Diamond Drill Report
Heather Property
Victoria Mining Division
NTS 92 C/15, 16

826509

MINNOVA Inc. Oct. 16, 1987 G.S. Wells

Diamond Drilling Report

Heather Property

Victoria Mining Division

NTS 92C/15, 16

48° 59' N Latitiude 124° 30' W Longitiude

Owner: Minnova Inc.

Operator: Minnova Inc., International Cherokee Developments Ltd.

by: G. S. Wells

October, 1987

Claims

Carol Group	Tania Group
Carol S	Tania S

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Heather Property

1. Introduction

Minnova Inc. optioned the Heather property from Canamin Resources in May 1986. The property is currently being evaluated for its gold potential.This report summarizes the results of a diamond drill program which was done from October 2, 1986 to October 16, 1986.

1.1 Location and Access

The Heather property is located on Vancouver Island approximately 40 km southwest of Nanaimo and 7 km north of the west end of Cowichan Lake (Figure 1) A network of logging roads from Youbou provides access to the property for 2 and 4-wheel drive vehicles.

1.2 Mineral Rights

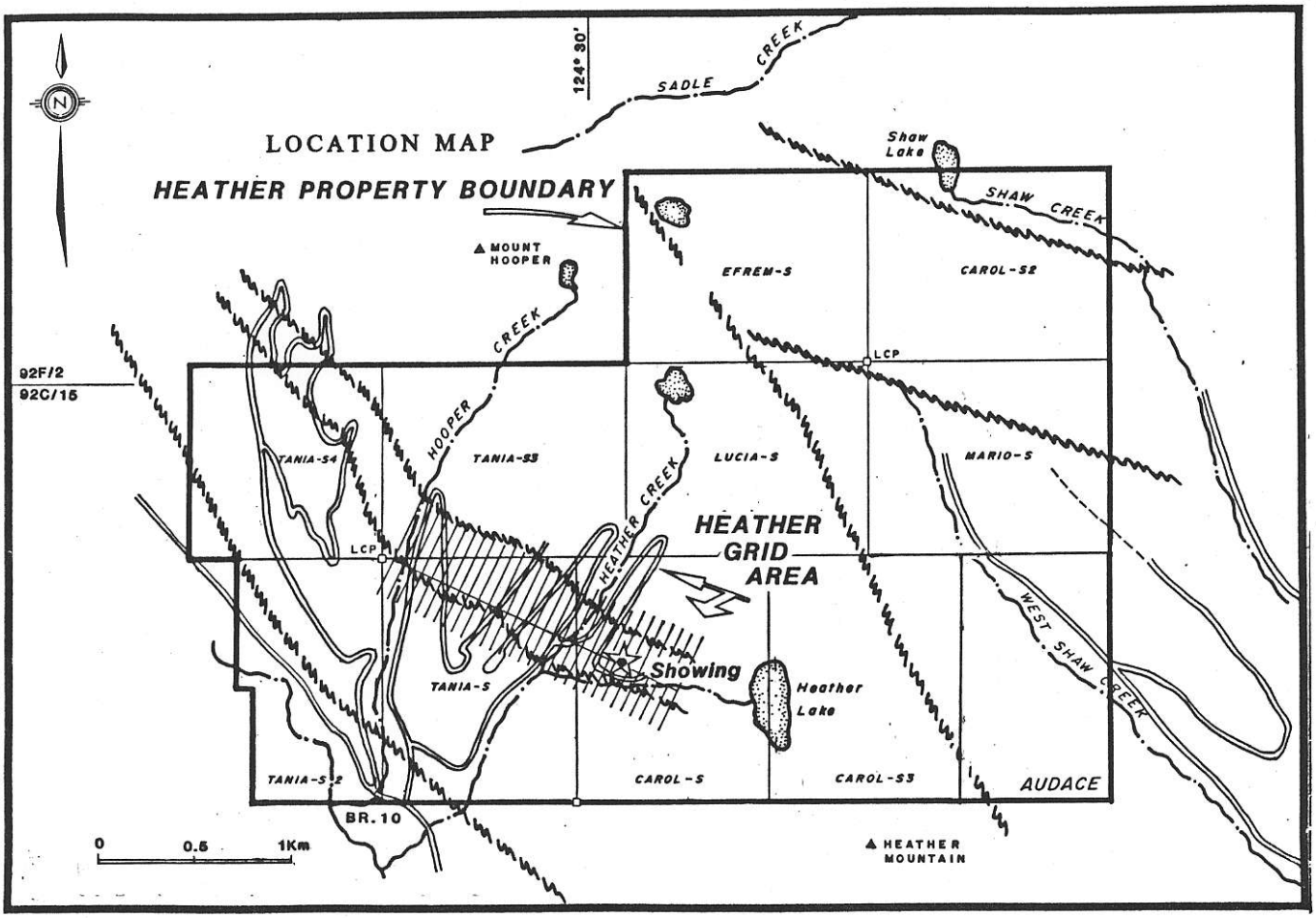
The diamond drill holes described in this report are located on 2 separate claim groups. Holes H-1, 2 and 3 are on the Carol Group and holes H-4 and H-5 are on the Tania Group. Details of the claim status are given below:

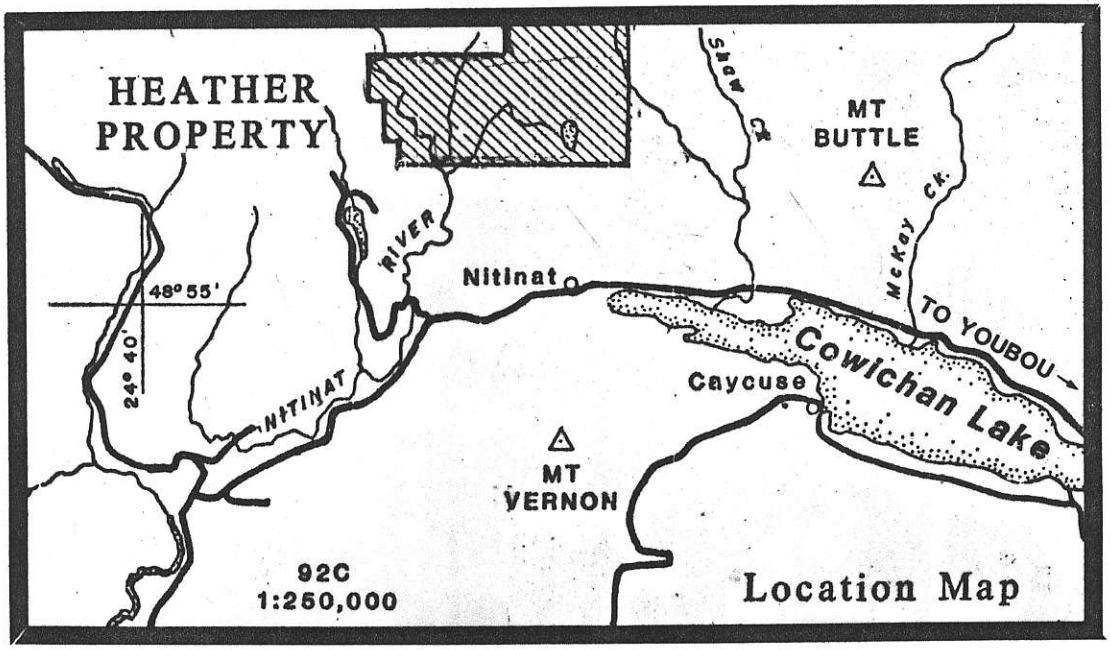
Carol Group

Claim Name	No. of Units	Record No.	Month of Record
Carol S	20	644	August
Marino S	20	647	August
Carol S-2	20	648	August
Carol S-3	20	686	October
Audace	15	1567	September

Tania Group

Claim Name	No. of Units	Record No.	Month of Record
Tania S	20	645	August
Lucia S	20	646	August
Efrem S	20	649	August
Tania S #3	20	684	October





MINNOVA

FIGURE 1

Ungrouped Claims

Claim Name	No. of Units	Record No.	Month of Record
Tania S #2	15	683	October
Tania S #4	16	685	October

1.3 History

Canamin Resources Limited staked the property in 1982 after E. Specogna, a local prospector, discovered several polymetallic, sulphide-rich boulders in the Heather Creek area. The property was optioned to Falconbridge Limited in 1982 and they discovered the McDougall quartz vein which returned assays of up to 0.35 oz/T Au. In 1983, Falconbridge and Chevron Canada Resources Limited formed a joint venture partnership with Chevron as the operator. Over the next 2 years they carried out reconnaissance-style mapping and soil geochemical surveys over the property using the many logging roads as control. They also contracted helicopter-mounted INPUT E.M. and magnetic surveys over the property and ground follow-up of anomalies with an EM-37 system . The best mineralization encountered was a sulphide-rich section of what is now known as the Main showing. It yielded assays of 0.25 oz/ton Au and 0.18% Cu. Chevron tested this showing with 2 diamond drill holes totalling 338 meters. The best intersection from this program was 3.0 g/T Au over 1.5 meters and they subsequently dropped the option in early 1985. Minnova acquired the Heather property in May 1986 and has been actively exploring the ground for base and precious metals with International Cherokee Developments Ltd. as a joint venture partner.

1.4 Work Done

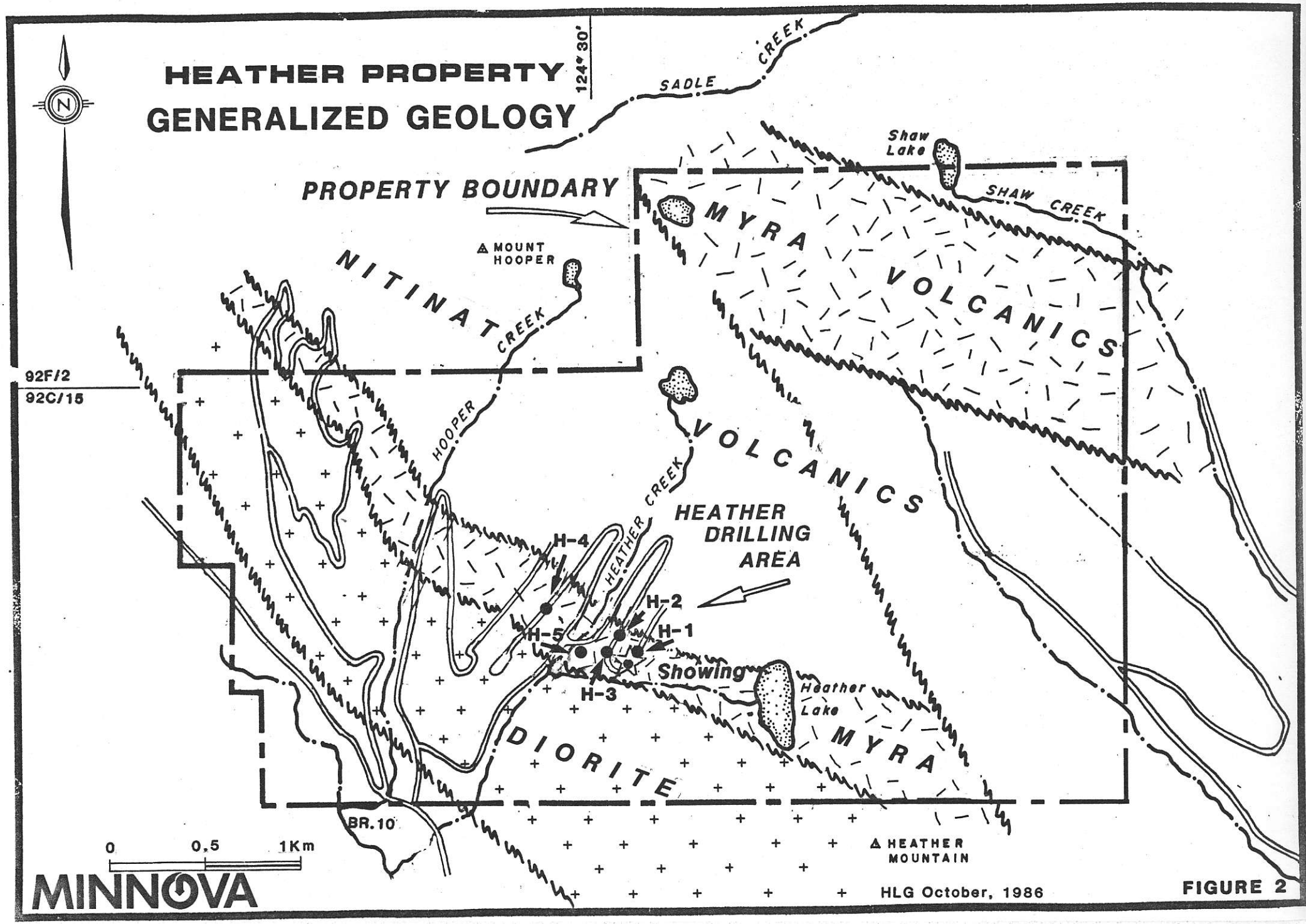
Five NQ diamond drill holes totalling 547 meters were drilled on the Heather property (Figure 3). The core is stored at 6722 Lakes Road in Dunca Duncan. These holes are:

Carol Group

Carol S : H-1, H-2, H-3 363.6m

Tania Group

Tania S : H-4, H-5 183.4m


HEATHER PROPERTY
GENERALIZED GEOLOGY
124° 30'
SADLE CREEK
PROPERTY BOUNDARY
Shaw Lake
SHAW CREEK
MYRA VOLCANICS
MOUNT HOOPER
NITINAT CREEK
92F/2
92C/15
HOOPER CREEK
VOLCANICS
HEATHER CREEK
HEATHER DRILLING AREA
H-4
H-2
H-5
H-1
Showing
H-3
Heather Lake
MYRA
DIORITE
BR.10
HEATHER MOUNTAIN
0
0.5
1Km
MINNOVA
HLG October, 1986
FIGURE 2

2. Heather Area Geology

The Heather property is primarily underlain by volcanic rocks of the Paleozoic Sicker Group (Figure 2, 3). Muller (1980) has subdivided the Sicker group as follows:

i Buttle Lake Formation
ii Sediment - Sill Unit
iii Myra Formation
iv Nitinat Formation

The oldest rocks exposed on the property are the pyroxene porphyritic agglomerates and flow breccias of the Nitinat formation. These are overlain conformably by cherts, lapilli tuffs and phyllitic tuffs of the Myra formation. Triassic Karmutsen basalts are exposed in the southwestern corner of the property and are separated from the Myra volcanics by a thick dioritic intrusion of possible Jurassic age.

The Main Zone showing consists of a northwesterly trending quartz-pyrite shear zone which cuts cherts and ashes of the Myra formation (Figure 2, 3). The gold bearing McDougall Vein is hosted in the Nitinat flow breccia.

3. Diamond Drilling Results

A five-hole, 547 meter diamond drill program was conducted in October 1986 to evaluate the best VLF, IP and lithogeochemical anomalies associated with a northwesterly trending quartz-pyrite shear zone. Detailed drill logs are presented in Appendix I and a brief summary of each hole is presented below.

H-1 tested VLF and IP anomalies and the down-dip extent of the Main Zone mineralization. The hole collared in well laminated cherty tuffs and siliceous ashes to a depth of 49.4 meters. The lower part of the hole intersected green and maroon andesitic phyllites. Alteration is dominated by weak to moderate calcite-hematite veining. The quartz-pyrite zone associated with the Main Showing was not intersected suggesting that perhaps it dips towards the southwest. Gold values throughout hole H-1 are generally low (5-65 ppb).

Hole H-2 tested a VLF and IP anomaly and two narrow zones of quartz-carbonate alteration. The hole intersected a series of laminated cherty

tuffs and tuffs to 66.1 meters. The rest of the hole was in phyllitic andesite ash tuffs with minor crystal and lapilli tuff sections. A zone of moderate to strong quartz-chlorite-pyrite veining is found between 46.0 and 82.9 meters. Pyrite content within this zone varies between 2 to 7% which explains the VLF and IP anomaly. However gold values are low throughout the hole (5-65 ppb).

Hole H-3 tested an IP anomaly, a weak gold lithogeochemical anomaly and the quartz-pyrite zone associated with the Main Showing. The upper part of the hole intersected a pyritic grey tuff (to 58.2 meters) with moderate to strong quartz veining. The veins occur at relatively shallow core angles ($10-20^{o}$) which suggests that the hole was drilled down the dip plane of the altered zone. The lower part of H-3 intersected a green and maroon phyllite tuff which is characterized by moderate carbonate veining. No significant gold values were found in hole H-3 (Au range: 5-210 ppb).

Hole H-4 tested a coincident VLF/IP anomaly associated with a quartz-pyrite alteration zone. The hole is located approximately 800 meters northwest of the Main Showing. The hole intersected green and maroon andesitic tuffs throughout. A quartz-pyrite zone was intersected from 15.05m to 28.5m but gold values of this zone are again low (5-20ppb).

Hole H-5 tested a strong IP anomaly. The upper part of the drill hole (to 22.6) intersected a pyritic (3-5%) grey tuff. The rest of the hole intersected andesitic ash tuffs and dykes. Quartz-pyrite veining is moderate to strong to a depth of 29.4 meters while carbonate +/- quartz veining is more pervasive throughout the rest of the hole. Gold values range from 5 to 130 ppb Au.

4. Conclusions

Five diamond drill holes totalling 547 meters tested VLF, IP and lithogeochemical gold anomalies on the Heather property. The IP and VLF anomalies were caused by variable (3-5%) amounts of disseminated pyrite. No significant gold values were found in any of the holes.

Holes H-1 and H-3 tested the extent of the Main Showing mineralization. H-1 did not reach the mineralized zone and H-3 was drilled down the dip plane of the zone. The interpretation from these 2 holes is that the zone dips to the southwest. Further drilling is warranted here to fully test the Main Showing where gold values up to 0.25 oz/T Au have been obtained.

Statement of Costs

Statement A - Carol Group holes H-1, 2, 3. filed for $29,267.90

H-1

Footage costs	8,192.55
Casing (20 ft.)	318.77
Casing shoe ($350.96 + 12%)	393.07
Casing cap ($62.06 + 12%)	69.51
Traction time (10 hrs. at $55)	550.00
Man hrs (drill move & travelling)	
36 hrs. at $24	864.00
M. Gray 4 days (Oct. 1, 2, 3, 4) at $300	1,200.00
E. Denholm 4 days (Oct. 1, 2, 3, 4) at $100	400.00
	$11,987.90

Footage Cost	7,688.14
Casing (12 ft.)	204.93
Casing shoe ($350.96 + 12%)	393.07
Casing cap ($62.06 + 12%)	69.51
Tractor time (3 hrs. at $55)	165.00
Man hrs. (drill move & travelling)	
26 hrs. at $24	624.00
M. Gray 2 days (Oct. 5, 6) at $300	600.00
E. Denholm 2 days (Oct. 5, 6) at $100	200.00
	$9,944.65

H-3

Footage costs	4,323.54
Casing (15 Ft.)	249.27
Casing shoe ($350% + 12%)	393.07
Casing cap ($62.06 + 12%)	69.51
NQ core bit ($566.03 + 12%)	633.95
Tractor time (4 hrs. at $55)	220.00
Man hrs. (drill move & Travelling)	
20 hrs. at $24	480.00

H-3 cont'd.

M. Gray 3 days (Oct. 7, 8, 9) at $300		900.00
E. Denholm 3 days (Oct. 7, 8, 9,) at $100		300.00
	$	7,569.34
grand total:	$	29,501.89

Statement B - Tania Group - holes H-4, H-5. filed for $16,210

H-4

Footage Costs		5,121.73
Casing (25 ft.)		408.65
Casing shoe ($350.96 + 12%)		393.07
Casing cap ($62.06 + 12%)		69.51
Tractor time (3 hrs. at $55)		165.00
Man hrs. (drill move & travelling)		
32 hrs. at $24		768.00
M. Gray 4 days (Oct. 10, 11, 12, 13) at $300		1,200.00
E. Denholm 4 days (Oct. 10, 11, 12, 13)		
at $100		400.00
	$	8,525.96

H-5

Footage Costs		5,049.67
Casing (20 ft.)		318.77
Casing shoe ($350.96 + 12%)		393.07
Casing cap ($62.06 + 12%)		69.51
Tractor time (15 hrs. at $55)		825.00
Man hrs. (drill move & travelling)		
22 hrs. at $24		528.00
M. Gray 4 days (Oct. 14, 15, 16, 17) at $300		1,200.00
E. Denholm 4 days (Oct. 14, 15, 16, 17)		
at $100		400.00
	$	8,784.02
grand total:	$	17,309.98

6. References

Gibson, H.

1986 : Geophysical Report; IGS 2 VLF/magnetometer and Induced Polarization Surveys on the Heather Property of Canamin Resources. Assessment Report.

Gray, M. J.

1987 : Summary Report of 1986 Fieldwork on the Heather Option of Canamin Resources Ltd. Minnova internal report.

Muller, J. E.

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

Statement of Qualifications

I, Gary S. Wells, hereby certify that:

1. I hold an Honours Bachelor of Science degree in combined geology and chemistry (1975) from Carleton University, Ottawa, Ontario and a Ph.D. degree in geology (1980) from Queen's University, Kingston, Ontario.

2. I am an associate member of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy.

3. I have practised my profession in exploration continuously since graduation in 1980.

4. I have based conclusions contained in this report on knowledge of the area, my previous experience and results of field work conducted on the property.

Date: October 16, 1987

Gary Wells

Gary S. Wells, Ph. D.
Vancouver, British Columbia

Statement of Qualifications of Field Personnel

Michael J. Gray : B Sc (Geology) 1985, University of British Columbia.
2 years full-time experience in mineral exploration
4 years part-time experience in mineral exploration.
address : c/o Minnova Inc., 4th Floor, 311 Water St.
Vancouver, B. C. (phone 681-3771)

F. BOISVENU DIAMOND DRILLING LTD.
C/O 200 2695 GRANVILLE STREET
VANCOUVER, B.C. V6H 3H4

INVOICE
#1005

DATE: November 4, 1986

TO: Corporation Falconbridge Copper
6415 64th Street
Delta, B.C.
V4K 4E2

FOR: Heather Property
Surface drilling - Longyear 38
Oct. 1-17, 1986

Drilling	$30,375.63	
Moving and others	~~4,295.00~~	3911.00
Travel	1,344.00	
Materials	5,350.86	
Mobilization - per contract	2,200.00	
	~~$43,565.49~~	
	43,181.49	

CORPORATION FALCONBRIDGE COPPER

VENDOR NAME	INVOICE NUMBER OR DATE	CURRENCY 1 - CDN 2 - U.S.	F. I. L.
F. BOISVENU	1005	1	

ACCOUNT CODE			AMOUNT	CR X
GENERAL LEDGER	DETAIL	EXPLORATION PROJECTS		
705810	600	224	42,374.71	
705810	604	313	248.24	
705810	604	305	558.54	

Drilling

Hole#	Size	Angle	From	To	Meters	Rate	Amount
86-1	NQ	- 45 deg.	0	147.8	147.8	$55.43	$ 8,192.55
86-2	NQ	- 45 deg.	0	138.7	138.7	55.43	7,688.14
86-3	NQ	- 45 deg.	0	78.0	78.0	55.43	4,323.54
86-4	NQ	- 45 deg.	0	92.4	92.4	55.43	5,121.73
86-5	NQ	- 45 deg.	0	91.1	91.1	55.43	5,049.67
					548.0		$30,375.63

Moving and Others:

Date	Memo	Man hrs	Drill hrs	Tractor hrs	
Oct. 1	Moving in	2	-	4	
2	Complete move in	18	-	6	H-1
5	Move to next hole in excess of 8 hrs.	2	-	-	
6	Move to next hole in excess of 8 hrs.	12	-	3	H-2
8	Move to next hole in excess of 8 hrs.	6	-	4	
8	Reaming casing	6	3	-	H-3
10	Move to next hole in excess of 8 hrs.	12	-	-	
10	Standby	~~16~~	-	-	H-4
11	Move to next hole in excess of 8 hrs.	10	-	3	
14	Move to next hole in excess of 8 hrs.	12	-	8	H-5
16	Move out	-	-	3	
17	Move out	-	-	4	
		80 ~~96~~	3	35	

80 ~~96~~ man hours @ $24.00 per hour	~~$2,304.00~~	1920.00
3 drill hours @ $22.00 per hour	66.00	
35 tractor hours @ $55.00 per hour	1,925.00	
	~~$1,295.00~~	3911.00

Travel

Date	Memo	Man hrs	
Oct. 1	Daily travel to drill site	4	
2	Daily travel to drill site	4	H-1
3	Daily travel to drill site	4	
4	Daily travel to drill site	4	
5	Daily travel to drill site	4	
6	Daily travel to drill site	4	H-2
7	Daily travel to drill site	4	
8	Daily travel to drill site	4	
9	Daily travel to drill site	4	H-3
10	Daily travel to drill site	2	
11	Daily travel to drill site	2	
12	Daily travel to drill site	2	H-4
13	Daily travel to drill site	4	
14	Daily travel to drill site	4	
15	Daily travel to drill site	4	H-5
16	Daily travel to drill site	2	
		56	

56 man hours @ $24.00 per hour $1,344.00

Materials:

18 - NW casing caps @ $62.06 each	$1,117.08	
1 - 2' length of NW casing @ $40.66	40.66	
2 - 5' lengths of NW casing @ $80.25 each	160.50	
8 - 10' lengths of NW casing @ $142.31 each	1,138.48	
5 - NW casing shoes @ $350.96 each	1,754.80	
1 - NQ core bit @ $566.03	566.03	86-3 = H-3
	4,777.55	
Add: 12% overhead charge	573.31	
	$5,350.86	

Appendix I :

Drill Logs

CORPORATION FALCONBRIDGE COPPER

DRILL HOLE RECORD

x METRIC UNITS
IMPERIAL UNITS

HOLE NUMBER	GRID	FIELD COORDS	LAT.	DEP.	ELEV.	COLLAR BRNG.	COLLAR DIP	HOLE SIZE	FINAL DEPTH
H-1	5+00W, 1+03N				558m.	200°	46.5 SET	NQ	147.83m

PROJECT	CLAIM #	SURVEY COORDS.				DATE STARTED / DATE COMPLETED	CONTRACTOR / CORE STORAGE	CASING
PN 224 Heather	CAROL S					Oct 2/86 / Oct 5/86	F. Boisvenu / Duncan	10 ft or 3.05m (Left in)

PURPOSE
Test strongest coincident IP and VLF in an area of carbonate alteration, 50m north of quartz-pyrite zone.

RQD LOG
COLLAR SURVEY
PULSE EM SURVEY
MULTISHOT SURVEY

ACID TESTS				TROPARI TESTS			MULTISHOT DATA		
DEPTH (m)	CORRECTED ANGLE	DEPTH ( )	CORRECTED ANGLE	DEPTH ( )	AZIMUTH	DIP	DEPTH ( )	AZIMUTH	DIP
3.15	44.5°								
30.48	46°								
60.96	45.5°								
91.44	45.5°								
121.92	46°								
147.83	46°								

HOLE NO H-1

LOGGED BY M. Gray

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
0 to 3.15	OVERBURDEN	CASING				
3.15 to 9.44	ANDESITE, TUFF & CHERTY TUFF UNIT	Colour - Med. green & maroon +/- lt. and dark green +/- cream. Grain size - fine to very fine. Well laminated 3.15-9.44m Extremely well laminated 9.44-12.40m. Well folded (open gentle-mod.) 3.15-6.80m. Weak-mod. foliation developed 6.80-9.44m Faults locally with 5-20mm offset. Strongly sheared 6.64-7.23m includes shear-breccia, vein-breccia parallel to fol'n & narrow shear at 30 to fol'n.	Layering 3.35m-80 3.70m-45 4.60m-25 5.60m-70 to 90 7.30m-50 7.80m-40 8.85m-10 10.00m-15 10.70m-35 11.52m-20 12.25m-25 12.45m-15 calc, qtz 8.40m-90 to 75, T.G. 7.75m-10 to 15 8.80m-60 9.24m-55 calc, 55 qtz par.	3.15 - 7.83m: Calcite and minor Fe carb veins +/- py, generally weak calc, mod.-strong in shears. Two generation of calcite First parallel to subparallel to fol'n, 1-5mm thick white to clear veinlets. Second microcalc <1mm as discontinuous T.G. with minor, local limonitic envelope 7.83 - 9.44m: Weak-mod. calcite veins. Two generation same as above. Weak locally Weak to mod. qtz veining. Qtz white to lt. grey (translucent) <1-3mm thick avg 1mm with local chl <1mm envelopes.	Py in diss patches and grains, coarse, euhedral, brassy 6.65-7.48m: 1-5% py	Lithology: distinct green & maroon laminated texture +/- dark to lt. green +/- cream, individual bands 4mm thick avg. Note possible amygdule at 5.00m Dark-lt. green layers are andesite <3-15mm 3-4mm thick avg, 20-25%; Maroon bands are chert horizon, possible cherty tuff (aphanitic), weakly calcareous, bands sharp <2-10mm, 5mm thick; <5% pale green-grey layers are possible felsic tuff (FP) or cherty tuff (aphanitic-pseudo tranl.), i.e. 3.35m, bands are 1-4mm thick; Minor <1% cream coloured bands possible felsic tuffs (weak calcareous) avg. 4mm thick. Note felsic bands at 9.16, 8.68m

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
9.44 to 12.40	SAME AS ABOVE ANDESITE TUFF-CHERTY TUFF +/- FELSIC BANDS	Colour - green-grey Grain size - v. fine +/- lapilli Extremely well laminated (delicately - finely laminated). Weak--mod. foliated, minor warp folds, locally sheared over narrow widths and filled with white qtz.	see previous page qtz, calc 9.40m: 60, calc 10.50m-40 @ 0, qtz 10.50m-0 @ 10, qtz 10.60m-45, 10 qtz 10.80m-80, 10 qtz 11.10m-55, 20 qtz, TG 11.55m-60 11.70m-65 2 cm 12.00m-10, 55 qtz	Mod. calc veining throughout 1-2mm veins, tensional + parallel to foliation. Also weak-mod. qtz +/- py veinlets, typically 1-2mm thick, white-lt. grey. Note one 2cm wide milky white qtz-py vein at 11.70m. Note veins typically discontinuous broken gashes which defract through different compositional bands.	Py diss in qtz veins & in laminated tuff as coarse brassy euhedral grains 1-5mm avg. 3mm. Locally discontinuous py veinlets noted i.e. 11.25m. Note py intergrown with qtz overall 1-2%. 9.44-9.64: No visible sulphides 9.64-10.00: Tr - 1% py 10.00-10.60: Tr py 10.60-10.75: 1% py 10.75-11.40: Tr py 11.40-11.90: 1-3% py 11.90-12.40: Tr - 1% py	<1-15mm thick bands of tuff, typically 1mm avg. Mainly ash tuff, locally coarse-lapilli i.e. 11.54m; also minor (5%) siliceous grey bands cherty or dacitic ? avg. 4mm thick.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
12.40 to 15.37	ANDESITE TUFF + CRYSTAL TUFF + LAPILLI TUFF +/- LOCAL CREAM FELSIC TUFF	Colour - med. to dark green +/- lt. green +/- cream Grain size - fine to lapilli. Massive-locally poorly laminated Mod. foliated, local strong foliation i.e. 15.20m. Breccia zone (fault?) 13.54-13.69m. Local strong shears at 15.04@ 14.40m +/-'qtz +/- sericite ?	12.65m-45 12.95m-40 13.05m-10 13.81m-20 14.21m-20 14.46m-25 Qtz, <fol'n 12.65m-30 @ 10 12.95m-35 @ 90, #2 13.60m-45 ,BX 13.60m-0 @ 10, #2 13.65m-45 13.65m-40 @ 90, #3 14.21m-25 @ 10, #1/2 14.95m-60 @ 20, #1/2	Tr calcite veinlets (<1mm) Qtz veins milky white to lt. grey, 3 generations? Youngest tensional <1mm discontinuous, next 1-3mm +/- py grey-white, oldest 4-15mm white, often parallel to fol'n +/- py. 12.40 - 13.54: Weak qtz 13.54 - 15.37: Mod. qtz	Py diss +/- qtz veins as coarse 2-4mm grains 12.40-13.26: No visible sulphides to tr py 13.26-15.37: <1-1% py	Note lapilli or coarse ash tuff 12.40-12.80m, massive andesite tuff 12.80-14.06m, crystal tuff 14.06-15.37m, felsic bands at 13.54-13.69m (breccia zone) (in sheared sections, chl-ser schist look) Ser? is pale green, developed as envelope to early qtz and alone in fol'n in strong shears, strong sericite in shear.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
15.37 to 25.30	ANDESITE TUFF WITH INTERLAMINATED CHERTY TUFF (10-15%) & LOCAL CRYSTAL-LITHIC TUFF 2%@ & FELSIC TUFF <1% (ALSO MINOR DYKES)	Colour - green to grey-green Grain size - fine +/- coarse-lapilli Well laminated Locally folded i.e. 17.72m Locally mod. foln developed i.e. through 19.75-25.30m	Fol'n/ Layering 15.40m-30 16.00m-20 16.75m-25 17.72m-E 18.65m-45 19.00m-85 20.90m-0 22.10m-80 22.85m-75 32.42m-20 25.00m-70 Qtz, <fol'n 15.75m-40 @ 90, 10 @ 55 17.20m-60 @ 80 18.20m-50 @ 90, TG 19.53m-45 @ 90 (2mm) 20.60m-40 @ 5, (4-15mm) 22.45m-45 @ 90 ? 23.20m-60 @ 90 ? 24.00m-65 @ ?, 8cm with internal TGQ	Calcite v. weak throughout section. Weak-mod. qtz +/- py +/- chl or ser. Qtz mainly 5-15mm white qtz. Qtz veins >1cm folded into fol'n 15.37 - 16.95: weak to mod. qtz+/-py+/-ser/chl 16.95 - 19.45: Weak qtz+/-py+/- ser/chl 19.45 - 21.88: Mod. qtz+/-py+/-chl+/-ser 21.88 - 23.38: Mod. + Mod-strong qtz+-py+- chl +/- ser. 23.38 - 24.00: Mod. qtz,+.. 24.00 - 24.58: Mod-strong qtz 24.58 - 25.05: Weak qtz 25.05 - 25.30: Mod. qtz + py	Py coarse diss. 15.37-17.88: Tr 17.88-18.06: 3% fg py diss, stringer 18.06-19.53: <1% 19.53-22.00: <1-2% py, cg diss 22.00-22.77: Tr-<1% py 22.77-24.08: <1-1% py 24.08-24.43: 5-3% py cg, diss, fg stringer 24.43-25.20: 1-3% py same as above 25.20-25.30: 5-8% py cg, diss py patchy parallel to in. qtz.	15.37-17.88m: Andesite tuff with interlaminated white cherty tuff 17.88-18.06m: Dacite-Andesite biotite porph. dyke?@ 8L? Biotite to chl.@ 2-3% py as discont. stringers & diss, F. grained cont. 40 Fol'n C.A. 55. 18.06-18.60: Andsite Tuff with interlam. cherty tuff ; minor crystal lithic tuff. 18.60-18.61: Dacite-Andesite dyke same as above - contact 35 to fol'n, 75 to C.A. 18.61-18.85m: Andesite Tuff +/- Cherty Tuff 18.85-19.55m: crystal lithic tuff + andesite tuff +/- cherty tuff 19.55-25.30m: andesite tuff +/- cherty tuff +/-: coarse tuff +/- crystal lithic tuff

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
25.30 to 32.30	ANDESITE TUFF + CHERTY TUFF	Colour - green + green/grey Grain size - very fine-med.-coarse Extremely well laminated tuffs with interlaminated cherty tuff. Locally foliated/sheared i.e. 27.65m, numerous zones with microfaults 28.67 - 29.87: Feldspar porph. andesite dyke? weakly porph. 1mm phenos feldspar with chilled margins, green. contact C.A. 20, < fol'n 45 Also irregular dyke patch at 31.40m	Layering 25.75m-75 27.25m-80 27.70m-50 28.65m-20 29.60m-60 30.37m-50 Qtz, <fol'n 25.40m-40 @ 45, 3mm 25.40m-10 @ 90, 2mm 25.40m-45 @ 45, 10mm 26.20m-5 @ 90, 2mm 26.20m-80 Patches, 1mm 27.80m-20 @ 30, TG, 8mm 27.80m-60 @ 50, <1mm 28.35m-30 @ 90, 6mm 28.35m-60 PAR, 15mm 29.57m-65 @ 0, 7mm 30.60m-40 @ 30, 3cm 32.10m-40 @ 30, 3 cm 32.10m-25 @0?, 10mm	Mainly qtz+/-py +/- chl +/- ser? veins <1mm-8cm thick, larger veins are milky white, smaller grey-white, range weak-mod.-strong (pseudostockwork) 25.30-26.40: weak qtz +/- chl + discont. py stringers (coarse) 26.40 - 27.40: Mod. qtz+/-py+/-chl+/-ser? 27.40 - 28.30: weak to mod. qtz+/-py+/-chl+/-ser 28.30 - 30.67: strong qtz + chl +/- py +/- ser? 30.67 - 31.35: weak-mod. qtz+/-chl+/-py+/-ser? 31.35 - 32.30: Qtz +chl+/-py	Fine-med. gr. locally coarse gr. brassy euhedral py as patches (3x15mm), discont. stringers and diss +/- qtz veins. 25.30-25.50: 3% py as patches stringers + diss 25.50-25.78: Tr-<1% 25.78-26.38: 3-5% mainly patches, stringers 26.38-28.15: 1-3% diss + patches, stringers 28.15-29.70: <1-1% py diss cg 29.70-30.02: Tr-<1% diss py 30.02-30.72: <1-1% py 30.72-31.85: 2-3% py diss cg 31.85-32.30: 1% py diss.	

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
32.30 to 39.92	ANDESITE TUFF POORLY LAMINATED, LOCALLY MASSIVE (NOTE DYKES)	Colour - med. to dark green Grain size - fine Poorly laminated (local mod. laminated) overall also locally massive tuff (no cherty tuff). 34.65 - 35.65: ANDESITE DYKE Feldspar-rich +/- mafic phenos; med. grey-green colour; fine to v. fine; weakly phaneritic, weak foliation? or flowage. Upper contact irregular C.A. 40, < to fol'n ? 36.12 - 36.31: Andesite Porphyry Dyke with phenos, Qtz???; Med. to lt green colour; aphanitic to med. grained; porphyritic, flow near margins. Contact C.A. 40 , < fol'n 50 .	33.03m-45 34.13m-15 36.00m-80 37.43m-79 38.92m-50 39.90m-45 Qtz, <fol'n 35.50m-25 ,N/A 34.30m-40 @ 0, #1 34.40m-25 @ 15, #2 36.12m-80 @ 0, #1 35.65m-80 to 90 @ 90, #2 38.05m-15 @ ?, #1 38.50m-25 @ 90, #3 39.00m-45 @ 0, #2,1 39.00m-0 60, #2 39.00m-60 @ 90,#3	Qtz +/- py +/- chl +/- carbon +/- sericite?@ 2-3 generations: 1. 10mm to 30cm thick white qtz, par to fol'n gen. 2. 1-5mm anastomizing stockwork style, 3. <1mm tension G. 32.30 - 33.43: Mod. #3 33.34 - 34.65: strong #2, contorted #1, #3 34.75 - 35.65: Weak #2 (dyke) 35.65 - 36.12: Strong 2, 3, 1 36.12 - 36.31: V.weak 2 (dyke) 36.31 - 37.55: strong 2, 3, 1 37.55 - 37.56: V.weak 3, 2 37.56 - 38.16: Strong (locally intense) 1, 2, 3 38.16 - 38.47: Weak 2 38.47 - 39.92: Mod. to strong 3, 1, 2	Py with qtz veins and as narrow <1-3mm veinlets, mainly f.gr. euhedral brassy, py +/- carbonaceous seams 32.30-33.43: 1% patches + stringers 33.43-34.65: 1-3% diss + patches 34.75-35.65: 2% diss 35.65-35.12: <1-1% diss 36.12-36.31: Tr 36.31-36.58: <1%-1% diss 36.31-37.35: 3% stringers + patches 37.35-37.56: 1% diss 37.56-38.14: 1-2% diss + F.gr. euhedral patches 38.14-38.74: <1-1% diss 38.74-38.94: 2-3% patches, stringers + diss 38.94-39.14: 1% diss 39.14-39.52: 1-3% stringers + patches 39.52-39.92: <1% diss	Note: carbon seams with some qtz veins/shears Py sheared out along carbonaceous seams First appearance of carbonaceous material approx. 36m <1% locally in this section Minor (Tr) calcite veins <1%

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
39.92 to 43.89	CRYSTAL LITHIC TUFF +/- LAPILLI +/- COARSE ASH	Colour - lt. to med. dull green Grain size - med. to lapilli. Massive, foliated - frags + crystals drawn out along fol'n. Locally v. poorly laminated. (possibly amygdaloidal flow with calcite amyg?).	40.00m-55 40.90m-55 42.05m-40 to 45 43.40m-40 to 45 Calc, < fol'n 40.75m:- 45 @ 0 41.75m-45 to 55, @ 0 to 10 43.25m-45 @ 0 Qtz 40.07m-50	Weak calcite veining (1/10cm)m <1-5mm thick, trace - qtz veins except one 30cm vein, also diss. py & weak sericite alteration(?) throughout along fol'n? 40.07 - 40.37: White qtz + chl + py vein.	Pyrite is v. fine gr.@ diss + minor patches + discontinuous stringers of mod. to coarse py. 39.92-42.20m-<1-1% diss + patches 42.40-42.55m: 1-3% patches + diss 42.55-43.89m: <1-1% diss py	Note: in qtz vein py assoc. with chl centre in vein.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
43.89 to 49.43	ANDESITE TUFF + CHERTY TUFF +/- FELSIC BANDS	Colour - lt. to dark green + lt. grey/green Grain size - fine Well laminated, locally shear zones/faults with carbonaceous coatings noted at 44.49m, 45.04m, 46.78m, 48.64m, 49.42m	44.30m-75 45.30m-35 46.30m-45 47.30m-40 to 45 49.30m-65 qtz,calc < fol'n 44.49m-70 calc 45.33m-55 @ 0, qtz 46.43m-35 to 55, qtz 46.48m-45 @ 90, calc 47.20m-55 & 10, @ 90 & 45 calc?	Weak to mod./strong calcite +/- carbon veining <1-10mm, avg. 2mm: weak density Qtz + py + carbon +/- chl veins, Qtz is lt. grey to white; veins 5mm-15cm, avg 3cm 43.89 - 44.96: Weak qtz, weak to mod. calcite 44.96 - 46.48: Weak to mod. qtz, mod. calcite TG. x-cuts Qtz. 45.33-45.41m & 46.33-46.48m - qtz vein 46.48 - 47.54: mod. qtz, mod. calcite 47.54 - 49.43: Weak qtz, weak to mod. calcite	43.89-44.14: <1-1% diss 44.14-44.49: 2-5% patches + stringers 44.49-45.04: 1% diss 45.04-45.39: 2-3% py patches 45.39-45.47: 5-8% qtz vein, patches + stringers 45.47-46.33: 2-5% patches+stringers+ diss 46.33-46.48: 3-5% patches + stringers 46.48-47.54: 2-3% stringers, patches 47.54-48.28: 1-2% diss. + stringers 48.28-49.43: 3-5% stringers, patches, carbon-rich zone.	Note py as wispy <1mm thick, 1cm long discon. stringers.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
49.43 to 63.13	ANDESITE TUFF PHYLLITIC with local/minor COARSE TUFF	Colour - med. green + maroon Grain size - fine +/- med. Interfoliated 4mm to 10cm bands of andesite marked by colour changes. (poorly laminated); mod. to well foliated Note local boudinage? or brecciation of layers. Phyllitic.	49.78m-40 51.65m-55 53.75m-55 55.50m-60 56.63m-50 59.25m-35 61.10m-45 62.44m-45 calc, <fol'n 50.26m-45 @ 0 50.26m-25 @ 70 52.50m-25 @ 70 52.50m-45 @ 0 55.40m-95 @ 0 55.40m-40 @ 90 57.00m-45 @ 0 58.00m-55 @ 0 58.00m-50 @ 70 60.03m-45 @ 0 62.48m-50 @ 0	Mainly two generations calcite ; chl veins of strong-mod. to strong-intense density. Calcite white <1mm-4mm veins generally parallel to fol'n, with narrow <1mm chl selvages +/- sericite?; possible maroon due to hemitization? 49.43 - 52.68: strong to intense calcite 52.68 - 58.10: strong calcite 58.10 - 63.13: weak to mod. calcite	No visible sulphides.	Many bands; maroon or green are lensoid (boudinage?), maroon colour pervasive, not in calcite veins themselves. Tensional generation of calcite is youngest Note at 44.40 py wispy stringers.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
63.13 to 67.23	ANDESITE LAPILLI/ CRYSTAL LITHIC TO COARSE ASH TUFF & PHYLLITIC TUFF (INTERFOL-IATED)	Colour - med. green, phyllitic tuff maroon Grain size - med. to lapilli <4mm Massive to poorly laminated; mod. to well foliated Up to 30cm thick lapilli bands, avg 15cm, approx 50% of section lapilli tuff/crystal tuff.	63.20m-45 64.30m-50 65.00m-40 67.00m-45 calc, < fol'n 63.50m-40 @ 0, 45 @ 90 64.65m-45 @ 0, 10 @ 45 67.00m-45 @ 0, 20 @ 45	Mainly calcite; see previous section/page description 63.13-64.10: Mod. calcite 64.10-67.23: Weak to mod.	No visible sulphides.	Purple/maroon tuff fine ash.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
67.23 to 90.60	MAROON +/- GREEN ANDESITE TUFF, PHYLLITIC +/- minor COARSE-LAPILLI TUFF, +/- AMYG. FLOWS i.e.- 68.90m	Colour - maroon +/- green Grain size - fine +/- med. Poorly laminated - interfoliated maroon and green bands with vague -fuzzy margins, local swirly texture - folding?, disrupted locally; due to microfaults? of syndepositional breccia of layers; note amygdules at 68.90m - calcite filled Also noted weak pseudobreccia zone "contorted" 79.00-86.00m	68.00m-45 71.50m-40 73.80m-50 76.20m-55 78.80m-25 82.30m-55 87.00m-25 90.00m-45 Calc, < fol'n 67.90m-45 @ 0 71.05m-45 @ 0, 65 @ 20 74.35m-50 @ 10, 25 @ 35 78.50m-15 @ ? 82.00m-45 @ 0 85.00m- zigzag 88.50m-45 @ 0, 20 @ 90 90.50m-75 @ 10	Consists of calcite veins, patches and gashes 1-10mm thick avg 2mm + 4mm +/- chl selvages; also local patches, wispy stringers and diss red hematite 67.23 - 69.25: Weak to mod. calcite veins 69.25 - 71.00: weak 71.00 - 73.50: weak to mod. 73.50 - 78.87: Weak 78.87 - 88.50m: v. weak 88.50 - 90.60m: Weak to mod. calcite Note hematite veinlets at (sub parallel fol'n) 68.00 - 69.30: 1-2% as patches, diss, stringers 70.25: veinlet 72.10: veinlet 69.90m: veinlet, 79.50m: veinlet, 85.90m: veinlet, 89.00m: veinlet, 90.50m: veinlet	No visible sulphides.	Note: Hematite ? veinlets are parallel <1mm wispy stringers parallel to subparallel to the fol'n. Brick red colour vs maroon. (weak hematite alter'n if is is indeed alter'n). Hematite x-cuts at least one generation of calcite veinlets. Note sharp band contacts purple vs. green Note 63.50m intrusive looking contact.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
90.60 to 95.15	BRECCIA (FAULT?), SHUFFLE ZONE OF ANDESITE TUFF	Colour - dominated by maroon, 15% green Grain size - fine Poorly-locally mod. laminated with fuzzy (vague) band contacts. Folded, contorted, breccia zone highlighted by calcite vein fragments within a maroon tuff matrix. C.A.are rough for fol'n (parallel to lamination)	91.00m-55 93.35m-40 94.00m-E	Mainly calcite + chl veins (chl as narrow <1-1mm selvage) now largely broken up, locally folded parallel to fol'n. No young undisrupted veins noted; Also local brick red hematite veinlets not assoc. with calcite. Calc. veinlets mainly parallel to fol'n. 90.60 - 93.20: mod. to strong calcite 93.20 - 93.60: Strong to intense calcite 93.60 - 95.15: mod. to strong calcite.	No visible sulphides.	Note hematite stronger than previous section, veinlets up to 3-4mm, series of wispy bands and matrix "reddening" notably at 90.80m, 91.34m, 93.20m, 93.90m, 94.15m, 94.55m, 95.00m
95.15 to 98.41	ANDESITE TUFF, PHYLLITIC ?	Colour - green dominates +/- 20% maroon Grain size - fine Poorly laminated, indistinct layers by colour, one appear to overprint the other. Mod. foliated, somewhat folded, locally well folded.	95.90m-E 97.54m-50 to 60 98.10m-E	Same as above 95.15-97.90: mod. to strong calcite vein 97.90-98.41: weak to mod. calcite vein hematite veinlets noted at 97.15m, 98.10-98.41m	No visible sulphides.	

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
98.41 to 101.51	BRECCOA (FAULT?) SHUFFLE-CONTORTED ZONE OF ANDESITE TUFF (SIMILAR TO 90.60-95.15M)	Colour - maroon dominately +/- 10% green Grain size - fine Pseudobreccia look, calcite veinlets folded and broken-up Poorly laminated, weak-mod. fol'n? (see top description)	98.76m-35 99.10m-E 101.00-40 hematite 98.41m-35	Same as above, with more pronounced hematite veinlets. Calc. mainly parallel to fol'n 98.41 - 98.81: Mod. to strong calc 98.81 - 100.00: strong to intense calc 100.00 - 101.51: Mod. to strong calcite Note hematite veinlet conc. at 98.41-98.80m, 100.03-100.23m, 101.06-101.11m	No visible sulphides.	Hematite more distinct and stronger 98.41- 35 some parallel to fol'n

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
101.51 to 108.89	ANDESITE TUFF- CHL-PHYLLITE +/- COARSE TUFF +/- LAPILLI	Colour - med. to dark green +/- 15% maroon section Grain size - fine to coarse +/- lapilli. Massive-poorly laminated, well foliated, minor lapilli tuff 1-2cm layers, local disruption and breccia along foliation.	102.25-55 103.63-40 to 45 104.88-40 106.28-45 108.00-35 to 40 108.65-40 Gen par. fol'n qtz, calc, < fol'n 102.81-90 @ 45, qtz 103.10-0 @ 60, qtz 104.43-25 @ 30, qtz 104.90-15 @ 25, qtz 106.47-40 @ 0, calc 108.20-75 @ 45, calc 108.20-40 108.20-45 @ 5, calc 108.20-5 @ 65, calc	Mainly calcite ; chl (black) veinlets as patches, irregular veins generally parallel to fol'n, Hematite patches and stringers local. Also note qtz +/- py +/- cal +/- chl veinlets 4-15mm wide, irregular discontinuous. Qtz is lt. grey translucent 101.51 - 102.51: weak to mod. qtz, mod. calc 102.51 - 103.11: strong-mod. qtz, weak calcite 103.11 - 103.70: weak to mod. qtz, v.weak to weak calcite 103.70 - 104.38: Mod. to strong qtz, mod. calc 104.38 - 105.50: Weak to mod. qtz, mod. calc 105.50 - 106.14: Mod. to strong calc 106.14 - 108.89: weak to mod. calc.	Local py is f.gr - med. gr subhedral to euhedral as small irregular patches and minor diss. 101.51-102.81: No sulphides 102.81-102.96: 1-2% patches + diss 102.96 - 103.70: tr 103.70-103.82: 1-2% patches + diss 103.82-105.48: Tr 105.48-108.89: No visible sulphides	Possible green chloritized phyllite not maroon due to grain size ? Calcite eyes? 2-5mm could be boudined veins (same for qtz). Note: also possible chl-ser +/- epidote alter'n along fol'n in qtz vein zone, not necessarily related to veins. Note hematite-rich section 104.79-105.94m. Qtz fracture filled with microcalcite veins offset of veins parallel to fol'n by narrow veinlet C.A. 5 Calcite patches also healed with micro qtz veinlets + gash fillings.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
108.89 to 115.65	ANDESITE TUFF +/- COARSE TUFF TO CRYSTAL LITHIC TUFF	Colour - Maroon dominately, +/- 20% Med. green Grain size - fine to coarse Poorly laminated with massive and mod. section; well developed foliation, local breccia 1-2cm parallel to fol'n Note crackle breccia 108.93-109.11m	109.73-30 111.35-40 112.90-45 113.90-45 115.40-45 Qtz, calc hem, fol'n 109.73-30 @ 90, calc 109.73-10 @ 20,calc 109.73-35 @ 5, hem. 111.80-45 @ 0, calc 111.80-10 @ 60, TG 113.35-30 @ 15, qtz 113.80-30 @ 25, qtz 113.80-80 @ 90, qtz 113.80-45 @ 0, hem.	Similar to above although hematite in distinct 1-3mm cont-discontinuous veins. 108.89 - 109.11: strong-mod. qtz, mod-strong calc, weak-mod. hematite 109.11 - 112.83: V. weak qtz, mod. calc, tr-strong hematite 112.83 - 114.46: Weak qtz, mod. calc, weak-mod. hematite 114.46 - 115.65: V.weak qtz, mod. calc, weak-mod. hematite	Minor py diss + v. small patches parallel to fol'n are in "green" coarse" tuff. 111.14-112.14: <1% py otherwise no visible sulphides	Calcite vein x-cut qtz hematite, hematite parallel to sub-parallel to fol'n.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
115.65 to 118.30	ANDESITE CRYSTAL LITHIC TUFF - COARSE TUFF +/- ASH TUFF	Colour - lt. to med. green +/- 5% maroon <5mm bands Grain size - coarse +/- lapilli +/- fine Massive-poorly laminated, mod. foliated	115.90-45 117.00-45 117.90-45 Calc, < fol'n 115.95-45 @ 0 116.75-45 @ 0, 5 @ 90 117.80-40 @ 10, 45 @ 0 117.80-5 @ 90	Calcite veins, granular 1-5mm thick avg 2mm, two generations, one parallel, one perpendicular; minor calcite + qtz veinlets throughout. 115.65 - 116.35: Weak calcite 116.35 - 118.30: Mod. +/- strong calcite	Traces of diss py noted locally i.e. - 16.27m, 16.63m	Hematite veins? parallel to fol'n 2-4mm wide weak to mod. throughout.
118.30 to 124.73	ANDESITE PHYLLITIC TUFF, +/- COARSE TUFF +/- CRYSTAL LITHIC TUFF	Colour - maroon +/- green 10-15% Grain size - fine +/- coarse Poorly laminated-massive Mod. foliated note breccia-crackle zones 118.45-118.92m and 123.60-124.50m	119.25-45 to 50 121.50-45 123.60-40 Calc, <fol'n 119.10-45 @ 0, 0 @ 90 122.32-35 @ 20, 35 @ 90 122.32-0 @ 60 123.92-45 @ 0, 10 @ 60 123.92-80 @ 45	Consists of calcite +/- qtz +/- chl +/- py veinlets <1mm-5mm thick, avg 3mm. Also discontinuous hematite stringers. 118.30 - 119.36: Strong calc +/- qtz 119.36 - 123.84: mod. to strong cal +/- qtz 123.84 - 124.73: Strong cal +/- qtz	Py as discontiuous narrow <1-1mm stringers or vein selvages +/- diss. 118.30-119.20: Tr 119.20-120.50: No visible sulphides 120.50-121.55: tr - <1% 121.55-122.20: 1-2% 122.20-124.73: No visible sulphides	Note hematite on margins of chl-qtz veins locally hematite def. x-cut fol'n.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
124.73 to 126.80	ANDESITE CRYSTAL LITHIC TUFF - LAPILLI TUFF	Colour - lt. to dark green and swirly green + dark purple Grain size - Med. to lapilli +/- fine Massive-poorly laminated, Weak-mod. foliation	125.10-30 125.60-25 126.10-40 126.75-45 calc, H, < fol'n 124.90-35 @ 0, calc 124.90-20 @ 65, calc 125.40-40 @ 0, 10 @ 70 125.40-40 @ 0, hem. 126.00-80 @ 40, calc 126.00-25 to 35 @ 10	Calcite veins +/- qtz +/- chl typically 2-4mm thick, also note patchy swirls of hematite alteration. 124.73 - 125.27: Mod. calc +/- qtz, v.weak hematite. 125.27 - 126.89: Mod. to strong calc +/- qtz, mod. to strong hematite.	No visible sulphides.	Note tensional calcite x-cut hematite.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
126.80 to 135.55	ANDESITE TUFF - COARSE TUFF +/- CRYSTAL LITHIC TUFF	Colour - maroon + med. green Grain size - fine to med. +/- coarse Poorly-mod. laminated, obscured due to maroon colour, well foliated.	127.30-45 129.50-45 130.80-30 to 35 132.46-45 133.00-40 134.80-40 to 45 Qtz, calc, < fol'n 126.90-45 @ 0?, qtz 126.90-60 @ 90, TG, C 126.90-5 @ 50, calc 128.00-45 @ 0, hem 128.00-25 @ 90, calc 129.70-20 @ 45, calc 129.70-30 @ 0, qtz 129.70-70 @ 90, calc 134.30-75 @ 60, calc 134.30-15 @ 80, calc	Calcite +/- qtz +/- chl veins, minor qtz + py veins at top of section, patchy hematite + veins. 126.80 - 127.45: Mod. to strong qtz, mod. calc +/- qtz, weak hematite. 127.45 - 133.20: Mod. to strong calc +/-qtz, Tr qtz 133.20 - 135.55: Mod. to weak calc +/- qtz, Tr Qtz	Tr py with qtz veins 126.80-127.45: Tr to <1% 135.00: tr	note brick red hematite at 135.50m, 135.07-135.80m, 133.20m Possibly some cal-hem veinlets. Note epidote +/- chl +/- ser parallel to fol'n at 135.05-135.55m

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
135.55 to 138.32	ANDESITE COARSE TUFF +/- CRYSTAL TUFF	Colour - dark to med. green +/- minor maroon Grain size - Mod. to coarse Massive; mod.-well foliated.	135.60-45 136.60-35 to 45 137.80-40 qtz, calc, < fol'n 135.60-45 @ 0, calc 135.60-45 @ 90, calc 135.60-15 @ 30, calc 135.90- Ep 15 to 30, shear @ 45 137.30-25 @ 30, qtz 137.30-45 @ 0, qtz 137.80-45 @ 0, qtz 137.80-45 @ 90, qtz	Same as previous description minus the hematite. Qtz avg 4mm thick +/- chl. 135.55 - 135.90: V.weak qtz, mod. calcite 135.90 - 136.40: Weak-mod. qtz, mod. to strong calcite 136.40 - 136.82: Weak to mod. calcite 136.82 - 137.52: Weak to mod. qtz, mod to strong calcite 137.52 - 138.32: Weak to mod. calcite	Py v. fine gr. as diss (euhedral) & as v. tiny blebs (<2mm) 135.55-135.90: 2-3% diss 135.90-136.40: 2-3% Tr throughout rest	Note ep+/- chl +/- ser alteration along fol'n at 135.90-136.40m with py Hematite veinlets approx. parallel to fol'n. Note boudined qtz? Cal x-cut qtz vein.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
138.32 to 147.83 EOH	ANDESITE TUFF +/- MINOR CRYSTAL TUFF +/- COARSE TUFF	Colour - maroon +/- green (25%) Grain size - fine to coarse Poorly laminated-massive Mod.-well foliated 139.76: Shear?	138.92-40 139.76-45 141.65-45 144.60-30 shear 147.20-45 qtz, calc, < fol'n 139.00: - 45 @ 0, calc 139.00: - 45 @ 90, calc 141.10: 45 @ 0, qtz 142.30: 10 @ 60, calc 145.18: 25 @ 35, calc 145.18: 25 @ 0, qtz	Same as above plus the hematite veinlets 138.32 - 139.00: Mod. calcite 139.00 - 140.70: Mod. to strong calc 140.70 - 141.66: mod. to strong calc, weak qtz 141.66 - 147.83: mod. calc.	No visible sulphides.	hematite weak veinlets throughout 1-2mm thick.

DDH H-1 **LITHOGEOCHEMISTRY** Pg. 1 of 1

			MAJOR OXIDES										TRACE ELEMENTS									
SAMPLE NUMBER	FROM (m)	TO (m)	SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	FeO	MnO	TiO_2	Ba	ppm Cu	ppm Zn	% Pb	ppm Ag	ppb Au	Rock Type	Alt	Min	Zr	Total
4601	3.50	6.50	68.47	11.06	3.05	2.56	2.56	1.03	8.80	0.35	0.39	.055	68	47	.005	0.6	5				.005	98.34
Laminated tuff & cherty tuff/chert (5.0)																						
4602	39.92	42.92	55.38	14.40	5.05	7.10	3.76	0.24	9.85	0.13	2.07	.035	33	90	.015	1.0	10				.012	98.04
Crystal lithic tuff, andesite (41.4)																						
4603	60.00	63.00	48.74	17.80	6.22	5.39	.061	3.99	13.31	0.38	1.14	.038	104	78	.015	1.1	5				.005	97.64
Andesite phyllite (Tuff) (61.5)																						
4604	85.00	88.00	48.65	17.73	4.46	8.58	3.72	1.51	11.70	0.19	1.09	.031	106	70	.016	0.7	5				.005	97.67
Andesite Phyllite (86.5)																						
4605	101.51	104.51	51.75	16.25	3.19	11.10	2.54	0.49	11.31	0.15	1.06	.012	100	72	.018	1.2	20				.005	97.87
Andesite Phyllite (103)																						
4606	128.00	131.00	48.96	18.66	5.69	4.48	4.09	2.43	12.46	0.24	1.06	.021	44	68	.008	0.9	10				.005	98.11
Andesite Phyllite (129.5)																						

Hole No. H-1 Entered by _____ Logged by M. J. Gray Page No. 22

DDH H-1

ASSAY SHEET Pg. 1

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/t Ag	ppb Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
4926	6.63	7.23			0.60	.012	.01		10.0	10													
4927	9.40	10.40			1.00	.018	.01		3.8	5													
4928	10.40	11.40			1.00	.012	.02		1.0	5													
4929	11.40	11.90			0.50	.014	.01		0.9	5													
4930	11.90	12.90			1.00	.013	.01		0.3	5													
4931	12.90	13.54			0.64	.012	.01		0.2	10													
4932	13.54	13.69			0.15	.014	.01		0.3	30													
4933	13.69	14.37			0.68	.008	.01		0.2	65													
4934	14.37	15.37			1.00	.007	.01		0.2	5													
4935	17.88	18.06			0.18	.011	.01		1.5	5													
4936	19.53	21.03			1.50	.015	.01		0.3	5													
4937	21.03	22.53			1.50	0.12	.01		1.0	5													
4938	22.53	24.08			1.55	.011	.02		0.2	10													
4939	24.08	24.43			0.35	.014	.01		0.5	15													
4940	24.43	25.50			1.07	.014	.01		0.3	5													
4941	25.50	26.50			1.00	.008	.02		0.2	5													
4942	26.50	28.00			1.50	.007	.01		0.3	5													
4943	28.00	29.50			1.50	.008	.01		0.2	5													
4944	29.50	31.00			1.50	.003	.02		1.3	10													
4945	31.00	32.30			1.30	.006	.01		1.0	5													

HOLE NO. H-1

DDH H-1 **ASSAY SHEET** Pg. 2

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/t Ag	ppb Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
4946	32.30	33.30			1.00	.005	.01		1.6	5													
4947	33.30	34.30			1.00	.008	.02		1.9	5													
4948	34.30	34.75			0.45	.001	.01		0.7	10													
4949	34.75	35.65			0.90	.003	.01		1.8	5													
4950	35.65	36.12			0.47	.002	.01		0.6	5													
4951	36.12	36.31			0.19	.008	.01		1.5	5													
4952	36.31	37.35			1.04	.007	.01		1.2	5													
4953	37.35	38.35			1.00	.003	.01		0.3	10													
4954	38.35	39.52			1.17	.002	.01		0.5	5													
4955	39.52	40.07			0.55	.001	.02		1.3	5													
4956	40.07	40.37			0.30	.001	.01		0.1	5													
4957	40.37	40.89			0.52	.002	.01		0.7	5													
4958	40.89	42.39			1.50	.001	.01		2.0	15													
4959	42.39	43.89			1.50	.001	.02		0.8	5													
4960	43.89	44.89			1.00	.003	.01		0.6	10													
4961	44.89	45.39			0.50	.003	.01		1.1	5													
4962	45.39	46.33			0.94	.002	.01		1.9	5													
4963	46.33	46.48			0.15	.003	.01		1.0	5													
4964	46.48	47.48			1.00	.002	.01		0.8	5													
4965	47.48	48.28			0.80	.001	.01		1.8	5													

HOLE NO. H-1

DDH H-1 **ASSAY SHEET** Pg. 3

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm. T Ag	ppb Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
4966	48.28	49.43			1.15	.005	.01		1.4	5													
4967	49.43	50.00			0.57	.007	.01		4.3	5													
4968	50.00	51.00			1.00	.014	.01		1.5	5													
4969	51.00	53.00			2.00	.008	.01		1.8	5													
4970	53.00	55.00			2.00	.003	.02		0.3	5													
4971	61.00	63.00			2.00	.002	.02		0.2	5													
4972	65.00	67.00			2.00	.003	.01		0.5	10													
4973	71.00	73.00			2.00	.005	.02		0.4	5													
4974	77.00	79.00			2.00	.018	.01		0.6	5													
4975	83.00	85.00			2.00	.012	.01		0.3	5													
4976	88.00	90.00			2.00	.007	.02		0.2	5													
4977	93.05	95.05			2.00	.026	.01		1.0	10													
4978	98.41	100.41			2.00	.010	.01		0.2	10													
4979	101.51	102.81			1.30	.006	.01		0.6	15													
4980	102.81	102.96			0.15	.002	.02		0.6	5													
4981	102.96	103.70			0.74	.008	.02		0.2	5													
4982	103.70	103.82			0.12	.004	.01		1.0	5													
4983	103.82	105.48			1.66	.001	.01		0.2	15													
4984	105.48	107.48			2.00	.017	.01		1.8	5													
4985	108.93	109.11			0.18	.002	.02		0.3	10													

HOLE NO. H-1

DDH H-1 **ASSAY SHEET** Pg. 4

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm/T Ag	ppb Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
4986	111.14	112.14			1.00	.024	.03		0.2	5													
4987	112.14	114.14			2.00	.004	.02		0.2	5													
4988	116.00	118.00			2.00	.013	.01		0.5	5													
4989	118.45	118.92			0.42	.017	.01		0.2	5													
4990	118.92	119.97			1.05	.001	.02		0.2	10													
4991	119.97	121.47			1.50	.001	.01		0.1	5													
4992	121.47	122.20			0.73	.008	.01		0.2	5													
4993	122.20	123.60			1.40	.003	.02		0.4	50													
4994	123.60	124.73			1.13	.009	.02		0.2	10													
4995	124.73	126.07			1.34	.002	.02		0.4	5													
4996	126.07	126.80			0.73	.028	.01		0.2	5													
4997	126.80	127.45			0.65	.001	.02		0.2	5													
4998	127.45	128.95			1.50	.001	.01		0.1	5													
4999	133.55	135.55			2.00	.005	.02		0.2	5													
5000	135.55	135.90			0.35	.001	.02		0.2	5													
5001	135.90	136.40			0.90	.003	.03		0.1	5													
5002	136.40	138.32			1.92	.001	.02		0.3	10													
5003	140.70	141.70			1.00	.035	.01		0.3	50													
5004	145.83	147.83			2.00	.001	.01		0.2	5													
	EOH																						

HOLE NO H-1

PAGE 26

II-1 SUMMARY LOG

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
0 to 3.15	CASING IN OVERBURDEN					
3.15 to 12.40	TUFF CHERTY TUFF	Colour - green & maroon Grain size - fine Well laminated tuff and cherty tuff		Calcite veinlets (<1-5mm), minor qtz veins, hematite? in bands parallel to layering	Local section of 1-3% brassy pyrite	Green and maroon interlaminated cherty tuffs - green cherty tuffs, pyrite as sub-euhedral and diss. assoc with qtz veins + veinlets
12.40 to 15.37	ANDESITE TUFF +/- LAPILLI TUFF	Colour - lt. to med. green Grain size - fine to coarse +/- lapilli Massive to poorly laminated.		Weak qtz veins, patchy mod. sericite/clay, tr calcite	Tr py	Sericite or epidote or clay alteration as envelopes aroung qtz + parallel to foliation
15.37 to 25.30	ANDESITE with FELSIC + CHERTY BANDS +/- LAPILLI	Colour - lt. to dark green + maroon Grain size - fine to coarse +/- lapilli Mod. to well laminated tuff to local lapilli tuff.		Weak to mod. qtz, tr calcite, patchy sericite?	Tr py	note possible dykes
25.30 to 32.30	ANDESITE TUFF + CHERTY TUFF +/- LAPILLI	Colour - lt. to dark green/grey Grain size - fine +/- lapilli Extemely well laminated, fine grained; sharply banded.		Mod. qtz 2 generations +/- py, tr calcite; minor py veins	1-3% med. to coarse py locally	note possible dykes
32.30 to 39.92	ANDESITE TUFF +/- LAPILLI	Colour - med. green Grain size - fine to coarse Massive to mod. laminated (locally).		Patchy strong qtz +/- py veins +/- carbonaceous seams	Tr to 3% py locally	Carbonaceous seams start at 36.38m

H-1 SUMMARY LOG CON'T

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
39.92 to 43.89	CRYSTAL LITHIC TUFF ANDESITE +/- LAPILLI	Colour - Med. green Grain size - coarse to lapilli Massive foliated tuffs.		Weak qtz +/- py veins	Tr-3% py locally	note 30 cm wide qtz vein at 40.02-40.32m
43.89 to 49.43	ANDESITE-FELSITE TUFF +/- CHERTY TUFF	Colour - lt. to med. green + grey Grain size - fine to med. Moderately laminated tuff.		Weak to mod. qtz +/- py +/- carbonaceous seams	1-3% py patchy	Note: at end BOX 8 start qtz-py vein but only 30cm.
49.43 to 101.80	MAROON + GREEN PHYLLITES, ANDESITE TUFF	Colour - maroon + green Grain size - fine Poorly to mod. laminated with parallel foliation tuffs.		Mod. (local strong) calcite veins, Tr. qtz to approx. 58.00m 58.00-67.50: weak to mod., 67.50-89.00: v.weak to weak 89.00-101.80: mod.	Tr to 1% locally, rare	Maroon (hematite) content increases (red) with depth? Generally v. little sulphides.
101.80 to 104.14	GREEN PHYLLITE ANDESITE	Colour - med. green Grain size - fine to coarse? Poorly laminated, good foliation, tuffs.		Mod. calcite mainly parallel to foliation	Tr	Note locally breccia zones (near hinge of fold?)
104.14 to 112.98	GREEN + MAROON PHYLLITE, ANDESITE TUFF	Colour - Maroon + green Grain size - fine to coarse? Poorly laminated, well developed foliation.		Weak to mod. calcite vein	Tr	

CORPORATION FALCONBRIDGE COPPER

DRILL HOLE RECORD

x METRIC UNITS
IMPERIAL UNITS

HOLE NUMBER	GRID	FIELD COORDS	LAT.	DEP.	ELEV	COLLAR BRNG.	COLLAR DIP	HOLE SIZE	FINAL DEPTH
H-2	6+65W, 1+24N				465.5m	210°	46°	NQ	138.68m

PROJECT	CLAIM #	SURVEY COORDS				DATE STARTED / DATE COMPLETED	CONTRACTOR / CORE STORAGE / CASING
PN 224 Heather	CAROL-S					Oct 6/86 / Oct 8/86	F. Boisvenu Drilling Ltd. / Duncan, B.C. / 3.33m left in ~~hole~~

PURPOSE

To test VLF and IP anomalies and Qtz-CO_3 alteration in Myra volcanics.

RQD LOG
COLLAR SURVEY
PULSE EM SURVEY
MULTISHOT SURVEY

ACID TESTS				TROPARI TESTS			MULTISHOT DATA		
DEPTH (m)	CORRECTED ANGLE	DEPTH ( )	CORRECTED ANGLE	DEPTH ( )	AZIMUTH	DIP	DEPTH ( )	AZIMUTH	DIP
3.66	46.5°								
30.48	47.0°								
60.96	45.5°								
91.44	45.0°								
128.02	44.5°								

HOLE NO H-2

LOGGED BY M. Gray

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
0 to 3.66	CASING	OVERBURDEN first 2 m.				
3.66 to 9.90	ANDESITE TUFF & INTERLAM. AMYGD. FLOWS ? +/- CRYSTAL LITHIC TUFF +/- RARE CHERTY TUFF	Colour - med-light green Grain size - fine to coarse. Mod. to well-laminated; weak to mod. developed foliation. Note - microfolds, mod. closures locally. Amygdules 1-3mm.	4.75m-45 6.60m-35 7.31m-70 8.20m-45 9.40m-65 Q/cal/ fe-c, <fol'n 4.0m-45 @ 80, calc 4.0m-45 @ 0, Fe-C 5.35m-40 @ 0, calc 5.35m-15 @ 20, calc 8.20m-40 @ 0, calc 8.20m-45 @ 0, Fe-C 9.30m-20 to 45 @ 0, Q 9.30m-20 @ 45, calc	Consist of calcite +/- qtz veins, and Fe-carb veins (1mm) and qtz veins (4-5mm avg) +/- chlorite. Note fe-carb altn also diss along bands parallel to foln. as replacements (?). 3.66 - 5.25: Weak calcite; tr qtz; weak to mod. patchy fe-carb 5.25 - 5.60: strong calcite; tr qtz; mod. fe-carb 5.60 - 6.30: mod. to strong calcite; tr qtz; mod. fe-carb 6.30 - 9.15: weak calcite; tr qtz; very weak fe-carb 9.15 - 9.90: weak calcite, mod. to strong qtz, mod. fe-carb.	No visible sulphides	Note - 8.30-8.40: Intense fe/carb altn. 9.15-9.90: fe/carb as diss at qtz vein margins, poss. envelopes (brown colour). Note: Dissolution texture at 5.35-6.0m Note: late grey calcite x-cut early white calcite +/- qtz.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
9.90 to 17.13	ANDESITE TUFF LOCALLY DACITIC ? & CHERTY TUFF/CHERT WITH LOCAL COARSE TUFF, CRYSTAL LITHIC TUFF, +/- LAPILLI FELSIC TUFF	Colour - Med. green with 15% maroon bands and <1% cream bands Grain size - fine to coarse Well-laminated to extremely well laminated (sharp bands). Weak foliation. Possible load structures at 12.50m; right tops. 12.12: Fault? slump fault, good displacement also note numerous microfaults with <1 cm displacement infilled with calcite veins.	10.20m-5 12.20m-10 14.35m-15 15.70m-15 16.80m-15 Q/cal/fe, <fol'n 11.05m-10 @ 0, Qtz 11.05m-45 @ 65, Fe-C 11.05m-40 @ 50, calc 11.05m-30 @ 60, calc 13.80m-10 @ 0, calc 15.90m-35 @ 65, Fe-C 16.10m-20 @ 70, calc	Calcite +/- qtz veins +/- py? (2mm). Qtz veins +/- py +/- chlorite +/- calcite (3-4mm). Fe-carb, 2-3mm veinlets, cream colour. 9.90 - 13.05: weak to mod. calcite; tr vein qtz; weak fe-carb. 13.05 - 14.90: weak to mod. calcite; tr qtz; tr to v. weak fe-carb. 14.90 - 15.20: weak calcite; strong qtz; v. weak fe-carb. 15.20 - 17.13: weak calcite; v. weak qtz; weak fe-carb.	Py is v.fgr to fgr diss + bleb +/- qtz veinlets. 9.90-10.75: no visible sulphides. 10.80: tr 11.10: 1% in qtz vn 13.2: 1% in Qtz vein 14.35: tr py	One qtz + py veinlet parallel to foliation Strong qtz zone generally parallel to foliation but irregular patchy veins

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
17.13 to 18.40	ANDESITIC +/- DACITIC ASH TUFF & CHERTY TUFF	Colour - Light to dark green + light grey Grain size - fine to mod. Moderately well laminated Local breccia or slump breccia at 17.50m.	17.25m-10 18.00m-45 calc, (fol'n 17.25m-20 @ 20, 70 @ 70 17.80m-45 @ 15, 45 @ 90 17.80m-40 to 45 @ 0	Calcite +/- qtz veinlets 2-3mm thick, tr qtz. Possible chlorite-epidote with calcite. 17.13 - 18.40: Mod. calcite +/- qtz.	Py diss. locally - v.fgr py 17.80: <1-1% 18.07: tr py	No maroon laminations in this section (chert).

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
18.40 to 27.72	DACITE +/- ANDESITE LAPILLI TUFF + DACITE FELDSPAR PORPHYRY +/- COARSE ASH TUFF +/- CHERTY TUFF	Colour - Med. to dark green Grain size - aphanitic/fine to lapilli Moderately laminated to massive, porphyritic (?). Weakly to mod. foliated. 18.46 - 20.22: Laminated Dacite-Andesite Tuff 20.22 - 23.65: Lapilli Tuff-Tuff Breccia? 23.65 - 24.29: Dacite-Andesite tuff; Moderately laminated. 24.29site tuff; Moderately laminated. 24.29 - 26.1: Peldspar Porphyry 26.15 - 27.72: Andesite-Dacite Tuff	20.22m-45 22.70m-45 23.85m-45 26.25m-35 to 40 27.25m-45 Q/calc, <fol'n 19.10m-80 @ 65, Qtz 19.10m-20 @ 45, Qtz 19.10m-40 @ 90, calc 22.60m-45 @ 0, qtz 22.60m-80 @ 25, calc 24.70m-45 @ 90, calc 24.70m-75 @ 0, calc 27.20m-45 @ 90, qtz	Calcite +/- qtz veinlets 2mm. Continuous and <1mm tensional veinlets, and qtz +/- py veinlets. Note epidote +/- sericite/chlorite along fract/foln. 18.40 - 19.94: Strong calcite +/- qtz, v. weak qtz 19.94 - 21.09: weak calcite +/- qtz, weak qtz 21.09 - 23.63: Mod. to strong calcite +/- qtz, v. weak qtz (good ep/ser/chl) 23.63 - 24.29: weak to mod. calcite +/- qtz, weak qtz 24.29 - 26.25: mod. to strong + strong calcite +/- qtz, weak to mod. qtz 26.25 - 27.72: weak calcite +/- qtz, locally mod. to strong qtz	Py as diss. mainly fg.@ locally cg, euhedral brassy. 18.40-19.15: no visible sulphides 19.15-20.22: 1% 20.22-24.29: tr-<1% 24.29-25.20: tr 25.20-26.25: 1-2% 26.25-27.10: tr 27.10-27.25: 1-2% 27.25-27.72: <1%	No qtz eyes noted, felsic horizon. Note amygdaloidal fragments (scoraceous) in lapilli tuff. Note - Local py along epidote/ser/chl zones Unit 2(?) on 1:2000 Grid Map

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
27.72 to 28.35	FAULT GOUGE (chl, qtz, ser, py)	Colour - Med. green-grey Fault Gouge Zone, probably some washed away.	27.72m-25 @ 40 to fol'n	Qtz-py +/- chl +/- ser	1-2% diss. fine to med. gr. euhedral py.	
28.35 to 30.60	ANDESITE DACITE TUFF TO CHERTY TUFF	Colour - Med. green + maroon Grain size - fine Well laminated. Moderate foliation. Breccia with little rotation local. Crackle-qtz flood zone at 28.35 - 29.0m	29.0m-35 to 40 29.75m-40 to 45 30.30m-50 qtz,<fol'n 28.75m-20 @ 60, 45 @ 0 30.05m-80 to 60 @ 90 to 45	Two styles; i) is a weak crackle breccia with qtz infilling fractures +/- silicification of wallrock accompanied by patchy bleaching +/- epidotization; ii) is qtz +/- py +/- chl as 1-3mm thick veinlets (no associated bleaching). 28.35 - 29.00: Strong qtz + chl +/- bl +/- ep 29.0 - 30.60: Mod. to strong qtz	Py as disseminations; generally tr to <1% throughout. Locally 1-2% i.e.- 30.45m	Note: Qtz in breccia section has diss. chl ? throughout veins and selvage. Note: Bleaching; maroon to pink; green to pale green. Note: traces of carbonate veins. Note: qtz of style ii) mainly as warped gashes 2-5cm by 2-5mm thick.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
30.60 to 37.78	CHERTY TUFF - DACITE-ANDESITE TUFF WITH MINOR ANDESITE TUFF, CRYSTAL LITHIC TUFF, COARSE ANDESITE TUFF	Colour - Light to dark green-grey Grain size - fine to lapilli Moderately laminated overall Well folded locally 30.60 - 35.35: Cherty Tuff to Dacite-Andesite Tuff 32.46 - 32.60: Narrow dyke. Aphanitic andesite. Contact(?) at 10 C/A 35.35 - 36.8: Crystal Lithic Tuff to Andesite Tuff. 36.8 - 37.78: Andesite Tuff.	31.50m-45 to 55 31.90m-80 to 90 33.80m-45 to 35 35.80m-60 36.70m-70 37.70m-15 qtz, calc, <fol' n 30.70m-15 @ 0, qtz 31.50m-70 @ 30, qtz 33.70m-40 @ 0, qtz 33.70m-45 @ 90, qtz 33.70m-45 @ 40, qtz 35.17m-30 @ 20, calc 37.15m-10 @ 20, qtz 37.15m-45 @ 90, cal	Consists of qtz +/- chl veinlets <1-5mm thick and calcite +/- qtz generally 1-2mm, up to 5mm thick. 30.60 - 31.00: Mod. qtz, weak to mod. calcite 31.00 - 31.39: Weak qtz, mod. calcite 31.39 - 31.70: Mod. qtz, mod. calcite 31.70 - 35.24: V.weak to weak qtz, weak to mod. calcite 35.24 - 37.15: Tr qtz, v.weak calcite 37.15 - 37.78: Mod. qtz, weak to mod. calcite	Py diss, f.gr, euhedral; rare coarse grains - euhedral, brassy py. 30.30-30.95: 1% py 30.95-32.80: No visible sulph. to tr py 32.80-33.60: 1-2% py 33.60-37.03: No visible sulph. to tr py 37.03-37.33: <1% py 37.33-37.78: No visible sulph. to tr	Note: Ep? present in minor amounts throughout section. Note: Zig-zag qtz veins ptygmatic look Note: Narrow calcite veinlets x-cut qtz

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
37.78 to 38.05	FAULT BRECCIA GOUGE IN BLEACHED ANDESITE TUFF	Colour - V. lt. grey-beige Grain size - fine to medium Fault breccia, with rotation, frag supported, chloritic matrix.	50 ?	Consists of pseudo stwk qtz +/- silicification of fragments, strong bleaching, and chloritization (matrix) 37.78-38.05 Strong quartz.		Note qtz.
38.05 to 45.92	INTERLAM. DACITE + ANDESITE TUFF + CHERTY TUFF +/- COARSE TUFF	Colour - med. - dark - light green-grey also grey Grain Size - fine-medium +/- coarse Well interlaminated +/- massive sections; weakly foliated to mod. Microfaults with approx. 1cm displacement.	38.45m-30 to 35 39.50m-40 to 45 40.55m-25 42.30m-25 43.30m-60 44.20m-75 45.22m-50 Qtz/cal, <fol'n 38.10m-55 @ 50, qtz 41.15m-30 @ 15, qtz 42.20m-15 @ 25, qtz 42.70m-45 @ 90, qtz 43.30m-50 @ 0, qtz 44.20m-25 @ 90, qtz 45.80m-45 @ 90, qtz 45.80m-10 @ 10 to 20, qtz	Mainly narrow qtz +/- py veinlets 1-2mm, also podiform 8mm by 5cm? qtz veins. Minor calcite veins. 38.05 - 39.68: weak qtz; tr calcite 39.68 - 40.13: Mod. qtz; mod, patchy calcite 40.13 - 40.52: weak qtz; tr to weak calcite 40.52 - 43.09: mod. to strong qtz; weak to mod. calcite 43.09 - 45.32: weak to mod. qtz; weak calcite 45.32 - 45.92: mod. qtz; v.weak calcite	Py mainly as diss. (c.gr) and as lensoid (3 mm - 20 mm by 1-10mm) patches, some f.gr. discontinous stringers noted. 38.05-39.80: 1% py - diss 39.80-41.15: tr to <1% - diss 41.15-41.80: 1% diss + patches 41.80-43.80: 1-3% diss. c.gr 43.80-44.20: 1% diss 44.20-45.04: 2-3% patches + diss. 45.04-45.92: 1-2% diss. + patches	Qtz possibly with tr fe-carb Note: calc +/- qtz veinlets and qtz +/- calc veinlets Note: bleached section 38.80m Note: py patches/lenses generally parallel to foliation

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
45.92 to 61.66	DACITE TUFF + CHERTY TUFF + CHERT? + ANDESITE TUFF	Colour - mainly med. to light green + very light grey, also med. to dark green Grain size - fine Well laminated - locally moderately laminated; weak foliation Folded note: 54.60 - 55.10m folded layer 56.0 - 59.0m: Somewhat andesitic 65.50m: good exhalative cherty tuff	46.10m-45 49.50m-30 49.80m-40 52.00m-45 53.20m-70 54.60m-45 57.50m-35 58.90m-60 60.00m-55 61.00m-50 qtz,<fol'n 47.00m-0 @ 20, #2 47.00m-35 @ 80, #2 48.00m-50 @ 90, #1 48.50m-25 @ 0, #1 48.50m-55 @ 90, #1 50.50m-80 @ 0, #1 50.50m-15 @ 90, #2 52.50m-45 @ 65, #2 56.80m-40	Mainly qtz +/- py +/- calc +/- sericite? veins; two modes - first is milky white 3mm-20mm; second is light grey to white <1-2mm continuous to discontinuous veinlets. Tr to very weak calcite throughout 45.92 - 46.80: weak to mod. qtz 46.80 - 48.60: mod. to strong + strong qtz 48.60 - 50.25: mod. to strong qtz 50.25 - 51.30: strong to intense qtz 51.30 - 52.30: mod. to strong +/- intense qtz 52.30 - 54.20: mod. to strong qtz 54.20 - 55.80: weak to mod. qtz 55.80 - 56.65: mod. to strong qtz 56.65 - 57.15: mod to strong +/- intense qtz	Py mainly f.gr also very f.gr and minor coarse gr. Occurs as diss. and small patches/blebs, minor <1mm stringers. 45.92-50.45: <1-1% py 50.45-51.25: 1-2% py 51.25-52.10: <1% py 52.10-53.75: 1-2% 53.75-55.74: 2-3% 55.74-58.30: 2-3%	Note: ser? along foliation. Difficult section to judge/estimate vein density. Note: Microstockwork qtz in strong qtz zone.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
61.66 to 62.36	DYKE ? QTZ MONZONITE (?)	Colour - pale green-grey Grain size - fine Equigranular to weakly porphyritic; weakly foliated.	Contact 63.36m-45 qtz 61.86m-15 ,40, 5	Bleaching pervasive: Mafics to chl.; feldspar to sericite +/- epidote saussauritized, qtz eyes ? 25% Also qtz +/- py mod. throughout; tr calcite	1-2% diss py	White massive qtz x-cuts grey narrow veinlets
62.36 to 66.11	DACITIC TUFF +/- CHERTY TUFF	Colour - Med. to dark grey-green +/- light grey/green to white in first half of section. Grain size - fine to med. Moderately to well laminated; faults/shear planes coated with carbon. Weakly developed foliation. Similar to 45.92 to 61.66.	62.50m-60 63.50m-60 65.00m-70 66.00m-75 qtz,<fol'n 62.70m-40 @ 90, 50 @ 0 62.70m-5 @ 80 64.64m-15 @ ? 66.00m-50 @ 0 66.00m-10 @ 50, stwk	Qtz +/- py +/- carbon +/- chl veinlets and patchy stockworks, mod. to intense. Note two types qtz as mentioned previously. Type 1) is 2mm-30mm; type 2) is <1mm-2mm. Trace of calcite noted. 62.36 - 63.16: strong qtz 63.16 - 64.80: intense qtz stockwork 64.80 - 65.31: strong qtz 65.31 - 66.11: intense qtz pseudostockwork Carbon noted at: 62.36: tr 63.89: tr 64.64: tr 64.84: tr 65.15: tr 65.48: tr to mod. 2mm thick 66.00: tr to mod. 1mm thick	Py mainly diss. med to f.gr euhedral grains, also local stringers and patches. 62.36-63.78: <1-2% py 63.78-64.64: 1-2% py 64.64-65.38: 2-3% py 65.38-65.53: 3-5% py stringers, patches 65.53-66.11: 2-3% py	Qtz zone #1 Note: Type 2 makes up stockwork texture to large extent. Note: black chl in this zone +/- qtz. Note: some vuggy qtz veins.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
66.11 to 80.04	ANDESITE ASH TUFF (COARSE - ASH-LAPILLI)	Colour - Med. to dark green Grain size - fine-coarse +/- lapilli Massive with crude laminations Weakly to mod. foliated-(phyllitic ?)	67.42m-45 70.50m-35 74.37m-50 77.30m-45 79.70m-30 qtz, calc, <fol'n 66.70m-45 @ 0, qtz 66.70m-40 @ 90, qtz 77.0m-45 @ 0, calc 79.70m-35 @ 10, calc	Generally weak to v. weak calcite 1-2mm veinlets. 66.66 -66.91: Mod. qtz +/- py, otherwise tr qtz 66.11 - 67.31: Bleached 79.40 - 80.04: Bleached 77.68: Qtz + py vein	Py as disseminations 66.11-66.66: Tr-1% 66.66-66.91: 1% 66.91-80.04: No visible sulph. to 1% locally 77.68: 2% py	Bleaching very weak: light green to med. green Note: tr of carbon with qtz veins.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
80.04 to 82.90	QTZ VEIN - BRECCIA ZONE	Colour - white to dark green to med. green Grain size - fine to coarse + frags up to 2 cm Locally laminated, locally massive, breccia, stockwork local, some vuggy qtz veins. Includes narrow sections of Andesite Tuff, laminated Cherty Tuff, white qtz veins and one dyke? Dyke at: 82.38 - 82.58m	80.88m-45 qtz,<fol'n 80.20m-15 @ 0 80.90m-45 @ 65 80.90m-45 @ 0 81.27m-65 @ ? 82.45m-35 @ ?	Massive qtz + py + chl +/- calcite veins also stockwork qtz mod. to strong to intense. Possibly local silicification of fragments. Weak calcite veins. Qtz generally milky white,.5-30 cm thick. 80.04 - 80.20: qtz vein 80.20 - 80.47: mod. qtz 80.47 - 80.81: qtz vein 80.81 - 81.27: strong qtz 81.27 - 81.65: intense qtz to stockwork 81.65 - 81.85: strong to intense qtz 81.85 - 82.38: qtz vein to stockwork 82.38 - 82.58: mod. qtz (dyke) 82.58 - 82.90: strong qtz	Py mainly c.gr euhedral brassy as diss. + cluster/patches along chl selvages in massive qtz veins. 80.04-80.20: 1% 80.20-80.47: tr 80.47-80.81: 2-4% locally 5% 80.81-81.27: tr-1% 81.27-81.65: 3-5% locally 5% 81.65-81.85: 5% 81.85-82.38: 2-4% locally 7% 82.38-82.58: tr 82.58-82.90: 3-5%	Chl selvages on three qtz veins 0.5-2 cm.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
82.90 to 85.71	SER-CHL-EP +/-FUCH +/- QTZ SCHIST (DACITE?)	Colour - Pist. green to pale grey and light grey Grain size - fine to coarse Massive (locally poorly laminated), well foliated/sheared. 84.11 - 84.43: Aphanitic Dyke; med. to light grey-green. Possible crude flow at margins.	83.25m-55 83.90m-55 84.65m-45 Top Ctc 84.11m-15 Bot. Ctc 84.43m-55 qtz/calc, <fol'n 82.95m-70 @ 0, qtz 82.95m-35 @ 50,qtz 84.85m-25 @ 0, qtz 85.20m-45 @ 60, calc 85.60m-45 @ 0, calc 85.60m-10 @ 50, calc	Includes qtz +/- py +/- ser veins, calcite veins, diss. fuch.? and diss. py. 82.90 - 84.11: Mod. to strong qtz; weak to mod. calcite; 2% fuch. 84.11 - 84.43: Mod. qtz; strong calc microveinlets 84.43 - 85.03: Mod. to strong qtz; mod. calc.; <1% fuch. 85.03 - 85.71: Weak qtz; mod. to strong calc.; tr fuch.	Py as med. to c.gr patches/blebs euhedral, parallel to foliation long axis of patches (irregular pods). 82.90-83.21: 2% diss 83.32-84.11: 1-2% 84.11-84.43: 3% 84.43-84.73: tr-1% 84.73-85.03: 8-10% 85.03-85.71: <1-2%	Fuchsite (Alex) looking mineral possibly bright green rim on blk chl. Some calc veins boudined.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
85.71 to 87.46	ANDESITE TUFF PHYILLITE +/- COARSE ANDESITE TUFF	Colour - med. to light dull green +/- 2% maroon Grain size - fine to coarse Poorly laminated, bands don't appear continuous, disrupted not contorted Mod. to strongly foliated Phyllitic	85.75m-45 86.56m-35 to 40 87.00m-25 to 45 calc, <fol'n 85.71m-45 @ 0, 60 @ 25 85.60m-45 @ 10, 45 @ 35	Dominated by calcite +/- hematite veins, veinlets, patches (boudined or shuffled) parallel to foliation, also tr to v.weak qtz 2mm thick veinlets and traces of hematite diss. in calcite veins. Qtz locally mod. (86.37-86.56m) otherwise v.weak Fractures mainly parallel to foliation. Mod. to strong calcite throughout.	Diss. c.gr euhedral py associated with qtz veinlets. 85.71-86.37: tr-<1% 86.37-86.56: 1-2% 86.56-87.46: No visible sulph. to tr.	Note: distinct calcite veinlets x-cut patches.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
87.46 to 95.53	MAROON ANDESITE ASH TUFF PHYLLITE	Colour - Maroon +/- <1% green Grain size - fine Poorly laminated; mod. to well foliated. Calcite veins mainly parallel to foliation.	88.50m-40 to 35 92.50m-35 95.10m-15 calc, <fol'n 89.00m-45 @ 0 89.00m-35 @ 10 91.75m-45 @ 3 91.75m-40 @ 90, 30 @ 20	Same as above. Tr qtz, calcite veinlets +/- hematite +/- chl mod. to strong throughout. Calcite mainly parallel to foliation. Calc. parallel to foln. 2mm - 3cm thick some with pink hue.	No visible sulphides	Note: calc parallel to foliation accompanied by breccia of maroon phyllite locally. Note: 3-4% hematite grains in some veins.
95.53 to 98.00	MAROON +/- GREEN ANDESITE TUFF PHYLLITE	Colour - maroon +/- 5% green Grain size - fine to med. Poor to locally mod. laminated to massive. Mod. to well foliated, though calcite veinlets make it difficult to see fabric in the tuff. Locally pseudobreccia - calcite veins. Green andesite phyllite at: 95.53 - 95.63m 97.70 - 97.78m	95.53m-40 97.78m-40 to 45 calc, <fol'n 95.85m-5 @ 90 95.85m-50 @ 0 97.50m-45 @ 0	Same as above calc +/- hematite +/- chl mod. to strong throughout	No visible sulphides	Chl as envelopes or selvage to calcite veinlets Many calc veins (mainly parallel to foln.) discontinuous patches of irregular orientation.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
98.00 to 122.54	ANDESITE TUFF - PHYLLITE	Colour - maroon with tr of green Grain size - fine, locaLy med +/- coarse Local crystal lithic bands, also chl 2-3mm bands mark foliation - homogeneous looking unit. Poorly laminated, locally mod. also massive, mod. foliated. Note local breccia-contorted zones at: 116.60-117.85m, 118.20-118.25m (fault ?)	98.50m-40 to 45 101.00-50 102.10-40 104.30-45 105.10-50 107.60-35 109.80-45 111.25-30 to 25 114.30-45 115.85-50 117.35-45 118.50-45 120.00-55 121.50-55 to 60 calc, (fol'n 99.25-15 to 20 @ 30 to 40 99.25-45 @ 0 103.25-20 @ 90, TG 103.25-40 @ 0 108.70-45 @ 0, 20 @ 80 112.75-40 @ 0, 35 @ 90 118.50-65 @ 70 118.50-45 to 50 @ 0 120.00-45 @ 0 120.00-90 @ 45	Mainly calcite +/- chl +/- hematite +/- qtz veins generall parallel to the foliation. Also folded into the foliation. Avg. 3mm thick, <1-20mm. 98.00 - 113.00: strong and mod. to strong calcite 113.00 - 114.30: Mod. and mod. - strong calcite 114.30 - 118.35: strong calcite 118.35 -: 122.54: mod. to strong and mod. calc. V.weak qtz +/- calc. throughout section. Note also gashes + contorted veins of various orientations within a single vein.	No visible sulphides	Maroon colour possibly a pervasive hematization. Note: patchy calc parallel to foliation. Note: tension gashes generally x-cut foliation veins. Note: Gash-like veins 2mm thick by 2 cm long locally parallel to foliation. Note: Locally hematite brick red grains 1-2mm, (no hem. "veins" observed) diss. near veins + diss. in tuff - possibly replacements of lapilli size frags/crystals. i.e - 115.80m.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
122.54 to 138.68	ANDESITE ASH TUFF - PHYLLITE	Colour - maroon +/- light to med. green Grain size - fine to coarse Poorly laminated with interlaminated 5cm to 35cm (avg. 10cm) green andesite bands. Mod. to well foliated. Note local breccia section associated with calcite veins i.e. - 137.51m. Coarse green tuff sections sharp band contacts at: 124.90-124.98m, 125.07-125.10m, 126.43-126.52m, 131.92-132.19m, 133.31-133.38m, 134.36-134.42m, 134.84-134.95m, 135.34-135.36m, 138.00-138.59m	122.74-45 123.44-45 127.30-45 to 50 128.73-50 131.90-50 133.30-60 135.44-55 to 50 136.68-75 138.03-55 to 60 calc, <fol'n 124.64-25 @ 20, 70 @ 0 126.70-35 - 40 @ 0 126.70-30 @ 10, TG 129.00-70 @ 0 131.80-70 @ 0, 20 @ 60 132.80-75 @ 35 132.80-15 @ 80, TG 134.00-45 @ 0 135.50-50 @ 0, 20 @ 90 136.68-20 @ 90, TG 136.68-70 @ 0	Same as above. Calcite veins +/- chl +/- hematite +/- qtz, weaken density throughout section. 122.54 - 123.64: strong calcite. 123.64 - 123.97: mod. to strong calc. 123.97 - 124.19: strong calcite 124.19 - 125.49: mod. calc 125.49 - 127.00: mod. to strong calc 127.00 - 129.50: Strong 129.50 - 131.85: mod. to strong 131.85 - 133.20: strong 133.20 - 135.64: mod. 135.64 - 138.68: weak to mod.	No visible sulphides	Calcite veins mainly parallel to foliation, also folded into the foliation.

LITHOGEOCHEMISTRY

SAMPLE NUMBER	FROM (m)	TO (m)	MAJOR OXIDES SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	FeO	MnO	TiO_2	Ba	TRACE ELEMENTS ppm Cu	ppm Zn	% Pb	ppm Ag	ppb Au	Rock Type	Alt	Min	Zr	Total
BCD 4607	6.15	9.15	60.40	16.33	5.92	3.71	0.48	2.79	7.48	0.26	0.57	.120	65	67	.005		5				.005	98.06
And. Lam. Tuffs																						
4608	24.35	26.00	69.61	13.69	1.75	2.09	4.09	1.32	4.92	0.15	0.47	.084	30	68	.005		10				.005	98.18
Dac-And Lam. Tuffs																						
4609	73.25	76.25	50.95	16.04	3.98	8.59	4.77	0.56	10.48	0.17	2.24	.079	46	96	.008		5				.013	97.88
Andesite Tuff																						
4610	90.00	93.00	48.08	17.75	12.60	3.66	0.02	5.50	9.45	0.22	0.75	.109	43	62	.006		5				.005	98.15
Andesite Tuff																						
4611	125.00	128.00	50.27	18.39	5.86	4.70	0.11	4.72	12.76	0.25	1.04	.022	15	94	.008		5				.005	98.15
Andesite Tuff																						

Hole No. H-2 Entered by _____ Logged by M. J. Gray Page No. 18

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm T Ag	gm T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
BCD 4751	3.66	5.25			1.59	.015	.01		1.9	5													
4752	5.25	5.80			0.55	.014	.02		2.2	5													
4753	5.80	6.80			1.00	.014	.01		1.7	5													
4754	6.80	8.30			1.50	.009	.01		2.0	10													
4755	8.30	8.40			0.10	.012	.01		1.8	5													
4756	8.40	9.15			0.75	.011	.01		2.4	5													
4757	9.15	9.90			0.75	.010	.02		2.1	10													
4758	9.90	10.70			0.80	.009	.02		1.3	5													
4759	10.70	11.70			1.00	.010	.01		1.2	5													
4760	11.70	12.30			0.60	.010	.01		0.8	15													
4761	12.30	13.80			1.50	.011	.01		1.6	5													
4762	13.80	15.30			1.50	.010	.01		1.8	65													
4763	18.40	20.09			1.69	.008	.01		1.2	5													
4764	20.09	21.14			1.05	.008	.01		1.0	5													
4765	21.14	22.14			1.00	.007	.01		0.9	5													
4766	22.14	23.14			1.00	.008	.02		1.3	10													
4767	23.14	24.29			1.15	.009	.01		1.0	5													
4768	24.29	25.29			1.00	.007	.02		0.5	5													
4769	25.29	26.29			1.00	.008	.01		0.4	10													
4770	26.29	27.72			1.43	.010	.01		1.2	5													

HOLE NO. H-2

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm T Ag	gm T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
BCD 4771	27.72	28.35			0.63	.012	.01		1.1	5													
4772	28.35	29.00			0.65	.008	.01		0.8	5													
4773	29.00	30.60			1.60	.011	.01		1.5	10													
4774	30.60	31.60			1.00	.010	.01		1.3	10													
4775	31.60	32.60			1.00	.012	.01		1.0	5													
4776	32.60	33.60			1.00	.010	.02		1.7	5													
4777	33.60	35.10			1.50	.010	.01		1.2	5													
4778	35.10	36.60			1.50	.010	.02		2.3	5													
4779	36.60	37.78			1.18	.011	.01		2.1	10													
4780	37.78	38.05			0.27	.012	.01		2.0	5													
4781	38.05	38.80			0.75	.010	.01		1.9	5													
4782	38.80	40.30			1.50	.014	.01		1.3	5													
4783	40.30	41.80			1.50	.012	.01		1.4	5													
4784	41.80	42.80			1.00	.012	.01		1.6	10													
4785	42.80	43.92			1.12	.012	.01		2.0	5													
4786	43.92	44.92			1.00	.013	.01		0.9	5													
4787	44.94	45.92			1.00	.010	.02		3.4	10													
4788	45.92	46.80			0.88	.010	.01		1.8	10													
4789	46.80	48.30			1.50	.010	.02		2.1	5													
4790	48.30	49.80			1.50	.010	.01		1.7	5													

HOLE NO. H-2

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm T Ag	gm T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
BCD 4791	49.80	51.30			1.50	.011	.01		1.6	5													
4792	51.30	52.30			1.00	.011	.02		1.4	5													
4793	52.30	53.80			1.50	.012	.01		1.0	5													
4794	53.80	55.30			1.50	.009	.01		1.8	5													
4795	55.30	56.18			0.88	.012	.02		0.6	5													
4796	56.18	57.68			1.50	.010	.01		1.5	10													
4797	57.68	59.18			1.50	.009	.01		1.9	5													
4798	59.18	60.18			1.00	.010	.01		1.7	5													
4799	60.18	61.18			1.00	.012	.01		2.0	5													
4800	61.18	61.66			0.48	.011	.02		1.6	5													
4801	61.66	62.36			0.70	.015	.01		2.8	10													
4802	62.36	63.09			0.73	.012	.01		1.9	5													
4803	63.09	63.84			0.75	.010	.01		1.4	5													
4804	63.84	64.59			0.75	.012	.01		1.6	5													
4805	64.59	65.34			0.75	.010	.01		2.3	15													
4806	65.34	66.11			0.77	.009	.01		1.9	5													
4807	66.11	67.11			1.00	.008	.01		1.8	5													
4808	76.97	77.97			1.00	.009	.01		2.2	5													
4809	79.04	80.04			1.00	.009	.01		2.0	5													
4810	80.04	80.47			0.43	.007	.02		1.8	5													

HOLE NO H-2

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm T Ag	gm T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
BCD 4811	80.47	80.81			0.34	.010	.01		1.2	15													
4812	81.81	81.27			0.46	.007	.02		1.6	5													
4813	81.27	81.65			0.38	.010	.01		1.3	10													
4814	81.65	81.85			0.20	.010	.01		2.4	5													
4815	81.85	82.38			0.53	.013	.01		1.7	5													
4816	82.38	82.58			0.20	.007	.01		1.1	5													
4817	82.58	82.90			0.32	.025	.02		2.6	5													
4818	82.90	83.51			0.61	.016	.01		1.5	5													
4819	83.51	84.11			0.60	.020	.01		1.3	5													
4820	84.11	84.43			0.32	.012	.01		0.6	10													
4821	84.43	84.73			0.30	.015	.02		2.0	5													
4822	84.73	85.03			0.30	.014	.01		1.7	5													
4823	85.03	85.71			0.68	.016	.01		2.1	5													
4824	85.71	87.46			1.75	.012	.01		1.9	10													
4825	98.00	100.00			2.00	.014	.01		1.3	5													
4826	106.00	108.00			2.00	.010	.02		2.0	10													
4827	115.00	117.00			2.00	.012	.01		1.6	5													
4828	132.00	134.00			2.00	.026	.02		1.8	5													
4829	136.68	138.68			2.00	.014	.01		1.4	5													

HOLE NO. H-2

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
0 to 3.66	CASING							
3.66 to 9.90	ANDESITE TUFF + CRYSTAL LITHIC & LAPILLI TUFF	Light to medium green	Fine to Lapilli	Moderate - well laminated		Weak - moderate calcite + iron carbonate veins v. weak qtz.	No visible sulphides	
9.90 to 17.13	ANDESITE TUFF AND CHERTY TUFF + CHERT + LAPILLI TUFF	Green Lt-dk + maroon	Fine - Medium	Well - extremely well laminated		Weak - moderate calcite very weak quartz	No visible sulphides	
17.13 to 18.40	ANDESITE TUFF + CHERTY TUFF + LAPILLI OR CRYSTAL LAPILLI TUFF	Lt-dk green	Fine-coarse + lap.	Moderately laminated		Moderate calcite Tr. qtz	No visible sulphides	
18.40 to 27.72	ANDESITE TUFF + CHERTY TUFF OR FLOW?+ LAPILLI OR CRYSTAL LAPILLI TUFF	Lt-dk green	Fine-Coarse + lap.	Massive, locally poorly laminated		Weak - moderate calcite with moderate - strong and strong zones. weak qtz with weak - moderate zones	No visible sulphides	
27.72 to 28.35	FAULT GOUGE	Medium green					1-2% py	

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
28.35 to 30.60	ANDESITE TUFF + CHERTY TUFF + COARSE TUFF	Medium green + marroon	Fine-medium	Well laminated		Very weak calcite Weak - strong qtz	TR - 1% py	
30.60 to 37.38	ANDESITE TUFF + LAPILLI TUFF + CHERT	Lt-med green	Fine-Lapilli	Massive + moderately laminated		Weak qtz, weak calcite	No visible sulphides	
37.78 to 37.24	FAULT GOUGE	Lt grey green						
37.24 to 59.13	ANDESITE TUFF + COARSE TUFF	Lt-dk green	Fine-Lapilli	Massive + moderately laminated		Weak - moderate qtz, very weak calcite, locally strong qtz patches	No visible sulphides?	
59.13 to 61.87	ANDESITE TUFF + COARSE TUFF + CRYSTAL LAPILLI TUFF OR LAPILLI TUFF	Lt-dk green	Fine-coarse	Poor - moderately laminated		Qtz weak, calcite very weak	1-2% py	
61.87 to 62.33	DYKE?	Lt green	Fine-coarse	Foliated or flowage		Weak - moderate qtz	Tr py	
62.33 to 66.75	QTZ ZONE ANDESITE TUFF + LAPILLI + COARSE	Med-dk green	Fine-coarse	Massive - poorly laminated		Moderate - strong and zone of intensity	1-5% py	Note black chlorite + carbonaceous seams (qtz zone 62.80-66.80)

ZIPPY PRINT — BRIDGEPORT, RICHMOND

FROM TO	ROCK TYPE	COLOUR	GRAIN SIZE	TEXTURE AND STRUCTURE	ANGLE TO CORE AXIS	ALTERATION	SULPHIDES	REMARKS
66.75 to 80.04	ANDESITE TUFF + LAPILLI + COARSE TUFF	Dk green	Fine-coarse	Massive		Weak - very weak calcite + quartz	Tr. py	
80.04 to 82.90	QTZ VEIN ZONE IN ANDESITE TUFF	White + green	Fine-medium	Massive - breccia		Strong - intense qtz+py	2-5% py	
82.90 to 84.68	LAPILLI TUFF?	Pist green + white	Medium+ lapilli	Massive - weakly laminated		Strong qtz, weak calcite epidotized	2-3% py	
84.68 to 87.44	ANDESITE TUFF	Medium green + maroon	Medium+ coarse+ lapilli	Poorly laminated		Moderate-strong qtz, weak calcite	No visible sulphides	
87.44 to 131.82	ANDESITE TUFF	Maroon	Fine-coarse	Poorly - massive laminated		Weak-moderate-strong calcite + qtz.	No visible sulphides	
131.82 to 138.68 E.O.H.	ANDESITE TUFF+ LAPILLI TUFF COARSE TUFF	Maroon + green (15%)	Fine-coarse+ lapilli	Poor - massive laminated		Weak-moderate calcite + qtz	No visible sulphides	

CORPORATION FALCONBRIDGE COPPER

DRILL HOLE RECORD

x METRIC UNITS
IMPERIAL UNITS

HOLE NUMBER	GRID	FIELD COORDS	LAT	DEP	ELEV	COLLAR BRNG	COLLAR DIP	HOLE SIZE	FINAL DEPTH
H-3	5+95W, 0+32S				490.5m	-180°	46°	NQ	77.11

PROJECT	CLAIM #	SURVEY COORDS				DATE STARTED / DATE COMPLETED	CONTRACTOR / CORE STORAGE / CASING
PN 224 Heather	CAROL-S					Oct 8/86 / Oct 10/86	F. Boisvenu / Duncan / 3.05 (10 ft)

PURPOSE: Test IP and Au Geochem anomalies is grey pyritic ash tuff on strike with main showing.

RQD LOG
COLLAR SURVEY
PULSE EM SURVEY
MULTISHOT SURVEY

ACID TESTS				TROPARI TESTS			MULTISHOT DATA		
DEPTH (m)	CORRECTED ANGLE	DEPTH ( )	CORRECTED ANGLE	DEPTH ( )	AZIMUTH	DIP	DEPTH ( )	AZIMUTH	DIP
3.05	46°								
30.48	45°								
60.96	45°								
77.11	46°								

HOLE NO H-3

LOGGED BY M. Gray

ZIPPY PRINT — BRIDGEPORT, RICHMOND

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
0 to 3.05	CASING					
3.05 to 11.58	ANDESITE GREY CRYSTAL LITHIC TUFF to COARSE TUFF	Colour - med. grey with green hue Grain size - fine to coarse +/- lapilli Volcaniclastic, massive, weakly foliated. 25-20% felsic crystals feld/frags; 10% mafics; rest lt. to med. grey matrix. Frags/crystals avg. 1-2mm up to 3-6mm (local lapilli size) i.e.- Qtz feldspar porph? Tr. qtz eyes? Locally breccia i.e.- 5.79 - 7.06m also 9.14m? within tuff and within qtz veins	4.60m-45 to 50 5.90m-50 7.14m-65 to 70 8.30m-45 11.13m-60 to 65 qtz, < foln 4.60m-50 @ 0 7.12m-45 @ 0 7.12m-20 @ 60 to 80 7.65m-60 @ ? 7.65m-10 to 20, @ ? 8.40m-90 @ 45? 9.00m-35 @ 0 9.00m-35 @ 40, 90 11.13m-45 @ 0 11.13m-05 @ 40 11.13m-45 @ 90, T.G.	Consists of qtz + py veins and diss py (see next column). Qtz veins in minimum 2 generations of qtz 1. 1-10mm (avg 3-4mm) white to lt. grey veins often parallel to fol'n or sub-parallel. 2. <1-2mm white veinlets (tensional? x-cut #1) Trace of calcite noted 3.05 - 6.10: mod. to strong qtz? poor recovery 6.10 - 6.45: strong qtz 6.45 - 8.19: mod. to strong + strong qtz 8.19 - 8.82: strong + mod. to strong qtz 8.82 - 10.93: mod. to strong? qtz; some missing, poor recovery 10.93 - 11.03: strong qtz 11.03 - 11.58: mod. to strong qtz; poor recovery	Py mainly diss as fine to med. gr.; locally coarse, euhedral grains. Most qtz veins barren of py except local with 30-40% diss py. Few 1-2mm py veinlets. Py is brownish silver (more silver vs. brassy than H-1 & H-2) 3.05-4.57: 2-5% py 4.57-5.79: 2-5% py 5.79-7.31: 3-5% py 7.31-7.89: 5% py 7.89-8.44: 3% py 8.44-9.14: 5-8% py 9.14-11.58: 2-3% py	"Impregnated with py" - HLG *Note v. blocky ground, poor core recovery Micro salt and pepper look to tuffs Pseudo igneous texture locally (fine grained equigranular looking). Note: Qtz veins, #2- discontinuous gashes, #1- some irregular shape discontinuous typical. Note: qtz +/- limonite in this interval. Note: Possible frags of py within brecciated sections. Note: Possible narrow sericite or chlorite selvages developed on margins of some qtz veins.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
11.58 to 12.19	CASING					Triconed 2 ft. of core (lost)
12.19 to 19.53	GREY ANDESITE CRYSTAL LITHIC TUFF - COARSE ASH TUFF +/- local LAPILLI 3-4mm	Colour - med. grey with local green hue. Grain size - fine to med. +/- coarse to lapilli. Massive-crude layering; weak fol'n. Very similar to previous section. Possibly a feldspar-sericite?-chlorite rock +/- qtz +/- chl +/- clay +/- py?	13.2m-0 to 5? 15.24m-5 to 10 16.04m-5 to 15 17.07m-10 to 15 18.80m-15 to 20 19.20m-0 to 20 19.50m-? qtz, <fol'n 11.88m-20 @ ? 12.75m-40 @ ?, 0 @ ? 12.75m-20 @ ? 13.45m-30 to 40 @ ? 14.24m-20 @ ? 14.24m-10 @ ? 14.70m-5 to 10 @ 0 14.70m-50 @ 90 16.42m-20 @ 0, 0 @ 0 17.90m-20 @ 0 16.50m-0 to 20 @ 0 16.50m-35 @ ? 18.75m-45 @ 90, 0 @ 0 19.15m-15 @ 0	Qtz+/-py+/-sericite+/-chl+/-fe carb veins; similar to previous section. Range <1-20mm; avg. 3mm (typical). Note: veins have approx. orientations, many are "folded" into tuff, also discontinuous gash-like veins + patches; tr. calcite, poss. fe carb with one large qtz vein at 12.70m Also note possible diss.@ lt. brown alteration - see binoc. 12.19 - 12.50: Strong qtz+/-chl+/-Mn+/-Fe carb +/- chl 12.50 - 12.65: Mod. to strong qtz 12.65 - 13.19: Intense flood qtz + chl/ser+/- Fe carb (breccia some). 13.19 - 14.44: Strong to intense qtz+/-chl/ser 14.44 - 15.93: Mod. & mod. to strong qtz. Lt. brown mineral diss throughout section 5-15% see - binoc. 15.93 - 16.77: mod. to strong qtz+/-chl+/-ser 16.77 - 17.72: mod. qtz 17.72 - 18.37: Strong & strong to intense qtz+/-chl+/-ser. 18.37 - 18.95: Weak to mod. & mod. qtz. 18.95 - 19.53: mod. to strong qtz.	Py as 3 styles 1. diss. euhedral fine to coarse grained 2. Diss in qtz veins 3. Banded parallel to qtz veins. 11.58-11.98: 5-7% py 11.98-12.50: 3% py 12.50-13.33: 4-5% py 13.23-14.14: 10-15% py 14.14-14.60: 5-8% py 14.60-15.24: 5%py 15.24-15.94: 3-5% py 15.94-16.82: 5-8% py 16.82-17.07: 3-5% py 17.07-17.57: 5-8% py 17.57-17.92: 8% py 17.92-18.42: 10-15% py; pseudo-banded 18.42-19.53: 3-5% py	Note: Py somewhat assoc. with white crystals 2mm size. Note: Local Mn + staining Py tends to replace white crystals/amyg. *poss. sph. in strong qtz zone Binoc: 17.07m note very lt. brown crystals parallel to fol'n lath-shred-like in core, alter'n? total 45%@ secondary biotite or limonite-ser? Rest of rock is 40% white felsic crystal/frags, py grains appear to x-cut this mineral, poss. stain a white mineral. Rock scratches easily with knife, poss. a chl-ser-fp-clay rock. Mineral also poss. Mn stained locally - or poss. fe-carb

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
19.53 to 21.42	GREY ANDESITE CRYSTAL LITHIC TUFF with 2-4mm crystals eyes (5%) (or lapilli?) Subtle geologic division here	Colour - med. to dark grey with green hue. Grain size - fine to med. +/- coarse Massive, weakly foliated spotted look/texture due to white feldspar? crystals or feldspar porph. lapilli frags.	19.75m-0 to 5 20.15m-0 21.20m-0 to 10 ? Qtz, <fol'n 19.75m-45 @ ? 20.25m-0 to 10 @ 0 20.57m-20 @ 0 20.57m-50 @ ? 21.25m-0 to 20 @ 0	Same as previous interval Qtz veins are 2-3mm. 19.53 - 20.52: weak to mod. & mod. qtz. 20.52 - 21.42: Mod. & mod. to strong qtz+/-breccia.	Py diss. selectively; med. gr mainly also diss in some veins. 19.53 - 20.57: 2-3% py 20.57 - 21.42: 5-8% py; tr cpy	Py seems to be diss. in 2mm ellipsoid crystal/amygd. as euhedral growths. Also some lapilli size (4-5mm) frags? have f.g.diss. py.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
21.42 to 30.51	GREY ANDESITE CRYSTAL-LITHIC TUFF (CRYSTAL-ASH)	Colour - med. grey, locally with green hue Grain size - fine to med. +/- coarse Massive, weakly foliated; local spotted texture (could these be mm growths?) Local white ellipsoidal crystal frags 2-4mm: 26.45-26.67; 24.60-25.10 Salt and pepper look first half of interval; second half more felted matrix 26.73m: fault plane at 25 C.A.	22.44m-25 to 30 24.20m-15 to 20 24.65m-10 26.60m-0 to 5 27.40m-10 28.75m-10 to 0 30.25m-10 to 15 qtz, fract 22.14m-15 @ 0 22.14m-10 @ 0 22.66m-0 to 15 @ 0 23.30m-20 @ 0 23.30m-40 @ ? 24.88m-45 to 50 @ ? 26.75m-0 to 10 @ 0 27.60m-0 to 5 @ 0 28.25m-30 @ 0 30.00m-15 @ 0	Qtz+/-py+/-cpy+/-ser+/-black chl veins <1-10mm thick. See previous description 21.42 - 22.29: mod. to strong qtz 22.29 - 23.23: Strong qtz +/- ser +/- chl 23.33 - 23.48: strong to intense qtz+/-ser+/-chl 23.48 - 24.38: strong & mod. to strong qtz+/-ser +/- chl 24.38 - 24.67: Strong & strong to intense qtz +/- chl +/- ser 24.67 - 25.73: mod. to strong qtz+/-ser+/-chl 25.73 - 25.95: strong to intense qtz+/-ser+/-chl 29.95 - 27.41: Mod. to strong qtz 27.41 - 28.65: strong to intense qtz+/-chl+/-ser 28.65 - 29.45: mod. to strong qtz 29.45 - 31.51: mod. qtz	F.gr. py diss. throughout, med. to coarse py selective replacement, also banded looking py parallel to qtz veins in strong to intense qtz zones. Traces of cpy - <1% locally 21.42-22.14: 5-8% py 22.14-22.59: 8-10% py 22.59-22.94:py, banded,diss, <1% cpy 22.94-24.38: 5-8% py 24.38-25.60: 8-12% py 25.60-26.67: 5-8% py 26.67-26.97: 3-5% py 26.97-27.58: 5-7% py 27.58-28.36: 10-15% py 28.26-28.65: 8-10% py 28.65-29.05: 8% py 29.05-31.51: 2-5% py	Note: diss. fine to med fr. py selectively replaces whitish 2mm crystal-lithic fragments Note: Black chl with intense to strong qtz Qtz veinlets locally foldeo, ptygmatic looking Note: Qtz veins (larger ones) often with two colours qtz (or second mineral in vein) 1. grey-white trans. 2. chalky white Note: Py content correlates will with vein density

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
30.51 to 37.79	GREY ANDESITE TUFF-CRYSTAL TUFF	Colour - med. grey Grain size - fine and coarse to lapilli (finer matrix than previous section) Poorly laminated - (distinct); weakly foliated, (pseudoporphro-blastic looking, possibly boundined veins) Sheared 2-4mm crystal eyes. Note: 5-10% felsic crystal or fragment "eyes" parallel to laminations; matrix is fine grained, grey & white 31.31 - 32.31: fault ? v. broken up; poor recovery 31.00: slickensides on fol'n	31.48m-10 to 20 32.66m-5? 33.85m-20 35.47m-20 36.67m-35 37.22m-20 qtz, <fol'n 31.00m-10 @ 0 31.00m-40 @ 20 32.40m-25 @ 0, 65 @ 60 35.50m-45 @ 90 35.50m-10 to 20 @ 0 35.47m-25 @ 0, 20 @ 45 36.00m-45 @ 20, 15 @ 0 36.67m-35 @ 0 37.27m-20 to 30 @ 0 37.27m-70 @ 0	Qtz+/-chl+/-ser+/-py veins (2-10mm) and veinlets (<1-1mm). Larger veins are lt. grey-white with chalky white qtz on vein walls. 30.51 - 31.31: strong qtz +/- ser +/- chl. 31.31 - 32.31: strong to intense qtz+/-ser+/-chl (fault). 32.31 - 33.01: mod. to strong qtz. 33.01 - 33.78: strong qtz. 33.78 - 34.58: mod. to strong qtz. 34.58 - 34.95: strong qtz. 34.95 - 36.27: mod. & mod. to strong qtz. 36.27 - 37.02: Mod. & weak to mod. qtz. 37.02 - 37.79: strong qtz.	Py mainly as discontinuous diss py bands and diss, f.to med gr. parallel to fol'n, +/- qtz vein, somewhat assoc. with grey wispy bands (chl?) parallel to fol'n. Also diss f.gr. py and local cpy f.gr. splashes. 30.51-30.78: 10% py 30.78-31.78: 3-5% py 31.78-33.01: 5-6% py, banded 33.01-33.46: 5-8% py 33.46-34.40: 3-5% py, <1% cpy 34.40-34.75: 5-7% py 34.75-35.87: 8-10% py, banded 35.87-36.62: 5-8% py 36.62-37.37: 8% py 37.37-37.57: 5% py 37.57-37.79: 8-10% py	Py conspicuously absent to nearly absent in white crystal or lithic frags, compared to precious sections, except 1mm felsic crystals? toward end or interval replaced with f to med.gr py Note: some vague stringers of py x-cut qtz + fol'n

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
37.79 to 40.36	GREY ANDESITE TUFF/ CRYSTAL TUFF	Colour - med. grey Grain size - fine to med. & coarse Massive, poorly laminated; weakly developed foliation. Very similar to above - lamination not as pronounced, also matrix coarser than above (15% 2mm white crystal).	38.0m-30 38.55m-20 to 25 39.80m-35 to 40 qtz, (fol'n 37.95m-35 to 45 @ 20? 39.41m-10 @ 10, 20 @ 0 39.41m-35 @ 15 39.90m-40 to 45 @ 30 40.16m-25 @ 0, 45 @ 20?	Similar to above. Veinlet angle to foliation more conspicous 37.79 - 38.69: Mod. to strong qtz+/-chl+/-ser. 38.69 - 39.46: strong qtz 39.46 - 40.16: mod. qtz 40.16 - 40.36: strong qtz.	Py fg to cg, diss replacement of crystal conspicuous, py mainly med. grained, also as bands. 37.79-38.09: 5-7% py diss 38.09-38.79: 3-5% py diss 38.79-39.14: 5-7% py 39.14-39.74: 8% py 39.74-40.36: 8-10% local 12-15% diss + bands.	Subtle geologic division, (white crystal 1-2mm) lack of lamination generally.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
40.36 to 43.40	GREY ANDESITE CRYSTAL TUFF - TUFF + CRYSTAL LITHIC TUFF	Colour - med. grey Grain size - fine to med. & coarse Crudely to poorly laminated; weak to mod. foliated. Locally crystals >2mm (5%). Matrix is felted, a fuzzy chl? network.	40.40m-20 41.40m-25 42.16m-25 42.90m-20 qtz, <fol'n 40.40m-20 @ 0, 70 @ 45 41.00m-25 to 30 @ 0 41.00m-10 @ 40 41.80m-20 @ 0 42.25m-30 @ 0, 40 @ 0 42.25m-50 @ 35 42.80m-5 @ 5, 60 @ 30	Qtz+chl+py (sericite as wispy 1-2mm selvage and as individual veins). Qtz veins white-grey <1mm-30mm, avg 2-3mm. 40.36 - 40.84: Mod. to strong & strong qtz+chl+py. 40.84 - 41.51: intense to strong qtz+chl+py. 41.51 - 42.01: strong & strong to intense qtz+chl +py. 42.01 - 42.71: strong qtz + chl+py. 42.71 - 43.06: mod. to strong qtz+chl+py. 43.06 - 43.40: strong qtz+ chl+py.	Py generally f-med gr., diss, bands (with strong to intense qtz) assoc. with chlorite, also selectively replaces crystals. 40.36-40.84: 8-10% py 40.84-41.51: 15-25% locally 25% py, also <1% cpy 41.51-41.91: 8% py+ <1-1% cpy +<1% ga(?) 41.91-42.65: 5-8% py 42.65-43.00: 3% py 43.00-43.40: 5-8% py	Py in patches as replacemnt of frags/crystal i.e.- 42.50m Strongly chloritized(?) Note: 70 to C.A. qtz x-cuts fol'n qtz. Note: Galena (?) at 41.51-41.76m, v. fine gr. diss patches in qtz.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
43.40 to 46.63	GREY ANDESITE TUFF-CRYSTAL TUFF	Colour - med. grey/green (dull) Grain size - fine to med. +/- coarse +/- lapilli. Crude laminationed marked by sericite bands (irregular - wispy) +/- chl; weak to mod. foliated. Possibly more mafic than above. Poor recovery, blocky. 44.90@ 45.30@ 46.63m: Faulted? Poor ground . Possibly local breccia overprinted by alteration.	43.50m-0 to 10 44.30m-5 to 10 45.89m-15 to 20 ? qtz, <fol'n 43.55m-10 @ 0? 45.80m-10 to 0 @ 0? 45.80m-20 @ 10 ? 46.40m-25 @ 0	Qtz+chl+/-py veins and chl veins of irregular shape + orientation Avg. 2mm thick, "broken-up" 43.40 - 46.63: mod. to strong & strong qtz+chl+/-py	Py, f-mgr, mainly diss in chlorite, also selective replacement of crystals, and diss in qtz, local bands of py. 43.40-44.20: 3% py diss. in chl(?) 44.20-45.76: 5-7% py diss. in chl(?) 45.76-46.43: 6-8% py diss in chl(?) 46.43-46.63: 10-12% py diss in chl(?)	Strongly chloritized, 40% of rock parallel to qtz veins mainly, (parallel to fol'n). Possibly two generations of py, one med.gr, replacements. Two fgr. diss with chl(?)
46.63 to 48.14	GREY ANDESITE TUFF - CRYSTAL TUFF	Colour - med. grey Grain size - fine to med. + coarse to lapilli Massive to crudely laminated; mod. to weakly foliated Locally brecciated? hard to tell with chlorite overprint. Possible some lapilli fragments present.	47.53m-45 qtz, <fol'n 46.63m-20 @ 0? 47.28m-40 @ ? 47.90m-50 @ 0?	Chlorite +/- qtz, qtz veins. Strong chlorite(?) wisps + veinlets throughout. Mod. to strong qtz +/- chl. Qtz generally discontinuous and broken up. 46.63 - 47.33: Mod. to strong? qtz. 47.33 - 48.14: Strong to intense qtz	Py similar to previous. Diss in sericite(?) and crystal replacements. Tr cpy. 46.63 - 46.93: 10% py 46.93 - 47.38: 8% py 47.38 - 47.63: 8-10% py 47.63 - 48.14: 8% py	

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
48.14 to 51.10	ULTRAMAFIC DYKE - TALC/ MAGNESITE SCHIST (CATA-CLASITE)	Colour - purple + white + grey + green also dark green Grain size - fine in matrix; fine to coarse lapilli Rock has been hammered with qtz + intensely sheared, textures destroyed. Intensely sheared, cataclastic rock/zone; streaky look; Qtz veins? sheared, contorted Greasy/soapy feel in handspecimen. 50.85 - 51.10: Gouge	48.50m-10 49.00m-0 to 5 50.28m-0 to 5 51.00m-0 to 5	Intense qtz? (2mm veinlets) pervasive talc+/-chl, local strong Fe-carb veins 1-2mm (also magnesite) 48.14-49.65: Intense qtz?+chl+talc+magnesite? 49.65-51.10: Intense qtz?, strong Fe-carb, intense talc	Sparse F.gr. diss py + one stringer. 48.14-48.89: 1-2% diss + stringers 1mm 48.89-51.00: Tr py.	Note: diss hematite (red) 1% to 49.65m in interval.
51.10 to 58.22	GREY ANDESITE TUFF/ CRYSTAL TUFF	Colour - med. grey with green hue Grain size - fine to med. +/- coarse to lapilli. Massive to crudely laminated; weak to mod. foliated. Local section of "white spot" crystal tuff 3-4mm, possible stand out because not as chloritic overprint.	51.30m-15 52.40m-25 54.40m-15 55.25m-5 to 10 57.00m-15 58.00m-5 to 10? qtz, <fol'n 51.30m-15 @ 0 52.00m-25 @ 0 52.80m-20 @ 0 54.50m-40 @ 20 54.50m-15 @ 0 55.60m-10 to 15 @ 0 55.60m-10 @ 0, chl 56.80m-20 to 25 @ 0 58.00m-0 to 10 @ 0	Consists of qtz +/- chl veins and patchy pervasive sericite?, probably chlorite. Qtz: 51.10 - 53.33: strong 53.33 - 54.86: mod. to strong 54.86 - 57.20: mod. 57.20 - 58.22: strong Chlorite, pervasive 51.10 - 52.30: strong 52.30 - 54.86: mod. to strong 54.86 - 55.66: weak to mod. 55.66 - 56.39: strong 56.39 - 57.50: mod. 57.50 - 58.22: strong	Py mainly f.gr. diss throughout chlorite, also m.gr. in qtz + med to coarse gr. replacement of crystal, local py bands, no visible cpy 51.10-51.91: 5-8% py 51.91-52.16: 3-5% py 52.16-53.53: 5-7% py 53.53-54.86: 6-8% py 54.86-56.14: 3-5% py 56.14-57.70: 5-8% py 57.70-57.85: 3-4% py 57.85-58.22: 5-8% py	Qtz vein irregular zig-zag 2mm avg., discontinuous. Note: Chlorite is med to dark grey, not sericite due to litho data.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
58.22 to 60.36	ANDESITE TUFF - PHYLLITE	Colour - med. to dark green with slight purple tinge Grain size - fine Massive, mod. foliated Chl phyllite	58.57m-25 59.07m-15 59.57m-0 calc/qtz, < fol'n 58.35m-15 @ ?, qtz 59.46m-15 @ 10?, calc 59.46m-30 to 45 @ ?, calc 59.80m-15 @ ?, calc 59.80m-45 @ ?, qtz	Calcite veins +/- chl +/- qtz strong + mod. to strong as gashes mainly 3-4mm x 5cm. 58.22 - 60.36: mod. to strong + strong. Very weak to weak qtz veins +/- chl local strong patches 58.22-58.47m Chloritization prevasive throughout.	Py as F.gr. diss - sparse. 58.22-58.72: <1% py 58.72-60.36: no visible sulphides to Tr. py	Chl rock - massive

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
60.36 to 71.52	ANDESITE TUFF PHYLLITE +/- CRYSTAL ASH TUFF +/- CRYSTAL LITHIC TUFF (5%?)	Colour - med. green + 10-20% maroon Grain size - fine +/- coarse +/- lapilli Crudely/poorly laminated to massive; mod. foliated - phyllitic 65.94 - 66.16: Fault gouge clay & chl, black to green and maroon, fine grain, Fault gouge at 15-20 C.A.	60.50m-20 to 30 61.50m-30 62.80m-30 to 50 63.80m-20 66.50m-0? 69.00m-5? 70.00m-20 71.40m-20 calc, < fol'n 61.00m-0 to 10 @ ? 61.00m-70 @ ? 62.00m-5 @ ? 63.40m-45 @ ?, 70 @ ? 63.40m-10 69.31m-30 @ 0 ? 70.00m-75 @ ?, 5 @ ? 70.00m-35 @ 0 ?	Calcite +/- hematite +/- chl+/-qtz veinlets 2-3mm thick avg mainly as gashes, discontinuous irregular veins. Hematite/purple bands appear to x-cut laminations but mainly parallel to fol'n. Note v.weak to weak qtz throughout interval. 60.36 - 62.16: Strong cal+/-hem+/-chl 62.16 - 63.00: mod. to strong cal+/-hem+/-chl 63.00 - 64.62: Strong & strong to intense cal+/-hem+/-chl 64.62 - 65.94: mod. to strong cal+/-hem+/-chl 65.94 - 66.16: fault cal +/-hem+/-chl 66.16 - 69.40: mod. to strong cal+/-hem+/-chl 69.40 - 71.52: Strong & strong to intense cal+/- hem+/-chl Note: 65.94-67.59: Mod. to strong qtz + limonite.	No visible sulphides to tr.	Calcite veins are gashes in many orientations, also contorted broken, discontinuous, interval approx. 10-15% calcite. Note: 63.19-63.39: patches of brick red hematite 3-4mm. Note: at 66.59m unidentified brown mineral Local diss. specularite? 1%

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
71.52 to 77.11 E.O.H.	ANDESITE ASH TUFF PHYLLITE +/- CRYSTAL TUFF +/- CRYSTAL LITHIC TUFF	Colour - maroon and green 50/50 Grain size - fine +/- coarse, med. Poorly laminated to massive Mod. foliated - phyllitic.	72.0m-10 to 20 74.00m-0 to 5 ? 76.00m-10 to 15	Mainly calcite +/- hem +/- chl +/- qtz, also qtz veins (weak). 71.52 - 74.00: Strong calc 74.00 - 74.63: strong to intense calcite 74.63 - 75.90: strong calcite 75.90 - 77.11: strong to intense calcite.	No visible sulphides	Note: diss. grains of purple hematite in maroon bands. Note: two generations of calcite, youngest x-cuts as gashes, also x-cuts hematite stringers. Good section for x-cutting

LITHOGEOCHEMISTRY

SAMPLE NUMBER	FROM (m)	TO (m)	MAJOR OXIDES SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	FeO	MnO	TiO_2	Ba	TRACE ELEMENTS ppm Cu	ppm Zn	% Pb	ppm Ag	ppb Au	Rock Type	Alt	Min	Zr	Total
4615	16.00	19.00	54.76	16.01	0.34	10.11	2.64	0.14	12.30	0.50	0.98	.005	112	225	.015		10				.005	97.80
Grey Dac/Andesite																						
4612	34.00	37.00	57.34	14.87	0.42	10.20	2.19	0.04	11.39	0.44	0.96	.005	63	200	.005		10				.005	97.85
Grey Dac/Andesite																						
4613	48.46	49.46	48.50	1.02	9.63	30.45	0.04	0.01	7.46	0.23	0.02	.009	14	5	.027		15				.005	97.39
Ultramafic Dyke																						
4614	54.10	57.10	58.86	14.08	0.24	9.90	1.44	0.37	11.59	0.37	0.97	.005	122	140	.005		5				.005	97.83
Grey Dac/Andesite																						
4616	72.00	75.00	46.67	15.01	9.73	8.91	3.14	2.54	11.08	0.29	0.66	.017	68	64	.011		10				.005	98.05
Andesite Tuff																						

Hole No. H-3 Entered by _____ Logged by M. J. Gray Page No. 14

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm T Ag	ppb Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
4851	3.05	4.57			1.52	.033	.07		2.0	10													
4852	4.57	5.79			1.22	.031	.04		1.8	5													
4853	5.79	7.06			1.27	.051	.02		2.0	5													
4854	7.06	8.14			1.08	.019	.06		1.8	15													
4855	8.14	9.14			1.00	.019	.05		1.6	10													
4856	9.14	10.54			1.40	.051	.08		2.0	10													
4857	10.54	11.58			1.04	.028	.09		1.8	10													
4858	11.58	12.50			0.92	.028	.07		2.3	15													
4859	12.50	13.57			1.07	.011	.04		2.3	20													
4860	13.57	14.23			0.66	.123	.04		2.4	10													
4961	14.23	15.24			1.01	.010	.03		3.6	5													
4862	15.24	15.92			0.68	.010	.06		2.2	20													
4863	15.92	16.92			1.00	.018	.05		2.6	5													
4864	16.92	17.92			1.00	.014	.03		1.9	30													
4865	17.92	18.42			0.50	.026	.02		2.0	5													
4866	18.42	19.53			1.11	.019	.03		2.1	5													
4867	19.53	20.57			1.04	.011	.03		2.7	10													
4868	20.57	21.42			0.85	.098	.06		3.5	5													
4869	21.42	22.14			0.72	.137	.07		2.9	15													
4870	22.14	22.94			0.80	.074	.07		3.2	5													

HOLE NO H-3

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm T Ag	ppb Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
4871	22.94	23.54			0.60	.012	.03		1.6	5													
4872	23.54	24.38			0.84	.009	.02		2.1	5													
4873	24.38	25.60			1.22	.012	.02		2.0	10													
4874	25.60	26.60			1.00	.018	.03		2.1	5													
4875	26.60	27.41			0.81	.008	.02		2.2	10													
4876	27.41	28.01			0.60	.048	.02		3.0	5													
4877	28.01	28.65			0.64	.013	.02		2.2	10													
4878	28.65	29.51			0.86	.012	.02		2.1	5													
4879	29.51	30.51			1.00	.019	.02		2.0	5													
4880	30.51	30.78			0.27	.206	.01		1.4	10													
4881	30.78	31.51			0.73	.001	.02		0.2	5													
4882	31.51	32.51			1.00	.001	.01		0.1	5													
4883	32.51	33.51			1.00	.001	.02		0.2	3													
4884	33.51	34.75			1.24	.002	.02		0.2	5													
4885	34.75	35.75			1.00	.004	.03		0.1	5													
4886	35.75	36.76			1.00	.003	.02		0.2	5													
4887	36.75	37.79			1.04	.023	.01		0.2	5													
4888	37.79	38.66			0.87	.041	.02		0.4	5													
4889	38.66	39.36			0.70	.021	.01		0.2	5													
4890	39.36	40.84			1.48	.178	.01		1.9	10													

HOLE NO H-3

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm T Ag	ppb Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
4891	40.84	41.51			0.67	.005	.01		0.2	20													
4892	41.51	42.01			0.50	.042	.09	.01	0.5	210													
4893	42.01	43.40			1.39	.013	.03		0.2	5													
4894	43.40	44.20			0.80	.079	.01		0.2	10													
4895	44.20	45.41			1.21	.195	.01		0.6	20													
4896	45.41	46.63			1.22	.043	.02		0.2	5													
4897	46.63	47.33			0.70	.060	.02		0.5	10													
4898	47.33	48.14			0.81	.078	.01		0.3	15													
4899	48.14	49.65			1.51	.003	.01		0.1	5													
4900	49.65	51.10			1.45	.002	.01		0.1	10													
4901	51.10	52.30			1.20	.009	.01		0.2	10													
4902	52.30	53.50			1.20	.002	.01		0.4	10													
4903	53.50	55.00			1.50	.014	.02		0.3	5													
4904	55.00	56.50			1.50	.002	.02		0.4	15													
4905	56.50	57.50			1.00	.001	.01		0.3	10													
4906	57.50	58.22			0.72	.001	.01		0.2	10													
4907	58.22	59.22			1.00	.032	.01		0.2	5													
4908	59.22	60.36			1.14	.016	.01		0.2	5													
4909	60.36	62.36			2.00	.013	.01		0.1	5													
4910	65.94	66.16			0.22	.006	.01		0.2	5													

HOLE NO H-3

SUMMARY LOG H-3

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
0 to 3.05	CASING					
3.05 to 11.58	ANDESITE TUFF +/- DACITE	Colour - med./grey +/- green Grain size - fine to coarse Massive; v. weak foliation		Mod. to strong + strong qtz + py, weakly bleached.	py diss 1-8% (3 Avg)	
11.58 to 12.19	CASING					
12.19 to 30.51	ANDESITE TUFF +/- DACITE	Colour - med. green-grey Grain size - fine to coarse Massive, v.weak foliation		Mod. to strong qtz + strong + strong to intense, Weakly bleached	1-15% py, avg 8-5% locally up to 15% with strong qtz	
30.51 to 43.70	ANDESITE TUFF +/- DACITE CRYSTAL TUFF?	Colour - med. to lt. grey-green with purple hue Grain size - fine to coarse Crudely laminated to massive		Mod. to strong Qtz + strong + locally intense, Weak bleach.	1-6% py; avg 4-5	
43.70 to 48.40	ANDESITE TUFF +/- DACITE CRYSTAL TUFF ? +/- DACITE V.BLOCKY	Colour - med. green /grey Grain size - fine to coarse Massive		Mod. to strong qtz + strong, weak bleach.	1-5% py avg 2	Note V. blocky fault zone? with dykes?
48.40 to 51.00	ANDESITE TUFF?	Colour - green + white with purple hue Grain size - fine to coarse Mod. laminated??		Strong to intense qtz, local strong Fe-carb	Tr py	
51.00 to 61.00	ANDESITE TUFF	Colour - green med. +/- grey Grain size - fine to coarse Massive		Mod. to strong qtz; strong calc. last 3m	1-6% py (avg 3) to Tr in calcite alteration	
61.00 to 77.11	ANDESITE TUFF +/- CRYSTAL TUFF	Colour - green + maroon Grain size - fine to coarse Poorly to mod. laminated; mod. foliation (weak phyllitic)		V.weak to weak qtz, strong - mod. - strong calcite, local Fe-carb	Tr py	

CORPORATION FALCONBRIDGE COPPER

DRILL HOLE RECORD

x METRIC UNITS
IMPERIAL UNITS

HOLE NUMBER	GRID	FIELD COORDS	LAT	DEP.	ELEV	COLLAR BRNG	COLLAR DIP	HOLE SIZE	FINAL DEPTH
H-4	12+87W, 0+73N				455.0m	213°	46.5	NQ	92.35m

PROJECT	CLAIM #	SURVEY COORDS				DATE STARTED / DATE COMPLETED	CONTRACTOR / CORE STORAGE	CASING
PN 224 Heather	TANIA-S					Oct 11/86 / Oct 13/86	F. Boisvenu / Duncan	10 ft (3.05m)

PURPOSE
Test east end of the strongest IP anomaly, with anomalous base metal values in the qtz-py zone.

ROD LOG
COLLAR SURVEY
PULSE EM SURVEY
MULTISHOT SURVEY

ACID TESTS				TROPARI TESTS			MULTISHOT DATA		
DEPTH (m)	CORRECTED ANGLE	DEPTH ( )	CORRECTED ANGLE	DEPTH ( )	AZIMUTH	DIP	DEPTH ( )	AZIMUTH	DIP
3.05	47°								
30.48	46.5°								
60.96	46.5°								
91.44	46°								

HOLE NO H-4

LOGGED BY M. Gray

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
0 to 3.05	CASING					
3.05 to 14.58	ANDESITE TUFF +/- LOCAL CRYSTAL-LITHIC TUFF (15%)	Colour: med. green to lt. grey/green Grain size: fine +/- med. Massive, local crudely laminated; V. weakly foliated Extremely well fractured (poor recovery) Possible narrow fault/gouge at 11.04-11.09m (almost crackle breccia) Chloritization, relatively non descript. With handlens note crystal tuff 15% white 1mm crystals in lithic matrix	9.00m-35 to 40 11.19m-45 qtz-calc, < foln 4.82m-20 @ ?, calc 4.82m-0 @ ?, qtz 8.84m-45 @ 0, calc 8.84m-0 @ 30?, qtz 11.04m-45 @ 0?, qtz 11.90m-35 @ ?, calc 11.90m-E @ ?, calc 14.20m-45 @ ?, qtz 14.50m-25 @ ?, calc (carbonate fill shattered rock).	Dominated by calcite/Fe-carb brown veinlets and fracture coatings. Rock shattered, but not quite crackle breccia. Strong calc/Fe-carb to intense, <1mm-4mm veinlets avg. <1mm. locally calc/Fe-carb as diss 1mm grains - weather lt. brown. Qtz veins patchy weak to mod., x-cut by carbonate veinlets. Qtz typically 5mm-15mm veins, white some as discontinuous patches. Also somewhat bleached throughout to lt. green-grey from med. green. 3.05 - 4.57: strong carb, mod. qtz; poor recovery. 4.57 - 4.87: weak to med. carb, strong qtz. 4.87 - 10.67: strong carb?, weak qtz?; poor recovery. 10.67 - 11.47: strong to intense carb, mod. & strong qtz (brown oxidation). 11.47 - 12.80: Mod. to strong carb, mod. & strong qtz. 12.80 - 14.13: strong to intense carb, weak qtz. 14.13 - 14.58: strong to intense carb, weak to mod. qtz.	Pyrite as f.gr diss (euhedral). Locally looks selective, as it replaces crystals(?)) 3.05-4.40: Tr py ? 4.40-4.97: <1-1% py 4.97-11.00: Tr py to no visible sulphide. 11.00-12.80: <1-1% py 12.80-14.23: Tr to <1%py 14.23-14.38: 1-2% py 14.38-14.58: Tr py	Note: most of the "brown" veinlets fizz with HCl Possible chl-sericite alteration along foliation planes?

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
14.58 to 15.05	FAULT GOUGE/ SHEAR	Colour: Med. brown, med. green Grain size: fine ? Intensely sheared, broken up.	70 ? Foln	14.58-14.74: Dirt & clay/carbonate (Fe) 14.74-15.05: Qtz/chlorite	Tr py	
15.05 to 19.60	ANDESITE TUFF - CRACKLE BRECCIA	Colour: lt. to med. green - bleached. Grain size: fine Massive, breccia (local slight rotation) 15.95 - 19.60: Crackle breccia	18.00m-80 Qtz/carb, fract 15.65m-75 @ ? 17.30m-45 to 60, @? 18.40m-80 @ ? 19.40m-70 @ ? 19.40m-5 @ ?	Pervasive bleaching weak, patch mod. are pale green. Also qtz as 1) anastomizing shatter filling <1mm veinlets also as 2. veins 2mm-8mm weak. Also carbonate at beginning of section mod. to strong 15.05 - 15.95: Qtz#1 mod. to strong, Qtz#2 weak to mod., carb mod. to strong 15.95 - 17.00: Qtz#1 strong, Qtz#2 weak, carb mod. to strong 17.00 - 19.60: Qtz#1 strong, Qtz#2 weak, carb tr Also ser/chl with shatter filling qtz	Py fine grained silvery brown euhedral, tr. cpy, dissem. 15.05-16.46: <1% py 16.46-18.10: <1 - 2% py (tr. cpy) 18.10-19.60: tr - 1% py	Note local diss. carbonate ie) 1mm grains at 17.00m Note fractures in crackle breccia assoc. with chl-ser wispy veinlets +/- qtz +/- breccia along veinlets Note 15.60m: qtz/carb vein.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
19.60 to 20.46	QTZ VEIN-BRECCIA	Colour: white-lt. grey to dark grey/green. Grain size: Fine-coarse, fragments up to 2cm Breccia, massive quartz, fragment supported, minor rotation, well fractured. BLK. CHL MATRIX (10%)	Lower 65 Upper 80 Within 60	Qtz-vein/breccia with black chlorite + py, also x-cut be mod. to strong straw coloured wispy discont. veins, qtz?	Py diss. v.f.gr also as stringers 2mm (discontinuous) parallel and assoc. with black chl Py brownish. Tr cpy throughout 19.60-20.46: 5-8% py, <1% cpy	Py mainly with chl and fract. between qtz frags. Cpy as 1mm blebs
20.46 to 22.78	ANDESITE TUFF TO CRACKLE BRECCIA TO LOCAL QTZ FRAG-RICH BRECCIA	Colour: Lt. dull green Grain size: fine to med. (frags up to 1cm). Massive, weak foliated; local pseudo crackle breccia. Well chloritized/sericitized 20.46-21.16, 21.16-21.96m Qtz frag 30% breccia. Qtz 'eye' breccia? (boudined?) with rotation.	21.20m-45 21.50m-15 22.30m-55 qtz, <foln 22.48m-5 to 10 @ ? 20.50m-45 @ ?; straw coloured	Pervasive ser/chl along weak fol'n. Qtz veins mod. to strong throughout <1-8mm, local breccia, tr black chl., no calcite, Note straw veins here probably qtz (Latest event).	Py mainly diss in frags (qtz) and around their rims. Tr.to <1% throughout section.	Note qtz vein with chalky coloured crystal? frags 22.48m
22.78 to 23.32	SILICIFIED ANDESITE TUFF(?)/ QTZ STOCKWORK	Colour: Lt. to med. grey with dark green to black parts/patches Grain size: fine Breccia, stockwork Upper contact possible 14cm dyke?	upper 40 lower 65 qtz 40 to 45	Qtz stockwork - flood +/- black chl (patches parallel vein). Qtz 2-3mm lt. grey, also white 30mm and brecciated, 3 generations?	Py diss. 2-3% avg., one section 8%. Py diss blebs, assoc with black chl as stringers.	Also straw coloured qtz generation as gashes ?
23.32 to 24.42	ANDESITE DYKE (with CRYSTAL LITHIC TUFF X-CUT)	Colour: lt. green, possibly bleached Grain size: fine to aphanitic Massive, brecciated margins. Flow structure at 24.42 with feldspar(?) phenocrysts approx. 2mm (5%)	See above has step type contact with qtz at 24.42m -15	Weak to mod. qtz +/- chl +/- py.	Py diss as blebs approx. 1% throughout - except qtz breccia-vein + chl + 10% py	

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
24.42 to 24.77	QTZ VEIN/ BRECCIA	Colour: white-black-grey-green Grain size: fine, frags up to 2cm. Breccia, crudely banded	10 to 15	Qtz breccia + veins +/- silicification + blk chl + py	Discontinuous stringers around fragment assoc. with black chl (3-5%)	
24.77 to 25.86	ANDESITE DYKE(?) (possible CRYSTAL LITHIC TUFF?)	Colour: lt. green Grain size: very fine Massive, weak flow + feldspar pheno developed at contact? (see above) Note qtz eyes(?), frags in dyke.	25.00m-45 25.20m-55 45-lower	Weak qtz +/- chl veins throughout also chl veins. One qtz + chl + py vein C.A. 15 at 24.90m	1% v.fine gr. diss py in dyke, locally 3-5% with qtz-chl-py vein.	V. similar to above dyke-like body.
25.86 to 28.47	QTZ VEIN ZONE +/- minor ANDESITE TUFF +/- ANDESITE DYKE	Colour: green-white-black Grain size: fine to med. +/- coarse Massive veins, breccia veins, banded veins. 28.24m to end: Andesite Tuff	bands & contacts 25.90m-45 to 15 26.45m-30 27.50m-40 to 35	Qtz + chl+ py +/- carbon veins and breccia-veins, local veins x-cut massive white-lt. grey qtz, locally silicified andesite tuff. 25.86 - 26.46: Banded vein folded 0-45 C.A. with inter-vein Andesite Tuff. 26.46 - 26.66: Massive qtz + veins, fractured. 26.66 - 27.02: Qtz breccia-vein with stockwork. 27.02 - 27.44: Qtz massive +/- breccia locally - with 5% carbon 27.44 - 28.24: Qtz stockwork (silicified Andesite) 28.24 - 28.47: strong to mod. qtz +/- mod. Fe-carb	Py mainly as stringers/ bands in black chl, also diss in qtz + fracture filling + diss/bleb in frags/matrix of breccia - v.fgr. to f.gr. py - locally <1% cpy. 25.86-26.48: 3-5% py 26.48-26.80: 3-8% py 26.80-26.97: 10% py (frags/matrix) tr cpy 26.97-27.12: 5-8% py 27.12-28.12: 2-5% py, tr cpy 28.12-28.47: <1-2% py	Binoc approx. 26.50m

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
28.47 to 32.51	ANDESITE TUFF - PHYLLITIC +/- LOCAL F.CRYSTAL TUFF	Colour: green & maroon Grain size: fine to med. Phyllitic sheen, weak to mod. foliation; crude to poorly laminated Green 28.47-29.45m Maroon + green 29.45-32.51m Locally brecciated i.e.-32.10m	28.90m-70 29.20m-50 30.00m-35 31.50m-45 qtz/calc, < fol'n 28.67m-45 @ 0, qtz 30.00m-30 to 40 @ 0 calc 30.00m-80 to 90 @ 90, calc 31.50m-45 @ 90, calc 31.50m-25 to 30 @ 90, calc 32.10m-45 to 60 @ 0, calc 32.10m-80 @ ?, T.G., calc	Calcite +/- hematite +/- chl mod to strong, v.weak qtz. Hematite as patches and lenses (x-cut by one generation of calcite) 28.47 - 28.97: weak to mod. qtz, mod. to strong calcite. 28.97 - 32.51: Mod. to strong calcite, v.weak qtz Hematite patches at 29.50 -30.17m 3-5% note: 30.17-31.15m: Calcite + Fe carb mod. & mod. to strong veins.	Py diss v.fine gr. blebs assoc. with qtz veins. 28.47-28.85: <1-1% py 28.85-32.51: No visible sulphides	Calcite veins mainly parallel to foliation 2-3 generations, 1) one parallel to fol'n typically vague margins irregular shape, 2) TG <1cm x <1mm, 3) offset +/- calc vein Hematite is brick red as diss. and patches, crudely parallel to fol'n +/- calcite.
32.51 to 33.48	ANDESITE ASH TUFF +/- F.CRYSTAL TUFF (1-2mm)	Colour: med. dull green Grain size: fine to med. Weakly foliated, crudely laminated. Irregular contact with above unit approx. 15° C.A. (dyke like contact)	32.70m-45 33.25m-45 Calc, < foln 32.85m-45 @ 0, @ 45 32.85m-45 @ 90, 70 TG	Calcite, similar to above - (no hematite) + patchy weak to mod. Fe-carb, tr qtz (38.54-38.64m) Mod. to stong calcite throughout. Moderate patchy Fe-carb veinlets at 32.51-32.76m	No visible sulphides	Note wispy chl bands parallel to sub parallel fol'n possibly assoc. with calcite event parallel fol'n.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
33.48 to 38.84	ANDESITE TUFF - PHYLLITIC	Colour: maroon +/- 10% green Grain size: fine Poorly laminated? hematization makes this difficult to tell, mod. foliated	33.80m-35 34.70m-45 to 40 36.00m-30 to 35 36.70m-30 38.70m-45 calc, ⟨ foln 34.50m-60 @ 90 36.00m-30 @ 0, 65 @ 90 38.50m-20 @ 0, 70 @ 90	Strong calcite ⟨1-3mm continuous + discontinuous veinlets + gashes throughout +/- hematite.	Tr to no visible sulphides throughout except 38.54-38.64m ⟨1% py diss assoc with qtz.	Locally 1% diss brick red hematite.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
33.48 to 38.84	ANDESITE TUFF - PHYLLITIC	Colour: maroon +/- 10% green Grain size: fine Poorly laminated? hematization makes this difficult to tell, mod. foliated	33.80m-35 34.70m-45 to 40 36.00m-30 to 35 36.70m-30 38.70m-45 calc, < foln 34.50m-60 @ 90 36.00m-30 @ 0, 65 @ 90 38.50m-20 @ 0, 70 @ 90	Strong calcite <1-3mm continuous + discontinuous veinlets + gashes throughout +/- hematite.	Tr to no visible sulphides throughout except 38.54-38.64m <1% py diss assoc with qtz.	Locally 1% diss brick red hematite.
38.84 to 40.47	ANDESITE ASH TUFF PHYLLITE	Colour: maroon, tr green Grain size: fine Poorly laminated?, mod. foliated Hematization make textures difficult to see.	38.90m-0 to 5 39.50m-35 to 40 40.40m-15	Mod. calcite +/- chl veins similar to above throughout, also pervasive hematite? - maroon colour + diss brick red patches. Calcite veins mainly parallel foln.	No visible to tr py	Looks like a green tuff discoloured by pervasive hematite.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
40.47 to 49.77	ANDESITE TUFF	Colour: green + maroon (25%) irregular patchy maroon local banded look. Grain size: fine Massive + poorly laminated, weakly foliated (non phyllitic). Local breccia-veins, also well folded locally. Interval characterized by pseudo-crackle texture.	40.60m-30 42.15m-30 43.50m-50 45.10m-55 46.60m-45 48.87m-35 to 40 Calc, < foln 42.25m-5 @ 75, #1 42.25m-55 @ 90, #2 42.25m-40 @ 0, #4 43.28m-20 @ ?, #3 43.28m-70 @ 90, #1 43.28m-45 @ 0, #4 47.30m-65 @ 0, #4 47.30m-5 @ 50 ? 48.50m-30 @ ?, #3 48.50m-40 @ 0, #2 48.50m-0 @ 40, #4	Mainly calcite veinlets +/- hematite 1mm-3mm, also calcite breccia veins up to 10mm thick. Minor qtz (weak) throughout, also note hematite as broken veinlets and patches. 40.47 - 45.70: Mod. to strong calc +/- hematite with patchy strong/breccia veins. 45.70 - 49.05: Mod. to strong calc +/- hematite +/- chl. 49.05 - 49.77: Mod. calc +/- hematite. Hematite strong patchy at 45.70-46.90m also 43.50-43.70m	No visible sulphides to local tr	Vein generation youngest 1. calcite - continuous 4mm 2. TG calcite discontinuous 3. Vein breccia 4. Hematite +/- calc veins + patches Interval appears "nicked" up with calcite veins.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
49.77 to 51.27	ANDESITE TUFF slight PHYLLITIC	Colour: maroon Grain size: fine Poorly laminated? (pervasive hematization); weak to mod. foliated; locally folded	50.20m-25 51.00m-30 calc. < fol'n 50.20m-80 @ 45 50.20m-50 @ 0, Hem 50.60m-45 @ 90, 70 @ 90 50.60m-45 @ 0	Pervasive hematization, also banos/veins approx. 3-4mm thick of red-maroon hematite, also calcite mainly gasnes. 49.77 - 50.37: Strong calc 50.37 - 50.96: Mod. calc. 50.96 - 51.27: Strong calc	No visible sulphides	Pervasive maroon colour textures difficult to distinguish.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
51.27 to 59.82	GREEN & MAROON (15%) ANDESITE TUFF	Colour: green & maroon Grain size: fine Crudely to poorly laminated Local brecciated section with veins + offset. Weakly foliated. Locally "banded" green + maroon Local inter-laminated Crystal Tuff (white 1-2mm 10%) 52.80m: Note mafic crystals 1-2mm 55.01 - 55.17: Breccia veins qtz + calcite	51.30m-25 to 30 52.50m-45 53.30m-35 54.60m-45 56.15m-15 56.95m-30 58.60m-40 qtz/calc, < foln 52.50m-60 @ 0, qtz 52.50m-80 @ 30, calc 52.90m-30 @ 0, calc 52.90m-20 @ 90, calc 52.90m-30 @ 60, calc 56.70m-35 to 40 @ 0 56.70m-55 @ 90, calc 57.93m-20 @ 0, qtz 59.32m-45 @ 0, qtz 59.32m-60 @ 70, calc	Calcite +/- chl veinlets, mainly gashes + parallel foliation, 1-4mm thick. V.weak qtz + hematite throughout 5-10mm. Locally mod. to strong +/- breccia. Hematite diss throughout & patches. 51.27 - 52.41: mod. to strong calc, v.weak qtz 52.41 - 52.61: Mod. calc.@ mod. to strong qtz 52.61 - 53.33: mod. to strong calc, v.weak qtz 53.33 - 53.83: strong calc, weak qtz 53.83 - 54.01: mod. calc, no qtz 54.01 - 55.01: strong calc, weak qtz 55.01 - 55.17: mod. calc, strong qtz breccia 55.17 - 56.78: Mod. calc, no qtz 56.78 - 58.00: mod. to strong calc, v.weak qtz 58.00 - 58.70: mod. to strong + strong calc, weak qtz 58.70 - 59.82: Mod. calc, weak qtz	No visible sulphides	Hematite in this section - but specular (non purple) hematite 1-2% throughout, redish patches diss specular hematite EVFG Stringer hematite at (brick red) 51.71m

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
59.82 to 66.35	ANDESITE TUFF (relatively non-descriptive) PHYLLITE	Colour: med. to dark green Grain size: fine Generally massive, locally poorly laminated; weakly foliated (non phyllitic) to weakly phyllitic. Locally black mineral in Tuff v. fine gr. approx. 8% possible biotite?	60.70m-30 61.86m-35 62.85m-30 65.00m-35 qtz/calc, ⟂ fol'n 60.50m-25 @ 0, calc 60.50m-80 @ 90, calc 61.30m-60 @ 90, calc 61.30m-25 @ 0, calc 63.00m-25 @ 0, qtz 63.00m-30 @ 0, calc 63.00m-75 @ 90, calc 63.60m-30 @ 0, qtz, calc 63.60m-50 @ 90, calc	Consists mainly of <1-3mm thick calcite +/- qtz veins and discontinuous gashes. Qtz veins +/- chl weak to v. weak throughout. Avg 5-10mm. Also local diss hematite approx. 1-2% but no pervasive maroon sections. 59.82 - 61.56: Mod. to strong calc, v.weak qtz 61.56 - 62.68: Mod. calc, tr qtz 62.68 - 65.02: Mod. to strong calc, weak qtz 65.02 - 66.35: weak to mod. calc, v.weak qtz note local hematite patches.	No visible sulphides - except tr at 65.95m	Note local diss specularite v.fine gr. blebs at 62.75m. Note 64.62-66.35m:5% patchy brick-red hematite generally parallel to fol'n +/- calc as 3-10mm patches (rounded).

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
66.35 to 79.63	ANDESITE CRYSTAL TUFF-ASH TUFF possible LITHIC FRAGS, subangular	Colour: med. to dark green Grain size: fine +/- med. - coarse (crystal) +/- lapilli Crudely to poorly laminated. Weakly to mod. foliated.	66.75m-40 67.25m-35 67.50m-35 to 40 70.80m-35 72.00m-45 73.00m-45 to 50 76.00m-45 77.50m-40 78.75m-45 Qtz, < fol'n 74.98m-80 @ 25 74.98m-45 @ 0 77.00m-45 @ 0 78.55m-25 @ 90, T.G. 78.55m-30 @ 0 to 10 Qtz/cal, < fol'n 67.00m-80 @ 50, calc 67.00m-5 @ 0, calc 68.20m-35 @ 0, calc 68.20m-0 30, calc 69.50m-50 @ 0?, qtz 69.80m-40 @ 0, qtz 69.80m-10 @ 60, qtz 72.00m-45 @ 0, qtz 72.85m-45 @ 0, qtz 74.48m-55 @ 0, qtz	Two zones, first is calcite +/- hematite veinlets 2mm avg. Second, qtz veinlets +/- chl 2-5mm avg. + assoc py. 66.35 - 67.90: Weak to mod. calc 67.90 - 68.45: weak calc 68.45 - 69.55m:weak qtz, tr calc 69.55 - 71.00m: weak to mod. & mod. qtz 71.00 - 72.05: weak to mod. qtz 72.05 - 72.85: v.weak qtz 72.85 - 75.00: weak to mod. qtz 75.00 - 76.36: Mod. qtz 76.36 - 77.25: Weak to v.weak qtz 77.25 - 77.55: mod. qtz 77.55 - 79.63: weak to mod. & mod. qtz	Py in two forms: 1. Euhedral coarse py patches within qtz elipsoids 4mm x 10mm avg.@ replacive? 2. F.gr py in bands/stringer parallel to foliation. 66.35-68.45: no visible sulphides. 68.45-69.45: 3-8% py, local 5-8% patches, c.gr. 69.45-69.65: 1% py, tr cpy 69.65-69.87: 6-8% py, banded f.gr 69.87-71.32: Tr py 71.32-71.52: 1-2% py 71.52-72.34: Tr py 72.34-73.00m-No visible sulphides 73.00-76.00m: Tr py 76.00-77.90m:<1 to tr py 77.90-79.63m: Tr py, cpy	Mainly crystal tuff with white feldspar? crystals 1-2mm avg., also section of 3mm avg. crystals, 10-20% of rock. Possibly more chloritic in qtz zone. Note: calcite dominated vs qtz, py dominated section, break at 68.65m Note: minor patches red hematite in calc zone, also 1% diss specularite v.fine gr. throughout calc zone, locally in qtz zone.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
79.63 to 86.79	ANDESITE TUFF + FINE CRYSTAL ASH TUFF	Colour: med. to dark green Grain size: fine +/- med. Massive to crudely laminated, locally (81.38-82.40m) poorly laminated. Mod. foliated.	80.00m-45 81.40m-45 83.00m-45 84.00m-40 85.40m-40 86.50m-45 qtz, c fol'n 80.00m-70 @ 0 81.50m-50 @ 0 82.70m-40 @ 0 82.70m-45 @ 90 83.35m-45 @ 0 84.40m-50 @ 0 85.00m-35 to 40 @ 0 86.70m-50 @ 0	Typically 1-4mm thick (avg 2mm) qtz +/- chl +/- hematite veins mainly parallel to fol'n. Local hematite diss. Tr. to no calcite. 79.83 - 81.95: Weak to mod. + mod. qtz 81.95 - 83.83: Weak local mod. to strong qtz 83.83 - 84.30: Weak to v.weak qtz 84.30 - 85.34: Weak to mod. qtz 85.34 - 86.79: mod. qtz	Diss py locally (<1%) 79.63-80.42: No visible sulphides 80.42-80.72: <1% 80.72-83.82: No visible sulphides 83.82-86.79: Tr to no visible sulphides, local tr cpy	"Fine" Crystal Tuff throughout section, most distinct last 3m of section. 1mm feldspar ? crystal sub angular - drawn out slightly. Hematite-qtz vein at 80.20m patch hematite in qtz also 82.55m. Note some vuggy qtz veins Note lt. brown diss alteration? - biotite? i.e.-84.70m Note LIB sample taken.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
86.79 to 92.35 EOH	ANDESITE CRYSTAL ASH TUFF (F-M-C)	Colour: med. to dark green Grain size: fine - ash. Fine to coarse crystals. Massive to crudely laminated, crystals line up in planes. Mod. foliated. Distinct white feldspar? sub-angular crystals either 1mm (30%) or 1-2mm (20%) or 3mm (10%) 88.35: folded Black-mafic sheared phenos with white crystals at 86.79-87.19m, 2mm (15%)	86.90m-40 87.55m-20 89.00m-45 90.75m-30 92.20m-40 qtz, < fol'n 87.00m-40 @ 0 87.00m-10 @ 30 87.30m-70 @ ? 87.70m-25 to 40 @ 0 88.10m-20 to 40 @ 0 91.95m-15 @ 0	Similar to above qtz veins up to 4cm thick +/- chl Tr calc. at 87.33m on. 86.79 - 87.09: mod. qtz. 87.09 - 87.60: Weak qtz, tr calc. 87.60 - 88.60: Weak to mod. qtz, tr calc. 88.60 - 89.70: Weak to mod. & mod. qtz, tr calc. 89.70 - 91.20: Weak to mod. qtz, tr calc. 91.20 - 92.00: weak qtz, tr calc. 92.00 - 92.35: weak to mod. qtz, tr calc.	Py as diss.@ in one qtz vein diss med.gr. - irregular stringer 86.79-87.60: No visible sulphides to tr py 87.60-88.00: Tr py 88.00-88.33: <1-1% py 88.33-88.37: 5% in vein 88.37-89.92: no visible sulphides 89.92-91.32: tr 90.32-91.00: No visible sulphides 91.00-92.35: Tr	Lack of hematite in this interval. Note most qtz veins discontinuous. Note kink band at 87.00m qtz vein appears folded into it Note 5% brown mineral of above locally i.e. 88.60-89.00m Selective replacement?/

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm T Ag	gm T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au	ppm As		
5046	26.48	27.12			0.64	.004	.01	.01	1.3	35											21		
5047	27.12	27.77			0.65	.006	.01		.2	5													
5048	27.77	28.47			0.70	.004	.01		.2	5													
5049	28.47	29.97			1.50	.028	.01		.3	10													
5050	29.97	31.97			2.00	.006	.01		.2	3													
5051	38.90	40.40			1.50	.008	.02		.1	10													
5052	47.50	48.87			1.37	.007	.01		.3	20													
5053	52.41	53.91			1.50	.013	.01		.2	5													
5054	53.91	55.41			1.50	.008	.01		.2	5													
5055	66.95.	68.45			1.50	.014	.01		.4	5													
5056	68.45	69.45			1.00	.010	.02		.4	5													
5057	69.45	70.20			0.75	.018	.03		.3	5													
5058	70.20	70.84			0.64	.006	.02		.2	5													
5059	70.84	72.34			1.50	.005	.01		.2	10													
5060	74.32	76.00			1.68	.004	.01		.1	3													
5061	76.00	77.50			1.50	.005	.01		.3	5													
5062	77.50	79.50			2.00	.004	.01		.1	5													
5063	84.00	86.00			2.00	.007	.02		.2	6													
5064	88.00	88.60			0.60	.022	.01		.3	5													

HOLE NO. H-4

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm T Ag	gm T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
5026	3.05	4.27			1.22	.006	.01		.5	5													
5027	4.27	5.22			0.95	.006	.01		.2	5													
5028	5.22	7.31			2.09	.004	.01		.2	10													
5029	7.31	8.84			1.53	.002	.01		.3	5													
5030	8.84	10.67			1.83	.001	.01		.5	5													
5031	10.67	12.80			2.13	.003	.01		.2	5													
5032	12.80	14.58			1.78	.003	.01		.3	10													
5033	14.58	15.05			0.47	.001	.01		.2	5													
5034	15.05	15.95			0.90	.002	.01		.2	10													
5035	15.95	17.20			1.25	.003	.01		.3	10													
5036	17.20	18.10			0.90	.001	.01		.2	10													
5037	18.10	19.60			1.50	.003	.01		.1	5													
5038	19.60	20.46			0.86	.012	.01		.2	5													
5039	20.46	21.19			0.73	.002	.01		.4	5													
5040	21.19	22.78			1.59	.004	.01		.2	5													
5041	22.78	23.32			0.54	.002	.01		.3	10													
5042	23.32	24.42			1.10	.005	.01		.2	10													
5043	24.42	24.77			0.35	.008	.01		.3	10													
5044	24.77	25.86			1.09	.007	.01		.2	5													
5045	25.86	26.48			0.62	.003	.01		.2	10													

HOLE NO H-4

LITHOGEOCHEMISTRY

			MAJOR OXIDES										TRACE ELEMENTS									
SAMPLE NUMBER	FROM (m)	TO (m)	SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	FeO	MnO	TiO_2	Ba	ppm Cu	ppm Zn	% Pb	ppm Ag	ppb Au	Rock Type	Alt	Min	Zr	Total
4617	17.00	19.60	50.49	17.02	5.06	7.27	4.64	0.48	10.36	0.17	2.24	.029	61	93	.013		5				.013	97.80
4618	41.00	44.00	45.62	19.43	4.06	9.62	4.53	1.59	11.48	0.27	1.04	.014	160	88	.006		3				.005	97.66
4619	60.00	63.00	47.16	16.26	8.23	10.87	2.63	0.30	10.88	0.24	1.00	.005	22	87	.005		5				.005	97.58
4620	89.00	92.00	49.80	16.30	4.03	11.90	3.30	0.11	10.99	0.19	0.93	.005	143	73	.026		5				.005	97.57

Hole No. H-4 Entered by _____ Logged by M. J. Gray Page No. 18

H-4 SUMMARY LOG

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
3.05 to 14.58	ANDESITE TUFF +/- CRYSTAL TUFF	Colour - Med. green with brown fracture coatings Grain size - fine to med. +/- coarse Massive to crudely laminated Weak to mod. foliation		Qtz/Fe carb mod. to strong Almost crackle breccia	Tr py	approx. 35% core recovery
14.58 to 15.05	FAULT GOUGE some CLAY	Colour - med. green + med. brown Grain size - fine to med. Fault, highly sheared		Qtz/Fe carb + clay	No visible sulphides	
15.05 to 19.60	ANDESITE TUFF CRACKLE BRECCIA	Colour - med. green Grain size - fine to med. +/- coarse Crackle breccia, local vein breccia (<5mm) Massive Andesite Tuff		Qtz +/- Fe carb +/- chl +/- ser strong	<1%-1% py	
19.60 to 20.46	QTZ VEIN/ BRECCIA	Colour - white, black, dark green Grain size - fine to med. Massive, breccia		Qtz +/- py +/- cpy +/- chl +/- ser vein	2-5% py, tr cpy	
20.46 to 22.78	ANDESITE TUFF to CRACKLE BRECCIA to BRECCIA	Colour - med. to lt. green Grain size - fine to med. + frags Breccia, poorly laminated to massive; Weakly to mod. foliated		Qtz +/- chl +/- ser strong	Tr to 2% py	
22.78 to 23.32	QTZ VEIN/ BRECCIA TO STOCKWORK	Colour - white, black, dark green Grain size - fine to med. Breccia, somewhat banded		Qtz +/- chl +/- ser vein	1-5% py	
23.32 to 24.42	ANDESITE TUFF WITH LOCAL BRECCIA	Colour - med. to dark green Grain size - fine to med. Massive to poorly laminated; weakly foliated		Qtz +/- chl +/- ser mod.	Tr to <1% py	

H-4 SUMMARY LOG

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
24.42 to 24.77	QTZ VEIN/ BRECCIA	Colour - white, black, dark green Grain size - fine to med. Massive, breccia-stockwork; somewhat banded, fault steps		Qtz +/- chl +/- ser strong to intense	1-3% py, tr to <1% cpy	
24.77 to 25.81	ANDESITE TUFF	Colour - med. to lt. green Grain size - fine to med. Massive to crudely laminated; weakly foliated		Qtz mod.	1-2% py	
25.81 to 28.47	QTZ VEIN - QTZ BRECCIA VEIN ZONE with intermit. ANDESITE (<20%)	Colour - white, black, dark to med. green Grain size - fine to med. Breccia, massive, weakly foliated		Qtz +/- chl +/- ser +/- carbon patchy veins + vein breccia otherwise mod. to strong qtz	3-5% in veins + breccia <1-1% in andesite	
28.47 to 32.51	ANDESITE TUFF PHYLLITES	Colour - dull green (m) +/- maroon Grain size - fine to med. Poorly laminated, mod. foliated		Mod. to strong Calcite +/- hematite & v. weak qtz	Tr - <1% locally 1%	
32.51 to 33.48	ANDESITE TUFF	Colour - med. to dark green Grain size - fine Crude to poorly laminated; weakly foliated		Calcite mod. to strong	Tr py	
33.48 to 38.84	ANDESITE TUFF PHYLLITIC	Colour - green + maroon Grain size - fine Poorly laminated, weak to mod. foliated		Calcite/hematite mod. to strong	Tr py	
38.84 to 40.47	ANDESITIC TUFF PHYLLITIC	Colour - maroon tr. green Grain size - fine Poorly laminated; weak to mod. foliation		Calcite/hematite mod. to strong	Tr py	
40.47 to 49.77	ANDESITIC TUFF PHYLLITIC	Colour - green + maroon Grain size - fine Poorly laminated; weak to mod.		Calcite/hematite mod. & mod to strong	Tr py	

H-4 SUMMARY LOG

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
49.77 to 51.27	ANDESITE TUFF PHYLLITIC	Colour - maroon Grain size - fine Poorly laminated; weak to mod. foliation		Calcite/hematite mod. to strong	Tr py	
51.27 to 59.82	ANDESITE TUFF PHYLLITIC	Colour - green +/- maroon Grain size - fine Poorly laminated; weak to mod. foliation		Calcite/hematite mod. to strong; weak hematite	Tr py	
59.82 to 66.35	ANDESITE TUFF	Colour - green Grain size - fine Crudely laminated; weak foliation		Calcite mod.; local hematite	Tr py	
66.35 to 79.63	ANDESITE CRYSTAL TUFF	Colour - med. green (white crystals) Grain size - fine +/- med. +/- coarse Crudely laminated; weak foliation		V. weak to weak calcite ; Tr local hematite; weak qtz	Tr py	White crystal size grades down toward end of interval
79.63 to 86.79	ANDESITE TUFF +/- fine CRYSTAL TUFF	Colour - med. to dark green Grain size - fine +/- med. Massive to crudely laminated; weak foliation		V. weak calc; tr hematite; weak qtz	Tr py	
86.79 to 92.35	ANDESITE CRYSTAL TUFF	Colour - med. to dark green Grain size - fine to coarse Massive to crudely laminated; weakly foliated		V. weak calcite; weak qtz	Tr py	

CORPORATION FALCONBRIDGE COPPER

DRILL HOLE RECORD

x METRIC UNITS
IMPERIAL UNITS

HOLE NUMBER	GRID	FIELD COORDS	LAT	DEP	ELEV	COLLAR BRNG.	COLLAR DIP	HOLE SIZE	FINAL DEPTH
H-5	9+25W/ 0+52S				355.0m	211°	46°	NQ	91.13

PROJECT	CLAIM #	SURVEY COORDS				DATE STARTED / DATE COMPLETED	CONTRACTOR / CORE STORAGE	CASING
PN 224 Heather	CAROL-S					Oct 14/86 / Oct 16/86 (4:00 am)	F. Boisvenu / Duncan	6.10m

PURPOSE: Test IP anomaly and projected qtz-pyrite alteration zone

RQD LOG
COLLAR SURVEY
PULSE EM SURVEY
MULTISHOT SURVEY

ACID TESTS				TROPARI TESTS			MULTISHOT DATA		
DEPTH (m)	CORRECTED ANGLE	DEPTH ( )	CORRECTED ANGLE	DEPTH ( )	AZIMUTH	DIP	DEPTH ( )	AZIMUTH	DIP
6.10	46.5°								
30.48	45.5°								
60.96	46°								
91.13	45°								

HOLE NO H-5

LOGGED BY M. Gray

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
0 to 6.10	CASING					
6.10 to 9.83	INTERLAM. ANDESITE TUFF-CRYSTAL TUFF AND GREY CRYSTAL TUFF +/- QTZ EYES +/- BLACK MAFIC PHENOS	Colour - lt. green (andesite); lt. grey-green (dacite?) Grain size - fine-tuff med. to coarse crystals Poorly interlaminated andesite tuff to crystal tuff and qtz eye dacite? crystal tuff Weakly foliated Local breccia 9.18m (breccia-vein)	6.30m-65 7.05m-75 7.65m-70 8.80m-80 9.75m-80 qtz,(fol'n 6.25m-5 to 45 @? 6.55m-65, @ 0, 70 @ 20 7.40m-60 @ 0 8.12m-70 @ 0 9.35m-30 @ 60 9.35m-85 @ 0	Mainly (bleached throughout weak) consists of Qtz+/-ser+/-py+/-hem +/- chl veins 2mm-10mm, avg. 3-4mm. Also sericite /chl along foliation-wispy. Also v.weak to weak calcite (1mm TG throughout, also one local patch of Fe-carb, and hematite. 6.10 - 6.47: Mod. to strong qtz +/- sericite?/chl 6.47 - 6.58: Mod. qtz+/-ser? or chl 6.58 - 6.89: Strong qtz+/-ser?/chl 6.89 - 7.42: mod. qtz+/-ser?/chl 7.42 - 7.65: strong qtz+/-ser?/chl 7.65 - 9.13: Mod. to strong qtz+/-ser?/chl 9.13 - 9.83: strong qtz+/-ser?/chl	Py mainly as fg diss also as diss.patches mg-cg within qtz patches/lenses approx. 3mm x 8mm avg., also as fg bands/stringers parallel to qtz veins parallel to fol'n. 6.10-6.38: 8% py, diss 6.38-6.58: 1-2% py, diss 6.58-7.15: 3-5% py 7.15-7.26: Tr py 7.26-7.52: 3-5% py - patches & bands 7.52-7.92: 2-4% py 7.92-8.37: 1% py, diss 8.37-9.08: 2-4% py, diss 9.08-9.61: 3-5% py, bands 9.61-9.83: 5-8% py, bands	Andesite crystal tuff 6.36-6.65m: 15% mafic crystals 2-4mm long, rest chl/ser 7.15-7.26: 15% mafic crystal, 10% fuzzy/vague 1 x 2mm fp? 7.44-7.91: Same as above -v. streaky Dacite? crystal tuff +/- qtz eyes throughout rest. Qtz eyes in particular laminations 1mm-3mm, locally 5-10% lt. grey. Locally 5-10% mafic crystals similar to above. Flow? Note: ser?+/-qtz parallel fol'n straw yellow-lt. brown 5-15% Note: hem+qtz vein patches, red hem. 8.55-8.60 Note: brown alt'n (Alt'n of fp?) shredded look (patchy) diss.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
9.83 to 22.60	DACITE(?)-ANDESITE TUFF AND CRYSTAL ASH TUFF ALSO MINOR ANDESITE CRYSTAL TUFF INTERLAM.	Colour - Med. green-grey & med. grey Grain size - fine, crystals-med. Massive-crudely laminated, locally poorly laminated. V. weakly foliated. Locally weak breccia i.e. 12-20m 20.45 -20.55: Andesite dyke? 15 C.A. Not a distinct crystal tuff, 15% white Fp? crystals. Local quartz eyes. Note no mafic crystal >1mm as in first section.	10.20m-75 11.70m-60 13.70m-40 14.25m-40 to 45 15.50m-? 16.80m-15 18.00m-10 to 20 ? 18.80m-approx.25 20.50m-10 22.20m-30 Qtz,<fol'n 10.20m-75 @ 0 11.70m-60 @ 0 12.56m-20 @ 90 12.56m-65 @ 0 13.72m-45 @ 0 13.72m-20 @ 70 14.80m-25 @ 0?	Consists of qtz+/-ser+/-chl py veins (<1-15mm, avg 3 & 5mm)@ white with creamy quartz growths. Trace of calcite, local blebs red hematite or jasper at 17.40-17.90m. Sericite? along fol'n as wispy veins to approx. 13.00m 9.83 - 10.07: strong qtz + ser? +/- py+/-chl 10.07 - 11.02: Mod. to strong Qtz+ser+/-py+/-chl 11.01 - 11.60: Mod. qtz+ser +/-py 11.60 - 11.76: strong qtz+ser?+/-py+/-chl 11.76 - 12.36: mod. qtz+ser?+/-py+/-chl 12.36 - 15.20: Mod. to strong qtz+/-ser?+/-py+/-chl 15.20 - 15.86: Mod. qtz+/-py 15.86 - 16.62: mod. to strong qtz+/-py 16.62 - 17.02: mod. qtz +/-py	Py fg diss throughout, also banded parallel to qtz/foliation, as patches with qtz, minor replacement of crystal (euhedral). Local mg py+/-qtz veins. 9.83-10.38: 2-3% py, diss 10.38-11.15: 3-6% py diss & banded 11.15-11.71: 8% py diss & banded 11.71-12.01: 5-7% py, diss 12.01-12.56: 3-5% py diss + patches 12.56-12.86: 5-8% py, diss + patches 12.86-13.06: 3-5% py banded + diss 13.06-13.51: 3-8% py diss, patches 13.51-14.27: 8-10% py, tr cpy banded, diss +/- replacement 14.27-14.40: Tr py	Most qtz veins continuous but do pinch and swell, mainly parallel to the foliation. Discont. veins mainly 9.83-12.00m Locally veins contorted i.e. 9.85m Sericite? parallel fol'n to 13.00m, past possible diss parallel fol'n i.e.11.71 - on as brown mineral. Note 12.80m chl envelopes on qtz, also local at 14.20m qtz with good sericite?- past 13.00m is lt. green/grey pervasive weak? Note late 1-2mm

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
22.60 to 29.40	ANDESITE ASH TUFF	Colour - dark green +/- med. green Grain size - fine Massive. Weakly-mod. foliated, badly broken/blocky section. Relatively non-descript.	22.80m-60 26.70m-60 29.30m-45 to 50 qtz,<fol'n 23.00m-50 @ 0 24.40m-35 @ 0 26.80m-40 @ 0 28.80m-35 @-0 28.00m-75 @ 35 28.00m-45 @ 0 28.80m-0 @ 45, T.G.	Qtz+/-cal+/-chl veins 1-15mm (avg. 4mm) also calcite veins. Typically discont. Patchy veins. 22.60 - 23.78: Strong qtz+ chl 23.78 - 24.67: Mod. to strong qtz + chl 24.67 - 26.52: Strong qtz + chl 26.52 - 28.35: Mod-strong & strong qtz + chl 28.35 - 29.40: Strong qtz + chl Veins mainly parallel fol'n?	Py mainly diss fg +/- mg also with qtz patches, generally absent from veins. 22.60-22.86: 3-5% diss py 22.86-24.40: 2-3% py,diss 24.40-25.20: 3-5% py, diss, patches 25.20-26.52: 1-3% py, diss 26.52-26.92: 3-5% py, diss 26.92-28.03: 2-3% py, diss 28.03-29.40: 3-5% py, diss, replacement	Calcite veins x-cut qtz, calc. also with qtz weak to mod. throughout.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
29.40 to 36.79	ANDESITE TUFF WITH MINOR 2-10CM BANDS/ LAMS OF CRYSTAL TUFF LAPILLI TUFF (GREEN)	Colour - med. green + maroon bands Grain size - fine +/- med.-coarse Poorly-crudely laminated, obscured by hematite bands. Mod. foliated.	29.60m-40 30.50m-30 32.20m-65 33.00m-25 to 30 ? 35.20m-45 36.00m-50 Qtz/calc, <fol'n 29.70m-45 @ 0 29.70m-25 @ 30 30.80m-35 @ 0 30.80m-15 @ 35, T.G. 32.00m-45 @ 0 32.00m-70 @ 30 32.80m-40 @ 0 32.80m-45 @ 90 34.10m-40 @ 0 34.10m-20 @ 60, T.G. 36.00m-45 @ 0 36.00m-25 @ 0	Calcite/Qtz +/- chl veins folded into and pinched out along foliation. Also pervasive hematite sections and bands 29.40-36.79: Strong & strong to intense calc/qtz +/- chl Pervasive hematite at 30.28-30.48m, 32.32-36.79 patchy-pervasive.	Sparse diss py 29.40-29.88: Tr-<1% py also 30.40m Tr	Marked increase in calcite at contact Note veins contorted, no correlation between calc. & hem. though calc-hem veins exist.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
36.79 to 46.44	ANDESITE TUFF AND ANDESITE CRYSTAL TUFF	Colour - med. to dark green Grain size - fine (tuff), med. (crystal) Crudely laminated-massive Extremely blocky 38.50-46.44m Mod. foliated Crystal tuff 36.79-41.15m 5% 2-3mm white euhedral fp? Andesite tuff +/- crystal 41.15-46.44m	36.80m-35 37.85m-25 to 30 39.01m-45 44.20m-? 44.81m-10 46.14m-30 Qtz,<fol'n 36.85m-15 @ 0 36.85m-55 @ 45 38.55m-45 @ 0 39.10m-35 @ 10 39.10m-45 @ 0 43.80m-80 @ 0 44.25m-10 @ ? 45.30m-10 @ ? 46.12m-40 @ 0 46.12m-0 @ 20	Qtz veins +/- chl, avg. 3-4mm, range <1-20mm, 50% continuous also patchy TG qtz 36.79 - 38.29: Mod. qtz +/- chl 38.29 - 46.44: mod. to strong & strong qtz.	Py diss fg euhedral brassy yellow, locally 5% as patchy blebs 36.88-37.33: No visible sulphides 37.33-37.43: Tr py 37.43-38.44: no visible sulphides 38.44-41.35: tr py, tr cpy 41.35-41.75: 1-2% py 41.75-43.80: Tr py 43.80-44.20: 1-2% py 44.20-44.35: 5% py 44.35-44.81: 2% py 44.81-44.96: 3-5% 44.96-46.44: 1-2% py	No calcite veins or TG Note qtz veins white-lt. grey with white chalky crystal lining vein walls. Note diss hematite grains last 2m of section.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
46.44 to 53.41	ANDESITE TUFF +/- CRYSTAL LITHIC TUFF SAME AS ABOVE	Colour - med. to dark green with trace bands maroon (2%) Grain size - fine (tuff) med. (crystal). Crudely laminated-massive Extremely blocky throughout section. Mod. foliated.	46.50m-45 48.50m-? 50.00m-45 53.00m-?	Same as above 46.44 - 47.27: mod. qtz 47.27 - 48.46: strong qtz 48.46 - 53.41: Mod. to strong & strong qtz	Py diss and discont. stringers <1mm brassy yellow fg, euhedral 46.44-48.04: no visible sulphides to Tr 48.04-48.46: No visible sulphides - locally 2-3% 48.46-49.90: <1-2% py 49.90-51.51: No visible sulphides to Tr py 51.51-53.03: <1% py locally 2% 53.03-53.41: Tr-1% py	V. similar to above except the hematite content

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
53.41 to 59.24	ULTRAMAFIC DYKE? CATA-CLASTIC ZONE	Colour - white with a green hue also dark green bands Grain size - fine-med. +/- coarse frags Intensely sheared, good cataclastic features (milled, sheared) streaky pseudo-mylonite look (sharp upper contact) approx. 45 C.A. Locally note Qtz vein sheared out, leaving elongate lensoidal qtz. (Zone has remnant andesite bands) also Chl<1cm bands qtz as veins and frags mech. abraided and crystal tuff at 53.46-53.47m and 53.58-53.59m 55.07-55.37m welded tuff? with qtz eyes 52.91-54.04m @55.90-55.97 m	53.50m-45 54.90m-40 55.40m-50 56.75m-45 57.70m-0 to 20 59.05m-45 Qtz,<fol'n 53.85m-20 @ ? 56.44m-45 @ 0 56.80m-40 @ 0 58.25m-10 to 15@ 30 mainly parallel veins	No calcite Qtz+/talc+/-chl+/-ser veins + sheared veins mainly parallel to shear. Veins sheared to lenses and fragments. Range 1mm-15cm, avg 2-3mm. 53.41 - 56.00: intense qtz+/talc+/-chl (with ML cont. veins +/- sheared qtz) 56.00 - 59.24: intense & strong qtz+/talc+/-chl (with milled qtz etc.) (also has diss browny-red mineral >6 hard GN? in both sections).	No visible to local trace-1% py except for one andesitic band with 10-12% py, 1-2% cpy as patchy stringers, fg py. 53.81-53.91: <1% py 55.17-55.27: 10-12% py, 1-2% cpy 56.39-56.47: <1% py	Possible all cataclasite zones are blastomylonites with lesser qtz. Rock possible a felsic volcanic. In order to explain the volume of sericite in the interval. Qtz veins locally folded + contorted in shear. Mode: 40% qtz, 5% black chl diss <1 x 2mm plates 10% chl, 1% brown silicate unidentified 45% talc. * Litho & Thin Sections show an altered ultramafic.

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
59.24 to 70.09	ULTRAMFAIC DYKE? QTZ-TALC-CHL-HEM CATA-CLASITE ZONE	Colour - white with pervasive-banded purple & lt. green hues. Grain size - fine-med. +/- coarse-lapilli fragments. Intensely sheared, less cont. veins - cataclastic cottonball streaky look. Frag avg 2-3mm range <1mm-10mm. Upper contact C.A. sharp 70 66.00-69.00: extremely contorted, sheared, breccia (Similar to above though less qtz content (veins)) also this zone with dis hem. Andesite crystal tuff bands at 58.26-59.79m, 66.50-66.52m 69.33-69.38m.	59.90m-60 60.20m-70 62.40m-45 63.10m-45 to 50 64.40m-45 66.75m-45 68.38m-30 69.30m-40 to 45 70.00m- folded, contorted Qtz,<fol'n 60.00m-45 @ 0 60.00m-55 @ 20 61.50m-45 @ 0 64.00m-45 @ 0 65.50m-80 @ 0 68.75m-45 @ 0 69.45m-55 @ 0	No calcite. Mainly sheared-out qtz+/-chl+/-talc+/-hem? veins, few continuous qtz veins, mainly sheared out - mec. abraided - mainly parallel shear (qtz veins) no apparant post shear veins 59.26 - 59.79: mod. qtz+/-chl+/-talc 59.79 - 62.30: intense qtz +/-talc+/-chl+/-hem 62.30 - 63.00: Mod. qtz? with frags 63.00 - 68.28: Mod. to strong qtz? with frags 68.28 - 70.09: intense qtz+/-chl+/-talc+/-hem	No visible sulphide	Hematite is oxidized purple + specularite occurs as diss. grains sub-euhedral, also broken stringers -lenses 59.24-61.50m: 1-3% hem 61.50-64.00: 3% hem 64.00-70.09: 3-5% hem Mode: 4% hem, 15-20% chlorite, 25-20% qtz 50-60% talc

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
70.09 to 71.58	ANDESITE ASH TUFF +/- BRECCIA	Colour - camaf. green (breccia)@ white-lt. green (shear). Grain size - fine-med. with up to 10mm fragments. 1. Distinct breccia from 70.09-70.20m 15% frags, 70.84-71.58 30-40% frags Andesite tuff with qtz frags (i.e broken veins etc.) 2. Intense shear - qtz vein zone, sheared andesite tuff 70.20-70.84m Not as cataclastic looking as previous interval.	70.20m-70 to 80 70.75m-60 to 65 Qtz,<fol'n 70.30m-75 @ 0 70.30m-50 @ 20 70.75m-50 @ 0 70.75m-75 @ 0	No calcite. Local 70.20-70.84m intense qtz-qtz flood. Parallel shear parallel veins 2-3mm + frags.	Py mainly as fg diss blebs, also in fragments of breccia as lense stringers <1mm 70.09-70.59: 1-2% diss blebs py 70.59-70.84: 2-3% diss blebs py 70.84-71.04: Tr-1% diss blebs py 71.04-71.58: 3-8% frag stringer py (71.30-71.38m:5-8%)	Fragments in breccia up to 2-3cm, 2mm-30mm Note TG-perp. in some qtz veins. Possible chl-epidote imparts camaf. green colour.
71.50 to 73.39	ANDESITE DYKE OR ANDESITE TUFF +/- FINE CRYSTAL TUFF	Colour - med. to dark green Grain size - fine +/- med. Mod. foliated? weakly sheared. Start shear at 72.77m.	71.70m-60 72.33m-50 72.77m-45 to 40 Qtz,<fol'n 71.83m-60 @ 0? 72.60m-65 @ 0?	No calcite. Qtz+/-chl veins (strong) throughout avg. 1-2mm thick white-lt. grey 72.77-73.39m: strong to intense qtz	No visible sulphides except tr at 72.28m and 1-3% py diss blebs at 72.77-73.39m	Possible a dyke due to sharp lower contact with shear zone

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
73.39 to 81.67	ULTRAMAFIC DYKE? QTZ-TALC-CHL CATA-CLASITE? (POSSIBLY SHEARED DIORITE)	Colour - white & purple + green hues/bands Grain size - fine matrix coarse to 2 x 3cm Intensely sheared homogeneous looking Pseudo-segregated bands as discont. blastoporphyritic bands. Felsic and inter band chl-ser?-talc Note andesite dyke? at 78.76-78.94m	73.50m-60 74.20m-50 75.30m-75 77.80m-70 77.15m-55 80.00m-70 80.80m-65 to 70 81.45m-50 81.67m-55 to 60 Low ctc	No calcite. Difficult to tell, on qtz probably weak to med. throughout. Pervasive banded talc-chl- hem alteration. More chl-rich than previous shear zones All qtz veins parallel to shear.	No visible sulphides except 81.42-81.67m 2-5% diss + blebs fg euhedral py	(Possible sheared diorite?) blastomylonite Note: py occurs near shear-andesite contacts mode: 5-8% hem, 50-60% felsic bands?, 10-20% talc, 15-25% chl pinkish tints to felsic shear bands possible k-spar?

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
81.67 to 91.13	?ANDESITE TUFF? OR V.FGR DIORITE-ANDESITE DYKE	Colour - med. to dark green Grain size - fine to v.fine Massive, weakly foliated. Weakly sheared to 83.27m. Kink bands locally. Note 86.87-87.05m: qtz-talc-chl-hem intensely sheared, possible diorite (remnant).	82.40m-45 83.80m-25 85.50m-55 86.70m-45 87.80m-20 89.00m-0 to 25 90.50m-0 to 20 Qtz,fol'n 82.10m-45 @ 0 82.10m-35 @ 90 83.50m-30 @ 0 83.50m-80 @ ? Calc,fol'n 86.50m-60 @ 0 86.50m-45 @ 90 88.00m-25 @ 0 89.50m-35 @ 0 91.00m-45 @ 0? 91.00m-5 @ 40	Qtz+/-chl 2mm avg. to 81.67-83.12 Tr calcite, cal 1mm avg +/- chl 83.12-91.13m 81.67 - 82.47: Mod. qtz +/- chl. 82.47 - 83.12: weak to mod. qtz 83.12 - 84.52: weak to mod. cal+/-qtz patchy mod. to strong 84.52 - 86.41: mod. to strong calc +/- qtz 86.41 - 86.87: strong to mod. calc (1mm) 86.87 - 87.05: mod. qtz? (shear) 87.05 - 88.55: Weak calc 88.55 - 91.13: mod. to strong calc Mainly parallel to foliation	Diss euhedral brassy fine-coarse py locally 2-3% as stringers with qtz. 81.67-84.25: No visible sulphides-<1% py 84.25-85.50: 1% py 85.50-86.00: Tr-<1% py 86.00-86.62: Tr py 86.62-86.87: <1-1% py 86.87-87.05: Tr-<1% py 87.05-88.09: No visible sulphides - Tr py 88.09-88.54: <1-1% py 88.54-89.00: 2-3% diss + stringer py 89.00-91.13: no visible sulphides-Tr py	Andesite tuff of dyke?

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm T Ag	gm T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
5076	6.10	6.83			0.73	.018	.02		0.5											60			
5077	6.83	7.83			1.00	.020	.01		0.2											130			
5078	7.83	8.83			1.00	.003	.02		0.2											55			
5079	8.83	9.83			1.00	.020	.02		0.3											65			
5080	.83	10.38			0.55	.028	.03		0.2											20			
5081	10.38	11.15			0.77	.005	.02		0.4											10			
5082	11.15	12.15			1.00	.004	.01		0.2											10			
5083	12.15	13.51			1.36	.002	.02		0.4											5			
5084	13.51	14.51			1.00	.030	.03		0.5											5			
5085	14.51	15.77			1.26	.001	.02		0.3											5			
5086	15.77	16.90			1.13	.002	.02		0.3											5			
5087	16.90	17.90			1.00	.001	.01		0.2											5			
5088	17.90	18.90			1.00	.021	.02		0.2											3			
5089	18.90	19.90			1.00	.004	.02		0.3											10			
5090	19.90	20.58			0.68	.002	.02		0.6											10			
5091	20.58	21.58			1.00	.002	.01		1.0											5			
5092	21.58	22.60			1.02	.009	.02		0.6											5			
5093	22.60	23.90			1.30	.082	.01		0.5											10			
5094	23.90	24.90			1.00	.139	.01		2.2											30			
5095	24.90	26.40			1.50	.086	.01		0.5											10			

HOLE NO H-5

ZIPPY PRINT [illegible] RICHMOND

ASSAY SHEET

Sample Number	From (m)	To (m)	Estimate Cu	Estimate Zn	Length (m)	% Cu	% Zn	% Pb	gm T Ag	gm T Au	% SiO_2	% TiO_2	% Na_2O	% MgO	% Fe	PPM Cu	PPM Zn	PPM Pb	PPM Ag	PPB Au			
5096	26.40	27.40			1.00	.053	.01		0.6											15			
5097	27.40	28.40			1.00	.022	.02		0.2											5			
5098	28.40	29.40			1.00	.083	.02		0.3											5			
5099	29.40	30.31			0.91	.018	.01		0.2											10			
5100	30.31	31.81			1.50	.006	.01		0.2											5			
5101	43.60	44.96			1.36	.017	.01		0.1											5			
5102	44.96	46.44			1.48	.019	.01		0.4											5			
5103	48.04	49.90			1.86	.031	.02		0.2											10			
5104	53.41	55.07			1.66	.001	.01		0.2											5			
5105	55.07	55.37			0.30	.004	.03		0.2											5			
5106	60.00	62.00			2.00	.001	.01		0.1											10			
5107	67.00	69.00			2.00	.001	.02		0.1											5			
5108	70.09	70.84			0.75	.001	.01		0.1											10			
5109	70.84	71.58			0.74	.019	.03		0.1											10			
5110	71.58	72.39			0.81	.027	.02		0.2											5			
5111	72.39	73.39			1.00	.018	.01		0.1											5			
5112	73.39	75.39			2.00	.004	.01		0.1											5			
5113	81.17	81.67			0.50	.009	.02		0.2											5			
5114	88.00	89.00			1.00	.023	.01		0.1											10			

HOLE NO. H-5

LITHOGEOCHEMISTRY

SAMPLE NUMBER	FROM (m)	TO (m)	MAJOR OXIDES SiO_2	Al_2O_3	CaO	MgO	Na_2O	K_2O	FeO	MnO	TiO_2	Zr	TRACE ELEMENTS ppm Cu	ppm Zn	ppm Pb	ppm Ag	ppb Au	Rock Type	Alt	Min	Grid	
4621	6.10	9.10	59.21	14.72	5.34	5.17	1.16	2.13	9.04	0.18	0.93	.005	76	168		1.1	165					
And-dac tuff																						
4622	18.40	21.40	57.43	13.06	5.74	7.69	2.68	0.48	9.57	0.44	0.88	.005	98	138		1.1	10					
Dac-and																						
4623	36.88	39.88	48.11	18.11	3.94	12.16	2.03	1.28	10.57	0.10	1.08	.005	75	76		1.5	10					
And. tuff																						
4624	56.00	59.00	46.17	2.42	5.65	31.79	0.01	0.01	7.88	0.19	0.07	.005	14	13		0.6	10					
Talc-Magnesite																						
4625	63.00	66.00	44.76	1.46	4.10	34.90	0.06	0.01	8.07	0.21	0.03	.005	6	5		0.5	20					
Talc-Magnesite																						
4626	77.00	80.00	44.24	3.32	1.54	35.66	0.01	0.01	8.89	0.19	0.09	.005	34	11		0.6	25					
Talc-Magnesite																						
4627	88.00	91.00	53.35	17.24	5.25	4.52	5.81	0.37	10.04	0.24	0.84	.005	98	72		1.2	10					
And. dyke?																						

Hole No. H-5 Entered by _____ Logged by M. J. Gray Page No. 15

H-5 SUMMARY LOG

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
0 to 6.10	CASING					
6.10 to 9.83	ANDESITE TUFF +/- DACITE +/- CRYSTAL TUFF	Colour - med. green + green-grey Grain size - fine to med. Massive poorly laminated Weakly foliated	50 - 70	Qtz+/-ser+/-chl+/-py mod. to strong vein 45 - 70	1-5% py	(10.03-13.2m) Andesite-Dacite Tuff
14.83 to 22.60	DACITE/ ANDESITE TUFF & CRYSTAL TUFF (SOME INTER-LAMINATED ANDESITE)	Colour - med. grey +/- med. green Grain size - fine to med. +/- coarse Massive-crudely laminated Weakly foliated	35	Mod. to strong qtz+/-ser+/-chl+/-py vein with py 0 - 20; less py 35 - 45	3-8% py (avg 5%)	Note blood-red hematite ? blotches in qtz veins, possible jasper
22.60 to 29.40	ANDESITE TUFF	Colour - med. green Grain size - fine Massive, weakly foliated (badly broken-up)		Mod.-strong qtz, weak to v.weak calcite	1-5% py, avg. 2%	
29.40 to 36.79	ANDESITE PHYLLITIC TUFF TO FINE CRYSTAL TUFF	Colour - green + maroon Grain size - fine Crude-poorly laminated Mod. foliated		Strong qtz+/-calc veins + hematization	Tr py	
36.79 to 46.44	ANDESITE CRYSTAL TUFF - TUFF	Colour - med. green Grain size - fine to coarse Crudely laminated-massive, weakly foliated (badly broken-up)		Strong qtz	Tr py	

H-5 SUMMARY LOG

From To	Rock Type	Texture and Structure	Angle to Core Axis	Alteration	Sulphides	Remarks
46.44 to 53.41	ANDESITE TUFF +/- CRYSTAL TUFF	Colour - med. green +/- tr. maroon Grain size - fine to med Badly broken-up (blocky) crudely laminated, weak to mod. foliation		Strong qtz, weak calc, tr hematite	Tr py	
53.41 to 59.24	ULTRAMAFIC DYKE	Colour - white to lt. green Grain size - fine to coarse Intensely sheared, good fabric developed	20 - 40	Pervasive ser/chl + strong to intense qtz; also 1-2% diss hematite grains	no visible sulphides to tr py	Possibly some talc in shear
59.24 to 70.09	ULTRAMAFIC DYKE (CATA-CLASTIC?)	Colour - white, green, purple Grain size - fine to coarse Slightly less intensely sheared than above, cataclastic textures	50 - 20	Same as above	Tr py	
70.09 to 71.58	SHEARED/ BRECCIA ANDESITE PATCHY LOOK	Colour - dull med. green, white, purple Grain size - fine to coarse Patchy well sheared, and brecciated	60 - 45	Strong qtz, patchy pervasive chl/ser	5-10% assoc. with breccia tr-1% in shear	
71.58 to 72.77	ANDESITE TUFF	Colour - med. dull green Grain size - fine +/- coarse Somewhat sheared	60	Mod.-strong qtz	Tr py?	
72.77 to 81.67	ULTRAMAFIC DYKE	Colour - white-green-purple Grain size - fine to coarse Intensely sheared, good cataclastic textures	45 - 60	Pervasive chl/ser, strong to intense qtz	No visible sulphides	1-2% diss hematite
81.67 to 91.13	ANDESITE TUFF OR DYKE	Colour - med. to dark green Grain size - fine Locally sheared (near contact) otherwise massive-crudely laminated		weak to mod. calcite, v. weak qtz	Tr py	

TANIA-S3
TANIA-S CAROL-S

QUARTZ PYRITE ZONE

QUARTZ PYRITE ZONE

QUARTZ CARB ZONE

← IP-chargeability

See Detail MAIN SHOWING

Creek

Gather

M TYPE FOLDS

H-1 H-2 H-3 H-4 H-5

BASELINE 0-00

6+00 N
5+00 N
4+00 N
3+00 N
2+00 N
1+00 N
1+00 S
2+00 S

L 19+00 W L 18+00 W L 17+00 W L 16+00 W L 15+00 W L 14+00 W L 13+00 W L 12+00 W L 11+00 W L 10+00 W L 9+00 W L 6+00 W L 5+00 W L 4+00 W L 3+00 W L 2+00 W

LEGEND

LITHOLOGY

JURASSIC INTRUSIONS

3 Diorite

VOLCANIC FORMATIONS: SILURIAN-DEVONIAN

MYRA FORMATION

2c Andesitic tuffs (green and maroon phyllites)
2b Bedded ashes and cherts
2a Felsic lapilli tuff-ash flows

NITINAT FORMATION

1 Basaltic agglomerate with minor tuffs

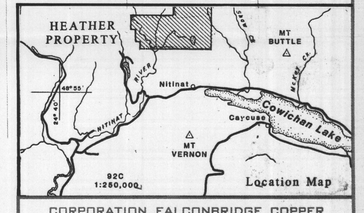
SYMBOLS

fracture
bedding
foliation
fold
fault
intrusive contact
lithologic contact
H-5 drill hole location

Quartz veins with pyrite alteration
Quartz veins with carbonate alteration
Carbonate ± fuchsite

NOTE: CLAIM BOUNDARIES ARE APPROXIMATE (FROM 1:50,000 GOVERNMENT CLAIM MAPS)

NOTE: CLAIM BOUNDARIES ARE APPROXIMATE (FROM 1:50,000 GOVERNMENT CLAIM MAPS)



CORPORATION FALCONBRIDGE COPPER

HEATHER PROJECT

1986

- GEOLOGY -

0 100 200m

SCALE: 1:2000

AUG. 1987 SL/dm		FIG. NO.: 3
DRAWN BY: /dm		
DATE: AUG. 1986	N.T.S. 92F/2,92C/18	