GROUP 1

#72221
LCP WEST
5N 3E
#3 NOT PLACED
30 MAY '82

25 m. N. OF N. EDGE OF RICHARDS TRAIL
24 m. W. OF W. EDGE OF ACCESS ROAD LEADING S. FROM RICHARDS TRAIL.

12:01 PM
5 AM

K. BILQUIST.

#93002
LCP WEST 1 5N 3E
L. ALLEN.
START 11AM
END 12:25pm
21 JAN 84

LCP WEST 5 #54081
4S 3E START MAY 8/84 9:15 AM
END MAY 17/84 10 AM.

LCP WEST 6 #54096
4S 2W START MAY 8/84 3 PM
END MAY 17/84 11:30 AM.

LCP WEST 7 #54097
3N 2W START MAY 8/84 3:25 PM
END MAY 17/84 3:30 PM.

GROUP 2.

LCP WEST 1 # 15351

L. ALLEN.

5N 3W START 10AM 28SEPT 83

END 6PM "

17m N OF N EDGE OF RICHARDS TRAIL

22m W OF W EDGE OF ACCESS ROAD LEADING S. FROM RICHARDS TRAIL.

SUMMARY REPORT

WEST CLAIMS PN 094

NTS 92B/13E LATITUDE 48° 51' LONGITUDE 123° 40'

VICTORIA M.D.

SHELLEY LEAR
MARCH 21, 1985

REPORT #

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

INTRODUCTION

This report summarizes the results of the 1984 field programme at the West property, on Vancouver Island, near the town of Crofton (Figure 1).

The field crew consisted of three people: S. Lear, M. Hiltz and P. Friele. Soil sampling, V.L.F. and magnetometer surveys were conducted by P. Friele. S. Lear and M. Hiltz were responsible for geological mapping, lithogeochemical sampling, drill core logging and sampling. A local geology student, J. Walker, was hired on a part-time basis to assist with drafting of sample results and some fieldwork.

A cut grid of 40.8 km was established by Van Alphen Geological Services. This provided the basis for initial exploration work, with later extensions to the south, west and east.

Questor Ltd. conducted an airborne EM survey in early June. A ground EM survey on the cut-grid was performed by Lamontagne Geophysics Ltd covering 29.5 line-kilometers.

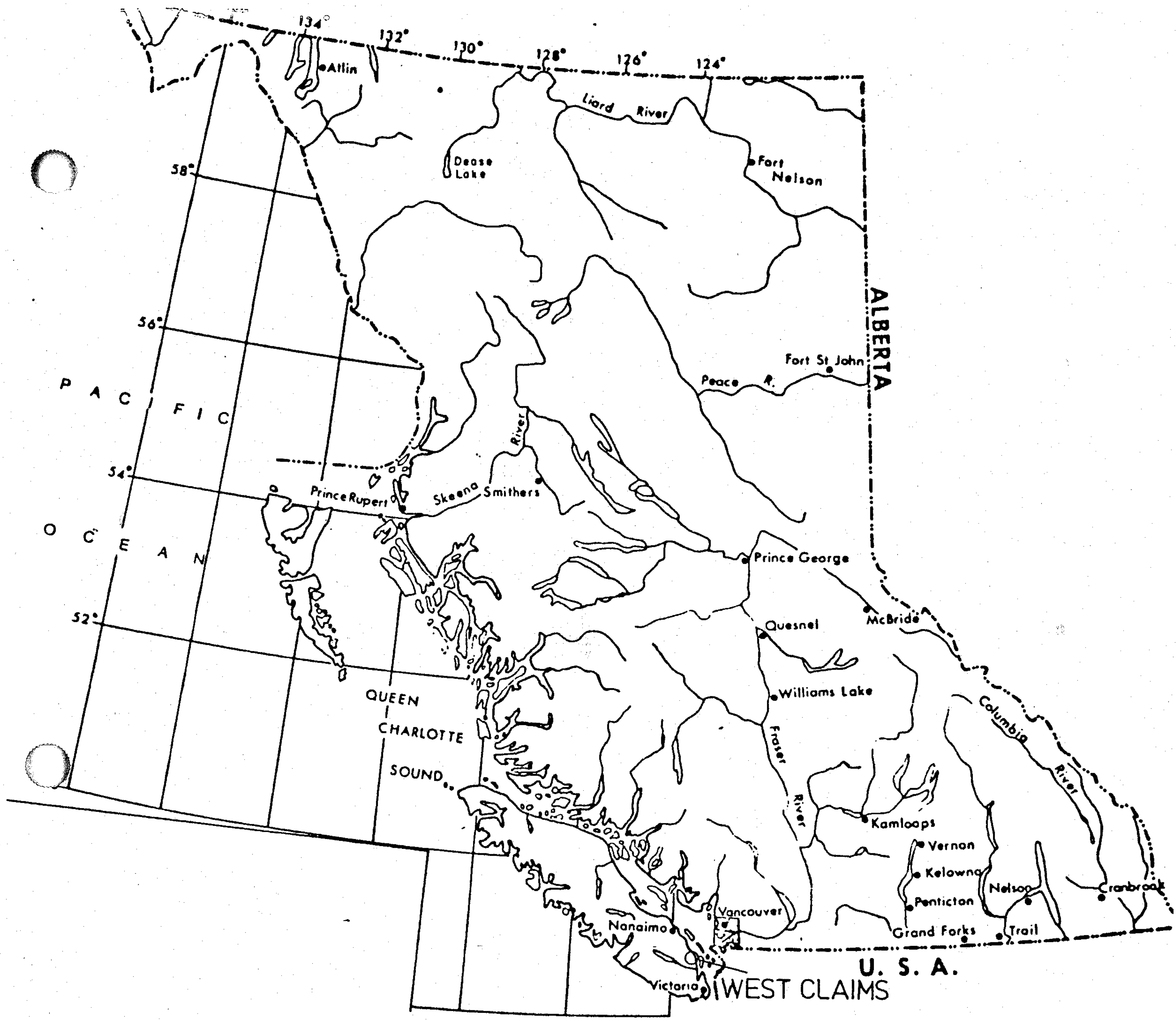
On the basis of geophysical, geochemical and geological data, eight drill holes were completed. Drilling was done by Longyear Canada using a LY-38 drill. A total of 1128.3m were drilled. Results from the drill programme were disappointing with low Cu values over small intervals. No significant Au values were encountered.

The field programme commenced on June 6, and was completed on September 20, 1984.

PROPERTY AND CLAIM STATUS

The west property consists of nine modified grid-located claims and two 2-post claims totalling 18.42 km2 (see Figure 2). Four of the claims, West 1 through 4 are under option from R. Bilquist and L. Allen. The remaining claims were staked by Falconbridge Limited during the 1984 field season. A table summarizing claim information follows:

NAME	RECORD #	UNITS	EXPIRY DATE
West 1	1163	15	Feb 13/1985
West 2	802	15	Mar 14/1985
West 3 (2-Post)	803	1500 X 1500 ft (.209 Km2)	Mar 14/1985
West 4 (2-Post)	804	1500 X 1500 ft (.209 Km2)	Mar 14/1985
West 5	1232	12	May 22/1985
West 6	1233	8	May 22/1985
West 7	1234	6	May 22/1985
West 8	1235	4	May 22/1985
West 9	1330	2	Jul 17/1985
West 10	1346	6	Aug 8/1985
West 11	1347	4	Aug 8/1985



INDEX MAP

BRITISH COLUMBIA

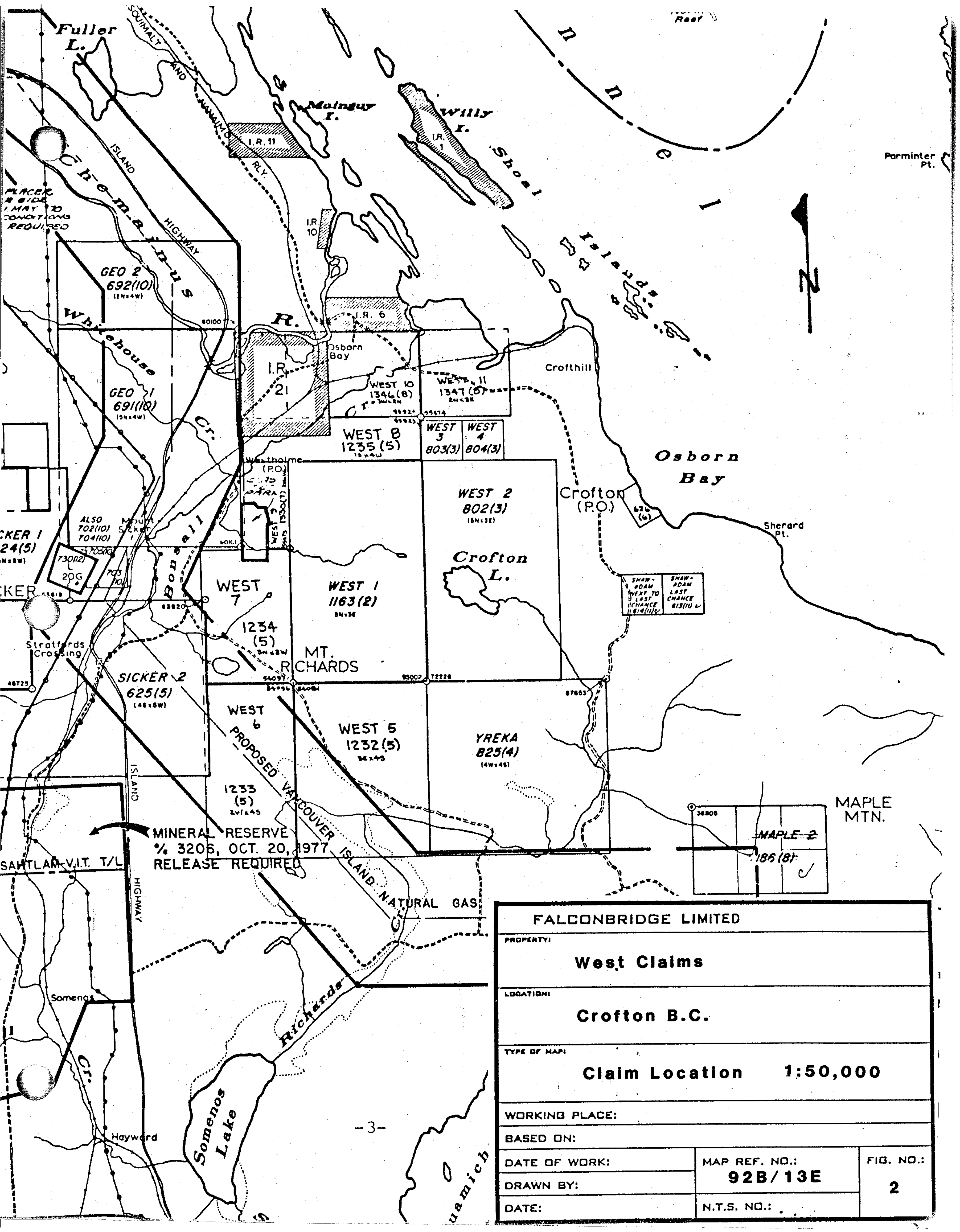
150 0 150 300 450 Km.

SCALE I: 7·500,000

fig 1

West Claims

location map


Fuller L.
ESQUIMALT AND NANAIMO RLY.
ISLAND HIGHWAY
Chemainus R.
Whitehouse
Mainguy I.
Willy I.
I.R. 11
I.R. 1
I.R. 10
I.R. 6
I.R. 21
Shoal Islands
Parminter Pt.
N
GEO 2 692(10)
GEO 1 691(10)
Osborn Bay
WEST 10 1346(8)
WEST 11 1347(8)
Crofthill
WEST 8 1235(5)
WEST 3 803(3)
WEST 4 804(3)
Westholme (P.O.)
Osborn Bay
Crofton (P.O.)
WEST 2 802(3)
Sherard Pt.
Crofton L.
ALSO 702(10) 704(10)
Mount Sicker
730(12)
20G
703(10)
Bonsall Cr.
WEST 7 1234 (5)
WEST 1 1163(2)
MT. RICHARDS
SHAW-ADAM NEXT TO LAST CHANCE 614(11)
SHAW-ADAM LAST CHANCE 613(11)
Stratfords Crossing
SICKER 2 625(5)
WEST 6 1233 (5)
WEST 5 1232(5)
YREKA 825(4)
PROPOSED VANCOUVER ISLAND NATURAL GAS
MAPLE MTN.
MAPLE 2 186(8)
MINERAL RESERVE
% 3206, OCT. 20, 1977
RELEASE REQUIRED
SAHTLAM-V.I.T. T/L
ISLAND HIGHWAY
Somenos
Richards Cr.
Somenos Lake
Hayward
FALCONBRIDGE LIMITED
PROPERTY:
West Claims
LOCATION:
Crofton B.C.
TYPE OF MAP:
Claim Location 1:50,000
WORKING PLACE:
BASED ON:
DATE OF WORK:
DRAWN BY:
DATE:
MAP REF. NO.:
92B/13E
N.T.S. NO.:
FIG. NO.:
2

PAST EXPLORATION AND HISTORY

Known past producing sulphide deposits occur on Mt. Sicker 3 km west of the property. Host rocks are Myra Formation volcanics of the Sicker Group. These deposits, known as The Lenora, Tyee and Richards II zones formed the old Twin "J" mine, which was mined primarily for copper from 1898-1909 and intermittently until 1964. A total of 300,000 tons were mined grading 3.46% Cu, 0.12 oz/t Au and 2.6 oz/t Ag. Zinc and lead production records are incomplete but Carson (1969) gives typical grades for the Twin "J" north zone as 6.3% Zn, 1.3% Cu, 0.6% Pb, .08 oz/t Au, and 2.9 oz/t Ag.

The West property contains numerous pits, trenches, shafts and adits dating from the turn of the century. Many of these showings were originally discovered during construction of a railroad line from the Lenora Mine on Mt. Sicker to Crofton. These workings are mentioned in cursory fashion in old reports, if at all.

More recent exploration activity has been gleaned from assessment reports as follows:

1969: Can Pac Minerals carried out geological mapping and magnetometer surveys over most of the claim area as part of an evaluation of the mineral potential of the E & N Railway Land Grant.

1978-79: S.E.R.E.M. conducted detailed mapping and geological sampling over portions of the present property. The geochemical soil sampling results show coincident copper and zinc anomalies and are open to the west. S.E.R.E.M closed their Western Canadian offices shortly afterwards, before any known follow-up work was conducted.

1982-83: The present claim group was staked and recorded.

REGIONAL GEOLOGY

The west property lies within Paleozoic Sicker Group of the Cowichan-Horne Lake uplift (Figures 3,4). The Sicker Group has been divided into four units, which are, from youngest to oldest (Muller, 1980):

Buttle Lake Formation: Limestone with calcareous siltstone; some diabase sills.

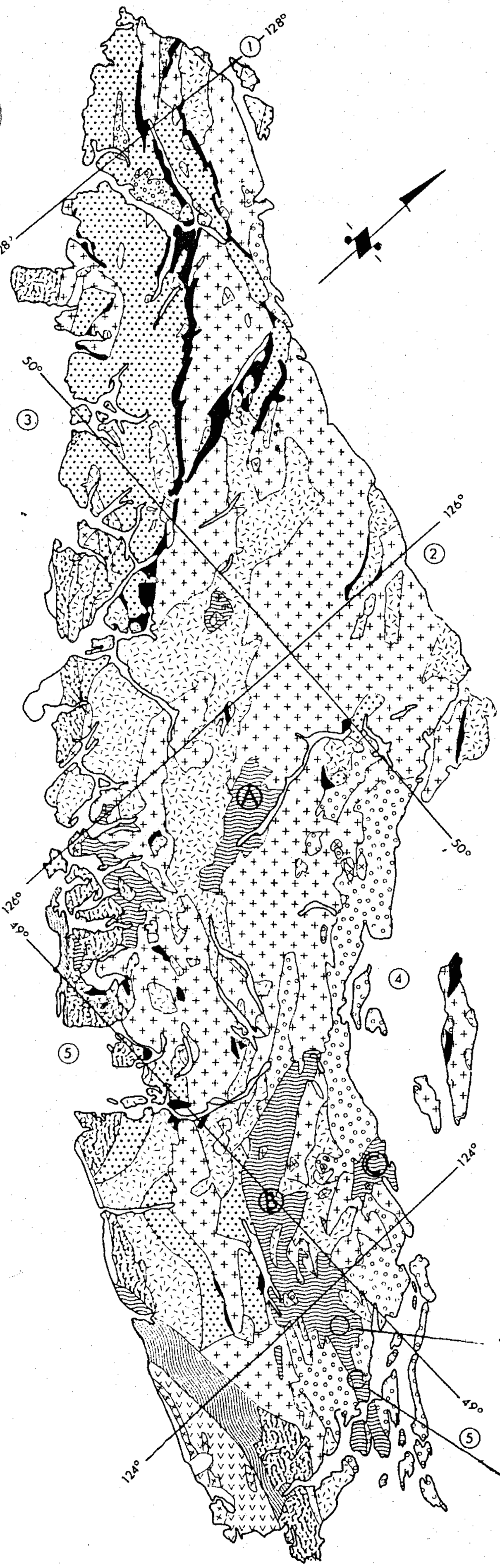
Sediment-Sill Unit: Transitional unit between Myra and Buttle Lake formations. Argillite, siltstone and chert with interlayered sill of diabase.

Myra Formation: Basic to rhyodacitic tuff, breccia and lava; argillite, siltstone, chert.

Nitinat Formation: Metabasaltic lavas, pillowed or agglomerate, commonly with large conspicuous uralitized pyroxene phenocrysts; minor massive to banded tuff.

fig. 3

Geological sketch map of Vancouver Island.



LEGEND

	CARMANAH GROUP	MIDDLE TERTIARY
	CATFACE INTRUSIONS	EARLY TO MIDDLE TERTIARY
	METCHOSIN VOLCANICS	EARLY TERTIARY
	NANAIMO GROUP	LATE CRETACEOUS
	QUEEN CHARLOTTE GROUP KYUQUOT GROUP	LATE JURASSIC TO EARLY CRETACEOUS
	LEECH RIVER FORMATION PACIFIC RIM COMPLEX	
	ISLAND INTRUSIONS	EARLY AND (?) MIDDLE JURASSIC
	BONANZA GROUP	EARLY JURASSIC
	VANCOUVER GROUP	LATE AND (?) MIDDLE TRIASSIC
	PARSON BAY FORMATION QUATSINO FORMATION	
	KARMUTSEN FORMATION	
	SICKER GROUP	PALEOZOIC
	METAMORPHIC COMPLEXES	JURASSIC AND OLDER

① ALERT BAY – CAPE SCOTT, 92 L – 102 I (G.S.C. PAPER 74–8)

② BUTE INLET, 92 K (IN PREPARATION), O.P. MAP 345

③ NOOTKA SOUND, 92 E (IN PREPARATION)

④ ALBERNI 92 F (G.S.C. PAPER 68–50)

⑤ VICTORIA, 92 B, C (FIELD WORK IN PROGRESS: SEE G.S.C. PAPERS 75–1A, p. 21–26 : 76–1A, p. 107–111, 77–1A, p. 287–294.)

TWIN "J"

A — BUTTLE LAKE UPLIFT

B — COWICHAN – HORNE LAKE UPLIFT

C — NANOOSE UPLIFT

WEST CLAIMS

MILES

0 20 40

Sicker Group rocks in the property area have been strongly deformed. They are composed largely of isoclinally folded rocks. Axial plane folations have vertical, northeast and southwest dips.

PROPERTY GEOLOGY

The property is underlain by Paleozoic volcanics and sediments of the Sicker Group which are unconformably overlapped by Cretaceous sediments of the Nanaimo Group on the north and east claim margins. Intrusive sill-like bodies of gabbro-diorite or shonkinite (Eastwood, 1978) are found throughout the sequence. These may represent comagmatic sub-volcanic sills and feeders. The Nitnat Formation is described as having related gabbro and diorite intrusions.

Units 1 to 3

These are intermediate volcanic rocks presumably of the Nitinat Formation (Muller, 1979). They have been divided into three units, based on field observations and thin-section studies by Vancouver Petrographics. All three units have been metamorphosed in a shear environment with recrystallization of groundmass producing a foliated texture (Vancouver Petrographics, 1984).

Unit 1: Fine grained, medium to dark green volcanics. No obvious epidote in hand-specimen. Slightly foliated. Minor chloritic and silicic alteration. Identified as a latite tuff from thin-section work.

Unit 2: F.g. medium to dark green volcanics with nodules of epidote and quartz. Nodules are round to oval shaped varying from 0.5 cm to 8 cm long; mode is 1cm. Pyrite often occurs within epidote nodules. Nodules are frequently elongated and aligned parallel to major foliation direction. Subhedral phenocrysts of plagioclase 1 to 4 mm long comprise up to 20% of rock. Often moderately silicified. Porphyritic latite flow with quartz-epidote lenses.

Unit 3: Phenocrysts of hornblende and plagioclase in a fine-grained groundmass. Hornblende crystals are subhedral to euhedral, 1mm to 1 cm long (mode is 3 to 5 mm) and stand out on weathered surface. Hornblende comprises up to 20% of rock. Plagioclase phenocrysts are subhedral, 1 to 3mm long. Epidote is found as spheroidal patches 1 to 4 mm long. This unit is most common in the southern part of the property. Andesite flow with porphyritic hornblende.

Units 4, 4a, 4b: These are Felsic volcanics which occur mainly in the northern part of the property. They are highly foliated, usually at 105-120 degrees, with a vertical or near-vertical dip. Sericite alteration is common. Unit 4 has been observed as a 3m wide vein with quartz-chlorite selvages intruding andesite volcanics. These units are thought to be younger than the intermediate volcanics, possibly part of the Myra Formation (Muller, 1974). Pyrite and lesser amounts of chal-

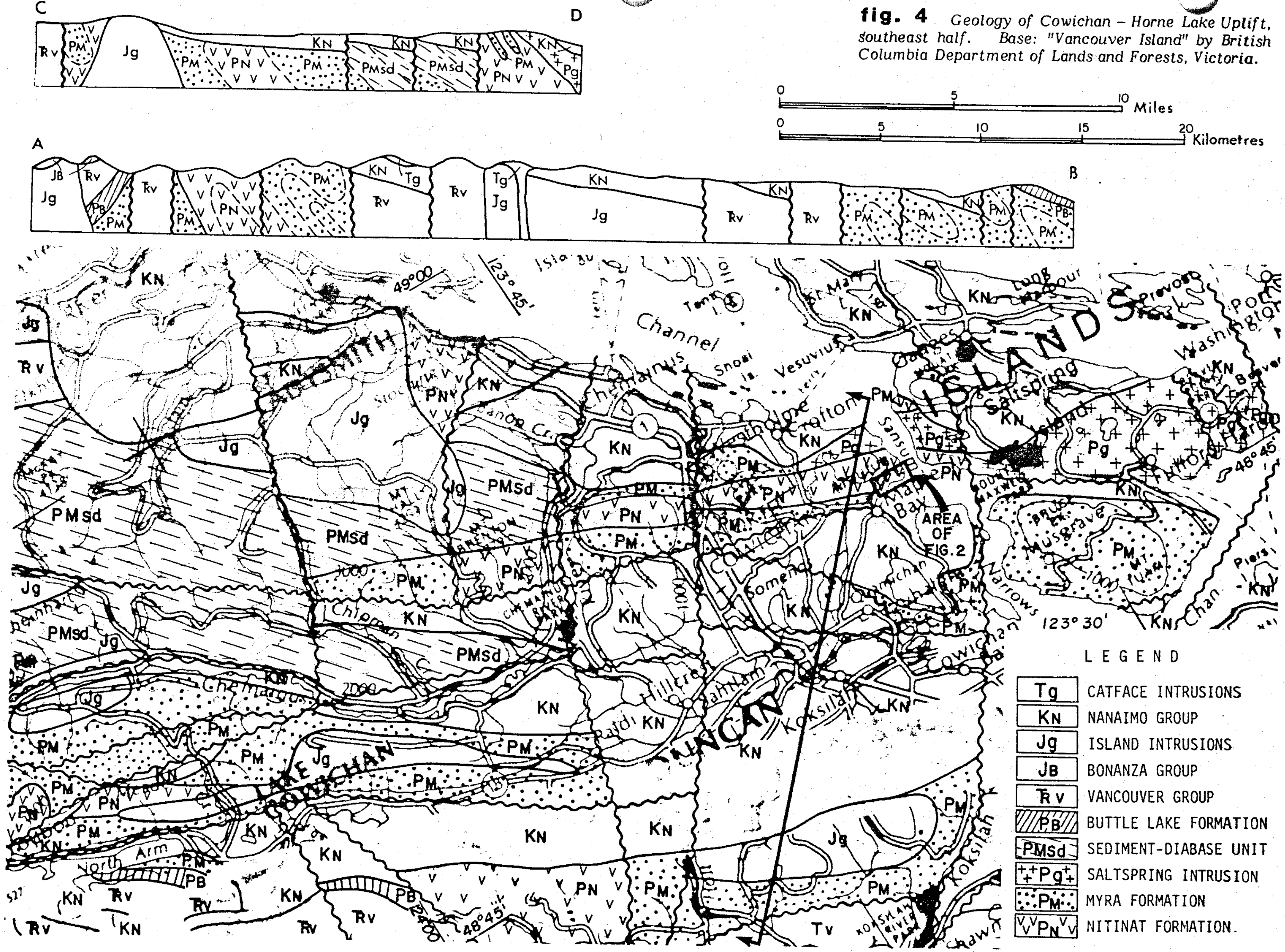


fig. 4 *Geology of Cowichan – Horne Lake Uplift, southeast half. Base: "Vancouver Island" by British Columbia Department of Lands and Forests, Victoria.*

copyrite and sphalerite occur within these units, often concentrated at the contact with the intrusive (Unit 5). Most of the old shafts and adits on the property are found on this contact. These units have been identified as rhyodacite flows in thin section study. Tuffs are also thought to occur in the sequence.

<u>Unit 4</u>: Quartz-feldspar porphyry: Ellipsoidal phenocrysts of dull grey quartz, 1mm to 1 cm long in a f.g. medium green groundmass. Subhedral phenocrysts of plagioclase, 1 to 3 mm long. Weathered surface is usually white, with obvious quartz phenocrysts aligned parallel to foliations. Sericite is common on foliation surfaces.

<u>Unit 4a</u>: Aphanitic, light brown to grey cherty tuff with occasional quartz and feldspar phenocrysts. Contains disseminated Py, locally up to 10%.

<u>Unit 4b</u>: Quartz-sericite schist. Highly foliated unit often in close proximity to unit 4. Occasional quartz phenocrysts are observed. These are likely more abundant, but are obscured by intense foliation. Plagioclase grains comprise 50 to 70% of groundmass as observed in thin section analysis. Plagioclase also occurs as subhedral to anhedral phenocrysts, 0.1 - 0.5 mm long but these are not observed in hand specimen.

<u>Unit 5</u>: Large outcrops of intrusive occur in three bands along hilltops in the northern portion of the property. Outcrops south of Breen Lake form smaller bodies within Nitinat (?) volcanics. The intrusive forms sill-like bodies sub-parallel to the pervasive foliation direction observed in Units 1 to 4. The intrusive is generally non-foliated, but is finer-grained and closely fractured near the margins.

The intrusive has been identified as a hornblende ± quartz diorite (Vancouver Petrographics) or a hornblende shonkinite (Eastwood). Medium to coarse grained prismatic hornblende and plagioclase crystals occur in a finer-grained dark grey-green groundmass. Magnetic ilmenite is a common accessory mineral in f.g. patches up to 1 mm wide comprising 10% of rock in places. Trace amounts of chalcopyrite and minor bornite occur associated with epidote patches.

Two quarries have been developed in the diorite intrusive. Material from the quarries has been used for fill at the Crofton lake dam and the Crofton millsite.

<u>Unit 6</u>:

Semi-massive sulphides: High concentrations of Pyrite + chalcopyrite and sphalerite occur mainly in dumps of old workings. Small sections of semi-massive magnetite were observed in drill core (DDH 1 and 2).

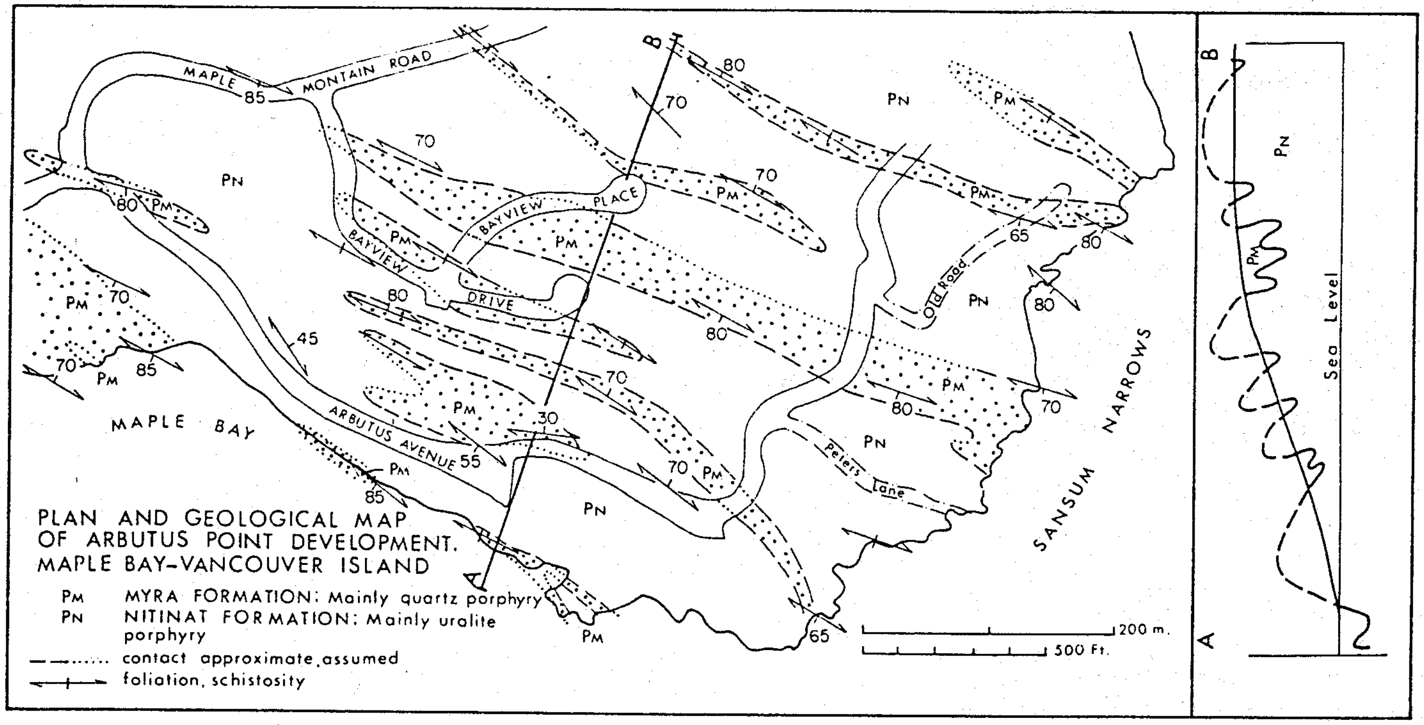


Fig. 4a - Detailed geological mapping of Arbutus Point, Maple Bay, showing folding in Myra and Nitinat Formations. (Muller, 1979)

Unit 7:

A few outcrops of dark grey argillite were observed in the northern portion of the property. Slaty cleavage with micaceous sheen on cleavage planes.

Structure

Foliation is well developed within the volcanic units. Strike of the foliation is fairly consistent, varying from 105-120 degrees. Dips are near vertical to steeply SW and NE. Contacts of the intrusive diorite and volcanic units generally parallel the foliation direction. Mapping by Muller (1979) at nearby Maple Bay (Figure 4a), suggests that rhyodacite flows of the Myra Formation form tight, near-vertical synclines within anticlines of uralite porphyry (Nitinat Formation). A series of isoclinal folds would explain the parallel bands of hornblende diorite observed in the northern section of the property.

Secondary folding and warping of foliation-cleavages can be observed in places. This suggests a second phase of deformation. Examination of the VLF Fraser Filter data (Figure 19) also shows a NW-SE trending structure disrupting the regional 110-120 degree strike of major lithological units.

Mineralization

Pyrite, chalcopyrite and sphalerite occur in shear zones at the contact between hornblende diorite and rhyodacite flows. Lesser amounts of pyrite (<10%) occur as disseminations in the rhyodacitic volcanics and in the Latite flows and tuffs. The hornblende diorite contains up to 10% ilmenite and trace amounts of chalcopyrite. Exposures of intrusive rock in the quarry (lines 17 and 18, 1+00 S) are especially well mineralized. Trace chalcocite and malachite were found in a quartz vein occupying a small shear zone within the intrusive.

Several old adits and shafts dating from the early 1900's were developed along well-mineralized shears or quartz veins. A summary of assay results from these workings is shown in Table 1.

GEOCHEMICAL SOIL SURVEY

Sample Collection and Analysis

To facilite sampling, a 40.8 km grid was cut and chained by Van Alphen Geological Services. Lines were established at 100 metre intervals trending 015 degrees and 195 degrees from a 2 km baseline. Pickets were marked and placed at 50 metre intervals along the cut lines. An additional 17.5 line-kms to the south and east of the grid were flagged and chained by the Falconbridge crew. A total of 2060 samples were collected using a mattock for sampling. In most instances a good B-Horizon was obtained.

Samples were analyzed for Au, Ag, Cu, Zn, and Pb at CDN Labs in Delta. The minus 80 mesh fraction was analyzed using nitric acid digestion with atomic absorption finish for Ag, Cu, Zn Pb and fire

TABLE 1 SAMPLING OF OLD WORKINGS

Location	Description	Sample No.	Sample Description	g/t Au	g/t Ag	% Cu	% Zn
LN9+91E/ 0+10N	Vertical shaft. Approx. depth is 14m. Abundant sericite alteration	6858	Grab sample of dump. F.g., grey, highly silic. rock. Py: 10 - 15%, Cpy: tr.	L.05	2.0	.01	.01
	observed in wall rocks	6860	Grab sample. Py: 20 - 30%, Cpy: 2%	L.05	3.0	.02	.02
LN9+89E/ 0+28S	Inclined shaft. Slopes 45 - 50° at 210°. O/c near shaft of quartz-sericite schist.	6862	Grab sample of dump. Semi-massive py 30 - 40%, Cpy: 5% in chloritic gangue.	L.05	5.0	1.42	.02
LN10+17E/ 4+75S	Vertical shaft, 1.5m deep .1-2m wide quartz vein. Wall rock is sheared,	6863	Grab sample of dump. Qtz-sericite schist with calcite. Tr. Py.	L.05	.5	-	.01
	quartz-sericite schist with chlorite alteration. Py: 1%	6839	Chip sample across qtz vein 1.0m wide trending at 110°. No visible mineralization	L.05	1.0	-	-
LN5+00E/ 5+63S	Adit, "Lucky Strike". Extends 15.2m from portal at 123°. Winze at 14.9m 3.6m deep. Cross-cut at 13.8m from portal extends 8.5m at	6864	Chip sample across 20cm wide shear zone. Sphal: 5%, Py: 2% Cpy: tr. in quartz-sericite schist with chlorite alteration 9.4m from portal.	L.05	.5	.05	1.08
	037°. Adit developed along shear zone at contact of Hornblende Diorite and qtz-sericite schist.	31006	Grab sample of dump material.	.10	4.1	.54	16.1
LN5+16E/ 5+56S	Adit above "Lucky Strike". Trends at 110° for 9m, 4.8m of which is an open rock cut. Follows shear in qtz-sericite schist.	6865	Chip sample across shear zone; 50cm wide. Sphal: 10%, Magnetite: 20%, Cpy: 1%, Pyrrhotite: 1% in qtz-sericite schist.	L.05	1.0	.07	3.14
		31005	Grab sample of dump.	.10	1.7	.20	6.7
LN6+18E/ 1+07S	Inclined shaft; 30° at 110°. Approx. 2m deep. Developed	6835	Chip sample across 50cm wide qtz vein. 14m along strike from shaft.	L.05	2.0	-	-
	along 50cm wide qtz vein trending at 112 - 120°/ 40-60° SW. Exposed for 15m Only mineralized at shaft.	6840	Sample from dump. White qtz vein with chalcocite: 5%, tr. Malachite staining.	L.05	12.0	2.25	-

TABLE 1 (con't)

Location	Description	Sample No.	Sample Description	g/t Au	g/t Ag	% Cu	% Zn
LN4+80E/ 0+75S	Vertical shaft; approx. 6m deep. At contact between intrusive and qtz-sericite schist.	6869	Grab sample of dump. F.g., light grey highly silic. rock. Py: 20%	L.05	.5	-	-
LN2+13E/ 1+06S	Trench, 5m long at 013°. Shear zone at contact between intrusive and qtz-sericite schist.	6844	Chip sample across 2m wide shear zone. F.g. grey-green, highly silic. rock with Py: 5%.	L.05	6.0	L.01	-
LN12+37E/ 0+85S	Inclined shaft; $40-45^{\circ}$ at 207°. Approx. 3.5m deep.	6852	Grab sample of dump. F.g., light grey highly silic. rock. Py: 10-20% Cpy: tr.	L.05	L.5	.01	-
LN7+00E/ 10+72S	Adit; 115°. Trends 115° for 5.2m, 3.8m of which are open rock cut. Shear zone in silic. dark green volcanics.	6871	Chip sample across 1.2m wide shear at end of adit. Py: 2-3% in f.g. dark green silic. volcanics.	L.05	L.5	L.01	-
		6836	Sample from sheared, silic. volcanics on north wall of adit at beginning of open cut. Py: 5%	L.05	15.5	.03	-

assay with AA finish for Au. A suite of 38 samples were taken from one location to provide a standard check of analytical accuracy. Results from this check were satisfactory, with good precision maintained in all elements.

Geochemical Results (Figures 6-9)

Copper and Zinc soil anomalies are generally coincident, with copper anomalies being more tightly defined than zinc anomalies.

Strong, persistent copper anomalies occur on:

1. Lines 0 to 11E. 1+00S to 0+50N. Slightly north of mineralized quartz sericite schist at the contact with the intrusive unit.

2. Lines 5 to 9E; 6+00S to 8+50S coincident with a large outcrop of hornblende diorite.

3. Lines 4 to 7E; 10+00S to 13+00S. Steep forested slope, with sparse outcrops of silicified andesite.

4. High anomalies of 2,500 and 1600 ppm on lines 15E/8+25S and 16E/8+00S. Low area with no outcrop.

Strong Zinc anomalies are:

1. Lines 0 to 16E; 1+25S to 2+50N
2. Lines 4 to 17E; 7+50S to 10+00S

Zinc anomalies are frequently offset from copper anomalies. This is probably due to downslope dispersion of more mobile zinc.

Lead values are low, with 94% of samples below 20 ppm.

Anomalous gold values (< 50ppb) are isolated and discontinuous. Re-sampling of high values did not return anomalous results (Figure 9).

Silver values are mostly below detection limits (< .1 ppm). Values greater than detection are plotted with gold values (Figure 9).

LITHOGEOCHEMICAL SAMPLING

A program of lithogeochemical sampling was undertaken to outline possible alteration haloes associated with massive sulphide deposits. Representative rock samples were collected at 30 metre intervals, where possible. A total of 449 samples were taken from the cut-grid and extended grid. Samples were analyzed by TerraMin Research Labs in Calgary for SiO_2, Na_2O, K_2O, TiO_2, Ba, Cu, Zn, Ag. Results are summarized in Figures 10 to 16.

Barium values are generally highest in the rhyodacite volcanics (Unit 4). A few high barium values occur in the intrusive near contacts with rhyodacite volcanics.

Lithogeochemical Sampling (continued)

The hornblende + quartz diorite (Unit 5) is depleted in Na2O, as compared to the other rock types. Scattered low Na2O values occur in Units 4, 2,1 and 3 near the contact with the intrusive.

High K2O values occur mainly in the rhyodacite volcanics at the contact with the hornblende diorite.

Coincident high Ba, low Na2O and high K2O values were observed in the following locations:

1. Line 15E/9+00S; south of set up for DDH 3 and 4
2. Line 18E to 21E/5+60 to 6+00N; in rhyodacite volcanics near contact with intrusive.
3. Line 12E/0+60S; rhyodacite volcanics, 80m west of old shaft
4. Line 10E/0+00N to 0+75N; rhyodacite volcanics near old shaft
5. Lines 4 and 5E/0+120S to 0+25N; rhyodacite volcanics. Trace to 10% Py.

SiO2 is highest in the rhyodacite volcanics (Unit 4). The intermediate volcanics (Units 1 and 3) show moderate to high silification in a linear band from line 6 to 16E, 10 + 25S to 13 + 20S. This is probably due to secondary silica enrichment. Recrystallized lenses of quartz-epidote are common within this band.

Anomalous TiO2 values occur north of 7+50S mainly in the intrusive bodies. A few TiO2 anomalies are present in rhyodacite volcanics near the intrusive contact. TiO2 values are especially high in the northern most band of intrusive from line 10E to 14E. High TiO2 reflects the ilmenite content observed in the hornblende diorite.

Cu values are generally highest in the hornblende diorite (Unit 5). Some Cu anomalies occur in volcanic units near the intrusive contact.

High Zn values occur in rhyodacite volcanics near the intrusive contact and within hornblende diorite bodies north of 7+50S. Zn values in the intrusive appear to be coincident with TiO2 anomalies. An area of high Zn values within the intrusive occurs on lines 10E to 14E/1+75 to 4+50N. This area was also high in TiO2.

Silver values are very low: usually less than .1 ppm with a high of .2 ppm. Silver values from geochemical soil sampling were also low.

Histograms of lithogeochemical results are grouped by rock type (Felsic volcanics, intermediate volcanics, intrusive) and presented in Appendix B. These were used to determine cut-off points for map plots.

GEOPHYSICAL SURVEYS

Questor Surveys Ltd: A helicopter borne INPUT electromagnetic and magnetic survey of the property was conducted on June 16, 1984. A total of 175 line kilometers were flown at a line spacing of 100 metres.

A preliminary map of anomalous areas was received from Questor on completion of the flight survey. This map was used for ground follow-up during the field season, as the final report was not available until late September. Data was presented on a 1:10,000 scale mylar constructed

d

by enlarging a 1982 airphoto. This mylar was subsequently enlarged by Falconbridge to 1:5000 scale and plotted on a topographic map with the Lamontagne UTEM 3 data (see Figure 17). In the course of this drafting, it was discovered that no compensation for distortion was made on the original Questor map. At a scale of 1:5000, the total distortion on the Questor photo is 200 metres. An attempt was made to correct this during final drafting, but inaccuracies in anomaly locations are inherent.

Some doubt exists as to the source of the conductors identified by Questor. In their report they describe several "bedrock conductors" as possibly due to conductive surficial material or to cultural sources.

Questor Surveys Ltd

The survey revealed 9 zones of conductivity which probably originate from a bedrock source. These conductors have been prioritized as to their ground follow-up importance.

High Priority:

Conductors 6a to 6g

These conductors are in the southern area of the grid. Questor describes them as originating from weak bedrock sources located subsurface. Several of these anomalies are coincident with UTEM defined contacts.

Conductors 7a to 7d:

These conductors are located in the east-central portion of the grid. Conductors 7a and 7b plot 50 to 100 metres south of UTEM 3 anomalies. They may in fact be coincident, given the error margin of Questor anomaly locations.

Conductor 8:

This conductor is located in the extreme SW corner of the grid, south of Crofton Lake. Ground follow-up with VLF-EM indicates a weak VLF conductor, 100m north of the Questor conductor 8.

Medium Priority

Conductors 1a, 1b:

These are off the grid, in the NW corner of the survey area. Two of the anomalies plot near an underground waterline used to service the Crofton pulpmill. The remaining two anomalies are near houses. It is therefore thought that these conductors may have a cultural source.

Conductors 4a to 4f:

These six conductors are in the extreme SW corner of the survey block. Several anomalies plot over farmland and may be cultural. The conductors are in an area of relatively inactive magnetic relief. Questor suggests that the conductors originate from bedrock sources which have a formational nature.

Medium-Low Priority:

Conductors 2, 3a, 3b

These conductors occur on the western border of the grid. Questor reports that they have low conductances and are near-surface. It is possible that these conductors are due to cultural sources as they are close to buildings and roadways. Ground follow-up near these conductors with VLF-EM 16 did not reveal any strong conductors.

Conductor 5a, 5b:

These conductors are situated in the southern portion of the survey area. The axis of each conductor is parallel to a roadway. Conductor 5b plots 50 to 100 metres from a powerline. Several anomalies in conductor 5b are coincident with houses and buildings. Questor suggests that these conductors may be related to cultural sources. A ground VLF-EM 16 check on these conductors did not discern any conductors, however, a strong response was obtained from a powerline near conductor 5a.

Conductor 9:

This conductor is defined by one anomaly located near a roadway, south of Crofton. Questor suggests that this conductor may originate from cultural sources. The close proximity to a roadway with an accompanying powerline supports this suggestion.

Anomalies to the north and east of the grid area are likely due to cultural sources. Geological mapping by Eastwood (1978) shows that these anomalies plot in an area underlain by sediments of the Nanaimo Formation. Questor reports that these anomalies are attributed to a metasediment formation rich in brine or graphite with no economic value.

All of the conductors assigned a high priority are within the cut-grid and extended grid area. No anomalies were discovered in the area extending south of the grid to Richard's Trail. As discussed above, anomalies along Richard's Trial are likely due to cultural sources.

For more information see Questor Surveys Report #26H29, August, 1984 under separate cover.

Lamontagne Geophysics Ltd: A ground EM survey was performed by Lamontagne Geophysics Ltd using their UTEM 3 system. A total of 29.5 line kilometers was surveyed with readings at 50 metre intervals using four 800 X 800 m transmitter loops.

One prominent conductor was found. The conductor is located on lines 18 + OOE, 19 + OOE and 20 + OOE at 0 + 75m south. It is strongest on line 19 + OOE with the top of the conductor at 65 metres below surface extending to 150 metres. A second shallow conductor is located on lines 12 + OOE, 13 + OOE and 14 + OOE at 6 + 75m north. Estimated depth to the top of this conductor is 50 metres with a depth extent of 100? metres.

VLF: A VLF-EM 16 survey was conducted by Falconbridge Limited on the cut-grid and extended grid lines. A Ronka EM-16 instrument was used for the survey and the Seattle Transmission station (18.6 KHZ) was monitored. In-phase field dip readings were taken at 25 metre intervals. VLF in-phase profile plots and contoured Fraser filtered maps have been produced at 1:2500 scale (Figures 18 & 19).

VLF conductors follow geological contacts and are generally coincident with Cu-Zn geochemical anomalies. Interference from powerlines accounts for the linear anomaly in the northwest corner of the survey area. The VLF survey also correlates well with UTEM defined conductors (Figure 19).

Magnetometer

Falconbridge Limited undertook a magnetometer survey using a Scintrex Flux Gate Magnetometer. Readings were taken at 25m intervals along grid lines. Standard readings were recorded at the beginning and end of each day. Corrections for diurnal variations were made using a straight line plot. Corrected values were then plotted and contoured (see Figure 20).

Results

Two narrow, linear bands of high values 1 2300 gammas) are concentrated along intrusive-rhyodacite contacts slightly south and north of the baseline: lines O to 18E/1+100 to 2+OOS and lines 7 to 16E/2+25 to 3+OON.

DRILL PROGRAM

Longyear Canada was contracted to provide a LY-38 drll and four-man crew.

Drilling commenced August 26th and was completed September 17. A total of 1128.2m in 8 holes at 6 locations was drilled. Drill holes were located on the basis of geophysical and geochemical anomalies, geological data and surface showings in old workings.

DDH #	LOCATION	DEPTH	AZIMUTH	INCLINATION	PURPOSE/TARGET
84-W-1	19E/0+00S	127.4	195	-45	UTEM 3 Conductor
84-W-2	19E/0+00S	200.3	195	-60	UTEM 3 Conductor
84-W-3	15E/9+35S	114.60	015	-45	Strong Cu + weak Zn soil anomaly, litho-geochem soda depletion and barium enrichment anomaly.
84-W-4	15E/9+35S	148.9	015	-60	
84-W-5	9E/1+16S	153.3	015	-45	UTEM conductor, coincident Cu/Zn soil anomalies and presence of old shafts.
84-W-6	10E/1+12S	162.8	020	-45	
84-W-7	7E/10+30S	129.5	195	-40	Cu and Zn anomaly; surface assay of 16.5 g/t Ag in old cut on surface.
84-W-8	5+05E/6+13S	91.4	015	-45	Down dip extension of mineralized shear exposed in surface adits.

Drilling results were generally disappointing. Mineralization consists of widespread disseminated Py in sericitic to chloritic volcanics, occasionally silicified. Minor zones of semi-massive Py ± Tr Cpy were encountered in some holes, generally less than 0.5m drilled width.

Drill logs are presented in Appendix C. Cross-sections of drill holes are plotted on Figures 21-26.

SUMMARY OF RESULTS:

Lamontagne Geophysics reported a conductor on line 19+00E at 75 south. It was described as a weak conductor located at 65 metres below the surface with a depth extent of 150 metres. Drill holes 1 and 2 were located to investigate this target. Drill Hole 1 intersected 25cm of semi-massive magnetite (10-20%) and pyrrhotite (10-20%) at 102.80 metres (72 metres vertical distance from surface). Drill Hole 2 encountered a 60 cm long zone of semi-massive magnetite (30%) and trace pyrrhotite and pyrite at 184.20m (92 metres vertical distance from surface). Assays from these sections returned no significant gold, silver, copper or zinc values. These magnetite zones may account for the Lamontagne anomaly, although they are small and likely have a low conductivity.

Drill holes 3 and 4 were located in the southern area of the grid, to test a zone of Cu-Zn soil anomalies and lithogeochem soda depletion and barium enrichment. Small zones (1 to 2 metres drilled width) of semi-massive chalcopyrite (20%) and pyrite were intersected in holes 3 and 4 at 72.94 metres and 79.33 metres respectively. Assay results returned values of .34% Cu over 1.53m in DDH 3 and .31% Cu over 2.0 m in DDH 4. No significant gold or silver values were encountered.

As mentioned previously, several old workings are located on the property. Drill holes 5 and 6 were planned to test for extensions of mineralized zones underneath two of these shafts. Assay values of up to 1.42% Cu were obtained from dump material. UTEM 3 anomalies are also located in the vicinity of these old workings. In an initial report to Falconbridge, P. McGowan of Lamontagne Geophysics suggested that the conductor in this area was strongest on line 9E/0+75m south. Disseminated pyrite (1-2%) with trace chalcopyrite was encountered in volcanic rocks throughout both holes.

Drill Hole 7 was located to test for a subsurface extension of a shear zone in an old adit that assayed 16.5 g/t Ag. Cu and Zn soil anomalies also occur at this site. Some small zones of semi-massive pyrite (20%) were intersected with trace amounts of chalcopyrite.

Drill Hole 8 was located to probe for extension of a shear zone exposed in two adits north of the drill set-up. Assays of dump material from these adits returned values of up to 16.1% zinc. The adits are located at the contact of hornblende diorite and a quartz-feldspar porphyry unit. Only trace amounts of pyrite were encountered and the drill hole did not intersect the quartz-feldspar porphyry unit. This suggests that the shear zone may extend to the north with a dip of 70 degrees or less. When the drill hole was located, it was assumed that the intrusive/porphyry contact and the shear zone had a vertical to steep SW dip.

RECOMMENDATIONS

An area of high zinc and lead geochemical values was noted on lines 19-21E, 5+00 to 6+50 north. This area also showed lithogeochemical anomalies of moderate barium enrichment, low Na_2O and high K_2O. Ground follow-up in this area is recommended, with additional soil sampling to the east of line 21 to close off the anomaly.

Old shafts on line 4+80E/0+75S and line 12+37E/0+85E also show lithogeochemical anomalies with high Ba, low Na_2O and high K_2O. The shaft on line 4-80E has coincident Cu and Zn geochemical soil anomalies. Sampling of the old shafts did not return significant values although high (up to 30%) concentrations of Py were noted.

Further investigation of the adits near line 5E/5+50S is warranted in view of the high concentratiosn of sphalerite observed in these workings. As noted above, drill hole 8 failed to intersect the host rock type of these shear zones. This indicates that the shear zone, if continuous, has a northerly dip. A possible drill hole from the north side of the adits towards the south may be successful in intersecting this zone.

Assays from a narrow (30cm wide) band of chloritic volcanic with 20% Py; 5% Cpy at line 4/0+30 south returned values of up to .91% Cu and 12.7 g/t Ag. This area also has Cu-Zn geochemical anomalies, lithogeochemical anomalies and a UTEM anomaly. Further investigations in the form of detailed sampling, prospecting and possible trenching is recommended.

As mentioned previously, a zone of SiO2 enriched volcanics extends from line 6 to 16E, 10+25 to 13+20 south. Cu-Zn geochemical anomalies also occur within this band. More detailed investigation of this area is recommended.

Ground follow-up of Questor anomalies outside the grid area is suggested. Conductors 4a to 4f look especially promising as these have no obvious cultural source.

REFERENCES

EASTWOOD, G.C.P.

1980: Preliminary Map 40, Geology of the Mt. Richards Area, Vancouver Island, B.C., Ministry of Energy, Mines and Petroleum Resources.

Muller, J.E.

1980: The Paleozoic Sicker Group of Vancouver Island, B.C., Geological Survey of Canada, Paper 79-30.

Assessment Report #19

1947: Lucky Strike Claim Group, B.C. Dept. of Mines.

Assessment Report #2397

1970: Sirius Clam, Mount Richards, CANPAC Minerals Ltd., B.C. Dept. of Mines.

Assessment Report #7233

1979: Croft 2 Claims, SEREM Ltd., B.C. Dept. of Mines.

APPENDIX A

Vancouver Petrographic Report

Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph. D. Geologist

P.O. BOX 39
8887 NASH STREET
FORT LANGLEY, B.C.
V0X 1J0

PHONE (604) 888-1323

Report for: T. Chandler,
Falconbridge Ltd.,
6415 - 64th Street,
DELTA, B.C., V4K 4E2

Invoice 4697
August 1984

Project: 30101-608-094
Samples: 10 from volcanic and intrusive environment

Summary:

Samples are grouped as follows:

1. Intrusive Rocks

Intrusive rocks are of two varieties showing textural similarities suggestive of a common origin. However, distinct compositional differences between the types suggests a moderate difference in the magmatic composition, and possible fractionation.

A: Hornblende Diorite [094-2, 094-3]

These samples are dominated by plagioclase and hornblende with moderately abundant sphene and Ti-oxide and only minor quartz. Alteration is strong, with plagioclase replaced by epidote and lesser chlorite, albite, and sericite; and hornblende replaced by tremolite/actinolite and minor epidote and chlorite. Sphene rims relic ilmenite, and probably formed in large part by replacement of ilmenite; this replacement may have occurred during magmatic crystallization rather than during the later alteration which affected the major minerals. Quartz occurs as single grains and as intimate intergrowths with plagioclase; the latter is a major feature which is similar to the texture in the other intrusive unit.

B: Hornblende Quartz Diorite

This sample is much coarser grained that Unit A, with elongate plagioclase and hornblende phenocrysts in a finer grained groundmass of plagioclase-quartz with patches of actinolite-chlorite, and abundant sphene-ilmenite and apatite. Alteration of plagioclase and hornblende is more or less as in Unit A. Quartz-plagioclase intergrowths are common in the groundmass, and although much coarser in general than those in Unit A are similar texturally. The presence of apatite and the abundance of quartz are important differences between Unit B and Unit A. The rock contains sceondary patches of epidote-chalcopyrite with minor bornite associated with a few chalcopyrite patches.

2. Volcanic Rocks

A variety of intermediate to felsic rocks are represented. Most are flows. They have been metamorphosed in a shear environment, with recrystallization of groundmass producing a foliated texture, and with slight strain features imparted to some of the phenocrysts, especially of quartz.

(continued)

C: Latite Tuff [094-4]

Crystal fragments of plagioclase and minor quartz and elongated pumice? fragments in a groundmass dominated by plagioclase with lesser chlorite, epidote, and quartz. Secondary patches consist of quartz with lesser epidote, pyrite, chlorite, and minor calcite.

D: Latite Flow [094-5]

Plagioclase phenocrysts in a groundmass dominated by lathy plagioclase with lesser chlorite, epidote, and quartz. Plagioclase is moderately altered to epidote. Later recrystallized lenses consist of quartz with lesser epidote.

E: Andesite Flow [094-6]

Hornblende and plagioclase phenocrysts, with spheroidal patches of epidote and minor ones of chlorite in a groundmass of plagioclase and secondary amphibole. Hornblende is completely replaced by secondary amphibole and plagioclase is fresh to moderately altered to epidote. The rock contains a fragment of slightly more-mafic andesite with more abundant phenocrysts. Alteration is similar to that of the main rock. This sample is similar in composition to Unit A, except for the low content of sphene-ilmenite.

F: Rhyodacite Flow [094-7, 094-8, 094-9, 094-10]

These contain variable amounts of quartz and plagioclase phenocrysts in a groundmass dominated by plagioclase with lesser quartz and sericite. Quartz phenocrysts dominate in 094-7 and 094-9, with plagioclase more abundant in 094-8 and 094-10. Sericite commonly is concentrated in wispy seams parallel to foliation. Some contain patches of secondary quartz with lesser epidote and/or calcite and chlorite.

Sample 094-9 contains minor barite associated with seams of clinozoisite-sericite. Sample 094-10 is from a Ba-rich zone, but no Ba-mineral was identified.

Plagioclase Compositions

Composition determinations were done, where possible, using the Michel-Levy method of maximum extinction angle in the zone normal to (010). Where this was impossible, the alteration assemblage gives a guide to the original composition. In many samples, it appears that plagioclase is partly altered to secondary minerals, with the main plagioclase grain being a relic primary grain.

In the porphyritic samples, the groundmass plagioclase generally is less altered than that in the phenocrysts, suggesting a more sodic composition for the latter (as would be expected in a magmatically derived rock). For a few samples, the Michel-Levy method gives ambiguous results (two compositions possible; for some of these the presence of abundant secondary epidote suggests a more-calci parent).

John G. Payne

094-1 Altered Hornblende Quartz Diorite

The rock contains coarse to very coarse grained plagioclase and hornblende in a finer grained groundmass dominated by intergrowths of plagioclase and quartz, with patches of actinolite and chlorite, and abundant accessory sphene-ilmenite and apatite. Alteration is moderate to strong, with plagioclase replaced by epidote with lesser chlorite, actinolite, and sericite, hornblende partly replaced by actinolite, ilmenite replaced by sphene (primary or secondary?), and with patches of epidote-chalcopyrite. A late vein consists of tremolite-actinolite with lesser calcite.

plagioclase	45-50%			veinlet	
hornblende	17-20			tremolite/actinolite-calcite	1%
quartz	20-25				
sphene	2- 2½				
ilmenite	1½-2				
apatite	1½-2				
epidote	½- 1	chlorite	minor		
chalcopyrite	0.2				
bornite	trace				

Plagioclase forms prismatic grains up to a few mm long and also finer grains strongly intergrown with quartz. The latter average 0.7-1 mm in size. Alteration of plagioclase is strong, mainly to extremely fine to very fine grained epidote, but also with patches of one or more of chlorite, actinolite, and sericite. One grain shows strong alteration to disseminated actinolite grains averaging 0.03-0.05 mm in size. The original composition of plagioclase probably was andesine. Several grains show combined Carlsbad-albite twins, but no optical composition determination was possible. An estimate from a poorly oriented grain gives the present plagioclase composition to be An_{40}. The secondary mineral assemblages indicate that the alteration is in the greenschist facies, but that it is incomplete; i.e., relic primary grains are partly altered to the stable secondary assemblage.

Hornblende forms elongate to equant prismatic grains, also up to a few mm long. They are partly replaced by secondary actinolite or actinolite/tremolite. Hornblende is pleochroic from light yellowish green to medium yellowish green and slightly bluish green. Actinolite is paler green without the bluish hue, and actinolite/tremolite is paler still. Some secondary amphibole pseudomorphs the primary grains in irregular intergrowths with the primary hornblende. Elsewhere, secondary actinolite forms very fine to fine grained, unoriented intergrowths of ragged prismatic to equant grains.

Quartz forms a few patches up to 2 mm across with only minor accessory inclusions. It is more common as irregular, intimate intergrowths with plagioclase, with grain size averaging 0.7-1.2 mm. Extinction generally is uniform.

Ilmenite forms bladed crystals up to 1.5 mm across, and equant grains from 0.3-1 mm in size. It is moderately to strongly replaced by sphene, with relic cores of ilmenite surrounded by zones of sphene with abundant inclusions of ilmenite, grading outwards into pure sphene. The alteration may have been primary magmatic rather than related to the alteration of plagioclase and hornblende. Patches of sphene are locally up to 3 mm long.

Apatite forms equant to acicular grains averaging 0.1-0.2 mm in length, with a few being over 1 mm long. These are disseminated throughout the rock.

(continued)

The rock contains irregular patches of epidote ranging widely in grain size and relations. Some border elongate hornblende grains, others are intergrown with quartz, and some appear to be replacements of plagioclase. Grain size is up to 0.5 mm.

Generally associated with epidote are irregular patches of chalcopyrite up to 0.15 mm in size. Chalcopyrite also occurs in hornblende grains as extremely fine grained (0.005-0.01 mm) disseminations with irregular outlines.

A few patches of bornite-chalcopyrite occur in altered plagioclase. Bornite grains are from 0.02-0.1 mm in size, and generally are bordered on one side at least by chalcopyrite of slightly finer grain size.

Chlorite forms a few flakes up to 0.5 mm in size associated with secondary patches of actinolite. Chlorite is light to medium green in color, with bright blue interference color. It may be after primary biotite, but also may just be part of the secondary replacement assemblage associated with epidote and chalcopyrite-

The rock is cut by a veinlet up to 0.3 mm wide of extremely fine grained, very pale green tremolite/actinolite, with a zone at one end containing moderately abundant very fine grained calcite.

094-2 Altered Diorite

The sample is related to 094-1 in certain ways, but is distinct in that the quartz content is much lower and apatite is absent. It contains a few coarser plagioclase grains (completely replaced by epidote) in a groundmass of finer grained plagioclase and secondary amphibole (after hornblende). Finer plagioclase shows patchy alteration to chlorite and lesser epidote; albite? is common on irregular veinlets. Sphene-ilmenite is an abundant accessory. Quartz is restricted to a few interstitial intergrowths with plagioclase in a texture very similar to that of intergrowths of quartz-plagioclase in 094-1.

plagioclase		
phenocrysts?	5- 7	(alt'n: 100% epid)
finer	40-45	(alt'n: 15% chl, 2% alb, 0.5% epid, trace ser)
hornblende	43-48	(alt'n: 99% actinolite/tremolite, 1% epid)
sphene/Ti-oxide	2- 3	
ilmenite	0.5	epidote 0.3
quartz	1	
biotite	trace	

Plagioclase forms scattered phenocrysts? up to 3 mm in size. These are completely altered to very fine to fine grained aggregates of epidote, and grain borders are destroyed.

Finer grained plagioclase forms equant to prismatic grains from 0.3-0.8 mm in average size. Some are slightly to moderately zoned. A composition determination from a zoned grain gave a core of An_{48} grading to a rim of An_{40}. Composition of unzoned grains is about An_{44} (Michel-Levy method). Some plagioclase grains are fresh, others are altered in irregular patches to light green chlorite with or without lesser epidote. Some grains show irregular veinlets of albite, with partial rims of chlorite. Others show patches of albite extending outwards from chlorite. Albite is not positively identified, but the textural relations and incomplete optical properties suggest its presence.

Hornblende forms equant to slightly prismatic grains from 0.3-1 mm in average size. It is completely replaced by secondary tremolite-actinolite, mainly with a very pale green color, and locally, especially near borders of grains, a light bluish green to medium green color. Secondary amphibole forms irregular to subparallel aggregates of prismatic grains.

Ilmenite forms scattered subrounded to irregular grains up to 0.5 mm in size, enclosed in rims up to 1.5 mm across of sphene/Ti-oxide. Alteration is as in 094-1, with the addition that sphene is partly altered to extremely fine grained Ti-oxide.

Quartz forms scattered interstitial grains averaging 0.1-0.2 mm in size, and occurs in intimate intergrowths with plagioclase in patches up to 0.5 mm long.

Biotite forms one ragged flake 0.4 mm across, with pleochroism from pale straw to medium brown. It is slightl altered to chlorite and epidote.

Epidote occurs as patches of very fine to fine, anhedral to subhedral grains along borders of actinolite patches after hornblende.

Sericite occurs locally as dusty to extremely fine grained alteration of plagioclase in patches unaffected by the more common chlorite-epidote-albite alteration.

094-3 Altered Hornblende Diorite

The sample is very similar to 094-2. It is cut by a few veins up to 1.2 mm wide dominated by quartz with lesser chlorite, and patches of epidote, actinolite, and biotite-hematite.

plagioclase	45-50%	(alt'n: epid 30%, chl 5%, ser-musc 2%, alb 2%)
hornblende	40-45	(alt'n: actinolite/tremolite 95%,epid 4% chl 1%)
quartz	4- 5	
sphene	0.5	
ilmenite	trace	
chlorite	0.2	
veins		
quartz-chlorite	2-3	

Plagioclase forms a few coarser grains up to 2.5 mm in size. These are completely replaced by very fine grained epidote, locally with minor albite and chlorite. Most plagioclase grains are equant to prismatic, averaging 0.5-1 mm in size. They are variably altered to disseminated extremely fine to very fine grained epidote, disseminated to patchy chlorite, scattered flakes of sericite-muscovite up to 0.1 mm long, and irregular patches of albite (mainly with epidote). The composition of relic plagioclase is An_{32} (Michel-Levy method).

Hornblende forms equant to slightly prismatic grains from 0.5-1.5 mm in size, with a few over 2 mm long. It is replaced by pseudomorphic tremolite-actinolite and/or irregular to subhedral patches of ragged prismatic tremolite-actinolite, locally with patches of epidote and/or chlorite. The alteration minerals are mainly pale green in color, with local zones along grain borders of pale to light bluish green to green. A few patches of secondary actinolite contain grains up to 0.5 mm in size, with pleochroism from pale to light yellowish green to green; these may represent complete replacement of the rock rather than alteration of specific hornblende grains.

Quartz occurs in two modes, as single interstitial grains averaging 0.15-0.25 mm across, and in intimate intergrowths up to 1.5 mm long with plagioclase.

Sphene and minor ilmenite occur in irregular patches up to 1 mm across. Textures are as in 094-2 and 094-1, with ilmenite replaced by sphene and surrounded by sphene. In this rock, the central parts of many patches have a higher relief than the outer parts, although both appear to show other optical properties of sphene.

Chlorite forms scattered patches of very fine grains up to 0.4 mm across associated with quartz. It also forms a few extremely fine grained patches up to 0.7 mm across associated with secondary ragged prisms of actinolite.

The rock is cut by a few veins averaging 0.1-0.3 mm in width, with one up to 1.2 mm wide dominated by very fine to fine grained quartz with patches of equant chlorite flakes of similar size. Epidote and lesser actinolite occur in a few veins in very fine to fine grained patches. Chlorite (in both vein and rock) has a brown interference color. Local patches consist of an extremely fine grained aggregate of brownish green biotite?, in large part with a radiating texture. Minor opaque grains up to 0.02 mm across are disseminated in the biotite. Another patch is dominated by opaque, with minor brownish translucent material, suggesting that the mineral is hematite.

094-4 Altered Latite Tuff?

The rock contains crystal fragments of plagioclase and much less quartz, and elongated altered pumice? fragments in a variable foliated groundmass dominated by plagioclase with lesser chlorite, epidote, and quartz. Coarser grained secondary patches contain quartz with lesser epidote, pyrite, chlorite, and calcite.

crystal fragments	
plagioclase	15-17%
quartz	1
lithic fragments	
plagioclase aggregate	one fragment
pumice?	3- 4
groundmass	
plagioclase	45-50
chlorite	15-17
epidote	7- 8
quartz	4- 5
sericite	1- 1½
pyrite	0.2
patches and veinlets	
quartz	3- 4
epidote	0.7- 1
pyrite	0.3
chlorite	0.3
calcite	0.1

Plagioclase forms subhedral crystal fragments averaging 0.2-0.8 mm in size and one aggregate 1.5 mm across of similar plagioclase. Composition is An_{32} (possibly An_8)[Michel-Levy method]. Most grains are slightly to moderately altered to extremely fine grained sericite. A few are completely replaced by aggregates of very fine to fine grained epidote.

Quartz forms a few crystal fragments and aggregates 0.2-0.5 mm in size. Some show strongly strained extinction (as in some quartz phenocrysts in 094-7, -8, and -9).

Numerous elongated patches of extremely fine grained sericite are interpreted as pumice fragments flattened in the plane of the foliation.

The groundmass shows a moderate elongation of mineral grains and vague compositional banding. Plagioclase is concentrated in extremely fine grained zones with much less chlorite and scattered patches and subhedral grains of epidote. Chlorite and quartz are concentrated in slightly coarser grained layers and lenses. Epidote forms disseminated patches up to 0.3 mm across. Sericite forms irregular patches and disseminations, probably after plagioclase. Pyrite forms scattered grains from 0.1-0.7 mm in size; smaller grains generally are subhedral whereas coarser grains are more irregular.

Coarser grained replacement patches are elongated parallel to foliation. Many are dominated by quartz as irregular very fine to fine grained aggregates. Epidote forms patches of anhedral to subhedral prismatic grains up to 0.3 mm in size. Chlorite forms very fine to fine grained aggregates (brown interference color). Quartz and chlorite commonly show textures related to recrystallization in pressure shadows of pyrite grains. Pyrite forms irregular to subhedral grains up to 1.2 mm across. Calcite forms scattered grains and clusters of grains of very fine grain size, intergrown with chlorite and epidote.

094-5 Porphyritic Latite Flow with Quartz-Epidote lenses

The rock contains moderately abundant plagioclase phenocrysts in a foliated groundmass dominated by lathy plagioclase with lesser chlorite epidote, and quartz. A few fragments consist of early-formed plagioclase aggregates. Plagioclase is moderately altered to epidote. The rock contains a few elongated lenses of quartz-epidote.

phenocrysts				
plagioclase	17-20%	(An_{32})		
fragments				
plagioclase aggregates		0.5		
groundmass				
plagioclase	55-60			
chlorite	7- 8			
epidote	4- 5			
quartz	4- 5		sericite	minor
sphene/Ti-oxide	minor			
lenses				
quartz	5- 7			
epidote	1½-2			

Plagioclase forms subhedral to euhedral pheoncrysts from 0.1-0.5 mm in average size, with a few over 1 mm long. Many are moderately to completely replaced by very fine to fine grained epidote. In a moderate number of these, a thin rim of the phenocryst is unaltered, and the thick core is strongly to completely altered to epidote. A few show evidence of cataclastic deformation, with crushed and slightly recrystallized zones.

A few fragments up to 1.5 mm across consist of aggregates of a few plagioclase grains averaging 0.5-1 mm in length. These probably are early-formed aggregates which crystallized in the magma chamber.

The groundmass is dominated by a moderately foliated aggregate of lathy plagioclase grains averaging 0.07-0.15 mm in length. Interstitial to these are extremely fine to very fine grains and aggregates of chlorite, and irregular patches of epidote intergrown with anhedral plagioclase and much less quartz. Plagioclase in the groundmass generally is relatively fresh.

Composition of plagioclase phenocrysts is about An_{32} (possibly An_8 but the extensive epidote alteration suggests a more-calcic parent).

Sericite occurs as an irregular, wispy lens of grains averaging 0.03-0.05 mm in length, elongated parallel to foliation. The lens does not appear to be of the same origin as those in 094-4 which were tentatively interpreted as flattened pumice fragments.

Sphene/Ti-oxide forms disseminated spots averaging 0.02-0.03 mm in size.

The rock contains lenses up to a few mm wide and a few cm long dominated by very fine grained quartz with common rims of very fine grained epidote. In places the patches contain subhedral prismatic epidote grains up to 0.3 mm long within the quartz-rich core.

094-6 Porphyritic Andesite Flow with Fragment of more-mafic andesite

The rock is a porphyritic andesite flow with phenocrysts of hornblende and plagioclase in a groundmass dominated by secondary amphibole and plagioclase, with spheroidal to irregular patches of epidote and minor chlorite. The fragment contains more abundant phenocrysts and is much freer of epidote.

Main Rock

phenocrysts		
hornblende	15-17%	
plagioclase	10-12	
patches		
epidote		
spheroidal	5- 7	
irregular	7- 8	(± opaque)
chlorite	minor	
groundmass		
actinolite/tremolite		25-30
plagioclase		25-30
chlorite	1	
sphene	trace	

Hornblende forms equant phenocrysts up to 2 mm across. They are completely replaced by pseudomorphs or aggregates of pale green to colorless actinolite/tremolite. Lamellar twinning is common, and is preserved through the alteration.

Plagioclase forms prismatic phenocrysts from 0.1-1 mm in size. These generally show combined Carlsbad-albite twinning. Composition is about An_{33} (Michel-Levy method). A few are bent and partly granulated along borders of epidote spherulites. Alteration is patchy to epidote, with many plagioclase phenocrysts fresh and a few moderately to strongly altered.

Epidote forms spheroidal patches from 0.2-1.2 mm in diameter. These consist of anhedral aggregates of very fine to fine grains, locally with minor actinolite needles. More irregular patches are up to 1 cm long, and consist of extremely fine to fine grained aggregates of anhedral grains, locally with opaque grains up to 0.35 mm long, and elsewhere with minor chlorite patches.

Chlorite forms a few spheroidal patches up to 0.3 mm across. Interference color is deep blue-brown.

The groundmass is an extremely fine grained aggregate of unoriented actinolite/tremolite and plagioclase, with much less chlorite, mainly in irregular patches, and minor sphene (associated with one plagioclase phenocryst).

Fragment

phenocrysts		
hornblende	30-35%	
plagioclase	20-25	
groundmass		
actinolite/tremolite		20-25
chlorite	7- 8	
epidote	3- 4	
plagioclase	10-12	

The fragment contains phenocrysts of hornblende averaging 0.3-0.7 mm in size and prismatic phenocrysts of plagioclase from 0.1-0.7 mm in average length in a groundmass of actinolite/tremolite-plagioclase with local concentrations of chlorite (brown interference color) and irregular patches of epidote averaging 0.1-0.3 mm in size.

094-7 Quartz-Plagioclase Porphyritic Rhyodacite Flow (Metamorphosed)

The rock contains quartz and lesser plagioclase phenocrysts in a foliated groundmass dominated by plagioclase with lesser quartz and sericite, and much less chlorite. Scattered patches contain sericite-epidote-hematite (after pyrite). Sericite is concentrated in wispy zones parallel to foliation. The rock is cut by a veinlet parallel to foliation of quartz with lesser chlorite.

phenocrysts	
quartz	10-12%
plagioclase	3- 4
groundmass	
plagioclase	40-45
quartz	15-17
sericite	15-17
chlorite	3- 5
Ti-oxide	0.1
pyrite	0.3
epidote	0.3
zircon	trace
veinlet	
quartz-chlorite-(sericite)	0.3

Quartz forms phenocrysts and aggregates of phenocrysts from 0.5-5 mm in size. Some show deeply embayed outlines against groundmass. Some are aggregates of several grains, commonly with a submosaic texture. A few contain inclusions up to 0.4 mm across of epidote and minor calcite. Most show slightly to moderately wavy extinction, a product of the shear deformation which produced the foliation in the groundmass.

Plagioclase forms anhedral to subhedral phenocrysts and aggregates averaging 0.3-0.7 mm in size. It is generally slightly altered to very fine grained sericite, with coarser patches of sericite-chlorite in a few grains, and others containing patches of epidote. A few grains show evidence of cataclastic deformation, with crushing and recrystallization to a much finer grained aggregate.

The groundmass is dominated by plagioclase with lesser quartz in anhedral aggregates averaging 0.01-0.02 mm in grain size. Sericite forms disseminated flakes from 0.01-0.03 mm in length, and is concentrated in wispy seams and lenses parallel to foliation. Chlorite commonly occurs with quartz in slightly coarser groundmass surrounding phenocrysts.

Ti-oxide forms scattered patches from 0.1-0.3 mm in size.

Pyrite forms irregular clusters of grains up to 0.3 mm in size. Most have opaque cores surrounded by deep red-brown alteration zones, with a thin rim of medium red-brown hematite on the borders of many.

Irregular patches contain one or more of sericite, epidote, chlorite, and pyrite; these are up to 0.7 mm in size, and generally are very fine to extremely fine grained. One of these contains a zircon grain 0.02 mm long.

The rock is cut by a veinlet averaging 0.3 mm in width, and parallel to foliation. It is dominated by very fine grained quartz (0.03-0.05 mm) with less chlorite and much less sericite.

094-8 Plagioclase-Quartz Porphyritic Rhyodacite Flow (Metamorphosed)

The rock contains plagioclase and lesser quartz phenocrysts in a foliated groundmass dominated by plagioclase with lesser sericite and quartz. Quartz phenocrysts commonly are irregular and glomeroporphyritic, and many contain patches dominated by epidote. The groundmass is well foliated, with foliation defined mainly by wispy sericite aggregates; foliation is warped around many of the phenocrysts. The groundmass contains patches of coarser grained quartz-epidote with minor chlorite and Ti-oxide. A wispy quartz veinlet cuts the rock parallel to foliation; it may have formed by segregation during recrystallization.

phenocrysts	
plagioclase	15-17%
quartz	7- 8
groundmass	
plagioclase	40-45
quartz	15-17
sericite	17-20
chlorite	1- 1½
Ti-oxide	minor
patches	
quartz	1½-2
epidote	1- 1½
chlorite	minor
veinlet	
quartz	minor

Plagioclase forms mainly equant phenocrysts averaging 0.3-0.8 mm across, with a few prismatic ones up to 1.5 mm long. Composition is An_{34} (or An_6) [Michel-Levy method]. The more-calcic composition is more probable because of the strong epidote alteration of the phenocrysts. Phenocrysts are moderately to locally slightly altered to patches of epidote, much less chlorite, and disseminated extrememly fine grained sericite in parts of the crystals not affected by epidote. A very few contain minor patches of calcite. A few phenocrysts show evidence of slight cataclastic deformation.

Quartz forms equant to elongate, commonly irregular phenocrysts and clusters of phenocrysts up to a few mm across, with smallest ones about 0.2-0.3 mm in size. Most larger ones contain abundant patches of very fine grained epidote with much less chlorite and in some Ti-oxide and quartz. These patches are up to 1.5 mm in size. Other "inclusions" probably are embayments of groundmass into the phenocryst. Similar embayments occur sparsely along the borders of many phenocrysts. Quartz shows moderately banded to wavy extinction, the product of deformation during metamorphism.

The groundmass is dominated by an extremely fine grained (0.01-0.02 mm) aggregate of plagioclase and much less quartz with minor to abundant sericite as disseminated flakes and aggregates with a preferred orientation parallel to foliation. In places, sericite is much more abundant, partly in wispy seams parallel to foliation, and partly as patches near phenocrysts. Also mainly near phenocrysts are patches and lenses up to 1 mm in size dominated by slightly coarser grained quartz and chlorite. Ti-oxide forms a few patches up to 0.2 mm in size, and irregular patches averaging 0.01-0.03 mm across disseminated through the groundmass.

Recrystallized patches averaging 0.7-1.2 mm long consist of very fine to fine grained quartz, commonly with epidote concentrated along the borders. Others are dominated by epidote with minor quartz and chlorite. Quartz generally shows evidence of deformation of similar intensity to that in the phenocrysts. One veinlet 0.02 mm wide of quartz is parallel to foliation.

094-9 Quartz-Plagioclase Porphyritic Rhyodacite Flow (Metamorphosed) (with Barite)

The rock contains quartz phenocrysts and plagioclase aggregates in a strongly foliated groundmass dominated by quartz with lesser plagioclase and sericite, and with abundant seams and lenses dominated by clinozoisite-sericite with minor barite. Coarser secondary lenses parallel to foliation consist of quartz with minor sericite-muscovite. Other patches and lenses are dominated by calcite.

phenocrysts	
quartz	7- 8%
plagioclase	2- 3
groundmass	
quartz	40-45
plagioclase	20-25
clinozoisite	10-12
sericite	8-10
Ti-oxide	0.3
barite	0.3
chlorite	minor
muscovite	trace
apatite	trace

secondary patches	
quartz	3- 4
calcite	1
muscovite-sericite	0.1

Quartz forms equant to irregular phenocrysts up to a few mm across. Many contain embayments and irregular "inclusions" of groundmass. Deformation is moderate to locally strong, with banded to wavy extinction and patches and veinlike zones recrystallized to finer grained granular aggregates, in part with other groundmass minerals.

Plagioclase forms equant to elongate patches up to a few mm long. In most it is completely replaced by a dense aggregate of very fine to fine grained clinozoisite and lesser sericite. A few contain relic plagioclase. These may grade in texture to the clinozoisite-sericite lenses in the groundmass.

The groundmass is dominated by a very to extremely fine grained aggregate of quartz and lesser plagioclase, with plagioclase generally less than 0.015 mm in size, and quartz commonly slightly coarser. Minor sericite and clinozoisite occur in this part of the groundmass, mainly in tiny lenses parallel to foliation.

Clinozoisite and lesser sericite form seams up to 0.7 mm wide parallel to foliation. Patches of clinozoisite extend outwards from these into the quartz-plagioclase-rich groundmass.Ti-oxide is concentrated in these seams as anhedral patches from 0.03-0.1 mm in size. Barite forms scattered subhedral prismatic grains averaging 0.1 mm long, with a few up to 0.2 mm long.

Chlorite occurs in irregular patches of flakes from 0.02-0.05 mm in size associated with quartz-rich groundmass. Chlorite is almost colorless with a white interference color.

Muscovite forms scattered flakes up to 0.1 mm long associated with sericite. Apatite was recognized as one irregular equant grain 0.05 mm across.

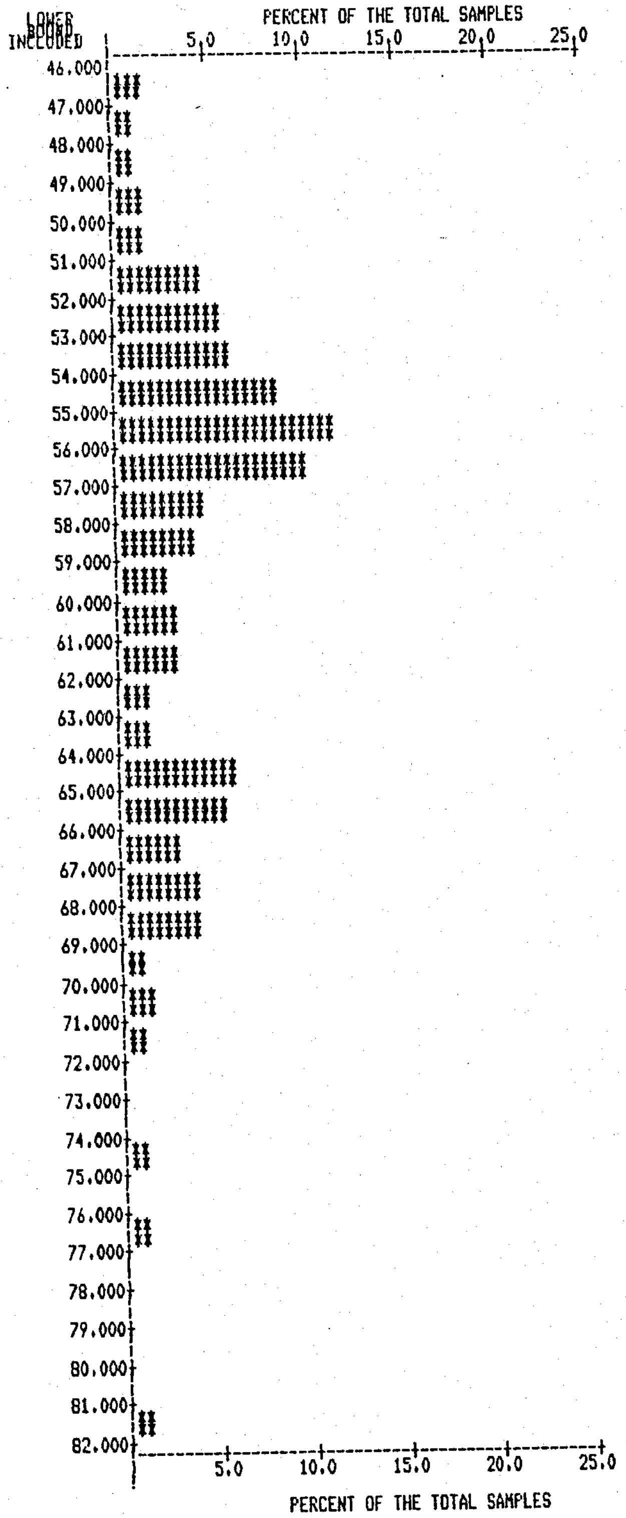
The rock contains numerous lenses, mainly elnogated parallel to foliation, of slightly coarser grained quartz, with scattered flakes and aggregates of irregular to feathery sericite and subhedral muscovite, the latter up to 0.15 mm in grain length. Some patches contain minor calcite.

Calcite occurs in patches and elongated lenses up to 1.5 mm long, with grain size averaging 0.03-0.1 mm. Some patches occur in the lee of quartz phenocrysts.

APPENDIX B

Histogram of Lithogeochemical Results

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : SIO2

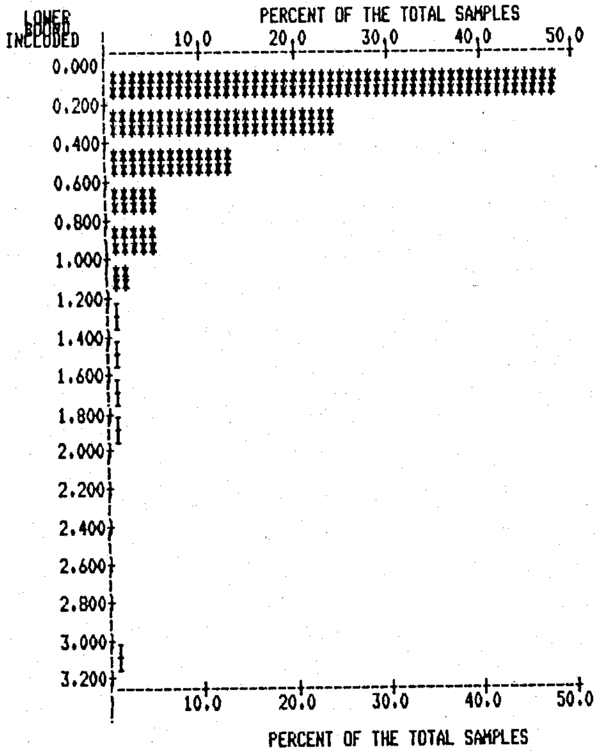


NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	46.000
2	1.54	1.54	47.000
1	0.77	2.31	48.000
1	0.77	3.08	49.000
2	1.54	4.62	50.000
2	1.54	6.15	51.000
6	4.62	10.77	52.000
7	5.38	16.15	53.000
8	6.15	22.31	54.000
11	8.46	30.77	55.000
15	11.54	42.31	56.000
13	10.00	52.31	57.000
6	4.62	56.92	58.000
5	3.85	60.77	59.000
3	2.31	63.08	60.000
4	3.08	66.15	61.000
4	3.08	69.23	62.000
2	1.54	70.77	63.000
2	1.54	72.31	64.000
8	6.15	78.46	65.000
7	5.38	83.85	66.000
4	3.08	86.92	67.000
5	3.85	90.77	68.000
5	3.85	94.62	69.000
1	0.77	95.38	70.000
2	1.54	96.92	71.000
1	0.77	97.69	72.000
0	0.00	97.69	73.000
0	0.00	97.69	74.000
1	0.77	98.46	75.000
0	0.00	98.46	76.000
1	0.77	99.23	77.000
0	0.00	99.23	78.000
0	0.00	99.23	79.000
0	0.00	99.23	80.000
0	0.00	99.23	81.000
1	0.77	100.00	82.000

VARIABLE:	SIO2
NUMBER OF OBSERVATIONS:	130
MINIMUM:	46.000
MAXIMUM:	81.300
MEAN:	58.803
STANDARD ERROR OF MEAN:	0.575
STANDARD DEVIATION:	6.559
COEFFICIENT OF VARIATION:	11.153
SKEWNESS:	0.680
KURTOSIS:	0.129

Rock Type : Intermediate Volcanics
Units 1 to 3

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : K20



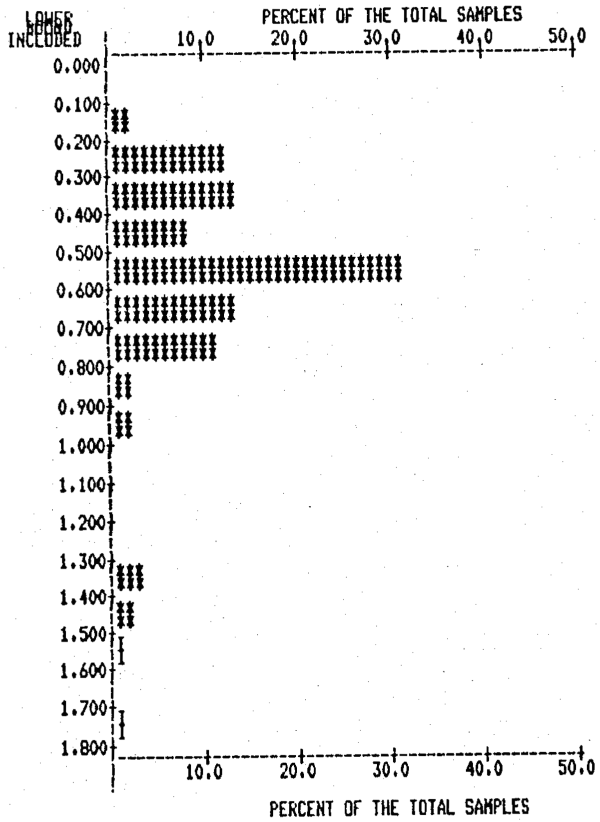
NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
62	47.69	47.69	0.200
31	23.85	71.54	0.400
17	13.08	84.62	0.600
6	4.62	89.23	0.800
6	4.62	93.85	1.000
3	2.31	96.15	1.200
1	0.77	96.92	1.400
1	0.77	97.69	1.600
1	0.77	98.46	1.800
1	0.77	99.23	2.000
0	0.00	99.23	2.200
0	0.00	99.23	2.400
0	0.00	99.23	2.600
0	0.00	99.23	2.800
0	0.00	99.23	3.000
1	0.77	100.00	3.200

VARIABLE:	K20
NUMBER OF OBSERVATIONS:	130
MINIMUM:	0.028
MAXIMUM:	3.170
MEAN:	0.359
STANDARD ERROR OF MEAN:	0.037
STANDARD DEVIATION:	0.426
COEFFICIENT OF VARIATION:	118.513
SKEWNESS:	3.253
KURTOSIS:	15.053

Rock Type : Intermediate Volcanics
Units 1 to 3

****

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : TI02



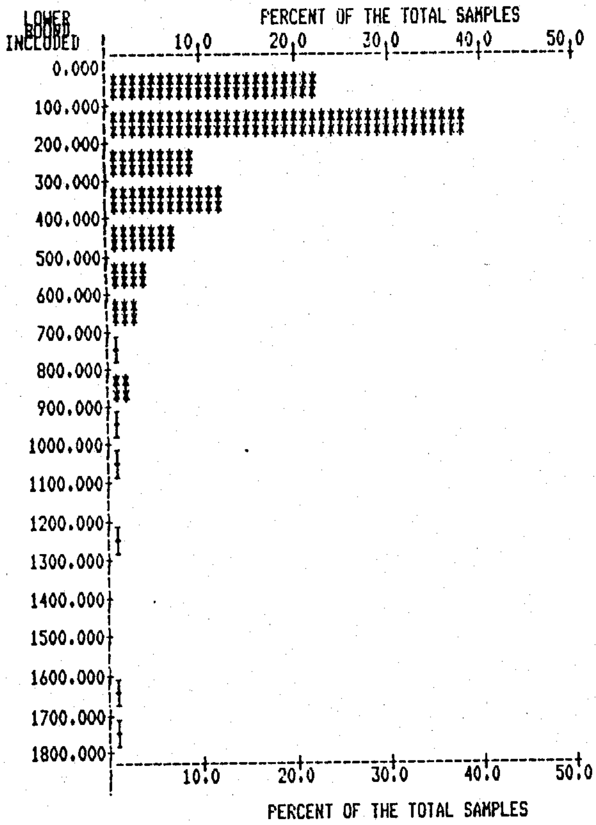
NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
0	0.00	0.00	0.100
2	1.55	1.55	0.200
16	12.40	13.95	0.300
17	13.18	27.13	0.400
10	7.75	34.88	0.500
40	31.01	65.89	0.600
17	13.18	79.07	0.700
14	10.85	89.92	0.800
3	2.33	92.25	0.900
2	1.55	93.80	1.000
0	0.00	93.80	1.100
0	0.00	93.80	1.200
0	0.00	93.80	1.300
4	3.10	96.90	1.400
2	1.55	98.45	1.500
1	0.78	99.22	1.600
0	0.00	99.22	1.700
1	0.78	100.00	1.800

VARIABLE:	TI02
NUMBER OF OBSERVATIONS:	129
MINIMUM:	0.133
MAXIMUM:	1.730
MEAN:	0.571
STANDARD ERROR OF MEAN:	0.025
STANDARD DEVIATION:	0.278
COEFFICIENT OF VARIATION:	48.809
SKEWNESS:	1.699
KURTOSIS:	3.895

Rock Type: Intermediate Volcanics
Units 1 to 3

****

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : BA

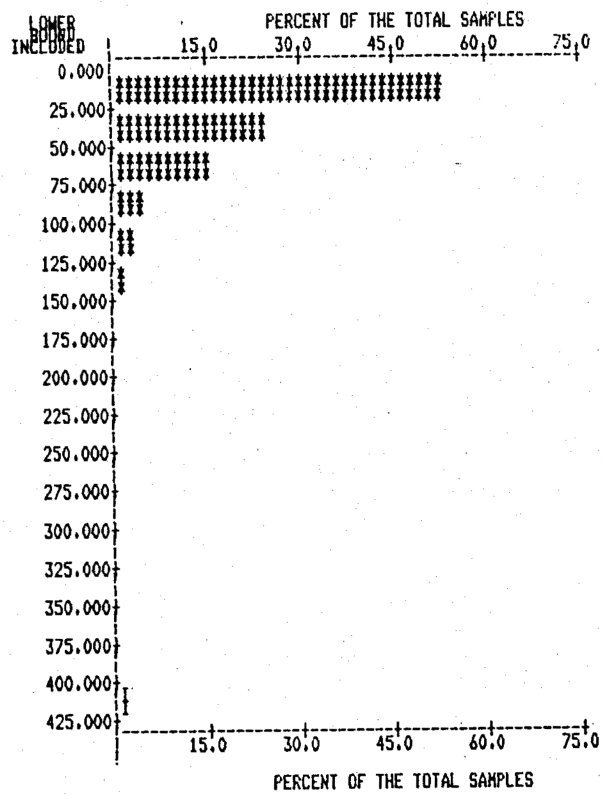


NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
28	21.54	21.54	100.000
49	37.69	59.23	200.000
12	9.23	68.46	300.000
15	11.54	80.00	400.000
9	6.92	86.92	500.000
5	3.85	90.77	600.000
4	3.08	93.85	700.000
1	0.77	94.62	800.000
2	1.54	96.15	900.000
1	0.77	96.92	1000.000
1	0.77	97.69	1100.000
0	0.00	97.69	1200.000
1	0.77	98.46	1300.000
0	0.00	98.46	1400.000
0	0.00	98.46	1500.000
0	0.00	98.46	1600.000
1	0.77	99.23	1700.000
1	0.77	100.00	1800.000

VARIABLE:	BA
NUMBER OF OBSERVATIONS:	130
MINIMUM:	40.000
MAXIMUM:	1770.000
MEAN:	267.615
STANDARD ERROR OF MEAN:	24.541
STANDARD DEVIATION:	279.808
COEFFICIENT OF VARIATION:	104.556
SKEWNESS:	2.795
KURTOSIS:	9.866

Rock Type: Intermediate Volcanics
Units 1 to 3

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : CU

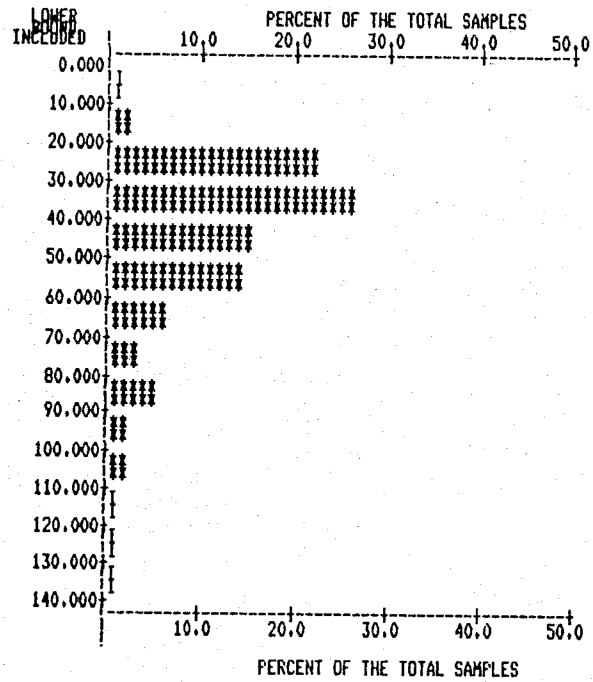


NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
69	53.08	53.08	25.000
31	23.85	76.92	50.000
19	14.62	91.54	75.000
5	3.85	95.38	100.000
3	2.31	97.69	125.000
2	1.54	99.23	150.000
0	0.00	99.23	175.000
0	0.00	99.23	200.000
0	0.00	99.23	225.000
0	0.00	99.23	250.000
0	0.00	99.23	275.000
0	0.00	99.23	300.000
0	0.00	99.23	325.000
0	0.00	99.23	350.000
0	0.00	99.23	375.000
0	0.00	99.23	400.000
1	0.77	100.00	425.000

VARIABLE:	CU
NUMBER OF OBSERVATIONS:	130
MINIMUM:	1.000
MAXIMUM:	420.000
MEAN:	33.062
STANDARD ERROR OF MEAN:	3.921
STANDARD DEVIATION:	44.711
COEFFICIENT OF VARIATION:	135.235
SKEWNESS:	5.282
KURTOSIS:	40.916

Rock Type: Intermediate Volcanics
Units 1 to 3

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : ZN



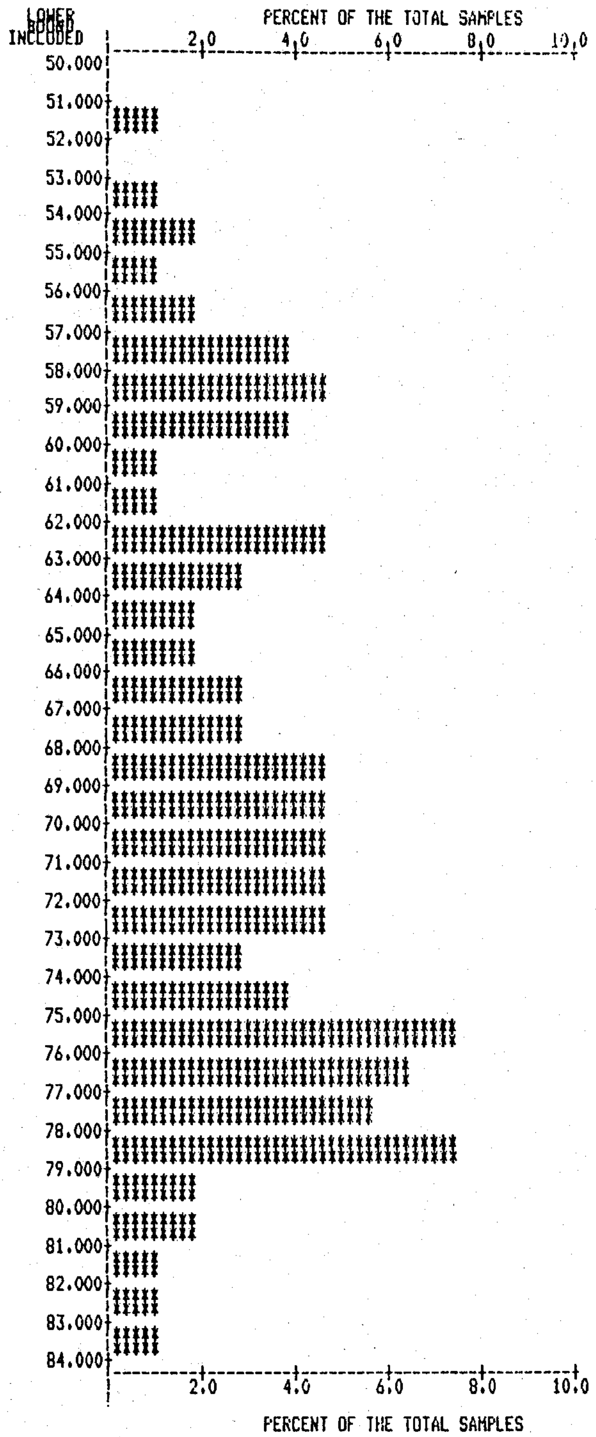
NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
1	0.77		
		0.77	10.000
3	2.31		
		3.08	20.000
28	21.54		
		24.62	30.000
34	26.15		
		50.77	40.000
20	15.38		
		66.15	50.000
18	13.85		
		80.00	60.000
8	6.15		
		86.15	70.000
4	3.08		
		89.23	80.000
6	4.62		
		93.85	90.000
3	2.31		
		96.15	100.000
2	1.54		
		97.69	110.000
1	0.77		
		98.46	120.000
1	0.77		
		99.23	130.000
1	0.77		
		100.00	140.000

VARIABLE:	ZN
NUMBER OF OBSERVATIONS:	208
MINIMUM:	27.000
MAXIMUM:	152.000
MEAN:	51.611
STANDARD ERROR OF MEAN:	1.283
STANDARD DEVIATION:	18.503
COEFFICIENT OF VARIATION:	35.851
SKEWNESS:	1.990
KURTOSIS:	6.026

Rock Type : Intermediate Volcanics
Units 1 to 3

****

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : SIO2



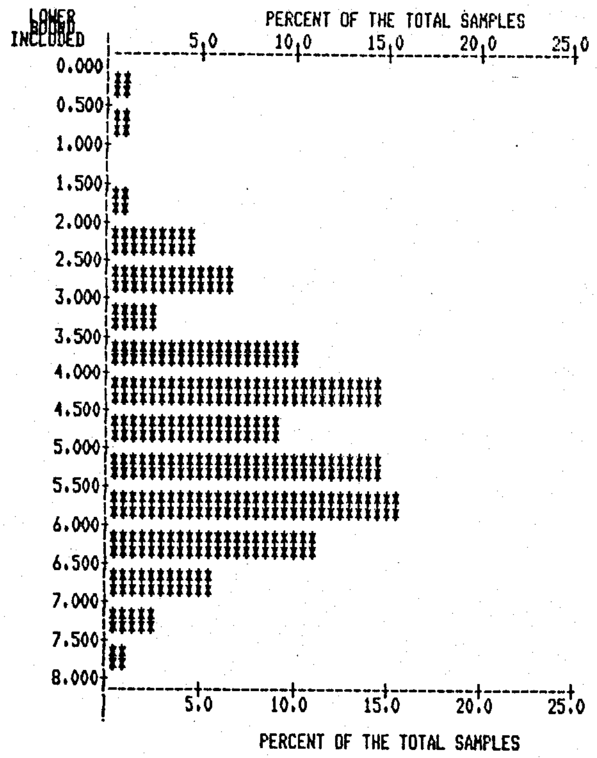
NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	50.000
0	0.00	0.00	51.000
1	0.93	0.93	52.000
0	0.00	0.93	53.000
1	0.93	1.85	54.000
2	1.85	3.70	55.000
1	0.93	4.63	56.000
2	1.85	6.48	57.000
4	3.70	10.19	58.000
5	4.63	14.81	59.000
4	3.70	18.52	60.000
1	0.93	19.44	61.000
1	0.93	20.37	62.000
5	4.63	25.00	63.000
3	2.78	27.78	64.000
2	1.85	29.63	65.000
2	1.85	31.48	66.000
3	2.78	34.26	67.000
3	2.78	37.04	68.000
5	4.63	41.67	69.000
5	4.63	46.30	70.000
5	4.63	50.93	71.000
5	4.63	55.56	72.000
5	4.63	60.19	73.000
3	2.78	62.96	74.000
4	3.70	66.67	75.000
8	7.41	74.07	76.000
7	6.48	80.56	77.000
6	5.56	86.11	78.000
8	7.41	93.52	79.000
2	1.85	95.37	80.000
2	1.85	97.22	81.000
1	0.93	98.15	82.000
1	0.93	99.07	83.000
1	0.93	100.00	84.000

VARIABLE:	SIO2
NUMBER OF OBSERVATIONS:	108
MINIMUM:	51.300
MAXIMUM:	83.000
MEAN:	69.481
STANDARD ERROR OF MEAN:	0.759
STANDARD DEVIATION:	7.887
COEFFICIENT OF VARIATION:	11.351
SKEWNESS:	-0.425
KURTOSIS:	-0.967

Rock Type : Rhyodacite Volcanics
Units 4, 4a, 4b

****

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : NA2O



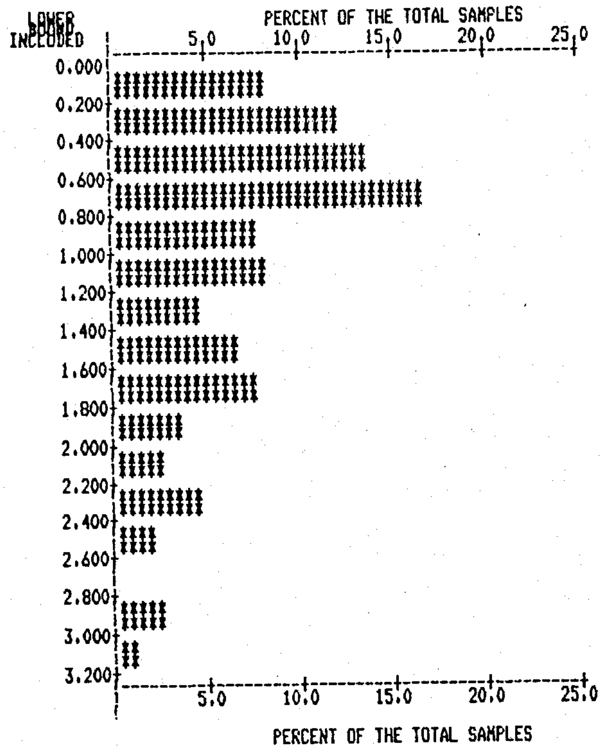
NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
1	0.91	0.91	0.500
1	0.91	1.82	1.000
0	0.00	1.82	1.500
1	0.91	2.73	2.000
5	4.55	7.27	2.500
7	6.36	13.64	3.000
3	2.73	16.36	3.500
11	10.00	26.36	4.000
16	14.55	40.91	4.500
10	9.09	50.00	5.000
16	14.55	64.55	5.500
17	15.45	80.00	6.000
12	10.91	90.91	6.500
6	5.45	96.36	7.000
3	2.73	99.09	7.500
1	0.91	100.00	8.000

VARIABLE:	NA2O
NUMBER OF OBSERVATIONS:	110
MINIMUM:	0.288
MAXIMUM:	7.800
MEAN:	4.786
STANDARD ERROR OF MEAN:	0.139
STANDARD DEVIATION:	1.458
COEFFICIENT OF VARIATION:	30.471
SKEWNESS:	-0.563
KURTOSIS:	0.077

Rock Type : Rhyodacite Volcanics
Units 4, 4a, 4b

##

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : K20



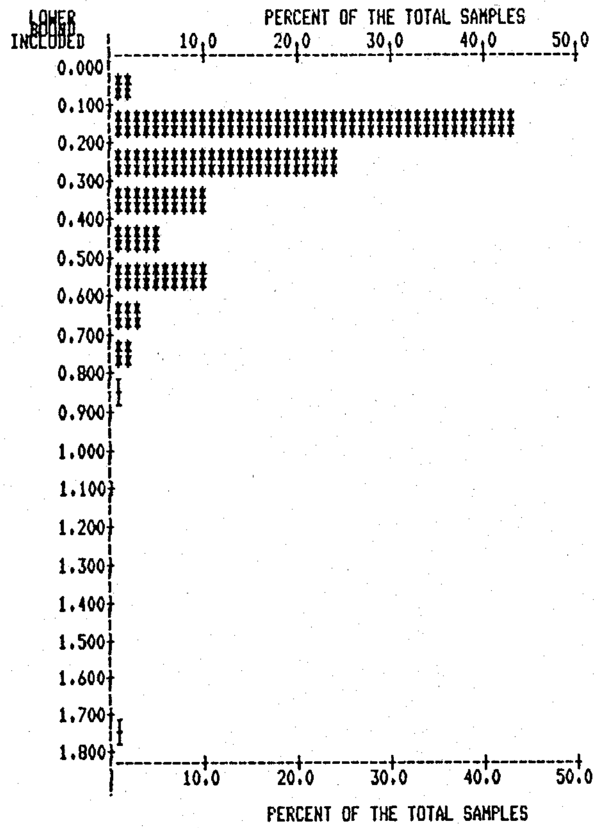
NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
9	8.18	8.18	0.200
13	11.82	20.00	0.400
15	13.64	33.64	0.600
18	16.36	50.00	0.800
8	7.27	57.27	1.000
9	8.18	65.45	1.200
5	4.55	70.00	1.400
7	6.36	76.36	1.600
8	7.27	83.64	1.800
4	3.64	87.27	2.000
3	2.73	90.00	2.200
5	4.55	94.55	2.400
2	1.82	96.36	2.600
0	0.00	96.36	2.800
3	2.73	99.09	3.000
1	0.91	100.00	3.200

VARIABLE:	K20
NUMBER OF OBSERVATIONS:	110
MINIMUM:	0.037
MAXIMUM:	3.020
MEAN:	1.042
STANDARD ERROR OF MEAN:	0.071
STANDARD DEVIATION:	0.743
COEFFICIENT OF VARIATION:	71.381
SKEWNESS:	0.814
KURTOSIS:	-0.167

Rock Type : Rhyodacite Volcanics
Units 4, 4a, 4b

****

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : TIO2



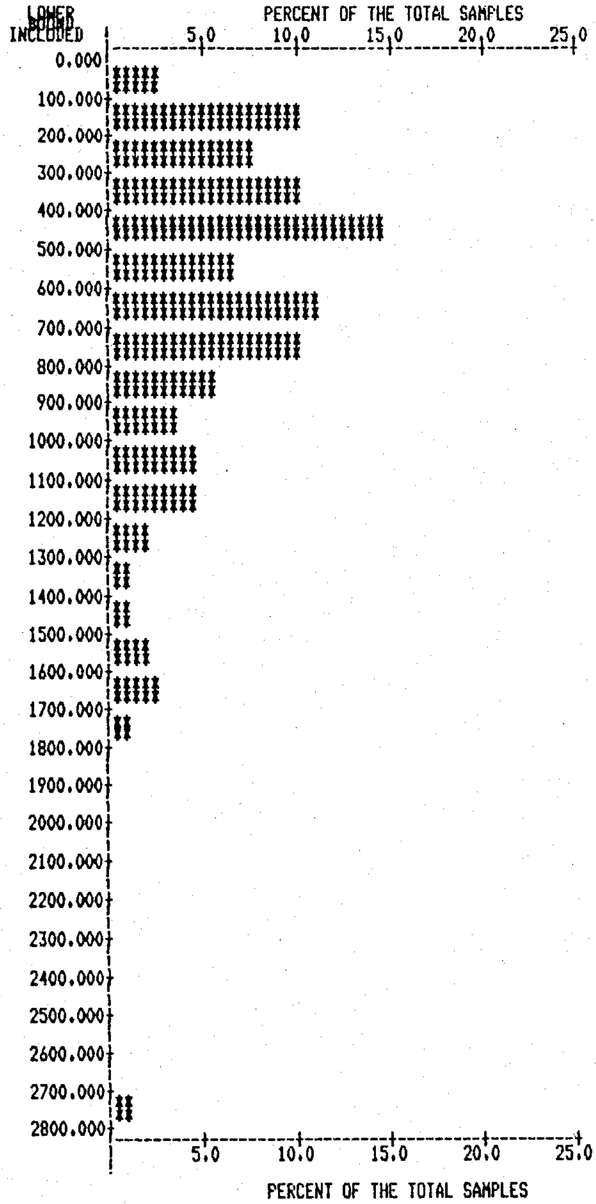
NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
2	1.82	1.82	0.100
47	42.73	44.55	0.200
26	23.64	68.18	0.300
11	10.00	78.18	0.400
6	5.45	83.64	0.500
11	10.00	93.64	0.600
3	2.73	96.36	0.700
2	1.82	98.18	0.800
1	0.91	99.09	0.900
0	0.00	99.09	1.000
0	0.00	99.09	1.100
0	0.00	99.09	1.200
0	0.00	99.09	1.300
0	0.00	99.09	1.400
0	0.00	99.09	1.500
0	0.00	99.09	1.600
0	0.00	99.09	1.700
1	0.91	100.00	1.800

VARIABLE:	TIO2
NUMBER OF OBSERVATIONS:	110
MINIMUM:	0.017
MAXIMUM:	1.770
MEAN:	0.288
STANDARD ERROR OF MEAN:	0.021
STANDARD DEVIATION:	0.221
COEFFICIENT OF VARIATION:	76.690
SKEWNESS:	3.179
KURTOSIS:	16.558

Rock Type : Rhyodacite Volcanics
Units 4, 4a, 4b

****

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : BA



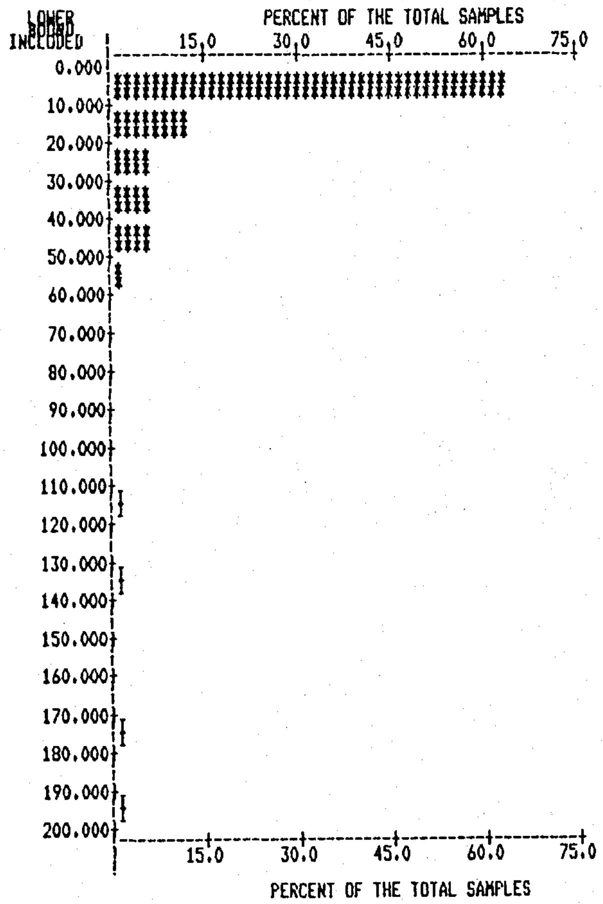
NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
3	2.73	2.73	100.000
11	10.00	12.73	200.000
8	7.27	20.00	300.000
11	10.00	30.00	400.000
16	14.55	44.55	500.000
7	6.36	50.91	600.000
12	10.91	61.82	700.000
11	10.00	71.82	800.000
6	5.45	77.27	900.000
4	3.64	80.91	1000.000
5	4.55	85.45	1100.000
5	4.55	90.00	1200.000
2	1.82	91.82	1300.000
1	0.91	92.73	1400.000
1	0.91	93.64	1500.000
2	1.82	95.45	1600.000
3	2.73	98.18	1700.000
1	0.91	99.09	1800.000
0	0.00	99.09	1900.000
0	0.00	99.09	2000.000
0	0.00	99.09	2100.000
0	0.00	99.09	2200.000
0	0.00	99.09	2300.000
0	0.00	99.09	2400.000
0	0.00	99.09	2500.000
0	0.00	99.09	2600.000
0	0.00	99.09	2700.000
1	0.91	100.00	2800.000

VARIABLE:	BA
NUMBER OF OBSERVATIONS:	110
MINIMUM:	70.000
MAXIMUM:	2740.000
MEAN:	650.545
STANDARD ERROR OF MEAN:	42.684
STANDARD DEVIATION:	447.668
COEFFICIENT OF VARIATION:	68.814
SKEWNESS:	1.401
KURTOSIS:	3.194

Rock Type : Rhyodacite Volcanics
Units 4, 4a, 4b

****

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : CU



NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
70	63.64	63.64	10.000
14	12.73	76.36	20.000
7	6.36	82.73	30.000
6	5.45	88.18	40.000
7	6.36	94.55	50.000
2	1.82	96.36	60.000
0	0.00	96.36	70.000
0	0.00	96.36	80.000
0	0.00	96.36	90.000
0	0.00	96.36	100.000
0	0.00	96.36	110.000
1	0.91	97.27	120.000
0	0.00	97.27	130.000
1	0.91	98.18	140.000
0	0.00	98.18	150.000
0	0.00	98.18	160.000
0	0.00	98.18	170.000
1	0.91	99.09	180.000
0	0.00	99.09	190.000
1	0.91	100.00	200.000

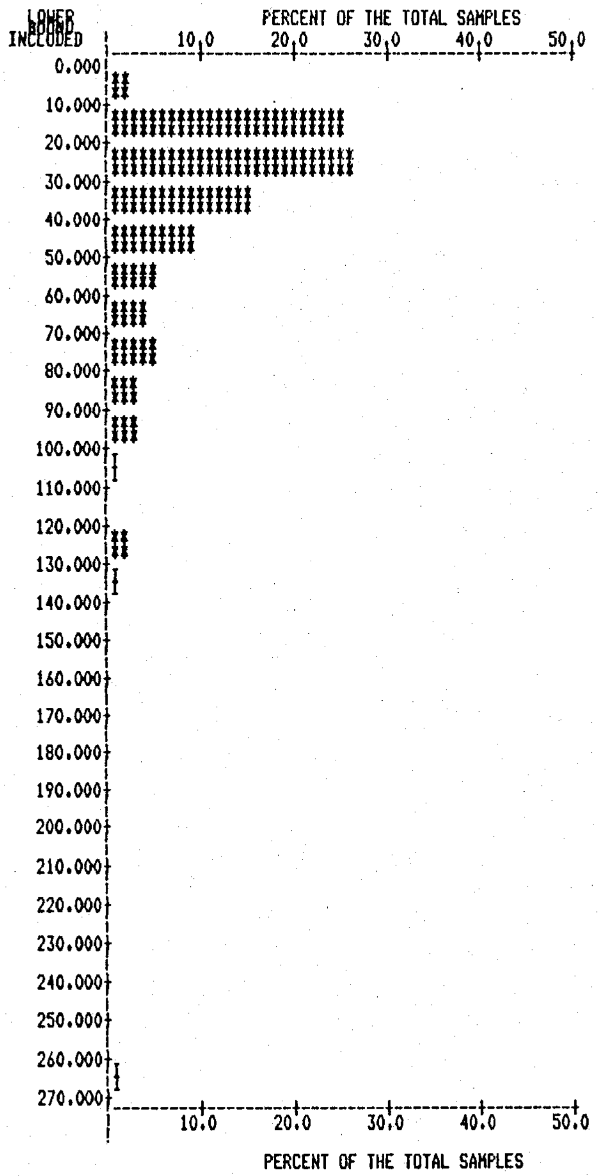
VARIABLE:	CU
NUMBER OF OBSERVATIONS:	110
MINIMUM:	0.000
MAXIMUM:	198.000
MEAN:	16.909
STANDARD ERROR OF MEAN:	2.946
STANDARD DEVIATION:	30.898
COEFFICIENT OF VARIATION:	182.729
SKEWNESS:	3.783
KURTOSIS:	16.252

Rock Type : Rhyodacite Volcanics
Units 4, 4a, 4b

****

DATA TITLE : TERRAMIN DATA - PN 094

VARIABLE : ZN



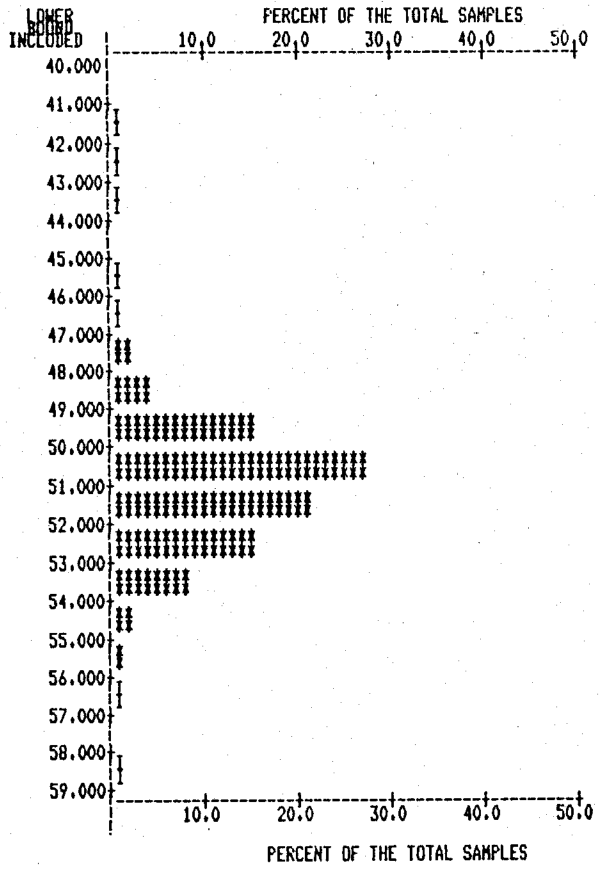
NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
2	1.82	1.82	10.000
27	24.55	26.36	20.000
29	26.36	52.73	30.000
16	14.55	67.27	40.000
10	9.09	76.36	50.000
6	5.45	81.82	60.000
4	3.64	85.45	70.000
5	4.55	90.00	80.000
3	2.73	92.73	90.000
3	2.73	95.45	100.000
1	0.91	96.36	110.000
0	0.00	96.36	120.000
2	1.82	98.18	130.000
1	0.91	99.09	140.000
0	0.00	99.09	150.000
0	0.00	99.09	160.000
0	0.00	99.09	170.000
0	0.00	99.09	180.000
0	0.00	99.09	190.000
0	0.00	99.09	200.000
0	0.00	99.09	210.000
0	0.00	99.09	220.000
0	0.00	99.09	230.000
0	0.00	99.09	240.000
0	0.00	99.09	250.000
0	0.00	99.09	260.000
1	0.91	100.00	270.000

VARIABLE:	ZN
NUMBER OF OBSERVATIONS:	110
MINIMUM:	6.000
MAXIMUM:	260.000
MEAN:	39.482
STANDARD ERROR OF MEAN:	3.293
STANDARD DEVIATION:	34.541
COEFFICIENT OF VARIATION:	87.485
SKEWNESS:	3.057
KURTOSIS:	14.033

Rock Type : Rhyodacite Volcanics
Units 4, 4a, 4b

****

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : SIO2



NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	40.000
0	0.00	0.00	41.000
1	0.48	0.48	42.000
1	0.48	0.96	43.000
1	0.48	1.44	44.000
0	0.00	1.44	45.000
1	0.48	1.92	46.000
1	0.48	2.40	47.000
5	2.40	4.81	48.000
8	3.85	8.65	49.000
31	14.90	23.56	50.000
57	27.40	50.96	51.000
43	20.67	71.63	52.000
32	15.38	87.02	53.000
17	8.17	95.19	54.000
5	2.40	97.60	55.000
3	1.44	99.04	56.000
1	0.48	99.52	57.000
0	0.00	99.52	58.000
1	0.48	100.00	59.000

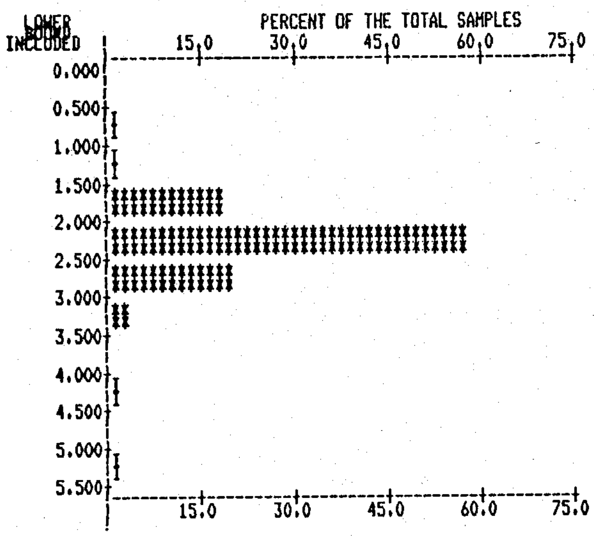
VARIABLE:	SIO2
NUMBER OF OBSERVATIONS:	208
MINIMUM:	41.300
MAXIMUM:	58.400
MEAN:	51.024
STANDARD ERROR OF MEAN:	0.141
STANDARD DEVIATION:	2.028
COEFFICIENT OF VARIATION:	3.974
SKEWNESS:	-0.689
KURTOSIS:	4.413

Rock Type : Hornblende (Quartz) Diorite
Unit 5

****

DATA TITLE : TERRAMIN DATA - PN 094

VARIABLE : NA2O



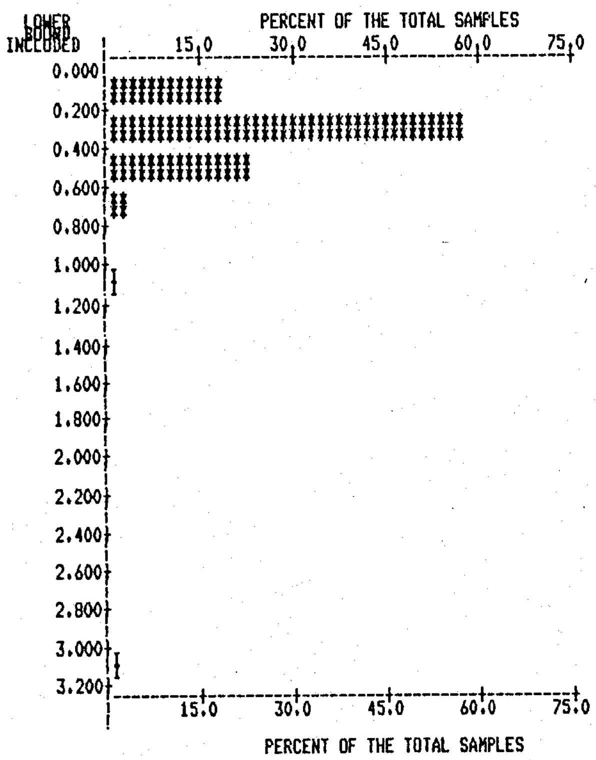
NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
0	0.00	0.00	0.500
1	0.48	0.48	1.000
2	0.96	1.44	1.500
38	18.27	19.71	2.000
117	56.25	75.96	2.500
42	20.19	96.15	3.000
6	2.88	99.04	3.500
0	0.00	99.04	4.000
1	0.48	99.52	4.500
0	0.00	99.52	5.000
1	0.48	100.00	5.500

VARIABLE:	NA2O
NUMBER OF OBSERVATIONS:	208
MINIMUM:	0.999
MAXIMUM:	5.320
MEAN:	2.284
STANDARD ERROR OF MEAN:	0.030
STANDARD DEVIATION:	0.427
COEFFICIENT OF VARIATION:	18.693
SKEWNESS:	2.073
KURTOSIS:	12.914

Rock Type : Hornblende (Quartz) Diorite

Unit 5

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : K20



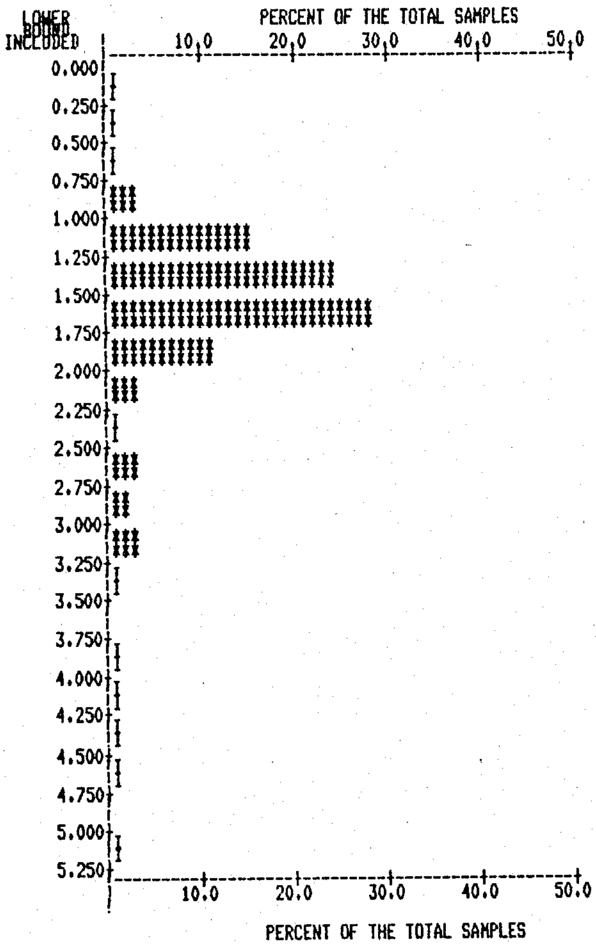
NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
36	17.31	17.31	0.200
118	56.73	74.04	0.400
46	22.12	96.15	0.600
5	2.40	98.56	0.800
0	0.00	98.56	1.000
1	0.48	99.04	1.200
0	0.00	99.04	1.400
0	0.00	99.04	1.600
0	0.00	99.04	1.800
0	0.00	99.04	2.000
0	0.00	99.04	2.200
0	0.00	99.04	2.400
0	0.00	99.04	2.600
0	0.00	99.04	2.800
0	0.00	99.04	3.000
2	0.96	100.00	3.200

VARIABLE:	K20
NUMBER OF OBSERVATIONS:	208
MINIMUM:	0.025
MAXIMUM:	3.180
MEAN:	0.346
STANDARD ERROR OF MEAN:	0.021
STANDARD DEVIATION:	0.308
COEFFICIENT OF VARIATION:	88.823
SKEWNESS:	6.991
KURTOSIS:	59.599

Rock Type : Hornblende (Quartz) Diorite
Unit 5

****

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : TIO2



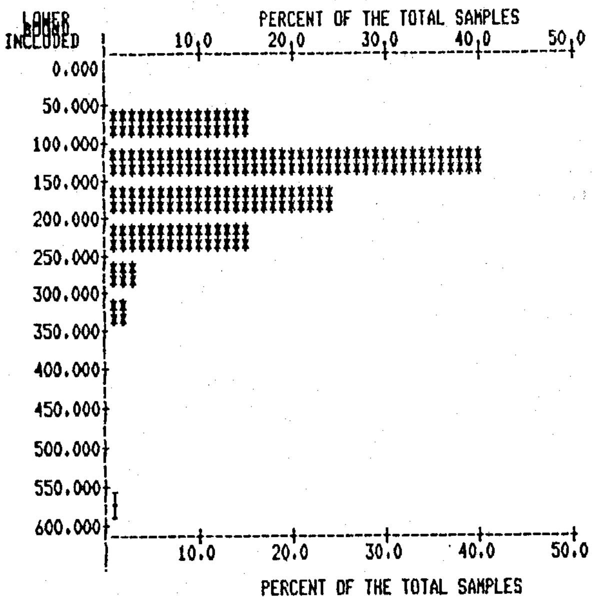
NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
1	0.48	0.48	0.250
1	0.48	0.96	0.500
1	0.48	1.44	0.750
6	2.88	4.33	1.000
31	14.90	19.23	1.250
50	24.04	43.27	1.500
59	28.37	71.63	1.750
23	11.06	82.69	2.000
6	2.88	85.58	2.250
2	0.96	86.54	2.500
7	3.37	89.90	2.750
4	1.92	91.83	3.000
6	2.88	94.71	3.250
2	0.96	95.67	3.500
0	0.00	95.67	3.750
1	0.48	96.15	4.000
2	0.96	97.12	4.250
2	0.96	98.08	4.500
2	0.96	99.04	4.750
0	0.00	99.04	5.000
2	0.96	100.00	5.250

VARIABLE:	TIO2
NUMBER OF OBSERVATIONS:	208
MINIMUM:	0.245
MAXIMUM:	5.170
MEAN:	1.737
STANDARD ERROR OF MEAN:	0.054
STANDARD DEVIATION:	0.781
COEFFICIENT OF VARIATION:	44.967
SKEWNESS:	2.111
KURTOSIS:	5.150

Rock Type : Hornblende (Quartz) Diorite
Unit 5

****

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : BA

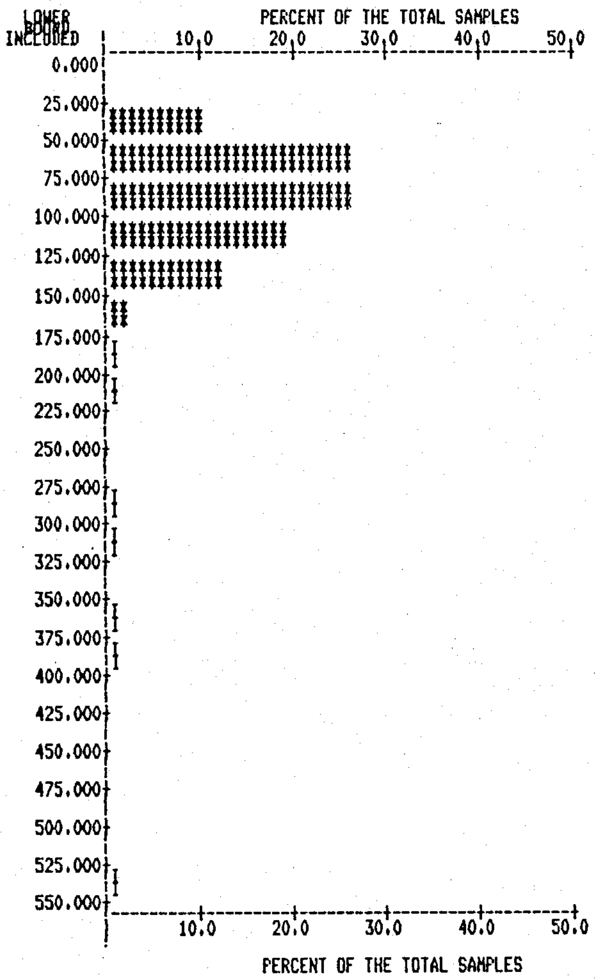


NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
0	0.00	0.00	50.000
31	14.90	14.90	100.000
83	39.90	54.81	150.000
50	24.04	78.85	200.000
32	15.38	94.23	250.000
6	2.88	97.12	300.000
5	2.40	99.52	350.000
0	0.00	99.52	400.000
0	0.00	99.52	450.000
0	0.00	99.52	500.000
0	0.00	99.52	550.000
1	0.48	100.00	600.000

VARIABLE:	BA
NUMBER OF OBSERVATIONS:	208
MINIMUM:	50.000
MAXIMUM:	560.000
MEAN:	151.587
STANDARD ERROR OF MEAN:	4.237
STANDARD DEVIATION:	61.100
COEFFICIENT OF VARIATION:	40.307
SKEWNESS:	1.915
KURTOSIS:	8.809

Rock Type : Hornblende (Quartz) Diorite
Unit 5

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : CU



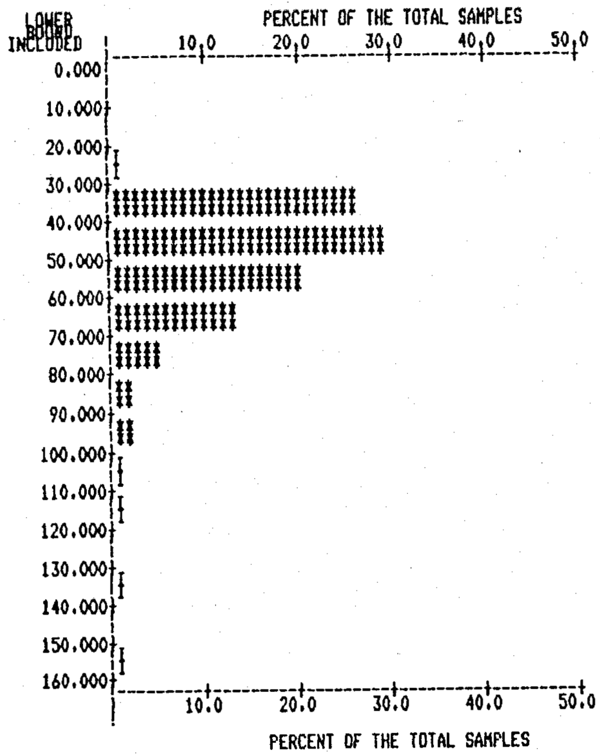
NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
0	0.00	0.00	25.000
20	9.62	9.62	50.000
55	26.44	36.06	75.000
55	26.44	62.50	100.000
40	19.23	81.73	125.000
25	12.02	93.75	150.000
4	1.92	95.67	175.000
2	0.96	96.63	200.000
1	0.48	97.12	225.000
0	0.00	97.12	250.000
0	0.00	97.12	275.000
1	0.48	97.60	300.000
2	0.96	98.56	325.000
0	0.00	98.56	350.000
1	0.48	99.04	375.000
1	0.48	99.52	400.000
0	0.00	99.52	425.000
0	0.00	99.52	450.000
0	0.00	99.52	475.000
0	0.00	99.52	500.000
0	0.00	99.52	525.000
1	0.48	100.00	550.000

VARIABLE:	CU
NUMBER OF OBSERVATIONS:	208
MINIMUM:	25.000
MAXIMUM:	540.000
MEAN:	97.779
STANDARD ERROR OF MEAN:	4.055
STANDARD DEVIATION:	58.481
COEFFICIENT OF VARIATION:	59.809
SKEWNESS:	3.681
KURTOSIS:	19.945

Rock Type : Hornblende (Quartz) Diorite
Unit 5

****

DATA TITLE : TERRAMIN DATA - PN 094
VARIABLE : ZN



NUMBER OF SAMPLES IN THIS CATEGORY	PERCENTAGE OF THE TOTAL SAMPLES	CUMULATIVE PERCENT BELOW LOWER BOUND	LOWER BOUND
		0.00	0.000
0	0.00	0.00	10.000
0	0.00	0.00	20.000
2	0.96	0.96	30.000
54	25.96	26.92	40.000
61	29.33	56.25	50.000
41	19.71	75.96	60.000
26	12.50	88.46	70.000
10	4.81	93.27	80.000
5	2.40	95.67	90.000
4	1.92	97.60	100.000
1	0.48	98.08	110.000
2	0.96	99.04	120.000
0	0.00	99.04	130.000
1	0.48	99.52	140.000
0	0.00	99.52	150.000
1	0.48	100.00	160.000

VARIABLE:	ZN
NUMBER OF OBSERVATIONS:	130
MINIMUM:	9.000
MAXIMUM:	135.000
MEAN:	46.023
STANDARD ERROR OF MEAN:	2.045
STANDARD DEVIATION:	23.314
COEFFICIENT OF VARIATION:	50.657
SKEWNESS:	1.405
KURTOSIS:	2.007

Rock Type : Hornblende (Quartz) Diorite
Unit 5

##

APPENDIX C

Drill Logs

SUMMARY LOG - DDH 84-1

Location: LN 19E/0+005

Bearing: 195°
Dip 45°

Depth (Meters)	Description
0 - 9.45	Casing
9.45 - 22.83	Gray green fragmental volcanic, mod. to high silicified, white fragments (lath-shaped) feldspar?; weakly foliated; py 2%, 5% epidote hosts 2mm to 3cm; foliation 45° to C.A.
22.83 - 37.72	Silicic porphyritic hbl. volcanic; hbl xtals conspicious (10-15%) over 60-70% of unit; unit similar to 9.45 - 22.83; epidote alteration mod. to strong; weak chlorite alteration; occasional carbonate veinlets, pyrite 1-2%.
37.72 - 45.37	Mod. to highly silicified, mottled whitish green, f.g. to aphonitic; bands with hbl xtals; py 5% locally 10-15%, faint fragmental texture.
45.37 - 96.42	Extreme to highly silicified; translucent green to green brown, aphanitic to f.g. volc (?); ellipsoid qtz eyes to 7mm (average 3mm) elongate to foliation and irregular rounded to lath-shaped white spots (feldspar=phenocrysts) 1-3mm; above 79.02m, massive and "CHERTY", below 79.02 qtz-eyes abundant and units foliated and sericitic; foliation @ 40° to C.A. Py 1%; quartz feldspar porphyry (QFP); Vancouver Petrograph Rhyodacite flow (tuff?)
96.42 - 127.41	Mod. to highly silicified; f.g. weakly foliated, 40° to C.A. blue gray to grn gray, mottled volcanic?; often relict or ghost-like hbl phenocrysts py 2%
102.82 - 103.22	Highly chloritic (shear?) zone; 25cm zone with 10-20% magnetite 10-20% pyrrhotite.

E.O.H. 127.41

SUMMARY LOG - DDH 84-2

Location: LN 19E/0+00S

Azimuth: 195°
Dip 60°

Depth (M)	Description
0 - 6.40	Casing
6.40 - 24.46	F.g. to m.g. med. green volcanics. Phenocrysts (1 to 7mm long) of feldspar (?). Minor epidote alteration. Py: 1-2% as disseminations.
24.46 - 155.64	M.g. to green volcanics with subhedral hornblende phenocrysts. Minor epidote alteration. Some highly silicified or highly chloritic zones. Py as disseminations and veinlets (30-35° to C.A.). Py: 2-3%
155.64 - 183.23	F.g. med to dark green volcanics. Fragmental texture observed in places. Overall Py: 1-2% Tr. Po.
183.23 - 187.94	Highly chloritic unit with abundant magnetite, lesser amounts of Po, Py and Cpy. Calcite veining at 0 to 25° to C.A. Overall: Mg: 10%, Po: 1%, Py: trace, Cpy: trace 184.22-184.81: Magnetite 30%, Tr. Po, Tr. Py, in calcite gangue.
187.94 - 200.25	Light gray-green highly silicified unit with small (1 to 2mm long). Fragments of quartz. Occ. quartz-eyes. Weak foliations at 25° to 30° to C.A. Py: $\angle$1%

E.O.H. 220.25m

SUMMARY LOG - DDH 84-3

Location: LN 15E/9+25S

Azimuth: 015°
Dip 45°

Depth (M)	Description
0 - 5.49	Casing
5.49 - 17.80	F.g., dark to med. green volcanics. Mod. to highly silicified. Abundant epidote vesicles (?). Foliation at 75° to 85° to C.A. Closely fractured with iron oxides on fracture surfaces. Py: 1%
17.80 - 72.94	Light gray-green quartz-eye porphyry. Quartz eyes are 2mm to 10mm long aligned at 70° to C.A. Overall Py: 1% Cpy: tr. 60.94 - 64.39: Mod. to highly chloritic volcanics. Py as disseminations and veinlets with calcite gangue. Py: 10% Cpy: tr. 65.18 - 65.29: Vuggy calcite with Py: 20%, Cpy: 5%
72.94 - 74.47	Highly chloritic unit with semi-massive py. Calcite veins at 50° to C.A. Py: 40%, Cpy: 2%
74.47 - 84.73	Alternating zones of chloritic volconics and highly silicified volcanics with faint quartz-eyes. Py: 1%
84.73 - 92.74	F.g. dark-green volconics. Mod. chlorite alteration. Epidote blebs and patches form 5-8% of rock. Py: 1% Cpy: tr.
92.74 - 114.60	F.g. med. to dark green volcanics with fine fragmental texture. Mod. chloritic in places: Mod. to highly silicified in others. Weak foliations at 50° to 60° to C.A. Closely fractured. Py: ∠1%

E.O.H. 114.60m

SUMMARY LOG - DDH 84-4

Location: LN 15E/9+25S

Azimuth: 015°
Dip: 60°

Depth (M)	Description
0 - 3.35	Casing
3.35 - 15.76	F.g. med. green volcanics with epidote (vesicles?) 2mm to 12mm long. Elongated at 70 to 75° to C.A. Core is very broken. Py: 1%
15.76 - 64.26	Med. green quartz-eye porphyry weak foliation of quartz-eyes at 65° to 75° to C.A. Py: 1-2%
64.26 - 76.41	Gray-green, translucent, highly silicified unit. Sub-angular crystals of feldspar ? comprise 30% of rock. Faint qtz-eyes. Py: 2% 68.50 - 68.52: 60% Py, 40% chlorite 73.78 - 73.91: Broken chloritic zone with 20 - 30% Py.
76.41 - 95.06	F.g. gray-green volcanics, highly silicified in upper portion. Much chl. alteration. Py: 10%, Cpy: tr. 84.80 - 84.82: Cpy/Py blebs in quartz-calcite and chlorite gangue. Cpy: 20% Py: 10-12% 84.87 - 84.89: Py: 45-50% Cpy: 5%
95.06 - 101.61	F.g. med. green frag. volcanics with epidote. Py: 2-3% 97.16 - 97.62: Fault/sheer zone.
101.61 - 127.90	Gray-green quartz-eye porphyry. Strongly foliated at 55° to 60° C.A. Py: 1%
127.90 - 147.26	Dark green mod. chl. volcanics with epidote alteration. Py as disseminations, semi-massive in places. Py: 5%, Cpy: tr. 135.48 - 135.70: Highly chloritic zone with Py: 15% Cpy: tr. 140.51 - 140.92: F.g. interlocking patches of Py, Cpy in calcite-chlorite gangue. Py: 20% Cpy: 1%
147.26 - 148.89	F.g. gray-green highly silicified quartz-eye porphyry weakly foliated at 50° to C.A. Tr. Py.

E.O.H. 148.89

SUMMARY LOG - DDH 84-5

Location: LN 9E/1+15S

Bearing: 015°
Dip: 45°

Depth (M)	Description
0 - 5.18	Casing
5.18 - 16.58	Dark green to black, c.g. highly chloritic unit; possibly a sheared hbl shonkinite (Eastwood 1978-1979) in altered mafic volcanic (intrusive?); pyrite disseminated <.5%, Cp tr., 50% of unit is moderately magnetic; foliation @ 60° to C.A.
16.58 - 17.55	Dark green, porphyritic, volcanic; phenocrysts white (5-10% of unit) to 3mm irregular shapes. (feldspars?); porphyritic andesite? intrusive?
17.55 - 48.41	Med. green to dark green, f.g. to v.f.g. volc. weakly foliated @ 60° to C.A.; 75% of unit mod. to highly silicified with 2-3% pyrite; 25% mod. to highly chloritic v.f.g. volcanic with weak epidote alteration. Py: 5%
48.41 - 93.65	Mod. to highly silicic f.g. to v.f.g. volcanic?; mod. to highly sericitic and foliated over 40-60% of unit; foliation 60° to C.A., can be "cherty" with white phenocrysts? (QFP?). Pyrite disseminated and along foliation fractures; py 2-3% qtz-sercite schist?
93.65 - 101.63	Gray-green, highly (extremely) silicic "cherty" volcanic? with up to 20% white porphyritic spots (altered feldspar?) Pyrite 1-2%
101.63 - 141.98	Highly sericitic, whitish green, foliated unit; bands, up to a few metres over 20-25% of unit, of mod. to highly siliceous volcanic; foliation @ $60-65^{\circ}$ to C.A.; foliation can be wavy with minor folds (?) (centimeters scale) from F_1 F_2? defunctional events); bands to 4-6cm of 15-30% pyrite; total pyrite 1-3%?; sericite schist?
141.98 - 148.10	Mod. to highly silic volcanic as for 48.41-93.65. Py 1-2%; weak epidote alteration.
148.10 - 153.31	Mod. silicic, v.f.g. to aphoritic dark green volcanic with medium to light green discontinous streaks; py <.5% weak to mod. chlorite alteration.

E.O.H. 153.31

SUMMARY LOG - DDH 84-6

Azimuth: 015°

Location: LN 10E/1+50S

Dip: 45°

Depth (M)	Description
0 - 1.52	Casing
1.52 - 37.47	F.g. gray green highly silicified volc. (?). Faint banding at 80° to 90° to C.A. Py as disseminated blebs with calcite gangue Py: 10% Cpy. tr.
37.47 - 38.26	F.g. highly chloritic volcanics with feldspar (?) porphyries. Calcite veinlets at 50-60° to C.A. Py: 1%
38.26 - 63.73	Gray green highly silicified volcanics (?) as above. Disseminated and veinlet. Py: 10-12%
63.73 - 69.72	Med. gray highly silic. volc (?) with feldspar phenocrysts. Py: 1%
69.72 - 74.82	Light gray-green sericitic volcanics. Banding at 80-90° to C.A. Py: 2-3% 69.78 - 69.83: 40% Py, 0.5% Cpy in calcite gangue
74.82 - 105.03	Med. green highly silicified volcanics with feldspar phenocrysts interlayered with banded sericitic volcanics. Py: 5%
105.03 - 125.66	Gray green mod. silicified volcanics. Minor epidote alteration. Disseminated Py with calcite gangue. Py: 8-10%
125.66 - 141.03	Gray green med. to highly chloritic volcanics. Abundant quartz-calcite veins at 50 to 90° to C.A. Py: 2-5%
141.03 - 141.97	Chaotic intergrowth of chlorite and quartz-calcite
141.97 - 162.76	F.g. gray green volcanics with much sericite alteration. Foliated at 55 to 65° C.A. Qtz-calcite veinlets with Py. Py: 10%

E.O.H. 162.76

SUMMARY LOG - DDH 84-7

Location: LN 7E/10+43S

Azimuth: 195°
Dip: 40°

Depth (M)	Description
0 - 10.06	Casing
10.06 - 57.15	Gray green volcanics with abundant epidote. Elongation of epidote patches at 40 to 50° C.A. Py: 2-3% 23.07 - 23.73: Qtz-eye porphyry 49.88 - 50.13: Py: 20% in calcite/chlorite gangue.
57.15 - 72.73	Dark green volcanics with feldspar phenocryst. Mod. to highly chl. sections with calcite veinlets. Highly silicified in places. Py: 5% Cpy: tr. 62.83 - 64.06: Highly chl. section. Py: 20% in quartz-calcite patches. 69.23 - 72.73: Highly chl. rock with py: 10% Cpy: tr in quartz-calcite gangue. Cpy up to 10% over 5cm
72.73 - 85.69	F.g. dark green volcanics with small (0.5-2mm long) feldspar phenocrysts. Mod. to highly silicified throughout. Py: 3-5%
85.69 - 106.97	Gray green highly silic. volcanics with feldspar phenocrysts and abundant epidote. Minor hematite on some fracture surfaces. Py: 5%
106.97 - 129.54	Mixed section of highly chloritic volcanics and highly silicified epidote volcanics. Overall Py: 2%

E.O.H. 129.54

SUMMARY LOG - DDH 84-8

Location: 5+05E/6+13S

Azimuth: 015°
Dip: 45°

Depth (M)	Description
0 - 3.66	Casing
3.66 - 14.16	M.g. to coarse grained intrusive. Hornblende xtals: 50% feldspar: 40%, chlorite 1-2%, ilmenite (magnetic): 5% cpy: tr., epidote: 2-3%, hornblende shonkinite (eastwood) or hornblende diorite (vanc. petrographics report).
14.16 - 18.53	F.g. highly silicic intrusive (?) with feldspar phenocrysts.
18.53 - 22.87	Hornblende shonkinite as above. Ilmenite: 5%, cpy: tr.
22.87 - 64.16	Highly silicic to mod. chloritic, f.g. porphyry. Very tr. cpy. possibly f.g. intrusive (?). Foliated at 50° C.A. Occ. epidote veinlets and patches. Some faint hornblende crystals.
64.16 - 91.44	Dark green volcanics (?) f.g. feldspar phenocrysts (1 to 4mm long) weakly foliated at 60 - 70° C.A. Occ. calcite quartz veinlets at 40 - 50° to C.A. Epidote veinlets at 50 - 70° C.A. in opposite sense of calcite veinlets.

E.O.H. 91.44m

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar	-45°	195°
45.72 m	-45°	195°
91.44 m	-40°	197°
121.92 m	-40°	192°

PROPERTY West Claims	Length 127.41m	HOLE No: W 84-1	Page #
Location Crofton, B.C.	Hor. Comp. / Vert. Comp.	Sheet 1 of 4	
Elevation	Bearing 195°	Logged by M. Hiltz	
Coordinates 0+00N N	Begun Aug.26/84 / Completed Aug.28/84	Sampled by M. Hiltz	
LN 19+00E E	Core size NQ/BQ/Recovery 94 %	Driller Longyear Fly 38	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	Ag g/MT	Au g/MT
0	9.45			Casing											
9.45	22.83	57	94	Grey-green, porphyritic to fragmental fg-mg volcanic; med. to highly silicified; 20-30% white irregular to lath-shaped phenocrysts or fragments (fs?) to 2mm; 5% chloritized hbl xtals to 2mm; qtz 10-20% as anhedral blebs <1mm; ep occurs as blebs or knots (2-30mm). Qtz stringer (<2mm wide) can be found cross-cutting long axis of ep. Knots mod. fractured; fractures chlorite and py coated; Py <1% as fg dissem. or along selvages of qtz fracture-filling veinlets, which are enveloped by chlorite; weak ep. alteration; weak foliation. 10.48 - 15.07m: schistose subunit; foliation defined by chloritic (30-40%) and silic. volc. (70-60%) layers highly fractured; ep as blebs or augen-like shapes (< 2cm) Py: 1-2% 17.83 - 22.83: Ep knots which can have pyritic cores	foliation = 45° subunit upper CTC = 30° foliation = 40-45°		4101 4102 4103 4104 4162 4105 4106	9.45 11.45 13.45 15.45 17.45 19.45 21.45	11.45 13.45 15.45 17.45 19.45 21.45 22.83	2.00 2.00 2.00 2.00 2.00 2.00 1.38	.01 .01 .01 .02 .01 .03 .02			L.5 L.5 L.5 L.5 L.5 L.5 L.5	L.05 L.05 L.05 L.05 .10 .30 L.05
22.83	37.72 27.74	32	96	Grey-green fg volc. with porphyritic, subhedral to anhedral, hbl xtals up to 4mm, average 1-2mm; 60-70% of unit has conspicuous 10-15% hbl phenocrysts; mod. to highly silicified; fragmental texture can be seen when not obscured by alteration ep mainly as blebs (<2mm) which can give a speckled green appearance to unit; occ. ep knots >2cm; weak pervasive carbonate alteration over 20% of unit; carbonate can occur as veinlets and fracture coatings; fractures of low density and coincident with weak foliation, py fg 1-2% dissem. and fracture veinlets. 23.48 - 25.78: strong cp/qtz flooding massive alteration; 3% epidotized hbl carb on fractures; subunit texture can be breccia-like; Py 1-2% 25.28 - 36.30: med. chloritic alteration 31.05: 8cm irregular zone of 50-60% white qtz, 10-20% ep, 10-15% chlorite, 5% carbonate Reduce from NQ to BQ	fracture/ foliation 35-45°		4107 4108 4109 4110 4111 4112 4113 4114	22.83 24.83 26.83 28.83 30.83 32.83 34.83 36.83	24.83 26.83 28.83 30.83 32.83 34.83 36.83 37.72	2.00 2.00 2.00 2.00 2.00 2.00 2.00 .89	.02 .01 L.01 .02 .01 .01 .01 L.01			L.5 L.5 L.5 L.5 L.5 L.5 L.5 L.5	L.05 L.05 L.05 L.05 L.05 L.05 L.05 .10
37.72	45.37	78	97	Grey-green to mottled whitish green, fg to aphanitic volc.? mod. to highly silicified; ms to weakly foliated; 10% of unit fragmental; can be cherty with white spots. Mod. to highly fractured some irregular; fracture fillings qtz > chlorite = ep>py = carb. Weak ep. alter. as blebs <1mm, knots <1cm; less silicic zone have weak carbonate alter; 2-4% fg py xtals dissem. and along fractures.	foliation = 40° fractures = 40° irregular fracture = 30°, 10-20%		4115 4116 4117 4118	37.72 39.72 41.72 43.72	39.72 41.72 43.72 45.37	2.00 2.00 2.00 1.65	L.01 L.01 .01 L.01			L.5 L.5 .5 L.5	L.05 L.05 L.05 L.05

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Collar	Inclination	Bearing

PROPERTY	
Location	
Elevation	
Coordinates	N / E

Length	
Hor. Comp. / Vert. Comp.	
Bearing	
Begun / Completed	
Core size / Recovery %	

HOLE No.	W 84-1	Page #
Sheet	2 of 4	
Logged by	M. Hiltz	
Sampled by		
Driller		

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500
37.78	45.37	con'	t	39.00 - 40.10m: chaotic shear zone, chl 20-25%, ep 10-15%, qtz (silica) 50-60%; qtz/carb veins 5-10%, py: 1% 41.24 - 41.59m: 10-15% py dominantly along fracture fillings veins to 1cm wide 43.54 - 43.89m: porphyritic hbl to 4mm (aver. 2mm) = 10%, py: $<$ 1% 45.50 - 45.75m: whitish green matrix, hbl partly chloritized 43.89 - 45.37m: py: 5-15% more abdt at top	foliation = 40°	
45.37	96.42	69	95	Translucent green to green brown or blue-grey-green, aphanitic to fg volc.(?) highly silicified; ellipsoidal qtz eyes (augen) to 7mm (aver. 3mm) elongate along foliation; irregular and lath-like white spots, 1-3mm, 5-15% (fs?); fracture density low but high in sericitic zones, fractures dominantly 35-45° but can be irregular and subparallel to C.A. Py: 1% dissem., fractures, grain aggregates to 1cm; carb. on some fractures. Unit = qtz-feldspar porphyry QFP (Eastwood 1978-1979) or meta rhyodacite flow/tuff? (Vancouver Petrographic 1984)	fracture = 35-60° foliation = 35°	
45.37	69.17	72	95	Mg cherty variety with conspicuous white spots, qtz eyes difficult to see because of cherty character 61.06 - 62.79m: porphyritic hbl silic volc. as 22.83 - 37.72; 5% hbl which are often difficult to see: Py; 1-2% mod. ep, py alter below 62.19 63.95 - 66.26m: similar to 61.00 - 62.79 silic volc. but no hbl seen; intercalated bands of ms cherty QFP at 65.11 (1cm), 65.56 (4cm), 65.86 (3cm) 66.10 (4cm) Py: 3%		
69.17	79.02	60	96	Highly fractured, strongly sericitic, mod. silicified weak carbonate and chlorite on some fractures; weak ep stretched out along foliation. Py 1%; qtz eyes seen ~		
79.02	96.42	69	96	Whitish green, mod. to strongly sericitic, well foliated; defined by sericite; qtz eyes conspicuous 81.85 - 82.30m: mod. to highly chloritic sheared zone 82.30 - 82.60m: highly chloritic shear zone with semi-ms fg banded? 15cm mineralized zone with 5% Po, 10-15% Py: 20% dissem. vfg mg? 84.50 - barren qtz/carb. vein, 11cm long; tapers from 10mm to 3mm 87.51 - 91.18m: qtz/sericite altered porphyritic hbl volc. but hbl are ghost-like and inconspicuous Py 3% 91.50 - 91.70m: pyritic qtz/sericite alter. volc. similar to 87.51 - 91.18 Py: 5-10% 93.30 - 5cm pod of semi-ms py 30% with silky ms gangue-sericitic host rk?, light green-brown. Hardness 3-4	foliation = 40° mineralization 45° vein = 5-10°	

SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	Ag g/MT	Au g/MT
4119	45.37	47.37	2.00	L.01			L.5	L.05
4120	47.37	49.37	2.00	L.01			L.5	L.05
4121	49.37	51.37	2.00	L.01			L.5	L.05
4122	51.37	53.37	2.00	L.01			L.5	L.05
4123	53.37	55.37	2.00	L.01			L.5	L.05
4124	55.37	57.37	2.00	L.01			L.5	L.05
4125	57.37	59.37	2.00	L.01			L.5	L.05
4126	59.37	61.06	1.69	L.01			L.5	L.05
4127	61.06	62.74	1.68	L.01			L.5	.20
4128	62.74	64.74	2.00	L.01			L.5	L.05
4129	64.74	66.74	2.00	L.01			L.5	L.05
4130	66.74	68.74	2.00	L.01			L.5	L.05
4131	68.74	70.74	2.00	L.01			4.0	L.05
4132	70.74	72.74	2.00	L.01			L.5	L.05
4133	72.74	74.74	2.00	L.01			L.5	L.05
4134	74.74	76.74	2.00	L.01			L.5	L.05
4135	76.74	78.74	2.00	L.01			L.5	L.05
4136	78.74	80.79	2.00	L.01			L.5	L.05
4137	80.79	81.85	2.00	L.01			L.5	L.05
41.38	81.85	82.65	.80	.13	.01		L.5	L.05
4139	82.65	84.65	2.00	L.01			L.5	L.05
4140	84.65	86.65	2.00	L.01			L.5	L.05
4141	86.65	88.65	2.00	L.01			L.5	L.05
4142	88.65	90.65	2.00	.01			.5	L.05
4143	90.65	92.65	2.00	L.01			L.5	L.05
4144	92.65	94.65	2.00	L.01			.5	L.05
4145	94.65	96.65	2.00	L.01			L.5	.20

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Collar	Inclination	Bearing	PROPERTY	Length	HOLE No: W 84-1	Page #
			Location	Hor. Comp. / Vert. Comp.	Sheet 3 of 4	
			Elevation	Bearing	Logged by M. Hiltz	
			Coordinates N E	Begun / Completed	Sampled by	
				Core size / Recovery %	Driller	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn %	Pb %	g/MT Ag	Au
96.42	105.72	50	96	Blue-grey to green grey, mod. to <u>highly silicified</u>, fg weakly foliated (70% of unit) to <u>non-foliated volc</u>. Can be mottled whitish green; faint relict or ghost-like hbl xtals can occ. be seen aligned along foliation; qtz grains (.5mm) up to 15%; occ. zones ∠30cm of foliated porphyritic (conspicuous) hbl volc., hbl aver. 1.5mm, 10-15%, fs laths to 2mm can be seen in the hbl zones; fracture low density coincident with foliation; fractures are rarely subparallel to C.A.; fractures filled with chlorite, sericite or qtz with fg py or rarely carb; carbonate usually cross-cuts foliation and not associated with py; 5-10% of unit is slightly darker bands of non-foliated volc.; carbonate enveloped by chlorite. Py 2% as fracture fillings up to 4-5cm wide with qtz; 102.82 - 103.33m: black to dark brown, <u>highly chloritic shear zone</u> with irregular white carb veinlets: 25cm zone of vfg mg 10-20%, Py 10%, mineralized zone is in middle of subunit. 104.74 - 105.00m: <u>cataclastic breccia</u> (fault?) clasts are of main unit; matrix of 70% chlorite, 20-25% qtz, carb 5%, ep 1%, trace py	fracture/ foliation 35°-40°		4146 4147 4148 4149 4150	96.65 98.65 100.65 102.82 103.22	98.65 100.65 102.82 103.22 105.22	2.00 2.00 2.00 2.00 2.00	L.01 .01 .01 L.01 .01			L.5 L.5 L.5 L.5 L.5	L.05 L.05 L.05 L.05 L.05
105.72	110.45	53	82	Green-brown, weakly foliated, <u>highly silicified cherty fg volc</u>. with occ. white splotches which resembles portions of QFP (45.37 - 69.17m) without conspicuous qtz eyes; Py 2-3% 106.32 - 106.92m: grey-green cg <u>porphyritic hbl volc</u>. (breccia?) euhedral hbl phenocrysts aver. 3mm (largest 7mm) 10-15%; subhedral white fs aver. 2mm (largest 5mm) 20%; py 1%; weak foliation 107.35 - 107.55: <u>10-15% fg py</u> fracture filling veins up to 1cm wide; fractures are "networked" produces a cell-like texture; cells elongate to 1cm long 110.00 - 110.30: subparallel to C.A. 3-5mm wide vein of 60-70% chl; 20-30% ep; 10% qtz; 3% py trace carb. host rk is whitish green, silicic volc. with dark green spots hbl?	foliation = 40°		4150 4152 4153	105.22 106.92 108.92	106.92 108.92 110.92	1.70 2.00 2.00	.01 L.01 L.01			L.5 L.5 L.5	L.05 L.05 L.05
110.45	127.41	66	92	Blue-grey to green-grey, mod. to <u>highly silicified</u>, fg <u>weakly foliated volc</u>. Same as 96.42 - 105.72m. 112.20 - 112.40: <u>cataclastic breccia</u> similar to 104.74 - 105.00m; qtz/carb vein 3mm wide; 15cm long 115.63 - 120.30: non-foliated, slightly darker zone 118.40 - 118.65: <u>qtz/carb veins</u>, 5mm wide 15cm long, qt 10% 5-10mm wide, 15cm long at 20°; veins 80% qtz, 10% carb, 10% chl., trace py; host rk same as for 110.00 - 110.30m 121.00 - 121.49: <u>cataclastic breccia</u> with mod. to highly siliceous matrix; irregular carb. fillings 2-3mm wide (1-2%) ep 10%; py 3% clustered and diffuse.	carb. filling 20 - 30°		4154 4155 4156 4157 4158 4159	110.92 112.92 114.92 116.92 118.92 120.92	112.92 114.92 116.92 118.92 120.92 122.92	2.00 2.00 2.00 2.00 2.00 2.00	.01 .01 .01 .01 .01 .01			L.5 L.5 L.5 L.5 L.5 L.5	.20 L.05 L.05 L.05 L.05 L.05

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY		Length	
Location		Hor. Comp. / Vert. Comp.	
Elevation		Bearing	
Coordinates	N	Begun /Completed	
	E	Core size /Recovery %	

HOLE No:	W 84-1
Sheet 4 of 4	
Logged by	M. Hiltz
Sampled by	
Driller	

Page #

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	g/MT Ag	Au
110.45	127.41	con't		121.49 - 124.20: cataclastic breccia texture pronounced; highly chloritic; wisps of carb 3-5mm wide Py: ∠1%	shear direction 20 - 35°		4160	122.92	124.92	2.00	L.01			L.5	L.05
				124.40 - 125.27: rubbly, broken zone, angular fragments 1 to 7cm long											
				125.27 - 127.41: unit becomes increasingly silicic downwards; weakly foliated cherty volc. below 126.50; cherty zone has high density of irregular hairline fractures but core is not broken; minor (5%) ep; trace dissem. py; carb. along some fractures.			4161	124.92	127.41	2.00	L.01			L.5	L.05
				E.O.H. 127.41m											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar	-60°	195°
91.44m	-60°	190°
199.95m	-60°	191°

PROPERTY West Claims
Location Crofton, B.C.
Elevation
Coordinates 0 + oom B.L. N
Line 19E E

Length 200.25m
Hor. Comp. / Vert. Comp.
Bearing 195°
Begun Aug. 28 /Completed Aug. 31
Core size NQ/BQ /Recovery 93 %

HOLE No: 84-2 Page #
Sheet 1 of 5
Logged by S. Lear
Sampled by M. Hiltz
Driller Longyear Fly 38

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu %	Zn %	Pb %	Ag g/MT	Au g/MT
0	6.40			Casing											
6.40	24.46	53	88	Fg to mg med. green volcanics. Subhedral, 1 to 2mm long feldspar (?) phenocrysts in places. Occ 2-3mm long subhedral hornblende crystals. Highly silicified in places; moderately to highly chloritic in more broken zones. Minor Epidote alteration, py as disseminations and veinlets, often with calcite. Overall py: 1-2%											
6.40	6.52	45	82	Moderately silicified hornblende volcanics											
6.52	7.09	45	82	Fg gray-green volcanics with 2mm to 12mm wide calcite-chlorite-quartz veinlets	veinlets = 20 - 30°										
7.09	9.02	55	88	Mg hornblende volcanics; mod. silicified in places Epidote alteration as patches up to 9cm wide ± calcite and as 1mm wide blebs. Py as disseminated blebs (1-3mm) and veinlets with chlorite, epidote and calcite gangue. Lower contact is chlorite parting at 30° to C.A. Py: 1%	veinlets = 35°, 55° contact @ 9.02m = 30°										
9.02	18.42	53	91	Fg med. to dark green volcanics. Mod. to high chlorite alteration. Upper contact has a 5cm wide band of calcite. Approx. 40% of section is closely fractured with chlorite, calcite and euhedral py coating fractures. Fine veinlets of py with chl., calcite and minor epidote gangue.											
18.42	24.46	53	82	Fg med. green volcanics. Mod. to highly silicified, small (1mm long) subangular quartz fragments throughout section. Moderate (10% overall) epidote alteration as patches and disseminated blebs (1 to 3mm long). Chlorite on fractures in broken zones and as gangue in pyrite veinlets. Veinlets are wavey, at 0 - 20° to C.A. Py also as disseminated, 1 to 5mm wide blebs. Py: 3% Reduced to BQ at 24.38m	veinlets = 0 - 20°										
24.46	155.64	66	94	Med. green hornblende volcanics. Minor epidote alteration. Sections of intense chloritization or silicification. Py: 2 - 3%											
24.46	36.26	58	89	Mg green hornblende volcanics. Hornblende phenocrysts are subhedral, 2 to 5mm long. Py occurs as 1 to 3 mm wide disseminated blebs and as fine veinlets with calcite and chlorite gangue. Overall Py: 2 - 3% 24.46 - 30.05: Highly chloritic volc. fg dark green closely fractured 33.12 - 34.75: Highly chloritic volc. upper contact is fractured at 20° to C.A. Lower contact is broken. 35.32 - 35.76: Highly silicified volc. Closely fractured with chlorite on fracture surfaces. Py in veinlets with chlorite/calite gangue. Py: 1%	veinlets = 30 - 35° 33.12m = contact @ 20°		4165	35.46	37.46	2	.08			.5	L .05
36.26	38.51	64	92	Gray-green massive chert after volcanics (?) Upper 1.27m has disseminated, 1 to 2mm long epidote blebs forming 5% of rock. Py as disseminated blebs and veinlets. Chlorite on fracture surfaces. Lower contact is broken. Py: 5%	veinlets = 60°										

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No. 84-2 Page #
Sheet 2 of 5
Logged by
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	g/MT Ag	Au
							4166	37.46	39.76	2.3	.02			L.5	L.05
38.51	39.24	46	92	Highly chloritic fg volcanics. Disseminated Py: 2%			4167	39.76	42.56	2.8	.02			L.5	L.05
39.24	42.70	33	94	Lt. gray-green highly silicified fg volcanics (?) Closely fractured over most of section. Abundant chlorite and calcite alteration especially on fractures. Py as disseminations and veinlets- Py: 2%	Py veinlets = 15°										
42.70	44.20	68	98	Fg dark green highly chloritic volcanics. Calcite veinlets. Section is weakly magnetic; possibly due to finely disseminated magnetite/ilmenite. Disseminated Py < 1%	veinlets = 20-30° C.A.		4168	42.56	44.20	1.64	.02			L.5	L.05
44.20	52.84	43	77	Mod. to highly silicified volcanics. Abundant calcite and chlorite alteration especially over upper 1.6m. Py content increases towards bottom of section. 44.20 - 45.80: 1 - 2% Py 45.80 - 52.84: 10 - 15% Py as fg disseminations and patches. Lower contact is irregular	contact @ 52.84= 20°		4169 4170 4171 4172	44.20 46.20 48.20 50.20	46.20 48.20 50.20 52.20	2 2 2 2	L.01 L.01 L.01 L.01			L.5 L.5 L.5 L.5	L.05 L.05 L.05 L.05
52.84	56.62	61	82	Fg to mg hornblende volcanics as 24.46 - 36.26m. Mod. to highly silicified. Closely fractured from 54.07 to 55.29m. Py as disseminations and fine veinlets	Py veinlets = 15-20°		4173 4174	52.20 54.20	54.20 56.20	2 2	L.01 L.01			L.5 L.5	L.05 .10
56.62	59.56	88	97	Mg hornblende volcanics with abundant (20%) epidote alteration. Disseminated Py: 5%			4175 4176	56.20 57.65	57.65 59.56	1.45 1.91	.02 .01			L.5 L.5	L.05 L.05
59.56	84.43	78	98	Mod. to highly silicified hornblende volcanics. Zones of mod. intense (approx. 10%) epidote alteration as listed below. Fracture density is moderate (6-8/m) Py occurs as disseminations (mainly in epidote zones) and as fine veinlets with chlorite, epidote and minor calcite gangue. Trace Po as fine veinlets and disseminations with py. Po appears to be later than py. Overall Py: 2% Po: < 0.5% Zones of epidote alteration: 68.39 - 69.00m 79.45 - 81.20m 77.04 - 77.84m 81.82 - 84.11m Lower contact is gradational.	fractures: 40°, 70°		4177	65.93	67.93	2	.02			L.5	L.05
84.43	92.69	87	99	Altered hornblende volcanics. Faint hbl phenocrysts are visible but most are obscured by intense silicification, epidote or minor chlorite alteration comprising 8 - 10% of rock and chlorite 2%. Minor calcite in two 10 - 20mm wide qtz-calcite veins at 45 - 50° C.A. Py in qtz-calcite-chlorite veinlets at 35° C.A. Py: < 1%	veins = 45° 50° veinlets:35°										
92.69	94.44	91	100	Highly silicified hornblende volcanics											
94.44	98.34	75	92	Hornblende volcanics with moderate chlorite alteration. Minor silicification and epidote alteration in places. Chlorite as fracture coatings. Closely fractured from 96.50 - 97.02m py as disseminations and veinlets with chlorite and calcite gangue. Py: 10%	fractures; 35°										

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Collar	Inclination	Bearing	PROPERTY	Length	HOLE No. 84-2	Page #
			Location	Hor. Comp. / Vert. Comp.	Sheet 3 of 5	
			Elevation	Bearing	Logged by	
			Coordinates N E	Begun /Completed	Sampled by	
				Core size /Recovery %	Driller	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	Ag g/MT	Au
98.34	103.14	75	98	Altered hornblende volcanics (?): fg light green, highly silicified. Small (1mm) hornblende phenocrysts visible in places. Chlorite veinlets at 0° to 10° C.A. Py as disseminations and veinlets: Py: 5 - 8% 102.39 - 103.14: Minor epidote alteration as 3 to 15mm long blebs, 2mm wide irregular calcite/siderite veinlet at 0 - 5° C.A. Lower contact is tectonic breccia with offset epidote veinlets, calcite - py veinlets, and fragments of light gray-brown original volcanics (?)	veinlets: 0° - 10°										
103.14	107.10	41	91	Fg med. green volcanics. Small (1mm) hornblende phenocrysts discernable over top 50cm. Veinlets of py, calcite and chlorite at 20 - 30° C.A. Chlorite and py coating fracture surfaces. Rock is very broken from 105.27 to 107.10. Py: 1 - 2% Lower contact is sharp at 15° and is marked by a thin chlorite band	veinlets: 20 - 30° contact @ 107.10m = 15°										
107.10	118.04	65	97	Mg hornblende volcanics. Moderately to highly silicified. Minor epidote alteration as patches and veinlets offset by later (?) irregular qtz-calcite-chlorite veinlets, closely fractured in places with calcite and chlorite on fracture surfaces. Weak foliation of hornblende crystals at 35°. Py occurs as veinlets with calcite-chlorite gangue and as trails of disseminated blebs at 20° to 30°. Py also as fracture coatings. Lower contact is very irregular with intermixing of adjacent units. Overall Py: 5%	foliation = 35°										
118.04	123.44	45	96	Fg light gray-green fragmental volcanics. Moderately to highly silicified. Some hornblende crystals observed over upper 60cm. Minor epidote alteration associated with patches and veinlets of py, chlorite and calcite-siderite. Veinlets at 25 - 30°. Core is closely fractured from 119.07 to 120.00m. Chlorite, calcite and fg pyrite as fracture coatings. Py: 1 - 2%	veinlets = 25 to 30°										
123.44	124.28	74	95	Fg, med. to dark green highly chloritic volcanics. Irregular shaped patches of py with calcite and epidote. Overall Py: 2% 123.98 - 124.98m: Shear zone. Platey fragments (0.5 to 3cm long), coated with chlorite, calcite and pyrite.											
124.28	130.37	74	97	Mg hornblende volcanics. Mod. silicified. Py-calcite-chlorite veinlets at 10 - 20°. Py: 2%	veinlets = 10 - 20°										
130.37	155.64	65	97	Mg hornblende volcanics. Mod. to highly silicified, weak alignment of hornblende crystals at 20° C.A. Minor epidote alteration. Py-calcite-chlorite veinlets at 0 to 20° closely fractured over lower 15 metres with chlorite, pyrite and calcite on fracture surfaces. Overall Py: 5%	foliation = 20° veinlets = 0 - 20°										
155.64	183.23	66	94	Fg dark green volcanics. Alternating chloritic and silicified units. Py: 2 - 3% Po: tr.											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Collar	Inclination	Bearing

PROPERTY
Location
Elevation
Coordinates N / E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun / Completed
Core size / Recovery %

HOLE No: 84-2 Page #
Sheet 4 of 5
Logged by
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	g/MT Ag	Au
155.64	159.31	77	100	Fg med. to dark green volcanics; moderately chloritized throughout. Upper contact is broken. Calcite veinlets and trains of fg py blebs at 10° C.A. Irregular lower contact at 10°. Py: 2%	veinlets = 10°										
159.31	169.26	76	99	Light gray-green highly silicified volcanics. Cherty appearance in places. Veinlets of calcite with discrete blebs (1 to 2mm long) of py aligned at 10 - 20°. Minor epidote alteration associated with calcite/py veinlets and patches. Py: 5 - 8%	veinlets = 10 - 20°										
169.26	171.34	77	99	Dark green highly chloritic unit with 10% calcite. Calcite occurs as irregular patches and as wavey veins at 0° - 5° and 35° C.A. Tr. py as discontinuous veinlets with calcite. Lower .12cm is very broken and sheared. Tr. po, tr. py.											
171.34	174.45	54	100	Light gray-green moderately silicified volcanics. Py occurs as disseminated blebs with occasional calcite gangue. Chlorite and minor py on fractures. Lower contact is sharp at 35°. Py: 1%	contact = 35°										
174.45	178.21	48	89	Fg dark green highly chloritic unit with abundant calcite alteration as 169.26 - 171.34m, weak banding of chloritic and calcitic layers at 25 - 35°. Closely fractured in places with sheared chlorite and calcite on fractures. Py as 1 to 2mm long disseminated blebs. Py: < 1%	banding = 25 - 35°										
178.21	182.18	71	97	Fg med. green highly silicified volcanics with fragmental texture. Py as disseminated blebs and discontinuous veinlets. Py: 1%			4178	181.20	183.3	2.1	L.01	L.01		L.5	L.05
182.18	183.23	70	96	Aphanitic, light brown coloured unit. Hardness: 6 - 7 possibly original rhyolite (?), cut by veinlets of quartz at 0° and 40°. Minor chlorite alteration towards base of unit. Gradational lower contact.			4179	183.3	184.22	.92	.01	.01		L.5	L.05
183.23	187.94	53	95	Dark green, aphanitic highly chloritic zone with abundant magnetite and lesser amounts of po, cpy and py. Occ. calcite veinlets at 0° to 25°. Overall: Magnetite: 10%, Po: 1%, Py: tr., Cpy: tr.											
183.23	184.22	46	98	Mod. chloritic rock with bands of calcite-po-cpy at 50° C.A. Tr. py as subhedral crystals partially replaced by calcite. Closely fractured from 183.91 to 184.22m. Po: 5% Cpy: tr. Py: tr.	banding = 50°										
184.22	184.81	60	94	Abundant magnetite as irregular-shaped patches with calcite gangue in highly chloritic host rock. Magnetite: 30% Po: tr. Py: tr.			4180	184.22	185.72	1.5	.04	L.01		L.5	L.05
184.81	187.17	61	95	Highly chloritic unit. Po occurs on the outer margins of magnetite-rich patches. Py occurs on the selvages of po stringers and in later (?) calcite veinlets. Diagenesis: Magnetite-Po-Py. Magnetite: 15% Po: 2% Py: tr.			4181	185.72	187.3	1.62	.02	.01		L.5	L.05
187.17	187.94	33	91	Moderately chloritic unit with rounded (1 to 2mm long) quartz fragments (?) Tr. py. Gradational lower contact			4182	187.3	189.3	2	L.01	.01		L.5	L.05

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing		
Collar			PROPERTY	Length
			Location	Hor. Comp. / Vert. Comp.
			Elevation	Bearing
			Coordinates N E	Begun /Completed
				Core size /Recovery %

HOLE No: 84-2 Page #

Sheet 5 of 5

Logged by

Sampled by

Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu %	Zn %	Pb %	g/MT Ag	Au
187.94	200.25	70	94	Fg <u>light gray-green</u>, <u>highly silicified unit</u> with occasional <u>quartz eyes</u>. Weak foliation of quartz eyes at 25° - 30° C.A. Rounded (1 to 2mm long) fragments of quartz throughout. Occ. veins (1cm wide) of discrete Py blebs with minor calcite at 30° to 60°. Py: $\angle$1%	foliation = 25 - 30° veins = 30 - 60°										
				<u>E.O.H. 200.25m</u>											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar	45°	015°
91.44m	44°	020°

PROPERTY West Claims	Length 114.60m	HOLE No: 84-3	Page#
Location Crofton, B.C.	Hor. Comp. / Vert. Comp.	Sheet 1 of 3	
Elevation	Bearing 015°	Logged by S. Lear	
Coordinates 9+00S N	Begin / Completed Sept. 3	Sampled by	
LN 15 E E	Core size NQ/BQ / Recovery 71 %	Driller Longyear Fly 38	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	g/MT Ag	Au
0	5.49			Casing											
5.49	17.80	14	58	Fg. dark to med. green volcanics. Mod. to highly silicified. Abundant epidote-filled vesicles (?) (3mm to 12mm long) with Py and iron oxide. Vesicles are flattened and aligned at 75 to 85°. Occ. fine veinlets of Py at 55 to 60°. Core is closely fractured over approx. 40% at section. Abundant iron oxide coating fracture surfaces. Lower contact is broken. Py: 1%	fractures: 60 - 80° foliation = 75 - 85° banding: 7.87m = 50° 16.3m = 75°										
17.80	72.94	11	70	Light grey-green quartz-eye porphyry. Matrix is highly silicified. Qtz eyes are 2mm to 10mm long (mode is 5mm), oval in shape and flattened and aligned at 70°. Some interlayers of dark grey chl. or silic. volcanics Py: tr.	foliation = 70°										
17.80	25.14	12	62	Qtz-eye porphyry. Closely fractured over most of section with iron oxides and sericite on fracture surfaces. Fractures mainly oriented at 60 - 90° C.A. Fine iron oxide/py veinlets at 70°. 22.82m: 3cm wide zone of black, iron oxide coated boxwork. Contacts at 80°. Lower contact is diffused at ≈ 60°.	fractures = 60 - 90° veinlets = 70°										
25.14	26.62	7	60	Fg med. green mod. silicified volcanics. No visible qtz eyes. Fragmental texture. Faint foliation and // py veinlets at 85°. Closely fractured with abundant iron oxide on fracture surfaces. Lower contact is broken. Py: 1%	foliation = 85° fractures = 70 - 80°										
26.62	46.77	13	69	Qtz-eye porphyry. As 17.80 - 25.14m. Weak foliation of quartz eyes and occ. veinlets of FeOx at 75°. Core is closely fractured with sericite and FeOx coating fracture surfaces. Lower contact is fracture at 75° C.A. Py: < 1%	foliation = 75°										
46.77	46.94	12	85	Fg dark green highly chloritic volcanics. Banding at 75°. Tr. Py.	banding = 75°										
46.94	50.60	17	97	Quartz-eye porphyry as above. Tr. py.											
50.60	55.24	11	95	Qtz-eye porphyry with mod. chlorite alteration. Elongation of qtz-eyes at 70°. Closely fractured with chlorite, sericite and calcite on fracture surfaces. Minor ep alteration. Tr. py.	foliation = 70°										
55.24	60.94	7	74	Mod. silicified qtz-eye porphyry. Foliation of qtz-eyes and alignment of veinlets at 65°. Very closely fractured over lower 6cm with sericite and chlorite on fracture surfaces. Py: < 1%	foliation = 65°										
60.94	64.39	5	62	Fg dark green mod. to highly chloritic volcanics. Py as disseminations and veinlets with calcite gangue. Tr. cpy in wider (1cm wide) calcite veinlets. Core is closely fractured over entire section. Polished slicken-sides of chlorite and py on fracture surfaces. Lower contact is py-calcite-cpy vein at 75°. Overall: Py: 10% Cpy: tr.	veinlets = 65 - 75°		4183 4184	60.94 62.50	62.50 64.39	1.56 1.89	.02 .04			L.5 L.5	L.05 L.05

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N / E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun / Completed
Core size / Recovery %

HOLE No: Page #
Sheet 2 of 3
Logged by
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	g/MT Ag	Au
64.39	72.94	11	78	Fg med. to dark green highly silic. volcanics with abundant quartz-eyes. Qtz eyes are 1mm long, oval-shaped; weakly foliated at 50°. Fg equivalent of qtz-eye porphyry. Closely fractured over 60% of section with sericite on fracture surfaces. Py as 50 - 60° veinlets and occ. on fractures. Py: 1% 65.18m: 11cm long section of vuggy calcite with sugary, anhedral py and tr. cpy. Cavities probably formed by dissolution of original calcite. Py: 20% Cpy: 0.5%	foliation = 50°		4185 4186 4187 4188	64.39 66.45 68.45 70.45	66.45 68.42 70.45 72.94	2.06 2.0 2.0 1.49	.07 L.01 L.01 L.01			L.5 L.5 L.5 L.5	L.05 L.05 L.05 L.05
72.94	74.47	0	16	Highly chloritic rock with semi-massive py-calcite veins at 50° C.A. Cpy occurs as intergrowths in py. Rock is very broken; highly polished slickensides of chlorite, sericite and py on fracture surfaces. Overall: Py: 40%, Cpy: 2% 74.40: 7cm long section of Py: 60% in chlorite/calcite gangue.			4189	72.94	74.47	1.53	.34			.5	L.05
74.47	84.73	2	61	Alternating units of chloritic volcanics and highly silicified volcanics with faint qtz-eyes. Chloritic zones are fg, dark gray-green, very broken. Predominant fracture set at 70 - 75°. Abundant calcite-py veinlets parallel to fractures. Calcite and py on fracture surfaces. Silicified zones are med. green with occ. faint 2 - 3mm long qtz-eyes. Less broken than chloritic zones, with sericite as fracture coatings. Silic: chl = 1:4 Overall Py: 1% 74.47 - 74.95: silic. qtz eye porph. 74.95 - 78.28: chl. volcanics 78.28 - 78.52: silic. qtz-eye porph. 78.52 - 80.53: chl. volc. 80.53 - 81.43: silic. qtz-eye porph. weak foliations at 30° 81.43 - 83.28: chl. volc. 83.28 - 83.89: mod.silic. volc. with mod. chlorite and calcite alteration. Calcite-chl bands at 35° 83.89 - 84.38: chl. volc. Banding at 40° 84.38 - 84.73: fg dark green highly silic. volc. with epidote veinlets and patches at 45°. Core is very broken. Transitional zone to epidote-rich volcanics below.	fractures = 70 - 75° foliation = 30° banding = 35°		4190	74.47	76.50	2.03	.14			L.5	L.05
84.73	92.74	27	87	Fg dark gray-green volcanics. Mod. chloritic. Epidote blebs and patches 2mm to 15mm long (mode is 5mm) comprise 5 - 8% of rock. Epidote patches often rimmed by calcite. Py as disseminated blebs associated with calcite and/or epidote. Closely fractured over most of section. Overall Py: 1% Cpy: tr. 88.42m: broken, 4cm (?) wide vein of white quartz with 6mm x 4mm patch of chalcopyrite.upper contact is irregular. ≈ 65°, lower contact is broken											
92.74	114.60	6	82	Fg med. to dark green fragmental volcanics. Mod chl and highly silicified in places. Weak foliation at 50 - 60°, Py as occ. veinlets and patches parallel to foliations. Overall Py: < 1%	foliations 50 - 60°										
92.74	95.67	18	89	Mod. to highly chloritic dark green volcanics											
95.67	96.10	0	86	Highly silicified volcanics											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Collar	Inclination	Bearing	PROPERTY	Length	HOLE No.	Page #
			Location	Hor. Comp. / Vert. Comp.	Sheet 3 of 3	
			Elevation	Bearing	Logged by	
			Coordinates N E	Begun /Completed	Sampled by	
				Core size /Recovery %	Driller	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu %	Zn %	Pb %	g/MT Ag	Au
96.10	97.29	0	97	Mod. chloritic volcanics. Occ. 2 to 5mm long square to rectangular laths of light-brown feldspar (?)											
97.29	108.13	4	76	Mod. to highly silicified volcanics occ. feldspar patches as previous unit, often containing py grains closely fractured and broken throughout most of zone. Sericite coating fracture surfaces Py: 1%											
108.13	110.93	0	83	Mod. chloritic volcanics with minor epidote alteration occ. calcite-py veinlet at 55°. Py: 1%	veinlets = 55°										
110.93	111.36	0	73	Highly silic volcanics; cherty appearance. Section is very broken with minor sericite on fracture surfaces. Faint banding and occ. parallel Py veinlets at 55°.	banding =										
111.36	114.60	13	88	Mod. chloritic volcanics. Minor (2%) epidote alteration. Qtz-calcite veinlets at 60°, often with py, chlorite and py on fracture surfaces. Closely fractured. Py: 1 - 2%	veinlets = 60°										
				E.O.H. 114.60m											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar	-60°	015°
79.25 m	-59°	016°
148.74 m	-56°	021°

PROPERTY West Claims	Length 148.89m	HOLE No: 84-4	Page #
Location Crofton, B.C.	Hor. Comp. / Vert. Comp.	Sheet 1 of 4	
Elevation	Bearing 015°	Logged by S. Lear	
Coordinates 9+25 S N	Begun Sept. 3/84 / Completed Sept. 5	Sampled by M. Hiltz	
LN 15 E E	Core size NQ/BQ / Recovery 84 %	Driller Longyear Fly 38	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	g/MT Ag	Au
0	3.35			Casing											
3.35	15.76	24	57	Fg med. green volcanics with epidote-filled vesicles (?). Vesicles are 2mm to 12mm long, oval-shaped; elongated and aligned at 70° to 75° C.A. Often have py rims and inclusions. Very broken in places with abundant iron oxide on fracture surfaces. Py: 1% 3.66m: Fine FeOx-py-chlorite veinlets at 50° C.A. 7.67m: 9cm long piece of altered quartz-eye porphyry.	foliation = 70 - 75° veinlets = 50°										
15.76	64.26	21	77	Med. green quartz-eye porphyry. Quartz eyes are clear to white in colour, sub-rounded to oval-shaped, 2mm to 10mm long with the mode at 5mm, comprise up to 30% of rock. Matrix is fg to aphanitic, med. green, highly silicified. Weak foliation of quartz-eyes at 65 to 75° C.A. Total Py: 1% 19.00 - 20.81: Very broken rock with FeOx and sericite on fracture surfaces. 29.54 - 29.98: Dark green, altered qtz-eye porphyry. Green talc and sericite on fracture surfaces. Irregular-shaped cavities lined with fg py and white qtz crystals. Py: 1 - 2% 37.49 - 37.71: Very broken with FeOx on fracture surfaces 41.07 - 41.37: Qtz veining at 45 to 60° C.A. Minor calcite. Py as patches within qtz veins and as fine veinlets. Mod. chlorite alteration around qtz veins. Py: 10% 43.32 - 44.42: Closely fractured, highly altered rock, sericite and py on fracture surfaces. Py: 2% 46.09 - 46.20: Vuggy white quartz with disseminated 1% Py. 53.80 - 54.03: Fg dark green highly chloritic unit with calcite veinlets at 75° C.A. Small (1 to 3mm wide) cavities aligned parallel to veinlets. Calcite crystals and tr. py lining cavities. 57.03 - 3cm wide zone of subhedral, fg py crystals lining small (2-3mm wide) cavities in rock. Py: 5% 61.35 - 64.26: Qtz-eyes are smaller and less distinct than above. Rock is closely fractured with chlorite, sericite and py on fracture surfaces. Lower contact is irregular qtz-rich zone at approx. 40°. Py: 1%	foliation = 65 - 75° veins = 45 - 60° contact = 40°										
64.26	76.41	17	88	Grey-green, translucent, highly silicified unit. Sub-angular crystals, white to light-green colour, 1mm to 4mm long comprise 30% of rock. Possibly altered feldspar? Faint quartz-eyes; rounded to oval, grey-white, 5mm to 15mm long form up to 5% of rock. Unit is silicified qtz-eye porphyry. Py occurs in closely fractured zones with chlorite and sericite. Py is often smeared and polished on fracture surfaces. Occ irregular-shaped patches of white quartz with chlorite. Overall Py: 2% 68.50m: 2cm long section of Py: 60%, chlorite: 40%. Upper and lower contacts are fractures at 70°. 73.78 - 73.91: Broken zone with 20 - 30% Py. Highly chloritic. 75.85 - 76.05: Closely fractured qtz-porphyry with 15% Py as irregular patches and fracture coatings with sericite. Lower contact is calcite-quartz-chlorite vein at 50° C.A.	fractures = 30°, 60°		4191 4192 4193 4194 4195	66.95 68.95 70.95 72.95 74.95	68.95 70.95 72.95 74.95 76.40	2.0 2.0 2.0 2.0 1.45	L.01 L.01 L.01 L.01 .01			L.5 L.5 L.5 L.5 L.5	L.05 L.05 L.05 L.05 L.05

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: 84-4 Page #
Sheet 2 of 4
Logged by S. Lear
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu %	Zn %	Pb %	g/MT Ag	Au
76.41	95.06	2	91	Fg grey-green volcanics. Highly silicified over upper 8m of section. Much chlorite alteration. Small semi-massive py veins with calcite, chlorite and tr. cpy. Weak foliation and calcite veinlets at 60° C.A. Overall Py: 10% Cpy: tr.	foliation = 60°										
76.41	77.36	3	100	Dark green, highly chloritic zone. Calcite veinlets and trains of disseminated Py at 60-70° C.A. Py: 2-3%			4196	76.40	77.33	0.93	.01			L.5	L.05
77.36	84.14	4	98	Fg grey-green, highly silicified volcanics. Weak foliation at 60-65° C.A. Py: 10% Cpy: tr. 78.03 - 79.03: Highly fractured zone with Py: 10% Cpy: 2% in calcite-chlorite gangue. 79.75 - 81.04: Closely fractured zone. Abundant sericite and chlorite alteration. Average Py: 15% Cpy: tr. More massive sections: 80.15 - 80.25: Py: 40%, Cpy: tr. in sericite, chlorite, calcite gangue. 80.35 - 80.41: Py: 30%, Cpy: 10% Gangue as above.			4197 4198 4199 4200	77.33 79.33 81.33 83.33	79.33 81.33 83.33 85.33	2.0 2.0 2.0 2.0	.04 .31 .01 .13			L.5 1.0 L.5 L.5	L.05 L.05 L.05 L.05
84.14	85.21	0	70	Fg dark green highly chloritic unit. Banding of white qtz-calcite veinlets at 75° C.A. Tr. Py, except as noted below: 84.80 - 84.82: Cpy/Py stringers in quartz-calcite-chlorite gangue. Cpy: 20% Py: 10-12% 84.82 - 84.87: Highly silic. grey-green volcanics. 84.87 - 84.89: Py blebs and trains. Gangue as 84.80 - 84.82. Py: 45-50% Cpy: 5%	banding = 75°										
85.21	95.06	2	87	Fg grey-green volcanics. Mod. silicified. Some highly silicified intervals as noted below. Very broken over most of section. Py occurs as disseminated blebs and as fracture coatings with chlorite. Py is occ. smeared and polished on fracture surfaces. Overall Py: 1-2% Cpy: tr. 85.58 - 85.75: Py trains in chloritic bands at 75° C.A. Py: 15-20% Cpy: 1% 89.85 - 90.37: Aphanitic, light-green highly silicified unit cherty appearance, very broken. 92.26 - 92.67: Dark grey-green highly silicified unit with 1mm to 3mm long feldspar crystals. Occ. very faint qtz-eyes.	bandings = 75°		4201 4202	85.33 87.93	87.93 90.75	2.60 2.82	.05 .01			L.5 L.5	.10 L.05
95.06	101.61	7	82	Fg med. green fragmental volcanics with epidote-filled vesicles(?) Vesicles are 1mm to 4mm long. Mod. to highly silicified. Py as fg disseminations and fracture coatings with chlorite and sericite. Py: 2-3% 97.16 - 97.62: Fault zone. Rock is very broken. Lower 30cm is poorly consolidated chips of volcanic rock in muddy matrix. Scattered sub-hedral Py grains.											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: 84-4 Page #
Sheet 3 of 4
Logged by S. Lear
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu %	Zn %	Pb %	g/MT Ag	Au
				98.74 - 99.06: Fg grey-green <u>highly silicified volc.</u> Irregular shaped epidote patches with Pyrite. Py: 1% 100.02 - 100.36: <u>Med. green highly silic. unit</u> 101.50m: Bands of qtz-calcite with py and parallel fractures at 45° C.A. Lower contact is irregular at 30-40°	foliation = 45° contact = 30-40°										
101.61	127.90	10	94	<u>Med. grey-green quartz-eye porphyry</u>. Mod. to strongly foliated at 55 to 60°. Qtz-eyes are 1mm to 10mm long (mode is 5mm) dull grey colour, aligned and elongated parallel to foliation. Py occurs as bands parallel to foliation and on fractures. Total Py: 1%. 102.51 - 107.16: <u>Fg med. to highly silic. unit.</u> Alternating bands of light-grey silic. rock and med. green mod. chloritic rock. Bands at 35° C.A. Parallel trains of Py. Py: 5% 120.01 - 122.24: <u>Fg grey-green fragmental volcanics</u>. Mod. to highly silic. Distinct foliation at 60-70°. Occ. parallel Py veinlets. Closely fractured with chlorite and sericite on fracture surfaces. Py: 2% Lower contact is sharp at 60°.	foliation = 55-60° banding = 35° foliation = 60-70° contact = 60°										
127.90	147.26	10	94	<u>Fg dark green mod. chloritic volcanics.</u> Epidote alteration predominant over upper 2m. Highly silic. in places. Closely fractured over most of section with chlorite on fracture surfaces. Py and minor Cpy as fg blebs, semi-massive in places. Overall Py: 5% Cpy: tr.											
127.90	130.21	37	100	<u>Fg dark green mod. chloritic volc</u>. Epidote-qtz patches (3 to 5mm long) form 2% of rock. Py occurs as fg blebs (1 to 3mm long) often associated with epidote. Weak foliation at 55°. Py: 2-3% 128.57 - 128.87: <u>Highly silic. zone</u> with fine veinlets of pink feldspar (?), epidote and Py at 40-50°. These veinlets are offset by fine, white discontinuous veinlets at 45° C.A. in opposite sense to fs. veinlets.	foliation = 55°										
130.21	147.26	6	93	<u>Fg dark green mod. chloritic volc</u>. closely fractured over entire section. Silic. zones and semi-massive sulphides as noted below. Overall Py: 5%, Cpy: tr. 132.17 - 133.44m: <u>Med. green, highly silic. zone.</u> Veinlets (2 to 7mm wide) of feldspar (?)-epidote-quartz at 35-50° C.A. 135.48 - 135.70m: Py: 15%, Cpy: tr. in highly chloritic rock. 140.51 - 140.92: Fg patches of <u>Py, tr. Cpy</u> in calcite-chlorite gangue. Minor epidote alteration. Py: 20% Cpy: 1%	veinlets = 35-50°		4203 4204 4205 4206	135.3 136.3 138.3 140.51	136.3 138.3 140.51 141.50	1.0 2.0 2.21 .99	.05 .01 .01 .23			L.5 L.5 L.5 .5	L.05 L.05 L.05 L.05

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No. 84-4 Page #
Sheet 4 of 4
Logged by S. Lear
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	Ag g/MT	Au
147.26	148.89	7	81	Fg med. grey-green highly silic. unit. Small (1mm to 3mm) oval-shaped quartz phenocrysts. Weakly foliated at 50°. Lower 40cm is very broken with chlorite and sericite on fracture surfaces. Tr. Py as fg disseminations.	foliation = 50°										
				E.O.H. 148.89m											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar	-45°	015°
67.06m	-43°	021°
106.68m	-43°	023°
152.40 m	-42°	026°

PROPERTY West Claims
Location Crofton. B.C.
Elevation
Coordinates 1+15S N
LN9E E

Length 153.31m
Hor. Comp. / Vert. Comp.
Bearing 015°
Begun Sept.6/84 /Completed Sept.8
Core size NQ/BQ /Recovery 98 %

HOLE No. W 84 - 5 Page #
Sheet 1 of 6
Logged by M. Hiltz
Sampled by
Driller Longyear Fly 38

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	Ag g/MT	Au
0	5.18			Casing											
5.18	16.58	53	95	Dark green to black, cg highly chloritic hornblende diorite up to 1cm appear to be hexagonal and may be chloritized amphibole (hbl?) or possibly pyroxene. Texture is interlocking xtals with 10-15% chloritic fg around-mass. Carbonate present dominantly as white splotches .5-1.5mm and lesser as wisps to 7mm x 1mm or veinlets to 4mm wide; 50% of unit mod. magnetic weak foliation. Mafics 90-95%, carb 5-10%, Py < .5% Cp trace. 8.90 - 9.02M: trace cp 5.18 - 8.20m; 9.55 - 9.77m; 13.20 - 13.73m; 14.41 - 16.58; all are magnetic zones 15.36 - 16.46m: well foliated zone, carbonate can be present as thin lamellae, perpendicular to the foliation, associated with the mafic components	foliation = 60-65°										
16.58	17.55	31	93	Dark green, porphyritic, fg, ms volc? Intrusive? 5-10% whitish grey, irregular shaped, up to 3mm phenocrysts; fs? Unit mod. magnetic; fractures low density, py trace fg < .25mm	fractures = 60°, 45° 5°										
17.55	48.41	35	93	Fg intercalated silicic and chloritic volcanics; 60-70% of unit is medium green, mod. to highly silicified fg volc; 30-40% of unit is mod. chloritic, dark green fg volc. Silicic volc. has 1-3% py; chloritic volc. has usually < .5% py; occ. sericitic shears to 4cm in silicic volc; fractures low to mod. density.											
17.55	24.80	38	97	Mod. to highly chloritic volc. Irregular white (3mm wide) qtz/carb patches with associated Py. Weak ep alteration. Irregular qtz/carb veinlets. Euhedral py: 3-5% 1812 - 20.14: med. green silic vol. Occ. chl shears Py: 1-2%	veins = 45°										
24.80	26.65	37	95	Highly fractured, rubbly mod. silic weakly chloritic volc. 3cm wide chloritic shear with qtz/carb vein	fractures = 40°, 20°, 70°										
26.65	28.90	31	93	Dark green, mg to cg, chloritic zone similar to 5.18 - 16.58m.											
28.90	32.64	26	96	Interlayered silic and chloritic volc. 28.90 - 32.20: silic volc. sericitic shears 32.20 - 32.32: chloritic volc. chl. sheared and polished 32.32 - 32.55: silic volc. weak foliation 32.55 - 32.64: chl. volc. Py: < 0.5%	foliation = 60°										

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: W 84 - 5 Page #
Sheet 2 of 6
Logged by M. Hiltz
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn %	Pb %	Ag g/MT	Au
32.64	36.34	43	90	Silic. volc, weakly chloritic and sheared from 32.68 to 33.10m Minor fold (?) at 33.10 of grey-green qtz. Fold is anti-formal, light 5-10%, minor slip along axial plane cleavage, amplitude about 7mm, limbs 1-3 wide; unit becomes sericitic and sheared in lower meter. Py: 1-2% 32.64: 4cm wide band of 5-10% Py 33.10: 5cm wide band of 5-10% Py	minor fold axial plane = 60°										
36.34	38.98	53	94	Fg-mg chloritic volcanics with abdt white phenocrysts to 2mm, FS? comprise 40-50% of rock; Epidote patches 1-4mm wide form up to 20% of rock. Weakly foliated. Py: tr. 36.87 - 37.29: cg non-foliated, highly chloritic zone as 5.18 - 16.58m non-magnetic. Carbonate veins 3mm-6mm wide	foliation 60° veins = 80-85°										
38.98	39.72	56	95	Silic. volc. Py: 2-3%. Weak foliations											
39.72	41.80	34	93	Grey-green, highly silic "cherty" volc; fractures hairline, filled with sericitic or carb. Diss. py and fracture coating. Py: 0.5% 41.42: blue soft mineral, HCl soluble.	fractures 0 - 45°										
41.80	43.53	32	93	Highly chl. volc. with feldspar phenocrysts as 36.34 - 38.98m. Ep: 10%, FS pheno's: 40-50%, chlorite: 40-50%. Well foliated. Upper 10cm is chloritic chear zone. Increasingly silicified over lower 20cm. Py: 3%	foliation 55-60°										
43.53	45.41	11	86	Silic volc. with high sericitic alteration. Minor qtz/carb: well foliated. Py: 2-3%	foliation 60°										
45.41	45.81	51	88	Grey-green cherty volc. as 39.72 - 41.80m.											
45.81	48.41	45	89	Med. green-brown aphanitic highly silic. unit. 5-10% white phenocrysts. Feldspar? Euhedral Py xtals to 3mm. Few qtz/carb veins. Py: 1% 47.00 - 48.41: weakly sericitic											
48.41	71.73	46 32	99! 94	Med. green fg, mod. to highly silicified volc. with weak sericitic alter. over 80% of unit and mod. sericitic alteration over 20% although highly sericitic in shear zones $\angle$2mm wide. Sericite defines foliation and gives unit a streaky whitish green appearance; fracture density low but increases with sericite alteration; occ. qtz (or silicic host rock?). Augen or qtz-eyes can be seen in strongly foliated zones; occ. white porphyritic spots $\angle$2mm can be seen in highly silicic volc. bands $\angle$10cm wide: 3% Py disseminated euhedral grains, along fractures or as aggregates 5-10mm; Py on fractures can be sheared or polished 48.41 - 51.06: qtz augen 1%	foliation 60° fractures 60°, 45°, 80°										

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: W 84-5 Page#
Sheet 3 of 6
Logged by M. Hiltz
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	g/MT Ag	Au
		32	94	(con't) 54.00 qtz/carb vein, 10-15% py; vein may be fold or intersection of 2 veins; one 4mm wide at 60°, lower limb 1cm wide at 35° 56.13 - 56.18: well foliated good qtz augen 56.69 - 56.74: barren, white qtz veins 2mm to 1cm wide intersect to produce a u-shape 68.09 - 68.23: sericitic zone with wavy foliations; f2 deformation? 70.05 - 71.67: broken, rubbly zone; lower 30cm brecciated; weak carbonate fillings spaces between clasts.	foliation = 65° veins 45° 70°, 90° foliation = 70° and 0° A.P = 50°										
71.73	93.65	43	98	Medium green, fg mod. to highly silicified volc. with weak sericitic alter. similar to 48.41 - 71.73m but appears to be an increase in abdt of white porphyritic spots; white spots are 2mm anhedral, although some are lath-shaped; carb. filling fracture veins 5mm wide with Py have a density of 1-2 veins 1 meter; less than 1% of unit has white spots; rare bands 1-3cm of qtz augen. 77.75 - 77.92: dirty white zone of weak carb/qtz py 15-20% 79.47 - 81.26: zone of weak 1-2% Ep alter. Ep mainly as blebs 2mm, less commonly as veinlets 83.67 - 83.84: zone of abdt white porphyritic spots - 20-25% aver. size 1-2mm, largest 4mm 84.67 - 84.85: light brown-green, hard, highly siliceous; faint qtz augen 3mm long, to 30% and elongate along foliation can be seen; occ. spherical augen? will have faint radiating lines and white sims. 86.17 - 86.21: possible fold nose or intersecting bands 4-5mm of silic. volc.; upper band 65-70°, lower band 40°; intersection angle 80-90°; qtz/carb. "saddles" on inside and outside of "hinge zone".	veinlets = 60° A.P. = 80°										
93.65	101.63	40	98	Grey-green, extremely silicified, "cherty" aphanitic unit. Similar to 39.72 - 41.80 and bands in 71.73 - 93.65. Up to 20% porphyritic white spots over 90-95% of unit Py 1-2% disseminated and along fractures; high density of irregular hairline fractures. 98.34 - 1cm wide sericitic shear 99.50 - 3mm wide irregular qtz/carb vein 99.57 - 101.09: weak Ep alter. zone; Ep as blebs 2mm on as aphanitic flooding between 99.71 - 94.92 and 100.97 - 101.09 101.41 - 101.63: sericitic and qtz rich contact zone gives streaky whitish green appearance	LCTC = 60°										

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: W 84-5 Page #
Sheet 4 of 6
Logged by M. Hiltz
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	Ag g/MT	Au
101.63	106.95	42	99	Med. green fg, mod. to <u>highly silicified volc</u>. with weak sericite alter. Similar to 48.41 - 71.73m. Faint qtz augen can be seen in 5% of unit; sericitic shears 1cm wide at 101.74m, 101.84m, 102.90 - 102.94m, very weak pervasive Pp alter. as blebs 2mm and thin .5mm wisps. Py: 1-2% 102.00 - 102.05: <u>white qtz vein</u>; py 5-10% cg euhedral xtals and aggregates to 10mm; <u>Cp</u>: trace, 2mm anhedral blob at 102.04 102.48 - <u>2cm wide shear</u>; sericite 80%, Chl. 20%, Py trace 102.67 - <u>2cm shear</u>; sericite 60-80%, Chl. 5-10%, Py 15-20%, Carb 1-2% 105.13 - 105.54: weak <u>Ep alteration zone</u>; Cp flooding and blebs 1-2mm; 10%, often faint, white subhedral to anhedral spots .5mm to 2mm; 105.13 - 105.59m: 5-10% <u>rounded qtz? fragments</u>, 1-2mm with thin white rims-reaction or alter. rim 105.63 - 4mm wide, irregular, light brown green band/vein; Py 5-10% 105.91 - 1-2cm wide, <u>white qtz vein</u>; 1% euhedral Py: 1mm	ACTC = 70° LCTC = 45° vein = 60 - 65° UCTC = 50° LCTC = 70°										
106.94	113.32	51	100	White-green, chalky, fg, <u>highly sericitic</u>, well-foliated pyritic unit after <u>silicic volc</u>?; foliations closely spaced; unit highly fractured along foliation planes; py vfg euhedral diss. or less commonly as fracture fillings veins to 4mm wide: sericite 80-90%, silicic component 10-15%; Py 3%; chl. trace. 109.85 - 5mm <u>chloritic shear</u> 110.35 - 1mm wide, 13cm long <u>carbonate vein</u> offset by fractures at 70° and 60°	foliations 60 - 65° vein = 15°										
113.32	120.71	67	100	Med. green, fg, mod. to <u>highly silicified volc</u>. similar to 48.41 - 71.73m but less foliated; weak pervasive ep alter. as green blebs 1-2mm; occ. <u>py qtz/carb</u> veins 1-4mm wide 114.30 - 114.60: banded/foliated zone 115.52 - 13mm <u>qtz/carb vein</u> with 30% py as euhedral xtals 1-7mm 118.35 - 118.50: highly <u>sericitic sheared</u> with 8mm qtz/carb vein which was 30% py 119.02 - 119.16: <u>sericitic shear</u>; 2cm barren qtz vein 10% chlorite	vein = 60° vein = 60°										
120.71	127.11	49	100	White-green, highly to <u>mod. sericitized fg unit</u> similar to 106.94 - 113.32 but less sericitic and more sheared and broken Py 2% 121.80 - 122.20: light brown green mottled <u>highly silicic</u> zone; Py 6% 123.36 - 123.44: Py 25-30% 124.44 - 124.47: Py 15-20% 126.07 - 126.23: <u>sericitic shear</u>; 3mm qtz/carb vein 126.89 - 127.11: <u>wavey foliations</u> with amplitude and wave-lengths up to 1cm, maybe F2 deformation? Py: .5%											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Collar	Inclination	Bearing

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: W 84-5 Page #
Sheet 5 of 6
Logged by M. Hiltz
Sampled by
Driller

DEPTH (metres) From	DEPTH (metres) To	RECOV'Y RQD	RECOV'Y Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	SAMPLES From	SAMPLES To	SAMPLES Length	ASSAYS Cu%	ASSAYS Zn%	ASSAYS Pb%	ASSAYS g/MT Ag	ASSAYS g/MT Au
127.11	127.98	57	99	Hard, green, "cherty" volc? similar to 93.65-103.31; white spots 5% are slightly stretched out and relict. Py 1%.											
127.98	135.48	20	90	Dominantly white-green sericitic unit similar to 120.71-127.11 with wavey foliation; occ. bands of cherty volc. similar to 93.65-103.31m and fg medium green silicic volc. similar to 48.41-71.73m; total py .5% 129.70 - 129.86: medium dark apple green fg to vfg volc. with 10% qtz/carb pods to 2cm; py 1% as euhedral xtals; 1mm qtz/carb veinlet. 130.52 - 130.86: cherty volc., highly fractured; fractured sericitic 131.56 - 131.76: cherty volc. with weak to mod. sericite alter. Py .5% 131.76 - 133.10: Cataclastically brecciated zone; clasts mostly 1-5mm; qtz/carb 2% py 1% as euhedral xtals. 133.10 - 133.72: foliated; py 3%, py as "eyes" 2-3mm long elongated parallel to foliation; foliations slightly wavey and bend around py "eyes". 133.72 - 133.87: cataclastic breccia as 131.76-133.10m. 133.87 - 134.66: medium green fg silicic volc. 134.66 - 135.06: cataclastic breccia as 131.76-133.10m 135.06 - 135.48: sheared medium green fg silicic volc.	Veinlet 40° Foliation 60 - 70°										
135.48	137.00	15	100	White-green fg highly sericitic as for 106.94-113.32m; py 2-3%; foliations can be slightly wavey. 135.84: 3cm wide zone of 25-30% py 136.55 - 137.00: wavey foliations; py .5%. 136.10 - 137.00: weak ep. alter. as blebs 1mm											
137.00	141.98	27	97	Medium green fg silicic volc. as for 48.41-71.73, weak ep alter. as blebs 138.58 - 138.76: irregular banding sub-parallel to doliation which are 138.92 - 141.98: sericitic 138.76 - 138.92: dark apple green, fg, similar to ~~1~~29.70-129.86; no qtz/carb pods; this .5mm bands of qtz/carb with trace of associated py and ep.	Foliation 60° bands 60 - 65°										
141.98	146.83	21	100	Medium dark green vfg - fg volc. similar to 48.71-71.73m but slightly darker because of weak pervasive chlorite? alteration; mod. to highly sericitic bands up to 10cm wide, occurrence of senicite increases in lower 1.6m; py with sericite and/or qtz/carb alter., py 3-4%; foliations can be slightly wavey; trace of chlorite on some fractures. 143.98 - 144.05: white qtz/carb band; trace py. 145.38 - 145.70: sericitic, weak qtz/carb. alter; py 10-15% 146.10 - 146.31: highly sericitic; py 5-10%; very weak qtz/carb; minor fold? Interlimb angle = 65°.	AxPl = 5-10° Limbs = 45° and 25°										

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: W 84-5 Page #
Sheet 6 of 6
Logged by M. Hiltz
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	Ag g/MT	Au
146.83	148.10	19	98	Mottled medium and light green, fg to vfg, mod. to highly silicified volc; looks like mixture of 60-70% cherty volc. (93.63-101.63m), and 30-40% silicic volc. (48.71-71.73m); weak sericitic and chloritic alter. py 1-2%.											
148.10	149.50	16	100	Med. dark green, fg silicic volc. as for 141.98-146.83m; sericitic alter. absent or very weak; py 2%. 148.70: 7mm wide white qtz/carb vein with 3 euhedral 5mm py xtals. 148.90 - 149.20: rubbly, broken zone.	vein 55°										
149.50	153.31	10	94	Med. dark green, vfg, silicic volc. similar to 141.98-146.83m but with conspicuous light green discontinuous streaks; streaks 1-2cm long, elongate; weak chlorite/sericite alter. may be responsible for unit's colour; chlorite/sericite (med. green) coats fractures. Py .5% 149.99 - 150.01: & 150.00 - 150.15: dark green cherty volc. similar to 93.65-101.63; 25% porphyritic white spots; py 1-2% 150.01 - 150.11: medium, dark green volc. as for 141.98-146.83m 150.31 - 151.61: dark green cherty volc. as for 150.11-150.15m; py 1-2%; contacts are lighter green from chemical mixing? 151.69: irregular qtz/carb vein 1-10mm wide. 153.21 - 153.31: zone of 70% qtz/carb veining; 10% thin 2mm chlorite bands; 20% sericite bands.	streaks 70-75°										
				153.31m: End of Hole											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar	-45°	015°
73.15m	-46°	027°
162.76m	-43°	030°

PROPERTY West Claims	Length 162.76m	HOLE No: 84 - 6	Page #
Location Crofton, B.C.	Hor. Comp. / Vert. Comp.	Sheet 1 of 3	
Elevation	Bearing 015°	Logged by S. Lear	
Coordinates 1+50 S N, LN 10 E E	Begun Sept. 9 / Completed Sept. 11	Sampled by	
	Core size NQ/BQ / Recovery 96 %	Driller Longyear Fly 38	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn %	Pb %	g/MT Ag	Au
0	1.52			Casing											
1.52	74.85	44	93	Fg gray-green volcanics; often with small feldspar porphyries. Highly silicified over most of section with minor chlorite and sericite alteration. Py as disseminated blebs and veinlets. Total Py: 8% Cpy: tr.											
1.52	37.47	55	96	Fg gray-green highly silicified volcanics. Faint banding at 80° - 90° C.A. Rock is occ. closely fractured with sericite and minor calcite on fracture surfaces. Py occurs as 2 to 4mm long disseminated blebs. Py: 10% Cpy: tr.	banding = 80 - 90°										
37.47	38.26	73	98	Fg dark green porphyritic volcanics. Highly chloritic Porphyries are greenish-white, 2 to 4mm long, irregular shape; feldspar ? Occ. calcite veinlets at 50 - 60° C.A. Py occurs as fg disseminations and as 1 to 3mm long subhedral crystals. Total Py: < 1% Upper and lower contacts are chlorite-coated fractures at 90° C.A.	veinlets = 50 - 60°										
38.26	63.73	41	94	Fg gray-green highly silicified volcanics as 1.52 - 37.47m. Disseminated and veinlet py. Py: 10 - 12% 44.80 - 45.06: Intense sericite alteration 49.27 - 50.00: Very broken. Py on fracture surfaces. Py: 5%											
63.73	69.72	3	76	Med. gray, highly silicified porphyritic volc. Porphyries are white, 1 to 4mm long (mode is 2mm) sub-rectangular. Possibly feldspar. Groundmass is med. gray, aphanitic, translucent in places. Resembles qtz-fs porphyry, but no qtz-eyes were observed. Closely fractured over entire section with sericite and minor py on fractures. Py: 1% Upper contact is broken, lower contact is gradational.											
69.72	74.85	23	91	Fg light gray-green volcanics. Moderately sericitic. Weak banding of light and darker green layers at 80 - 90° C.A. Some py veinlets parallel to banding. Mod. fracture density. Sericite and py on fractures. Total Py: 2 - 3% 69.78 - 69.83: 40% Py, 0.5% Cpy in calcite gangue											
74.85	105.03	23	97	Med. green highly silicified volcanics with fs phenocrysts (as 63.73 to 69.72m) interlayered with banded, med. green sericitic volcanics. Py as disseminations and veinlets. Overall Py: 5%											
74.85	79.33	16	95	Silicified, fs porphyry. Disseminated and veinlet Py 77.95 - 78.64: very broken. Py and minor sericite on fracture surfaces. Total Py: 10%	veinlets = 80-90°										
79.33	79.52	6	100	Light green, mod. silic. banded volcanics. Sericite on fracture surfaces. Py: 1%	banding = 80 - 90°										

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No. 84-6 Page #
Sheet 2 of 3
Logged by
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE
79.52	80.47	6	100	Silic., fs porphyry. Very broken over most of section occ. intersecting calcite veinlets at 20° and 60°. Py: 1%	veinlets = 20°, 60°
80.47	82.73	34	100	Fg dark gray-green highly silic. volcanics. Faint foliations at 60 - 80°. Upper contact is 8cm long. Zone of calcite (70%) and py (30%) at 80 - 90° C.A. Fg disseminated py throughout. Py: 10%	foliations = 60 - 80°
82.73	84.36	20	92	Silic. fs porphyry. Discontinuous py veinlets at 80°. Py: 1%	
84.36	84.54	7	85	Light green to gray banded volcanics. Banding at 80 - 90°. Sericite on fracture surfaces. Py veinlets. Py: 1%	
84.54	86.25	7	85	Silic. fs porphyry. Py disseminations: 10%	
86.25	86.43	19	99	Light green to gray banded volcanics. Banding at 65 - 80° C.A. Minor qtz veining parallel to banding. Lower contact is fractured at 80°. Py: 5%	banding = 65 - 80°
86.43	105.03	29	98	Silic. fs porphyry with small zones of banded, med. green sericitic volcanics comprising 30% of section. Banding at 70 - 90°. Total Py: 5%	banding = 70 - 90°
105.03	125.66	36	98	Fg gray-green med. silicified volc. Disseminated py, occ. with calcite gangue. Weak foliations and banding at 70 - 90°, occ. sericitic banded zones as previously described. Total Py: 8 - 10% 114.67 - 115.63: Fg dark green volcanics with small, 1 to 3mm long blebs of epidote. Disseminated py: 5% 123.70 - 123.80: Fault gouge? Semi-competent, highly sheared rock with abundant sericite, minor py.	
125.66	141.03	17	99	Fg dark gray-green mod. to highly chloritic volcanics. Abundant calcite and quartz-calcite veins at 50 - 90°. Py as fg disseminations. Py: 2 - 5%	veins = 50 - 90°
125.66	130.58	15	100	Mod. chloritic volc. calcite-py veinlets and faint banding at 50 - 90°. Py: 2%	
130.58	131.31	28	100	Mod. silicified volc. Banding of gray silic. layers and dark green chloritic layers at 70 - 85°. Py: 1%	banding = 70 - 85°
131.31	132.52	27	100	Dark gray, slightly chloritic volc. with faint feldspar ? phenocrysts(1 to 3mm long) comprising 5% of rock. Some qtz-calcite patches and veinlets at 45 - 60° C.A. Py: 1%	
132.52	141.03	15	99	Fg dark green, mod. chloritic volc. Abundant quartz-calcite veining at 50 - 60° C.A. Occ. bands of light gray silicified volc. Closely fractured throughout, predominately at 50 - 55°. Py: 1% disseminated and in calcite veinlets.	veins = 50 - 60°

GRAPHIC 1:500 — SAMPLES: Number, From, To, Length — ASSAYS: Cu %, Zn %, Pb %, Ag g/MT, Au g/MT

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: 84-6 Page #
Sheet 3 of 3
Logged by
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu %	Zn %	Pb %	g/MT Ag	Au
141.03	162.76	39	99	Fg. grey-green volcanics with much sericite alteration. Foliations at 55 - 65° with parallel qtz-calcite-py veinlets. Py as disseminations and trains in veinlets. Py: 10%											
141.03	141.97	23	100	Chaotic intergrowth of quartz-calcite and chlorite. Chlorite appears to be sheared and deformed around more resistant qtz-calcite patches. More distinct banding towards base of section at 50° C.A. Upper contact is broken, lower contact at 50° C.A. Tr. Py.	Banding = 50°										
141.97	149.17	29	100	Grey-green sericitic volcanics. Very broken from 147.77 - 148.07m. Sericite and euhedral Py on fracture surfaces.											
149.17	149.91	55	88	Chaotic calcite-quartz and chlorite intergrowths as 141.03 - 141.97m. Some banding at 60 - 70° C.A. Upper 17cm has 20% disseminated Py. Total Py: 5%											
149.91	150.48	55	88	Fg, light grey highly calcitic rock, criss-crossed by network of fine intersecting quartz-calcite veinlets. Tr. Py. 150.35 - 150.48m: wavey and distorted 1 to 3 mm wide bands of chlorite and Calcite at 75 - 80° C.A. Lower contact is wavey chlorite band at 70°.											
150.48	155.55	43	99	Sericitic volcanics. Banding of calcite-rich layers at 85°. Disseminated Py: 10%	Banding = 85°										
155.55	157.15	35	99	Fg dark grey mod. calcareous unit. Fg disseminated Py: 5% Lower contact sharp at 30°.	contact = 30°										
157.15	158.67	29	100	Fg grey-green highly sericitic unit with abundant irregular-shaped quartz-calcite patches. Py: 1%											
158.67	159.18	29	100	Wavey bands of sericite and calcite at 70° to 80° C.A. Minor chlorite. Disseminated Py: 10%	banding = 70 - 80°										
159.18	162.76	61	100	Fg dark green volcanics; mod. chloritic. Minor epidote alteration; 1 to 3mm long sub-rounded epidote patches form 1% of rock. Faint calcite bands at 80 - 85° C.A. Disseminated Py: 5%											
				E.O.H. 162.76M											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar	-40°	195°
51.82m	-38°	186°
91.44m	-38°	190°
121.92m	-38°	192°

PROPERTY West Claims	Length 129.54m	HOLE No. 84-7	Page #
Location Crofton, B.C.	Hor. Comp. / Vert. Comp.	Sheet 1 of 3	
Elevation	Bearing 195°	Logged by S. Lear	
Coordinates 10+43S N	Begun Sept.12 /Completed Sept.14	Sampled by M. Hiltz	
LN 7E E	Core size NQ/BQ/Recovery 93 %	Driller Longyear Fly 38	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	g/MT Ag	Au
0	10.06			Casing											
10.06	57.15	44	90	Grey-green volcanics with abundant epidote. Epidote-quartz patches are 1mm to 9cm long (mode is 3mm); sub-rounded to oval shaped, slightly elongated at 40-50° C.A. Epidote comprises up to 30% of rock. Matrix is fg dark green with med. to high chlorite alteration. Py: 2-3%	foliation = 40-50°										
10.06	21.05	5	66	Grey volcanics, mod. silicified. Epidote patches (1 to 3mm long) comprise 5% of rock. Occ. white rectangular feldspar? phenocrysts. Py: 1% 10.06 - 13.24: Rock is very broken with FeOx on fracture surfaces.											
21.05	23.07	16	91	Grey-green volcanics, mod. chloritic. Epidote forms 30% of rock. Disseminated Py: 2%											
23.07	23.73	45	95	Dark, grey-green highly silicified unit with occ. quartz eyes. Qtz eyes are dull grey, 3 to 6mm long. Strong foliation of qtz eyes at 35-40° C.A.	foliation = 35-40°										
23.73	57.15	59	98	Grey-green volcanics with abundant epidote as 21.05-23.07m 49.88 - 50.13: Fg coalesced blebs of py with calcite and chlorite gangue. Py: 20% Gradational lower contact, with epidote blebs becoming smaller and scarcer over lower 1 metre.	foliation = 30°										
57.15	72.73	17	95	Fg dark green volcanics. Fragmental texture of v.f.g. (0.5mm) white feldspar? phenocrysts. Med. to highly chloritic sections with calcite veinlets. Highly silicified in places. Total Py: 5%											
57.15	58.66	7	100	Dark green, mod. chloritic volc. Mod. abundant calcite veinlets at 40-50° C.A. Tr. disseminated Py.	veinlets = 40-50°		4207	57.00	59.00	2.0	.02			L.5	L.05
58.66	59.21	23	100	Fg grey-green highly silicified volc. Trains of Py blebs with chlorite. Py: 1%											
59.21	59.90	42	100	Fg grey-green highly silic volc. Chlorite comprises 35% of rock. Minor calcite (5%). Disseminated Py: 10% Sharp lower contact at 30-40°.	contact = 30-40°										
59.90	62.83	18	94	Fg dark green highly chloritic volcanics. Discontinuous calcite veinlets. Rock is very broken over most of section. Predominate fracture orientation is 15-20°, chlorite on fracture surfaces.	veinlets = 15° fractures = 15-20°		4208	59.00	61.00	2.0	.01			L.5	L.05
							4209	61.00	63.00	2.0	.01			L.5	L.05

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Collar	Inclination	Bearing	PROPERTY	Length	HOLE No. 84-7	Page #
			Location	Hor. Comp. / Vert. Comp.	Sheet 2 of 3	
			Elevation	Bearing	Logged by S. Lear	
			Coordinates N E	Begun /Completed	Sampled by	
				Core size /Recovery %	Driller	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	g/MT Ag	Au
62.83	64.06	36	93	Fg highly chloritic volc. with abundant Py and qtz-calcite patches. Wavey trains of Py blebs at 0°, to 10° C.A. Low fracture density. Overall: qtz-calcite: 20% Py: 20%	veinlets = 0 - 10°		4210 4211	63.00 65.00	65.00 67.00	2.0 2.0	.01 L.01			L.5 L.5	L.05 L.05
64.06	69.03	12	99	Fg grey-green fragmental volcanics. Mod. silicified. Mod. to closely fractures mainly at 40-50°. Occ. qtz-calcite veinlets parallel to fractures. Disseminated Py 1%	fractures = 40 - 50°		4212	67.00	69.10	2.10	.01			L.5	L.05
69.03	69.23	14	100	Aphanitic, light grey highly silic. unit. Fine white veinlets occ. with Py at 35-45°. Closely fractured with chlorite on fracture surfaces. Py: 1%	veinlets = 35 - 45°										
69.23	72.73	16	88	Fg dark green fragmental volc. Mod. to highly chloritic. Trains of Py blebs with qtz-calcite at 30-40°. Total Py: 10% Cpy: tr. 70.66 - 70.90: Highly chloritic volc. Wavey bands of Py and Cpy with qtz-calcite gangue. Py: 20% Cpy: 5% 70.66: 5cm wide band of Cpy: 10% Py: 10%			4213 4214	69.10 71.17	71.17 73.17	2.07 2.0	.09 .02			L.5 L.5	L.05 L.05
72.73	85.69	40	95	Fg dark green fragmental volcanics. Mod. to highly silicified. Small (0.5 to 2mm long) laths of white feldspar (?) comprise 10-15% of rock. Weak foliations at 35-40°. Occ. qtz-calcite/Py veinlets with chlorite selvages at 30-60°. Chlorite, pyrite and minor calcite coating fractures. Py: 3-5%	foliation = 35 - 40° fractures = 30 - 60°										
85.69	106.97	61	97	Med. grey-green highly silicified volc. with feldspar phenocrysts and abundant epidote. Feldspar pheno's are white, sub-rounded to rectangular, 0.5 to 2mm long and comprise 10-15% of rock. Epidote patches are 1mm to 5cm long; mode is 3-5mm. They are sub-rounded to oval, occ. elongated at 40-45°. Larger patches have Py cores and haloes of white quartz. Epidote forms 10-15% of rock. Occ. calcite veinlets at 24-45°. Py: 5%. Sharp lower contact at 40°. 89.51m & 91.03m: Red hematite on fracture surfaces. 94.77: 8cm long patch of qtz with inclusions of Py, Ep, Chl. 102.86 - 103.16: Dark green, highly chloritic zone. Minor epidote alteration. Py-calcite-chlorite veinlets at 40° C.A.	foliation = 40 - 45° contact = 40°										
106.97	129.54	49	92	Interlayered highly chloritic volc. and highly silicified epidote-rich volcanics. Chloritic zones have abundant calcite. Fractures and weak foliations at 40-50° C.A. Py as fg disseminations mainly within epidote patches. Py: 1%	foliation= 40 - 50°										

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar		

PROPERTY
Location
Elevation
Coordinates N / E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun / Completed
Core size / Recovery %

HOLE No: 84-7 Page #
Sheet 3 of 3
Logged by S. Lear
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	Ag g/MT	Au g/MT
106.97	107.17	86	100	Highly chloritic volc. Epidote near upper contact. Mod. well foliated. Diss. Py: 1%	foliations= 35°										
107.17	107.66	85	100	Silic. epidote volc. Intense epidote and qtz-calcite alteration over lower 10cm. Irregular lower contact at 30-50°.											
107.66	109.15	83	99	Fg dark green highly chloritic volc. Small (0.5mm long) white feldspar (?) laths comprise 10-15% of rock. Occ. 1 to 4mm wide epidote-quartz veins. Rare calcite veinlets at 5°, 10° C.A. Lower 5cm contains 20% Py as blebs with calcite-chlorite gangue. Overall: Py: 1%											
109.15	111.15	80	99	Sub-rectangular chlorite laths (after hornblende?), 1 to 3mm long, in a matrix of light green-white, feldspar (?). Chlorite: 60%, F.S.: 40%. A few relic, black hornblende(?) crystals observed. Several 3 to 7mm wide qtz-calcite veins at 55-70°. Tr. Py.	veinlets = 55 - 70°										
111.15	112.85	70	100	Light grey, highly silic. epidote volc. Faint trains of chlorite at 30-45° C.A. Upper 16cm has 65% epidote. Py as fg coalesced blebs with chlorite-calcite gangue surrounding large (4cm long) oval epidote patches. Epidote ranges from 0.5mm to 4cm long patches (mode is 2-5mm). Py: 2%. Sharp lower contact at 25°.	foliation= 30-45° contact = 25°										
112.85	113.69	70	100	Intergrowth of chlorite laths and feldspar (?). As 109.15 - 111.85m but laths are smaller (0.5mm to 2mm) and less distinctly separated. Chl: 70% F.S.: 30%. Occ. disseminated Py blebs. Overall Py: 1% 112.92 - 112.97m: Trains of Py blebs at 80° C.A. in qtz-calcite gangue. Py: 20%											
113.69	116.11	56	99	Silic. epidote volc. Minor hematite on some fracture surfaces. Weak foliation at 40-50°. Lowest contact is fractured at 65°.	foliation= 40 - 50°										
116.11	116.60	60	99	Dark green, fg highly chloritic volc. laths of white feldspar(?) (0.5 to 1.0mm long) comprise 10-15% of rock. Intersecting conjugate qtz-calcite veinlets at 45-50°. Lower contact is very irregular at 60-70° C.A. Py: 1%.											
116.60	118.85	56	99	Silic. epidote volc. chlorite and subhedral Py on fracture surfaces. Py: 2%											
118.85	119.94	53	92	Chloritic volcs. with feldspar laths as 116.11 to 116.60m. Weak foliations at 45° C.A. Py: 1%	foliation= 45°										
119.94	129.54	24	84	Silic. epidote volc. upper 10cm is 80% epidote with qtz-calcite veinlets. Closely fractured from 122.83 to 129.54 with chlorite, Py and minor hematite on fractures. Py: 2%	veinlets = 80-90°										
				E.O.H. 129.54m											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

Collar	Inclination	Bearing

PROPERTY
Location
Elevation
Coordinates N E

Length
Hor. Comp. / Vert. Comp.
Bearing
Begun /Completed
Core size /Recovery %

HOLE No: 84-8 Page #
Sheet 2 of 2
Logged by S. Lear
Sampled by
Driller

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn%	Pb%	g/MT Ag	Au
48.26	56.92	29	94	Dark green, mod. chloritic fs porphyry. Epidote veinlets common at 50 - 75°. A few veinlets at 10° cross-cutting steeper veinlets.	veinlets = 10,50-75°										
56.92	60.62	11	98	Dark green, highly silic. fs porphyry as 22.87 - 48.26m.											
60.62	62.10	42	99	Dark green mod. chloritic fs porphyry as 48.26 - 56.92m. Weakly foliated at 45°. Lower 0.42m has abundant epidote (30%) as irregular shaped 1mm to 30mm long patches. Within epidote patches are 2 to 3mm long black hornblende (?) crystals.	foliation= 45°										
62.10	64.16	38	95	Mg to cg hornblende diorite as 3.66 to 14.16m. Occ. epidote veinlets at 40-60°. Tr. Cpy associated with epidote. Lower contact is gradational. 62.89 - 63.32: Abundant epidote (30%) in fg dark green chloritic groundmass.	veinlets = 40-60°										
64.16	91.44	44	97	Dark green mod. chloritic feldspar porphyry as 48.26 to 56.92m. Weakly foliated at 60-70°. Epidote veinlets at 50-70°. Occ. qtz-calcite veinlets at 40-50° in opposite sense of epidote veinlets.	foliation= 60-70°										
				E.O.H. 91.44m											

DRILL HOLE RECORD

FALCONBRIDGE LIMITED

	Inclination	Bearing
Collar	-45°	015°
48.77m	-42°	010°
91.44m	-42°	014°

PROPERTY West Claims	Length 91.44m	HOLE No: 84-8	Page #
Location Crofton, B.C.	Hor. Comp. / Vert. Comp.	Sheet 1 of 2	
Elevation	Bearing 015°	Logged by S. Lear	
Coordinates 6+13S N	Begun Sept.15/84 / Completed Sept.17	Sampled by	
LN 5+05E E	Core size NQ/BQ / Recovery 95 %	Driller Longyear Fly 38	

DEPTH (metres) From	To	RECOV'Y RQD	Core	DESCRIPTION	INTERSECTION ANGLE	GRAPHIC 1:500	SAMPLES Number	From	To	Length	ASSAYS Cu%	Zn %	Pb %	g/MT Ag	Au
0	3.66			Casing											
3.66	14.16	30	92	Mg to coarse grained intrusive (hornblende diorite). Hornblende crystals are 2mm to 10mm long (mode is 3-4mm) and are partially altered to chlorite in places. Rectangular shape green-white feldspar crystals are 1 to 5mm long (mode is 2mm). Fg ilmenite occurs in 2mm to 10mm long patches. Ilmenite is slightly magnetic. Occ. calcite-qtz veinlets. Minor epidote alteration. Tr. Cpy as fg disseminations. Composition of rock: Hornblende: 50%, Feldspar: 40% Chlorite: 1-2%, Ilmenite: 5%, Epidote: 2-3%, Chalcopyrite: tr. 3.66 - 10.10m: Closely fractured and broken. Fractures at 30° and 60°. Iron oxide on fracture surfaces. 7.91 - 10cm long zone with 2-3mm wide, 5-10mm long cavities lined with dark brown iron oxide. Lower contact is broken.	veinlets= 30° fractures= 30°, 60°										
14.16	18.53	47	96	Fg dark green highly silicified intrusive (?). Feldspar crystals comprise 10-15% of rock. These are green-white, irregular shaped, 1mm to 5mm long. (mode is 3mm) Faint 1-2mm long hornblende crystals observed. Groundmass consists of fg (0.5mm) dark green and green-white feldspar ? crystals. Occ. calcite veinlets at 10° and 40°. Lower contact is broken with abundant chlorite over lower 5cm.	veinlets= 10°, 40°										
18.53	22.87	68	93	Hornblende diorite as 3.66 - 14.14m. Occ. calcite veinlets at 40°. Ilmenite: 5% Cpy: tr.											
22.87	91.44	36	95	Dark green, mod. chloritic to highly silicified volcanics (?) with fg feldspar phenocrysts. Maybe fg equivalent of hornblende diorite. Abundant epidote alteration in places. Small hornblende diorite unit. Tr. Cpy.											
22.87	48.26	34	92	Dark green highly silicified feldspar porphyry. Tr. Cpy at selvages of calcite veins. Very closely fractured and broken from 22.87 to 33.12m. Chlorite, calcite and iron oxide on fracture surfaces. 24.53: 3 blebs of Cpy; each 5mm x 2mm at selvage of calcite veinlet. 25.18: Cpy bleb, 2mm x 1mm in calcite veinlet 37.50: Veinlets of epidote at 30-40°, offset by intersecting qtz-calcite-chlorite veinlets at 20-30°. 47.33 - 47.52: Strongly foliated at 50° qtz-calcite veinlets at 20° in opposite sense of foliations. 47.68 - 48.26: Broken zone.	veinlet = 50° foliation= 50°										