43.93	100.32
9127	2	-1.15	56.22	55.14	55.27	55.14	43.60	43.91	44.01	43.91	100.36
9128	2	-0.97	55.92	55.11	55.21	55.11	43.60	43.93	44.02	43.93	100.16
9129	2	-1.01	55.64	54.71	54.82	54.71	43.60	43.90	43.97	43.90	100.43
9130	2	-1.01	56.09	55.21	55.31	55.21	43.50	43.83	43.90	43.83	100.30
9131	2	-0.87	56.07	55.34	55.43	55.34	43.60	43.92	43.97	43.92	100.14
9132	2	-0.99	56.18	55.27	55.38	55.27	43.60	43.91	43.97	43.91	100.35
9133	2	-0.95	56.21	55.34	55.45	55.34	43.60	43.91	43.96	43.91	100.31
9134	2	-0.95	56.16	55.29	55.40	55.29	43.60	43.91	43.96	43.91	100.33
9135	1	0.34	54.25	55.58	55.42	55.00 *	43.40	44.09	43.98	43.45 *	98.14
9136	2	-0.90	56.00	55.39	55.47	55.39	43.50	43.92	43.99	43.92	99.93

\* specially adjusted

A85  
APPENDIX 5: CONTINUED

Sample	Code	LOI - CO2 EQ	CaO %				LOI %				SUM %
			Det'd	LOI	Imp	Pref	Det'd	LOI	Imp	Pref	
9137	6, 7	-0.47	55.34	55.39	55.38	55.38	43.50	44.01	44.01	44.01	99.33
9138	2	-0.53	55.48	55.45	55.45	55.45	43.50	43.99	44.01	43.99	99.37
9139	1	0.22	53.94	54.26	54.22	53.94	43.50	43.53	43.50	43.50	99.71
9140	2	-1.11	55.90	54.99	55.10	54.99	43.40	43.79	43.89	43.79	100.26
9141	2	-0.89	55.80	55.41	55.46	55.41	43.30	43.93	43.93	43.93	99.62
9142	2	-0.91	55.67	54.83	54.94	54.83	43.50	43.73	43.83	43.73	100.39
9143	2	-0.97	55.18	54.31	54.42	54.31	43.60	43.84	43.97	43.84	100.39
9144	2	-1.03	55.23	54.31	54.42	54.31	43.50	43.80	43.90	43.80	100.37
9145	2	-1.08	55.82	54.83	54.95	54.83	43.30	43.60	43.70	43.60	100.46
9146	5, 7	-0.25	54.61	54.83	54.80	54.80	43.50	43.87	43.90	43.87	99.37
9147	2	-0.68	54.97	54.49	54.55	54.49	43.40	43.66	43.76	43.66	100.05
9148	1	0.36	51.83	52.27	52.22	51.83	44.00	43.80	43.95	44.00	99.66
9149	1	0.52	54.57	55.26	55.18	54.57	43.90	43.90	43.86	43.90	99.42
9150	2	-0.25	55.61	55.48	55.50	55.48	43.80	43.95	43.97	43.95	99.91
9151	5, 7	-0.37	55.03	55.09	55.08	55.08	43.60	44.01	44.02	44.01	99.40
9152	3	-0.99	56.11	55.36	55.45	55.36	43.40	43.92	43.88	43.88	100.06
9153	3	-0.64	55.72	55.32	55.37	55.32	43.50	43.91	43.86	43.86	99.85
9154	2	-0.84	56.27	55.32	55.44	55.32	43.80	43.89	44.00	43.89	100.52
9155	2	-0.74	56.15	55.39	55.48	55.39	43.70	43.92	43.92	43.92	100.26
9156	2	-1.15	56.47	55.36	55.50	55.36	43.60	43.87	43.99	43.87	100.49
9157	1	0.07	55.11	55.55	55.50	55.11	43.70	44.04	43.94	43.70	99.22
9158	2	-1.13	56.47	55.34	55.47	55.34	43.60	43.87	43.95	43.87	100.52
9159	2	-1.13	56.47	55.38	55.51	55.38	43.60	43.89	43.98	43.89	100.44
9160	5, 7	-0.19	55.40	55.51	55.50	55.50	43.70	44.00	43.97	43.97	99.48
9161	6, 7	-0.16	55.48	55.53	55.52	55.52	43.80	44.00	44.00	44.00	99.57
9162	2	-1.06	56.34	55.40	55.51	55.40	43.60	43.91	44.01	43.91	100.26
9163	5, 7	-0.42	55.23	55.42	55.39	55.39	43.40	43.97	43.95	43.95	99.25
9164	1	0.37	54.87	55.68	55.58	55.00	43.80	44.06	43.99	43.80	98.95
9165	2	-0.47	56.06	55.47	55.54	55.47	43.90	43.93	43.97	43.93	100.40
9166	2	-0.24	55.58	55.51	55.52	55.51	43.80	43.99	44.00	43.99	99.75
9167	2	-0.70	56.20	55.47	55.56	55.47	43.80	43.92	44.00	43.92	100.35
9168	1	0.35	54.82	55.44	55.36	54.82	43.80	43.93	43.88	43.80	99.34
9169	2	-1.26	55.88	55.48	55.53	55.48	43.00	43.94	43.99	43.94	99.27
9170	2	-1.25	55.60	55.24	55.29	55.24	42.90	43.86	43.91	43.86	99.29
9171	2	-1.64	56.13	55.46	55.54	55.46	42.80	43.91	43.98	43.91	99.31
9172	2	-1.52	56.08	55.47	55.55	55.47	42.90	43.93	44.00	43.93	99.28
9173	2	-1.55	55.96	55.43	55.50	55.43	42.80	43.91	43.98	43.91	99.20
9174	2	-1.55	55.88	55.47	55.52	55.47	42.70	43.95	43.98	43.95	98.97
9175	2	-1.78	56.11	55.42	55.50	55.42	42.70	43.93	44.00	43.93	99.19
9176	2	-1.83	56.21	55.40	55.50	55.40	42.70	43.91	43.98	43.91	99.32
9177	2	-1.68	56.20	55.43	55.52	55.43	42.80	43.92	43.95	43.92	99.41
9178	2	-1.56	55.99	55.45	55.51	55.45	42.80	43.93	43.99	43.93	99.20
9179	2	-1.45	55.43	54.98	55.03	54.98	42.80	43.90	43.94	43.90	99.19
9180	2	-1.39	55.84	55.36	55.41	55.36	42.90	43.94	43.96	43.94	99.31
9181	2	-1.40	55.73	55.35	55.39	55.35	42.80	43.91	43.94	43.91	99.09
9182	2	-1.48	55.96	55.39	55.46	55.39	42.90	43.94	43.99	43.94	99.28
9183	2	-1.95	56.15	55.37	55.46	55.37	42.60	43.92	44.02	43.92	99.11
9184	2	-1.36	55.90	55.39	55.45	55.39	43.00	43.95	44.01	43.95	99.29
9185	2	-1.61	55.80	55.22	55.29	55.22	42.80	43.95	44.02	43.95	99.14
9186	2	-1.54	55.95	55.39	55.46	55.39	42.80	43.93	43.96	43.93	99.25
9187	2	-1.20	55.73	55.40	55.44	55.40	43.00	43.95	43.98	43.95	99.19
9188	2	-1.02	54.59	54.43	54.45	54.43	43.20	44.02	44.12	44.02	99.17
9189	2	-1.46	55.92	55.41	55.47	55.41	42.90	43.95	44.01	43.95	99.18
9190	2	-1.37	55.88	55.46	55.51	55.46	42.90	43.95	43.98	43.95	99.15
9191	2	-1.44	55.94	55.44	55.50	55.44	42.90	43.95	44.00	43.95	99.20

\* specially adjusted

A86  
APPENDIX 5: CONTINUED

Sample	Code	LOI - CO2 EQ	CaO %				LOI %				SUM %
			Det'd	LOI	Imp	Pref	Det'd	LOI	Imp	Pref	
9192	2	-1.69	56.13	55.41	55.50	55.41	42.80	43.92	44.00	43.92	99.30
9193	2	-1.63	56.06	55.40	55.48	55.40	42.80	43.90	43.98	43.90	99.32
9194	2	-1.34	55.68	55.18	55.24	55.18	42.80	43.75	43.80	43.75	99.42
9195	2	-1.39	55.02	54.52	54.58	54.52	42.30	43.31	43.36	43.31	99.39
9196	4	-1.14	55.34	55.13	55.16	55.13	42.70	43.71	43.70	43.70	99.17
9197	2	-1.39	56.02	55.44	55.51	55.44	43.00	43.94	44.00	43.94	99.39
9198	2	-1.48	55.96	55.39	55.46	55.39	42.90	43.94	43.99	43.94	99.29
9199	2	-1.77	56.09	55.33	55.42	55.33	42.70	43.88	43.95	43.88	99.33
9200	2	-1.23	55.92	55.43	55.49	55.43	43.10	43.94	44.00	43.94	99.42
9201	2	-1.14	55.79	55.45	55.49	55.45	43.10	43.96	44.00	43.96	99.28
9202	4	-0.68	55.49	55.49	55.49	55.49	43.30	43.99	43.98	43.98	99.20
9203	2	-0.70	55.85	55.36	55.42	55.36	43.60	43.91	43.97	43.91	99.98
9204	2	-0.68	55.75	55.22	55.28	55.22	43.60	43.85	43.92	43.85	100.10
9205	2	-0.51	55.46	55.05	55.10	55.05	43.50	43.67	43.73	43.67	100.04
9206	2	-0.77	55.67	55.11	55.18	55.11	43.40	43.75	43.79	43.75	100.09
9207	2	-1.19	56.24	55.38	55.48	55.38	43.40	43.91	44.00	43.91	100.04
9208	2	-1.36	56.28	55.33	55.44	55.33	43.30	43.90	44.01	43.90	100.03
9209	4	-1.18	56.21	55.36	55.46	55.36	43.30	43.91	43.90	43.90	100.08
9210	3	-0.94	55.98	55.30	55.38	55.30	43.30	43.88	43.78	43.78	100.03
9211	4	-0.16	55.38	55.27	55.28	55.27	43.80	43.91	43.89	43.89	99.97
9212	2	-0.69	55.74	55.22	55.28	55.22	43.50	43.84	43.84	43.84	100.11
9213	2	-0.38	55.43	55.21	55.24	55.21	43.60	43.82	43.83	43.82	99.92
9214	2	-0.50	55.74	55.35	55.39	55.35	43.70	43.92	43.94	43.92	100.03
9215	2	-0.88	55.99	55.35	55.43	55.35	43.50	43.92	43.94	43.92	100.03
9216	3	-0.59	55.58	55.13	55.19	55.13	43.40	43.79	43.69	43.69	100.07
9217	2	-0.59	55.71	55.44	55.47	55.44	43.60	43.97	44.01	43.97	99.76
9218	2	-1.17	56.22	55.36	55.47	55.36	43.40	43.90	43.99	43.90	100.05
9219	2	-1.39	56.30	55.33	55.44	55.33	43.20	43.88	43.92	43.88	100.08
9220	2	-1.34	56.16	55.24	55.35	55.24	43.20	43.83	43.91	43.83	100.06
9221	2	-0.59	55.69	55.31	55.36	55.31	43.60	43.93	43.94	43.93	99.94
9222	2	-1.18	56.16	55.31	55.42	55.31	43.40	43.91	44.00	43.91	100.06
9223	2	-1.36	56.27	55.34	55.45	55.34	43.20	43.89	43.93	43.89	100.02
9224	2	-0.93	56.05	55.37	55.45	55.37	43.50	43.89	43.97	43.89	100.03
9225	2	-0.81	55.84	55.24	55.32	55.24	43.50	43.85	43.90	43.85	100.05
9226	2	-0.98	56.09	55.36	55.45	55.36	43.50	43.92	43.99	43.92	100.03
9227	2	-0.97	56.17	55.43	55.52	55.43	43.50	43.92	43.97	43.92	100.08
9228	2	-0.86	55.87	55.31	55.38	55.31	43.50	43.92	43.99	43.92	99.91
9229	2	-0.77	55.87	55.35	55.41	55.35	43.60	43.95	44.02	43.95	99.94
9230	3	-0.40	55.24	55.03	55.05	55.03	43.50	43.79	43.76	43.76	99.92
9231	2	-0.63	55.66	55.25	55.30	55.25	43.60	43.89	43.96	43.89	99.90
9232	2	-0.29	55.40	55.27	55.29	55.27	43.70	43.87	43.91	43.87	99.84
9233	2	-0.68	55.63	55.25	55.30	55.25	43.50	43.87	43.92	43.87	99.80
9234	2	-0.75	55.74	55.27	55.32	55.27	43.50	43.86	43.93	43.86	99.93
9235	2	-0.31	55.27	55.16	55.17	55.16	43.60	43.82	43.83	43.82	99.85
9236	2	-0.57	55.77	55.32	55.38	55.32	43.70	43.91	43.97	43.91	100.00
9237	2	-0.42	55.56	55.34	55.36	55.34	43.70	43.93	43.97	43.93	99.85
9238	2	-0.26	55.52	55.44	55.45	55.44	43.80	43.98	44.01	43.98	99.77
9239	2	-1.42	55.93	55.13	55.23	55.13	43.00	43.78	43.88	43.78	99.79
9240	2	-1.61	56.14	55.14	55.26	55.14	43.00	43.80	43.92	43.80	99.85
9241	2	-1.47	56.18	55.28	55.38	55.28	43.10	43.88	43.95	43.88	99.88
9242	2	-1.34	55.92	55.11	55.21	55.11	43.00	43.70	43.79	43.70	99.86
9243	2	-1.42	56.10	55.31	55.41	55.31	43.10	43.90	43.99	43.90	99.74
9244	2	-1.05	55.80	55.18	55.25	55.18	43.20	43.75	43.83	43.75	99.86
9245	2	-1.40	55.94	55.12	55.22	55.12	43.00	43.75	43.84	43.75	99.83
9246	4	-1.17	55.67	54.89	54.99	54.89	43.00	43.66	43.64	43.64	100.04

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APPENDIX 5: CONTINUED

Sample	Code	LOI - CO2 EQ	CaO %				LOI %				SUM %
			Det'd	LOI	Imp	Pref	Det'd	LOI	Imp	Pref	
9247	2	-0.75	55.46	55.09	55.13	55.09	43.30	43.78	43.79	43.78	99.82
9248	2	-1.16	55.93	55.23	55.31	55.23	43.30	43.90	43.98	43.90	99.86
9249	2	-0.86	55.80	55.22	55.29	55.22	43.50	43.90	43.96	43.90	99.97
9250	2	-1.08	55.88	55.15	55.24	55.15	43.40	43.89	43.99	43.89	99.92
9251	2	-1.06	55.80	55.15	55.23	55.15	43.30	43.85	43.91	43.85	99.95
9252	2	-1.14	55.73	55.07	55.15	55.07	43.10	43.70	43.79	43.70	99.86
9253	1	1.40	46.88	48.68	48.46	46.88	44.40	43.94	44.24	44.40	98.54
9254	2	-1.13	56.07	55.30	55.39	55.30	43.40	43.92	44.01	43.92	99.90
9255	2	-1.13	56.01	55.35	55.43	55.35	43.30	43.93	43.98	43.93	99.78
9256	2	-1.89	56.43	55.37	55.50	55.37	42.80	43.88	43.96	43.88	99.73
9257	4	-1.32	54.50	53.97	54.03	53.97	41.90	42.88	42.86	42.86	99.41
9258	2	-0.99	55.84	55.34	55.40	55.34	43.30	43.93	43.95	43.93	99.74
9259	2	-1.20	55.99	55.30	55.39	55.30	43.20	43.93	43.93	43.93	99.73
9260	2	-1.13	56.71	55.03	55.23	55.03	43.90	43.73	43.87	43.73	101.40
9261	3	-1.13	55.83	55.23	55.31	55.23	43.00	43.85	43.72	43.72	99.73
9262	3	-0.59	55.46	55.23	55.26	55.23	43.40	43.91	43.83	43.83	99.71
9263	3	-0.40	55.40	55.28	55.30	55.28	43.40	43.97	43.72	43.72	99.70
9264	3	-0.65	55.40	55.13	55.17	55.13	43.20	43.84	43.68	43.68	99.70
9265	3	-0.33	55.21	55.12	55.13	55.12	43.40	43.89	43.67	43.67	99.72
9266	3, 8	-0.67	56.48	55.25	55.40	55.25	43.80	43.88	43.62	43.62	101.12
9267	3	-0.62	55.50	55.22	55.25	55.22	43.40	43.93	43.83	43.83	99.74
9268	3	-0.74	55.56	55.20	55.25	55.20	43.20	43.88	43.70	43.70	99.73
9269	3	-0.63	55.66	55.34	55.38	55.34	43.40	43.95	43.82	43.82	99.77
9270	3	-0.63	55.60	55.27	55.31	55.27	43.40	43.94	43.81	43.81	99.78

## APPENDIX 6: DETERMINED AND PREFERRED CONCENTRATIONS OF CHEMICAL CONSTITUENTS IN THE 1993 SAMPLES FROM THE KELLY LAKE LIMESTONE DEPOSITS

Percentages for CaO and LOI are preferred; those for other constituents are as determined.

The determined values for some constituents in Appendix 4 are less than the detection limits; they are indicated by < in Appendix 4. This symbol has been omitted from Appendix 6. Sums are the totals of the constituents reported in percentages with less than signs ignored.

Sample	CaO %	MgO %	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	Fe <sub>2</sub> O <sub>3</sub> %	Na <sub>2</sub> O %	K <sub>2</sub> O %	TiO <sub>2</sub> %	P <sub>2</sub> O <sub>5</sub> %	MnO %	Cr <sub>2</sub> O <sub>3</sub> %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
8801	54.97	0.41	0.05	0.22	0.05	0.11	0.05	0.01	0.05	0.01	0.006	17	125	10	10	10	1	43.75	99.69
8802	55.13	0.23	0.06	0.19	0.05	0.16	0.08	0.01	0.01	0.01	0.005	17	155	10	10	10	1	43.69	99.61
8803	54.94	0.30	0.14	0.48	0.10	0.07	0.09	0.02	0.01	0.01	0.005	8	136	10	10	10	1	43.62	99.79
8804	55.40	0.18	0.05	0.08	0.05	0.05	0.05	0.01	0.01	0.01	0.004	5	88	10	10	10	1	43.91	99.87
8805	54.70	0.83	0.05	0.13	0.05	0.05	0.05	0.02	0.02	0.01	0.003	9	192	10	10	10	1	43.96	99.87
8806	55.27	0.27	0.05	0.18	0.05	0.05	0.05	0.01	0.02	0.01	0.004	5	115	10	10	10	1	43.84	99.80
8807	55.11	0.40	0.05	0.13	0.05	0.05	0.05	0.02	0.02	0.01	0.004	8	393	10	10	10	1	43.85	99.74
8808	53.56	1.67	0.05	0.25	0.05	0.05	0.11	0.01	0.01	0.01	0.002	10	178	10	10	10	1	43.91	99.68
8809	54.41	0.97	0.05	0.19	0.05	0.05	0.05	0.01	0.01	0.01	0.003	14	170	10	10	10	1	43.87	99.67
8810	55.18	0.35	0.05	0.07	0.05	0.05	0.05	0.01	0.01	0.01	0.003	5	230	10	10	10	1	43.85	99.68
8811	55.29	0.25	0.05	0.05	0.05	0.05	0.05	0.01	0.04	0.01	0.002	6	237	10	10	10	1	43.84	99.69
8812	55.09	0.40	0.05	0.08	0.05	0.05	0.05	0.01	0.02	0.01	0.005	9	231	10	10	10	1	43.83	99.65
8813	55.32	0.23	0.05	0.05	0.05	0.05	0.05	0.01	0.02	0.01	0.003	7	232	10	10	10	1	43.85	99.69
8814	55.31	0.20	0.05	0.05	0.05	0.05	0.09	0.01	0.08	0.01	0.002	5	262	10	10	10	1	43.80	99.70
8815	55.09	0.37	0.05	0.09	0.05	0.05	0.11	0.01	0.01	0.01	0.002	8	219	10	10	10	1	43.80	99.64
8816	51.85	3.09	0.05	0.29	0.05	0.05	0.10	0.01	0.02	0.01	0.002	11	223	10	10	10	1	43.98	99.50
8817	52.49	2.57	0.05	0.05	0.05	0.05	0.05	0.01	0.04	0.01	0.003	5	78	10	10	10	1	43.96	99.33
8818	54.78	0.62	0.24	0.09	0.07	0.05	0.10	0.01	0.08	0.01	0.002	71	167	10	10	10	1	43.81	99.86
8819	54.88	0.34	0.60	0.09	0.09	0.01	0.17	0.01	0.03	0.01	0.002	30	232	10	10	10	1	43.61	99.84
8820	54.84	0.40	0.53	0.12	0.08	0.01	0.10	0.01	0.02	0.01	0.002	39	243	10	10	10	1	43.63	99.75
8821	54.09	1.14	0.38	0.15	0.09	0.01	0.10	0.01	0.09	0.01	0.002	36	225	10	10	10	1	43.79	99.86
8822	55.00	0.35	0.05	0.05	0.05	0.01	0.19	0.01	0.01	0.01	0.002	51	146	10	10	10	1	43.44	99.17
8823	55.08	0.51	0.05	0.05	0.05	0.01	0.07	0.01	0.02	0.01	0.002	38	137	10	10	10	1	43.94	99.90
8824	54.73	0.82	0.05	0.05	0.05	0.01	0.13	0.01	0.02	0.01	0.003	83	229	10	10	10	1	43.97	99.85
8825	54.20	1.27	0.05	0.05	0.05	0.01	0.07	0.01	0.02	0.01	0.003	59	232	10	10	10	1	44.00	99.74
8826	55.12	0.37	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.002	10	161	10	10	10	1	43.83	99.60
8827	55.10	0.39	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.002	12	172	10	10	10	1	43.83	99.60
8828	55.08	0.42	0.05	0.05	0.05	0.05	0.05	0.01	0.02	0.01	0.002	14	143	10	10	10	1	43.84	99.63
8829	55.09	0.39	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.002	20	164	10	10	10	1	43.83	99.59
8830	55.13	0.38	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.002	11	136	24	10	10	1	43.84	99.63
8831	53.85	0.78	0.58	0.39	0.65	0.05	0.05	0.16	0.07	0.01	0.004	8	128	10	10	10	1	43.24	99.81
8832	54.97	0.47	0.05	0.10	0.09	0.05	0.05	0.04	0.02	0.01	0.002	52	167	17	10	10	1	43.81	99.66
8833	55.06	0.44	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.01	0.003	9	159	25	10	10	1	43.85	99.67
8834	55.16	0.36	0.05	0.05	0.05	0.05	0.05	0.01	0.02	0.01	0.002	5	128	21	10	10	1	43.85	99.66
8835	55.21	0.30	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.002	5	104	20	10	10	1	43.83	99.62
8836	55.33	0.26	0.05	0.05	0.05	0.05	0.05	0.01	0.03	0.01	0.002	5	134	10	10	10	1	43.88	99.77
8837	55.23	0.28	0.05	0.05	0.05	0.05	0.05	0.01	0.15	0.01	0.002	5	135	10	10	10	1	43.82	99.75
8838	55.35	0.19	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.002	5	132	10	10	10	1	43.83	99.65
8839	55.38	0.17	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.002	5	137	10	10	10	1	43.83	99.66
8840	54.84	0.61	0.05	0.24	0.05	0.05	0.05	0.01	0.01	0.01	0.002	5	196	10	10	10	1	43.85	99.77
8841	54.58	0.89	0.05	0.14	0.05	0.05	0.05	0.02	0.01	0.01	0.002	5	185	68	10	10	1	43.91	99.74
8842	55.08	0.37	0.05	0.05	0.05	0.05	0.08	0.01	0.01	0.01	0.002	13	191	10	10	10	1	43.80	99.56
8843	55.21	0.31	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.002	5	140	23	10	10	1	43.84	99.64
8844	55.20	0.32	0.08	0.05	0.05	0.01	0.13	0.01	0.01	0.01	0.002	24	383	10	10	10	1	43.84	99.71
8845	55.16	0.34	0.33	0.06	0.05	0.01	0.13	0.01	0.10	0.01	0.002	36	326	10	10	10	1	43.77	99.97

# APPENDIX 6: CONTINUED

Sample	CaO %	MgO %	SiO2 %	Al2O3 %	Fe2O3 %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
8846	54.99	0.38	0.44	0.06	0.05	0.01	0.05	0.01	0.07	0.01	0.002	28	328	10	10	10	1	43.73	99.80
8847	54.90	0.31	0.75	0.07	0.06	0.01	0.05	0.01	0.12	0.01	0.002	23	198	10	10	10	1	43.59	99.88
8848	55.02	0.30	0.58	0.07	0.05	0.01	0.05	0.01	0.14	0.01	0.002	27	197	10	10	10	1	43.85	99.89
8849	54.80	0.31	0.72	0.08	0.05	0.01	0.15	0.01	0.09	0.01	0.002	30	210	10	10	10	1	43.51	99.74
8850	55.04	0.35	0.34	0.05	0.07	0.01	0.10	0.01	0.08	0.01	0.004	35	211	10	10	10	1	43.75	99.81
8851	50.42	4.51	0.05	0.09	0.10	0.05	0.05	0.01	0.05	0.01	0.002	5	102	10	10	10	1	44.32	99.66
8852	45.41	8.21	0.88	0.29	0.15	0.09	0.08	0.02	0.29	0.01	0.003	25	125	10	11	10	1	44.05	99.48
8853	50.84	3.81	0.59	0.19	0.09	0.05	0.05	0.02	0.19	0.01	0.002	13	124	16	10	10	1	43.91	99.75
8854	47.54	6.55	0.67	0.17	0.08	0.05	0.12	0.01	0.19	0.01	0.002	5	111	23	10	10	1	44.06	99.45
8855	48.51	5.22	0.06	0.16	0.05	0.05	0.27	0.03	0.10	0.01	0.002	5	121	10	10	10	1	44.00	98.48
8856	52.07	2.97	0.08	0.08	0.05	0.05	0.21	0.01	0.19	0.01	0.002	5	101	10	10	10	1	44.03	99.73
8857	52.58	2.53	0.05	0.09	0.05	0.05	0.22	0.03	0.08	0.01	0.002	5	129	11	10	10	1	43.99	99.63
8858	55.12	0.34	0.05	0.05	0.05	0.05	0.08	0.02	0.01	0.01	0.002	5	165	10	10	10	1	43.80	99.58
8859	55.14	0.36	0.05	0.05	0.05	0.05	0.13	0.01	0.01	0.01	0.002	5	201	10	10	10	1	43.83	99.69
8860	55.11	0.35	0.05	0.05	0.05	0.05	0.12	0.01	0.02	0.01	0.002	25	204	10	10	10	1	43.80	99.62
8861	55.30	0.29	0.05	0.05	0.05	0.05	0.12	0.01	0.01	0.01	0.002	5	184	10	10	10	1	43.88	99.82
8862	55.19	0.30	0.05	0.05	0.05	0.05	0.18	0.01	0.01	0.01	0.002	5	186	26	10	10	1	43.81	99.71
8863	55.32	0.27	0.05	0.05	0.05	0.05	0.06	0.01	0.03	0.01	0.002	5	155	10	10	10	1	43.88	99.78
8864	55.22	0.29	0.05	0.05	0.05	0.05	0.13	0.02	0.01	0.01	0.002	5	139	10	10	10	1	43.83	99.71
8865	55.25	0.29	0.05	0.05	0.05	0.05	0.08	0.01	0.06	0.01	0.002	5	121	106	10	10	1	43.85	99.75
8866	55.23	0.28	0.05	0.05	0.05	0.05	0.13	0.01	0.02	0.01	0.002	5	123	10	10	10	1	43.83	99.71
8867	55.25	0.28	0.05	0.05	0.05	0.05	0.10	0.01	0.01	0.01	0.002	5	109	10	10	10	1	43.84	99.70
8868	55.24	0.28	0.05	0.05	0.05	0.05	0.17	0.01	0.02	0.01	0.002	5	109	10	10	10	1	43.83	99.76
8869	55.19	0.28	0.05	0.05	0.05	0.05	0.19	0.01	0.03	0.01	0.002	5	124	10	10	10	1	43.79	99.70
8870	55.21	0.28	0.05	0.05	0.05	0.05	0.16	0.01	0.01	0.01	0.002	5	107	10	10	10	1	43.81	99.69
8871	55.22	0.27	0.05	0.05	0.05	0.05	0.13	0.01	0.01	0.01	0.002	5	131	10	10	10	1	43.80	99.65
8872	55.21	0.26	0.05	0.05	0.05	0.05	0.17	0.01	0.01	0.01	0.002	5	129	10	10	10	1	43.78	99.66
8874	55.28	0.28	0.05	0.05	0.05	0.05	0.10	0.01	0.01	0.01	0.002	5	89	10	10	10	1	43.85	99.72
8875	55.29	0.28	0.05	0.05	0.05	0.05	0.05	0.02	0.01	0.01	0.002	5	83	10	10	10	1	43.85	99.69
8876	53.03	2.15	0.05	0.05	0.05	0.05	0.10	0.01	0.01	0.01	0.002	5	102	10	10	10	1	43.96	99.47
8877	54.18	1.14	0.10	0.10	0.05	0.05	0.14	0.01	0.01	0.01	0.002	5	126	10	10	10	1	43.86	99.65
8878	52.25	2.73	0.19	0.13	0.05	0.05	0.22	0.01	0.01	0.01	0.002	5	143	10	10	10	1	43.93	99.58
8879	52.84	2.40	0.12	0.10	0.05	0.05	0.20	0.02	0.02	0.01	0.002	5	121	17	10	10	1	43.91	99.52
8880	53.92	1.17	0.33	0.13	0.10	0.05	0.26	0.04	0.05	0.01	0.002	5	117	10	10	10	1	43.68	99.74
8881	54.23	1.09	0.10	0.05	0.05	0.05	0.13	0.01	0.01	0.01	0.002	5	111	10	10	10	1	43.85	99.58
8882	54.95	0.42	0.17	0.05	0.05	0.05	0.19	0.01	0.01	0.01	0.002	5	119	10	10	10	1	43.75	99.66
8883	52.14	2.82	0.18	0.07	0.05	0.05	0.21	0.01	0.01	0.01	0.002	5	119	10	10	10	1	43.94	99.49
8884	51.89	2.48	0.96	0.31	0.30	0.05	0.19	0.07	0.03	0.01	0.002	19	167	10	10	10	1	43.40	99.69
8885	54.41	0.72	0.36	0.16	0.07	0.05	0.18	0.03	0.02	0.01	0.002	15	176	10	10	10	1	43.62	99.63
8886	52.95	2.07	0.37	0.18	0.08	0.05	0.05	0.02	0.02	0.01	0.002	5	139	10	10	10	1	43.83	99.61
8887	53.02	2.05	0.25	0.13	0.06	0.05	0.05	0.03	0.02	0.01	0.002	6	138	10	10	10	1	43.86	99.53
8888	54.99	0.45	0.15	0.09	0.05	0.05	0.15	0.02	0.03	0.01	0.002	7	106	10	10	10	1	43.80	99.79
8889	55.26	0.37	0.05	0.06	0.05	0.05	0.08	0.01	0.09	0.01	0.002	21	147	18	10	10	1	43.92	99.93
8890	55.30	0.30	0.13	0.05	0.05	0.05	0.05	0.01	0.05	0.01	0.002	21	164	10	10	10	1	43.90	99.90
8891	54.93	0.32	0.59	0.05	0.10	0.05	0.06	0.01	0.07	0.01	0.002	19	124	10	10	10	1	43.63	99.82
8892	55.18	0.32	0.30	0.05	0.05	0.05	0.05	0.01	0.06	0.01	0.002	29	139	10	10	10	1	43.82	99.90
8893	55.25	0.30	0.06	0.05	0.05	0.05	0.15	0.01	0.09	0.01	0.002	26	136	10	10	10	1	43.86	99.88
8894	55.38	0.27	0.05	0.05	0.09	0.05	0.05	0.01	0.09	0.01	0.003	21	107	10	10	10	1	43.90	99.95
8895	55.32	0.30	0.05	0.05	0.06	0.05	0.05	0.01	0.12	0.01	0.002	29	128	10	10	10	1	43.89	99.91
8896	55.09	0.29	0.49	0.05	0.05	0.05	0.05	0.01	0.12	0.01	0.002	24	115	10	10	10	1	43.70	99.91

# APPENDIX 6: CONTINUED

Sample	CaO	MgO	SiO2	Al2O3	Fe2O3	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Sr	Zr	Y	Nb	Sc	LOI	SUM
	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	%	%
8897	55.31	0.31	0.05	0.05	0.08	0.05	0.05	0.01	0.09	0.01	0.002	45	130	10	10	10	1	43.91	99.92
8898	55.34	0.28	0.07	0.05	0.05	0.05	0.05	0.01	0.08	0.01	0.002	27	108	10	10	10	1	43.91	99.90
8899	55.17	0.25	0.37	0.05	0.05	0.05	0.05	0.01	0.04	0.01	0.002	32	146	10	10	10	1	43.75	99.80
8900	54.73	0.34	0.88	0.12	0.08	0.05	0.05	0.01	0.11	0.01	0.002	35	199	10	10	10	1	43.49	99.83
8901	54.80	0.32	0.68	0.18	0.08	0.05	0.21	0.01	0.03	0.01	0.005	17	181	10	10	10	1	43.53	99.91
8902	53.63	0.95	0.75	0.29	0.09	0.05	0.25	0.01	0.04	0.01	0.003	16	144	10	10	10	1	43.30	99.37
8903	52.61	1.64	1.55	0.34	0.15	0.10	0.29	0.01	0.07	0.01	0.003	18	157	10	10	10	1	43.15	99.92
8904	53.48	1.60	0.35	0.20	0.10	0.05	0.26	0.01	0.04	0.01	0.003	10	123	18	10	10	1	43.77	99.87
8905	53.37	1.66	0.33	0.19	0.06	0.05	0.29	0.01	0.03	0.01	0.003	14	261	10	10	10	1	43.74	99.74
8906	50.31	3.59	0.84	0.41	0.12	0.05	0.18	0.01	0.03	0.01	0.003	13	143	10	10	10	1	43.90	99.45
8907	50.07	4.32	0.77	0.35	0.13	0.05	0.05	0.01	0.08	0.01	0.005	11	145	10	10	10	1	43.83	99.66
8908	54.09	0.89	0.75	0.37	0.12	0.05	0.05	0.02	0.08	0.01	0.003	12	162	10	10	10	1	43.54	99.95
8909	55.18	0.41	0.05	0.07	0.05	0.05	0.05	0.01	0.01	0.01	0.004	13	106	10	10	10	1	43.90	99.77
8910	55.24	0.35	0.05	0.07	0.08	0.05	0.06	0.01	0.01	0.01	0.002	38	127	10	10	10	1	43.90	99.81
8911	55.30	0.32	0.05	0.08	0.05	0.05	0.05	0.01	0.01	0.01	0.004	21	112	10	10	10	1	43.92	99.85
8912	55.34	0.29	0.07	0.09	0.08	0.05	0.05	0.01	0.03	0.01	0.004	33	143	11	10	10	1	43.92	99.94
8913	55.17	0.32	0.20	0.09	0.05	0.05	0.09	0.01	0.01	0.01	0.006	30	148	10	10	10	1	43.82	99.83
8914	55.29	0.30	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.006	20	123	10	10	10	1	43.89	99.77
8915	55.36	0.28	0.05	0.05	0.05	0.05	0.05	0.01	0.04	0.01	0.004	33	100	10	10	10	1	43.91	99.84
8916	55.32	0.27	0.05	0.05	0.05	0.05	0.06	0.01	0.04	0.01	0.003	41	100	10	10	10	1	43.89	99.80
8917	55.38	0.21	0.05	0.05	0.05	0.05	0.05	0.01	0.04	0.01	0.002	10	95	10	10	10	1	43.87	99.77
8918	55.38	0.19	0.05	0.05	0.05	0.05	0.05	0.01	0.05	0.01	0.002	11	89	10	10	10	1	43.85	99.74
8919	55.39	0.18	0.05	0.06	0.05	0.05	0.07	0.01	0.07	0.01	0.003	9	100	10	10	10	1	43.85	99.79
8920	55.34	0.17	0.05	0.05	0.05	0.05	0.16	0.01	0.04	0.01	0.004	6	115	10	10	10	1	43.80	99.73
8921	55.34	0.25	0.05	0.05	0.05	0.05	0.05	0.01	0.04	0.01	0.002	12	149	10	10	10	1	43.88	99.78
8922	54.08	0.21	2.21	0.30	0.05	0.05	0.05	0.01	0.16	0.01	0.006	20	108	10	10	10	1	42.78	99.90
8923	54.67	0.27	0.78	0.21	0.34	0.05	0.08	0.07	0.03	0.01	0.003	21	118	10	10	10	1	43.38	99.87
8924	55.02	0.33	0.17	0.09	0.15	0.05	0.11	0.01	0.04	0.01	0.004	19	120	10	10	10	1	43.71	99.69
8925	52.57	1.60	0.24	0.09	0.05	0.01	0.15	0.01	0.05	0.01	0.002	18	227	10	10	10	1	43.50	99.28
8926	54.94	0.30	0.55	0.07	0.10	0.05	0.05	0.01	0.01	0.01	0.004	18	79	10	10	10	1	43.62	99.71
8927	55.34	0.24	0.06	0.08	0.05	0.05	0.05	0.01	0.09	0.01	0.002	28	102	169	10	10	1	43.87	99.85
8928	55.38	0.21	0.05	0.05	0.05	0.05	0.05	0.01	0.04	0.01	0.002	21	94	10	10	10	1	43.87	99.77
8929	55.22	0.36	0.05	0.05	0.05	0.05	0.05	0.01	0.12	0.01	0.003	11	105	10	10	10	1	43.90	99.87
8930	55.30	0.33	0.05	0.05	0.05	0.05	0.05	0.01	0.06	0.01	0.002	24	143	10	10	10	1	43.93	99.89
8931	55.29	0.27	0.05	0.05	0.05	0.05	0.08	0.01	0.04	0.01	0.002	18	127	10	10	10	1	43.86	99.76
8932	55.26	0.27	0.05	0.05	0.05	0.05	0.13	0.01	0.04	0.01	0.002	19	118	10	10	10	1	43.83	99.75
8933	54.92	0.28	0.65	0.05	0.05	0.05	0.11	0.01	0.04	0.01	0.002	14	97	17	10	10	1	43.58	99.75
8934	55.23	0.28	0.17	0.05	0.05	0.05	0.05	0.01	0.04	0.01	0.002	12	89	10	10	10	1	43.82	99.76
8935	55.24	0.25	0.05	0.05	0.05	0.05	0.27	0.01	0.04	0.01	0.002	18	88	10	10	10	1	43.80	99.82
8936	55.30	0.23	0.05	0.05	0.05	0.05	0.21	0.01	0.05	0.01	0.002	38	94	10	10	10	1	43.83	99.84
8937	55.32	0.27	0.05	0.05	0.06	0.05	0.05	0.01	0.04	0.01	0.002	16	99	10	10	10	1	43.88	99.79
8938	55.37	0.22	0.05	0.05	0.05	0.05	0.14	0.01	0.02	0.01	0.002	20	174	10	10	10	1	43.87	99.84
8939	55.41	0.20	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.002	11	158	16	10	10	1	43.89	99.78
8940	55.41	0.21	0.05	0.05	0.05	0.05	0.05	0.01	0.03	0.01	0.002	9	142	10	10	10	1	43.89	99.81
8941	55.34	0.20	0.05	0.05	0.05	0.05	0.15	0.01	0.02	0.01	0.002	10	144	10	10	10	1	43.83	99.76
8942	55.38	0.21	0.05	0.05	0.08	0.05	0.10	0.01	0.03	0.01	0.002	6	143	10	10	10	1	43.87	99.84
8943	55.44	0.19	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.002	11	147	10	10	10	1	43.90	99.81
8944	55.41	0.21	0.05	0.05	0.05	0.05	0.05	0.01	0.02	0.01	0.002	10	148	10	10	10	1	43.89	99.80
8945	55.41	0.19	0.05	0.05	0.05	0.05	0.05	0.01	0.02	0.01	0.002	8	134	11	10	10	1	43.87	99.76
8946	55.40	0.20	0.05	0.05	0.05	0.05	0.05	0.01	0.02	0.01	0.002	9	135	10	10	10	1	43.87	99.76



# APPENDIX 6: CONTINUED

Sample	CaO %	MgO %	SiO2 %	Al2O3 %	Fe2O3 %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
8947	55.34	0.20	0.05	0.05	0.05	0.05	0.20	0.01	0.03	0.01	0.002	9	126	23	10	10	1	43.83	99.82
8948	55.40	0.20	0.05	0.05	0.05	0.05	0.05	0.01	0.03	0.01	0.002	10	130	10	10	10	1	43.88	99.78
8949	55.41	0.17	0.06	0.05	0.05	0.05	0.12	0.02	0.02	0.01	0.002	13	102	10	10	10	1	43.86	99.82
8950	55.38	0.20	0.06	0.05	0.05	0.05	0.05	0.01	0.02	0.01	0.002	14	110	10	10	10	1	43.86	99.74
8951	55.17	0.28	0.05	0.07	0.05	0.05	0.19	0.01	0.06	0.01	0.005	14	118	10	10	10	1	43.77	99.72
8952	55.13	0.33	0.05	0.05	0.05	0.05	0.19	0.01	0.02	0.01	0.004	15	154	10	10	10	1	43.80	99.69
8953	55.10	0.35	0.05	0.05	0.05	0.05	0.15	0.01	0.03	0.01	0.003	16	152	10	10	10	1	43.79	99.64
8954	55.05	0.33	0.05	0.05	0.05	0.05	0.25	0.01	0.02	0.01	0.003	15	167	10	10	10	1	43.74	99.61
8955	55.14	0.28	0.05	0.05	0.05	0.05	0.26	0.01	0.05	0.01	0.006	14	168	33	10	10	1	43.76	99.72
8956	53.96	0.36	1.68	0.41	0.20	0.08	0.25	0.01	0.03	0.01	0.004	25	189	12	15	10	1	42.91	99.90
8957	54.97	0.36	0.17	0.12	0.06	0.05	0.17	0.02	0.04	0.01	0.005	17	189	23	10	10	1	43.70	99.88
8958	54.98	0.35	0.19	0.10	0.05	0.05	0.17	0.01	0.06	0.01	0.002	19	189	10	10	10	1	43.69	99.66
8959	55.19	0.35	0.05	0.05	0.05	0.05	0.05	0.01	0.03	0.01	0.006	16	157	10	10	10	1	43.88	99.71
8960	55.14	0.35	0.05	0.05	0.05	0.05	0.05	0.01	0.03	0.01	0.005	21	151	10	10	10	1	43.83	99.63
8961	55.11	0.36	0.05	0.05	0.05	0.05	0.15	0.01	0.03	0.01	0.003	24	141	10	10	10	1	43.81	99.68
8962	55.21	0.31	0.05	0.05	0.05	0.05	0.15	0.01	0.03	0.01	0.002	22	132	10	10	10	1	43.84	99.76
8963	54.77	0.22	0.71	0.06	0.15	0.05	0.39	0.02	0.02	0.01	0.002	16	130	10	10	10	1	43.41	99.81
8964	55.33	0.20	0.05	0.05	0.05	0.05	0.18	0.01	0.02	0.01	0.002	14	70	10	10	10	1	43.82	99.75
8965	55.22	0.24	0.05	0.05	0.05	0.05	0.25	0.01	0.02	0.01	0.002	26	98	10	10	10	1	43.78	99.73
8966	55.28	0.22	0.05	0.05	0.05	0.05	0.22	0.01	0.02	0.01	0.002	22	106	10	10	10	1	43.80	99.76
8967	55.23	0.23	0.05	0.05	0.05	0.05	0.27	0.01	0.02	0.01	0.002	21	103	13	10	10	1	43.77	99.74
8968	55.21	0.23	0.05	0.05	0.05	0.05	0.24	0.01	0.02	0.01	0.002	33	117	10	10	10	1	43.76	99.68
8969	55.30	0.23	0.05	0.05	0.05	0.05	0.21	0.01	0.01	0.01	0.002	18	87	10	10	10	1	43.83	99.80
8970	55.28	0.21	0.05	0.05	0.05	0.05	0.17	0.01	0.02	0.01	0.002	18	90	10	10	10	1	43.79	99.69
8971	55.31	0.22	0.08	0.05	0.05	0.05	0.15	0.01	0.03	0.01	0.002	35	110	12	10	10	1	43.83	99.79
8972	55.40	0.21	0.05	0.05	0.05	0.05	0.05	0.01	0.03	0.01	0.002	23	81	10	10	10	1	43.89	99.80
8973	55.32	0.25	0.09	0.05	0.05	0.05	0.05	0.01	0.02	0.01	0.002	22	99	11	10	10	1	43.86	99.76
8974	55.39	0.21	0.05	0.05	0.05	0.05	0.11	0.01	0.02	0.01	0.005	28	103	10	10	10	1	43.88	99.84
8975	55.29	0.25	0.22	0.05	0.05	0.05	0.08	0.01	0.06	0.01	0.002	28	99	10	10	10	1	43.84	99.91
8976	55.15	0.35	0.05	0.05	0.05	0.05	0.08	0.01	0.01	0.01	0.002	55	142	10	10	10	1	43.83	99.84
8977	55.12	0.37	0.05	0.05	0.05	0.05	0.14	0.01	0.04	0.01	0.002	41	147	10	10	10	1	43.83	99.72
8978	55.31	0.22	0.05	0.05	0.05	0.05	0.12	0.01	0.02	0.01	0.002	16	72	10	10	10	1	43.83	99.72
8979	55.23	0.29	0.05	0.05	0.05	0.05	0.05	0.01	0.02	0.01	0.002	20	89	10	10	10	1	43.83	99.64
8980	55.19	0.31	0.05	0.05	0.05	0.05	0.05	0.01	0.03	0.01	0.002	23	94	10	10	10	1	43.82	99.62
8981	55.20	0.32	0.05	0.05	0.05	0.05	0.06	0.01	0.03	0.01	0.003	21	95	10	10	10	1	43.84	99.67
8982	55.32	0.31	0.06	0.06	0.07	0.05	0.05	0.01	0.02	0.01	0.002	23	100	10	10	10	1	43.92	99.88
8983	55.28	0.33	0.05	0.06	0.05	0.05	0.05	0.02	0.03	0.01	0.002	26	106	10	10	10	1	43.91	99.84
8984	55.32	0.30	0.05	0.05	0.07	0.05	0.05	0.01	0.02	0.01	0.002	26	111	10	10	10	1	43.92	99.85
8985	54.90	0.35	0.17	0.06	0.09	0.05	0.05	0.01	0.03	0.01	0.002	40	133	10	10	10	1	44.40	100.12
8986	55.07	0.32	0.10	0.08	0.14	0.05	0.05	0.01	0.06	0.01	0.002	46	107	10	10	10	1	44.40	100.29
8987	54.75	0.33	0.34	0.06	0.17	0.05	0.05	0.01	0.15	0.01	0.002	53	151	10	10	10	1	44.30	100.22
8988	55.29	0.32	0.11	0.07	0.08	0.05	0.05	0.01	0.07	0.01	0.002	60	175	10	10	10	1	43.89	99.95
8989	54.81	0.39	0.70	0.11	0.05	0.05	0.19	0.01	0.04	0.01	0.002	30	195	10	10	10	1	43.60	99.96
8990	54.65	0.84	0.15	0.07	0.05	0.05	0.07	0.01	0.03	0.01	0.002	16	122	10	10	10	1	43.93	99.86
8991	55.12	0.36	0.27	0.09	0.06	0.05	0.06	0.01	0.05	0.01	0.002	23	147	10	10	10	1	43.81	99.89
8992	55.19	0.32	0.28	0.05	0.05	0.05	0.05	0.01	0.02	0.01	0.002	20	151	10	10	10	1	43.83	99.84
8993	55.15	0.34	0.15	0.08	0.05	0.05	0.15	0.01	0.06	0.01	0.002	21	153	10	10	10	1	43.82	99.87
8994	55.21	0.31	0.11	0.05	0.05	0.05	0.05	0.02	0.02	0.01	0.002	17	380	10	10	10	1	43.84	99.72
8995	55.34	0.22	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.002	16	137	10	10	10	1	43.85	99.69
8996	55.34	0.22	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.002	14	156	10	10	10	1	43.85	99.69

# APPENDIX 6: CONTINUED

Sample	CaO %	MgO %	SiO2 %	Al2O3 %	Fe2O3 %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
8997	55.17	0.22	0.05	0.05	0.05	0.05	0.40	0.01	0.01	0.01	0.002	14	125	10	10	10	1	43.72	99.74
8998	55.38	0.22	0.05	0.05	0.05	0.05	0.05	0.01	0.02	0.01	0.002	16	172	10	10	10	1	43.86	99.73
8999	55.36	0.22	0.05	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.002	17	151	10	10	10	1	43.86	99.72
9000	55.49	0.22	0.05	0.05	0.05	0.01	0.10	0.01	0.06	0.01	0.002	11	148	10	10	10	1	43.93	99.98
9026	55.35	0.22	0.05	0.05	0.05	0.05	0.05	0.01	0.04	0.01	0.002	20	632	10	10	10	1	43.85	99.73
9027	55.26	0.31	0.08	0.05	0.05	0.05	0.05	0.01	0.18	0.01	0.002	17	341	10	10	10	1	43.83	99.86
9028	55.02	0.33	0.35	0.15	0.11	0.05	0.11	0.01	0.23	0.01	0.002	30	206	10	10	10	1	43.58	99.93
9029	54.91	0.37	0.52	0.12	0.08	0.05	0.05	0.02	0.10	0.01	0.002	34	332	10	10	10	1	43.68	99.99
9030	54.93	0.45	0.37	0.07	0.05	0.05	0.05	0.01	0.07	0.01	0.002	30	304	53	10	10	1	43.75	99.81
9031	51.97	2.81	0.64	0.24	0.12	0.05	0.05	0.01	0.15	0.01	0.003	45	360	15	10	10	1	43.81	99.86
9032	52.50	2.28	0.90	0.12	0.05	0.05	0.05	0.01	0.06	0.01	0.003	35	292	10	10	10	1	43.66	99.67
9033	51.64	2.94	0.87	0.22	0.12	0.05	0.05	0.01	0.21	0.01	0.003	36	413	10	10	10	1	43.80	99.92
9034	50.69	3.90	0.68	0.17	0.09	0.05	0.05	0.01	0.09	0.01	0.002	25	518	10	10	10	1	43.88	99.82
9035	53.86	1.16	0.62	0.13	0.09	0.05	0.05	0.01	0.07	0.01	0.002	25	490	10	10	10	1	43.63	99.68
9036	52.18	2.38	0.84	0.25	0.09	0.05	0.17	0.03	0.10	0.01	0.004	31	878	10	10	10	1	43.53	99.63
9037	45.42	7.15	2.26	0.65	0.25	0.05	0.05	0.03	0.09	0.01	0.005	52	235	10	10	10	1	43.90	99.87
9038	54.48	0.44	0.99	0.20	0.10	0.05	0.13	0.01	0.06	0.01	0.003	45	284	10	10	10	1	43.40	99.87
9039	55.40	0.25	0.05	0.05	0.05	0.01	0.20	0.01	0.05	0.01	0.002	6	138	10	10	10	1	43.91	99.99
9040	55.32	0.27	0.05	0.05	0.05	0.01	0.06	0.01	0.06	0.01	0.002	5	126	10	10	10	1	43.89	99.78
9041	55.39	0.22	0.05	0.05	0.05	0.01	0.09	0.01	0.09	0.01	0.002	5	110	10	10	10	1	43.89	99.86
9042	55.48	0.22	0.05	0.05	0.05	0.01	0.12	0.01	0.10	0.01	0.002	6	110	10	10	10	1	43.89	99.99
9043	55.40	0.24	0.05	0.05	0.05	0.01	0.05	0.01	0.09	0.01	0.002	9	104	10	10	10	1	43.91	99.87
9044	55.00	0.22	0.05	0.05	0.05	0.01	0.09	0.01	0.14	0.01	0.002	8	84	10	10	10	1	43.29	99.92
9045	55.30	0.25	0.11	0.05	0.05	0.01	0.07	0.01	0.16	0.01	0.002	14	115	10	10	10	1	43.83	99.85
9046	55.31	0.27	0.05	0.05	0.05	0.01	0.06	0.01	0.10	0.01	0.002	17	145	10	10	10	1	43.88	99.80
9047	54.88	0.22	1.22	0.08	0.05	0.01	0.10	0.01	0.18	0.01	0.002	14	141	10	10	10	1	43.30	99.84
9048	55.33	0.31	0.07	0.05	0.05	0.01	0.05	0.01	0.09	0.01	0.002	26	135	10	10	10	1	43.83	99.91
9049	55.27	0.34	0.11	0.05	0.07	0.01	0.05	0.01	0.08	0.01	0.002	37	126	10	10	10	1	43.91	99.91
9050	54.99	0.46	0.11	0.07	0.05	0.01	0.16	0.01	0.18	0.01	0.002	19	108	10	10	10	1	43.80	99.85
9051	54.82	0.33	0.72	0.09	0.05	0.05	0.05	0.02	0.19	0.01	0.002	28	126	10	10	10	1	43.52	99.85
9052	55.02	0.35	0.30	0.07	0.05	0.05	0.05	0.01	0.05	0.01	0.002	23	120	10	10	10	1	43.72	99.88
9053	55.29	0.24	0.05	0.06	0.05	0.05	0.05	0.03	0.02	0.01	0.002	23	132	10	10	10	1	43.83	99.68
9054	55.21	0.24	0.05	0.07	0.05	0.05	0.05	0.02	0.03	0.01	0.002	24	132	10	10	10	1	43.76	99.54
9055	55.19	0.26	0.05	0.05	0.05	0.05	0.27	0.01	0.02	0.01	0.002	17	133	10	10	10	1	43.77	99.73
9056	55.24	0.20	0.05	0.05	0.05	0.05	0.27	0.01	0.03	0.01	0.002	20	141	10	10	10	1	43.75	99.71
9057	55.36	0.22	0.05	0.05	0.05	0.05	0.05	0.01	0.02	0.01	0.002	49	113	10	10	10	1	43.87	99.74
9058	55.30	0.24	0.05	0.06	0.06	0.05	0.07	0.02	0.09	0.01	0.002	37	108	19	10	10	1	43.84	99.79
9059	55.36	0.21	0.05	0.06	0.05	0.05	0.12	0.02	0.04	0.01	0.002	34	104	10	10	10	1	43.86	99.83
9060	55.45	0.14	0.05	0.05	0.05	0.05	0.05	0.02	0.02	0.01	0.002	18	250	10	10	10	1	43.86	99.75
9061	55.08	0.44	0.11	0.05	0.05	0.01	0.14	0.01	0.14	0.01	0.002	34	122	10	10	10	1	43.85	99.89
9062	55.27	0.43	0.05	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	19	123	10	10	10	1	44.04	99.98
9063	55.43	0.22	0.05	0.05	0.05	0.01	0.10	0.01	0.02	0.01	0.002	15	119	10	10	10	1	43.82	99.87
9064	55.35	0.23	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	11	117	10	10	10	1	43.87	99.70
9065	55.36	0.22	0.05	0.05	0.05	0.01	0.11	0.01	0.04	0.01	0.002	8	109	10	10	10	1	43.87	99.78
9066	55.53	0.21	0.05	0.05	0.05	0.01	0.06	0.01	0.02	0.01	0.002	8	114	10	10	10	1	43.99	99.99
9067	55.10	0.24	0.05	0.05	0.05	0.01	0.10	0.01	0.02	0.01	0.002	18	125	10	10	10	1	43.80	99.44
9068	55.46	0.21	0.05	0.05	0.06	0.01	0.15	0.01	0.05	0.01	0.005	18	121	10	10	10	1	43.92	99.99
9069	55.46	0.20	0.05	0.05	0.06	0.01	0.15	0.01	0.07	0.01	0.004	20	141	10	10	10	1	43.89	99.96
9070	55.43	0.20	0.05	0.05	0.05	0.01	0.08	0.01	0.03	0.01	0.002	23	142	10	10	10	1	44.10	100.02
9071	55.52	0.21	0.05	0.05	0.05	0.01	0.07	0.01	0.01	0.01	0.002	18	130	10	10	10	1	43.98	99.97

# APPENDIX 6: CONTINUED

Sample	CeO %	MgO %	SiO2 %	Al2O3 %	Fe2O3 %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
9072	55.31	0.23	0.05	0.05	0.05	0.01	0.17	0.01	0.13	0.01	0.002	21	80	10	10	10	1	43.90	99.92
9073	55.48	0.24	0.05	0.05	0.05	0.01	0.05	0.01	0.05	0.01	0.002	19	95	10	10	10	1	43.97	99.97
9074	55.47	0.25	0.05	0.05	0.07	0.01	0.05	0.01	0.08	0.01	0.002	18	82	10	10	10	1	43.94	99.99
9075	55.26	0.25	0.05	0.05	0.05	0.01	0.10	0.02	0.06	0.01	0.002	18	78	10	10	10	1	43.90	99.76
9076	55.38	0.28	0.05	0.05	0.06	0.01	0.09	0.01	0.08	0.01	0.002	18	108	10	10	10	1	43.93	99.95
9077	55.19	0.27	0.36	0.05	0.05	0.01	0.19	0.01	0.07	0.01	0.002	26	147	10	10	10	1	43.76	99.97
9078	55.32	0.27	0.06	0.05	0.05	0.01	0.29	0.01	0.02	0.01	0.002	20	142	10	10	10	1	43.89	99.98
9079	55.37	0.27	0.05	0.05	0.06	0.01	0.05	0.01	0.03	0.01	0.002	20	132	10	10	10	1	43.92	99.83
9080	55.48	0.21	0.06	0.05	0.05	0.01	0.09	0.01	0.04	0.01	0.002	20	149	10	10	10	1	43.95	99.95
9081	55.50	0.23	0.06	0.05	0.05	0.01	0.06	0.01	0.08	0.01	0.002	18	154	10	10	10	1	43.94	99.98
9082	55.47	0.22	0.05	0.05	0.05	0.01	0.07	0.01	0.03	0.01	0.002	19	148	10	10	10	1	43.95	99.92
9083	55.48	0.21	0.05	0.05	0.05	0.01	0.07	0.01	0.04	0.01	0.002	22	178	10	10	10	1	43.95	99.93
9084	55.52	0.19	0.05	0.05	0.05	0.01	0.05	0.01	0.03	0.01	0.002	20	137	10	10	10	1	43.96	99.93
9085	55.48	0.19	0.07	0.05	0.05	0.01	0.12	0.01	0.06	0.01	0.002	18	121	82	10	10	1	43.91	99.96
9086	54.70	0.21	1.50	0.05	0.05	0.01	0.05	0.01	0.03	0.01	0.002	20	127	10	10	10	1	43.34	99.96
9087	55.47	0.21	0.05	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	20	136	10	10	10	1	43.94	99.86
9088	55.53	0.19	0.05	0.05	0.05	0.01	0.05	0.01	0.03	0.01	0.002	18	151	10	10	10	1	43.97	99.95
9089	55.51	0.20	0.05	0.05	0.05	0.01	0.10	0.01	0.03	0.01	0.002	19	147	10	10	10	1	43.96	99.98
9090	55.45	0.19	0.05	0.05	0.05	0.01	0.08	0.01	0.01	0.01	0.002	23	141	10	10	10	1	43.91	99.82
9091	55.49	0.20	0.05	0.05	0.05	0.01	0.05	0.01	0.03	0.01	0.002	18	134	10	10	10	1	43.95	99.90
9092	55.46	0.20	0.05	0.05	0.05	0.01	0.11	0.02	0.03	0.01	0.002	19	126	62	10	10	1	43.92	99.91
9093	55.42	0.20	0.05	0.05	0.05	0.01	0.19	0.01	0.01	0.01	0.002	19	108	10	10	10	1	43.89	99.89
9094	55.47	0.20	0.05	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	21	171	10	10	10	1	43.93	99.84
9095	55.49	0.21	0.05	0.05	0.05	0.01	0.05	0.01	0.03	0.01	0.002	19	144	10	10	10	1	43.96	99.92
9096	55.47	0.22	0.08	0.05	0.05	0.01	0.05	0.01	0.04	0.01	0.005	22	156	10	10	10	1	43.95	99.95
9097	55.43	0.23	0.09	0.05	0.05	0.01	0.05	0.01	0.04	0.01	0.002	26	196	10	10	10	1	43.93	99.90
9098	55.33	0.23	0.09	0.05	0.05	0.01	0.24	0.01	0.03	0.01	0.002	26	149	10	10	10	1	43.86	99.91
9099	55.36	0.20	0.32	0.05	0.05	0.01	0.05	0.01	0.05	0.01	0.002	24	131	10	10	10	1	43.84	99.95
9100	55.56	0.17	0.05	0.05	0.05	0.01	0.05	0.01	0.14	0.01	0.002	19	82	10	10	10	1	43.87	99.97
9101	55.43	0.23	0.05	0.05	0.10	0.01	0.05	0.01	0.03	0.01	0.002	20	63	10	10	10	1	43.93	99.90
9102	55.47	0.22	0.05	0.05	0.07	0.01	0.05	0.01	0.04	0.01	0.002	16	60	10	10	10	1	43.95	99.93
9103	55.33	0.27	0.13	0.05	0.05	0.01	0.05	0.01	0.09	0.01	0.002	23	333	10	10	10	1	43.89	99.89
9104	55.36	0.27	0.05	0.05	0.05	0.01	0.05	0.01	0.03	0.01	0.002	18	552	10	10	10	1	43.92	99.81
9105	55.23	0.33	0.17	0.07	0.05	0.01	0.05	0.01	0.05	0.01	0.002	20	173	10	10	10	1	43.87	99.85
9106	54.04	1.18	0.51	0.12	0.07	0.01	0.05	0.01	0.04	0.01	0.002	29	192	10	10	10	1	43.79	99.83
9107	55.09	0.39	0.33	0.06	0.05	0.01	0.05	0.01	0.03	0.01	0.002	27	219	10	10	10	1	43.83	99.86
9108	55.06	0.32	0.48	0.08	0.06	0.01	0.05	0.01	0.04	0.01	0.002	32	181	10	10	10	1	43.73	99.85
9109	54.94	0.34	0.62	0.10	0.08	0.01	0.05	0.01	0.04	0.01	0.002	29	200	10	10	10	1	43.66	99.84
9110	54.77	0.38	0.70	0.13	0.06	0.01	0.05	0.01	0.04	0.01	0.002	40	235	10	10	10	1	43.56	99.72
9111	54.90	0.64	0.05	0.06	0.05	0.01	0.05	0.01	0.01	0.01	0.002	24	599	10	10	10	1	43.92	99.71
9112	54.50	0.91	0.12	0.12	0.06	0.01	0.05	0.01	0.10	0.01	0.002	17	584	10	10	10	1	43.88	99.77
9113	54.33	1.11	0.08	0.07	0.07	0.01	0.05	0.01	0.04	0.01	0.002	13	494	10	10	10	1	43.95	99.73
9114	55.33	0.32	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	14	531	10	10	10	1	43.94	99.84
9115	50.78	3.12	0.93	0.34	0.14	0.01	0.07	0.02	0.06	0.01	0.002	19	174	10	10	10	1	44.00	99.48
9116	52.93	2.08	0.60	0.24	0.11	0.01	0.05	0.02	0.05	0.01	0.002	21	221	10	10	10	1	44.10	100.20
9117	52.95	1.89	0.45	0.18	0.09	0.01	0.05	0.01	0.05	0.01	0.002	17	187	10	10	10	1	44.10	99.79
9118	50.30	3.24	0.63	0.27	0.11	0.01	0.15	0.01	0.09	0.01	0.002	19	166	11	10	10	1	44.50	99.32
9119	54.07	1.18	0.38	0.14	0.07	0.01	0.05	0.01	0.02	0.01	0.002	21	284	10	10	10	1	44.30	100.22
9120	54.92	0.40	0.72	0.17	0.07	0.01	0.05	0.02	0.04	0.01	0.002	26	239	10	10	10	1	43.80	100.21
9121	54.62	0.82	0.48	0.20	0.09	0.01	0.07	0.01	0.05	0.01	0.002	19	160	10	10	10	1	44.10	100.46

# APPENDIX 6: CONTINUED

Sample	CaO %	MgO %	SiO2 %	Al2O3 %	Fe2O3 %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
9122	52.85	1.87	0.78	0.26	0.12	0.01	0.05	0.01	0.06	0.01	0.002	20	203	10	10	10	1	44.20	100.22
9123	53.28	1.78	0.54	0.22	0.12	0.01	0.05	0.01	0.05	0.01	0.002	21	156	10	10	10	1	44.20	100.25
9124	55.11	0.49	0.39	0.15	0.08	0.01	0.05	0.01	0.05	0.01	0.002	33	289	10	10	10	1	44.00	100.35
9125	53.06	1.56	0.89	0.31	0.12	0.01	0.07	0.01	0.09	0.01	0.002	37	249	10	10	10	1	43.80	99.95
9126	55.09	0.50	0.05	0.05	0.05	0.01	0.06	0.01	0.05	0.01	0.002	21	138	10	10	10	1	43.93	99.81
9127	55.14	0.43	0.05	0.05	0.05	0.01	0.05	0.01	0.04	0.01	0.002	16	128	10	10	10	1	43.91	99.75
9128	55.11	0.48	0.05	0.06	0.05	0.01	0.05	0.01	0.04	0.01	0.002	21	128	10	10	10	1	43.93	99.80
9129	54.71	0.76	0.10	0.09	0.07	0.01	0.05	0.01	0.09	0.01	0.002	38	143	10	10	10	1	43.90	99.80
9130	55.21	0.30	0.09	0.09	0.09	0.01	0.07	0.01	0.04	0.01	0.06	32	136	10	10	10	1	43.83	99.81
9131	55.34	0.29	0.05	0.06	0.05	0.01	0.05	0.01	0.05	0.01	0.002	24	140	10	10	10	1	43.92	99.84
9132	55.27	0.33	0.05	0.06	0.05	0.01	0.05	0.01	0.06	0.01	0.002	42	145	10	10	10	1	43.91	99.81
9133	55.34	0.28	0.05	0.05	0.05	0.01	0.05	0.01	0.07	0.01	0.002	34	143	10	10	10	1	43.91	99.83
9134	55.29	0.32	0.05	0.05	0.05	0.01	0.05	0.01	0.07	0.01	0.003	26	123	105	10	10	1	43.91	99.82
9135	55.00	0.27	0.05	0.05	0.05	0.01	0.13	0.01	0.01	0.01	0.002	16	120	10	10	10	1	43.45	99.04
9136	55.39	0.25	0.05	0.05	0.05	0.01	0.08	0.01	0.02	0.01	0.002	18	127	10	10	10	1	43.92	99.84
9137	55.38	0.34	0.05	0.05	0.05	0.01	0.05	0.01	0.03	0.01	0.002	7	108	10	10	10	1	44.01	99.99
9138	55.45	0.28	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	7	112	10	10	10	1	43.99	99.97
9139	53.94	0.75	0.87	0.23	0.12	0.01	0.17	0.01	0.07	0.01	0.002	87	290	10	10	10	1	43.50	99.88
9140	54.99	0.43	0.27	0.07	0.05	0.01	0.10	0.01	0.03	0.01	0.002	13	328	10	10	10	1	43.79	99.76
9141	55.41	0.24	0.07	0.05	0.05	0.01	0.05	0.01	0.06	0.01	0.002	79	485	11	10	10	1	43.93	99.89
9142	54.83	0.50	0.32	0.14	0.07	0.01	0.12	0.01	0.03	0.01	0.002	21	165	10	10	10	1	43.73	99.77
9143	54.31	1.02	0.14	0.08	0.05	0.01	0.19	0.01	0.05	0.01	0.003	10	484	10	10	10	1	43.84	99.71
9144	54.31	0.98	0.28	0.11	0.05	0.01	0.12	0.01	0.08	0.01	0.002	20	233	10	10	10	1	43.80	99.76
9145	54.83	0.37	0.65	0.14	0.06	0.01	0.05	0.01	0.03	0.01	0.002	26	220	10	10	10	1	43.60	99.76
9146	54.80	0.64	0.37	0.11	0.06	0.01	0.05	0.01	0.01	0.01	0.005	33	201	10	10	10	1	43.87	99.95
9147	54.49	0.70	0.57	0.16	0.08	0.01	0.11	0.01	0.02	0.01	0.002	79	200	10	10	10	1	43.66	99.82
9148	51.83	2.58	0.64	0.23	0.12	0.01	0.15	0.01	0.05	0.01	0.002	55	219	10	10	10	1	44.00	99.63
9149	54.57	0.33	0.34	0.09	0.05	0.01	0.08	0.01	0.01	0.01	0.002	24	334	10	10	10	1	43.90	99.40
9150	55.48	0.21	0.09	0.05	0.05	0.01	0.07	0.01	0.02	0.01	0.002	29	133	10	10	10	1	43.95	99.95
9151	55.06	0.58	0.05	0.05	0.05	0.01	0.05	0.01	0.05	0.01	0.002	17	289	81	10	10	1	44.01	99.95
9152	55.36	0.27	0.05	0.05	0.05	0.01	0.07	0.01	0.14	0.01	0.002	6	84	14	10	10	1	43.88	99.90
9153	55.32	0.30	0.05	0.05	0.05	0.01	0.16	0.01	0.12	0.01	0.002	5	86	10	10	10	1	43.86	99.94
9154	55.32	0.27	0.05	0.05	0.05	0.01	0.09	0.01	0.01	0.01	0.003	20	121	10	10	10	1	43.89	99.78
9155	55.39	0.25	0.05	0.05	0.05	0.01	0.05	0.01	0.10	0.01	0.002	40	101	10	10	10	1	43.92	99.89
9156	55.36	0.22	0.05	0.05	0.05	0.01	0.09	0.01	0.01	0.01	0.002	47	81	10	10	10	1	43.87	99.73
9157	55.11	0.24	0.05	0.05	0.05	0.01	0.05	0.01	0.08	0.01	0.002	5	82	10	10	10	1	43.70	99.36
9158	55.34	0.24	0.05	0.05	0.05	0.01	0.09	0.01	0.05	0.01	0.002	18	105	10	10	10	1	43.87	99.77
9159	55.38	0.23	0.05	0.05	0.05	0.01	0.05	0.01	0.04	0.01	0.002	25	81	10	10	10	1	43.89	99.77
9160	55.50	0.24	0.05	0.05	0.05	0.01	0.05	0.01	0.05	0.01	0.002	10	86	10	10	10	1	43.97	99.99
9161	55.52	0.22	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	5	62	10	10	10	1	44.00	99.99
9162	55.40	0.23	0.05	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	5	66	10	10	10	1	43.91	99.78
9163	55.39	0.28	0.11	0.05	0.05	0.01	0.05	0.01	0.03	0.01	0.002	59	453	10	10	10	1	43.95	99.94
9164	55.00	0.17	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	12	98	10	10	10	1	43.80	99.22
9165	55.47	0.20	0.05	0.05	0.05	0.01	0.06	0.01	0.04	0.01	0.002	12	82	10	10	10	1	43.93	99.88
9166	55.51	0.22	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	17	83	10	10	10	1	43.99	99.97
9167	55.47	0.19	0.05	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	19	63	10	10	10	1	43.92	99.82
9168	54.82	0.23	0.25	0.05	0.05	0.01	0.11	0.01	0.02	0.01	0.002	75	82	10	10	10	1	43.80	99.36
9169	55.48	0.20	0.05	0.05	0.05	0.01	0.08	0.01	0.01	0.01	0.002	13	85	10	10	10	1	43.94	99.89
9170	55.24	0.31	0.18	0.06	0.09	0.01	0.10	0.01	0.02	0.01	0.002	31	108	10	10	10	1	43.86	99.89
9171	55.46	0.19	0.05	0.05	0.05	0.01	0.08	0.01	0.02	0.01	0.002	21	106	10	10	10	1	43.91	99.84

# APPENDIX 6: CONTINUED

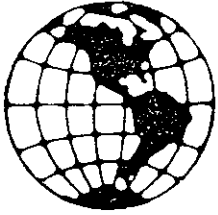
Sample	CaO %	MgO %	SiO2 %	Al2O3 %	Fe2O3 %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
9172	55.47	0.20	0.05	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	17	81	10	10	10	1	43.93	99.84
9173	55.43	0.21	0.05	0.05	0.05	0.01	0.12	0.01	0.01	0.01	0.002	8	74	10	10	10	1	43.91	99.86
9174	55.47	0.22	0.05	0.05	0.05	0.01	0.05	0.01	0.04	0.01	0.002	13	82	10	10	10	1	43.95	99.91
9175	55.42	0.24	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	5	89	10	10	10	1	43.93	99.84
9176	55.40	0.23	0.05	0.05	0.05	0.01	0.07	0.01	0.03	0.01	0.002	12	120	10	10	10	1	43.91	99.82
9177	55.43	0.22	0.05	0.05	0.05	0.01	0.05	0.01	0.07	0.01	0.002	14	120	10	10	10	1	43.92	99.87
9178	55.45	0.22	0.05	0.05	0.05	0.01	0.06	0.01	0.02	0.01	0.003	18	118	10	10	10	1	43.93	99.86
9179	54.98	0.56	0.18	0.08	0.05	0.01	0.05	0.01	0.06	0.01	0.002	11	131	10	10	10	1	43.90	99.89
9180	55.36	0.30	0.05	0.05	0.05	0.01	0.07	0.01	0.06	0.01	0.002	5	139	10	10	10	1	43.94	99.91
9181	55.35	0.28	0.15	0.05	0.05	0.01	0.05	0.01	0.04	0.01	0.002	8	142	10	10	10	1	43.91	99.91
9182	55.39	0.27	0.05	0.05	0.05	0.01	0.05	0.01	0.03	0.01	0.002	5	175	10	10	10	1	43.94	99.86
9183	55.37	0.27	0.05	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	5	133	10	10	10	1	43.92	99.80
9184	55.39	0.28	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	5	151	10	10	10	1	43.95	99.87
9185	55.22	0.41	0.05	0.05	0.05	0.02	0.05	0.01	0.03	0.01	0.002	5	104	10	10	10	1	43.95	99.85
9186	55.39	0.26	0.05	0.05	0.05	0.01	0.08	0.01	0.05	0.01	0.002	5	103	10	10	10	1	43.93	99.89
9187	55.40	0.27	0.05	0.05	0.05	0.01	0.09	0.01	0.03	0.01	0.002	5	105	10	10	10	1	43.95	99.92
9188	54.43	1.10	0.10	0.06	0.08	0.01	0.05	0.01	0.02	0.01	0.002	5	136	10	10	10	1	44.02	99.87
9189	55.41	0.28	0.05	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	20	94	10	10	10	1	43.95	99.86
9190	55.48	0.23	0.05	0.05	0.05	0.01	0.05	0.01	0.04	0.01	0.002	7	81	10	10	10	1	43.95	99.91
9191	55.44	0.24	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	16	105	10	10	10	1	43.95	99.88
9192	55.41	0.24	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	14	111	10	10	10	1	43.92	99.82
9193	55.40	0.22	0.08	0.05	0.05	0.01	0.11	0.01	0.01	0.01	0.002	20	98	10	10	10	1	43.90	99.83
9194	55.18	0.25	0.45	0.05	0.05	0.01	0.09	0.01	0.03	0.01	0.002	23	148	10	10	10	1	43.75	99.88
9195	54.52	0.32	1.08	0.19	0.30	0.01	0.08	0.03	0.04	0.02	0.002	34	195	10	10	10	1	43.31	99.88
9196	55.13	0.24	0.58	0.05	0.10	0.01	0.07	0.01	0.05	0.01	0.003	22	115	47	10	10	1	43.70	99.95
9197	55.44	0.23	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	11	77	10	10	10	1	43.94	99.86
9198	55.39	0.27	0.05	0.05	0.05	0.01	0.06	0.01	0.03	0.01	0.002	7	104	10	10	10	1	43.94	99.87
9199	55.33	0.26	0.14	0.05	0.05	0.01	0.05	0.01	0.03	0.01	0.002	12	118	10	10	10	1	43.88	99.82
9200	55.43	0.24	0.05	0.05	0.05	0.01	0.06	0.01	0.02	0.01	0.002	8	84	10	10	10	1	43.94	99.87
9201	55.45	0.25	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	8	82	10	10	10	1	43.96	99.91
9202	55.49	0.25	0.05	0.05	0.05	0.01	0.05	0.01	0.04	0.01	0.002	14	90	10	10	10	1	43.98	99.90
9203	55.36	0.26	0.11	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	7	423	10	10	10	1	43.91	99.83
9204	55.22	0.31	0.25	0.05	0.05	0.01	0.06	0.02	0.01	0.01	0.002	15	249	10	10	10	1	43.85	99.84
9205	55.05	0.27	0.67	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	12	365	10	10	10	1	43.67	99.85
9206	55.11	0.30	0.43	0.09	0.06	0.01	0.05	0.01	0.05	0.01	0.002	18	173	10	10	10	1	43.75	99.87
9207	55.38	0.25	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	14	132	10	10	10	1	43.91	99.79
9208	55.33	0.28	0.05	0.05	0.05	0.02	0.05	0.01	0.01	0.01	0.002	13	126	10	10	10	1	43.90	99.76
9209	55.36	0.27	0.05	0.05	0.05	0.01	0.05	0.01	0.13	0.01	0.002	19	141	10	10	10	1	43.90	99.89
9210	55.30	0.28	0.15	0.06	0.05	0.01	0.05	0.01	0.20	0.01	0.002	18	165	10	10	10	1	43.78	99.90
9211	55.27	0.34	0.19	0.05	0.05	0.01	0.08	0.01	0.07	0.01	0.002	12	183	10	10	10	1	43.89	99.97
9212	55.22	0.31	0.22	0.05	0.05	0.01	0.10	0.02	0.09	0.01	0.002	11	196	10	10	10	1	43.84	99.92
9213	55.21	0.29	0.26	0.05	0.05	0.01	0.19	0.01	0.04	0.01	0.002	11	186	10	10	10	1	43.82	99.94
9214	55.35	0.29	0.11	0.06	0.05	0.01	0.05	0.01	0.06	0.01	0.002	17	194	10	10	10	1	43.92	99.92
9215	55.35	0.28	0.08	0.05	0.05	0.01	0.05	0.01	0.07	0.01	0.002	16	179	10	10	10	1	43.92	99.88
9216	55.13	0.32	0.36	0.06	0.05	0.01	0.10	0.01	0.18	0.01	0.002	20	210	10	10	10	1	43.69	99.92
9217	55.44	0.26	0.05	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	8	152	10	10	10	1	43.97	99.91
9218	55.36	0.25	0.05	0.05	0.05	0.02	0.07	0.01	0.02	0.01	0.002	14	119	10	10	10	1	43.90	99.79
9219	55.33	0.26	0.10	0.05	0.05	0.01	0.05	0.01	0.08	0.01	0.002	15	127	10	10	10	1	43.88	99.83
9220	55.24	0.28	0.20	0.06	0.05	0.02	0.05	0.01	0.04	0.01	0.002	20	142	10	10	10	1	43.83	99.79
9221	55.31	0.32	0.11	0.05	0.05	0.01	0.06	0.01	0.06	0.01	0.002	20	176	10	10	10	1	43.93	99.92

# APPENDIX 6: CONTINUED

Sample	CaO %	MgO %	SiO2 %	Al2O3 %	Fe2O3 %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba ppm	Sr ppm	Zr ppm	Y ppm	Nb ppm	Sc ppm	LOI %	SUM %
9222	55.31	0.30	0.05	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	14	300	10	10	10	1	43.91	99.77
9223	55.34	0.26	0.06	0.05	0.05	0.01	0.05	0.01	0.08	0.01	0.002	8	284	175	10	10	1	43.89	99.81
9224	55.37	0.24	0.07	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	13	684	10	10	10	1	43.89	99.77
9225	55.24	0.30	0.20	0.07	0.05	0.01	0.05	0.01	0.04	0.01	0.002	21	380	10	10	10	1	43.85	99.83
9226	55.36	0.28	0.05	0.05	0.05	0.01	0.05	0.01	0.04	0.01	0.002	26	154	10	10	10	1	43.92	99.83
9227	55.43	0.22	0.05	0.05	0.05	0.01	0.05	0.01	0.05	0.01	0.002	19	133	10	10	10	1	43.92	99.85
9228	55.31	0.31	0.05	0.05	0.05	0.01	0.11	0.01	0.02	0.01	0.002	11	130	10	10	10	1	43.92	99.85
9229	55.35	0.31	0.05	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	7	130	10	10	10	1	43.95	99.85
9230	55.03	0.41	0.35	0.10	0.06	0.01	0.12	0.01	0.10	0.01	0.002	18	180	10	10	10	1	43.76	99.96
9231	55.25	0.33	0.17	0.05	0.05	0.01	0.09	0.01	0.01	0.01	0.002	5	113	10	10	10	1	43.89	99.87
9232	55.27	0.30	0.17	0.05	0.05	0.01	0.18	0.01	0.01	0.01	0.002	5	138	10	10	10	1	43.87	99.93
9233	55.25	0.31	0.26	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	9	142	10	10	10	1	43.87	99.89
9234	55.27	0.29	0.15	0.05	0.05	0.01	0.15	0.01	0.01	0.01	0.002	8	155	10	10	10	1	43.88	99.88
9235	55.16	0.33	0.33	0.07	0.06	0.01	0.13	0.01	0.03	0.01	0.002	9	158	10	10	10	1	43.82	99.96
9236	55.32	0.29	0.16	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	5	149	10	10	10	1	43.91	99.87
9237	55.34	0.30	0.08	0.05	0.05	0.01	0.13	0.01	0.01	0.01	0.003	5	129	10	10	10	1	43.93	99.92
9238	55.44	0.27	0.07	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	5	111	10	10	10	1	43.98	99.95
9239	55.13	0.31	0.36	0.05	0.06	0.02	0.05	0.01	0.01	0.01	0.002	8	142	10	10	10	1	43.78	99.79
9240	55.14	0.33	0.28	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.002	5	132	10	10	10	1	43.80	99.74
9241	55.28	0.30	0.12	0.05	0.05	0.01	0.05	0.01	0.05	0.01	0.002	8	167	10	10	10	1	43.88	99.81
9242	55.11	0.25	0.42	0.05	0.05	0.01	0.17	0.01	0.02	0.01	0.002	8	143	10	10	10	1	43.70	99.80
9243	55.31	0.29	0.09	0.05	0.05	0.01	0.05	0.01	0.02	0.01	0.002	17	204	30	10	10	1	43.90	99.79
9244	55.18	0.25	0.44	0.05	0.05	0.01	0.07	0.01	0.01	0.01	0.002	28	179	10	10	10	1	43.75	99.83
9245	55.12	0.29	0.42	0.05	0.05	0.01	0.06	0.01	0.02	0.01	0.002	22	150	10	10	10	1	43.75	99.79
9246	54.89	0.38	0.40	0.17	0.08	0.01	0.16	0.01	0.14	0.01	0.002	17	163	10	10	10	1	43.64	99.89
9247	55.09	0.35	0.32	0.11	0.05	0.01	0.14	0.01	0.08	0.01	0.002	9	137	10	10	10	1	43.78	99.93
9248	55.23	0.36	0.13	0.05	0.05	0.01	0.05	0.01	0.03	0.01	0.002	5	121	10	10	10	1	43.90	99.83
9249	55.22	0.37	0.14	0.08	0.05	0.01	0.05	0.01	0.04	0.01	0.002	5	153	27	10	10	1	43.90	99.88
9250	55.15	0.41	0.12	0.05	0.05	0.01	0.08	0.01	0.02	0.01	0.002	5	127	10	10	10	1	43.89	99.80
9251	55.15	0.37	0.22	0.09	0.05	0.01	0.05	0.01	0.04	0.01	0.003	5	133	10	10	10	1	43.85	99.85
9252	55.07	0.29	0.55	0.05	0.08	0.01	0.06	0.01	0.01	0.01	0.002	6	142	10	10	10	1	43.70	99.82
9253	46.88	5.54	1.09	0.34	0.17	0.01	0.05	0.01	0.04	0.01	0.003	184	186	10	10	10	1	44.40	98.54
9254	55.30	0.32	0.05	0.05	0.05	0.02	0.05	0.01	0.02	0.01	0.002	18	166	10	10	10	1	43.92	99.80
9255	55.35	0.29	0.05	0.05	0.05	0.01	0.06	0.01	0.04	0.01	0.002	20	174	10	10	10	1	43.93	99.85
9256	55.37	0.23	0.05	0.05	0.05	0.02	0.05	0.01	0.05	0.01	0.002	27	175	10	10	10	1	43.88	99.77
9257	53.97	0.32	2.47	0.06	0.05	0.01	0.05	0.01	0.10	0.01	0.002	41	200	10	10	10	1	42.86	99.91
9258	55.34	0.30	0.09	0.05	0.05	0.01	0.05	0.01	0.06	0.01	0.002	31	168	10	10	10	1	43.93	99.90
9259	55.30	0.33	0.05	0.05	0.05	0.01	0.05	0.01	0.10	0.01	0.002	33	169	10	10	10	1	43.93	99.89
9260	55.03	0.35	0.29	0.05	0.05	0.01	0.05	0.01	0.06	0.01	0.002	30	170	10	10	10	1	43.73	99.64
9261	55.23	0.30	0.25	0.05	0.05	0.01	0.05	0.01	0.22	0.01	0.002	31	231	10	10	10	1	43.72	99.90
9262	55.23	0.37	0.19	0.05	0.05	0.01	0.05	0.01	0.14	0.01	0.002	37	228	48	10	10	1	43.83	99.94
9263	55.28	0.38	0.09	0.05	0.05	0.01	0.05	0.01	0.30	0.01	0.002	90	201	10	10	10	1	43.72	99.95
9264	55.13	0.37	0.31	0.08	0.06	0.01	0.05	0.01	0.23	0.01	0.002	73	211	10	10	10	1	43.68	99.94
9265	55.12	0.43	0.25	0.09	0.05	0.01	0.05	0.01	0.27	0.01	0.002	59	190	10	10	10	1	43.67	99.96
9266	55.25	0.32	0.05	0.05	0.05	0.01	0.05	0.01	0.41	0.01	0.002	43	162	10	10	10	1	43.82	99.83
9267	55.22	0.40	0.13	0.06	0.05	0.01	0.05	0.01	0.17	0.01	0.002	47	215	10	10	10	1	43.83	99.94
9268	55.29	0.36	0.22	0.06	0.05	0.01	0.05	0.01	0.26	0.01	0.002	40	200	10	10	10	1	43.70	99.93
9269	55.34	0.32	0.06	0.05	0.05	0.01	0.05	0.01	0.20	0.01	0.002	41	166	183	10	10	1	43.82	99.92
9270	55.27	0.36	0.12	0.05	0.05	0.01	0.05	0.01	0.20	0.01	0.002	36	180	10	10	10	1	43.81	99.94

## APPENDIX 7: REPORT OF BRIGHTNESS TESTS

## CONTINENTAL LIME INC.



RECEIVED

JUN 11 1993

## INTEROFFICE MEMO

CONTINENTAL LIME INC.  
TACOMA PLANT

TO: J. B. Jordon  
FROM: T. D. Wakefield *TDW*  
DATE: June 10, 1993  
SUBJECT: KELLY LAKE DEPOSITS

=====

Jack, I have had 14 samples from the Kelly Lake deposits analyzed for brightness. Three samples range from a low 71.48 to a high of 82.85. Unless there is another area in this quarry, from which I have not received samples, that contains white stone it is my opinion that the possibility of producing a coating grade GCC is non existent.

SAMPLES FROM L. HALFERDAHL

<u>Sample I.D.</u>	<u>Brightness</u>	<u>Claim*</u>
8217	75.14	Mar 79
8289	79.31	Stag 2
8316	82.85	Mar 31
8501	74.21	Stag 2
8513	76.25	Stag 2
8514	75.95	Stag 2
8536	79.64	Stag 2

SAMPLES FROM TAYLOR-SMITH

Site 4	71.48	}	
#1	80.50		
Low lease	76.63	}	
#3	79.51		
1 & 2 drill holes	79.95	}	Stag 2 (?)
Low lease 2	76.87		
Low lease 2	78.83	}	

TDW/mf

cc: WED  
GAB  
L. Halferdahl

\* The claim information has been added by  
Halferdahl & Associates Ltd.

**APPENDIX 8: ITEMIZED COST STATEMENT****a) Personnel**

C. Croq, field assistant field work and travelling 18 days between August 5 and 27, 1993 @ \$200.00	\$ 3,600.00
J. Dahrouge, geologist field work and travelling 10 days between August 4 and 18, 1993 3 days compiling data for report 13 days @ \$ 320.00	4,160.00
T. Faragher, geologist field work and travelling 5 days between August 4 and 13, 1993 34 days compiling data for report 39 days @ \$ 350.00	13,650.00
L.B. Halferdahl, geological engineer planning and organizing field work 4 days conducting and supervising field work, travelling 20½ days between August 5 and 27, 1993 13½ days compiling report 38 days @ \$ 550.00	20,900.00
B. Jovtoulia, geologist field work and travelling 22 days between August 4 and 27, 1993 2 days compiling data for report 24 days @ \$ 320.00	7,680.00
W. McGuire, field assistant, draftsman, computer operator field work and travelling 4 days between August 5 and 13, 1993 @ \$ 280.00	1,120.00
preparing base and final maps, computing analytical data 286 h @ \$ 30.00	8,580.00
J. Sefton, geologist field work and travelling 17 days @ \$ 380.00	6,460.00



J. Vezina, field assistant  
 field work and travelling  
 16 days between August 4 and 27, 1993  
 @ \$ 200.00

3,200.00

\$ 69,350.00

**b) Food and Accommodation**

114½ man-days in motel and restaurants @ \$ 53.49  
 (includes 2 days for helicopter pilot)

6,124.61

**c) Transportation**

Helicopter

12 h @ \$ 722.25 \$ 8,667.00  
 1023 L @ \$ 0.856 875.69

\$ 9,542.69

Airfares

Edmonton - Kamloops - Edmonton  
 5½ x \$ 465.84 \$ 2,562.12  
 (B.C. part only)

Victoria - Kamloops - Victoria  
 1 x \$ 502.90 502.90

3,065.02

Vehicle Rentals

22 days between August 4  
 and 27, 1993  
 4 x 4 truck, van \$ 1,865.56  
 gasoline, repairs, parking 445.39

2,310.95

Freight

Field gear \$ 55.75  
 Samples 185.99

241.74

15,160.40

**d) not applicable**

**e) not applicable**

**f) Analyses**

444 samples prepared and analyzed for major and minor constituents by ICP @ \$ 14.873	\$ 6,603.61	
3 computer diskettes @ \$ 6.42	19.26	
14 brightness analyses @ \$ 40.00	560.00	
	<hr/>	7,182.87

**g) Report** - typing, reproduction, assembly 1,312.00

**h) Other**

Base Maps	28.68	
Aerial photographs	589.78	
Photogrammetry	\$ 2,500.00	
Rental of 2-way radios	321.00	
Long distance telephone	135.76	
Copies of 1971 analyses	150.00	
	<hr/>	3,725.22
		<hr/>
		<b>\$ 102,855.10</b>

## **APPENDIX 9: QUALIFICATIONS**

T.A. Faragher obtained a degree in geology from the University of Alberta, Edmonton in 1988. He has had six years of experience in mining exploration.

The work described in the report was under the supervision of L.B. Halferdahl, who obtained degrees in geological engineering and geology from Queen's University, Kingston, Ontario, and The Johns Hopkins University, Baltimore, Maryland. He has more than 30 years experience as a practising engineer and geologist in research and mining exploration, including consulting since 1969. He is a member of the Canadian Institute of Mining and Metallurgy, and is registered as P. Eng. and P. Geol. in the Association of Professional Engineers, Geologists, and Geophysicists of Alberta, and registered as P. Eng. in the Association of Professional Engineers and Geoscientists of British Columbia.









LEGEND

- Tertiary ?  
D7 Intrusions
- Upper Permian  
Cache Creek Group  
Marble Canyon Formation  
Southwest Carbonate  
C6  
N5 Argillite, siltstone, conglomerate, schist  
C4 First Ridge Carbonate  
N3 Schist (sch), tuff and agglomerate (v), limestone and argillite (s), greenstone (g)  
C2 Second Ridge Carbonate  
N1 Volcanics

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ASSESSMENT REPORT

23,224

NOTES:

1. Base map prepared photogrammetrically from 1:20 000 aerial photos taken in 1980.
2. Geology modified after Trettin (1980).
3. Contour interval is 2m / 5m.

SYMBOLS

- Geological boundary (approximate, assumed) .....  
Fault (approximate, assumed) .....  
Bedding (horizontal, inclined, vertical) .....  
Schistosity, cleavage, foliation (inclined, vertical) .....  
Planar feature / joint (inclined, vertical) .....  
Synclinal axis (arrow indicates plunge) .....  
Anticlinal axis (arrow indicates plunge) .....  
Rock-chip sample with sample/section number .....  
Claim post (2 post, 4 post) .....  
Claim line .....  
Main road .....  
Access road, trail .....  
Diamond drillhole .....  
Power line .....  
Boundary of treed area .....

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Fig. 2.2 Geology and Samples, South Porcupine Ridge SE.					
KELLY LAKE AREA, B. C.					
0 100 200m					
Scale: 1:2000					
LBH 1993.12					





LEGEND

- Tertiary ?  
D7 Intrusions
- Upper Permian  
Cache Creek Group  
Marble Canyon Formation  
C6 Southwest Carbonate
- N5 Argillite, siltstone, conglomerate, schist
- C4 First Ridge Carbonate
- N3 Schist (sch), tuff and agglomerate (v), limestone and argillite (s), greenstone (g)
- C2 Second Ridge Carbonate
- N1 Volcanics

SYMBOLS

- Geological boundary (approximate, assumed) .....
- Fault (approximate, assumed) .....
- Bedding (horizontal, inclined, vertical) .....
- Schistosity, cleavage, foliation (inclined, vertical) .....
- Planar feature / joint (inclined, vertical) .....
- Synclinal axis (arrow indicates plunge) .....
- Anticlinal axis (arrow indicates plunge) .....
- Rock-chip sample with sample/section number ..... A-7
- Claim post (2 post, 4 post) .....
- Claim line .....
- Main road .....
- Access road, trail .....
- Diamond drillhole .....
- Power line .....
- Boundary of treed area .....

NOTES:

1. Base map prepared photogrammetrically from 1:20 000 aerial photos taken in 1980.
2. Geology modified after Trettin (1980).
3. Contour interval is 2m / 5m.

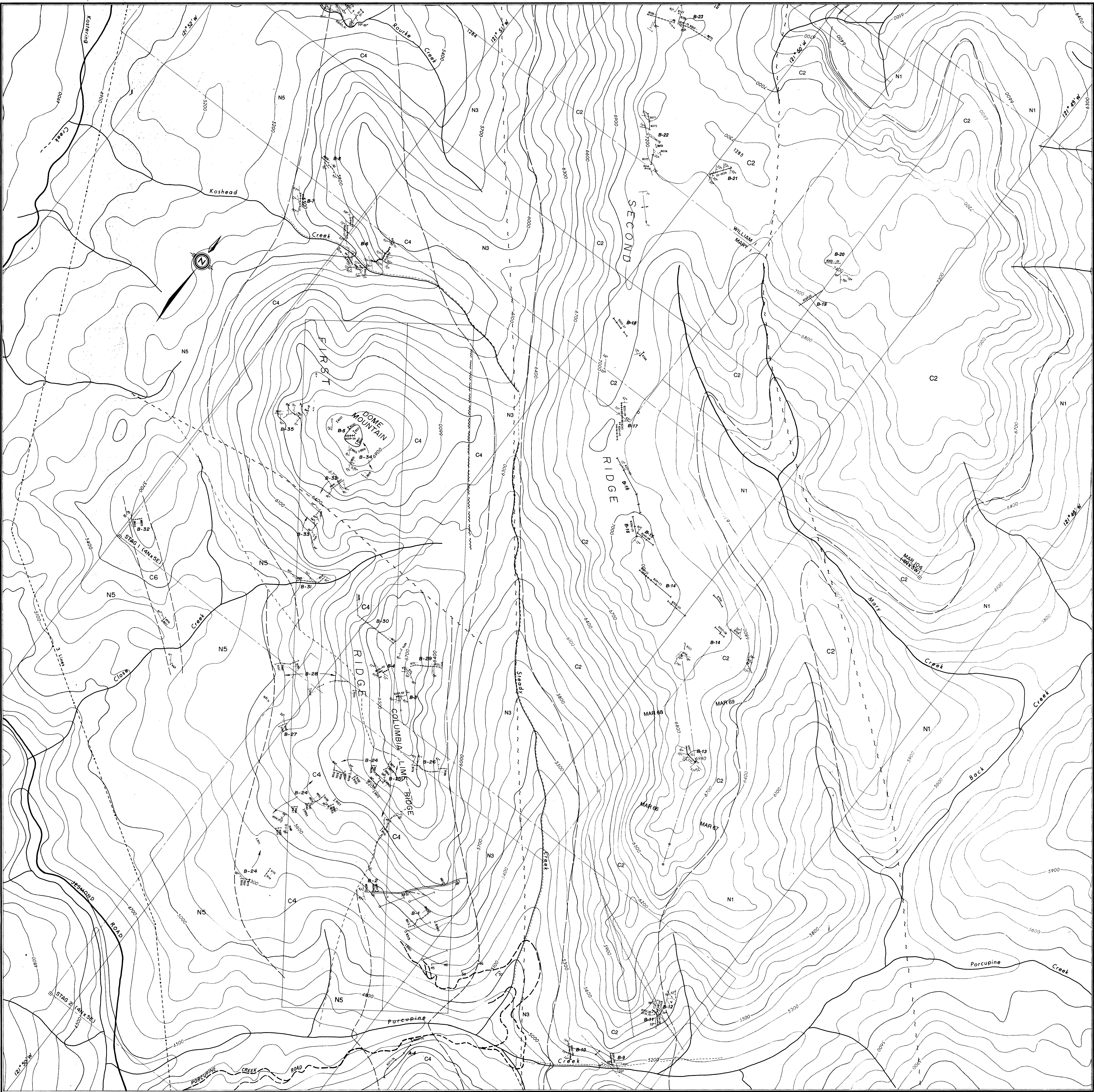
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Fig. 2.3 Geology and Samples, South Porcupine Ridge NW.							
KELLY LAKE AREA, B. C.							
0 100 200 m Scale: 1:2000							
LBH 1993.12							





LEGEND

- Tertiary ?  
D7 Intrusions
- Upper Permian  
Cache Creek Group  
Marble Canyon Formation  
C6 Southwest Carbonate
- N5 Argillite, siltstone, conglomerate, schist  
C4 First Ridge Carbonate  
N3 Schist (sch), tuff and agglomerate (v), limestone and argillite (s), greenstone (g)  
C2 Second Ridge Carbonate  
N1 Volcanics

SYMBOLS

- Geological boundary (approximate, assumed) .....  
Fault (approximate, assumed) .....  
Bedding (horizontal, inclined, vertical) .....  
Schistosity, cleavage, foliation (inclined, vertical) .....  
Planar feature / joint (inclined, vertical) .....  
Synclinal axis (arrow indicates plunge) .....  
Anticlinal axis (arrow indicates plunge) .....
- Rock-chip sample with sample/section number .....  
Claim post (2 post, 4 post) .....  
Claim line .....  
Main road .....  
Access road, trail .....  
Diamond drillhole .....  
Power line .....

NOTES:

1. Base map prepared from enlargement of part of 1:50 000 92P/4 topographic map.
2. Geology modified after Tretin (1980).
3. Contour interval is 100 ft.

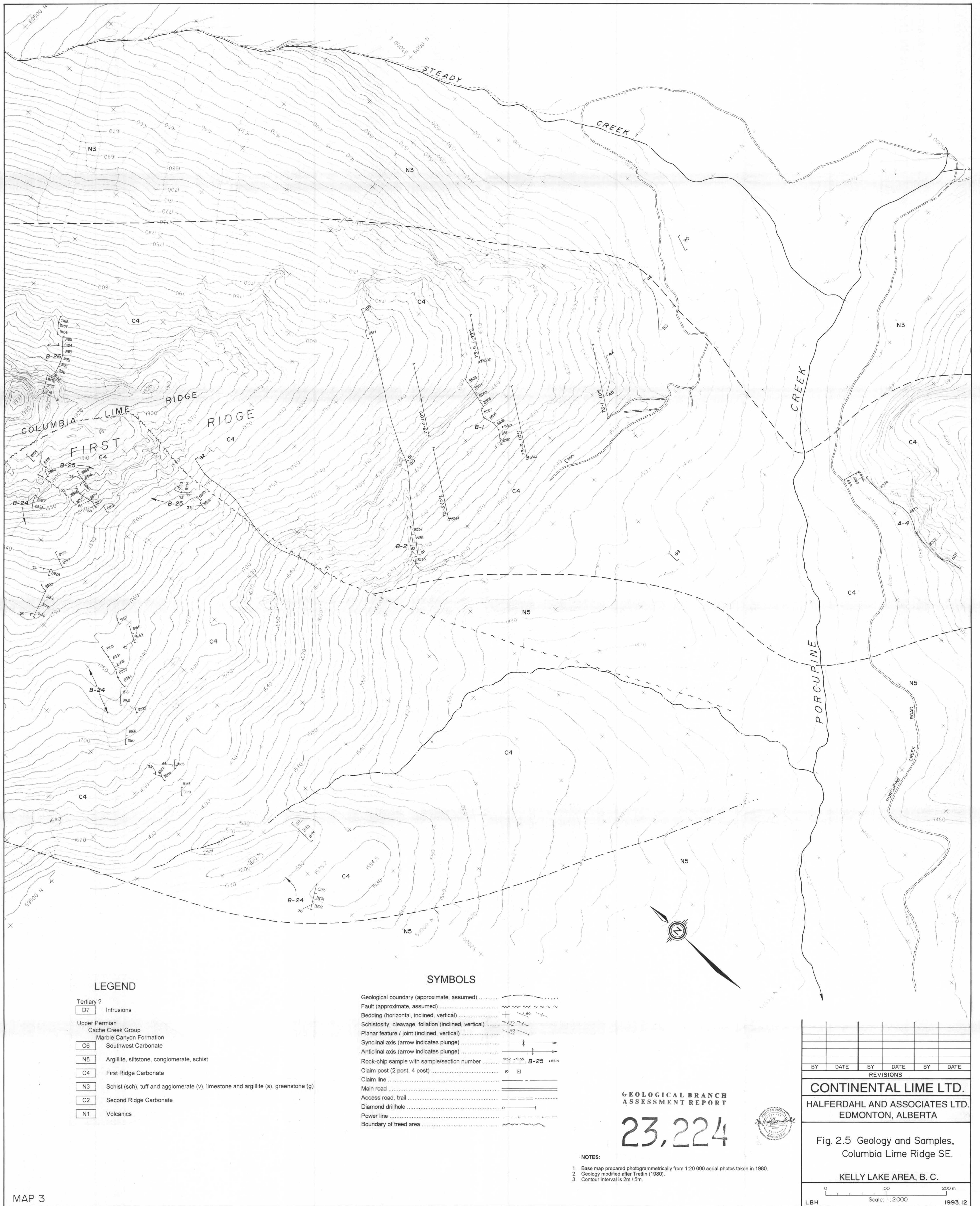
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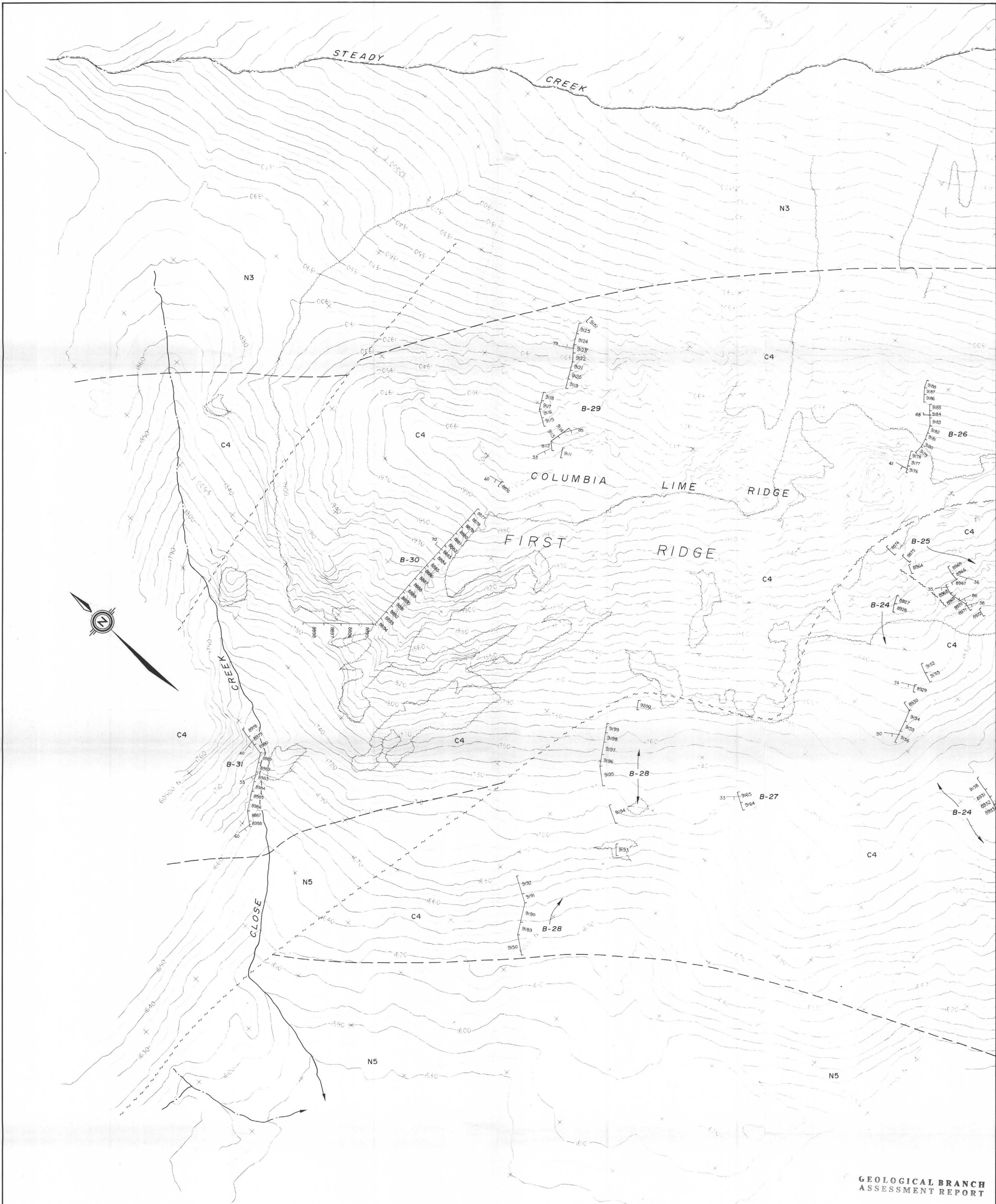


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Fig. 2.4 Geology and Samples, Sheet B					
KELLY LAKE AREA, B. C.					
0 100 200 300 400 500 m					
SCALE: 1:5000					
LBH 1992.08					









LEGEND

- Tertiary ?  
D7 Intrusions
- Upper Permian  
Cache Creek Group  
Marble Canyon Formation  
C6 Southwest Carbonate
- N5 Argillite, siltstone, conglomerate, schist
- C4 First Ridge Carbonate
- N3 Schist (sch), tuff and agglomerate (v), limestone and argillite (s), greenstone (g)
- C2 Second Ridge Carbonate
- N1 Volcanics

SYMBOLS

- Geological boundary (approximate, assumed) .....
- Fault (approximate, assumed) .....
- Bedding (horizontal, inclined, vertical) .....
- Schistosity, cleavage, foliation (inclined, vertical) .....
- Planar feature / joint (inclined, vertical) .....
- Synclinal axis (arrow indicates plunge) .....
- Anticlinal axis (arrow indicates plunge) .....
- Rock-chip sample with sample/section number .....
- Claim post (2 post, 4 post) .....
- Claim line .....
- Main road .....
- Access road, trail .....
- Diamond drillhole .....
- Power line .....
- Boundary of treed area .....

NOTES:

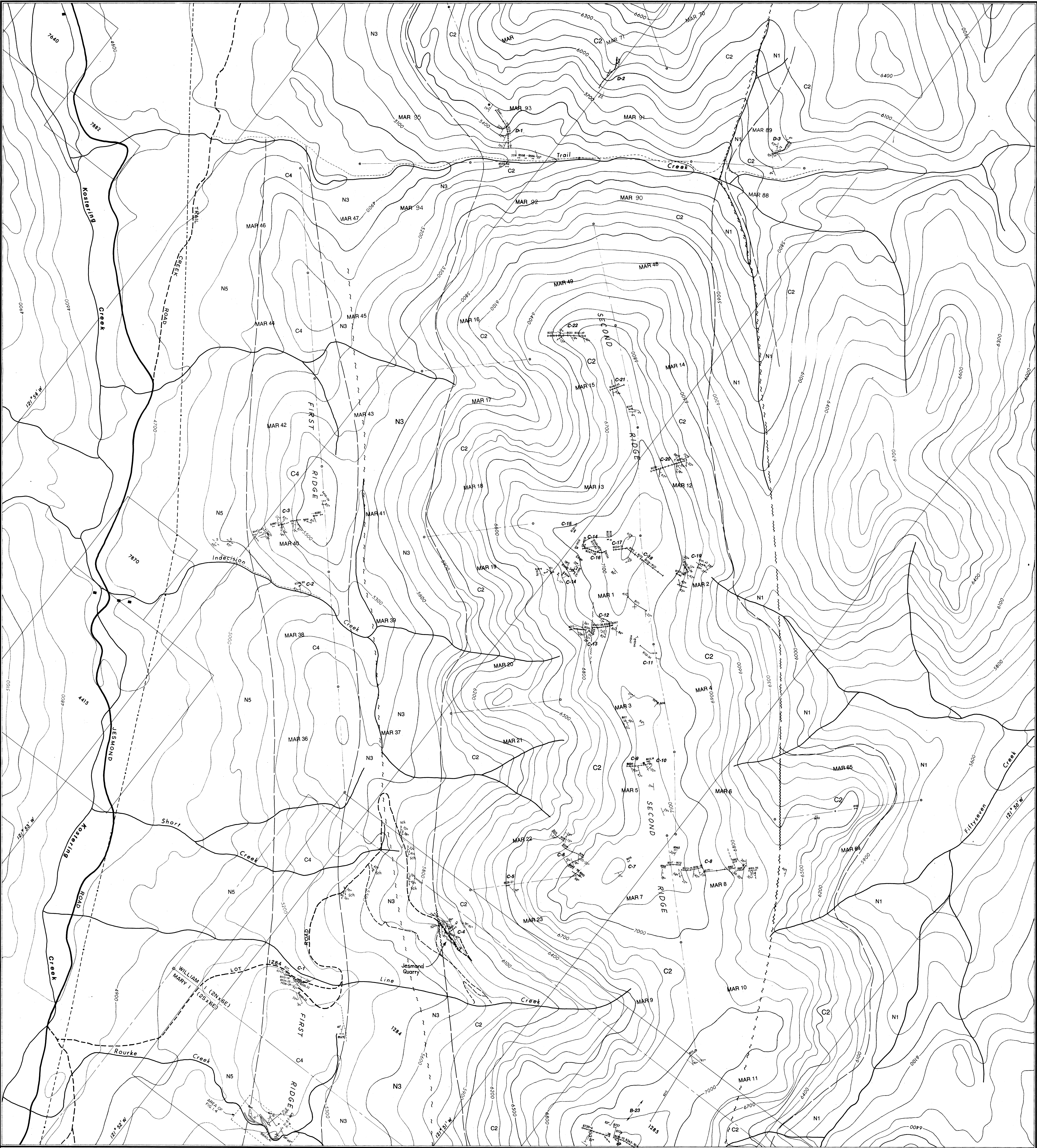
1. Base map prepared photogrammetrically from 1:20 000 aerial photos taken in 1980.
2. Geology modified after Trettin (1980).
3. Contour interval is 2m / 5m.

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ASSESSMENT REPORT

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Fig. 2.6 Geology and Samples, Columbia Lime Ridge NW.					
KELLY LAKE AREA, B. C.					
0 100 200 m Scale: 1:2000					
LBH 1993.12					





LEGEND

- Tertiary ?  
D7 Intrusions
- Upper Permian  
Cache Creek Group  
Marble Canyon Formation  
C6 Southwest Carbonate  
N5 Argillite, siltstone, conglomerate, schist  
C4 First Ridge Carbonate  
N3 Schist (sch), tuff and agglomerate (v), limestone and argillite (s), greenstone (g)  
C2 Second Ridge Carbonate  
N1 Volcanics

SYMBOLS

- Geological boundary (approximate, assumed) .....  
Fault (approximate, assumed) .....  
Bedding (horizontal, inclined, vertical) .....  
Schistosity, cleavage, foliation (inclined, vertical) .....  
Planar feature / joint (inclined, vertical) .....  
Synclinal axis (arrow indicates plunge) .....  
Anticlinal axis (arrow indicates plunge) .....
- Rock-chip sample with sample/section number .....  
Claim post (2 post, 4 post) .....  
Claim line .....  
Main road .....  
Access road, trail .....  
Diamond drillhole .....  
Power line .....

- NOTES:
1. Base map prepared from enlargement of part of 1:50 000 92P/4 topographic map.
  2. Geology modified after Trettin (1980).
  3. Contour interval is 100 ft.

REVISIONS					
BY	DATE	BY	DATE	BY	DATE
LBH	1993.12				

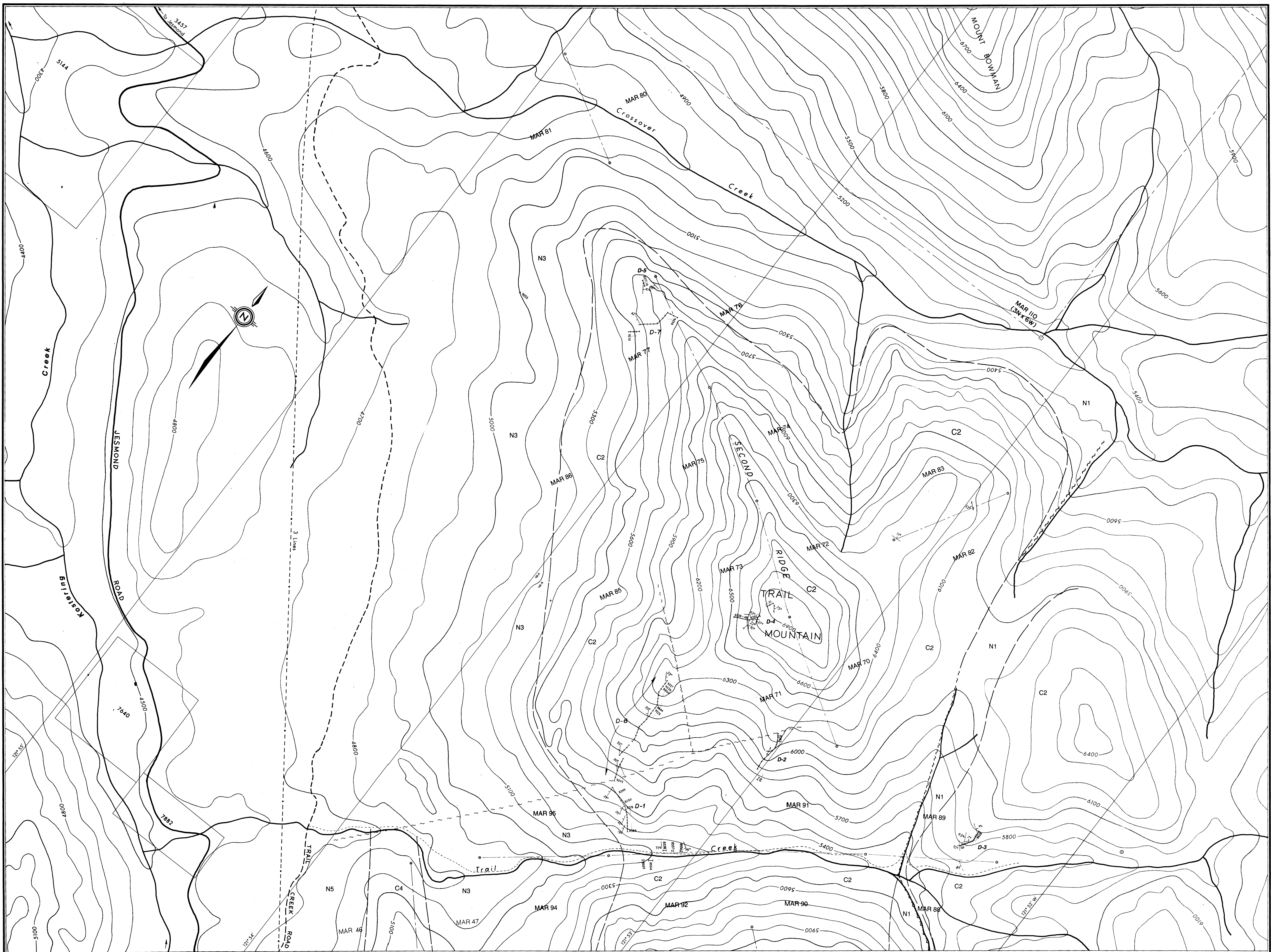
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HALFERDAHL & ASSOCIATES LTD.  
EDMONTON, ALBERTA

Fig 2.7 Geology and Samples,  
Sheet C

KELLY LAKE AREA, B. C.

0 100 200 300 400 500 m  
SCALE: 1:5000  
LBH 1992.08





### LEGEND

- Tertiary ?  
D7 Intrusions
- Upper Permian  
Cache Creek Group  
Marble Canyon Formation  
C6 Southwest Carbonate
- N5 Argillite, siltstone, conglomerate, schist
- C4 First Ridge Carbonate
- N3 Schist (sch), tuff and agglomerate (v), limestone and argillite (s), greenstone (g)
- C2 Second Ridge Carbonate
- N1 Volcanics

### SYMBOLS

- Geological boundary (approximate, assumed) .....
- Fault (approximate, assumed) .....
- Bedding (horizontal, inclined, vertical) .....
- Schistosity, cleavage, foliation (inclined, vertical) .....
- Planar feature / joint (inclined, vertical) .....
- Synclinal axis (arrow indicates plunge) .....
- Anticlinal axis (arrow indicates plunge) .....
- Rock-chip sample with sample/section number ..... 8227-12 p. 12
- Claim post (2 post, 4 post) ..... o o
- Claim line ..... - - - - -
- Main road ..... =
- Access road, trail ..... - - - - -
- Diamond drillhole ..... o
- Power line ..... - - - - -

### NOTES:

1. Base map prepared from enlargement of part of 1 : 50 000 92P/4 topographic map.
2. Geology modified after Trettin (1980).
3. Contour interval is 100 ft.

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Fig 2.8 Geology and Samples,  
Sheet D

KELLY LAKE AREA, B. C.

0 100 200 300 400 500 m  
SCALE 1:5000  
LBH 1992.08



