

# 6177

CANADIAN SUPERIOR EXPLORATION LIMITED

NORTH BARRIERE LAKE - DC GROUP PROJECT

REPORT ON GEOLOGICAL MAPPING, LOGGING OF  
PREVIOUS CORE, GEOPHYSICS AND DIAMOND DRILLING

LOCATION: On the NW shore of North Barriere Lake  
20 miles via logging road NE of  
Barriere, British Columbia.

Lat. 51°20'N; Long. 119°52'W

## 82M/5W

WORK PERIODS: July 22 - August 16, 1976

September 9 - September 24, 1976

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
No. <u>6177</u>

Donald R. Rae  
January 15, 1977

# C O N T E N T S

	<u>Page</u>
I INTRODUCTION	1
II SUMMARY	1
III CONCLUSIONS AND RECOMMENDATIONS	3
IV PHYSIOGRAPHY AND ACCESS	4
V PREVIOUS HISTORY	5
VI CLAIM STATUS	6
VII REGIONAL GEOLOGY	6
VIII GEOCHEMICAL PROFILES	7
IX PROPERTY GEOLOGY	7
X ECONOMIC GEOLOGY	9
XI GEOPHYSICS	12
A. Magnetics	12
B. Crone CEM	13
XII DIAMOND DRILLING	14

## APPENDICES

- APPENDIX I - Geochemical Profile Results
- APPENDIX II - Drill Logs for Scurry Rainbow (1966) Core
- APPENDIX III - Drill Logs and Cu-Zn Assays for Canadian Superior (1976) Core
- APPENDIX IV - Cu, Zn, Pb, Ag, Au Assays for Selected Intervals of D.D.H. 149-76-1
- APPENDIX V - Certificate
- APPENDIX VI - Cost Statement

## ILLUSTRATIONS

- Maps
- # 1 -FIGURE 1 - Claim Location Map
- # 1 -FIGURE 2 - Property Location Map for Roads, Trenches, Elevation Contours & Diamond Drill Holes
- # 2 -FIGURE 3 - Geology Map
- # 3 -FIGURE 4 - Stratigraphic Section
- #4 to #7 -FIGURES 5(a)-(d) - Drill Sections
- #8 -FIGURE 6 - Magnetometer Survey Map
- #9 to -FIGURES 7(a)-(g) - Crone CEM Profiles

I INTRODUCTION

The North Barriere Lake (DC Group) property is a massive sulphide prospect optioned to Canadian Superior Exploration by D. Cavanaugh on July 19, 1976. During 1976 Canadian Superior staked additional claims surrounding the original optioned group, logged the available core, re-established part of the old grid system, geologically mapped the area of interest, ran magnetometer, EM16 and Crone CEM surveys and diamond drilled three holes totalling 1,055 of Bx size core.

II SUMMARY

The DC Group is underlain by metasedimentary and metavolcanic rocks of the Permian Cache Creek Group and in part at its northeastern end by a Cretaceous intrusive of granodiorite composition.

Within the claim group two basic stratigraphic divisions are defined:

(i) an upper Mafic Series; and (ii) a lower Felsic Series.

Metamorphism masks the origin of many of the units but undoubted rhyolite and andesite flows form essential components of an otherwise metasedimentary sequence.

Mineralization occurs as stratabound lenses of massive pyrrhotite (pyrite) up to 20 feet in thickness containing sub-economic amounts

of Cu, Zn and Pb. Two important sulphide horizons are apparent--one in each of the stratigraphic divisions.

Within the lower horizon an impressive 5 foot wide surface showing, grades an estimated 5-6% Cu in massive sulphides and was an important factor in Canadian Superior's decision to option the property.

An area of mineralized float was located in which one boulder of bedded pyrite-sphalerite mineralization in argillite graded 3.48% Zn, 0.255% Cu and 0.16 oz. Ag.

A strong CEM conductor was defined 400 feet northeast of this mineralized float zone and was tested by means of 1,055 feet in 3 holes. The conductor is explained as a zone of narrowly bedded uneconomic pyrrhotite (pyrite) lenses which by current induction together are capable of producing the pronounced EM signatures obtained.

One foot of zinc mineralization similar in grade to that discovered in float was intersected in this year's program at the top of D.D.H. 149-76-1.

In view of the restricted area surveyed, extended geophysical coverage is recommended. The following two drill targets are also recommended:

- (1) one and possibly two or more pyrite-zinc horizons immediately southwest of the drilling to date are virtually untested.
- (ii) the massive sulphides encountered in previous drilling on lines 18N and 20N which are open at depth and along strike may prove marginal to economic concentrations.

### III CONCLUSIONS AND RECOMMENDATIONS

Restricted concentrations of copper and zinc-bearing sulphides in as yet uneconomic quantities are present in a geological setting favorable for the development of a massive sulphide deposit.

There is a tendency toward increasing zinc higher in the stratigraphic section. One or more beds of pyrite-sphalerite mineralization of at least one foot thickness appear in this vicinity on line 30N. A zinc geochemistry anomaly to the south enhances the possibility of this zone.

Pyrite appears to follow this tendency for increased abundance higher in the section. It and not pyrrhotite is attendant to zinc mineralization discovered to date. Inasmuch as pyrrhotite is a preferred conductive medium to pyrite, the prospects of finding mineralization of the pyrite-sphalerite variety using CEM techniques are poor, particularly in an area of pyrrhotite conductor interference.

The massive pyrrhotite sulphides are not barren or consistently poor in tenor but can vary in grade as demonstrated by the showing at 24N 20+50E. Pyrrhotite lenses can be located using closely spaced magnetics inasmuch as distinctive magnetic lows are characteristic.

A CEM profile of a near surface massive pyrrhotite body is unique and distinguishable from that of the conductor type drilled this past season.

It is recommended that magnetometer and CEM coverage be extended assigning first priority to near surface massive sulphide responses. CEM signatures of the type located this past season should be given lower priority but discriminated using other techniques, such as gravity.

A massive sulphide lens approximately 300 feet long and up to 20 feet wide should be tested further to determine if a zoning to economic grades is present.

Zinc mineralization at the top of the drilled stratigraphic section is presented as a drill target.

#### IV PHYSIOGRAPHY AND ACCESS

The DC Group adjoins North Barriere Lake at its northern shoreline at an elevation of 2100 feet. Elevations increase northward to 3200 feet at the center of the DC 1 claim where the crest of a hill forms the highest point on the claim group.

Overburden averages 20 - 30 feet thick. Rock exposure is poor and prevalent only in some of the larger trenches. Natural outcrop is present solely in the vicinity of the main sulphide lens and undoubtedly accounts for the concentration of past exploration efforts in this area.

Access is via 20 miles of well used logging road northwest of Barriere, B.C. A network of privately constructed 4-wheel drive spurs lead from this logging road directly to the center of interest.

V PREVIOUS HISTORY

In the early 1900's a local prospector is credited with drifting three adits a total of approximately 300 lineal feet. The upper two adits served to test the main sulphide lens between lines 16N and 20N. Of these the 206 feet main adit is in excellent condition, whereas an adjacent adit 50 feet to the west is presently inaccessible. The third portal, 500 feet south of the main adit, is 30 feet long and driven entirely in consolidated boulder till in apparent pursual of malachite stain noted at the entrance.

At least three companies have reported work on the property since 1963. Roads, trenches, elevation contours and diamond drill holes resulting from this work are presented in figure 2.

In the 1963-64 field seasons Barriere Lake Mines did a small amount of stripping and diamond drilled 14 holes. Assay results were low.

In 1966 Scurry Rainbow established a grid, carried out trenching and stripping, ran magnetometer and JEM electromagnetic surveys and reported diamond drilling 3,280 feet in 12 AQ holes.

Barriere Lake Minerals drilled 5 holes totalling 648 feet in 1969.

In 1971, Craigmont Mines ran 8.33 line miles of IP and collected 450 soil geochemistry samples analysing these for Cu and Zn.

Don Cavanaugh staked the DC 1 claim of 9 units in March of 1976. An option agreement between Canadian Superior Exploration and Mr. Cavanaugh was signed on July 19 of this year.

#### VI CLAIM STATUS

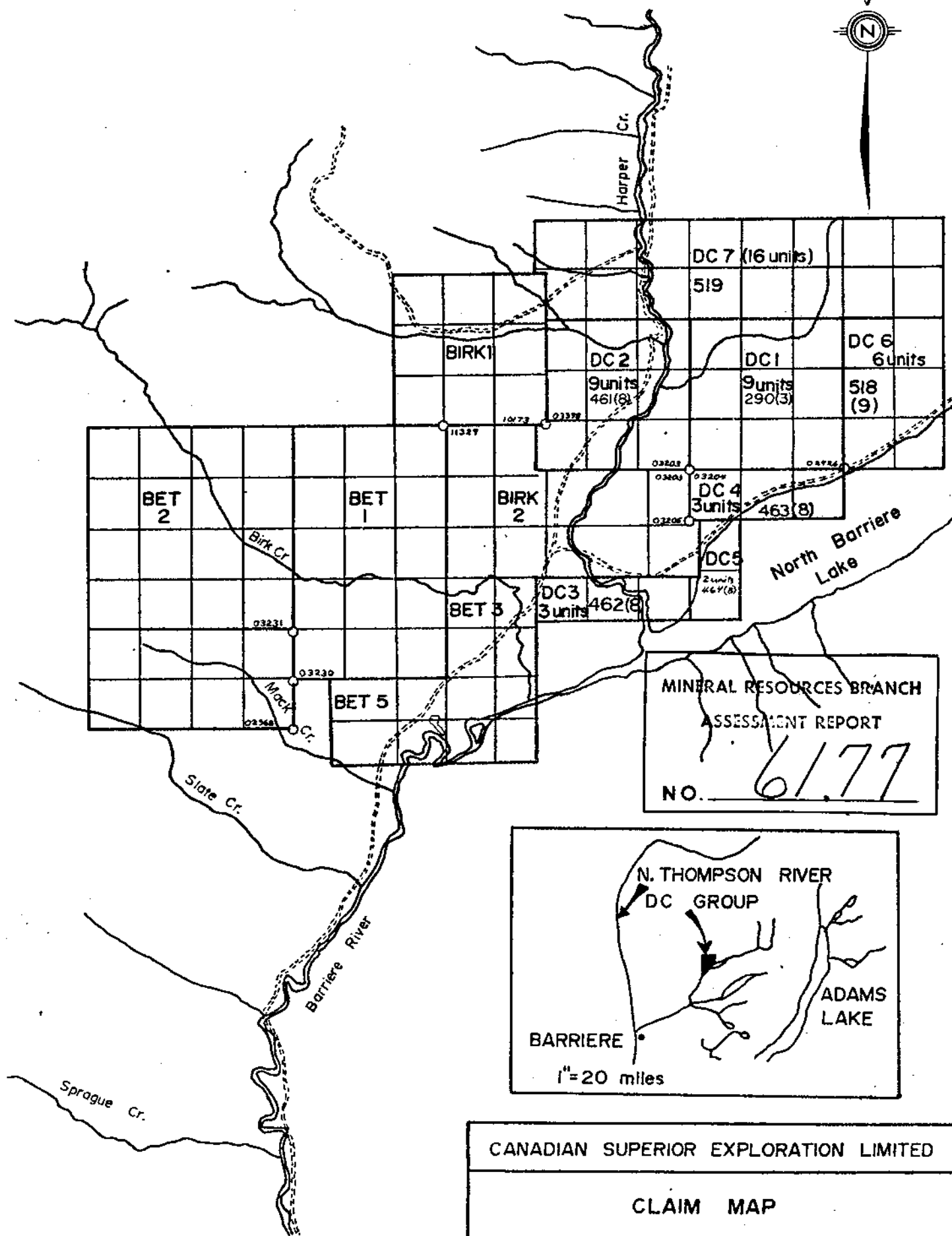
Adjoining Cavanaugh's DC 1 claim, Canadian Superior staked the DC 2 - 7 claims to bring the claim group to a total of 48 claim units. Due dates, tag numbers and the number of units per claim are listed below and plotted on the location maps in figures 1 and 2.

<u>CLAIM NAME</u>	<u>NO. OF UNITS</u>	<u>TAG NO.</u>	<u>DUE DATE</u>
DC 1	9	02926	March 11, 1977
DC 2	9	03202	August 4, 1977
DC 3	3	03203	August 4, 1977
DC 4	3	03204	August 4, 1977
DC 5	2	03205	August 4, 1977
DC 6	6	03206	September 23, 1977
DC 7	<u>16</u>	03207	September 23, 1977
TOTAL UNITS	48		

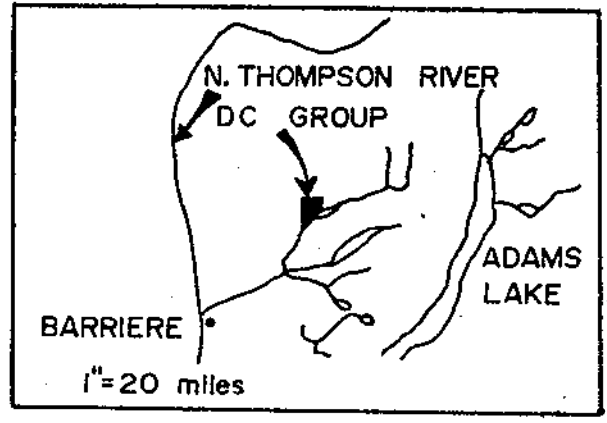
#### VII REGIONAL GEOLOGY

Regionally the claims are located within a southeasterly trending belt of metavolcanics and metasediments of the Permian Cache Creek group. Dips are 25 - 45 degrees to the southwest.





MINERAL RESOURCES BRANCH  
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SCALE 1cm = 500 metres

CANADIAN SUPERIOR EXPLORATION LIMITED

CLAIM MAP  
NORTH BARRIERE

UPDATED NOV. 1976

FIG 1

At its northern end the belt abuts against a biotite granodiorite intrusive of Cretaceous age.

The group is offset by major northeasterly trending faults running along Harper Creek and through North Barriere Lake.

#### VIII GEOCHEMICAL PROFILES

Nine soil profiles were sampled in an attempt to test the reliability of a previous soil survey undertaken by Craigmont.

Analyses for Cu, Pb and Zn confirm the reliability of the previous survey and are presented in Appendix I.

#### IX PROPERTY GEOLOGY

A simplified geological map showing diamond drill hole locations is presented in figure 3. The geology stems from the following:

- (i) re-logging and projecting to surface Scurry Rainbow's 12 AQ holes;
- (ii) mapping all available outcrops, trenches and adits; and
- (iii) logging and projecting Canadian Superior's 3 BQ drill holes.

Core resulting from previous exploration efforts was either unavailable or identification markers had deteriorated to such an extent that logging could not be attempted.

As shown in figure 3, two basic stratigraphic subdivisions are present: (i) the Mafic Series and (ii) the Felsic Series.

Within the Mafic Series a sulphide lens up to 20 feet thick and 300 feet in length is overlain by a pebble-bearing argillaceous siltstone. Quartzites, local quartz-eye rhyolites and a few quartz-plagioclase porphyries are intercalated with an argillaceous siltstone-dominant section for several hundred feet stratigraphically below this sulphide horizon.

In the Felsic Series a zone of one to four near massive sulphide beds, 2 - 8 feet in thickness, appear over a stratigraphic interval of approximately 40 - 50 feet within or near the top of a graphitic unit of uncertain origin. This graphitic unit most likely is representative of a tidal flat environment but certain slump features has led to its alternate designation as a slump breccia. This series is dominated by quartzites, cherts, quartz-eye rhyolite flows and breccias, siliceous hornfels and lesser amounts of intercalated argillaceous siltstones and andesite flows. Narrow quartz plagioclase porphyritic granodiorites in this sequence display textural and contact features that preclude their classification as acid flows or sills.

A stratigraphic column of the drilled section, presented in figure 4, further subdivides the two main series discussed above. This column is formulated from a sequence of members which portray elements common to many of the diamond drill holes. However, in view of the presence of complicating factors such as facies changes and slump features, formal members are not defined here.

In fact a cautionary note is issued regarding correlation in that to a large extent it is based on the assumption that the distinctive graphitic tidal flat 'member' represents a non-recurring event in the stratigraphic sequence.

Drill logs of Scurry's 12 diamond drill holes appear in Appendix I and are plotted in stratigraphic column form on a field copy on file in the Vancouver office. Sections are presented in figures 5 (a) - (d).

Structurally, the area of interest is believed cut by two steeply-dipping east-northeasterly trending faults shown in figure 3. The southern fault has been interpreted from fault breccia in D.D.H. 2 and extended using magnetometer and EM displacements. Orientation of this fault as shown in figure 3 is not without question. As positioned it appears to have offset the sequence in left-lateral sense by approximately 300 feet. The northern fault coincides with pronounced EM, magnetometer and IP breaks between lines 36N and 38N.

#### X ECONOMIC GEOLOGY

As mentioned earlier, two massive sulphide zones are conspicuous features of the stratigraphy. Within these sulphide-rich sections argillite fragments and quartz shards are prominent (to 40%) and ubiquitous. Bedding is pronounced and slumping is common.

On average, grades are poor as shown by assays of the upper sulphide lens listed below:\*

<u>HOLE NO.</u>	<u>INTERVAL</u>	<u>LENGTH</u>	<u>GRADE % CU</u>
D.D.H. 3	78 - 104	26'	0.15
D.D.H. 4	42½ - 62½	20'	0.30
D.D.H. 5	43 - 59	16'	0.84
D.D.H. 6	127½ - 147½	20'	0.14

The lower sulphide zone, by visual estimate, contains similarly low grades. One notable exception to these low grades appears in samples taken from a trench at 24N 20 + 50E where certain hand specimens graded an estimated 5-6% Cu. This showing, limited to about 40 feet in stratigraphic length, is thought correlative with the lower sulphide zone as encountered in D.D.H.'s 9, 10 and 11. Limited down-dip testing of the 24N 20+50E showing, by D.D.H.'s 1 and 7, indicates that it pinches out at shallow depth.

If correlations are correct D.D.H. 5 appears to have been stopped 20 to 40 feet short of intersecting this lower sulphide zone. It is possible that this horizon becomes economic at depth but judging by thicknesses and estimated grades encountered in D.D.H. 9, immediately above, this target is not given top priority. (Should this eventually prove a drill target D.D.H. 5 can be re-entered. It is cased, making water and requires AQ rods.)

\* Assays were obtained from Sandy Dean of Scurry Rainbow

As detailed in the logs, sphalerite and to a lesser extent galena, appear intermittently throughout the section and in minor amounts in the two main sulphide zones. However, there is a tendency for more abundant zinc higher in the stratigraphic section. The zoning with respect to zinc is supported by a zinc geochemistry anomaly (located by Craigmont) south and southwest of the area drilled to date. This increased abundance pattern is suspected of pyrite as well. The idea is enhanced by the absence of a pyrrhotite magnetic response (discussed in the section on geophysics) in the presence of a moderate to strong IP response. A number of boulders of bedded pyrite-sphalerite mineralization were discovered 400 feet southwest of the area drilled this year. One sample of this mineralization ran 3.48% Zn, 0.255% Cu and 0.16 oz./ton Ag. There is a possibility that this float originated several hundred feet to the northeast where a one foot thick bed of pyrite-sphalerite mineralization was encountered near the top of D.D.H. 149-76-1 but equally the possibility exists that two or more separate zinc-rich horizons are present.

Narrow (1"-3") concentrations of pyrrhotite and pyrite carrying minor values of copper, zinc and lead are distributed throughout the stratigraphic section. These concentrations, however, are particularly more abundant within thin siliceous and/or calcareous lenses within argillaceous siltstones where the sulphides account for 3-5% of the rock. These argillaceous sediments are known to

give way to limestone horizons higher in the section some 3000 feet to the southwest. This situation bears economic significance in its striking similarity in setting to Noranda's Goldstream deposit.

## XI GEOPHYSICS

A Scintrex Model MF-1 fluxgate magnetometer and a Crone CEM electromagnetic unit were employed to survey 5 lineal miles of the property. A Geotronics EM 16 instrument was tested but proven inferior to the CEM because of topographic relief, poor station response and high sulphide background interference.

### A. Magnetics

Magnetic readings were taken at intervals varying from 25 to 100 feet along lines spaced 200 feet apart and compared to base station readings taken at 27+00N; 20+00E. Results are presented and contoured in figure 6. Areas of known pyrrhotite mineralization in general are characterized by mag lows located immediately over the pyrrhotite mass but frequently flanked by mag highs. This response to pyrrhotite, in conjunction with its sporadic abundance in the section, accounts for the erratic nature of the contours in figure 6. Only in the southwestern quadrant of the surveyed area do magnetics conform to a regular contourable pattern presumably reflecting a decrease in pyrrhotite content.

A fault and/or dike between lines 36N and 38N is reflected in the magnetics and confirmed by the truncated nature of CEM and IP anomalies (the latter run by Craigmont). Magnetics also facilitated in establishing a trend to the fault running through D.D.H. 2 in figure 3.

B. Crone CEM

The CEM instrument is a useful tool in a massive sulphide environment. It is able to predict the following conductor parameters: the width, from the magnitude of the resultant angle; the dip, from the symmetry of the response; and the depth of burial, from the central shape of the profile. However, a zone containing narrow, aligned sulphide lenses can respond as a single high intensity conductor. The CEM instrument is more accurate in predicting true conductor widths when this conductor appears at surface.

The survey was run using a horizontal shootback configuration, medium frequency (1830 Hz) and a coil separation of 200 feet. Readings for resultant angle and field strength were taken every 100 feet. All CEM profiles are plotted in figures 7(a) - (g)

CEM profiles for orientation surveys carried out over the two known sulphide horizons on lines 18N and 20N are plotted in figure 7(a). The upper sulphide horizon produced an



excellent response predicting the exact location, width dip and near surface position of the sulphide lens using model curves. An important feature of the profiles in figure 7(a) is the pronounced positive resultant angles, characteristic of near surface conductors. The lower sulphide zone was not detected in this orientation survey.

Conductors were detected every 200 feet on all lines between 24N and 36N as shown in figures 7(b) - (g). A particularly strong northwesterly trending conductor, 1,100 feet in length, was noted between 29N and 37N. From model curve comparisons it was predicted to be 50 to 120 feet in thickness, to have a steep northeasterly dip and to be more deeply buried than the sulphide lens used in orientation. Further this conductor had proven to lay coincident with the lower mineralized horizon when projected and situated in an area where mineralized float in excess of 3% zinc had been discovered.

Conductors located on lines to the south were more diffuse, somewhat weaker in strength and considered an extension of the upper sulphide horizon.

## XII DIAMOND DRILLING

A drill program was undertaken to test this strong conductor using three -45<sup>0</sup> BQ holes.

Results were depressing. Only in D.D.H. 149-76-1 were massive sulphides encountered in any significant thickness ( $2\frac{1}{2}$ -3' in two lenses) and both these proved to be of uneconomic tenor. The graphitic horizon was encountered as expected but the conductive response was thought more to reflect a myriad of thin sulphide lenses immediately overlying this unit. According to John Boniwell (Geophysical Consultant) these thin parallel sulphide lenses by the process of self-induction can produce a response similar to that of a large single conductor.

However, zinc mineralization intersected at the top of 149-76-1 may be significant. The first 4 feet of bedrock (36-40') assayed 0.93% Zn and 0.188% Cu. Most of this grade can be accounted for by the 38-39' interval where bedded pyrite-sphalerite mineralization was encountered. This intersection is identical to the float mineralization discovered at surface 400 feet to the west.

All cores from this years drilling were split and assayed for Cu and Zn by Min-en Labs of Vancouver. These assays appear adjacent to the appropriate intervals in the logs in Appendix III. Six intervals in 149-76-1 were also assayed for Pb, Ag and Au. Minor or trace amounts of these elements were returned and are listed in Appendix IV.



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Donald R. Rae  
January 15, 1977

APPENDIX I

SOIL PROFILE SAMPLES

<u>SAMPLE NO.</u>	<u>GRID LOCATION</u>	<u>SAMPLE DEPTH</u>	<u>DESCRIPTION</u>	<u>PPM Cu</u>	<u>PPM Pb</u>	<u>PPM Zn</u>
27001	L32N 12E	4"	Tan brown (poor B) - C	32	23	320
27002	L32N 12E	12"	Tan brown (poor B) - C	55	17	245
27003	L32N 12+50E	6"	Red brown (good B)	17	16	225
27004	L32N 12+50E	2'	Tan (C)	53	9	118
27005	L32N 12+50E	3'	Tan (C)	100	12	146
27006	L32N 13E	12"-14"	Red brown (good B)	93	11	270
27007	L32N 13E	2'2"	Tan brown to tan (C)	62	7	40
27008	L32N 13+50E	4"- 9"	Red brown (good B)	37	12	280
27009	L32N 13+50E	2'	Tan brown (C)	82	20	102
27010	L32N 15E	8"-10"	Light red brown (poor B)	65	13	160
27011	L32N 11E	4"- 6"	Red brown (B)	37	25	370
27012	L32N 11E	14"-16"	Light red brown mixture of B & C	145	36	270
27013	L34N 11E	4"- 6"	Red brown (B)	132	34	305
27014	L34N 10+40E	8"	Red brown (B)	30	21	320
27015	L34N 10+40E	20"	Pale red brown (B, C)	52	26	410
27016	L34N 9E	8"-12"	Red brown-dark red brown (B)	10	19	168
27017	L34N 9E	18"-22"	Tan-good C	25	16	80

APPENDIX II

DRILL LOGS FOR SCURRY RAINBOW (1966) CORE

PROJECT - 149 HOLE NO. DDH-1 COORDINATES 23+90N BEARING 58°E DIP-45°NE  
 20+60E  
 AX CORE DRILLING BY: Scurry Rainbow - 1966 LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
0 - 2	Boulders? - Qtz-plag. porphyry, cream white, vfg matrix, 5% qtz, 3% plag phenocrysts; impregnated by limonite stgrs sub paralleling schistosity (bedding?); laminated to lenticular planes; 2% Py as dissem and hairline fracture coatings.
2 - 7	Sand Seam
7 - 11	Biotite spotted siliceous hornfels-brownish black to dark grey; schistosity sub perpendicular to core axis 1-5% Pyrr-Py: tr Cp.
11 - 12'6"	Massive (80%) sulfides - 95% Pyrr, Cp in assoc. with qtz veins; argillite and rusty qtz eye frag's in sulfide matrix; few argillite lenses; 5% qtz veining.
12'6"- 14	Quartzite + sulfides (15%), rusty greenish white, vfg, Pyrr lenses sub paralleling bedding; wavy irreg. ¼" beds sub perpendicular to core axis
14 - 21	Spotted siliceous hornfels - variable amounts of chlorite, sericite, biotite; chlorite-rich lenses 1/16" defines schistosity sub perpendicular to core axis; 1/8"-long hairline x-cutting Py veinlets.
21 - 21'6"	Sand Seam
21'6"- 44'3"	Biotite spotted siliceous hornfels - grey-white with dark spots; f-mg; ghost qtz eyes very indistinct; wispy sericite define bedding; local bull qtz veins and patches 5%; variable (5-20%) distribution of 1/8" biot spots.
44'3"- 47'6"	Lenticular bedded sericitic quartzite-tan grey-white, mg, 1/8" lenticular qtz beds defined by 5% sericite ¼" qtz vein along core axis.
47'6"- 48'6"	as 21'6"-44'3"
48'6"- 65	as 44'3"-47'6" - bottom 6" shows distinct banding by sericite at 65-70° from core axis.

PROJECT - 149

HOLE NO. DDH-1

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
65 -113	Andesite (poss meta arg. siltstone)-dark green; f-cg; (cg 105-111) may be flow center as few 1/16"-1/8"-long plag laths; few magnetitic chips; 2-3% Py (pyrr) dissem. and stgrs; qtz-carb-5% Py vein 5% of split interval 78-96.
113 -113'6"	Plagioclase porphyry granodiorite - tan with 1/8" phenos of plag; m-cg, granitic texture 1% dissem Py; sharp contact at 80° (i.e. sill-like); 25% plag phenos; 15% biot clots 60% fg matrix.
113'6"-115	Andesite - as 65-113
115 -116'6"	as 113-113'6"
116'6"-121	Arg. siltstone (poss andesite)-grey-green; f-mg; pronounced foliation of mafic spots at 12° 1-2% dissem Py; 25% mafics.
121 -132'6"	Sericitic quartzite - tan white with pale green wisps; vfg; upper ct gradational lower ct at 20° 10-15% chlorite-biot.
132'6"-138	Qtz-eye rhyolite-translucent grey green, vfg-fg massive; faint white pheno-crysts; 5% mafics impart a vague wavy foliation; <1% Py
138 -147	Arg. siltstone - dark green, f-cg; chloritic 5% Py in upper 5', also 3" at 141-20% sulfides 3 Py; 2 Pyrr; tr. Cp; 6" bull qtz at 139
147 -158'6"	Banded and massive quartzite - tan; fg; local mafic clots; 1% Py; massive 147-157, 151'6"-155; banded 151-151'6", 155-158'6"
158'6"-165	Arg. siltstone-dark green, fg; 60% mafics
165 -168	Arg. siltstone-grey green, cg at top; m-fg at base 25% mafics
168 -168'9"	Quartzite, grey, fg; <5% biot spots

PROJECT - 149

HOLE NO. DDH-1

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
168'9"-171'6"	Arg. siltstone-green, fg; 20-25% mafics spotted
171'6"-172'6"	Quartzite, grey-white, fg, massive; qtz vein present
171'6"-180	Spotted siliceous hornfels-grey with 1/8" biot spots 20-25%
180 -182	as 171'6"-172'6"
182 -183'6"	as 172'6"-180
183'6"-186	as 171'6"-172'6"
186 -196	as 172'6"-180
196 -197'6"	3" 50% sulfides in argillite - upper 3" contains 50% Pyrr (py) minor Cp, arg. frag's in sulfides
197'6"-202	Quartzite - grey green; vfg; massive to wavy foliation 5% Py 199'6"-201
202 -202½	Spotted siliceous hornfels - as 172'6"-180
202½	END OF HOLE

PROJECT - 149

HOLE NO. DDH-2

COORDINATES 28+30N  
13+55E

BEARING N58°E DIP-45°NE

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
0 - 16	Overburden
16 - 26'6"	Arg. siltstone-green-dark green; vfg-fg; core very badly broken (1"-2" pieces) 35% chlorite; 10% qtz veinlets; 1% Py-Po 1 piece qtz-plag granodiorite porphyry.
26'6"- 53	Lenticular bedded quartzite-grey-grey translucent green; oily biotite spots 5%; bedding 15°; lenticular schistosity defined by 5-10% tan sericite; 1% Py except 15% Py 28'6"-29'.
53 - 67'6"	Arg. siltstone-green, fg; 30% chlorite locally more siliceous; 5% Py, 1% Po minor Cp, sphal; 57-58 deep red brown sphalerite 2%; 53-93 split by Scurry.
67'6"- 71	Arg. siltstone-sandstone-grey green, f-mg; 10%-15% chlorite.
71 - 86	as 26'6"-53-sulfides as follows: 71-74 arg. 20% sulfides 50% at top decreasing to 5% at base; 84'6"-85-40% sulfides-5 Po: 1 Py; tr. Cp.
86 - 102'6"	Arg. siltstone-green-dark green; vfg; 40% chlorite; numerous 1/8" siliceous-carb (exhalative) lenses, 5-10% of interval; small scale X-bedding; bedding arg. 10-15°; 86-92 3% sulfides 4Po; 1 Py ~ .2% Cu; 92-102'6" - 1-2% sulfides
102'6"-111	as 26½-53 - 1-2% Po (4) Py (1) with traces of Cp, sphal and galena along bedding - eg. 109 1/32"; 110-111 10% Py, 1% sphal, tr. galena; 1/32" thin chloritic siltstone intercalations.
111 - 113	Similar to above (102'6"-111) but with 15% chlorite (ie transition zone between units above and below) 1-2% Py; tr. sphal.
113 - 117'6"	Arg. siltstone; dark green; f-vfg; 40% mafics; sulfides conc. in siliceous-carb 1/8" lenses; overall 3% sulfides, lenticular bedding 5°; sulfides 9 Po: 1 Py sphal tr. galena est. grade .2%-.3% Zn.
117'6"-125	Lenticular bedded quartzite grey to grey translucent green vfg 5% chlorite-sericite; 2% Po .2% sphal along bedding.
125 - 126	75% massive sulfides - 95% Po minor Py, Cp, sphal.



PROJECT - 149

HOLE NO. DDH-2

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
126 -126'6"	as 117'6"-125
126'6"-127	50% massive sulfides-10% equant qtz eyes; also argillite and quartzite fragments-sulfides 95% Po, minor Py, Cp, sphal.
127 -135'6"	Lenticular bedded spotted siliceous hornfels-dark grey with dark brown spots fg; 1/4" contorted lenticles; very sericitic-oily brown biotite spots.
135'6"-136	as 127-135'6" but mg sandy texture; irreg. beds 15-20 <sup>0</sup>
136 -139	as 127-135'6"
139 -150	Quartzite-spotted siliceous hornfels-grey-green, f-vfg; more massive than above; local 5% biot spots; 1-2% Po-Py except 139'6"-140-10%Po and 145'6"-146'6"-15% Po (Py) tr. Cp 1/4" faint f-mg beds.
150 -184'9"	Spotted siliceous hornfels-dark grey-green; vfg-fg; 10% biot. spots, 10% sericite; avg. 1-2% Po (Py) except 151-153 6% Py, 2% Po, tr. Cp conc. in lenticular sandy qtz-carb lenses (chlorite-rich)
184'9"-210	Arg. siltstone-green-dark green, vfg-fg; 40% chlorite; 5% siliceous-carb 1/8" lenses; 3% vfg dissem 4 Po: 1 Py minor Cp, sphal tr. galena; local 2-3% mg sandy sections 196½-198 - 5% chlorite (i.e. cleaner)
210 -212'6"	50% massive sulfides-in arg. siltstone; top 8"-70% Po, minor Py, tr. Cp; central 14"-20% Py plus vein qtz; bottom 6"- as top 8" very contorted base-brecciated 2" with 10% Py +galena interval may be part of fault below.
212'6"-230	Fault Zone-green brown leached rock frag's to mud very contorted; near top frag's mainly as 150-184'9"; near bottom frag's mainly arg. siltstone 213-215 - qtz vein + 2% galena, breccia contains 3% Py + qtz stgrs., tr. galena, sphal.
230 -252'6"	Arg. siltstone-grey green-dark green (variable); fg; 30% chlorite ¼" thick 1-2" long pale dark green lenticular beds; grey-lenticles to 40% of rock; 3% qtz-carb lenses; 246-248'6" - galena; arg. 3% Po (4): Py (1) conc. in coarser silica richer lenses.

PROJECT - 149

HOLE NO. DDH-2

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
252'6"-254'6"	Fragmented-poss flow top breccia of unit below-biot spotted mg matrix 1-2% Py.
254'6"-270	Qtz-eye rhyolite-green-grey tan, fg matrix; sericite contorted around qtz eyes (top and bottom-no qtz eyes 254'6"-259 and 268'6"-270); 5-10% dark oily spots; 5-10% 1/8" pale blue qtz eyes 1% Py.
270 -278	Similar to 254½-270 only darker grey-green; 10% chlorite and fg biot spots; few relict qtz eyes.
278 -281	Arg. siltstone-dark green, f-mg, 15% sulfides Po, Py, est 0.4% Cu may be andesitic tuff-few fg fragments.
281 -287½	Mixed up (core) primarily arg. siltstone with minor more siliceous units.
287½	END OF HOLE

PROJECT - 149

HOLE NO. DDH-3

COORDINATES 18+00N

BEARING N58°E

DIP-45°NE

15+00E

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
0 - 24	Overburden
24 - 30	Sand seam
30 - 67	Pebble arg. siltstone-sandstone-green, f-mg, 30% chlorite; tan white siliceous fragments up to 2"; arg. 3-5% of sections and 15-20% of section 54-48; 49-54 - 10% biot. spots; narrow sand seams as short core, most n.b. seam 58-63½;
67 - 67'4"	Siltstone-sandstone conglomerate dike-very distinctive, chocolate brown; 40% fragments in chocolate brown siltst.-sandst. matrix; 80% of the fragments are green arg. siltst. - 20% white siliceous fragments similar to but not correlatable to DDH-9 60'-60'3".
67'4"-100	as 30-67 with avg. 1% tan white siliceous fragments decreasing in abundance downward; core split - 78-85; 88-104; qtz vein + 2% Py - 78-78½; qtz vein + 2% Cp (Po) 89½-90; local sulfide richer sections as follows: 84-85 - 8%; 3 Po, 3 Py, 2 Cp 88-89½ - 70%; Po rich at top, Py rich at base, <1% Cp 91-96 - 60%; 5 Po: 1 Py; <1% Cp 96-97½ - 8%; as 100-102'6" 97½-100 - 40%; Py-Po, minor Cp.
100 - 102'6"	Deformed silica-rich horizon - 10% mafics in a rippled silica-rich zone; grey-grey white, fg; alternating f and mg beds.
102'6"-121	Arg. siltstone-sandstone-green, f-mg; 1-2% Po-Py, tr. Cp; fg darker matrix with mg lighter coloured sections; qtz vein 118½-119½, 102½-104 - 40% sulfide-Py-Po, minor Cp
121 - 128	Biotite spotted siliceous hornfels-green and cream white; cg., ¼" beds; 20% chlorite-biotite; alternating lenticular chlorite-rich and silica-rich sections; 10% biot. spots; avg. 3% sulfides 4 Po: 1 Py tr. Cp: distinct contacts.
128 - 131	as 102'6"-121, ie fg, mafic
131 - 138	as 121-128, ie cg, felsic

PROJECT - 149

HOLE NO. DDH-3

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
138 -140	as 102'6"-121
140 -145'6"	as 121-128 - qtz vein 144'6"-145
145'6"	END OF HOLE

PROJECT - 149

HOLE NO. DDH-4

COORDINATES 18+00N  
16+05E

BEARING N58°E DIP-45°NE

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
0 - 24	Overburden
24 - 26	Arg. siltstone-rusty yellow green, fg; schistose and rusty alteration
26 - 38	Pebble arg. siltstone-dark green to dark grey green; fg., locally mg; 1-5% pebbles 2-3" in size of pale green to tan white massive silica-decrease in fragment abundance downward; see 30-100 of DDH-3
38 - 42½	as 26-38 matrix with no siliceous fragments noted; chloritic 30-40%; f-mg; finely bedded sulfides Po-(Py) minor Cp 4-5% of sections locally conc. along beds; bedding ≈10-15°
42½- '44	Massive sulfides-important slump feature; sulfides 70% in argillite mud with arg.-sulfide contact as 30-40°; argillite fragments ½" in sulfides-65% Po, 5% Py, 1% Cp as one ¼" concentration.
44 - 45	Impure siltstone-pale green, f-mg, 15% mafics; 2-3% bedded Po.
45 - 62½	Massive (55-60%) sulfides-generally 70% sulfides with 30% arg. fragments but narrow sulfide poor, argillite-silica rich beds as follows: arg. 3" at 51'; silica-rich-3" at 54'; arg. 57-58½ + 10% sulfides-here 70° bedding angle (slump); sulfides proportions 92% Po, <1% Cp; est grade 0.3%-0.4% Cu.
62½-97	Arg. siltstone-sandstone-green to dark green, f-mg; 40% mafics 1-2% Po-Py along bedding; 1/8" qtz-carb veins and lenses every 1'-2'; 1/8" beds irregular at 10-20°; 6" at 82' impure quartzite-distinct tan coloured, fg; sericitic + minor chlorite-poss. marker.
97 - 102½	as 62½-97 in composition but cg with 10% biot spots (1/32") 3% 4 Po: 1 Py: 25% mafics within coarser sections; few silica rich inclusions similar to 102½-106 in composition near base of this interval.
102½-106	Plagioclase granodiorite porphyry-poss. rhyolite-dacite flow finer grained near both margins-note possibility of fragments of this unit in overlying beds (ie. flow); 5-10% biotite 1/8" plag phenocrysts (30%) in a vfg grey-green siliceous matrix.

PROJECT - 149

HOLE NO. DDH-4

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
106 -122..	Similar to 97-102½-ie. cg and fewer mafics; also siliceous beds within as follows: 115½-116 - 10% mafics; 117-117½ - near pure quartzite with small fragments in immediately overlying bed.
122 -123½	Qtz-carb impregnated arg. siltstone - 15-20% qtz-carb lenticular beds
123½-145	Arg. siltstone-(sandstone)-grey green, f-locally mg; 25% chlorite as 62½-97; 5% 1/8" qtz-carb lenses along bedding as above; bedding 15° arg. (variable).
145	END OF CORE
145	Box #5 is completely full - core for this hole may be missing.

PROJECT - 149

HOLE NO. DDH-5

COORDINATES 16+30N  
15+90E

BEARING N58°E DIP-45°NE

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
0 - 33	Overburden
33 - 33'4"	Quartz-plagioclase granodiorite porphyry-grey green, vfg matrix
33'4"- 43	Arg. siltstone-sandstone dark grey green, f-mg; strongly bedded 1/16" at 20°; X-bedding and minor slump features noted; 2-3% Po-Py tr. Cp streaked along bedding; bull qtz veins 1"-3" approx. one every 1-2' carrying minor Py-Po-Cp.
43 - 45	as 33'4"-43 with 6% Py ½% Cp.
45 - 48	Massive (60%) sulfides-10 Po: 1 Py: <1% Cp intercalated with argillaceous sediments; more chlorite in massive areas also 5% qtz-shards with sulfides.
48 - 53	Arg. siltstone-sandstone-magnetite zone, magnetite-Po streaked along bedding (~20°); local 1" chlorite-rich beds where magnetite is dominant to 30% magnetite; 3-1" Po beds; bottom 6" pyritic; low sulfur high Fe unit.
53 - 59	Massive Sulfide Zone-variable sulfide content as follows: 53-54 - 80% as Po 54-55 - 90% as Po, 3% Cp, 1% sphal 55-56 - 90% as Po minor Cp 56-57 - 30% 57-58 - 60% 58-59 - 70% 1 Po: 1 Py all sulfides within grey siliceous - locally argillitic sediments.
59 - 80	Arg. siltstone-sandstone-as 33'4"-43; bedding 20-25°, 30% mafics, 1-2% Po, Py; qtz veins; 70-71-near vertical 2" wide 76-77-with Py 84-85-near vertical 2"wide
80 - 82½	Arg. (siltstone)-sandstone-green grey and white, mg-cg; thicker beds, coarser grained, more sulfides than above, 5% 1 Po: 1 Py.
82½ - 92	Arg. siltstone-(sandstone)-distinct green-grey f-mg; 40% mafics; thinner beds, finer grained, lower sulfides than 80-82½, 1% Py - Po along beds (20°)

PROJECT - 149

HOLE NO. DDH-5

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
92 - 94	as 80-82½ - 2% Py-Po along beds.
94 - 102½	as 82½-92 - 1/16" beds at ~20°
102½ - 108	as 80-82½ - 2% Po-Py; 1/4"-1/2" beds.
108 - 118	as 82½-92 - 1/16" beds at 20°
118 - 121	Biot.-granodiorite sill-15% biotite, qtz, plag granitic texture; sharp upper and lower contacts; very slightly discordant to bedding above -ie here 10-15°; 1% Py
121 - 138	as 82½-92
138 - 142	Qtz-eye rhyolite-pale grey translucent green, f-mg, <5% mafics, vague banding defined by biot.-sericite and grain size (metamorphism?) relict qtz-eyes?; 1% Py
142 - 164	Arg. siltstone-green to dark green, f-mg; 20-40% mafics-¼" qtz-carb stringers and lenses; variable grain size and mafic contact, becomes darker, grey green toward base; 4-1" Po-Py beds 160-164'.
164 - 170	Arg. siltstone-dark grey green-f-mg; upper contact gradational with above; 40% chlorite; qtz-carb stgrs parallel schistosity at 15-20°.
170 - 205	as 164-170 but carb-qtz veins and patches constitute 3-5% of the section; schistose, dark green; 40% chlorite.
205 - 222	Impure quartzite-sandstone-grey translucent green, f-mg; 5-10% mafics (chlorite-sericite) 214-221 is coarser grained; 1/8" lenticular beds? or schistosity at approx. 20°.
222 - 229	Arg. siltstone-grey green, m-cg, 25% mafics; well bedded 1/8"



PROJECT - 149

HOLE NO. DDH-5

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
229 -238½	Arg. siltstone-dark green, fg, 40% mafics, 1-2% Py-Po wisps along bedding?-schistosity: ½" Po-Py at 233'9"; 6" Po-Py 235-235½; 1/20" plag laths and few pale blue qtz eyes-5% over bottom 3" of section; also 3% Po-Py at base may be evidence for arg. siltstone being a ie. metaandesite-or may be weathering of unit below.
238½ -246	Qtz-eye rhyolite-grey translucent green, fg, 5-10% mafics as chlorite-sericite wisps; 5% 1/20" pale blue qtz eyes in vfg matrix.
246 -250	Biot. spotted siliceous hornfels-translucent green with 5% oily brown biot. spots; fg matrix; 1/16"-1/8" pale green-grey-white lenticular beds.
250 -257	Arg. siltstone-grey-dark green-brown, mg; salt and pepper texture; 30-40% mg spots; sequence 238½-257 may represent rhyolite, dacite, andesite sequence; 6" qtz vein at 253.
257 -265	Biot. spotted qtz-eye rhyolite-dacite-grey green, fg; 15% mafics as stretched biotite spots; 3% 1/20" equant pale blue qtz eyes.
265 -268	as 250-257 - 25%-30% mafics; few 1" qtz stgrs.
268 -271	as 257-265
271 -271'3"	Argillite-60% mafics 10% Po-Py
271'3"-272'6"	Impure quartzite-grey translucent green fg; no qtz eyes 5% mafics, sericitic
272'6"-293½	as 257-265 - mafics variable, avg.
293½ -306½	as 271'3"-272'6"
306½ -309	Impure siltstone-grey, mg; 25% mafics, 1% Py-Po
309 -312	Meta rhyolite- 1" siliceous lenses in f-mg microgranitic (salt and pepper) matrix; 1% dissem Py.

PROJECT - 149

HOLE NO. DDH- 5

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
312 -316	Impure siltstone-sandstone-grey, f-mg; biot. clots in siliceous matrix - 25% mafics.
316 -321	Impure quartzite-grey translucent green, <5% mafics
321 -327	as 272½-293
327 -338	Arg. siltstone-grey green, f-mg, even texture; ½" conc. (50%) Po at 333
338 -342	Similar to 327-338 in composition but textural difference- coarser grained-contact effect? of sill below; spotted mafics 20% (ie hornfelsic)
342 -347	Plagioclase porphyry granodiorite-1/10" plag laths 35% in finer grained siliceous matrix - 10-15% mafics; both contacts sharp at 10-15°; 3" chilled margins.
347 -352	Arg. siltstone-dark green, fg, 20% biot clots (ie. partially hornfelsed meta sediment) 40% mafics overall; 2-3% Po-Py in local concentrations along bedding.
352 -370	Impure quartzite-siltstone-grey-green with 2"-3" horizons containing 15% biot clots; <1% Py.
370 -371'3"	Biotite spotted siliceous hornfels-grey to grey green, 25% biot. spots in f-mg matrix.
371'3"-400	Impure quartzite-grey white to grey translucent green <5% mafics, fg-vfg; 386½-3" mafic sulfide rich (15%) Po-Py locally 3"-6" intervals with 15-30% biot. spots as follows: 390, 390½, 397, 398½.
400	END OF HOLE

PROJECT - 149

HOLE NO. DDH-6

COORDINATES 20+00N  
15+60E

BEARING N58°E DIP -45°N

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
0 - 30	Overburden
30 - 44	Pebble arg. siltstone-green-dark green matrix, f-mg; 30% chlorite, white-tan pebbles arg. 1/8" X 1/2"; arg. 2-3% at top decreasing downwards; few narrow intervals with 30% pebbles 1% 5 Po, 1 Py tr Cp in 1/8" beds.
44 - 59½	Pebble conglomerate - 40-60% white siliceous (rhyolite?) pebbles in a fg 10% chlorite - biot. spotted matrix; 49-52 - 5% sulfides 5 Po: 1 Py .3% Cu.
59½ - 69½	Massive (75-80%) sulfides-massive sulfides with approx. 20% argillite, quartzite and qtz-eye fragments; >90% Po; Cp found in association with Py-difficult to estimate grade as pyrite is very oxidized; 0.5% Cu?
69½ - 70	Quartz vein
70 - 79½	as 30-44 - 1% dissem Po, trace sphalerite; eg 1/32" at 72' also traces Cp: 6" qtz vein at 73' with 5% Po (Py)
79½ - 81	Biotite spotted siliceous hornfels - 1% Po-Py (near dike alteration?)
81 - 82'9"	Qtz-plag granodiorite porphyry-vague contacts (dike-sill?) 5% biotite
82'9" - 96	Arg. siltstone-green-dark green, f-mg, lenticular siliceous beds coarser and less mafic - 20% chlorite near 96' where ½" bed of massive sulfides Py-Po-galena-sphal (20% Py, 15% galena, 40% sphal, 10% Po + 15% rock fragments)
96 - 102	Arg. siltstone-green, f-mg, 35% chlorite 2% 3 Po: 1 Py 3" at 100½ coarser as 102-104½
102 - 104½	Arg. siltstone-grey green, mg; coarser and less mafic 10% biot. spots, 10% chlorite; beds to ½" at 5°, 3-4% sulfides 5 Po: 1 Py.
104½ - 106	as 96-102
106 - 121	as 102-104½ - 1/8"-1/4" grey siliceous biot. spotted and chlorite beds; 10-15% chlorite.

PROJECT - 149

HOLE NO. DDH-6

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
121 -127	Biot. spotted siliceous hornfels-similar to 106-121 but with 10-15% biot spots, 5% chlorite; lenticular beds; gneissic texture.
127 -145	Arg. sandstone-grey green, mg; 20% chlorite with narrow silty (fg) beds; 2-3% sulfides 1 Py: 1 Po; core split 127½-147½ by Scurry
145 -158	Arg. siltstone-dark green, f-vfg, 40% chlorite, X-bedded lenticular white qtz-carb (exhalative) lenses; 1-2% sulfide Po-Py few f-mg (coarser) narrow interbeds; lower ct. at 5-7°.
158 -159	Rhyolite flow-cream white, vfg; central part contains fine 1/32" equant white crystals-possible sill.
159 -186	as 145-158
186 -186½	as 158-159 plus 5% streaked mafics
186½ -224½	as 145-158 - 1-2% Py-Po, tr Cp; locally biotite spotted with no X-beds; core split 185-196 and 204-217. by Scurry
224½ -240½	Silica rich zone-quartzite and rhy flow? 227-233-pale blue qtz eyes; elsewhere more sedimentary-grey to translucent grey green, vfg, ½% dissem Py; 5% of section is bull qtz, few spots, <5% chlorite, sericite; Cp-Py coated fracture at 241.
240 -243	6" quartzite beds with 3" mafic sulfide rich beds; Po-Py 5% in top two beds; mafic-sulfide bed at 243 including 50% Po-Sphal-galena-over ½".
243 -247½	Qtz-eye rhyolite-dacite-dark grey-green, f-mg; even distribution of fg biot spots; 1% pale blue qtz eyes; 1% dissem Py (Po); 10% chlorite; coarser toward center with vfg plag. and qtz crystals.
247½ -249½	Arg. siltstone-dark green, vfg, 40% chlorite, 3% Po-Py (0.3% Cu as Cp); highly contorted (slumped) bedding; core split 245-256.

PROJECT - 149

HOLE NO. DDH-6

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
249½ -254½	as 243-247½
254½ -255	as 247½-249½ - 5% 20 Po: 1 Py; 1 Cp (est. .2% Cu)
255 -297½	Pebble arg. siltstone-siliceous lenticular irregular fragments in fg chloritic matrix; fragments 2-20%; biot. spotted to 260; below 260' 5% mafics in the fragments; 1% Po-Py tr. Cp.
297½	END OF HOLE

PROJECT - 149

HOLE NO. DDH-7

COORDINATES 24+00N  
19+30E

BEARING N58°E DIP-45°NE

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
0 - 7	Overburden
7 - 29	Arg. siltstone-dark grey green, vfg-fg, 35% chlorite (variable 20-60% chlorite); core very broken to 21½' with sand seams reported at 17½-18½ and 19'9"-21'6"; 1% Py dissem and in local narrow concentrations; Py conc. as follows: ½" at 14', 1" at 21½', ½" at 24', ½" at 26'; 0.5% sphal 22'-23'; 1/8"-1/4" qtz-carb lenticular zones parallel to beds (5-10°) comprising 5% of section.
29 - 31	Impure quartzite-siltstone-grey green, fg, silty, <5% chlorite, poorly bedded; 5-10% sericite; 1% Po, Py tr. Cp
31 - 33	Arg. siltstone and few siliceous fragments; 3" Py (60%) at 31½'
33 - 40	Quartzite-grey white, vfg-fg, malachite along fractures along core axis 35-35½; ½% Py as x-cutting hairline fractures; 5% sericite.
40 - 41	Arg. siltstone?-dark green, fg, 40% chlorite, 3% Py, Po, tr Cp poss. chloritic alt <sup>2</sup> ; some x-cutting Py fractures.
41 - 57'3"	Qtz eye rhyolite-grey to grey translucent green, fg; 3% pale blue equant qtz eyes; <5% chlorite-biotite as fine streaks; ½% Py dissem and rare hairline veinlets; extremely vague banding define by streaked mafics. 47-47½ - as 40-41; Py top, Po bottom 1%.
57'3"-57'8"	Arg. siltstone-sandstone-grey green, f-mg, 15% chlorite, 5-10% biot spots, <1% Py-Po dissem.
57'8"- 61½"	Qtz eye rhyolite-grey (green) - 5-10% chlorite; few relict qtz eyes; few x-cutting carb-Py fractures.
61½ - 62'8"	Arg. siltstone-dark green, fg, 30% chlorite, few qtz-carb x-cutting fractures
62'8"-66	Arg. siltstone-green-grey-white, f-mg; 25% chlorite with lenticular siliceous zones biotite spotted and 10% chlorite; 63-64-qtz-carb veining and chlorite replacement (similar to mild pipe alteration)-few Py hairline fractures 64-65 - 1% Cp, 6% Po in qtz-carb veining

PROJECT - 149

HOLE NO. DDH-7

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
66 - 76	Qtz-eye rhyolite-inhomogeneous grey to green, fg; biot. spots and chloritic zones; few local pale blue qtz eyes; 1% Po-Py zone x-cutting chlorite; 67-70 Po±Cp in qtz-carb veining.
76 - 81	Qtz-eye rhyolite-grey, f-mg; 10% pale blue qtz eyes 76-77 chilled zone; 5% sericite, few vfg carb-Py x-cutting fractures; minor epidote; ½% dissem Py.
81 - 82	Pebble arg. siltstone-dark green, f-vfg; 40% chlorite; 5-10% white siliceous (rhyolite?) fragments; ¼" carb-qtz vein along bedding (10-15°); also lenses of qtz-carb (exhalative) help to define bedding.
82 - 88½	as 76-81-lower 1½ chilled with no qtz eyes and 10% streaked mafics; cg ¼" qtz eyes just above this chilled zone; 5% biotite streaks; ½% Py, Po disseminated; few vfg carb±Py vertical hairline fractures; minor epidote.
88½ - 89½	4" arg. siltstone-5-10% black spots (biotite?); 4" 25% Po (Py, Cp) - 1/8" x-cutting Py veinlet; 4" 80% massive sulfides-with qtz and arg. fragments 99% Po upper ct. irregular at 40°-lower contact not seen as found at end of a core run.
89½ - 92½	Impure pebble siltstone- 5-10% chlorite possibly weathered siliceous unit of below; green-grey at top, lightening in colour toward base where more siliceous and more obvious fragments seen.
92½ - 95½	Biotite spotted siliceous hornfels-very inhomogeneous may represent narrow flow; 15% biot. spots, 5% chlorite streaked.
95½ - 96½	Arg. siltstone-grey to green, f-mg, chlorite increases upward from unit below to 35% chlorite, weathered zone of unit below.
96½ - 100½	Quartzite-grey to pale green, vfg; 5% sericite top; 15% sericite bottom; schistose at base with cg biot spots.
100½ - 112½	Biotite spotted siliceous hornfels-10-15% dark, elongate biotite spots in grey green, vfg massive to lenticular silica; 106½-112 - 20-25% white qtz veining.

PROJECT - 149

HOLE NO. DDH-7

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
112½ -113½	Arg. sandstone-green to dark green, f-mg; biotite spots 3% Py.
113½ -114½	as 96½-100½
114½ -119½	as 100½-112½
119½ -124	as 96½-100½-variable composition; locally 5% biot. spots.
124 -126	Qtz-eye rhyolite-dacite-grey green, fg; 15% biotite spots; 3% qtz eyes; strongly sericitic.
126 -130'3"	Qtz-eye rhyolite-pale green-tan, vfg, sericitic; 3% qtz eyes; 2% Py; few near vertical ¼" veinlets of tourmaline? (vfg aggregate of acicular to bladed striated needles).
130'3"-137½	Qtz-eye rhyolite-dacite-dark grey green, vfg; up to 10% qtz eyes, variable biot. spots to 10%; 1% Po, Py.
137½ -141	as 126-130'3" tan, vfg, sericitic; x-cutting qtz-carb-Py-minor tourmaline throughout (minor), conc. at 140' for 6".
141 -156	Biotite spotted siliceous hornfels-variable colour from bright green to brownish green, f-mg; alteration as follows: 142-142½ - qtz-carb veining 145-147 - 10% patchy chlorite replacement 147-148 - 20% qtz (Py) veining 150-152½ - 25% qtz vein breccia + 2% Py, Po, tourmaline 152½-156 - qtz 5% - chlorite 5% replacement.
156 -190	Slump breccia zone (may be flaser bedded-tidal flat deposit)-alternating zones of (i) carbonaceous argillite mud with 10-30% siliceous chips with (ii) matrix-poor zones (ie. siliceous chips 60-90% of zone); Bedding fairly regular at 15°-only locally contorted; matrix rich zones-159-157½ 157'10"-172, 175½-178, 179-180, 186-189.
190 -201	Qtz-eye rhyolite-grey to translucent grey green, f-vfg; sericitic, wavy foliation if weathered would produce lenticular chips seen in zone above; good qtz eyes seen at top, vague qtz eyes below; ½% Py, Po.



PROJECT - 149

HOLE NO. DDH-7

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
201 -205½	Arg. siltstone-dark green, f-mg, 30-40% chlorite; top 1'-5% sulfides (Py at top, Po at bottom); 202-205½ - <1% Py-Po; faint vfg white crystals may represent plag laths and hence this may be an andesite flow.
205½	END OF HOLE

PROJECT - 149

HOLE NO. DDH-8

COORDINATES 24+05N

BEARING S58°W DIP-45°SW

20+95E

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
NOTE	Drilled along dip
0 - 19	Overburden
19 - 83	Qtz-eye rhyolite-dacite-grey to white, f-vfg; 10-15% elongate biotite spots; rare qtz eye; schistosity?-bedding at 80°; 36-43 - 50% qtz vein and patches.
83 - 85½	Quartzite-translucent pale green, fg; massive silica, no spots or qtz eyes; ct at 80°; lower ct-breccia.
85½ - 104	as 19-83-possibly breccia mentioned above is a flow top breccia of this unit.
104 - 109	Qtz plag granodiorite porphyry-tan-green, vfg matrix; equant 20% qtz and 20% plag; 1/8"-1/4" phenocrysts.
109 - 133	as 19-83-zones with no biot spots but good qtz eyes.
133	END OF HOLE

PROJECT - 149

HOLE NO. DDH-9

COORDINATES 18+00N  
22+50E

BEARING N50°E DIP-45°NE

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
0 - 22	Overburden
22 - 25½	Arg. siltstone-dark green, f-mg; 40% chlorite; 2% Py-Po along bedding, dissem and in fine x-cutting veinlets
25½ - 32	Quartzite-tan and translucent green (variable colour); f-vfg; locally sericitic; Py hairline network 1%; few andesite inclusions of unit below.
32 - 54	Andesite flow-32-37 flow top upper 2'-Py filled amygdules and lined vesicles; 34-35½ looks like a sediment with 1/8" banding at 20°; 37-53 plag. porphyry andesite flow f-mg, grey-green matrix with 1/10" plag laths 1% Py-Po dissem and hairline fractures 3-5% qtz-carb veinlets; 53-54 - Flow base - fg with vesicles over basal 6"; very chloritic bottom few inches; 3-4% sulfide Po-Py.
54 - 60	Quartzite-grey green to cream white, vfg; massive silica; 2% Py dissem and veinlets in upper 2'.
60 - 60'3"	Siltstone conglomerate-chocolate brown vfg silty matrix hosting 5 small quartzite (4) and andesite (1) inclusions wavy lower ct (unconformity), upper ct not seen.
60'3" - 64	Biotite spotted siliceous hornfels-grey white, vfg; 5% biot. spots mildly schistose, 5% mafics, sericitic.
64 - 67½	Quartzite-white-tan, vfg, <5% mafics; few x-cutting Py stringers.
67½ - 69	Sulfide-argillite mixture - 40% Py-Po very rusty but apparently brecciated (may be alteration effect).
69 - 79	as 64-67½ - (impregnated with qtz-carb veinlets)-minor to locally abundant Py-Po (to 10% over few inches); 3' clay seam reported 72-75.
79 - 83½	Sulfide zone-25% Po-Py in argillaceous siltstone; chlorite and sulfide vein network alteration.

PROJECT - 149

HOLE NO. DDH-9

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
83½ - 90	Arg. siltstone-green, f-mg; 35% chlorite, even texture to very faintly bedded; 2% sulfides 2 Po: 1 Py; 5% over top 2'; strongly magnetitic unit-magnetite may be present.
90 - 96	Qtz-eye rhyolite-plain grey, fg; relict qtz-plag phenocrysts especially noticeable near upper and lower contacts where the matrix is darker; lower ct. at 5°; 1% Py.
96 - 99	Arg. siltstone-dark green, f-mg; 40% chlorite; 3% Po (Py) increasing to 5% over basal 1'; crude bedding given by irregular alternating fg and mg sections.
99 - 102	Sulfide Zone-25% Po (Py) average; 100-100½ - 70% sulfide as 5 Po: 1 Py, tr. Cp in arg. siltstone; core split 98½-102 by Scurry.
102 - 110	Arg. siltstone-sandstone-dark grey green, f-mg; local x-bedding; darkens where sulfides increase.
110 - 114	Sulfide - 15-20% 3 Po: 1 Py minor Cp (Cp noted at 112') rock as 102-110.
114 - 118	as 102-110 - 117-117½-5% Po-Py becoming gradually lighter in colour with depth; numerous qtz-carb lenses (5-10%).
118 - 129	Chip conglomerate-rhyolite tuff-lenticular silica zones and fragments in a sericite, chlorite (minor 5%) silica matrix; also noted few angular sulfide fragments; light grey in colour minor Po, Py.
129 - 150	Slump Breccia?-flaser bedded tidal flat deposit-grey to white lenticular siliceous (quartzite?) fragments in a black carbonaceous argillaceous matrix; matrix content variable but generally 50-70% of rock; quartzite fragments ¾" in size (¼"-2"); 3-4% Po as ½" ellipoidal to lozenge shaped crystals and as fine disseminations; wavy irregular bedding at 10-15°.
150 - 155'3"	Lenticular quartzite-grey, fg-vfg; similar to inclusions found in unit above; 1% Po streaked along crude foliation given by 5% or less argillite matrix
155'3"-159'6"	Arg. siltstone-sandstone-dark green, f-cg patches 1-2% Po; qtz-carb-Py veinlets - 2%

PROJECT - 149

HOLE NO. DDH-9

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
159'6"-160'6"	Qtz-plag. granodiorite porphyry (dike)- $\frac{1}{4}$ " qtz eyes (15%) and slightly larger plag. laths (15%) in even grey aphanitic matrix; <1% disseminated Py.
160'6"-163	as 155'3"-159'6"
163 -165	as 150-155'3"
165 -177	Arg. siltstone-dark grey green, f-cg coarsening generally with depth contacts gradational over 3"-6"; 3% Po (Py); 173-175 - 5% Po within cg section.
177 -179	as 150-155'3"
179 -201	as 129-150 with narrow zones similar to 177-179 as follows 6" at 181; 189-190 (1" qtz pebble bed at 190) and 6" at 195.
201 -209	as 177-179-salt and pepper sandy matrix hosting grey lenticular lenses; 1-2% Po as $\frac{1}{4}$ " lozenge crystals.
209 -222 $\frac{1}{2}$	Arg. siltstone-grey-green, f-mg; 15% chlorite, 10% biot. spots and chlorite in mg (coarser) lenses; 3% Po (Py) disseminated and 1/8" blebs (spots with sulfide cores and biotite rims).
222 $\frac{1}{2}$ -227	as 177-179 - qtz eye rhyolite tuff-grey to translucent green, fg; 1/8" eyes.
227 -232	as 222 $\frac{1}{2}$ -227-fine sulfide veinlets 3 Cp; 1 Po and fine disseminated sulf. est. grade 0.1% Cu; 10% sericite-chlorite imparts a crude wavy schistosity.
232 -235	as 222 $\frac{1}{2}$ -227
235 -236	Qtz vein with inclusions of unit below.
236 -248	Quartzite-pale grey white, vfg, <5% mafics; sericite minor chlorite-biotite; 244-244'3" as 222 $\frac{1}{2}$ -235 with minor Cp; few 1" qtz veins with tr. Po.

PROJECT - 149

HOLE NO. DDH-9

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
248 -249	Arg. siltstone-dark green, f-mg, 2-3% Po-Py along bedding.
249 -251½	Qtz eye rhyolite tuff-identical to 277-232; 3-5% Po-Py tr. Cp.
251½ -268½	as 222½-227-grey tan to translucent green lenticular siliceous unit-minor Po (no qtz eyes); 256½-258-more chloritic but similar lenticular texture darker grey green with increase to 1-2% Po.
268½ -281	as 236-248
281 -284	Rhyolite (tuff?)-redish tinge with white and black matrix, f-mg; 15-20% biot.-chlorite streaked-gneissic texture; minor epidote associated with vertical fine fractures-similar to 249-251½ but no qtz eyes.
284 -286½	as 236-248-moderate qtz-carb veining.
286½ -290	as 281-284-more chloritic at 289.
290 -318	as 236-248-grey fg silica rich, <5% mafics
318 -321	Arg. siltstone-dark grey green, f-mg; 35-40% chlorite; even texture to locally f-mg crude patchy bedding (as 96-99).
321 -330	Quartzite-massive grey to translucent green, vfg; <1% Po-Py.
330 -340½	Qtz-eye rhyolite (tuff?)-similar to 281-284 with qtz eyes; gneissic texture; 3-5% pale blue qtz eyes; minor Py as dissem. and as 1/8" cg cubes; approx. 10% mafics as biot (chl.) along white-tan green beds. Core split 330-358.
340½ -343	Arg. siltstone-dark grey green as 318-321; 40% chlorite, 2% Po-Py possibly a water lain tuff.
343 -354½	Lenticular quartzite-tan to grey translucent green, vfg-as 150-155'3"- local gneissic texture; 10% mafics mud seam 3'? near 249.

PROJECT - 149

HOLE NO. DDH-9

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
354½ - 364	Qtz-eye rhyolite tuff-well bedded, similar to composition above but here with quartz eyes-as 330-340½.
364 - 370½	as 343-354½ with 10-15% chlorite at top; 2" mudseam at 370.
370½ - 373	as 354½-364-more massive to very slightly bedded core may be out of place.
373 - 378	Arg. siltstone-dark green, fg generally with local mg patchy areas containing biot. spots; 40% chlorite; 1% dissem Po.
	<u>NOTE</u> - 364-378-(last core box)-core may be out of place as box looks like it was dumped.
378	END OF HOLE

PROJECT - 149

HOLE NO. DDH-10

COORDINATES 18+90N  
22+40E

BEARING N58°E DIP-45°NE

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
0 - 27	Overburden
27 - 34½	Quartzite-tan and grey green, vfg; massive silica with 5% mafics and 5% sericite; minor Py as near vertical veinlets.
34½ - 48	Andesite flow-even texture, grey green f-mg; 10-20% chlorite, 10% biot. spots; fine plag laths visible 40-42 (see office sample from 41').
48 - 49	Quartzite-grey, vfg; massive silica no bedding few vertical rusty fractures; chlorite stgrs 3% at random orientation.
49 - 50	Arg. siltstone-dark green, fg; similar to 34½-43-faintly bedded (see office sample from 50').
50 - 51½	as 48-49 lower ct. sharp, wavy sub perpendicular to core axis.
51½ - 52½	Arg. siltstone-dark green, vfg-fg, 40% chlorite faint schistosity vfg biot. spots.
52½ - 54	as 48-49.
54 - 54½	as 51½-52½
54½ - 68½	Quartzite-massive rhyolite-mottled tan grey, vfg; massive silica, ¼% Py; several vertical 1/16" tourmaline-Py fractures; locally lenticular schistosity define by sericite; very rare pale blue qtz eye 64½-65 biot. spots (see office sample 60'-no qtz eyes obvious).
68½ - 69½	Biotite spotted siliceous hornfels-grey white, vfg.
69½ - 82½	as 54½-68½
82½ - 86	Arg. sandstone-siltstone-grey green, m-fg; 30% chlorite, becomes more siliceous with depth; 2% sulfides 10 Py: 1 Po tr. Cp.



PROJECT - 149

HOLE NO. DDH-10

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
86 - 87	Biotite spotted siliceous hornfels-3% Py cg cubes; more prominent towards top.
87 - 99	Andesite flow-grey green, f-mg, massive, plagioclase phenocrysts, top 1½' chilled; 1% Po, Py; 1" quartz patches and veins-5% 88-91; lower 2' fg with 2% Po-Py.
99 -113	Arg. siltstone with local biot. spotted siliceous hornfels-colour and chlorite content variable (10-40%); 1"-2" massive Po (Py) sulfide beds 10 Po: 1 Py tr Cp: locally contorted, Core split by Scurry-98-106½, 20-25% sulfides in narrow massive beds 108-113-2% 4 Po; 1 Py.
113 -118'9"	Plag porhyry granodiorite-cream white cloudy 1/8" plag phenos; lower ct 15°; 6" quartz vein at 117.
118'9"-122'6"	Siliceous hornfels-grey to grey green, f-mg-10% chlorite; hornfelsed over top 8" (recrystallized); core split by Scurry 118½-122 with 70% Po between 119½ and 120'9" in massive narrow beds with qtz-arg. fragments.
122½ -124½	Arg. siltstone-white and green, f-mg; gradational contacts; silica rich and chlorite rich ½" layers; minor sphal with Py at 123½; 3-4% 5 Po; 1 Py at top decreasing to 1% Po-Py at base.
124½ -134½	Arg. siltstone-sandstone-dark green f-mg; arg. 30% chlorite (variable 20-40%); 1-2% Po, Py: 6" quartz vein at 128½ and 133½.
134½ -137	Lenticular bedded biot. spotted siliceous hornfels-grey-green, fg 10% chlorite ½% sulfide.
137 -141	as 124½-134; <1% sulfides.
141 -145	Quartzite-grey to grey green, fg; sericitic foliation, few biot spots, 5% mafics; 1-2% Po-Py.
145 -152	Arg. siltstone-dark green, fg; 40% chlorite; biot. spotted in coarse areas; 1% Py, Po dissem. and x-cutting fractures; 9-½" qtz-carb veinlets at various angles.

PROJECT - 149

HOLE NO. DDH-10

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
152 -160	Qtz eye rhyolite-pale grey green, vfg; 5% sericite, <5% mafics; fine pale blue quartz eye ghosts.
160 -166½	as 146-152 (163-164 core is almost sandy).
166½ -182	Biotite spotted siliceous hornfels-grey, fg-vfg; 15% biot. spots; wavy schistose by 5-10% sericite; 178½-180-few spots more quartzite.
182 -185	Plag. porphyry granodiorite-tan, vfg matrix; as 113-118'9"; plag phenocrysts (25%) stained pale yellow by weathering.
185 -190	as 166½-182-few relict qtz eyes-poss. rhyolite flow.
190 -213	Chip-rich slump breccia-tidal flat sediment-ie. as before with carbonaceous argillaceous matrix less than 50% - generally 80% quartzite?-rhyolite lenticular chips.
213 -216	Slump breccia-tidal flat sediment-matrix-rich; generally 30% siliceous chips (see office sample taken at 215') <1% Po in local concentrations.
216 -221	as 190-213
221 -231½	as 213-216
231½ -234½	as 190-213
234½ -239½	Biot. spotted siliceous hornfels-grey, fg-vfg.
239½ -269	Core Missing.
269 -282½	Lenticular bedded impure quartzite-rhyolite-grey to grey green, vfg; 5% biot. spots, 5-10% chlorite; similar to 190-213 slightly x-bedded; contact at 15°.

PROJECT - 149

HOLE NO. DDH-10

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
282½ -288	Rhyolite-grey, f-mg, massive with faint very fine quartz eyes; <½% sulfides (Po, Py); 2-3" chlorite inclusions at base (see office sample taken at 284').
288 -290	Arg. siltstone-dark green, vfg, 40% chlorite.
290 -291	as 269-282½-possible rhyolite tuff; <5% mafics.
291	END OF CORE - possibly boxes missing.

PROJECT - 149

HOLE NO. DDH-11

COORDINATES 19+80N  
20+25E

BEARING N58°E DIP-45°NE

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
0 - 68	Box #1 Missing.
68 - 71½	Arg. siltstone-dark grey and green, mg-cg; 30% chlorite and biotite, even texture (no bedding, possibly a metaandesite).
71½ - 80	Qtz-eye rhyolite-grey, white to green, vfg; 5% streaked biotite spots; 5% pale blue qt- eyes.
80 - 100	Pebble arg. siltstone conglomerate-5-20% chlorite + silica matrixing lenticular grey green siliceous chips.
100 - 105	Quartzite-grey to grey green, vfg; mildly sericitic, <3% mafics.
105 - 108	Biot. spotted siliceous hornfels-10-30% biot spots; bands of chlorite.
108 - 120	Qtz eye rhyolite-tan grey with green streaks, fg; 3% streaked chlorite; faint qtz eyes; sericitic.
120 - 142	Quartzite-biot. spotted siliceous hornfels-inhomogeneous siliceous zone-biot. spots and chlorite streaks as 108-120; <5% chlorite; several areas with near total chlorite alteration as follows; 133-134; 137½-138', 140½-142; 3% bull qtz; 1% Po, Py
142 - 148½	Quartzite, vfg; massive silica, 1% mafics, minor rusty areas.
148½ - 149½	Arg. siltstone-green, fg; avg. 25% chlorite, low at bottom and increasing upwards.
149½ - 154	as 120-142 - biot. spotted margins-green, chlorite streaked center.
154 - 163	Arg. siltstone-andesite flow-dark green, f-mg; 40% chlorite; 1-2% Po-Py in upper sandy 2', 1% below 156' vfg white plag laths?
163 - 173	Biot. spotted siliceous hornfels-grey green, vfg; biot. spots 10%: 5% chlorite.

PROJECT - 149

HOLE NO. DDH-11

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
173 -177½	as 154-156 (ie. sandy) 1% sulf's core split by Scurry 172½-175½.
177½ -181½	Plag. porphyry granodiorite-grey, fg matrix; 25% plag. phenocrysts.
181½ -207	Quartzite-biot. spotted hornfels-grey (green), vfg; chlorite streaks and spots; 5% chlorite; <½% Po, Py; 1' quartz 202-203.
207 -209	Arg. siltstone-hybrid chlorite-siliceous zone to units above and below.
209 -217	Arg. siltstone-andesite-dark green, f-mg; 30-40% chlorite; few plag laths? at 213; most sulfides are secondary, along fractures; 2% Py (Cp) (minor Po)-.1-.2% Cu; best Cp 210-211.
217 -219	Lenticular quartzite-conglomerate -20-30% chlorite replacement.
219 -226	as 217-219 with locally banded siliceous areas and choritic zones (in part replacement); 15-20% sulfides-10-15% bedded Po + Py-Cp fractures; badly weathered but est. Cu at 0.2%; areas of 70% Po 219½-220; 222-222½; 223½-224½ (95% Po in sulfides).
226 -236	Andesite flow-green, f-mg; top 3' affected by rusty carb. fractures; central area contains distinct plag laths; bottom 2' fg recrystallized? margin; est. 0.1% Cu in top 1½'.
236 -245½	Plag. porphyry granodiorite (sill-dike)-tan (rusty altered) fg matrix; 30% plag phenocrysts; grey patches where not altered; ½% Py in fractures; ½" qtz vein along axis.
245½ -247½	35% sulfides-Py at top, Po at base within rusty siliceous zone; core split by Scurry 245½-251.
247½ -253	Biot. spotted siliceous hornfels-grey green, fg; 4-6" qtz veins between 247½-251½.
253 -255½	as 247½-253 above with 15-20% chlorite alterations-dark green (impure sandstone).

PROJECT - 149

HOLE NO. DDH-11

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
255½ -260	Quartzite-grey, white, fg, massive.
260 -262	Arg. siltstone-grey green, f-mg; biot. spotted cg sections 30% chlorite.
262 -271½	Sulfide zones in quartzite chip conglomerate-grey white-zones of sulfides found in assoc. with laminated (chert?) silica; 262-264½-45% Po with silica frag's and laminated silica; 1" argillite at base. 264½-268-chip conglomerate - 1-2% Po-Py. 268-271½-25% 3 Po-1 Py Py more prominent at top; in chip conglomerate, core split by Scurry 262-271½.
271½ -272	Lenticular quartzite-grey white, vfg; locally laminated, <5% mafics.
272 -288	Chip rich slump or tidal flat deposit - 60-80% grey, massive silica (quartzite) chips in black carbonaceous argillite matrix; 2% Po-Py over top 8', <1% below.
288 -289	Matrix rich slump or tidal flat deposit - >50% argillite matrix.
289 -293½	as 272-288.
293½ -299	as 288-289.
299 -300	as 272-288.
300 -304½	as 288-289.
304½ -305	as 272-288.
305 -306	as 288-289.
306 -337	Lenticular quartzite-rhyolite tuff-grades downwards to increasing biot. spots; 5-10% matrix; irregular lenticular beds (flaser with little mud) 5-30"; 1% 5 Po: 1 Py, core split by Scurry - 306-326.

PROJECT - 149

HOLE NO. DDH-11

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
337 -340½	Arg. siltstone-dark green, f-mg; salt and pepper even sandy texture (no obvious bedding).
340½ -342½	as 306-337 - lenticular quartzite chips in biot spotted lenticular matrix (15%) Possible rhyolite-dacite-breccia.
342½ -346	as 337-340½.
346 -347½	as 340½-342½
347½ -348	as 288-289 - 60-70% matrix.
348 -351½	as 340½-342½ - more matrix here (10-30%); local contorted bedding.
351½ -352½	as 347½-348.
352½ -354	as 340½-342½.
354 -358	as 347½-348.
358 -388½	as 340½-342½ - low matrix - 5-10% with contorted beds.
388½	262-388½ - Tidal Flat environment-best sulfides at top or overlies this zone. END OF HOLE

PROJECT - 149 HOLE NO. DDH-12 COORDINATES 34+45N BEARING N58<sup>0</sup>E DIP-45<sup>0</sup>NE  
 12+90E  
 AX CORE DRILLING BY: Scurry Rainbow - 1966 LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
0 - 19	Overburden
19 - 29	Gossan in chlorite-siliceous zone - 10% sulfides over top 5', 5% below 3 Po: 1 Py tr Cp; very rusty zone; core split by Scurry 19-29.
29 - 37	Quartzite chip conglomerate-Rhyolite Breccia?-similar to bottom of DDH#11; matrix is a mixture of f-mg biotite; chlorite and silica; 10-15% dark brown matrix hosting quartzite?-rhyolite chips.
37 - 39	Quartzite-tan white, vfg; few chlorite streaks, <5% mafics.
39 - 48½	Qtz eye rhyolite-dacite-biot spots with few qtz eyes; lenticular.
48½ - 50	Quartzite-white, vfg; 3% Po-Py vertical veinlets; grey streaks and patches, appears to be affected by silica flooding.
50 - 59	Quartzite chip rich conglomerate-grey, grey green, vfg; <5% mafics, 5% sericite; locally 5-10% sandy matrix-few biot. spots, rare qtz eye.
59 - 60	Magnetic arg. siltstone-dark green, f-mg; even texture with biot. spots; 30% chlorite, 3% Po, Py; 2% magnetite (magnetite's presence may indicate flow).
60 - 73½	Quartzite chip rich conglomerate-biot. spotted chips and matrix 5-10% chloritic matrix.
73½ - 78	Arg. siltstone-dark green, f-mg; even texture, 30% chlorite, locally faintly banded.
78 - 92	Magnetite-chlorite zone-disseminated 1/10"-1/20" magnetite crystals varying in amount from 3% to 20% (avg. 5%) in coarsely crystalline chlorite (sub radiating clusters) 5% Po, tr. Py; Cp est. 0.1%; 88-89 few deep red (trans-lucent edges) crystals (garnets?)-skarn like assemblage.



PROJECT - 149

HOLE NO. DDH- 12

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
92 -170½	Rhyolite breccia-grey to pale green, vfg; quartzite?-rhyolite fragments in a brownish green mg matrix; matrix content variable as follow: 92-97 10-15%: 97-110 20-60%: 110-170½ 10-40%: matrix contains chlorite, silica and spots of biot.; few fine Cp veinlets at 118', 125', 152½'; ½% Po in local concentrations; qtz vein - 155½-157; 145-146 plag. porphyry granodiorite dike-grey-fg; 25% tan plag. laths; see office sample from 119'
170½ -171	Qtz vein.
171 -182	Arg. siltstone-dark grey green, fg; 20-30% chlorite, 2-3% sulfides-10 Po; 1 Py: tr. Cp.
182 -183½	Loose sand with frag's of rusty quartzite (as below).
183½ -189	Quartzite-rusty tan, vfg; (altered to minor sand locally); 5% sericite, ½% dissem Py.
189 -200	Biotite spotted siliceous hornfels-Qtz eye rhyolite-grey with oily brown spots, fg; 10-15% of 1/10"-1/4" irreg. biot. clots; rare quartz eye; 1% Py, Po.
200 -202	Quartzite-rhyolite, grey, vfg; massive silica with vfg white (plagioclase?) crystals toward base; 2% streaked chlorite; ½% secondary Py.
202 -244½	as 189-200; 1-2% chlorite replacement stgrs; qtz veins 203-203½; 206-206½; 1" at 210; 223-224½ (50% qtz); few hornfelsed inclusions, traces of epidote alteration.
244½ -270	Rhyolite flows with narrow breccia zones-grey-green, vfg; <5% mafics; 2 qtz eye zones 242-247 and 261-264; 1% Py as fracture fillings and in breccia areas.
270 -317	Zone of Quartzite and or massive rhyolite intercalated with biotite spotted siliceous hornfels-grey to white to grey green, vfg; 5% sericite-slightly more in spotted intervals; spotted intervals as follows: 270-277, 279-279½, 280-282, 284½-286, 289-289½, 291-294, 299½-310.

PROJECT - 149

HOLE NO. DDH-12

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
317 -317½	Quartz vein
317½ -319½	Arg. siltstone-dark grey green, fg; 1% Po-Py; poss. alteration by chlorite, sericite and epidote to give arg. siltstone appearance.
319½ -338	as 270-317 with spotted intervals as follows: 319½-323, 325-326½, 327-328½- (see office sample as 328'), 331-334; a crude gneissoisty is developed in the spotted intervals at 10-15°; Qtz vein along axis at 328½-329.
338 -340	Arg. siltstone-dark green, f-mg; x-bedded, biot. spots in mg areas.
340 -342	as 319½-338.
342 -349	as 338-340..
349 -358½	Quartzite-rhyolite? and biot. spotted hornfels chips in f-mg matrix (congl.- agglom?) chloritic top 1' and bottom 1'; 353-353½ - 5% Py in matrix around fragments.
353½ -354	50% Py (Po) tr Cp in rock type as 354-363.
354 -363	Arg. siltstone-dark grey green, f-vfg; 20% chlorite; 3% 1 Py: 1 Po 354-355; 1-2% below.
363 -367½	Lenticular rhyolite-grey green, vfg; 5-10% f-mg matrix with 3% Py in matrix.
367½ -371	Biotite spotted siliceous hornfels-grey, green, f-vfg; 1-2% Py-Po.
371 -372½	Quartzite with a few biot. spots-massive grey, vfg.
372½ -381	Plagioclase porphyry granodiorite-25% of rock is 1/10" white plag. laths; matrix coarser than similar porphyries described earlier as contains 5-10% fg biot and vfg plag laths.
381 -389	as 270-317-6" biot spotted intervals.

PROJECT - 149

HOLE NO. DDH-12

COORDINATES

BEARING

DIP

AX CORE DRILLING BY: Scurry Rainbow - 1966

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION
389 - 394	Arg. siltstone-dark grey green at top to grey at bottom, chloritic and biot. spotted; 3% Po-Py; some secondary Py.
394 - 409	Biotite spotted siliceous hornfels-grey-green, fg-mg; coarser biot. spots 10-15%.
409 - 422	as 270-317-narrow interbeds; lenticular fragments locally within fg matrix.
422 - 428½	Qtz eye rhyolite (local biot. spots)-grey green, f-vfg; 5-10% patchy mafics.
428½ - 429	Pebble arg. siltstone-dark green, f-mg; 20% white quartzite?-rhyolite? lenticular fragments.
429 - 453	Lenticular quartzite-rhyolite in biotite spotted f-mg matrix; rhyolite breccia?-similar to 92-170½; brecciated appearance; 5-10% 1"-2" qtz veins throughout section.
453	Last box of core is completely full-suspect there may be additional core (now missing).
453	END OF CORE

APPENDIX III

DRILL LOGS AND CU-ZN ASSAYS

FOR CANADIAN SUPERIOR (1976) CORE

PROJECT - 149

HOLE NO. 149-76-1

COORDINATES 30N 12E

BEARING N40°E DIP 45°N

START Sept. 11/76

FINISH Sept 13/76

LOGGED BY D. Rae

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
0 - 36	Overburden			
36 - 38	Argillaceous siltstone, dark green, chloritic, 1% Py, Po, x-bedded; 5% siliceous 1/8" lenses			
38 - 39	Arg. silst., green-dark green; statrabound Py-sphal. (50% sulfides); 1" siliceous lenses; approx. 3% sphal., 0.5% Cp, tr galena; mineralization similar to float boulder (see map)	36 - 40	.188	.93
39 - 57	Arg. silst., dk grn, 40% chlorite, locally bedded 15°; 3-4% Po disemm., stronger sulfide zones as follows: 44-45 - 15% sulfides - 9 Py: 1 Po, tr Cp, sphal. 49-49½ - 20% sulfides - 9 Py: 2 Po, tr Cp, sphal. 54-54½ - 10% sulfides - 8 Py: 2 Po, tr Cp, sphal. Also numerous ½" - 1" beds of 20% sulfides 9 Py: 1 Po with tr. Cp, sphal, galena.	40 - 50	.063	.11
57 - 60	Claystone alteration, vfg, distinct grey, soft (easily scratched with knife); Upper ct. gradational through pale green colour over 6" 5% ¼" - ½" irreg. qtz carb veinlets.	50 - 60	.026	.07
60 - 69½	Arg. silst., dk green 40% chlorite, minor sericite, fg even texture; 5% of rock as ½"-½" lenticular beds of silica & carb-possibly of exhalative origin. These siliceous zones contain approx. 15-20% sulfides (8 Py: 2 Po). Host contains approx. 2% sulfides (9 Po: 1 Py). Traces Cp, sphal concentrated in these siliceous lenses (i.e. est. 2% Cu, Zn over ¼")	60 - 69½	.034	.02
69½ - 71	Contorted qtz carb. (70%) - chlorite (15%) zone vein? or exhalative zone?; Cp ~ .3% sphal ~ .2%			
71 - 75	Arg. siltst, dk grn-grn, 40% chlorite, fg sulfides as 60-69½; Zn > Cu downward Also coarsening downwards.	69½ - 75	.120	.14

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
75 -86½	Arg. silt-sandstone, ct. gradational from above 1/8" siliceous lenses; locally spotted (1/8" diameter spots of biot± Po); 2% Po (Py); concentrated sulfides in silica rich bedded lenses; local (Cp) sphal 2% over 1"; 2% zones as follows: 1" at 75'; ½" at 79½'; 1" at 83'; 2" at 85'. Bedding 10-12°.	75 -85	.040	.24
86½ -89	Arg. sandstone, biotitic, mg, sandy texture; brown dk brown; 10-15% pale brown biotite; upper 1½' 4% sulf. 6 Py; 4 Po; lower 1' 10% sulf. 6 Py; 4 Po; est. .1% Cu tr Zn. (Possible variety of spotted hornfels).			
89 -99½	Arg. siltstone, grn-dk grn, f-vfg, 40% chlorite, dissem. sulfides 3% 9 Po; 1 Py; over top 2' 5% sulfides conc. in thin siliceous (exhalative?) beds with ¼"-2" 50% sulfides 9 Py; 1 Po. Narrow sphal. conc. (1/16") 91-92 with Py-Po. 94.6-94.9 - as 99½-115 (see below)	85 -95	.069	.08
99½ -115	Lenticular bedded quartzite-lenticular vfg white silica within grey, brown and green silty textured siliceous ± biot ± chlorite lenses; local conc. of sulfides - esp. 101-104 where Po-Py-sphal-Cp-galena-est. grade .3% Zn, .2% Cu, tr Pb.	95 -105	.057	.18
115 -116½	Lenticular quartzite-pale green, vfg, sericitic (cleaner than above - poss. source) Po-sphal-Py- Cp- galena est. .5% Zn, .1% Cu.	105 -120	.021	.10
116½ -124.3	Translucent green quartzite (rhyolite?) 1"-2" with in lenticular bedded unit as 99½-115 Po-Cp-sphal <.1% Cu, <.1% Zn. 2" of 50% Po (.5% Cu) at 117½ 50% recovery.	120 -124½		
124.3 -125.7	60% bull quartz in above unit; blebs and veinlets of Po-Cp ~2% Cu.			

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
125.7-126	Arg. silst. fg, green, 5% dissem. Po			
126 -128½	Massive sulfides - 80% sulfides (95% of which is Po); 20% quartz & argillaceous rounded ¼"-1" fragments; est. .5% Cu as Cp no sphal. noted.	124½-130	.270	.05
128½ -148	Lenticular bedded quartzite (rhyolite?) vfg green-translucent green. Also white siliceous lenses and sandy arg pale brown & green lenses which matrix the quartzite, near "chip conglomerate" Sulfides within and around (matrixing) siliceous fragments; 5% sulfides as Po (Py)-sphal-Cp-galena; chloritic alteration along beds 138-143. mildly pervasive i.e. even but not strong. Sphal locally abundant as follows: 136½-137½ - 2% Zn, .2% Cu, tr Pb 144½-145 - .5% Zn	130 -135	.020	.27
		135 -145	.045	.18
148 -156	Slump Breccia - lenticular white-grey fragments (15%) in a black (carbonaceous) argillaceous matrix - 2% Po, tr Cu-Zn	145 -157	.039	.08
156 -157.2	Lenticular bedded quartzite (rhyolite?) f-vfg, grey-green-translucent green; 5% Po tr Cp, sphal within and around fragments			
157.2-160	50% sulfides - bottom 1' 85% massive within unit as 156-157.2; Pb-Zn more stratified than Cu-Po (minor Py); local conc. of sphal-galena 2" at 158' (3% combined) .3% Cu within Po; upper part of section as wormy Po-Cp stringers elongate in vertical and horizontal directions.	157 -160	.209	.29
160 -165½	Lenticular bedded quartzite (rhyolite) grey-translucent green; few quartz bursts (not eyes); locally sandy lenticles, also narrow seams of black carbonaceous arg. matrix; 10% chlorite; sulfides - 3% sulfides as dissem. and local ¼"-½" bleds of Po matrixing siliceous frag's = tr Cu±Zn- 1st appearance (though minor) of x-cutting 1/16" veinlets in 2 groups: (i) Po-Cp-Py (1 veinlet) (ii) carb-qtz± Po-Py-Cy (3 veinlets)	160 -170	.028	.05

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
165½ -170'	Impure ribboned quartzite-strongly banded to wavy bedding 1/8"-1/16"; blk-grey and white beds; 40% of interval as dark bands, very siliceous with 10% oily brown biot. spots; also pale green (sericitic) 1/16" siliceous beds; 1% Po tr. Cp in strata-bound Fg blebs, locally to ½"; 1 carb-qtz-Py-coated vertical hairline fracture' few 2" pale green quartzite (rhy?) frag's as below.			
170 -182	As 160-165½ with 25% dark siliceous beds; 5% at top to 40% at base; gneissic texture to top 1' and bottom 1' (genetic interpretation-lenticular quartzite fragments in a sandy matrix).	170 -180	.009	.09
182 -185	Impure quartzite; lenticular bedded siliceous unit with pale green sericitic alteration (quite soft to knife) 2% sulf. 7 Py: 3 Po as fine ¼" Py-Po blebs. Also 2-3 carb-qtz-Py (Po) hairline fractures.			
		180 -190	.013	.02
185 -187½	Quartz-flooded zone of unit below (not a regular vein but secondary quartz) locally translucent green quartzite; 3% sulfides 8 Po: 2 Py .05% Cu tr Zn, Pb			
187½ -215½	Impure quartzite, siliceous lenses, exhalative? grey-translucent green, ¼"-2" beds in a biotite spotted sandy textured dk grey to blue (hornfels) matrix; 187½-193 irregularly bedded; Cp-sphal conc in exhalative lenses, locally these lense are altered by chlorite at margins.Po conc. in blue-grey sandy lenses; more n.b. Cu+Zn exhalative lenses as follows:	190 -200	.034	.02
		200 -210	.013	.07



PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
187½ -215½ (cont.)	2" at 191 - Cu 1" at 196 - Zn ½" at 197 - Zn 1" at 200½ - Zn 1" at 201 - Zn 4-1/16" zones 205-206 - Zn 1" at 209 - Cu - Zn 1" at 214½ 1" at 214	210 -220	.020	.04
215½ -230	Arg silst.-sandstone; 15-25% chlorite (poss. alteration of siliceous unit); even textured, poss. meta andesite; lenticular black chloritic lenses; at 224 ¼" x-cutting veinlet of dk green chlorite w Py in center to Po at edges; 2% sulf. Po (Py) dissem. tr. Cu, Zn.	220 -230	.010	.01
230 -231	Rhyolite massive, vfg, grey, rare pale blue quartz burst (like quartz eye); 10% chlorite alteration as 1" long vertical hairline fracture; few chlorite-Po-tr sphal hairline fractures.	230 -240	.012	.03
231 -236½	Arg. silst-sandstone as 215½-230 - few hairline vert. fractures with gtz-carb-chlorite-(Po-Py-Cp) 1" massive Po at 233'; 232-233 15% white siliceous (exhalative) lenses + 5% Po tr. Cp, sphal.			
236½ -243½	Lenticular bedded biotite spotted siliceous hornfels (dacite); 10% biot. spots; 15% (exhalative) white quartz-carb lenses; 2 2" irreg. qtz veins with 5% chlorite conc. at margins; rare qtz-carb-chl.-(Po-Cp) hairline vertical fracture; 2% Po, dissem.			
243½ -266½	Arg silst-sandstone as 231-236½ - but with 10-15% lenses to beds (1/8-2" thick) of white qtz-carb (50:50) (exhalative?); 3% sulfides-Po-sphal-Py-Cp conc. in exhalative lenses as follows: 4" at 245½; 246-247½; 252-253	240 -250	.010	.08
		250 -260	.025	.14

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
266½ -283	(i) Lenticular bedded biotite spotted siliceous hornfels (dacite); 15% biotite spots; (ii) lenticular grey-green siliceous lenses; (iii) tr. Cu-Zn with qtz-carb-chl.-sulf. lenses and veinlets which sub parallel bedding beds ~15° Lenticular bedded with 65% (i); 15% (ii) and 20% (iii) 281-285-across contact) 5% bedded Py with .2% galena, tr sphal.	270 -280	.016	.04
283 -288½	Quartzite-(rhyolite?); white-grey, vfg, massive silica 1-2% chlorite replacement carrying traces sphal-Cp-galena in hairline fractures; 7 Py; 3 Po; est. grade .1% Zn, Pb, tr Cu (Pb at top).	280 -290	.014	.05
288½ -303	Qtz-eye rhyolite-dacite; grey-translucent green; 3% qtz eyes 1/16"-1/4" pale blue; 5% biot. spots faintly bedded; fine wisps of Po-Cp parallel bedding; 1% carb-chl-qtz-(Po-Cp) hairline vertical fractures 1-2% chlorite alteration sub parallel to beds fewer sulfides and darkening toward base.	290 -300	.075	.02
303 -308	Qtz-eye rholite-dacite; dark grey-blk; rare qtz eye; 5-10% biot. spots; 5% chlorite wisps; <.5% sulfides; few qtz-carb-Py hairline vertical fractures.	300 -310	.022	.01
308 -312	Impure quartzite-similar to 187½-215½ lenticular bedding; grey-green to dk translucent green; few biot. spots; avg 3% sufides 1% top to 5% base - 95 Py; 5 Po tr. Cp, sphal.			
312 -345	Arg. silst.-sandstone, green-dk green, 40% chlorite even texture (poss. meta andesite); 2"-1' white siliceous±sulfide zones with Py-Po-magnetite±Cp-sphal tr. magnetite within arg silst and siliceous zones but concentrated at contacts of silica zones with arg silst. Overall 1-2% magnetite. Silica sulfide (30% as 7 Py; 3Po;.3% Cu, tr Zn)- 3% magnetite zones as follows: 312-312½, 313-313½. 3" at 317, 317½-318, 319-319½, 320-321, 3" at 322½ 325-325½, 2½: at 526½, 3" at 328, 328'-331, 3" at 333½, 4" at 325 with 1" massive sulf. at base. 318-324-pale-lime green patchy epidote alteration 341-342-bull qtz vein with 5% chlorite.	310 -320	.050	.01
		320 -330	.112	.01
		330 -340	.151	.01
		340 -350	.073	.01

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
345 -353½	Lenticular quartzite fragments, green-dk translucent green in a grey brown sandy biot spotted (30%) matrix-chip conglomerate (see DDH 12 below magnetite horizon 92-180) 1% Po-tr. Cp along irreg. bedding			
353½ -361	Arg. silst -dk green, 30-40% chlorite even textured; 4% sulfides Po (Cp-Py) Py in hairline fractures; Po (Cp) as fine wisps along bedding and with Py as ½"-2" long vertical fractures.	350 -360	.052	.01
361 -367	Similar to 345-353½ - with 50-60% biot. spotted siliceous hornfels (dacite) matrix (see 92-170 of DDH #12); grey-white-translucent green lenticular quartzite (rhyotite) chips. 1% Po-Py; at 366 zones of qtz-carb- 5% chlorite hairline fractures.			
367 -373	Arg silst., as 353½-361, 4% sulfides Po-Py-(Cp-sphal); sulfides mainly as dissem. wisps also with in qtz-carb-sulfide patches as 370-371. Cu est. .1%; tr Zn.			
373	Dip Test - 59 <sup>0</sup> uncorrected for capillary 0 corrected.			
373	END OF HOLE			

PROJECT - 149 HOLE NO. 149-76-2 COORDINATES 32N 9+60E BEARING N49'W DIP -45°  
 START Sept. 14/76 FINISH Sept 15/76 LOGGED BY D. Rae

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
0 -32	Overburden			
32 -33½	Alteration-carb-qtz-chlorite sulfides and 1"-3" patches of bull qtz. + 5% chlorite in arg silst; 15% sulfides 9 Po; 1 Py with tr sphal, Cp, galena; alt. stgrs >50% vertical and horizontal.	32-34	.017	.01
33½-58½	Arg siltstone, dk grey-dk green, 20% chlorite faintly bedded @ 2° to core perpendicular 3% sulfides as fg wisps of Po (tr. Py) along bedding; sulfides conc. in siliceous ¼"-1" lenses (exhalative) which parallel bedding dk chlorite band ½" parallel bedding.	34-40	.012	.01
		40-50	.010	.01
		50-60	.007	.01
58½-63	Biotite spotted siliceous hornfels, 15% biotite spots (gives rock a brown colour) in dk bluish grey siliceous sandy matrix. 3% Po, tr Cp along bedding; qtz-carb-chl±sulfide alteration (as 32-33½), local approx. 15% of section			
63 -63½	Alteration-as 32-33½-qtz at top, carb at bottom; Po 3% at top; basal 3" Po-sphal-galena-2% Pb-Zn over 3"	60-70	.010	.01
63½-96	Arg. silst., dk green, fg 30-40% chlorite, even textured to faintly bedded; chlorite as wispy stgrs sub parallel bedding; also faint biotite spots where sandy texture is developed; sulfides 3% Po. Py, 7Py: 3 Po to 73', below 73' Po is dominant; 5% qtz-carb±chl±sulfide lenses with traces of Zn and Cu over 1"-3". i.e. eleven zones noted from 67½-89½	70-80	.020	.02
		80-90	.012	.01
		90-100	.011	.01

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
96 -98	Biotitic, siliceous hornfels-mg; 3% Po top, 5% Py bottom 1'; tr sphal bedded with Py; 1/8" lenses qtz-carb parallel beds; 7-8° off core perpendicular approx. 20% of rock is made of these lenses giving it a distinctly banded appearance.			
98 -101	Arg. silst.-as 63½-96, qtz-carb-chl alteration 1' at 100'; ½" 7% Po, 1% sphal, minor galena, Cp at 99½.	100-105	.030	.01
101 -105	Biotitic siliceous hornfels, mg sandy texture, 15-20% biot. spots, as 96-98; bedding 7° off core axis perpendicular; few qtz-carb streaks with 3-4% sulfides as 8 Po: 2 Py: tr. Cu, Zn.			
105 -106	Arg. silst. dk green, fg, 30-40% chlorite; top 6" 30% Py + 1% sphal; lower 6" 15% Po + 1% Cp.			
106 -106½	Biotitic siliceous hornfels-as 101-105 4% dissem. Po, minor Zn.	105-115	.049	.03
106½-114	Arg. silst., green-dk green, fg, 10-30% chlorite faintly bedded; Cu-Zn concentrated in silica-carb-chl. lenses; 107-108 est. .3% Zn, 110½-113 est. .2% Zn; 5% Po top 6"; 5% Py bottom 2'.			
114 -115	Quartzite, white, vfg, massive silica (not vein) 20% alteration by Chl.-carb-sulfides (10%) 5 Py; 5 Po paralleling known bedding angle, few vertical fractures with tr. Cp.			
115 -122	Arg. silst., grey-grey green, fg; chlorite layers and wispy beds causes core to break into ½"-2" thick discs; 1-2% Po as vfg wisps along beds; .1% Zn, tr Cp over bottom 1'; 119½-120½ - 10% beds or lenses.	115-125	.019	.02

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
122 -124	Lenticular bedded impure quartzite, fg, grey, 4% sulfides 8 Po; 2 Py tr Zn; lower 4" 1% Zn with 10% Po.			
124 -126½	Slump Breccia-20% of core as lenticular quartzite-(rhyolite) 1/8"-2" fragments, pale green-white in a black carbonaceous matrix; 3% sulfides, 7 Po; 3 Py; Po as fg dissem. and as ¼"-½" lozenge shaped crystals; Py as narrow shoots parallel to irreg. bedding; <.1% Zn as fg sphal. within few qtz-carb-chl. lenses.			
126½-128	Metasandstone - 5-10% biot. spots in siliceous grey matrix, sandy texture 1% vfg dissem. Po, tr sphal.	125-135	.042	.01
128 -141	Metasandstone (quartzite)-grey, grey green, f-mg, even texture, 5-10% chlorite+sericite alteration, diffuse chlorite along bedding and also as darker green alteration zones parallel to beds; lenticular bedding at top 3'; 3% Po (Py) in local conc. and as fg wisps along bedding; .1% Cp with Po and within fine perpendicular fractures 3" at 138½ ½% sphal, ¼% Pb, ½% Cp with 7 Po; 3 Py (64%)	135-145	.095	.01
141 -145	as above (128-141) but with 20% secondary chlorite alteration; 142-142½ 10% Po with .5% Cp, minor sphal (bedded); ¼" at base with Cp, sphal, galena.	145-155	.041	.01
145 -152	Metasandstone (quartzite)-as 128-141, even sandy texture, 5% chlorite as wisps within beds, 3% Po bedded; few Po-Py-(Cp) hairline vertical fractures.			

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
152 -205	Slump Breccia-60-70% black, carbonaceous, argillaceous matrix with lensoidal to bedded 1/8" thick qtz-carb-chl. within the matrix. Pale green lense-shaped frag's of quartzite-(rhyolite) within this matrix; very contorted bedding over top 6"; local narrow Po (sphal) concentrations 160½-161½ -30% Po with <.5% Cp; also lozenge-shaped Po up to ½" in diameter; bedding is contorted around these larger crystals; .2-.3% Zn (Pb) zone as follows: 174-175, 2" at 184, 192-193; ¼% vertical hairline veinlets (i.e. not uncommon) with carb-chl-Po-Py-Cp-qtz-sphal.	155-166	.040	.02
		166-176	.020	.02
		176-186	.015	.01
		186-196	.024	.02
		196-206	.013	.01
205 -214	Slump Breccia-similar to above but with dark grey-black, biot spotted narrow siliceous beds; 5-10% biot spots, as above 30% pale green lenses of qtz-carb-(chl); 1% Po primarily as 1/4"-3/4" lozenge-shaped crystals; bed 50-20° irreg; minor Py, Cp.	206-216	.022	.04
214 -216	Slump metasandstone, greenish brown sandy texture, very highly contorted with some beds along core axis (i.e. slumped) 3" at 214½ 2% Zn finely intermixed with Po avg. 3% Po with traces sphal.			
216 -225½	Lenticular bedded biot. spotted siliceous hornfels; overall 5% biot. spots, (i) pale blue grey siliceous lenses with biotite spots: (ii) 10-30% qtz-carb-(chl) lenses and beds; (iii) few translucent green (quartzite) lensoidal beds; 2% Po as local ½" concentrations and as isolated lozenge-shaped ¼"-½" Po crystals, minor Py Po-sphal 1/8" vertical fractures at 220'.	216-226	.022	.01
225½-229	Sericitic-clay alteration of impure quartzite? cream tan white alteration as streaks and lath to circular shapes in dark vfg siliceous host; 1% Py, minor Po, traces sphal eg. ½" at 228'; beds contorted locally.	226-236	.029	.01

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
229 - 253½	Lenticular bedded biot. spotted siliceous hornfels -- as 216 - 225½ 249-250 - 25% sulphides, top 6" primarily Po with 5% Cp, 5" at base 2% Cp bedded with wormy ¼"-½" vertical growths	236 - 246	.039	.02
		246 - 254	.080	.01
253½- 256	Arg. siltstone-sandstone, f-mg, green-dark green, sandy texture; darkens downwards; 20% chlorite, few biot. spots in dark grey siliceous matrix.			
256 - 257½	Quartz vein, white, with 2% 1/8" Po (Cp) veins .2% Cu; contacts at 35° from core axis	254 - 264	1031	.01
257½- 269	Arg. siltstone-sandstone, green-dark green, f-mg, 30-40% chlorite; lenticular bedded; 2 lense types as follows: (i) dark brown-black mixture of biot.-silica and Po - 5-6% Po (Py)tr. Cu, Zn; (ii) chloritic green, f-mg, sandy with fg white (plagioclase?) spots; 3" at 260½ 4% Zn with 10% Po; local Cp <.1% with larger Po blebs; 1/8" bleb Cp at 259½	264 - 276	.017	.01
269 - 270½	Arg. siltstone, fg, lenticular bedded, 15% chlorite ie. clearer than above; 3% Po, tr. sphalerite; eg. 1" at 269½' concentrated in siliceous lense			
270½- 272½	Quartzite, grey-white fg, top 1' 5% biotite-sericite streaks, darkens with depth to 15-25% biot.-chl. over bottom 1'; 1% Po sharp lower contact at 7° off core perpendicular			
272½- 282½	Arg. siltstone-sandstone, as 257½-269, 30-40% chlorite, 20% dark green-black type (i) beds with 2-3% Po, tr. sphalerite; 2% fg white spots, possible relict plagioclite but sedimentary not flow 3% bull? qtz. blebs and narrow veins	276 - 284	.020	.01
282½- 283	Chloritic breccia, dark green, 5% black (arg.?) frags. in fg qtz.-carb.-50% chlorite matrix; 3% Po			



PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
283 - 284½	Clay alteration zone, 10% chlorite, 10% pale brown streaks in quartz-rich sediment.			
284½- 287½	Quartz vein, white, 4% Po - 1% chl. alteration top and bottom 1'; contacts at 30° to core axis	284 - 287	.018	.01
287½- 317	Arg. siltstone - as 257½-267. 3% Po, 2% quartz-chl.-carb. veins 2"-4" thick sub-parallel to bedding.	287 - 296	.016	.01
		296 - 306	.020	.01
317 - 319	Quartzite, grey, fg, massive silica, 10% biot. streaks; no quartz eyes noted; 2% Po, tr. sphal. at base.	306 - 316	.025	.01
319 - 321	Biotite spotted siliceous hornfels, 15-20% dark oily brown biot. spots, sandy texture; 10% chloritic alteration along beds; 2% Po-Py except 320½-321 contains 8-10% Po with .5% Cp.	316 - 326	.061	.01
321 - 337	Quartz-eye rhyolite-dacite; 3% pale blue 1/8" qtz. eyes; 5-10% biot. spots streaked to form a crude schistosity, 2% chlorite alteration; 2% sulphides 6 Po:4Py Cp within Po accumulations and within chl.-qtz.-carb.-Po-Py-Cp vertical fractures, est. .1% Cu, tr. Zn.	326 - 336	.082	.01
337 - 339½	Arg. sandstone, mg, grey, 20-40% chlorite 1% Po-Py tr. Cp.			
339½- 340½	Quartzite-biotite-spotted hornfels; grey massive silica with 5-10% biot. spots; gradational lower contact; bedding 13°, tr. sulphide.	336 - 346	.030	.01
340½- 345	Arg. sandstone, mg, dark grey-green, 20% chlorite few v-fg black-brown biot. spots			
345 - 345½	As 339½ - 340½.			

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
345½- 348	Biotite spotted hornfels-siliceous sediment? with 5% chlorite, 15% biot. spots; 3% Po-Py (Cp); tr. Cp with few vertical 1/4" chloritic veinlets	346 - 356	.040	.01
348 - 349	Qtz.-eye rhyolite, massive grey silica with 1-2% qtz.-eye ghosts; <5% biot. spots, minor sericite			
349 - 352	Biotite spotted hornfels - as 345½ - 348; 350 - 350½ - as 348 - 349 (qtz.-eye rhyolite)			
352 - 355	Qtz.-eye rhyolite - as 348 - 349.			
355 - 356	Biot. spotted hornfels as 345½-348 10% chlorite, tr. sphalerite.			
345 - 356	- all contacts are gradational			
356	Dip Test - 55° uncorrected for capillary ° corrected			
356	END OF HOLE			

PROJECT - 149

HOLE NO. 149-76-3

COORDINATES 34N 7+60E

BEARING N50°E DIP-45°

START Sept. 16/76 FINISH Sept. 18/76 LOGGED BY D. Rae

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
0 -25	Overburden			
25 -46	Arg. siltstone, fg, 30-40% chlorite, even silty texture; brighter green chlorite horizons 1/16" thick along beds (faint bedding ~5°); 5% of section as narrow qtz-carb lenses; <1% fg dissem. Po; sulfides conc. in qtz-carb-(chl) horizons; 4" at 44' 25% Po-conducts using ammeter over 3" of core length although sulfides do not appear interconnected (i.e. current induced); tr. Cp within Po (Py) and within 1/8" vertical veinlets.	25-35	.010	.01
		35-46	.019	.01
46 -60½	Biotite spotted siliceous hornfels - 20-30% biotite spots in a blue-grey siliceous fg, matrix; upper contact gradational over 2'; 2% fg dissem. Po; approximately 8 very narrow 1/16" conductive zones in qtz-carb-chl-4% Po lenses and beds.	46-56	.015	.01
		56-65	.010	.01
60½-66	Arg. siltstone-as 25-46 - upper contact gradational-sharp lower contact;< ½% Po 65-66½ - 25% chlorite replacement.			
66 -79	Biotite spotted siliceous hornfels - as 46-60½; 10% of interval as zones of qtz-chl.-carb-3% sulfides (8 Po; 2 Py) tr. Cp, sphal. avg. 3% fg dissem. Po with local conc. to 25% Po over ¼" (these ¼" zones conduct); 73½-74½ 7-8% apparently disseminated Po conducts over 3" core lengths.	65-75	.019	.01
79 -80	Siliceous-sericitic alteration zone - grey-pale tan, 3% chlorite, < ½% Py (Po).			
80 -83½	Biotite spotted siliceous hornfels - as 46-60½; 10-15% biot. spots more conc. to beds; 10-15% chl. top 1'-avg. 5%; 3% Po as vfg wisps parallel to bedding; few ¼" layers of 20% Po which conduct; qtz-chl.-carb-4% Po zone from 81½ to 82	75-85	.020	.01

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
83½-90	Arg. silst., green, fg, 30% chlorite, silty texture 3% Po dissem. parallel to layers; 3-1" zones of qtz-carb-chl.-(3-5% Po)-a few of these conduct over 1"	85-95	.018	.01
90 -91	Biotite spotted siliceous hornfels - as 80-83½			
91 -93	Arg. siltstone, green, fg, 40% chlorite, even silty-sandy texture; 2% sulfides 5 Po; 5 Py; 1 vert. 1/16" veinlet of qtz-carb-chl.-2% Py.			
93 -104	Arg. silst.-sandst., f-mg, streaky bedding siliceous layers, biotite-rich layers and chlorite rich layers; 1/16"-1" thick beds at 5° from core perpendicular; Po conc. in biotite-rich layers; qtz-carb-chl. (Po-Py) zones as follows: 3" at 97', 2" at 100', 101-102 with 3-1" bands, 3" at 103', with 8% Po (Py) 1% sphal-this layers conducts over 1"-2".	95-105	.024	.02
104 -105½	Biotite spotted siliceous hornfels - 20% biot. spots and streaks (as above) in pale blue-grey siliceous matrix; 4% Po conducts locally over 2"; 5-10% chlorite bands.			
105½-106	As 93-104 - appears to be progressive alteration of 104-105½ (i.e. gradational ct.)			
106 -108	Striped siltstone - peculiar striped appearance to core give by series of 2 different 1/16"-1/2" beds (i) 30%-pale blue-grey lenticular siliceous beds (ii) 70% dark biotite-rich siliceous beds; ½% vfg dissem. Po.	105-115	.019	.01
108 -115	Arg. silst - as 93-104; section 109½-111 more chloritic and even silty texture, 30-40% chlorite and more regular arg. silst.			

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
115 -116½	Biotite spotted siliceous hornfels - 15% vfg biot. spots in grey, massive silica 2-3% Po locally to 8% in 1/8" beds.			
116½-141½	In homogeneous metasediment - 2"-2' beds, dk grey-green and brown colours; varying amounts of chlorite and biotite with siliceous rich lenses - arg. 2% Po (Py) along bedding places; biot.-spotted intervals; also layers with 20-30% chlorite; tr. Cp, Zn along narrow beds.	115-125	.020	.01
		125-135	.022	.02
141½-144½	Arg. silst., fg, 30-40% chlorite, even textured to faintly bedded, 2-3% Po as vfg wisps parallel to bedding; sphal, Cp assoc. with Po along ¼"-½" beds; 2% qtz-carb-chl-sulf±sphal lenses.	135-146	.042	.02
144½-150	Lenticular bedded quartzite; 1/32'-1/16" lenticular to laminated siliceous beds with arg.-chlorite interlamination (darkens toward base to look like slump breccia only here it is very siliceous) 2% qtz-pink carb-chl. patches and ½" beds.	146-154	.040	.02
150 -173	Slumped sericitic quartzite-very contorted bedding, 5% sericite, 5% chlorite, 5% biotite 150-160 - 15% sulfides locally to 25%, 160-173 - 5% sulfides; 9 Po: 1 Py (Py-Cp mixture) local sphal-Cp with Po est. grade .2% Cu tr. Zn, Pb.	156-160	.124	.03
		160-170	.059	.01
		170-180	.090	.01
173 -234	Slump Breccia - black (carbonaceous) argillite matrixing 10-40% grey-green to white lenses (fragments) and beds of silica; 2-3% Po as ½" lozenge-shaped crystals and in 1" bedded concentrations with tr. Cp, sphal; tr. sphal-Cp-galena also with qtz-carb lenses; visible sphal (i.e. 1%) as follows 1/8" at 181', ½" at 182', 1" at 186, 1" at 191 (with Pb, Cp); 200-200½ - very contorted (slump) bedding with Zn, Pb, Py-Po, Cp along bedding; lower part of zone is more siliceous i.e. less argillaceous; 215½-216 - siltstone with fg lath crystals in silty grey matrix; 223-225 - as 150-173.	180-190	.041	.02
		190-200	.030	.01
		200-210	.025	.01
		210-220	.022	.01
		220-230	.039	.02

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
234 -235	Sandstone plus carbonaceous argillite-80% light grey siliceous sediment interbedded with 20% black argillaceous material; laminated to lenticular; <math>\frac{1}{2}</math>% Po carb-qtz (chl) $\frac{1}{4}$ "- $\frac{1}{2}$ " alteration lense.	230-240	.020	.01
235 -241 $\frac{1}{2}$	Lenticular sandstone + argillite; dark grey siliceous fg material; few light grey lenses and beds as above (234-235) tr. Cp, sphal-eg. sphal at 241'-1" in qtz-carb-chl alteration; beds irreg. but $\sim 5^{\circ}$ .	240-250	.035	.02
241 $\frac{1}{2}$ -242 $\frac{1}{2}$	Sandstone light grey f-mg, sandy textured siliceous unit' 1" Po-sphal at 242'			
242 $\frac{1}{2}$ -251	Lenticular bedded impure sandstone foliated to lenticular 1/16" beds varying in colour from pale brown to grey to green to black; 5-10% qtz-carb-(chl) beds; 3% Po as lozenge-shaped crystals and fg dissem.; traces of sphal. at 244,246,250; tr. Cp			
251 -252	Impure quartzite-sandstone-green-translucent green; wispy sericite and chlorite define a mild foliation (few perpendicular) 2% Po as $\frac{1}{2}$ " crystals, 9 Po; 1 Py with tr. Cp in association primarily with Py (beds)			
252 -258	As 242 $\frac{1}{2}$ -251; at 252' 2" -10% Po with sphal, also sphal $\frac{1}{4}$ " at 254 and 257 $\frac{1}{2}$ -258 1% Zn, tr. Cu.	250-260	.041	.04
258 -264	Lenticular bedded quartzite-rhyolite-dark brown biotitic siliceous material with grey-green slightly chloritic quartzite-rhyolite (few vfg quartz eyes under microscope) beds; 60% biotitic material at top 1' grading to 30% through center to 5% at base.	260-268	.049	.02

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
264 -268	Laminated quartzite-tuff; very finely laminated grey-green sericitic silica beds with brown siliceous layers containing 5% biot. spots; 3-5% Po-Py tr. sphal.			
268 -268½	Massive sulfides - 75% Po hosting 20% silica fragments and 5% arg. fragments (fragments are 1/8" diameter spheres); 0.2-0.3% Cu and 0.2% Zn in Po	268-269	.108	.15
268½-269	4" qtz-carb-chl.-5% sulf. (Po-sphal-Cp) alt.			
269 -285	Qtz-eye rhyolite-dacite-locally rare quartz eye is visible; lenticular bedding, 5-10% biotite spots 3% Po, vfg Cp in Po, .5% Zn, minor Py, tr. Cp ½" Zn-Cu conc. at base.	269-279	.058	.04
285 -285½	As above with 40% chlorite alteration			
		279-289	.087	.06
285½-289½	Qtz eye rhyolite-light grey to pale green massive silica with ~2% quartz eyes (visible under microscope); 5% sericite wisps parallel foliation, also 5% chlorite-biot; 2-3% sulfides 98 Po; 5 Py conc. in 1/16" conc. parallel to mild foliation; also tr. Cp within vertical hairline fractures.			
289½-295½	Lenticular bedded siltstone - 30% chlorite in grey siliceous matrix; 5% biot spots and streaks; 3% Po tr. Cp in vertical hairline fractures with minor Py.	289-299	.042	.06
295½-299	Qtz eye rhyolite, grey massive silica with 3% pale blue 1/8" qtz eyes; 3% biot. spots and streaks; 5% chlorite, sericite imparting a faint foliation; 1-2% Po-(Py, Cp) along foliation; rare Cp-Py vertical hairline fracture			

PROJECT - 149

HOLE NO. 149-76-

COORDINATES

BEARING

DIP

START

FINISH

LOGGED BY

FOOTAGE	DESCRIPTION	A S S A Y S		
		INTERVAL	CU	ZN
299 -306	Lenticular bedded siltstone, 5% biot. spots and biotitic lenses, chloritic lenses (10-15% chlorite alteration? along beds) dk green and brown colour; 2% Po conc. along lenses; 303½-304½-20% chlorite-8% Po (tr. Cp).	299-309	.031	.04
306 -324	Arg. silst.-sandst., sandy texture siliceous lenses; 40% dark green chlorite with 15% fg white spots and streaks (poss. plag. fragments) 5-10% biot.; <1% sulfides (lower contact uncertain as poor core recovery - see below)	309-313	.025	.02
324 -326	Impure quartzite, grey-grey green massive silica with 5% biot. spots; 5% sericite imparts wispy foliation, 2% Py tr. Cp along foliation			
to 326	-100% core recovery			
316-326	-20% core recovery-pieces recovered 1"-2" inter-mixed - 80% as 306-324, 20% as 324-326.			
326	No acid test			
326	END OF HOLE			



APPENDIX IV

Cu, Zn, Pb, Ag, Au ASSAYS FOR  
SIX SELECTED INTERVALS OF DDH 149-76-1

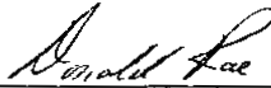
<u>SAMPLE NO.</u>	<u>INTERVAL</u>	<u>LENGTH</u>	<u>% Cu</u>	<u>% Zn</u>	<u>% Pb</u>	<u>Ag OZ/TON</u>	<u>Au OZ/TON</u>
23751	36 - 40	4	.188	.93	.08	.22	.008
23752	69½- 75	5½	.120	.14	.07	.18	.009
23753	120 -124½	4½	.093	.06	.05	.13	.006
23754	124½-130	5½	.270	.05	.05	.18	.006
23755	157 -160	3	.209	.29	.23	.32	.008
23756	135 -145	10	.045	.18	.10	.15	.006

APPENDIX V

CERTIFICATE

I, Donald R. Rae, of Vancouver, in the Province of British Columbia do hereby certify that:

1. I am a geologist residing at 1003 - 1933 Robson Street, Vancouver, British Columbia.
2. I am a graduate of the University of Toronto, Toronto, with a degree of B.Sc. (Hons.) (1970), and a degree of M.Sc. (1975) in Geology.
3. I have been practising my profession for four years.



---

Donald R. Rae, B.Sc., M.Sc.

APPENDIX VI  
COST STATEMENT

In support of an Affidavit on Application to Record Work on the DC 1-7 claims, Kamloops Mining Division.

Costs incurred in geological mapping, core logging, geochemistry, geophysical surveys and diamond drilling for the periods July 22-Aug. 16 and Sept. 9-24, 1976.

Geology

Geological mapping and logging pervious core

D. Rae - July 22 - Aug 2, 1976; 12 days @ \$60/day	\$ 720.00
E. Gammel - Aug 1, 1976; 1 days @ \$40/day	40.00

Geophysics

Establishing lines, EM16, magnetometer and CEM surveys

D. Rae - Aug. 2-14, 16; 14 days @ \$60/day	840.00
J. Hemelspeck - Aug. 2-7; 6 days @ \$55/day	330.00
E. Gammel - Aug. 1, 4-7, 9, 10, 12, 13, 16; 10 days @ \$40/day	400.00
Equipment Rental	1,035.00
Consultants Fees	183.00

Geochemistry

Soil Profile Sampling

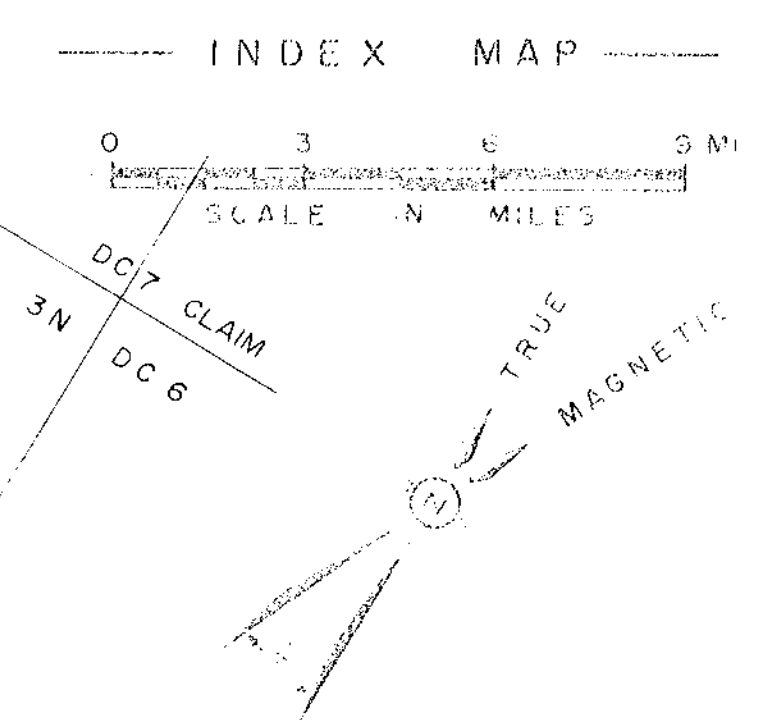
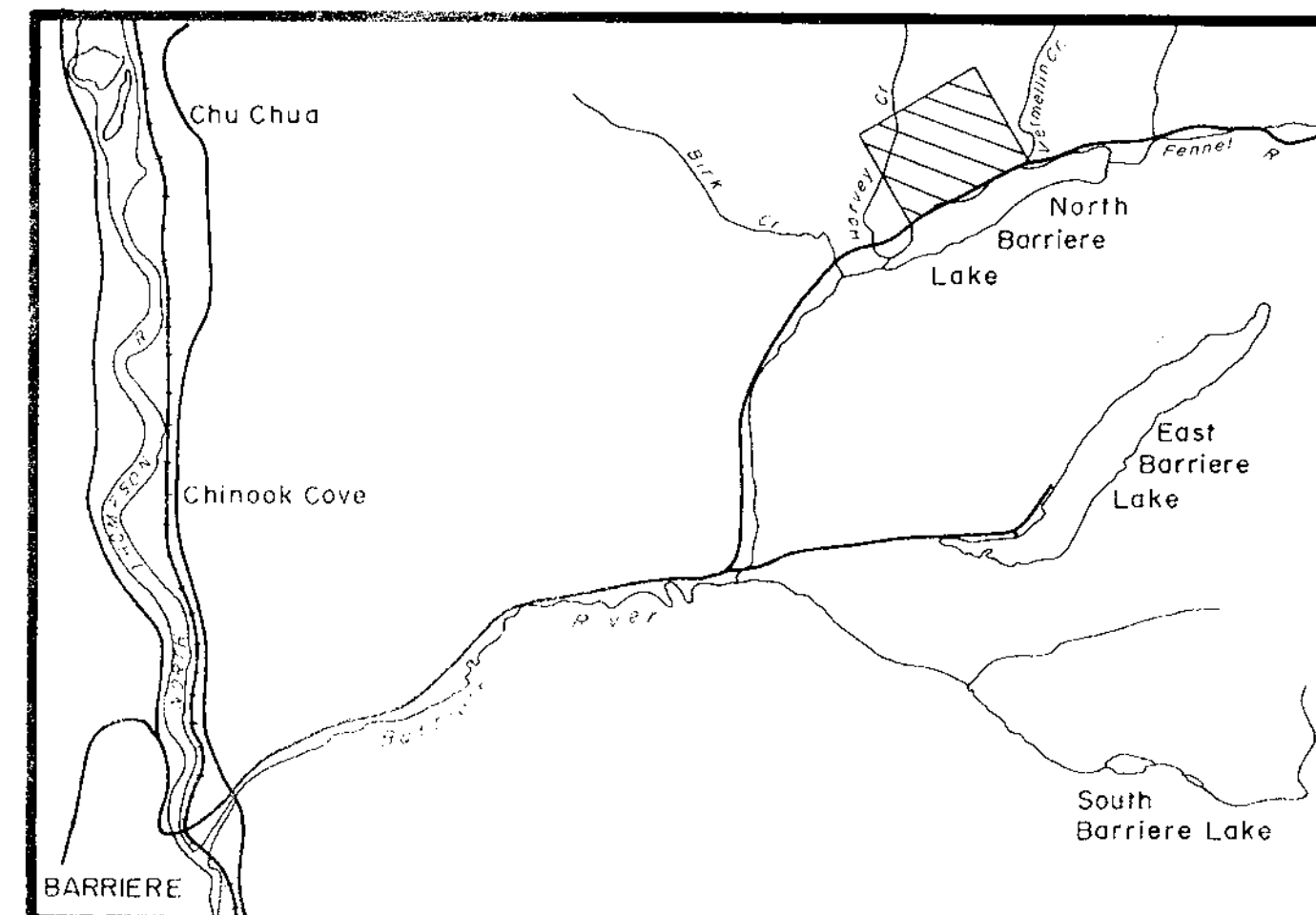
D. Rae - Aug 15; 1 day @ \$60/day	60.00
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Diamond Drilling

Footage Charges - 1055' @ \$13/ft.	13,715.00
Supervision and Core logging	
D. Rae Sept 9-20; 12 days @ \$60/day	720.00
Power Saw Clearing Right of Way	
J. Hemelspeck - Sept. 16-18; 3 days @ \$55/day	165.00
Core Splitting	
J. Hemelspeck - Sept. 20-24; 4 days @ \$55/day	220.00
Assays and Geochemical Costs	1,118.00

<u>Board and Lodging</u>	
D. Rae and J. Hemelspeck	\$ 1,618.00
<u>Supplies</u>	323.00
<u>Truck Rental</u>	877.00
<u>Draughting, Interpretation and Report Preparation</u>	
D. Rae - 11 days @ \$60/day	660.00
S.G. Diakow - 4 days @ \$50/day	200.00
	<u>200.00</u>
TOTAL	<u>\$23,224.00</u>

  
R.E. Fraser, Accountant.



NORTH BARRIERE LAKE

6177

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
NO. 6177  
MAP NO. #1

CANADIAN SUPERIOR EXPLORATION LIMITED  
KAMLOOPS BRITISH COLUMBIA

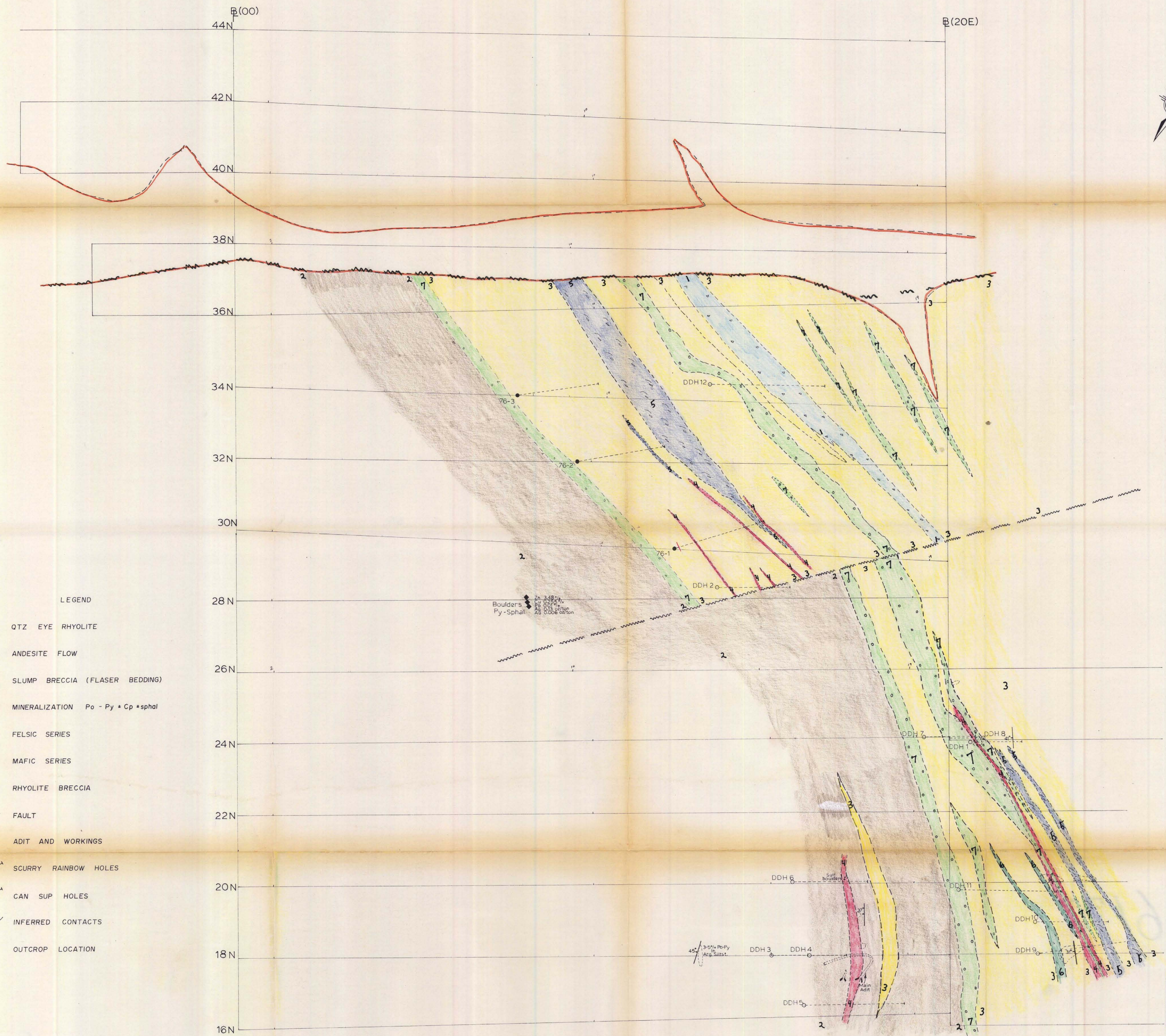
NORTH BARRIERE LAKE PROPERTY

LOCATION MAP FOR ROADS, TRENCHES,  
ELEVATION CONTOURS AND  
DIAMOND DRILL HOLES

FIGURE 2

Tech. Work By: \_\_\_\_\_ Date: OCTOBER 1976  
Drawn By: T.V. & DR. \_\_\_\_\_ Scale: 1" = 200'  
Approved By: \_\_\_\_\_ Drawing No. \_\_\_\_\_

# BARRIERE GEOLOGY



### LEGEND

- 7 [Symbol] QTZ EYE RHYOLITE
- 6 [Symbol] ANDESITE FLOW
- 5 [Symbol] SLUMP BRECCIA (FLASER BEDDING)
- 4 [Symbol] MINERALIZATION Po - Py \* Cp \* sphal
- 3 [Symbol] FELSIC SERIES
- 2 [Symbol] MAFIC SERIES
- 1 [Symbol] RHYOLITE BRECCIA
- [Symbol] FAULT
- [Symbol] ADIT AND WORKINGS
- [Symbol] SCURRY RAINBOW HOLES
- [Symbol] CAN SUP HOLES
- [Symbol] INFERRED CONTACTS
- [Symbol] OUTCROP LOCATION

6177

MINERAL RESOURCES BRANCH
ANNUAL REPORT
NO. 6177
MAP NO. #2

CANADIAN SUPERIOR EXPLORATION LIMITED

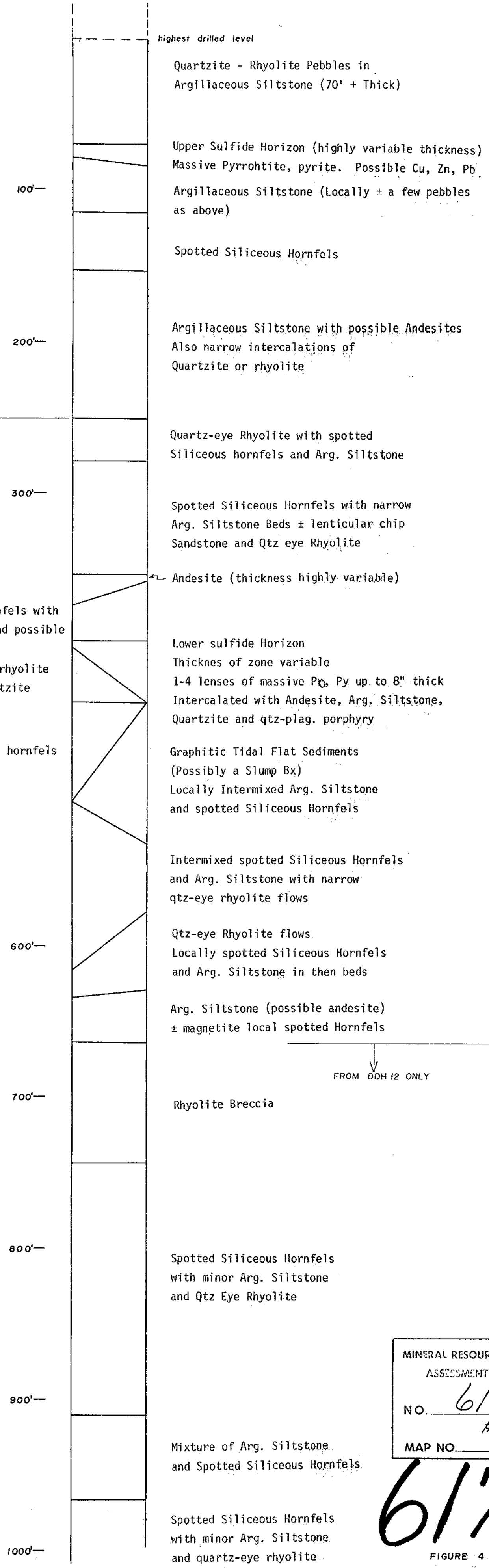
GEOLOGY MAP

GEOLOGICAL REPORT

SCALE 1" = 100'

IDEALIZED STRATIGRAPHIC SECTION  
THROUGH THE DRILLED SECTION  
OF THE DC GROUP

FELSIC SERIES  
↕  
MAFIC SERIES

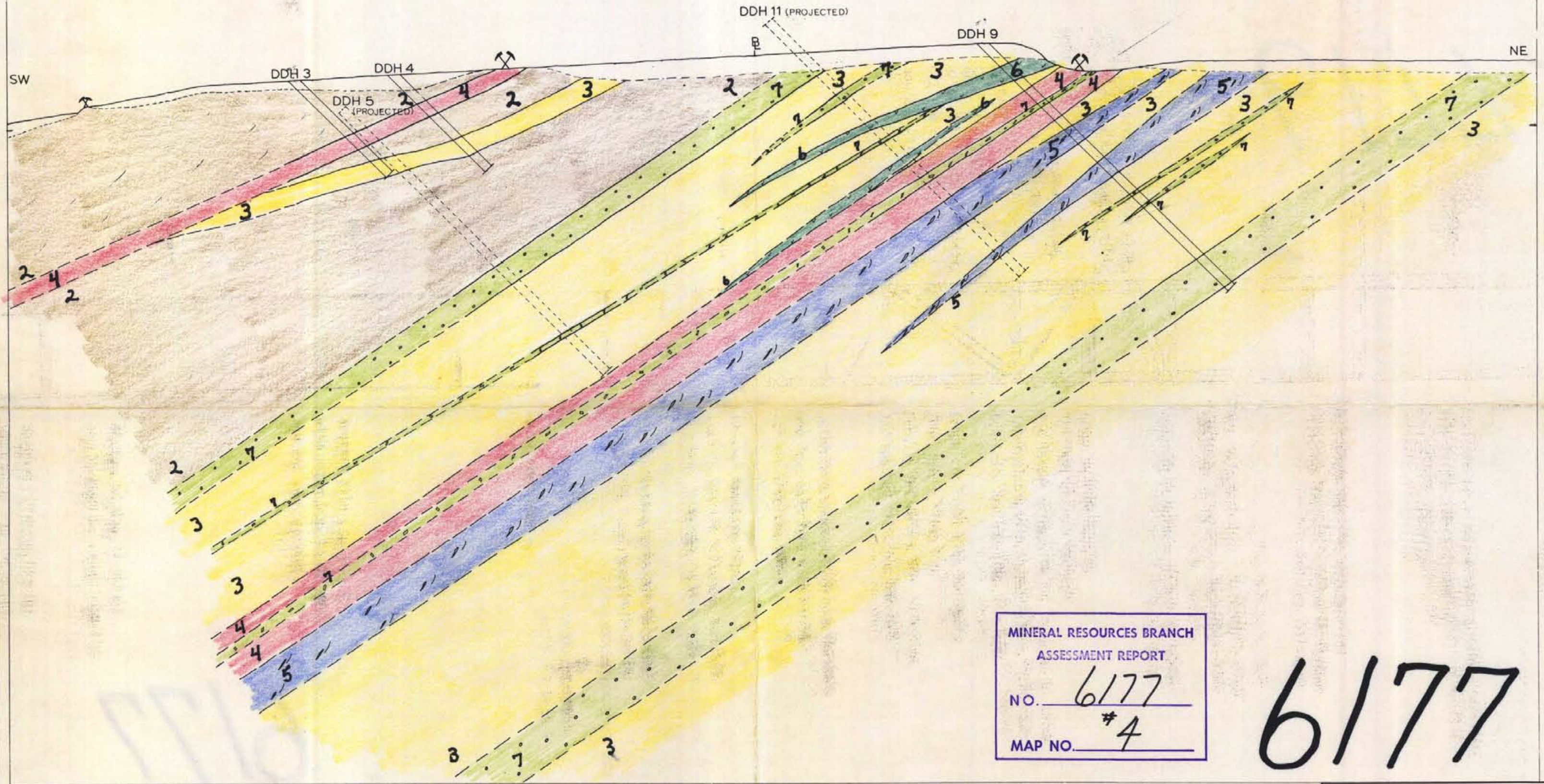


SCALE 1" = 50'

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
NO. 6177  
#3  
MAP NO.

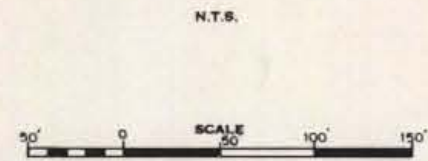
6177

FIGURE 4



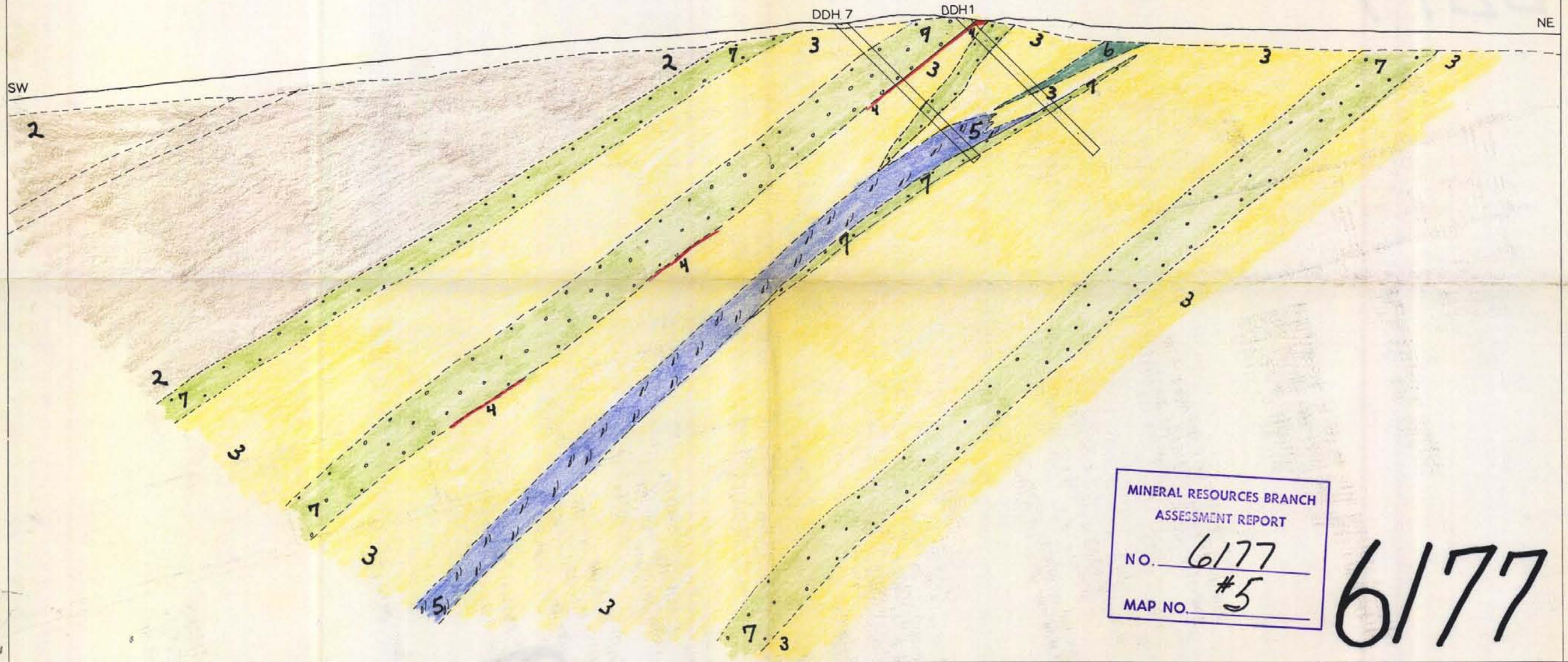
MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
 NO. 6177  
 #4  
 MAP NO. 4

6177



CANADIAN SUPERIOR EXPLORATION LIMITED  
 D C GROUP - N. BARRIERE LAKE  
 SECTION AT N58°E  
 ALONG LINE 18N  
 FIG 5(a)  
 Nov. 76. Scale: 1" = 100' DWG. D. RAE

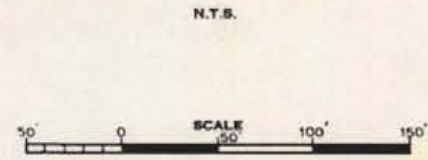


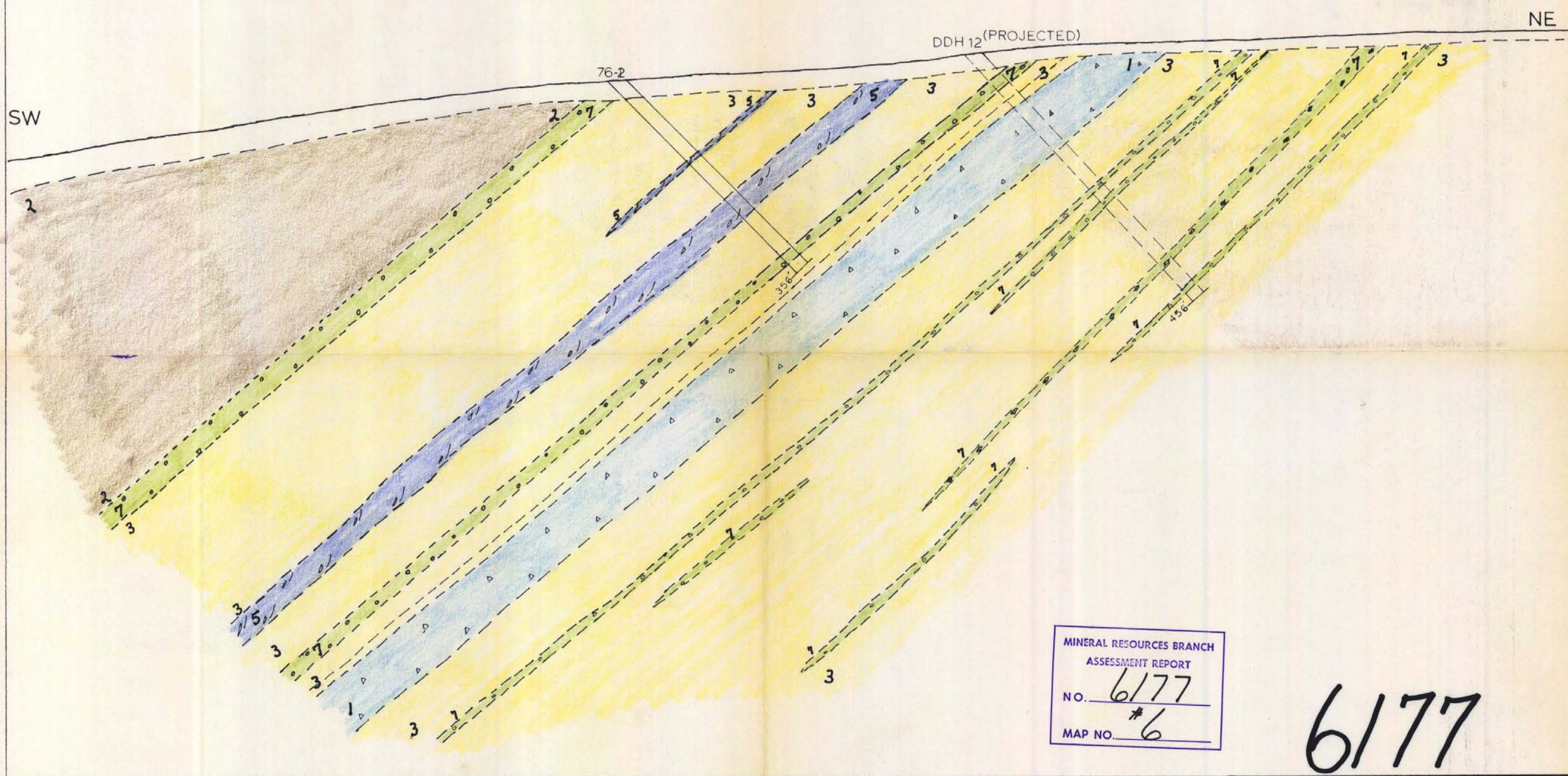


MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
 NO. 6177  
 #5  
 MAP NO. 5

6177

CANADIAN SUPERIOR EXPLORATION LIMITED  
 DC GROUP - N. BARRIERE LAKE  
 SECTION AT N58°E  
 ALONG LINE 24N  
 FIG 5(b)  
 NOV 76 Scale: 1:100' DWG. D. RAE





MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
 NO. 6177  
 #6  
 MAP NO. 6

6177

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DC GROUP - N. BARRIERE LAKE

SECTION AT N50°E  
 THROUGH DDH 76-2

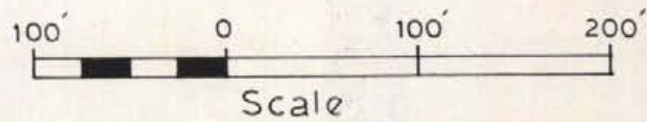
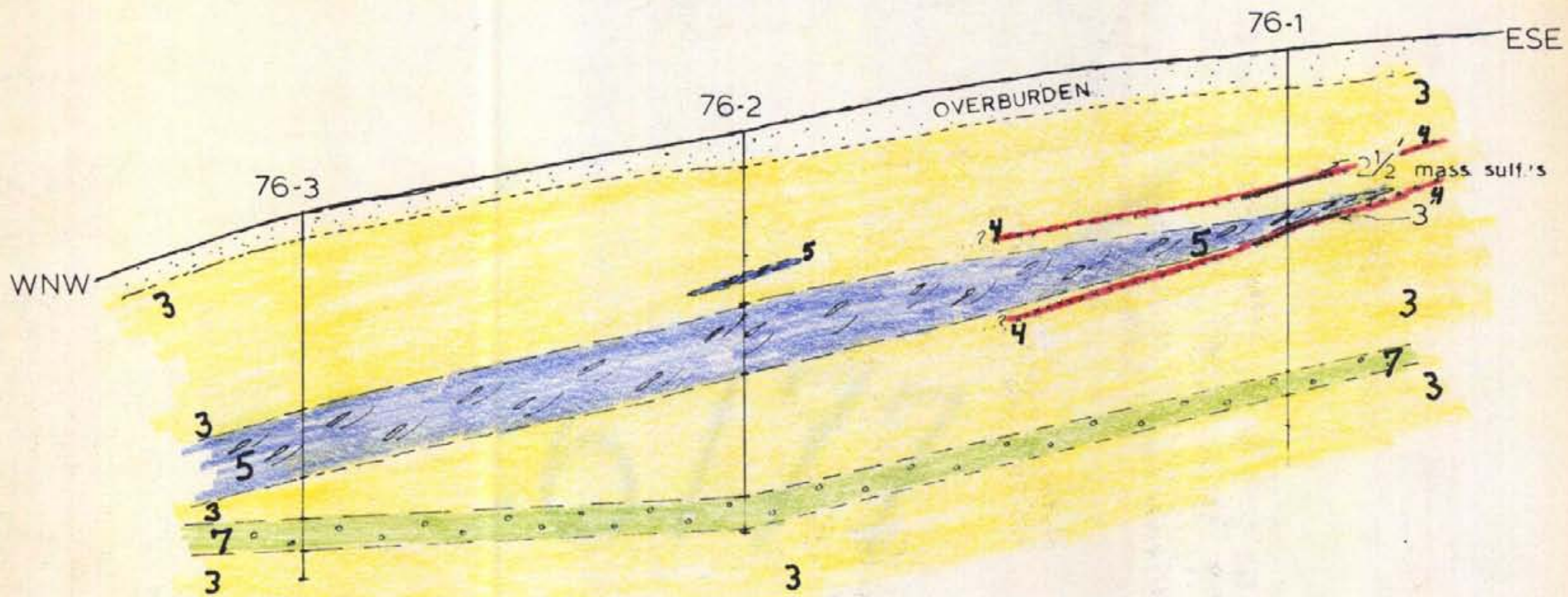
NOV. 76

1"=100'

DWG. DRAE



N.T.S.

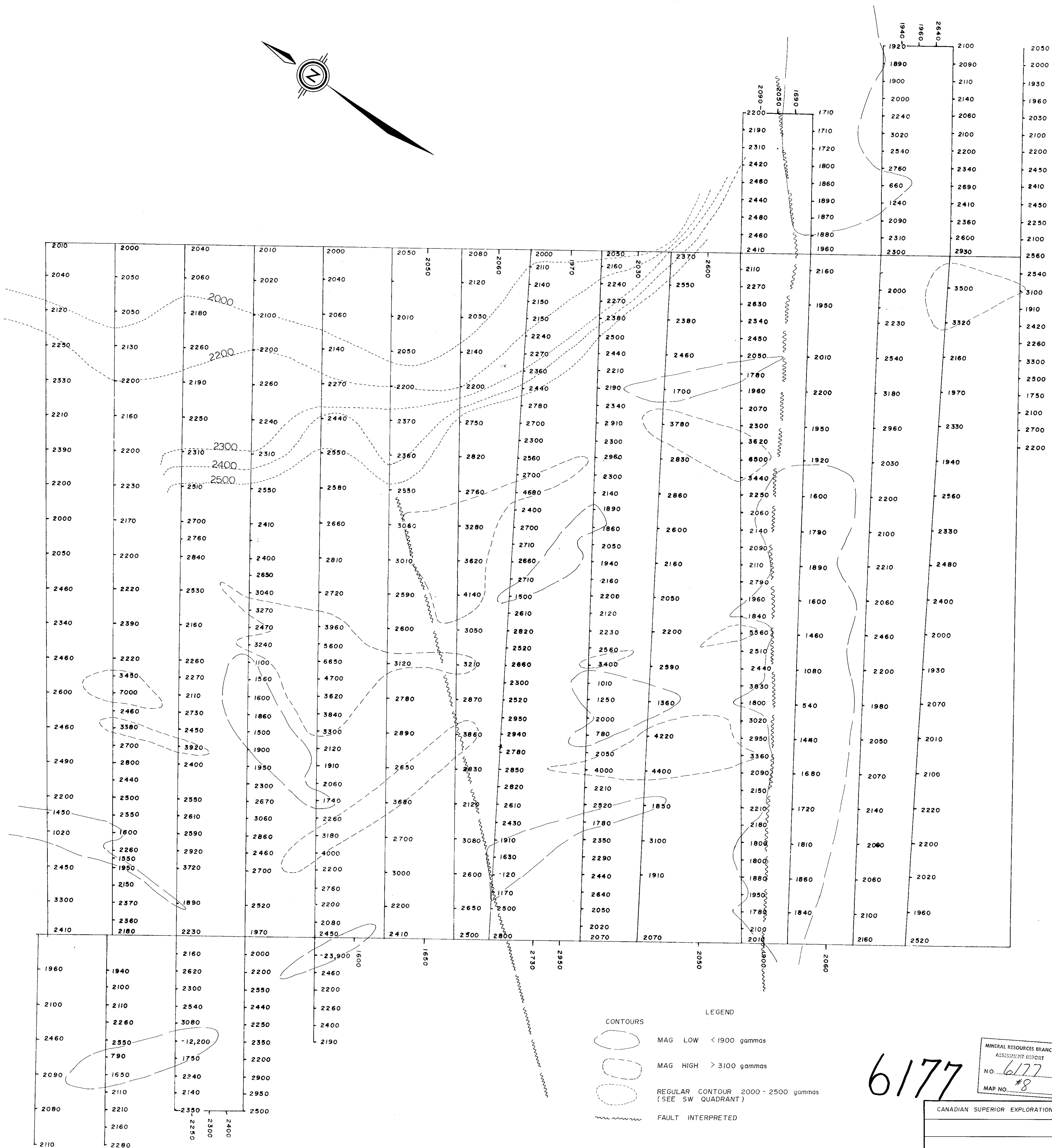
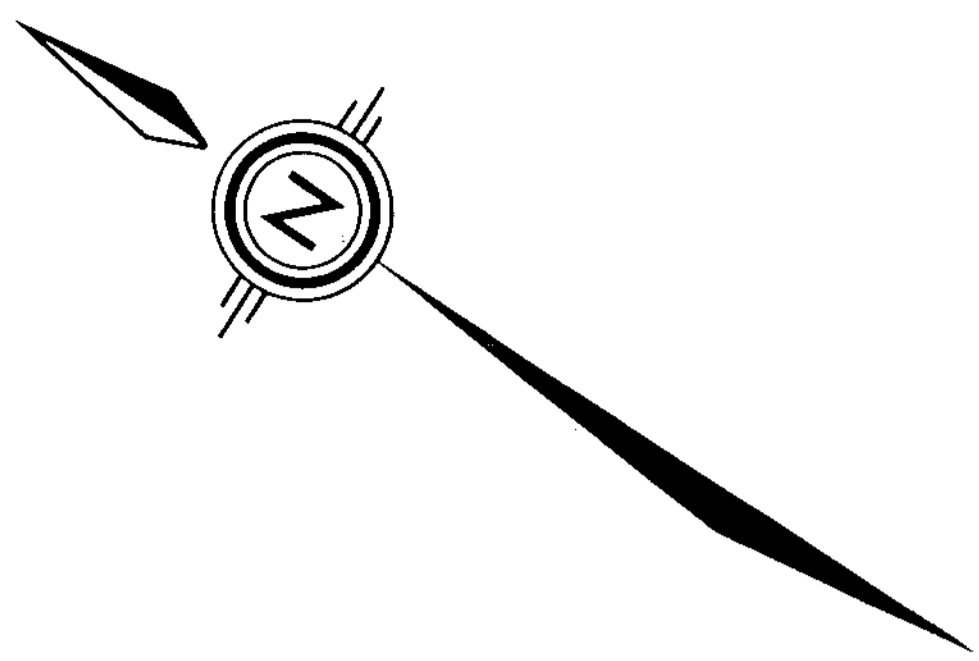


SECTION THROUGH  
DDH 76-1, 2 & 3

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
NO. 6177  
MAP NO. #7

FIG. 5 (d)

6177



CONTOURS  
 MAG LOW < 1900 gammas  
 MAG HIGH > 3100 gammas  
 REGULAR CONTOUR 2000 - 2500 gammas  
 (SEE SW QUADRANT)  
 FAULT INTERPRETED

SCALE 1"=100'

MINERAL RESOURCES BRANCH  
 ASSESSMENT REPORT  
 NO. 6177  
 MAP NO. #8

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MAGNETICS MAP

GEOL. D. RAE