AR 80-010

1 of 3

COBEQUID PROJECT
URANIUM ASSESSMENT REPORT
COBEQUID IV
NOVA SCOTIA

- 1980 -

NTS: PART OF 11E/11A, 11B, 11C 11E/11B

PART 1 OF 3 434106

Gulf

Gulf Minerals Canada Limited

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NOVA SCOTIA

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REPORT ON

GEOLOGICAL MAPPING

GEOCHEMISTRY

PROSPECTING

DIAMOND DRILLING

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WAL

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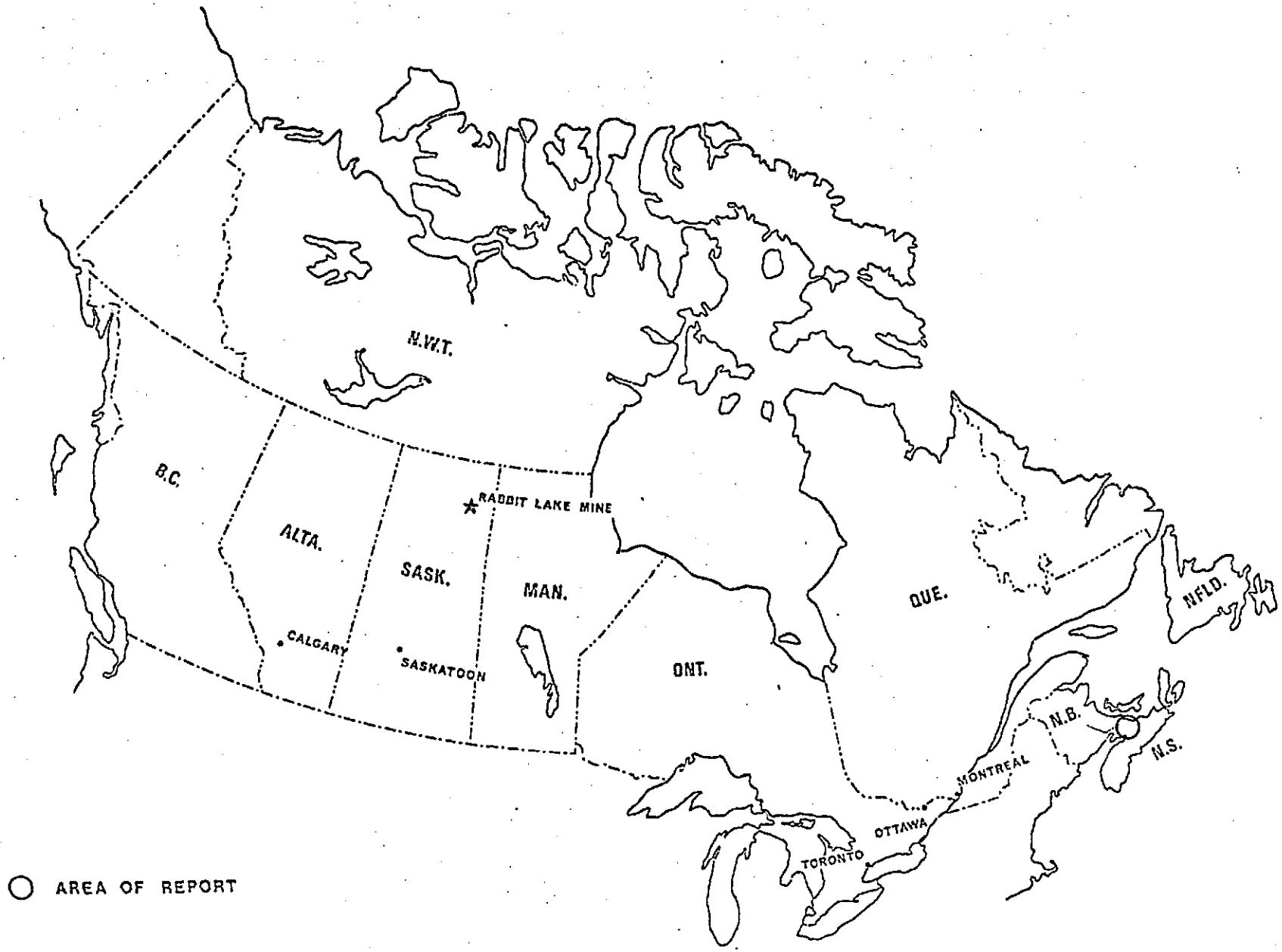
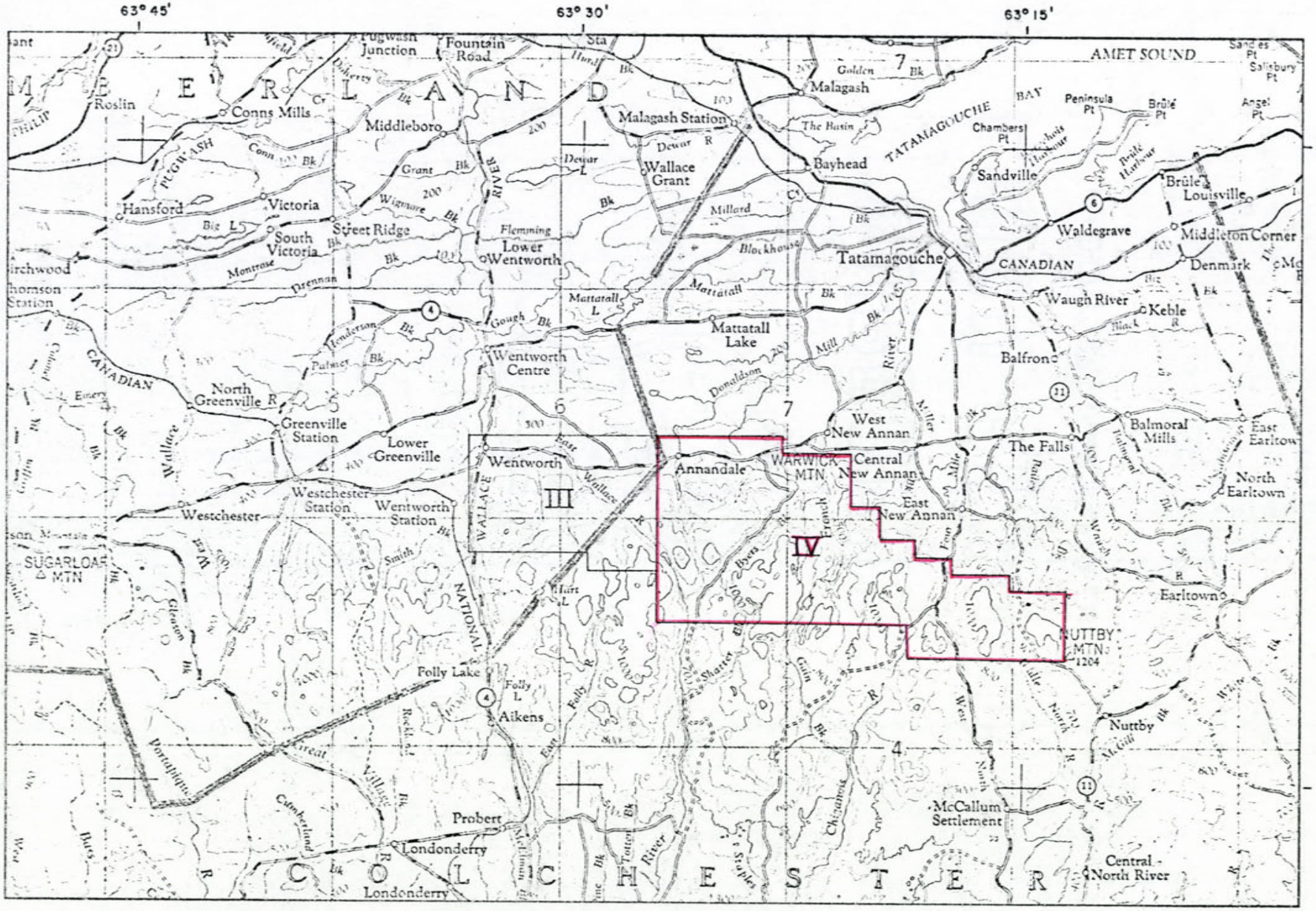


FIGURE 1



COBEQUID URANIUM CLAIM BLOCKS III, IV

5 0 5

MILES

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1.0 INTRODUCTION

1.1 Summary

On December 14, 1976, Gulf Minerals Canada Limited acquired 2,688 claims centered on Byers Lake, Colchester County, Nova Scotia. This block has been referred to as Cobequid IV. Table I lists the claim blocks and exploration licences retained by Gulf for the 1981 season.

Early in May, 1977, helicopter-borne radiometric, magnetic and electromagnetic surveys were conducted over the property. Follow-up prospecting, geological mapping, geochemistry and ground geophysics was performed. A diamond drilling program was initiated in the Debert Lake area in early November, and terminated later that month. On the basis of work carried out in 1977, Gulf Minerals retained 1,854 claims for future work.

During the period of December, 1977, to February, 1978, Gulf undertook a diamond drilling program near Annandale to investigate the unconformity between carboniferous Boss Point sediment and the middle Devonian Diamond Brook Formation basalts and also to evaluate a magnetic low. During the 1978 summer field season, reconnaissance prospecting continued on the property. Regional and detailed geological mapping and whole rock sampling continued from the 1977 program on 1 in. to 1/4 mi. and 1 in. to 400 ft. scales. A soil geochemistry program was initiated on the Swan Brook grid in early July and continued until September. The Debert Lake drilling program was continued during September and October of 1978.

During the 1979 field season, whole rock analysis and ground geophysics continued. Extensive detailed mapping was performed over the DL-Zone as well as other areas on the grid. The soil geochem program was completed as was the EM-16 and magnetometer surveys.

In 1980, detail mapping and rock geochemistry was continued in the northeastern portion of the grid, and also to the southeastern part of the block. Prospecting was carried out over a large proportion of the block. A diamond drill program, which commenced in mid-August, was completed in early December.

1.2 Personnel

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

J. Alock	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.

TABLE I

COBEQUID IV
LAND RETAINED FOR 1981

MAP	LICENCE NO.	TRACTS	CLAIMS
11E 11C	1330	8, 9, 10	A-H
11E 11A	1334	37	A-Q
11E 11A	1335	60	A-Q
11E 11A	1336	61	A-H
1E 11B	1350	45, 46, 47	A-Q
11E 11B	1350	48	J-Q
11E 11B	1351	49, 50, 51, 52, 53	A-Q
11E 11B	1352	68, 69, 70, 71	A-Q
11E 11B	1352	72	A,B,C,D,E,F,G, H,L,M,N,O
11E 11B	1353	75	A-H
11E 11B	1353	76, 77	A-Q
11E 11B	1354	92	A-H
11E 11B	1357	54, 55, 56, 57, 58	A-Q
11E 11B	1358	63, 64, 65, 66, 67	A-Q
11E 11B	1359	78, 79, 80, 81, 82	A-Q
11E 11B	1360	87, 88, 89, 90, 91	A-Q
11E 11B	1361	102, 103, 104, 105, 106	A-Q

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 Sawn Brook grid. Air photos at a scale of 4 inches to one mile and 1:10,000, were used for control. Results were ploted 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 IV property occupies the central region of this upland and extends from Big Snare Lake in the west to Nuttby Mountain 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. 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 Cobequid 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: P 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: ($_M D_D$) 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 IV. They are characterized by a streaky nature and by the presence of flattened pumice or "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 IV. 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.

The Balmoral Brook Fault transects the middle Devonian volcanics and sediments to the north of Block IV and brings them into unconformable contact with the late Precambrian Warwick Mountain Formation. Observed at the northeasterly portion of the block area are the Warwick Mountain low grade metamorphic phyllites, felsic tuffs, mafic meta-volcanics, agglomerates, waches, and siltstones.

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 IV. These granites have a compositional range of 70-75% SiO_2. Both these intrusions have been dated as early Mississippian to late Devonian age.

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 GEOCHEMISTRY

3.1 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.

3.2 Conclusions

3.2.1 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.

3.2.2 Mineralization Model

Zones of chemical alteration appear to be related to intrusives, stratigraphic horizons and faults. Locally, trace element concentrations 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	2.83	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
Di	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

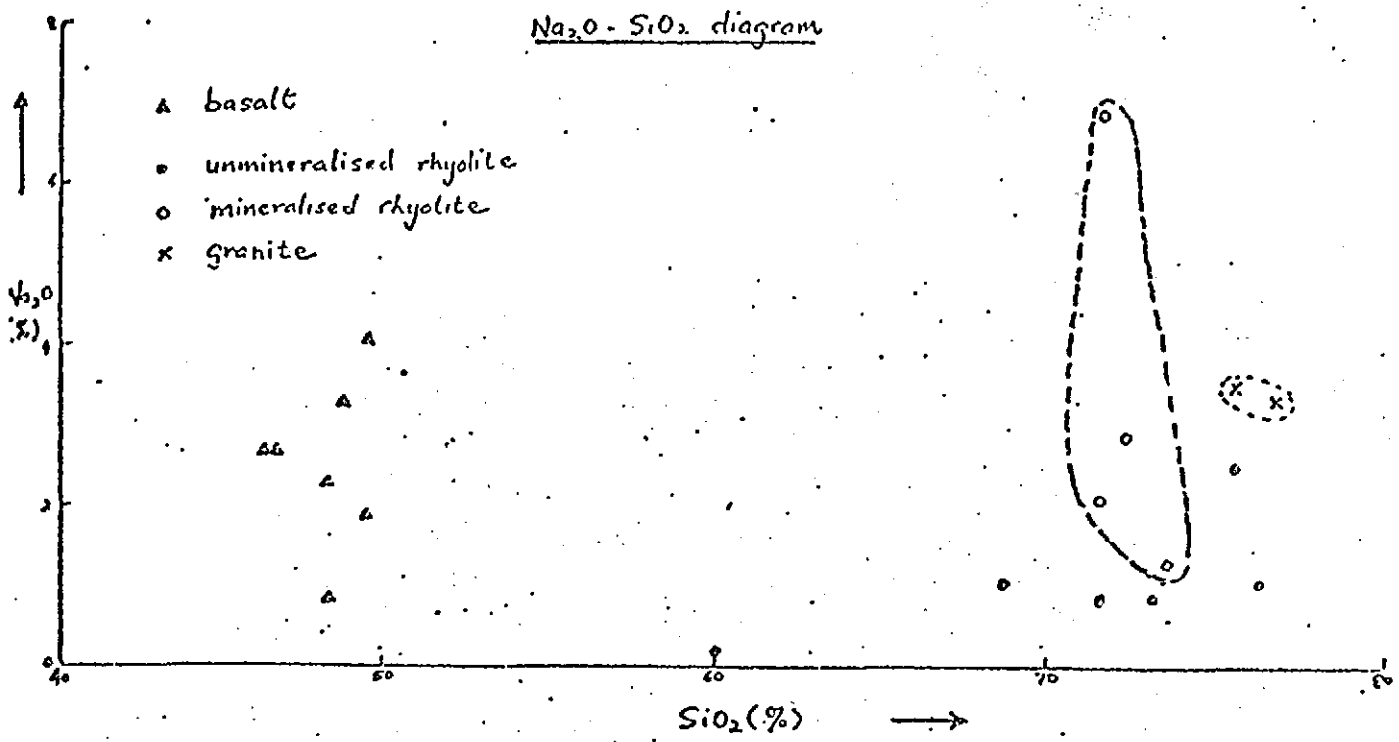


Figure 4

K_2O - SiO_2 diagram

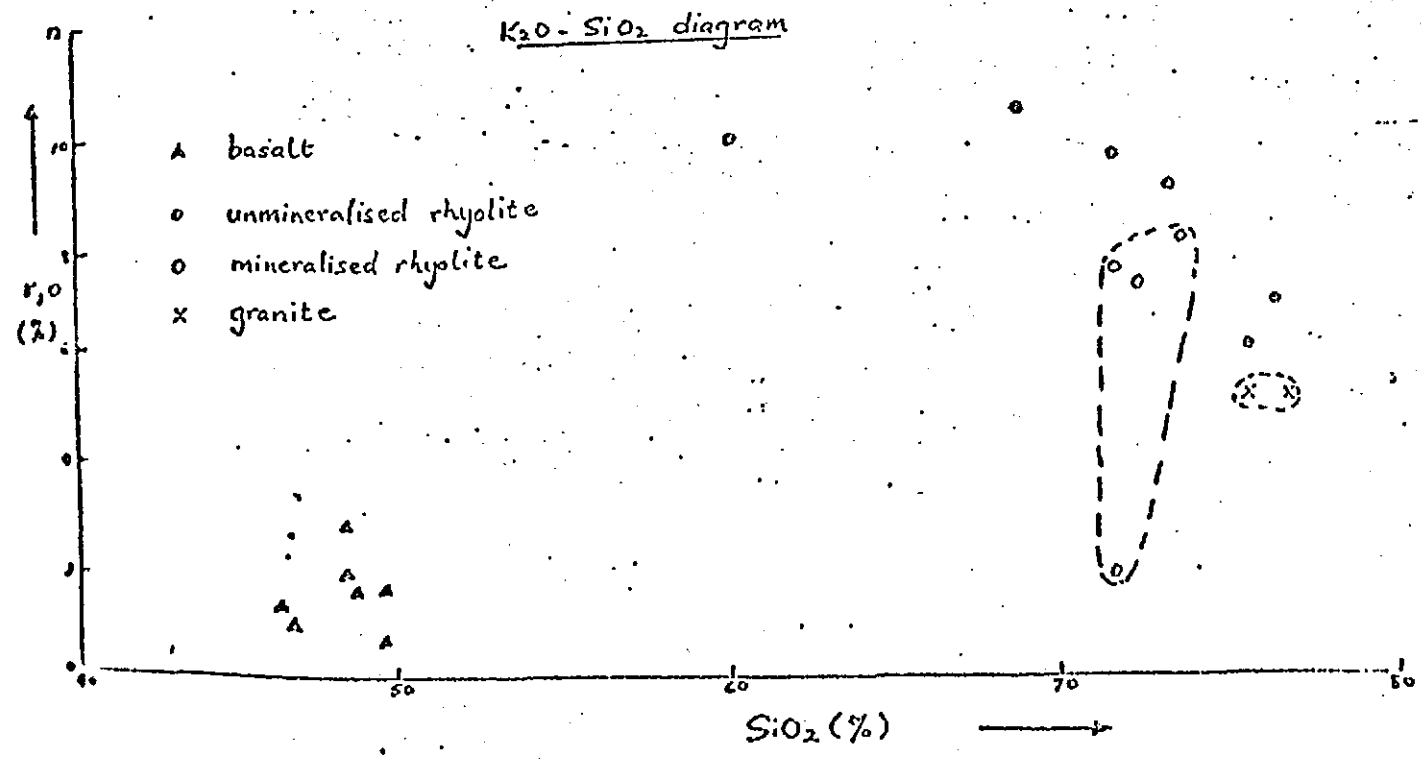


Figure 5

$Na_2O + K_2O - SiO_2$ diagram

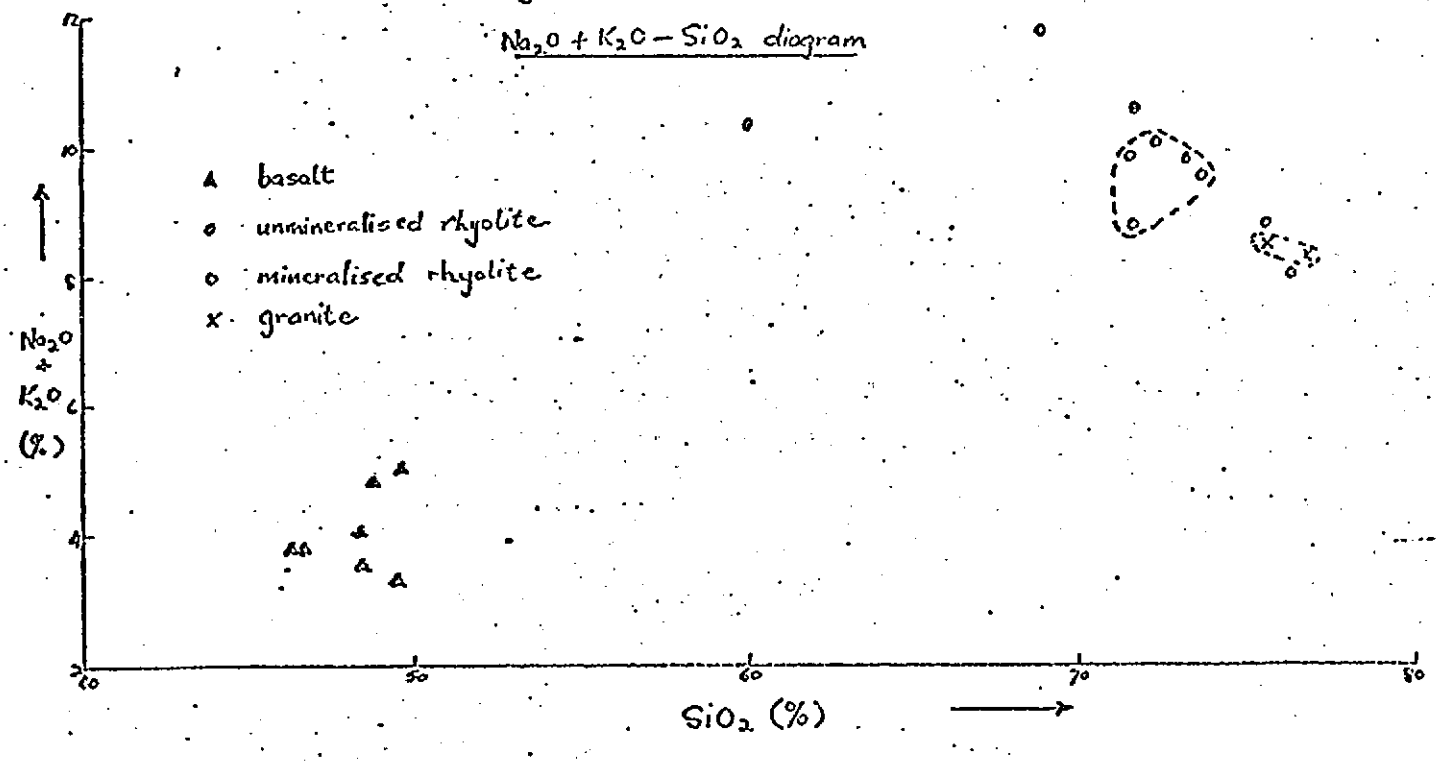


Figure 6.

U - Histograms (DF Zone)

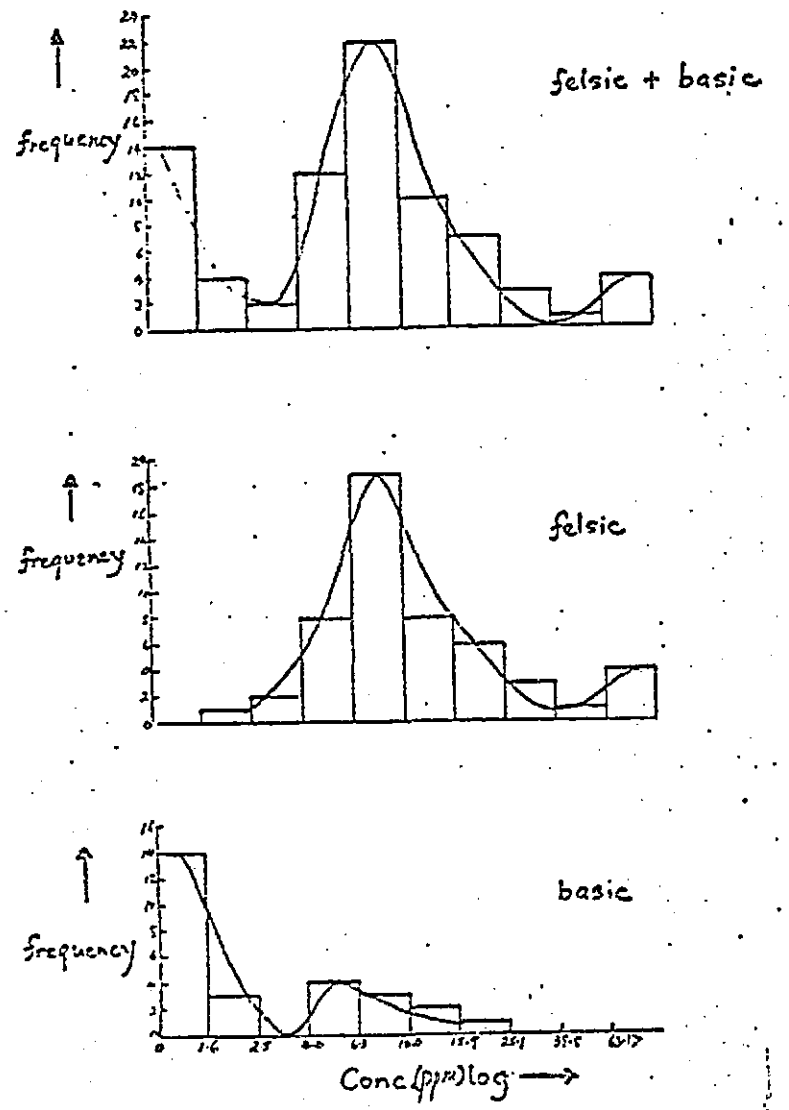


Figure 7

Th Histograms (DF Zone)

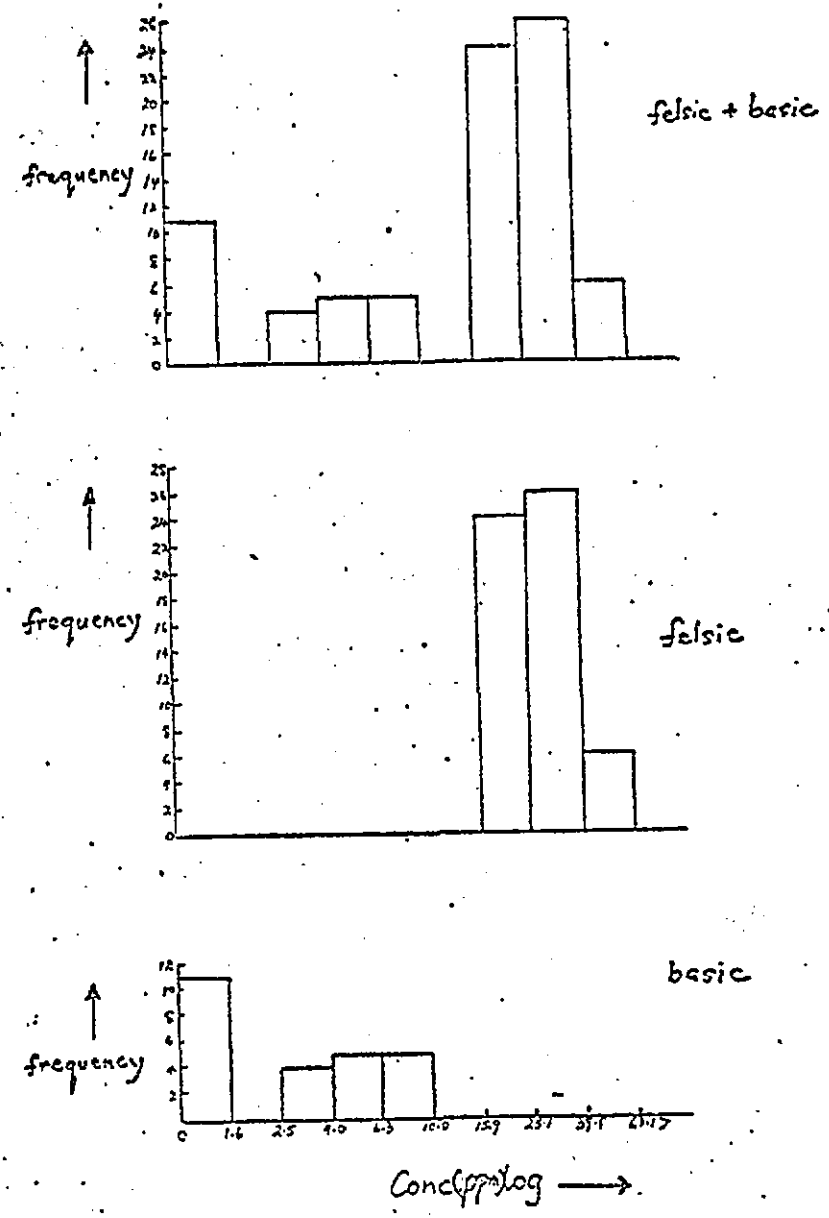


Figure 8

Pb Histograms (DF Zone)

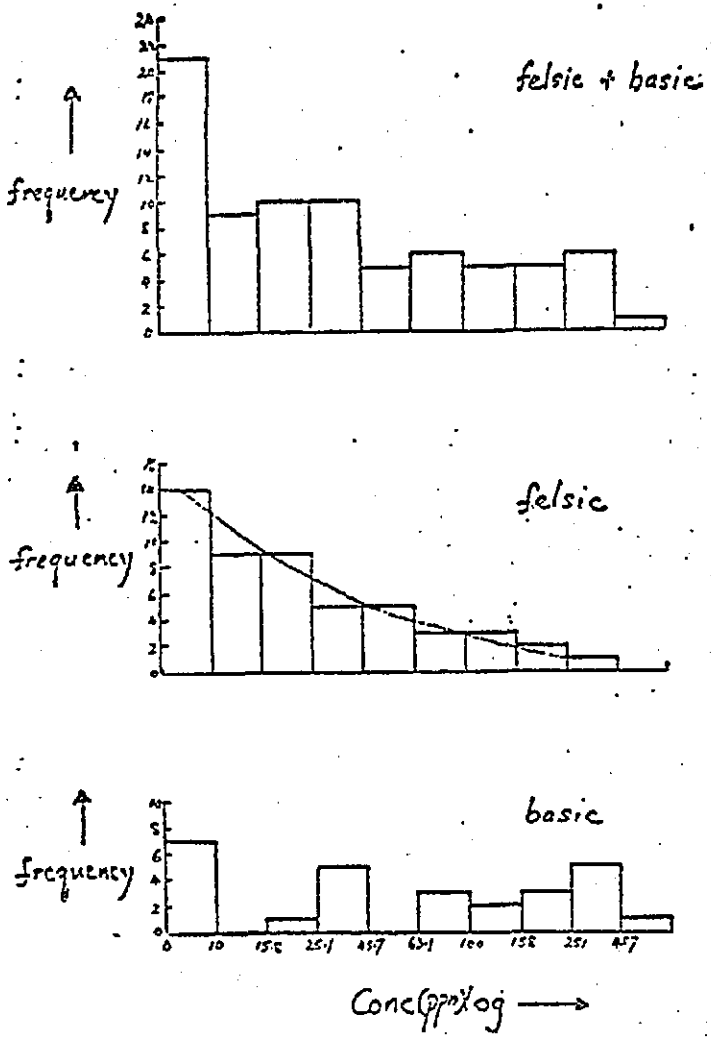


Figure 9

Cu Histograms (DF Zone)

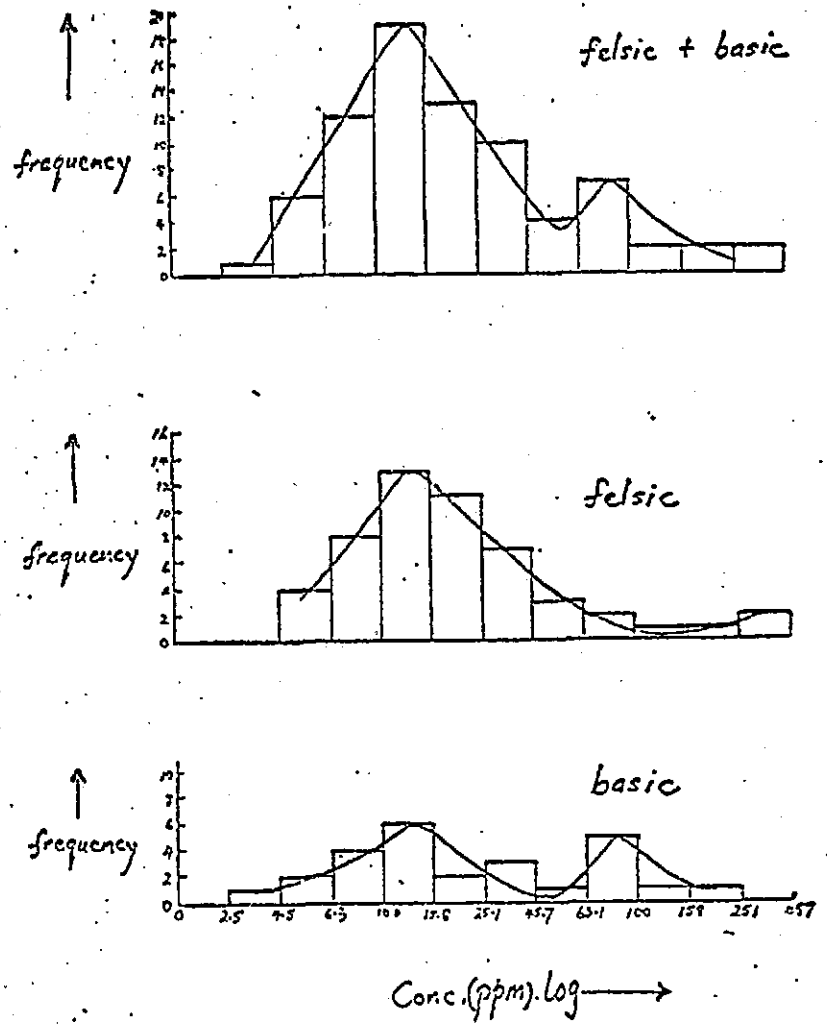


Figure 10

Zn Histograms (DF Zone)

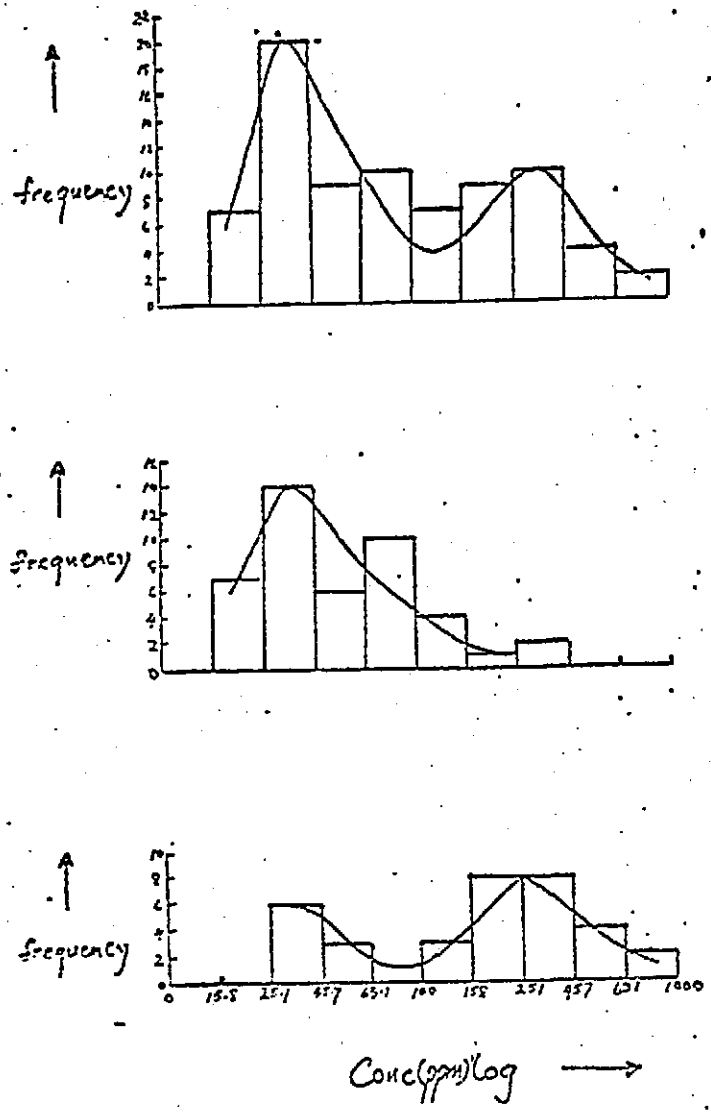
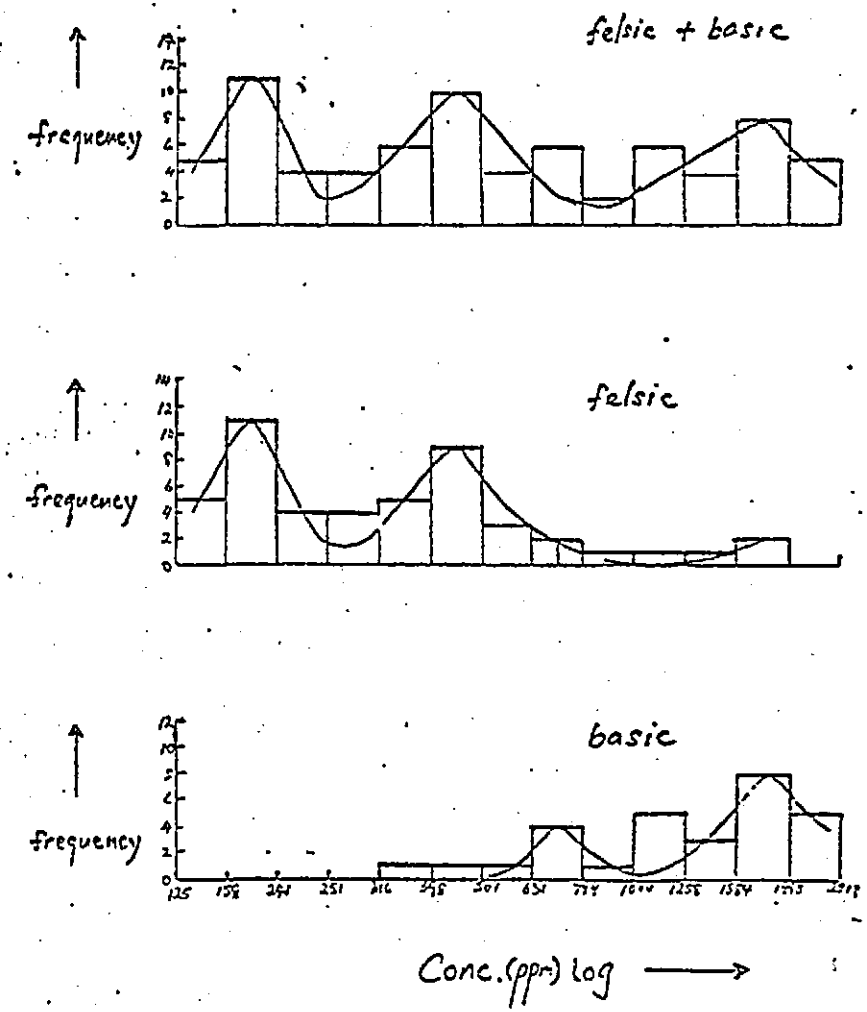


Figure 11

F Histograms (DF Zone)



4.0 PROSPECTING

A detailed prospecting program was carried out on portions of the West Branch of the North River in Cobequid IV 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.

The work was carried out by a one two-man crew of senior prospectors, equipped with a Scintrex BGS-3 scintillometers.

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 foot 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.

5.0 DIAMOND DRILLING

5.1 Introduction

The 1980 diamond drill program in Cobequid Block IV was designed to evaluate a bedrock geochemical anomaly and provide stratigraphic information in an area of pyroclastics. Five holes totalling 762.3 metres of BQ drilling were completed in September. Drilling was carried out along line 112+00 East from 51+25 South to 63+45 South. Drilling was carried out by St. Lambert Drilling Company of Valleyfield, Quebec. All core is stored at Gulf's Swan Brook core storage facilities.

5.2 Results

Drilling in the DR area intersected a series of interbedded rhyolitic tuffs, flows and ignimbrites, and basaltic flows. The extrusives were cut by diabase and dioritic rocks.

Low spotty anomalous radioactivity was intersected in two holes, however, it is not believed to be of any economic significance.

The following table summarizes the drilling statistics. The gamma logs and the lithologic logs are included in the Appendix.

DIAMOND DRILLING

DDH. NO.	LOCATION	COLLAR	DATE DRILLED	TOTAL DEPTH
DR-1	112E 53S	180°-45°	Sept. 8-11	148m
DR-2	112E 56+50S	180°-45°	Sept. 13-16	155m
DR-3	111+85E 60+70S	180°-45°	Sept. 16-19	151m
DR-4	111+70E 63+45S	180°-45°	Sept. 19-23	114.3m
DR-5	111+75E 51+25S	180°-45°	Sept. 24-30	163m

6.0 CONCLUSIONS AND RECOMMENDATIONS

A considerable amount of data has been collected for the Cobequid Highlands area through the past three years. Studies of this data have helped to focus GMCL's 1980 exploration program.

The initial geological mapping of GMCL's Cobequid properties was done at a scale of 1" = 1/4 mile. It soon became evident that because of the complex nature of the geology, that more detailed mapping was required. Detailed mapping at scales of 1" = 400' and 1" = 100' has provided a sufficient geological understanding of the area to allow accurate predictions to be made. This information will be critical in directing future drill programs.

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 in uranium exploration.

Prospecting continues to be a reliable exploration tool for locating new mineralized boulder fields and outcrops, which provide targets around which to concentrate our mapping and geochemical surveys. This practice will be continued for 1981.

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

APPENDIX A

WHOLE ROCK AND TRACE ELEMENT GEOCHEMISTRY

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	1.90	2.56	2.16	3.15	0.96	2.22	3.35	0.12	3.53	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
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	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
AL2O3	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	0.37	0.27	0.30	0.30	0.24	0.29	0.33
NA2O	1.51	1.59	1.43	0.88	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
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	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	260	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
HO	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	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
W	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

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

EPORT 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

ATE 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
AL2O3	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	R1008	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
AL2O3	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

RECEIVED

G.M.C.L.
EXPLORATION DEPARTMENT

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
AL2O3	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
NA2O	2.37	1.31	0.18	3.95	1.36	4.30	1.99	1.29	1.13	1.01
K2O	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
P2O5	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
K2O/K2O+NA2O	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

RECEIVED
G.M.C.L.
EXPLORATION DEPARTMENT

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
HO	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
MS	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
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	1.90	2.56	2.16	3.15	0.96	2.22	3.35	0.12	3.58	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	2.65	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	0.53	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
ND	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
AL2O3	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	0.88	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	7.93	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	53.1	53.2	56.0	51.1	60.1	56.6
C	3.0	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
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	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	60	170	120	99
ZN	167	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
U	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	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	B1038
ZR	2300	5460
PB	450	240
ZN	200	470
CU	12	23
F	370	160
W	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

SAMPLE	R1039	R1040	R1041	R1042	R1043	R1044	R1045	R1046	R1047	R1048
SIO2	76.4	72.3	61.3	71.7	69.9	75.5	72.9	56.9	71.8	55.5
AL2O3	9.28	8.81	10.1	10.1	10.1	10.4	11.1	17.9	12.2	18.5
CAO	1.17	1.12	4.33	1.75	1.85	0.48	0.18	3.66	0.57	3.00
MGO	0.04	0.03	0.05	0.05	0.11	0.05	0.26	0.17	0.12	0.48
NA2O	1.07	0.78	0.36	0.94	0.85	1.98	1.40	6.50	5.96	7.71
K2O	4.24	4.25	2.78	4.15	4.20	4.55	6.24	1.40	0.68	1.86
FEO	2.47	2.65	3.55	2.80	3.13	2.78	3.28	3.36	3.65	4.37
MNO	0.07	0.06	0.15	0.09	0.09	0.08	0.03	0.03	0.04	0.06
TIO2	0.27	0.26	0.31	0.25	0.23	0.23	0.29	0.84	0.55	1.07
P2O5	0.24	0.23	0.42	0.23	0.29	0.13	0.02	2.28	0.31	1.92
L.O.I.	0.92	1.08	1.38	1.00	1.31	0.77	1.23	2.62	2.23	3.00
SUM	96.5	91.9	85.2	93.4	92.4	97.3	97.4	98.0	98.5	98.0
FEO/MGO	61.86	88.48	71.08	55.97	28.47	55.61	12.61	19.53	29.32	9.06
K2O/K2O+NA2O	0.80	0.84	0.89	0.82	0.83	0.70	0.82	0.14	0.10	0.19

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

	R1039	R1040	R1041	R1042	R1043	R1044	R1045	R1046	R1047	R1048
Q	54.5	54.7	47.6	50.9	49.4	47.3	41.3	0.5	35.0	2.0
C	1.4	1.6	0.0	1.5	1.7	1.7	1.9	1.3	1.4	3.2
OR	26.3	27.7	19.7	26.6	27.3	27.9	38.4	3.7	6.2	11.6
AB	9.5	7.3	3.6	8.6	7.9	17.4	12.4	75.4	52.4	68.6
AN	4.4	4.5	21.3	7.8	8.0	1.6	0.8	3.3	0.8	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	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EN	0.0	0.0	0.1	0.0	0.1	0.0	0.3	0.1	0.1	0.4
FS	0.1	0.3	1.7	0.7	1.5	0.7	1.6	0.5	1.1	1.2
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	2.4	2.8	3.1	2.8	2.8	2.6	2.7	1.7	3.1	3.8
IL	0.5	0.5	0.7	0.5	0.5	0.5	0.6	1.7	1.1	2.1
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	1.3	0.0	0.1
AP	0.6	0.6	1.2	0.6	0.7	0.3	0.0	5.6	0.8	4.7
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	0.0	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	24	18	8	20	18	37	24	86	91	83
OR	65	70	44	62	63	60	74	10	7	14
AN	11	11	48	18	19	3	2	4	1	3
RECAST TO 100%										
Q	58	58	52	54	53	50	44	1	38	2
OR	28	29	21	28	29	30	41	10	5	14
AN+AB	15	12	27	17	17	20	14	90	58	84

SAMPLE	1039	R1040	R1041	R1042	R1043	R1044	R1045	R1046	R1047	R1048
MO	8	7	23	12	14	9	98	2900	910	2000
F	530	440	1000	680	880	340	170	2400	520	2200
TH	2000	1300	6600	2600	TBR	550	27	210	180	290
W	9	7	6	7	TBR	6	7	2	5	4
BI	52	32	180	64	60	1	3	1	1	0
PB	470	360	1800	760	780	88	83	770	460	360
ZN	300	330	400	210	210	93	210	140	130	130
CU	42	10	62	23	22	20	18	31	22	25
U	52	114	163	54	TBR	25	653	228	89	322
CR2O3	180	160	240	210	210	170	130	80	130	120
SN	25	15	35	3	15	5	3	3	0	5
ZR	2180	2190	3370	2240	2310	1360	1850	1070	590	980
SR	60	50	210	90	100	20	70	180	60	150
RB	130	120	0	90	90	130	260	50	10	100

SAMPLE	R1049	R1050
SIO2	75.8	81.5
AL2O3	9.60	6.68
CAO	0.08	0.63
MGO	0.07	0.40
NA2O	0.30	0.00
K2O	6.44	1.93
FEO	3.18	3.13
MNO	0.07	0.07
TIO2	0.11	0.48
P2O5	0.02	0.03
L.O.I.	1.08	2.31
SUM	97.1	97.5
FEO/MGO	43.77	7.76
K2O/K2O+NA2O	0.96	1.00

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

Q	50.5	75.8
C	2.1	3.7
OR	39.7	12.0
AB	2.7	0.0
AN	0.3	3.1
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	0.4
FS	1.9	1.0
FO	0.0	0.0
FA	0.0	0.0
WO	0.0	0.0
LA	0.0	0.0
MT	2.4	3.0
IL	0.2	1.0
CR	0.0	0.0
HM	0.0	0.0
AP	0.1	0.1
PY	0.0	0.0
NS	0.0	0.0
KS	0.0	0.0
FU	0.0	0.0
CC	0.0	0.0
RECAST TO 100%		
AB	6	0
OR	93	80
AN	1	20
RECAST TO 100%		
Q	54	83
OR	43	13
AN+AB	3	3

SAMPLE	1049	R1050
MO	14	4100
F	150	1800
TH	18	33
W	5	5
BI	0	0
PB	130	430
ZN	38	430
CU	120	29
U	1136	607
CR2O3	120	110
SN	0	10
ZR	150	1340
SR	70	30
RB	310	240

APPENDIX B

DIAMOND DRILL LOGS

GMC 1051 (03/78)

Gulf Minerals Canada Limited
DIAMOND DRILL RECORD

D.D.H. NO. DR-1
SHEET 1 OF 7

PROPERTY: Cohequid Area IV
LATITUDE: 53+00S
LONGITUDE: 112+00E
ELEVATION:

BEARING—TRUE: 180°
DIP: -45°
FINAL DEPTH: 148 m
CORE SIZE: BQ

DATE STARTED: Sept. 8, 1980
DATE COMPLETED: Sept. 11, 1980
DRILLED BY: St. Lambert Drilling Co. Ltd.
LOGGED BY: G. Davison

DATE: September 15, 1980 SIGNED: Hug Davison

DEPTH FEET Metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
0 - 3	Ø		Overburden				
3 - 8.7	5.7		Tuff	Light greenish to white, locally becoming reddish or pink, groundmass may be strongly chloritized, both lithic and crystal fragments range from ash to medium lapilli size showing increase in size with depth. Abundance variable often producing lens like appearance (pods of coarse fragments in fine matrix) bedding from obscure to lacting. Lithics dominated by subangular to subrounded white to red, pink, or brown rhyolite, often porphyritic, may have altered rims, crystal fragments of quartz 1-2 mm, winded to dipyramidal 10%, feldspar orange to white, subhedral to anhedral, 1-3 mm may be saussauritized, 10-15%, small streaks (pumice fragments?) locally abundant. Below 4m, layering locally well developed, may be ignimbritic, layering slightly warped. Pyrite abundant as rims around fragments, replacement of pumice fragments and also disseminated within groundmass. Locally may be disseminated magnetite. Below 8m, some chloritized fragments of basalt present.	4.1 4.4	bedding bedding	70-80° to c/a 70° to c/a
8.7 - 17.9	9.2		Basalt	Light to dark bluish grey, upper zone lightly epidotized, vesicular zone with infiltering of calcite, and possibly zeolites (8.7-10.5 m), gradually decreasing in abundance with depth. Size of vesicles to 6 mm, may be slightly deformed or broken, often oblate to elliptical, often epidotized rims, flow generally massive, non-porphyritic with filty intergrowth of mafic and felsic crystals locally, finer grained in basal section, shearing moderate with calcite and epidote veinlets, moderate to strong pervasive chloritization.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR-1

SHEET 2 OF 7

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
17.9 - 20.0	2.1		Tuff	Waterlain light to dark green, massive near upper contact becoming slightly bedded with depth. Crystal fragments light greenish to whitish, often with fuzzy boundaries and epidote rims, ash size, may be small shard shaped vitric fragments, fine ash to fine lapilli size, very thin and stringy, chloritic rims abundant, may be crudely bedded. Shearing locally strong, alteration by chlorite, calcite veining, Fe staining.			
20.0 - 20.3	0.3		Agglomerate	Subangular to rounded fragments of porphyritic to massive reddish brown rhyolite, ignimbrite, average size 2-5 mm. maximum 2 cm., sharp upper contact. Lower contact gradational. Groundmass lightly to totally epidotized, unsorted, non-bedded, minor fracturing with chlorite, epidote filling.			
20.3 - 22.1	1.8		Tuff	Light to dark green, often intensely epidotized, lithic fragments less than 4 mm. often strongly altered by chlorite, clay, subrounded to subangular, fuzzy boundaries. Groundmass massive non-bedded lower few cm. are bedded (flaser type), altered layers, fracturing minor, silica stringers, calcite.			
22.1 - 46.2	24.1		Ignimbrite	Light pinkish, greenish or grey groundmass, may be altered reddish or darker greenish, hematization, pyritic often strong, lithic and crystal fragments are generally abundant, pumice fragments locally abundant. All fragments abundance increases with depth. Lithic fragments ash to fine lapilli, locally larger, subangular, locally subrounded, abundance up to 20%, red, orange, brown rhyolites, crystal fragments quartz, 1-3mm feldspar (orange) 1-3 mm, subhedral to broken, to 30%. Feldspars may show chloritic cent or rims, lithic fragments may show fuzzy boundaries, chloritized pumice fragments showing bifricated edges increase in abundance below 40 m.; may be wispy, distorted by crystal and lithic fragments. Bedding gets better with depth, flattening ratio of pumice increasing steadily, groundmass of fiammi often dark reddish-brown, size up to 1 cm. x 2-3 mm. Often 1 mm. wide. Below 45.5 becomes highly chloritized and hematized. Layering more streaky, fragments are lapilli size. Over lower 25 cm. very ashy, fine grained, basal ash fall tuff. Shearing of entire unit varies from low to locally mylonitic. Crosscut by several diabasic stringers, generally fine grained to aphanitic, dark greenish, weakly porphyritic	44.0	fiammi	60-70° to c/a

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR-1

SHEET 3 OF 7

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
22.1 -	24.1		Ignimbrite	22.5 - 22.9: Diabase			
46.2			(cont'd)	24.2 - 25.0: Highly sheared to mylonitic, powdery epidotized matrix.			
				33.9 - 35.4: Diabase			
				43.2 - 43.4: Mylonite			
				44.5 - 44.8: Diabase			
46.2 -	9.2		Ignimbrite	Second flow unit.			
55.4				Highly hematized dark brick reddish to brownish groundmass, may be massive, but bedding becomes more evident with depth. Pumice and lithic fragments also more abundant with depth. Quartz crystals 1-4 mm. welded to dippyramidal 10-20%, feldspars 1-6 mm. orange to buff euhedral to anhedral, may be broken 10-25%, lithic fragments 1-5 mm. Rhyolitic porphyritic, subangular to subrounded, 10-30%, crystal fragments decrease with depth. Fiammi are highly flattened, black, probably chloritized, gradational from the angular grey shards found higher in the unit Local kaolinization, hematization, silica, chloritic surfaces, a moderately developed shear.			
				50.1 - 50.4: Diabase			
				50.6 - 50.7: Diabase			
				53.0 - 54.3: Diabase			
				55.0 - 55.1: Diabase			
55.4 -	5.7		Diorite	Light bluish grey, locally fine to medium grained, generally aphanitic			
61.1				very weakly porphyritic, felspars 1-4 mm., euhedral to subhedral, orange or pink, may be whitish, diabase texture found locally. Minor chloritic clots. Shearing low to minor, chloritic surfaces, patchy epidotization.			
61.1 -	5.1		Vitric Tuff	Massive bright red groundmass, highly abundant glassy, translucent			
66.2				shardlike fragments often showing bifurcated, cusp or lense shaped edges lack alteration, also highly abundant quartz crystals 1-5 mm. often dipyramidal, may be broken and angular, 10-20%, vitric fragments 15-50%, may be up to medium lapilli size; some greenish altered rhyolite fragments up to 3 cm. Groundmass locally altered whitish, may be chloritized, shearing minor, epidote and silica stringers common.			
				63.8 - 64.2: Diabase			
				64.2 - 64.8: Rhyolite-highly altered by diabase			
				64.8 - 65.4: Diabase			

GMC 101B

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR-1

SHEET 4 OF 7

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
66.2 - 66.5	0.3		Diabase	Dark greenish, fine grained to aphanitic, moderate pervasive chloritization, mainly porphyritic with subhedral feldspars, shearing minor to moderate calcite, chlorite, epidote common.			
66.5 - 76.3	9.8		Tuff	The zone is subdivided into several different zones. Groundmass veins from light greyish, yellowish, to reddish or pink, may be variably hematized, kaolinized or chloritized. Lithic and crystal fragments range from ash size to medium lapilli, most 4 mm. May show local size gradations. Lithic fragments dominated by brown to orange porphyritic to bedded rhyolite, subangular to subrounded, quartz and feldspar crystals 3 mm. may be abundant. Pumice fragments found between 68.0-69.6 may show variable degrees of flattening. Very streaky layering locally. Fragments are usually jagged, cusp shaped, may be lightly chloritized. Hematitic rims often seen on both fiammi and lithic fragments. Bedding generally indistinct below 70 m. May include some 2-3 cm. lithic fragments. Shearing varies from low to moderate; silicate, epidote, calcite stringers locally. The individual units in this zone appear to be wedging or interfingering with each other.			
76.3 - 84.9	8.6		Tuff	Light greyish, grading downward to reddish brown often showing streaky reddish to buff colouration over 2 m. transition zone. Lithic fragments quite abundant locally (up to coarse lapilli size), most are ash to fine lapilli size, subangular, some may be shards. Crystal fragments of quartz and feldspars (1-5 mm., sharp orange, may be hematized). May include some lithic fragments of underlying flow. Shearing minor to low, chloritic surfaces.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR-1

SHEET 5 OF 7

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
84.9 - 91.9	7.0		Rhyolite Flow	Light reddish to greyish, porphyritic with 1-5 mm. orange to buff, euhedral to subhedral, slightly resorbed feldspars, approx. 15%. Quartz crystals 1-5 mm. welded to dipyramidal 10-20%, layering only very locally developed with flowage layers between 1 and 2 mm., i.e. flow sections 15-20 mm. wide. Continuity of layering increases with depth. Upper and lower fragmental zones are both visible, 84.9 to 87.2 m. and 91.1 to 91.9 m, respectively.			
91.9 - 94.6	2.7		Tuff	Light to dark greenish groundmass, strongly chloritized and/or epidotized. The upper zone is very ashy, massive, grading quickly into more laminated zone and grading slowly into a lower fragment rich horizon. Fragments are ash to fine lapilli, highly altered, angular, 5-30%. Very few crystal fragments. Bedding much less than 1 mm. wide to 2 mm. wide, beds may be contorted. May be altered, shards present, very jagged. Local fragmental zone has altered fragments, ignimbrite, red rhyolite and spherulitic rhyolite. Locally kaolinized shearing low with chloritic surfaces.	92.9 93.2	bedding bedding	60° to c/a 50° to c/a
94.6 - 103.7	9.1		Spherulitic Rhyolite	Groundmass whitish to orange, greenish zones may be chloritization, may be sericitized. Quite ma sive, may show very indistinct layering. Spherulites and lithophysae often parallel arrangement with corresponding barren zones, significant destruction of original texture. Spherulites or lithophysae may be radial, concentric or massive, broken into chunks, 1-10 mm. diameter, round to oblate, may be distorted, may have chloritic cent . . Lithic and/or pumice fragments locally visible, subangular, less than 2 mm. size pumice fragments 1 cm. x 2 mm. silicic veinlets abundant.			
				99.3 - 99.7: Diabase stringer.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR-1

SHEET 6 OF 7

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
103.7 - 120.8	17.1		Composite Intrusive	Outer edges are diabasic with a fairly felsic central core. Upper contact fairly sharp but lower is quite transitional over 50 cm. from diorite to felsic intrusive. Diabase is dark green, highly chloritized, very weakly porphyritic (1-4 mm., subhedral, whitish feldspar), fine to medium grained, chloritic clots locally abundant, felsic zone is reddish brown, massive aphanitic, highly porphyritic (1-8 mm. feldspars), euhedral to subhedral, resorbed, 10-15%, quartz crystals 1-4 mm. rounded, both may have hematitic rims. Local microspherulitic growths strongly hematite rich. Shearing light to locally moderate. Minor calcite, silica, epidote.			
				105.2-119.3: Felsic zone			
120.8 - 125.7	4.9		Tuff	Reddish brown groundmass, chloritization strong to pervasive, especially at mafic contacts, may include quartz and feldspar fragments, both decreasing in abundance with depth, usually 1-4 mm., often altered to chlorite, sericite, magnetite. Some lithic fragments also present and increase with depth, chloritized, ash size, bedding very crude, discontinuous, found only near contacts where chloritization strongest, shearing minor to moderate; epidote, chlorite, calcite present.			
125.7 - 146.2	20.4		Diorite	Moderate to dark greenish, fine to medium grained aphanitic, often chilled at contacts, may show diabasic texture, porphyritic with 1-3 mm. saussauritized euhedral to subhedral feldspars. Locally have disseminated pyrite along shears, minor chlorite, calcite. Chloritic clots (1-2 mm.) locally abundant.			
				139.3-142.0: Altered rhyolite xenolith			
				142.7-143.2: Altered rhyolite xenolith			
				145.0-145.2: Altered rhyolite xenolith			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR-1

SHEET 7 OF 7

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
146.2	- 1.8		Rhyolite	Light to moderate reddish brown groundmass, lithic and crystal fragments			
148.0			Tuff	1-4 mm., indistinct, 1-2 mm. epidotized fragments, orange to white most			
				common, groundmass may be strongly hematized, calcite, silica stringers			
				also abundant. Diabase dykes crosscut at 146.7 m., 148 m.			
				EOH: 148 metres			

GMC 1051 (09/78)

Gulf Minerals Canada Limited
DIAMOND DRILL RECORD

D.D.H. NO. DR-2
SHEET 1 OF 3

PROPERTY: Cobequid Area IV
LATITUDE: 56+50S
LONGITUDE: 112+00E
ELEVATION:

BEARING — TRUE: 180°
DIP: -45°
FINAL DEPTH: 155 metres
CORE SIZE: BQ

DATE STARTED: September 12, 1980
DATE COMPLETED: September 15, 1980
DRILLED BY: St. Lambert Drilling Co. Ltd.
LOGGED BY: G. Davison

DATE: September 21, 1980 SIGNED: Greg Davison

DEPTH ~~feet~~ metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
0 - 5.5	Ø		Overburden				
5.5 - 29.0	23.5		Tuff	Groundmass generally reddish to grey red, locally brownish, often strongly hematized, lithic and crystal fragments abundant, subangular to subrounded, lithic fragments ash to medium lapilli size. The large lapilli fragments are quite indistinct. Fragments become larger with depth, often are chloritized. Some pumice fragments are visible locally, may show bifurcated edges, 1-2 mm. thick, max. 3-4 cm. thick, good bedding trend. Crystal fragments quartz 1-2 mm. 5-15% feldspars, 1-4mm. euhedral to subhedral, often broken and angular, may be white, but often chloritized or hematized. Locally graded bedding with local concentrations of coarse fragments. Groundmass quite pyritic from extremely abundant decreasing with depth except high from 25-27 m. Also found filling shears. Fe staining. Chlorite, hematite in moderately to strongly developed shears.	26.5	fiammi	60° to c/a
					27.2	fiammi	55° to c/a
				21.6 - 23.0: Diabase stringer			
				23.3 - 24.9: Diabase stringer			
				27.8-28.0: Diabase stringer			
29.0 - 50.6	21.6		Rhyolite Flow	Reddish brown groundmass, locally hematized, generally quite massive with rarely visible layering, only in two places near lower part of unit. Weakly to moderately porphyritic with quartz 1-4 mm. 10-15%, feldspar 1-6 mm. orange, euhedral to subhedral, hematite and kaolin rims 10-20%, often strongly chloritized. Few lithic fragments less than 4 mm. found near the base. Upper zone is highly veined by silica. Lower contact of flow seems to be cut off by shear. Shearing stronger with depth accompanied by Fe staining and chlorite.			
				40.0 - 40.8: Diabase dyke			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR-2

SHEET 2 OF 3

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
50.6 -	3.3		Ignimbrite	Red to orange brown, may be strongly hematized, lithic fragments 1-4 mm.	50.9	bedding	85-90° to c/a
53.9				highly chloritized, indistinct, crystal fragments rare, quartz 1-3 mm.	51.8	bedding	75° to c/a
				less than 5%, pumice fragments, black to brownish. may be strongly	52.6	bedding	80-85° to c/a
				chloritized, may show bifurcated edges, may be strongly flattened,	53.2	bedding	70-75° to c/a
				flattening stronger with depth. Shearing moderate to mylonitic, often			
				large vug like spaces, Fe staining.			
53.9 -	0.5		Tuff	Zone of several rhyolite tuffs and agglomerate faulted together. Green-			
54.4				ish highly altered rhyolite covers upper 10 cm. A dark black unit with			
				large fragments covers next 20 cm. The lower 20 cm. is a well bedded			
				grey tuff.			
54.4 -	5.2		Ignimbrite	Dark to moderately greenish coloured, grades from ashy with very few			
60.6				lithic fragments and non-bedded to a bedded highly pumice fragment and			
				lithic fragment rich zone. Chloritization and epidotization quite			
				strong. Lithic fragments subangular to subrounded, 1-7 mm., massive	58.5	bedding	55° to c/a
				pink or brown rhyolite, pumice fragments become abundant below 56.8 m.,			
				bifurcated, highly chloritized, wispy, often distorted by lithic frag-	59.5	bedding	45° to c/a
				ments. Spherulitic rhyolite fragments found near base. Shearing low,			
				Fe staining chloritic surfaces, quartz, calcite, fluorite veining.			
				Often strongly pyritic.			
60.5 -	19.2		Spherulitic	Reddish to orange groundmass, quite massive, locally abundant crystal			
79.7			Rhyolite	fragments 1-3 mm., euhedral to subhedral, most other fragments indist-			
				inct, but are rhyolitic. Spherulites and/or lithonhysae up to 50%,			
				shape ranges from oblate, deformed, broken partial spheres. Size from			
				1-5 mm., averages 5 mm., may show radial growths but are often massive,			
				may be white with orange rims, often have chloritized centres, some			
				have secondary growths. Shearing and fracturing grades from low to			
				mylonitic with abundant sericite, kaolin, epidotization, siliceous and			
				calcite veining.			
				62.4 - 64.7: Mylonitic			
				68.8 - 69.8: Mylonitic			
				76.8 - 77.8: Mylonitic			
				78.2 - 79.7: Mylonitic			

GMC 1016

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR-2

SHEET 3 OF 3

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
79.7 - 99.6	19.9		Diorite	Light to medium greenish, fine to medium grained, locally coarse grained often aphanitic near contacts, alteration by chlorite extensive. May be moderately porphyritic 1-4 mm. subhedral white often light orange, 15-20%, local megacrysts up to 1.5 cm. Tectonic brecciation locally mylonitic, calcite veining up to 3 cm., small silica veinlets.			
				81.5 - 81.8: Rhyolite xenolith			
				82.4 - 83.3: Rhyolite xenolith			
99.6 - 155.0	55.5		Tuff	Whitish to buff groundmass, often yellowish locally becomes pinkish orange, may also be locally hematized. Both lithic and crystal fragments abundant. Feldspar abundant 10-30%, 1-5mm. locally euhedral, often broken, pervasive chloritization, quartz less than 5% rounded. Lithic fragments highly variable subangular to subrounded, often indistinct, fuzzy boundaries, size from ash to medium lapilli. General increase in size with depth, colour whitish, buff, pink, grey. Bedding visible very locally. Fairly consistant-variably coloured massive layers to wispy slightly laminated. Shearing low, local strong brecciation, epidotization, kaolinization, locally widespread hematization. Silica stringers common.			
				142.4 - 143.3: Diabase stringer			
				146.0 - 153.4: Diorite - mod. to dk. greenish gradational to felsic intrusive center with reddish brown colour, may be good diabasic texture, weakly porphyritic 1-3 mm., orange feldspars.			
				EOH: 155.0 metres			

GMC 1051 (09/78)

Gulf

Gulf Minerals Canada Limited
DIAMOND DRILL RECORD

D.D.H. NO. DR-3
SHEET 1 OF 2

PROPERTY: Cobequid Area IV
LATITUDE: 60+70S
LONGITUDE: 111+85E
ELEVATION:

BEARING—TRUE: 180°
DIP: -45°
FINAL DEPTH: 151 metres
CORE SIZE: BQ

DATE STARTED: September 16, 1980
DATE COMPLETED: September 19, 1980
DRILLED BY: St. Lambert Drilling Co. Ltd.
LOGGED BY: G. Davison

DATE: September 21, 1980 SIGNED: Guy Davison

DEPTH ~~FEET~~ metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
0 - 42.5	42.5		Andesite (?)	Reddish brown to dark greyish groundmass, may include some fragments of rhyolite in upper 1-2 m, usually 1-5 mm decrease rapidly with depth, subangular to subrounded, porphyritic with feldspar 1-4 mm, subhedral to anhedral, whitish, but usually strongly altered by epidote, chlorite 1-2 mm, epidote rims pervasive. Quartz crystals rounded to angular, 1-3 mm 5-10% also rimmed by epidote. Chlorite and calcite filled, oblate to henticular, often circular, void spaces very abundant. Often pervasive size 1-5 mm, up to maximum of 3 cm. Alteration by epidote abundant. Often appear to have followed parallel orientation by flowage. Shearing low to strong, usually less, abundant chlorite, epidote, Fe-staining, fluorite, calcite stringers.			
				Diabase stringer occur at the following depths:			
				4.0, 6.5-7.0, 8.5, 18.9, 20.5, 20.7, 28.8-29.0, 35.4-35.9, 36.2-36.4, 36.6, 36.8-37.2, 37.6, 38.2, 38.4, 38.6, 38.8-39.4, 39.6, 40.1, 40.3-40.6			
42.5 - 85.5	43.0		Ignimbrite to Agglomerate	Groundmass grey to black, aphanitic to very fine grained, locally may be abundant crystal and lithic fragments, up to lapilli size lithic fragments, subangular, rhyolitic mainly Locally the fragments are rounded to subrounded, usually lenselike or beds isolated and reworked. Crystal fragments of quartz, rounded, 1-2 mm. locally, 1-3 mm. saussauritized to whitish feldspars common, abundant indistinct fine ash size fragments	50.6	bedding	65° to c/a
				Size of lithic fragments increases with depth to 4-5 cm, many of the indistinct grey highly angular and irregularly shaped fragments may be pumice. Bedding is variable from red to grey alterating bands, to	52.7	bedding	55-60° to c/a
				variations in grain size, small agglomeratic lenses are abundant, beds	58.2	bedding	60° to c/a

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR-3

SHEET 2 OF 2

DEPTH FEET	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
42.5 - 85.5	43.0		Ignimbrite to Agglomerate (cont'd)	usually 5 mm. wide, often quite indistinct, streaky pink layers locally (42.5-43.4). There are several small quite aphanitic and massive lenses also. Hematization, chloritization, epidotization often strong and patchy below 56.0 m. Locally siliceous coatings on some fragments.	69.8	bedding	55-60° to c/a
					72.4	bedding	30-40° to c/a slightly undulating
				43.4 - 48.6: Diorite - dark greenish, fine to medium grained, weakly to moderately porphyritic 1-5 mm. feldspars.			
85.5 - 96.5	11.0		Tuff	Light to moderate grey groundmass, may be several small ash horizons (black shale beds), lithic fragments often difficult to distinguish due to strong chloritization, irregularly shaped pumice or vitric fragments, flattening often streaky, highly chloritized, usually 1-2cm by 3-6 cm, small chloritized specks less than 1 mm., groundmass often shows mottled appearance. Crystal fragments 5-15%, quartz and feldspar continues to pick up more unaltered lithic fragments with depth. Gradational between overlying reworked zone and underlying ignimbrite. Lithic fragments of grey flow rhyolite, tuff, ignimbrite.			
96.5 - 151.0	54.5		Ignimbrite	Groundmass generally greyish to greenish, may have localized bedding, includes highly abundant lapilli to blocky fragments of ash fall tuff, flow rhoylite, ignimbrite, may be up to 30 cm. wide. Crystal fragments may be abundant in the groundmass, quartz to 15%, feldspar 1-5 mm white to orange, subangular, often strongly chloritized 15-30%. The groundmass often light grey with very few fragments, patchy hematization and epidotization, groundmass often quite glassy, bedding raw and often distorted by the large fragments. Many of the fragments below 129 m have spherulitic coatings, the groundmass locally yellowish, locally chloritized below 145.8 this unit may grade into a light yellowish spherulite bearing tuff.			
				134.8 - 145.8: Diorite - medium to dark green, fine to medium grained, may be strongly chloritized, very weakly porphyritic, small chloritic clots, minor disseminated pyrite, includes a couple rhyolite xenoliths.			
				EOH: 151.0 metres			

GMC 1051 (03/78)

Gulf Minerals Canada Limited
DIAMOND DRILL RECORD

D.D.H. NO. DR 4
SHEET 1 OF 3

PROPERTY: Cobequid Area IV
LATITUDE: 63+45S
LONGITUDE: 111+75E
ELEVATION:

BEARING—TRUE: 180°
DIP: -45°
FINAL DEPTH: 144.3 metres
CORE SIZE: BQ

DATE STARTED: September 19, 1980
DATE COMPLETED: September 23, 1980
DRILLED BY: St. Lambert Drilling Co. Ltd.
LOGGED BY: Greg Davison

DATE: September 29, 1980 SIGNED:

DEPTH ~~FEET~~	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
Metres							
0-1.5	1.5		agglomerate	Light to moderately greenish, may show chloritization, contain abundant felsic fragments, , rounded to subrounded, white to gray, also some intermediate fragments (similar to flow) with pinkish groundmass and and straight epidotzation, many little fragments are below and lithophysae, may be aolinized, felsic fragments 1-5 mm, intermediate fragments 1-4 cm, lower contact quite sharp.			
1.5-27.3	25.8		ignimbrite	Light to dark grey groundmass, may be light to dark greenish due to strong local alteration by chlorite and epidote, most of this unit highly unsorted fragmental basal section, lithic fragments 1-15 mm, sub-angular to subrounded, often fuzzy boundaries, whitish to pinkish, may be epidotized, crystal fragments 1-5 mm, euhedral to subhedral feldspar most abundant, white to light green 5-25% quartz crystals, 10%; 1-3 mm, pumice fragments, irregular shape, often bifucated edges, flattening increases with depth, good orientation visible; lower fragmental zone has abundant lithic fragments (21.6-27.3) good bedding disappears below 23.0 m, shearing, low to minor with chlorite, Fe staining, may be siliceous, stringers are calcite, fluorite, partly epidote.	4.2 7.0 9.4 14.7 18.4 19.2 23.0	bedding bedding bedding bedding bedding bedding bedding	55° to C/A 40° to C/A 45° to C/A 50° to C/A 0-25° to C/A 0-30° to C/A 0-20° to C/A
27.3-33.4	6.1			Light to dark grey green, fine to medium grained, aphanitic near contacts, nonporphyritic, locally diabasic texture, shearing low with chloritic and epidote includes several rhyolite serolites usually highly altered 28.7-29.5, 31.9-32.8.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR 4

SHEET 2 OF 3

DEPTH ~~FEET~~ Metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
33.4-34.7	1.3		rhyolite	Basal section of ignimbrite, highly altered by epidote, chlorite, contains abundant lithic fragments many from underlying basalt, groundmass quite pyritic, shearing, moderate calcite and fluorite veining, sharp contact with basalt.			
34.7-43.3	8.6		basalt	Light to dark grey groundmass, very fine grained to aphanitc, porphyritic with 1-3 mm feldspars, euhedral to subhedral, orange to light greenish, 5-16% small chloritized vesiles filled with calcite, zeolites, epidote become quite abundant in lower part of unit, up to 10 mm diameter, contains a few fragments of rhyolite, shearing low to minor with chlorite, epidote, calcite.			
43.3-57.3	14.0		tuff	Light to dark green groundmass, locally pale green to white, fine grained ash to aphanitc, abundant lithic and crystal fragments, locally minor pumice fragments, lithics white, green, pink, orange, highly chloritized, 1-4 mm average, up to medium lapilli, local fragments of spherulites and lithophysae, crystal fragments quartz crystals 1-3 mm, feldspar 1-4 mm, euhedral to subhedral, may be slightly altered by chlorite, locally may be small shard like fragments, disseminated pyrite in groundmass and also small 1-2 mm cubes, lower contact with diorite sharp with slight brecciation.			
57.3-75.6	18.3		diorite	Light grey green, fine to medium grained, weakly porphyritic with 1-4 mm plagioclase feldspar, locally shows good diabasic texture, zone include several crosscutting mafic intrusives, disseminated pyrite and magnetite present, shearing ranges from low to moderate with chloritic surfaces, minor epidote and calcite stringers, small less than 1 mm chloritic clots.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR 4

SHEET 3 OF 3

DEPTH ~~FEET~~ Metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
75.6-99.1	23.5		ignimbrite	Groundmass greenish to grey or white, highly hematized, epidotized, generally unbedded may locally be black and quite massive. fine to medium lapilli size fragments, orange to green, subangular to subrounded, mainly rhyolitic, may be large blocks of tuff present, crystal fragments 1-5 mm, euhedral to subhedral, less than 20%, locally spleulitic coatings in some fragments, shearing low to strong, may be local brecciation 82.8-83.8, 84.3-85.0, crude streaky bedding found near lower contact.			
				90.8-95.0 - diorite - small xerolite of rhyolite at 91.6-91.7			
				97.7-98.1 - diabase			
99.1-144.3	45.2		diorite	Light to dark grey green, fine to coarse grained, locally gabbroic, fine to aphanitic near contacts, main intrusive often crosscut by several other mafic intrusives usually porphyritic, often strongly 1-8 mm feldspars, euhedral to subhedral, may form in clusters of up to five crystals, may be sausseritized, groundmass locally hematized, minor epidote, fluorite, calcite.			
				EOH - 144.3 metres			

GMC 1051 (03/78)

Gulf Minerals Canada Limited
DIAMOND DRILL RECORD

D.D.H. NO. DR 5
SHEET 1 OF 5

PROPERTY: Cobequid Area IV
LATITUDE: 51+25S
LONGITUDE: 111+75E
ELEVATION:

BEARING—TRUE: 180°
DIP: -45°
FINAL DEPTH: 164 metres
CORE SIZE: BQ

DATE STARTED: September 24, 1980
DATE COMPLETED: September 30, 1980
DRILLED BY: St. Lambert Drilling Co. Ltd.
LOGGED BY: Greg Davison

DATE: October 4, 1980 SIGNED: Greg Davison

DEPTH ~~FEET~~ Metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
0-6	Ø		overburden				
6-28.7	21.7		ignimbrite	Groundmass generally greenish gray becoming darker with depth, may be highly euhedral with depth also lithic, crystal and pumice fragments are highly abundant, lithics 1-5 mm orange to white rhyolite subangular to subrounded, often fuzzy and hematitic boundaries, crystal fragments quartz 1-4 mm rounded often broken 0-25%, feldspar 1-4 mm euhedral to subhedral, orange, may be white, may be pervasively chloritized, pumice fragments brown to dark green often reddish brown becoming darker and more altered with depth, wispy, bifucated, often distorted by fragments L/W ratio increases with depth 3:1 to 10:1 wide overlap, groundmass may be quite glossy shearing from nil to strong locally mylonitic with no to minor offset, strong local epidote.	6.4 7.6 9.5 12.2 15.0 16.0 21.4 23.5 25.0 26.6 28.6	fiammi " " " " " " " " " "	60° to C/A 65° to C/A 60° to C/A 55° to C/A 55° to C/A 65° to C/A 60-70° to C/A 70° to C/A 70° to C/A 75° to C/A 70° to C/A
28.7-38.0	9.3		diorite	Light to moderate greenish, dark green to black near contacts, quite sharp, minor chell margin, weakly porphyritic 1-3 mm euhedral to subhedral whitish, often saussinitized feldspars, no alteration of rhyolite at contacts, become medium grained and has poorly developed diabasic texture, shearing low locally strong, epidote, chlorite prominent. 34.0-34.7 - gradational contacts, fnr diorite to felsic intrusive, light to moderate pinkish become fine to aphanitic, contains rounded diorite fragments.			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR 5

SHEET 2 OF 5

DEPTH FEET Metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
38.0-85.9	44.9		tuff and agglomerate	Large unit is made up of several or interfingering subunits, some are reworked:			
				subunit 1: reddish grey highly abundant crystal fragments, feldspar 1-3 mm rare quartz, lithic fragments vary from 1 mm to 25 cm not abundant, usually at lower part of unit, made of brown, grey, pink rhyolite, many are chloritized, locally kaolinized groundmass locally hematized palely epidotic.			
				subunit 2: yellow brown groundmass, abundant highly chloritized feldspars 1-3 mm about 30% lithic fragments brown to green (chloritic) subangular to subrounded may be very fine only zones with gradatine to fragmental rich zones.			
				subunit 3: green highly chloritized groundamss, massive to nonbedded, highly pyritic, locally abundant indistinct fragments 1-10 mm, light green (epidote) alteration abundant, often blotchy, locally hematized, altered feldspar crystals may be present, may be agglomeratic with rounded fragments.			
				38.6-39.3 - diabase stringer			
				42.4-42.5 - diabase stringer			
				46.0-51.0 - diorite - fine to medium grained, light to dark grey, may show diabase texture			
				55.6-74.7 - diorite (gradational between 59.3 to 69.3 to a felsic intrusive centre) grades from quite dark green, fine to medium grained with diabasic texture and very weakly porphyritic with 1-3 mm feldspars to a felsic reddish brown, quite glossy, aphanitic central zone which is also weakly porphyritic 1-8 mm feldspars and resorbed quartz crystals, feldspars often chloritized			
				75.9-76.1 - diabase stringer			
				80.4-82.2 - diabase stringer			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR 5

SHEET 3 OF 5

DEPTH FEET ~~AAA~~ Metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
85.9-94.3	8.4		ignimbrite	Reddish brown to purplish brown groundmass, highly crystal and lithic fragment rich, abundant fiammi also somewhat fragmented by overlying tuff unit, fiammi present in various stages of flattening, increasing L/W ratio with depth, lithic fragment abundance increases with depth, feldspar 1-5 mm euhedral to anhedral whitish to orange 5-35% may be hematized, quartz 1-5 mm rounded to angular, 10-20% size decreases with depth, fiammi red brown to greenish size decreases downward, bifurcated, wispy, lithic fragmehts rhyolitic red, brown, may be bedded up to medium lapilli size, groundmass may be quite glassy, shearing quite low to moderate with string epidote, calcite, may be strongly hematized.	88.5	fiammi	65° to C/A
					92.1	"	70-75° to C/A
				91.5-91.9 - diabase stringer			
				93.1-94.1 - diabase stringer			
94.3-97.2	2.9		vitric tuff	Red, glassey, may be strongly hematized, massive, highly crystal and fragment rich, quartz crystals 10-25% 1-6 mm, small sheared richer fragments, most 1 mm very angular, cusp shaped, 20-35%, minor chloritized fragments may be altered feldspars 1-3 mm, groundmass may be brecciated and grades into underlying unit.			
97.2-103.9	6.7		tuff	Yellow to grey brown groundmass, nonbedded locally contains abundant crystal fragments, quartz 1-4 mm rounded to angular, 5-20%, feldspar 1-3 mm, usually chloritized, lithic fragments rhyolite red brown, subangular, 1-40 mm average 1 cm increasing abundance with depth, several brecciated zones, groundmass may be slightly hematized, locally strong silica veining.			
				100.6-100.7 - diabase stringer			

GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR 5

SHEET 4 OF 5

DEPTH ~~FEET~~ Metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
105.2-118.4	13.2		diorite	Light to moderate greenish fine to medium grained, aphanitic and chloritized at contacts, weakly porphyritic 1-4 mm feldspars euhedral to subhedral whitish, oftenlight green (saussemitized) may be grouped into clusters diabasic texture locally, 2-3 mm chlorite clots locally shearing low with chloritic surfaces, minor pevasive chloritization, minor epidote, calate, pyrite, magnetite.			
118.4-126.0	4.6		tuff? flow?	Reddish brown groundmass, fairly glassey, aphanitic, highly epidotized at upper contact, feldspars chloritized, groundmass may be locally hematized, moderately porphyritic with 1-4 mm euhedral to subhedral orange feldspars, 10-20%, quartz crystals 1-3 mm, 5-15%, feldspars may be hematized or chloritized as rims or altered centres, indistinct layering visible only near lower contact, lower zone 121.7-126.0 abundant primary? brecciation, overall shearing increases with depth accompanied by epidote, clacite.			
126.0-132.2	6.2		ignimbrite	Groundmass grades with depth from reddish to yellow grey to greenish grey basal zone, becomes more welded with depth, upper zone indistinctly layered abundant crystal and lithic fragments bedding veined with depth also, lithic fragments generally white, light brown, grey, angular to subangular, often indistinct, large fragments of ignimbrite and aphanitic rhyolite at base, chloritized pumice fragments, shape irregular, L/W ratio increases with depth ash size crystal fragments, chloritized feldspars 5-10%, quartz, 10-15% less abundant with depth.			

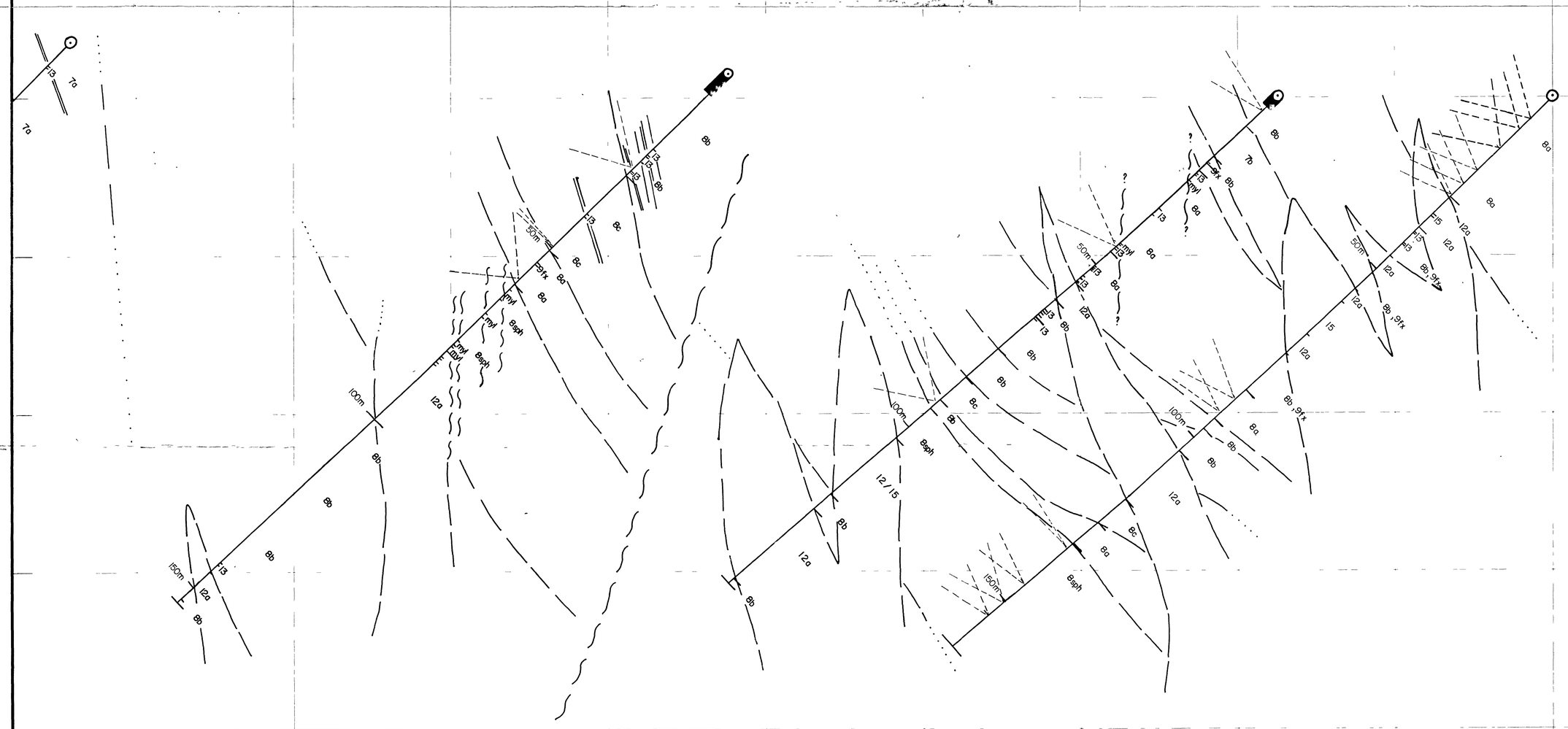
GMC 1018

DIAMOND DRILL RECORD—CONTINUATION SHEET

D.D.H. NO. DR 5

SHEET 5 OF 5

DEPTH ~~FEET~~ Metres	F'TAGE CORED	F'TAGE REC'D	FORMATION	DESCRIPTION	DEPTH	BED'G & FOLIA	REMARKS SAMPLES ETC.
132.2-164.0	21.8		spleubitic rhyolite	Groundmass whitish to greenish (strongly chloritized), may be locally strongly hematized, spleulites highly abundant only decreasing slightly below 145.0 mm bedded layering locally visible in the lithic and crystal fragment rich zones, spleulites range in size from 1-10 mm, subrounded to round, locally irregular, may be in large clusters, partial overgrowths of earlier spleulites, may be broken into pieces, show radial concentric or no zonation, colors red, orange, yellowish, white may be locally hematized, chloritized or kaolinized, often nucleated in the crystal and/or lithic fragments, crude bedding of only fragments 1-3 cm zones generally devoid of spherulites, beds 1-20 cm thick quite consistent orientations, shearing becomes stronger with depth, may be epidotization, chlorite.	133.4	bedding	~~80° to C/A~~
					144.8	bedding	65-70° to C/A
					150.2	bedding	60° to C/A
					151.3	bedding	65-70° to C/A
					153.0	bedding	65° to C/A
					154.4	bedding	70° to C/A



AR 80-010

Gulf Minerals Canada Limited

COBIQUID PROJECT

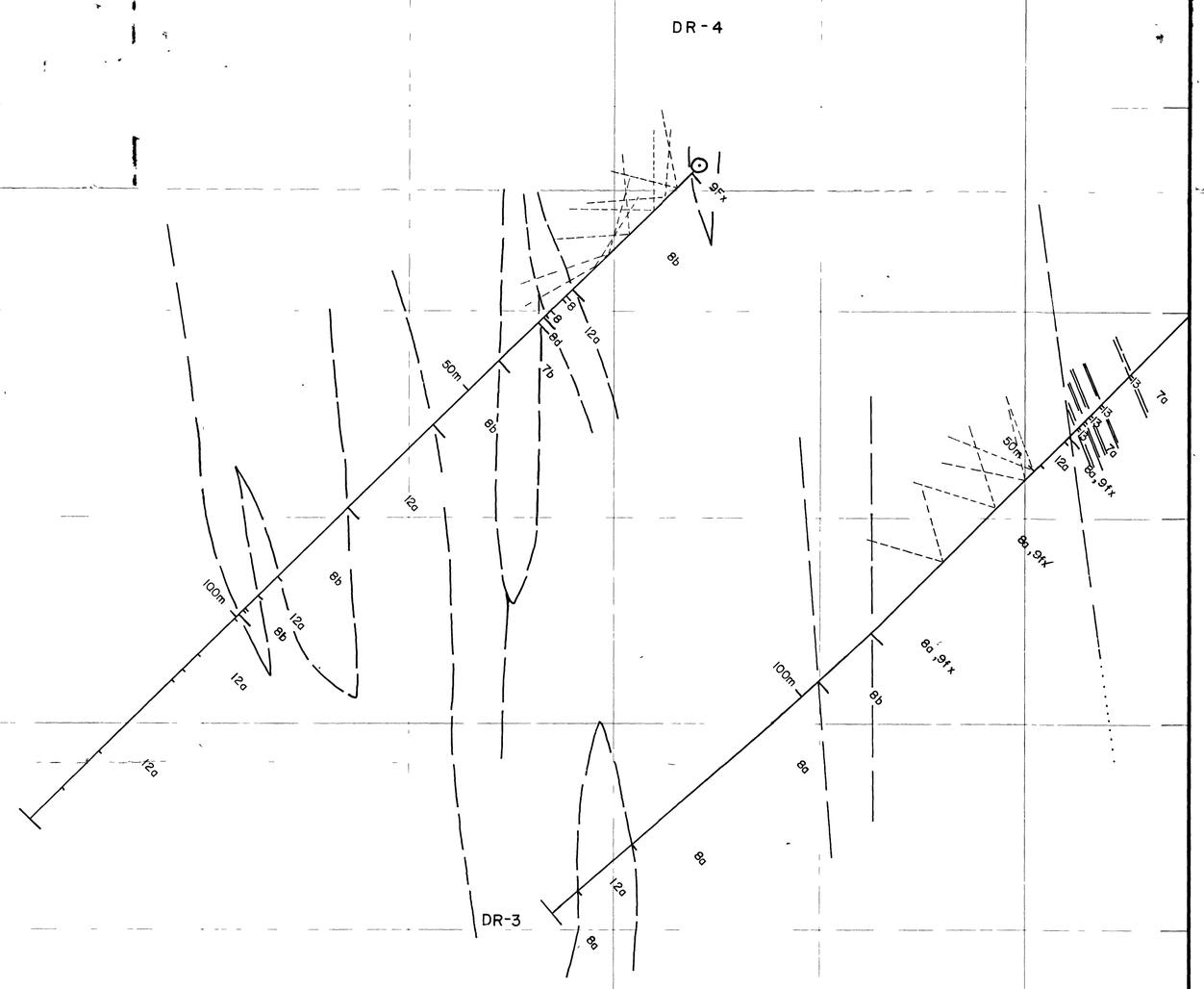
DRILL SECTION 112+00E PART 1

LOOKING WESTERLY

AREA COBEQUID ZONE DR

NOVA SCOTIA 434106

DATE	SCALE	DRAWN BY	PLATE



AR 80-010

Gulf Minerals Canada Limited

COBIQUID PROJECT

DRILL SECTION 112+00E

LOOKING WESTERLY

PART 2

AREA COBEQUID ZONE DR

NOVA SCOTIA 434106

DATE	SCALE	DRAWN BY	PLATE
12/15/80	1:500	G Davison	

AR 80-010
2 of 3

COBEQUID PROJECT
URANIUM ASSESSMENT REPORT
COBEQUID IV
NOVA SCOTIA

- 1980 -

NTS: PART OF 11E/11A, 11B, 11C 11E/11B

PART 2 OF 3

434106

Gulf

Gulf Minerals Canada Limited

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DEC 24 08 53 '80
MINES
NOVA SCOTIA

COBEQUID PROJECT
URANIUM ASSESSMENT REPORT
COBEQUID IV
NOVA SCOTIA

- 1980 -

NTS: PART OF 11E/11A, 11B, 11C 11E/11B

PART 2 OF 3 434106

REPORT ON

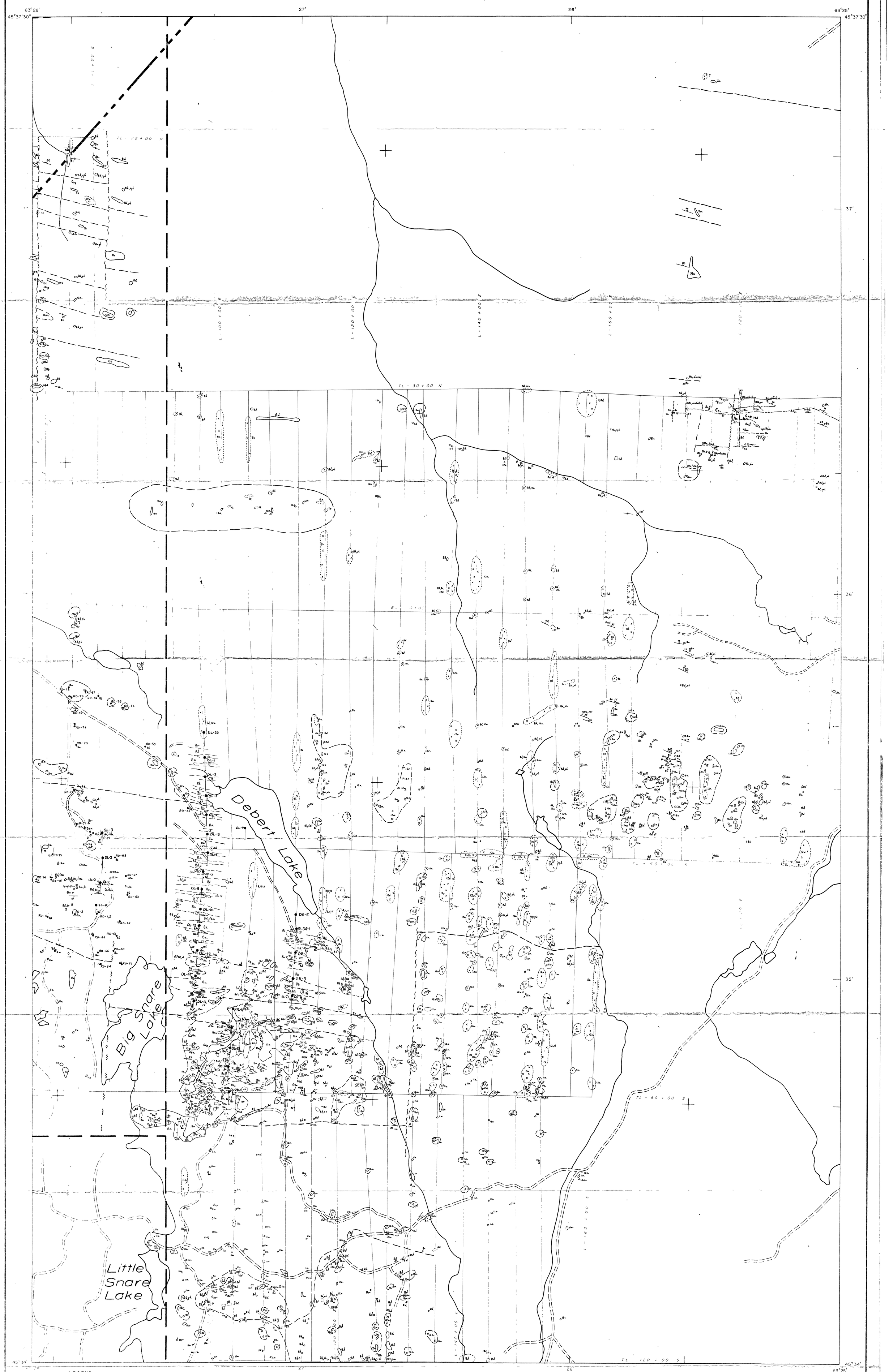
GEOLOGICAL MAPPING

GEOCHEMISTRY

PROSPECTING

DIAMOND DRILLING

Gulf



LEGEND

EXTRUSIVE VOLCANICS

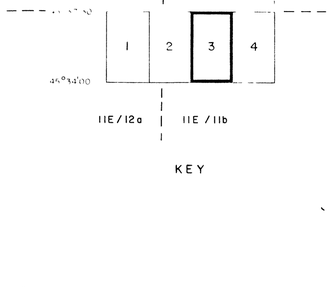
7	Mafic : (a) andesite (b) basalt.
8	Felsic : dacite, rhyolite (a) ignimbrite (b) ash fall tuff, crystal tuff (c) flow banded rhyolite (d) massive or undetermined (e) breccia.
9	Agglomerates : (Mx) mafic fragments in mafic matrix (Fx) felsic fragments in felsic matrix (M) mixed
10	SEDIMENTS : (a) argillite (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) unaltered diorite (b) altered / metamorphosed diorite
13	Diabase : (a) unaltered 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 straie
- Drag fold (with plunge)
- Fault (definite , indefinite)
- Airphoto lineament
- Geological contact (definite , indefinite)
- Geophysical interpretation
- RD — Reverse circulation drill hole
- Diamond drill hole
- ra 50 150/100 — Radioactivity (ra) in counts per second - high/background
- JS 760 — Sample location and number (C, EO, K)
- Dike



KEY

AR 80-010

Gulf Minerals Canada Limited

COBEQUID PROJECT

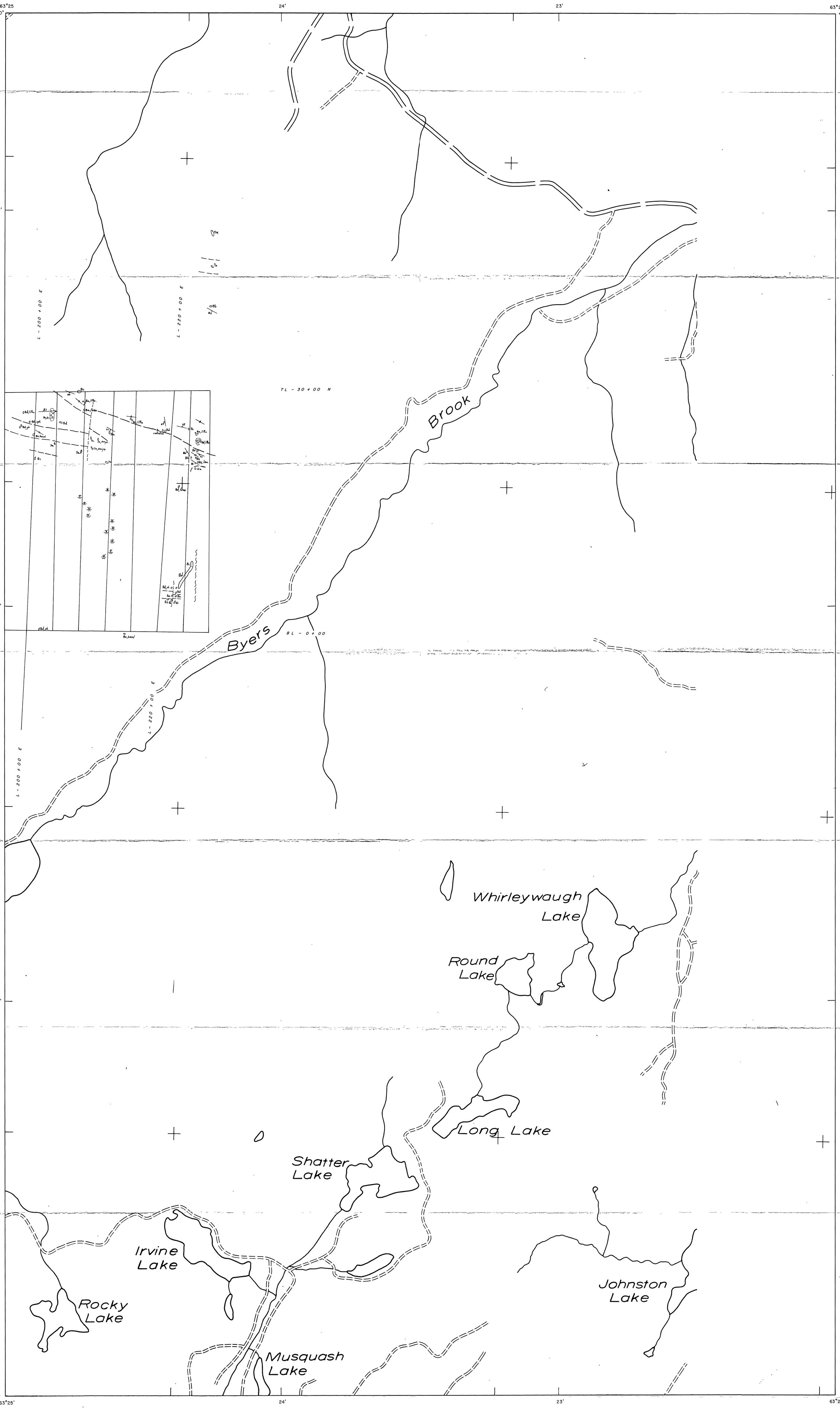
GEOLOGICAL COMPILATION

434106

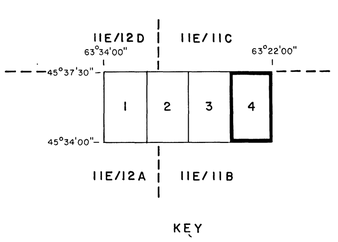
NOVA SCOTIA

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.



NOTE: For legend see sheet 3



KEY

AR 80-010

Gulf Minerals Canada Limited

COBEQUID PROJECT

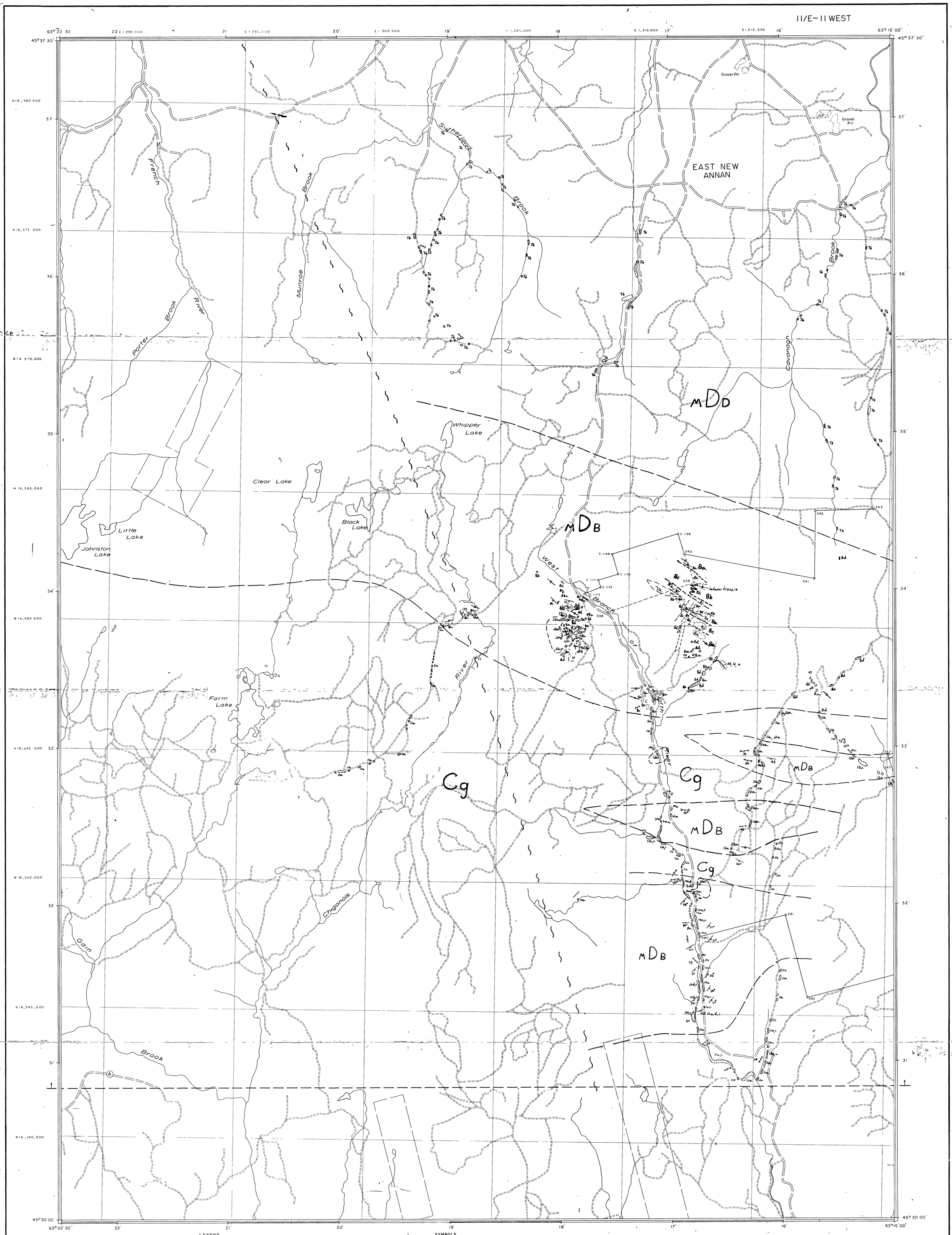
GEOLOGICAL COMPILATION

434106

NOVA SCOTIA

DATE	SCALE	DRAWN BY	PLATE IV 3
NOVEMBER 80	1 INCH=400 FEET	P.J.C.	N.T.S. 11E/11 PT.

To accompany "Cobequid IV Report" Dec. 80.



PALEOZOIC — PENNSYLVANIAN

- LCBP — Boss Point Formation

DEVONIAN TO CARBONIFEROUS

- DCN — Nuttby Formation
- DCD — Diorite Non-Foliated
- CG — Granite Non-Foliated

LATE DEVONIAN

- LDF — Falls Formation

MIDDLE DEVONIAN

- mDD — Diamond Brook Formation
- mDB — Byers Brook Formation

HADRYNIAN — LATE PRECAMBRIAN

- HW — Warwick Mountain Formation

P — BASS RIVER COMPLEX

- PGV — Great Village River Gneiss
- PGB — Gamble Brook Schist
- PF — Folly River Schist

LEGEND

EXTRUSIVE VOLCANICS

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- 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) unaltered diorite (b) altered/metamorphosed diorite
- 13 — Diabase: (a) unaltered diabase (b) spotted diabase (c) aphanitic altered diabase
- 14 — Gabbro, pyroxenite — peridotite
- 15 — Felsic and porphyritic intrusives

SYMBOLS

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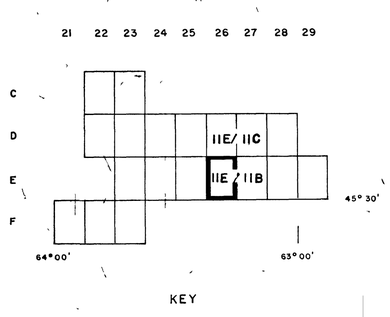
- Jointing (vertical, inclined)
- Glacial striae
- Drag fold (with plunge)
- Fault (definite, indefinite)
- Airphoto lineament
- Geological contact (definite, indefinite)
- Geophysical interpretation
- RD — Reverse circulation drill hole
- Diamond drill hole
- ra 50 150/100 — Radioactivity (ra) in counts per second - high/background
- Δ JS 760 — Sample location and number (C, EO, K)
- Dike



KEY

AR 80-010

Gulf Minerals Canada Limited

COBEQUID PROJECT

GEOLOGICAL COMPILATION

434106

NOVA SCOTIA

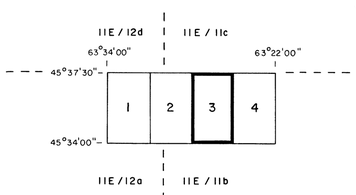
DATE:	SCALE:	DRAWN BY:	PLATE: E26g
DECEMBER 80	1 IN. = 1/4 MI.	P. J. C.	NTS. 11E/11 PT.

To accompany "Cobequid IV Report" DEC 80

5

LEGEND

x R 321 Whole rock sample location and number



KEY

AR 80-010

Gulf Minerals Canada Limited

COBEQUID PROJECT

GEOCHEMICAL SURVEY

(WHOLE ROCK - LOCATION AND NUMBER)

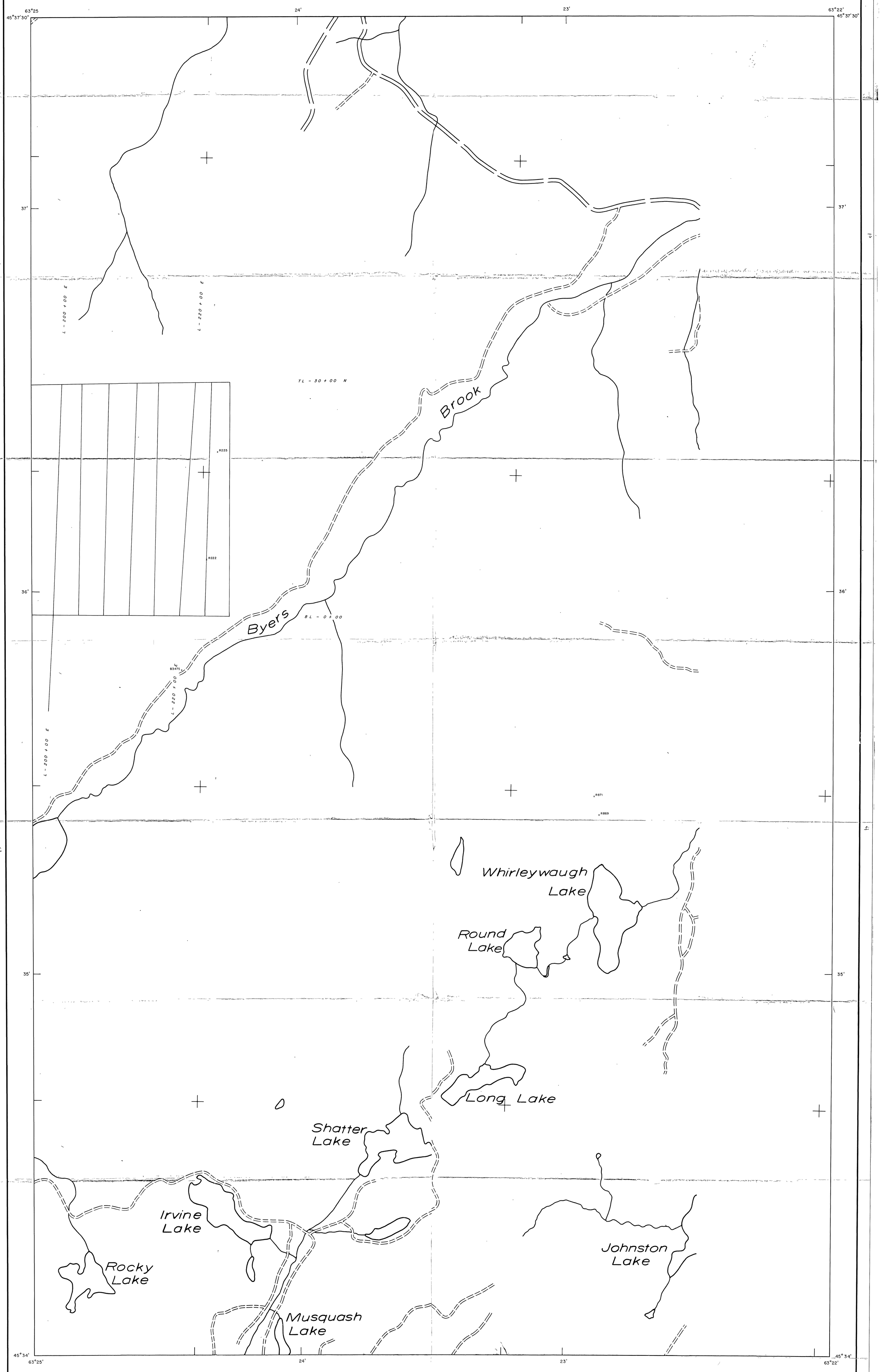
CLAIM BLOCK III & IV

NOVA SCOTIA 434106

DATE	SCALE	DRAWN BY	PLATE III-fr
DECEMBER 1980	1:4800		N.T.S 11E/11 PT

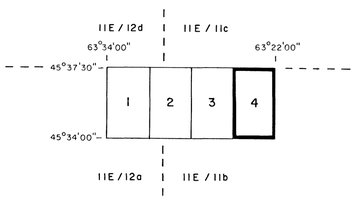
To accompany "Cobequid III & IV Report", December 1980

6



LEGEND

$_{x}^{R\,321}$ Whole rock sample location and number



KEY

AR 80-010

Gulf Minerals Canada Limited

COBEQUID PROJECT

GEOCHEMICAL SURVEY

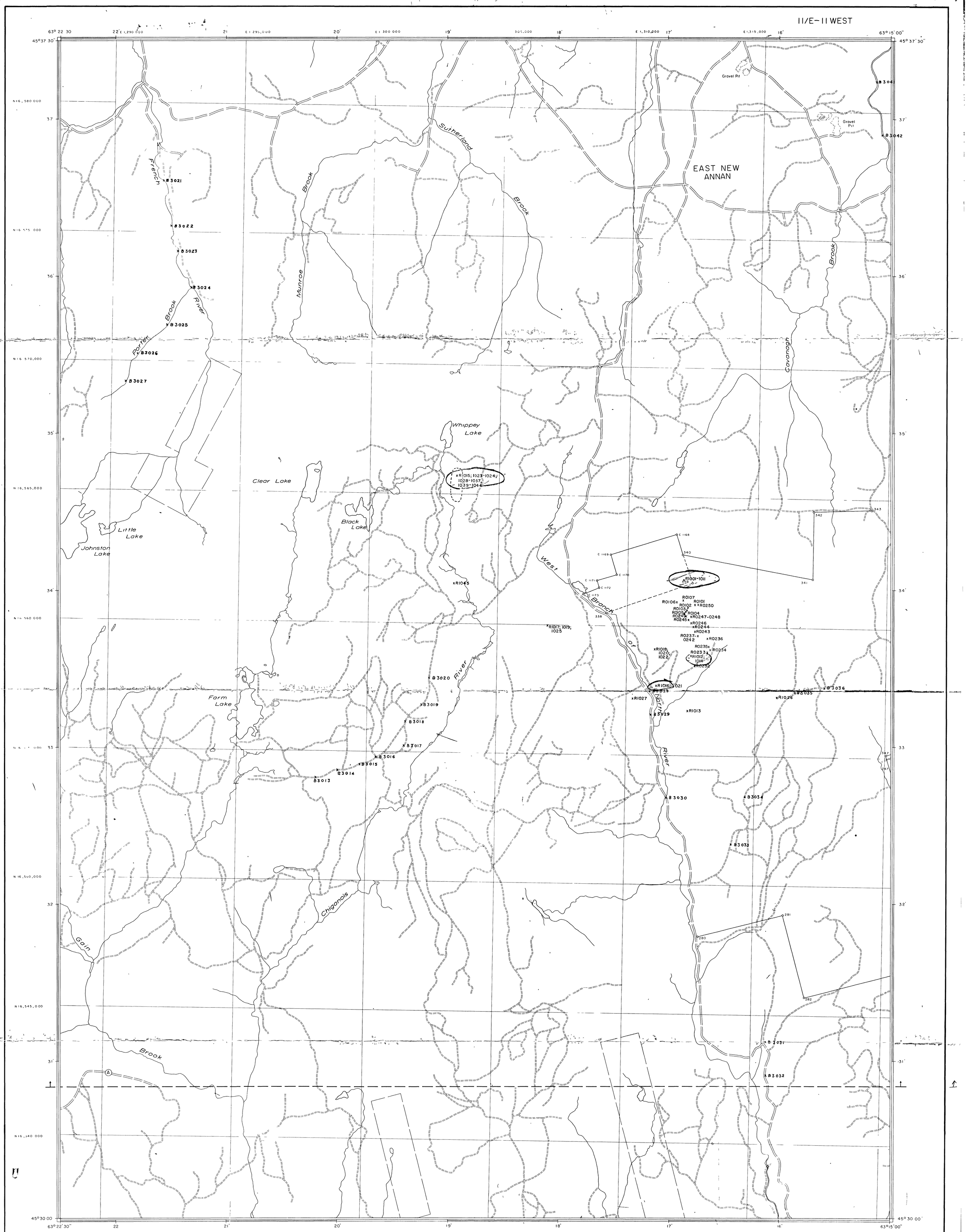
(WHOLE ROCK - LOCATION AND NUMBER)

CLAIM BLOCK IV

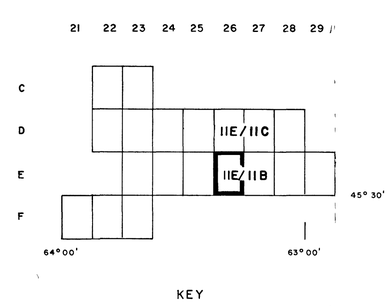
NOVA SCOTIA 434106

DATE	SCALE	DRAWN BY	PLATE IV-fr
DECEMBER 1980	1 4800		NTS. 11E/11 PT.

To accompany "Cobequid IV Report", December 1980.



AR 80-010



KEY

Gulf Minerals Canada Limited

COBEQUID PROJECT

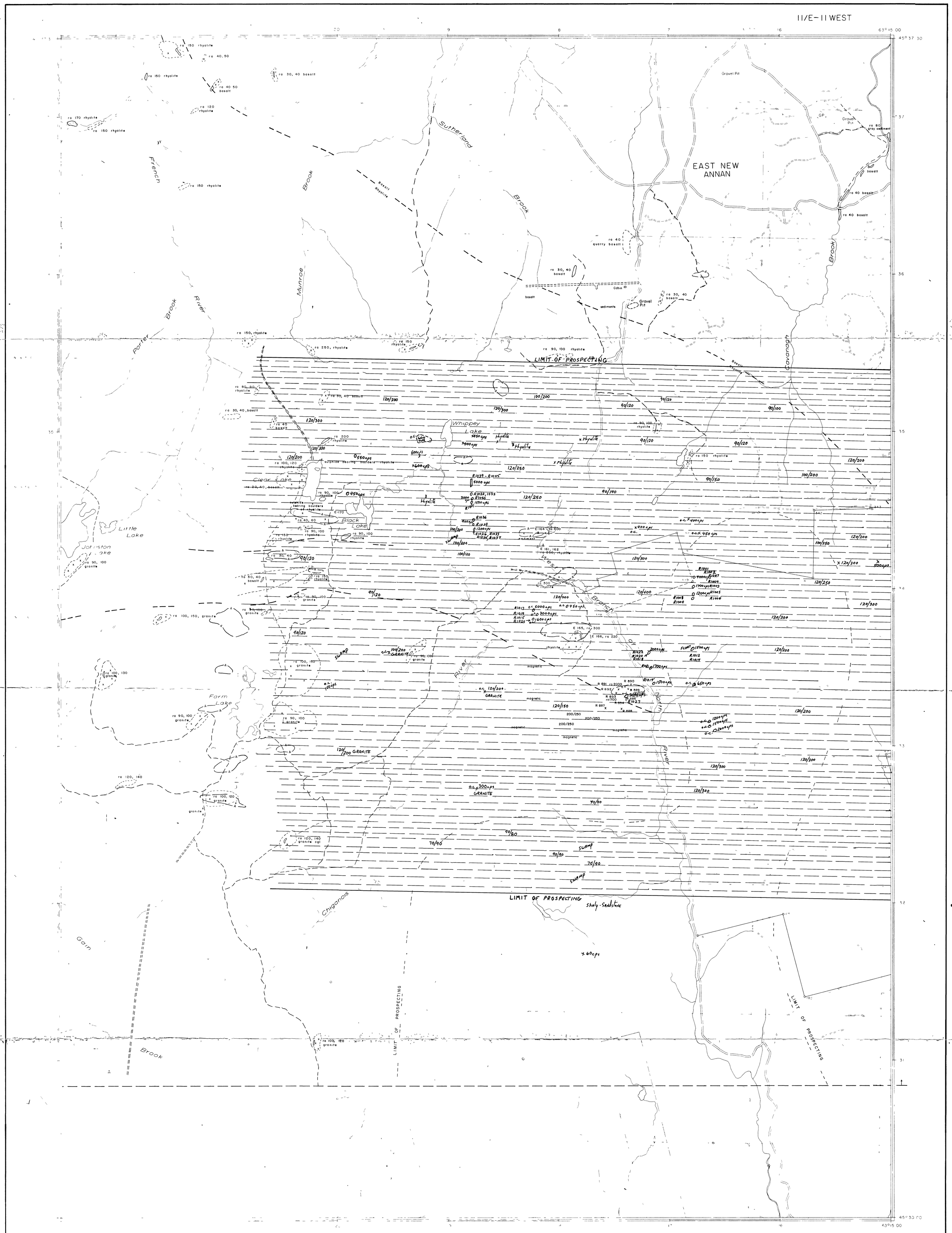
WHOLE ROCK LOCATIONS

NOVA SCOTIA

434106

DATE:	SCALE:	DRAWN BY:	PLATE: E 26fr
DECEMBER 80	1 IN. = 1/4 MI.	P.J.C.	NTS. 11E/11 PT.

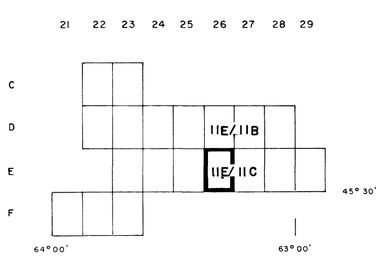
To accompany "Cobequid IV Report" DEC. 80.



AR 80-010

LEGEND

- Major traverse
- Boulder, area of boulders
- Outcrop, area of outcrop
- Fault zone
- 80/60 ra 50 — Radioactivity (ra) in counts per second - high/background, spot reading
- Airborne anomaly



KEY

Gulf Minerals Canada Limited

COBEQUID PROJECT

PROSPECTING

434106

NOVA SCOTIA

DATE.	SCALE	DRAWN BY.	PLATE E-26gb
OCTOBER 1980	1 IN = 1/4 MI.	P.J.C.	NTS. 11E/11 PT

To accompany "Cobequid IV Report" DEC. 80.

AR 80-010

3of3

COBEQUID PROJECT
URANIUM ASSESSMENT REPORT
COBEQUID IV
NOVA SCOTIA
- 1980 -

434106

NTS: PART OF 11E/11A, 11B, 11C
DIAMOND DRILLING, GAMMA LOGS, TOTAL COUNT

Appendix C Part 3of3

Gulf

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COBEQUID PROJECT
URANIUM ASSESSMENT REPORT
COBEQUID IV
NOVA SCOTIA
- 1980 -

434106

NTS: PART OF 11E/11A, 11B, 11C
DIAMOND DRILLING, GAMMA LOGS, TOTAL COUNT

Appendix C Part 3 of 3

APPENDIX C

DOWN HOLE LOGS

AR 80-010

Gulf Minerals Canada Limited

434106

HOLE NO. DR-1	Total Depth 148 m NW ___ m NQ ___ m		
PROJECT Cobequid	Dip - 45° NW ___ m NQ ___ m	Coordinates	59+06S
PROVINCE Nova Scotia	Bearing 180° BW ___ m BQ ___ m		11+70OE
	Elevation ___ m Dual Tube		

GAMMA LOG (Total Count)

Date Dy / / Mo. 09 Yr. 80
Logged depth 148 m
Logging speed 3.5 m/min
Time constant 1 sec.
Detector type size 1"x4"
Detector model ser.
P.M.T. model 9524 D ser. 171685
Probe model 9155-02 ser. 2536
Track 1 R.M.M. 207 ser. 125
Track 2 R.M.M. 207 ser. 126
Line termination 50 ohms
Run number 1 Divider 1

NEUTRON LOG

Date Dy Mo. Yr.
Logged depth m
Logging speed m/min
Time constant sec.
Detector type size
Detector model ser.
Source type strength
Detector-Source spacing cm
Probe model ser.
Track 3 R.M.M. ser.
Line termination ohms
Run number Divider

ELECTRIC LOG

Date Dy Mo Yr.
Logged depth m
Logging speed m/min
E.L.M. ser.
Converter model ser.
Probe size (dia.)
Normal spacings
Res. between grounds ohms
Fluid type in hole

Gamma Factors

Track 1 (Gross) Dead time 1/1 $\times 10^{-6}$ sec. K factor 0.84 $\times 10^{-2}$
Sleeve no Source no.
Sleeve no Source no.

Track 2 (Litho.) Dead time $\times 10^{-6}$ sec. K factor $\times 10^{-2}$
Initial N_3 cps. Final N_3 cps.
Initial N_2 cps. Final N_2 cps.
Initial BG cps. Final BG cps.

Logged by R.T. Horan Track no. 4 O reference on probe is meters casing collar Logging time hrs.

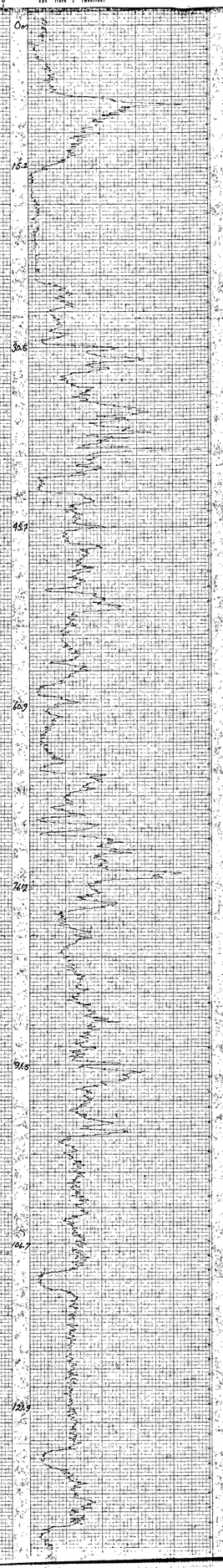
THIS IS A DIGITAL REPLAY

GAMMA LOG

0 2K cps Track 1 (Gross)
0 cps Track 2 (Litho.)

GAMMA AND NEUTRON LOG

0 200 cps Track 2 (Litho.)
0 cps Track 2 (Neutron)



AR 80-010 Gulf Minerals Canada Limited 434106

HOLE NO.	DR-2	Total Depth	155.0 m	HW	m	HQ	m
PROJECT	COBEQUID	Dip	- 45°	NW	m	NQ	m
PROVINCE	NOVA SCOTIA	Bearing	180°	BW	m	BQ	m
		Elevation	m	Dual Tube	m	Coordinates	56+50S 112+00E

GAMMA LOG (Total Count)		NEUTRON LOG		ELECTRIC LOG	
Date	Dy. 16 Mo. 09 Yr. 80	Date	Dy. Mo. Yr.	Date	Dy. Mo. Yr.
Logged depth	154 m	Logged depth	m	Logged depth	m
Logging speed	3.5 m/min	Logging speed	m/min.	Logging speed	m/min.
Time constant	1 sec.	Time constant	sec.	E.L.M	ser.
Detector type	size 1"x4"	Detector type	size	Convertor model	ser.
Detector model	ser	Detector model	ser.	Probe size (dia)	
P.M.T. model 9524D	ser 171685	Source type	strength	Normal spacings	
Probe model 9255-02	ser 253E	Detector - Source spacing	cm	Res between grounds	ohms
Track 1 R.M.M. 207	ser 125	Probe model	ser.	Fluid type in hole	
Track 2 R.M.M. 207	ser. 126	Track 3 RMM	ser.		
Line termination	50 ohms	Line termination	ohms		
Run number 1	Divider 1	Run number	Divider		

Gamma Factors	Track 1 (Gross)	Dead time 1.1 ×10⁻⁶ sec. K factor 0.84 ×10⁷	Track 2 (Litho.)	Dead time ×10⁻⁶ sec K factor ×10⁷
	Sleeve no	Source no	Initial N3₁ cps.	Final N3₁ c.p.s.
	Sleeve no	Source no	Initial N3₂ cps.	Final N3₂ c.p.s.
			Initial BG c.p.s.	Final BG c.p.s.

Logged by K.T. HORAN Truck no. 4 0 reference on probe is meters casing collar Logging time hrs

THIS IS A DIGITAL REPLAY

GAMMA LOG
0 2K cps Track 1 (Gross)
0 cps Track 2 (Litho)

GAMMA AND NEUTRON LOG
0 200 cps Track 2 (Litho)
0 cps Track 2 (Neutron)

AR 80-010 **Gulf Minerals Canada Limited** 434106

HOLE NO.	DR-3	Total Depth	151.0 m HW	m HQ	m
PROJECT	COBEQUID	Dip	-45° NW	m NQ	m
		Bearing	150° BW	m BQ	m
PROVINCE	NOVA SCOTIA	Elevation	m Datum Tube	m	m

Coordinates: 6047908 / 1117855

GAMMA LOG (Total Count)

Date	Dy 19 Mo 09 Yr 80
Logged depth	150
Logging speed	3.5 m/min
Time constant	sec
Detector type	size 1"x4"
Detector model	ser
PMT model 9634B	ser 131695
Probe model 9255-02	ser 2935
Track 1 RMM 207	ser 125
Track 2 RMM 207	ser 126
Line termination	50 ohms
Run number 1	Divider 1

NEUTRON LOG

Date	Dy Mo Yr
Logged depth	m
Logging speed	m/min
Time constant	sec
Detector type	size
Detector model	ser
Source type	strength
Detector - Source spacing	cm
Probe model	ser
Track 3 RMM	ser
Line termination	ohms
Run number	Divider

ELECTRIC LOG

Date	Dy Mo Yr
Logged depth	m
Logging speed	m/min
E.L.M.	ser
Converter model	ser
Probe size (dia)	
Normal spacings	
Res. between grounds	ohms
Fluid type in hole	

Gamma Factors

Track 1 (Gross): Sleeve no ____ Sleeve no ____

Dead time 1.1 $\times 10^{-6}$ sec. K factor 0.84 $\times 10^{-7}$ Source no ____ Source no ____

Track 2 (Lithe): Initial N_3 ____ cps. Initial N_3 ____ cps. Initial BG ____ cps.

Dead time ____ $\times 10^{-6}$ sec. K factor ____ $\times 10^{-7}$ Final N_3 ____ cps. Final N_3 ____ cps. Final BG ____ cps.

Logged by K.T. HORAN Track no 4 0 reference on probe is ____ meters ____ casing collar Logging time ____ hrs

THIS IS A DIGITAL REPLAY

GAMMA LOG

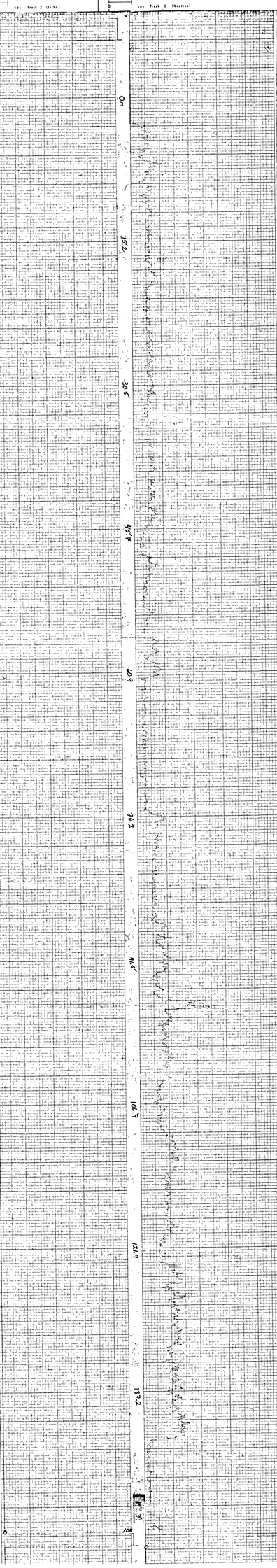
2K cps Track 1 (Gross)

0 cps Track 2 (Lithe)

GAMMA AND NEUTRON LOG

200 cps Track 2 (Lithe)

0 cps Track 2 (Neutron)



AR 80-010 **Gulf Minerals Canada Limited** 434106

HOLE NO.	DR-4	Total Depth	140.2 m HW	m HQ	m
PROJECT	COBEQUID	Dip	-45° NW	m NQ	m
PROVINCE	NOVA SCOTIA	Bearing	170° BW	m BQ	m
		Elevation	m Dual Tube		m

Coordinates: 43+45S / 11+70E

GAMMA LOG (Total Count)

Date	Dy. 23 Mo. 07 Yr. 80		
Logged depth	140.2		
Logging speed	3.5	m/min	
Time constant	1	sec	
Detector type		size	1"x4"
Detector model		ser	
P.M.T. model	9524D	ser	131685
Probe model	9235-02	ser	253E
Track 1 RMM	207	ser	125
Track 2 RMM	207	ser	126
Line termination			50 ohms
Run number	/	Divider	/

NEUTRON LOG

Date	Dy.	Mo.	Yr.
Logged depth			m
Logging speed			m/min
Time constant			sec
Detector type		size	
Detector model		ser	
Source type		strength	
Detector - Source spacing			cm
Probe model		ser	
Track 3 RMM		ser.	
Line termination			ohms
Run number		Divider	

ELECTRIC LOG

Date	Dy.	Mo.	Yr.
Logged depth			m
Logging speed			m/min
ELM		ser	
Convertor model		ser	
Probe size (dia)			
Normal spacings			
Res between grounds			ohms
Fluid type in hole			

Gamma Factors

Track 1 (Gross)	Dead time 1.1 $\times 10^{-6}$ sec	Track 2 (Litho)	Dead time $\times 10^{-6}$ sec
	K factor 0.84 $\times 10^{-2}$		K factor $\times 10^{-2}$
Sleeve no	Source no	Initial N_3 cps	Final N_3 cps
Sleeve no	Source no	Initial N_3 cps	Final N_3 cps
		Initial BG cps	Final BG cps

Logged by K.T. HORAN Truck no 4 0 reference on probe is meters casing collar Logging time hrs

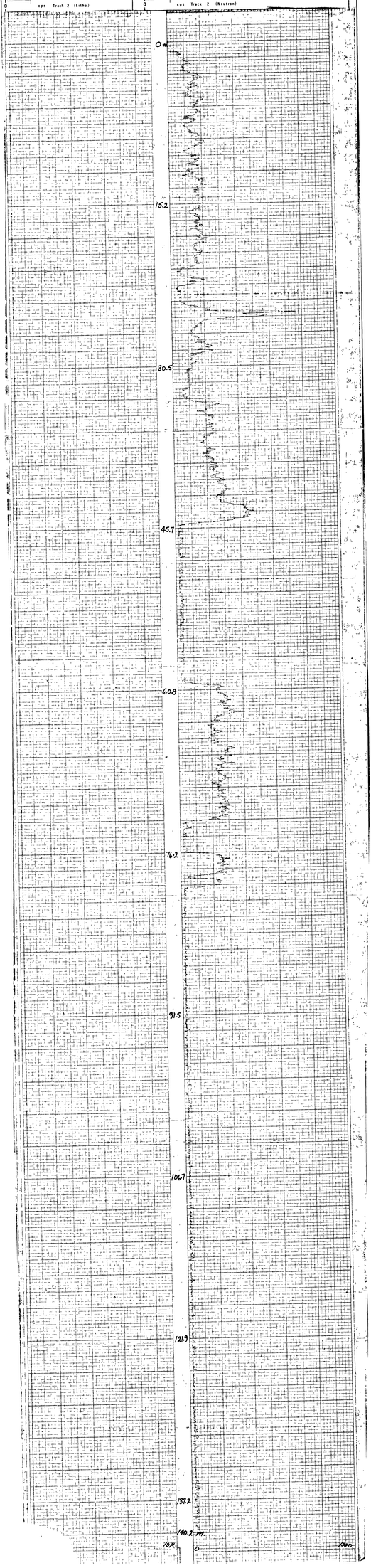
THIS IS A DIGITAL REPLAY

GAMMA LOG

0 2000 cps Track 1 (Gross)
0 cps Track 2 (Litho)

GAMMA AND NEUTRON LOG

0 200 cps Track 2 (Litho)
0 cps Track 2 (Neutron)



AR 80-010 Gulf Minerals Canada Limited 484106

HOLE NO.	DR-5	Total Depth	1640 m RW	m NQ m	Coordinates
PROJECT	CODEGUID	Dip	45° NW	m BQ m	53+25S
PROVINCE	NOVA SCOTIA	Bearing	180° BW	m BQ 1640 m	111+75E
		Elevation	m Dual Tube	m	

GAMMA LOG (Total Count)

Date	Dy 01 Mo 09 Yr 80
Logged depth	163.1 m
Logging speed	3.5 m/min
Time constant	sec
Detector type	size 1"x4"
Detector model	ser.
PNL model	9224D ser. 191635
Probe model	9255-02 ser. 2536
Track 1 BMM	209 ser. 125
Track 2 BMM	207 ser. 126
Line termination	50 ohms
Run number	1 Divider 1

NEUTRON LOG

Date	Dy Mo Yr
Logged depth	m
Logging speed	m/min
Time constant	sec
Detector type	size
Detector model	ser.
Source type	strength
Detector - Source spacing	cm
Probe model	ser.
Track 3 BMM	ser.
Line termination	ohms
Run number	Divider

ELECTRIC LOG

Date	Dy Mo Yr
Logged depth	m
Logging speed	m/min
S.P.	ser.
Concentrat. model	ser.
Probe size (dia)	
Normal spacings	
Res. between grounds	ohms
Fluid type in hole	

Gamma Factors

Track 1 (Gross): Dead time 0.1 $\times 10^{-6}$ sec; K factor 0.4 $\times 10^{-6}$; Sleeve no; Source no

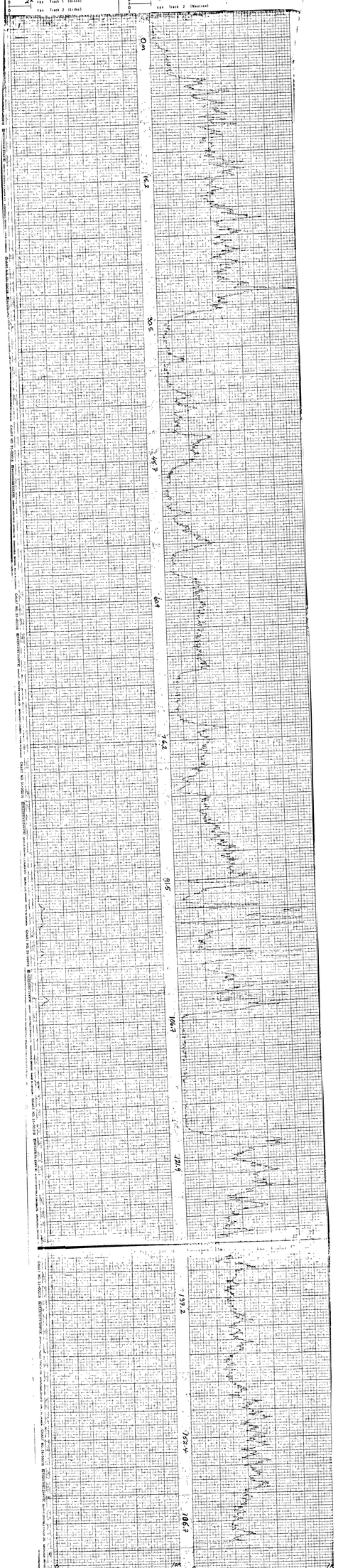
Track 2 (Lithe): Dead time $\times 10^{-6}$ sec; K factor $\times 10^{-6}$; Initial W3, cps; Initial W5, cps; Initial BG cps; Final W3, cps; Final W5, cps; Final BG cps

Logged by R.T. HORAN Truck no 4 0 reference on probe is meters casing collar Logging time hrs

This is a digital replay

GAMMA LOG

0 2K cps Track 1 (Gross)
0 cps Track 2 (Lithe)
0

GAMMA AND NEUTRON LOG

0 200 cps Track 2 (Lithe)
0 cps Track 3 (Neutron)
0