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COBEQUID PROJECT
URANIUM ASSESSMENT REPORT
COBEQUID III
NOVA SCOTIA
NTS: PART OF 11E/11B, 11C AND 11E/12A, 12D

PART 1 OF 3

- 1980 -

11E/12D
434094

Gulf

Gulf Minerals Canada Limited

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Nov 27 12 26 '80
SCOTIA

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A REPORT ON

GEOLOGICAL MAPPING
PLEISTOCENE GEOLOGY
GEOCHEMISTRY
PROSPECTING
REVERSE CIRCULATION DRILLING
DIAMOND DRILLING

Gulf

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MAY

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MSL

Gulf Minerals Canada Limited

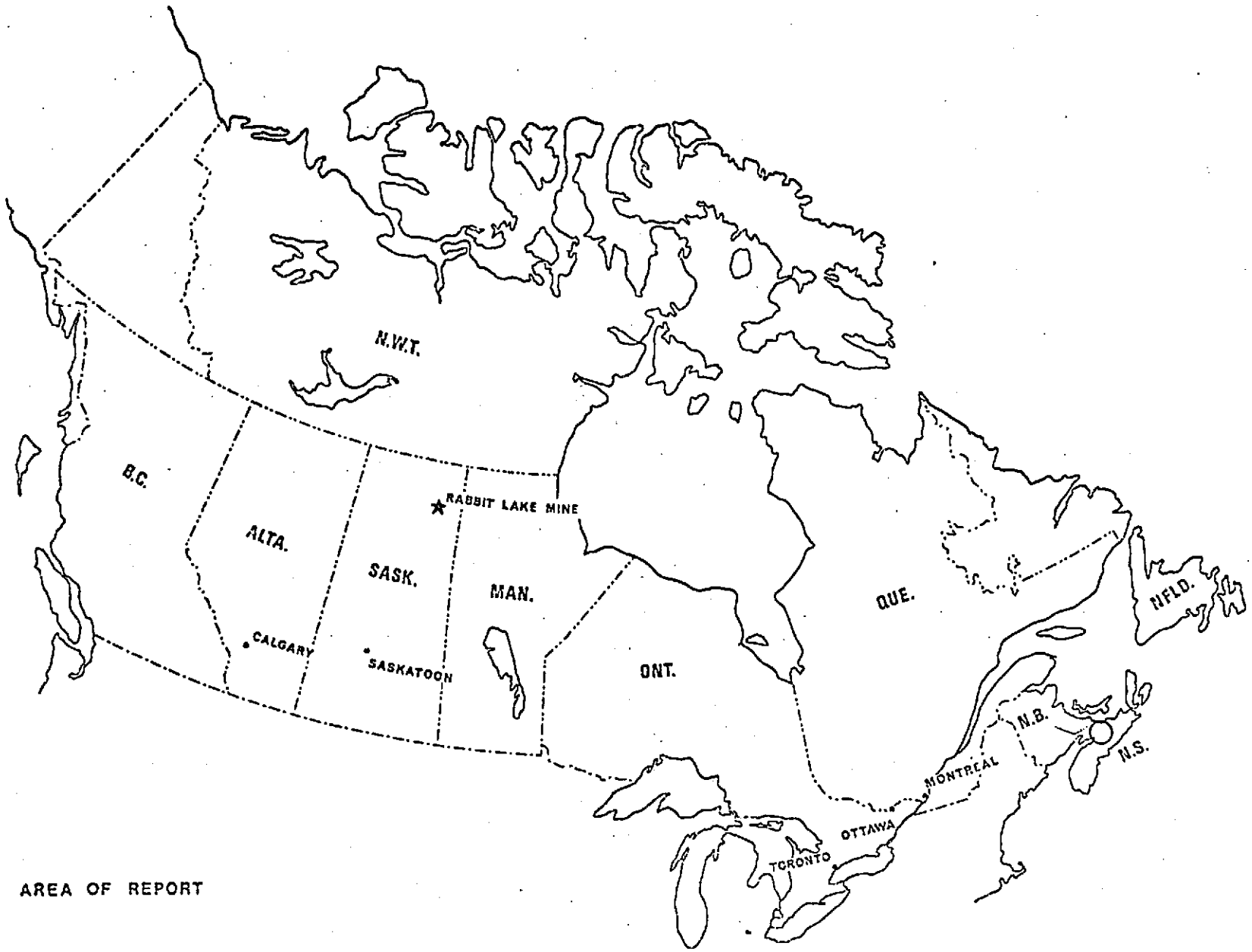
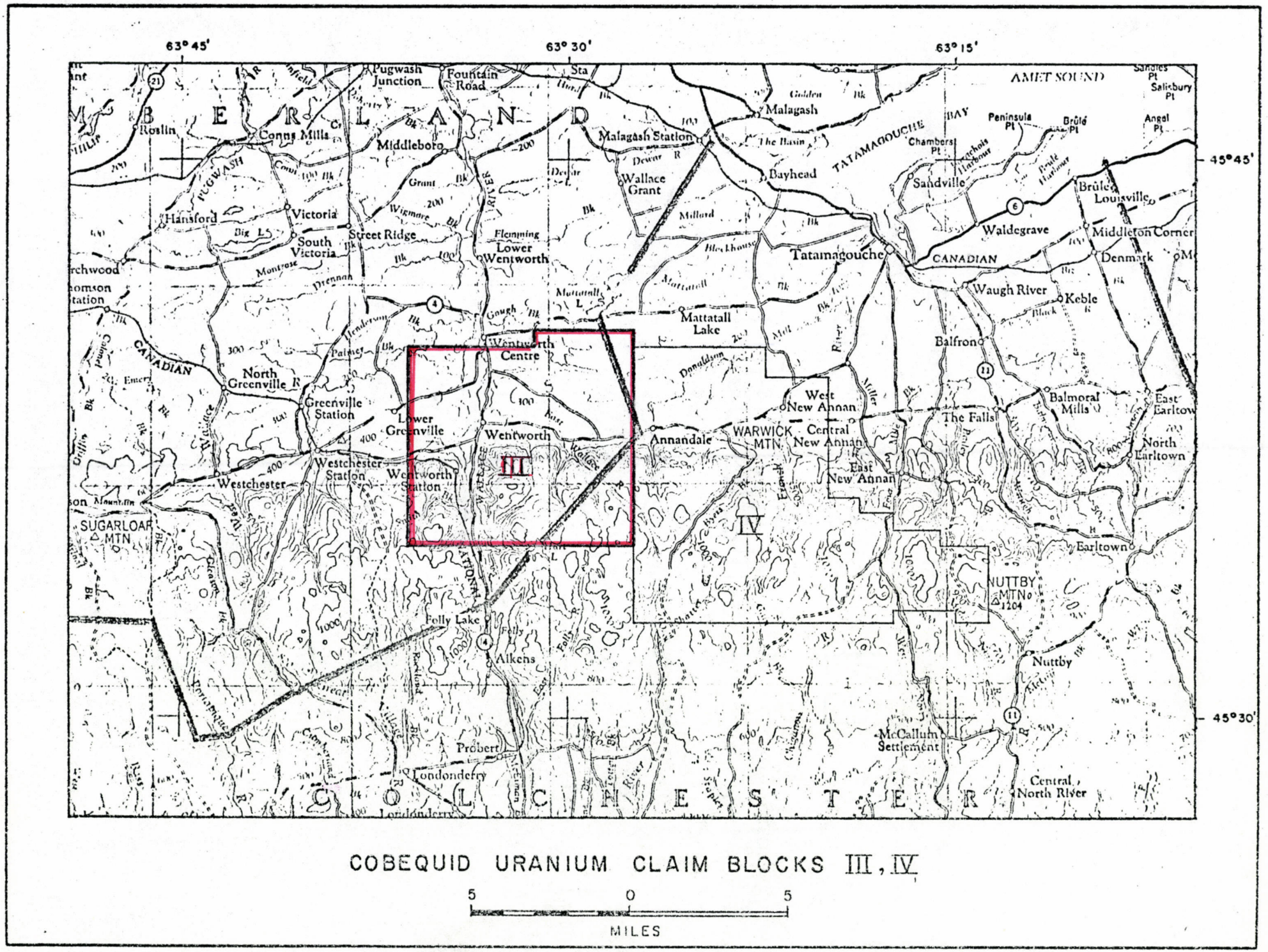


FIGURE 1



COBEQUID URANIUM CLAIM BLOCKS III, IV

5 0 5

MILES

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1.0 INTRODUCTION

1.1 Summary

On November 14, 1976, Gulf Minerals Canada Limited acquired a 752 claim block centered on the Wentworth Valley in Cumberland County, Nova Scotia. This block of land is referred to as Cobequid III. Table I lists the land retained by Gulf Minerals Canada Limited for 1981.

The discovery of radioactive boulders in the area by prospectors in the fall of 1976, created interest in the area. Forty-seven square miles were staked as a result of this interest. By late November, 1976, prospecting and limited diamond drilling had been carried out on the property.

Early in May, 1977, helicopter-borne radiometric, magnetic and electromagnetic surveys were conducted over the property. Prospecting, geological mapping, geochemistry and ground geophysics followed the airborne survey. One hundred and thirty miles of grid were cut on the property in July and August. A diamond drilling program was initiated in late August, and continued to late December.

Detailed geological mapping of the Swan Brook Grid started in early May, 1978. On the basis of 1977 results, a soil geochemistry program was initiated on the grid late in May. Prospecting continued on the grid throughout the field season. A diamond drill program was initiated late in July. During late October and November, an orientation reverse circulation deep overburden sampling program was undertaken.

Early in May, 1979, prospecting, ground geophysics, and geochemistry and combined detailed mapping with rock analysis programs were started. The soil geochem, EM-16, and magnetometer surveys were completed. A reverse circulation drilling program was started in late September, 1979.

TABLE I

COBEQUID III
LAND RETAINED FOR 1981

MAP	LICENCE NO.	TRACTS	CLAIMS
11E 11B	1231	61, 62	J-Q
11E 11B	1231	83, 84	A-Q
11E 11B	1231	85, 86	A-H
11E 11B	1232	85, 86	J-Q
11E 11B	1232	107, 108	A-Q
11E 11C	1232	11, 12	A-H
11E 12A	1235	93	J, K, P, Q
11E 12A	1235	94	J-Q
11E 12A	1235	99	A-H
11E 12A	1235	100	A, B, G, H, J, K, P, Q
11E 12D	1235	4	A, B, G, H
11E 12A	1236	95, 96, 99	J-Q
11E 12A	1236	97, 98	A-Q
11E 12D	1236	1, 2, 3	A-H
11E 12A	1238	75	A-H
11E 12A	1238	76	A, B, G, H, J, K, P, Q
11E 12A	1238	93	A, B, G, H
11E 12A	1240	73, 74	A-Q
11E 12A	1240	75	J-Q
11E 12D A	1240	94, 95, 96	A-H

During the 1980 field season, a program of detailed geological mapping, rock analysis, pleistocene geology, and prospecting was started. A diamond drill program was initiated late in July, and was completed in mid-November.

1.2 Personnel

For the 1980 field season, Gulf personnel employed on the property were:

J. Alcock	Pleistocene Geologist	T
B. Alexander	Geologist	P
J. Bennett	Logger	P
D. Bird	Junior Geologist	T
P. Cashin	Geologist	T
S. Chambers	Junior Geologist	T
C. Capell	Geologist	T
G. Davison	Drill Geologist	T
N. Downey	Project Geologist	P
E. Dresel	Geologist	T
W. France	Prospector	T
D. Harper	Logger	P
K. Horan	Logger	P
A. Seguin	Prospector	T
S. Seguin	Cook	T
R. Snow	Junior Geologist	T
L. Strom	Camp Clerk	T
C. Thomson	Junior Geologist	T
D. Weatherbee	Bull Cook	T

Contractors employed on the property were:

C. Weatherbee	Backhoe Operator Wentworth, Nova Scotia
St. Lambert Drilling Co. Ltd.	Diamond Drillers Valleyfield, Quebec
H. C. Teng	Geological Consultant Fredericton, New Brunswick

All work was done under the supervision of Mr. C. R. Burkhart and Mr. G. I. Pearson, of Gulf's Toronto office.

2.0 GEOLOGY

2.1 Introduction

Geological mapping was conducted by two-man crews consisting of a geologist and a junior assistant. All personnel were equipped with a Scintrex BGS-1SL scintillometer for measuring radioactivity. Mapping was mainly confined to the Swan Brook grid. Air photos at a scale of 4 inches to one mile and 1:10,000 were used for control. Results were plotted on 1/4 mile to 1 inch Dept. of Lands and Forests base maps. Results from the Swan Brook grid were plotted on 1 inch to 400 foot base maps.

All outcrops shown on the geological compilation maps were examined in the field by Gulf personnel. Geological Survey of Canada maps by Fletcher, and work by Wallace and Donohoe, reported in Nova Scotia Department of Mines publication 77-1, preliminary map 78-1, and more recently, the Geological Map of Nova Scotia, compiled by J. Duncan Keppie (1979), were used as reference for field work and interpretation.

2.2 Regional Geology

The Cobequid Mountains form a resistant upland ridge feature trending east-west across north central Nova Scotia for over 200 kilometres. Gulf Minerals Canada Limited Cobequid III property occupies the central region of this upland and extends from the Trans-Canada Highway in the west to Big Snare Lake in the east.

The mountains are formed of variably deformed volcanic and sedimentary sequences which have been affected by numerous stages of granitic and dioritic intrusion. The oldest intrusive body in the Cobequids is the Jeffers Brook Pluton near Parrsboro, which has been dated as late Precambrian to early Cambrian in age (Wanless, et al, 1972). The youngest intrusives are the diabase dykes associated with basaltic volcanic activity in the Triassic.

At present, exploration efforts are being concentrated upon the lower to middle Devonian volcanic, intrusive and sedimentary rocks of the Byers Brook Formation.

Structural and lithologic discontinuities within the highlands prevent widespread correlation of stratigraphic or lithologic units and locally result in complex and/or ambiguous relationships between sequences.

Interpretation of data presently available indicates that poly-deformed sedimentary sequences such as the Bass River Complex may represent the basement material of the highlands that predates the known late Precambrian near Parrsboro. Since all occurrences of this material are fault bounded, the true stratigraphic relationship of the Devonian and older rocks to it is unknown.

Multiple intrusions of granitic and dioritic bodies into the sedimentary and volcanic sequences probably coincided with the waning stages of the late-mid Devonian Acadian Orogeny and these now form a core system to the highland. (A distinction among these intrusives is the presence or absence of a tectonic fabric which thusly defines relative age relationships). Recent age dating indicates that some degree of granitic intrusive activity continued into lower Mississippian times (see Wallace and Donohoe, 1977, p. 174).

Middle Devonian basaltic volcanics outcrop in the eastern highlands and are associated with conglomeratic terrestrial red beds. Subsequent sedimentation was confined to the basins skirting the upland on the north and south with the Cobequids supplying clastic material in response to continued erosion.

TABLE II

LEGEND - COBEQUID PROJECT
(After Donahoe and Wallace)

PALEOZOIC — Pennsylvanian

$_{L}C_{BP}$ — Boss Point Formation: arenite, siltstone, shale, conglomerate mudstone.

Devonian to Carboniferous

DC_{N} — Nuttby Formation: siltstone, arenite, conglomerate.

DC_{d} — Non-Foliated Diorite

C_{G} — Non-Foliated Granite

Devonian

LATE

$_{L}D_{F}$ — Falls Formation: red polymict conglomerate, wacke, siltstone.

MIDDLE

$_{M}D_{D}$ — Diamond Brook Formation: basalt, siltstone, wacke.

$_{M}D_{B}$ — Byers Brook Formation: rhyolitic flows, ignimbrite, intermediate to felsic ashfall tuff, local agglomeratic siltstone and wacke.

HADRYNIAN — Late Precambrian

H_{W} — Warwick Mountain Formation: phyllite, felsic tuff, mafic metavolcanic rocks, wacke, siltstone, agglomerate.

P — Bass River Complex

P_{GV} — Great Village River Gneiss: hornblende-plagioclase gneiss.

P_{GB} — Gamble Brook Schist: quartzite, quartz-mica schist.

P_{F} — Folly River Schist: chlorite schist, mafic metavolcanic rocks, quartzite.

2.3 Rock Units

Unit: Bass River Complex

The Bass River Complex (P) consists of a metavolcanic-metasedimentary sequence which has been intensely deformed by at least two deformational events. Rocks of this complex have been dated as late Precambrian in age. The complex has been separated into three separate sub-units increasing in age respectively.

(i) Great Valley River Gneiss (P_{GV})
Consisting of a well-foliated hornblende-plagioclase gneiss.

(ii) Gamble Brook Schist (P_{GB})
Composed of dark grey to white, fine grained quartzite and well foliated quartz-mica schist.

(iii) Folly River Schist (P_F)
Composed of dark green to black chlorite schist, dark green, very fine grained mafic meta-volcanic rocks, and dark grey to white, fine grained quartzite.

Unit: ($_MD_B$) Byers Brook Formation

Unit $_MD_B$, of most interest in the Cobequid Project, is the Byers Brook Formation (previously the Earltown Sequence), and is dated as lower to middle Devonian. The unit is composed of minor amounts of green conglomerate and greywacke, red, pink, green to grey, aphanitic and porphyritic rhyolite, flow banded rhyolite, ignimbrite, felsic agglomerate and intermediate to felsic ashfall tuff. Also included in this unit are green quartz wacke, mudstone, and laminated shale, with interbedded rhyolitic tuff.

Unit: ($_{M}D_{O}$) Diamond Brook Formation

The Mid-Devonian Diamond Brook Formation is transitional from the Byers Brook Formation. It consists of fine grained to aphanitic, black to dark green vesicular to amygdaloidal basalt with calcite and zeolite infillings. Calcite, epidote stringers and traces of disseminated sulphides are evident. The unit appears to be younging north with individual flows distinguishable in some localities by the presence of a reddish basalt flow top. Interbedded with the basalt are dark grey, red to black, fine grained siltstones, argillites and mudstones; red, green and grey wackes with abundant volcanic fragments and well bedded, grey conglomerates.

Unit: $_{L}D_{F}$ Falls Formation

The Falls Formation ($_{L}D_{F}$), of late Devonian age, is composed of purple to red polymict conglomerates containing fragments of mafic volcanics, grey quartzite and rhyolite. This conglomerate is poorly sorted and well banded with fragments ranging from 0.5 mm. to 150 mm. in size. Carbonate stringers are abundant throughout this unit. Wackes and siltstones are also present in the unit.

Unit: DC_{d} and C_{G} Non-Foliated Plutonic Rock

This unit is composed of diorites (DC_{d}) and granites (C_{G}) dated as late Devonian to early Mississippian in age. Chemical analyses show the granites to be oversaturated peralkaline type. The diorites were found to be tholeiitic.

Unit: $_{L}C_{BP}$ Boss Point Formation

The Boss Point Formation ($_{L}C_{BP}$) of lower Pennsylvanian age consists of alternating sequences of red, white to green sandstones, grey to red conglomerates, red siltstones and red to grey mudstones, in part calcareous.

The sandstones encountered varied from red, greenish-red to white and were commonly feldspathic to arkosic with interbedded lenses of grey calcareous conglomerate. Numerous green reduction zones, variable organics, fine laminations, trough cross-bedding, and limonitic specks are evident. Locally, organic debris and plant remains accumulate in the depressions in cross-bedding, often with coal. Minor malachite staining and radioactivity may also be present.

2.4 Detailed Geology

The Byers Brook Formation of lower to middle Devonian age consists of a conformable sequence of continental ashfall tuffs, ignimbrites, flow banded rhyolites, felsic agglomerates interbedded with minor mafic volcanics, siltstones, conglomerates and wackes. The rocks generally strike E-W to NW-SE and are vertical to steeply dipping. No observable deformation has been found and the volcanic pile youngs north. Ignimbrites are found to predominate in Block III. They are characterized by a streaky nature and by the presence of flattened pumice of "fiammi". Commonly in association with these ignimbrites are ashfall tuffs which form from deposition of volcanic ash and which incorporate quartz and feldspar crystals, crystal fragments, and lithic fragments. Tuffs are both waterlain and aerial in deposition. There is limited evidence for them having been water-worked and/or reworked, and deposited in what were probably small enclosed basins within the volcanic terrain. These tuffs are found to occur as extensive units across the block and as small discontinuous lenses. These two rock types are commonly associated with explosive volcanic activity. Flow banded rhyolites, on the other hand, dictate far less volatile activity and due to their high viscosity, are observed to have limited lateral extent. Flow banding within these lavas is intermittently but widely evident. The interbedded sediments observed indicate sedimentation during periods of non-eruption. Minor sulphides (pyrite >> chalcopyrite)

are found to occur in varying abundance throughout the sequence. The thickness of units decreases towards the east, and may imply distance away from the vent to the west.

Proceeding northeastward up section, the percentage of basalt in the section increases until only basalts are present. This can be observed in the northern part of Block III. This observation illustrates the contact relationship between the Byers Brook and Diamond Brook Formations. The middle Devonian Diamond Brook Formation is a large southwesterly trending block of predominantly basaltic flows and interbedded sediments younging north.

A bimodal system of dioritic and granitic rocks are found to intrude the Byers Brook rocks. The diorites are fine to medium grained dark greenish to greyish rocks with a compositional range of 46% to 54% SiO_2. They are found to occur throughout the volcanic sequence. These diorites commonly have disseminated magnetite associated with them and, in the large bodies, are associated with airborne magnetic anomalies. The fine to coarse grained pinkish hornblende granites are more restrictive in nature and are confined to the south of Block III. These granites have a compositional range of 70-75% SiO_2. Both these intrusions have been dated as early Mississippian to late Devonian age.

2.5 Faulting

Two common fault sets are observed to predominate the volcanic pile. A NW-SE system, most strongly evident along the East Wallace River, represents a very strong EM conductor. Lack of outcrop exposure makes lateral displacement measurements impossible. A system of N-S faults is commonly exposed throughout Block III. The faults occur as swarms and have been observed from pre-Carboniferous times through to the Triassic. These faults show right lateral displacement ranging from 15 feet to as much as 3,000 feet.

TABLE III

COBEQUID PROJECT

Legend - November 26, 1980

		prismacolour no.
Extrusive Volcanics:		
7	Mafic Volcanics	909
	7a - andesite	
	7b - basalt	
8	Felsic Volcanics - dacite, rhyolite	
	8a - ignimbrite	913
	8b - ash fall tuff, crystal tuff	946
	8c - flow banded rhyolite	942
	8d - massive or undetermined	
	8e - breccia	931
9	Agglomerates	
	9Mx - mafic fragments in mafic matrix	
	9Fx - felsic fragments in felsic matrix	
	9M - mixed	
Sediments:		936
10	(a) argillite (b) quartzite (c) conglomerate	
	(d) sandstone (e) siltstone (f) mudstone	
	(g) phyllite	
	bedding or foliation: D - distinct	
	I - indistinct	
Intrusives Volcanics:		929
11	Granite	
	11a - pink leucocratic granite	
	11b - pink mesocratic granite	
	11c - white-grey granite-granodiorite	
12	Diorite	903
	12a - unaltered diorite	
	12b - altered/metamorphosed diorite	
13	Diabase	935
	13a - unaltered diabase	
	13b - "spotted" diabase	
	13c - aphanitic altered diabase	
14	Gabbro, Pyroxenite-Peridotite	901
15	Felsic and Porphyritic Intrusives	924

3.0 PLEISTOCENE GEOLOGY

3.1 Introduction

This report of the 1980 Cobequid Project Pleistocene Program covers the field work results and conclusions, for the three main areas of study:

1) The investigation of the origin and characteristics of the DF mineralized boulder train, and delineation of a probable source area.
2) The study of the agglomerate boulder distribution in O zone and delineation of a probable source area for this marker unit.
3) The study of the JE zone glacial sediments and the associated mineralized boulder groups, and identifying, if possible, the source area.

Field work was carried out by a three man crew. A backhoe was used for excavating trenches for till studies. All personnel were equipped with Scintrex BGS-1SL scintillometers for measuring radioactivity.

3.2 The DF Mineralized Boulder Train

3.2.1 Introduction

Detailed field work and analyses of the DF mineralized boulder train was conducted to locate the source area of the mineralized boulders. The main lines of study were concentrated on:

- the entire boulder train's origin through landform and sediment analyses.
- measurement of till fabrics for ice flow direction and sediment transport direction.
- measurement of surface boulder and till clast dispersion to provide estimates of transport distance.
- analysis of the main soil uranium anomaly.

3.2.2 The Boulder Train Origin

The DF boulder train is part of a valley-bottom lag deposit. It was left when southward flowing meltwaters winnowed the fines from a bouldery ablation till, but did not significantly move or mix the boulders.

This lag deposit hypothesis is supported by landform interpretation. The main DF esker systems have been examined, and using the nature of branch junctions, and the discovery of an indicator rock type boulder at an esker found north of its only known exposure, it has been assumed that the southward flowing meltwater stream probably existed between the valley wall and a mass of ice still occupying the valley bottom. This stream truncated the southern ends of the esker systems, carbed terraces on the east valley wall of the Middle Branch of Swan Brook, and left concentrations of surface boulders on the terraces.

Later, when most of the ice was gone, the meltwaters collected in a southward-flowing river which eroded the fines from the local boundery ablation till, leaving a surface boulder concentration containing mineralized rhyolite boulders formerly dispersed in the ablation till. It is estimated that only a few feet of ablation till need be winnowed to produce such a surface boulder concentration.

Studies of the sediments and their stratigraphy show washed ablation tills with surface boulder deposits to the north of and throughout the mineralized boulder train. South of the train, outwash and lacustrine sediments are present. These sediments indicate a former glaciofluvial system which flowed south because of ice blockage to the north. No definite imbrication or sedimentary structures were found for verifying the former flow direction.

3.2.3 Ice Movement

Till fabric results indicate a 165° ice flow direction throughout the DF area. This direction is reliable, and has been used for projecting the path of transport for the mineralized boulder train and the mineralized uranium anomaly.

3.2.4 The Surface Boulder Dispersion Study

Four study sites were initially sampled and analysed as part of the boulder dispersion study. Three more were completed later. The results of the first sampling provided the basis for a bedrock trenching program in a postulated source area. The second phase allowed a denser sampling pattern and further analyses.

Fifty boulders were sampled along a north-south line through the mineralized boulder train, and observations on these boulders were made on rock type, length of longest axis, general geometric shape, and degree of rounding of edges.

The results of the first phase of sampling indicated that flow-banded rhyolite increased to a maximum percentage at approximately 500 feet down ice from its outcrop. The appearance of till clasts in glacial sediments directly over the outcrop was also observed.

These indications of rapid upshearing of bedrock debric into the ice led to an estimate of distance of mineralized boulder transport of 500 feet. It was assumed the brecciated and flow-banded rhyolites would have responded to ice plucking and shearing in a similar manner. This places the projected target area 500 feet north of the main concentration of mineralized boulders, between lines 48E and 52E, and 30S and 35S.

The glacial sediments, in the target area are also moderately anomalous. This is based on assays from geochemical sampling in trenches during 1979.

This target area was trenched to bedrock at approximately 100 foot intervals. Sites of previous reverse circulation or diamond drilling were not trenched. No significant mineralization was found.

The results of the first study led to the second phase of boulder sampling and a reinterpretation of the data. Two major conclusions were reached:

1) Diorite, granite and flow-banded rhyolite all showed preferential increases in percentage of total above and immediately down-ice from their plotted outcrops. This indicates rapid upshearing of basal debris and transport in the upper ice.
2) Ashfall tuff, flow-banded rhyolite, undifferentiated rhoylite, and diorite all showed fairly constant average size over distance down-ice. This may suggest that once the boulders were sheared into the upper ice zone, they suffered little abrasion. An alternate interpretation is that while boulders were being transported within the ice, newly upsheared large boulders were added to the accumulation. This resulted in a fairly constant average size over a long down-ice distance, despite continued abrasion.

The maximum transport distance for flow-banded rhyolite indicated by the boulder study is over 1,000 feet. Since trenching at a short distance from the boulder train did not find mineralization, the possibility of a longer distance of transport was investigated using till clast, soil, and overburden anomaly studies.

3.2.5 Till Clast Dispersion Study

The analysis of till clasts was continued and a series of maps were drafted showing rock type percentage frequencies for the different genetic till varieties. The main purpose of this sampling was to gain an estimation of distance of till clast transport, both in the highly abraded basal sediments, and the less-abraded ablation sediments. The interpretation of results must be cautious since the rock type distributions are poorly known.

For the ablation tills sampled, undifferentiated rhyolite, ashfall tuff, and ignimbrite were observed to still form a small percentage of total at 1,000 to 1,200 feet from source onto the granite upland. Diorite clasts have travelled between 900 and 1,100 feet over the granite. Basal lodgement and melt out tills have volcanic rocks transported 1,000 to 1,200 feet from source onto the granite, and undifferentiated rhyolite 900-1,100 feet onto the granite uplands.

Interpretation of the till clast lithology maps indicates that clasts are quickly upsheared into the ice and carried for long distances before being abraded and diluted to very small percentages. The results of this study, and the boulder dispersion study are thus in agreement. The results, however, do not indicate a discrete distance of travel for clasts or boulders, only a range of distance.

3.2.6 The DF Soil Anomaly

The DF soil uranium anomaly is similar to other soil anomalies in the grid area, and appears to represent ice transport of debris from a single east-west unit. Trenching and sediment analysis has shown that the soil anomaly

is developed in a basal lodgement till. The well-developed nature of this till and the presence of rhyolite clasts indicate it originated at least 500 feet to the north in another area of rhyolite. The soil anomaly likely represents the finely ground-up mineralized material in one major shear band within the lodgement till.

The spatial relationship between the soil anomaly and the mineralized boulder train is important in several respects. The northern end of the train is 400 to 800 feet east of the anomaly's highest values. This displacement may be due to poor soil sampling and analysis or incomplete prospecting of the valley bottom.

The DF mineralized boulder train shows a north-south orientation while the ice flow direction is 165°. It is possible the meltwaters preferentially eroded the ablation till and so only exposed the north-south portion of the boulder train.

While the soil anomaly represents erosion from an east-west unit, the boulder train represents a plume of debris from a point source. The displacement may indicate two separate areas of mineralization or a more highly mineralized point within a band of mineralization.

3.2.7 Delineation of Probable Source Areas

Using the known ice flow direction, zones of transport can be projected up-ice from the boulder train and the soil anomaly boundaries. An estimated distance of transport applied to this zone should indicate a probable source area.

The theory of a short distance of transport for glacially eroded mineralized material has been tested by bedrock trenching and did not indicate the source. A source at a moderate distance (500 to 1,200 feet), is not reasonable since a large granite-diorite outcrop exists in this zone. A long distance of transport appears probable. The till clast and boulder dispersion studies have indicated transport distances of greater than 1,200 feet are possible.

The zone of transport, projected up-ice from the western side of the soil anomaly, includes groups of reverse circulation drill holes which had strongly anomalous uranium assay values for the glacial sediments closest to the bedrock. The zone of transport projected from the boulder train included fewer, lower anomalous values. Since the reverse circulation sampling grid is of low density, and many samples were not obtained, it is difficult to trace any continuous band of anomalous material. The major trends of the anomalous areas, however, do parallel the ice transport direction.

It is reasonable to infer that these sub-surface anomalies represent portions of the band of sheared mineralized bedrock material that, at the surface, is the soil anomaly. Thus, it should be possible to trace from the soil anomaly, down through the sub-surface anomaly, to the source.

The predicted source area is a geologically interesting area between L 31 E and L 40 E, from 19S to 8S. It contains a number of undrilled contacts inferred from conductors, the closest at about 1,900 feet from the soil anomaly and boulder train. Other interesting contacts lie at 2,400 and 2,900 feet from the anomaly and boulder train. A uranium soil anomaly in the valley bottom near the first group of contacts may indicate mineralization.

The 1980 working copy geology map indicates that the rock types and structures for the target area are not well known at this stage. While the delineated target area is large, it is the most precisely defined , given the results and interpretations of the Pleistocene program. The convergence of several lines of evidence suggest the target area holds real potential for significant mineralization. A series of diamond drill holes will be required to evaluate the potential of this area.

3.3 O Zone

3.3.1 Introduction

The project proposed for O zone was to determine the location of an agglomerate marker unit which was known to host some mineralization. Field work included landform mapping, agglomerate boulder mapping, and trenching for bedrock identification, glacial sediment types and stratigraphy.

3.3.2 Landform Mapping

Landform mapping of ice direction and glaciofluvial landforms was completed between L 68 W and L 44 N, from TL 30 N and 50 N, and between L 56 W and L 44 W, from TL 00 and TL 30 N. Kame terraces with kame hills are found along the slope leading to Swan Brook indicating ice marginal meltwater flow during deglaciation. Most of the terrain in the main, upland area of O zone can be categorized as ice disintegration moraine, after showing bedrock control.

Careful examination of the glacial landforms on which the main O zone mineralized rhyolite boulder train occurs indicates most boulders occupied a gully cut into a kame terrace while others sit on the terrace. These boulders were not likely moved far from their original till deposition sites. The mineralized boulders were likely moved southwards from their outcrop in an englacial or supraglacial position, similar to the DF boulders, and left on the surface or winnowed out from till.

3.3.3 Agglomerate Boulder Mapping

Mapping of agglomerate boulders was carried out from 30 N to 50 N between L 68 W and L 44 W. Selected areas south of 30 N were also mapped.

The results indicate that surface agglomerate boulders are present south of approximately 37 N and became very infrequent south of 20 N.

3.3.4 Bedrock and Glacial Sediments

The glacial sediments at surface are commonly a bouldery to cobbly, sandy matrix ablation till. The one pit with a basal lodgement till produced a good till fabric indicating a 190° ice flow direction. A shallow pit exposing good striations, and glacial grooving and plucking in rhyolite bedrock, was dug at the north end of the area trenched. These ice erosion indicators show a 190° orientation, which coincides with the fabric orientation.

The distribution of surface agglomerate boulders indicates an agglomerate unit of some thickness extending at least 2,400 feet along an east-west strike between 37 N and 47 N. One conductor at 42 N west of line 50 W may represent an agglomerate contact, but no geological information is available.

The mineralized rhyolite boulders likely came from a source between L 48 W and L 44 W, and from between 35 N and the base of the agglomerate unit. This estimate is based on the discovery of mineralized boulders near 35 N between L 48 W and L 44 W. This may indicate a shorter distance of transport for some boulders.

The boulder transport in O zone is comparable to that in the more complex DF area. The mineralized boulders occurring between 25 N and 22 N in O zone were transported englacially from the area between 35 N and 47 N, a maximum distance of 2,000 feet. A similar distance of transport is being suggested in the DF Zone.

3.4 JE Zone

3.4.1 Introduction

Bedrock trenching and glacial sediments analysis were conducted in JE zone to determine the direction and distance of transport for the two groups of mineralized rhyolite boulders present. From the results, a source area was suggested.

3.4.2 Bedrock Trenching

The bedrock trenching in the western part of JE zone indicated that a different rhyolite type formed the bedrock than the mineralized rhyolite boulders found at surface. The trenching also uncovered much highly fractured rhyolite with diorite dykes and veining.

The western group of boulders occurs on a gently sloping area of ground moraine above the steep slope leading to Middle Branch. The eastern group of mineralized boulders occurs on a steep slope leading down to a small terrace remnant which sits a few metres above present floodplain level. Mineralized boulders are also present on the terrace surface and the final short slope leading to the floodplain. Bedrock was not encountered during trenching near the eastern boulder group.

3.4.3 Glacial Sediments and Stratigraphy

Near the western boulder group, 2 basal tills overlie a fractured bedrock basal till. In one trench, between the basal and fractured bedrock basal tills, there is a large block of red, carboniferous clast till, which probably came from the till deposits in the valley bottom. This indicates a transport distance of at least 900 feet for the overlying glacial sediments.

The eastern group of boulders is underlain by well developed, basal melt out over basal lodgement till, which would have required a reasonable distance of transport to evolve.

A till fabric measured near the western boulder group indicated a 170° ice flow direction, comparable to the main DF area. The eastern group of boulders actually lies very close to the projected source for the main DF soil anomaly material. These boulders may represent a fraction from the source which travelled only a short distance compared to the well-comminuted soil anomaly material from a more distant source.

The western group of boulders has a probable source area just to the north of Middle Branch. Since little sampling and analytical work could be done in the area, the delineation of source area cannot be precise.

3.5 Suggestions For Future Work

The 1980 Pleistocene Program thoroughly investigated the DF zone, and completed preliminary work in the O and JE zones. It is not believed that further work in identifying or genetically classifying the DF glacial sediments will be necessary. Further bedrock and glacial sediments trenching in O, JE, and preliminary trenching in new zones would be worthwhile for geochemical sampling and fabric analyses.

The most practical method of delineating source areas appears to be a combination of geochemical sampling of surficial sediments and measurement of till fabrics. From the geochemical results, the zones of surficial sediments containing ground-up mineralized materials can be outlined. With a precise direction for ice flow, a zone of transport can be projected, and a target area delineated based on distances of travel. Distances of travel can be estimated from the 1980 clast and boulder dispersions results, the extent of geochemical anomalies, knowledge of promising rock types, and geologic structures in the zone of transport.

Since it has been observed that ice flow direction has varied up to 40 degrees over the grid area, it is recommended that reliable fabric measurements be obtained for anomalies and boulder trains in new areas. This will insure an accurate projected zone of transport.

The geochemical results from till unit sampling of all project trenches are pending. When these are received, the values for the different genetic categories of sediment should be separated, mapped and contoured. These genetic categories are:

fluvial (outwash) and lacustrine sediments
ablation tills (washed and undifferentiated)
basal melt out till
basal lodgement till
fractured bedrock basal till

While these samples are from near surface, and the highest reverse circulation anomalies were from just above bedrock, the new values represent sediment correlated over substantial areas. These new geochemical results will also allow comparison with previous soil results, and provide new values for unsampled areas.

It is expected that ablation till anomalies will have travelled farther from source while basal till anomalies should be close to or over source of mineralized materials. The anomalous results should be correlated with soil and reverse circulation results.

Since the soil geochemical results for large areas to the north, northwest and south of the main DF zone are of poor quality, resampling of these areas is suggested. This will aid delineation of soil anomalies and projections back to possible source areas.

4.0 GEOCHEMISTRY

4.1 Rock Geochemistry

Rock samples collected from outcrop boulders and core were analysed for major oxides and trace elements. The results are tabulated in Appendix A. The purpose of the whole rock geochemical program is to identify alteration patterns, to help match boulders with bedrock, and to develop structural, lithological, and genetic models for the concentration of base metals and uranium.

Samples collected for rock geochemistry were analysed for the trace elements, U, Th, F^-, Cu, Pb, Zn, W, Mo, Sn, Ag, Bl, and for major oxides, SiO_2, Al_2O_3, Na_2O, K_2O, CaO, MgO, FeO, MnO, TiO_2, and P_2O_5. The major oxides were analysed for a fully automated sequential x-ray spectrometer using a power glass disc sample preparation method. U was analysed by delayed neutron counting. Th and W concentrations were determined by neutron activation. A hot acid digestion and titration method was used to determine F^- and Fe^{+2}. Total iron is reported as FeO. The contribution of total iron to the sum is calculated as Fe_2O_3. Sn was analysed by emission spectrometry. Cu, Pb, Zn and Mo concentrations were determined using an SMI direct-current plasma spectrometer.

The detection limits for some of the trace elements were:

U	1.0 ppm
Th	1.0 ppm
F^-	100.0 ppm
Pb	0.5 ppm
W	1.0 ppm
Sn	3.0 ppm
Mo	0.5 ppm

The normative calculation is based on a CIPW as modified by Irvine and Baragar (1971).

The splits of a control sample were analysed. The triplicate results give a measure of the variation caused by analytical precision, sample preparation and sample homogeneity.

4.2 Conclusions

4.2.1 Chemical Data Analysis

Analytical results from the 1980 sampling program are not yet available in any quantity for study. However, the 1979 results have been studied in detail to investigate the relationship of major oxide and trace element chemistry with respect to uranium mineralization. Table IV gives 4 typical chemical and normative compositions for each lithology observed in the area.

Major elements that showed significant chemical trends were those most susceptible to chemical alteration. These were Na_2O, K_2O, SiO_2, and Al_2O_3. The mineralized volcanics are generally higher in Na_2O (Figure 3), but lower in K_2O (Figure 4), than the unmineralized rocks. Certain of the felsic rocks have a very anomalous Na_2O value (6.89%) - averaging 1.57% - and a low K_2O value (1.9%) - averaging 7.73%. Total alkali values range from 8.8% to 10% in spite of wide Na/K ratios. It is important to note that total alkali values of the mineralized volcanics occur in a restricted field (Figure 5) when compared to the unmineralized samples. The mineralized volcanics are found to have correspondingly lower Si/Al ratios as well.

The restricted field of Na_2O+K_2O values, and the lower Si/Al ratios indicate that the area concerned must have undergone chemical alteration which could be traced out in the field area as alteration haloes.

In the trace elements, mineralized Byers Brook volcanics have generally higher values of metaliferous elements such as Cu, Zn, Ag, and Pb, but lower Th values. High U and low Th values suggest a sympathetic relationship between them and could be useful for U exploration.

Fluorine exhibits a peculiar nature in the Byers Brook rock. Normally, F^- acts as a carrier for metals in hydrothermal fluid, and the mineralized samples should correspondingly show higher F^- concentrations. This is not the case in that the mineralized rocks have lower F^- (average 295 ppm), than the unmineralized mafic volcanics (average 1608 ppm). Therefore, the use of F^- as a tracer for uranium mineralization works on a regional scale, but is insensitive on a detailed scale.

Histograms for U, Th, Pb, Cu, Zn, and F^- (Figures 6 to 11, respectively), have been presented.

In general, the Byers Brook acid rocks have high U and Th values but lower F^-, Zn, and Pb values compared to the mafic rocks. The Byers Brook rocks and the mafic rocks showed more than one population of mineralization.

In summary, the restricted field of Na_2O+K_2O values and lower Si/Al ratios, indicate that the area concerned must have undergone chemical alteration. High U and low Th values suggest a sympathic relationship between them, F^-, a carrier for metals in hydrothermal fluids, is much lower than would be expected for mineralized samples and is insensitive as a tracer for uranium mineralization on a detailed scale. Mineralized Byers Brook rock have high U and Th values with lower F^-, Zn and Pb values. In general, no strong association can be made between uranium mineralization with other trace elements.

4.2.2 Mineralization Model

Zones of chemical alteration appear to be related to intrusives, stratigraphic horizons and faults. Locally, trace element concentration and chemical alteration appear to be related. This is suspected to be related to faulting and movement of granitic and dioritic fluids along channelways. These elements include Zn, Pb, and F^-. Some rare earth values have also been noted in fault zones near granite contacts.

TABLE IV

TYPICAL CHEMICAL AND NORMATIVE COMPOSITIONS FOR THE COMMON ROCK UNITS IN THE AREA

	Diamond Brook Formation Basalts				Ignimbrites			
Sample #	B 3021	B 3022	B 3023	B 3024	R 0183	R 0912	R 0075	R 0070
Wt%								
SiO_2	46.87	45.51	44.94	49.31	71.10	75.6	77.2	80.2
Al_2O_3	13.39	12.44	14.56	15.62	9.86	10.6	12.3	9.45
CaO	9.37	6.39	10.55	9.79	0.21	0.42	0.61	0.07
MgO	4.77	4.21	6.11	5.98	0.00	0.00	0.30	0.11
Na_2O	3.49	4.01	2.76	2.62	0.00	2.88	3.56	0.00
K_2O	1.00	0.25	0.63	0.41	7.15	4.10	3.43	3.51
FaO	15.69	16.19	16.47	12.82	1.84	3.53	1.76	3.08
MnO	0.27	0.27	0.24	0.27	0.04	0.03	0.00	0.00
TiO_2	4.37	4.22	3.42	2.98	0.29	0.22	0.20	0.20
P_2O_5	0.81	0.51	0.32	0.26	0.07	0.01	0.05	0.04
LOI	3.80	3.35	3.16	3.02	1.02	0.31	0.85	1.85
SUM	97.60	47.77	98.25	96.56	97.80	98.1	100.5	98.8
U (ppm)	0	0	0	0	7.7	7.0	2.9	4.1
Th	0	20	0	0	12	26	24	18
Cu	30	10	40	40	16	17	12	16
Zn	180	150	190	110	20	26	50	110
Ag	--	--	--	--	<1	--	<1	1
Pb	60	0	180	0	16	26	11	13
F^-	--	--	--	--	320	230	230	240
Sn	--	--	--	--	<3	10	<3	<3
W	--	--	--	--	15	5	<1	1
Zr	460	420	220	240	--	--	--	--
Mo					12	<2	<2	88
Qtz (Wt%)	--	7.53	--	3.46	51.10	42.4	41.9	68.2
Cor	--	--	--	--	2.0	0.7	1.8	5.8
Or	5.83	1.46	3.66	2.41	43.7	24.8	20.3	21.4
Ab	28.90	33.39	22.98	21.87	0.0	25.0	30.2	0.0
An	17.64	14.98	25.13	20.18	0.6	2.1	2.7	0.1
En	3.49	4.86	0.17	7.69	0.0	0.0	0.5	0.1
Fs	5.64	9.43	0.25	8.39	0.0	1.9	0.03	1.3
Mt	8.54	8.33	7.18	6.57	0.0	2.6	0.2	2.5
Il	8.15	7.89	6.40	5.57	0.6	0.4	0.4	0.4
Ap	1.85	1.16	0.74	0.46	0.2	0.0	0.1	0.1
Dl	7.96	4.08	9.00	7.38	0.0	0.0	0.0	0.0
He	11.2	6.90	11.41	7.02	0.0	0.0	0.0	0.0
Fo	0.29	--	5.02	--	0.0	0.0	0.0	0.0
Fa	--	--	--	--	0.0	0.0	0.0	0.0
Hm	--	--	--	--	1.9	0.0	1.6	0.0
Ru	--	--	--	--	0.0	0.0	0.0	0.0

TABLE IV (Cont'd)

	Ashfall Tuffs				Flow Banded Rhyolites			
Sample #	R 0077	C 5380	C 5381	C 5420	R 0072	R 0073	C 5359	C 5362
Wt%								
SiO_2	71.6	70.0	74.0	78.2	72.5	74.9	71.3	79.9
Al_2O_3	9.33	12.3	10.7	10.2	12.1	10.9	13.4	9.8
CaO	4.94	0.56	0.67	0.63	0.41	0.46	0.40	0.33
MgO	1.53	0.62	1.07	0.24	0.11	0.03	0.14	0.08
Na_2O	1.63	0.00	0.00	1.99	0.08	2.33	1.46	1.56
K_2O	3.00	3.90	3.00	2.16	6.81	3.91	8.66	5.64
FeO	4.56	5.19	4.59	2.70	3.65	3.33	1.59	1.05
MnO	1.17	0.13	0.15	0.13	0.00	0.00	0.13	0.12
TiO_2	0.91	0.21	0.28	0.23	0.35	0.22	0.15	0.10
P_2O_5	0.14	0.01	0.02	0.02	0.04	0.14	0.02	0.02
LOI	0.38	3.62	2.77	0.92	1.31	1.15	0.46	0.23
SUM	98.7	97.1	97.8	97.7	97.8	97.8	97.8	98.9
U (ppm)	3.6	11.0	14.0	6.8	6.9	2.8	9.3	28.0
Th	8	54	52	28	22	24	41	21
Cu	12	35	21	28	14	16	--	--
Zn	45	210	120	95	97	180	11	12
Ag	<1	<1	<1	<1	1	<1	120	72
Pb	34	140	49	22	12	14	180	30
F^-	670	480	700	230	200	210	260	150
Sn	<3	22	25	8	<3	<3	<3	<3
W	5	<1	2	3	2	<1	3	4
Mo	<2	<2	<2	<2	4	6	100	<2
Qtz (Wt%)	41.2	54.3	61.0	58.7	46.1	46.8	29.4	49.1
Cor	0.0	7.6	6.6	3.8	4.1	2.4	0.9	0.6
Or	18.0	24.7	18.7	13.2	41.8	24.0	52.5	33.8
Ab	14.0	0.0	0.0	17.4	0.7	20.4	12.7	13.3
An	9.4	2.9	3.3	2.5	1.9	1.4	1.9	1.5
En	0.0	1.3	2.2	0.3	0.1	0.0	0.2	0.1
Fs	0.0	5.9	4.8	1.0	1.8	1.5	0.2	0.1
Mt	3.5	2.7	2.7	2.6	2.8	2.6	0.3	0.1
Il	1.8	0.4	0.6	0.5	0.7	0.4	0.3	0.2
Ap	0.3	0.0	0.1	0.1	0.1	0.3	0.1	0.0
Di	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fo	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0
Fa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hm	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.1
Ru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
He	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE IV (Cont'd)

	Granites				Diorites			
Sample #	R 0006	C 5319	C 5320	C 5426	R 0074	R 0076	R 0181	R 0191
Wt%								
SiO_2	73.7	76.2	74.6	75.7	46.1	47.6	47.6	51.1
Al_2O_3	10.0	12.1	12.6	10.0	14.6	14.7	13.1	15.1
CaO	2.52	0.54	0.68	0.57	9.85	10.8	9.00	5.48
MgO	0.21	0.13	0.03	0.23	6.43	7.15	5.50	5.26
Na_2O	0.75	3.18	3.37	1.20	2.06	2.23	2.68	3.37
K_2O	4.54	5.15	5.09	4.75	0.67	0.62	1.07	1.29
FeO	3.18	1.50	1.61	3.95	13.5	12.0	13.6	12.5
MnO	0.09	0.12	0.13	0.17	0.16	0.17	0.18	0.26
TiO_2	0.22	0.17	0.18	0.35	2.79	2.32	2.99	2.59
P_2O_5	0.02	0.02	0.02	0.03	0.56	0.31	0.49	0.47
LOI	1.42	0.62	0.69	0.92	2.00	0.54	1.62	1.68
SUM	97.0	99.9	99.2	98.3	100.2	99.8	99.4	100.5
U (ppm)	8.0	8.5	8.9	6.1	0.5	0.7	0.9	2.2
Th	30	39	36	30	<1	<1	3	4
Cu	20	10	16	4	68	96	53	46
Zn	120	73	33	110	72	70	110	96
Ag	<1	<1	<1	<1	1	1	1	<1
Pb	46	22	10	10	7	73	10	17
F^-	9700	310	1600	290	570	880	580	2350
Sn	8	5	3	5	<3	<3	<3	<3
W	2	<1	2	1	<1	2	<1	35
Mo	<2	<2	<2	44	<2	<2	<2	<2
Qtz (Wt%)	48.2	37.0	34.6	49.4	1.7	0.3	2.2	4.7
Cor	0.0	0.3	0.4	2.0	0.0	0.0	0.0	0.0
Or	28.1	30.7	30.6	28.9	4.0	3.7	6.5	7.8
Ab	6.7	27.1	28.9	10.4	17.8	19.0	23.2	28.9
An	11.1	2.6	3.3	2.7	29.1	28.6	21.2	22.6
En	0.2	0.2	0.0	0.4	9.6	9.8	6.8	9.9
Fs	1.0	0.1	0.1	2.7	10.6	8.7	8.7	12.5
Mt	2.6	0.0	0.2	2.8	6.3	5.6	6.7	6.0
Il	0.4	0.3	0.3	0.7	5.4	4.4	5.8	5.0
Ap	0.0	0.0	0.0	0.1	1.3	0.7	1.2	1.1
Di	0.3	0.0	0.0	0.0	7.2	10.8	8.4	0.7
Fo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hm	0.0	1.7	1.5	0.0	0.0	0.0	0.0	0.0
Ru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure 3

Na_2O - SiO_2 diagram

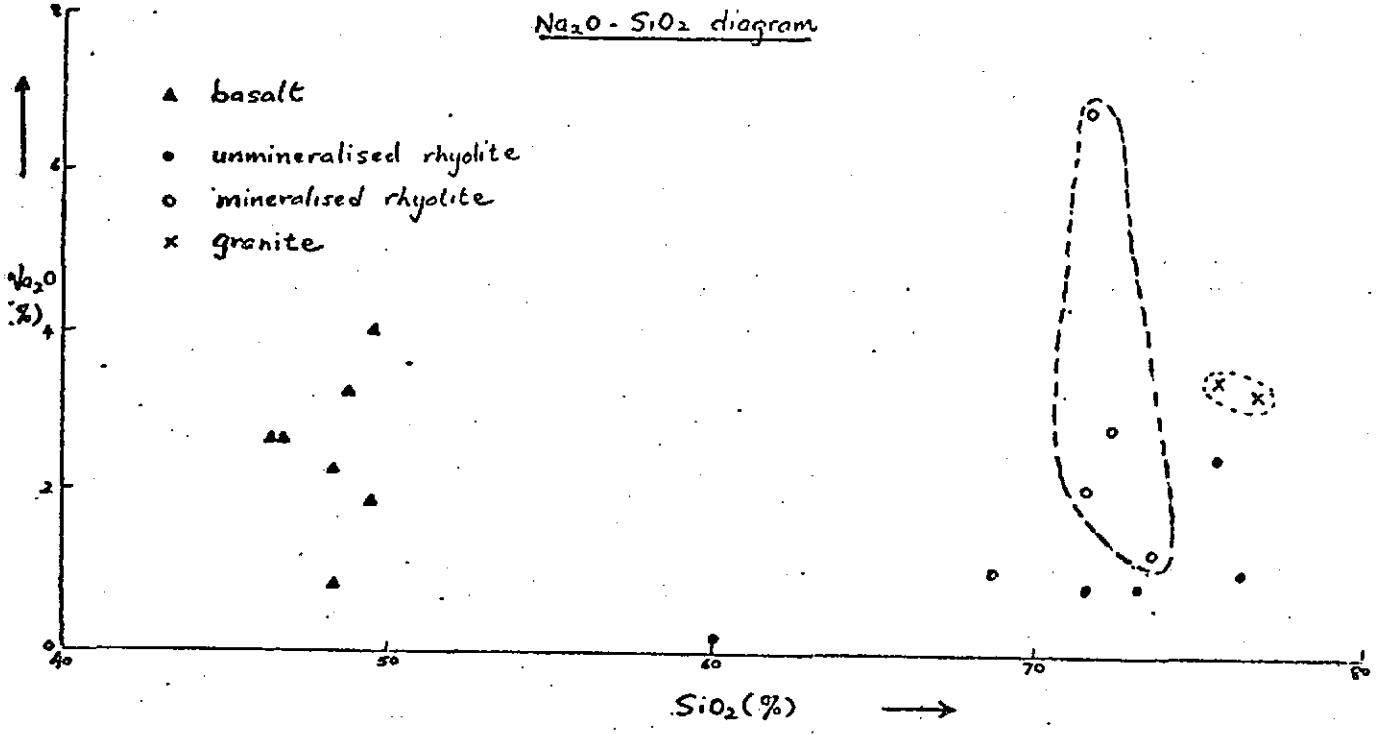


Figure 4

K_2O - SiO_2 diagram

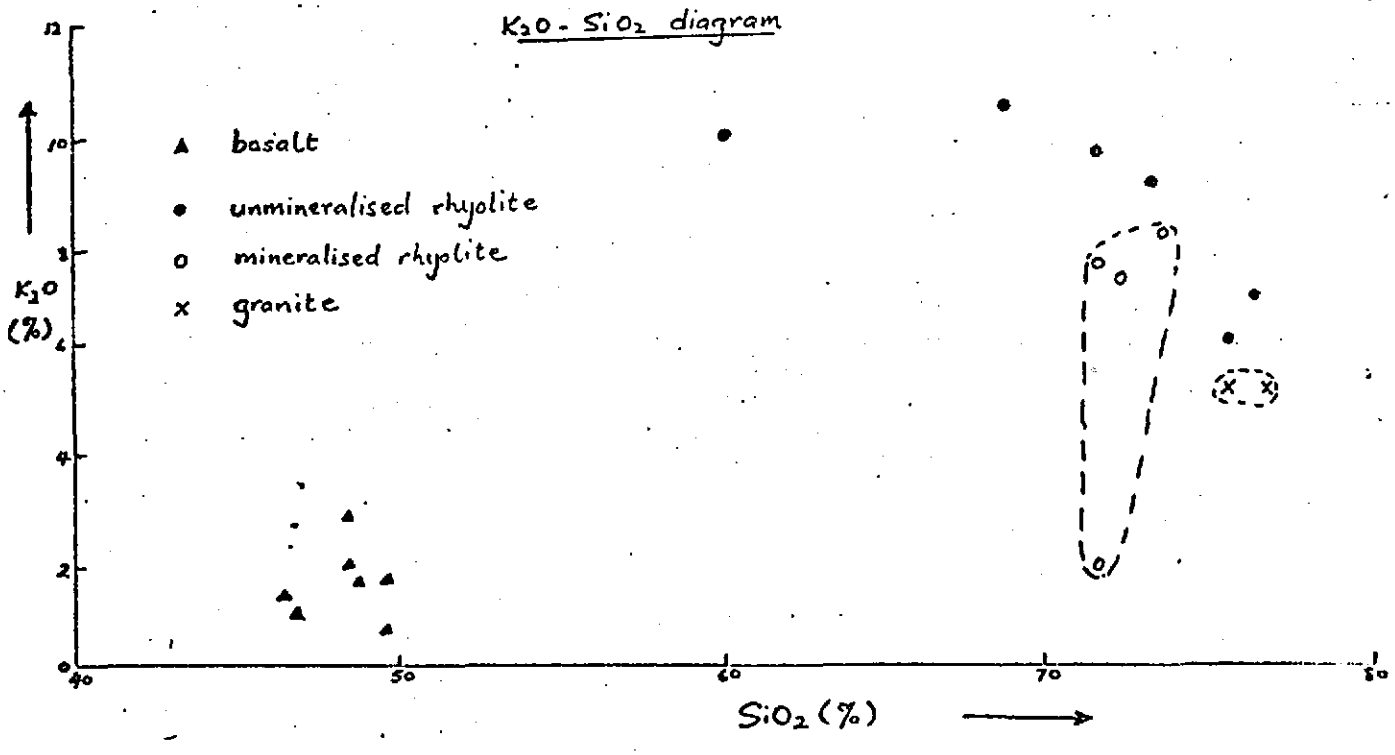


Figure 5

$Na_2O + K_2O - SiO_2$ diagram

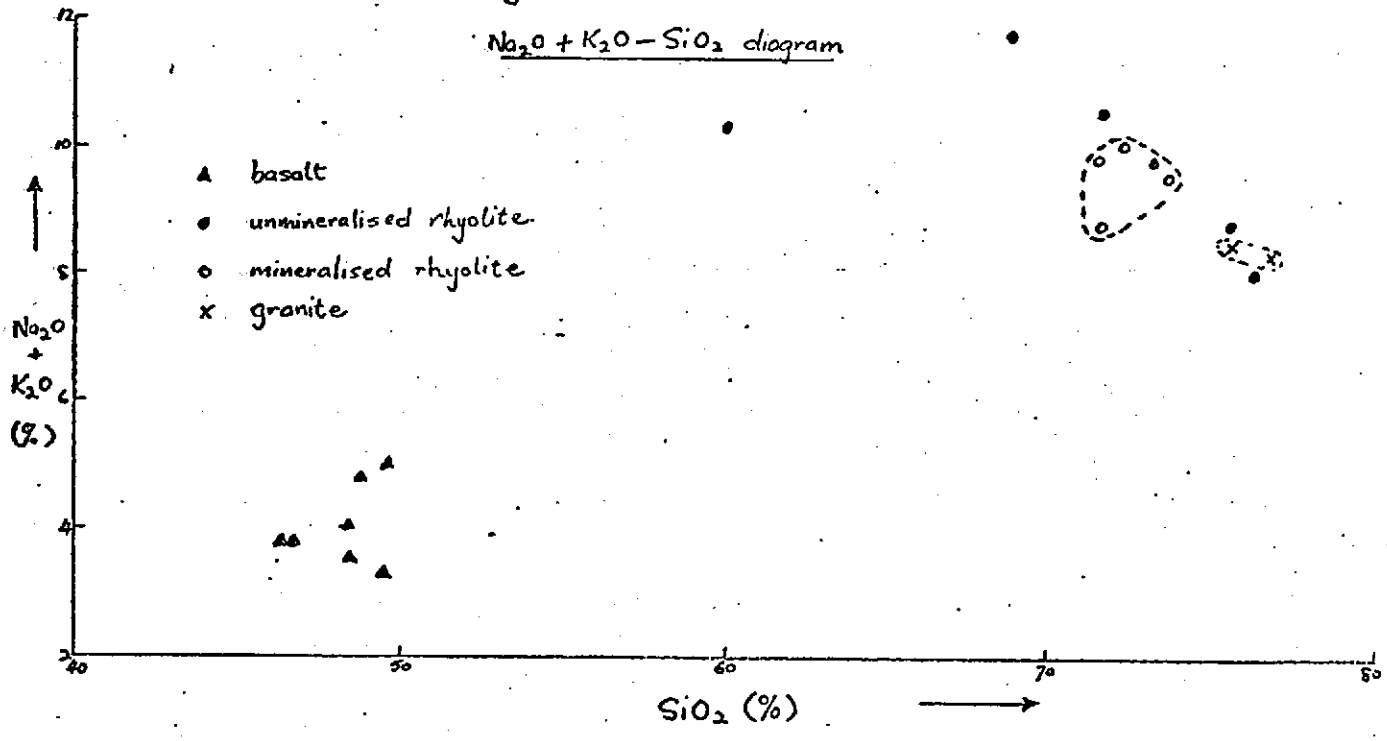


Figure 6:
U - Histograms (DF Zone)

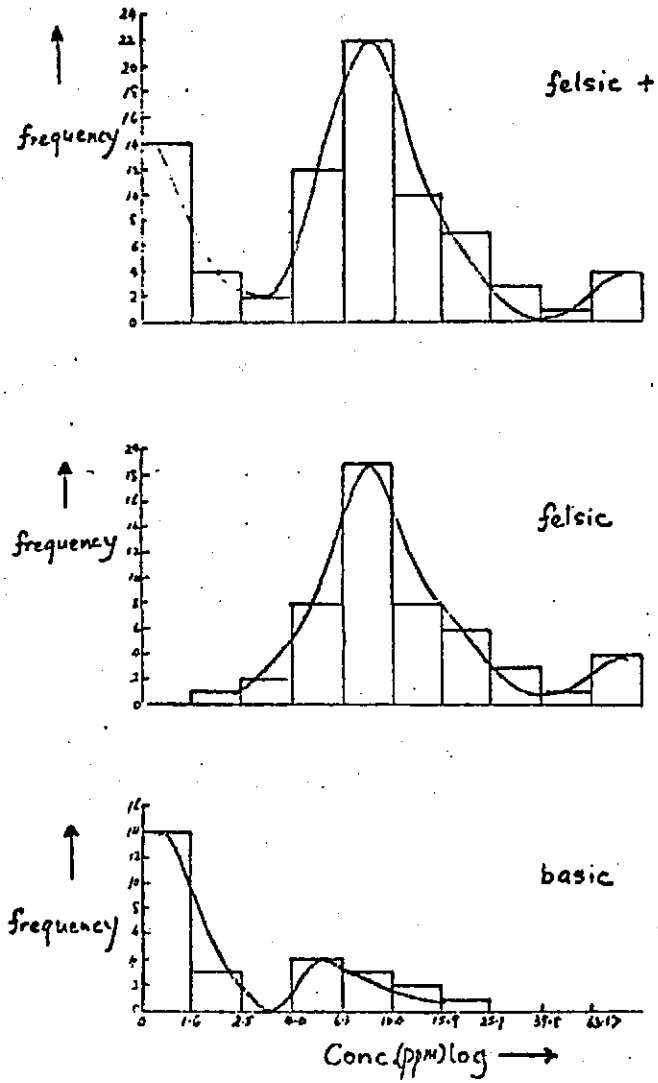


Figure 7
Th Histograms (DF Zone)

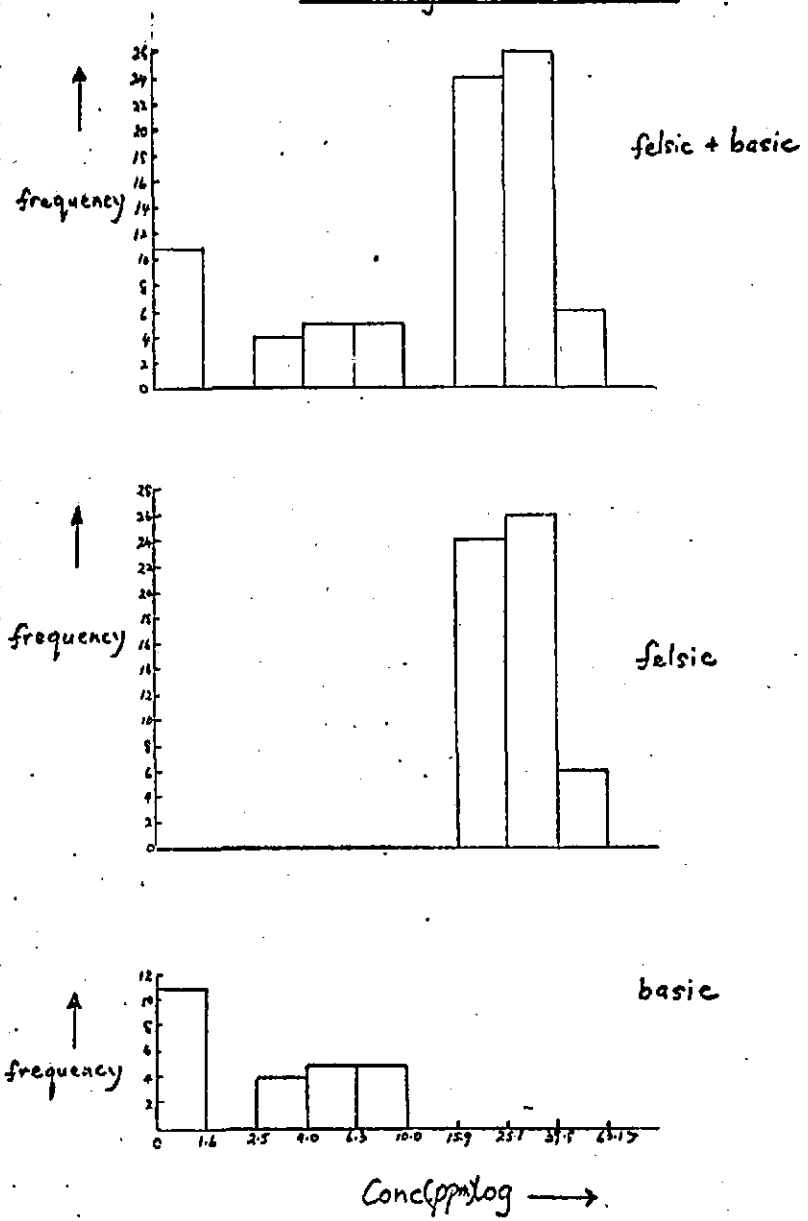


Figure 8

Pb Histograms (DF Zone)

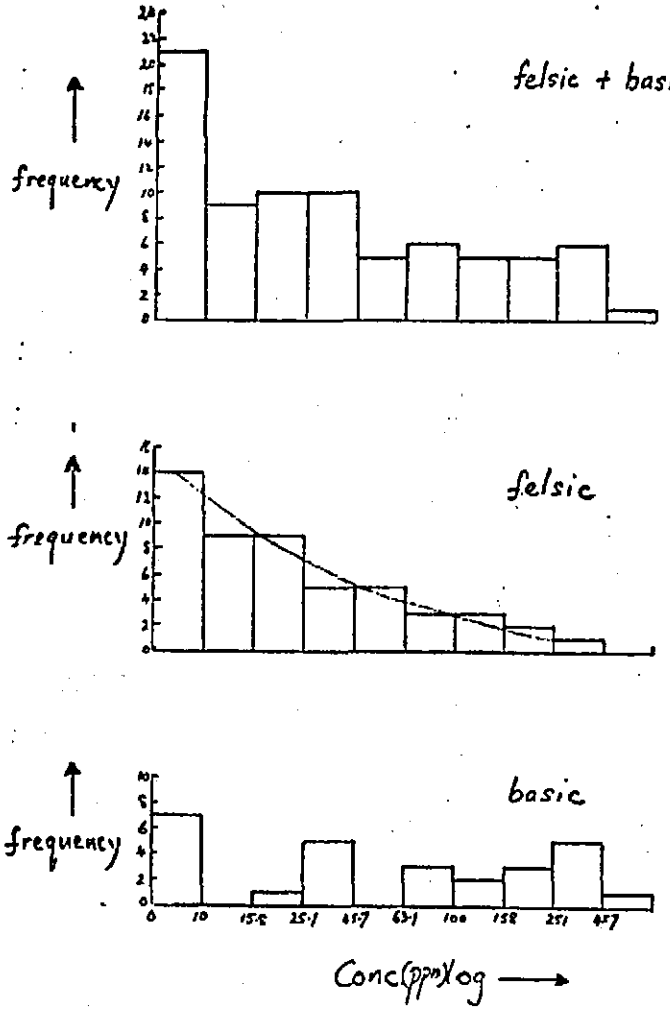


Figure 9

Cu Histograms (DF Zone)

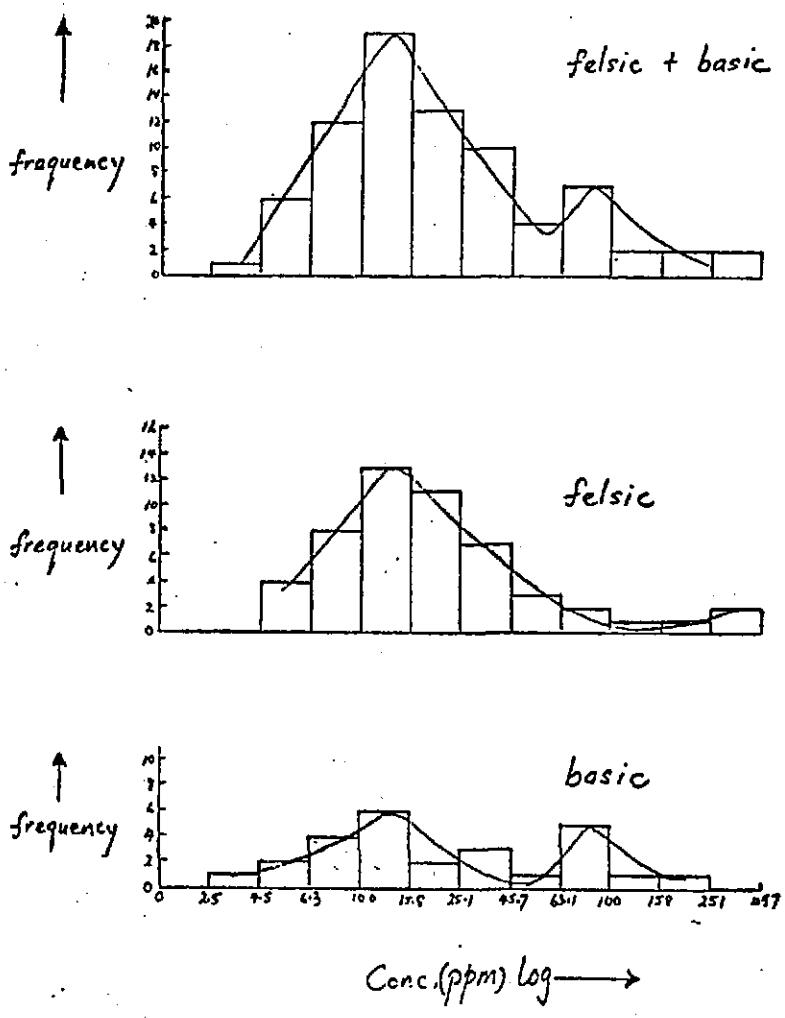


Figure 10

Zn Histograms (DF Zone)

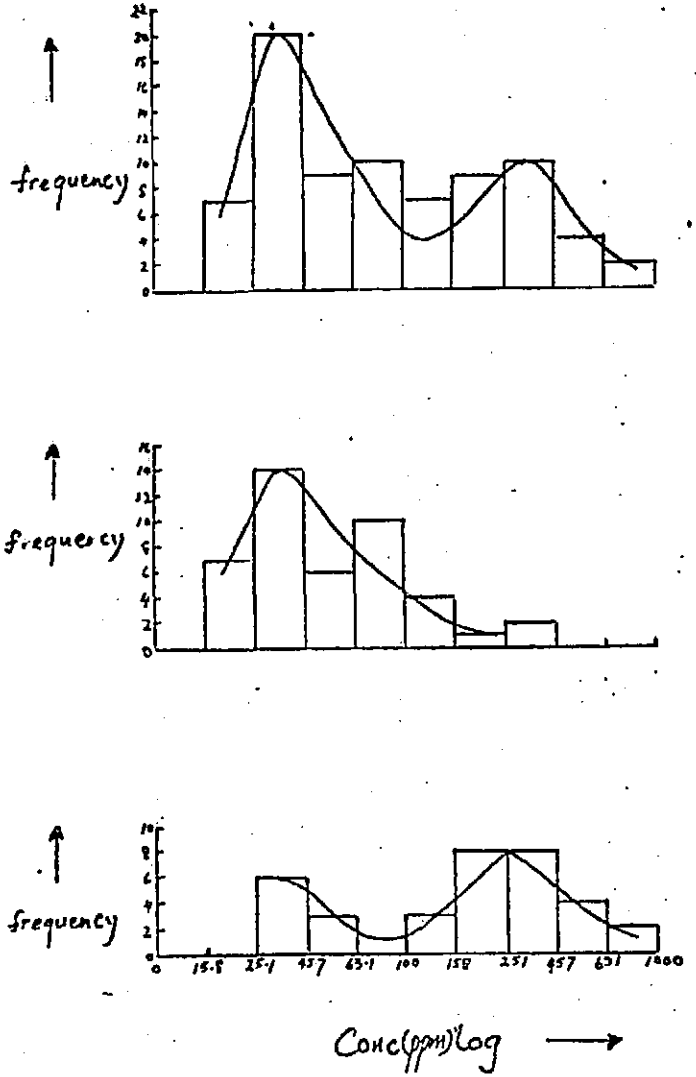
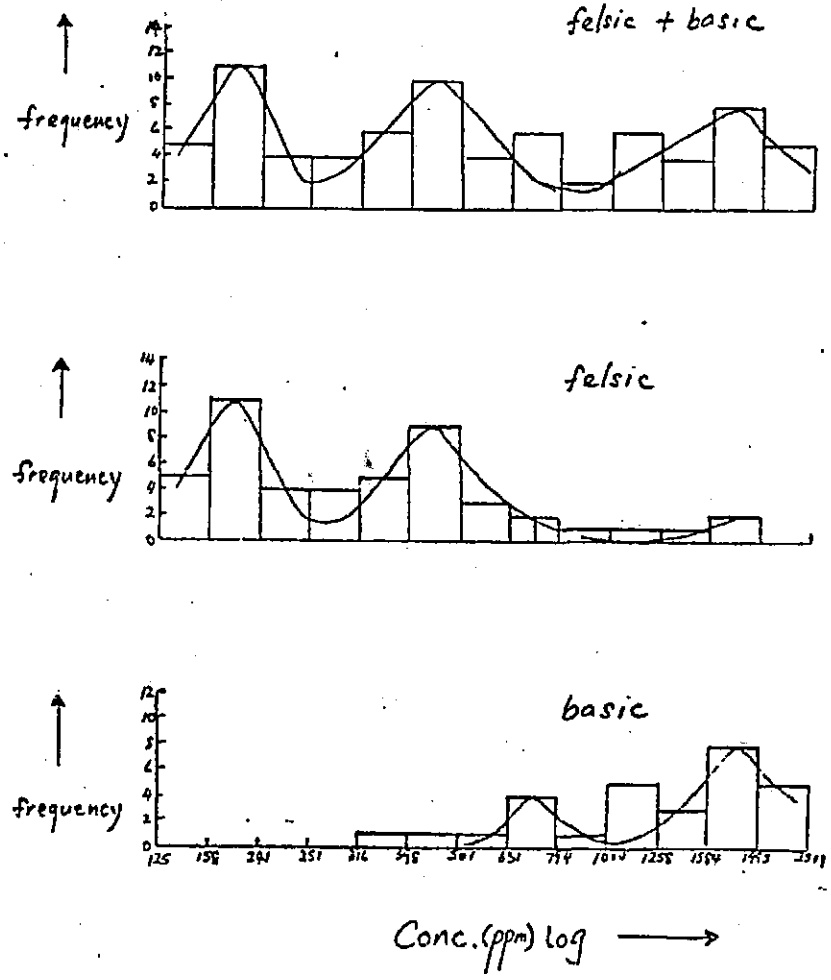


Figure 11

F Histograms (DF Zone)



5.0 PROSPECTING

A detailed prospecting program was carried out on portions of the Swan Brook Grid in Cobequid III during the 1980 field season.. Its purpose was to examine areas of isolated radioactivity previously defined on the property, and to investigate zones of new potential, in an attempt to find source areas.

One two-man crew of senior prospectors, each equipped with a Scintrex BGS-3 scintillometer for measuring radioactivity, was used to cover the area.

Anomalous areas were covered by closely-spaced traverses until a source of radioactivity was isolated. Field observation, traverses and sample locations were plotted on 1 inch to 400 feet maps on the Swan Brook grid.

The program located several new boulder occurrences on the north central and eastern portions of the block. These will be evaluated by field work in 1981.

6.0 REVERSE CIRCULATION DRILLING

6.1 Introduction

A deep overburden drilling program was started in the Highlands during mid-September, 1979, and was completed in mid-December. A total of 154 reverse circulation holes for 3,802 feet were drilled along existing roads throughout the property. The drilling was performed by St. Lambert Drilling Co. Ltd. from Valleyfield, Quebec.

6.2 Purpose

The purposes of the 1979 reverse circulation program were:

(1) To determine whether trace element anomalies are associated with recently defined north-south conductors in the Cobequid Highlands, and,

(2) To act as a means of obtaining bedrock samples, while at the same time goechemically investigating for the source area of radioactive boulders found on surface. Because of low cost per hole, a maximum amount of coverage can be attained.

6.3 Procedure

Overburden samples were obtained over 5 foot intervals and were put through a +10 mesh sieve. The coarser fraction was examined and an effort was made to determine the dominant rock lithology and the type of glacial unit intersected. The -10 fraction is later sieved and the -80 fraction sent for analysis. When bedrock was reached, three samples were obtained, each of about 3 foot intervals. These samples were also put through a +10 mesh sieve

initially. The coarser fraction was retained for microscope examination as to lithology and degree of alteration. The fraction less than +10 was analysed for trace elements (U, Th, Sn, F^-, W, Mo, Cu, Pb, Zn, and Ag). Major oxides were analysed for a select number of fresh bedrock chips. This data is presented in Appendix B of this report. Appendix C lists the reverse circulation logs. Hole locations are shown on the geological compilation.

6.4 Conclusions and Recommendations

In the analysis of values of U, Th, Pb, and F^-, it was evident that they did not vary sympathetically. This appeared to be true for the remainder of the trace elements analyzed for, as well. Low uranium anomalies exist, but washing of the sample during drilling and sieving probably results in apparent values that are too low.

The reverse circulation program was useful in supplying sub-surface lithological information in areas covered by thick overburden and in providing geochemical data for the rocks in these areas.

7.0 DIAMOND DRILLING

7.1 Introduction

The 1980 diamond drilling program in Cobequid Block III was designed to test three separate areas. In the East Wallace area, located along line 60+00 east from the 0+00 base line to 8+00 north, drilling evaluated a reverse circulation drilling anomaly and the East Wallace fault.

The Snare Lake drilling was designed to evaluate a whole rock chemistry anomaly and surface radioactivity along line 80+00 east in the vicinity of the 40+00 north tie line.

The DF drilling was undertaken to further evaluate the DF anomaly and a potential source area for the mineralized boulders.

BQ rods were used for all holes. Drilling was carried out by St. Lambert Drilling Company of Valleyfield, Quebec. All core is stored at Gulf's Swan Brook core storage facilities.

The 1980 diamond drilling program is an ongoing program. At the present time, information is available for some of the early holes completed in the DF area. Since most of the Cobequid Block III drilling will be carried out in November and December, the remaining portions of this year's drill program will be reported in 1981.

7.2 DF Drilling

DF-22

Diamond drill hole DF-22 located at 60+00 east, 38+80 south, was drilled on an azimuth of 180° at -45°, to a final depth of 183.2 metres. The hole collared in a glassy ignimbrite at 6 metres. The unit contains abundant fiammi, and both lithic and crystal fragments. Fragment size increases rapidly with depth. At 57.7 metres, the hole encountered chloritized diorite that extends to 87.9 metres. From 87.9 to 145.2 metres, the hole encountered green to brown ignimbrite with local hematized and kaolinized zones. At 147.1 metres, the hole encountered a brownish red tuff unit showing indistinct bedding. From 154.4 metres to the end of the hole at 183.2 metres, a thick green to red rhyolite unit was encountered. The unit locally contains abundant lithophysae and spherulite. The unit is cut by numerous diorite dykes. No significant mineralization was encountered.

DF-23

Diamond drill hole DF-23 located at 60+00 east, 34+00 south, was drilled on an azimuth of 180° at -45°, to a final depth of 155 metres. The hole collared into very fine grained to aphanitic diorite at 10 metres, and continued down to 69.2 metres. A thin lithic tuff unit from 69.2 to 71.0 metres was encountered. The unit is observed to be highly epidotized to hematized. Brick red to orange lapilli sized lithic fragments and angular quartz and feldspar fragments less than 2 mm. are observed.

The lower part of the unit is cut off by a diorite dyke. At 75.5 to 87.7 metres, there is an ignimbrite unit composed of abundant lithic and crystal fragments. The lithic fragments consist of very angular, fine ash to coarse lapilli sized ignimbrite, rhyolite and minor mafics. May be rimmed by hematite. Ash sized pumice fragments, 5-6 mm., angular to shard-like quartz and feldspar fragments less than 3 mm. were also observed. Strong chloritization and hematization was identified.

The next 41.3 metres is found composed of diorite, fine grained to aphanitic felsic intrusives, diabase, and pinkish orange rhyolite. This rhyolite unit (116.4 to 125.8 metres), contains abundant ash size rhyolite fragments and chloritized feldspar. Minor disseminated magnetite was encountered. The unit becomes coarser with depth.

An ignimbrite at 127.8 to 145.2 metres containing ash to lapilli sized lithic and crystal fragment generally becoming coarser with depth. Lithophysae and spherulites observed to be locally to highly abundant. Locally veined by quartz, fluorite and calcite.

The remainder of the hole encountered a fine to medium grained dark blue-grey to reddish-pink ashfall tuff. The tuff contains fragments and phenocrysts of orange feldspar from 1-2 mm.

No significant mineralization was encountered in this hole.

DF-24

Diamond drill hole DF-24 located at 60+00 east, 37+00 south, was drilled on an azimuth of 180° at -45°, to a final of 228 metres. This hole collared into diorite and 9 metres to a depth of 9.9 metres. From 9.9 to 19.4 metres a pinkish to whitish fine grained lithic crystal tuff was encountered. Groundmass is massive with local minor pyrite mineralization. A thin agglomerate unit underlies this tuff and is observed to contain well rounded ignimbrite fragments in a highly chloritized dark green groundmass. Fine grained diorite undercuts this tuff at 20.8 metres to 28.6 metres. At 28.6 metres, a light green fragmental tuff with abundant angular fine ash to coarse lapilli sized fragments of porphyritic rhyolite, grey flow rhyolite, and ignimbrite was encountered. Fine grained diorites were observed at 34.0 and 55.3 metres. In between these diorites was an orange-pinkish, glossy to aphanitic massive rhyolite.

A thick unit of ignimbrite was encountered from 56.2 to 202.6 metres. This ignimbrite is light yellowish to light greyish green. Quartz crystals are 1-2 mm., rounded to dipyramidal. Feldspars are 1-3 mm., subhedral to euhedral, rimmed by hematite and may be altered to kaolin. Lithic fragments are less than 5 mm. and generally subangular. Fiammi of 1-9 mm. in length by less than 1 mm. in width were observed. Devitrification was found to distort any flow features. More pumice shard rich region at the top of this unit and grades to a more welded region with depth. Found to be cut by numerous small diabase dykes.

The ignimbrite unit is undercut by a fine grained diorite dyke at 202.6 metres. The remaining 21.4 metres from 206.6 to 228.0 metres is an alternation sequence of dark bluish-grey to light brown non-porphyritic to flow banded rhyolite and fine grained diorite.

No mineralization was encountered in this hole.

DF-27

Diamond drill hole DF-27 located at 60+00 east, 40+60 south, was drilled on an azimuth of 180° to -60°, to a final depth of 184 metres. At 8.5 metres the hole collared into a grey to white lithic buff. Lithic fragments range in size from 1 to 15 mm., with an average size of 5 mm. The groundmass contaons disseminated pyrite. The unit is locally hematized and chloritized. The base of the unit is cut off at 36.2 metres by a diorite. From 46.4 metres to 65.9 metres the hole encountered a light red orange rhyolite unit becoming grey below 62.7 metres. The unit has fragmental zones and areas of poorly developed banding. The unit shows local areas of hematization, chloritization, and/or kaolinization. The unit is cut by several diorite dykes ranging in size from less than a metres to more than 7 metres. The base of the unit is cut by a diorite. From 73.8 metres to 120.2 metres the hole encountered a grey to red ignimbrite unit. The unit shows local strong hematization and chloritization, with epidote common. Lithic fragments range in size from 1 mm. to 10 cm., coarsest near the base of the unit. The unit contains minor fluorite and graphite near its base.

From 120.2 metres to the end of the hole at 184 metres, a light to dark red rhyolite unit was encountered. The unit is locally highly hematized. Local koalinization has inparted a grey to white colour to the unit. Epidote is common. The unit is cut by several thick diorite instrusives. Minor radioactivity was encountered at 120 metres.

DF-29

Diamond drill hole DF-29 located at 60+00 east, 40+60 south, was drilled on an azimuth of 180° to -45°, to a final depth of 144.3 metres. The hole collared in a light grey lithic tuff at 10.5 metres, with lithic fragments ranging from 1-10 mm. in size. Crystal fragments, dominantly feldspar, range in size from 1-3 mm. Minor pyrite is present. At 31.4 metres the hole encountered a diorite dyke with a felsic center. This unit extends to 41.2 metres. From 41.2 metres to 58.2 metres, the hole intersected a light grey to greenish lapilli tuff. The unit shows local strong chloritic and hematitic alteration. At 58.2 metres the hole encountered 18.6 metres of light to dark green basalt. The upper 10 metres of this unit is amygdaloidal. The lower portion of the unit is cut off by a diorite unit. From 83.7 metres to 139.6 metres the hole encountered grey-green to red rhyolite. Spherulites have developed near the base of the unit. The unit is cut by numerous diorite dykes. Intense hematization occurs at intrusive contacts. From 139.6 to the end of the hole at 144.3 metres, a green red-brown ashfall tuff was encountered. Poorly developed bedding is evident in portions of the unit. No mineralization was encountered in the hole.

8.0 CONCLUSIONS AND RECOMMENDATIONS

With the large amounts of data collected prior to the 1980 field season, accurate speculations as to glacial and glacio-fluviatile stratigraphy, geology, geochemistry, and geophysics have been proposed. These speculations tempered our current thinking and were applied in the 1980 season.

In the initial stages of exploration work over the Cobequid Highlands, it was apparent that geological mapping in fine detail (1" = 100'), was the only way of reflecting their complexity. Although this still applies, with familiarization of the geology, 1" = 400' scale is sufficient to depict the geology accurately while eliminating useless and conflicting details. Much headway has been made in 1980 in mapping the Byers Brook volcanic pile, and will be used as a basis for future work done on the property.

The study of rock geochemistry has been of great aid in producing a mineralization model. Although trace element data shows only a slight correlation with uranium mineralization, it is apparent that alteration, as expressed by variations in major oxide values, does show a strong correlation with uranium. It was also found that high U/Th ratios, found only in the mineralized zones suggest a sympathic relationship between them useful to uranium exploration.

Prospecting continues to be a reliable exploration tool in that our prospectors are able to outline new mineralized boulder fields and outcrops. These areas give targets around which to concentrate our mapping and geochem surveys. This practice will be continued for 1981.

The reverse circulation drill program provided both lithological and geochemical information for areas covered by thick overburden, and in combination with outcrop information aided in interpretation of the geology.

Pleistocene mapping has been extremely successful in determining till stratigraphy and ice transport direction and is the basis for tracing mineralized boulder fields to their source. An attempt at determining which type of till unit best illustrates the sub-surface has been made. It is recommended that further bedrock and glacial trenching in O, JE, and preliminary trenching in new zones be carried out.

Extensive diamond drilling is required to investigate structural-stratigraphic targets outlined by various field methods.

2 of 3

AR 80-009

COBEQUID PROJECT
URANIUM ASSESSMENT REPORT
COBEQUID III
NOVA SCOTIA
NTS: PART OF 11E/11B, 11C AND 11E/12A, 12D
PART 2 OF 3
- 1980 -

11E/12D

434094

Gulf

Gulf Minerals Canada Limited

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NOVA SCOTIA

A REPORT ON

GEOLOGICAL MAPPING
PLEISTOCENE GEOLOGY
GEOCHEMISTRY
PROSPECTING
REVERSE CIRCULATION DRILLING
DIAMOND DRILLING

APPENDIX A

WHOLE ROCK AND TRACE ELEMENT GEOCHEMISTRY DATA

SAMPLE	RR0201RT	RR0202RT	RR0575RT	RR0876RT	RR0877RT	RR0878RT	RR0879RT	RR0880RT	RR0881RT	RR0882RT
SIO2	92.5	76.9	73.1	75.4	77.3	75.8	-1000.00	51.8	73.9	74.9
AL2O3	2.05	9.35	11.1	11.1	10.6	10.6	-1000.00	13.0	11.3	11.0
CAO	0.19	0.17	0.59	0.36	0.38	0.42	-1000.00	5.62	0.34	0.20
MGO	0.00	0.00	0.71	0.42	0.23	0.30	-1000.00	6.45	0.33	0.96
NA2O	0.01	0.00	1.19	2.33	3.20	3.06	-1000.00	1.96	2.44	0.16
K2O	1.42	4.21	5.43	4.64	3.53	3.57	-1000.00	2.66	3.24	6.70
FEO	0.76	3.14	3.12	2.75	2.59	2.39	305.9	11.8	3.62	1.94
MNO	0.11	0.15	0.16	0.14	0.13	0.14	-1000.00	0.34	0.13	0.15
TIO2	0.07	0.36	0.36	0.26	0.17	0.15	-1000.00	2.02	0.32	0.07
P2O5	0.02	0.02	0.06	0.03	0.02	0.02	-1000.00	0.28	0.05	0.01
L.O.I.	0.31	1.65	1.23	0.69	0.46	0.62	-100.00	2.85	1.08	1.54
SUM	97.5	98.5	97.4	98.5	98.9	97.4	440.9	100.0	97.7	97.9
FEO/MGO	—	—	4.42	6.62	11.05	7.89	—	1.83	4.37	2.02
K2O/K2O+NA2O	0.99	1.00	0.82	0.67	0.52	0.54	—	0.58	0.57	0.97

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	89.1	54.4	44.5	43.5	44.4	44.3	0.0	4.9	45.8	48.0
C	0.2	2.5	2.5	1.7	0.9	1.0	0.0	0.0	3.4	3.3
OR	8.7	38.1	33.4	29.1	21.2	22.0	0.0	16.2	19.9	41.0
AB	0.1	0.0	10.5	20.1	27.6	26.7	0.0	16.3	21.4	1.6
AN	0.9	0.7	2.6	1.6	1.8	2.0	0.0	12.8	1.4	0.9
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0
EN	0.0	0.0	1.1	0.5	0.3	0.3	0.0	12.3	1.5	1.9
FS	0.0	0.9	1.8	1.2	1.0	0.8	0.0	12.5	2.8	0.9
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.2	2.8	2.8	2.6	2.5	2.5	0.0	5.3	2.7	2.0
IL	0.1	0.7	0.7	0.5	0.3	0.3	0.0	0.0	0.6	0.1
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
AP	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.7	0.1	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	1	0	23	40	54	53	0	31	50	4
OR	90	98	72	58	42	43	0	31	47	94
AN	9	2	6	2	4	4	0	38	3	2
RECAST TO 100%										
Q	90	58	49	47	47	47	0	12	52	52
OR	9	41	37	30	22	23	0	27	22	45
AN+AB	1	1	14	23	31	30	0	61	26	3

SAMPLE	RR0874MT	RR0875MT	RR0876MT	RR0877MT	RR0878MT	RR0879MT	RR0880MT	RR0881MT	RR0882MT
F	140	190	690	520	630	360	---	940	480	590
CO	---	---	---	---	---	---	---	---	---	---
NI	---	---	---	---	---	---	---	---	---	---
CU	16	160	28	6	7	7	7	9	6	5
ZN	9	150	170	150	180	110	200	84	95	100
MO	0	12	0	0	0	0	0	0	0	0
AG	0	1	0	0	0	0	0	0	0	0
SN	0	3	3	5	5	5	25	0	5	5
SB	1.8	1.6	0.5	1.0	0.8	1.2	49.0	0.4	0.9	4.9
W	1	2	5	0	3	4	1	0	0	3
BI	0.3	0.4	0.8	0.6	0.4	0.2	0.8	0.1	0.3	-0.1
PB	0	3	4	2	0	2	420	1	3	3
U	4.9	26.0	8.9	14.0	14.0	9.8	---	1.7	11.0	13.0
TH	5	16	30	34	35	39	---	190	39	47

SAMPLE	RR0823MT	RR0824MT	RR0825MT	RR0826MT	RR0827MT	RR0828MT
SIO2	74.9	70.4	75.9	73.3	74.6	76.3
AL203	11.1	9.69	11.0	11.6	10.7	9.27
CAO	0.17	0.69	0.17	0.82	0.49	0.64
MGO	0.21	0.12	0.53	0.15	0.00	0.76
NA2O	0.00	2.85	0.00	0.43	2.05	1.88
K2O	7.70	2.25	6.68	5.99	5.50	1.54
FEO	1.64	2.32	1.47	3.32	2.79	5.59
MNO	0.14	0.14	0.14	0.13	0.14	0.26
TIO2	0.06	0.43	0.06	0.27	0.23	0.33
P2O5	0.00	0.05	0.01	0.02	0.02	0.11
L.O.I.	1.00	0.62	1.15	1.00	0.15	1.00
SUM	97.1	98.0	97.2	97.4	97.0	98.3
FEO/MGO	7.98	13.02	2.77	22.49	—	7.31
K2O/K2O+NA2O	1.00	0.44	1.00	0.93	0.73	0.45

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	46.5	53.1	51.1	47.1	41.7	56.5
C	2.5	1.5	3.6	3.0	0.5	3.7
OR	47.4	13.6	41.1	36.8	33.6	9.4
AB	0.0	24.7	0.0	3.8	18.0	16.4
AN	0.9	3.2	0.8	4.1	2.4	2.5
LC	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	0.0
EN	0.3	0.1	1.1	0.2	0.0	1.6
FS	0.4	0.4	0.3	1.7	0.7	6.3
FO	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0
MT	1.1	1.3	0.5	2.7	2.6	2.7
IL	0.1	0.8	0.1	0.5	0.5	0.6
CR	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.9	1.1	1.3	0.0	0.0	0.0
AP	0.0	0.1	0.0	0.1	0.0	0.3
PY	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%						
AB	0	60	0	8	33	58
OR	96	33	98	82	62	33
AN	2	8	2	9	4	9
RECAST TO 100%						
Q	49	55	53	51	44	67
OR	50	14	44	40	35	11
AN+AB	1	30	1	9	21	22

SAMPLE	RR0883MT	RR0884MT	RR0885MT	RR0886MT	RR0887MT	RR0888MT
F	470	290	450	280	260	320
CO	---	---	---	---	---	---
NI	---	---	---	---	---	---
CU	4	21	27	17	17	20
ZN	27	87	59	180	64	110
MO	0	0	0	0	0	0
AG	0	0	0	0	0	0
SN	15	0	20	15	3	8
SB	8.0	1.4	1.8	0.9	0.3	0.6
W	3	4	0	3	0	3
BI	-0.1	0.5	0.2	0.5	0.2	0.6
PB	3	2	4	2	2	4
U	16.0	130.0	13.0	320.0	18.0	85.0
TH	46	100	41	24	34	30

SAMPLE	RF000100	RA000600	RA000700	RX000800	RD000900	RD001200	RD001300	RD001400	RC001500	RC001600
SIO2	43.4	73.7	59.2	59.9	75.0	74.1	76.2	60.3	87.3	87.9
AL203	36.4	10.0	17.8	16.5	10.1	12.6	12.8	18.1	3.97	4.16
CAO	0.04	2.52	1.24	0.54	0.18	0.44	0.48	1.36	0.01	0.01
MGO	0.00	0.21	1.19	0.61	0.06	0.45	0.20	0.66	0.10	0.16
NA20	0.00	0.75	1.70	1.79	0.59	3.89	4.42	0.97	0.00	0.00
K20	4.09	4.54	11.9	9.85	6.55	4.60	3.83	12.4	2.39	2.00
FEO	7.08	3.18	3.09	4.30	3.63	1.51	1.41	2.96	2.00	1.66
MNO	0.06	0.09	0.19	0.07	0.08	0.12	0.09	0.08	0.03	0.03
TI02	0.61	0.22	0.18	0.76	0.21	0.18	0.17	0.17	0.28	0.15
P205	0.06	0.02	0.03	0.25	0.03	0.03	0.03	0.05	0.12	0.05
L.O.I.	6.90	1.42	1.20	2.44	0.42	0.77	0.63	1.02	1.52	0.91
SUM	99.4	97.0	98.0	97.4	97.3	98.8	100.4	98.4	98.0	97.2
FEO/MGO	—	14.80	2.60	7.04	65.62	3.34	6.98	4.47	19.40	10.58
K20/K20+NA20	1.00	0.86	0.88	0.85	0.92	0.54	0.46	0.93	1.00	1.00

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	26.8	48.2	0.0	10.4	46.7	32.9	34.6	2.8	80.7	83.0
C	34.8	0.0	0.0	2.6	1.8	0.5	0.5	0.6	1.4	2.1
OR	24.3	28.1	72.6	61.4	40.1	27.7	22.7	75.6	14.6	12.3
AB	0.0	6.7	14.8	15.9	5.2	33.6	37.5	8.4	0.0	0.0
AN	0.0	11.1	5.9	1.1	0.8	2.1	2.2	6.6	0.0	0.0
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HE	0.0	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EN	0.0	0.2	0.1	0.8	0.1	1.0	0.4	1.1	0.1	0.2
FS	7.4	1.0	0.1	2.2	2.3	0.2	0.1	1.9	0.2	0.2
FO	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	3.3	2.6	2.5	3.4	2.6	0.0	0.0	2.5	0.6	0.3
IL	1.3	0.4	0.4	1.5	0.4	0.3	0.2	0.3	0.5	0.3
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	0.0	0.0	0.0	0.0	1.7	1.6	0.0	1.4	1.5
AP	0.1	0.0	0.1	0.6	0.1	0.1	0.1	0.1	0.3	0.1
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	0	15	16	20	11	53	60	9	0	0
OR	100	61	78	78	87	44	36	83	100	100
AN	0	24	6	1	2	3	4	7	0	0
RECAST TO 100%										
Q	50	51	0	12	50	34	36	3	85	87
OR	50	30	78	69	43	29	23	81	15	13
AN+AB	0	19	22	19	6	37	41	16	0	0

SAMPLE	F000100	RA000600	RA000700	RX000800	RD000900	RD001200	RD001300	RD001400	RC001500	RC001600
F	530	9700	250	410	150	150	130	150	140	130
CO	---	---	---	---	---	---	---	---	---	---
NI	---	---	---	---	---	---	---	---	---	---
CU	6	20	29	62	22	42	88	22	40	52
ZN	38	120	70	320	140	110	140	72	14	10
MO	0	0	3	2020	6	3	0	4	11	4
AG	0	0	47	3	0	0	0	0	0	0
SN	10	8	0	3	3	0	0	0	0	0
SB	---	---	---	---	---	---	---	---	---	---
W	22	2	0	4	1	0	2	2	2	2
BI	---	---	---	---	---	---	---	---	---	---
PB	9	46	150	1130	180	270	321	46	100	85
U	13.0	8.0	1380.0	560.0	680.0	340.0	230.0	720.0	41.0	19.0
TH	78	30	23	17	12	36	25	4	110	36

SAMPLE	RC001700	RD085100	RA083200	RA085300	RA085400	RB250100	RB250200	RA250300	RA250700	RD251000
SIO2	86.0	84.2	76.7	78.0	76.4	72.2	76.6	74.6	74.4	58.5
AL203	3.44	6.68	10.4	6.44	10.2	11.7	9.94	8.42	10.4	17.1
CAO	0.01	0.03	0.09	3.65	0.35	0.14	0.53	0.52	0.53	1.47
MGO	0.34	0.23	0.13	0.89	0.05	0.03	0.30	0.01	0.19	1.13
NA20	0.00	0.00	0.00	0.47	1.81	0.00	1.92	1.05	1.60	0.97
K20	1.54	2.09	4.26	1.80	4.90	8.73	4.39	4.83	4.71	11.7
FEO	3.09	1.66	3.84	2.33	2.33	2.74	2.69	5.28	3.42	3.79
MNO	0.03	0.05	0.04	0.06	0.07	0.05	0.05	0.10	0.05	0.23
TIO2	0.29	0.13	0.29	0.36	0.21	0.24	0.23	0.18	0.34	0.18
P205	0.13	0.05	0.03	0.11	0.02	0.07	0.08	0.50	0.05	0.05
L.O.I.	1.83	1.78	2.25	2.67	0.49	1.12	1.03	1.08	0.75	1.98
SUM	97.0	97.2	98.5	97.0	97.1	97.3	98.1	97.2	97.1	97.6
FEO/MGO	9.19	7.13	21.21	2.61	42.79	93.40	8.86	—	18.13	3.34
K20/K20+NA20	1.00	1.00	1.00	0.79	0.73	1.00	0.70	0.82	0.72	0.92

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	83.1	79.5	61.4	64.7	48.0	39.9	48.6	49.6	45.8	2.0
C	1.9	4.6	6.0	0.0	1.4	2.2	1.3	1.5	1.6	0.3
OR	9.5	13.0	26.2	11.3	30.0	53.8	26.7	29.8	28.9	72.5
AB	0.0	0.0	0.0	4.2	15.8	0.0	16.7	9.3	15.9	8.6
AN	0.0	0.1	0.3	10.7	1.7	0.2	2.2	0.0	2.4	7.3
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0
EN	0.4	0.4	0.3	0.0	0.0	0.0	0.3	0.0	0.2	2.4
FS	1.4	0.3	2.5	0.0	0.2	0.5	1.0	5.6	1.6	3.8
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	2.7	0.4	2.7	1.3	2.2	2.6	2.6	2.6	2.8	2.5
IL	0.6	0.3	0.6	0.7	0.4	0.5	0.4	0.4	0.7	0.4
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	1.4	0.0	1.1	0.3	0.0	0.0	0.0	0.0	0.0
AP	0.3	0.1	0.1	0.3	0.0	0.2	0.2	1.2	0.1	0.1
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	0	0	0	16	33	0	37	24	34	10
OR	100	99	99	43	63	100	59	76	61	82
AN	0	1	1	41	4	0	5	0	5	8
RECAST TO 100%										
Q	90	86	70	71	50	42	52	56	49	2
OR	10	14	30	12	31	57	28	34	31	80
AN+AB	0	0	0	16	18	0	20	10	20	18

SAMPLE	C001700	RD085100	RA085200	RA085300	RA085400	RB250100	RB250200	RA250300	RA250700	RD251000
F	140	340	250	19000	170	340	140	270	210	280
CO	---	---	---	---	---	---	---	---	---	---
NI	---	---	---	---	---	---	---	---	---	---
CU	55	8	8	10	10	25	14	18	22	34
ZN	15	34	77	82	56	95	200	140	110	81
MO	5	0	3	640	0	12	14	29	6	3
AG	0	0	0	4	0	0	0	0	0	55
SN	0	8	15	3	5	5	3	8	15	0
SB	---	---	---	---	---	---	---	---	---	---
W	2	1	2	3	1	3	2	8	4	0
BI	---	---	---	---	---	---	---	---	---	---
PB	71	18	77	56	29	210	270	180	34	150
U	83.0	130.0	19.0	110.0	20.0	35.0	9.0	98.0	69.0	1760.0
TH	210	9	37	24	34	110	130	890	37	23

SAMPLE	RR001800	RR002000	RR002100	RC002200	RC002300	RR027100	RF027200	RR027600	RE028400	RE028600
SIO2	75.1	76.8	45.7	78.1	73.7	47.9	-1000.00	76.3	79.6	68.2
AL203	11.8	11.8	18.7	8.74	8.75	14.1	-1000.00	11.7	9.36	15.1
CAO	0.52	0.88	2.55	0.22	0.14	7.52	-1000.00	0.28	1.69	0.96
MGO	0.50	0.59	4.63	0.50	0.60	5.67	-1000.00	0.11	1.14	2.08
NA2O	4.29	1.14	0.86	1.29	0.64	4.05	-1000.00	2.59	2.55	3.34
K2O	2.56	5.10	6.13	4.96	5.63	1.02	-1000.00	5.50	0.85	2.55
FEO	2.48	1.42	12.8	2.41	2.26	12.1	1259.7	1.31	1.61	3.77
MNO	0.30	0.10	0.98	0.04	0.04	0.36	-1000.00	0.05	0.11	0.14
TIO2	0.10	0.11	3.75	0.12	0.12	2.50	-1000.00	0.17	0.51	0.75
P2O5	0.02	0.02	0.56	0.02	0.02	0.34	-1000.00	0.03	0.07	0.15
L.O.I.	1.08	1.08	2.85	0.54	0.77	3.08	100.00	0.31	1.08	2.46
SUM	99.1	99.1	100.9	97.2	92.9	100.0	1500.0	98.5	98.7	99.9
FEO/MGO	4.94	2.41	2.77	4.82	3.78	2.13	—	11.64	1.42	1.81
K2O/K2O+NA2O	0.37	0.82	0.88	0.79	0.90	0.20	—	0.68	0.25	0.43

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	38.9	48.8	3.8	52.0	51.2	0.0	1.7	40.2	57.7	34.9
C	1.1	2.9	7.5	0.9	1.5	0.0	0.3	1.0	1.4	5.6
OR	15.5	30.8	36.9	30.3	34.1	6.2	0.0	33.1	5.1	15.4
AB	37.0	9.8	7.4	11.3	5.8	35.4	0.0	22.3	22.1	28.9
AN	2.5	4.3	9.1	1.0	0.6	17.8	0.0	1.2	8.1	3.9
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	7.7	7.4	0.0	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	7.6	29.2	0.0	0.0	0.0
EN	0.8	1.4	7.8	0.7	0.9	2.0	22.3	0.2	2.8	3.7
FS	1.6	0.2	11.2	1.0	0.9	2.3	0.0	0.1	0.2	2.4
FO	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0
MT	2.4	0.0	7.7	2.4	2.5	6.0	3.2	0.0	0.0	3.3
IL	0.2	0.2	7.2	0.2	0.2	4.9	4.3	0.1	0.2	1.5
CR	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0
HM	0.0	1.6	0.0	0.0	0.0	0.0	5.4	1.5	1.8	0.0
AP	0.1	0.0	1.3	0.0	0.0	0.8	7.5	0.1	0.2	0.4
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.1	0.4	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	67	22	14	26	14	60	0	39	63	60
OR	28	69	69	71	85	10	0	58	15	32
AN	5	10	17	2	1	30	0	2	23	8
RECAST TO 100%										
Q	41	52	7	55	55	0	100	42	62	42
OR	16	33	64	32	38	10	0	34	6	19
AN+AB	42	15	29	13	7	90	0	24	32	39

SAMPLE	R001800	RR002000	RR002100	RC002200	RC002300	RR027100	RF027300	RR027600	RE028400	RE028600
F	280	580	1500	260	360	580	—	210	380	640
CO	—	—	—	—	—	29	—	0	11	30
NI	—	—	—	—	—	15	—	6	17	24
CU	22	31	59	9	11	50	15	10	11	13
ZN	220	47	250	74	87	180	77	36	17	39
MO	—	—	—	—	—	0	0	0	0	0
AG	10	2	0	0	0	0	1	0	1	0
SN	0	0	0	3	3	0	0	0	0	0
SB	—	—	—	—	—	—	—	—	—	—
W	0	0	17	3	0	0	1	0	0	7
BI	—	—	—	—	—	-0.1	—	0.1	0.2	1.1
PB	220	76	41	3	3	6	3	34	9	29
U	1390.0	2060.0	187.0	5.8	4.6	0.9	1.4	7.1	26.0	355.0
TH	0	0	0	25	27	0	7	27	8	0

SAMPLE	RE028800	RC028900	RA029000	RR029100	RE029400	RR029500	RR029600	RR029700	RR029800	RR029900
SIO2	68.1	45.7	45.9	75.1	64.8	-1000.00	80.5	76.6	43.8	75.3
AL203	14.2	14.7	15.9	12.5	12.4	-1000.00	8.86	10.9	15.2	12.4
CAO	0.65	6.22	9.71	0.28	7.31	-1000.00	0.06	0.77	7.15	3.11
MGO	2.02	6.39	8.23	0.22	1.74	-1000.00	0.52	0.56	5.87	1.15
NA2O	1.93	3.34	2.21	2.50	1.22	-1000.00	0.60	2.97	3.69	1.08
K2O	3.41	1.21	0.88	5.32	1.99	-1000.00	1.73	2.22	0.37	2.13
FEO	2.96	14.6	10.7	1.57	2.72	305.9	2.44	1.32	11.5	1.65
MNO	0.07	0.25	0.25	0.04	0.11	-1000.00	0.04	0.05	0.61	0.06
TIO2	0.77	2.66	1.81	0.25	0.84	-1000.00	0.57	0.10	3.95	0.17
P2O5	0.11	0.35	0.24	0.05	0.16	-1000.00	0.07	0.03	2.15	0.03
L.O.I.	2.62	2.69	3.00	0.46	6.23	100.00	3.15	1.69	3.15	1.77
SUM	97.2	99.8	100.0	98.5	99.8	440.0	98.8	97.3	98.7	99.1
FEO/MGO	1.47	2.29	1.30	7.26	1.56	—	4.73	2.37	1.97	1.44
K2O/K2O+NA2O	0.64	0.27	0.28	0.68	0.62	—	0.74	0.43	0.09	0.66

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	41.9	0.0	0.0	40.1	37.4	1.6	72.7	50.6	2.0	54.0
C	6.8	0.0	0.0	2.3	0.0	0.1	6.3	2.3	0.9	2.8
OR	21.2	7.4	5.3	32.1	12.5	0.0	10.7	13.7	2.3	12.9
AB	17.2	29.2	19.3	21.6	11.0	0.0	5.3	26.3	32.4	9.4
AN	2.7	22.3	31.8	1.1	24.0	0.0	0.0	3.9	22.2	15.6
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	41.1	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0
DI	0.0	2.9	8.2	0.0	8.1	33.0	0.0	0.0	0.0	0.0
HE	0.0	3.2	5.0	0.0	2.2	19.5	0.0	0.0	0.0	0.0
EN	4.2	4.3	7.2	0.5	0.0	0.9	0.8	1.4	10.0	2.7
FS	1.5	5.5	5.1	0.1	0.0	0.0	0.7	0.1	9.1	0.4
FO	0.0	5.4	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	7.5	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	1.0	6.2	4.9	0.0	0.0	0.0	0.3	0.0	8.2	0.2
IL	1.5	5.2	3.5	0.1	1.6	1.0	1.1	0.1	7.8	0.3
CR	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
HM	1.7	0.0	0.0	1.8	2.5	0.0	1.9	1.5	0.0	1.6
AP	0.3	0.8	0.6	0.1	0.4	0.0	0.2	0.1	5.2	0.1
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	42	50	34	39	23	0	33	60	57	25
OR	52	13	9	59	26	0	67	31	4	34
AN	6	38	56	2	50	0	0	9	39	41
RECAST TO 100%										
Q	51	0	0	42	44	100	82	54	3	59
OR	26	13	9	34	15	0	12	15	4	14
AN+AB	24	87	91	24	41	0	6	32	93	27

SAMPLE	E028800	RC028900	RA029000	RR029100	RE029400	RR029500	RR029600	RR029700	RR029800	RR029900
F	640	890	420	210	670	340	260	260	1600	350
CO	20	30	23	2	12	—	6	0	27	2
NI	20	36	41	3	26	—	19	5	2	3
CU	10	42	87	14	13	4	19	7	11	19
ZN	25	37	630	23	29	45	22	17	140	20
MO	0	0	0	0	0	0	0	0	0	0
AG	0	0	0	0	0	0	2	0	1	0
SN	0	0	0	0	0	0	3	0	0	3
SB	—	—	—	—	—	—	—	—	—	—
W	0	5	0	0	9	2	0	0	0	0
BI	0.8	0.2	-0.1	0.2	0.6	—	0.3	-0.1	-0.1	0.3
PB	7	0	60	60	4	15	2	0	0	0
U	83.0	0.8	0.4	5.6	45.0	3.5	2.4	4.1	1.2	6.0
TH	14	0	0	30	18	21	12	18	9	37

SAMPLE	RR030000	RR051600	RR051700	RR085500	RR085600	RD085700	RR085800	RR085900	RR086000	RC215100
SIO2	74.1	60.9	56.6	62.9	76.0	36.7	77.0	73.1	71.4	68.8
AL203	12.0	17.6	16.9	18.7	9.22	7.53	9.13	13.6	12.5	13.6
CAO	0.23	0.52	0.41	1.73	0.23	24.6	0.18	0.33	0.18	0.12
MGO	0.40	0.62	0.52	0.33	0.75	0.73	0.17	0.26	0.28	0.38
NA20	2.22	1.57	1.13	7.53	0.47	0.92	0.64	6.44	1.31	1.60
K20	5.37	12.1	11.5	4.13	6.45	1.40	6.50	1.28	7.50	5.10
FEO	1.52	2.06	1.78	2.10	3.22	3.36	2.36	2.12	2.96	1.04
MNO	0.04	0.07	0.06	0.18	0.38	0.20	0.09	0.20	0.34	0.04
TIO2	0.21	0.16	0.13	0.21	0.10	0.51	0.10	0.16	0.15	0.10
P205	0.04	0.17	0.18	0.05	0.02	7.86	0.04	0.03	0.02	0.01
L.O.I.	0.77	1.23	1.46	0.92	1.31	12.23	0.85	1.15	1.08	1.62
SUM	97.0	97.2	90.8	99.0	98.5	96.4	97.3	98.9	98.1	92.6
FEO/MGO	3.79	3.33	3.41	6.32	4.31	4.60	14.02	8.10	10.45	2.77
K20/K20+NA20	0.71	0.89	0.91	0.35	0.93	0.60	0.91	0.17	0.85	0.76

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8, 523(1971)]

Q	41.1	4.2	5.3	0.0	47.2	7.9	49.4	30.4	34.6	43.1
C	2.3	1.5	2.5	0.0	1.1	0.0	0.8	1.1	2.0	5.8
OR	33.0	74.2	76.1	24.9	39.3	9.8	39.9	7.7	45.8	33.2
AB	19.5	13.8	10.7	64.6	4.1	9.2	5.7	55.7	11.5	14.8
AN	0.9	1.5	0.9	5.2	1.0	14.6	0.6	1.5	0.8	0.6
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.8	0.0	2.6	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	1.2	0.0	3.9	0.0	0.0	0.0	0.0
EN	1.0	1.0	1.0	0.0	1.5	0.0	0.2	0.2	0.4	1.0
FS	0.1	0.8	0.5	0.0	3.1	0.0	0.7	0.6	2.1	0.1
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.4	0.0	25.7	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.0	1.6	0.9	1.8	2.4	3.5	2.4	2.2	2.5	0.0
IL	0.1	0.3	0.3	0.4	0.2	1.2	0.2	0.3	0.3	0.1
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	1.8	0.6	1.2	0.5	0.0	0.0	0.0	0.2	0.0	1.3
AP	0.1	0.4	0.5	0.1	0.1	21.7	0.1	0.1	0.1	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	37	15	12	68	9	27	12	86	20	31
OR	62	83	87	26	88	29	84	12	79	68
AN	2	2	1	5	2	43	1	2	1	1
RECAST TO 100%										
Q	43	4	6	0	52	19	52	32	37	47
OR	35	79	82	26	43	24	42	8	49	36
AN+AB	22	16	12	74	6	57	7	60	13	17

SAMPLE	RR030000	RR051600	RR051700	RR085500	RR085600	RR085700	RR085800	RR085900	RR086000	RC215100
F	410	200	230	180	150	7000	140	110	0	580
CO	2	---	---	---	---	---	---	---	---	---
NI	4	---	---	---	---	---	---	---	---	---
CU	7	690	1700	180	110	74	22	81	72	7
ZN	6	710	1100	110	580	28	130	230	190	21
MO	0	---	---	---	---	---	---	---	---	---
AG	0	36	98	0	11	0	7	0	0	0
SN	0	3	3	0	0	0	0	0	0	3
SB	---	---	---	---	---	---	---	---	---	---
W	4	0	0	12	0	14	0	0	13	4
BI	-0.1	---	---	---	---	---	---	---	---	---
PB	0	1400	1900	72	360	21	220	260	240	2
U	5.0	8710.0	15160.0	360.0	3850.0	83.0	2330.0	305.0	515.0	4.6
TH	25	---	---	36	0	18	0	9	0	36

SAMPLE	RR215200	RR215300	RR215400	RR002700	RR002800	RR007000	RR007200	RR007300	RR007400	RR007500
SIO2	84.9	79.0	68.1	44.6	73.9	80.2	72.5	74.9	46.1	77.2
AL2O3	8.31	8.70	18.5	7.11	12.4	9.45	12.1	10.9	14.6	12.3
CAO	0.04	0.02	0.36	21.2	2.45	0.07	0.41	0.46	9.65	0.61
MGO	0.28	0.00	1.98	0.98	1.26	0.11	0.11	0.03	6.43	0.30
NA2O	0.32	0.00	0.41	1.22	3.04	0.00	0.08	2.33	2.06	3.56
K2O	2.80	6.52	5.76	1.36	2.54	3.51	6.81	3.91	0.67	3.43
FEO	1.80	3.03	2.77	3.03	3.44	3.08	3.65	3.33	13.5	1.76
MNO	0.06	0.06	0.08	0.29	0.00	0.00	0.00	0.00	0.16	0.00
TIO2	0.21	0.38	0.30	0.40	0.37	0.20	0.35	0.22	2.79	0.20
P2O5	0.03	0.02	0.04	0.11	0.43	0.04	0.04	0.14	0.56	0.05
L.O.I.	1.23	1.69	2.92	17.31	0.62	1.85	1.31	1.15	2.00	0.85
SUM	100.2	99.8	101.5	98.0	100.8	98.8	97.8	97.8	100.2	100.5
FEO/MGO	6.54	—	1.40	3.08	2.72	27.47	33.64	121.81	2.10	5.91
K2O/K2O+NA2O	0.90	1.00	0.93	0.53	0.46	1.00	0.99	0.63	0.25	0.49

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	72.6	55.0	40.4	7.2	40.0	68.2	46.1	46.8	1.7	41.9
C	4.8	1.7	11.1	0.0	1.2	5.8	4.1	2.4	0.0	1.8
OR	16.7	39.4	34.5	10.0	15.0	21.4	41.8	24.0	4.0	20.3
AB	2.8	0.0	3.5	12.7	25.6	0.0	0.7	20.4	17.8	30.2
AN	0.0	0.0	1.5	12.3	9.3	0.1	1.9	1.4	29.1	2.7
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	7.2	0.0
HE	0.0	0.0	0.0	4.4	0.0	0.0	0.0	0.0	7.0	0.0
EN	0.4	0.0	3.8	0.0	2.2	0.1	0.1	0.0	9.6	0.5
FS	0.4	0.4	1.7	0.0	2.2	1.3	1.8	1.5	10.6	0.3
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MO	0.0	0.0	0.0	44.7	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.4	2.6	2.6	3.4	2.7	2.5	2.8	2.6	6.3	0.2
IL	0.4	0.7	0.6	0.9	0.7	0.4	0.7	0.4	5.4	0.4
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
AP	0.1	0.1	0.1	0.3	1.0	0.1	0.1	0.3	1.3	0.1
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	14	0	9	36	51	0	2	45	35	57
OR	86	100	87	29	30	99	94	52	8	38
AN	0	0	4	35	19	1	4	3	57	5
RECAST TO 100%										
Q	79	58	51	17	45	76	51	51	3	44
OR	18	42	43	24	17	24	46	26	8	21
AN+AB	3	0	6	59	39	0	3	24	89	35

SAMPLE	RR215200	RR215300	RR215400	RR002700	RR002800	RR007000	RR007200	RR007300	RR007400	RR007500
F	280	150	930	350	6700	240	200	210	570	230
CO	---	---	---	---	---	---	---	---	---	---
NI	---	---	---	---	---	---	---	---	---	---
CU	12	11	26	28	65	16	14	16	68	12
ZN	14	18	25	62	45	110	97	180	72	50
MO	---	---	---	0	6	88	4	6	0	0
AG	0	0	0	1	0	1	1	0	1	0
SN	0	0	3	0	0	0	0	0	0	0
SB	---	---	---	---	---	---	---	---	---	---
W	0	0	4	0	16	1	2	0	0	0
BI	---	---	---	---	---	---	-0.1	---	---	---
PB	2	0	47	55	25	13	12	14	7	11
U	5.8	13.0	2.9	39.0	69.0	4.1	6.9	2.8	0.5	2.9
TH	24	17	43	7	31	18	22	24	0	24

SAMPLE	RR007600	RR017800	RR017900	RR018100	RR018200	RR027300	RR029500	RR030600	RR035100	RR035200
SIO2	47.6	78.3	76.3	47.6	44.0	49.7	74.6	60.0	60.0	64.5
AL2O3	14.7	10.8	11.5	13.1	16.1	15.6	13.2	14.6	13.2	18.8
CAO	10.8	0.66	0.25	9.00	8.67	6.47	0.21	3.31	0.39	0.30
MGO	7.15	0.41	0.00	5.50	5.39	4.07	0.23	2.83	0.98	0.09
NA2O	2.23	0.88	2.82	2.68	2.95	2.34	2.24	1.64	0.04	11.4
K2O	0.62	5.13	5.83	1.07	1.10	2.14	3.46	3.01	13.6	0.17
FEO	12.0	0.92	1.04	13.6	14.1	11.0	1.69	7.39	2.77	3.24
MNO	0.17	0.00	0.00	0.18	0.11	0.12	0.00	0.08	0.00	0.00
TIO2	2.32	0.10	0.12	2.99	2.95	2.61	0.17	0.75	0.18	0.16
P2O5	0.31	0.03	0.03	0.49	0.55	0.73	0.04	0.22	0.06	0.12
L.O.I.	0.54	1.23	0.38	1.62	2.15	3.54	1.62	0.77	1.23	1.00
SUM	99.8	98.6	98.4	99.4	99.6	99.6	97.7	95.3	97.8	100.1
FEO/MGO	1.68	2.24	--	2.47	2.62	2.71	7.39	2.61	2.83	35.53
K2O/K2O+NA2O	0.22	0.85	0.67	0.29	0.27	0.48	0.61	0.65	1.00	0.01

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	0.3	53.0	37.9	2.2	0.0	8.0	49.6	26.6	5.4	0.0
C	0.0	2.7	0.1	0.0	0.0	0.0	5.7	3.3	2.9	0.0
OR	3.7	31.2	35.2	6.5	6.7	13.2	21.3	18.9	83.2	1.0
AB	19.0	7.7	24.3	23.2	25.7	20.6	19.7	14.8	0.4	90.3
AN	28.6	3.2	1.1	21.2	28.2	26.7	0.8	15.9	1.6	0.0
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
DI	10.8	0.0	0.0	8.4	4.7	0.7	0.0	0.0	0.0	0.0
HE	8.4	0.0	0.0	9.4	5.6	0.8	0.0	0.0	0.0	0.6
EN	9.8	1.0	0.0	6.8	1.0	7.2	0.4	6.3	1.7	0.0
FS	8.7	0.0	0.0	8.7	1.3	9.6	0.2	8.8	1.6	0.0
FO	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.1
FA	0.0	0.0	0.0	0.0	7.9	0.0	0.0	0.0	0.0	1.2
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	5.6	0.0	0.0	6.7	6.6	6.2	0.1	3.5	2.5	2.1
IL	4.4	0.0	0.0	5.8	5.8	5.2	0.3	1.5	0.4	0.3
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	1.0	1.2	0.0	0.0	0.0	1.7	0.0	0.0	0.0
AP	0.7	0.1	0.1	1.2	1.3	1.8	0.1	0.5	0.1	0.3
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	37	18	40	46	42	34	47	30	0	99
OR	7	74	58	13	11	22	51	38	98	1
AN	56	8	2	42	47	44	2	32	2	0
RECAST TO 100%										
Q	1	56	38	4	0	12	54	35	6	0
OR	7	33	36	12	11	19	23	25	92	1
AN+AB	92	11	26	84	89	69	22	40	2	99

SAMPLE	RR007600	RR017800	RR017900	RR018100	RR018200	RR027300	RR029500	RR030600	RR036100	RR036200
F	880	460	100	520	700	1400	—	200	170	310
CO	—	—	—	—	—	—	—	—	—	—
NI	—	—	—	—	—	—	—	—	—	—
CU	96	6	9	53	51	—	—	7	47	120
ZN	70	21	23	110	120	—	—	85	210	250
MO	0	0	0	0	0	—	—	0	130	170
AS	1	1	1	1	0	—	—	0	0	1
SN	0	0	0	0	0	—	—	5	5	10
SB	—	—	—	—	—	—	—	—	—	—
W	2	0	0	0	0	—	—	3	0	0
BI	—	—	—	—	—	—	—	—	—	—
PB	73	28	36	10	0	—	—	10	120	500
U	0.7	160.0	4.7	0.9	0.5	—	—	10.0	500.0	1100.0
TH	0	21	36	3	0	—	—	28	22	0

SAMPLE	RR086300	RR086400	RR086500	RR086600	RR086700	RR002900	RR003000	RR007700	RR007800	RR007900
SIO2	70.3	59.5	70.0	65.8	66.2	60.3	80.0	71.6	49.5	52.3
AL203	13.8	19.5	13.7	15.4	13.2	17.4	8.70	9.33	13.7	14.4
CAO	2.82	1.50	0.46	0.49	0.81	1.70	0.09	4.94	8.39	7.28
MGO	0.08	0.67	0.07	1.26	0.39	0.17	0.51	1.53	5.53	5.21
NA2O	7.86	3.47	6.52	3.25	1.24	9.72	0.47	1.63	3.69	5.17
K2O	0.18	8.52	2.07	6.66	3.92	0.13	4.60	3.00	1.34	1.30
FEO	2.18	2.50	5.14	3.72	6.05	4.32	1.41	4.56	12.5	9.44
MNO	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.17	0.30	0.19
TIO2	0.15	0.30	0.24	0.59	1.01	0.13	0.10	0.91	2.52	1.81
P2O5	1.49	1.09	0.09	0.10	0.29	1.32	0.03	0.14	0.35	0.32
L.O.I.	0.69	2.15	0.62	1.62	4.92	2.00	1.15	0.38	1.12	0.94
SUM	99.8	99.5	99.4	99.3	98.6	97.7	97.3	98.7	100.3	99.5
FEO/MGO	25.86	3.71	70.45	2.95	19.90	24.81	2.79	2.98	2.27	1.81
K2O/K2O+NA2O	0.02	0.71	0.24	0.67	0.76	0.01	0.91	0.65	0.27	0.20

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	22.7	5.7	21.5	18.8	44.1	1.4	61.1	41.4	0.0	0.0
C	0.0	4.6	0.1	2.2	6.5	1.3	3.0	0.0	0.0	0.0
OR	1.1	51.7	12.4	40.3	24.8	0.8	28.3	18.0	8.0	7.8
AB	67.1	30.1	56.1	28.1	11.2	86.2	4.1	14.0	31.5	43.5
AN	1.9	0.3	1.7	1.8	2.3	0.0	0.3	9.4	17.0	12.5
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.1	0.0	0.0	0.0	0.0	0.0	0.0	5.3	9.2	10.0
HE	0.4	0.0	0.0	0.0	0.0	0.0	0.0	5.7	9.7	8.2
EN	0.0	1.0	0.1	2.0	0.4	0.3	1.2	0.0	3.6	0.0
FS	0.0	1.0	4.8	2.2	3.9	4.0	0.1	0.0	4.4	0.0
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	4.1
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	4.3
MO	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	1.8	2.0	2.6	3.1	3.9	2.5	0.0	3.5	5.9	4.9
IL	0.3	0.6	0.5	1.1	2.0	0.2	0.1	1.8	4.8	3.5
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.4	0.5	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0
AP	3.5	2.6	0.2	0.2	0.7	3.2	0.1	0.3	0.8	0.8
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	96	37	80	40	29	99	13	34	56	68
OR	1	63	18	57	65	1	86	44	14	12
AN	3	0	2	3	6	0	1	23	30	20
RECAST TO 100%										
Q	24	7	23	21	53	2	65	50	0	0
OR	1	59	14	45	30	1	30	22	14	12
AN+AB	74	35	63	34	16	97	5	28	86	88

SAMPLE	RR086300	RR086400	RR086500	RR086600	RR086700	RR002900	RR003000	RR007700	RR007800	RR007900
F	1400	900	150	280	850	---	---	---	---	---
CO	---	---	---	---	---	---	---	---	---	---
NI	---	---	---	---	---	---	---	---	---	---
CU	41	210	54	9	20	150	13	12	41	5
ZN	100	200	58	82	47	200	75	45	75	110
MO	18	1200	22	380	130	---	---	---	---	---
AG	0	8	12	0	1	---	---	---	---	---
SN	50	10	5	3	5	---	---	---	---	---
SB	---	---	---	---	---	---	---	---	---	---
W	0	0	10	2	5	---	---	---	---	---
BI	---	---	---	---	---	---	---	---	---	---
PB	140	810	320	34	440	440	120	34	54	0
U	600.0	480.0	2900.0	36.0	4.7	4050.0	280.0	3.6	1.1	2.6
TH	0	19	0	28	15	---	---	---	---	---

SAMPLE	RR018300	RR018400	RR018500	RR018600	RR018700	RR018800	RR018900	RR019000	RR019100	RR019200
SIO2	77.1	80.3	56.6	47.5	69.0	75.4	45.1	77.5	51.1	75.6
AL203	9.96	9.32	10.5	15.6	11.4	10.8	12.7	10.5	15.1	10.6
CAO	0.21	0.82	0.07	9.31	0.07	0.05	7.94	0.52	5.48	0.42
MGO	0.00	0.58	0.00	4.98	0.19	0.06	4.56	0.07	5.26	0.00
NA2O	0.00	0.94	0.02	2.06	0.06	0.00	3.08	2.44	3.37	2.88
K2O	7.15	2.90	6.00	1.03	7.15	7.92	1.06	4.35	1.29	4.10
FEO	1.84	2.41	20.3	10.8	6.93	2.72	14.8	2.25	12.5	3.53
MNO	0.04	0.07	0.05	0.23	0.05	0.04	0.53	0.05	0.26	0.03
TIO2	0.29	0.36	0.17	2.24	0.22	0.17	3.83	0.23	2.59	0.22
P2O5	0.07	0.05	0.04	0.31	0.04	0.02	0.77	0.03	0.47	0.01
L.O.I.	1.02	1.08	1.37	1.00	1.62	1.15	1.87	0.90	1.68	0.31
SUM	97.8	99.1	97.4	96.3	97.5	98.6	97.8	99.1	100.5	98.1
FEO/MGO	—	4.18	—	2.18	36.25	47.12	3.25	33.40	2.38	—
K2O/K2O+NA2O	1.00	0.76	1.00	0.33	0.99	1.00	0.26	0.64	0.28	0.59

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8, 523(1971)]

Q	51.1	62.4	19.9	5.1	39.1	45.8	1.3	46.4	4.7	42.4
C	2.0	3.3	4.2	0.0	3.7	2.3	0.0	0.9	0.0	0.7
OR	43.7	17.5	37.9	6.4	44.4	48.1	6.5	26.2	7.8	24.8
AB	0.0	8.1	0.2	18.3	0.5	0.0	27.2	21.0	28.9	25.0
AN	0.6	3.8	0.1	31.7	0.1	0.1	18.4	2.4	22.6	2.1
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	6.2	0.0	0.0	5.9	0.0	0.7	0.0
HE	0.0	0.0	0.0	6.1	0.0	0.0	8.7	0.0	0.8	0.0
EN	0.0	0.8	0.0	7.2	0.4	0.0	5.3	0.0	9.9	0.0
FS	0.0	0.8	34.8	8.2	8.6	0.8	9.0	0.2	12.5	1.9
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.0	1.6	2.6	5.7	2.6	2.5	8.1	1.7	6.0	2.6
IL	0.6	0.7	0.3	4.5	0.4	0.3	7.6	0.4	5.0	0.4
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	1.9	0.8	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
AP	0.2	0.1	0.1	0.7	0.1	0.1	1.9	0.1	1.1	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	0	28	0	32	1	0	52	42	49	48
OR	99	59	99	11	99	100	13	53	13	48
AN	1	13	0	56	0	0	35	5	38	4
RECAST TO 100%										
Q	54	68	34	8	47	49	2	48	7	45
OR	46	19	65	10	53	51	12	27	12	26
AN+AB	1	13	0	81	1	0	85	24	81	29

SAMPLE	RR018300	RR018400	RR018500	RR018600	RR018700	RR018800	RR018900	RR019000	RR019100	RR019200
F	---	---	---	---	---	---	---	---	---	---
CO	---	---	---	---	---	---	---	---	---	---
NI	---	---	---	---	---	---	---	---	---	---
CU	16	15	44	35	15	10	20	8	46	17
ZN	20	56	32	48	48	28	290	40	96	26
MO	---	---	---	---	---	---	---	---	---	---
AG	---	---	---	---	---	---	---	---	---	---
SN	---	---	---	---	---	---	---	---	---	---
SB	---	---	---	---	---	---	---	---	---	---
W	---	---	---	---	---	---	---	---	---	---
BI	---	---	---	---	---	---	---	---	---	---
PB	16	18	44	12	32	20	80	40	17	26
U	7.7	15.0	400.0	5.7	310.0	38.0	1.1	5.6	2.2	7.0
TH	---	---	---	---	---	---	---	---	---	---

SAMPLE	RR030800	RR030900	RR031000	RR086900	RR087000	RR087100	RR087200	RR087400	RR215500	RR215600
SIO2	76.6	75.2	75.9	82.7	56.0	76.5	78.4	64.7	71.6	82.7
AL203	8.72	10.8	8.59	8.34	14.1	8.69	11.9	9.92	10.2	8.40
CAO	0.25	0.08	0.05	0.29	3.40	2.46	0.03	2.89	0.20	0.18
MGO	0.04	0.00	0.01	0.07	2.53	0.70	0.22	0.98	0.01	0.09
NA20	0.00	0.00	0.06	0.00	2.18	1.65	0.00	1.79	0.30	0.00
K20	7.14	9.42	6.76	2.60	2.07	1.40	4.02	2.16	6.92	2.70
FEO	3.45	1.72	3.47	2.43	10.2	3.42	1.58	8.16	3.04	2.31
MNO	0.07	0.01	0.03	0.03	0.23	0.07	0.02	0.10	0.04	0.03
TIO2	0.22	0.15	0.20	0.19	2.50	0.25	0.07	0.56	0.20	0.19
P205	0.03	0.03	0.04	0.02	0.52	0.20	0.01	0.29	0.08	0.02
L.O.I.	1.13	0.54	0.62	2.33	3.69	1.78	2.08	1.69	0.77	1.74
SUM	98.0	98.2	96.2	99.3	98.7	97.7	98.5	94.2	93.7	98.6
FEO/MGO	83.91	—	251.52	35.90	4.06	4.89	7.32	8.36	221.81	25.71
K20/K20+NA20	1.00	1.00	0.99	1.00	0.49	0.43	1.00	0.55	0.96	1.00

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	49.6	40.0	51.2	74.4	25.0	56.2	65.0	38.2	45.9	74.2
C	0.6	0.6	1.2	5.2	3.7	0.1	7.8	0.1	2.2	5.4
OR	43.7	57.1	42.0	15.9	12.9	8.7	24.7	13.9	44.1	16.5
AB	0.0	0.0	0.5	0.0	19.5	16.3	0.0	16.5	2.8	0.0
AN	1.1	0.2	0.0	1.3	13.5	11.4	0.1	13.5	0.5	0.8
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EN	0.1	0.0	0.0	0.0	4.3	1.2	0.4	2.2	0.0	0.0
FS	1.9	0.0	1.9	0.2	8.5	2.5	0.2	10.4	1.2	0.3
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	2.6	0.4	2.6	2.5	6.1	2.6	0.4	3.3	2.7	2.1
IL	0.4	0.3	0.4	0.4	5.0	0.5	0.1	1.2	0.4	0.4
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	1.4	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.3
AP	0.1	0.1	0.1	0.0	1.5	0.5	0.0	0.7	0.2	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	0	0	1	0	42	45	0	38	6	0
OR	98	100	99	92	28	24	100	32	93	95
AN	2	0	0	8	29	31	0	31	1	5
RECAST TO 100%										
Q	53	41	55	81	35	61	72	47	49	81
OR	46	59	45	17	18	9	27	17	47	18
AN+AB	1	0	1	1	47	30	0	37	4	1

SAMPLE	R030800	RR030900	RR031000	RR086900	RR087000	RR087100	RR087200	RR087400	RR215500	RR215600
F	---	---	---	---	---	---	---	---	---	---
CO	---	---	---	---	---	---	---	---	---	---
NI	---	---	---	---	---	---	---	---	---	---
CU	95	35	20	11	18	6	8	31	36	23
ZN	79	65	49	66	190	51	8	50	120	90
MO	---	---	---	---	---	---	---	---	---	---
AG	---	---	---	---	---	---	---	---	---	---
SN	---	---	---	---	---	---	---	---	---	---
SB	---	---	---	---	---	---	---	---	---	---
W	---	---	---	---	---	---	---	---	---	---
BI	---	---	---	---	---	---	---	---	---	---
PB	220	130	190	100	42	46	40	140	250	82
U	1260.0	480.0	540.0	47.0	67.0	18.0	8.7	53.0	32.0	26.0
TH	---	---	---	---	---	---	---	---	---	---

SAMPLE	C5315	C5316	C5317	C5318	C5319	C5320	C5321	C5322	C5323	C5324
SIO2	74.7	44.4	46.7	68.8	76.2	74.6	45.2	74.1	77.9	74.7
AL203	11.9	15.7	16.0	10.5	12.1	12.6	13.9	12.6	11.8	12.2
CAO	1.15	7.16	8.32	7.93	0.54	0.68	7.52	1.07	0.43	0.52
MGO	0.18	7.66	8.10	0.00	0.13	0.03	6.74	0.05	0.16	0.14
NA20	1.13	2.52	2.20	2.17	3.18	3.37	2.54	2.49	2.68	0.98
K20	6.86	1.23	1.77	4.83	5.15	5.09	1.74	6.38	5.55	8.46
FEO	1.49	13.3	10.4	0.78	1.50	1.61	13.5	1.31	1.18	1.15
MNO	0.15	0.46	0.42	0.13	0.12	0.13	0.57	0.13	0.14	0.13
TIO2	0.12	2.57	1.83	0.11	0.17	0.18	2.69	0.12	0.13	0.12
P205	0.02	0.40	0.32	0.02	0.02	0.02	0.39	0.02	0.02	0.02
L.O.I.	1.23	3.85	2.92	3.23	0.62	0.69	3.08	0.38	0.38	0.46
SUM	99.1	100.7	100.2	98.6	99.9	99.2	99.4	98.8	99.6	98.9
FEO/MGO	8.21	1.73	1.29	—	11.95	48.79	2.00	26.70	7.51	8.48
K20/K20+NA20	0.86	0.33	0.45	0.69	0.62	0.60	0.41	0.72	0.67	0.90

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8, 523(1971)]

Q	40.0	0.0	0.0	29.6	37.0	34.6	0.0	33.6	39.4	35.8
C	0.6	0.0	0.0	0.0	0.3	0.4	0.0	0.0	0.6	0.5
OR	41.4	7.5	10.8	30.0	30.7	30.6	10.7	38.3	33.1	50.8
AB	9.7	22.1	19.1	19.3	27.1	28.9	22.4	21.4	22.8	8.5
AN	5.7	28.9	29.3	4.8	2.6	3.3	22.3	4.4	2.0	2.5
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	2.3	5.6	0.0	0.0	0.0	5.8	0.1	0.0	0.0
HE	0.0	1.9	3.4	0.0	0.0	0.0	5.7	0.2	0.0	0.0
EN	0.3	6.4	7.7	0.0	0.2	0.0	5.1	0.0	0.3	0.2
FS	0.2	6.2	5.4	0.0	0.1	0.1	5.7	0.0	0.2	0.2
FO	0.0	6.1	5.3	0.0	0.0	0.0	4.4	0.0	0.0	0.0
FA	0.0	6.5	4.1	0.0	0.0	0.0	5.4	0.0	0.0	0.0
WO	0.0	0.0	0.0	15.2	0.0	0.0	0.0	0.2	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.3	6.1	5.0	0.1	0.0	0.2	6.3	0.1	0.1	0.1
IL	0.2	5.0	3.6	0.2	0.3	0.3	5.3	0.2	0.2	0.2
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	1.4	0.0	0.0	0.8	1.7	1.5	0.0	1.4	1.3	1.3
AP	0.0	1.0	0.8	0.0	0.0	0.0	0.9	0.0	0.0	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	17	38	32	36	45	46	40	33	39	14
OR	73	13	18	55	51	49	19	60	57	82
AN	10	49	49	9	4	5	40	7	3	4
RECAST TO 100%										
Q	41	0	0	35	38	35	0	34	40	37
OR	43	13	18	36	32	31	19	39	34	52
AN+AB	16	87	82	29	30	33	81	26	26	11

SAMPLE	5315	C5316	C5317	C5318	C5319	C5320	C5321	C5322	C5323	C5324
F	440	1900	860	32000	310	1600	1100	160	190	130
CO	2	29	32	4	3	3	32	3	4	4
NI	3	53	89	5	3	3	35	3	2	2
CU	8	7	110	16	10	16	63	23	20	13
ZN	82	210	430	160	73	33	570	32	75	79
MO	0	0	0	0	0	0	0	0	0	0
AG	0	0	0	1	0	0	0	0	0	0
SN	0	0	0	0	5	3	0	0	0	0
SB	0.2	1.9	0.8	0.4	0.5	0.7	1.0	0.6	0.6	0.6
W	4	8	3	0	0	2	3	0	0	0
BI	0.4	0.8	0.3	0.4	1.6	0.2	0.8	0.4	0.7	1.6
PB	52	0	400	3	22	10	180	19	55	30
U	6.9	9.5	0.6	12.0	8.5	8.9	0.8	18.0	22.0	16.0
TH	32	7	0	23	39	36	0	27	29	30

SAMPLE	C5325	C5326	C5327	C5328	C5329	C5330	C5331	C5332	C5333	C5334
SIO2	47.0	44.3	47.7	45.6	78.9	72.1	49.9	72.6	76.9	79.2
AL203	14.5	14.7	14.7	13.4	11.1	12.4	14.7	13.2	10.8	9.78
CAO	6.78	7.92	8.44	6.96	0.57	1.53	4.95	0.98	0.56	1.37
MGO	6.09	7.04	6.90	4.68	0.10	0.31	5.77	0.12	0.00	0.15
NA20	3.21	2.27	2.49	3.77	3.18	1.23	4.45	2.08	2.95	2.35
K20	1.37	1.34	1.46	0.81	4.07	7.68	1.02	7.81	4.36	3.56
FEO	14.3	13.9	12.0	15.7	1.16	1.59	12.3	1.27	2.13	1.49
MNO	0.71	0.49	0.32	0.47	0.14	0.14	0.48	0.13	0.11	0.10
TIO2	3.15	2.93	2.27	4.15	0.12	0.14	2.71	0.14	0.21	0.09
P205	0.46	0.38	0.29	0.79	0.02	0.02	0.39	0.02	0.01	0.02
L.O.I.	2.15	2.31	1.92	1.69	0.46	1.15	2.69	0.62	0.38	0.62
SUM	101.3	99.1	99.9	99.8	100.0	98.5	100.7	99.2	98.6	98.9
FEO/MGO	2.34	1.97	1.74	3.35	11.64	5.04	2.14	10.31	—	10.13
K20/K20+NA20	0.30	0.37	0.37	0.18	0.56	0.86	0.19	0.79	0.60	0.60

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	0.0	0.0	0.0	0.0	43.7	33.1	0.0	29.0	42.7	49.8
C	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.2	0.0
OR	8.2	8.2	8.8	4.9	24.2	46.6	6.1	46.9	26.3	21.4
AB	27.4	19.9	21.5	32.5	27.0	10.7	38.4	17.8	25.4	20.3
AN	21.4	26.8	25.3	17.7	2.7	5.7	17.5	3.8	2.8	5.7
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	3.7	4.8	7.0	4.1	0.0	1.1	2.1	0.4	0.0	0.5
HE	4.2	4.5	5.8	6.2	0.0	0.5	2.1	0.3	0.0	0.4
EN	6.7	6.9	9.5	5.6	0.1	0.1	9.1	0.0	0.0	0.0
FS	8.7	7.4	9.0	9.6	0.1	0.0	10.3	0.0	0.0	0.0
FO	2.3	3.8	1.2	0.4	0.0	0.0	0.9	0.0	0.0	0.0
FA	3.3	4.5	1.2	0.7	0.0	0.0	1.2	0.0	0.0	0.0
HO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	6.8	6.6	5.6	8.4	0.1	0.4	6.2	0.0	1.6	0.3
IL	6.0	5.8	4.4	8.0	0.2	0.3	5.2	0.3	0.4	0.2
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	0.0	0.0	0.0	1.2	1.4	0.0	1.4	0.6	1.4
AP	1.1	0.9	0.7	1.9	0.0	0.1	0.9	0.0	0.0	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	48	36	39	59	50	17	62	26	47	43
OR	14	15	16	9	45	74	10	68	48	45
AN	38	49	45	32	5	9	28	6	5	12
RECAST TO 100%										
Q	0	0	0	0	45	34	0	30	44	51
OR	14	15	16	9	25	49	10	48	27	22
AN+AB	86	85	84	91	30	17	90	22	29	27

SAMPLE	C5325	C5326	C5327	C5328	C5329	C5330	C5331	C5332	C5333	C5334
F	1300	1200	640	2100	520	130	1800	150	130	200
CO	25	24	16	20	2	2	27	2	0	5
NI	24	30	19	14	2	3	42	2	2	3
CU	19	72	29	5	69	8	4	7	5	5
ZN	210	200	130	120	390	34	170	19	18	22
MO	0	0	0	0	0	0	0	44	0	0
AG	1	1	0	0	0	0	0	0	0	0
SN	0	3	15	0	0	0	0	0	5	0
SB	0.2	0.6	1.0	2.2	0.5	0.6	0.9	0.6	0.3	0.5
W	2	0	0	5	0	0	11	0	4	2
BI	1.1	14.0	2.7	0.5	0.2	0.1	0.3	0.5	-0.1	0.3
PB	88	120	84	0	160	3	0	6	0	0
U	1.5	0.5	0.9	4.5	21.0	7.0	1.4	47.0	8.3	7.9
TH	0	5	5	5	24	29	7	24	28	21

SAMPLE	C5335	C5336	C5337	C5338	C5339	C5340	C5341	C5342	C5343	C5344
SIO2	77.1	38.6	78.8	72.5	73.4	62.9	80.0	79.0	49.1	76.0
AL2O3	9.81	17.0	10.3	11.9	12.5	17.4	9.05	10.0	13.4	11.4
CAO	2.51	10.3	1.18	3.69	1.41	0.64	0.84	0.40	7.30	0.51
MGO	0.30	5.67	0.36	0.15	0.03	0.05	0.01	0.08	4.76	0.02
NA2O	2.73	1.86	3.90	3.26	3.49	1.31	0.52	2.23	3.74	4.26
K2O	3.35	0.43	1.69	4.37	5.00	12.2	6.30	4.85	1.53	2.97
FEO	1.66	16.8	1.66	1.26	1.58	1.65	1.21	1.24	12.2	2.24
MNO	0.13	0.50	0.12	0.12	0.13	0.12	0.11	0.11	0.55	0.11
TIO2	0.09	3.32	0.10	0.18	0.19	0.22	0.08	0.16	3.20	0.10
P2O5	0.02	0.45	0.02	0.02	0.02	0.03	0.01	0.03	0.61	0.01
L.O.I.	1.69	4.08	0.77	1.46	1.09	0.69	0.46	0.15	1.23	0.54
SUM	99.6	100.9	99.1	99.1	99.0	97.4	98.7	98.5	98.9	98.4
FEO/MGO	5.56	2.97	4.61	8.24	50.10	30.18	—	15.27	2.56	116.26
K2O/K2O+NA2O	0.55	0.19	0.30	0.57	0.59	0.90	0.92	0.69	0.29	0.41

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	45.2	0.0	47.4	32.3	32.3	7.6	52.0	47.4	1.4	39.6
C	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.5	0.0	0.3
OR	20.2	2.7	10.2	26.5	30.2	74.4	37.9	29.2	9.3	17.9
AB	23.6	14.4	33.5	28.3	30.2	11.4	4.5	19.1	32.3	36.9
AN	4.7	38.2	5.7	5.1	3.7	3.1	3.8	1.8	15.5	2.5
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	1.0	4.0	0.1	0.6	0.0	0.0	0.0	0.0	6.8	0.0
HE	0.8	5.9	0.0	0.3	0.2	0.0	0.0	0.0	7.7	0.0
EN	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.1	5.4	0.0
FS	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.1	7.0	0.2
FO	0.0	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	12.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MO	2.4	0.0	0.0	5.2	1.3	0.0	0.1	0.6	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.9	7.3	0.8	0.0	0.0	0.1	0.1	0.0	7.0	2.4
IL	0.2	6.6	0.2	0.3	0.4	0.4	0.2	0.2	6.2	0.2
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	1.0	0.0	1.1	1.4	1.7	1.7	1.3	1.4	0.0	0.0
AP	0.0	1.1	0.1	0.0	0.0	0.1	0.0	0.1	1.4	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	49	26	68	47	47	13	10	38	57	64
OR	42	5	21	44	47	84	82	58	16	31
AN	10	69	12	8	6	3	8	4	27	4
RECAST TO 100%										
Q	48	0	49	35	34	8	53	49	2	41
OR	22	5	11	29	31	77	39	30	16	19
AN+AB	30	95	40	36	35	15	8	21	82	41

SAMPLE	5335	C5336	C5337	C5338	C5339	C5340	C5341	C5342	C5343	C5344
F	240	2000	170	19500	480	440	170	190	2100	280
CO	5	31	3	3	2	5	3	3	12	0
NI	3	47	5	3	2	4	2	3	8	2
CU	48	12	9	19	7	270	36	28	230	18
ZN	45	310	34	32	44	100	37	30	240	67
MO	0	0	0	0	0	20	0	12	16	0
AG	0	0	0	0	0	0	0	0	0	0
SN	0	3	3	5	3	15	0	0	15	5
SB	0.4	1.8	0.6	0.3	-0.2	36.7	0.4	0.3	1.0	0.5
W	0	8	0	0	0	0	1	0	7	0
BI	2.1	1.8	0.4	0.2	-0.1	0.9	0.4	0.3	1.0	0.6
PB	100	170	8	2	22	320	11	16	140	21
U	7.3	3.1	4.9	9.6	8.6	9.3	3.9	4.7	1.7	11.0
TH	24	3	21	41	43	33	22	25	5	35

SAMPLE	C5345	C5346	C5347	C5348	C5349	C5350	C5351	C5352	C5353	C5354
SIO2	64.4	63.9	47.6	78.2	75.9	75.7	76.1	78.5	76.3	77.1
AL203	12.4	12.7	12.7	10.7	11.9	11.9	11.6	11.2	11.9	10.1
CAO	2.52	2.26	5.34	0.63	0.41	0.57	0.42	0.58	0.69	2.16
MGO	0.90	0.90	4.16	0.02	0.04	0.07	0.00	0.00	0.00	0.03
NA20	3.87	3.92	2.56	3.23	3.31	3.12	3.37	3.71	3.48	2.08
K20	3.43	3.59	2.33	4.23	5.11	5.29	4.57	3.64	4.66	4.49
FEO	6.02	6.19	13.6	1.17	1.50	1.50	1.09	0.67	1.27	1.04
MNO	0.34	0.29	0.32	0.12	0.12	0.13	0.12	0.11	0.11	0.12
TIO2	1.09	1.14	3.39	0.14	0.16	0.17	0.10	0.11	0.14	0.12
P205	0.32	0.33	1.22	0.02	0.02	0.03	0.01	0.01	0.02	0.03
L.O.I.	2.08	1.77	3.46	0.69	0.69	0.46	0.31	0.33	0.46	1.15
SUM	98.1	97.7	98.4	99.3	99.3	99.1	97.6	99.0	99.2	98.5
FEO/MGO	6.68	6.88	3.27	66.28	40.91	20.03	—	—	—	30.72
K20/K20+NA20	0.47	0.48	0.48	0.57	0.61	0.63	0.58	0.50	0.57	0.68

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	23.2	22.1	6.7	42.6	36.7	36.6	39.1	42.4	37.3	45.6
C	0.0	0.0	0.0	0.0	0.2	0.1	0.4	0.1	0.0	0.0
OR	21.2	22.2	14.5	25.4	30.6	31.7	27.7	21.8	27.9	27.3
AB	34.2	34.6	22.9	27.7	28.4	26.7	29.3	31.8	29.8	18.0
AN	6.6	6.7	17.3	2.2	1.9	2.6	2.1	2.8	3.1	5.2
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.9	0.6	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
HE	2.7	1.8	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.1
EN	1.0	1.1	7.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
FS	3.3	3.8	11.7	0.0	0.1	0.1	0.0	0.0	0.0	0.0
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	2.3
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	3.9	4.0	7.5	0.0	0.0	0.0	0.1	0.1	0.0	0.0
IL	2.2	2.3	6.8	0.3	0.3	0.3	0.2	0.2	0.2	0.2
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	0.0	0.0	1.3	1.7	1.7	1.2	0.7	1.4	1.2
AP	0.8	0.8	3.9	0.1	0.0	0.1	0.0	0.0	0.0	0.1
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	55	55	42	50	47	44	50	56	49	36
OR	34	35	27	46	50	52	47	39	46	54
AN	11	11	32	4	3	4	3	5	5	10
RECAST TO 100%										
Q	27	26	11	43	38	37	40	43	38	47
OR	25	26	24	26	31	32	28	22	28	28
AN+AB	48	48	65	31	31	30	32	35	34	24

SAMPLE	5345	C5346	C5347	C5348	C5349	C5350	C5351	C5352	C5353	C5354
F	650	730	1600	360	370	1100	210	400	700	400
CO	6	3	20	2	0	3	0	2	2	2
NI	3	3	6	3	2	3	1	2	2	5
CU	5	11	19	10	10	12	9	22	55	48
ZN	300	470	520	30	52	31	63	21	23	86
MO	0	0	12	0	0	0	0	0	0	0
AG	0	0	0	0	1	0	0	1	0	0
SN	3	3	0	0	3	5	3	3	0	0
SB	0.4	0.4	0.5	0.2	0.5	0.3	-0.2	-0.2	0.4	0.4
W	2	0	6	2	3	3	0	0	0	2
BI	0.1	0.4	0.7	0.1	0.2	0.2	0.2	0.4	-0.1	0.3
PB	3	9	35	8	8	15	23	5	2	2
U	4.2	9.1	1.6	4.2	8.6	11.0	7.3	8.6	7.6	11.0
TH	23	18	7	29	35	39	36	37	38	23

SAMPLE	C5355	C5356	C5357	C5358	C5359	C5360	C5361	C5362	C5363	C5364
SIO2	40.3	72.1	75.7	70.3	71.3	60.1	75.9	79.9	76.1	76.6
AL203	17.1	13.5	11.1	14.0	13.4	17.4	11.3	9.80	10.7	10.7
CAO	7.64	1.07	0.72	0.49	0.40	3.80	0.47	0.33	0.77	0.59
MGO	5.36	0.22	0.21	0.23	0.14	0.00	0.00	0.08	0.00	0.07
NA20	2.55	3.06	1.31	1.88	1.46	3.06	1.82	1.56	3.26	2.00
K20	0.93	5.93	6.31	8.77	8.66	10.2	6.50	5.64	3.80	5.43
FEO	15.4	1.78	1.89	1.48	1.59	1.11	0.90	1.05	2.10	2.42
MNO	0.49	0.13	0.13	0.14	0.13	0.12	0.11	0.12	0.13	0.11
TIO2	3.26	0.12	0.12	0.17	0.15	0.16	0.11	0.10	0.21	0.21
P205	0.61	0.03	0.03	0.03	0.02	0.03	0.02	0.02	0.01	0.00
L.O.I.	4.00	0.92	0.85	0.38	0.46	1.31	0.23	0.23	0.38	0.38
SUM	99.4	99.1	98.6	98.1	97.9	97.4	97.5	98.9	97.7	98.7
FEO/MGO	2.88	8.02	9.13	6.43	11.63	—	—	12.89	—	33.42
K20/K20+NA20	0.27	0.66	0.83	0.82	0.86	0.77	0.78	0.78	0.54	0.73

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8, 523(1971)]

Q	0.0	29.6	43.1	25.0	29.4	0.0	40.1	49.1	42.2	43.5
C	0.0	0.2	0.9	0.6	0.9	0.0	0.3	0.6	0.0	0.5
OR	5.8	35.7	38.1	53.1	52.5	62.9	40.1	33.8	23.1	32.7
AB	22.7	26.3	11.3	16.3	12.7	23.3	15.9	13.3	28.3	17.2
AN	34.1	5.2	3.5	2.3	1.9	3.5	2.2	1.5	3.5	3.0
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HE	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EN	1.3	0.3	0.2	0.4	0.2	0.0	0.0	0.1	0.0	0.0
FS	2.0	0.4	0.4	0.2	0.2	0.0	0.0	0.1	0.0	0.2
FO	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	11.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	6.6	0.0	0.0	0.1	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	7.3	1.1	1.5	0.0	0.3	0.0	0.0	0.1	1.7	2.5
IL	6.5	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.4	0.4
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	0.9	0.6	1.7	1.5	1.3	1.0	1.1	0.6	0.0
AP	1.5	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	36	39	21	23	19	26	27	27	52	33
OR	9	53	72	74	78	70	69	69	42	62
AN	55	8	7	3	3	4	4	3	6	6
RECAST TO 100%										
Q	0	31	45	26	30	0	41	50	43	45
OR	9	37	40	55	54	70	41	35	24	34
AN+AB	91	33	15	19	15	30	18	15	33	21

SAMPLE	C5355	C5356	C5357	C5358	C5359	C5360	C5361	C5362	C5363	C5364
F	1900	270	420	340	260	19000	250	150	240	170
CO	40	4	3	4	2	2	0	2	0	0
NI	34	3	2	3	2	3	4	3	2	3
CU	15	9	13	15	11	6	12	12	26	7
ZN	290	63	150	44	120	95	22	72	77	33
MO	0	80	230	0	100	0	0	0	0	0
AG	0	2	1	0	1	1	0	1	1	1
SN	0	0	0	0	0	0	0	0	3	3
SB	1.0	0.9	0.7	0.6	0.7	0.4	0.8	1.0	0.2	0.3
W	8	0	3	2	3	0	2	4	2	2
BI	0.5	1.7	1.6	0.2	0.4	0.3	0.2	0.2	0.1	0.1
PB	0	18	110	10	180	60	12	30	57	9
U	1.1	9.0	16.0	10.0	9.3	13.0	14.0	28.0	7.3	7.1
TH	4	25	24	28	41	34	32	21	23	28

SAMPLE	C5365	C5366	C5367	C5368	C5369	C5370	C5371	C5372	C5373	C5374
SIO2	49.0	76.1	74.4	44.7	44.9	79.2	73.5	75.1	79.7	76.0
AL203	13.1	11.7	9.62	13.3	14.1	5.55	12.2	11.8	9.39	10.8
CAO	6.44	0.96	3.79	8.25	6.23	5.14	0.90	0.45	0.37	0.47
MGO	5.88	0.37	0.43	6.02	6.77	0.12	0.11	0.11	0.00	0.16
NA20	3.87	4.73	0.00	2.92	3.45	2.52	0.56	0.18	0.35	0.27
K20	1.60	2.40	5.92	1.03	1.09	0.63	9.28	8.69	7.50	8.06
FEO	11.9	1.64	2.12	14.0	14.4	0.87	1.02	1.40	0.56	1.72
MNO	0.51	0.13	0.14	0.32	0.55	0.13	0.11	0.13	0.11	0.15
TIO2	2.33	0.14	0.11	3.28	2.50	0.07	0.14	0.12	0.09	0.18
P205	0.29	0.04	0.03	0.57	0.36	0.01	0.02	0.02	0.01	0.03
L.O.I.	2.46	0.69	1.62	3.00	3.54	3.77	0.46	0.38	0.31	0.46
SUM	98.7	99.1	98.5	98.9	99.5	98.1	98.4	98.5	98.4	98.4
FEO/MGO	2.02	4.42	4.95	2.32	2.13	7.27	8.90	13.10	—	10.86
K20/K20+NA20	0.29	0.34	1.00	0.26	0.24	0.20	0.94	0.98	0.96	0.97

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	0.0	37.6	46.6	0.0	0.0	59.4	33.5	40.4	49.0	43.3
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.8
OR	9.8	14.4	36.1	6.4	6.7	3.9	56.0	52.3	45.2	48.6
AB	34.1	40.7	0.0	25.7	30.5	22.6	4.8	1.6	3.0	2.3
AN	14.1	3.7	9.0	21.1	20.6	2.1	3.5	2.2	1.8	2.1
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	7.2	0.5	1.2	7.1	3.8	0.4	0.4	0.0	0.0	0.0
HE	7.0	0.2	1.4	7.6	4.0	0.3	0.3	0.0	0.0	0.0
EN	5.1	0.4	0.0	5.5	2.2	0.0	0.0	0.2	0.0	0.2
FS	5.7	0.2	0.0	6.6	2.7	0.0	0.0	0.1	0.0	0.3
FO	2.7	0.0	0.0	2.1	7.4	0.0	0.0	0.0	0.0	0.0
FA	3.3	0.0	0.0	2.8	10.1	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	3.0	0.0	0.0	10.0	0.1	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	5.8	0.6	2.4	7.2	6.1	0.2	0.0	0.1	0.1	0.6
IL	4.6	0.3	0.2	6.5	5.0	0.1	0.3	0.2	0.2	0.3
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	1.3	0.0	0.0	0.0	0.9	1.2	1.5	0.6	1.3
AP	0.7	0.1	0.1	1.4	0.9	0.0	0.1	0.0	0.0	0.1
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	59	69	0	48	53	79	8	3	6	4
OR	17	25	80	12	12	14	87	93	90	92
AN	24	6	20	40	36	7	5	4	4	4
RECAST TO 100%										
Q	0	39	51	0	0	67	34	42	49	45
OR	17	15	39	12	12	4	57	54	46	50
AN+AB	83	46	10	88	88	28	9	4	5	5

SAMPLE	5365	C5366	C5367	C5368	C5369	C5370	C5371	C5372	C5373	C5374
F	1600	800	7100	1500	2300	200	1400	330	180	410
CO	19	5	3	35	28	3	5	5	3	4
NI	18	6	4	34	42	7	3	4	2	5
CU	88	20	13	90	13	44	17	27	31	13
ZN	710	47	61	270	250	28	28	26	30	30
MO	0	0	0	0	0	0	0	0	0	0
AG	1	1	0	0	0	0	0	0	0	0
SN	0	0	0	0	0	3	0	0	0	0
SB	1.6	1.2	1.2	1.2	1.0	1.4	0.3	0.6	0.4	0.5
W	5	0	4	5	9	0	0	2	4	6
BI	1.2	0.3	0.6	0.1	0.4	0.4	0.2	0.2	0.3	0.1
PB	450	12	12	390	26	33	10	7	23	4
U	1.0	11.0	5.2	0.4	0.4	3.5	4.7	6.2	4.2	4.8
TH	3	22	16	0	0	7	20	32	23	26

SAMPLE	C5375	C5376	C5377	C5378	C5379	C5380	C5381	C5382	C5383	C5384
SIO2	75.1	58.3	64.1	45.2	45.6	70.0	74.0	43.5	79.9	43.2
AL2O3	10.5	17.1	13.0	12.8	12.9	12.3	10.7	18.0	11.7	14.9
CAO	0.65	4.74	5.35	7.44	6.91	0.56	0.67	16.7	0.42	8.92
MGO	0.02	0.16	0.29	6.63	5.95	0.62	1.07	1.55	0.59	5.46
NA2O	2.78	1.93	0.83	2.94	2.56	0.00	0.00	0.00	0.00	2.13
K2O	4.03	9.91	8.40	1.34	1.95	3.90	3.00	0.64	3.70	1.17
FEO	2.21	3.85	3.19	13.6	14.0	5.19	4.59	11.7	1.37	13.8
MNO	0.18	0.26	0.26	0.34	0.39	0.13	0.15	0.35	0.14	0.34
TIO2	0.20	0.30	0.18	3.28	3.29	0.21	0.28	1.86	0.30	3.61
P2O5	0.00	0.05	0.03	0.60	0.59	0.01	0.02	0.25	0.03	1.11
L.O.I.	1.23	0.77	1.31	3.77	2.69	3.62	2.77	2.54	2.08	2.62
SUM	97.1	97.8	97.3	99.5	98.4	97.1	97.8	98.4	100.4	98.7
FEO/MGO	128.38	24.09	10.93	2.06	2.36	8.42	4.29	7.54	2.31	2.52
K2O/K2O+NA2O	0.59	0.84	0.91	0.31	0.43	1.00	1.00	1.00	1.00	0.35

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8, 523(1971)]

Q	43.9	0.8	19.4	0.0	0.0	54.3	61.0	6.5	65.1	1.0
C	0.4	0.0	0.0	0.0	0.0	7.6	6.6	0.0	7.0	0.0
OR	24.9	60.6	51.8	8.3	12.0	24.7	18.7	4.0	22.3	7.2
AB	24.6	16.9	7.3	26.0	22.7	0.0	0.0	0.0	0.0	18.7
AN	3.4	8.9	7.2	18.5	18.8	2.9	3.3	49.6	2.0	28.6
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.5	1.0	6.8	5.2	0.0	0.0	6.4	0.0	3.9
HE	0.0	5.4	4.3	6.3	5.6	0.0	0.0	23.5	0.0	4.3
EN	0.0	0.0	0.0	6.8	8.9	1.3	2.2	0.0	1.3	8.2
FS	0.1	0.0	0.0	7.2	11.0	5.9	4.8	0.0	0.2	10.5
FO	0.0	0.0	0.0	2.2	0.3	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	2.6	0.3	0.0	0.0	0.0	0.0	0.0
WO	0.0	3.5	5.9	0.0	0.0	0.0	0.0	0.6	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	2.3	2.7	2.5	7.2	7.3	2.7	2.7	5.1	0.0	7.7
IL	0.4	0.6	0.4	6.5	6.5	0.4	0.6	3.7	0.3	7.1
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0
AP	0.0	0.1	0.1	1.5	1.4	0.0	0.1	0.6	0.1	2.7
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	47	20	11	49	42	0	0	0	0	34
OR	47	70	78	16	22	89	85	7	92	13
AN	6	10	11	35	35	11	15	93	8	52
RECAST TO 100%										
Q	45	1	23	0	0	66	73	11	73	2
OR	26	69	60	16	22	30	23	7	25	13
AN+AB	29	30	17	84	78	4	4	83	2	85

SAMPLE	5375	C5376	C5377	C5378	C5379	C5380	C5381	C5382	C5383	C5384
F	770	620	1200	1000	740	480	700	1200	620	1800
CO	5	10	7	36	35	5	6	13	3	40
NI	3	6	5	30	30	5	3	29	3	42
CU	19	8	7	13	43	35	21	16	8	43
ZN	180	61	41	480	330	210	120	120	71	130
MO	0	0	0	0	0	0	0	0	0	0
AG	0	0	0	0	0	0	0	0	0	1
SN	3	3	3	0	0	22	25	8	3	0
SB	0.4	1.3	0.6	1.0	1.3	3.0	1.1	10.8	0.5	1.7
W	2	0	0	3	4	0	2	7	3	0
BI	0.2	1.1	0.6	1.3	0.3	1.0	0.5	1.5	0.4	0.1
PB	45	36	8	230	380	140	49	230	22	0
U	5.2	11.0	6.8	0.6	0.5	11.0	14.0	0.4	4.2	0.5
TH	19	36	31	0	3	54	52	0	15	8

SAMPLE	C5385	C5386	C5387	C5388	C5389	C5390	C5391	C5392	C5393	C5394
SIO2	76.6	76.2	75.0	42.4	79.0	77.9	76.8	78.2	62.9	65.1
AL2O3	10.9	10.4	9.77	14.6	8.49	8.25	9.10	8.82	18.0	18.4
CAO	1.28	0.39	0.47	7.43	0.31	0.46	0.42	0.46	0.50	0.56
MGO	0.25	0.00	0.10	6.29	0.05	0.02	0.04	0.15	2.63	2.07
NA2O	0.00	0.00	0.00	2.63	0.00	0.00	0.00	0.00	0.00	0.00
K2O	3.16	6.71	5.35	4.08	5.17	5.44	5.86	5.64	6.21	5.88
FEO	2.89	2.49	3.84	14.2	2.42	3.20	3.67	3.04	3.68	2.44
MNO	0.13	0.11	0.14	0.39	0.14	0.14	0.20	0.15	0.25	0.20
TIO2	0.30	0.27	0.31	3.84	0.27	0.29	0.34	0.31	0.29	0.15
P2O5	0.02	0.02	0.04	1.12	0.02	0.02	0.02	0.01	0.10	0.03
L.O.I.	2.31	1.62	2.23	3.23	1.62	2.00	1.69	1.46	4.00	4.15
SUM	98.2	98.5	97.7	98.6	97.8	98.0	98.5	98.6	98.9	99.2
FEO/MGO	11.75	—	38.89	2.26	47.70	202.49	93.15	19.90	1.40	1.18
K2O/K2O+NA2O	1.00	1.00	1.00	0.29	1.00	1.00	1.00	1.00	1.00	1.00

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8, 523(1971)3

Q	63.9	51.4	55.1	0.0	60.9	58.0	54.4	56.7	35.1	40.0
C	5.4	2.5	3.4	0.0	2.5	1.7	2.1	2.0	11.1	11.6
OR	19.5	41.1	33.2	6.7	31.8	33.6	35.9	34.4	38.7	36.5
AB	0.0	0.0	0.0	23.3	0.0	0.0	0.0	0.0	0.0	0.0
AN	6.5	1.8	2.2	25.9	1.4	2.2	2.0	2.2	2.0	2.8
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
EN	0.3	0.0	0.1	7.9	0.0	0.0	0.1	0.2	5.8	4.4
FS	1.1	0.0	2.5	9.1	0.2	1.3	2.1	1.2	3.8	1.8
FO	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	2.7	2.5	2.8	7.8	2.4	2.7	2.8	2.7	2.7	2.5
IL	0.6	0.5	0.6	7.2	0.5	0.6	0.7	0.6	0.6	0.3
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
AP	0.1	0.1	0.1	2.7	0.1	0.1	0.1	0.0	0.2	0.1
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	0	0	0	42	0	0	0	0	0	0
AN	75	96	94	12	96	94	95	94	95	93
DI	25	4	6	46	4	6	5	6	5	7
RECAST TO 100%										
Q	71	55	61	0	65	62	59	61	46	50
OR	22	44	37	12	34	36	39	37	51	46
AN+AB	7	2	2	88	2	2	2	2	3	3

SAMPLE	C5385	C5386	C5387	C5388	C5389	C5390	C5391	C5392	C5393	C5394
F	400	200	260	1600	310	190	170	270	2000	3800
CO	3	3	4	42	2	3	3	3	5	2
NI	3	2	2	45	5	3	5	3	6	2
CU	46	48	16	38	8	12	26	23	5	6
ZN	130	570	690	160	520	350	410	91	210	160
MO	0	0	0	0	0	0	0	0	0	0
AG	0	0	0	0	0	0	0	0	0	0
SN	3	0	0	0	0	0	3	3	5	3
SB	3.0	2.4	3.4	1.2	3.3	2.5	4.0	6.7	0.6	0.8
W	7	3	4	0	3	2	1	2	2	2
BI	0.2	-0.1	-0.1	-0.1	0.3	0.1	0.2	0.3	0.3	1.0
PB	220	400	240	5	190	1,180	280	46	100	22
U	39.0	71.0	37.0	0.6	9.7	5.1	3.8	5.0	2.0	1.4
TH	12	7	7	0	16	17	18	28	33	42

SAMPLE	C5395	C5396	C5397	C5398	C5399	C5400	C5401	C5402	C5403	C5404
SIO2	73.7	79.6	72.6	75.8	77.2	76.4	75.6	43.1	75.5	73.3
AL203	13.5	10.9	12.7	12.3	11.3	11.6	12.4	14.5	12.4	11.8
CAO	0.37	0.30	0.78	0.32	0.31	0.34	0.48	8.73	0.34	0.62
MGO	0.56	0.29	0.36	0.06	0.00	0.00	0.00	5.24	0.00	0.00
NA2O	0.00	0.00	0.17	0.00	0.11	0.00	0.03	2.34	0.00	0.00
K2O	7.67	5.33	8.84	8.81	8.96	9.01	9.54	1.20	9.47	9.52
FEO	0.88	0.60	1.88	1.21	0.92	0.85	1.45	14.2	0.76	2.07
MNO	0.15	0.11	0.16	0.14	0.12	0.13	0.14	0.36	0.12	0.16
TIO2	0.10	0.09	0.42	0.10	0.09	0.13	0.30	3.80	0.11	0.34
P2O5	0.02	0.02	0.09	0.01	0.02	0.02	0.08	1.12	0.02	0.12
L.O.I.	1.23	1.46	0.69	0.31	0.38	0.38	0.38	2.23	0.38	0.54
SUM	98.2	98.8	98.9	99.3	99.5	99.0	100.6	98.5	99.2	98.7
FEO/MGO	1.57	2.04	5.16	21.40	--	--	--	2.72	--	--
K2O/K2O+NA2O	1.00	1.00	0.98	1.00	0.99	1.00	1.00	0.34	1.00	1.00

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	44.0	59.7	36.4	41.8	42.0	41.8	38.0	0.5	39.0	36.5
C	4.7	4.8	1.7	2.3	0.9	1.3	1.3	0.0	1.6	0.6
OR	46.8	32.3	53.2	52.6	53.5	54.0	56.3	7.4	56.7	57.4
AB	0.0	0.0	1.5	0.0	0.9	0.0	0.3	20.5	0.0	0.0
AN	1.7	1.4	3.3	1.5	1.4	1.5	1.8	26.6	1.6	2.4
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	0.0	0.0
EN	1.3	0.6	0.6	0.1	0.0	0.0	0.0	7.5	0.0	0.0
FS	0.3	0.2	0.4	0.1	0.0	0.0	0.0	10.3	0.0	0.0
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.2	0.1	0.0	0.2	0.1	0.1	0.0	8.0	0.1	0.9
IL	0.2	0.2	0.7	0.2	0.2	0.2	0.3	7.5	0.2	0.7
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.9	0.6	2.0	1.2	0.9	0.9	1.6	0.0	0.8	1.3
AP	0.1	0.1	0.2	0.0	0.0	0.1	0.2	2.7	0.0	0.3
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	0	0	3	0	2	0	0	38	0	0
OR	96	96	92	97	96	97	96	14	97	96
AN	4	4	6	3	3	3	3	49	3	4
RECAST TO 100%										
Q	48	64	39	44	43	43	39	1	40	38
OR	51	35	56	55	55	55	58	13	58	60
AN+AB	2	2	5	2	2	2	2	86	2	2

SAMPLE	5395	C5396	C5397	C5398	C5399	C5400	C5401	C5402	C5403	C5404
F	600	460	440	140	100	110	170	1400	130	170
CO	0	0	2	0	0	0	0	35	0	0
NI	2	2	4	2	1	1	3	37	2	3
CU	10	8	9	7	10	6	28	33	10	14
ZN	23	8	41	35	18	16	32	130	19	30
MO	0	0	0	0	0	0	0	0	0	0
AG	0	0	0	0	0	0	0	0	0	0
SN	3	3	0	0	0	0	0	0	0	0
SB	1.9	2.3	1.1	1.7	0.3	1.7	1.3	1.7	1.5	3.3
W	0	0	2	2	18	2	2	2	0	4
BI	0.3	0.2	0.2	0.1	-0.1	-0.1	0.2	-0.1	-0.1	-0.1
PB	7	10	12	15	12	6	10	17	4	4
U	125.0	20.0	5.8	6.3	5.4	6.9	8.1	0.7	8.3	3.6
TH	25	21	20	26	35	27	19	0	26	23

SAMPLE	C5405	C5406	C5407	C5408	C5409	C5410	C5411	C5412	C5413	C5414
SIO2	70.2	63.4	78.1	48.6	79.6	78.6	45.8	76.0	77.4	79.0
AL203	13.5	16.2	11.4	14.2	9.13	9.69	17.4	10.4	9.97	9.88
CAO	0.78	1.30	0.69	8.06	0.55	0.60	6.76	1.05	0.66	0.49
MGO	0.63	0.32	0.00	6.34	0.34	0.12	5.97	0.08	0.10	0.04
NA20	0.00	0.00	3.22	2.97	0.00	0.00	2.58	0.23	0.49	0.67
K20	9.88	8.79	4.86	1.19	5.35	5.57	1.85	5.41	5.19	5.21
FEO	2.54	4.95	1.49	11.7	2.58	2.89	11.6	3.25	2.97	2.36
MNO	0.18	0.24	0.12	0.42	0.14	0.14	0.48	0.16	0.16	0.15
TIO2	0.55	1.17	0.10	2.35	0.19	0.19	2.23	0.23	0.23	0.25
P205	0.15	0.41	0.01	0.31	0.02	0.00	0.32	0.01	0.01	0.01
L.O.I.	0.54	1.31	-0.46	1.85	0.77	0.69	3.38	0.69	0.46	0.31
SUM	98.6	98.7	99.6	99.3	99.0	98.8	99.6	97.8	98.0	98.6
FEO/MGO	97.47	15.47	—	1.85	7.54	24.87	1.94	41.21	31.16	56.87
K20/K20+NA20	1.00	1.00	0.60	0.29	1.00	1.00	0.42	0.96	0.91	0.89

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	31.7	28.0	39.5	0.4	58.3	56.4	0.0	52.4	54.1	55.0
C	1.8	5.5	0.0	0.0	2.4	2.6	0.0	2.3	2.4	2.3
OR	59.6	53.4	28.7	7.3	32.2	33.6	11.4	33.0	31.5	31.4
AB	0.0	0.0	27.2	25.7	0.0	0.0	22.7	2.0	4.3	5.8
AN	2.9	3.9	2.2	22.5	2.7	3.0	31.6	5.3	3.3	2.4
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	7.3	0.0	0.0	0.5	0.0	0.0	0.0
HE	0.0	0.0	0.0	6.3	0.0	0.0	0.4	0.0	0.0	0.0
EN	0.0	0.3	0.0	9.7	0.4	0.1	7.2	0.1	0.1	0.0
FS	0.1	1.7	0.0	9.7	1.1	1.3	7.7	1.8	1.3	0.1
FO	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.0
WO	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	1.3	4.0	0.3	5.7	2.5	2.5	5.6	2.6	2.6	2.3
IL	1.1	2.3	0.2	4.6	0.4	0.4	4.4	0.4	0.4	0.5
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	1.2	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2
AP	0.4	1.0	0.0	0.7	0.0	0.0	0.8	0.0	0.0	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	0	0	47	46	0	0	35	5	11	15
OR	95	93	49	13	92	92	17	82	81	79
AN	5	7	4	41	8	8	48	13	8	6
RECAST TO 100%										
Q	34	33	40	1	63	61	0	56	58	58
OR	63	63	29	13	35	36	17	36	34	33
AN+AB	3	5	30	86	3	3	83	8	8	9

SAMPLE	5405	C5406	C5407	C5408	C5409	C5410	C5411	C5412	C5413	C5414
F	260	680	110	900	290	250	870	2200	190	220
CO	2	7	0	20	1	0	34	2	0	0
NI	2	3	2	22	2	2	42	4	2	2
CU	41	2	5	100	5	0	48	7	9	6
ZN	130	68	64	850	130	89	230	140	210	46
MO	0	0	0	0	0	0	0	0	0	0
AG	0	0	1	0	0	0	0	0	0	0
SN	0	0	0	0	10	8	0	10	8	5
SB	0.9	0.8	-0.2	0.8	0.3	0.2	0.7	0.8	1.2	0.6
W	2	3	0	0	2	2	4	2	2	3
BI	0.4	0.1	0.6	0.1	0.2	0.3	0.1	0.5	0.4	0.4
PB	69	6	23	540	10	84	28	110	170	24
U	8.3	3.6	5.2	0.5	9.4	7.7	0.3	13.0	24.0	28.0
TH	20	15	28	4	25	31	0	39	32	36

SAMPLE	C5415	C5416	C5417	C5418	C5419	C5420	C5421	C5422	C5423	C5424
SIO2	77.3	77.5	45.3	50.3	47.6	78.2	75.1	47.3	70.8	75.3
AL203	9.88	10.5	16.1	14.6	14.7	10.2	10.6	17.8	13.1	10.5
CAO	0.57	0.51	8.64	9.47	8.89	0.53	2.39	9.56	1.17	1.12
MGO	0.06	0.12	3.80	3.82	6.40	0.24	0.84	5.24	1.64	0.00
NA20	0.50	0.30	3.97	2.23	2.03	1.99	2.10	2.50	1.29	2.95
K20	5.15	4.72	1.17	0.75	2.38	2.16	1.87	2.06	2.86	3.76
FEO	2.92	2.67	11.5	10.1	11.6	2.70	3.28	9.13	5.03	2.59
MNO	0.13	0.15	0.41	0.29	0.40	0.13	0.20	0.31	0.18	0.13
T102	0.24	0.24	2.93	2.17	2.33	0.23	0.34	1.71	0.94	0.17
P205	0.01	0.01	0.43	0.33	0.29	0.02	0.03	0.22	0.05	0.00
L.O.I.	0.62	1.23	3.69	3.62	1.54	0.92	1.00	2.38	2.08	0.46
SUM	97.7	98.2	99.2	98.8	99.4	97.7	98.1	99.3	99.7	97.3
FEO/MGO	49.58	22.46	3.01	2.65	1.81	11.06	3.91	1.74	3.07	—
K20/K20+NA20	0.91	0.94	0.23	0.25	0.54	0.52	0.47	0.45	0.69	0.56

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	54.7	58.0	0.0	10.8	0.0	58.7	50.3	0.0	47.7	42.7
C	2.5	4.1	0.0	0.0	0.0	3.8	0.9	0.0	6.1	0.0
OR	31.4	28.8	7.3	4.6	14.4	13.2	11.4	12.6	17.3	23.0
AB	4.3	2.6	30.9	19.8	17.6	17.4	18.3	21.8	11.2	25.8
AN	2.9	2.5	23.7	28.9	24.4	2.5	12.0	32.4	5.6	4.5
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	6.6	7.0	8.4	0.0	0.0	6.9	0.0	0.0
HE	0.0	0.0	8.7	8.3	7.1	0.0	0.0	5.5	0.0	1.0
EN	0.1	0.1	0.0	4.2	7.1	0.3	1.4	2.4	2.8	0.0
FS	1.0	0.7	0.0	5.7	7.0	1.0	2.2	2.2	3.8	0.0
FO	0.0	0.0	2.6	0.0	1.5	0.0	0.0	3.7	0.0	0.0
FA	0.0	0.0	4.3	0.0	1.6	0.0	0.0	3.8	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	2.6	2.6	6.7	5.6	5.7	2.6	2.7	4.8	3.6	2.5
IL	0.5	0.5	5.8	4.3	4.5	0.5	0.7	3.3	1.8	0.3
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AP	0.0	0.0	1.1	0.8	0.7	0.1	0.1	0.5	0.1	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	11	8	50	37	31	52	44	33	33	48
OR	81	85	12	9	25	40	27	19	51	43
AN	7	7	38	54	43	8	29	48	16	8
RECAST TO 100%										
Q	59	63	0	17	0	64	55	0	58	44
OR	34	31	12	7	25	14	12	19	21	24
AN+AB	8	6	88	76	75	22	33	81	20	32

SAMPLE	5415	C5416	C5417	C5418	C5419	C5420	C5421	C5422	C5423	C5424
F	220	270	1300	1800	360	230	900	800	660	100
CO	1	0	34	36	30	1	4	24	11	1
NI	3	2	44	43	37	5	6	25	23	3
CU	13	9	4	4	87	28	3	35	10	6
ZN	160	93	310	160	300	95	76	210	69	210
MO	0	0	0	0	0	0	0	0	0	0
AG	0	0	0	0	-1	0	0	0	0	0
SN	5	8	0	0	0	8	8	0	0	3
SB	1.0	0.6	2.1	2.6	0.9	0.5	0.6	1.5	0.4	-0.2
W	2	1	5	4	0	3	2	3	2	3
BI	0.5	0.4	0.2	-0.1	-0.1	0.3	0.4	-0.1	0.2	0.3
PB	11	39	55	20	19	22	5	83	5	22
U	6.7	7.5	0.7	1.6	0.2	6.8	6.2	0.4	3.0	5.9
TH	27	35	0	12	9	28	30	0	16	32

SAMPLE	C5425	C5426	C5427	C5428	C5429	C5430	C5431	C5432	C5433	C5434
SIO2	75.4	75.7	75.4	76.6	50.7	76.6	76.0	74.6	46.2	67.3
AL203	10.8	10.0	10.5	9.98	14.2	10.5	11.4	10.6	15.1	12.4
CAO	0.54	0.57	0.49	2.07	6.01	0.37	0.52	0.44	7.81	1.80
MGO	0.00	0.23	0.15	0.08	4.48	0.17	0.16	0.28	7.41	0.14
NA20	3.09	1.20	1.24	1.50	2.44	0.66	0.00	0.00	2.60	0.39
K20	3.71	4.75	4.88	3.91	2.44	5.35	4.73	4.42	2.03	6.99
FEO	2.56	3.95	3.40	2.60	12.1	3.70	3.33	4.05	11.3	4.37
MNO	0.15	0.17	0.16	0.15	0.31	0.17	0.13	0.14	0.32	0.18
TIO2	0.17	0.35	0.28	0.24	2.55	0.29	0.29	0.29	1.95	0.36
P205	0.01	0.03	0.01	0.01	0.49	0.00	0.01	0.01	0.32	0.02
L.O.I.	0.46	0.92	0.92	0.38	2.31	0.54	1.69	1.85	2.85	1.15
SUM	97.1	98.3	97.7	97.8	99.4	98.8	98.6	97.2	99.0	95.6
FEO/MGO	—	16.97	22.38	33.65	2.71	21.35	21.34	14.25	1.52	30.70
K20/K20+NA20	0.55	0.80	0.80	0.72	0.50	0.89	1.00	1.00	0.44	0.95

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	43.3	49.4	49.1	49.8	6.6	51.3	57.8	58.0	0.0	34.9
C	0.7	2.0	2.4	0.0	0.0	3.0	5.5	5.3	0.0	1.1
OR	22.7	28.9	29.9	23.8	14.9	32.3	28.9	27.5	12.5	43.9
AB	27.1	10.4	10.9	13.1	21.3	5.7	0.0	0.0	22.9	3.5
AN	2.7	2.7	2.4	9.2	21.3	1.8	2.6	2.2	24.4	9.3
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.1	2.3	0.0	0.0	0.0	6.6	0.0
HE	0.0	0.0	0.0	1.0	2.9	0.0	0.0	0.0	4.8	0.0
EN	0.0	0.4	0.2	0.0	7.6	0.3	0.2	0.5	2.6	0.2
FS	0.6	2.7	1.9	0.0	10.9	2.4	1.7	3.2	2.2	3.5
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	2.5	2.8	2.7	2.6	6.1	2.6	2.7	2.7	5.2	2.9
IL	0.3	0.7	0.5	0.5	5.0	0.6	0.6	0.6	3.8	0.7
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AP	0.0	0.1	0.0	0.0	1.2	0.0	0.0	0.0	0.8	0.1
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	52	25	25	28	37	14	0	0	38	6
OR	43	69	69	52	26	81	92	93	21	77
AN	5	6	6	20	37	5	8	7	41	16
RECAST TO 100%										
Q	45	54	53	52	10	56	65	66	0	38
OR	24	32	32	25	23	35	32	31	21	48
AN+AB	31	14	14	23	66	8	3	3	79	14

SAMPLE	5425	C5426	C5427	C5428	C5429	C5430	C5431	C5432	C5433	C5434
F	200	290	180	130	770	180	340	430	930	510
CO	0	2	2	1	24	0	0	0	34	0
NI	3	5	3	4	17	4	2	4	68	3
CU	4	4	5	3	22	47	5	22	60	4
ZN	71	110	64	87	210	220	43	220	170	170
MO	0	44	28	12	0	0	20	16	0	0
AG	0	0	0	0	0	0	0	1	1	0
SN	3	5	3	3	0	8	8	10	0	0
SB	0.5	0.9	1.2	0.6	1.6	0.4	0.4	0.9	1.3	0.9
W	0	1	0	0	3	2	1	2	0	0
BI	0.2	1.0	0.5	0.3	0.3	0.4	0.6	0.6	0.3	0.3
PB	17	10	47	7	93	160	41	150	48	11
U	6.7	6.1	3.0	3.3	1.1	3.6	6.5	6.4	0.2	4.7
TH	24	30	31	24	6	25	29	24	0	25

SAMPLE	C5435	C5436	C5437	C5438
SIO2	68.0	74.4	75.5	75.3
AL203	12.7	12.2	10.3	9.32
CAO	2.22	0.64	0.42	0.88
MGO	0.33	0.09	0.14	0.26
NA20	0.48	3.76	0.00	0.00
K20	7.18	4.62	4.03	3.80
FEO	4.81	1.73	4.40	4.28
MNO	0.20	0.12	0.15	0.14
TIO2	0.41	0.18	0.23	0.20
P205	0.03	0.01	0.01	0.01
L.O.I.	1.23	0.00	1.46	1.77
SUM	98.1	97.9	97.2	97.5
FEO/MGO	14.51	19.96	30.60	16.75
K20/K20+NA20	0.94	0.55	1.00	1.00

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	31.9	34.2	60.0	60.7
C	0.2	0.0	5.5	3.8
OR	43.9	27.9	25.0	23.5
AB	4.2	32.4	0.0	0.0
AN	11.2	2.7	2.2	4.5
LC	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0
DI	0.0	0.1	0.0	0.0
HE	0.0	0.2	0.0	0.0
EN	0.6	0.0	0.3	0.5
FS	4.2	0.1	4.0	4.0
FO	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0
MT	2.9	0.6	2.6	2.6
IL	0.8	0.4	0.5	0.4
CR	0.0	0.0	0.0	0.0
HM	0.0	1.3	0.0	0.0
AP	0.1	0.0	0.0	0.0
PY	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0
RECAST TO 100%				
AB	7	51	0	0
OR	74	44	92	84
AN	19	4	8	16
RECAST TO 100%				
Q	35	35	69	68
OR	48	29	29	27
AN+AB	17	36	2	5

SAMPLE	5435	C5436	C5437	C5438
F	450	470	400	300
CO	0	1	1	2
NI	3	3	2	2
CU	4	5	19	16
ZN	100	70	50	160
MO	0	0	0	0
AG	0	1	0	0
SN	3	0	23	20
SB	0.8	-0.2	0.7	1.9
W	0	0	2	2
BI	0.4	0.2	0.7	0.9
PB	20	42	20	42
U	5.5	8.8	9.0	10.0
TH	31	34	53	48

SAMPLE	R0217	R0218	R0219	R0220	R0221	R0222	R0223	R0224	R0337	R1026
SIO2	72.7	70.3	65.2	75.0	75.2	75.9	70.5	81.3	75.9	77.3
AL2O3	12.6	13.2	15.0	11.3	9.07	10.0	12.1	8.10	11.9	10.5
CAO	0.70	0.36	0.30	0.17	0.82	0.13	0.53	0.07	0.29	0.35
MGO	0.32	0.27	0.84	0.21	1.25	0.30	1.25	0.27	0.36	0.24
NA2O	1.99	2.56	2.16	3.15	0.96	2.22	3.35	0.12	3.50	2.04
K2O	4.41	4.35	4.30	3.92	2.91	4.35	3.20	4.99	4.13	4.67
FEO	4.09	3.22	5.59	2.20	4.45	2.85	3.61	2.98	1.41	2.74
MNO	0.05	0.05	0.11	0.04	0.11	0.04	0.07	0.05	0.08	0.06
TIO2	0.59	0.42	0.67	0.19	0.30	0.23	0.55	0.27	0.27	0.22
P2O5	0.10	0.05	0.10	0.01	0.02	0.01	0.07	0.02	0.03	0.02
L.O.I.	1.08	2.00	2.54	0.62	1.70	0.93	2.16	0.92	0.16	0.54
SUM	99.1	97.2	97.5	97.1	97.2	97.3	97.8	99.4	98.3	98.9
FEO/MGO	12.62	11.92	6.67	10.58	3.56	9.54	2.89	11.03	3.95	11.57
K2O/K2O+NA2O	0.70	0.63	0.67	0.55	0.75	0.66	0.49	0.98	0.54	0.70

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	43.3	39.5	34.6	42.5	55.9	47.1	37.2	61.6	38.9	47.0
C	3.8	4.0	6.9	1.7	3.0	1.5	2.5	2.5	1.1	1.5
OR	26.6	27.0	26.9	24.1	18.1	26.7	19.7	30.0	24.9	28.1
AB	16.5	22.7	19.3	27.6	8.5	19.5	29.6	1.0	30.8	17.6
AN	2.9	1.5	0.9	0.8	4.1	0.6	2.2	0.2	1.3	1.6
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EN	0.4	0.3	1.5	0.2	2.6	0.4	2.1	0.3	0.8	0.3
FS	2.0	1.1	5.0	0.5	4.4	1.2	2.3	1.2	0.1	1.0
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	3.1	2.9	3.3	1.8	2.7	2.6	3.1	2.6	0.0	2.5
IL	1.1	0.8	1.3	0.4	0.6	0.5	1.1	0.5	0.2	0.4
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	1.6	0.0
AP	0.2	0.1	0.2	0.0	0.1	0.0	0.2	0.0	0.1	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	36	44	41	53	28	42	57	3	54	37
OR	58	53	57	46	59	57	38	96	44	59
AN	6	3	2	1	13	1	4	1	2	3
RECAST TO 100%										
Q	49	43	42	45	65	50	42	66	41	50
OR	30	30	33	25	21	28	22	32	26	30
AN+AB	22	27	25	30	15	21	36	1	33	20

SAMPLE	0217	R0218	R0219	R0220	R0221	R0222	R0223	R0224	R0337	R1026
ZR	680	610	760	630	2740	1190	420	540	850	1240
PB	39	75	36	45	27	72	39	12	46	23
ZN	33	72	130	67	220	67	170	36	45	63
CU	5	4	4	3	9	2	7	3	68	10
F	190	210	440	150	220	120	490	160	180	150
W	6	6	8	8	10	10	7	12	11	11
U	4	4	5	7	12	4	6	10	374	13
MO	4	4	4	8	5	4	4	20	—	5
CR2O3	100	90	50	100	120	120	100	230	160	190
SR	90	110	100	0	120	10	70	10	10	10
RB	190	170	210	170	180	180	260	220	140	190
SN	3	3	3	3	40	3	8	0	0	3
TH	21	20	23	24	40	19	22	16	14	26
BI	0	0	0	0	0	0	0	0	—	0

SAMPLE	R1027	R1028	R1029	R1030	R1031	R1032	R1033	R1034	R1035	R1036
SIO2	64.7	77.3	76.6	75.5	78.1	77.2	78.6	76.6	80.0	77.1
AL203	15.8	10.3	9.87	10.1	9.60	9.53	9.54	9.99	8.55	9.27
CAO	0.16	0.51	0.83	0.70	0.30	0.71	0.44	0.93	0.45	0.68
MGO	0.83	0.25	0.29	0.39	0.27	0.30	0.30	0.24	0.29	0.33
NA20	1.51	1.59	1.43	0.88	0.77	1.08	1.06	1.37	0.84	1.11
K20	8.66	4.22	3.95	4.60	4.79	4.08	4.35	4.57	3.98	3.91
FEO	4.38	2.40	2.29	3.40	3.23	2.81	2.42	1.89	2.56	2.65
MNO	0.03	0.06	0.06	0.09	0.06	0.07	0.06	0.05	0.06	0.06
TIO2	0.35	0.22	0.23	0.26	0.23	0.23	0.23	0.22	0.22	0.27
P205	0.01	0.07	0.16	0.09	0.05	0.06	0.04	0.16	0.04	0.20
L.O.I.	1.31	0.77	1.00	1.23	0.93	1.08	1.00	0.93	1.70	1.39
SUM	98.3	97.9	97.0	97.7	98.6	97.4	98.3	97.2	99.0	97.3
FEO/MGO	5.29	9.74	7.87	8.69	12.16	9.21	7.98	7.96	8.73	7.96
K20/K20+NA20	0.85	0.73	0.73	0.84	0.86	0.79	0.80	0.77	0.83	0.78

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	20.5	52.1	53.6	52.1	55.1	55.2	56.0	51.1	60.1	56.6
C	3.8	2.4	2.2	2.7	2.8	2.3	2.5	1.5	2.2	2.6
OR	52.9	25.7	24.3	28.2	29.0	25.1	26.4	28.1	24.2	24.1
AB	13.2	13.8	12.6	7.7	6.6	9.5	9.2	12.1	7.3	9.8
AN	0.7	2.1	3.2	3.0	1.2	3.2	1.9	3.7	2.0	2.1
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EN	1.5	0.2	0.3	0.6	0.4	0.4	0.3	0.3	0.3	0.3
FS	3.8	0.6	0.6	2.2	1.8	1.2	0.6	0.4	0.8	0.8
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	2.8	2.4	2.0	2.6	2.6	2.6	2.3	0.6	2.6	2.7
IL	0.7	0.4	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.5
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	0.1	0.5	0.0	0.0	0.0	0.2	1.4	0.0	0.0
AP	0.0	0.2	0.4	0.2	0.1	0.2	0.1	0.4	0.1	0.5
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	20	33	31	20	18	25	25	28	22	27
OR	79	62	61	72	79	66	70	64	72	67
AN	1	5	8	8	3	8	5	8	6	6
RECAST TO 100%										
Q	23	56	57	57	60	59	60	54	64	61
OR	61	27	26	31	32	27	28	30	26	26
AN+AB	16	17	17	12	9	14	12	17	10	13

SAMPLE	1027	R1028	R1029	R1030	R1031	R1032	R1033	R1034	R1035	R1036
ZR	1910	1260	1590	2070	1510	2030	1820	1670	1610	2130
PB	29	97	190	100	92	150	80	170	120	99
ZN	147	200	120	170	110	330	160	170	220	150
CU	30	7	19	72	12	12	5	5	9	7
F	250	290	230	280	230	290	260	230	240	270
W	12	11	14	11	12	12	14	15	16	10
U	163	16	35	28	20	46	24	27	27	43
MO	19	7	10	8	4	8	7	9	14	11
CR203	90	160	190	160	160	190	180	160	170	160
SR	80	20	30	40	10	30	20	50	40	30
RB	370	160	120	170	250	170	180	140	130	130
SN	15	5	8	15	10	10	8	3	8	8
TH	36	530	1600	1100	150	1100	620	910	950	1200
BI	0	6	22	32	4	45	26	26	24	27

SAMPLE	R1037	R1038
SIO2	75.7	77.6
AL2O3	9.78	9.06
CAO	1.04	0.74
MGO	0.27	0.36
NA2O	1.10	3.70
K2O	4.30	1.49
FEO	2.63	4.09
MNO	0.07	0.09
TIO2	0.26	0.25
P2O5	0.16	0.02
L.O.I.	1.54	1.16
SUM	97.1	99.1
FEO/MGO	9.59	11.30
K2O/K2O+NA2O	0.80	0.29

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8, 523(1971)]

Q	52.9	48.2
C	1.9	0.1
OR	26.6	9.0
AB	9.8	32.0
AN	4.3	3.6
LC	0.0	0.0
NE	0.0	0.0
KP	0.0	0.0
AC	0.0	0.0
DI	0.0	0.0
HE	0.0	0.0
EN	0.3	0.6
FS	0.7	3.3
FO	0.0	0.0
FA	0.0	0.0
WO	0.0	0.0
LA	0.0	0.0
MT	2.7	2.6
IL	0.5	0.5
CR	0.0	0.0
HM	0.0	0.0
AP	0.4	0.0
PY	0.0	0.0
NS	0.0	0.0
KS	0.0	0.0
RU	0.0	0.0
CC	0.0	0.0
RECAST TO 100%		
AB	24	72
OR	65	20
AN	11	8
RECAST TO 100%		
Q	57	52
OR	28	10
AN+AB	15	38

SAMPLE	1037	R1038
ZR	2300	5460
PB	450	240
ZN	200	470
CU	12	23
F	370	160
N	11	13
U	56	83
MO	12	8
CR2O3	170	140
SR	50	20
RB	130	130
SN	10	200
TH	1600	240
BI	69	0

X-RAY ASSAY LABORATORIES LIMITED

1885 LESLIE STREET, DON MILLS, ONTARIO M3B 3J4

PHONE 416-445-5755 TELEX 06-986947

CERTIFICATE OF ANALYSIS

TO: GULF MINERALS CANADA LIMITED,
ATTN: NEIL DOWNEY,
110 YONGE ST., SUITE 1400,
TORONTO, ONTARIO.
M5C 1T4

REPORT 8661 REF. FILE 4360-V6

22 ROCKS PO#11600 AFE0525 FAC08205 SUBMITTED ON 5-AUG-8

WERE ANALYSED AS FOLLOWS:

	UNITS	METHOD	DETECTION LIMIT
F	PPM	WET	100.000
NA2O	%	XRF	0.010
MGO	%	XRF	0.010
AL2O3	%	XRF	0.010
SIO2	%	XRF	0.010
P2O5	%	XRF	0.010
K2O	%	XRF	0.010
CAO	%	XRF	0.010
TIO2	%	XRF	0.010
MNO	%	XRF	0.010
FEO	%	XRF	0.001
CU	PPM	DCP	0.500
ZN	PPM	DCP	0.500
RB	PPM	XRF	10.000
SR	PPM	XRF	10.000
ZR	PPM	XRF	10.000
MO	PPM	DCP	0.500
SN	PPM	EMS	3.000
W	PPM	NA	1.000
PB	PPM	DCP	0.500
BI	PPM	FAA	0.040
U	PPM	DNC	0.100
TH	PPM	NA	1.000
CR2O3	PPM	XRF	10.000

X-RAY ASSAY LABORATORIES LIMITED

DATE 21-OCT-80 CERTIFIED BY .....

J.H. OPDEBEECK

SAMPLE	R0204	R0205	R0206	R0207	R0208	R0209	R0210	R0211	R0212	R0213
SIO2	72.6	66.0	52.4	51.5	76.9	76.5	77.1	78.5	77.6	75.1
AL203	13.3	13.2	18.9	18.6	9.76	10.5	10.3	9.25	10.3	10.5
CAO	0.78	1.79	4.52	4.31	0.14	0.13	0.36	0.15	0.20	0.21
MGO	0.07	1.10	3.78	3.94	0.05	0.21	0.29	0.03	0.35	0.10
NA2O	2.87	4.03	4.35	3.62	1.89	-0.05	0.03	1.18	0.32	0.90
K2O	5.86	2.90	3.49	4.13	5.12	5.53	3.16	5.54	5.02	7.29
FEO	1.55	6.08	6.99	7.71	2.36	3.22	3.89	2.53	2.56	2.82
MNO	0.03	0.18	0.14	0.15	0.02	0.06	0.07	0.03	0.03	0.07
TIO2	0.22	0.95	0.84	0.82	0.24	0.22	0.28	0.18	0.22	0.23
P2O5	0.03	0.23	0.11	0.12	0.01	0.01	0.02	0.01	0.01	0.02
L.O.I.	1.08	2.23	3.15	3.54	0.62	0.46	2.08	0.31	0.38	0.23
SUM	98.5	99.4	99.4	99.3	97.4	97.1	97.9	98.0	97.3	97.7
FEO/MGO	22.11	5.53	1.85	1.96	47.15	15.34	13.40	84.28	7.33	28.16
K2O/K2O+NA2O	0.67	0.42	0.45	0.53	0.73	1.01	0.99	0.82	0.94	0.89

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	32.6	25.7	0.0	0.0	47.5	56.3	65.4	51.2	57.3	42.2
C	0.9	0.7	0.0	0.7	0.9	4.5	6.5	1.1	4.1	0.8
OR	35.6	17.7	21.5	25.6	31.3	33.9	19.5	33.6	30.6	44.3
AB	24.9	35.2	38.3	32.1	16.5	-0.4	0.3	10.2	2.8	7.8
AN	3.8	7.6	22.5	21.6	0.7	0.6	1.7	0.7	1.0	0.9
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EN	0.1	1.9	0.4	2.2	0.0	0.3	0.5	0.0	0.4	0.1
FS	0.0	5.1	0.4	2.3	0.2	1.7	2.8	0.3	0.8	0.8
FO	0.0	0.0	5.5	4.7	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	5.9	5.5	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.0	3.7	3.5	3.5	2.0	2.6	2.7	2.5	2.6	2.6
IL	0.1	1.9	1.7	1.6	0.5	0.4	0.6	0.4	0.4	0.4
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	1.8	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
AP	0.1	0.6	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	39	58	47	40	34	0	1	23	8	15
OR	55	29	26	32	65	100	91	75	89	83
AN	6	13	27	27	1	2	8	2	3	2
RECAST TO 100%										
Q	34	30	0	0	49	62	75	54	63	44
OR	37	21	26	32	33	37	22	35	33	47
AN+AB	30	50	74	68	18	0	2	11	4	9

SAMPLE	0204	R0205	R0206	R0207	R0208	R0209	R0210	R0211	R0212	R0213
ZR	260	350	130	170	1000	1450	2010	1090	1340	540
PB	10	60	50	50	270	10	100	30	110	40
ZN	40	160	160	170	60	110	140	100	110	110
CU	60	0	0	0	0	10	10	10	30	10
SB	0	1	2	2	0	0	1	0	1	0
W	2	3	0	4	0	1	4	3	2	3
MO	3	6	7	8	1	0	6	18	2	2
CO	0	6	24	26	0	0	0	0	0	0
SR	50	110	270	260	20	10	20	20	0	20
RB	220	80	100	130	150	250	200	170	230	180
SN	0	0	0	0	3	10	40	3	8	0
TH	22	10	12	12	25	25	32	24	30	23
BI	0	0	0	0	0	0	0	0	0	0
NI	0	0	52	57	0	0	0	0	0	0
AU	0	0	0	0	3	0	0	0	13	0

SAMPLE	R0214	R0215	R1002	R1006	R1007	R1009	R1010	R1011	R1012	R1013
SIO2	92.9	70.2	77.9	73.5	75.8	69.5	80.3	71.4	58.9	73.0
AL203	2.18	10.5	8.92	10.9	9.99	9.34	9.05	11.9	16.0	11.8
CAO	0.46	1.31	0.24	0.95	1.53	4.51	0.50	0.36	0.28	0.75
MGO	0.00	1.78	0.30	0.69	0.57	0.32	0.24	0.86	0.19	0.38
NA2O	-0.08	0.39	0.11	2.86	0.14	-0.05	3.93	3.08	0.60	3.30
K2O	1.26	3.77	2.97	2.23	2.70	2.05	0.69	3.49	12.1	3.83
FEO	0.47	6.10	3.52	3.91	3.64	3.70	1.87	4.73	5.88	3.70
MNO	0.01	0.14	0.05	0.05	0.05	0.06	0.04	0.11	0.05	0.09
TIO2	0.85	0.39	0.63	0.34	0.39	0.51	0.22	0.42	0.32	0.31
P2O5	0.13	0.05	0.05	0.04	0.04	0.14	0.03	0.07	0.01	0.04
L.O.I.	0.31	2.77	2.54	1.54	1.85	1.92	0.77	1.15	2.85	0.54
SUM	98.5	98.0	97.6	97.4	97.1	92.5	97.8	98.1	97.9	98.2
FEO/MGO	—	3.43	11.73	5.66	6.38	11.56	7.80	5.50	30.97	9.73
K2O/K2O+NA2O	1.07	0.91	0.96	0.44	0.95	1.02	0.15	0.53	0.95	0.54

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	89.5	47.8	68.3	46.4	63.0	57.7	55.0	37.9	5.9	37.1
C	0.4	3.7	5.5	2.2	4.4	0.0	1.0	2.7	1.5	1.0
OR	7.6	23.5	18.5	13.8	16.8	13.4	4.2	21.3	75.8	23.2
AB	-0.7	3.5	1.0	25.3	1.2	-0.5	34.2	26.9	5.4	28.6
AN	1.5	6.5	0.9	4.6	7.7	21.7	2.4	1.4	1.4	3.5
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0
EN	0.0	3.9	0.2	1.2	0.9	0.2	0.3	1.6	0.4	0.6
FS	0.0	7.3	0.9	3.0	2.3	1.0	0.4	4.3	6.3	2.5
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.0	2.9	3.3	2.8	2.9	3.2	0.5	2.9	2.8	2.7
IL	0.0	0.8	1.3	0.7	0.8	1.1	0.4	0.8	0.6	0.6
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.5	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0
AP	0.3	0.1	0.1	0.1	0.1	0.4	0.1	0.2	0.0	0.1
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	-7	10	5	58	5	0	84	54	7	52
OR	91	70	91	32	65	39	10	43	92	42
AN	17	19	4	11	30	63	6	3	2	6
RECAST TO 100%										
Q	91	59	77	52	71	62	57	43	7	40
OR	8	29	21	15	19	15	4	24	86	25
AN+AB	1	12	2	33	10	23	38	32	8	35

SAMPLE	0214	R0215	R1002	R1006	R1007	R1008	R1010	R1011	R1012	R1013
ZR	260	3080	4230	1140	1250	1450	2460	1000	1390	1310
PB	20	40	90	40	30	100	—	30	50	30
ZN	10	450	40	210	140	230	—	140	240	100
CU	10	20	20	10	10	10	—	10	10	140
SB	2	1	3	3	3	9	—	1	3	0
W	5	0	1	0	2	2	—	1	2	0
MO	44	7	1	5	4	13	—	4	14	2
CO	1	6	2	2	3	7	—	4	1	2
SR	20	50	10	80	60	170	30	10	30	60
RB	40	160	160	70	160	50	10	110	340	120
SN	0	60	8	0	5	8	—	5	20	10
TH	3	49	1150	340	380	1600	—	590	35	23
BI	0	0	0	0	0	2	—	0	1	0
NI	1	5	1	8	9	37	—	10	0	3
AU	0	4	1	2	4	0	—	2	7	2

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SAMPLE	R1014	R1015	R1016	R1017	R1018	R1019	R1020	R1021	R1022	R1023
SIO2	73.1	76.3	88.9	71.0	69.0	74.7	68.7	74.1	72.9	77.0
AL203	10.5	9.62	3.39	12.4	13.2	11.4	12.9	10.9	11.3	9.88
CAO	0.50	0.39	0.27	0.34	0.10	0.24	0.16	0.09	0.07	0.55
MGO	0.95	0.07	0.44	0.10	0.09	0.12	0.14	0.10	0.12	0.07
NA20	2.37	1.31	0.18	3.95	1.36	4.30	1.99	1.29	1.13	1.01
K20	3.11	4.99	0.50	3.82	8.44	2.92	7.07	6.80	7.23	4.58
FEO	5.18	2.88	2.49	4.81	2.63	3.12	3.60	2.51	2.33	2.56
MNO	0.12	0.08	0.08	0.06	0.02	0.06	0.03	0.02	0.02	0.06
TIO2	0.43	0.20	0.10	0.30	0.29	0.26	0.30	0.21	0.23	0.22
P205	0.15	0.06	0.17	0.02	0.01	0.01	0.01	0.01	0.01	0.07
L.O.I.	1.38	0.77	1.23	0.62	1.77	0.54	2.23	1.69	1.54	1.23
SUM	98.4	97.0	98.1	98.0	97.2	98.1	97.5	98.0	97.1	97.5
FEO/MGO	5.46	41.13	5.66	48.14	29.19	26.02	25.71	25.10	19.42	36.51
K20/K20+NA20	0.57	0.79	0.74	0.49	0.86	0.40	0.78	0.84	0.86	0.82

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	44.9	50.4	87.7	31.8	29.8	38.4	30.2	41.7	40.1	54.5
C	2.8	1.6	2.5	1.3	1.7	0.8	1.8	1.3	1.5	2.5
OR	19.0	30.7	3.1	23.3	52.4	17.7	44.0	41.8	44.8	28.2
AB	20.7	11.5	1.6	34.4	12.1	37.4	17.7	11.3	10.0	8.9
AN	1.5	1.6	0.2	1.6	0.5	1.2	0.8	0.4	0.3	2.4
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EN	1.9	0.1	0.7	0.2	0.0	0.1	0.2	0.0	0.1	0.0
FS	5.1	1.0	1.2	4.2	0.3	1.3	2.0	0.3	0.3	0.4
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	2.9	2.6	2.4	2.7	2.6	2.6	2.7	2.6	2.0	2.6
IL	0.8	0.4	0.2	0.6	0.6	0.5	0.6	0.4	0.5	0.4
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5	0.0
AP	0.4	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	50	26	32	58	19	66	28	21	18	23
OR	46	70	63	39	81	32	70	78	81	71
AN	4	4	5	3	1	2	1	1	1	6
RECAST TO 100%										
Q	52	53	95	35	31	41	33	44	42	58
OR	22	33	3	26	55	19	47	44	47	30
AN+AB	26	14	2	40	13	41	20	12	11	12

SAMPLE	1014	R1015	R1016	R1017	R1018	R1019	R1020	R1021	R1022	R1023
ZR	1020	1070	510	1140	1360	1020	1370	940	1040	1530
PB	50	220	630	30	420	50	270	240	240	150
ZN	160	990	1000	400	1100	610	730	1400	1000	230
CU	30	20	560	240	250	650	140	270	280	30
SB	2	2	15	1	2	1	2	5	4	1
W	4	3	3	1	3	0	7	2	1	3
MO	6	17	96	19	7	9	15	56	36	3
CO	7	1	4	2	2	6	1	1	2	1
SR	20	30	10	10	50	20	60	40	50	30
RB	70	130	30	110	250	60	250	210	210	140
SN	15	0	0	15	8	0	8	0	0	10
TH	1600	400	140	16	26	9	24	9	12	700
BI	0	2	0	1	0	0	0	0	0	9
NI	15	3	2	1	0	1	0	0	0	2
AU	0	0	2	4	5	6	7	38	23	3

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SAMPLE	R1024	R1025
SIO2	77.9	69.4
AL2O3	9.16	12.8
CAO	0.98	0.40
MGO	1.26	0.10
NA2O	1.69	5.23
K2O	1.40	2.46
FEO	3.73	6.14
MNO	0.08	0.05
TIO2	0.50	0.33
P2O5	0.13	0.02
L.O.I.	1.92	0.92
SUM	99.1	98.6
FEO/MGO	2.96	61.37
K2O/K2O+NA2O	0.45	0.32

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8, 523(1971)]

Q	60.1	26.6
C	3.5	0.9
OR	8.5	15.0
AB	14.7	45.6
AN	4.1	1.9
LC	0.0	0.0
NE	0.0	0.0
KP	0.0	0.0
AC	0.0	0.0
DI	0.0	0.0
HE	0.0	0.0
EN	2.2	0.2
FS	2.6	6.5
FO	0.0	0.0
FA	0.0	0.0
WO	0.0	0.0
LA	0.0	0.0
MT	3.0	2.7
IL	1.0	0.6
CR	0.0	0.0
HM	0.0	0.0
AP	0.3	0.0
PY	0.0	0.0
NS	0.0	0.0
KS	0.0	0.0
RU	0.0	0.0
CC	0.0	0.0
RECAST TO 100%		
AB	54	73
OR	31	24
AN	15	3
RECAST TO 100%		
Q	69	30
OR	10	17
AN+AB	22	53

SAMPLE	1024	R1025
ZR	150	1310
PB	40	50
ZN	80	440
CU	170	400
SB	0	1
W	3	3
MO	4	9
CO	8	4
SR	40	10
RB	50	50
SN	0	15
TH	6	20
BI	0	1
NI	11	1
AU	12	1

SAMPLE	R0217	R0218	R0219	R0220	R0221	R0222	R0223	R0224	R0337	R1026
SIO2	72.7	70.3	65.2	75.0	75.2	75.9	70.5	81.3	75.9	77.3
AL203	12.6	13.2	15.0	11.3	9.07	10.0	12.1	8.10	11.9	10.5
CAO	0.70	0.36	0.30	0.17	0.82	0.13	0.53	0.07	0.29	0.35
MGO	0.32	0.27	0.84	0.21	1.25	0.30	1.25	0.27	0.36	0.24
NA20	1.90	2.56	2.16	3.15	0.96	2.22	3.35	0.12	3.58	2.04
K20	4.41	4.35	4.30	3.92	2.91	4.35	3.20	4.99	4.13	4.67
FEO	4.09	3.22	5.59	2.20	4.45	2.85	3.61	2.98	1.41	2.74
MNO	0.05	0.05	0.11	0.04	0.11	0.04	0.07	0.05	0.08	0.06
TIO2	0.59	0.42	0.67	0.19	0.30	0.23	0.55	0.27	0.27	0.22
P205	0.10	0.05	0.10	0.01	0.02	0.01	0.07	0.02	0.03	0.02
L.O.I.	1.08	2.00	2.54	0.62	1.70	0.93	2.16	0.92	0.16	0.54
SUM	99.1	97.2	97.5	97.1	97.2	97.3	97.8	99.4	96.3	98.9
FEO/MGO	12.62	11.92	6.67	10.58	3.56	9.54	2.89	11.03	3.95	11.57
K20/K20+NA20	0.70	0.63	0.67	0.55	0.75	0.66	0.49	0.98	0.54	0.70

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	43.3	39.5	34.6	42.5	55.9	47.1	37.2	61.6	38.9	47.0
C	3.8	4.0	6.9	1.7	3.0	1.5	2.5	2.5	1.1	1.5
OR	26.6	27.0	26.9	24.1	18.1	26.7	19.7	30.0	24.9	28.1
AB	16.5	22.7	19.3	27.6	8.5	19.5	29.6	1.0	30.8	17.6
AN	2.9	1.5	0.9	0.8	4.1	0.6	2.2	0.2	1.3	1.6
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EN	0.4	0.3	1.5	0.2	2.6	0.4	2.1	0.3	0.8	0.3
FS	2.0	1.1	5.0	0.5	4.4	1.2	2.3	1.2	0.1	1.0
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	3.1	2.9	3.3	1.8	2.7	2.6	3.1	2.6	0.0	2.5
IL	1.1	0.8	1.3	0.4	0.6	0.5	1.1	0.5	0.2	0.4
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	1.6	0.0
AP	0.2	0.1	0.2	0.0	0.1	0.0	0.2	0.0	0.1	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	36	44	41	53	28	42	57	3	54	37
OR	58	53	57	46	59	57	38	96	44	59
AN	6	3	2	1	13	1	4	1	2	3
RECAST TO 100%										
Q	49	43	42	45	65	50	42	66	41	50
OR	30	30	33	25	21	28	22	32	26	30
AN+AB	22	27	25	30	15	21	36	1	33	20

SAMPLE	0217	R0218	R0219	R0220	R0221	R0222	R0223	R0224	R0337	R1026
ZR	680	610	760	630	2740	1190	420	540	859	1240
PB	39	75	36	45	27	72	39	12	46	23
ZN	33	72	130	67	220	67	170	36	45	63
CU	5	4	4	3	9	2	7	3	68	10
F	190	210	440	150	220	120	490	160	180	150
W	6	6	8	8	10	10	7	12	11	11
U	4	4	5	7	12	4	6	10	374	13
MO	4	4	4	8	5	4	4	20	—	5
CR2O3	100	90	50	100	120	120	100	230	160	190
SR	90	110	100	0	120	10	70	10	10	10
RB	190	170	210	170	180	180	260	220	140	190
SN	3	3	3	3	40	3	8	0	0	3
TH	21	20	23	24	40	19	22	16	14	26
BI	0	0	0	0	0	0	0	0	—	0

SAMPLE	R1027	R1028	R1029	R1030	R1031	R1032	R1033	R1034	R1035	R1036
SIO2	64.7	77.3	76.6	75.5	78.1	77.2	78.6	76.6	80.0	77.1
AL203	15.8	10.3	9.87	10.1	9.60	9.53	9.54	9.99	8.55	9.27
CAO	0.16	0.51	0.83	0.70	0.30	0.71	0.44	0.93	0.45	0.68
MGO	0.83	0.25	0.29	0.39	0.27	0.30	0.30	0.24	0.29	0.33
NA2O	1.51	1.59	1.43	0.83	0.77	1.08	1.06	1.37	0.84	1.11
K2O	8.66	4.22	3.95	4.60	4.79	4.08	4.35	4.57	3.98	3.91
FEO	4.38	2.40	2.29	3.40	3.23	2.81	2.42	1.89	2.56	2.65
MNO	0.03	0.06	0.06	0.09	0.06	0.07	0.06	0.05	0.06	0.06
TIO2	0.35	0.22	0.23	0.26	0.23	0.23	0.23	0.22	0.22	0.27
P2O5	0.01	0.07	0.16	0.09	0.05	0.06	0.04	0.16	0.04	0.20
L.O.I.	1.31	0.77	1.00	1.23	0.93	1.08	1.00	0.93	1.70	1.39
SUM	98.3	97.9	97.0	97.7	98.6	97.4	98.3	97.2	99.0	97.3
FEO/MGO	5.29	9.74	7.87	8.69	12.16	9.21	7.98	7.96	8.73	7.96
K2O/K2O+NA2O	0.85	0.73	0.73	0.84	0.86	0.79	0.80	0.77	0.83	0.78

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	20.5	52.1	53.6	52.1	55.1	55.2	56.0	51.1	60.1	56.6
C	3.8	2.4	2.2	2.7	2.8	2.3	2.5	1.5	2.2	2.6
OR	52.9	25.7	24.3	28.2	29.0	25.1	26.4	28.1	24.2	24.1
AB	13.2	13.8	12.6	7.7	6.6	9.5	9.2	12.1	7.3	9.8
AN	0.7	2.1	3.2	3.0	1.2	3.2	1.9	3.7	2.0	2.1
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EN	1.5	0.2	0.3	0.6	0.4	0.4	0.3	0.3	0.3	0.3
FS	3.8	0.6	0.6	2.2	1.8	1.2	0.6	0.4	0.8	0.8
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	2.8	2.4	2.0	2.6	2.6	2.6	2.3	0.6	2.6	2.7
IL	0.7	0.4	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.5
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	0.1	0.5	0.0	0.0	0.0	0.2	1.4	0.0	0.0
AP	0.0	0.2	0.4	0.2	0.1	0.2	0.1	0.4	0.1	0.5
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	20	33	31	20	18	25	25	28	22	27
OR	79	62	61	72	79	66	70	64	72	67
AN	1	5	8	8	3	8	5	8	6	6
RECAST TO 100%										
Q	23	56	57	57	60	59	60	54	64	61
OR	61	27	26	31	32	27	28	30	26	26
AN+AB	16	17	17	12	9	14	12	17	10	13

SAMPLE	1027	R1028	R1029	R1030	R1031	R1032	R1033	R1034	R1035	R1036
ZR	1910	1260	1590	2070	1510	2030	1820	1670	1610	2130
PB	29	97	190	100	92	150	80	170	120	99
ZN	147	200	120	170	110	330	160	170	220	150
CU	30	7	19	72	12	12	5	5	9	7
F	250	290	230	280	230	290	260	230	240	270
N	12	11	14	11	12	12	14	15	16	10
U	163	16	35	28	20	46	24	27	27	43
MO	19	7	10	8	4	8	7	9	14	11
CR2O3	90	160	190	160	160	190	180	160	170	160
SR	80	20	30	40	10	30	20	50	40	30
RB	370	160	120	170	250	170	190	140	130	130
SI	15	5	8	15	10	10	8	3	8	8
TH	36	530	1600	1100	150	1100	620	910	950	1200
BI	0	6	22	32	4	45	26	26	24	27

SAMPLE	R1037	R1038
SIO2	75.7	77.6
AL203	9.78	9.06
CAO	1.04	0.74
MGO	0.27	0.36
NA2O	1.10	3.70
K2O	4.30	1.49
FEO	2.63	4.09
MNO	0.07	0.09
TIO2	0.26	0.25
P2O5	0.16	0.02
L.O.I.	1.54	1.16
SUM	97.1	99.1
FEO/MGO	9.59	11.30
K2O/K2O+NA2O	0.80	0.29

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	52.9	48.2
C	1.9	0.1
OR	26.6	9.0
AB	9.8	32.0
AN	4.3	3.6
LC	0.0	0.0
NE	0.0	0.0
KP	0.0	0.0
AC	0.0	0.0
DI	0.0	0.0
HE	0.0	0.0
EN	0.3	0.6
FS	0.7	3.3
FO	0.0	0.0
FA	0.0	0.0
WO	0.0	0.0
LA	0.0	0.0
MT	2.7	2.6
IL	0.5	0.5
CR	0.0	0.0
HM	0.0	0.0
AP	0.4	0.0
PY	0.0	0.0
NS	0.0	0.0
KS	0.0	0.0
RU	0.0	0.0
CC	0.0	0.0
RECAST TO 100%		
AB	24	72
OR	65	20
AN	11	8
RECAST TO 100%		
Q	57	52
OR	28	10
AN+AB	15	38

SAMPLE	1037	R1038
ZR	2300	5460
PB	450	240
ZN	200	470
CU	12	23
F	370	160
W	11	13
U	56	83
MO	12	8
CR203	170	140
SR	50	20
RB	130	130
SN	10	200
TH	1600	240
BI	69	0

APPENDIX B

REVERSE CIRCULATION GEOCHEMISTRY DATA

X-RAY ASSAY LABORATORIES LIMITED

1885 LESLIE STREET, DON MILLS, ONTARIO M3B 3J4

PHONE 416-445-5755 TELEX 06-986947

CERTIFICATE OF ANALYSIS

TO: GULF MINERALS CANADA LIMITED,
ATTN: NEIL DOWNEY,
110 YONGE ST., SUITE 1400,
TORONTO, ONTARIO.
M5C 1T4

REPORT 8661 REF. FILE 4360-V6

22 ROCKS PO#11600 AFE0525 FAC08205 SUBMITTED ON 5-AUG-8

WERE ANALYSED AS FOLLOWS:

	UNITS	METHOD	DETECTION LIMIT
F	PPM	WET	100.000
NA2O	%	XRF	0.010
MGO	%	XRF	0.010
AL2O3	%	XRF	0.010
SIO2	%	XRF	0.010
P2O5	%	XRF	0.010
K2O	%	XRF	0.010
CAO	%	XRF	0.010
TIO2	%	XRF	0.010
MNO	%	XRF	0.010
FEO	%	XRF	0.001
CU	PPM	DCP	0.500
ZN	PPM	DCP	0.500
RB	PPM	XRF	10.000
SR	PPM	XRF	10.000
ZR	PPM	XRF	10.000
MO	PPM	DCP	0.500
SN	PPM	EMS	3.000
W	PPM	NA	1.000
PB	PPM	DCP	0.500
BI	PPM	FAA	0.040
U	PPM	DNC	0.100
TH	PPM	NA	1.000
CR2O3	PPM	XRF	10.000

X-RAY ASSAY LABORATORIES LIMITED

DATE 21-OCT-80 CERTIFIED BY ..J.H. OPDEBEECK..

J.H. OPDEBEECK

RAY ASSAY LABORATORIES 04-JAN-80 INVOICE 6381 REF. FILE 2326-E6 PAGE 1

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
-10-RD-52-4	65	95	150	5.3
-10-RD-52-5	35	330	59	7.7
-10-RD-53-2	15	190	22	6.7
-10-RD-53-3	<1	99	25	7.1
-10-RD-54-2	46	270	74	0.6
-10-RD-54-3	42	250	69	0.4
-10-RD-55-26	52	310	120	0.3
-10-RD-55-36	35	270	110	0.3
-10-RD-56-2	23	160	22	2.1
-10-RD-56-3	9	94	22	5.6
-10-RD-57-1	21	220	51	1.0
-10-RD-57-2	12	310	68	0.3
-10-RD-58-3	23	510	83	3.9
-10-RD-58-4	11	330	52	5.3
-10-RD-59-4	7	100	5	3.4
-10-RD-59-5	15	22	23	5.4
-10-RD-60-5	4	30	10	5.7
-10-RD-60-6	2	20	5	5.4
-10-RD-61-5	14	93	15	9.1
-10-RD-61-6	22	80	26	8.1
-10-RD-62-4	22	210	36	1.1
-10-RD-62-5	50	150	43	2.8
-10-RD-63-1	18	50	15	8.1
-10-RD-63-2	19	130	30	7.6
-10-RD-65-3	6	120	13	3.9
-10-RD-66-2	9	35	5	10.0
-10-RD-66-3	15	68	10	7.1
-10-RD-66-4	17	130	23	8.0
-10-RD-67-2	61	100	5	0.5
-10-RD-67-3	48	95	12	0.4
-10-RD-68-1	19	30	5	4.5
-10-RD-68-2	7	11	4	4.8
-10-RD-69-2	3	28	30	4.0
-10-RD-69-3	11	47	25	3.6
-10-RD-70-4	12	90	94	4.2
-10-RD-70-5	31	410	240	2.9
-10-RD-71-2	2	160	23	2.3
-10-RD-72-1	75	72	93	0.9
-10-RD-73-2	87	360	280	0.5
-10-RD-73-3	78	510	290	0.6
-10-RD-74-4	47	460	130	3.7
-10-RD-102-12	17	230	73	4.6
-10-RD-102-13	65	270	150	4.0
-10-RD-104-26	31	130	30	3.4
-10-RD-104-27	52	200	80	4.0
-10-RD-105-1	15	270	75	2.3
-10-RD-106-7	52	220	75	0.9
-10-RD-106-8	36	240	130	1.1
-10-RD-108-16	10	480	67	4.9
-10-RD-109-11	8	120	23	3.4
-10-RD-109-12	9	320	3	2.0
-10-RD-110-7	7	34	22	3.4
-10-RD-110-8	20	34	13	3.6
-10-RD-110-9	13	31	28	3.4
-10-RD-111-4	11	92	33	5.2

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
-10-RD-111-5	20	78	63	5.6
-10-RD-111-6	15	110	36	4.8
-10-RD-112-2	120	1100	590	7.9
-10-RD-112-3	100	640	460	8.0
-10-RD-112-4	90	1720	870	11.0
-10-RD-113-1	45	240	140	1.3
-10-RD-113-2	68	250	190	1.4
-10-RD-114-1	16	140	230	6.2
-10-RD-114-2	8	130	410	7.0
-10-RD-114-3	8	160	290	4.9
-10-RD-115-1	36	170	74	1.4
-10-RD-116-2	200	410	130	0.5
-10-RD-117-2	52	360	130	0.8
-10-RD-118-2	35	470	900	9.9
-10-RD-118-3	150	260	180	16.0
-10-RD-118-4	190	64	140	8.3
-10-RD-119-2	6	190	35	4.1
-10-RD-119-3	4	220	43	3.8
-10-RD-120-2	33	230	46	5.1
-10-RD-120-3	13	190	19	5.6
-10-RD-120-4	7	120	30	6.3
-10-RD-121-1	3	100	25	4.9
-10-RD-121-2	2	100	20	5.1
-10-RD-121-3	<1	84	10	4.6
-80-RD-52-1	43	170	66	3.7
-80-RD-52-2	28	220	95	3.9
-80-RD-52-3	73	180	300	4.4
-80-RD-53-1	19	200	75	3.5
-80-RD-54-1	37	210	110	2.5
-80-RD-55-1	36	230	110	1.1
-80-RD-56-1	27	170	73	1.7
-80-RD-58-1	32	230	82	2.8
-80-RD-58-2	54	380	180	4.0
-80-RD-59-1	27	160	70	3.0
-80-RD-59-2	46	210	72	3.6
-80-RD-59-3	66	290	170	3.7
-80-RD-60-1	32	220	82	3.6
-80-RD-60-2	37	340	100	3.8
-80-RD-60-3	37	280	86	3.8
-80-RD-60-4	25	200	58	4.1
-80-RD-61-1	34	200	79	4.8
-80-RD-61-2	38	230	79	4.7
-80-RD-61-3	38	250	82	4.9
-80-RD-61-4	23	160	53	4.6
-80-RD-62-1	21	100	33	3.7
-80-RD-62-2	37	64	17	4.0
-80-RD-62-3	35	180	44	4.2
-80-RD-64-1	16	150	38	4.1
-80-RD-65-1	20	180	55	3.9
-80-RD-65-2	15	110	25	4.3
-80-RD-66-1	23	160	63	4.4
-80-RD-67-1	30	140	30	1.3
-80-RD-69-1	12	44	52	3.3
-80-RD-70-1	30	150	70	1.8
-80-RD-70-2	42	190	110	1.6
-80-RD-70-3	17	170	130	3.1

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
-80-RD-71-1	9	190	85	4.5
-80-RD-73-1	61	270	370	2.5
-80-RD-74-1	32	320	100	3.6
-80-RD-74-2	20	170	93	3.4
-80-RD-75-1	25	420	150	2.6
-80-RD-76-1	20	260	94	2.4
-80-RD-77-1	16	140	83	3.2
-80-RD-78-1	14	190	81	1.8
-80-RD-79-1	23	170	160	2.9
-80-RD-79-2	22	180	150	2.9
-80-RD-79-3	20	160	140	3.5
-80-RD-80-1	13	110	31	3.1
-80-RD-80-2	12	110	58	2.5
-80-RD-81-1	45	170	140	1.3
-80-RD-81-2	9	100	94	3.9
-80-RD-83-1	30	150	100	2.7
-80-RD-84-1	9	91	65	3.6
-80-RD-85-1	18	160	120	2.6
-80-RD-85-2	18	110	77	2.8
-80-RD-86-1	24	140	94	2.8
-80-RD-87-1	18	80	46	3.8
-80-RD-87-2	22	110	73	4.5
-80-RD-87-3	23	75	41	4.2
-80-RD-88-1	24	110	46	2.3
-80-RD-88-2	20	110	48	2.6
-80-RD-88-3	20	110	48	2.8
-80-RD-88-4	39	130	94	4.4
-80-RD-89-1	21	120	47	2.4
-80-RD-89-2	20	110	55	2.0
-80-RD-89-3	22	94	22	3.2
-80-RD-90-1	41	91	69	2.2
-80-RD-90-2	35	110	95	0.9
-80-RD-91-1	7	63	47	4.5
-80-RD-91-2	19	170	85	3.4
-80-RD-92-1	25	120	130	2.9
-80-RD-92-2	21	1130	230	1.8
-80-RD-93-1	26	140	72	2.8
-80-RD-93-2	26	200	150	2.4
-80-RD-93-4	36	160	76	3.2
-80-RD-94-1	40	140	250	2.1
-80-RD-94-2	26	170	93	3.0
-80-RD-95-1	23	150	37	2.2
-80-RD-95-2	23	160	69	2.8
-80-RD-96-1	17	90	30	2.5
-80-RD-96-2	28	170	75	3.1
-80-RD-96-3	32	260	160	4.0
-80-RD-97-1	21	140	61	2.8
-80-RD-98-1	22	660	160	2.0
-80-RD-99-1	19	170	60	2.0
-80-RD-99-2	25	160	85	2.9
-80-RD-99-3	21	180	56	2.4
-80-RD-100-1	27	190	53	1.6
-80-RD-100-2	20	160	68	2.4
-80-RD-101-1	26	120	42	2.1
-80-RD-101-2	25	190	85	2.7
-80-RD-101-3	24	150	60	2.6

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
-80-RD-102-1	10	47	17	2.0 ✓
-80-RD-102-2	12	44	13	2.4 ✓
-80-RD-102-3	7	32	10	2.2 ✓
-80-RD-102-4	8	37	14	2.4 ✓
-80-RD-102-5	8	40	17	2.2 ✓
-80-RD-102-6	8	44	12	2.1 ✓
-80-RD-102-7	7	110	10	2.2 ✓
-80-RD-102-8	8	38	11	2.2 ✓
-80-RD-102-9	15	41	13	2.6 ✓
-80-RD-102-10	8	51	11	2.2 ✓
-80-RD-102-11	12	49	10	2.6 ✓
-80-RD-103-1	14	76	39	2.5 ✓
-80-RD-103-2	14	49	12	2.0 ✓
-80-RD-103-3	15	35	12	2.0 ✓
-80-RD-103-4	12	31	9	2.0 ✓
-80-RD-103-5	13	39	12	2.2 ✓
-80-RD-103-6	15	32	10	1.9 ✓
-80-RD-103-7	19	35	8	2.0 ✓
-80-RD-103-8	14	44	14	2.0 ✓
-80-RD-103-9	11	43	10	2.3 ✓
-80-RD-103-10	10	37	11	2.3 ✓
-80-RD-103-11	15	59	20	2.2 ✓
-80-RD-103-12	8	50	15	2.5 ✓
-80-RD-103-13	26	57	16	2.7 ✓
-80-RD-104-1	15	140	29	2.4 ✓
-80-RD-104-2	19	140	35	2.4 ✓
-80-RD-104-3	12	94	22	2.8 ✓
-80-RD-104-4	13	92	28	2.5 ✓
-80-RD-104-5	13	100	29	2.4 ✓
-80-RD-104-6	18	120	33	2.0 ✓
-80-RD-104-7	10	73	17	2.3 ✓
-80-RD-104-8	12	97	21	2.2 ✓
-80-RD-104-9	13	98	22	2.1 ✓
-80-RD-104-10	12	80	15	2.3 ✓
-80-RD-104-11	5	43	12	2.4 ✓
-80-RD-104-12	8	49	12	2.4 ✓
-80-RD-104-13	9	51	11	2.4 ✓
-80-RD-104-14	7	51	15	2.3 ✓
-80-RD-104-15	10	48	8	2.5 ✓
-80-RD-104-16	9	61	12	2.5 ✓
-80-RD-104-17	7	69	14	2.5 ✓
-80-RD-104-18	12	66	15	2.6 ✓
-80-RD-104-19	12	78	20	2.1 ✓
-80-RD-104-20	21	82	23	2.1 ✓
-80-RD-104-21	6	58	14	2.3 ✓
-80-RD-104-22	5	49	12	2.8 ✓
-80-RD-104-23	6	62	15	2.5 ✓
-80-RD-104-24	20	290	67	4.2 ✓
-80-RD-104-25	47	460	220	4.0 ✓
-80-RD-106-1	7	48	20	2.3 ✓
-80-RD-106-2	8	41	16	2.2 ✓
-80-RD-106-3	8	44	13	2.7 ✓
-80-RD-106-4	8	39	10	2.2 ✓
-80-RD-106-5	8	46	12	2.2 ✓
-80-RD-106-6	7	41	12	2.4 ✓
-80-RD-107B-1	9	98	24	2.5

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
-80-RD-107B-2	9	82	20	2.2
-80-RD-107B-3	12	90	22	2.4
-80-RD-108-1	11	43	9	2.6 ✓
-80-RD-108-2	6	35	7	2.2 ✓
-80-RD-108-3	8	41	3	2.0 ✓
-80-RD-108-4	9	35	8	2.0 ✓
-80-RD-108-5	11	34	8	2.4 ✓
-80-RD-108-6	9	34	5	2.2 ✓
-80-RD-108-7	8	51	12	2.4 ✓
-80-RD-108-8	17	37	10	2.0 ✓
-80-RD-108-9	6	43	11	2.3 ✓
-80-RD-108-10	7	40	10	2.2 ✓
-80-RD-108-11	12	37	11	1.9 ✓
-80-RD-108-12	12	40	10	2.3 ✓
-80-RD-108-13	13	44	8	2.3 ✓
-80-RD-108-14	19	100	25	2.8 ✓
-80-RD-108-15	20	210	43	5.8 ✓
-80-RD-109-1	16	82	21	2.4 ✓
-80-RD-109-2	15	59	8	2.5 ✓
-80-RD-109-3	13	43	12	2.1 ✓
-80-RD-109-4	15	34	2	1.9 ✓
-80-RD-109-5	12	39	4	1.9 ✓
-80-RD-109-6	12	37	8	2.5 ✓
-80-RD-109-7	13	44	11	2.4 ✓
-80-RD-109-8	11	35	8	2.1 ✓
-80-RD-109-9	10	43	6	2.5 ✓
-80-RD-109-10	22	180	77	3.8 ✓
-80-RD-110-1	15	43	6	2.2 ✓
-80-RD-110-2	15	46	5	2.1 ✓
-80-RD-110-3	17	46	10	1.8 ✓
-80-RD-110-4	13	50	12	2.2 ✓
-80-RD-110-5	13	32	7	2.3 ✓
-80-RD-110-6	7	43	7	2.2 ✓
-80-RD-111-1	8	35	7	2.0 ✓
-80-RD-111-2	7	35	9	2.5 ✓
-80-RD-111-3	32	43	7	2.9 ✓
-80-RD-112-1	250	1550	4400	13.3 ✓
-80-RD-116-1	290	510	180	0.7 ✓
-80-RD-117-1	69	270	120	1.3 ✓
-80-RD-118-1	29	160	90	3.9 ✓
-10+80-RD-67-1	38	140	24	1.0 ✓
-10+80-RD-69-1	8	39	40	3.3 ✓
-10+80-RD-70-1	26	160	53	2.3 ✓
-10+80-RD-70-2	43	260	120	1.8 ✓
-10+80-RD-70-3	18	190	130	3.1 ✓
-10+80-RD-71-1	9	220	75	3.9 ✓
-10+80-RD-73-1	62	300	360	3.0 ✓
-10+80-RD-74-1	33	350	82	4.4 ✓
-10+80-RD-74-2	20	160	54	3.5 ✓
-10+80-RD-75-1	28	470	120	2.2 ✓
-10+80-RD-76-1	18	210	54	2.9 ✓
-10+80-RD-77-1	16	140	66	4.0 ✓
-10+80-RD-78-1	13	270	80	1.5 ✓
-10+80-RD-79-1	23	180	130	3.2 }
-10+80-RD-79-2	22	180	130	3.8 }
-10+80-RD-79-3	59	180	130	3.7 }

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
10+80-RD-80-1	25	120	27	3.6 ✓
10+80-RD-80-2	15	130	47	2.8 ✓
-10+80-RD-81-1	17	230	160	1.7 ✓
-10+80-RD-83-1	30	170	92	2.9 ✓
10+80-RD-84-1	15	110	57	3.7 ✓
10+80-RD-85-1	18	130	85	2.8 ✓
-10+80-RD-85-2	19	110	53	2.9 ✓
10+80-RD-86-1	29	120	52	3.6 ✓
10+80-RD-87-1	18	75	32	4.1 ✓
-10+80-RD-89-3	17	100	18	3.0 ✓

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
RD74-3	95	300	76	3.6
RD74-5	48	110	58	3.6
RD74-6	46	400	190	4.3
RD75-2	38	700	180	0.5
RD76-2	13	140	47	4.7
RD76-3	36	510	82	5.8
RD76-4	33	200	260	5.6
RD77-2	7	93	46	1.0
RD77-3	8	130	44	1.3
RD78-2	12	220	79	2.5
RD78-3	10	230	77	3.1
RD79-4	8	40	13	5.0
RD79-5	13	47	32	4.3
RD79-6	13	59	48	4.0
RD80-3	23	110	68	3.4
RD80-4	80	100	24	1.8
RD80-5	63	110	34	0.7
RD81-3	11	77	110	4.1
RD81-4	14	36	55	4.0
RD81-5	9	28	28	3.6
RD82-1	26	200	27	2.2
RD82-2	24	180	48	1.9
RD83-2	38	210	110	3.4
RD83-3	20	150	98	5.7
RD84-2	45	260	160	0.8
RD84-3	24	130	66	3.3
RD85-3	19	85	19	3.4
RD86-2	5	53	10	6.4
RD88-5	17	100	19	5.1
RD88-6	18	65	20	5.0
RD88-7	14	76	22	5.1
RD89-4	16	89	<2	3.7
RD89-5	7	98	<2	2.8
RD90-3	82	180	100	0.4
RD91-3	16	160	100	1.6
RD92-2	9	180	56	1.5
RD93-3	16	180	210	1.2
RD93-5	8	200	210	1.2
RD94-3	13	62	27	4.3
RD94-4	8	33	20	4.2
RD94-5	7	45	19	5.5
RD95-3	44	240	73	1.0
RD96-4	15	140	260	9.0
RD96-5	8	130	200	8.9
RD97-2	47	160	50	1.7
RD97-3	52	150	48	1.7
RD98-3	37	410	75	0.6
RD99-4	50	300	82	0.7
RD100-3	17	130	54	3.9
RD100-4	16	220	200	5.8
RD101-4	74	400	92	1.2
RD52-1	22	170	47	4.4
RD52-2	21	160	61	4.8
RD52-3	51	120	150	3.9
RD53-1	19	170	53	3.8

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
RD54-1	34	190	63	2.3
RD55-1	32	200	75	1.3
RD56-1	23	200	62	3.1
RD58-1	29	160	55	2.0
RD58-2	21	300	80	3.9
RD59-1	21	150	56	3.8
RD59-2	26	170	50	4.1
RD59-3	26	180	60	4.5
RD60-1	25	180	54	4.2
RD60-2	30	260	66	4.0
RD60-3	26	200	60	3.8
RD60-4	20	160	50	5.1
RD61-1	32	180	64	4.7
RD61-2	26	190	58	5.0
RD61-3	25	190	59	5.1
RD61-4	22	150	42	4.8
RD62-1	20	100	22	3.9
RD62-2	15	53	14	3.5
RD62-3	23	150	30	3.4
RD65-1	22	150	35	3.6
RD65-2	18	74	15	5.2
RD66-1	22	150	47	5.1
RD87-2	26	70	30	4.2
RD87-3	20	72	34	6.3
RD88-1	29	110	43	2.5
RD88-2	30	110	29	3.1
RD88-3	25	100	31	3.9
RD88-4	29	100	54	5.2
RD89-1	20	110	34	2.0
RD89-2	22	110	34	2.5
RD90-1	42	100	62	1.9
RD90-2	42	120	85	0.9
RD91-1	10	65	36	4.3
RD91-2	19	140	55	3.5
RD92-1	24	130	120	2.7
RD92-2	22	1230	220	1.5
RD93-1	30	150	52	3.0
RD93-2	22	200	110	2.5
RD93-4	33	160	58	3.9
RD94-1	37	150	240	2.5
RD94-2	25	180	63	3.1
RD95-1	20	150	39	3.0
RD95-2	20	160	55	3.6
RD96-1	20	120	30	3.2
RD96-2	24	180	69	3.4
RD96-3	30	240	110	4.4
RD97-1	30	160	82	4.3
RD98-1	22	720	140	2.1
RD99-1	22	240	47	2.1
RD99-2	21	130	60	3.3
RD99-3	19	160	47	2.9
RD100-1	33	220	44	2.3
RD100-2	28	190	51	2.8
RD101-1	25	140	38	2.7
RD101-2	23	150	55	3.3
RD101-3	26	130	42	2.7

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
RD102-1	15	63	14	1.4 ✓
RD102-2	16	78	17	2.2 ✓
RD102-3	15	57	10	1.7 ✓
RD102-4	14	68	12	1.8 ✓
RD102-5	15	75	12	1.8 ✓
RD102-6	18	80	12	2.4 ✓
RD102-7	16	100	13	2.0 ✓
RD102-8	25	64	12	2.0 ✓
RD102-9	16	76	15	1.9 ✓
RD102-10	25	84	20	1.9 ✓
RD102-11	18	90	18	2.0 ✓
RD103-1	22	120	34	2.9 ✓
RD103-2	20	98	22	1.7 ✓
RD103-3	19	43	15	1.8 ✓
RD103-4	18	42	12	1.9 ✓
RD103-5	20	60	15	1.7 ✓
RD103-6	17	52	16	1.6 ✓
RD103-7	15	47	16	1.7 ✓
RD103-8	17	92	19	2.5 ✓
RD103-9	19	84	18	2.3 ✓
RD103-10	17	74	20	1.9 ✓
RD103-11	22	87	29	2.6 ✓
RD103-12	66	92	32	2.1 ✓
RD103-13	18	79	20	2.2 ✓
RD104-1	22	160	23	2.9 ✓
RD104-2	22	160	34	2.7 ✓
RD104-3	22	150	30	2.4 ✓
RD104-4	23	150	35	2.4 ✓
RD104-5	18	120	27	2.3 ✓
RD104-6	27	150	39	2.3 ✓
RD104-7	19	110	21	2.0 ✓
RD104-8	21	140	22	3.1 ✓
RD104-9	27	140	20	2.7 ✓
RD104-10	17	110	20	2.9 ✓
RD104-11	15	65	12	2.2 ✓
RD104-12	15	83	22	2.2 ✓
RD104-13	14	79	12	2.3 ✓
RD104-14	16	73	17	2.3 ✓
RD104-15	18	69	10	1.9 ✓
RD104-16	20	95	13	2.4 ✓
RD104-17	18	100	12	2.4 ✓
RD104-18	17	100	18	2.7 ✓
RD104-19	17	110	21	2.8 ✓
RD104-20	22	110	22	2.5 ✓
RD104-21	15	82	12	2.2 ✓
RD104-22	13	73	9	2.3 ✓
RD104-23	14	96	18	2.5 ✓
RD104-24	19	250	46	3.9 ✓
RD104-25	29	200	120	4.5 ✓
RD106-1	15	50	16	1.5 ✓
RD106-2	13	54	12	1.2 ✓
RD106-3	17	58	7	2.1 ✓
RD106-4	16	39	7	1.6 ✓
RD106-5	15	46	13	1.4 ✓
RD106-6	15	43	14	1.5 ✓
RD107-1	22	140	30	3.0 ✓

~ 10 x 80 mesh

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
RD107-2	22	140	30	2.3 ✓
RD107-3	23	140	32	2.5 ✓
RD108-1	36	63	19	1.8 ✓
RD108-2	14	32	5	1.3 ✓
RD108-3	15	32	8	2.0 ✓
RD108-4	17	39	12	1.8 ✓
RD108-5	13	40	12	1.6 ✓
RD108-6	14	43	12	1.3 ✓
RD108-7	19	90	11	2.9 ✓
RD108-8	11	36	10	1.4 ✓
RD108-9	17	41	11	1.7 ✓
RD108-10	13	59	13	2.0 ✓
RD108-11	13	47	12	1.7 ✓
RD108-12	12	45	11	2.4 ✓
RD108-13	17	56	15	2.3 ✓
RD108-14	24	160	38	4.1 ✓
RD108-15	12	230	49	6.7 ✓
RD109-1	19	120	28	2.6 ✓
RD109-2	16	73	14	1.5 ✓
RD109-3	20	74	13	1.8 ✓
RD109-4	17	36	20	1.3 ✓
RD109-5	18	68	18	2.1 ✓
RD109-6	15	48	16	1.6 ✓
RD109-7	18	65	13	1.9 ✓
RD109-8	12	35	11	1.9 ✓
RD109-10	25	250	80	3.2 ✓
RD110-2	18	61	17	1.8 ✓
RD110-3	18	58	14	5.0 ✓
RD110-5	19	48	6	1.7 ✓

SAMPLE	F PPM	MO PPM	SN PPM	W PPM	TH PPM
-10-RD-52-4	320	24	3	40	24
-10-RD-52-5	420	4	<3	25	20
-10-RD-53-2	420	<2	3	18	26
-10-RD-53-3	160	<2	<3	6	26
-10-RD-54-2	940	4	<3	4	5
-10-RD-54-3	830	2	<3	1	6
-10-RD-55-26	1400	<2	<3	4	5
-10-RD-55-36	960	<2	<3	<1	<5
-10-RD-56-2	2600	4	<3	3	12
-10-RD-56-3	330	<2	<3	7	23
-10-RD-57-1	1300	4	<3	2	10
-10-RD-57-2	1100	8	<3	<1	<5
-10-RD-58-3	1150	4	<3	18	12
-10-RD-59-4	610	8	3	13	21
-10-RD-59-4	1300	4	<3	14	19
-10-RD-59-5	260	4	<3	13	37
-10-RD-60-5	130	8	<3	5	28
-10-RD-60-6	120	4	<3	4	33
-10-RD-61-5	880	4	<3	20	22
-10-RD-61-6	950	8	<3	62	22
-10-RD-62-4	1250	<2	<3	<1	5
-10-RD-62-5	1200	12	<3	6	17
-10-RD-63-1	500	4	<3	11	27
-10-RD-63-2	640	8	<3	8	29
-10-RD-65-3	670	4	<3	4	18
-10-RD-66-2	240	8	<3	220	31
-10-RD-66-3	150	4	<3	4	31
-10-RD-66-4	230	8	<3	12	26
-10-RD-67-2	900	<2	<3	4	<5
-10-RD-67-3	760	<2	<3	4	<5
-10-RD-68-1	120	4	<3	5	26
-10-RD-68-2	130	<2	<3	4	28
-10-RD-69-2	2100	4	<3	5	24
-10-RD-69-3	2500	4	<3	1	24
-10-RD-70-4	230	4	<3	37	18
-10-RD-70-5	1200	4	<3	11	5
-10-RD-71-2	620	<2	<3	3	15
-10-RD-72-1	260	<2	<3	4	<5
-10-RD-73-2	1100	8	<3	3	5
-10-RD-73-3	1300	8	<3	<1	<5
-10-RD-74-4	420	<2	3	3	23
-10-RD74-3	340	<2	<3	15	25
-10-RD74-5	290	<2	5	14	23
-10-RD74-6	430	<2	3	26	24
-10-RD75-2	950	<2	<3	2	<5
-10-RD76-2	520	<2	<3	5	24
-10-RD76-3	1300	<2	<3	2	10
-10-RD76-4	1000	<2	<3	7	19
-10-RD77-2	160	<2	<3	140	25
-10-RD77-3	130	<2	<3	240	30
-10-RD78-2	1000	<2	<3	5	16
-10-RD78-3	900	<2	<3	<1	14
-10-RD79-4	160	<2	<3	12	23
-10-RD79-5	170	<2	<3	8	20
-10-RD79-6	220	8	<3	8	23

SAMPLE	F PPM	MO PPM	SN PPM	W PPM	TH PPM
-10-RD80-3	240	<2	<3	1	14
-10-RD80-4	400	<2	<3	410	7
-10-RD80-5	1300	4	<3	87	5
-10-RD81-3	190	4	<3	12	21
-10-RD81-4	170	8	<3	19	26
-10-RD81-5	130	4	<3	20	24
-10-RD82-1	1200	<2	<3	12	5
-10-RD82-2	1000	<2	<3	6	7
-10-RD83-2	570	4	<3	34	12
-10-RD83-3	400	<2	<3	4	24
-10-RD84-2	520	<2	<3	110	6
-10-RD84-3	500	<2	3	12	14
-10-RD85-3	440	8	<3	12	19
-10-RD86-2	140	8	<3	110	19
-10-RD88-5	170	4	<3	7	21
-10-RD88-6	180	<2	<3	14	24
-10-RD88 7	170	3	<3	9	21
-10-RD89-4	720	<2	<3	98	21
-10-RD89-5	1200	4	<3	10	14
-10-RD90-3	520	4	<3	3	<5
-10-RD91-3	1100	4	<3	11	21
-10-RD92-2	4100	4	<3	4	9
-10-RD93-3	840	4	<3	5	6
-10-RD93-5	1250	<2	<3	9	5
-10-RD94-3	350	<2	<3	9	23
-10-RD94-4	190	<2	<3	8	24
-10-RD94-5	180	<2	<3	2	24
-10-RD95-3	980	4	<3	5	6
-10-RD96-4	1600	20	3	5	32
-10-RD96-5	880	<2	3	6	34
-10-RD97-2	640	<2	<3	<1	9
-10-RD97-3	700	<2	<3	2	7
-10-RD98-3	690	<2	<3	2	5
-10-RD99-4	500	<2	<3	<1	<5
-10-RD100-3	220	8	3	49	20
-10-RD100-4	150	36	<3	83	24
-10-RD101-4	880	<2	<3	NSS	NSS
-10-RD-102-12	150	40	<3	4	19
-10-RD-102-13	150	76	<3	3	19
-10-RD-104-26	120	4	<3	<1	18
-10-RD-104-27	150	4	<3	1	22
-10-RD-105-1	920	4	<3	1	11
-10-RD-106-7	850	8	<3	4	6
-10-RD-106-8	900	8	<3	4	5
-10-RD-108-16	560	4	10	3	33
-10-RD-109-11	200	4	<3	<1	20
-10-RD-109-12	940	4	3	1	10
-10-RD-110-7	190	<2	<3	1	21
-10-RD-110-8	240	<2	<3	3	18
-10-RD-110-9	240	<2	<3	2	20
-10-RD-111-4	400	<2	<3	<1	11
-10-RD-111-5	370	<2	<3	9	16
-10-RD-111-6	460	8	<3	4	13
-10-RD-112-2	630	60	5	6	23
-10-RD-112-3	460	56	5	7	23
-10-RD-112-4	390	36	15	6	34

SAMPLE	F PPM	MO PPM	SN PPM	W PPM	TH PPM
-10-RD-113-1	490	<2	<3	1	7
-10-RD-113-2	550	<2	<3	3	3
-10-RD-114-1	1100	4	5	3	25
-10-RD-114-2	6500	<2	3	7	25
-10-RD-114-3	2600	<2	5	8	25
-10-RD-115-1	620	<2	<3	1	6
-10-RD-116-2	520	<2	<3	2	<5
-10-RD-117-2	620	4	<3	180	<5
-10-RD-118-2	330	200	3	4	24
-10-RD-118-3	350	8	3	6	27
-10-RD-118-4	150	12	<3	2	18
-10-RD-119-2	760	<2	<3	5	21
-10-RD-119-3	1100	<2	<3	11	22
-10-RD-120-2	240	4	<3	13	23
-10-RD-120-3	1600	<2	<3	5	26
-10-RD-120-4	1000	4	<3	5	31
-10-RD-121-1	1200	<2	<3	7	26
-10-RD-121-2	760	<2	<3	5	27
-10-RD-121-3	460	<2	<3	7	31
-10BR-RD122-1	860	<2	<3	11	32
-10BR-RD122-2	640	4	<3	13	36
-10BR-RD123-2	570	<2	<3	<1	26
-10BR-RD123-3	480	<2	<3	8	29
-10BR-RD123-4	900	<2	3	8	13
-10BR-RD124-2	560	16	<3	5	27
-10BR-RD125-2	370	<2	<3	4	38
-10BR-RD126-4	360	<2	<3	10	20
-10BR-RD127-1	260	4	<3	<1	25
-10BR-RD127-2	230	8	<3	320	26
-10BR-RD128-1	160	<2	<3	24	28
-10BR-RD129-1	150	4	<3	4	21
-10BR-RD130-1	110	<2	<3	3	25
-10BR-RD131-1	110	<2	<3	6	30
-10BR-RD131-2	440	<2	<3	<1	21
-10BR-RD132-1	190	<2	<3	4	24
-10BR-RD132-2	140	<2	<3	18	23
-10BR-RD133-1	170	<2	<3	6	18
-10BR-RD133-2	100	<2	<3	7	19
-10BR-RD134-1	190	<2	<3	2	26
-10BR-RD134-2	210	<2	<3	2	27
-10BR-RD135-1	1700	<2	<3	3	6
-10BR-RD136-2	230	4	<3	<1	22
-10BR-RD136-3	160	<2	<3	4	18
-10BR-RD136-4	150	<2	<3	8	21
-10BR-RD137-2	480	<2	<3	4	<5
-10BR-RD137-3	400	40	<3	<1	26
-10BR-RD137-4	1600	60	<3	8	8
-10BR-RD138-1	100	76	<3	5	23
-10BR-RD138-2	120	20	<3	7	27
-10BR-RD139-1	430	<2	<3	1	<5
-10BR-RD140-3	270	4	<3	200	18
-10BR-RD140-4	250	44	<3	340	18
-10BR-RD141-2	1300	4	<3	5	<5
-10BR-RD142-2	760	<2	<3	2	<5
-10BR-RD143-2	260	<2	<3	3	20
-10BR-RD143-3	210	<2	<3	8	19

SAMPLE	F PPM	MO PPM	SN PPM	W PPM	TH PPM
-10BR-RD143-4	110	<2	<3	13	20
-10BR-RD144-1	210	<2	<3	6	17
-10BR-RD144-2	120	<2	<3	5	22
-10BR-RD144-3	110	<2	<3	2	25
-10BR-RD145-1	750	8	<3	280	5
-10BR-RD146-2	740	<2	<3	<1	5
BR-10-RD147-1	800	<2	<3	2	9
BR-10-RD148-2	1000	<2	<3	6	<5
BR-10-RD149-2	760	<2	<3	3	9
BR-10-RD150-3	1000	8	<3	<1	5
BR-10-RD151-3	190	8	<3	13	23
BR-10-RD151-4	150	<2	<3	12	21
BR-10-RD151-5	160	4	<3	9	17
BR-10-RD152-8	120	4	<3	10	19
BR-10-RD152-9	130	8	<3	14	16
BR-10-RD152-10	140	4	<3	11	20
BR-10-RD153-12	160	<2	<3	4	13
BR-10-RD153-13	120	<2	<3	7	18
BR-10-RD154-9	120	<2	<3	8	14
BR-10-RD154-10	110	<2	<3	7	24
BR-10-RD155-10	560	<2	<3	3	26
BR-10-RD155-11	100	<2	<3	3	21
BR-10-RD156-9	140	<2	<3	1	20
BR-10-RD156-10	100	16	<3	21	20
BR-10-RD157-8	160	20	<3	17	21
BR-10-RD157-9	160	4	<3	59	24
BR-10-RD157-10	550	12	<3	32	21
BR-10-RD158-12	130	<2	<3	13	33
BR-10-RD158-13	110	<2	<3	35	26
BR-10-RD159-7	230	12	<3	<1	30
BR-10-RD159-8	120	<2	<3	2	27
BR-10-RD160-2	1700	<2	<3	6	5
BR-10-RD160-3	150	<2	<3	55	26
BR-10-RD160-4	100	2	<3	12	24
BR-10-RD161-2	2400	4	<3	15	14
BR-10-RD162-1	100	4	<3	5	31
BR-10-RD162-2	120	4	<3	39	22
BR-10-RD162-3	210	8	<3	210	12
BR-10-RD163-5	1300	<2	<3	<1	<5
BR-10-RD164-1	800	<2	<3	3	5
BR-10-RD165-3	130	4	<3	5	24
BR-10-RD165-4	110	4	<3	8	32
BR-10-RD166-3	160	<2	<3	7	25
BR-10-RD166-4	170	<2	<3	7	27
BR-10-RD167-2	100	4	<3	3	24
BR-10-RD167-3	100	<2	<3	7	20
BR-10-RD168-3	210	<2	8	<1	26
BR-10-RD168-4	200	<2	3	5	32
BR-10-RD168-5	1200	<2	<3	5	5
-10-RD169-2	770	<2	<3	3	<5
-10-RD170-2	800	4	<3	7	<5
-10-RD171-3	400	8	<3	180	<5
-10-RD172-2	460	<2	<3	2	<5
-10-RD173-1	520	<2	<3	1	<5
-10-RD174-1	200	4	<3	2	18
-10-RD174-2	760	<2	<3	2	12

X-RAY ASSAY LABORATORIES 05-MAR-80 INVOICE #734 REF. FILE #72

SAMPLE	F PPM	MO PPM	SN PPM	W PPM	TH PPM
-10-RD175-1	420	<2	<3	2	5
-10-RD176-2	520	<2	<3	2	10
-10-RD176-3	760	<2	<3	5	21
-10-RD177-2	700	<2	<3	4	19
-10-RD178-1	940	<2	<3	2	6
-10-RD179-2	1000	4	<3	2	2
-10-RD180-6	780	<2	<3	5	12
-10-RD181-3	2600	12	3	76	5
-10-RD182-7	1600	4	3	4	20
-10-RD183-3	550	<2	<3	<1	<5
-10-RD184-3	250	<2	<3	8	16
-10-RD184-4	540	12	<3	4	24
-10-RD185-3	1400	8	<3	12	5
-10-RD186-3	1100	4	<3	11	23
-10-RD187-2	800	4	<3	8	28
-10-RD187-3	1600	<2	<3	<1	21
-10-RD188-4	1200	<2	3	6	24
-10-RD189-4	2500	<2	<3	11	31
-10-RD190-7	170	<2	<3	11	23
-10-RD190-8	140	<2	<3	2	17
-10-RD191-8	310	<2	<3	2	27
-10-RD192-11	1200	<2	<3	<1	<5
-10-RD193-2	720	<2	<3	<1	<5
-10-RD194-2	1600	12	3	2	35
-10-RD196-4	1400	<2	<3	<1	<5
-10-RD196-5	1300	8	<3	6	<5
-10-RD197-6	370	16	25	5	29
-10-RD197-7	940	20	15	4	22
-10-RD198-3	840	<2	<3	1	14
-10-RD199-3	270	4	20	<1	33
-10-RD200-6	590	<2	5	4	25
-10-RD201-5	1200	<2	<3	<1	5
-10-RD202-4	210	<2	10	1	27
-10-RD202-5	1000	4	<3	7	8
-10-RD203-9	260	<2	8	2	22
-10-RD203-10	180	8	3	1	23
-10-RD204-2	900	4	<3	1	<5
-10-RD205-1	380	4	<3	<1	10

NSS - NOT SUFFICIENT SAMPLE

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
-10BR-RD122-1	12	47	22	6.3
-10BR-RD122-2	12	35	15	5.2
-10BR-RD123-2	16	69	20	5.2
-10BR-RD123-3	15	80	29	4.9
-10BR-RD123-4	36	250	150	3.5
-10BR-RD124-2	14	78	23	5.1
-10BR-RD125-2	16	41	18	6.3
-10BR-RD126-4	13	46	19	5.4
-10BR-RD127-1	17	44	38	4.4
-10BR-RD127-2	15	40	40	5.9
-10BR-RD128-1	16	30	20	4.3
-10BR-RD129-1	24	37	31	3.8
-10BR-RD130-1	15	53	30	6.6
-10BR-RD131-1	17	47	38	7.8
-10BR-RD131-2	12	54	27	6.0
-10BR-RD132-1	20	29	13	5.5
-10BR-RD132-2	13	41	22	3.4
-10BR-RD133-1	37	36	31	5.8
-10BR-RD133-2	18	48	17	5.3
-10BR-RD134-1	13	44	22	5.9
-10BR-RD134-2	34	53	29	7.1
-10BR-RD135-1	40	350	110	1.2
-10BR-RD136-2	22	150	27	5.5
-10BR-RD136-3	20	140	42	4.3
-10BR-RD136-4	22	160	59	3.9
-10BR-RD137-2	84	190	100	1.0
-10BR-RD137-3	18	85	170	8.9
-10BR-RD137-4	21	240	190	5.8
-10BR-RD138-1	23	63	48	8.0
-10BR-RD139-2	20	63	54	8.9
-10BR-RD139-1	58	220	90	0.9
-10BR-RD140-3	8	42	37	5.4
-10BR-RD140-4	45	46	19	5.1
-10BR-RD141-2	63	260	86	0.9
-10BR-RD142-2	32	130	55	0.8
-10BR-RD143-2	22	89	31	31.1
-10BR-RD143-3	20	67	40	24.2
-10BR-RD143-4	26	100	74	21.4
-10BR-RD144-1	10	30	35	6.0
-10BR-RD144-2	8	17	14	5.5
-10BR-RD144-3	13	36	34	5.5
-10BR-RD145-1	48	270	110	0.7
-10BR-RD146-2	64	210	95	0.9
10+80 OB-RD109-9	14	54	17	2.2
10+80 OB-RD110-1	19	51	12	2.2
10+80 OB-RD110-4	18	76	21	2.9
10+80 OB-RD110-6	41	55	12	2.5
10+80 OB-RD111-1	19	57	12	1.9
10+80 OB-RD111-2	14	40	10	1.9
10+80 OB-RD111-3	34	57	13	3.1
10+80 OB-RD112-1	150	940	1190	12.3
10+80 OB-RD116-1	260	410	140	1.1
10+80 OB-RD117-1	42	250	100	2.0
10+80 OB-RD118-1	26	130	66	4.6
10+80 OB-RD119-1	30	130	50	2.6

PLE	CU PPM	ZN PPM	PB PPM	U PPM
10+80 OB-RD120-1	19	150	66	3.7
10+80 OB-RD123-1	16	80	35	4.1
80 OB-RD124-1	12	88	30	3.6
10+80 OB-RD125-1	14	90	30	4.2
10+80 OB-RD126-1	21	130	40	3.0
80 OB-RD126-2	13	160	44	1.7
10+80 OB-RD126-3	18	130	42	2.9
10+80 OB-RD136-1	20	270	92	8.9
80 OB-RD137-1	25	120	30	3.5
80 OB-RD140-1	29	100	53	4.3
10+80 OB-RD140-2	15	68	83	5.4
80 OB-RD141-1	48	170	64	2.1
80 OB-RD142-1	25	200	89	1.3
10+80 OB-RD143-1	22	140	52	28.9
10+80 OB-RD146-1	32	240	59	2.1

ASSAY LABORATORIES 29-JAN-80 INVOICE 6525 REF. FILE 2500-81 PAGE

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
0[illegible]0-RD119-1	42	170	66	2.5
OB-80-RD120-1	33	180	92	4.4
OB-80-RD123-1	24	94	44	6.7
0[illegible]80-RD124-1	22	100	43	4.7
0[illegible]80-RD125-1	26	130	50	5.1
OB-80-RD126-1	28	160	52	3.4
0[illegible]80-RD126-2	19	160	59	2.2
0[illegible]80-RD126-3	29	170	46	3.3
OB-80-RD136-1	33	330	140	10.0
OB-80-RD137-1	28	110	39	3.2
0[illegible]80-RD140-1	28	110	65	4.2
0[illegible]80-RD140-2	17	79	110	6.7
OB-80-RD141-1	49	160	67	1.6
[illegible]-80-RD142-1	36	230	96	0.9
[illegible]-80-RD143-1	17	160	57	22.3
OB-80-RD146-1	34	220	58	2.0
[illegible]-80-RD148-1	49	160	75	1.0
[illegible]-80-RD149-1	49	150	100	3.0
OB-80-RD150-1	25	120	51	2.6
OB-80-RD150-2	23	140	32	3.4
[illegible]-80-RD151-1	17	90	20	4.6
OB-80-RD151-2	21	87	22	3.7
OB-80-RD152-1	10	28	12	2.5
[illegible]B-80-RD152-2	11	31	13	2.1
[illegible]B-80-RD152-3	12	30	15	2.5
OB-80-RD152-4	15	30	19	2.6
[illegible]B-80-RD152-5	9	24	10	2.3
[illegible]B-80-RD152-6	13	41	18	2.4
OB-80-RD152-7	26	160	48	3.8
OB-80-RD153-1	13	28	17	2.2
[illegible]B-80-RD153-2	12	29	13	2.3
OB-80-RD153-3	12	30	15	2.3
OB-80-RD153-4	13	28	15	2.4
OB-80-RD153-5	12	27	17	2.5
OB-80-RD153-6	14	31	20	2.4
OB-80-RD153-7	14	35	6	2.7
OB-80-RD153-8	14	33	13	2.2
OB-80-RD153-9	10	29	9	2.3
OB-80-RD153-10	12	35	10	2.6
OB-80-RD153-11	10	39	10	2.6
OB-80-RD154-1	10	28	7	2.4
OB-80-RD154-2	12	27	8	2.2
OB-80-RD154-3	12	31	8	2.6
OB-80-RD154-4	13	31	13	2.5
OB-80-RD154-5	13	33	15	2.4
OB-80-RD154-6	9	28	6	2.3
OB-80-RD154-7	10	31	6	2.5
OB-80-RD154-8	39	94	30	3.6
OB-80-RD155-2	8	32	18	2.4
OB-80-RD155-3	7	26	12	2.3
OB-80-RD155-4	12	34	11	2.1
OB-80-RD155-5	16	50	24	2.1
OB-80-RD155-6	19	63	22	2.4
OB-80-RD155-7	16	52	22	2.6
OB-80-RD155-8	22	69	16	3.0

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
-80-RD155-9	36	210	58	5.8
BR-10-RD147-1	55	200	66	0.9
BR-10-RD148-2	58	150	53	0.8
R-10-RD149-2	38	120	45	2.8
R-10-RD150-3	51	140	28	0.9
BR-10-RD151-3	29	110	35	6.2
R-10-RD151-4	38	80	25	6.9
R-10-RD151-5	25	100	26	6.1
BR-10-RD152-8	16	110	65	3.9
R-10-RD152-9	15	110	60	3.3
R-10-RD152-10	22	110	44	4.5
BR-10-RD153-12	11	120	55	4.4
BR-10-RD153-13	11	110	35	4.9
R-10-RD154-9	16	95	75	5.5
BR-10-RD154-10	25	150	34	5.1
BR-10-RD155-10	6	90	26	5.9
R-10-RD155-11	7	130	48	4.6
BR-10-RD156-9	14	120	92	5.1
BR-10-RD156-10	20	160	230	4.6
BR-10-RD157-8	9	220	29	3.9
BR-10-RD157-9	9	180	21	4.1
BR-10-RD157-10	8	320	22	3.5
BR-10-RD158-12	25	81	23	8.4
BR-10-RD158-13	18	58	12	8.5
BR-10-RD159-7	12	180	12	6.3
BR-10-RD159-8	9	120	22	6.9
BR-10-RD160-2	41	170	7	1.1
BR-10-RD160-3	10	72	6	4.0
BR-10-RD160-4	7	54	22	3.8
BR-10-RD161-2	22	200	15	2.4
BR-10-RD162-1	24	86	50	6.5
BR-10-RD162-2	17	72	34	5.0
BR-10-RD162-3	30	130	7	2.0
BR-10-RD163-5	49	180	75	0.7
BR-10-RD164-1	58	340	24	0.7
BR-10-RD165-3	13	46	18	5.4
BR-10-RD165-4	16	78	32	5.7
BR-10-RD166-3	7	49	10	5.3
BR-10-RD166-4	6	43	11	5.4
BR-10-RD167-2	12	85	12	3.6
BR-10-RD167-3	10	110	12	3.5
BR-10-RD168-3	52	200	83	7.2
BR-10-RD168-4	53	170	72	7.4
BR-10-RD168-5	100	480	90	1.8
OB-10+80-RD148-1	53	160	78	1.2
OB-10+80-RD149-1	43	120	63	3.1
OB-10+80-RD150-1	24	110	40	3.1
OB-10+80-RD150-2	23	130	22	3.0
OB-10+80-RD151-1	15	63	18	5.0
OB-10+80-RD151-2	19	91	5	4.2
OB-10+80-RD152-1	13	32	10	1.9
OB-10+80-RD152-2	20	42	10	2.0
OB-10+80-RD152-3	14	35	20	2.2
OB-10+80-RD152-4	14	31	8	1.9
OB-10+80-RD152-5	12	28	3	1.5
OB-10+80-RD152-6	18	55	12	2.1

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
OB-10+80-RD152-7	18	200	46	5.4
OB-10+80-RD153-1	20	32	10	1.5
OB-10+80-RD153-2	15	35	5	1.8
OB-10+80-RD153-3	12	36	8	1.7
OB-10+80-RD153-4	16	44	10	1.7
OB-10+80-RD153-5	12	32	10	1.8
OB-10+80-RD153-6	24	40	8	1.7
OB-10+80-RD153-7	17	45	11	1.9
OB-10+80-RD153-8	12	42	13	1.8
OB-10+80-RD153-9	14	36	10	1.7
OB-10+80-RD153-10	10	46	12	3.0
OB-10+80-RD153-11	10	39	10	2.4
OB-10+80-RD154-1	14	41	10	1.7
OB-10+80-RD154-2	14	33	10	1.7
OB-10+80-RD154-3	12	35	8	1.8
OB-10+80-RD154-4	14	41	10	1.7
OB-10+80-RD154-5	19	43	9	1.9
OB-10+80-RD154-6	14	34	8	1.5
OB-10+80-RD154-7	15	33	8	1.6
OB-10+80-RD154-8	32	90	30	2.2
OB-10+80-RD155-2	12	35	3	1.6
OB-10+80-RD155-3	9	29	3	1.7
OB-10+80-RD155-4	12	43	13	2.0
OB-10+80-RD155-5	28	67	27	1.7
OB-10+80-RD155-6	28	80	30	2.5
OB-10+80-RD155-7	15	53	11	2.2
OB-10+80-RD155-8	21	62	15	2.8
OB-10+80-RD155-9	26	140	42	4.7
OB-10+80-RD156-1	14	62	18	2.7
OB-10+80-RD156-2	12	33	15	2.2
OB-10+80-RD156-3	18	36	6	1.7
OB-10+80-RD156-4	18	35	11	1.6
OB-10+80-RD156-5	12	43	9	2.0
OB-10+80-RD156-6	17	70	24	2.7
OB-10+80-RD156-7	15	96	55	3.6
OB-10+80-RD156-8	19	180	66	5.7
OB-10+80-RD157-1	7	30	5	1.5
OB-10+80-RD157-2	8	35	9	1.6
OB-10+80-RD157-3	17	52	15	2.0
OB-10+80-RD157-4	18	59	13	2.4
OB-10+80-RD157-5	14	69	18	2.7
OB-10+80-RD157-6	18	200	82	8.0
OB-10+80-RD157-7	9	168	38	4.3
OB-10+80-RD158-1	22	120	29	3.3
OB-10+80-RD158-2	16	63	13	2.4
OB-10+80-RD158-3	18	39	12	2.0
OB-10+80-RD158-4	14	46	11	1.8
OB-10+80-RD158-5	13	41	12	2.0
OB-10+80-RD158-6	16	49	10	2.0
OB-10+80-RD158-7	12	54	18	2.1
OB-10+80-RD158-8	15	65	18	2.4
OB-10+80-RD158-9	35	63	15	2.7
OB-10+80-RD158-10	14	76	30	5.7
OB-10+80-RD158-11	22	220	56	8.8
OB-10+80-RD159-1	19	130	35	3.6
OB-10+80-RD159-2	13	49	9	2.8

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
OB-10+80-RD159-3	19	47	10	2.5
OB-10+80-RD159-4	15	62	25	3.7
OB-10+80-RD159-5	28	190	100	4.9
OB-10+80-RD159-6	25	220	42	4.7
OB-10+80-RD160-1	38	190	15	2.9
OB-10+80-RD161-1	28	130	40	3.4
OB-10+80-RD163-1	18	170	48	3.1
OB-10+80-RD163-2	27	120	30	3.3
OB-10+80-RD163-3	17	110	25	3.3
OB-10+80-RD163-4	30	150	29	3.6

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
-80-RD155-1	20	42	180	2.1
-80-RD156-1	23	38	22	2.3
-80-RD156-2	18	27	8	2.1
-80-RD156-3	18	28	12	2.1
-80-RD156-4	30	28	18	2.1
-80-RD156-5	18	40	10	2.1
-80-RD156-6	23	55	27	2.5
-80-RD156-7	30	71	42	3.0
-80-RD156-8	35	220	94	6.5
-80-RD157-1	20	29	10	2.1
-80-RD157-2	34	30	8	2.4
-80-RD157-3	18	34	11	2.3
-80-RD157-4	20	49	16	2.6
-80-RD157-5	22	49	22	2.4
-80-RD157-6	33	230	110	6.2
-80-RD157-7	28	320	65	4.1
-80-RD158-1	22	83	24	1.9
-80-RD158-2	20	51	15	2.5
-80-RD158-3	17	31	10	2.4
-80-RD158-4	18	29	10	2.3
-80-RD158-5	19	32	10	1.9
-80-RD158-6	18	40	15	2.2
-80-RD158-7	17	48	20	2.5
-80-RD158-8	15	41	12	2.3
-80-RD158-9	22	54	15	2.4
-80-RD158-10	21	70	25	4.0
-80-RD158-11	33	210	70	6.6
-80-RD159-1	27	150	45	2.8
-80-RD159-2	18	45	9	2.8
-80-RD159-3	22	47	12	2.2
-80-RD159-4	22	58	17	3.1
-80-RD159-5	42	380	100	4.8
-80-RD159-6	53	390	70	4.4
-80-RD160-1	36	250	19	2.6
-80-RD161-1	37	290	68	4.0
-80-RD163-2	32	150	37	2.5
-80-RD163-3	21	92	22	3.2
-80-RD163-4	42	180	31	3.6
-80-RD165-1	36	220	46	3.1
-80-RD165-2	24	120	43	3.2
-80-RD166-1	20	69	19	2.9
-80-RD166-2	23	87	26	2.9
-80-RD167-1	54	230	60	2.5
-80-RD168-1	54	380	73	2.6
-80-RD168-2	90	520	170	2.9
-80-RD169-1	55	290	130	2.6
-80-RD170-1	56	350	65	1.8
-80-RD171-1	44	250	94	2.7
-80-RD171-2	95	340	120	1.7
-80-RD172-1	56	230	68	2.1
-80-RD176-1	57	200	96	3.1
-80-RD177-1	29	190	35	2.6
-80-RD179-1	31	210	66	2.8
-80-RD180-1	32	420	64	6.4
-80-RD180-2	37	330	50	3.9

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
80-RD180-3	40	320	65	3.5
-80-RD180-4	36	290	68	2.7
-80-RD180-5	43	270	67	2.7
80-RD181-1	41	250	67	3.5
80-RD181-2	54	340	89	2.9
-80-RD182-1	46	220	57	2.5
80-RD182-2	48	300	59	3.3
80-RD182-3	33	190	50	3.2
-80-RD182-4	43	290	78	3.1
80-RD182-5	45	310	80	2.9
80-RD183-1	39	220	90	4.1
-80-RD183-2	32	380	92	4.6
-80-RD184-1	27	140	89	3.7
80-RD184-2	32	290	120	4.6
80-RD185-1	24	180	50	4.2
-80-RD185-2	32	240	110	6.3
80-RD186-1	28	260	78	4.4
80-RD186-2	25	250	52	6.8
-80-RD187-1	29	160	56	4.9
80-RD188-1	35	160	84	4.6
80-RD188-2	33	250	64	4.1
-80-RD188-3	38	370	80	5.0
-80-RD189-1	20	70	24	3.2
80-RD189-2	27	130	46	4.1
80-RD189-3	29	180	50	2.9
-80-RD190-1	32	210	55	4.3
80-RD190-2	36	280	60	3.9
80-RD190-3	40	330	54	3.4
-80-RD190-4	38	340	47	3.3
80-RD190-5	28	300	46	4.4
80-RD190-6	30	270	56	5.2
80-RD191-1	19	89	26	2.9
-80-RD191-2	22	85	27	2.6
80-RD191-3	24	140	31	2.3
80-RD191-4	22	87	25	2.2
-80-RD191-5	22	85	25	2.6
80-RD191-6	41	170	67	3.4
80-RD191-7	27	130	47	4.3
-80-RD192-1	32	120	35	2.4
80-RD192-2	34	210	48	2.6
80-RD192-3	29	270	48	2.6
-80-RD192-4	32	210	43	2.3
-80-RD192-5	28	180	43	2.5
80-RD192-6	30	190	38	2.5
80-RD192-7	28	170	30	1.7
-80-RD192-8	25	170	37	2.2
80-RD192-9	31	130	35	2.4
80-RD192-10	36	200	66	2.2
-80-RD193-1	28	350	110	2.2
-80-RD194-1	47	210	90	3.6
80-RD195-1	21	53	19	2.4
-80-RD195-2	19	34	9	2.4
-80-RD195-3	18	32	10	2.2
80-RD195-4	19	29	11	2.0
80-RD195-5	17	42	12	2.1
-80-RD196-1	20	150	32	3.2

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
-80-RD196-2	54	420	81	4.3
-80-RD196-3	54	410	200	8.9
-80-RD197-1	12	28	7	2.7
-80-RD197-2	15	100	21	2.7
-80-RD197-3	17	160	23	3.7
-80-RD197-4	25	250	38	6.1
-80-RD197-5	42	530	130	9.3
-80-RD198-1	32	230	42	4.0
-80-RD198-2	23	200	44	3.3
-80-RD199-1	20	110	23	2.9
-80-RD199-2	18	190	25	3.8
-80-RD200-1	21	120	22	3.8
-80-RD200-2	11	44	59	2.9
-80-RD200-3	12	33	12	2.7
-80-RD200-4	15	37	12	2.5
-80-RD200-5	19	140	20	3.3
-80-RD201-1	15	47	15	2.7
-80-RD201-2	15	48	8	2.7
-80-RD201-3	16	100	20	3.8
-80-RD201-4	22	180	30	4.2
-80-RD202-1	17	91	20	2.7
-80-RD202-2	15	83	20	3.2
-80-RD202-3	12	68	18	3.4
-80-RD203-1	23	57	22	2.9
-80-RD203-2	28	120	26	3.3
-80-RD203-3	27	150	23	4.0
-80-RD203-4	13	38	16	2.6
-80-RD203-5	19	35	10	2.3
-80-RD203-6	16	37	12	2.5
-80-RD203-7	17	70	18	2.9
-80-RD203-8	52	180	40	3.4
-80-RD204-1	40	170	68	3.4
-10-RD169-2	71	150	32	0.8
-10-RD170-2	48	200	24	1.0
-10-RD171-3	77	130	34	0.6
-10-RD172-2	78	160	58	0.5
-10-RD173-1	80	250	78	0.4
-10-RD174-1	36	190	13	3.9
-10-RD174-2	42	320	35	3.9
-10-RD175-1	89	250	140	0.6
-10-RD176-2	29	150	52	2.1
-10-RD176-3	22	110	22	5.2
-10-RD177-2	20	120	16	2.9
-10-RD178-1	57	220	48	1.1
-10-RD179-2	35	170	90	1.2
-10-RD180-6	35	150	51	2.5
-10-RD181-3	60	220	97	0.8
-10-RD182-7	15	97	15	5.9
-10-RD183-3	180	510	350	0.7
-10-RD184-3	12	36	20	6.8
-10-RD184-4	13	38	48	8.1
-10-RD185-3	28	150	45	1.0
-10-RD186-3	10	110	15	5.2
-10-RD187-2	13	51	13	6.8
-10-RD187-3	22	130	40	3.9
-10-RD188-4	11	100	68	6.6

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
-10-RD189-4	14	45	32	6.3
-10-RD190-7	13	54	21	16.0
-10-RD190-8	13	73	34	13.0
-10-RD191-8	16	67	57	15.0
-10-RD192-11	43	400	80	0.8
-10-RD193-2	24	460	12	0.4
-10-RD194-2	63	250	33	9.1
-10-RD196-4	34	370	140	0.8
-10-RD196-5	45	420	52	1.4
-10-RD197-6	20	320	22	9.8
-10-RD197-7	37	350	61	6.7
-10-RD198-3	46	460	87	3.4
-10-RD199-3	18	270	150	9.4
-10-RD200-6	19	670	160	5.4
-10-RD201-5	27	190	35	1.6
-10-RD202-4	10	230	9	5.5
-10-RD202-5	42	190	40	1.0
-10-RD203-9	9	150	6	6.1
-10-RD203-10	11	160	32	6.2
-10-RD204-2	52	170	54	0.7
-10-RD205-1	49	210	63	1.3
-10+80-RD155-1	20	54	30	1.9
-10+80-RD165-1	27	170	35	4.3
-10+80-RD165-2	35	170	74	4.7
-10+80-RD166-1	31	170	69	4.4
-10+80-RD166-2	30	160	36	4.9
-10+80-RD167-1	30	140	31	3.0
-10+80-RD168-1	36	180	48	3.4
-10+80-RD169-2	65	340	130	3.7
-10+80-RD169-1	37	160	70	3.1
-10+80-RD170-1	41	200	47	2.1
-10+80-RD171-1	31	140	65	3.4
-10+80-RD171-2	85	200	79	2.0
-10+80-RD172-1	39	160	51	2.8
-10+80-RD176-1	57	170	80	3.1
-10+80-RD177-1	29	120	35	3.6
-10+80-RD179-1	21	150	44	3.9
-10+80-RD180-1	17	110	36	5.0
-10+80-RD180-2	25	140	34	3.9
-10+80-RD180-3	29	180	49	4.3
-10+80-RD180-4	28	140	42	2.8
-10+80-RD180-5	29	150	44	2.7
-10+80-RD181-1	31	150	44	4.0
-10+80-RD181-2	42	180	78	3.2
-10+80-RD182-1	41	170	53	2.9
-10+80-RD182-2	38	200	46	3.4
-10+80-RD182-3	28	140	39	4.0
-10+80-RD182-4	28	150	53	3.7
-10+80-RD182-5	37	150	52	2.9
-10+80-RD183-1	29	120	42	3.9
-10+80-RD183-2	27	190	68	4.0
-10+80-RD184-1	26	130	65	4.9
-10+80-RD184-2	20	140	77	5.7
-10+80-RD185-1	24	120	39	4.8
-10+80-RD185-2	24	160	74	6.7
-10+80-RD186-1	22	140	50	6.0

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
0+80-RD186-2	21	160	35	4.9
0+80-RD187-1	22	110	38	5.2
-0+80-RD188-1	28	130	58	4.4
0+80-RD188-2	26	120	44	5.1
0+80-RD188-3	28	140	54	6.0
-0+80-RD189-1	23	100	37	4.8
0+80-RD189-2	22	100	30	4.2
0+80-RD189-3	23	84	32	3.1
-0+80-RD190-1	26	160	45	4.9
0+80-RD190-2	29	170	42	4.7
0+80-RD190-3	28	170	42	4.7
0+80-RD190-4	24	280	37	5.6
-0+80-RD190-5	26	170	36	6.3
0+80-RD190-6	24	140	46	10.0
0+80-RD191-1	25	170	37	4.3
-0+80-RD191-2	31	150	30	3.6
0+80-RD191-3	28	150	28	3.8
0+80-RD191-4	26	110	22	2.8
-0+80-RD191-5	27	140	35	3.6
0+80-RD191-6	28	160	39	5.1
0+80-RD191-7	24	150	35	6.2
0+80-RD192-1	27	140	28	4.0
-0+80-RD192-2	31	150	32	3.1
0+80-RD192-3	29	170	35	3.0
0+80-RD192-4	32	180	36	3.5
-0+80-RD192-5	27	180	42	3.9
0+80-RD192-6	26	170	38	3.6
0+80-RD192-7	37	170	43	3.5
-0+80-RD192-8	30	160	37	3.3
0+80-RD192-9	28	160	34	3.3
0+80-RD192-10	26	190	50	3.4
0+80-RD193-1	25	250	53	3.2
-0+80-RD194-1	30	190	63	5.0
0+80-RD195-1	16	68	13	2.3
0+80-RD195-2	20	31	8	1.9
-0+80-RD195-3	14	35	9	1.8
0+80-RD195-4	17	41	15	1.8
0+80-RD195-5	18	63	11	2.0
-0+80-RD196-1	22	190	33	4.4
0+80-RD196-2	38	410	52	3.9
0+80-RD196-3	32	310	130	8.7
-0+80-RD197-1	13	44	5	1.5
0+80-RD197-2	21	170	25	3.5
0+80-RD197-3	22	260	28	4.3
0+80-RD197-4	21	190	33	6.2
-0+80-RD197-5	28	280	73	7.8
0+80-RD198-1	28	180	29	3.8
0+80-RD198-2	28	210	25	3.6
-0+80-RD199-1	24	140	25	3.0
0+80-RD199-2	20	200	29	4.5
0+80-RD200-1	22	110	20	3.7
-0+80-RD200-2	13	46	41	2.2
0+80-RD200-3	31	62	37	6.7
0+80-RD200-4	21	59	18	2.3
0+80-RD200-5	16	200	22	4.3
-0+80-RD201-1	18	58	10	1.9

SAMPLE	CU PPM	ZN PPM	PB PPM	U PPM
-10+80-RD201-2	21	100	13	4.1
-10+80-RD201-3	28	130	24	4.1
-10+80-RD201-4	23	180	18	4.7
-10+80-RD202-1	18	94	23	3.2
-10+80-RD202-2	24	120	28	4.1
-10+80-RD202-3	17	110	24	4.0
-10+80-RD203-1	18	82	19	3.3
-10+80-RD203-2	22	120	30	3.9
-10+80-RD203-3	21	100	22	3.4
-10+80-RD203-4	16	47	12	1.9
-10+80-RD203-5	25	46	12	2.1
-10+80-RD203-6	20	58	14	2.0
-10+80-RD203-7	23	110	30	3.2
-10+80-RD203-8	35	200	37	5.0
-10+80-RD204-1	28	170	46	6.7
+10-RD203-9	10	160	11	3.0

SAMPLE	RD-182-7	RD-186-3	RD-187-3	RD-189-4	RD-190-7	RD-190-8	RD-191-8	RD-52-4	RD-53-3	RD-59-4
SIO2	74.9	73.6	73.7	75.4	77.6	77.5	67.5	77.7	76.4	75.1
AL203	12.4	12.4	13.2	12.2	11.0	11.0	16.8	9.64	10.7	12.0
CAO	0.45	0.53	0.74	0.50	0.92	0.67	0.65	0.30	0.36	0.64
MGO	0.04	0.08	0.11	0.08	0.08	0.10	0.18	0.41	0.14	0.18
NA20	3.82	3.83	4.52	3.49	6.11	6.19	9.59	0.00	2.87	0.42
K20	4.75	4.72	4.10	4.70	0.09	0.03	0.09	5.36	4.31	7.76
FEO	1.61	2.20	1.59	1.44	2.84	3.05	3.74	3.07	2.49	1.30
MNO	0.06	0.06	0.06	0.03	0.04	0.03	0.03	0.03	0.04	0.03
TIO2	0.12	0.22	0.13	0.16	0.23	0.23	0.31	0.27	0.18	0.14
P205	0.01	0.02	0.02	0.02	0.03	0.03	0.07	0.02	0.01	0.02
L.O.I.	2.62	0.47	0.77	0.54	0.77	0.39	0.39	1.70	0.62	0.70
SUM	101.0	98.4	99.1	98.7	100.0	99.5	99.7	98.9	98.4	98.4
FEO/MGO	37.78	26.47	13.94	16.96	36.04	30.62	20.52	7.46	17.44	7.37
K20/K20+NA20	0.55	0.55	0.48	0.57	0.02	0.00	0.01	1.00	0.60	0.95

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	34.0	32.7	30.5	36.5	40.2	40.1	9.2	57.3	43.1	42.3
C	0.2	0.1	0.0	0.5	0.0	0.0	0.0	3.4	0.7	1.8
OR	28.6	28.5	24.7	28.3	0.6	0.2	0.5	32.7	26.1	47.0
AB	32.9	33.1	38.9	30.1	52.1	52.9	81.8	0.0	24.8	3.7
AN	2.2	2.6	3.6	2.4	2.3	2.1	2.6	1.4	1.8	3.1
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	0.0	1.5	0.9	0.2	0.0	0.0	0.0
EN	0.0	0.0	0.1	0.2	0.0	0.1	0.2	0.6	0.1	0.4
FS	0.1	0.2	0.2	0.0	0.0	0.7	2.1	1.5	0.5	0.0
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.3	1.7	0.2	0.0	2.5	2.5	2.7	2.6	2.5	0.0
IL	0.2	0.4	0.3	0.1	0.4	0.4	0.6	0.5	0.4	0.1
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	1.4	0.6	1.5	1.6	0.0	0.0	0.0	0.0	0.0	1.5
AP	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.1
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	52	52	58	49	95	96	96	0	47	7
OR	45	44	37	47	1	0	1	96	50	87
AN	3	4	5	4	4	4	3	4	3	6
RECAST TO 100%										
Q	35	34	31	38	42	42	10	63	45	44
OR	29	29	25	29	1	0	1	36	27	49
AN+AB	36	37	44	33	57	58	90	2	28	7

SAMPLE	RD-182-7	RD-186-3	RD-187-3	RD-189-4	RD-190-7	RD-190-8	RD-191-6	RD-52-4	RD-53-3	RD-59-4
ZR	130	150	140	120	130	120	200	150	150	130
PB	15	21	26	60	46	64	11	160	38	5
ZN	75	110	51	37	39	39	17	65	98	18
CU	7	5	9	4	4	5	13	55	3	7
F	1800	1300	1100	1200	180	160	160	350	190	250
H	7	11	10	9	12	6	0	12	8	9
U	7	6	4	7	17	12	19	5	6	3
MO	5	6	5	4	4	4	3	4	2	0
CR2O3	170	200	190	210	290	310	160	240	190	160
SR	90	90	110	100	130	120	140	80	90	90
RB	260	240	220	260	90	90	110	200	190	270
SN	3	3	0	0	0	0	0	5	8	0
TH	11	29	24	27	14	38	0	24	18	28

SAMPLE	RD-59-5	RD-66-2	RD-68-1	RD-69-2	RD-69-3	RD-74-5	RD-76-3	RD-79-4	RD-85-3	RD-96-4
SIO2	72.9	73.8	76.6	78.0	77.9	77.5	58.7	77.0	70.0	77.0
AL203	13.4	12.3	11.0	11.2	11.1	10.7	13.9	12.1	12.9	11.4
CAO	0.29	0.21	0.09	0.33	0.23	0.16	5.44	0.19	1.93	0.29
MGO	0.13	0.14	0.12	0.11	0.12	0.20	2.19	0.30	0.97	0.02
NA2O	0.36	0.55	0.32	2.01	1.74	0.00	2.42	1.70	5.01	3.72
K2O	8.99	9.16	8.42	5.21	5.39	3.75	3.11	5.73	2.31	3.89
FEO	1.05	1.39	0.84	1.02	1.03	3.34	8.61	1.17	4.52	1.93
MNO	0.02	0.02	0.02	0.02	0.02	0.04	0.19	0.04	0.07	0.03
TIO2	0.12	0.12	0.09	0.09	0.09	0.29	1.62	0.09	0.73	0.10
P2O5	0.02	0.03	0.01	0.01	0.01	0.01	0.33	0.01	0.11	0.01
L.O.I.	0.62	0.77	0.47	0.77	0.77	2.85	3.00	1.08	0.70	0.54
SUM	98.1	98.7	98.1	98.9	98.5	99.2	100.5	99.6	99.8	99.2
FEO/MGO	7.89	9.84	6.96	9.51	8.31	16.37	3.93	3.88	4.68	87.28
K2O/K2O+NA2O	0.96	0.94	0.96	0.72	0.76	1.00	0.56	0.77	0.32	0.51

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	36.5	35.7	43.1	46.4	47.6	64.4	18.2	45.0	26.9	40.4
C	2.7	1.2	1.2	1.7	2.0	6.6	0.0	2.8	0.0	0.6
OR	54.6	55.3	51.0	31.4	32.6	23.1	18.9	34.4	13.8	23.3
AB	3.2	4.7	2.8	17.3	15.1	0.0	21.1	14.6	42.8	31.9
AN	1.3	0.9	0.4	1.6	1.1	0.7	18.3	0.9	6.0	1.4
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.9	0.0
HE	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.0	1.6	0.0
EN	0.3	0.3	0.3	0.2	0.3	0.3	2.9	0.7	1.1	0.0
FS	0.0	0.0	0.0	0.0	0.0	1.7	5.9	0.1	2.1	0.1
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.0	0.0	0.0	0.0	0.0	2.7	4.6	0.0	3.3	1.4
IL	0.0	0.1	0.0	0.0	0.1	0.6	3.2	0.1	1.4	0.2
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	1.2	1.6	1.0	1.2	1.2	0.0	0.0	1.3	0.0	0.7
AP	0.0	0.1	0.0	0.0	0.0	0.0	0.8	0.0	0.2	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	5	8	5	34	31	0	36	29	68	56
OR	92	91	94	62	67	97	32	69	22	41
AN	2	1	1	3	2	3	31	2	10	2
RECAST TO 100%										
Q	38	37	44	48	49	73	24	47	30	42
OR	57	57	52	32	34	26	25	36	15	24
AN+AB	5	6	3	20	17	1	52	16	55	34

SAMPLE	RD-59-5	RD-66-2	RD-68-1	RD-69-2	RD-69-3	RD-74-5	RD-76-3	RD-79-4	RD-85-3	RD-96-4
ZR	140	130	110	110	100	160	220	110	180	120
PB	20	14	7	24	18	210	230	9	22	220
ZN	20	35	22	20	35	530	470	43	84	130
CU	11	11	17	5	9	75	30	6	19	14
F	280	160	110	980	510	410	1100	200	420	370
W	7	3	10	7	8	7	7	6	8	8
U	4	7	3	3	2	3	3	3	2	7
MO	0	4	1	0	0	4	7	0	3	3
CR2O3	110	150	160	180	170	150	80	140	150	200
SR	70	80	60	90	80	70	270	90	160	90
RB	310	280	380	220	360	380	150	210	130	240
SN	0	0	0	0	0	8	0	0	0	e
TH	29	16	30	22	22	28	10	27	16	21

SAMPLE	RD-100-4	RD-109-11	RD-112-2	RD-112-3	RD-112-4	RD-114-2	RD-114-3	RD-118-2	RD-120-2	RD-120-3
SIO2	76.6	76.2	72.8	74.2	73.9	74.8	74.0	74.1	77.5	75.4
AL203	10.1	10.3	11.4	10.9	11.4	10.3	10.6	11.6	11.0	11.9
CAO	0.16	1.07	0.74	0.59	0.52	1.58	1.23	2.44	0.74	0.66
MGO	0.18	0.36	0.53	0.36	0.27	0.18	0.41	0.34	0.23	0.10
NA20	0.68	1.77	1.26	1.13	1.04	2.54	2.13	2.48	2.85	3.00
K20	5.56	4.20	5.49	5.06	5.27	4.13	4.62	3.73	4.28	5.25
FEO	3.36	3.05	3.63	4.07	3.33	4.09	4.44	2.74	1.75	1.39
MNO	0.03	0.08	0.05	0.05	0.03	0.08	0.08	0.05	0.03	0.02
TIO2	0.28	0.30	0.33	0.28	0.27	0.28	0.39	0.20	0.18	0.16
P205	0.01	0.01	0.04	0.03	0.02	0.02	0.03	0.02	0.03	0.02
L.O.I.	1.77	0.93	1.93	1.70	2.16	0.93	0.54	0.85	0.54	0.70
SUM	99.0	98.6	98.6	98.8	98.5	99.4	99.0	98.9	99.4	98.7
FEO/MGO	18.51	8.54	6.83	11.30	12.42	23.08	10.80	7.93	7.59	14.51
K20/K20+NA20	0.89	0.70	0.81	0.82	0.83	0.62	0.68	0.60	0.60	0.64

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	51.6	47.8	42.9	46.8	47.3	40.8	40.2	40.8	43.2	37.0
C	2.7	0.9	2.2	2.6	3.2	0.0	0.0	0.0	0.4	0.2
OR	33.9	25.5	33.7	30.9	32.4	24.9	27.8	22.5	25.6	31.7
AB	5.9	15.4	11.1	9.9	9.2	21.9	18.4	21.4	24.4	25.9
AN	0.8	5.3	3.5	2.9	2.5	4.6	5.7	9.7	3.5	3.2
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.7	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	2.6	0.2	1.5	0.0	0.0
EN	0.2	0.5	0.9	0.6	0.4	0.2	0.7	0.1	0.4	0.2
FS	1.7	1.4	2.4	3.1	1.8	1.6	3.3	0.3	0.3	0.0
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	2.7	2.7	2.7	2.7	2.7	2.6	2.8	2.5	0.3	0.0
IL	0.5	0.6	0.6	0.5	0.5	0.5	0.7	0.4	0.3	0.0
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.6
AP	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	15	33	23	23	21	43	35	40	46	43
OR	84	55	70	71	73	48	54	42	48	52
AN	2	12	7	7	6	9	11	18	7	5
RECAST TO 100%										
Q	56	51	47	52	52	44	44	43	45	38
OR	37	27	37	34	35	27	30	24	26	32
AN+AB	7	22	16	14	13	29	26	33	29	30

SAMPLE	RD-100-4	RD-109-11	RD-112-2	RD-112-3	RD-112-4	RD-114-2	RD-114-3	RD-118-2	RD-120-2	RD-120-3
ZR	150	160	210	200	220	190	190	200	110	120
PB	170	23	340	350	650	240	200	290	52	26
ZN	150	100	800	560	1400	100	180	440	160	170
CU	11	9	110	130	78	7	7	33	25	15
F	180	210	500	450	400	2500	1800	190	1800	1200
W	9	7	10	9	6	7	7	4	10	9
U	4	2	6	6	8	6	4	6	4	3
MO	25	2	47	22	15	5	5	15	8	5
CR203	160	170	170	140	120	160	170	160	230	190
SR	80	130	90	90	90	160	110	190	110	100
RB	230	170	240	240	260	170	200	160	200	240
SN	5	3	10	10	10	8	8	3	0	0
TH	27	21	28	29	34	26	25	10	25	27

SAMPLE	RD-120-4	RD-121-3	RD-122-2	RD-124-2	RD-125-2	RD-126-4	RD-127-2	RD-133-2	RD-143-2	RD-143-3
SIO2	74.5	74.6	74.3	74.3	74.0	74.3	74.3	76.8	77.8	78.2
AL203	12.1	12.7	12.6	12.6	12.8	12.5	12.7	11.7	9.60	9.86
CAO	0.62	0.40	0.47	0.44	0.50	0.25	0.12	0.68	1.16	0.79
MGO	0.09	0.12	0.16	0.06	0.17	0.15	0.15	0.31	0.38	0.10
NA2O	3.11	3.45	3.38	3.38	3.58	1.81	1.12	5.53	0.00	0.00
K2O	5.21	5.19	5.11	5.14	5.17	7.63	8.50	0.98	6.78	7.52
FEO	1.59	1.58	1.75	1.46	1.64	1.32	0.98	1.55	2.04	1.29
MNO	0.02	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.04	0.02
TIO2	0.17	0.20	0.22	0.17	0.20	0.14	0.11	0.14	0.16	0.11
P2O5	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.04	0.02
L.O.I.	0.47	0.70	0.54	0.70	0.47	0.70	0.31	0.54	0.62	0.47
SUM	98.0	99.2	98.7	98.5	98.8	99.0	98.4	98.5	98.9	98.5
FEO/MGO	18.03	12.95	10.81	26.19	9.82	8.59	6.72	4.94	5.37	12.71
K2O/K2O+NA2O	0.63	0.60	0.60	0.60	0.59	0.81	0.88	0.15	1.00	1.00

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	35.9	34.2	34.5	34.8	32.7	34.4	35.4	39.8	49.7	48.5
C	0.2	0.7	0.7	0.7	0.4	0.9	1.4	0.4	0.2	0.3
OR	31.6	31.2	30.8	31.1	31.1	45.9	51.2	5.9	40.8	45.4
AB	27.0	29.6	29.1	29.2	30.8	15.5	9.7	47.8	0.0	0.0
AN	3.0	1.9	2.2	2.1	2.4	1.2	0.5	3.3	5.6	3.8
LC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EN	0.1	0.2	0.2	0.1	0.3	0.4	0.3	0.7	0.5	0.2
FS	0.1	0.1	0.2	0.0	0.2	0.0	0.0	0.1	0.6	0.0
FO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MT	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.5	0.0
IL	0.2	0.2	0.4	0.1	0.3	0.0	0.0	0.2	0.3	0.0
CR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HM	1.7	1.7	1.7	1.7	1.7	1.5	1.1	1.7	0.7	1.5
AP	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1
PY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RU	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1
CC	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RECAST TO 100%										
AB	44	47	47	47	48	25	16	84	0	0
OR	51	50	50	50	48	73	83	10	88	92
AN	5	3	4	3	4	2	1	6	12	8
RECAST TO 100%										
Q	37	35	36	36	34	35	37	41	52	50
OR	32	32	32	32	32	47	53	6	42	46
AN+AB	31	32	32	32	34	17	11	53	6	4

SAMPLE	RD-120-4	RD-121-3	RD-122-2	RD-124-2	RD-125-2	RD-126-4	RD-127-2	RD-133-2	RD-143-2	RD-143-3
ZR	130	120	130	130	130	120	120	110	120	120
PB	37	16	20	18	21	16	38	21	42	44
ZN	85	93	38	83	41	27	36	45	82	68
CU	10	5	4	5	2	4	9	16	20	15
F	880	530	620	500	260	130	110	150	150	160
W	8	7	8	10	7	9	7	6	13	13
U	5	4	4	4	5	3	3	4	30	20
MO	6	5	4	4	3	4	15	1	4	3
CR2O3	190	210	210	200	200	170	150	150	250	230
SR	100	90	90	90	100	80	80	140	110	90
RB	250	260	260	270	270	240	250	120	160	170
SN	0	3	0	3	3	0	0	5	0	0
TH	25	36	23	30	34	27	30	14	19	22

SAMPLE	RD-143-4	RD-197-6
SIO2	77.5	78.0
AL2O3	10.4	9.02
CAO	0.37	1.25
MGO	0.05	0.63
NA2O	0.00	0.31
K2O	8.29	3.07
FEO	1.30	3.98
MNO	0.02	0.06
TIO2	0.09	0.27
P2O5	0.02	0.02
L.O.I.	0.31	0.62
SUM	98.5	97.6
FEO/MGO	26.30	6.31
K2O/K2O+NA2O	1.00	0.91

NORMATIVE MINERAL COMPOSITION (WEIGHT PERCENT)
[IRVINE & BARAGAR, CAN. JOUR. EARTHSCI. 8,523(1971)]

Q	45.8	61.6
C	0.8	3.1
OR	49.9	18.8
AB	0.0	2.7
AN	1.7	6.3
LC	0.0	0.0
NE	0.0	0.0
KP	0.0	0.0
AC	0.0	0.0
DI	0.0	0.0
HE	0.0	0.0
EN	0.1	1.1
FS	0.0	3.2
FO	0.0	0.0
FA	0.0	0.0
WO	0.0	0.0
LA	0.0	0.0
MT	0.0	2.7
IL	0.0	0.5
CR	0.0	0.0
HM	1.5	0.0
AP	0.0	0.1
PY	0.0	0.0
NS	0.0	0.0
KS	0.0	0.0
RU	0.1	0.0
CC	0.0	0.0
RECAST TO 100%		
AB	0	10
OR	97	68
AN	3	23
RECAST TO 100%		
Q	47	69
OR	51	21
AN+AB	2	10

SAMPLE	RD-143-4	RD-197-6
ZR	110	220
PB	71	65
ZN	93	220
CU	22	9
F	140	150
W	13	10
U	16	7
MO	2	23
CR2O3	240	190
SR	80	110
RB	190	170
SN	0	20
TH	18	28

APPENDIX C

REVERSE CIRCULATION DRILL LOGS

DATE SEPT 27/12 HOLE No. RD-52 GEOLOGIST PICKETT DRILLER HAYRAND

HOLE LOCATION 94+50E 34+00S

BIT No. G86294 FOOTAGE ON BIT 0'+38'=38'

HOURS MOVE _____ HOURS DRILL 8:45-10:30 OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
		01	0-5' no return 5'-8' cobbly gravel ~25% rhyolite ~75% matrix (green & brown)	
10		02	8'-13' no return 13' see 5-8'	
			13'-24' no return	
20			24'-28' cobbly gravel 90% rhyolite 10% debris	
		03	28' BEDROCK	
30		04	28'-31' Pink rhyolite with some brecciated fragments	
		05	31'-32' green dionite	
40			32' Pink rhyolite - sub-rounded blue-white quartz in matrix. 38' E.O.H.	
			· reviewed Xtal Tuff	
50				

DATE Sept 27/79 HOLE No. BD-53 GEOLOGIST Faulkes DRILLER Maynard

HOLE LOCATION 88+50 E ~24+00 S

BIT No. G 86294 FOOTAGE ON BIT 38' +21' = 59'

HOURS MOVE _____ HOURS DRILL 1:10 - 2:00 OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5' no return bouldery surface.	
		01	5' cobbly & pebbly gravel 75% pink coarse grained rhyolite (some green silicified rhyolite)	
10		02	25% diorite. grey fine silt and sand mudstk. grey water.	
		03	11' BEDROCK dark grey to pink fragmental massive rhyolite brown-grey water colour. abundant suspended sediment.	
20			21' E.O.H.	
			Revised X tal tuff	
30				
40				

DATE Sept 27/79 HOLE No. RD-54 GEOLOGIST Faulkes DRILLER Maynard

HOLE LOCATION 84+00E 18+00S

BIT No. G 86294 FOOTAGE ON BIT 59'+18'-77'

HOURS MOVE _____ HOURS DRILL 3:05-4:35 OTHER _____

DEPTH	GRAPHIC LOG	GEOLOGICAL	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
				0-4 no return	
			01	4' cobbly gravel ~100% rhyolite grey water, very fine silty matrix	
10			02	6'-7' diorite boulder	
			03	7' cobbly gravel 85-90% pink and green rhyolite. 10-15% diorite. little matrix grey water	
20				9' BEDROCK fresh massive diorite with epidote and hematite epidote & K-feldspar banding at depth.	
30				18' E.O.H.	
40					

DATE SEPT 27/79 HOLE No. RD-55A GEOLOGIST PETRIE DRILLER HAYRAND

HOLE LOCATION ~82E ~17S

BIT No. G 86294 FOOTAGE ON BIT 77' + 8' = 85'

HOURS MOVE _____ HOURS DRILL 5:15 - 6:00 OTHER _____

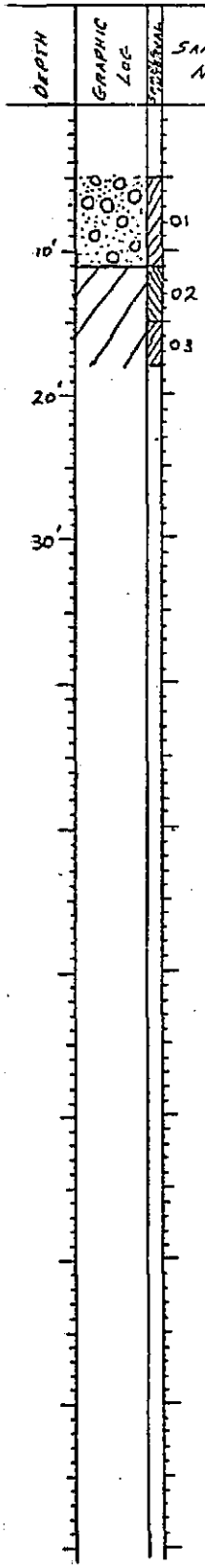
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-7' no return glance off boulder 8' E.O.H.	
10				
20				
30				

DATE SEPT 28/79 HOLE No. RD-55b GEOLOGIST R Cashin DRILLER Michel

HOLE LOCATION 82E / 17S

BIT No. G 86294 FOOTAGE ON BIT 85' + 18' = 103'

HOURS MOVE _____ HOURS DRILL 8:40 - 9:05 AM OTHER _____



DESCRIPTIVE LOG

0'-5' NO RETURN
* BOULDERY SURFICIAL MATERIAL

5'-11' - COBBLY SAND
35% Massive rhyolite
65% Fine grained diorite
Fine SAND sized matrix
Reddish-brown water
~~* 9' Matrix AND WATER ARE~~ grey

11' - Bedrock
Fine grained grey diorite
- highly fractured AND sheared
- epidote stringers ABUNDANT

18' - E.O.H

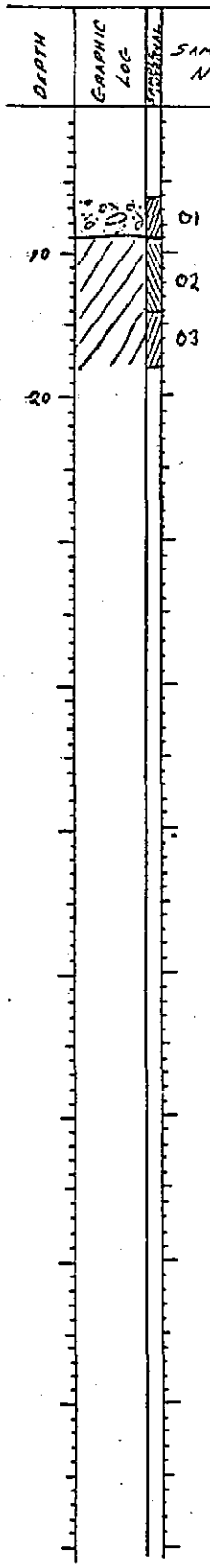
ANALYSES

DATE SEPT. 28/79 HOLE No. R.D-56 GEOLOGIST J. MICHAELIS DRILLER MICHEL

HOLE LOCATION 80E/17S

BIT No. G 86294 FOOTAGE ON BIT 103' + 18' = 121'

HOURS MOVE _____ HOURS DRILL 10:40 - 11:10 OTHER _____



DESCRIPTIVE LOG

0-6' No Return

6'-9' Coarse pebbly gravel
80% diorite with containing rhyolite fragments + epidote.
20% rhyolite. with epidote.
grey water
silty-clay matrix

9'-16' BEDROCK - glassy diorite with rhyolite fragments. + epidote

16'-18' rhyolite.

18' - E.O.H.

Reversed Xtal tuff

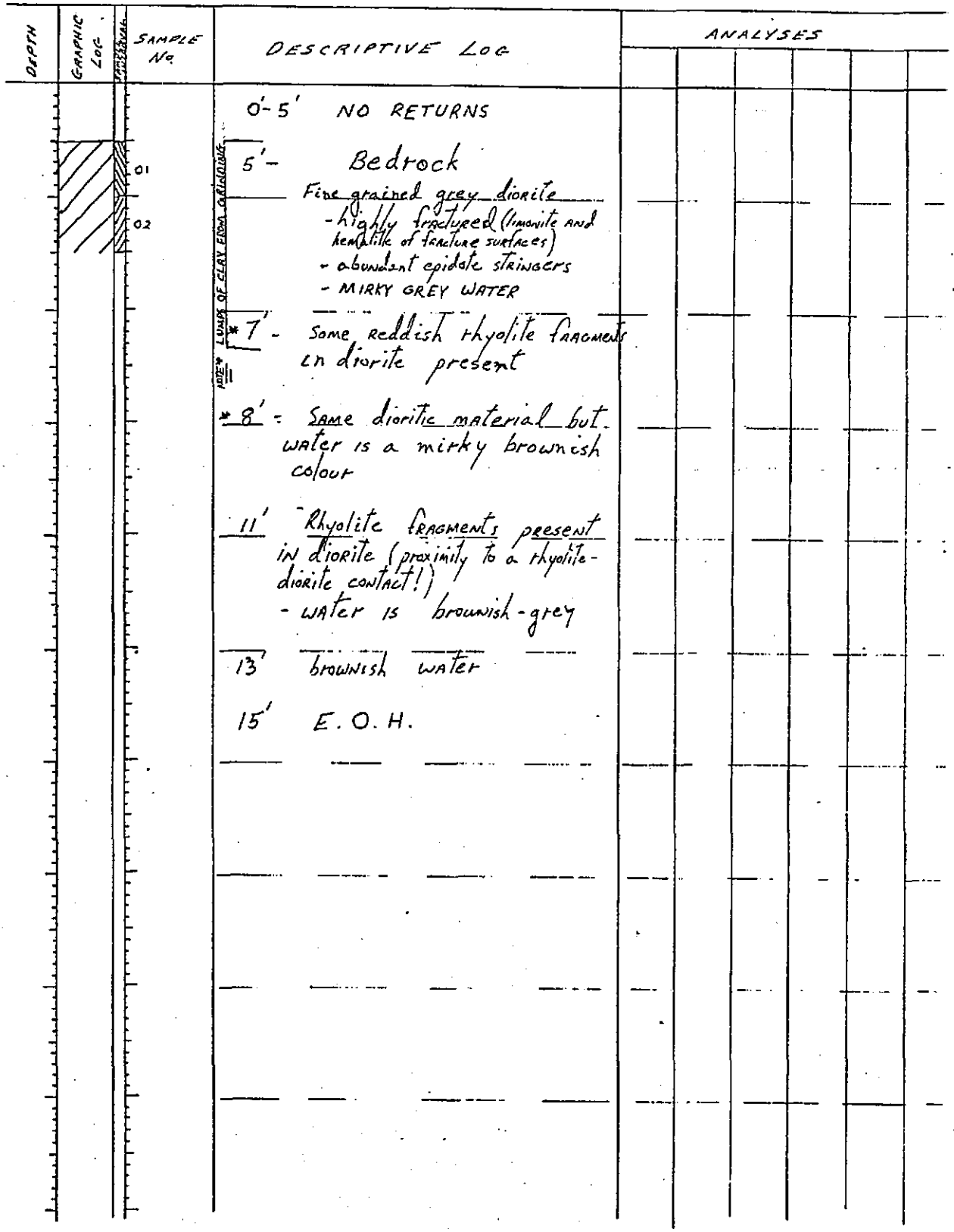
ANALYSES

DATE SEPT 28/79 HOLE No. RD-57 GEOLOGIST R Cashin DRILLER Michel

HOLE LOCATION 78E/15S

BIT No. G 86290 FOOTAGE ON BIT 0' + 15' = 15'

HOURS MOVE _____ HOURS DRILL 11:45 a.m - 12:25 pm OTHER _____



DATE SEPT 28/79 HOLE No. RD-58 GEOLOGIST J. McHARDUS DRILLER MICHEL

HOLE LOCATION 75+50E / 15S

BIT No. G 86290 FOOTAGE ON BIT 15' + 24' = 39'

HOURS MOVE _____ HOURS DRILL 1:40 - 3:30 OTHER No drilling 2:10 - 2:40

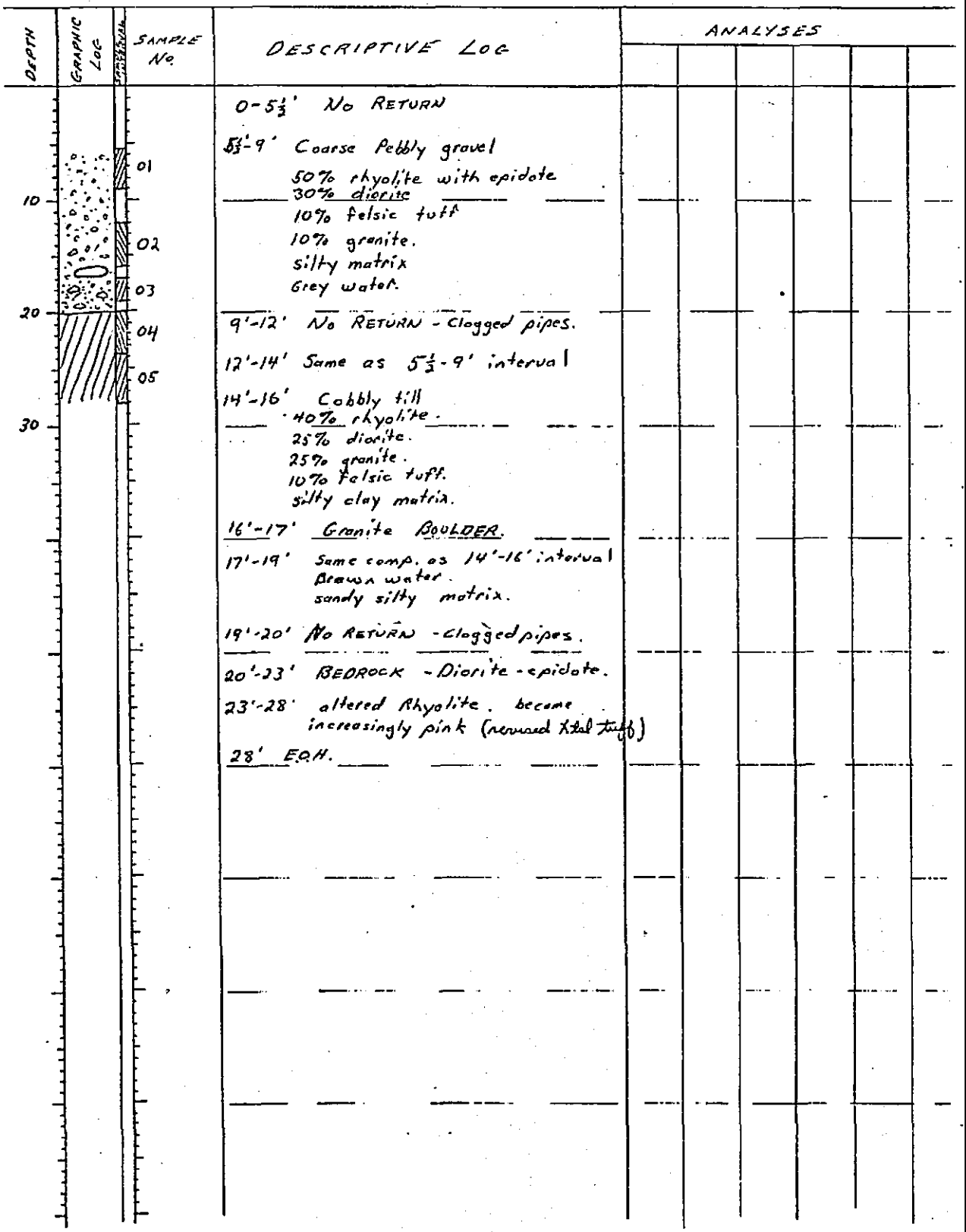
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5' NO RETURN	
10		01	5'-11' Pebbly gravel. 60% diorite with feldspar phenocrysts 25% rhyolite. 15% felsic tuff. Sandy matrix Grey brown water. (poor return 5'-10')	
		02		
		03		
20		04	11-12' Cobbly till 40% granite 25% diorite 25% rhyolite. 10% tuff. fine sandy matrix. light brn water.	
25			12'-13' rhyolite Boulder.	
			13'-14' See 11'-12' interval.	
			14' - 14½ BEDROCK Diorite.	
			14½ - 15½ Rhyolite. very pink.	
			15½ - 18' - Diorite - brn water from hematite staining.	
			18'-19' Rhyolite.	
			19 - 20 - Diorite.	
			20'-20½' Rhyolite.	
			20½-21 - Diorite.	
			21'-23½' Rhyolite. pink to grey	
			23½'-24' Diorite.	
			24' E.O.H.	

DATE SEPT. 29/79 HOLE No. RD-59 GEOLOGIST J. MICHAELIS DRILLER MICHEL

HOLE LOCATION 84+50E / 58+40S

BIT No. G 86290 FOOTAGE ON BIT 39'+28' = 67'

HOURS MOVE _____ HOURS DRILL 10:20 - 1:00 OTHER Clogged pipes. 10:45 - 11:30 ; 12:00 - 12:30



DESCRIPTIVE LOG

0-5⅓' No RETURN

5⅓'-9' Coarse Pebbly gravel
50% rhyolite with epidote
30% diorite
10% felsic tuff
10% granite.
silty matrix
Grey water.

9'-12' No RETURN - Clogged pipes.

12'-14' Same as 5⅓'-9' interval

14'-16' Cobbly till
40% rhyolite.
25% diorite.
25% granite.
10% felsic tuff.
silty clay matrix.

16'-17' Granite BOULDER.

17'-19' Same comp. as 14'-16' interval
Brown water.
sandy silty matrix.

19'-20' No RETURN - clogged pipes.

20'-23' BEDROCK - Diorite - epidote.

23'-28' altered Rhyolite. became increasingly pink (recrystallized Xtal tuff)

28' E.O.H.

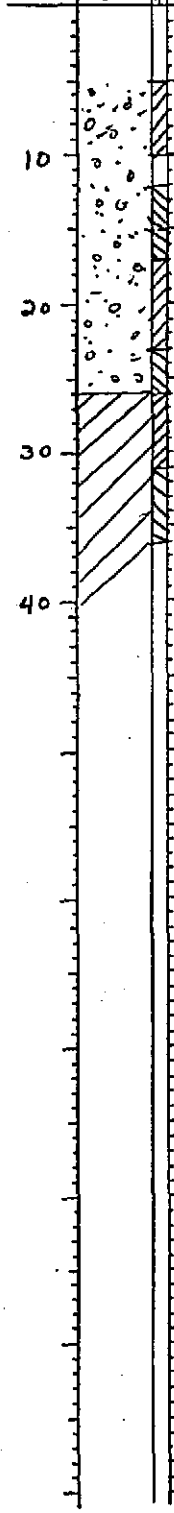
ANALYSES

DATE Sept 29 '77 HOLE No. RD 60 GEOLOGIST Jon Peterson DRILLER Mudel

HOLE LOCATION 83 E 56+50 S

BIT No. G86290 FOOTAGE ON BIT 67+36 = 103

HOURS MOVE 1:00-1:50 PM HOURS DRILL 1:50 - 3:56 PM OTHER 2:00-2:20 PM out of water; 2:45 - 3:07 PM clogged pipe



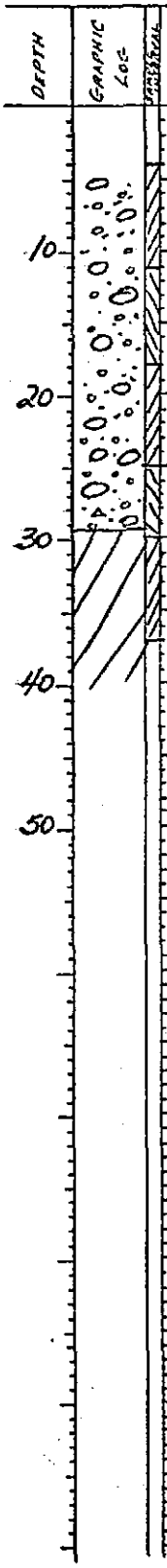
DESCRIPTIVE LOG	ANALYSES
0-5' No Return	
5'-10' Pebbly till Brown water silty matrix 60% Rhyolite 30% Diorite 5% felsic tuff 5% granitic	
10'-12' No Return	
12'-15' Very poor return Pebbly till same as found in 5'-10' level	
15'-17' Very fine sand red-brown Brown water	
17'-18' Pebbly Till silty matrix Brown water 80% Diorite 15% Rhyolite 5% tuff	
18'-23' Pebbly Till Water Brown silty matrix Diorite 40% Rhyolite 60%	
23'-26' Pebbly till same as 18'-23'	
26' Bedrock - Rhyolite water clear	
26'-31' Rhyolite water clear	
31'-36' Rhyolite with small amount of Diabase at 35' but didn't test. Water clear	
36' End of hole reversed ignimbrite	

DATE Sept 29/79 HOLE No. RD-61 GEOLOGIST Foulkes DRILLER Maynard
HOLE LOCATION 83+25 E 545 Oct 1/79

BIT No. 836290 FOOTAGE ON BIT 103' + 37' = 140'

HOURS MOVE _____ HOURS DRILL 4:38-5:45 OTHER _____

---stopped drilling @ 4' Sept 29. 8:30 - 10:30



DESCRIPTIVE LOG

0-4' no return. bouldery surface.

4' Cobbly till
55% diorite, 35% rhyolite, <5% granites <5% tuff.
fine sand matrix
grey water. not continuous return.

15' ~ 40% diorite
45-50% fragmental rhyolite 10% granite & tuff.
to 18' poor return. no water.

23' brown milky water
increase % rhyolite.

26' red water, abundant fine sand size matrix.
well sorted. ~50% granites.

29' 50% rhyolite
50% diorite
small red clay lumps.

29.5' BEDROCK
massive porphyritic rhyolite. grey water

33' fine grained brecciated diorite.

34' fragmental rhyolite

37' E.O.H.
reversed Xtal tuff

ANALYSES

DATE October 1/72 HOLE No. RD-62 GEOLOGIST Faulkner DRILLER Wagner

HOLE LOCATION 83+70E 51+50S

BIT No. G 86289 FOOTAGE ON BIT 0'+26' = 26'

HOURS MOVE _____ HOURS DRILL 11:15-3:30 OTHER _____

12:00-3:00 lead pipe blocked

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5' no return. cobbly surface	
		01	5' cobbly & pebbly till & clay 50% porphyritic rhyolite 40% diorite <10% granites red brown silty water sandy matrix	
10		02		
		03	8' increase in amount of clay (@ 9' all clay) becomes pebbly well sorted	
20		04		
		05	11.5-12.0 granite boulder	
			12.0' 70-80% granite 10% rhyolite 10% diorite silty matrix with clay.	
30			14' gravely till - little matrix material. grey brown water.	
			17' 50% diorite 50% rhyolite muddy brown water little fine sand	
40			17.5' BEDROCK. diorite grey water	
			diorite hematized at 22'	
			23' brown murky water brecciated rhyolite	
			24' grey to pink rhyolite with epidote stringers. some minor diorite	
			26' E.O.H.	

DATE Oct 2 '79 HOLE No. RD-63 GEOLOGIST Joe Petrie DRILLER Mickel

HOLE LOCATION 84+50 E 47+50 S

BIT No. 686289 FOOTAGE ON BIT 26 + 15 = 41'

HOURS MOVE _____ HOURS DRILL 9:30AM - 10:00AM OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			Drill is already 3' into bedrock from drilling on Sept 30	
			Sample taken 5' into bedrock at 10'	
			Rhyolite RD-63-1 veined aguamarine water clear	
10			10'-15' Rhyolite (dark color) RD63-2 water clear veined aguamarine	
			15' end of hole	
20				

DATE Oct. 2/79 HOLE No. RO-64 GEOLOGIST J. MICHAELIS DRILLER MICHEL

HOLE LOCATION 81+50E / 58+50S

BIT No. G 86289 FOOTAGE ON BIT 41 + 9 = 50'

HOURS MOVE _____ HOURS DRILL 11:50 - 12:05. OTHER _____

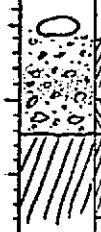
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5' No RETURN	
		01	5'-7' - Coarse pebbly till. 90% Granite. Brown water. clay-silty matrix. (very poor return - only small sample)	
10			7'-9' BEDROCK - Granite. very hard to drill. - POOR RETURN. stopped at 9' - No sample taken.	
			9' E.O.H.	

DATE Oct 2/79 HOLE No. RD-65 GEOLOGIST MICHAELIS DRILLER MICHEL

HOLE LOCATION 81E / 56+60S

BIT No. G 86289 FOOTAGE ON BIT 50' + 18 = 68'

HOURS MOVE _____ HOURS DRILL 12:45 - 2:40 OTHER _____

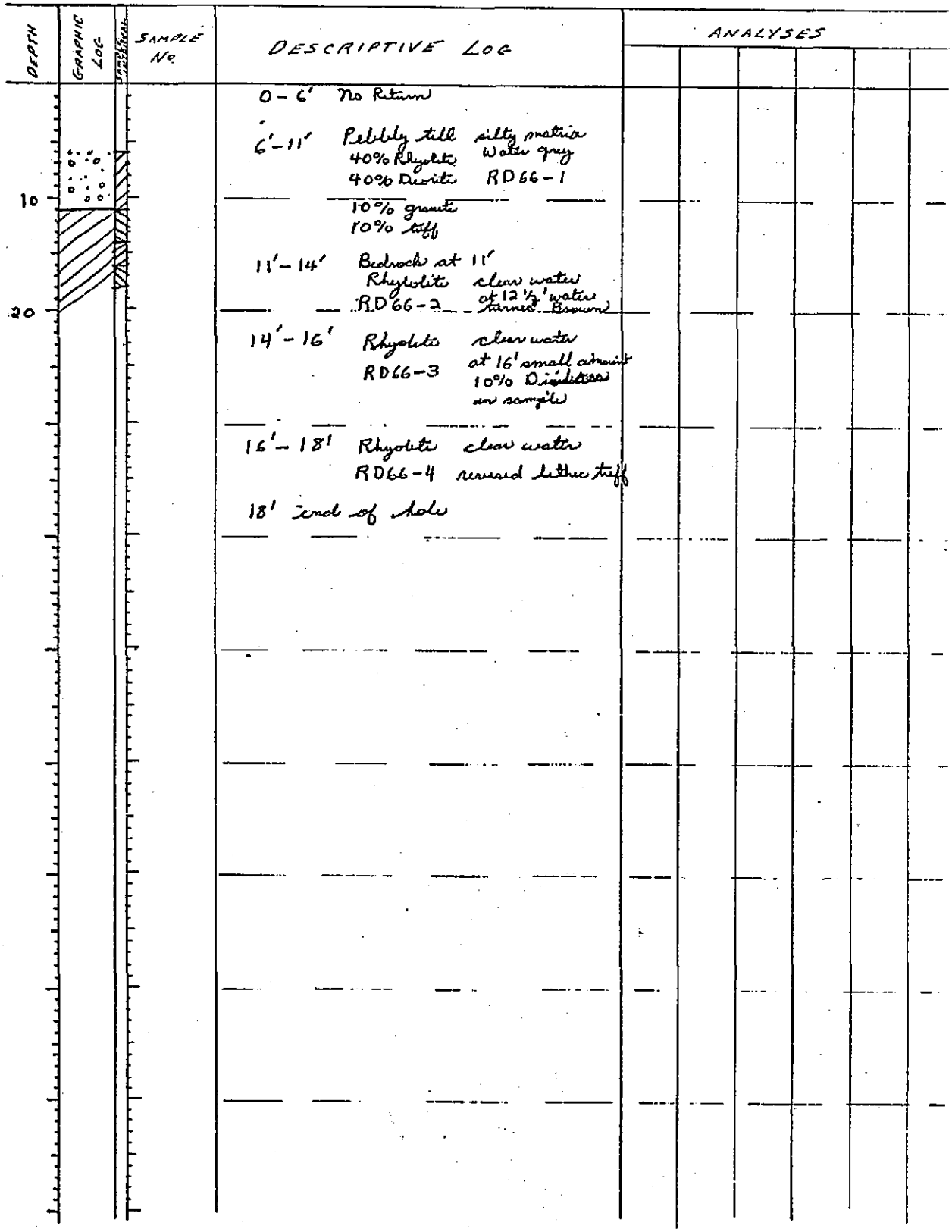
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
		01	0-6' No RETURN. (4½-6' - BOULDER But No Return)	
10		02	6'-8' Pebbly till 60% granite. 30% diorite. 10% felsic tuff. sandy-~~silty~~ matrix Grey water.	
		03	8'-10' Coarse pebbly till 50% granite. 30% diorite. 10% rhyolite. 10% felsic tuff. sandy silty matrix. Brown water.	
20			10'-12' Pebbly - Cobbly till 60% Granite. 20% diorite. 20% felsic tuff sandy matrix. Grey water. poor return.	
			12'-14' BEDROCK - rhyolite. reversed agnimbrite	
			14'-15 Diorite.	
			15'-16' interfingers of diorite + rhyolite.	
			16-18' Diorite.	
			18' EOH.	

DATE Oct 2/79 HOLE No. RD 66 GEOLOGIST Petrie DRILLER Mickels

HOLE LOCATION 180 E + 54 S

BIT No. G-86289 FOOTAGE ON BIT 68 + 18 = 86'

HOURS MOVE 2:40PM 3:50PM HOURS DRILL 3:50PM 5:00PM OTHER



0 – 6' No Return

6' – 11' Pebbly till silty matrix
40% Rhyolite Water grey
40% Diorite RD66-1
10% granite
10% tuff

11' – 14' Bedrock at 11'
Rhyolite clear water
RD66-2 at 12½' water
stained Brown

14' – 16' Rhyolite clear water
RD66-3 at 16' small amount
10% Diorites
in sample

16' – 18' Rhyolite clear water
RD66-4 rusted lithic tuff

18' end of hole

DATE Oct 3/79 HOLE No. RD-67 GEOLOGIST Faulkner DRILLER Maynard
HOLE LOCATION Oct 8/79 L 841 00 E 45+00S
BIT No. G 86269 FOOTAGE ON BIT
HOURS MOVE HOURS DRILL 8:00 - 8:45 OTHER
11:05 - 11:50
Lead rod broken
Standby October 3 to October 8

DEPTH	GRAPHIC LOG	SAMPLE No	DESCRIPTIVE LOG	ANALYSES
			0-6' no return	
		01	6' coarse pebbly gravel	
			60% diorite	
10		02	30% granite	
			<10% fragmental rhyolite	
		03	very silty grey water	
			virtually no matrix	
20			8' BEDROCK diorite with	
			feldspar and epidote	
			stringers. Hematite in	
			fractures. grey water	
30			12' highly altered diorite	
			Broken water	
			14' E.O.H.	
40				

DATE October 8/79 HOLE No. RD-68 GEOLOGIST Faulkner DRILLER Maynard

HOLE LOCATION ~82+00 E 41+75 S

BIT No. G 86269 FOOTAGE ON BIT

HOURS MOVE HOURS DRILL 1:30 - 2:20 OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-6' no return	
		01	6' BEDROCK pink and grey coloured massive rhyolite (reworked ash fall tuff)	01
10		02	lightly fractured at 7' darker pink colour with depth - becoming porphyritic - rounded quartz.	Lithic tuff 02
20			occasional dionite with epidote.	
			15' E.O.H.	
30				

DATE October 8/79 HOLE No. RD-69 GEOLOGIST Foulkes DRILLER Maynard

HOLE LOCATION L 80+00 E 39+00 S

BIT No. G 86269 FOOTAGE ON BIT

HOURS MOVE HOURS DRILL 3:05-4:00 OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-6' no return bouldery surface.	
		01	6' very coarse pebbly & cobbly gravel	
		02	90% fragmental rhyolite 40% diorite and tuff very fine sand matrix brown buff water	
			8.5' BEDROCK fragmental porphyritic massive rhyolite grey and pink in colour. feldspar phenocrysts	
			15' brecciated rhyolite	
			17' E.O.H. (revised Xtal tuff)	

DATE October 8/79 HOLE No. RD-70 GEOLOGIST Fulkes DRILLER Maynard

HOLE LOCATION 78+75 E 40 S.

BIT No. G 86269 FOOTAGE ON BIT

HOURS MOVE HOURS DRILL 4:45 - 6:15 OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-6 - no return	
		01	6' coarse gravel 80% rhyolite. 20% diorite - minor fine sand matrix - grey water few small silty clay lumps	
10		02 03 04	11' brown grey water - black fine sand & silt matrix	
		05		
20			12' pebbly & cobbly gravel some rounded rhyolite pebbles. 50% rhyolite 50% diorite white silty clay lumps - medium sand matrix	
30			14' BEDROCK Massive pink rhyolite. Fresh angular (reworked ash fall tuff) fragments. white water	
			16' dark brown water diorite with hematite alteration	
			18' E.O.H.	

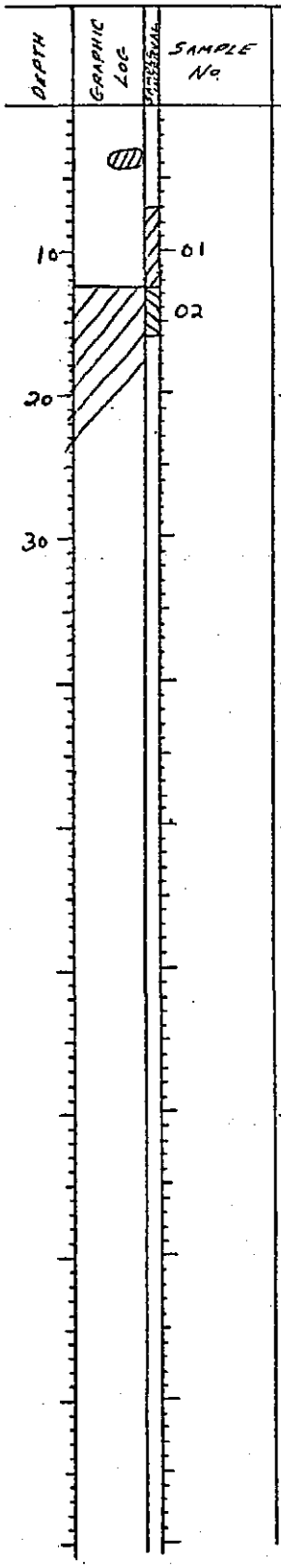
DATE Oct 9 /79 HOLE No. BD 71 GEOLOGIST J. Peters DRILLER M Maynard

HOLE LOCATION 79+50E 35+00 S

BIT No. H7994 FOOTAGE ON BIT 16'

HOURS MOVE _____ HOURS DRILL 8:30 AM - 11:10 OTHER 9:00 - 10:00 ---

--- clogged pipe



DESCRIPTIVE LOG

0-7' No Return

7'-12½' Poor return
Pebbly till water Brown
Diorite 70% Silty matrix
stuff 25%
Rhyolite 5%

at 9' Brown clay

9'-12' clay matrix

at 12½-14' Bedrock Rhyolite (grey)

14'-16' Bedrock Diorite

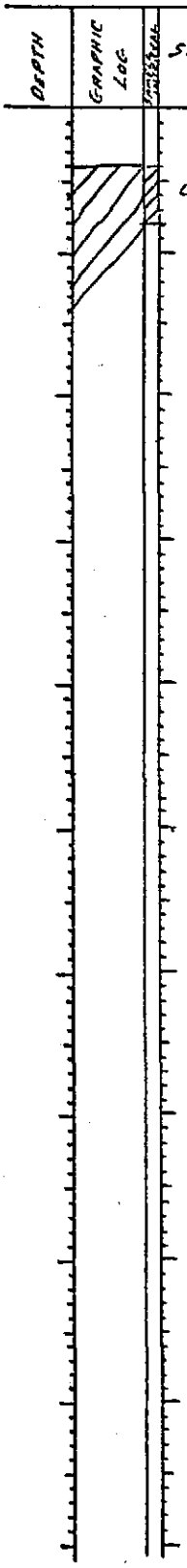
ANALYSES

DATE Oct 9/79 HOLE No. RD 72 GEOLOGIST J. Peters DRILLER M Maynard

HOLE LOCATION 76+00E, 31+00S

BIT No. H7994 FOOTAGE ON BIT 16' + 8'

HOURS MOVE 11:10-11:55 HOURS DRILL 11:55 - 1:00 OTHER



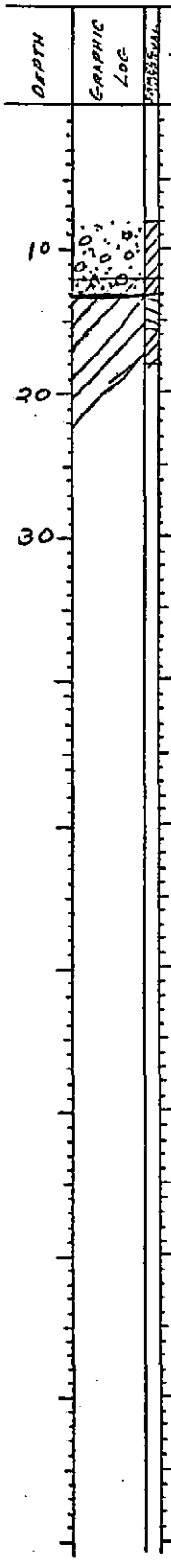
DESCRIPTIVE LOG	ANALYSES
0'-4' No Return	
4'-8' Diorite (Bedrock) water gray same clay coming up with chips	
8' End of hole	

DATE Oct 9/79 HOLE No. BD 73 GEOLOGIST J. Peters DRILLER M. Maynard

HOLE LOCATION 76+50E 24+00 S

BIT No. H 7994 FOOTAGE ON BIT 24' + 18'

HOURS MOVE 1:00-1:39 HOURS DRILL 1:39 - 2:38 OTHER



DESCRIPTIVE LOG

0 - 8' No Return

8' - 12' Pebbly till
Rhyolite 35%
Diorite 30%
Granite 30%
Tuff 5%
Water Brown
Matrix red clay
at 9' water turned grey

13 - 15½ Bedrock Diorite
Water Brown to clear

15½ - 18' Diorite

18' End of hole

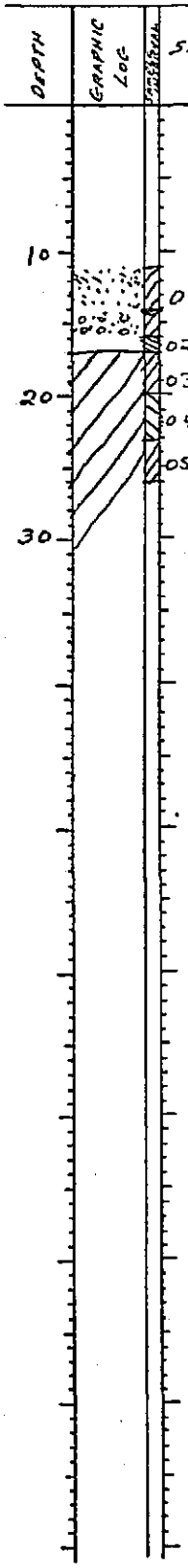
ANALYSES

DATE Oct 9/79 HOLE No. RD 74 GEOLOGIST J Peters DRILLER M Maynard

HOLE LOCATION 76+25 E, 21+00S

BIT No. H7994 FOOTAGE ON BIT 42' + 2C'

HOURS MOVE 2:35-3:25 HOURS DRILL 3:25-5:30 OTHER



DESCRIPTIVE LOG

0-11' No Return

11'-14' poor return silty overburden Brown water

14'-16' Pebbly till water Brown matrix sand 20% Rhyolite 45% Diorite 20% tuff 20% granite 15% clay 40% (Red)

16'-17' till same as 14'-16' except matrix clay 20% silt 40% sand

17'-20' Bedrock lithic tuff water Brown rock color at 19' went from red to Gray

20'-23' tuff (lithic)

23'-26' tuff (lithic)

26' End of hole

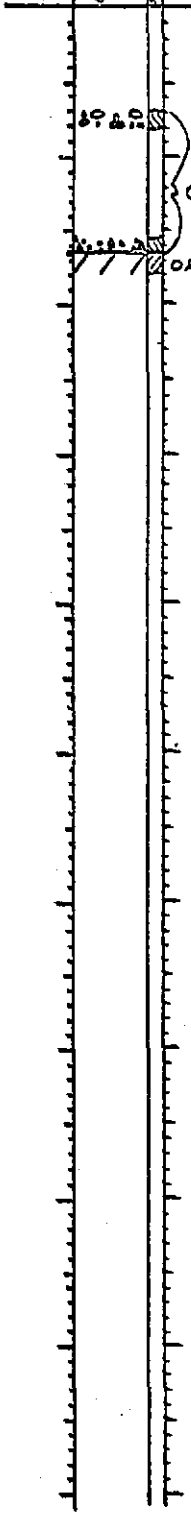
ANALYSES

DATE OCT 10/79 HOLE No. RD-75 GEOLOGIST P.CASHIN DRILLER Michel

HOLE LOCATION 76+50E / 18+50S

BIT No. H 7994 FOOTAGE ON BIT 42' + 18' = 60'

HOURS MOVE _____ HOURS DRILL 8:20 AM - 9:40 AM OTHER _____



DESCRIPTIVE LOG	ANALYSES
0'-7' NO RETURNS COBBLY GRAVEL	
7' - 55% reddish rhyolite 45% fine grained diorite - reddish-brown H_2O - pebbly gravel - fine sand matrix	
8'-15.5' - NO RETURN	
15.5' - Fine gravel 75% fine grained grey diorite 25% pink rhyolite - greyish water - very well sorted	
16.5' - BEDROCK Fine grained massive diorite - grey - effervescent by fine epidote stringers - highly fractured - limonite on fracture surfaces	
18' - E.O.H.	

DATE October 10/79 HOLE No. BD-76 GEOLOGIST Fulbes DRILLER Maynard

HOLE LOCATION 75+75E 16+50S

BIT No. H 7994 FOOTAGE ON BIT 60 + 28' = 88'

HOURS MOVE _____ HOURS DRILL 10:50 - 11:50 OTHER _____

DEPTH FEET	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-7' no return bouldery surface.	
10		01	7' pebbly gravel with till? mean 50% pink & green fragmental rhyolite 50% diorite with epidote dark brown medium to fine sand matrix. Saturated.	
20		02	9-14' no return	
		03	15' large lumps of sandy clay with gravel.	
		04	16' BEDROCK massive pink and green rhyolite. highly fractured and sheared. brown water.	
30			20' diorite with rhyolite - breccia zone: grey water epidote & hematite alteration.	
40			21.5' hematized diorite. fractured & sheared. red brown water.	
			24' large clay chunks. shaley red tuffaceous? unit. with epidote alteration at depth.	
			28' E.O.H.	

DATE October 10/79 HOLE No. RD-77 GEOLOGIST Foulkes DRILLER Maynard

HOLE LOCATION 72E 13+25S

BIT No. H 7994 FOOTAGE ON BIT 88 +18 = 106'

HOURS MOVE _____ HOURS DRILL 12:20-1:40 OTHER _____

DEPTH (FEET)	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-7.5 no return	
			7.5' silty grey water only with minor black-fine sand.	
10		01	8' cobbly and pebbly gravel medium to fine grained sandy matrix. grey water 70% rhyolite, 20% diorite <10% granite & tuff - some diorite with rhyolite fragments.	
		02		
		03		
20			9' brown water	
30			12' BEDROCK - diorite with pink rhyolite fragments. Breccia zone highly fractured and sheared (reversed X tal tuff)	
40			18' E.O.H	

DATE CCT 10/79 HOLE No. RD-78 GEOLOGIST P. CASHIN DRILLER Michel

HOLE LOCATION 68F / 10+25S

BIT No. H 7997 FOOTAGE ON BIT 0' + 18' = 18'

HOURS MOVE _____ HOURS DRILL 3:25pm - 3:50pm, 4:00pm - 4:30pm OTHER NEW SUB, 10 min REFUEL

Cl[illegible] ≈ 895 Bedro[illegible] ≈ 874

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0'-8' - NO RETURN - PEBBLY GRAVEL	
			8' - BROWN WATER RETURNED	
			9' - BROWN WATER RETURNED	
		01	10' - GREY SANDY CLAY GREY WATER	
		02	11' - BEDROCK	
			Fine grained massive rhyolite - reddish - grey - highly fractured - limonite on fracture surfaces - epidote stringers	
			18' E.O.H.	

DATE OCT 11/79 HOLE No. RD-79 GEOLOGIST H. ECHEVES DRILLER [illegible]

HOLE LOCATION 61+25E 9+81 S

BIT No. H-7907 FOOTAGE ON BIT 18' + 79' = 46'

HOURS MOVE _____ HOURS DRILL 5:15 [illegible] OTHER _____

stop @ 15' [illegible] 10

at 18' 8:15 - 10:00 Elevation 870 Bedrock [illegible] 850.5

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-7' no return	
			7' gray brown silty water with some [illegible] sand few fragments only sporadic returns	
		01	60% diorite some [illegible] rhy frag. 40% rhyolite pebbly gravel dk br. water [illegible] med. to fine sand [illegible]	
		02		
		03	18' - brn silty water	
		04	70% dior. coarse pebbly till	
		05	10% gran.	
			10% rhy.	
		06	10% tuff	
			19½' BEDROCK rhyolite gray increasing pink & finer [illegible] some banding.	
			28' EOH	

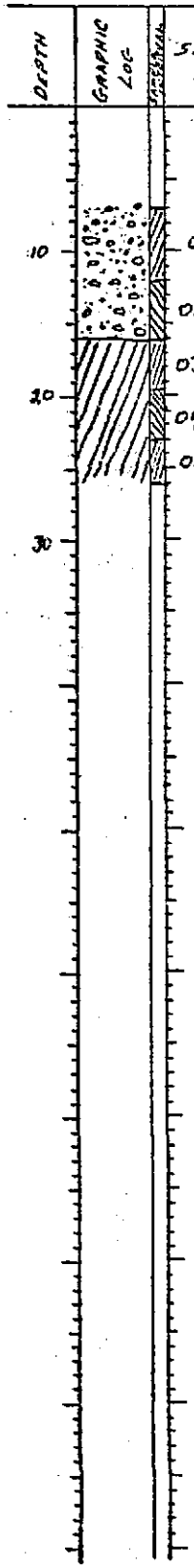
DATE Oct. 11/79 HOLE No. RD-80 GEOLOGIST MICHAELIS DRILLER MAYNARD

HOLE LOCATION 56E / 10+50S

BIT No. H-7997 FOOTAGE ON BIT 46' + 26' = 72'

HOURS MOVE _____ HOURS DRILL 10:45 - 12:10 OTHER _____

[illegible] 828.5



DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-7' No RETURN	
			7' Pebbly - Cobbly till 50% Diorite 20% Rhyolite 20% Felsic Tuff 10% Granite. Silty - Sandy matrix. Grey water.	
10		01		
		02		
		03		
20		04	16'-17' BEDROCK - Rhyolite. (revised ashfall tuff)	
		05	17'-19' Rhyolite & Diorite, interfingers of:	
			19'-21' Rhyolite	
30			21'-26' Diorite.	
			26' EOH.	

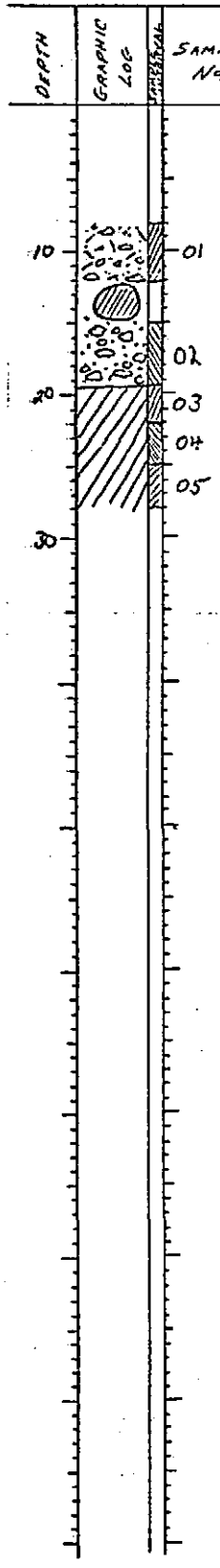
DATE Oct. 11/79 HOLE No. RD-81 GEOLOGIST MICHAELIS DRILLER MAYNARD

HOLE LOCATION 51E / 12S

BIT No. H-7995 FOOTAGE ON BIT 0 + 28' = 28'

HOURS MOVE _____ HOURS DRILL 2:15 - 4:45 OTHER _____

Elevation ≈ 857 2 [illegible] elevation ≈ 837.5



DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-8' No RETURN	
			8'-12' Pebbly - Cobbly till (Poor return)	
10		01	80% Diorite	
			20% Rhyolite.	
			silty matrix with clay balls.	
			Grey - Brown water.	
		02	12'-15' BOULDER - Rhyolite.	
20		03	15'-19½' Cobbly till.	
		04	30% Diorite.	
		05	30% Rhyolite.	
30			20% Felsic tuff	
			20% Granite.	
			sandy matrix.	
			Brown water	
			19½' BEDROCK.	
			Pink Rhyolite.	
			28' E.O.H.	

DATE OCT 12/79 HOLE No. RO-82 GEOLOGIST P. CASHIN DRILLER Michel

HOLE LOCATION 48E / 13 + 50 S

BIT No. H 7995 FOOTAGE ON BIT 19.5' + 15' = 34.5'

HOURS MOVE _____ HOURS DRILL 8:25AM - 9:20AM OTHER _____

El ≈ 945 B.H.el ≈ 932

DEPTH	GRAPHIC LOG	SAMPLE INTERVAL	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
				0'-7' NO RETURN - BOULDERY GRAVEL	
			01	7' - BEDROCK	
			02	Fine grained massive ~~[illegible]~~ diorite highly fractured - limonite on fracture surfaces - epidote stringers	
				12' - rhyolite fragment returned with the diorite (proximity to rhyolite - diorite contact)	
				14' - Fine grained pink rhyolite → highly silicified → massive	
				Water - reddish - brown	
				Fine grained diorite present	
				15' - E.O.H	

DATE OCT 12/79 HOLE No. RD-83 GEOLOGIST R CASHIN DRILLER Michel

HOLE LOCATION 46+50 E / 14 S

BIT No. H 7995 FOOTAGE ON BIT 34.5' + 15' = 49.5'

HOURS MOVE _____ HOURS DRILL 9:50 AM - 11:00 AM OTHER _____

Cl = 765 Red Cl = 952.5

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0'-4.5' NO RETURN	
			BOULDERY	
			-> material drilled very resistant	
		01		
		02	4.5' SPORADIC RETURNS	
			60% diorite - fine grained	
		03	40% fine grained grey brown rhyolite	
			- BOULDERY GRAVEL	
			- brown water ; silt sized matrix	
			5' - BOULDERY GRAVEL	
			80% fine grained diorite	
			15% pink rhyolite	
			5% lithic tuff fragments (contains subrounded rhyolite)	
			greyish brown water	
			fine silty matrix	
			6.5' BEDROCK	
			Fine grained massive diorite with approximately 5% pinkish rhyolite fragments contained in it	
			highly fractured	
			7.5' - Fine grained massive grey diorite	
			- highly fractured	
			- limonite on fractures	
			- epidote stringers	
			- grey water	
			10' Reddish ashfall tuff	
			- fragmented lithic spores	
			phenocrysts up to 4 mm	
			- blebs of chlorite	
			- fine grained granular purple rhyolitic matrix	
			13.5 glassy massive pink rhyolite	
			rounded quartz phenocryst (2mm)	
			- highly fractured	
			- epidote stringers	
			With fine grained grey diorite	
			NOTE: Crosscut to diorite - rhyolite contact	
			15' E.O.H.	

DATE OCT 12/79 HOLE No. RD-84 GEOLOGIST R.CASHIN DRILLER Michel

HOLE LOCATION 46+25E / 15+75S

BIT No. H 7995 FOOTAGE ON BIT 49.5' + 18' = 67.5'

HOURS MOVE _____ HOURS DRILL 12:00 AM - 12:45 PM OTHER _____

C.I. ≈ 275 P.I. ≈ 212

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0'-5' NO RETURNS - BOULDERY SAND	
		01	5' SANDY GRAVEL	
			75% rhyolite	
			25% fine grained diorite	
		02	- fine sandy matrix	
			- water is pinkish-brown	
		03	6.5' BOULDERY GRAVEL	
			- 95% lithic tuff (silicified)	
			5% fine grained diorite	
			sandy matrix	
			8' - ~~Sandy matrix with cuttings~~	
			- Bouldery sand	
			- 55% lithic tuff	
			45% diorite	
			- brownish water	
			- fine silt sized matrix	
			12' - 85% rhyolite	
			10% diorite	
			5% pink granite	
			Reddish-brown water	
			13' BEDROCK	
			Fine grained massive diorite	
			- grey	
			- Lightly fractured → limonite on fracture surfaces	
			- epidote stringers	
			(reworked ash fall tuff) rhyolite fragments present with the diorite (indicates proximity to rhyolite-diorite contact)	
			15' - lenses of red clay observed → water reddish	
			18' E.O.H.	

DATE OCT 12/79 HOLE No. RD-85 GEOLOGIST P.CRAHAN DRILLER Michel

HOLE LOCATION 42+75E / 19S

BIT No. H7993 FOOTAGE ON BIT 0' + 17.5'

HOURS MOVE _____ HOURS DRILL 1:30pm - 2:50pm OTHER NEW BIT

El ≈ 220 L.J. Cl. 206.5

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0'-5' NO RETURNS - BOULDERY	
			5' BOULDERY GRAVEL	
			- fine sandy matrix	
			- reddish-grey water	
		01	70% dioritic fine grained lithic Tuff	
		02	10% diorite	
			20% banded rhyolite (PINK)	
		03	6.5' 50% diorite	
			50% massive diorite	
			- reddish grey waters	
			- fine silt-sized matrix	
			7.5' - Cobbly sand	
			50% diorite	
			30% massive rhyolite	
			20% lithic tuff	
			- silty matrix	
			- brownish water	
			11' 65% diorite	
			35% rhyolite	
			12' 65% diorite	
			15% lithic tuff	
			20% glassy rhyolite	
			- brown water	
			13' 75% diorite	
			25% rhyolite	
			- medium sand sized matrix	
			- brown water	
			- may be some small quantity of clay	
			13.5' BEDROCK	
			Fine grained diorite with numerous rhyolite fragments (proximity to diorite-rhyolite contact)	
			highly fractured	
			- epidotized stringers	
			→ limonite on fracture surfaces	
			14' - Purplish red massive rhyolite	
			→ has obviously been silicified	
			15' - Fine grained diorite with numerous rhyolite fragments	
			→ highly fractured	
			→ epidote stringers	
			17.5' E.O.H.	

DATE OCT 12/79 HOLE No. RD-86 GEOLOGIST R.CASHIN DRILLER Michel

HOLE LOCATION 40E / 22+25S

BIT No. H7993 FOOTAGE ON BIT 17.5' + 15' = 32.5'

HOURS MOVE _____ HOURS DRILL 4:20pm - 5:45pm OTHER 4:20pm - 4:35pm FITTING CHANGE

El ≈ 825 Bedrock el ≈ 814.5'

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0'-6' NO RETURN - BOULDERY	
		01	6'- BOULDERY SAND 60% Diorite	
		02	40% fine grained massive rhyolite - grey water - fine sand sized matrix	
			7'- 65% diorite 35% Rhyolite - slightly darker grey than previous - sandy silt matrix - Bouldery sand	
			8.0' - Sandy silt matrix grey brown water 70% diorite 30% rhyolite	
			10.5' - BEDROCK Fine grained purplish red massive rhyolite - highly fractured limonite in fractures	
			15' E.O.H. Rimmed to Lithic Tuff	

DATE Oct 13/79 HOLE No. RD 87 GEOLOGIST J. Petrie DRILLER M. Maynard

HOLE LOCATION 34+00E, 18+50 S

BIT No. _____ FOOTAGE ON BIT _____

HOURS MOVE _____ HOURS DRILL 8:50 – 11:00 OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0 – 6 1/2' No Return	
			6 1/2 – 7' Pebbly till water Brown Silty matrix Rhyolite 30% Diorite 40% tuff 15% granite 5%	
10		01 01 02	7' – 10' No Return	
		02	10' – 12' Pebbly till same as 6 1/2 – 7'	
20			12 – 13 1/2 Pebbly till water grey sandy matrix Rhyolite 40% Diorite 45% tuff 15%	
30			13 1/2' – 16' Boulder Rhyolite	
			16' – 20' Cobbly till Rhyolite 65% Diorite 15% granite 5% tuff 15%	
			lost part of bit down hole so hole was discontinued at 20'	

DATE Oct 13 179 HOLE No. RD 88 GEOLOGIST J Petrie DRILLER M Maynard

HOLE LOCATION 33+50 E, 16+00 S

BIT No. T 995 FOOTAGE ON BIT 35'

HOURS MOVE 11:00-1:40 HOURS DRILL 1:40-4:10 OTHER 11:40-1:40 for fixing of water pump

El ≈ 795 [illegible] ≈ 770

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-7' No Return	
			7'-12' Cobbly till Silty matrix water grey Rhyolite 45% Diorite 45% granite 5% tuff 5%	
10		01		
		02	12'-17' Pebbly till Water grey Silty matrix Diorite 70% Rhyolite 25% tuff 5%	
20		03		
		04	17'-22' Pebbly till Water Brown matrix sandy Diorite 50% Rhyolite 50%	
		05		
30		06		
		07	22'-25' Till same as 17'-22'	
			25'-28' Bedrock Rhyolite Water Clear	
40			28'-31' Rhyolite } revised to lithic tuff 31'-35' Rhyolite }	

DATE October 15/79 HOLE No. RD-89 GEOLOGIST Fulkes DRILLER Mayrand

HOLE LOCATION 35+00E 14+00S

BIT No. T998 FOOTAGE ON BIT 26'+26' = 52'

HOURS MOVE _____ HOURS DRILL 8:25-10:20 OTHER _____

Cl ≈ 780 Bedrock Cl = 759

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-10' no return (grey silty water only @ 6')	
			10' pebbly & cobbly gravel with fine silt & sand matrix.	
10		01	45% rhyolite 45% diorite 10% diorite with rhyolite fragments. small silty clay lumps. white colour.	
		02	13.5-14.5 well sorted 4mm size	
20		03	14.5-15.5 no return	
		04	16' increase % diorite. brown silty water. fine sand matrix	
30			20' red brown water. abundant fine sand matrix. 80% diorite	
			21' BEDROCK. hematized massive diorite with epidote stringers. grey to white water	
40			26' E.O.H.	

DATE October 15/79 HOLE No. RD-90 GEOLOGIST Foulkes DRILLER Meyrand

HOLE LOCATION 36+00E 11+50S

BIT No. H 7955 FOOTAGE ON BIT 0+18' = 18'

HOURS MOVE _____ HOURS DRILL 11:15-1:50 OTHER _____

EL=790 [illegible] EL=774.5

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-8' no return (return all at 8')	
			8' cobbly till with fine sand & silt matrix	
10		01	~~60% diorite with epidote~~ 40% porphyritic rhyolite grey silty water	
		02		
		03	9-9.5 no return (possible boulder)	
20			9.5' cobbly gravel 50% diorite, 50% rhyolite only small % porphyritic fine sand matrix buff water.	
30			13' very bouldery 80% diorite 20% rhyolite. black sand size matrix. brown silty clay lumps. grey water.	
40			15.5' BEDROCK massive diorite with feldspar stringers. very hard.	
			16.5' epidote & hematite alteration. poor return	
			18' E.O.H.	

DATE Oct 15/79 HOLE No. RD-91 GEOLOGIST Foulkes DRILLER Maynard

HOLE LOCATION 38+00E 10+00S

BIT No. H7955 FOOTAGE ON BIT 18'+18'=36'

HOURS MOVE _____ HOURS DRILL 2:10-3:20 OTHER _____

[illegible] ≈ 825 [illegible] 810'

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-7 no return	
			7' pebbly gravel 80% rhyolite (fragmental) 10% diorite & epidote stringers	
10		01	10% diorite/rhyolite breccia fine sand matrix brown buff water.	
		02		
		03	9' very clean medium grained sand matrix	
20			9.5' brown water	
			13' 20-30% diorite - darker brown water.	
30			14' grey water. fine sand matrix	
			15' BEDROCK massive diorite. fractured and sheared. clear grey water.	
			18' E.O.H.	

DATE October 15/79 HOLE No. RD-92 GEOLOGIST Jenkins DRILLER Maynard

HOLE LOCATION L 40+00E / 9+00S

BIT No. H7955 FOOTAGE ON BIT 36'+18' = 54

HOURS MOVE _____ HOURS DRILL 3:55-4:35 OTHER _____

C/ ≈ 845 @ bedrock Elevation ≈ 730

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-8 no return	
			8' brown silty water only. fine sand & silt.	
10		01	12' gray water with cobbly gravel medium to coarse sand. 60% rhyolite, 40% diorite	
		02		
		03*	15' BEDROCK - hematized diorite: massive fractured and sheared.	
			17' fresh diorite	
			18' E.O.H.	
			→ #2 ON ASSAY SHEETS	

DATE Oct. 16/79 HOLE No. RD-93 GEOLOGIST MICHAELIS DRILLER MAYNARD

HOLE LOCATION 44E / 9S

BIT No. H 7955 FOOTAGE ON BIT 54' + 23' = 77'

HOURS MOVE _____ HOURS DRILL 9:00 - 11:20 OTHER _____

[illegible] 860 [illegible] el = 243

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-8' No RETURN	
			8' Pebbly - till. 40% diorite. 30% rhyolite. 20% tuff. 10% granite. sandy matrix; large amount of: Grey water.	
10		01		
		02		
		03		
20		04 #5 ON ASSAY SHEETS	12½' Diorite BOULDER.	
			13' Cobbly till with coarse pebbles. 40% diorite. 40% rhyolite. 10% tuff. 10% granite. silty matrix. Brown water.	
30			17' BEDROCK - Diorite with extensive epidote.	
			23' E.O.H.	

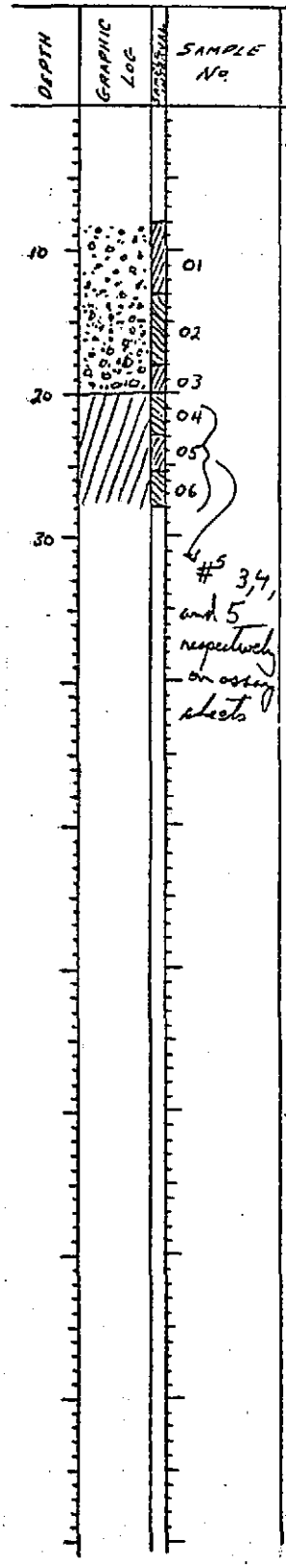
DATE Oct. 16/79 HOLE No RD-94 GEOLOGIST MICHAELIS DRILLER MAYNARD

HOLE LOCATION 45E/55

BIT No. H7959 FOOTAGE ON BIT 0+28'=28'

HOURS MOVE _____ HOURS DRILL 11:50-1:45 OTHER _____

El ≈ 815 Bedrock El = 795



DESCRIPTIVE LOG	ANALYSES
0-8' No Return	
8' Pebbly till. 70% Felsic Tuff. 20% Diorite. 5% Rhyolite 5% Granite. Sandy matrix. Grey-Brown water.	
14' Pebbly till. 40% Tuff. 30% Diorite. 20% Rhyolite. 10% Granite. Sandy matrix Brown water.	
18' Coarse Pebbly till. 40% Diorite. 25% Tuff. 25% Rhyolite. 10% Granite. Sandy matrix Brn. water.	
20' BEDROCK - Grey Rhyolite, becoming increasingly pink, with large quartz phenocrysts + banding. Small diabase stringers at 21'+22' with alteration of rhyolite at the contacts.	
28' E.O.H. Reward to ashfall tuff	

DATE Oct. 16/79 HOLE No. RD-95 GEOLOGIST MICHAELIS DRILLER MAYNARD

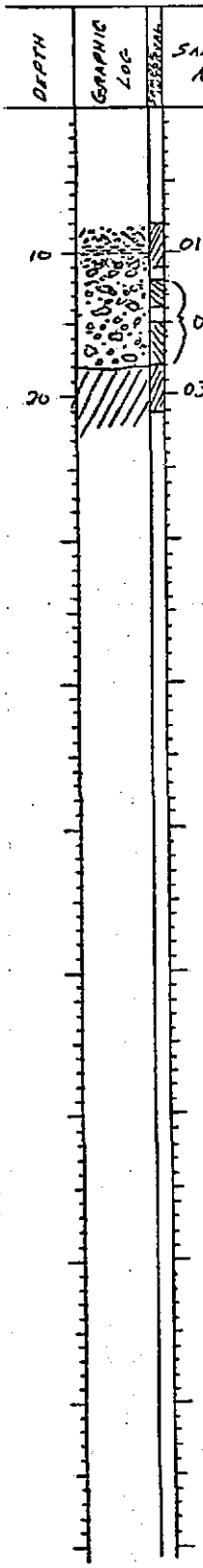
HOLE LOCATION 46E / 3S

BIT No. H-7959 FOOTAGE ON BIT 28'+23' = 51'

HOURS MOVE _____ HOURS DRILL 2:15 - 5:15 OTHER Clogged rods

2:45 - 3:00 & 3:45 - 4:30 : CHANGED ADAPTER & CHOKER at 18'

El = 825 P.J. El = 807



DESCRIPTIVE LOG	ANALYSES
0-8' No RETURN. (grey clay in clogged rods)	
8' Fine pebbly till. 40% diorite 40% rhyolite. 10% granite 10% tuff. sandy matrix with clay balls. grey water.	
9½' clay layer (grey) with small pebbles.	
10' see 8' interval.	
11' rods clogged no return.	
12' Coarse pebbly till. 40% diorite. 30% tuff 20% rhyolite 10% granite. sandy matrix Brown water.	
14' clogged rods no return	
15' see 12' interval.	
18' BEDROCK - Diorite with epidote & hematite.	
22' interfingers of diorite & rhyolite -increasing rhyolite content. (Reward to xtal tuff)	
23' Bit ruined cannot continue. E.O.H.	

DATE October 17/72 HOLE No. RD-96 GEOLOGIST Fulker DRILLER Maynard

HOLE LOCATION 46+00E 0+00N

BIT No. H 7956 FOOTAGE ON BIT 0+28'=28'

HOURS MOVE _____ HOURS DRILL 9:45-11:45 OTHER _____

800-9:45 Move rods & water pump & move drill

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5.5' no returns	
			5.5' brown-grey silty water only	
10		01	6' well sorted pebbly gravel 60-70% diorite 30-40% rhyolite - fragmental fine grey sand matrix grey water.	
		02		
		03	8' brown buff water & silty sand 50% rhyolite - fragmental, pink & white 40% diorite, ≤10% tuff & granite	
20		04		
		05	9.5' red brown water and medium - fine sand. increase % diorite. Sorted very sandy.	
30			11.5-12.0 rhyolite boulder	
			12' coarse cobbly gravel. same as 9.5'	
40			14' brown buff water	
			17' orangey brown water. clear. 70% rhyolite (fragmental) 20% white rhyolite ≤10% diorite	
			19' BEDROCK fragmental rhyolite fractured & sheared. - sandy texture. brown buff water.	
			28' clear white water	
			28' E.O.H.	
			Revised to Crystal tuff	

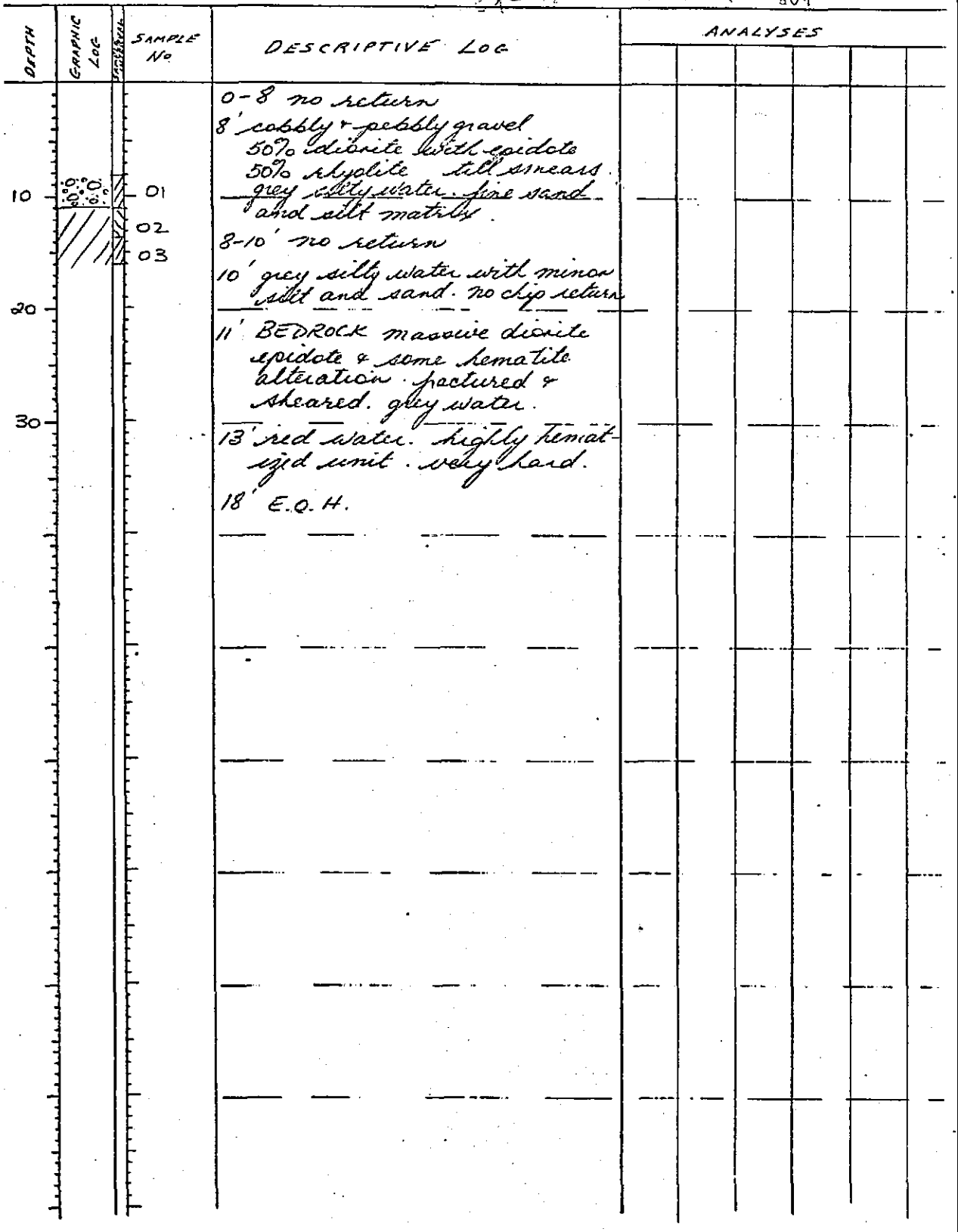
DATE October 17/79 HOLE No. RD-97 GEOLOGIST Faulkes DRILLER Maynard

HOLE LOCATION 45+80E 3+00N

BIT No. H 7956 FOOTAGE ON BIT 28 + 18 = 46'

HOURS MOVE _____ HOURS DRILL 12:30 - 2:30 OTHER _____

El = 820' El = 802'



DATE October 17/79 HOLE No. RD - 98 GEOLOGIST Faulkner DRILLER Maynard

HOLE LOCATION 46+75E 5+50N

BIT No. H7956 FOOTAGE ON BIT 46' + 18 = 64'

HOURS MOVE _____ HOURS DRILL 3:05-5:00 OTHER _____

--- 15 minutes (pull rods)

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-7.5 no return	
			7.5 diorite boulder to 8'	
10		01	8' cobbly gravel (return @ end of rod) 50% rhyolite - fragmental 30% diorite, 20% granite & granophyre grey water. fine sand matrix.	
		02		
		03		
20			12' 70% diorite with rhyolite fragments 30% rhyolite & granite very coarse. dark medium sand matrix. brown water.	
30			14. BEDROCK massive fresh diorite. epidote stringers from 15'. fractured & sheared.	
			18' E.O.H.	

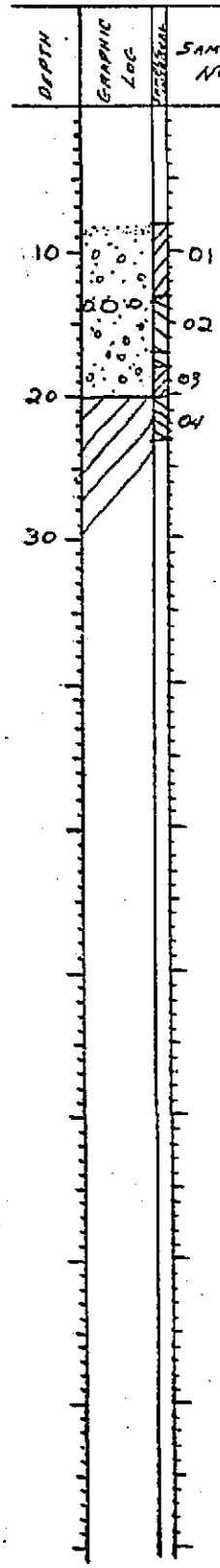
DATE Oct 18179 HOLE No. RD-99 GEOLOGIST J Peters DRILLER M Maynard

HOLE LOCATION 46+00 E , 8+00 N

BIT No. H 7956 FOOTAGE ON BIT 62' + 23' = 85'

HOURS MOVE _____ HOURS DRILL 9:00 AM - 10:10 AM OTHER _____

CP = 23' B. [illegible] = 8[illegible]'



DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0 - 8' No Return	
			8' Silty overburden, Brown water	
			9'-13' Pebbly till	
			40% Rhyolite	
10		01	45% Diorite	
			15% tuff	
		02	matrix silty - fine sand	
			water Brown	
		03	13'-14' Cobbly till - 80% Rhyolite	
20		04	15% Diorite	
			5% tuff	
			water Brown	
			sandy matrix	
30			13'-18' Pebbly till same composition as till	
			at 9'-13' except sandy matrix	
			18'-20' Pebbly till same as 9'-13' except sandy matrix	
			20' Bedrock, diorite	
			water clear	
			20'-23' Diorite, clear water	
			23' End of hole	

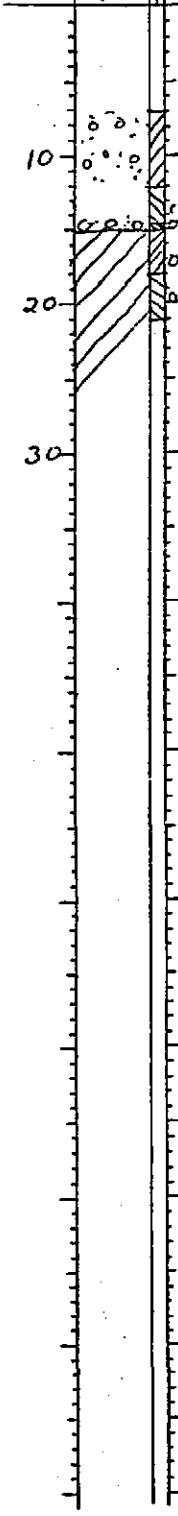
DATE Oct 18/79 HOLE No. RD 100 GEOLOGIST J Petrie DRILLER M Maynard

HOLE LOCATION 44+00 E 12+00 N

BIT No. H 7956 FOOTAGE ON BIT 85'+21' = 106'

HOURS MOVE 10:10-11:00 HOURS DRILL 11:00 2:45 OTHER 12:00-1:00

turning upright flipped timber jack.



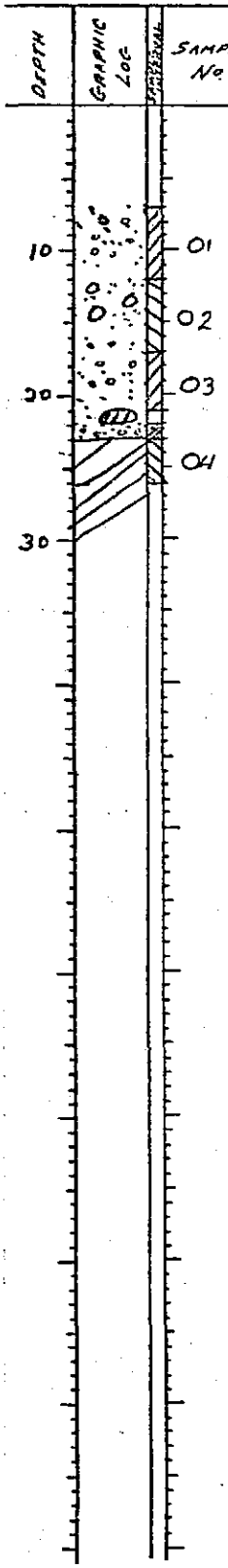
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-7' No Return	
			7'-12' Pebbly till Diorite 50% Rhyolite 45% (Brick red) tuff 75%	
10		01	Water grey matrix silty	
			12'-14½ No Return	
		02	14'-15' Cobbly till Rhyolite 50% Diorite 50%	
		03	matrix sandy	
20		04	Water grey	
			15' Bedrock Rhyolite	
			15'-18' flow banded, grey in color with disseminated pyrite water clear	
30			18'-21' Rhyolite same as 15'-18'	
			21' End of hole	
			Revised to Lithic tuff	

DATE Oct 18 79 HOLE No. RD 101 GEOLOGIST J Peters DRILLER M Maynard

HOLE LOCATION 44+00E 15+00N

BIT No. H 7957 FOOTAGE ON BIT 26'

HOURS MOVE 2:45 - 3:40 HOURS DRILL 3:40 - 5:15 OTHER



DESCRIPTIVE LOG	ANALYSES
0-7' No Return	
7'-12' Pebbly till Rhyolite 30% diorite 40% stuff 15% granite 5%	
Water grey material silty	
12'-15' Cobbly till water Brown Rhyolite 55% material sandy	
diorite 40%	
stuff 5%	
15'-17' Cobbly till Rhyolite 55%	
Diorite 25%	
stuff 15%	
granite 10%	
Water Brown material sandy	
17'-21' till same as 15'-17'	
21'-22' boulder Rhyolite	
22'-23' till same as 15'-17'	
23'-26' diorite (Bedrock) water clear	
26' End of hole	

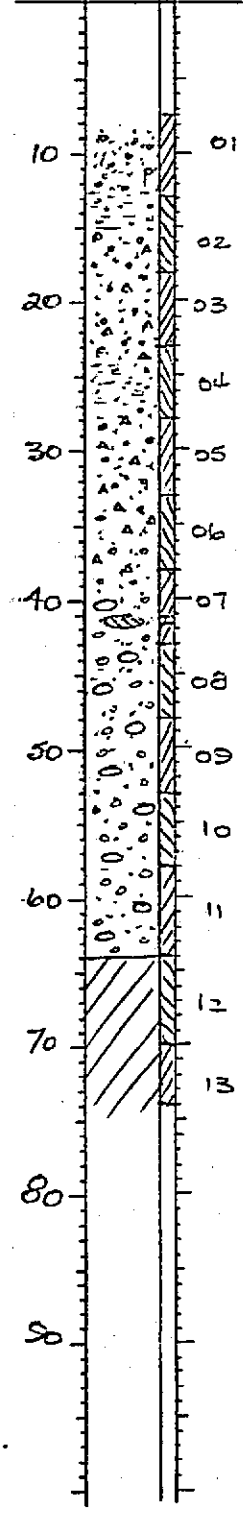
DATE October 19/79 HOLE No. RD-102 GEOLOGIST Forbes DRILLER Maynard

HOLE LOCATION 42+00E 22+50N

BIT No. H7957 FOOTAGE ON BIT 26'+74'=100'

HOURS MOVE _____ HOURS DRILL 9:25-11:40 12:30-2:40 OTHER _____

40 minutes - wait for more rods. 1:00-1:30 oil change.



DESCRIPTIVE LOG	ANALYSES
0-7.5' no returns	
7.5' red water - minor chips ~ 100% diorite. fine black sand.	
10' increase in % rhyolite 20-30%	
12' virtually all clay.	
15' pebbly till. fine sand matrix 80% diorite 10% rhyolite & granite 10% carboniferous sediments	
21.5-23 clay with little pebbly material.	
23-26 thick red brown mud & clay.	
26 pebbly till as above	
33' 55% diorite, 30% rhyolite 10% carboniferous <5% granite.	
43' sandstone boulder with sulphides	
42' pebbly till - clay chunks red water & fine silty matrix 45% diorite 40% granite 10-15% carboniferous 5% rhyolite	
50' increase in diorite to 90% with sulphides: granite 5%	
65' BEDROCK altered porphyritic rhyolite. green colour. clear orangey brown water. Brecciated to 66'	
70' Massive diorite. brown buff water	
71' porphyritic rhyolite. pink & green fractured & sheared.	
74' E.O.H.	
-12 Ashfall tuff	
-13 Massive Rhyolite	

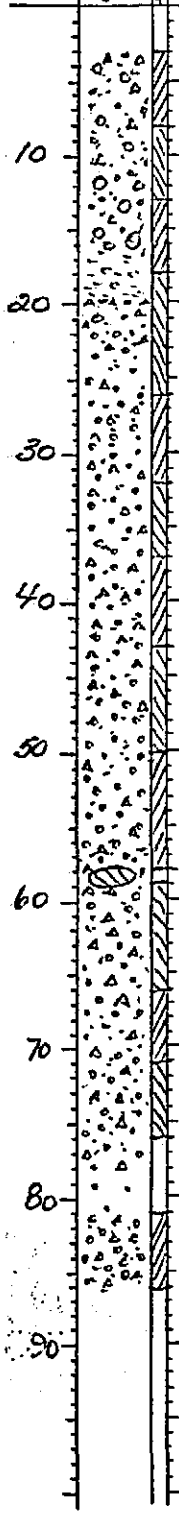
DATE October 19/79 HOLE No. RD-103 GEOLOGIST FOULKES DRILLER MAYNARD

HOLE LOCATION 43+75E 33+00N

BIT No. H7957 FOOTAGE ON BIT 100' + 86' - 186'

HOURS MOVE _____ HOURS DRILL 3:25-5:45 OTHER _____

bedrock not reached. rods not turning



DESCRIPTIVE LOG	ANALYSES
0-3' no return	
3' pebbly, cobbly gravel with red blown clay cover. silty till. 80% diorite with epidote & feldspar, 20% schistite, 10% carboniferous, 10% granite. thick silty brown-pink water	
14' red clay with minor pebbles ~100% diorite	
25' red clay & water. pebbly till 50% diorite 30% schistite 20% carboniferous.	
28' bright orangish water to 28.5'	
32' clay & pebbles ~80% diorite red-brown water.	
58' diorite boulder to 59'	
71' pebbly gravel 90% diorite 10% red fine silty matrix.	
76-81' no return	
81' same as 71'	
86 E.O.H. no bedrock.	

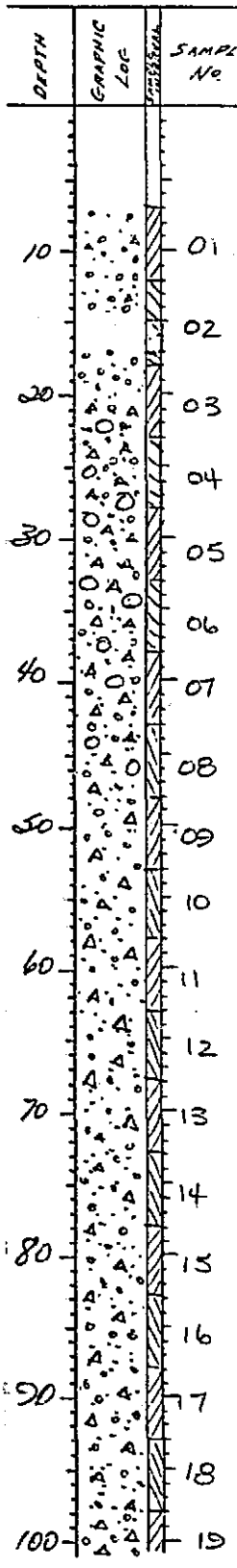
DATE October 20/79 HOLE No. RD-104 GEOLOGIST PETRIE DRILLER HAYNARD

HOLE LOCATION 45+00E 21+80N

BIT No. H7958 FOOTAGE ON BIT 0+138' = 138

HOURS MOVE 10:00-10:45 HOURS DRILL 10:45- OTHER

page 1 of 2



DESCRIPTIVE LOG	ANALYSES
0-7 no return	
7'-15' pebbly till 45% rhyolite 50% diorite 5% tuff silty matrix grey water	
15-17 no return	
17' pebbly till. same composition as 7-15'. Brown water	
20' red clay & water with pebbly till	
23' cobbly till 80% Diorite 20% rhyolite clay matrix. Sudon water	
35' sandy matrix & red clay. 50% Diorite, 40% rhyolite, 10% granite. Brown water	
44' silty matrix.	
48' pebbly till 90% Diorite 10% rhyolite with red clay. same unit to bedrock.	

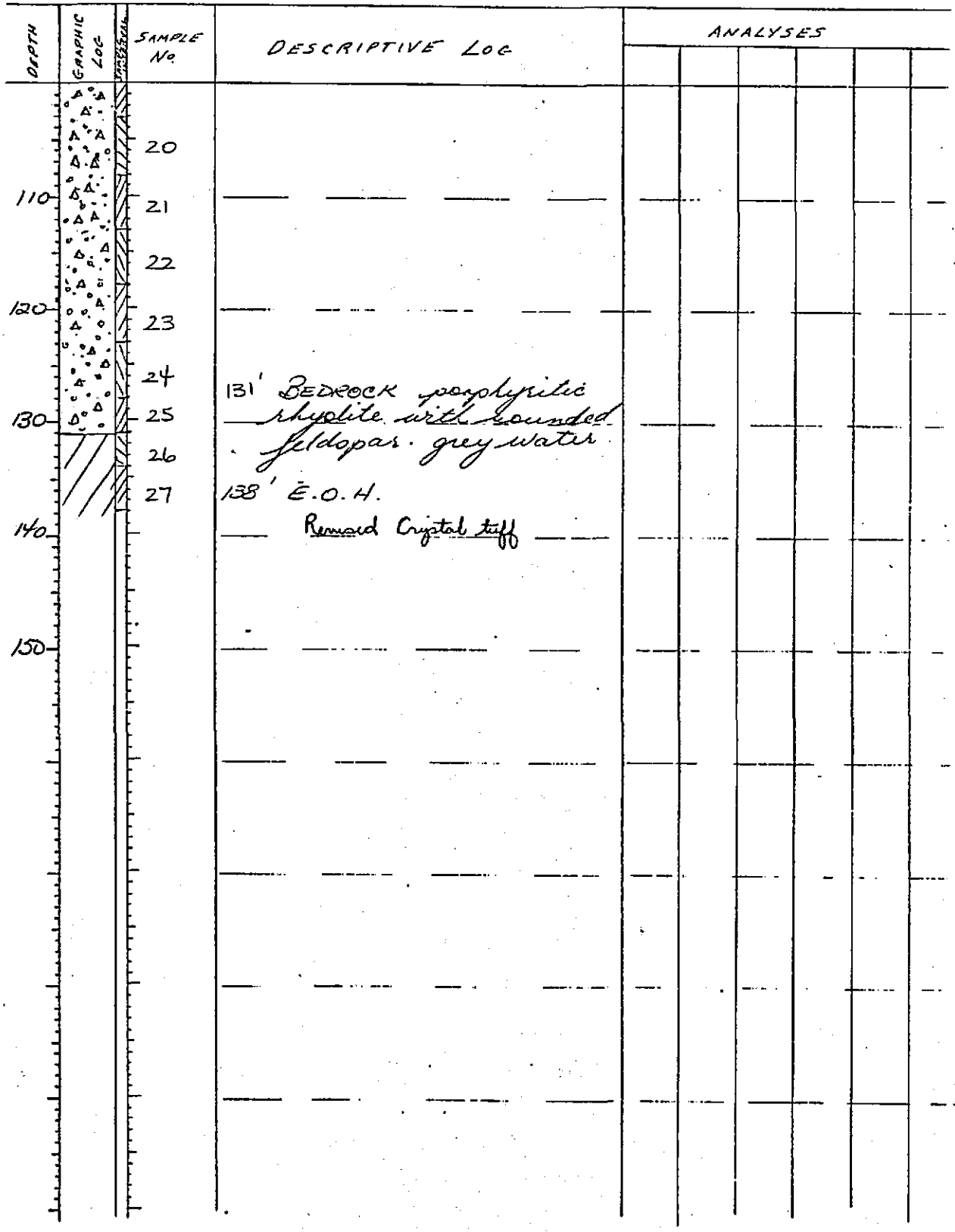
DATE October 20/79 HOLE No. RD-104 GEOLOGIST PETRIE DRILLER MAYNARI

HOLE LOCATION 45+00E 21+80N

BIT No. H 7958 FOOTAGE ON BIT

HOURS MOVE 10:00-10:45 HOURS DRILL 10:45- OTHER

continued: page 2 of 2



DATE Oct 28/79 HOLE No. BD-105 GEOLOGIST Joubin DRILLER Maynard

HOLE LOCATION 48+50E 30+00N

BIT No. H7958 FOOTAGE ON BIT 138'+10' = 148'

HOURS MOVE 10:30-12:45 HOURS DRILL 12:45-1:10 OTHER

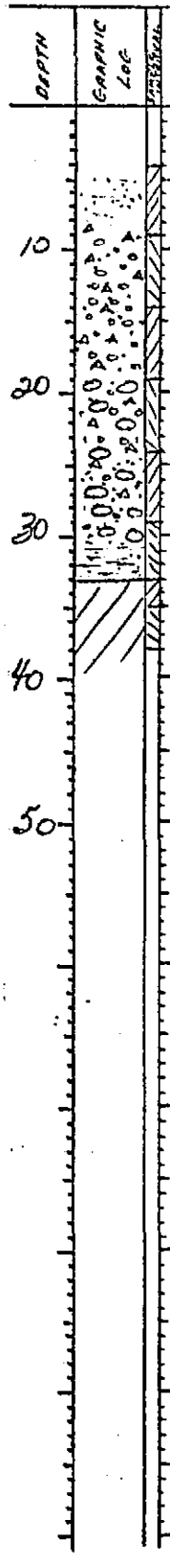
DEPTH	GRAPHIC LOG	STRATIGRAPHIC	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			01	0-5 no return 5' BEDROCK · dark green to black diorite grey water E.O.H. 10'	

DATE Oct 23/79 HOLE No. RD-106 GEOLOGIST OWEN DRILLER MAYNARD

HOLE LOCATION 47E 25N

BIT No. H 7958 FOOTAGE ON BIT 148'+38'=186'

HOURS MOVE 1:10-2:05 HOURS DRILL 2:05-4:15 OTHER



DESCRIPTIVE LOG	ANALYSES
0-4 no return	
4-6 red silt & water	
6' red clay ± 90% diorite 10% rhyolite	
9' pebbly till with red clay 50% diorite, 10% granite 40% carbonaceous sediments	
24' very coarse till with red clay 50% rhyolite, 30% diorite 20% sandstone.	
31' mostly clay & water.	
33' BEDROCK dark green. diorite. light brown water. some rhyolite	
38' E.O.H.	

DATE Oct 23/79 HOLE No. RD-107B GEOLOGIST MICHAELIS DRILLER DAVNARD

HOLE LOCATION 47 E 19+50N

BIT No. H7996 FOOTAGE ON BIT 11' + 36' = 47'

HOURS MOVE _____ HOURS DRILL 3:35-5:00 OTHER _____

bedrock not reached.

DEPTH	GRAPHIC LOG	SAMPLE INTERVAL	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
				0-5 no return	
				5-8' grey brown water sandy with few fragments.	
10			01	8-11' no return	
				11' red brown sandy water. sporadic return pebbly till. 50% diorite 30% rhyolite 20% carboniferous sandstone & granite	
20					
			02	18' no return	
30			03	25' abundant sand. outwash channel?	
				33' no return	
				36' E.O.H. Hole abandoned before bedrock was reached. (strong upward pressure from aquifer in outwash sand?)	

DATE October 23/12 HOLE No. RD-107A · GEOLOGIST MICHAELIS DRILLER HAYWARD

HOLE LOCATION 46+80E 19+50N

BIT No. H 7958 FOOTAGE ON BIT 186+27=193' new bit @ 27' + checker 0+11' = 11' (H7996)

HOURS MOVE _____ HOURS DRILL 9:30-2:30. OTHER _____

clogged pipes from 12:00 - 1:30.

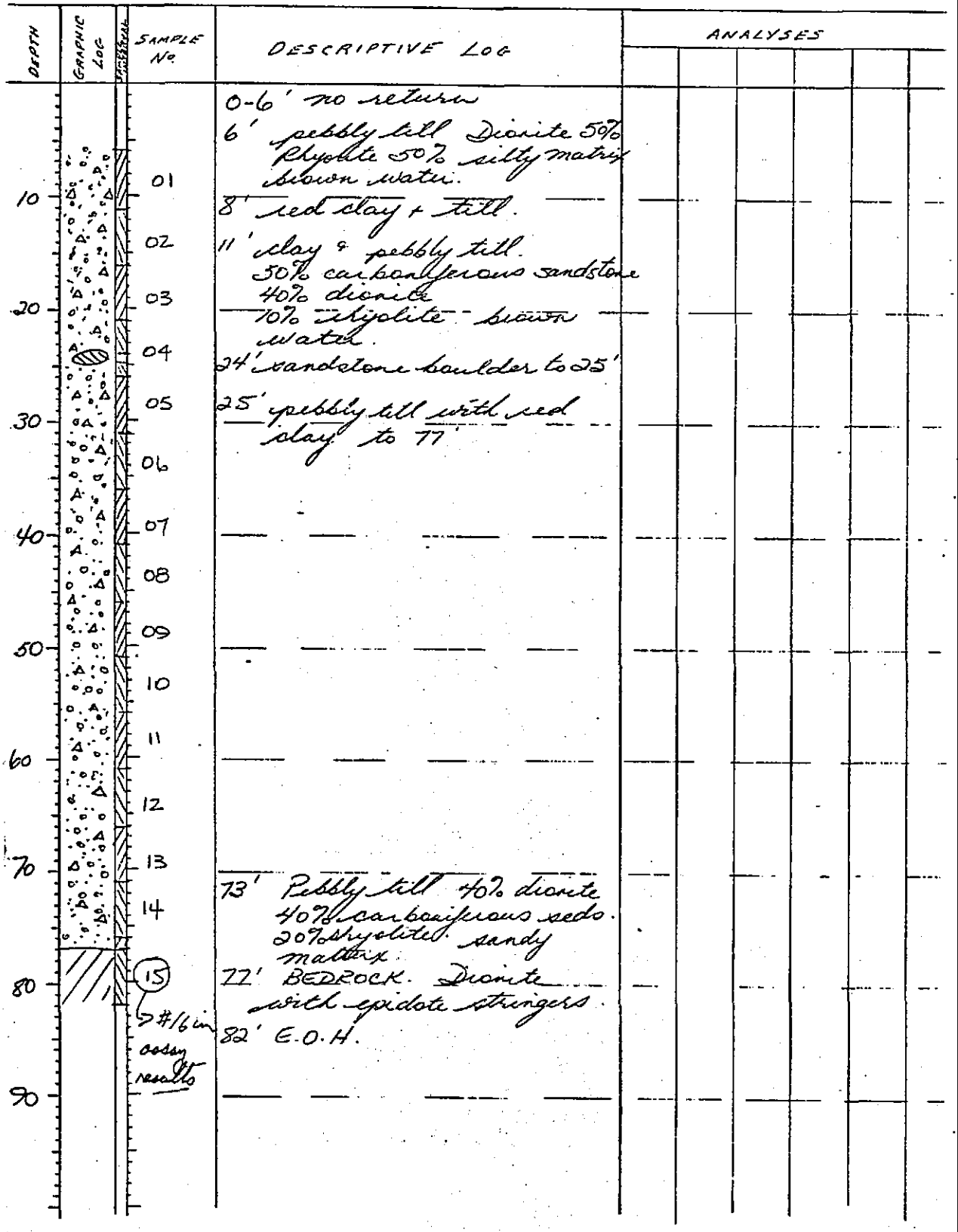
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-7 no return	
			7' pebbly till. brown water silty sand matrix. outwash? 50% diorite, 30% schistite 20% granite.	
10		01	12' no return	
			17' same as 7'	
			27' no return	
20			38' E.O.H. no bedrock reached. move drill to new location.	
		02		
30				
40				

DATE October 24/72 HOLE No. RD-108 GEOLOGIST RITTLE DRILLER MAYNARD

HOLE LOCATION ~50E 18+50N

BIT No. H 7926 FOOTAGE ON BIT 47+82 = 129'

HOURS MOVE _____ HOURS DRILL 9:15 - 2:45 OTHER _____

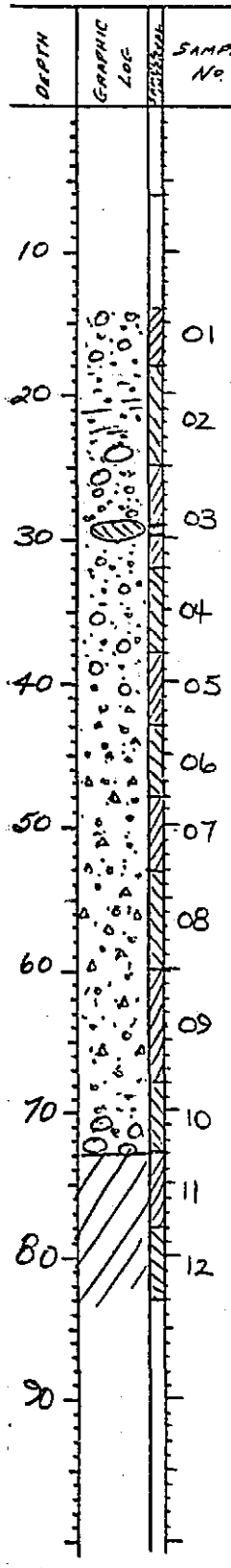


DATE October 24/79 HOLE No. RD-109 GEOLOGIST OWEN DRILLER MAYNARD
October 25/79 FOULKES
HOLE LOCATION 52E 19N

BIT No. H7996 FOOTAGE ON BIT 118' + 83 = 201'

HOURS MOVE _____ HOURS DRILL 3:15 - 6:00 OTHER _____
8:30 - 11:00

Stopped Oct 24 @ 18'



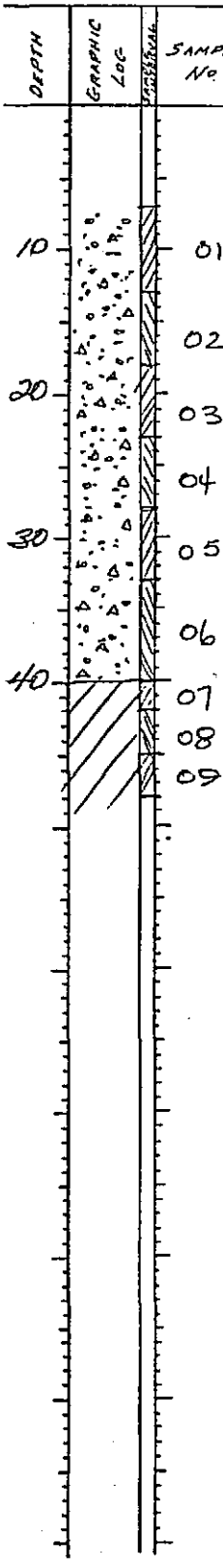
DESCRIPTIVE LOG	ANALYSES
0-6' no return	
6' poor return. pebbly & cobbly gravel. 60% diorite 30% rhyolite 10% sandstone.	
15' silty red clay & water.	
18' red clay with some pebbles. predominantly carboniferous sediments. minor rhyolite & granite.	
24' white sandstone cobble.	
26' pebbly & cobbly gravel. 50% diorite 30% carboniferous 20% rhyolite & granite all in red clay.	
29-30' diorite boulder.	
40' pebbly gravel. 50% carboniferous 40% diorite 10% granite & rhyolite. medium sand matrix (outwash?)	
45' increase in % diorite & rhyolite.	
59' fine pebble gravel silty matrix 50% diorite 30% carboniferous 10% rhyolite 10% granite & tuff.	
64' fine sand & silt matrix brown water 70% diorite 20% rhyolite 10% granite & carboniferous sediments	
70' very coarse cobbly gravel.	
73' BEDROCK - altered glassy diorite with epidote. brecciated.	
80' white water, massive less brecciated diorite	
83' E.O.H.	
Reverse to Crystal tuff	

DATE Oct 25/79 HOLE No. RD-110 GEOLOGIST Michaelis DRILLER Maynard

HOLE LOCATION 57+50E 13+60N

BIT No. L 71423 FOOTAGE ON BIT 0 + 48' = 48'

HOURS MOVE _____ HOURS DRILL 12:20 - 3:30 OTHER _____



DESCRIPTIVE LOG

0 - 7 no return.

7' Red brown water red clay (silty) lumps. 50% coh. bonifierous sandstone 30% diorite 20% rhyolite decreasing clay content.

40' BEDROCK. Rhyolite dark pink. massive with some epidote

48' E.O.H.

ANALYSES

DATE Oct 25/72 HOLE No. RD-111 GEOLOGIST Sulkis DRILLER Maynard

HOLE LOCATION 58100 E 12N

BIT No. L 71423 FOOTAGE ON BIT 48' + 28' = 76'

HOURS MOVE _____ HOURS DRILL 4:40 - 5:45 OTHER _____

El ≈ 800 Bedrock El ≈ 781

DEPTH	GRAPHIC LOG	CASING	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
				0-6' no return	
				6' first return. red silty water only.	
10			01	9' chunks of red pebbly clay 50% rhyolite 50% diorite	
			02	11 - 11.5' brown water. very sandy section.	
20			03	11.5' coarser till. 60% diorite 40% carboniferous rocks.	
			04	18.5' white sandstone cobble. with graphite.	
			05	19' BEDROCK. massive pink and grey rhyolite with brecciation. redder rhyolite with depth.	
30			#4,5 and 6 on assay sheets	25' rhyolite/diorite contact.	
				28' E.O.H	

DATE Oct 26/79 HOLE No. RD-112 GEOLOGIST OWEN DRILLER MAYNARD

HOLE LOCATION 60E 8N

BIT No. L 71423 FOOTAGE ON BIT 76'+18' = 94'

HOURS MOVE _____ HOURS DRILL 9:15 - 12:45 OTHER _____

El = 840 Bedrock El = 830

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-6' no return	
		01	6' grey water. pebbly gravel rhyolite 60%, diorite 30% 10% sediments. fine sand matrix	
10		02	10' BEDROCK	
		03	13' brown water. rhyolite with quartz phenocrysts.	
		04	dark greenish rhyolite.	
20			18' E.O.H.	
			Rewind to Ashfall tuff 02	
			Lithic tuff 03, 04	
30				

DATE Oct 26/79 HOLE No. RD-113 GEOLOGIST Petrie DRILLER Maynard

HOLE LOCATION 62+75E 6N

BIT No. L71423 FOOTAGE ON BIT 16'+44'=340'

HOURS MOVE 12:45-1:20 HOURS DRILL 1:20 - 2:25 OTHER

El ≈ 860' Bench El: 854'

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-6' no return	
			6' BEDROCK. Rhyolite/Diorite interfingering	
10		01		
		02	16' E.O.H.	
20				
30				

DATE Oct 26/72 HOLE No. RD-114 GEOLOGIST Foulkes DRILLER Maynard

HOLE LOCATION 62E 2N

BIT No. L 71423 FOOTAGE ON BIT 170' + 14' = 184'

HOURS MOVE 2:25-3:10 HOURS DRILL 3:10 - 4:20 OTHER

CP ≈ 467 Bench El = 562

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5' no return	
		01	5' Bedrock. massive rhyolite with feldspar phenocrysts.	
10		02		
		03	14' E.O.H. Revised to Lithic tuff	
20				
30				
40				

DATE Oct 28/79 HOLE No. RD-115 GEOLOGIST PETRIE DRILLER MAYNARD

HOLE LOCATION 63+60E 0+10N

BIT No. L71423 FOOTAGE ON BIT 124' + 8' = 132'

HOURS MOVE _____ HOURS DRILL _____ OTHER _____

EL ≈ 868 [illegible] EL ≈ 863'

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
		01	0-5' no return. Bedrock. 5' BEDROCK return massive diorite with epidote stringers. 8' EOH.	

DATE Oct 28/79 HOLE No. RD-116 GEOLOGIST PETRIE DRILLER Maynard

HOLE LOCATION 65+60E 2+80S

BIT No. L 71423 FOOTAGE ON BIT 132'+13 = 162'

HOURS MOVE _____ HOURS DRILL 11:10 - 12:10 OTHER _____

El. ≈ 870 Bedrock Elevation 862

DEPTH	GRAPHIC LOG	CASING	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			01	0-5' no return 5' Pebbly till 90% diorite little matrix 10% skyolite	
			02	8' BEDROCK. massive diorite	
				13' E.O.H.	

DATE October 28/79 HOLE No. RD-117 GEOLOGIST Petrie DRILLER Maynard

HOLE LOCATION 65+20E 8+10S

BIT No. L71423 FOOTAGE ON BIT 162' + 14½ = 176½'

HOURS MOVE 12:10-12:40 HOURS DRILL 12:40-1:50 OTHER

elevation ≈ 225' Bedrock elevation 975.5'

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-4½ no return	
		01	4½ pebbly till 50% diorite 30% rhyolite 20% tuff clear water, silty matrix rounded pebbles. possible outwash poor return to 5'	
		02	9½' BEDROCK. diorite massive with some epidote	
			14½' E.O.H.	

DATE Oct 28/79 HOLE No. RD-118 GEOLOGIST PETRIE DRILLER HAYNARD

HOLE LOCATION 50E 26S

BIT No. L71424 FOOTAGE ON BIT 0+18' = 18.

HOURS MOVE 1:50-4.00 HOURS DRILL 4:00-6:00 OTHER

El ≈ 830' ± Bedrock El = 820

DEPTH	GRAPHIC LOG	CASING	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
				0-7' no return	
				7' Pebbly till 50% rhyolite 30% diorite 20% tuff grey water, sand matrix	
10			01		
			02		
			03		
			04	10' BEDROCK. brecciated? rhyolite	
				15' orange water	
20				17' reddish grey rhyolite	
				18' E.O.H.	
30					

DATE Oct 29/79 HOLE No. RD-119 GEOLOGIST OWEN DRILLER Maynard

HOLE LOCATION 52+00E 27+00S

BIT No. L 71424 FOOTAGE ON BIT 18' + 18' = 36'

HOURS MOVE _____ HOURS DRILL 9:00 - 12:15 OTHER _____

Cl ≈ 232 [illegible] Cl ≈ 222

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5' no return	
			5' cobbly pebbly gravel. 65% diorite 35% rhyolite. grey water.	
		01	7' water brown	
		02	10' clear grey water.	
		03	BEDROCK - grey diorite minor rhyolite fragments (granite?)	
			13' pale green water.	
			17½' granite intrusion. very hard.	
			18' E.O.H.	

DATE October 29/72 HOLE No. RD-120 GEOLOGIST FOULKES DRILLER HAYNARD

HOLE LOCATION 48E 3140OS

BIT No. E71424 FOOTAGE ON BIT 36' + 18 = 54'

HOURS MOVE _____ HOURS DRILL 1:10 - 2:45. OTHER _____

El = 835' Bedrock El = 826'

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-4' no return	
		01	4' water and silt return only. buff coloured water	
10		02	5' pebbly gravel very little matrix 40% rhyolite - fragmental and porphyritic 40% diorite with lapidolite 10% granite 5% carboniferous sediments	
		03		
		04		
20			8' increase in % granite to ~70%, 30% diorite, 10% granophyre. very coarse cobbly gravel.	
30			9' BEDROCK massive pink granite with some rounded quartz very hard.	
			18' E.O.H.	
40				

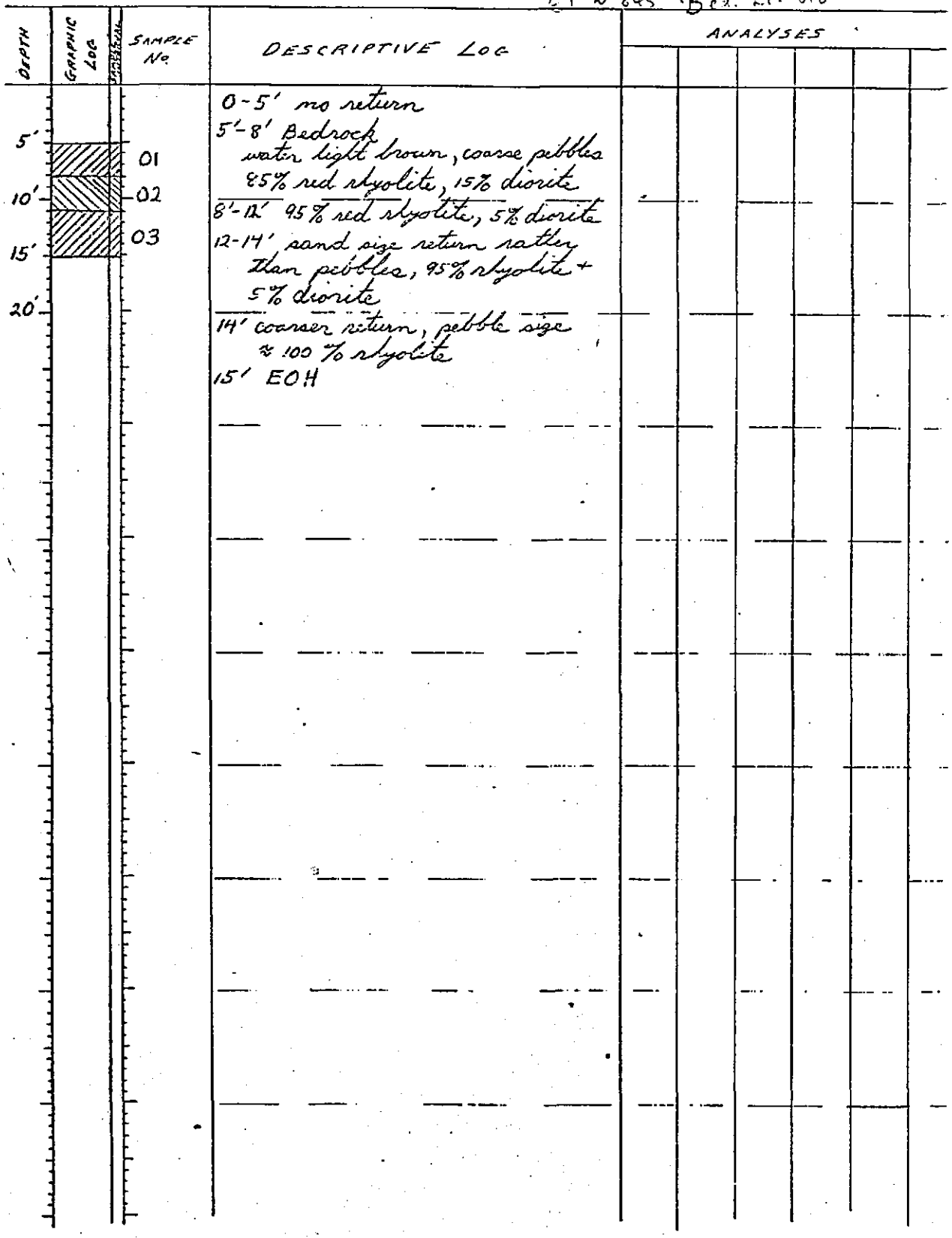
DATE Oct. 29, 1979 HOLE No. BD-121 GEOLOGIST J. OWEN DRILLER M. MAYNARD

HOLE LOCATION

BIT No. L 71424 FOOTAGE ON BIT 54' + 15' = 69'

HOURS MOVE 3:00 - 3:20 HOURS DRILL 3:20 - OTHER

Cl ≈ 845 Bed. El: 810

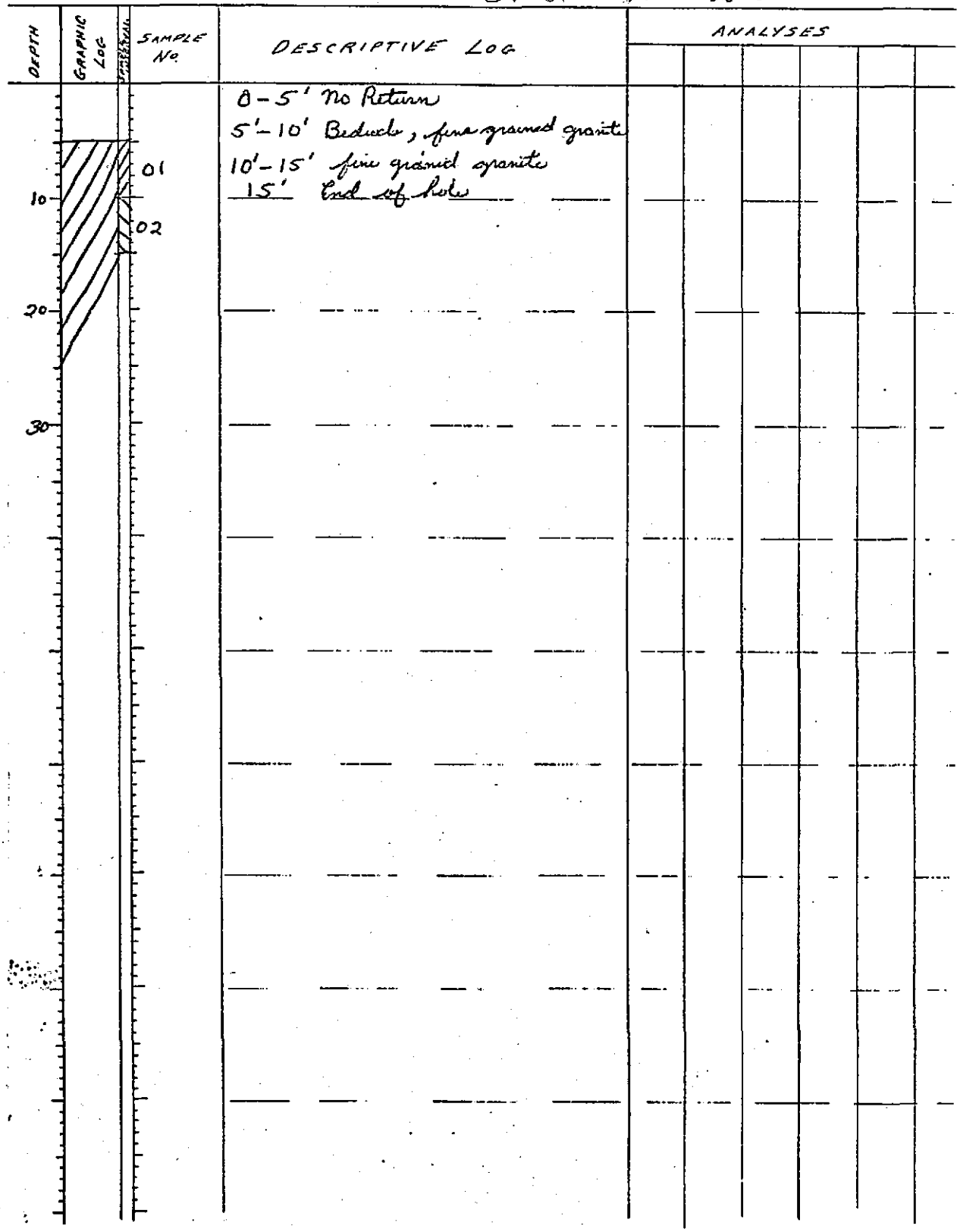


DATE Oct 30/79 HOLE No. RD122 GEOLOGIST J. Petius DRILLER M. Maynard
Oct 29/79
HOLE LOCATION 44E 25+25S

BIT No. L71424 FOOTAGE ON BIT 69' + 15' = 84'

HOURS MOVE _____ HOURS DRILL 9:00-10:25 OTHER _____
5:05-5:45

El = 840 Bedrock El = 835



DATE Oct 30/79 HOLE No RD-123 GEOLOGIST MICHAELIS DRILLER HAYNARD

HOLE LOCATION 40E / 30+25S

BIT No. L71424 FOOTAGE ON BIT 84' + 102'

HOURS MOVE _____ HOURS DRILL 11:45 - 1:15 OTHER _____

Cl = 920 Bedrock Cl = 910

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5½' No Return.	
			5½-6½ Granite Boulder	
		01	6½' Coarse Pebbly Till	
		02	small amount of sand matrix.	
		03	clear water	
		04	60% Granite	
			30% Diorite.	
			10% Rhyolite.	
			10' Granite Bedrock with Diorite stringers.	
			Granite 75%	
			Diorite 25%	
			16' Dionite with 10% granite.	
			17' Granite with 20% Diorite.	
			18' EOH	

DATE Oct 30/79 HOLE No. RD124 GEOLOGIST J Petrie DRILLER M. Maynard

HOLE LOCATION 44 E 19+305

BIT No. L71421 FOOTAGE ON BIT 16'

HOURS MOVE 1:15 - 2:15 HOURS DRILL 2:15 - 3:15 OTHER

G1 = 8.0 2001 = 939

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-7' No Return	
			7' Pebbly till Diorite 30% tuff 30% Rhyolite 25% granite 25%	
10		01	Water grey, mature silty	
		02	at 11' Bedrock, granite, Diorite interfingering granite 70% Diorite 30%	
20			at 14' all granite	
			at 16' End of hole	
30				

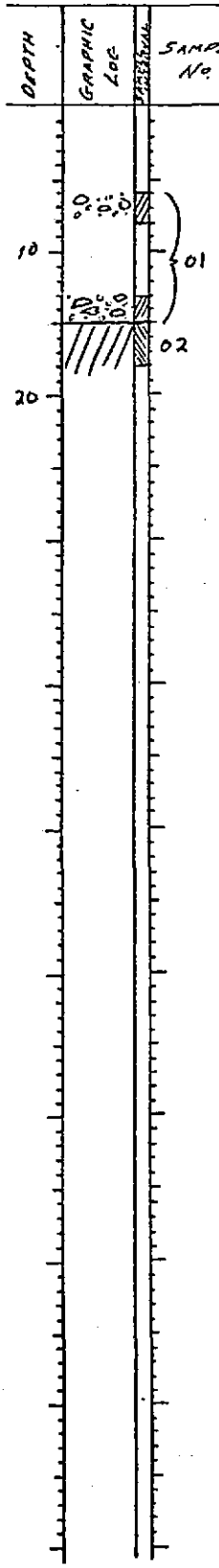
DATE Oct 30/79 HOLE No. RD-125 GEOLOGIST MICHAELIS DRILLER MAYNARD

HOLE LOCATION

BIT No. L71421 FOOTAGE ON BIT 16 + 15 = 31'

HOURS MOVE HOURS DRILL 4:00 - 5:40 OTHER

C1 = 540 R.C1 = 825



DESCRIPTIVE LOG

0-6' No Return

6' Coarse Pebbly Till
Light Brown: sandy matrix
water

60% Rhyolite
20% granite
20% diorite

8' No Return

13' Cobbly Till with Pebbles
Light Brn water
Sandy matrix
40% Granite
30% Rhyolite
30% Diorite

15' BEDROCK
Pink Granite.

18' E.O.H.

ANALYSES

DATE Nov 1/79 HOLE No. RD-126 GEOLOGIST Fulkes DRILLER Maynard

HOLE LOCATION L 36E 24+25 S

BIT No. L71421 FOOTAGE ON BIT 31'+18'=49'

HOURS MOVE _____ HOURS DRILL 8:40-10:20 OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0 - 3½ no return	
		01	3½ cobbly till of granite and diorite. very hard. little matrix. grey green water	
10		02	5' cobbly gravel 40% diorite with some sulphides 30% granite, 30% rhyolite. medium grained sandy matrix. brown water.	
		03		
20		#4 on assay sheets	8½-9' grey water. pebbly and cobbly gravel.	
			13' cobbly gravel. little matrix	
30			14' BEDROCK. pink granite with a few diorite fragments. Epidote in granite. very fine grained granite with occasional pegmatitic pieces. clear water.	
40			18' E.O.H	

DATE Nov 1 '79 HOLE No. RD127 GEOLOGIST J. Peters DRILLER M. Maynard

HOLE LOCATION 34+50 E 21+00 S

BIT No. L71421 FOOTAGE ON BIT 49' + 16'

HOURS MOVE _____ HOURS DRILL _____ OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0–4 1/2 No Return	
			4 1/2 Pebbly till Rhyolite 50% Diorite 45% granite 5%	
		01		
10				
		02	8' Cobbly till Rhyolite 70% Diorite 15% granite 15%	
			Water brown, silty mixture	
20			11' Bedrock Granite, water clear	
			14' fine grained granite	
			16' End of hole	
30				

DATE Nov 1/79 HOLE No. RD-128 GEOLOGIST Foulkes DRILLER Maynard

HOLE LOCATION L32E 18+50 S

BIT No. L 71425 FOOTAGE ON BIT 0+8'=8'

HOURS MOVE _____ HOURS DRILL 12:45-1:10 OTHER _____

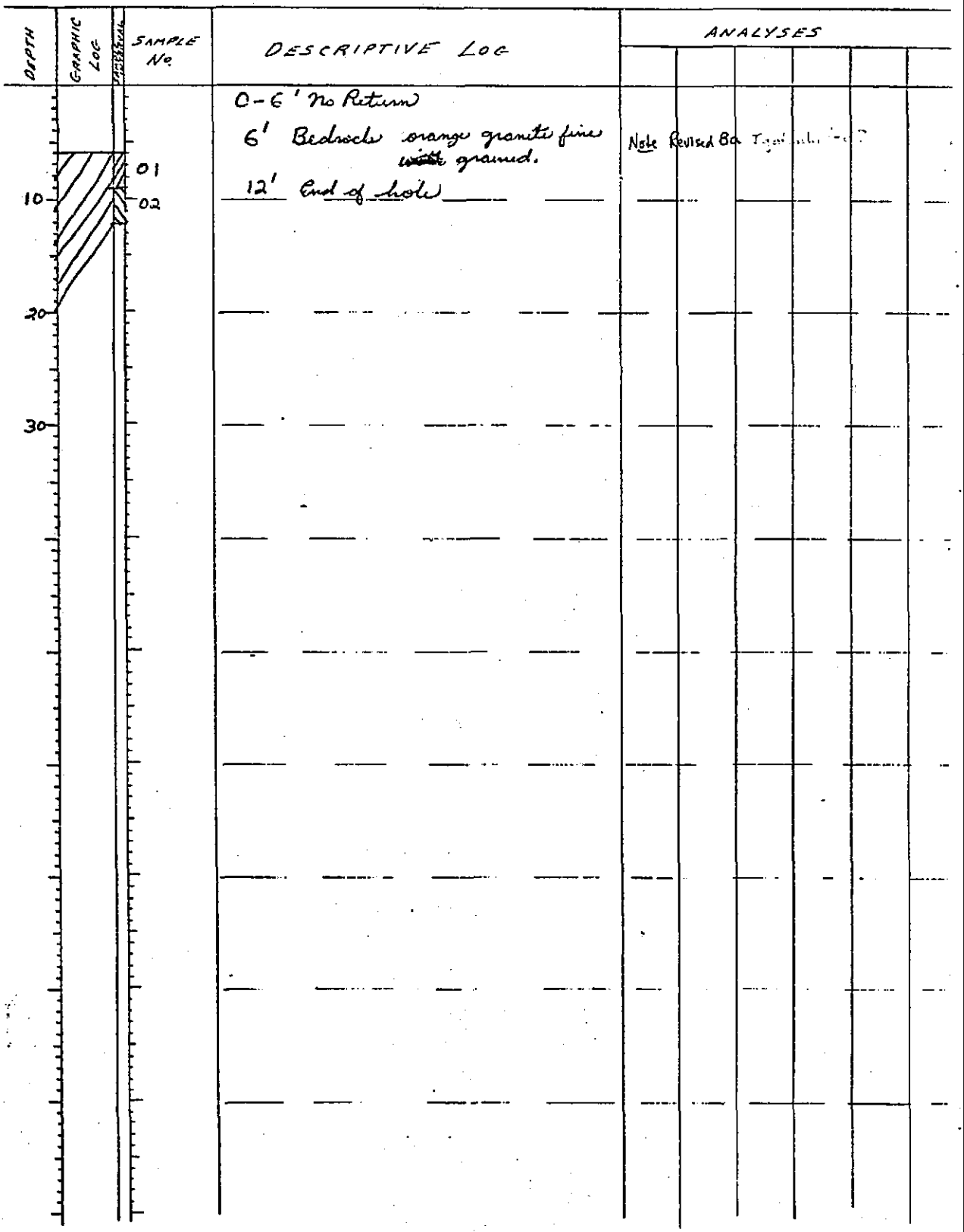
DEPTH	GRAPHIC LOG	SAMPLE INTERVAL	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES					
				0-5 no return						
				5' poor return granite with few fragments of diorite						
			01							
10				6' massive granite BEDROCK large chunks. fresh unit clear water.						
				8' E.O.H.						
20										

DATE Dec 1179 HOLE No. RD 189 GEOLOGIST J. Pittaro DRILLER M Maynard

HOLE LOCATION 27+50 E 16+00 S

BIT No. 671425 FOOTAGE ON BIT 8'+12' = 20'

HOURS MOVE _____ HOURS DRILL 2:00-3:00 OTHER _____



DATE November 1, 1979 HOLE No. RD-130 GEOLOGIST Faulkes DRILLER Maynard

HOLE LOCATION 24+00 E 13+00 S

BIT No. L 71425 FOOTAGE ON BIT 20' + 13' = 33'

HOURS MOVE _____ HOURS DRILL 3:30-4:05 OTHER _____

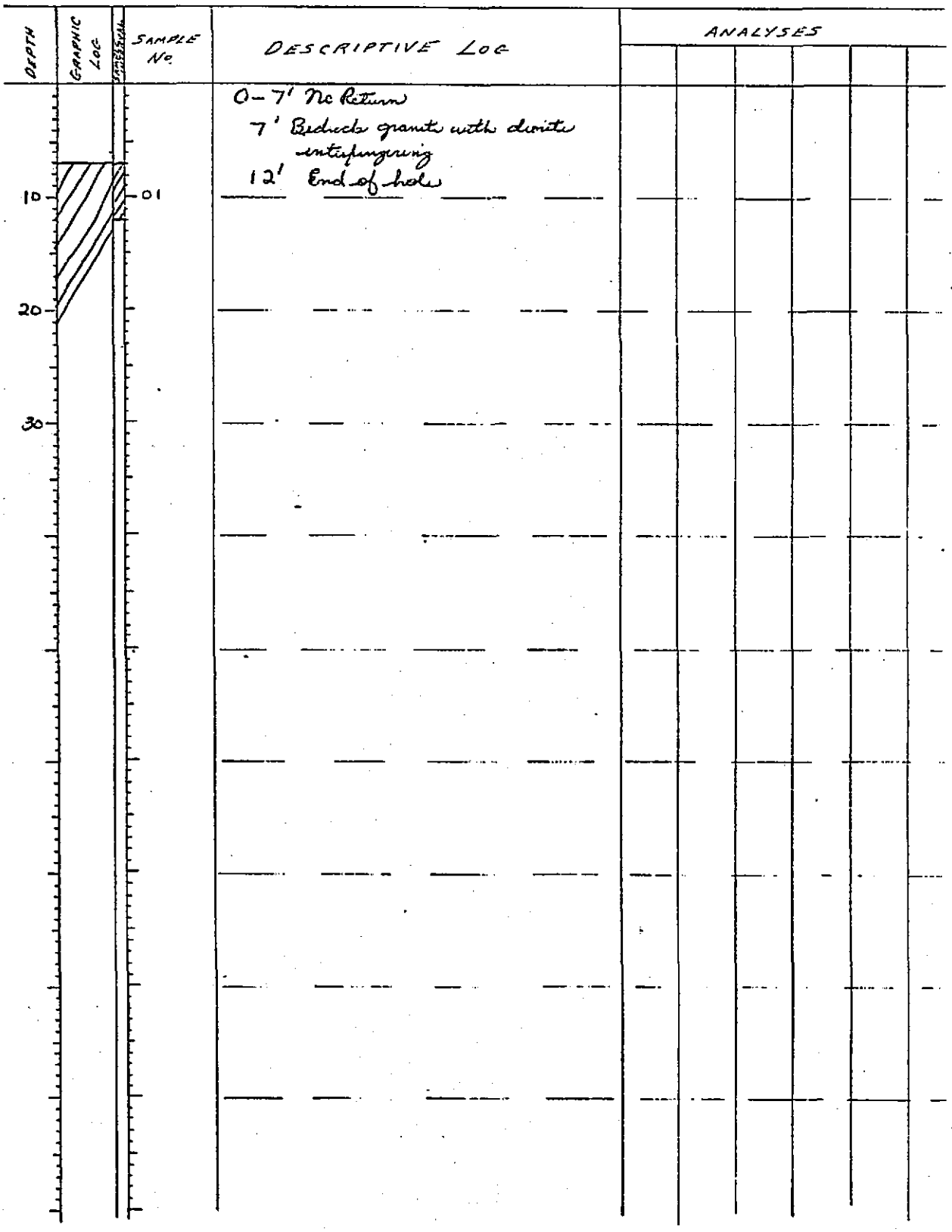
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0 - 6½ no return	
			6½' BEDROCK coarse grained bright pink massive rhyolite, clear water	
10		01		
		02	9' few fragments of diorite	
			13' E.O.H.	
20				
30				
40				

DATE Dec 1179 HOLE No. RD 131 GEOLOGIST J. Peters DRILLER M Mayers

HOLE LOCATION 22+00E 11+00S

BIT No. L71425 FOOTAGE ON BIT 33' + 12' = 45

HOURS MOVE _____ HOURS DRILL 5:00 – 6:00 OTHER _____



DATE November 2, 1978 HOLE No. RD-132 GEOLOGIST: FOULKES DRILLER MAYNARD

HOLE LOCATION L 20+00 E 10+00S

BIT No. L 71425 FOOTAGE ON BIT 45'+16' = 61'

HOURS MOVE _____ HOURS DRILL 9:05 - 10:10 OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-6 no return	
		01	6' BEDROCK fractured and sheared fragmental rhyolite with xenoliths of diorite.	Note: revised 8b
		02	10.5-12' no return	
			12' fresh fractured. fragmental rhyolite. brown red colour. clear water.	Note. Revised 8b.
			14.5' increase in % diorite grey, green & brown frag. mental rhyolite.	
			16' E.O.H.	

DATE Nov. 2, 1979 HOLE No. RD-133 GEOLOGIST J. OWEN DRILLER MAYNARD

HOLE LOCATION L16E, 8S

BIT No. LZ7431 FOOTAGE ON BIT 0 + 16 = 16'

HOURS MOVE 10:15 - 10:40 HOURS DRILL 10:40 - 12:05 OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
5			0-6 no return	
10		01	6-11 Bedrock, pink, grey + red rhyolite, 100% rhyolite water is very pale brown to grey in colour	
15		02	11-16 100% rhyolite, water is light grey colour	
			16 EOH	

DATE Nov. 2, 1979 HOLE No. RD-134 GEOLOGIST T. OWEN DRILLER MAYNARD

HOLE LOCATION ~15+00E 6+00S

BIT No. LJ7431 FOOTAGE ON BIT 16+16 = 32'

HOURS MOVE 12:05 - 12:45 HOURS DRILL 12:45 - 2:30 OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-6 no return	
5			6-7 Bedrock, pinkish-white rhyolite 100% rhyolite	
		01	7-10 rhyolite ± 10% green diorite and epidote along fractures water is grey colour	
10		02		
15			10-14 rhyolite with diorite and epidote fragments, 95% rhyolite, 5% diorite-epidote water is grey colour	
			14 EOH	

DATE November 2, 79 HOLE No. RD-135 GEOLOGIST FOULKES DRILLER MAYNARD

HOLE LOCATION

BIT No. L [illegible] 7742 FOOTAGE ON BIT 32' + 8' = 40'

HOURS MOVE _____ HOURS DRILL 3:10-4:15 OTHER _____

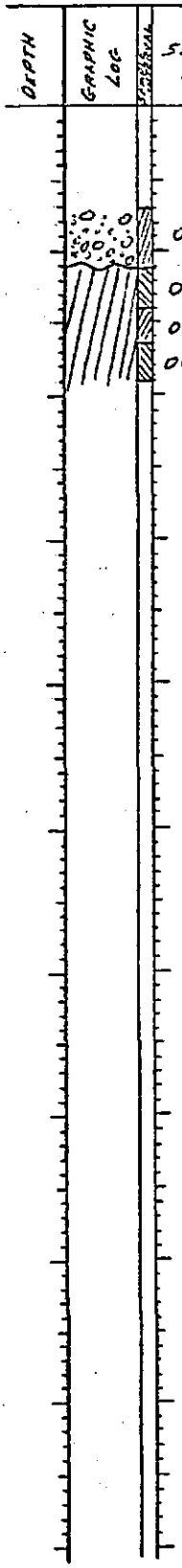
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5 no return (Bedrock)	
		01	5' BEDROCK medium grained massive diorite with epidote and feldspar stringers. minor fragmental dark pink ultrpolite. Grey milky water with hematite in fractures. finer diorite with depth	
			8' E.O.H. rod croaked	

DATE Nov 7/79 HOLE No. RD-136 GEOLOGIST MICHAELIS DRILLER MAYWARD

HOLE LOCATION 14E / 1+50S

BIT No. L77431 FOOTAGE ON BIT 40' + 18' = 58'

HOURS MOVE _____ HOURS DRILL 9:00 - 12:00 OTHER _____



DESCRIPTIVE LOG

0-7' No Return

7'-11' Coarse Pebbly Till
clean water
Sandy matrix
40% Diorite
40% Rhyolite
20% Tuff
(some pyrite)

11' BEDROCK (contact ill defined)
dark pink Ignimibrite
some banding
fiamii + felsic fragments

17' Rhyolite
no fragments
rounded quartz
arsenopyrite

18' EOH.

ANALYSES

DATE Nov. 7, 1979 HOLE No. RD-137 GEOLOGIST J. OWEN DRILLER MAYNARD

HOLE LOCATION 22E, 4+50 S

BIT No. H75075 FOOTAGE ON BIT 0+18'

HOURS MOVE 11:45 - 1:15 HOURS DRILL 1:15 - 4:15 OTHER ___

(new bit + a new choker)

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
		01	0-5' no return 5-6' water grey to pale brown 75% rhyolite, 25% diorite generally poor return	
10		02 03 04	6-8' good return, fine clay matrix pebbles - coarse grained red rhyolite + granite 50%, 45% diorite, 5% carboniferous	
20			8-10' same, generally finer pebbles 10½' bedrock, 100% dark green-grey diorite 11½' seam of clay, water turned brown (½" thick) 11½-13½' 98% diorite, 2% rhyolite 14-15' bit rhyolite 60%, 40% diorite 15½' out of rhyolite, 100% diorite water now is grey colour 17¼' back into rhyolite to EOH 18' EOH	

DATE Nov 7/79 Nov 8/79 HOLE No. RD-138 GEOLOGIST MICHELIS FOULKES DRILLER MAYNARD

HOLE LOCATION 23+75E 5+65S

BIT No. H 75075 FOOTAGE ON BIT 18'+15'= 33'

HOURS MOVE _____ HOURS DRILL 4:50 - 5:45 / 9:00 - 9:50 OTHER _____

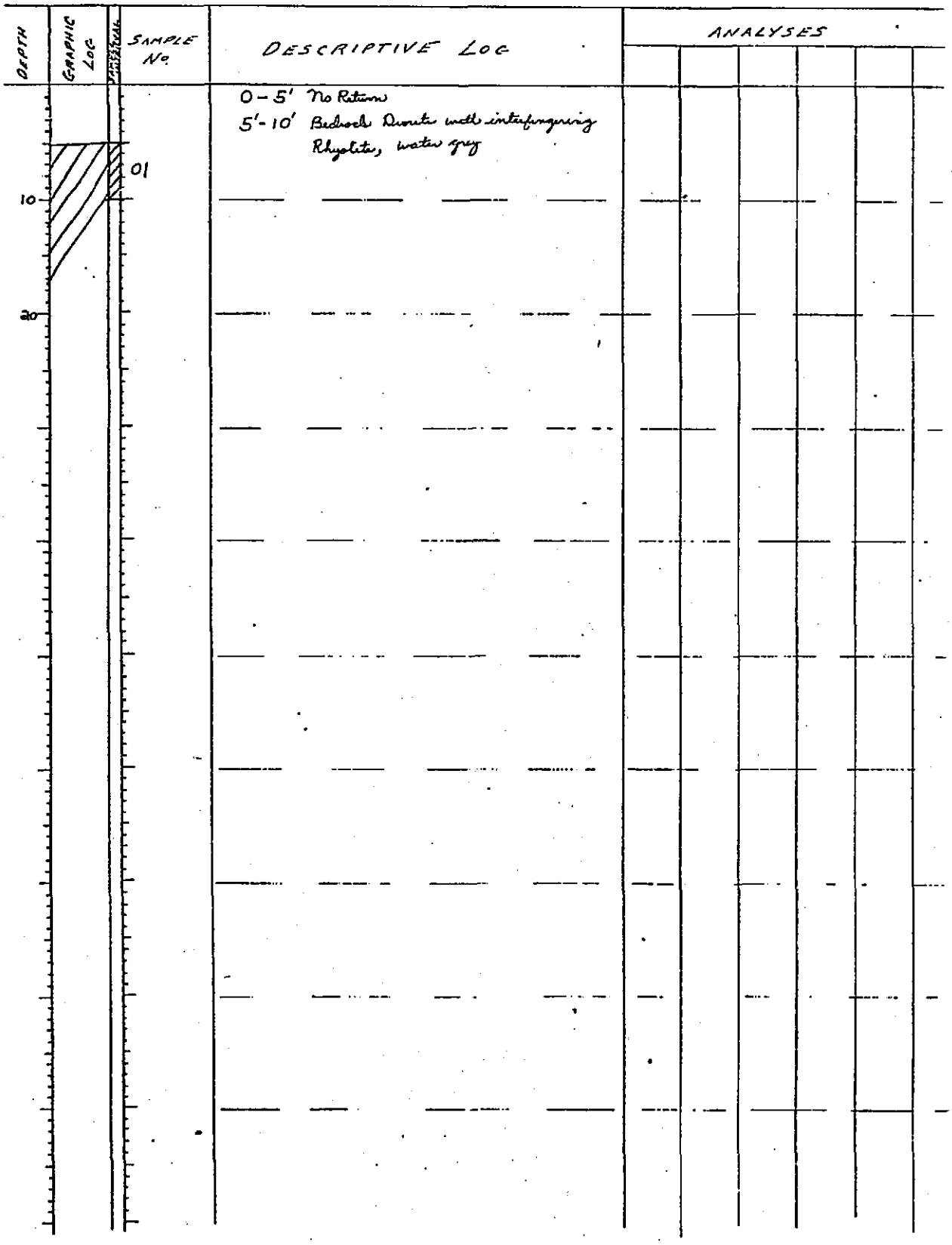
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5± no return	
		01	5± ' BEDROCK. light pink rhyolite with rounded quartz, some with band. banding and some fragmental.	
		02	9' fragmental rhyolite (diorite fragments) with banding fractured by 13'	
			15' E.O.H.	

DATE June 8/79 HOLE No. RD-139 GEOLOGIST J. Petkie DRILLER M. Maynard

HOLE LOCATION 20+00E 3+75S

BIT No. H 75075 FOOTAGE ON BIT 133'+10' = 143'

HOURS MOVE _____ HOURS DRILL 11:35 - 12:00 OTHER _____



DATE Nov 10/79 HOLE No. RD-140 GEOLOGIST FOULKES DRILLER MAYNAR

HOLE LOCATION 16+25E 3+30S

BIT No. L 75075 FOOTAGE ON BIT 43' + 16' = 59'

HOURS MOVE _____ HOURS DRILL 10:30 - 12:05 OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5 no return	
		01	5' poor return. coarse pebbly gravel with small amount of fine sand matrix. 60% rhyolite 40% diorite. grey water.	
10		02	1' cobbly and pebbly gravel sand composition as above	
		03	8' brown water	
20			5' increase in % rhyolite fragmental with epidote and fine sand matrix.	
			12' BEDROCK. altered highly siliceous pink and green fractured and sheared rhyolite.	
			15' bright pink rhyolite with wild diorite fragments. very hard.	
			16.5' E.O.H.	

DATE Nov 10/79 HOLE No. RD 141 GEOLOGIST J. Petrie DRILLER M. Maynard

HOLE LOCATION 13+50E 7+75S

BIT No. H 75074 FOOTAGE ON BIT 0+15' = 15'

HOURS MOVE _____ HOURS DRILL _____ OTHER _____

New Bit H75074

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-6' No Return	
			6' Pebbly till Rhyolite 85% Diorite 15%	
		01	Water grey matrix silty	
10			10' Pebbly till Rhyolite 10% Diorite 90%	
		02	Water grey matrix clay	
			11' Bedrock Diorite	
20			15' End of hole	

DATE Nov 10/72 HOLE No. RD-142 GEOLOGIST Bulkley DRILLER Maynard

HOLE LOCATION 11+75E 6+25S

BIT No. H 73074 FOOTAGE ON BIT 15'+13'-28'

HOURS MOVE _____ HOURS DRILL 2:40-4:30 OTHER _____

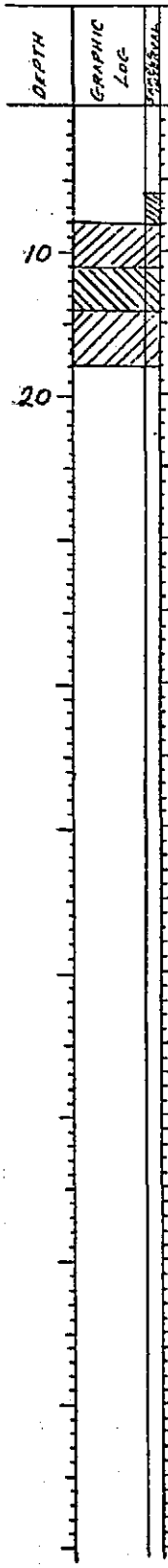
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-6' no return	
		01	6' pebbly gravel 80% diorite 20% rhyolite grey silty water with grey silty clay lumps little sand matrix. poor return	
10		02	10' BEDROCK massive diorite with feldspar stringers. clear grey water very hard.	
20			13' E.O.H.	

DATE NOV. 9+12, 1979 HOLE No. RD - 143 GEOLOGIST MICHAILIS DRILLER MAYNARD

HOLE LOCATION 9 + 75E, 4S

BIT No. H 75074 FOOTAGE ON BIT 28' + 18' = 46'

HOURS MOVE _____ HOURS DRILL _____ OTHER _____



DESCRIPTIVE LOG

0-6' no return

6' pebbly till with silty matrix 70% rhyolite, 30% diorite water grey colour

8' bedrock - dark brick red coloured rhyolite, very hard contains rounded qtz phenocrysts - some epidote present

18' EOH

ANALYSES

DATE NOV. 12, 1979 HOLE No. RD-144 GEOLOGIST T. OWEN DRILLER M. MAYNARD

HOLE LOCATION 8E, 2S

BIT No. H75074 FOOTAGE ON BIT 46' + 17' = 63'

HOURS MOVE 11:00 - 11:45 HOURS DRILL 11:45 - 1:15 OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
5		01	0-6' no return 6' bedrock, fractured (no H2O return)	
10		02	6-9' coarse gravel return, homogenous red-brown rhyolite 100% rhyolite with epidote water light brown	
15		03	9-12' porphyritic rhyolite, looks like a tuff but has rounded qtz., ≈ 95% red brown rhyolite 5% diorite, rhyolite has clasts of green mineral present water grey-brown	
			12-15' 98% rhyolite, 2% diorite same green mineral present water light brown colour	
			15' EOH	

DATE Nov 12/79 HOLE No. RD-145 GEOLOGIST Michaelis DRILLER Maynard

HOLE LOCATION 4E / 0

BIT No. H 7507H FOOTAGE ON BIT 63' + 11' = 74'

HOURS MOVE 1:15 - 2:15 HOURS DRILL 2:15 - 3:30 OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-6' No Return	
		01	6' Diorite BEDROCK with 10% epidote and felsic stringers	
			11' EOH	

DATE NOV. 12, 1979. HOLE No. RD-146 GEOLOGIST J. OWEN DRILLER M. MAYNARD

HOLE LOCATION 7+25E, 1N

BIT No. 1175073 FOOTAGE ON BIT 0+16'

HOURS MOVE _____ HOURS DRILL _____ OTHER _____

(new bit adapter, new choker, new bit)

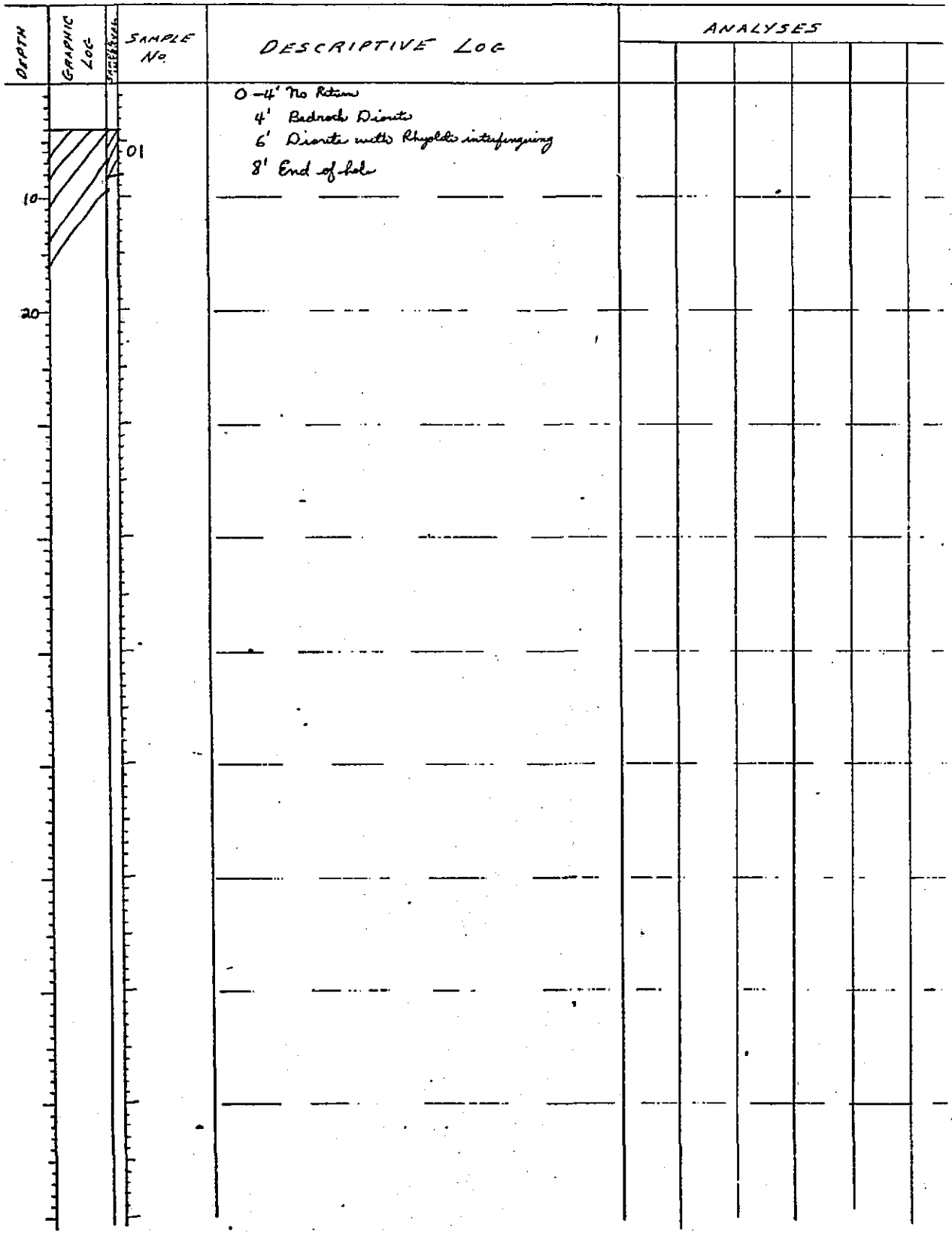
DEPTH	GRAPHIC LOG	CASING	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
				0-6' no return	
5				6-7½ sandy till, few pebbles	
				60% rhyolite (red)	
10				30% rhyolite (white)	
				10% diorite	
				water grey-brown colour	
15				7½ pebbles in till now	
				80% diorite, 20% rhyolite	
20				water pale grey colour	
				7½-10' boulder	
				10-11' brown coloured water	
				clay + pebbles present	
				11' bedrock 90% diorite,	
				10% rhyolite	
				grey water	
				11½' 100% diorite,	
				water green-grey colour	
				small pieces of calcite	
				(very small vein)	
				11½-16' 100% fg. homogenous	
				green-grey diorite	
				16' EOH	

DATE Nov 13 '79 HOLE No. RD 147 GEOLOGIST J. Peters DRILLER W. Maynard

HOLE LOCATION 8+00E 2+75N

BIT No. 475073 FOOTAGE ON BIT 0+8' = 8'

HOURS MOVE _____ HOURS DRILL 8:45 - 9:55 OTHER _____

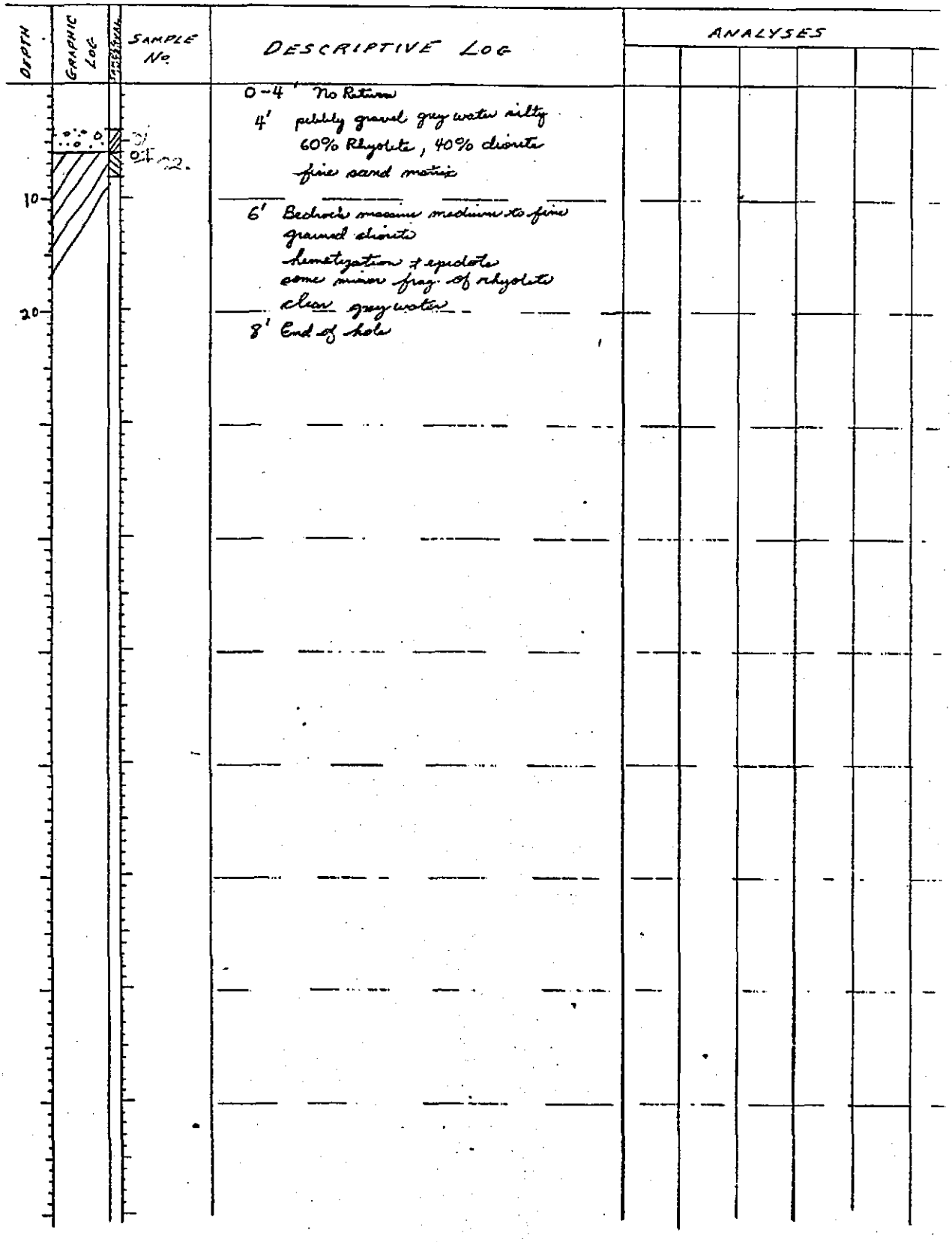


DATE Nov 13/79 HOLE No RD-148 GEOLOGIST Forbes DRILLER Maynard

HOLE LOCATION 0+75E 0+50N

BIT No. H75073 FOOTAGE ON BIT 8' + 8' = 16'

HOURS MOVE _____ HOURS DRILL 11:05 - 1:25 OTHER _____



DATE Nov 13 '79 HOLE No. RD 149 GEOLOGIST J. Petsin DRILLER M. Maynard

HOLE LOCATION 4+00W 1+00N

BIT No. L75073 FOOTAGE ON BIT 16' + 13' = 29'

HOURS MOVE _____ HOURS DRILL 2:00 - 4:30 OTHER _____

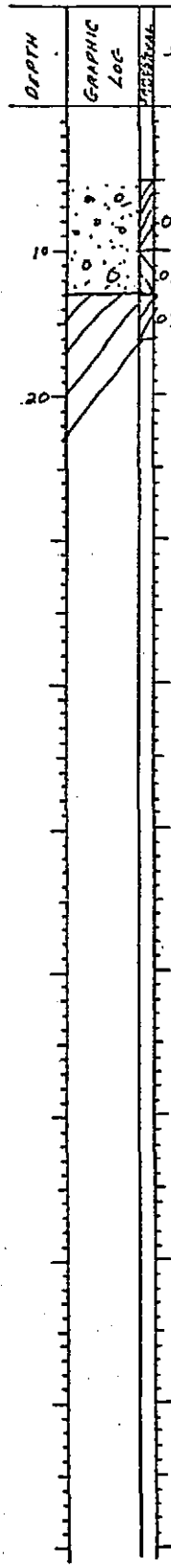
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
		01	0-7' No Returns	
			7' Pebbly till Rhyolite 30% Diorite 70% sandy matrix water grey	
10		02	8' Bedrock Diorite intrusive by small amounts of rhyolite	
			12' End of hole	
20				

DATE Nov 13 HOLE No. RD 150 GEOLOGIST Faulkner DRILLER Maynard

HOLE LOCATION 23+75 W 5+50 N

BIT No. L75073 FOOTAGE ON BIT 29' + 16' = 45'

HOURS MOVE _____ HOURS DRILL 4:30 – 6:00 OTHER _____



DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0–5' No Return	
			5' pebbly gravel 60% diorite 40% rhyolite (frag + porphyry) 5% carboniferous seds. fedspar fragments	
		01		
10		02	Water Brown matrix sandy	
		03	9' grey water to 9:5 then Brown 12.5' grey water some cobbles	
20			13' Bedrock massive diorite hematized + epidote with fedspar stringers	
			16' End of hole	

DATE Nov 14/79 HOLE No. RD-151 GEOLOGIST MICHAELIS DRILLER HAYNARD

HOLE LOCATION 24+50W / 9N

BIT No. L75073 FOOTAGE ON BIT 45' + 21' = 66'

HOURS MOVE _____ HOURS DRILL 10:45 - 12:10 OTHER _____



DESCRIPTIVE LOG

0-5' No Return

5' Pebbly Till
grey water
fine sandy matrix
40% Diorite
30% Rhyolite
20% Granite
10% Felsic Tuff

7' Rhyolite Boulder

7½' Pebbly - Cobbly Till
Brown water
Sandy matrix
70% Rhyolite
20% Diorite
10% Granite

12' BEDROCK dark tan brown glassy Rhyolite

21' E.O.H.

ANALYSES

DATE NOV. 14, 1979 HOLE No. RD-152 GEOLOGIST J. OWEN DRILLER M. MAYNARD

HOLE LOCATION 27 W, 18 N

BIT No. H75076 FOOTAGE ON BIT 0 + 50' = 50'

HOURS MOVE 12:00 - 2:00 HOURS DRILL 2:00 - OTHER new choker, new bit

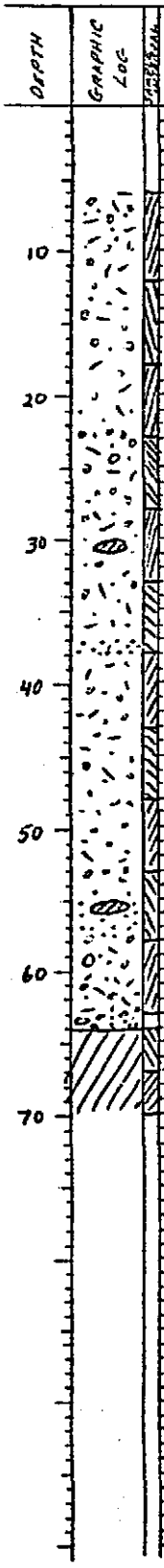
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-4½' no return	
			4½' red brown water, a little clay present, poor return	
10		01	8' more return, fine red clay without pebbles	
		02	9' red clay, pebbles of light green coloured diorite	
			13' red clay + pebbles; 90% diorite, 5% rhyolite, 5% carboniferous	
20		03	23-28' same red clay & small pebbles; 85% diorite, 10% carboniferous 5% rhylite	
		04		
30		05	38' coarse pebbles of diorite, water changed to grey, (boulder)	
		06	38'2" water light brown red clay matrix + pebbles; 85% diorite, 10% carboniferous 5% rhyolite	
40		07		
		08	39' same composition only finer pebbles	
		09	40-41' coarse zone of pebbles, 50% diorite, 50% dark brown rhyolite	
50		10	41-43' coarse pebbles, no fines, 85% rhyolite, 15% diorite	
			43' Bedrock brown rhyolite 100%	
			44½' water light grey now	
			48' dark brown rhyolite & diorite fragments - soft rhyolite	
			48'1" hard rhyolite	
			49'10" diorite	
			50' EOH	

DATE Nov 15 /79 HOLE No. RD-153 GEOLOGIST MICHAELIS DRILLER MAYNARD

HOLE LOCATION 5+50W /17N

BIT No. H 75076 FOOTAGE ON BIT 50' + 70' = 120'

HOURS MOVE _____ HOURS DRILL 12:30 - 3:00 OTHER _____



DESCRIPTIVE LOG

0-6' No Return

6' Red Clay Unit.
very pebbly Red water.
Clay 70%
diorite 20%
Carboniferous sandstone 10%

13' Clay 40%
Diorite 30%
Tuff 10%
Carb. ss. 20%

23' Clay 50%
Diorite 40%
Carb. ss. 10%

30-31' BOULDER - Granite.

31' see 23' (increasing granite content)

37'-38' sandy (90%)

38' see 23' (15% granite)

55' BOULDER - Tuff.

56' 40% clay
30% diorite
25% granite.
5% carb. ss.
high sand content.

60' high clay 80%.

63' END OF RED CLAY UNIT.
diorite 30%
rhyolite 30%
carb. ss 30%
granite 10%

64' BEDROCK - Lithic Tuff.

70' E.O.H.

ANALYSES

DATE Nov 15/79 HOLE No. RD-154 GEOLOGIST CASHIN DRILLER MAYRAND

HOLE LOCATION 29+50 W / 22N

BIT No. H 75076 FOOTAGE ON BIT 120' + 64' = 184'

HOURS MOVE _____ HOURS DRILL 4:00pm OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0'-6' NO RETURN	
			6' - RED CLAY → RED WATER → SMALL PROPORTION of rhyolite AND diorite FRAGMENTS	
10		01		
			13' - BOULDERY CLAY - RED WATER - diorite fragments - lithic tuff fragments	
20		02		
		03	20' RED CLAY GRAVEL - higher % of fine grained diorite fragments - small amount of lithic tuff	
30		04	23' RED CLAY GRAVEL - vein quartz observed - small proportion of diorite and tuff fragments (70% diorite, 25% tuff 5% epidote)	
		05		
		06		
40		07	30' Gravelly clay red water 70% lithic tuff; 30% diorite	
		08	37' Sandy clay red water 60% lithic tuff; 30% diorite; 10% granite	
50		09		
		10	44' Pebbly sand sandy sized matrix (brown) 40% granite 30% granite 30% sandstone	
60		11		
		#9 and 10 on assay tags	~~45' Red clay with diorite fragments~~ 48' Sandy clay 52' Cobbly till sandy matrix; brown water 20% granite 50% diorite 20% rhyolite 10% tuff	
70			55' Bedrock dark tan rhyolite E.O.H 64'	

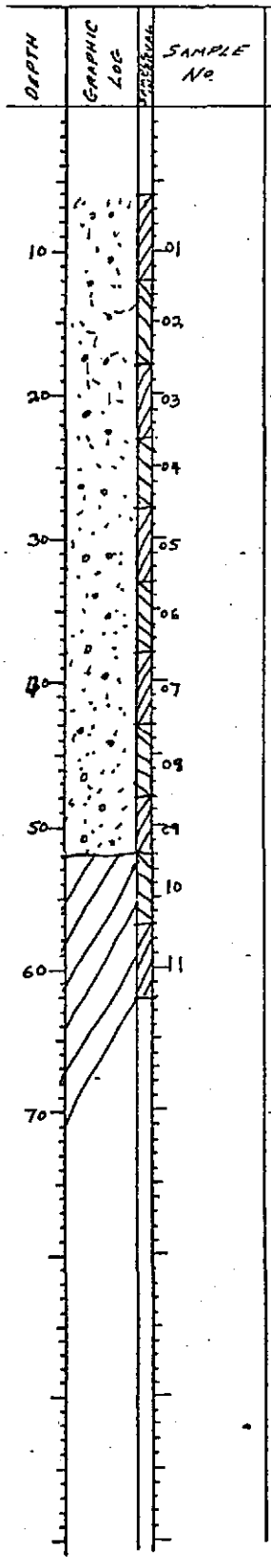
DATE Nov 16/79 HOLE No. RD 165 GEOLOGIST J. Petrie DRILLER Maynard

HOLE LOCATION 27+70W 21+20N

BIT No. H69830 FOOTAGE ON BIT 0+62'

HOURS MOVE _____ HOURS DRILL 2:30- _____ OTHER _____

10:00 - 2:30 Time used to change to small rods (New bit, adapter-chocker)



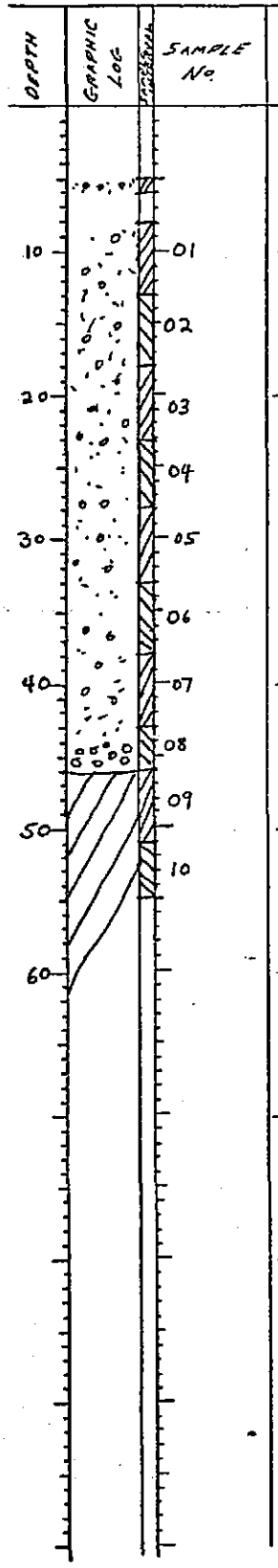
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-6' No Return	
			6' Pebbly till Diorite 50% Rhyolite 40% Carboniferous 10% Matrix silty Water Brown	
10		01		
		02	8' Red Clay till Pebbles of Diorite 50% Rhyolite 25% Carb. SS. 20% granite <5% water brown matrix Red clay	
20		03		
		04	9' Carboniferous and diorite fragments	
			38' Red clay till Carboniferous pebbles 40% Diorite 40% granite 20%	
30		05		
		06	52' Bedrock Rhyolite with ~~[illegible]~~ pyrite flourite, magnetite, mineralization	
			62' End of hole	
40		07		
		08		
50		09		
		10		
60		11		
70				

DATE Dec 19 79 HOLE No. RD 156 GEOLOGIST J. Peters DRILLER M. Maycock

HOLE LOCATION 28+30W 22+40N

BIT No. H69830 FOOTAGE ON BIT 62' + 55' = 117'

HOURS MOVE 8:20 - 9:00 HOURS DRILL 9:00 - 11:30 OTHER



DESCRIPTIVE LOG

0-5' No Return

5' Pebbly till Rhyolite 25%
granite 25%
tuff 20%
Diorite 15%
carboniferous Sandstone 15%

Water clear matrix silty

8' water brown

9' Red clay till Carboniferous 40%
Diorite 45%
granite 5%
Rhyolite 5%
Vein quartz 5%

Water Brown matrix clay

16½' 60% granite pebbles speckled in clay till to 17'

28' matrix silt 60% sand 40%

32'-33' porphiritic Diorite 40%

36' Red clay till like 9'

44' Pebbly till Diorite 40%
Rhyolite 50%
granite 5%
Cont. S.S. 5%
matrix sandy water brown

46' Bedrock Ashfall tuff

55' End of hole

ANALYSES

DATE Nov 20/79 HOLE No. RD-157 GEOLOGIST CASHIN DRILLER Maynard

HOLE LOCATION 29+40 W / 24N

BIT No. H 69829 FOOTAGE ON BIT 0+62' = 62'

HOURS MOVE 1:30 - 3:00 pm HOURS DRILL 3:00 am OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0'-4' NO RETURN - BOULDERY GRAVEL	
			4'- PEBBLY TILL	
			Sporatic Returns brown water	
			10% sandstone (carb)	
			40% punk lithic tuff	
10		01	50% fine grained diorite	
			→ some weak quartz	
			7'- RED CLAY	
		02	-red water	
			- 50% diorite	
20		03	15% carboniferous sandstone and siltstone	
			35% lithic and crystal tuff	
			14' less clay than previous	
		04	red water 15% sandstone and siltstone	
			30% tuff	
30		05	55% diorite	
			22' Boulder Clay	
		06	22.5' Clay content reduced (little or no clay)	
			20% sandstone	
40			50% diorite	
			30% lithic tuff	
			28' Clay content increased	
			30' Pebbly gravel 5% granite	
			15% Carb. sandstone and siltstone	
50		07	30% diorite	
			50% lithic tuff	
		08 Reverse Bb	31' Clay gravel	
			red water	
			70% diorite	
60		09	20% tuff	
			10% Sandstone and siltstone	
			38' Diorite 10%	
			Granite 40%	
			Rhyolite 40%	
			tuff 10%	
			48' (see 38') Cobbly Till	
			Sandy matrix	
			52' Bedrock	
			dark tan rhyolite (Pyrite bearing)	
			60' Diorite + Rhyolite with clay to 62'	
			61' Rhyolite	
			62' E.O.H	

DATE NOV. 20, 1979 HOLE No. RD-158 GEOLOGIST J. OWEN DRILLER M. MAYNARD

HOLE LOCATION 31+75 W, 26+25 N

BIT No. R58461 FOOTAGE ON BIT 0+76' = 76'

HOURS MOVE 10:30 - 11:30 HOURS DRILL 11:30 - 3:50 OTHER _____

new bit

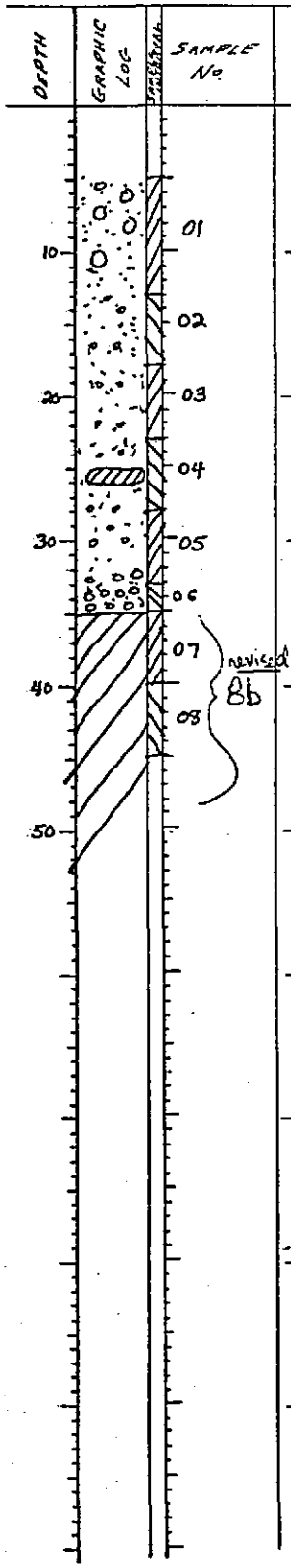
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-4½' no return	
			4½-15' fairly poor return, fine red clay, only a few pebbles, water red brown colour	
10		01	15-18' ~~good return, red clay +~~ small pebbles; 50% rhyolite, 45% diorite, 5% carboniferous	
		02	18' same clay + pebbles; 50% diorite, 30% rhyolite, 20% carboniferous	
20		03	24' alot of clay balls, less pebbles	
			26' pebbles - 70% diorite, 25% rhyolite 5% carboniferous	
		04	26-30' 65% diorite, 25% rhy. 10 carb.	
30		05	30-31' very coarse pebbles, alot of return, 30% carb., 40% diorite 30% various rhyolites	
		06	31-35' red clay + coarse pebbles 70% carb., 15% diorite, 15% rhy	
40		07	37-40' few large boulders of granite, sandy matrix rather than clay water still red	
		08	45-45½' alot of clay & only a couple of pebbles; 60% diorite, 35% carb. 5% rhy.	
50		09	45½-46' small pebbles + sand matrix 55% carb., 40% diorite, 5% rhy.	
		10	46-51' (took sample to 51': plugged rods) alot of red clay	
60		11	51-56' clay + pebbles; 80% diorite, 10% rhy. + carb.	
			56-58' alot of pebbles + less clay, 60% carb., 30% diorite, 10% rhy.	
70		12	58-61' very coarse pebbles, no clay some sand, water red	
		13	61-66' coarse pebbles, 50% rhy + 50% diorite	
			67½' boulder of rhyolite (end of bit)	
80			67½' Bedrock - pink rhyolite, water grey	
			76' EOH Note: Revised 8b	

DATE Nov 20179 HOLE No. RD 159 GEOLOGIST J. Petrie DRILLER M Maynard

HOLE LOCATION 33+60 W 29+00 N

BIT No. R58461 FOOTAGE ON BIT 76'+45' = 121'

HOURS MOVE 3:50-4:50 HOURS DRILL 4:50-6:00/9:00-10:00 OTHER



DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5' No Return	
			5' Cobbly till, grey water, matrix silty sand — diorite 40%, Rhyolite 30%, granite 20%, tuff 10%	
10		01		
		02	12' Red clay till — diorite 60%, Carboniferous sandstone 40%, Water Brown matrix clay	
20		03	25'-26' granite boulder	
		04	29' Grey clay till	
			30' Pebbly till — diorite 60%, Rhyolite 15%, granite 10%, Carb. SS. 15%	
30		05		
		06	31' grey clay till	
		07	32' Pebbly till same as 30'	
40		08	35' Bedrock Diorite fine grained	
			36' Rhyolite altered (epidotized with hematite along fractures)	
50			40' orange unaltered Rhyolite	
			45' End of hole	

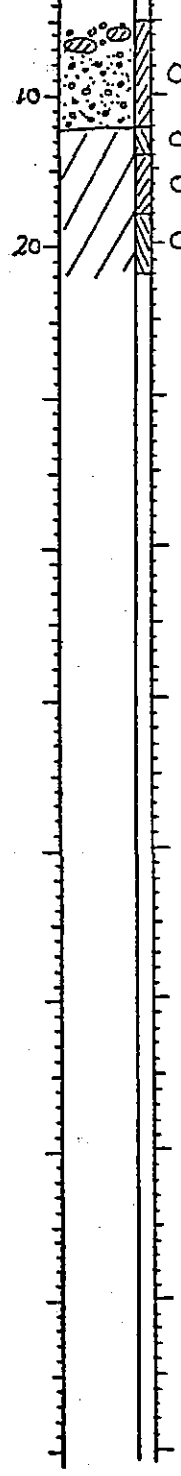
revised 8b

DATE NOV 21/79 HOLE No. RD-160 GEOLOGIST CASHIN DRILLER MAYRAND

HOLE LOCATION 28W / 38+50N

BIT No. R58461 FOOTAGE ON BIT 121' + 22' = 143'

HOURS MOVE _____ HOURS DRILL 11:45 am - 2:15 pm OTHER _____



DESCRIPTIVE LOG

0'-5' NO RETURN - BOULDERY GRAVEL

5'-7' Boulder Gravel
red-brown water
probably bouldery 98% flow banded rhyolite
2% diorite
→ silt sized matrix

7'-55' Banded rhyolite returned
45% diorite
— matrix silt sized

Gravely Sand
brownish-grey water

12' - BEDROCK

fine grained grey diorite
= x-cut by epidote stringers
- highly fractured
Manganese and limonite on fractures
→ slightly chloritized

14' Pink banded rhyolite
fine grained
crosscut by epidote stringers
locally epidotized and chloritized

22' E.O.H

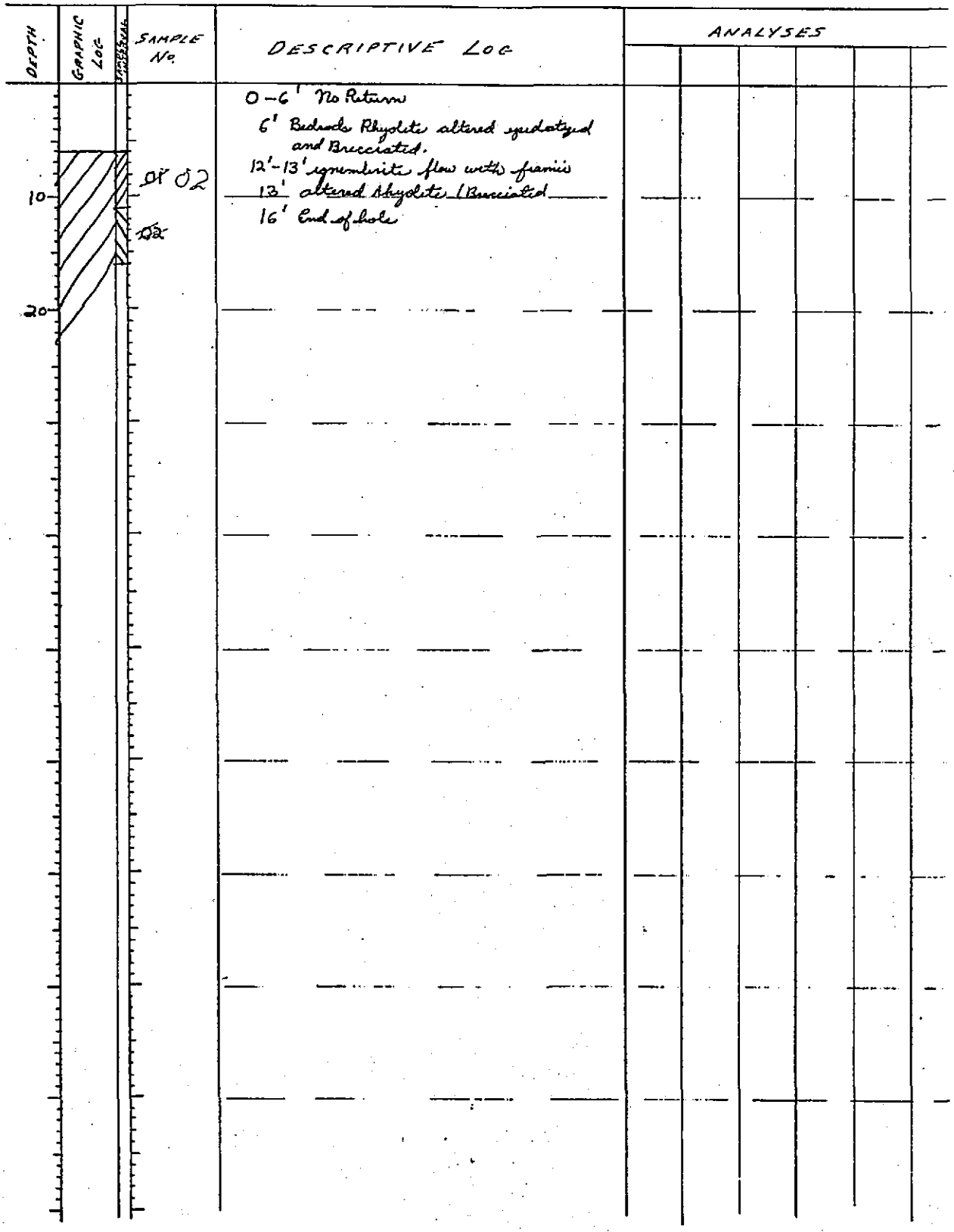
ANALYSES

DATE Nov 21 '79 HOLE No. RD 161 GEOLOGIST J. Petsel DRILLER M. Maynard

HOLE LOCATION 29+00W 36+00N

BIT No. RS6461 FOOTAGE ON BIT 143' + 16' = 159'

HOURS MOVE 2:15-2:45 HOURS DRILL 2:45-3:30 OTHER

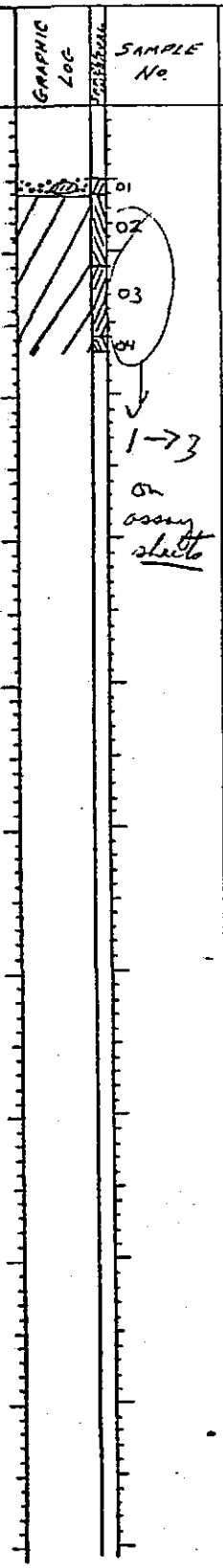


DATE NOV 21/79 HOLE No. RD-162 GEOLOGIST CASHIN DRILLER MAYRAND

HOLE LOCATION 31+40W / 33N

BIT No. R58461 FOOTAGE ON BIT 159' + 17' = 176'

HOURS MOVE _____ HOURS DRILL 4:10pm - 5:35pm OTHER _____



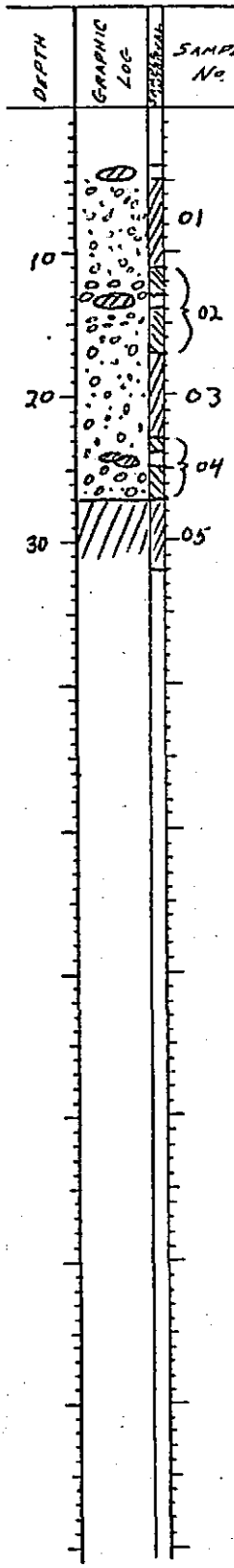
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0'-5' NO RETURN - BOULDERY	
			5'- BOULDERY GRAVEL 20 % Carb sandstone + siltstone 10 % diorite 40 % tuff 20 % massive rhyolite - brownish - red water - med. sand sized matrix	
6'			BEDROCK purplish ash fall tuff - unsilicified - poorly welded - non-porphyritic - crosscut by epidote stringers - highly fractured fragments of leached tuff returned	
12'			Same tuff horizon numerous small phenocrysts (up to 0.5 mm) of altered feldspars observed → epidote stringers locally epidotized and chloritized	
17'			E.O.H	

DATE Nov. 22/79 HOLE No. RD-163 GEOLOGIST MICHAELIS DRILLER MAYNARD

HOLE LOCATION 34+40W / 27+30N

BIT No. B58462 FOOTAGE ON BIT 0+31' = 31'

HOURS MOVE _____ HOURS DRILL 9:00 - 10:30 OTHER _____



DESCRIPTIVE LOG

0-4' No Return

4' BOULDER - Diorite.

5' Pebbly Till
Brown water sandy matrix
30% diorite
30% rhyolite
20% granite
20% carb. sandstone.

12' very Cobbly - same as 5'

13' BOULDER - Diorite

14' very Pebbly - same as 5'

24' Granite BOULDER.

24½' Diorite BOULDER.

25' Coarse pebbles → Cobbles
Brown water sandy matrix.
40% diorite.
40% granite
10% rhyolite
10% Tuff.

27' BEDROCK - Diorite (pyrite)

31' E.O.H.

ANALYSES

DATE NOV. 22, 1979. HOLE No. RO-164 GEOLOGIST J. OWEN DRILLER M. MAYVAR

HOLE LOCATION 35+60W, 22+80N

BIT No. B58462 FOOTAGE ON BIT 31+11 = 42'

HOURS MOVE 10:30-11:05 HOURS DRILL 11:05-11:45 OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
5		01	0-4½' no return 4½'-5' Bedrock, water grey, 85% diorite 15% rhyolite	
10			5'-11' water grey colour, 100% dark green diorite	
15			11' EOH	

DATE Nov. 22/79 HOLE No. RD-165 GEOLOGIST MICHAELIS DRILLER MAYNARD

HOLE LOCATION 35+80W 20+80N.

BIT No. B 58462 FOOTAGE ON BIT 42'+23'=65'

HOURS MOVE _____ HOURS DRILL 12:00-1:20 OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5' No Return	
		01	5' Cobbly Till Brown water sandy matrix 30% rhyolite. 30% diorite. 20% tuff	
		02		
		03		
		04	10% granite 10% carb. sandstone (well rounded pebbles)	
			11' BOULDER - porphoritic tuff (grey) with pypite	
			13' see 5'	
			14½ BEDROCK - grey felsic tuff. with epidote and euhedral fragments - increasing pink	
			23 EOH.	

DATE Nov. 22, 1979 HOLE No. RD-166 GEOLOGIST J. OWEN DRILLER M. MAYNARD

HOLE LOCATION 35+80W, 18N

BIT No. B58462 FOOTAGE ON BIT 65+26 = 91'

HOURS MOVE 1:20 - 1:45 HOURS DRILL 1:45 - 2:40 OTHER

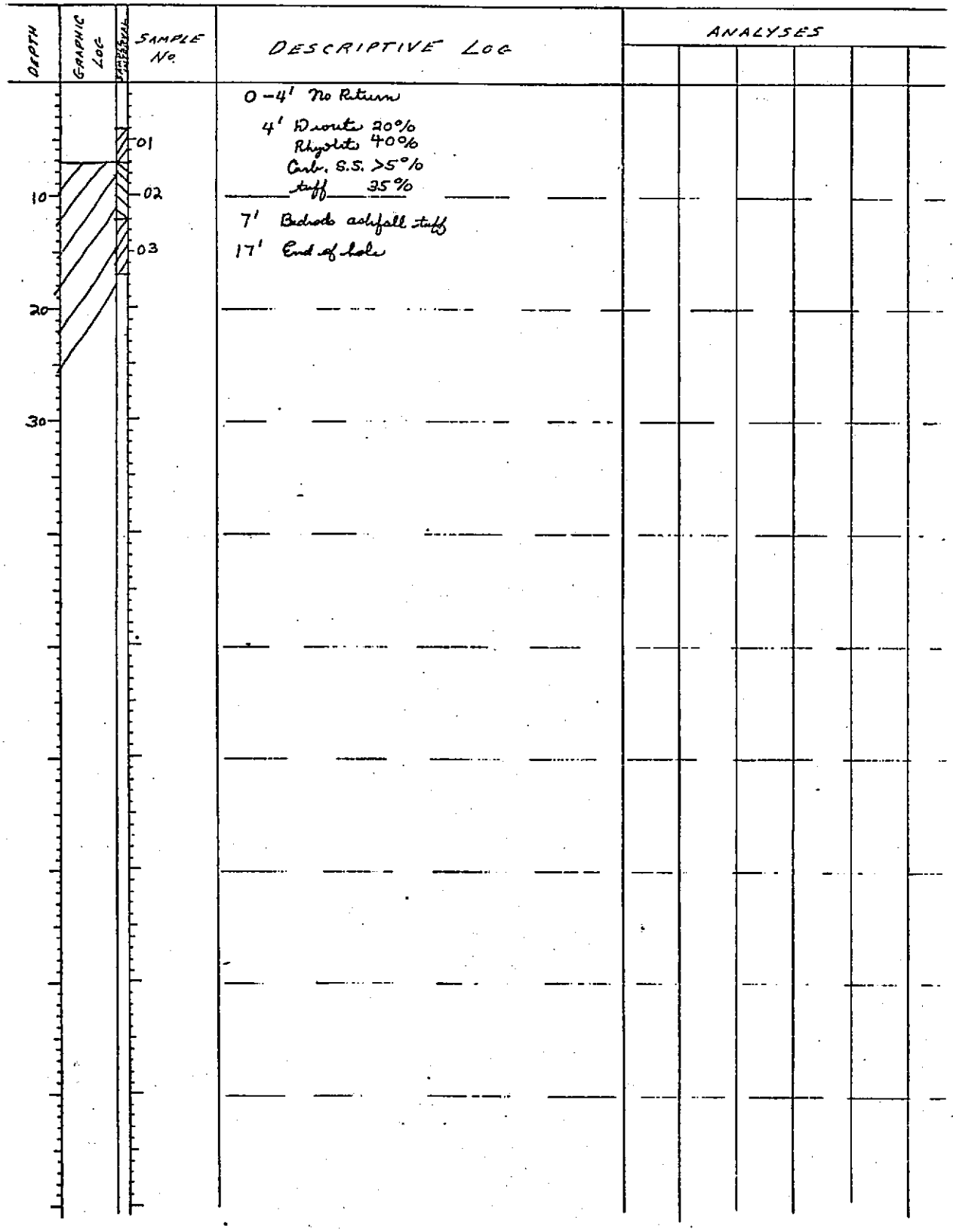
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
		01	0-4½' no return 4½' water brown, alot of coarse pebbles; 70% diorite, 10% rhyolite 20% carboniferous	
10		02	8' bit more clay & less pebbles dark red-brown water 9' no pebbles - all clay	
20		03	10' clay matrix c small pebbles; 60% diorite, 20% rhyolite 20% carboniferous	
		04	17½' Bedrock light red coloured rhyolite, rounded white phenocrysts of quartz	
30			20'-20'1" small seam of clay c diorite pebbles 20'1" red & grey rhyolite c phenocrysts of quartz 25' darker rhyolite 25½' pink-red rhyolite 26' EOH	

DATE Nov 23 '79 HOLE No. RD 167 GEOLOGIST J. Peters DRILLER M. Maynard

HOLE LOCATION 56W 27+50N

BIT No. B58462 FOOTAGE ON BIT 91'+17' = 108'

HOURS MOVE _____ HOURS DRILL _____ OTHER _____

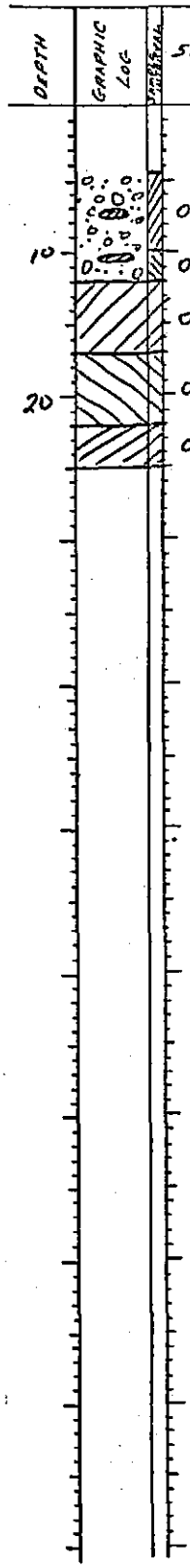


DATE Nov 24/79 HOLE No. RO-168 GEOLOGIST OWEN DRILLER MAYNARD

HOLE LOCATION 55' + 40W, 29+60N.

BIT No. BS 8462 FOOTAGE ON BIT 108' + 24' = 132'

HOURS MOVE _____ HOURS DRILL 10:30-11:35 OTHER _____



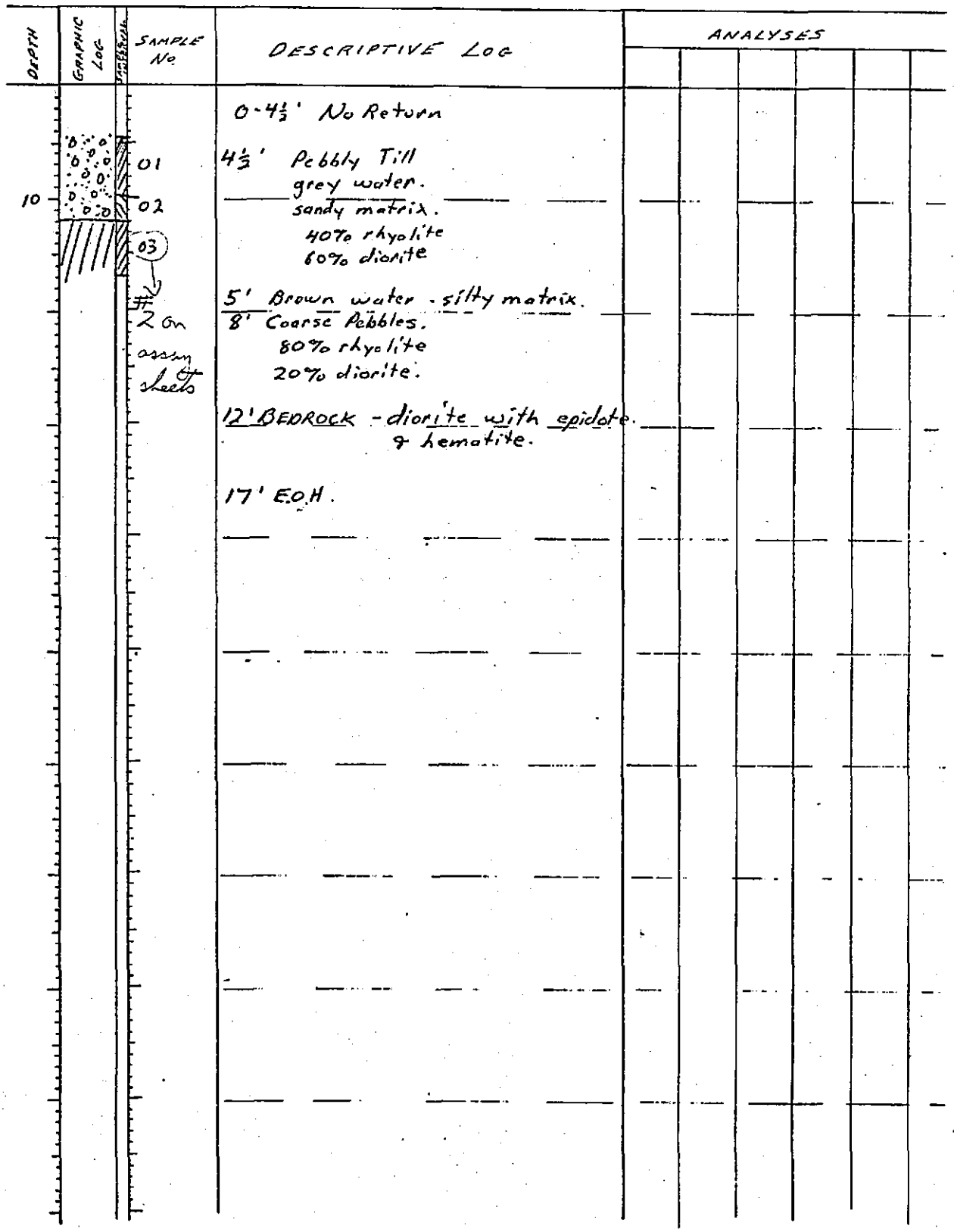
DESCRIPTIVE LOG	ANALYSES
0-4½ No Return.	
4½ Pebbly Till. light brown water. sandy matrix.	
70% diorite 30% rhyolite.	
7' 30% diorite - Coarse pebbly Till. 70% rhyolite. sand matrix.	
7½ BOULDER - rhyolite	
8' - see 7'	
10' BOULDER - diorite.	
10½' - see 7'	
12' BEDROCK - rhyolite. with epidote.	
14½ - diorite stringers in rhyolite	
15' diorite.	
18' rhyolite.	
21' rhyolite with high epidote content.	
22' diorite.	
24' rhyolite.	
25' E.O.H.	

DATE Nov 24/79 HOLE No. RD-169 GEOLOGIST MICHAELIS DRILLER MAYNARD

HOLE LOCATION 56+50W 32+00N.

BIT No. B58462 FOOTAGE ON BIT 132+17' = 149'

HOURS MOVE 11:35-12:05 HOURS DRILL 12:05-1:00 OTHER

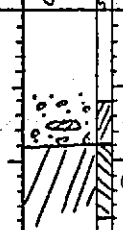


DATE Nov 26/79 HOLE No. BD-170 GEOLOGIST MICHAELIS DRILLER MAYNARD

HOLE LOCATION 57+20W, 25+70N

BIT No. B58462 FOOTAGE ON BIT 149' + 14' = 163'

HOURS MOVE _____ HOURS DRILL 11:00 - 11:40 OTHER _____



DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-6' No Return. (muddy water used - some contamination)	
		01	6' Pebbly Till	
		02	Brown water. sandy matrix 50% Dionite. 40% Rhyolite. 10% Granite	
			7½' BOULDER - dionite.	
			8' - see 6'	
			9' BEDROCK - dionite with epidote + hemotite. glassy	
			14' E.O.H.	

DATE NOV. 26, 1979 HOLE No. RD - 171 GEOLOGIST J. OWEN DRILLER M. MAYNARD

HOLE LOCATION 59 + 20 W, 23 + 50 N

BIT No. B58462 FOOTAGE ON BIT 163 + 12 = 175'

HOURS MOVE 11:40 - 11:55 HOURS DRILL 11:55 - 12:30 OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
5		01	0 - 3½' no return 3½' poor return, brown water, sand matrix c̄ pebbles of diorite	
10		02 03	4-6' good return, no clay - sand matrix, fresh pebbles of rhyolite 60%, diorite 40% 6-8' same matrix, only 50% diorite 50% rhyolite 10' dark green diorite c̄ white plagioclase phenocrysts water clear to grey-green 10-12' porphyritic diorite 12' bit broke ∴ couldn't drill hole 10' Bedrock (∵ RD-170 + RD-172 are shallow holes c̄ diorite) 12' EOH	
15				

DATE Nov. 26/79 HOLE No. RD-172 GEOLOGIST MICHAELIS DRILLER MAYNARD

HOLE LOCATION 56+30W /22N.

BIT No. R58454 FOOTAGE ON BIT 0+15' = 15'

HOURS MOVE 12:30-1:10 HOURS DRILL 1:10-1:50 OTHER

NEW BIT + ADAPTER.

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5'	
		01	5' Pebbly Gravel Brown water. sandy matrix 50% diorite. 40% rhyolite. 10% granite.	
		02	10' BEDROCK - diorite (porphoritic) medium grained.	
			15' E.O.H.	

DATE NOV. 26, 1979 HOLE No. RD-173 GEOLOGIST T. OWEN DRILLER M. MAYNARD

HOLE LOCATION 55+20 W, 19+50 N

BIT No. R58454 FOOTAGE ON BIT 15+8 = 23'

HOURS MOVE 1:50-2:30 HOURS DRILL 2:20-3:00 OTHER

DEPTH	GRAPHIC LOG	STRATIGRAPHIC	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
5			01	0-4½' no return 4½-5½' water brown, fine sand matrix & pebbles; 75% diorite 25% rhyolite (not enough for sample) 5½' Bedrock grey-clear water; 100% grey-green diorite 8' rods off centre & twisting couldn't continue hole 8' EOH	
10					

DATE Nov 26/79 HOLE No. RD-174 GEOLOGIST MICHAELIS DRILLER MAYNARD

HOLE LOCATION 54+00W / 18+80N

BIT No. R58454 FOOTAGE ON BIT 23' + 15' = 38'

HOURS MOVE 3:00-3:20 HOURS DRILL 3:20-4:00 OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-4' No Return.	
		C1	4' Pebbly Till, brown water sandy matrix little return 60% rhyolite. 40% diorite.	
		C2	5' Soft, highly fractured rhyolite. gets gradually harder with depth	
			10' altered rhyolite ~~int~~ dark brown interfingers with light brown & rhyolite.	
			15' E.O.H.	

DATE NOV. 26, 1979 HOLE No. BO-175 GEOLOGIST T. OWEN DRILLER M. MAYNARD

HOLE LOCATION 52+00 W, 18+25 N

BIT No. R5845'4 FOOTAGE ON BIT 38 + 10 = 48'

HOURS MOVE 4:00-4:20 HOURS DRILL 4:20 - 5:00 OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
5		01	0-4' no return 4-4½' brown water, sand matrix with pebbles; 80% diorite, 20% rhyolite	
10			4½' Bedrock clear to grey coloured water 100% dark green diorite	
15			10' EOH	

DATE NOV 27/79 HOLE No. RD-176 GEOLOGIST CASHIN DRILLER MAYRAND

HOLE LOCATION 49W / 14N

BIT No. R58454 FOOTAGE ON BIT 48' + 18' = 66'

HOURS MOVE _____ HOURS DRILL _____ OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0'-4.5' NO RETURN - BOULDERY GRAVEL	
			4.5' - Bouldery Gravel	
			5% Carb. sandstone + siltstone	
		01	5% Granite	
10		02	35% diorite	
			55% ashfall tuff	
		03	- brown water	
			- silt sized matrix	
20			7.5' Bouldery gravel	
			75% diorite	
			5% Carboniferous sandstone	
			20% tuff	
			- silt sized matrix	
			- brown water	
			8' BEDROCK	
			fine grained diorite	
			- crosscut by epidote stringers	
			- highly fractured (limonite + limonite on fractures)	
			12' Fine grained ashfall tuff	
			→ locally epidotized	
			- highly fractured	
			~~→ probably~~ a xenolith !!	
			lithic tuff	
			→ sub-angular rhyolite fragments up to 3 mm	
			epidote stringers	
			~~[illegible]~~	
			18' E.O.H	

DATE NOV 27/79 HOLE No. RD-177 GEOLOGIST CASHIN DRILLER MAYRAND

HOLE LOCATION 50+90 W / 7N

BIT No. R58454 FOOTAGE ON BIT 66'+11' = 77'

HOURS MOVE _____ HOURS DRILL 11:40 AM - 1:10 OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
		01	0'-3' NO RETURNS	
			3'- PEBBLY GRAVEL	
			75% diorite	
			10% Sandstone	
			15% tuff	
			- brown-red water	
			- silty matrix	
10		02	6' - BEDROCK	
			fine grained diorite	
			- crosscut by epidote stringers	
			- highly fractured with limonite and hematite on fracture surfaces	
			11' E.O.H	

DATE Nov 27/79 HOLE No. RD-178 GEOLOGIST CASHIN DRILLER MAYRAND

HOLE LOCATION 52W / 8N

BIT No. R58454 FOOTAGE ON BIT 77' + 8' = 85'

HOURS MOVE _____ HOURS DRILL 1:50 pm - 2:20 pm OTHER _____

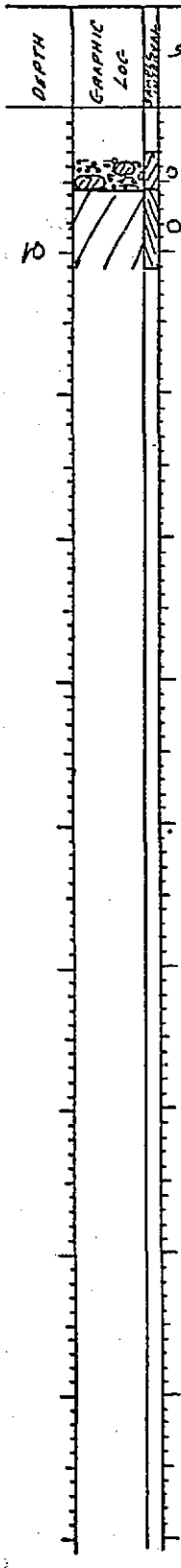
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
		01	0'-4' NO RETURN - BOULDERY GRAVEL	
			4' - BEDROCK	
			fine grained grey diorite	
10			crossed by epidote stringers	
			highly fractured → limonite on fracture surfaces	
			8' - E.O.H	

DATE NOV 27/79 HOLE No. RO-179 GEOLOGIST CASHIN DRILLER MAVRANG

HOLE LOCATION 5+75W / 1+50N

BIT No. R58454 FOOTAGE ON BIT 85' + 11' = 96'

HOURS MOVE _____ HOURS DRILL 3:05pm - 3:25pm OTHER _____



DESCRIPTIVE LOG

0'-3' NO RETURN

3' Boulders gravel
- silty matrix
- brown-red water
65% diorite
10% Carboniferous sandstone
25% lithic and crystal tuff

5.5' BEDROCK
- fine grained diorite
- highly fractured with limonite on fracture surfaces
- epidotized
crossed by epidote stringers

11' E.O.H.

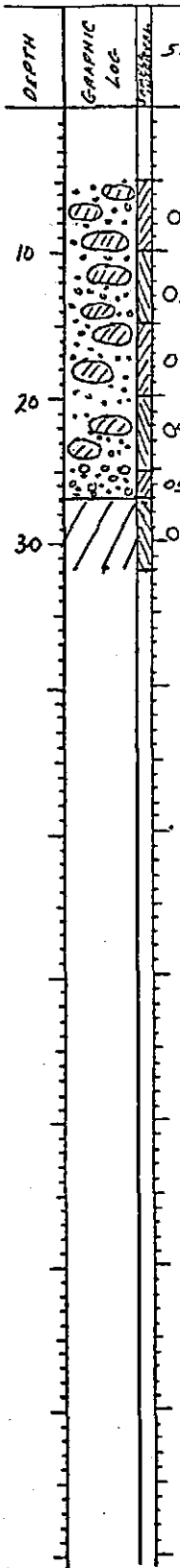
ANALYSES

DATE NOV 27/79 HOLE No. RO-180 GEOLOGIST CASHIN DRILLER MAYRAND

HOLE LOCATION 53W/35

BIT No. RS8454 FOOTAGE ON BIT 96' + 32' = 128'

HOURS MOVE _____ HOURS DRILL 3:55 pm - 4:45 pm OTHER _____



DESCRIPTIVE LOG	ANALYSES
0'-5' NO RETURN - BOULDERY	
5' Bouldery gravel 40% diorite 5% Carboniferous sandstone 45% granite 10% tuff - red-brown water - sand-sized matrix	
15' BOULDERY-GRAVEL 65% diorite 10% sandstone 25% granite	
16.5' 75% diorite Bouldery gravel 10% sandstone 10% granite 5% tuff red-brown water sandy matrix	
24' PEBBLY GRAVEL 85% diorite 15% tuff red-brown water → sandy matrix	
27' BEDROCK fine grained diorite highly fractured → limonite on fracture surfaces crosscut by epidote stringers	

DATE NOV. 30, 1979 HOLE No. RO-181 GEOLOGIST J. OWEN DRILLER M. MAYHARI

HOLE LOCATION 52+95 W, 7 S

BIT No. R58454 FOOTAGE ON BIT 128+16 = 144'

HOURS MOVE _____ HOURS DRILL 10:15 - 11:15 OTHER _____

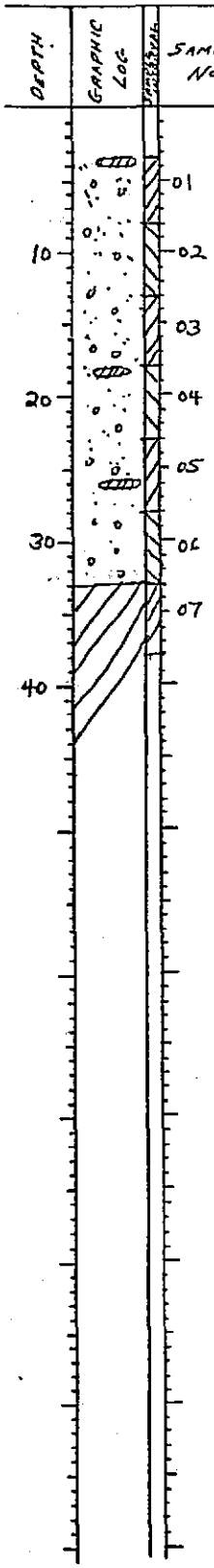
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
5		#1	0-4½' no return 4½' poor return, water brown, a little bit of clay & sand matrix, fresh pebbles - 75% diorite, 25% rhyolite	
10		#2		
15		#3	7' good return, very pebbly till mostly a sand matrix & some clay, water light brown	
20			11' Bedrock - 100% dark green diorite water clear grey to green 16' EOH	

DATE Nov 30/79 HOLE No. AD 182 GEOLOGIST Michaelis DRILLER Maynard

HOLE LOCATION 52+50W 10+60S

BIT No. D 58453 FOOTAGE ON BIT 38'

HOURS MOVE 11:15 - 12:20 HOURS DRILL 12:20 - 2:00 OTHER



DESCRIPTIVE LOG

0 - 3 1/2 No Return

3 1/2 Boulder porphyritic Diorite

4 1/2 Pebbly till diorite 40%
Rhyolite 40%
granite 20%
silty matrix
dark brown water

6 1/2 light Brown water

15' Coarse Pebbly till
grey - brown water
sandy matrix
diorite 40%
Rhyolite 20%
granite 30%

18 - 18 1/2 grey rhyolite boulder

26 - 26 1/2 boulder porphyritic diorite

26 1/2 Cobbly till diorite 40%
rhyolite 40%
granite 20%

33' Bedrock - Granite coarse grained with hornblende

38' EOH

ANALYSES

DATE NOV. 30, 1979 HOLE No. RD-183 GEOLOGIST J. OWEN DRILLER A. MAYNARD

HOLE LOCATION 54+00 W, 6+70 S

BIT No. D 58453 FOOTAGE ON BIT 38+21 = 59'

HOURS MOVE 2:00 - 3:05 HOURS DRILL 3:05 - 3:45 OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
5		01	0-4½' no return 4½' coarse pebbles - 60% diorite, - 40% rhyolite	
10		02	6' water bearing colour, sand matrix with some silt 6'-8' same pebbly till, sand matrix, water light brown, pebbles 80% diorite, 20% rhyolite	
15			9' pebbles - 85% rhyolite, 15% diorite	
20		03	10' coarse pebbles & sand matrix 60% rhyolite, 40% diorite 13' same till, only more silt & clay 14½' small diorite boulder (1")	
25			15' another diorite boulder & coarse pebbles 16' Bedrock dark green diorite 100% water light green to grey colour 21' EOH	

DATE Nov 30/79 HOLE No. RD 184 GEOLOGIST Mackenzie DRILLER Maynard

HOLE LOCATION 49+00W 8+25S

BIT No. D58453 FOOTAGE ON BIT 59' + 18' = 77'

HOURS MOVE 3:45-4:30 HOURS DRILL 4:30 - 5:15 OTHER

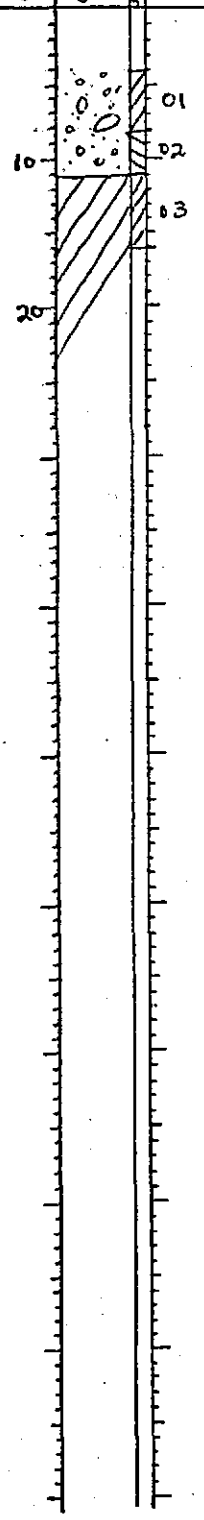
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-3' No Return	
		01	3' Red clay till Diorite 50% Carboniferous 50%	
		02	5' Pebbly till Diorite 40% Rhyolite 40% granite 20%	
		03	7 1/2 Rhyolite Boulder	
		04	8' Pebbly till same as 5'	
			11' Rhyolite	
			18' EOH	

DATE Dec 1/79 HOLE No. BD 175 GEOLOGIST Peters DRILLER Maynard

HOLE LOCATION 46+80W 12+00S

BIT No. D58453 FOOTAGE ON BIT 77'+16'

HOURS MOVE 8:00-9:40 HOURS DRILL 9:40 - 10:45 OTHER



DESCRIPTIVE LOG

0-4' No Return

4' Cobbly till Rhyolite 30%
Diorite 50%
Carbonferous S.S. 15%
Granite 5%
Water Brown
matrix sandy

5' Cobbly till Diorite 50%
Granite 40%
Carbonferous SS 10%
Water brown, matrix sandy

6' Same as 4'

7' water clear

7½-8 Pebbly till tuff altered 60%

11' Bedrock fine grained diorite
with hematite along fracture

16' End of hole

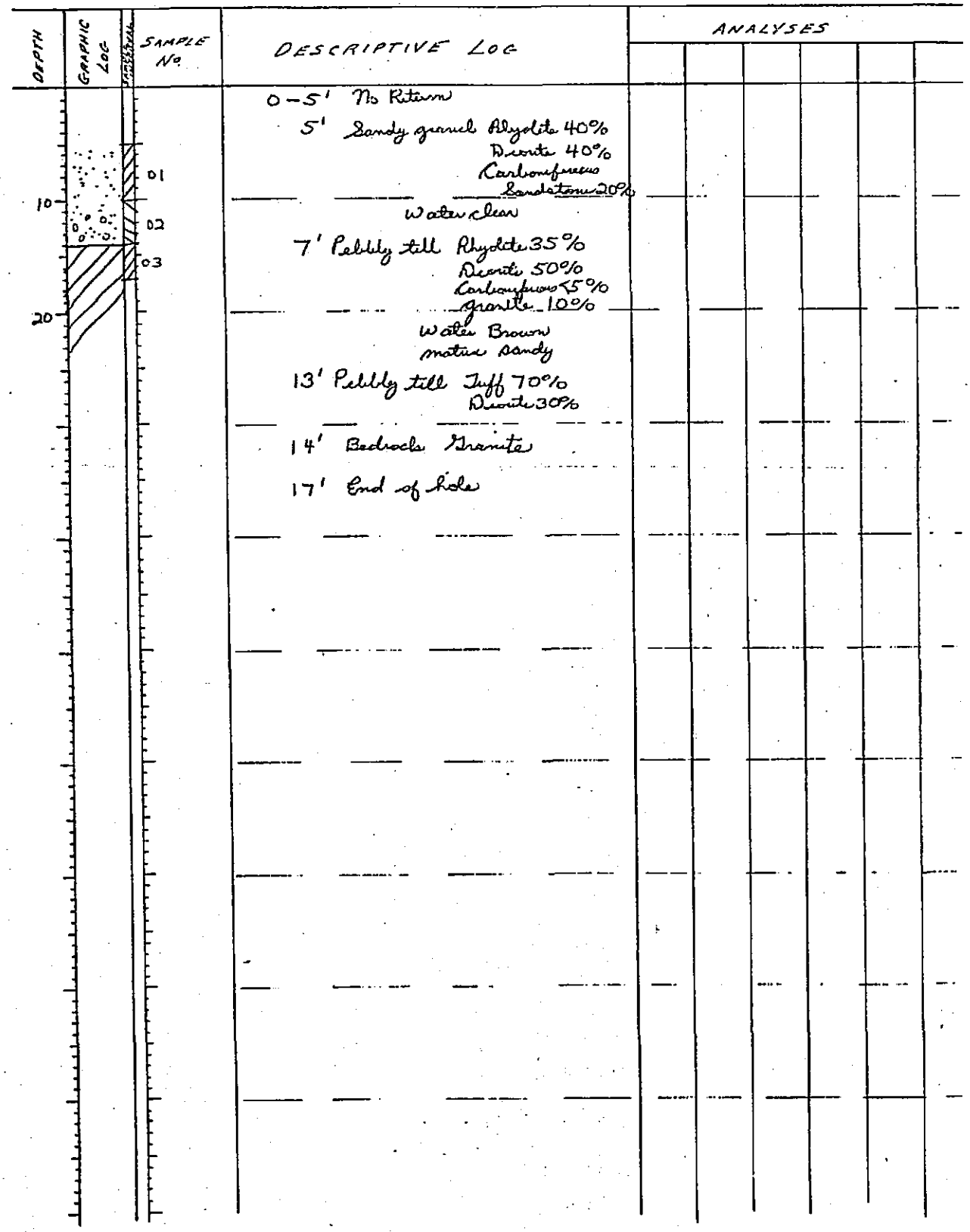
ANALYSES

DATE Dec. 1179 HOLE No. RD 186 GEOLOGIST Potter DRILLER Maynard

HOLE LOCATION 44+00 W 16+60 S

BIT No. D 58453 FOOTAGE ON BIT 83'-17'

HOURS MOVE 10:45-11:20 HOURS DRILL 11:20-12:10 OTHER

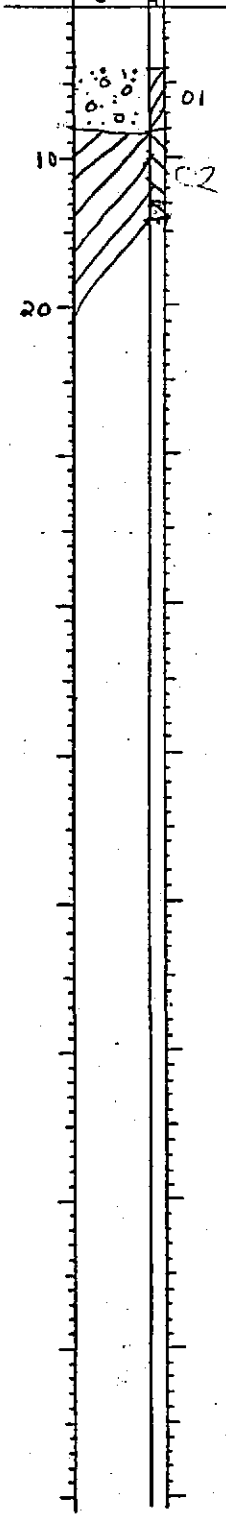


DATE Dec 1 79 HOLE No. RD 187 GEOLOGIST Peters DRILLER Maynard

HOLE LOCATION 42+10N 11+80S

BIT No. B58452 FOOTAGE ON BIT 13'

HOURS MOVE 12:10-12:30 HOURS DRILL 12:30-1:10 OTHER



DESCRIPTIVE LOG

0-4' No Return

4' Pebbly till Diorite 40%
granite 30%
Rhyolite 30%

Water grey matrix silty

7' Pebbly till Granite 60%
Diorite 30%
Rhyolite 10%

Water bronze matrix sandy

8' Bedrock Granite

13' End of hole

ANALYSES

DATE [illegible] HOLE No. R188 GEOLOGIST CASHIN DRILLER [illegible]

HOLE LOCATION 41W 151-505

BIT No. [illegible] FOOTAGE ON BIT 1' + 28' - 41'

HOURS MOVE [illegible] HOURS DRILL [illegible] - 3.05 pm OTHER

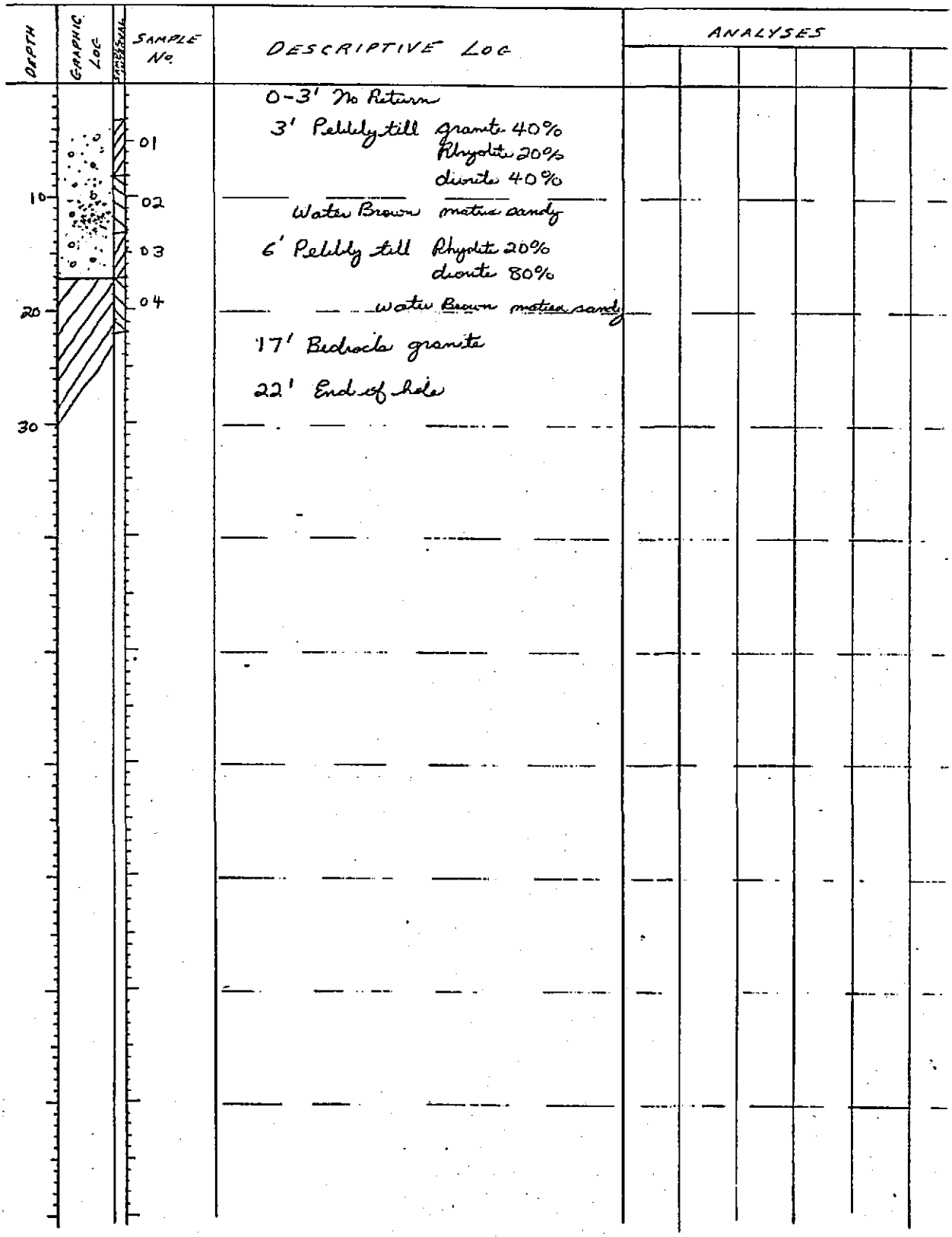
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-5' No Return	
			5' Pebbly Till [illegible]	
		01	[illegible]	
10		02	[illegible]	
			7' [illegible]	
		03	[illegible]	
20			[illegible]	
		04	[illegible]	
			sandy matrix	
30			12' BOULDERY TILL	
			10% granite	
			5% [illegible]	
			45% diorite	
			40% tuff	28' EOH
			[illegible]	
			3 sandy matrix	
			16' PEBBLY GRAVEL	
			70% [illegible]	
			10% [illegible]	
			5% [illegible]	
			10% [illegible]	
			[illegible]	
			[illegible] sand matrix	
			22.5' BOULDERY TILL	
			5% sst	
			5% tuff	
			50 gran[illegible]	
			40% dior[illegible]	
			sandy matrix	
			23' [illegible]	
			[illegible] salmon pink	
			granite	
			[illegible] fractures	

DATE Dec 1179 HOLE No. RD 189 GEOLOGIST Petrie DRILLER Maynard

HOLE LOCATION 37+70W 13+00S

BIT No. B58452 FOOTAGE ON BIT 41'+22' = 63'

HOURS MOVE 3:05 - 3:50 HOURS DRILL 3:50 - 4:45 OTHER

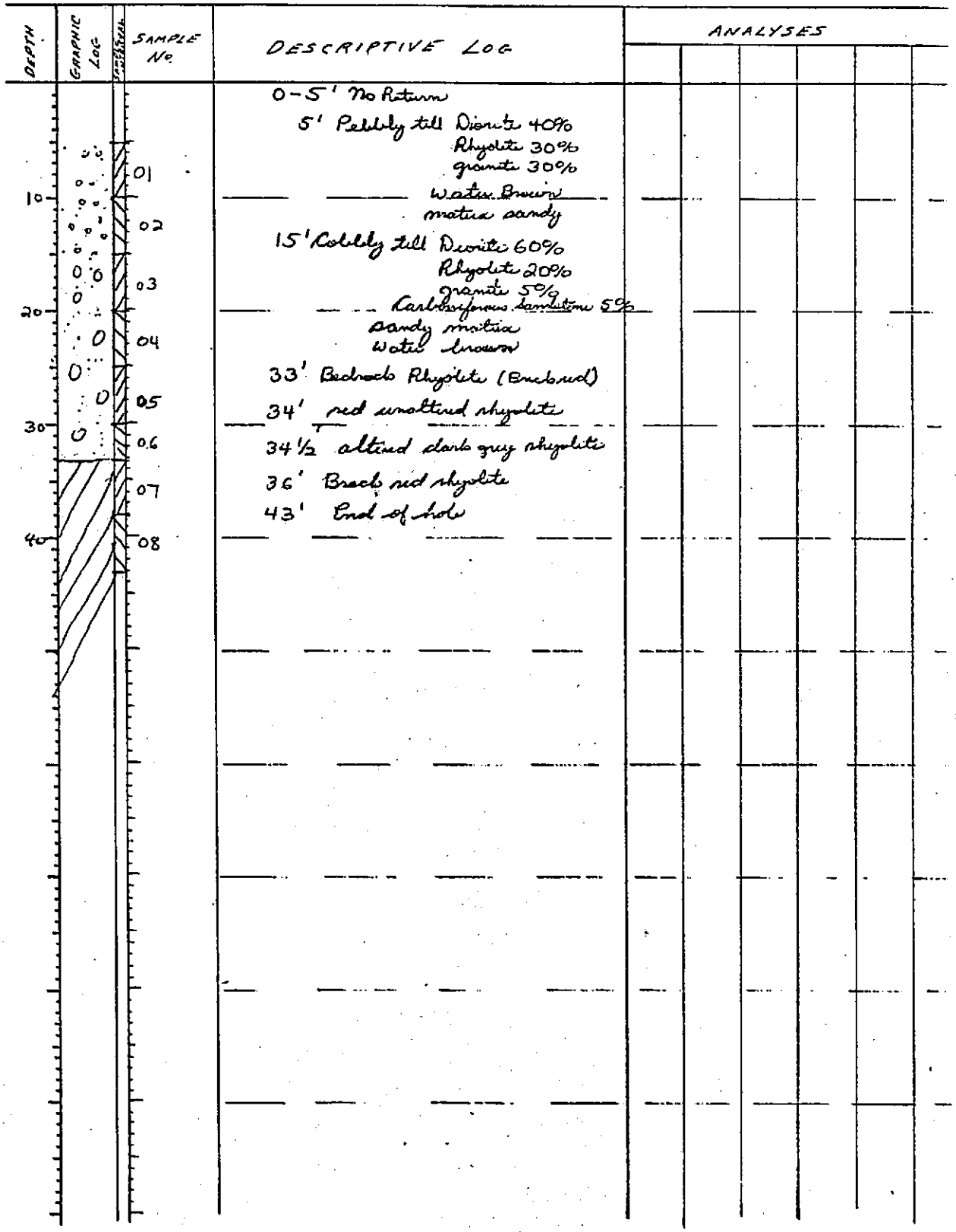


DATE Dec 3179 HOLE No. RD 190 GEOLOGIST Letam DRILLER Maynard

HOLE LOCATION 33+70 W 1+00 S

BIT No. B58 452 FOOTAGE ON BIT 62+43'

HOURS MOVE 8:00 9:20 HOURS DRILL 9:20 - 12:35 OTHER

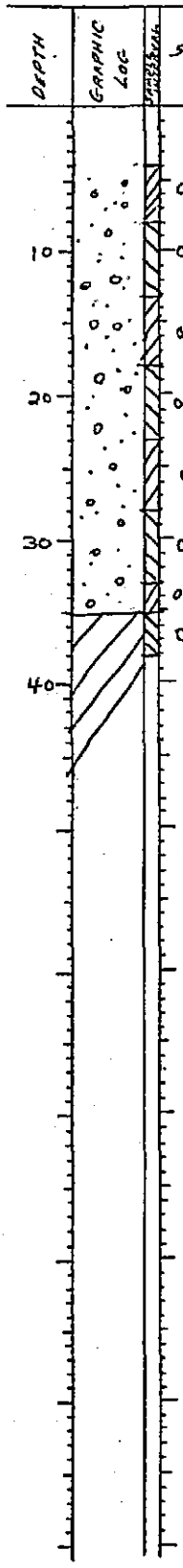


DATE Dec 3179 HOLE No. RD 191 GEOLOGIST Peters DRILLER Maynard

HOLE LOCATION 34 +00 0+00

BIT No. B58452 FOOTAGE ON BIT 105' + 38'

HOURS MOVE _____ HOURS DRILL 12:35 - 2:00 OTHER _____



DESCRIPTIVE LOG

0-4' No Returns

4' Pebbly till Diorite 40%
Rhyolite 30%
Carboniferous SS 10%
granite 20%
Water clear to Brown
sandy matrix

6' Red clay till Diorite 60%
Carboniferous SS 15%
Rhyolite 5%
Water Brown
clay matrix

13' Pebbly till Diorite 50%
Rhyolite 30%
granite 20%
matrix silty
Water Brown

15' sandy till 90% sandy

23' Pebbly till same as 4'

35' Bedrock Brick red rhyolite
With epidote in fractures
with magnetite disseminated

38' Diorite

38' End of hole

ANALYSES

DATE 12/3/79 HOLE No. RD-192 GEOLOGIST [illegible] DRILLER [illegible]

HOLE LOCATION 26 W 6 N

BIT No. [illegible] FOOTAGE ON BIT 143' + [illegible]' = 901'

HOURS MOVE _____ HOURS DRILL 2.20 - 4.30 OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0-3' NO RETURN	
		01	3' - BOULDERY TILL	
			fine silt and matrix	
10		02		
			5 sst	
		03	5% granite	
			10% diorite	
20		04	80% tuff.	
		05	8' - PEBBLY GRAVEL	
			silt & sand matrix	
30		06		
			5 sst.	
			5 gran.	
		07	30 dior.	
			60 tuff	
		08		
			37' [illegible]	
		09	BOULDERY GRAVEL.	
			FINE SAND MATRIX.	
		10		
			50 tuff.	
			35 dior.	
		11	10 gran.	
			5 sst.	
			41' Bouldery gravel.	
			60 dior.	
			5 sst.	
			20 banded sltst.	
			75 tuff.	
			silty sandy matrix	
			53' Bedrock = diorite	
			58' E.O.H	

DATE [illegible] 79 HOLE No. RD - 193 GEOLOGIST [illegible] DRILLER

HOLE LOCATION 37 + 30 W 10 + 10 N

BIT No. FOOTAGE ON BIT [illegible]

HOURS MOVE HOURS DRILL OTHER

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0'-3' - NO RETURN	
		01	3'- BOULDERY [illegible]	
0			sandy matrix	
			5% gran	
		02	5 sst	
			15 tuff	
20			75 dior	
			12 BOULDERY TILL	
			sandy matrix	
			5% sst.	
			5% granite	
			25 dior	
			65% lithic + x tt. tuff.	
			1/2' COBBLY GRAVEL	
			red water.	
			sandy matrix	
			90% dior	
			2% sst	
			3% gran	
			5% tuff.	
			12.5' BEDROCK	
			fine grain dior.	
			epidote stringers.	
			extremely	
			chloritized.	
			18' E.O.H.	

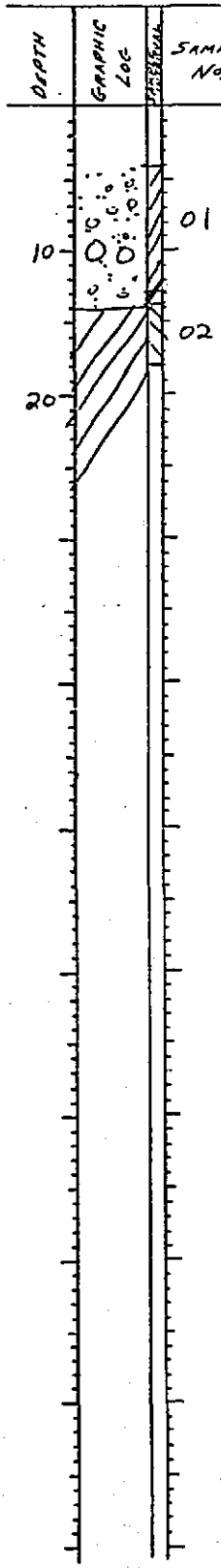
DATE Dec 4-79 HOLE No. RD 194 GEOLOGIST Peters DRILLER Maynard

HOLE LOCATION 36+90W 13+00N

BIT No. B58452 FOOTAGE ON BIT 219'+15'

HOURS MOVE _____ HOURS DRILL 11:20-12:00 OTHER _____

New Bit at 15' B58459 footage on new bit 3'



DESCRIPTIVE LOG

0-4' No Return

4' Pebbly till Diorite 60%
Rhyolite 20%
tuff 20%
matrix sandy
Water clear
poor return

10' cobbly till (outwash)

14' tuff (ashfall) Bedrock

18' End of hole

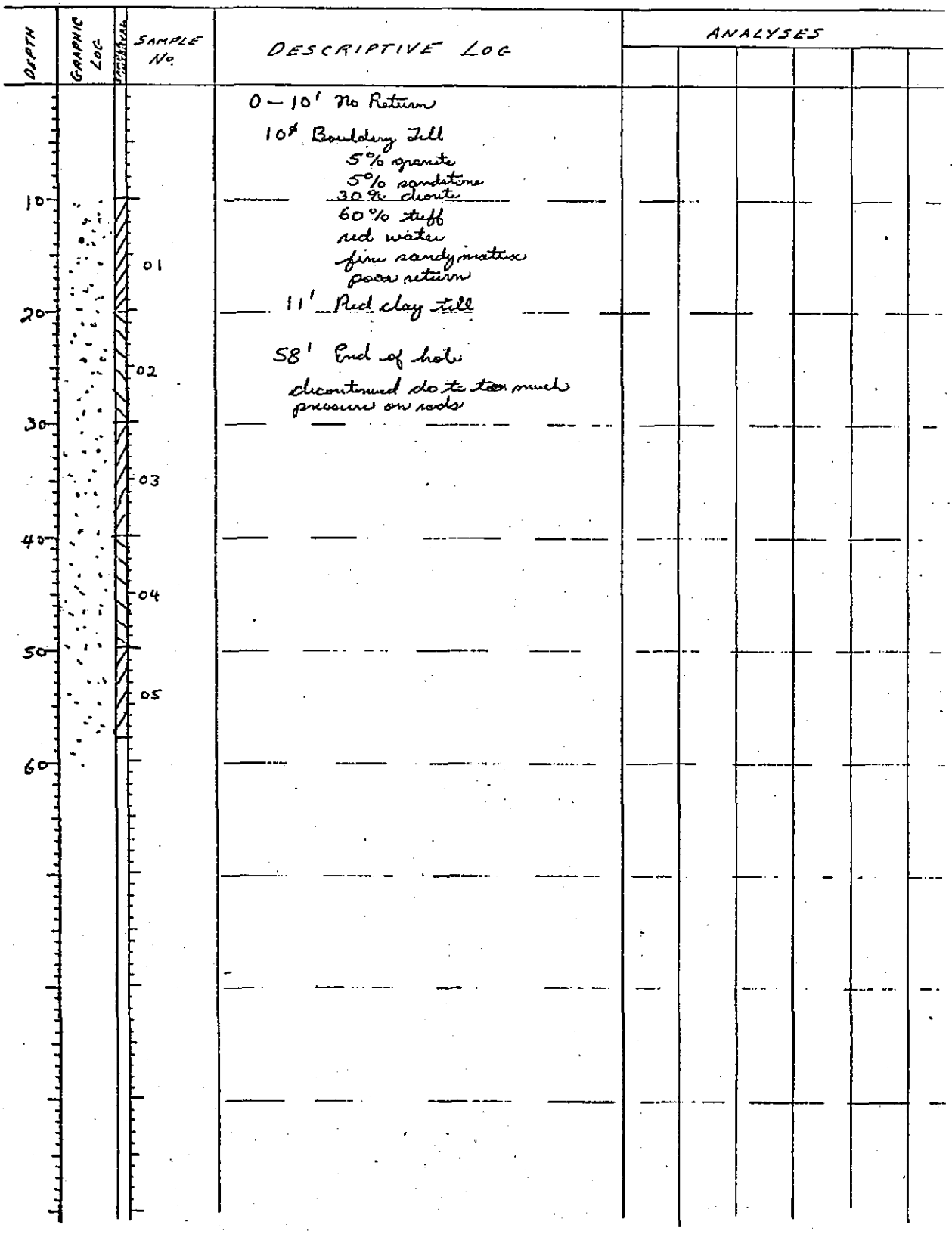
ANALYSES

DATE Dec 4/79 HOLE No. BD 195 GEOLOGIST Peter DRILLER Maynard

HOLE LOCATION 16+50 E 41+25 N

BIT No. B 58459 FOOTAGE ON BIT 3' + 58'.

HOURS MOVE _____ HOURS DRILL 3:25 - 5:30 OTHER _____

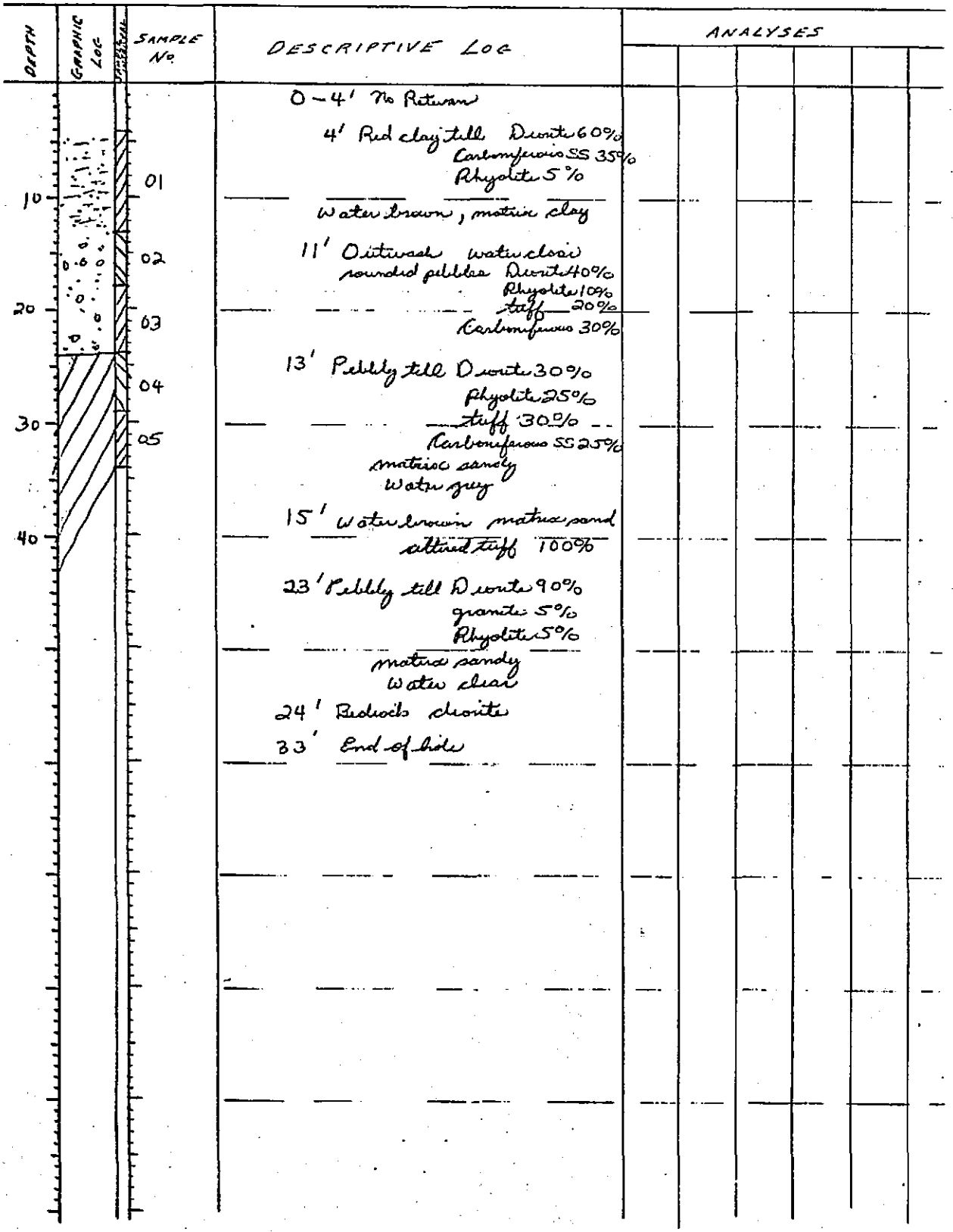


DATE Dec 5 '79 HOLE No. RD 196 GEOLOGIST Peters DRILLER Maynard

HOLE LOCATION 9+00E 48+00N

BIT No. BS8429 FOOTAGE ON BIT 61+33'

HOURS MOVE 10:30-11:20 HOURS DRILL 11:20-2:45 OTHER

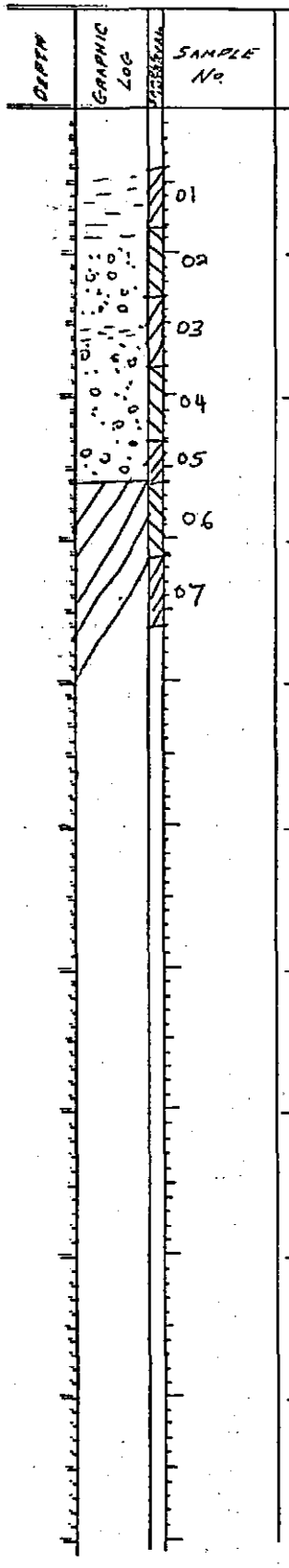


DATE Dec 5179 HOLE No. RD 197 GEOLOGIST Peters DRILLER Maynard

HOLE LOCATION 5+50 E 49+00 N

BIT No. B 58429 FOOTAGE ON BIT 94' + 35'

HOURS MOVE _____ HOURS DRILL 2:50 - 5:00 OTHER _____



DESCRIPTIVE LOG

0-4' No Return

4' Red clay till mostly clay with pebbles of Carboniferous and diorite

10' Pebbly till Diorite 70%
Rhyolite 20%
Carboniferous 10%
Water grey matrix silty

12' 40% grey yellow ashfall tuff

13' Red clay till

14' Pebbly till tuff 55%
Diorite 40%
Rhyolite 5%

Water brown matrix sandy

26' highly altered brecciated tuff with epidote and disseminated pyrite

35' Diorite

36' End of hole

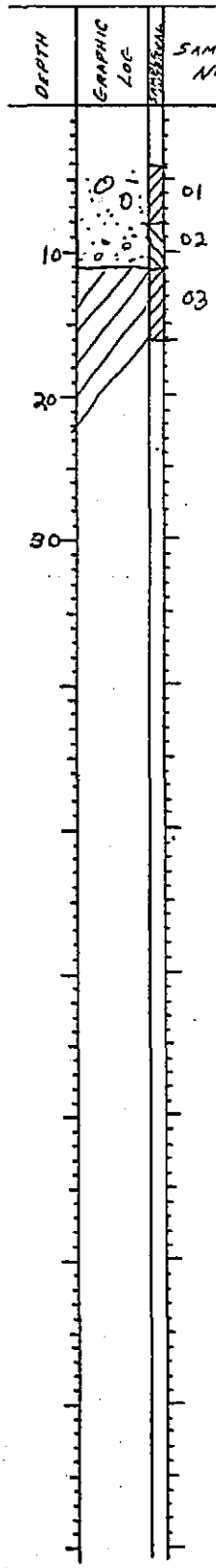
ANALYSES

DATE Dec 5/79 HOLE No. RD 198 GEOLOGIST Peters DRILLER Maynard

HOLE LOCATION 3+20E 49+30N

BIT No. B58452 FOOTAGE ON BIT 129' + 16'

HOURS MOVE _____ HOURS DRILL 9:00 – 10:20 OTHER _____



DESCRIPTIVE LOG

0–4' No Return

4' Bouldery gravel diorite 75% granite 10% staff 15%

Water brown moderate silty

7' Red clay till

9' Pebbly till like 4'

11' Bedrock fine grained diorite

16' End of hole

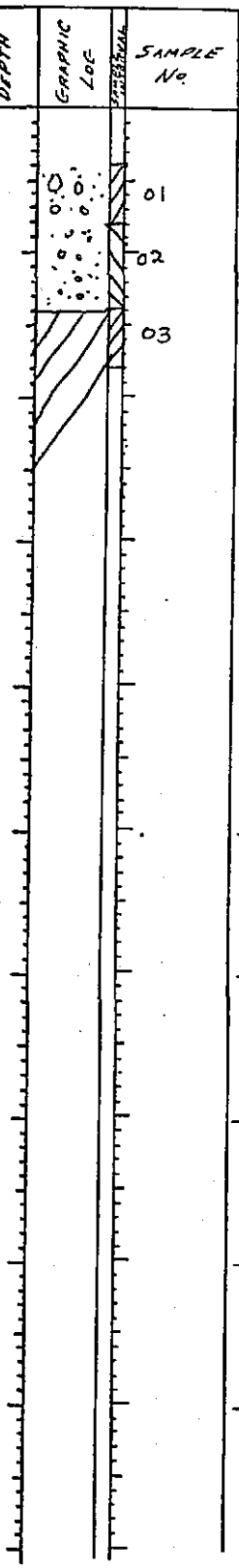
ANALYSES

DATE Dec 6/79 HOLE No. BD 199 GEOLOGIST Michaelis DRILLER Maynard

HOLE LOCATION 1+75 E 51+00 N

BIT No. B58452 FOOTAGE ON BIT 145'+16 = 161'

HOURS MOVE _____ HOURS DRILL 10:40 - 11:30 OTHER _____



DESCRIPTIVE LOG

0-4' No Return

4' Cobbly/till Diorite 40%
Rhyolite 20%
granite 20%
Carb SS 20%
sand matrix brown water

8' Pebbly gravel Diorite 30%
Rhyolite 20%
Carb SS 30%
granite 10%
tuff 10%

14' Bedrock dark brown staff with felsic fragments
limonite + hematite
stained

18' Diorite

19' EOH

ANALYSES

DATE [illegible]79 HOLE No. RD-200 GEOLOGIST [illegible] DRILLER [illegible]

HOLE LOCATION 1W / 54N

BIT No. [illegible] FOOTAGE ON BIT [illegible]

HOURS MOVE _____ HOURS DRILL [illegible] OTHER _____

DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0'-3' No RETURN	
			3' Bouldery till	
		01	5% gran.	
			5% sst.	
			40% dior.	
10		02	50% lithic tuff.	
			sandy matrix	
			red brown water.	
		03		
20		04	6' Outwash bouldery till.	
			75% ashfall tuff.	
			15% dior.	
			10% granite.	
30		05	sandy matrix	
		06		
			8½ Boulder. - Grey tuff	
			Pebble Till silty matrix.	
			30 [illegible]	
			20 gran.	
			20 sty.	
			20 tuff.	
			10 sst.	
			20' Grey Clay.	
			21' silt.	
			21.5' RED CLAY	
			32' PEBBLY GRAVEL	
			- brown H2O	
			- fine sandy matrix	
			5% sst.	
			10% granite	
			20% lithic tuff.	
			65% dior.	
			33' [illegible]	
			[illegible] diorite	
			[illegible] → chloritized	
			38' E.O.H.	

DATE Dec 6/79 HOLE No. RD 201 GEOLOGIST Michaelis DRILLER Mayrand

HOLE LOCATION 2+50 W 58+25 N

BIT No. B58452 FOOTAGE ON BIT

HOURS MOVE HOURS DRILL 2:40 – 4:00 OTHER

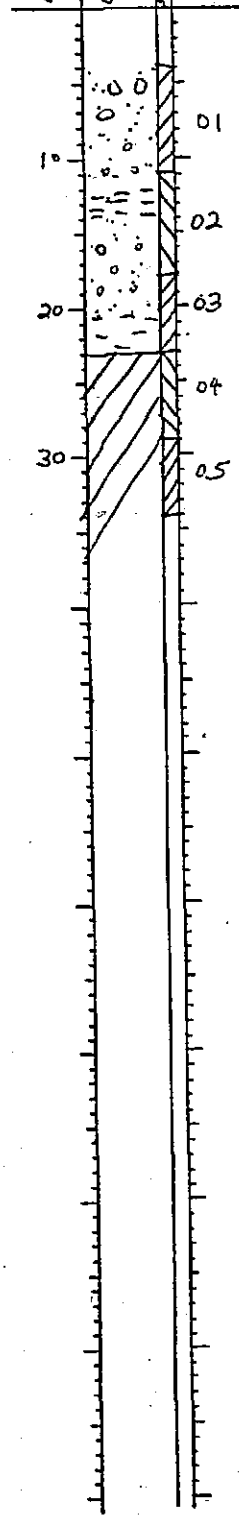
DEPTH	GRAPHIC LOG	SAMPLE No.	DESCRIPTIVE LOG	ANALYSES
			0–4' No Return	
			4' Red clay till Diorite 50% Carboniferous 50%	
10		01		
		02	20' Cobbly till Diorite 40% granite 30% Rhyolite 20% tuff 10%	
20		03		
		04	25' Diorite, Bedrock	
		05	28' EOH	
30				

DATE Dec 6 '79 HOLE No. BD 202 GEOLOGIST Peter DRILLER Maynard

HOLE LOCATION 5+25 W 60+25 N

BIT No. B58452 FOOTAGE ON BIT 101'+34

HOURS MOVE _____ HOURS DRILL _____ OTHER _____



DESCRIPTIVE LOG

0-4' No Return
4' Red clay till
5' Pebbly till granite 30%
diorite 25%
Rhyolite 25%
tuff 20%
sandy matrix
12' Red clay till
15' Cobbly till Diorite 40%
Granite 30%
Rhyolite 20%
tuff 10%
18' Pebbly till
22' Red clay till
24' Bedrock ashfall tuff
30' Diorite fine grained
34' End of hole

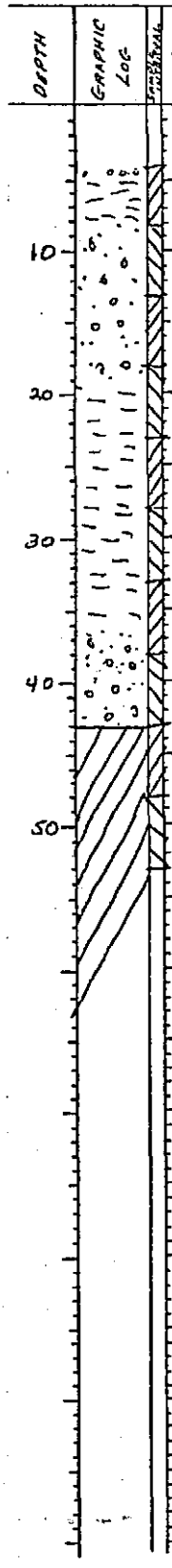
ANALYSES

DATE Dec 7/79 HOLE No. RD 203 GEOLOGIST Peters DRILLER Maynard

HOLE LOCATION 8+70W 62+70N

BIT No. B58460 FOOTAGE ON BIT 53'

HOURS MOVE _____ HOURS DRILL _____ OTHER _____



DESCRIPTIVE LOG

0–4' No Return

4' Pebbly till Diorite 20%
Rhyolite 55%
Carbiniferous 20%
granite 5%
matrix sandy
water Brown

5' Red clay till

8' Pebbly till like 4'

11' 30% saprolitized Rhyolite in till

20' Red clay till diorite 50%
carbiniferous 40%
Rhyolite 10%
silty 50% clay 50%
water Brown

23' Red clay till matrix 100% clay

34' altered Diorite as clay layer

37' Pebbly till like 4'

43' Bedrock grey ashfall Tuff

53' End of hole

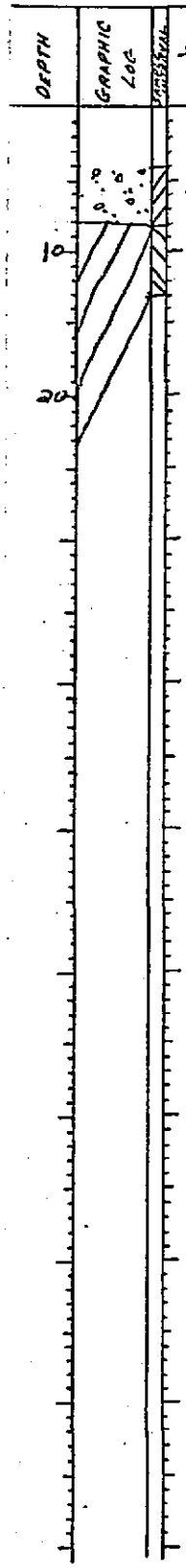
ANALYSES

DATE Dec 7 79 HOLE No. BD 204 GEOLOGIST Peters DRILLER Maynard

HOLE LOCATION 12+00W 6.5+00N

BIT No. B.58460 FOOTAGE ON BIT 53'+13' = 66'

HOURS MOVE _____ HOURS DRILL _____ OTHER _____



DESCRIPTIVE LOG

0-4' No Return

4' Pebbly till Rhyolite 40%
Diorite 20%
Granite 40%
sandy matrix
Water Brown

8' Bedrock diorite

13' EOH

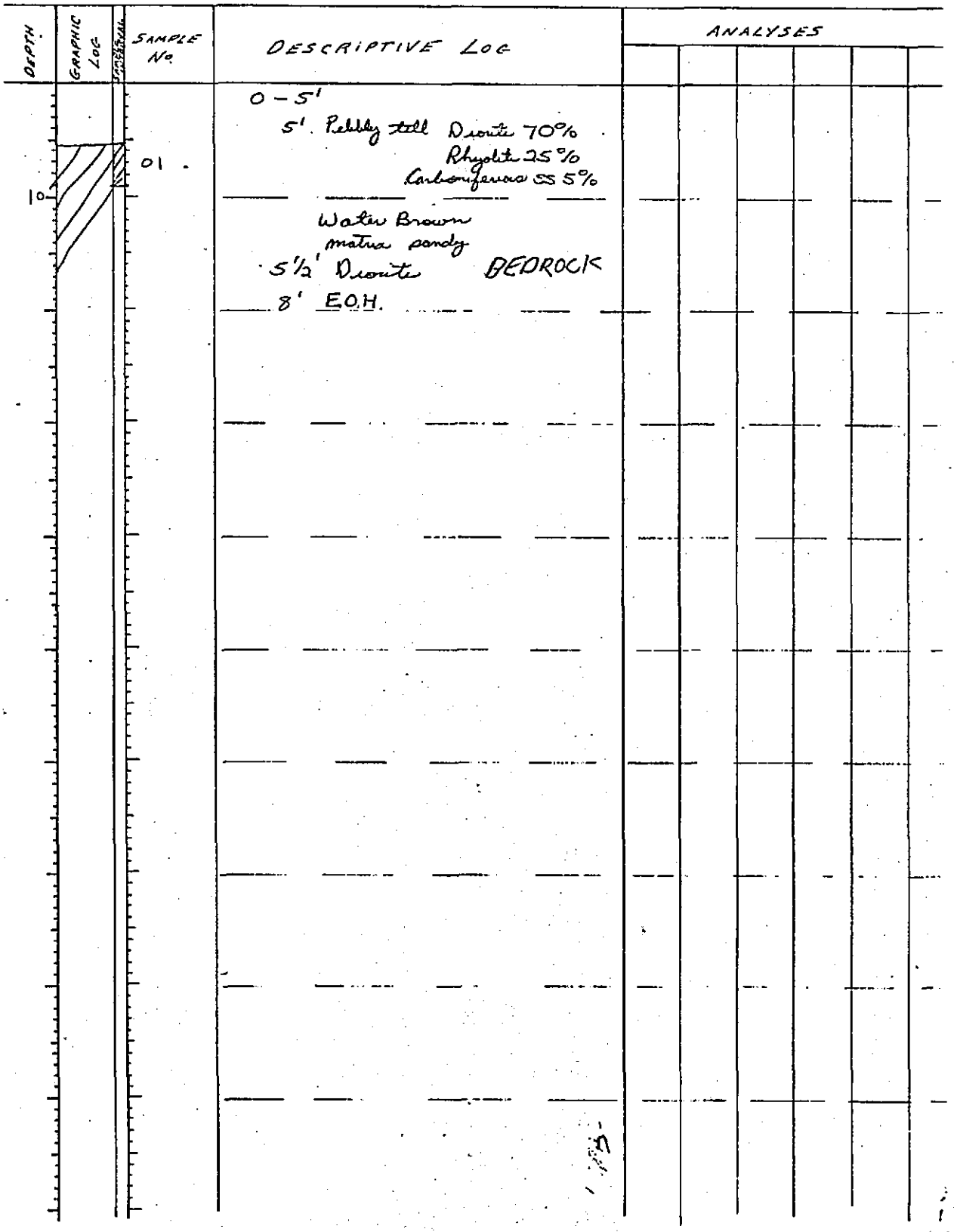
ANALYSES

DATE Dec 7 '79 HOLE No. BD 205 GEOLOGIST Peters DRILLER Maynard

HOLE LOCATION 67+00N 14+00W

BIT No. B58460 FOOTAGE ON BIT 66' + 8' = 74'

HOURS MOVE _____ HOURS DRILL 1:30-2:00 OTHER _____



APPENDIX D

DIAMOND DRILL LOGS

GMC 1051 (09/78)

Gulf Minerals Canada Limited
DIAMOND DRILL RECORD

D.D.H. NO. DF-22
SHEET 1 OF 4

PROPERTY Cobequid Area III
LATITUDE 38+80S
LONGITUDE 60+00E
ELEVATION

BEARING—TRUE 180°
DIP -45°
FINAL DEPTH 183.3 m
CORE SIZE BQ

DATE STARTED August 18, 1980
DATE COMPLETED August 20, 1980
DRILLED BY St. Lambert Drilling Co. Ltd.
LOGGED BY G. Davison

DATE: August 24, 1980 SIGNED

DEPTH FEET Metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
0 - 6	Ø		Overburden				Acid dip tests: 30 m - 44.5° 100 m - 42.0° 122 m - 41.2° 175 m
6 - 57.7	51.7		Ignimbrite	Grey to whitish groundmass, composed of fine to medium ash size fragments, both lithics and crystals. Broken feldspars abundant, also chloritized cusp-shaped shards. Pumice fragments show good bifurcated edges, highly variable degree of flattening fiammi ratios 4:1 to 20:1, lithic fragments increase rapidly with depth. Generally lapilli sized 3-6 mm., rare bomb size fragments up to 30 cm., composed of ignimbrite, flow rhyolite, massive to aphanitic rhyolite, quote angular usually. Bedding locally rippled to lensitic, distorted by fragments. Groundmass locally chloritized, epidotized, hematized, shearing minor, small offsets perpendicular to bedding common.	12.5	bedding	parallel to C/A
					28.5	bedding	20-25° to C/A
					30.3	bedding	35-40° to C/A
					32.4	bedding	50° to C/A
				19.3-27.3: Felsic intrusive - fine grained to aphanitic, may be chloritized near contacts, grades rapidly to highly siliceous, glassy, moderately porphyritic with 1-2 mm. feldspars, euhedral to subhedral, may be resorbed, occur singly or in clusters.			
57.7 - 59.5	1.8		Diabase	Fine grained, dark bluish grey, chill margin (3 mm.) at lower contact. Highly sheared, pervasive chloritization.			
59.5 - 65.0	5.5		Felsic Intrusive	Orange-brown colour, fine to medium grained, locally euphanitic, weakly to moderately porphyritic with 5-15% 1-5 mm. whitish to orange feldspars, may have distinct to cloudy boundaries; singly or as clusters abundant hematization and fractures, moderately sheared, gradational upper contact, sharper lower contact. Minor calcite veining.			
				61.5-62.1: Waterlain tuff - may be xenolithic highly chloritized, abundant fragments, pyrite bedded.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DF-22

SHEET 2 OF 4

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
65.0 - 66.9	1.9		Diabase	Moderate to dark bluish grey, very fine grained to aphanitic near contacts, becoming slighlty coarser towards centre, non-porphyritic, diabasic texture, moderate shearing.			
66.9 - 68.2	1.3		Rhyolite	Grey, ashey, highly broken and fragmented, may be xenolithic with diorite, extensive epidote stringers, orange pink hematitic alteration 5-10 cm. band near contacts.			
68.2 - 87.9	19.7		Diorite	Dark grey, fine to locally medium grained, porphyritic below 76.2 m. depth, foldspars orange to reddish, euhedral to subhedral, groundmass may be pervasively hematized through several zones. Chill margins at all contacts, calcite veining and epidote abundant. Xenolithic of lightly altered rhyolite at 75.5-76.2, 78.4-79.2			
87.9 - 145.2	57.3		Ignimbrite	Groundmass usually light greenish to brownish colour, but may be altered over large zones by hematite with minor chlorite and epidote. Crystal lithic and pumice fragments common. Quartz crystals less than 2 mm., rounded, may be rimmed by kaolin or hematite. Feldspars 1-3 mm., euhedral to anhedral, may have chloritic centres, hematitic and/or altered rims. Slightly less abundant and smaller with depth. Lithic fragments show gradual increase in size and abundance with depth, up to large lapilli. Locally may be bomb size, subangular, composed of rhyolite and ignimbrite. Pumice fragments found in several zones, increased flattening with depth, usually light brownish, grey. L/W ratio 5:1-10:1 Groundmass locally shows bedding with local secondary flowage lithophysae locally abundant, less than 1 cm. Fragments often shown as nucleation points. Spherulites common also may be extensively hematized. Shearing nil to moderate pervasive small epidote, calcite, silicic stringers.			
				95.2-95.3: Diabase			
				99.3-102.8: Diabase			
145.2 - 147.1	1.9		Diorite	Dark green, aphanitic to fine grained, non-porphyritic, pervasive chloritization, low shearing.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DF-22

SHEET 3 OF 4

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
147.1 - 154.4	7.3		Tuff	Brownish coloured generally with various shades showing bedding development. Grades from massive becoming indistinctly bedded by 150.8 m. and well bedded below 152 m. Ash size brown fragments become more abundant with depth. Bed thickness quite variable, locally beds may be chloritized or hematized.			
154.4 - 158.0	3.6		Rhyolite	Light greenish grey groundmass. Abundant small ash to fine lapilli size lithic and crystal fragments. Feldspars are orange, locally chloritized, euhedral to subhedral 1-3 mm. Lithic fragments, less than 3 mm., often are hematized, composed of massive to porphyritic rhyolites, whitish, grey and red. Angular to subangular, locally few lithophysae less than 1 cm.			
158.0 - 162.9	4.9		Diorite	Dark greenish, aphanitic to medium grained, non-porphyritic, diabasic texture, moderate pervasive chloritization, minor to locally very strong shearing, minor calcite.			
162.9 - 168.2	5.3		Rhyolite	Light to medium brownish groundmass, non-bedded, lithologic details sketchy due to highly abundant shearing. Few whitish fragments less than 2 mm., less than 10% feldspars, after totally altered by chlorite. Angular rhyolite fragments in a highly epidotized matrix characterize mylonitic sections.			
168.2 - 175.4	7.2		Diorite	Light to dark greenish grey, aphanitic to medium grained, locally porphyritic, white, less than 2 mm. feldspars, often indistinct, good diabasic texture. Shearing ranges from low to quite strong, calcite veinlets.			
175.4 - 180.3	4.9		Rhyolite	Generally brownish groundmass locally altered by hematite, often greenish colour alteration. Poorly to distinctly bedded, includes small ash size brown fragments and also brown spherulites and/or lithophysae common as beds (?) or clusters, light brownish outer rims with hematized centres or vice versa. May show radial growth. Size from 1-10 mm. Shearing moderate to strong. Abundant epidote, calcite. Highly brecciated at lower contact.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DF-22

SHEET 4 OF 4

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
180.3 - 180.8	0.5		Diabase	Fine to aphanitic, dark greenish, highly sheared and chloritized, abundant calcite veining.			
180.8 - 183.3	2.5		Rhyolite	Groundmass colour variable, red, white, buff, light yellow. Very patchy, strongly hematized at upper conatct over 30-40 cm. sonze, indistinct crystal fragments, less than 2 mm., small indistinct white lithic fragments, less than 4 mm., shearing moderate to strong, often mylonitic.			
				E.O.H. - 183.3 metres			

GMC 1051 (09/78)

Gulf Minerals Canada Limited
DIAMOND DRILL RECORD

D.D.H. NO. DF-23
SHEET 1 OF 3

PROPERTY Cobequid Area III
LATITUDE 34+00S
LONGITUDE 60+00E
ELEVATION

BEARING—TRUE 180°
DIP -45°
FINAL DEPTH 155 m
CORE SIZE BQ

DATE STARTED August 14, 1980
DATE COMPLETED August 17, 1980
DRILLED BY St. Lambert Drilling Co. Ltd
LOGGED BY G. Davison

DATE: August 22, 1980 SIGNED Guy Davison

DEPTH FEET metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOL!A	REMARKS SAMPLES ETC.
0 - 10	Ø		Overburden				
10 - 69.2	59.2		Diorite	Several mafic intrusives ranging from diabase to gabbroic (very fine grained to aphanitic grading up to very coarse grained). Locally 8-10 mm. feldspar laths, may be porphyritic with (up to 1.5 cm.) plagioclase and amphibole crystals. Diabasic texture locally visible and well developed. Colour usually light to dark bluish grey. Patchy to veined epidote, abundant calcite veinlets. Chloritization minor to locally strong, shearing rare but strong where present.			
69.2 - 71.0	1.8		Lithic Tuff	Highly epidotized to hematized groundmass. Lithic fragments of fine lapilla size made up of brick to orange rhyolite. Crystal fragments less than 2 mm. both quartz and feldspar, quote angular. Hematite is common on all fragments. Indistinct pumice fragments cusp shaped, highly chloritized, epidote stringers common.			
71.0 - 75.5	4.5		Diorite	Medium greenish grey, less than 1 mm. chloritic clots abundant, good diabasoic texture, abundant chloritization and calcite veinlets, generally fine to medium grained, includes several highly altered rhyolite xenoliths.			
75.5 - 87.7	12.2		Ignimbrite	Whitish to buff coloured with strong chloritization and hematization. Abundant crystal and lithic fragments. Lithic fragments consist of very angular, fine ash to coarse lapilli (few bomb size fragments) ignimbrite, rhyolite, and minor mafics. May be rimmed by hematite. Ash size pumice fragments 5-6 mm., angular to shardlike quartz and feldspar fragments less than 3 mm., feldspar auhedral, whitish orange, quartz often rounded to dipyramidal. Feldspar fragments often show strong chloritization. Locally wispy very discontinuous layering 45°-50° to C/A. Epidote veinlets, felsic stringers abundant. 83.5'-83.6': diabase 86.6'-87.0': diabase			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DF-23

SHEET 2 OF 3

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
87.5 - 98.0	11.5		Diorite	Fine to medium grained, non-porphyritic. Light to moderate bluish-grey, well developed diabasic texture, epidote veinlets and calcite veinlets pervasive moderate shearing.			
98.0 - 110.7	12.7		Felsic Intrusive	Light to moderate pinkish brown, fine grained to ephanitic glassy to grainy groundmass. Rare (less than 3 mm.) feldspars, euhedral to subhedral, orange to buff coloured, groundmass often highly chloritized.			
110.7 - 116.1	5.4		Diabase	Greenish grey, non-porphyritic, fine grained to aphanitic, highly chloritized, highly sheared. Includes several rhyolites (highly altered) xenoliths.			
116.1 - 125.8	9.7		Rhyolite	Light pinkish orange groundmass, ash size rhyolite fragments abundant. Abundant chloritized feldspars, disseminated magnetite, epidote veining highly abundant. Hematization common. Minor lapilli size fragments over 125.3-125.8.			
125.8 - 127.8	2.0		Diorite	Fine to medium grained, light greenish grey, non-porphyritic, light chloritization, diabasic texture, calcite veining. Minor chill at contacts.			
127.8 - 145.2	17.4		Ignimbrite	Groundmass light orange to greenish, locally strongly hematized, ashy, abundant ash to lapilli size lithic and crystal fragments generally becoming coarser with depth. Lithic fragments usually brown to light grey, orange or reddish, sub-rounded (often due to coatings on the fragments) may be hematized, some are porphyritic and angular. Bright orange shardlike fragments common. May be glass shards often included within the large light yellow fragments. Distinct to cloudy, orange, euhedral to anhedral 1-4 mm. feldspar crystals pervasive. Lithophysae locally abundant, massive to zoned, may be broken into several pieces. Spherulites highly abundant, usually dark red, often chloritic nucleation centres, may be radially developed. 3-5 mm. maximum 1 cm. Often present as large zones with 75% spherulites. Shearing variable from low to mylonitic. Locally veined by quartz, fluorite, calcite.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DE-23

SHEET 3 OF 3

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
145.2	- 1.6		Ash Fall	Dark blue-grey to reddish, abundant whitish fragments fine ash size,			
146.8			Tuff	also orange feldspar crystals, euhedral to subhedral, often anhedral			
				also, 1-2 mm,, quite glassy groundmass.			
146.8	- 8.2		Tuff	Fine to medium grained, feldspar phenocrysts (less than 2 mm.), euhedral			
155.0				to subhedral, often highly chloritized, groundmass medium to dark			
				pinkish colouration, non-bedded.			
				E.O.H. - 155 metres.			

GMC 1051 (09/78)

Gulf Minerals Canada Limited
DIAMOND DRILL RECORD

D.D.H. NO. DF-24
SHEET 1 OF 5

PROPERTY Cobequid Area III
LATITUDE 37+00S
LONGITUDE 60+00E
ELEVATION

BEARING—TRUE 180°
DIP -45°
FINAL DEPTH 228 m
CORE SIZE BQ

DATE STARTED July 30, 1980
DATE COMPLETED August 14, 1980
DRILLED BY St. Lambert Drilling Co. Ltd.
LOGGED BY G. Davison

DATE: August 21, 1980 SIGNED

DEPTH (metres)	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
0 - 9	Ø		Overburden				
9 - 9.9	0.9		Diorite	Dark blue grey, fine to medium grained. Locally porphyritic with 1-2 mm. euhedral to subhedral plagioclase feldspars, buff to greenish coloured (saussurite), diabasic texture, epidote stringers or shears.			
9.9 - 19.4	9.5		Lithic Crystal Tuff	Pink to whitish groundmass, lithic and crystal fragments very common. Pink, white, grey, subangular to angular, lacks any bedding orientation. Massive groundmass, most of fragments ash size with some small zones of fine to coarse lapilli. Chloritized feldspars abundant, often replaced with magnetite also. Locally, minor pyrite disseminated in groundmass.			
19.4 - 20.8	1.4		Agglomerate	Minor orange silicic stringers. Dark green groundmass, highly chloritized, fragments of lithics show good rounding, fine to coarse lapilli, brick red ignimbrite, minor orange silicic stringers, hematite alteration along shears.			
20.8 - 28.6	7.8		Diorite	Groundmass dark greenish to pinkish, locally showing discolouration by hematite, generally fine grained to aphanitic, weakly porphyritic with 1-3 mm. buff to greenish, pinkish orange, saussuritized feldspars. Locally strong chloritization. Shearing moderate to high, epidote and chlorite shear surfaces abundant. 24.9-25.6: Rhyolite xenolith.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DF-24

SHEET 2 OF 5

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
28.6 - 34.0	5.6		Tuff	Light green groundmass, quite abundant fragments ranging from ash to coarse lapilli size. Crystal and lithic fragments. Lithic fragments composed of porphyritic rhyolite, flow rhyolite (grey), ignimbrite, all are angular. Abundant euhedral to anhedral (less than 3 mm.) feldspars. Most are fine ash size. Pumice like fragments which may show bifurcated edges locally visible, 1.5-2 cm. length by < 5 mm. width. Hematization of fragments stronger with depth. Shearing locally quite strong.			
34.0 - 51.8	17.8		Diorite	Medium to light green grey, fine to medium grained, locally aphanitic, light pervasive chloritization. Diabasic texture locally, patchy epidote alteration, quartz, feldspar, fluorite veinlets. Where present, shearing and fracturing extensive. Contains highly altered and brecciated xenoliths of rhyolite between 35.5-37.2, 39.5-39.8, 40.9-41.6, 46.5-46.7, 51.0-51.2 m.			
51.8 - 55.3	3.5		Rhyolite	Orange pinkish groundmass, locally lightly hematized, quite glassy to aphanitic, patchy epidote alteration, massive to fragment rich, rhyolite fragments up to fine lapilli size, white to buff coloured, chloritized feldspars abundant. 55.2: Diabase.			
55.3 - 56.2	0.9		Diorite	Light bluish grey, fine to medium grained, locally porphyritic with light greenish (saussuritized), euhedral to subhedral plagioclase feldspar, diabasic texture, lightly chloritized, patchy epidote.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DF-24

SHEET 3 OF 5

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
56.2	146.4		Ignimbrite	Colour of groundmass ranges from light yellowish or buff to a light			
202.6				greenish grey colour-due to hematitic alteration it may be altered to			
				various shades of red. Fine ash size fragments, buff lithic and crystal			
				are found throughout the unit. Quartz crystals are 1-3 mm., rounded to			
				dipyramidal, slightly resorbed, feldspars are 1-3 mm. Often rimmed by			
				hematite, euhedral to subhedral, whitish to buff, may be altered to			
				kaolin, lithic fragments are < 5 mm., generally subangular, usually light	57.3	bedding	25° to c/a.
				coloured, rhyolitic. Vitric or pumice fragments are very angular, jagged			
				bifurcated edges, 1-4 mm. length, less than 1 mm. width, bright orange	58.8	bedding	30° to c/a.
				coloured, often appear to be included in layer fragments (?) of light,			
				yellowish buff colour (may be lithophysae). Trend of shards often diffi-	59.2	bedding	50° to c/a.
				cult to measure due to distortion by devitrification features. Spheru-			
				lites are less than 1 cm. and often highly abundant, often occur in small	59.7	bedding	38° to c/a.
				bands up to several cm. wide, quote pervasive through most of the upper			
				100 m. of the unit, lithophysae are very common often being up to several	60.7	bedding	48° to c/a.
				cm. wide. Subrounded, may be slightly flattened, includes abundant			
				shards, fragments, often have chloritic centres-locally are broken into	63.9	bedding	90° to c/a.
				several pieces. Shearing and fracturing generally quite low except lo-			
				cally, where filled by abundant epidote. Groundmass locally may be	99.4	bedding	65° to c/a. (secondary flow)
				strongly chloritized, especially where abundant spherulites. Unit grades			
				from highly pumice shard rich zone with abundant devitrification features	100.5	bedding	70-90° to c/a. (undulating)
				to a slightly more welded zone and the lower part of the unit, often	102.8	bedding	45-65° to c/a. (variable)
				characterized by good bedding, secondary flowage, and increasingly abun-	106.8	bedding	65° to c/a.
				dant lithic fragments.	110.0	bedding	70° to c/a.
					112.3	bedding	15° to c/a.
				65.5-67.3: Diabase.	112.8	bedding	55° to c/a.
				69.4-71.6: Diabase.	116.5	bedding	50° to c/a.
				73.7-75.7: Diabase.	119.0	bedding	65° to c/a.
					121.5	bedding	48° to c/a. (secondary flow)
					124.5	bedding	38° to c/a. (secondary flow)
					126.3	bedding	55° to c/a.
					130.0	bedding	70° to c/a.
					139.9	bedding	80° to c/a. (secondary flow)

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DF-24

SHEET 4 OF 5

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
56.2	- 146.4		Ignimbrite	81.4-99.2: Diorite - fine to locally medium grained, often dark green			
202.6			(cont'd)	coloured, aphanitic, may be porphyritic with orange to buff, rimmed, euhedral to subhedral feldspars. Hematitic and chloritic alteration variable low to strong. Shearing highly variable. Epidote, chlorite veinlets. Patchy epidotization. Several small rhyolite xenoliths.			
				103.2-105.0: Diabase.			
				156.0-159.4: Diabase.			
				159.4-169.5: Ash fall tuff - light to moderate reddish brown, fine grained to aphanitic, often appears massive, non-bedded, abundant chloritized feldspar crystals. Often kaolinized locally slightly coarser grained minor epidote veinlets. Locally highly weathered out with whitish altered felsic fragments the only relict. Chloritic staining visible or moderate shear surfaces.			
				169.5-172.6: Diabase.			
				182.6-187.5: Diabase.			
202.6	- 4.0		Diorite	Light to medium greenish grey, fine to medium grained, non-porphyritic,			
206.6				good diabasic texture, epidote, calcite veinlets, patchy epidotization, pervasive chloritization shearing strong, abundant chloritic surfaces.			
206.6	- 0.9		Rhyolite	Flow banding well developed between highly devitrified zones (alternating spherulites and flow bands) usually <15 mm. wide bands, light to			
207.5				dark grey brown layering parallel to c/a. Shearing strong, epidote and chlorite on shear surfaces. Groundmass often strongly chloritized.			
207.5	- 2.8		Diorite	Moderate greenish grey, fine to medium grained, good diabasic texture,			
210.3				non-porphyritic. Lightly chloritized lower contact parallel to c/a. from 210.2-211.0 m.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DF-24

SHEET 5 OF 5

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
210.3	- 2.9		Rhyolite	Dark bluish grey, includes lapilli lithic fragments gradually increasing			
213.2				in abundance with depth. Generally ash size crystal fragments in upper			
				60 cm. Spherulitic growths with dark greenish highly chloritic centers			
				quite common. Hematitic alteration strong. Chloritization generally			
				pervasive.			
213.2	- 14.8		Diorite	Light to moderate bluish grey colour, fine to medium grained, non-			
228.0				porphyritic, diabasic texture well developed, shearing ranges from			
				moderate to locally high, patchy epidote light chloritization pervasive.			
				E.O.H. - 228 metres.			

GMC 1051 (09/78)

Gulf

Gulf Minerals Canada Limited
DIAMOND DRILL RECORD

D.D.H. NO. DF-27
SHEET 1 OF 5

PROPERTY Cobequid Area III
LATITUDE 40+60S
LONGITUDE 60+00E
ELEVATION

BEARING—TRUE 180°
DIP -60°
FINAL DEPTH 184 metres
CORE SIZE BQ

DATE STARTED October 11, 1980
DATE COMPLETED October 16, 1980
DRILLED BY St. Lambert Drilling Co. Ltd.
LOGGED BY G. Davison

DATE: October 18, 1980 SIGNED

DEPTH ~~FEET~~ metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
0.0 - 8.5	Ø		Overburden				
8.5 - 36.2	27.7		Lithic Tuff	Grey-white to light yellowish groundmass made up of fine ash size lithic and crystal fragments, quite unsorted and non-bedded. Lithic fragments less than 5 mm, average, max. 15 mm., subangular to angular. Locally subrounded, composed of variably coloured rhyolite fragments. Chloritized feldspar crystals 1-2 mm., locally abundant. Disseminated pyrite in the groundmass and rimming fragments, groundmass locally hematized, becomes more chloritized with depth. Shearing low to moderate. 16.7-17.5: Diabase 20.8-21.5: Diabase 26.0-34.1: Composite intrusive - mafic well red, gradually becoming felsic in the central core. Fine grained to aphanitic, green to pinkish green colour, porphyritic with 1-5 mm. feldspars.			
36.2 - 38.8	2.6		Diorite	Dark greenish, aphanitic to medium grained, moderately porphyritic 1-3mm white euhedral to subhedral feldspars. Occurring singly or as clusters, shearing moderate to very strong. Several small xenolitis of rhyolite at 36.3, 36.5-36.6, 36.9 m.			
38.8 - 42.8	4.0		Felsic Intrusive	Reddish-brown groundmass, fine grained to aphanitic. May show local chloritic patches (small mafic fragments), porphyritic with 1-4 mm. euhedral to subhedral orange feldspar crystals shearing moderate to strong. Abundant hematization, epidote and chloritic surfaces. Contacts sharp and often brecciated.			

GMC 1018

DIAMOND DRILL RECORD — CONTINUATION SHEET

D.D.H. NO. DF-27

SHEET 2 OF 5

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
46.4 - 49.1	2.7		Rhyolite	Orange reddish groundmass, massive, fragments very indistinct, 10-25% fresh to highly chloritized feldspars. Dark grey lithic fragments. Groundmass chloritized near diorite, locally small epidote clots shearing moderate to high.			
49.1 - 53.3	4.2		Diorite	Moderate to dark greenish grey, aphanitic to fine grained. Locally medium grained, diabasic texture, non-porphyritic. Chloritic clots less than 1 mm. locally. Calcite veining. 49.1-49.9: Rhyolite fragments 50.4-50.5: Rhyolite fragments			
53.3 - 60.4	7.1		Rhyolite	Light orange groundmass becoming more hematized and chloritized with depth. 1-3 mm. feldspar crystals abundant. Generally whitish to orange, subhedral, may show hematitic rims, chloritic centres, epidote rims. Quartz crystals 1-2 mm., more abundant with depth. Few lithic fragments, whitish subangular to subrounded, generally indistinct, becoming visible below 58.2 m. Poorly developed layering visible below 58.9 m. Discontinuous whitish bands, strongly hematized, wispy bands also, patchy kaolinization obscurs details.			
60.4 - 62.7	2.3		Diorite	Moderate to dark green, fine to medium grained, locally aphanitic near contacts, very weakly porphyritic 1-3 mm. subhedral lightly saussuritized feldspars, poor diabasic texture, low shearing, pervasive moderate chloritization.			
62.7 - 65.9	3.2		Rhyolite	Light greyish to yellowish groundmass. Locally strongly hematized, abundant chloritized crystal and lithic fragments. Feldspar crystals 1-4 mm. often whitish subhedral to anhedral, may be totally chloritized pseudomorphs lithic fragments 1-5 mm., subangular to subrounded. Whitish, may be medium to coarse lapilli size locally. Small chloritized fragments may be pumice fragments, often thin, wispy looking. Poor bedding definition. Lithophysae range from 3 mm. to 2 cm. less than 5% abundance. Whitish, patchy, may show concentric zonation shearing low, minor silicic stringers cross-cutt bedding.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DF-27

SHEET 3 OF 5

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
65.9 - 73.8	7.9		Composite Intrusive	Fine grained to aphanitic groundmass, generally brown becoming greener towards both contacts, due to gradational change in composition. Locally, hematitic discolouration, porphyritic with 1-3 mm. orange, euhedral to subhedral feldspars. May have hematitic rims, often includes diabasic xenoliths. Shearing often quite strong.			
73.8 - 90.3	16.5		Ignimbrite	Yellowish to light grey groundmass, often strongly hematized, chloritized feldspars abundant. Usually orange to whitish subhedral to anhedral. May show chloritic rims. Quartz crystals less than 5%. Lithic fragments up to 50% 2 mm. to several cm. size range, angular to subangular. Small whitish fragments indistinct, large fragments are pink, grey, yellow rhyolites and ignimbrite, maximum size 10 cm. Generally non-bedded groundmass, locally indistinct bedding, locally lithophysae visible, less than 1 cm. Shearing low to moderate hematite stringers, epidotization, chloritization common.			
90.3 - 109.7	19.4		Diorite	Light to dark greyish green, aphenitic to medium grained, non-porphyritic, less than 1 mm. chloritic clots locally, rarely visible-diabase texture, shearing low to strong. Abundant chloritic surfaces. Minor calcite veining. Low to moderate pervasive chloritization. 95.9-97.0: Rhyolite xenolith - highly altered 97.8-98.0: Rhoylite xenolith - highly altered			
109.7 - 120.2	10.5		Ignimbrite	Continuation of fragment rich lower zone. Dark grey to black groundmass Strong chloritization, hematization. Lithic fragments highly angular, fine to moderate lapilli size, locally coarse lapilli to bomb size. Orange and red (hematized) rhyolite fragments dominant. Broken spherulites and/or small lithophysae, white to grey, massive. Shearing and fracturing strong abundant epidote, graphite, fluorite.			
120.2 - 128.5	8.3		Rhyolite	Brownish red groundmass, massive to poorly bedded with local well developed bedding. Often has mottled appearance, fine ash size crystal fragments 1-2 mm. abundant highly chloritized. Groundmass becomes chloritized and hematized below 128m, shearing low to strong.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DF-27

SHEET 4 OF 5

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
128.5 - 147.3	18.8		Diorite	Light to dark greenish grey, aphanitic to medium grained. Abundant less than 1 mm. chloritic clots, weakly porphyritic. 1-6 mm. subhedral white, often saussuritized feldspars. Moderate pervasive chlorite, patchy epidotization. Minor calcite veining. Locally developed diabasic texture.			
				130.7-131.0: Diabasic stringer.			
147.3 - 159.0	11.7		Rhyolite	Moderate to dark reddish colour (mainly due to hematization), often kaolinized and epidotized to light buff and white colour. Patchy chloritization, often looks mottled. Lithic fragments show indistinct edges but are usually subangular to subrounded, fine to medium lapilli size, whitish to light grey. Shearing moderate to strong marks nature of fragments with its associated strong alteration. Crystal fragments less than 5%. Feldspar laths less than 2 mm. locally mylonitic shears fragments most of the unit.			
				157.6-157.7: Diabase			
159.0 - 167.8	8.8		Diorite	Aphanitic to fine grained, moderate to dark grey-green, non-porphyritic, chloritic clots (less than 1 mm.) abundant locally, light to very strong pervasive chloritization, low to moderate shearing, minor calcite veining.			
				167.4-167.7: Rhyolite xenolith.			
167.8 - 171.3	3.5		Rhyolite	Reddish groundmass, aphanitic, contains abundant ash to medium lapilli indistinct whitish grey lithic fragments. Subangular to subrounded. Patchy chloritization of fragments. Locally feldspar crystal fragments. Often highly chloritized, may be several small lithophysae. Silicic stringers less than 2 mm. wide shearing moderate. Hematized groundmass near diorite contacts.			
171.3 - 172.7	1.4		Diabase	Light to dark greenish, aphanitic to medium grained, may show good diabasic texture, pervasive moderate chloritization, non-porphyritic, low to moderate shearing, chloritiz shear surfaces.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DF-27

SHEET 5 OF 5

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
172.7 - 184.0	7.3		Rhyolite	Reddish to white grey groundmass, often shows light yellowish to buff alteration. Lithic fragments whitish to grey subrounded to subangular, may be strongly hematized, totally is as micas (especially in the lower few metres), range from ash to moderate lapilli size. Groundmass often appears mottled. Abundance ranges from 15-30%, increasing with depth. Crystal fragments usually feldspar 1-4 mm., 10-20%, light yellow to buff Chloritic centres may be hematized, shearing moderate to mylonitic. Epidotization common.			
				E.O.H. - 184.0 metres			

GMC 1051 (09/78)

Gulf

Gulf Minerals Canada Limited
DIAMOND DRILL RECORD

D.D.H. NO. DF-29
SHEET 1 OF 4

PROPERTY Cobequid Area III
LATITUDE 40+60S
LONGITUDE 60+00E
ELEVATION

BEARING—TRUE 180°
DIP -45°
FINAL DEPTH 144.3 m.
CORE SIZE BQ

DATE STARTED October 16, 1980
DATE COMPLETED October 18, 1980
DRILLED BY St. Lambert Drilling Co. Ltd
LOGGED BY G. Davison

DATE: October 21, 1980 SIGNED

DEPTH FEET metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
0 - 10.5	Ø		Overburden				
10.5 - 31.4	20.9		Lithic Tuff	Light grey to yellowish groundmass made up of ash size crystal and lithic fragments, may be highly chloritized, generally becoming stronger with depth. Lithic fragments become larger and more abundant with depth but fine out rapidly below 23.5 m. Lithic fragments dominated by black, light grey, white and greenish rhyolite and possibly some mafic fragments, subangular to subrounded, size range between 1-10 mm., rare 1-4 cm. fragments (highly angular). Crystal fragments 1-3 mm. subhedral to subangular, feldspars strongly altered. Groundmass non-bedded. May be a few pumice fragments present but indistinct. Patchy hematization, also rimming fragments. Epidotization common. Pyritic clots 1-5 mm. abundant, also may rim the fragments shearing low to moderate. Fe staining minor.			
31.4 - 41.2	9.8		Composite Intrusive	At contacts groundmass dark green, aphanitic, highly chloritized, non-porphyritic, has abundant chloritic clots (less than 1 mm. between 50 and 75 cm. from contacts, grades to orange brown groundmass with greenish type and finally to the central core, a reddish brown colour, slightly chloritized felsic zone with moderately porphyritic texture 1-5 mm. orange euhedral to subhedral feldspars, may be singly or in clusters. Shearing low to locally moderate. Fe alteration common. Small rhyolite xenolith at 40.8-40.9 m.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DF-29

SHEET 2 OF 4

DEPTH FEET metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
41.2 - 58.2	17.0		Ash to Lapilli Tuff	Light grey greenish colour, may be strongly chloritized or hematized. Lithic fragments generally indistinct, subrounded to subangular, 1-5 mm. whitish grey, reddish brown rhyolite, often partially or totally altered by chlorite and/or epidote. Small chloritized feldspars locally strong, subhedral to subangular minor kaolinitic and hematitic alteration. Abundance of fragments variable from nil to 50%. Large zones of grey non-bedded tuff increasing in size and abundance with depth totally dominant below 53.8 m. Lithophysae 1-8 mm. may show crude concentric banding and highly altered nucleation centre. Some are brokwn with chloritic alteration in fractures. Shearing and fracturing range from low to moderate, minor epidotization, hematization along breaks.			
58.2 - 76.8	18.6		Basalt/ andesite	Light to dark green, generally massive, contains abundant vesicles or amygdules throughout upper 10m., generally oblate to rounded, often filled with epidote, chlorite, pyrite, feldspars. Size 1-4 mm., locally porphyritic zones with 1-5 mm., subhedral to anhedral, often with chloritic rims. Quite difficult to recognize upper surface, probably fragmented and appears to repeat with the grey tuff zone, lower contact not distinct. Calcite and epidote stringers fairly abundant. Shearing low to moderate. Quite strong below 74.5 m.			
76.8 - 83.7	6.9		Diorite	Medium to dark grey green, aphanitic to fine grained, non-porphyritic abundant (less than 1 mm.) chloritic clots. Shearing nil to low, locally few epidote stringers contains xenolith of rhyolite 83.4-83.5 m. (highly altered).			
83.7 - 98.5	14.8		Rhyolite	Grey green to reddish groundmass, the latter due to hematization, unusally aphanitic, but may show patches of ash size fragments. Crystal fragments not common. Highly chloritized feldspar (less than 10%). Few quartz crystals rounded 1-3 mm. (less than 10%) lithic fragments abundant, 20-25%, subangular to subrounded, 205 mm. average size may reach 2 cm. Most fragments whitish, light grey to black, boundaries become less distinct with depth. Large fragments made up of green crystal and lithic fragment red tuff. Few lithophysae locally. Epidote clots. Shearing low to mylonitic, abundant alteration of powdered rock.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DF-29

SHEET 3 OF 4

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
98.5 - 107.0	8.5		Composite Intrusive	Dark green, highly chloritized, aphanitic at contacts grading quickly into a fine grained diorite with small chloritic clots, grading to a brownish red central zone, moderately porphyritic with 104 mm. euhedral to subhedral orange feldspars, may slow saussuritization. Shearing low minor epidote and calcite stringers.			
107.0 - 115.5	8.5		Rhyolite	Reddish highly hematized groundmass, small epidotized patches. Locally stronger chloritized. Lithic fragments quite abundant. 5-8 mm. average, usually whitish grey, black, brown, most are rhoylite, a few could be pumice (angular, ragged), usually subangular to subrounded. Couple of zones show large (up to 20 cm.) fragments most of which are light grey tuff shearing low to moderate (increasing with depth), minor epidotization Fe staining. Strongly hematized zone near lower diorite contact.			
115.5 - 116.7	1.2		Diorite	Dark greenish aphanitic to fine grained, non-porphyritic, abundant epidote stringers, lower contact sharp, upper contact brecciated, small breccia zones (less than 2 cm.) near 116 m.			
116.7 - 139.6	22.9		Rhyolite	Light to dark greyish-green, much of this unit obscured by a hard whitish alteration, both patchy and also as round spherulitic growths (often show hematitic rich central cores) small fragments of crystals and lithics. Orange to white 1-3 mm. feldspars euhedral to anhedral. Small grey ash size lithics indistinct. Also a few are fine lapilli size. Weakly fine to coarse lapilli rhyolite and ignimbrite fragments usually seen in an olive green matrix with highly abundant strongly chloritized ash size fragments, generally non-bedded groundmass. Shearing varies from low to strong, some between lithophysae and spherulites found near lower contact.			
				117.5-118.6: Diabase.			
				127.2-138.4: Diorite - fine to medium grained non-porphyritic diabasic texture, medium to dark greenish grey colour, moderate shearing.			

GMC 1016

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DP-29

SHEET 4 OF 4

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
139.6 - 144.3	4.7		Tuff	Greenish at upper contact becoming light reddish brown, below 140.2 m. beds are distinct becoming rapidly indistinct to absent with depth. Fine grained ash size fragments compose most of the unit. Slightly coarser with depth. Beds are 1-3 mm. wide, coarse alternating with fine, coarse beds usually poorly defined.	139.8 140.1	bedding bedding	50° to c/a 40° to c/a
				E.O.H. - 144.3 metres			

APPENDIX E

DOWN HOLE LOGS

Cominco Canada Limited

HOLE NO.	DF-22
PROJECT	Cominco
PROVINCE	Nova Scotia
Planning	
Dip	
Total Depth	
Casing	HW / HW / BW
Coordinates	
Collar Elev.	

GAMMA LOG (Total Count)

Date	01 20 Mo 06 Yr 80
Logged Depth	1539.5 ft
Logging Speed	10 ft/min
Paper Speed	10 ft/in
Time Constant	1 sec
Crystal Size	1"x1" Serial No. XP 232
PM Tube Type	9524B Serial No. XP 1550
Probe Assy.	9852-005 Serial No. 2054
Track I RAM	200 Serial No. 125
Track II RAM	200 Serial No. 234
Unit Conversion Setting	Counts / sec
Divider Used	Run No.

ELECTRIC LOG

Date	01 20 Mo 06 Yr 80
Logged Depth	1539.5 ft
Logging Speed	10 ft/min
Paper Speed	10 ft/in
ELM	205 Serial No. 405
Operator No.	9-A1-002 Serial No. 7408
Probe Size (dia.)	1 7/8 in
Normal Spacings	16" / 81"
Res. Between Grounds	

Gamma Factors

	Track I (Gross)	Track 2 (Ultra)
Detector K Factor	0.0 0.0 0.6 4	0.0 0.0 0.7 2
Decay Time	1 2 0 sec	sec

Casing Factors

HQ 1.450	NW/HQ 1.043	BW 1.029	BQ 1.380
HW 2.000	HW/NW 1.305	NQ 1.208	NQ 1.345

Fluid Factors

Hole Size	Factor
6 5/8"	1.029
6 3/4"	1.029
7 7/8"	1.045
8 5/8"	1.045
9 7/8"	1.160
3 7/8"	1.208
5 1/8"	1.167

Sleeve No.	Source No. 226
Initial	NS 1 1 0 4 3 K Initial B.S. 2 6
Final	NS 1 1 0 4 3 K Final B.S. 2 6
Ref. on back is	ft. above Casing collar
Truck No.	
Logged By	T.F. Bennett
Logger's Comments	Probe by M.F. Winter

GAMMA (cps)

Track I: 500 – 100

Track 2: 100 – 0

SELF POTENTIAL (millivolts)

+ = W

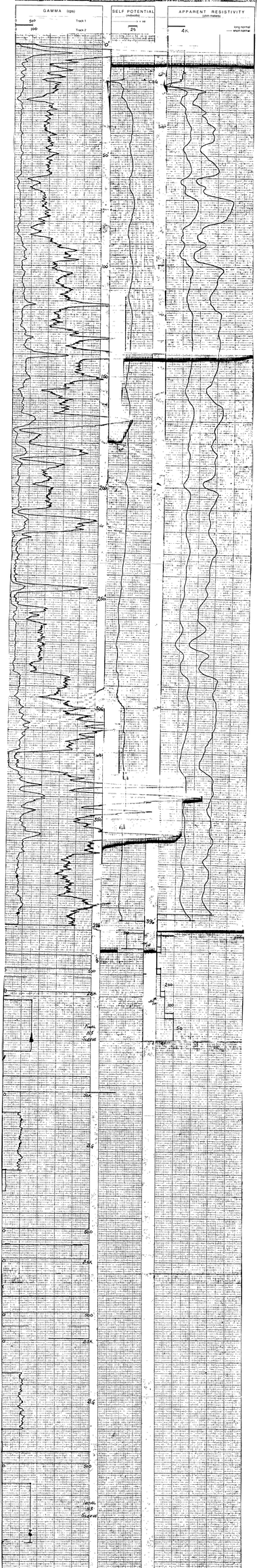
25

APPARENT RESISTIVITY (ohm meters)

4K

long normal

short normal



Gulf Minerals Canada Limited

HOLE NO.	DF-22A
PROJECT	Cobequid
PROVINCE	Nova Scotia
Bearing	180°
Dip	-45°
Casing depth	12 m
Total depth	183.3 m
Surface elev.	ft
Coordinates	38+80S, 60+00E

GAMMA LOG (Total Count)	
Date	Dy 23 Mo 10 Yr 80
Logged depth	576 ft
Logging speed	12 ft/min
Crystal size	1 in x 4 in
Time constant	1 sec
Probe No.	3255-02 #2535
Detector No.	PMT-25240 #171685
Track 1 RMM	207-125 MI
Track 2 RMM	207-125 MI

ELECTRIC LOG	
Date	Dy 24 Mo 10 Yr 80
Logged depth	602 ft
Logging speed	50 ft/min
Probe size (dia)	1.25 in
Borehole medium	Mud - Grease
Res. between grids	A
Normal spacings	16" + 32"
	ELM 202-45
Truck No.	4
Logged By	K.T. HORAN

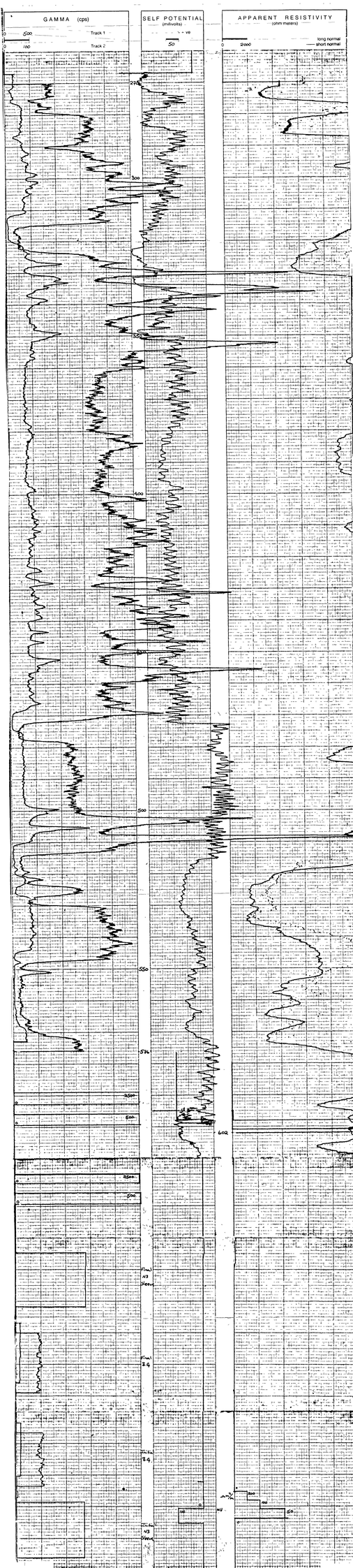
Logger's Comments

This is a partial log only of the extension to DF-22. It runs from 270' to 80H.

GAMMA FACTORS	Track 1	Track 2
Detector K factor	0000 084	0000
Instrument dead time	11.7 μ sec.	μ sec
Calibration standard (cps)		
Fluid factor		
Casing factor		

REMARKS correlated by

Initial N3 Sleeve 13.6K cps
Final N3 Sleeve 13.6K cps
Initial Background 100 cps
Final Background 100 cps



Canwell Drilling (1981) Limited

HOLE NO. DF-23	GAMMA LOG (Total Count)		ELECTRIC LOG
PROJECT Conequid	Date 81/08/ 19	Run No. 1	Date 81/08/ 19
PROVINCE Alberta	Logged Depth 1,205 ft		Logged Depth 1,205 ft
Bearing / ° E W	Logging Speed 20 ft/min		Logging Speed 20 ft/min
Dip - ° E W	Paper Speed 10 in/hr		Paper Speed 10 in/hr
Total Depth 1,205 ft	Time Constant 1 sec		Elec. Log 208 Serial No. 417
Hole Rods NQ	Crystal Size 1"x4"	Serial No. NQ 387	Conductivity Cell 4ECP Serial No. 7464
Casing NW	Pmt. Tube 2224D	Serial No. 52-892	Probe Type 16
Size	Probe Amp. 9200 cal	Serial No. 3.036	Normal Spacings 16" & 64"
Depth 208 ft	Probe Type 2"	Serial No. 2.0	Pos. Between Grounds
Coordinates	Track 2 Width 20"	Serial No. 20.0	
Collar Elev.	Line Termination Setting 50 Ω		
	Divider Used /	Run No.	

Gamma Factors	Track 1 (Gross)	Track 2 (Lithg.)	Sonde No.	Source No.
Detector K Factor	0.0010014	0.0010012	Initial N3 1/4 Ci	Initial B6 1/4 Ci
Dead Time	1/20 μsec	μsec	Final N3 1/4 Ci	Final B6 1/4 Ci
			Diff. on tool ft.	ft. base casing corr.
			Truck No. 4	

Logged by T.F. Kennedy

Logger's Comments

Edited by A.T. Wight

Casing Factors

NQ 1.650	NW/HQ 2.043	BW/AQ 2.329	BQ 1.580
NW/HQ 1.650	NW/AX/AQ 1.903	NW/BQ 2.078	BQ 1.545

Fluid Factors

Hole Size	Factor
A 3.78"	1.024
B 2 9/16"	1.029
X 3.5/8HW	1.045
P 4.7/8"	1.140
3.7/8"	1.098
5/8"	1.147

GAMMA (cps) — Track 1 / Track 2 — 500 / 100

SELF POTENTIAL (millivolts) — +mv / -mv — 0 / 25

APPARENT RESISTIVITY (ohm meters) — long normal / short normal — 0 / 46

CASING

0 50 100 150 200

FINAL N3 SLEEVE

FINAL BACKGROUND = 215 cps

INITIAL BACKGROUND

INITIAL N3 SLEEVE

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 1050 1100 1150 1200

Dominion Gamma Limited

HOLE NO. DF-24
PROJECT CHEDDAR
PROVINCE NOVA SCOTIA

GAMMA LOG (Total Count)
Logged Interval
Logging Speed
Time Constant
Probe Diameter
Probe Type
Probe S/N
Truck Unit
Truck S/N
Logged By

ELECTRIC LOG
Logged Interval
Logging Speed
Time Constant
Probe Diameter
Probe Type
Probe S/N
Truck Unit
Truck S/N
Logged By

Fluid Feature

GAMMA
SELF POTENTIAL
APPARENT RESISTIVITY

FINAL K5 SLEEVE
FINAL BACKGROUND
INITIAL BACKGROUND
INITIAL K5 SLEEVE

[illegible] LIMITED

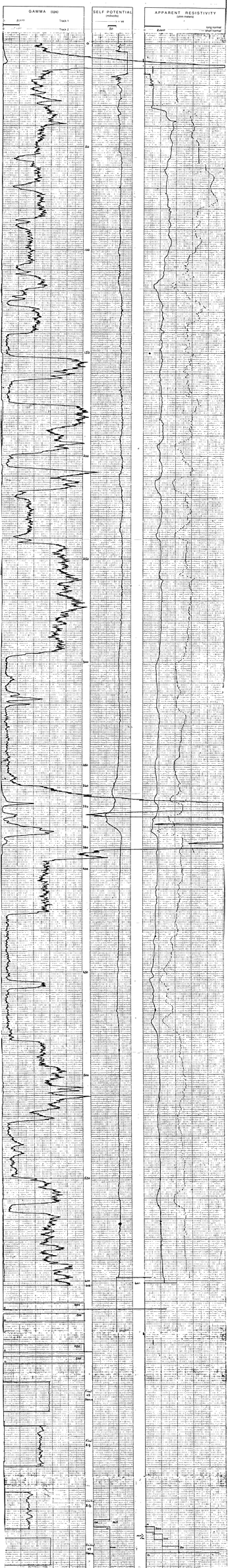
HOLE NO. SP23	
PROJECT Cowarra	
PROVINCE New South Wales	
Bearing	0 0
Dip	0 0
Casing depth	9 m 2 3 ft
Total depth	19 m 6 2 ft
Surface elev	9 0 0 ft
Coordinates	N 0 0 E 0 0

GAMMA FACTORS	
Detector K factor	
Instrument dead time	
Calibration standard (cps)	
Fixed factor	
Casing factor	

GAMMA LOG (Total Count)	
Date	Dy 1 1 Mo 1 1 Yr 8 4
Logged depth	19.5 m
Logging speed	10 m/min
Crystal size	1.5 x 4 in
Time constant	1 sec
Probe No.	9855 OR 9856
Detector No.	7-11 MPC 7-11 MPC
Track 1 PMT	203-102 (1)
Track 2 PMT	203-125 (1)
Track 1	0000 0 0 0
	11.7 per min
Track 2	0000
	per min

ELECTRIC LOG	
Date	Dy 1 1 Mo 1 1 Yr 8 4
Logged depth	19.5 m
Logging speed	30 m/min
Time constant	1 sec
Borehole medium	Mud + water + gypsum
Res between grids	10 m
Normal spacing	16 m 52
ELM 202-45	
Track No. 4	
Logged by	Cumberlin, Hardy
Logger's Comments	
First Resistivity reads all high faster. Second VS 24mm. 1%.	

REMARKS correlated by



GAMMA FLUID CONDUCTIVITY

HOLE NO.	D.F-29
PROJECT	Cobequid
PROVINCE	Nova Scotia
Bearing	1 9 0
Dip	4 5
Casing depth	12 m
Total depth	144.9 m
Surface elev	ft
Coordinates	4 0 - 6 0 5 / 4 0 - 0 0 6

GAMMA LOG (Total Count)

Date	Dy 2 0 Mo 1 0 Yr 8 0
Logged depth	4 6 1 ft
Logging speed	10 ft/min
Crystal size	1 in x 4 in
Time constant	1 sec
Probe No.	D255 02 ± 2536
Detector No.	PMT 35243 ± 13 1605
Track 1 RMM	203 - 128 mi.
Track 2 RMM	203 - 126 mi.

ELECTRIC LOG

Date	Dy 2 1 Mo 1 0 Yr 8 0
Logged depth	4 7 1 ft
Logging speed	20 ft/min
Probe size (dia)	1.25 in
Borehole medium	Mud - Grease
Res. Between grids	A
Normal spacings	16" x 32"

Track No. 4

Logged By Kim Hollow

Logger's Comments

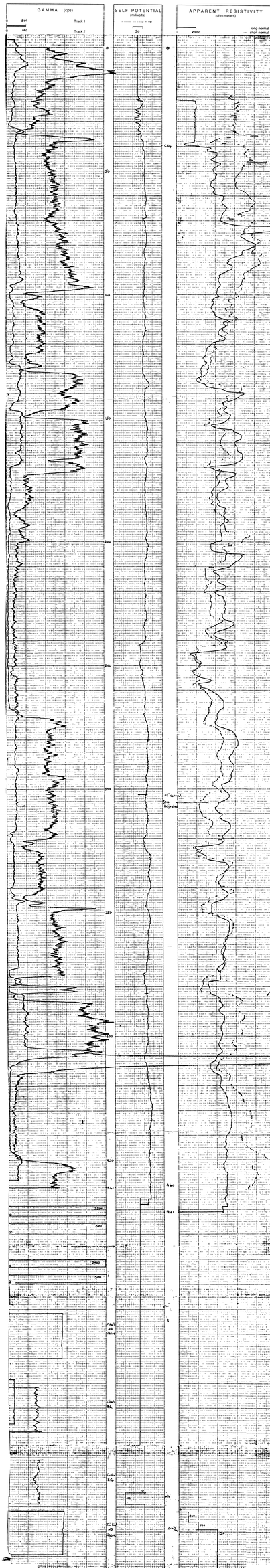
32" normal response is not to be trusted due to equipment quirks.

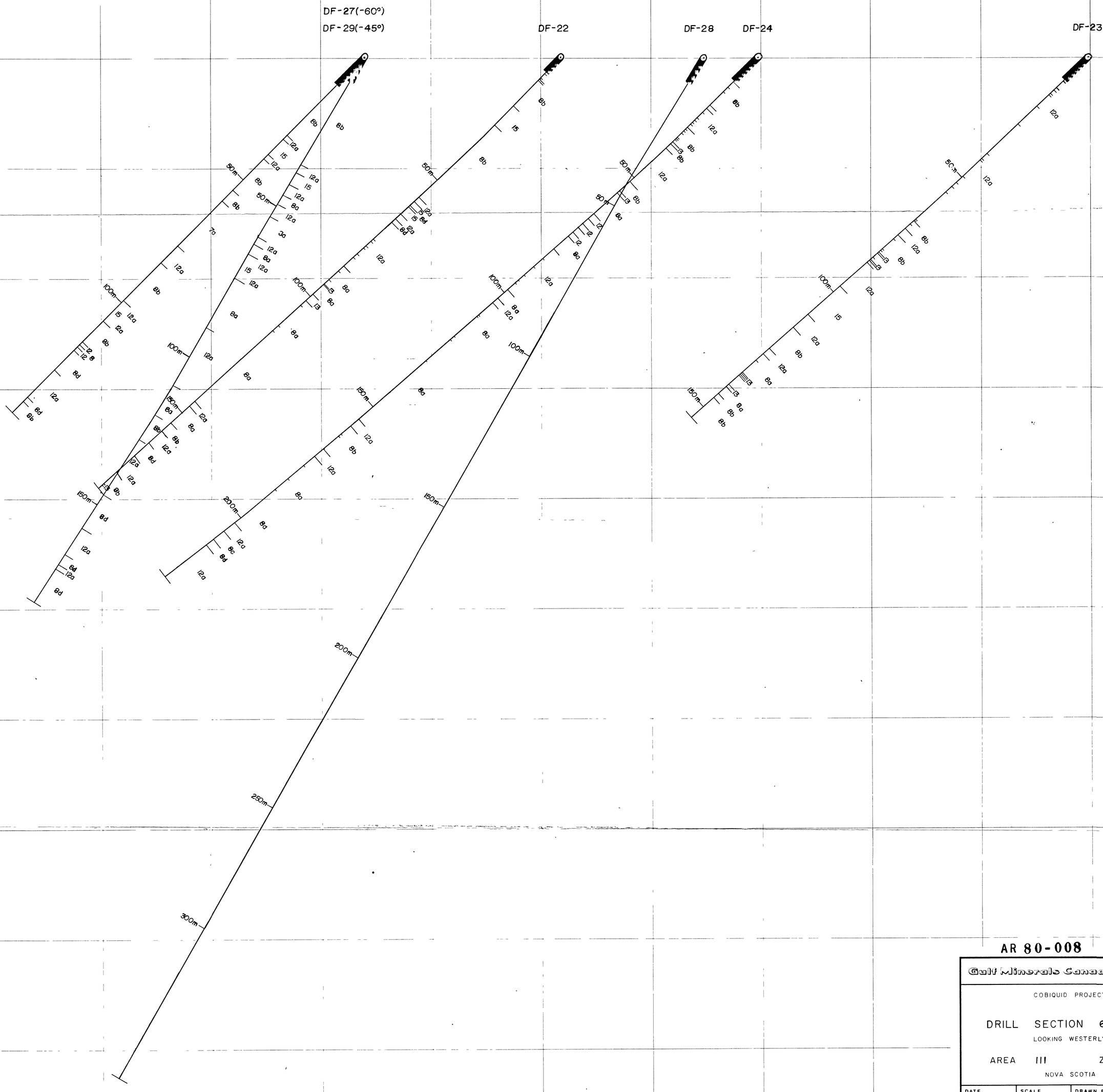
GAMMA FACTORS

	Track 1	Track 2
Detector K factor	0000 0 8 4	0000
Instrument dead time	11.7 μ sec	μ sec
Calibration standard (cps)		
Fluid factor		1
Casing factor		1

REMARKS correlated by

Initial NZ Sleeve 126K cps
Final NZ Sleeve 125K cps
Initial Background 150 cps
Final Background 150 cps





AR 80-008

Gulf Minerals Canada Limited

COBIQUID PROJECT

DRILL SECTION 6000E

LOOKING WESTERLY

AREA III ZONE DF

NOVA SCOTIA

DATE	SCALE	DRAWN BY	PLATE
11/11/80	1: 500	G Davison	

3 of 3 AR 80-009

COBEQUID PROJECT
URANIUM ASSESSMENT REPORT
COBEQUID III
NOVA SCOTIA
S: PART OF 11E/11B, 11C AND 11E/12A, 12D
PART 3 OF 3 11E/12D
- 1980 -

434094

Gulf

Gulf Minerals Canada Limited

Gulf Minerals Canada Limited

AR 80-009

RECEIVED
Nov 27 12 27 '80
MINES
NOVA SCOTIA

COBEQUID PROJECT
URANIUM ASSESSMENT REPORT
COBEQUID III
NOVA SCOTIA
NTS: PART OF 11E/11B, 11C AND 11E/12A, 12D

PART 3 OF 3 11E/12D

- 1980 - 434094

434094

A REPORT ON

GEOLOGICAL MAPPING
PLEISTOCENE GEOLOGY
GEOCHEMISTRY
PROSPECTING
REVERSE CIRCULATION DRILLING
DIAMOND DRILLING

C-824
C-825
C-826
C-827
C-828
C-829
C-830
C-831
C-832
C-878
C-886
C-888
849
848
850
847
851
846
852
853
854
855
292
Wallace
Lake
Hart
Brook
Hart Lake
104
SKI SLOPE
NOTE : For legend see sheet 3
11E/12d
11E/11c
11E/12a
11E/11b
1
2
3
4
KEY
AR 80-009
Gulf Minerals Canada Limited
COBEQUID PROJECT
GEOLOGICAL COMPILATION
434094
NOVA SCOTIA
DATE NOVEMBER 1980
SCALE 1 INCH=800 FEET
DRAWN BY P.J.C.
PLATE Ig
NTS 11E/12 PT.
To accompany "Cobequid III Report" Nov. 1980

63°31'
30'
29'
63°28'
45°37'30"
37'
36'
35'
45°34'

L-40+00 W
L-20+00 W
L-0+00
L-20+00 E
L-40+00 E
L-60+00 E
TL-72+00 N
TL-30+00 N
BL-0+00
TL-40+00 S
TL-80+00 S

Brook
East
Wallace
River
CUMBERLAND
COLCHESTER
Swan
Swan Brook
Juniper
Lake
Indian
Lake
Trout Lake

RD-200 RD-201 RD-202 RD-203 RD-204 RD-205
RD-160 RD-161 RD-162 RD-163 RD-164 RD-165 RD-166 RD-167 RD-168 RD-169 RD-170 RD-171 RD-172 RD-173 RD-174 RD-175 RD-176 RD-177 RD-178 RD-179 RD-180 RD-181 RD-182 RD-183 RD-184 RD-185 RD-186 RD-187 RD-188 RD-189 RD-190 RD-191 RD-192 RD-193
RD-134 RD-135 RD-137 RD-138 RD-139 RD-140 RD-141 RD-143 RD-144 RD-145 RD-146 RD-147 RD-148 RD-149 RD-150 RD-151 RD-152 RD-153 RD-154 RD-155 RD-156 RD-157 RD-158 RD-159
RD-80 RD-81 RD-82 RD-83 RD-84 RD-85 RD-86 RD-87 RD-88 RD-89 RD-90 RD-91 RD-92 RD-93 RD-94 RD-95 RD-96 RD-97 RD-98 RD-99 RD-100 RD-101 RD-102 RD-104 RD-105 RD-106 RD-107 RD-108 RD-109 RD-110 RD-111 RD-112 RD-113 RD-114 RD-115 RD-116 RD-117
RD-1 RD-2 RD-3 RD-4 RD-5 RD-6 RD-7 RD-8 RD-9 RD-10 RD-11 RD-12 RD-13 RD-14 RD-15 RD-16 RD-17 RD-18 RD-19 RD-20 RD-21 RD-22 RD-23 RD-24 RD-25 RD-26 RD-27 RD-28 RD-29 RD-30 RD-31 RD-32 RD-33 RD-34 RD-35 RD-36 RD-37 RD-38 RD-39 RD-40 RD-41 RD-42 RD-43 RD-44 RD-45 RD-46 RD-47 RD-48 RD-49 RD-50 RD-51 RD-52 RD-53 RD-54 RD-55 RD-56 RD-57 RD-58 RD-59 RD-60 RD-61 RD-62 RD-63 RD-64 RD-65 RD-66 RD-67 RD-68 RD-69 RD-70 RD-71 RD-72 RD-73 RD-74 RD-75 RD-76 RD-77 RD-78 RD-79

J-1 J-2 J-3 J-4 J-5 J-6 J-11 J-12 J-13 J-17 J-19 J-20 J-21 J22,23
DF-1 DF-2 DF-3 DF-4,13,15 DF-5 DF-6 DF-7 DF-8 DF-9 DF-10 DF-12 DF-14 DF-17 DF-18 DF-19 DF-20 DF-22 DF-23 DF-24 DF-25 DF-26 DF-27,29 DF-28 DF-30 DF-31
FW-1 FW-2

290
291
289
288

NOTE : For legend see sheet 3

IIE/12D	IIE/11C
63°34'00"	63°22'00"
45°37'30"	
1	2	3	4
45°34'00"	
IIE/12A	IIE/11B

KEY

AR 80-009

Gulf Minerals Canada Limited

COBEQUID PROJECT

GEOLOGICAL COMPILATION

434094

NOVA SCOTIA

DATE	SCALE	DRAWN BY	PLATE II 9
OCTOBER 1977	1 INCH=400 FEET	P.J.C.	N.T.S. IIE/11,12 PT.

To accompany "Cobequid III Report" NOV. 80

AR 80-009

Fenimore Lumber Co. Limited

COREQUID PROJECT

GEOLOGICAL COMPILATION

4340 94

NOVA SCOTIA

DATE	SCALE	DRAWN BY	PLATE III g
OCTOBER 1977	1 INCH = 400 FEET		N.T.S. 11E/11 PT.

To accompany "Cobequid III and IV Reports", November 1980.

KEY

4	3	2	1

IIE/12d | IIE/12a | IIE/11b | IIE/11c

LEGEND

EXTRUSIVE VOLCANICS

7 — Mafic : (a) andesite (b) basalt.

8 — Felsic : dacite, rhyolite (a) ignimbrite (b) ash fall tuff, crystal tuff (c) flow banded rhyolite (d) massive or undetermined (e) breccia.

9 — Agglomerates : (Mx) mafic fragments in mafic matrix (Fx) felsic fragments in felsic matrix (M) mixed

10 — SEDIMENTS : (a) argillite (b) quartzite (c) conglomerate (d) sandstone (e) siltstone (f) mudstone (g) phyllite bedding or foliation : D-distinct, I-indistinct

INTRUSIVE VOLCANICS

11 — Granite : (a) pink leucocratic granite (b) pink mesocratic granite (c) white-grey granite granodiorite

12 — Diorite : (a) undeformed diorite (b) altered/metamorphosed diorite

13 — Diabase : (a) undeformed diabase (b) spotted diabase (c) aphanitic altered diabase

14 — Gabbro, pyroxenite - peridotite

15 — Felsic and porphyritic intrusives

SYMBOLS

- Outcrop, area of outcrop
- Boulder, area of boulders
- Bedding, tops known (vertical, inclined)
- Bedding, tops unknown (vertical, inclined)
- Schistosity, gneissosity, foliation (vertical, inclined)
- Flow layering (vertical, inclined)
- Jointing (vertical, inclined)
- Glacial striae
- Drag fold (with plunge)
- Fault (definite, indefinite)
- Airphoto lineament
- Geological contact (definite, indefinite)
- Geophysical interpretation
- Reverse circulation drill hole
- Diamond drill hole
- Radioactivity (ra) in counts per second - high/background
- Sample location and number (C, EO, K)
- Dike

Little Snare Lake

Big Snare Lake

Debert Lake

TL - 120 + 00 S

TL - 80 + 00 S

TL - 40 + 00 S

TL - 30 + 00 N

TL - 72 + 00 N

L - 180 + 00 E

L - 160 + 00 E

L - 140 + 00 E

L - 120 + 00 E

L - 100 + 00 E

L - 80 + 00 E

63°28'

63°25'

45°37'30"

45°34'

26'

27'

35'

36'

37'

11/E-12EAST

63°37'30" E 1,230,000 36 35' E 1,235,000 34' E 1,240,000 33' E 1,245,000 32' E 1,250,000 31' E 1,255,000 63°30'00"

45°37'30"

N16,580,000

N16 575,000

N16 570,000

N16,565 000

N16 560 000

N16 555 000

N16 550,000

N16 545 000

N16 540 000

45°30'00"

37 36 35 34 33 32 31

WENTWORTH STATION

FOLLY LAKE

Caldwell Brook
Whetstone Brook
Brook
Smith Brook
Higgins Brook
Brook
Rockland Brook
Brook
Wallace River
River
Swan Brook
Little Long Lake
Hart Lake
Hart Brook
Barber Lake
Folly Lake
Carter Lake
Slack Lake
McElmon Brook
Folly River
East River

SKI SLOPE

Gravel Pit

104

COUNTY
COUNTY
CUMBERLAND
COLCHESTER

KEY

11E/12D | 11E/11C
11E/12A | 11E/11B

64°00' 63°00' 45°30'

AR 80-009

Gulf Minerals Canada Limited

COBEQUID PROJECT

ROCK GEOCHEMISTRY SAMPLE LOCATIONS 434094

NOVA SCOTIA

DATE:	SCALE:	DRAWN BY:	PLATE: E 24 fr
NOVEMBER 80.	1 IN. = 1/4 MI.	P.J.C.	NTS. 11E/12PT

To accompany "Cobequid III Report" Nov. 1980.

11/E - 11WEST

63°30'00"

45°37'30"

CUMBERLAND COUNTY
COLCHESTER COUNTY

xR0060 xR0057 xR0056 xR0058 xC6686 xC6689 xC6666 xC6665 xC6664 xC6663 xC6696 xR0158 xR0051 xR0256 xR0206-0207 xR0205 xR0208 xR0209 xR0260 xR0257 xR0151 xR0281 xR0258 xR0152 xR0153 xR0059 xR0053 xR0052 xR0303 C6687 xC6688 xC6682 xC6684 xC6683 xC6683,86,87 R0305 xR0304 xR0160 xR0157 xR0154 xR0167 0168 xR0155 xR0210 xR0211 xR0054 xC6691 R0062-0063 xC6660-6661 xC6690 C6694 xR0259 xR0271 C6693 xC6692 xR0055 xR0263 xR0156 C6699 xC6700 xC6681 xC6698 xC6680 xC6697 xC6685 xB3200 xC6368 xC6657-6659 xB3492 xR0212 B3179x xB3483 B3460 B3472 B3473 xB3047 xB3490 xC5032 xC5047 xB3043 xB3160 xC5016 B3895 C6673 xC6672 B3493x C6669 C6654x xC6671 xC6668 C6655 B3498x xC6603-6604, C6676 xB3494 B 3495x xC6674 xC6675

Wallace River

Swan Brook
Juniper Lake
Indian Lake
Big Snare Lake
Little Snare Lake
Rory Pond
Trout Lake
Debert Lake
Byers Lake
Byers Brook
Whirleywaugh Lake
Round Lake
Long Lake
Shatter Lake
Irvine Lake
Rocky Lake
Musquash Lake
Johnston Lake
Guyon Lake
Moose Lake
Cook Lake
Clark Lake
Chain Lakes
Frog Lake
River
East Folly River
Totten Lake
Brook
Pine Brook
Little Totten Lake
Totten
Debert
Shatter Brook

45°37'30"
63°30'00"
29
28
27
25
24
23
63°22'30"

21 22 23 24 25 26 27 28 29

C
D
E
F

11E/12D 11E/11C
11E/12A 11E/11B

45° 30
64°00
63°00

KEY

Gulf Minerals Canada Limited

COBEQUID PROJECT

AR 80-009

ROCK GEOCHEMISTRY SAMPLE LOCATIONS 434094

NOVA SCOTIA

DATE	SCALE	DRAWN BY	PLATE E25 fr
NOVEMBER 80	1 IN = 1/4 MI	P.J.C.	NTS 11E/11 PT

To accompany "Cobequid III Report" Nov. 1980.

63°34 | 33' | 32' | 63°31'

45°37'30"

37'

36'

35'

45°34'

TL - 72 + 00 N

TL - 30 + 00 N

BL - 0 + 00

TL - 40 + 00 S

L - 152 + 00 W | L - 140 + 00 W | L - 120 + 00 W | L - 100 + 00 W | L - 80 + 00 W | L - 60 + 00 W

SKI SLOPE

Wallace

Lake

Hart Brook

Hart Lake

104

C-832 | C-825 | C-826 | C-824 | C-831 | C-830 | C-827 | C-829 | C-828 | C-878 | C-886 | C-888

849 | 848 | 850 | 847 | 851 | 846 | 852 | 853 | 854 | 855

R 860 | R 859 | R-179 | R 181 | R-13 re 2000 | R-12 re 1000 | R 855 | R 858 re 200 | R 856 | R 0182 | R-74 | R-71 | R-72 | R-70 | R-73 | R-178 - R-20 re 5000 | R-21 re 2000 | R 865 | 292

WV-3 | WV-1 | B 3416-20 | B 3415 | B 3413 | B 3412 | B 3411

100/150 | 120/200 | re 900 in place | 100/160 | 160/180 | 160/100 | X re 500 | Deep Overburden 70 - 90 | re 1400

90/120 | 80/100 | 90/100 | 80/90 | 70/100

NOTE : For legend see sheet 2

11E/12d	11E/11c
63°34'00"	63°22'00"
45°37'30" — 1	2	3	4
45°34'00"	
11E/12a	11E/11b

KEY

AR 80-009

Gulf Minerals Canada Limited

COBEQUID PROJECT

PROSPECTING

434094

NOVA SCOTIA

DATE	SCALE	DRAWN BY	PLATE Igb
NOVEMBER 80	1 INCH = 400 FEET	P.J.C.	N.T.S 11E/12 PT

To accompany "Cobequid III Report" Nov. 80

6

63°31' 30' 29' 63°28'

45°37'30"

37'

36'

35'

45°34'

L-40+00 W

L-20+00 W

L-0+00

L-20+00 E

L-40+00 E

L-60+00 E

TL-72+00 N

TL-30+00 N

TL-40+00 S

TL-80+00 S

BL-0+00

Brook

Fox

Wallace River

Swan Brook

Juniper Lake

Indian Lake

Trout Lake

CUMBERLAND COUNTY

COLCHESTER COUNTY

290

291

289

288

90/120 90/130 90/100 200/100

R1046 R1047 R1048 R1049 R1050 R1051 R1052 R1053 R1054 R1055 R1056 R1057 R1058 R1059 R1060

C 6321 C 6322 C 6323 C 6324 C 6337 C 6338 C 6348 C 6349 C 6350 C 6351 C 6352 C 6363 C 6364 C 6367 C 6368 C 6369 C 6373 C 6374 C 6375 C 6376 C 6377 C 6378 C 6379 C 6380 C 6399

R 845 R 862 R 863 R 867 R 869 R 30 R 34 R 9 R-10 R-517

M 74 M 77,79,80

78007 78008 78009 78010 78011 78014 78018 78021 78027 78028 78032 78041 78042 78043 78046 78047 78048 78049 78050 78052

E0122 E0123 DF75

Pt. 58

ra 150 ra 200 ra 220 ra 250 ra 300 ra 400 ra 403 ra 600 ra 700 ra 750 ra 800 ra 1000 ra 1500 ra 2000 ra 2500 ra 2800 ra 3000 ra 3500 ra 4000 ra 4500 ra 5000 ra 9000 ra 10,000

8ph

11a 11c 11e

LEGEND

- Outcrop, area of outcrop
- Boulder, area of boulders
- ra 3000 — Radioactivity (ra) in counts per second
- 78014 — Sample location and number (B,C,EO,PL,M,S,WV,R)
- — — — Traverse lines

KEY

11E/12d	11E/11c
1	2 3 4
11E/12a	11E/11b

63°34'00" 63°22'00" 45°37'30" 45°34'00"

AR 80-009

Gulf Minerals Canada Limited

COBEQUID PROJECT

PROSPECTING

434094

NOVA SCOTIA

DATE	SCALE	DRAWN BY	PLATE - IIgb
NOVEMBER 1980	1 INCH = 400 FEET	P.J.C.	NTS 11E/11,12 PT.

To accompany "Cobequid III Report" NOV. 80.