

DU PONT OF CANADA EXPLORATION LIMITED

GEOLOGICAL, GEOCHEMICAL, GEOPHYSICAL

AND DIAMOND DRILL REPORT

ON THE BILL CLAIMS

LIARD MINING DIVISION

LAT. 54°45'N, LONG. 127°45'W

NTS: 94-E-13

OWNER OF CLAIMS: Cominco Ltd. and Du Pont of Canada  
Exploration Limited

OPERATOR: Du Pont of Canada Exploration Limited

part 1  
of 2

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T.J. Drown

Date Submitted: 1984 March 7

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

11,493

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## SUMMARY

The 1983 program on the BILL claims consisted of geochemistry, geophysics and diamond drilling. In total, one hundred and eighty-eight soil samples were obtained. Approximately fifteen line kilometres were surveyed utilizing both VLF-EM and magnetometer. Diamond drilling included six holes totalling 1174.71 metres.

## CONCLUSIONS

A compilation of the geochemistry completed to date including Cominco 1981 and Du Pont 1982/83 programs, reveals the following:

- a. Several Au/As anomalies are apparent.
- b. The two most extensive Au/As anomalies are located in the vicinity of 2+00S to 7+50S between the baseline and 10+00W. It was these two anomalies which were tested by the 1983 drill program.

In order to further define these two anomalies, detailed soil sampling is required on lines 5+50S to 7+00S from baseline to 10+00W and on lines 7+50S to 11+50S from baseline to 10+00W.

- c. Other Au/As anomalies are evident and require further delineation in the form of reconnaissance soil sampling. These are in the following areas:
  - . Baseline/6+00N area
  - . 3+00N to 4+00S; 3+00E to 6+00E
  - . 8+00S to 12+00S; baseline to 5+00W
  - . Baseline/15+00S area

Data obtained from the geophysical surveys proved extremely valuable in selecting drill targets.

Magnetometer surveying reflected lithology as well as what appears to be a subtle low associated with the mineralization. The VLF-EM revealed several north-south trending conductors indicative of lithology, faulting and mineralized fault zones. Three of these conductors coincide with gold in soil anomalies. The most significant gold values were returned from holes using the coincident VLF-EM and Au in soil anomalies as targets. In view of the above, both magnetometer and VLF-EM surveys should be conducted over all new geochemical grid areas.

Diamond drilling results are encouraging. Three of the six widely spaced holes, DDH B83-1, 2 and 6 contained intersections of greater than 0.100 oz gold/ton (3.43 g/tonne) six of which were in excess of 0.300 oz/ton. The maximum value returned was 1.020 oz gold/ton (34.97 g/tonne). A fourth hole, DDH B83-3, while not carrying any values greater than 0.100 oz gold/ton (3.43 g/tonne), did encounter six intersections of between 0.023 oz gold/ton and 0.079 oz gold/ton (0.789 - 2.71 g/tonne).

To evaluate the potential of the area containing these four holes, the following is recommended:

- a. Fill in drilling between DDH B83-1 and DDH B83-3.
- b. Undercut holes below DDH B83-1, 2 and 6 to test depth continuity of mineralized zones.

Further testing of coincident VLF-EM and soil anomalies requires the drilling of reconnaissance holes along a line from line 3+50S, 3+50W to line 5+50S, 4+00W. In addition, at least two holes in the vicinity of L4+00S, 8+50W and L5+00S, 8+50W are suggested.

The most favourable unit for mineralization is a rhyolite tuff with associated sericitic alteration. Commonly, arsenopyrite-bearing quartz veins and/or fault zones are coincident with mineralized intervals of the rhyolite tuff. Andesitic and dacitic tuffs are also mineralized. Typically mineralized sections in these units are carbonatized and carry a high proportion of arsenopyrite-bearing quartz carbonate veinlets. Lower order gold mineralization occurs in units which do not fulfill any of the above specifications. Gold mineralization is not consistently related to arsenic mineralization.

A petrographic study and spectrographic analyses have been completed.

A comprehensive compilation of spectrographic analyses, petrographic studies and core derived mineralization and alteration data should be undertaken in order that a plausible model be postulated.

## INTRODUCTION

### 1. Introduction

The 1983 program on the BILL claims consisted of two phases.

The initial phase, completed in the latter half of June, included soil geochemistry, VLF-EM, and magnetometer surveys.

Diamond drilling, based on the interpretation of both the above and previously acquired geological and geochemical data, commenced July 5th and concluded August 1st. Six holes totalling 1174.71 metres were completed.

### 2. Location, Access, Logistics

The BILL 1, 2 and 3 claims are located 135 km southeast of Dease Lake, British Columbia within the Liard Mining Division, NTS 94E/13 (Lat. 54°45'N, Long. 127°45'W).

Access to the claims is via helicopter from either the Sturdee Valley airstrip which lies 75 kilometres to the southeast or the Hyland Post airstrip, 28 km to the southwest. Helicopter support was provided by Airlift Corporation, utilizing a Hughes 500D. During the initial phase of the program, the camp was serviced by the helicopter at Baker Mine. While drilling was in progress, a helicopter was based at the BILL camp.

Provisions were obtained from Smithers, the major supply centre for the region, located 260 km south of Sturdee Valley. These were flown via the DOX Twin Otter into Sturdee Valley or Hyland Post.

Due to inclement weather and topographic location, communication utilizing a CP34 radio was poor.

An SBX-11 radio phone was available during drilling and once again transmission and reception were very poor the majority of the time.

### 3. Physiography/Climate

The BILL claims are situated in the Stikine Ranges. Elevations range from 1500 to 2000 metres above sea level.

Tree line is at approximately 1500 m and the claims are predominantly above this elevation. Vegetation below tree

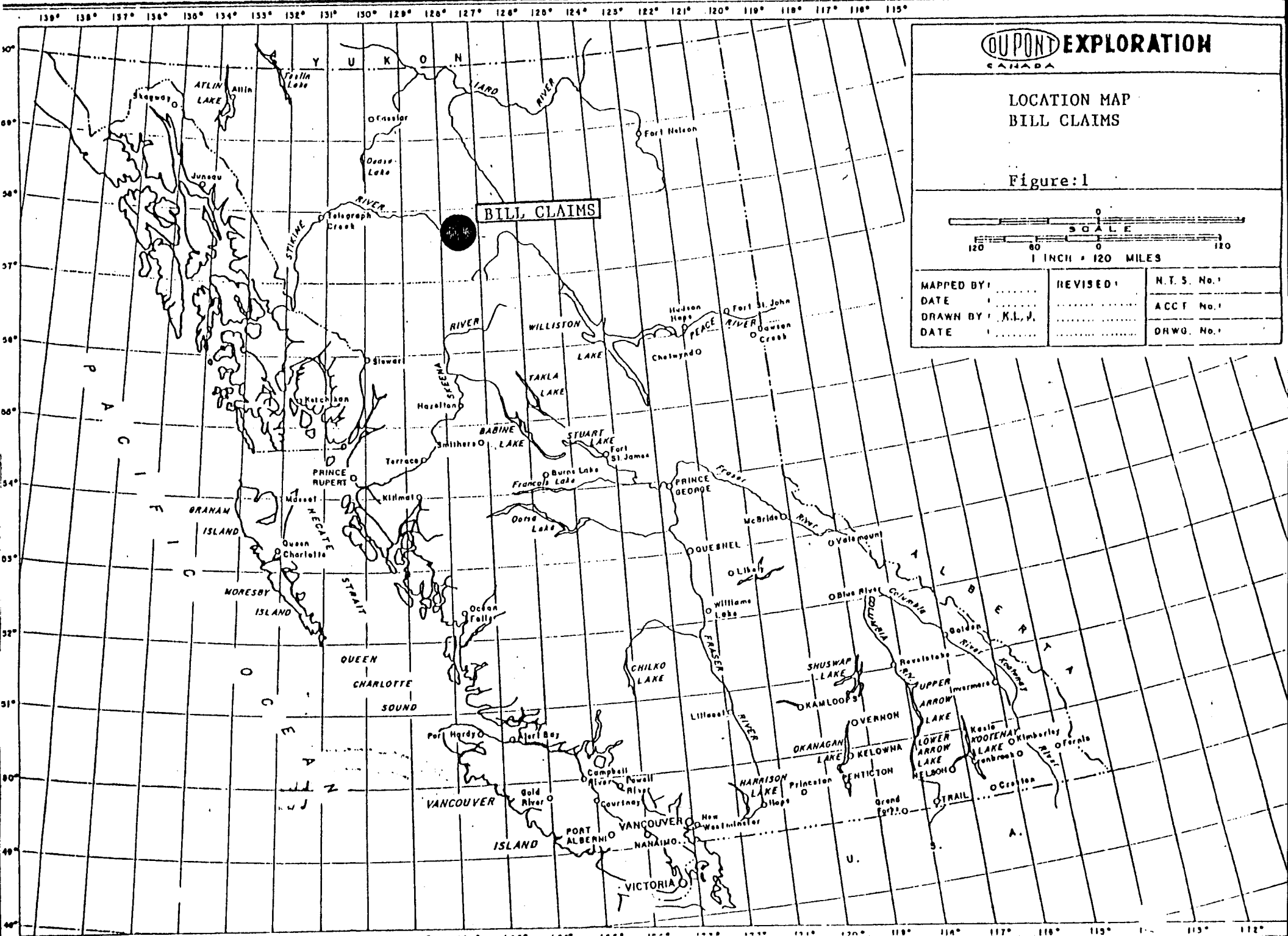


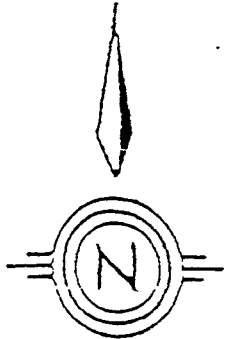
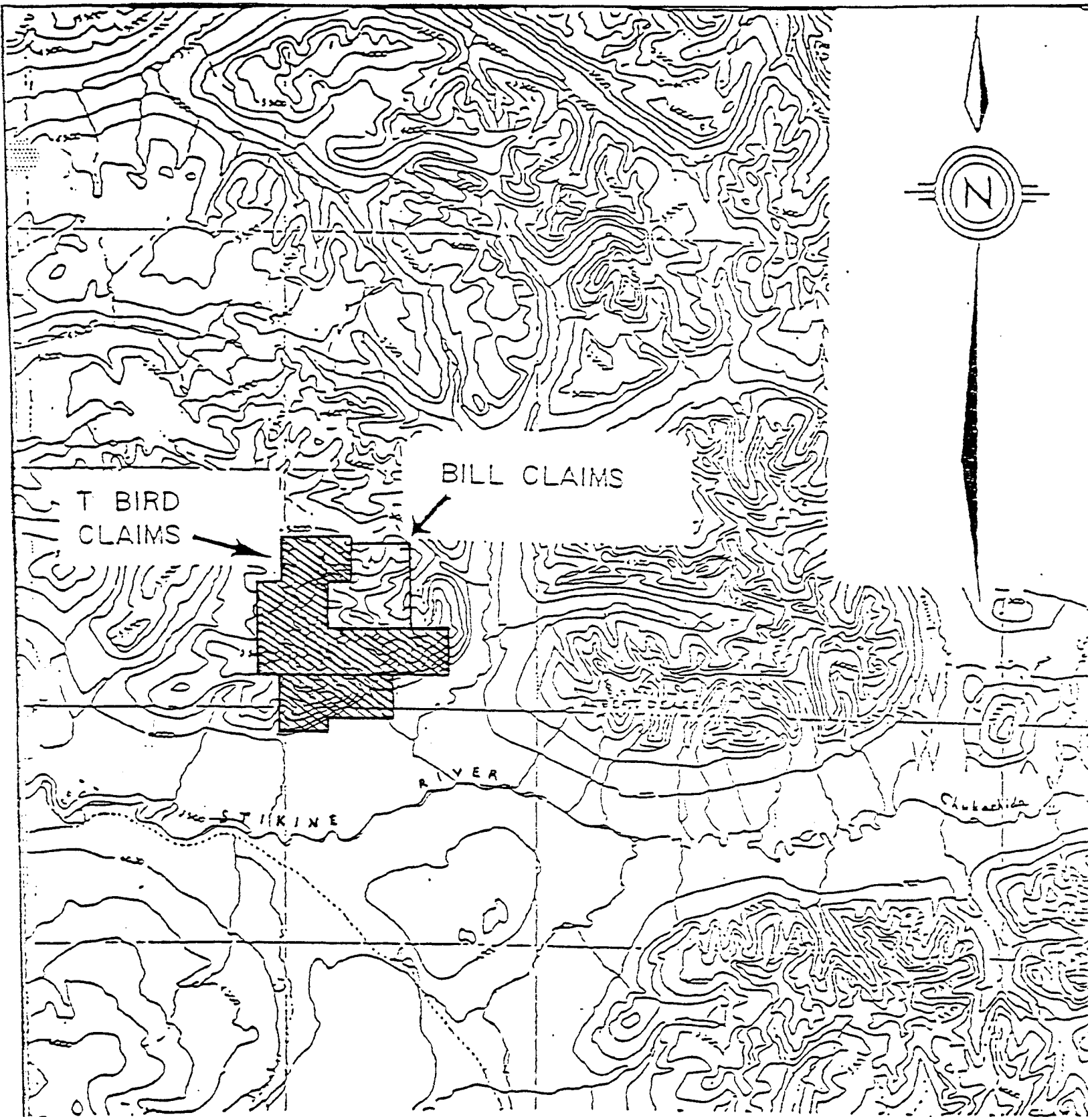
LOCATION MAP  
BILL CLAIMS

Figure: 1



MAPPED BY: .....	REVISED: .....	N.T.S. No.:
DATE: .....	.....	ACCT No.:
DRAWN BY: K.L.J.	.....	DHWG. No.:
DATE: .....	.....	.....





T BIRD  
CLAIMS

BILL CLAIMS

RIVER

STIKINE

SCALE

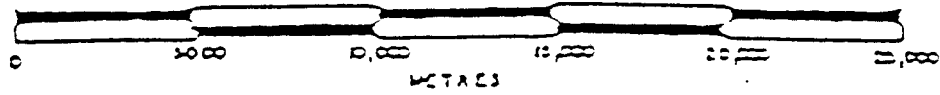


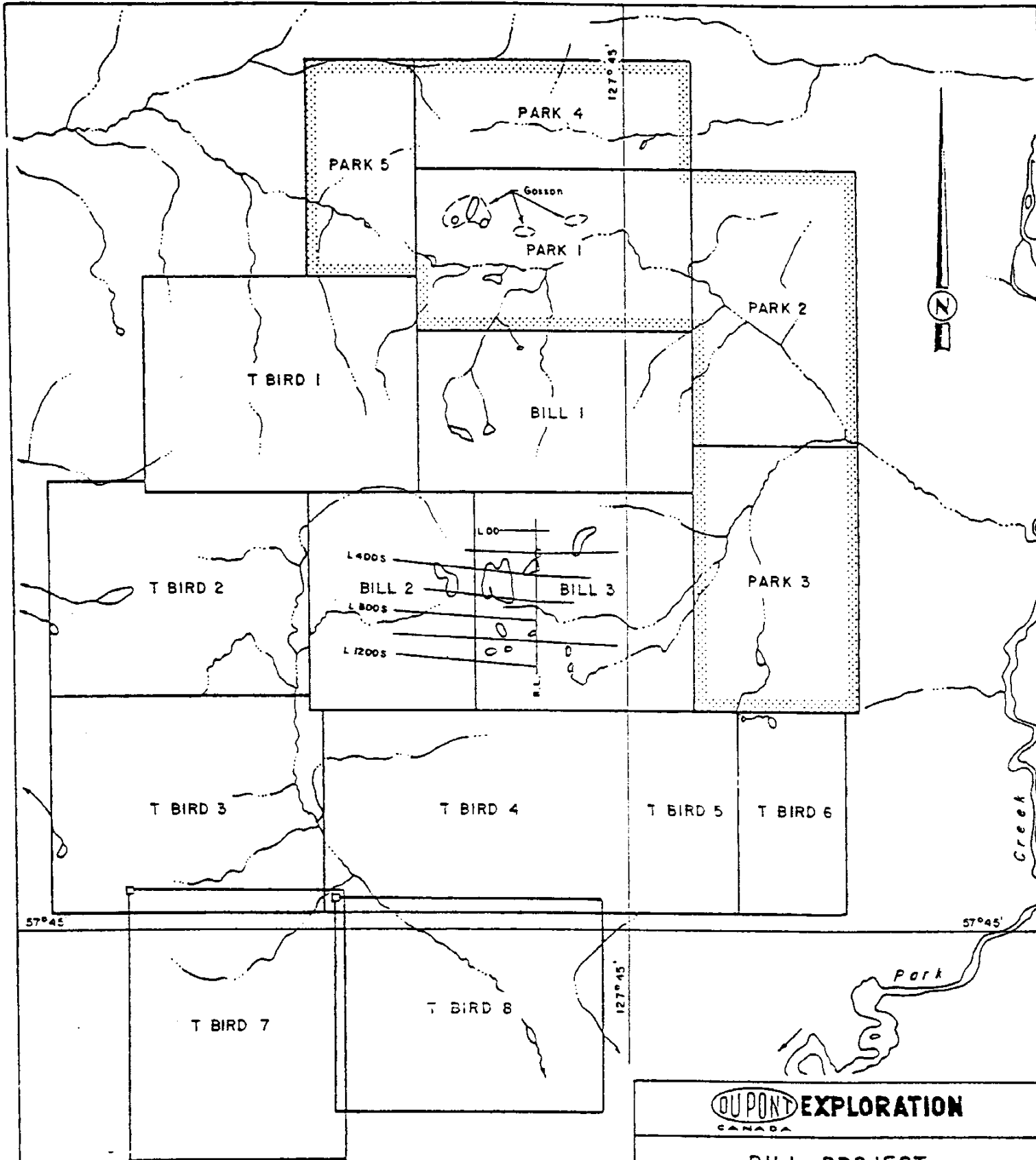
Figure: 2

NTS  
94.E




TOODOGGONE RIVER

OCTOBER 1983

LOCATION MAP  
BILL CLAIMS, T BIRD CLAIMS

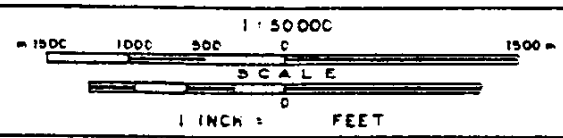


**LEGEND**

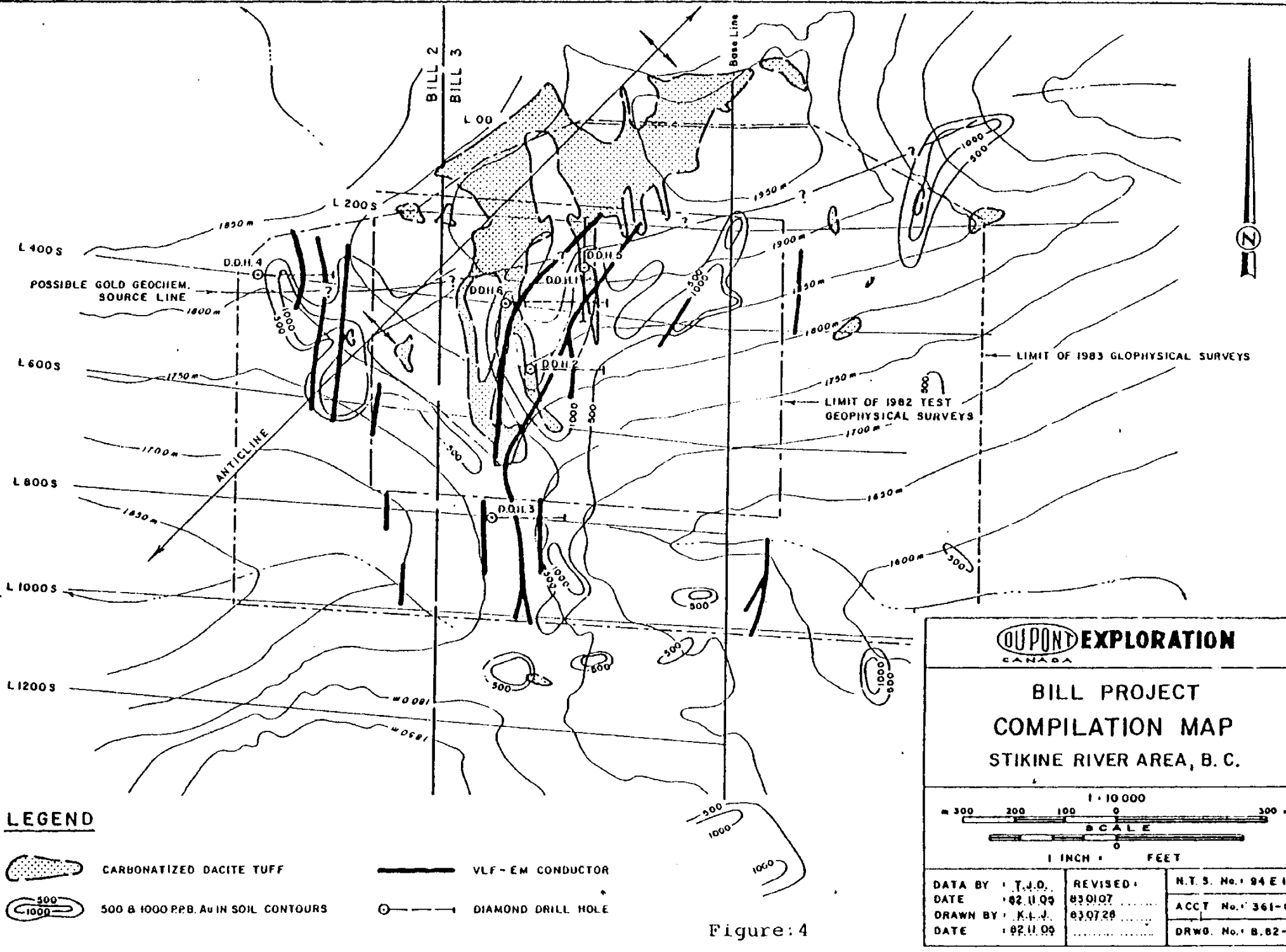
-  GOSSAN
-  GOLD SOIL GEOCHEMICAL CONTOUR > 1000 P.P.M.
-  PARK CLAIMS - OWNED BY DU PONT  
(BILL & T BIRD CLAIMS OWNED BY COMINCO)

**DU PONT EXPLORATION**  
CANADA




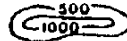
**BILL PROJECT  
PROPERTY MAP  
STIKINE RIVER AREA, B. C.**



DATA BY : D.A.B.	REVISED :	N.T.S. No. : 94 E 13
DATE : 18.11.05	ED. M. G. P.K.	ACCT No. : 361-00
DRAWN BY : K.L.		



**LEGEND**

-  CARBONATIZED DACITE TUFF
-  VLF-EM CONDUCTOR
-  DIAMOND DRILL HOLE
-  500 & 1000 P.P.B. Au IN SOIL CONTOURS

**DUPONT EXPLORATION**  
CANADA

**BILL PROJECT  
COMPILATION MAP  
STIKINE RIVER AREA, B.C.**

1 : 10 000

m 300 200 100 0 300 m

SCALE

1 INCH = FEET

DATA BY : T.J.D.	REVISED : 03/07	N.T.S. No. 94 E 13
DATE : 02.11.09	03/07	ACCT No. 361-00
DRAWN BY : K.L.V.	03/07	DRWG. No. B.82-2
DATE : 02.11.09		

Figure: 4

line consists of a dense cover of conifers. Small shrubs, willows and grasses are dominant above 1500 m.

Weather conditions during the greater part of the program were extremely poor. Cool temperatures coupled with intermittent rain, snow and hail were prevalent.

#### 4. Property Definition

The BILL and T-BIRD claims consist of 11 claims totalling 183 units. See Figure 3.

<u>Claim Name</u>	<u>No. of Units</u>	<u>Record No.</u>
BILL 1	15	1199
BILL 2	12	1200
BILL 3	16	1201
T-BIRD 1	20	1891
T-BIRD 2	20	1892
T-BIRD 3	20	1893
T-BIRD 4	20	1894
T-BIRD 5	12	1895
T-BIRD 6	8	1896
T-BIRD 7	20	83 08 29 Recorded
T-BIRD 8	20	83 08 29 Recorded

#### 5. Property History

In 1976 Cominco Ltd. conducted a reconnaissance program for volcanogenic massive sulphides in the Chuckachida River area. Anomalous values obtained from the stream sediment samples when analyzed for precious metals in 1978, led to the staking of the BILL claims in March 1980 and the T-BIRD claims in April 1981.

During the 1981 field season, Cominco completed an extensive program. A grid was surveyed in with a transit and picketed every 100 metres.

Detailed geological mapping on a scale of 1:5000 was conducted over most of the BILL 2 and 3 claims. In addition, extensive soil and rock samples were obtained from the grid area. Six trenches were excavated.

Geochemistry defined several anomalous zones of arsenic and gold.

Limited VLF-electromagnetic and magnetic surveys were unsuccessful in defining any reliable target areas.

The 1982 program, operated by Du Pont, consisted of detailed soil geochemistry, trenching and sampling, VLF electromagnetic and magnetic surveys as well as a test induced polarization survey.

Geochemical results reproduced the exceptionally high gold and arsenic soil anomalies. The induced polarization failed to delineate any areas of interest. The electromagnetic survey produced a well defined conductor trending in a north to north-west direction.

## 6. Personnel 1983

### a. Du Pont Personnel

J. Forbes	- Geologist	June 5 - August 5
L. Holmgren	- Geologist	June 5 - July 4
		July 28 - August 5
J. McKay	- Geol. Assistant	June 5 - July 4
P. Webb	- Geol. Assistant	June 5 - June 20
L. Parish	- Core Splitter	July 4 - August 5
	- 1st Aid Attendant	" "

### b. Airlift Personnel

June 5 - August 5

T. La Grandeur	- Pilot
M. Freudlund	- Pilot
J. Bhanwar	- Pilot
T. Pham	- Pilot
J. Watson	- Engineer

### c. Blasting Personnel

June 30 - July 8; July 13 - July 20

B. Richards	- Blaster
D. Wiebe	- Blaster's Assistant

### d. D. W. Coates Personnel

July 4 - August 2

N. Reinhart	- Foreman, Driller
B. Phillips	- Driller
E. Thompson	- Helper
R. Dougan	- Helper
M. Reser	- Cook

GEOCHEMISTRY1. Procedurea. Grid Upgrading

A 1.0 x 1.5 km portion of the previously existing Cominco grid was detailed including the following:

<u>Line</u>	<u>Station</u>	<u>Notes</u>
0+00N	3+00W- 1+50E	Inaccessible due to terrain
1+00S	5+00 - 3+00E	and/or snow conditions:
2+00S	6+50 - 5+00E	10+00W-3+00W; 1+50E-5+00E,
3+00S	9+50W- 5+00E	10+00W-5+00W; 3+00E-5+00E,
4+00S to		10+00W-5+50W, 10+00W-9+50W
10+00S	10+00W-5+00E	

The Cominco grid was originally picketed at 100 metre intervals. Detailing was accomplished in the following manner:

- . Many of the 100 metre pickets were in place from prior years. These acted as a reference and were also reused where possible.
- . Intermediary pickets were topofilled in and placed every 50 metres. These were then flagged and marked denoting line and station location.
- . The 100 metre pickets were flagged, spray painted florescent orange at the tips and marked denoting line and station location.
- . All base line pickets were flagged, completely spray painted florescent orange and marked denoting line and station location.

b. Survey Areas

Two areas of interest were geochemically surveyed. The first included lines 7+00S to 10+00S extending from 5+00W to 10+00W. These soils were collected every 50 metres. Forty samples were obtained. The second portion of the grid to be examined was an extension of the 1982 detailed soil survey and was comprised of the following:

<u>Line</u>	<u>Station</u>
3+00S	5+20W - 9+60W
3+50S	5+00W - 10+00W
4+00S	5+20W - 10+00W
4+50S	5+40W - 10+00W
5+00S	5+20W - 10+00W
5+50S	5+20W - 10+00W

Samples were taken at 20 metre intervals and a total of 148 were collected.

c. Sampling Procedure

Soils were obtained from a depth of 15-30 cm including both "B" and "C" horizon representatives. Where the sample location was in talus, talus fines were collected. The samples were placed in numbered Kraft bags and the sample location marked by flagging bearing the grid location and sample number.

All samples (188 in total) were shipped to and analyzed by Min-En Laboratories Ltd., North Vancouver, BC. The soils were dried, sieved to -80 mesh, and analyzed for gold and arsenic. All rejects are being held in storage.

For details regarding analytical procedures, see Appendix A.

2. Results

A compilation of the geochemistry completed to date including the Cominco 1981 and Du Pont 1982/83 programs reveals the following:

- a. Several Au/As anomalies are apparent (i.e., As>100 ppm Au>500 ppb).
- b. The two most extensive Au/As anomalies are located in the vicinity of 2+00S to 7+50S between the baseline and 10+00W. These have been confirmed with detailed soil sampling from 3+00S to 5+50S extending from baseline to 10+00W. It was these two anomalies which were tested by the 1983 drill program.
- c. Other Au/As anomalies are evident and require further consideration:
  - . baseline/6+00N area
  - . 3+00N to 4+00S; 3+00E to 6+00E



- . 8+00S to 12+00S; baseline to 5+00W
- . baseline/15+00S area

Additional observations with respect to the above anomalous zones can be made.

Anomalies are elongated in a north-south direction. The extent to which this is a function of grid orientation is at present undetermined.

On surface Au/As values most often overlay carbonitized volcanic rocks, mixed volcanic rocks and dacitic tuffs. Although low values obtained from trenching geochemistry suggest that soils are not reflective of the underlying stratigraphy, a close correlation of geophysical and geochemical anomalies indicate that the soils are predominantly in situ.

Anomalous As values are very extensive and are not necessarily accompanied by Au values. Where Au and As are coincident, the gold is inevitably more restricted in extent than the arsenic and generally lies slightly downhill of the As.

The two Au/As anomalies on the western portion of the grid appear to mirror each other over a northwest trending anticlinal axis.

Although the Au geochemistry is truncated by a thrust fault in the northwest corner of the grid, the As is not affected. This further indicates As/Au coincident anomalies as being reflective of rock type.

### 3. Recommendations

- a. Detailed soil sampling is recommended for the following areas. Known geochemical Au/As values occur but sample density is too low to ascertain geochemical trends.

- . Lines 5+50S to 7+00S from baseline to 10+00W.
- . Lines 7+50S to 11+50S from baseline to 10+00W.

Twenty metre sample intervals and 50 metre line spacings are required.

- b. Reconnaissance samples utilizing 100 metre lines and 50 m sample spacing should be completed within the general vicinity of the BILL grid. This will enable the delineation of Au/As anomalies only partially defined by previous limited sampling.

- . Lines 11+00S to 16+00S from baseline to 10+00W
- . Lines 6+00S to 16+00S from baseline to 5+00E
- . Lines 0+00N to 7+00N from 3+00W to 6+00E

#### 4. Statistics

A statistical analysis with respect to geochemical data was completed in 1982 (Copeland & Drown, 1982). For additional information, see Appendix B.

### GEOPHYSICS

#### 1. Introduction

In 1982, a geophysical orientation survey (Glen E. White - Appendix C) was completed over the midwestern portion of the grid. Induced polarization failed to delineate any reliable target areas. The VLF-EM response produced a well defined conductor trending north to northwest roughly coincident with the geochemical anomalies. Although magnetometer response was weak, several linears were interpreted and thought to be related to possible fault zones.

In light of the above, it was decided to survey a larger area of the grid in detail utilizing VLF-EM and magnetometer.

#### 2. Procedure

##### a. Magnetometer Survey

A Scintrex MP-2 Proton Precession Magnetometer was utilized to survey the detailed portion of the grid (0+00N to 10+00S; 5+00E to 10+00W). Readings were taken at 10 metre intervals along the grid lines.

Base station readings were noted every 10 minutes using a McPhar H-700 Fluxgate.

Results were corrected for diurnal variations with the aid of a graph plotted from the base station observations. Magnetometer data are plotted and contoured on drawing Nos. B.83-4 to 7.

##### b. VLF-Electromagnetometer Survey

The Sabre VLF-EM unit with a Model 27 VLF-EM receiver was utilized to survey the detailed portion of the grid (0+00N to 10+00S, 5+00E to 10+00W). Data was

collected every 10 metres. The transmitter used was Hawaii with a frequency of 23.40 Khz.

Results were Fraser filtered (Appendix D). This data is represented on drawing No. B.83-8 to 11.

### 3. Results

The 1983 VLF-EM and magnetometer surveys only partially collaborate results derived by G. White, 1982. Discrepancies may be attributable to the density and precision of the readings, variation in instrumentation, and the different VLF-EM station utilized.

#### a. VLF-EM Results

The VLF-EM response is generally weak with the maximum filtered value attained being  $+20^\circ$ .

Contouring of the Fraser filtered VLF-EM data reveals a strong north south trend which may be partially biased by the grid orientation.

Several anomalies in the  $+10^\circ$  range are apparent and occur sporadically over the entire grid.

Three portions of the grid as discussed below, contain roughly coincident gold in soil anomalies and VLF-EM conductors.

A well defined Y-shaped conductor extends from L10+00S, 4+20W to 7+00S, 4+45W. The conductor then divides. The eastern branch reaches L2+00S, 1+75W while the western branch continues to L3+50S, 4+00W. The western fork is much weaker, possibly due to the increased overburden. Anomalous gold geochemistry ( $>1000$  ppb) can be correlated with both the eastern and western branches to the south, however, the gold geochemistry ( $>500$  ppb) is offset 100-130 metres east and downslope of the conductor. This zone appears to be partially underlain by a tongue of carbonatized dacitic tuffs.

The northwest corner of the grid between L3+00S and L6+00S contains three narrow parallel features,  $10^\circ$  to  $12^\circ$  in magnitude. These are only partially coincident with anomalous gold geochemistry. This zone is underlain with dacitic tuffs and carbonatized dacitic tuffs.

In the vicinity of 2+00S to 4+00S, from baseline to 1+50W, a small  $+10^\circ$  conductor, anomalous ( $>500$  ppb)

gold values, and a magnetometer high (400-450 ) are all proximal.

The 1983 diamond drill program has provided information enough for only a very general and preliminary evaluation of the Y-shaped conductor. The two remaining target zones have not as yet been drilled.

Diamond drillhole data suggests that VLF conductors reflect lithology, faults, as well as mineralized fault zones.

b. Magnetometer Results

The moderate magnetometer response of the property was confirmed. All readings were in the 58,000 gamma range.

Although the magnetic low linears as interpreted by G. White were not reproduced by the 1983 survey, it is of interest to note that the central linear that White did define, correlates well with the strongest 1983 VLF-EM anomaly encountered on the property.

The following becomes apparent upon consideration of the contoured magnetometer survey results.

A uniform, though weak magnetic response corresponds to the carbonitized dacite tuff across the northern portion of the grid.

Magnetic highs (450 + Y ) appear to have a dual significance. On the southwest portion of the grid (L8+00S, 1+00W; 2+00W) a known diorite plug is delineated. Two corresponding highs further to the west (L8+00S, 5+00W; 7+00W) may be an extension of the same plug. Alternatively, the magnetic highs are found in close proximity, but peripheral to the VLF-EM conductors. This may indicate a subtle magnetic low associated with the mineralized zones.

4. Recommendations

- a. VLF-EM and magnetometer surveys should be completed using 10 metres spacings over all new geochemical grids.
- b. An attempt should be made to close the VLF-EM conductor in the north-west corner of the grid, where topography made traversing difficult.

DIAMOND DRILLING1. Summary

During the period 1983 July 4 - August 2, six diamond drill holes totalling 1174.71 metres evaluated several geophysical/geochemical targets within the BILL claim group. D.W. Coates Enterprises Limited of Richmond, BC, performed the drilling utilizing a Longyear Super 38 drill modified for helicopter slinging. The drill was mobilized from Kidd Creek Mines' camp some 49 km to the southeast with a Hughes 500D. The drill is being stored through the winter at the BILL claims. All drill moves were accomplished using a Hughes 500D helicopter. Drill moves averaged 1 1/2 hours.

Drilling on the property is generally good. Core recovery for all six holes averaged 96%. Overburden is shallow, ranging from 2.44 to 4.88 m in DDH B83-1 to B83-5, up to 10.06 m in DDH B83-6. Casing was retrieved from all holes.

All holes were inclined initially at  $-45^{\circ}$  and steepened with depth. The dip on bottom varied from  $-56^{\circ}$  to  $-79^{\circ}$ . Dips deviated much less when drilling east as opposed to drilling south. Acid dip tests were utilized in DDH B83-1, DDH B83-2 and in the upper portions of DDH B83-3. Thereafter, Sperry Sun tests were utilized providing azimuth information in addition to dip data.

Steep topography necessitated prepared sites for all six drill holes. Blasting and site preparation was completed by Dieter Developments Limited of Smithers.

2. Procedurea. Core Preparation

- . All core boxes were labelled with dymo dype indicating the hole, year, box number and meterage interval.
- . Core was photographed in three box intervals. A card bearing hole, year, box numbers included, and the meterage interval, were present in each photograph.
- . Core recovery was measured in two metre sections.

- . Rock quality determinant was measured in two metre sections using the sum of all sections of core greater than 10 cm.

b. Sampling

A total of 544 samples consisting of split two metre sections, were transported by fixed wing aircraft to Smithers, and Pacific Western Airlines to Vancouver. These were subsequently analyzed by CDN Resource Labs, Delta, BC. Each sample was assayed for Au (fire assay) and arsenic. Assaying procedures may be found in Appendix E. All holes were split and assayed in their entirety with the exception of DDH B83-3. Below meterage 116.00 in DDH B83-3 every other 2 m section was split and assayed.

c. Core Storage

Core for DDH B83-1 to DDH B83-6 is stored at the 1983 camp site in lidded boxes.

3. Check Assays

Samples in excess of 0.05 oz Au/ton (1.72 g/tonne), in addition to eleven samples containing high As but less than 0.05 oz Au/ton (1.72 g/tonne) have been check assayed by Chemex Labs for Au and As, respectively.

Results from the check assays indicate reproductively of the CDN values with two notable exceptions.

Samples 4693E and 4695E (DDH B83-3, 10-12 m; DDH B83-3, 14-16 m) carry 0.60% and 0.02% As according to CDN. Values obtained by Chemex were 0.333% and 0.626% respectively.

Appendix F contains both a complete list of check assays and fire procedures utilized in obtaining them.

4. Drill Hole Data

a. Drill Hole Summaries (Table 1, Table 2)

- . DDH B83-1 (L3+00S, 3+00W - Dwg. B.83-12)

Drilled to a depth of 209.10 m, DDH B83-1 tested a 500 ppb Au and 1000 ppm As soil anomaly. No significant VLF-EM or magnetometer values are present in the area. The hole was drilled south (180°) on the

TABLE 1

DDH SUMMARY - BILL CLAIMS

DDH #	Location		Elevation (m.asl)	Dip		Azimuth		Total Length	Casing	Date Drilled (from-to)	Core Recovery (%)
	Line	Station		Initial	Final	Initial	Final				
B83-1	300S	300W	1910 m	-45°	-79°	180°	--	209.10 m	4.88 m	Jul.8-Jul.11/83	97%
B83-2	500S	400W	1850 m	-45°	-58°	90°	--	198.73 m	4.88 m	Jul.13-Jul.17/83	93%
B83-3	800S	470W	1760 m	-45°	-64.5°	90°	97°	189.89 m	2.44 m	Jul.19-Jul.22/83	97%
B83-4	400S	940W	1800 m	-45°	-56°	90°	95°	167.94 m	3.96 m	Jul.23-Jul.24/83	97%
B83-5	299S	300W	1910 m	-45°	-58.5°	0°	11°	112.17 m	3.35 m	Jul.26-Jul.27/83	99%
B83-6	400S	450W	1885 m	-45°	-68°	90°	66°	296.88 m	10.06 m	Jul.28-Aug.1/83	94%

Total Metres: 1174.71

Average Core Recovery: 96%

TABLE 2

## DDH INTERSECTION SUMMARY - BILL CLAIMS

DDH #	LINE	STATION	TARGETS		Magnetometer	INTERSECTIONS (>0.100/ton Au; 3.428 g/tonne)			Mineralized Unit	
			Au ppb (soil)	Au ppm (soil)		VI-F-EM	Au oz/ton	Au g/tonne		Interval (metres)
1	3+00S	3+00W	500	1000	5° or less	Background	0.124	4.251	76.0-78.0	Dacite tuff
							0.365	12.514	102-104	Brecciated tuff and fault zone including an aspy bearing quartz vein
2	5+00S	4+00W	5000	2000	Two at 10°	Background	1.020	34.971	52-54	Rhyolite tuff in fault zone
							0.347	11.897	94-96	Rhyolite tuff and an aspy bearing quartz vein
							0.150	5.143	120-122	Andesite tuff containing quartz bands and aspy bearing quartz carbonate veinlets
3	8+00S	4+70W	100	500	One at 15° One at 20°	Background				
4	4+00S	9+40W	<100	500-1000	5° or less	Background				
5	2+99S	3+00W	500	1000	5° or less	Background				
6	4+00S	4+50W	500	1000	Two at 10°	+450 gamma	0.405	13.886	60-62	Rhyolite tuff and an aspy bearing quartz vein, both located within a fault zone
							0.380	13.029	116-118	Rhyolite tuff, aspy bearing quartz vein, dacite tuff
							0.260	8.914	118-120	Dacite tuff
							0.350	12.000	126-128	Rhyolite tuff and an aspy bearing quartz vein both located within a fault zone



northern extremity of the anomaly. Initial inclination of the hole was  $-45^\circ$ . The angle on bottom as determined by acid test was  $-79^\circ$ .

Two intersections of greater than 0.100 oz/ton Au (3.43 g/tonne) were encountered. At 76.0-78.0 m, 0.124 oz/ton Au (4.25 g/tonne) is present in a dacitic tuff unit. Between 102-104 m, a brecciated rhyolite tuff and fault zone which includes an arsenopyrite-bearing quartz vein carries 0.365 oz/ton (12.51 g/tonne).

. DDH B83-2 (L5+00S, 4+00W - Dwg. B.83-13)

DDH B83-2 tested coincident 5000 ppb Au/2000 ppm As soil anomalies and two  $10^\circ$  VLF-EM conductors. The hole was drilled to a depth of 198.73 m. Drilling was east ( $90^\circ$ ). The initial hole inclination was  $-45^\circ$ . The angle on bottom measured by acid test was  $-58^\circ$ .

Three intersections of greater than 0.100 oz/ton Au (3.43 g/tonne) were encountered. The first, at 52-54 m, was the highest assay returned from all six holes. At this depth, 1.020 oz/ton Au (34.97 g/tonne) was intersected within a faulted rhyolitic tuff. A rhyolite tuff and arsenopyrite-bearing quartz vein hosted 0.347 oz/ton Au (11.90 g/tonne) at 94-96 metres. At a depth of 120-122 m, one andesite tuff containing quartz bands and arsenopyrite-bearing quartz carbonate veinlets assayed 0.150 oz/ton Au (5.14 g/tonne).

The mineralized fault zone at 52-54 m, as well as the mineralization at 120-122 m and adjacent fault zone, each coincide with a VLF-EM conductor as well as reflect the Au/As anomalies on surface.

. DDH B83-3 (L8+00S, 4+70W, Dwg. B.83-14)

Drilled to a depth of 189.89 m, DDH B83-3 tested a 100 ppb Au/500 ppm As soil anomaly in addition to  $10-15^\circ$  and  $10-20^\circ$  VLF-EM anomalies. Drilling was to the east ( $90^\circ$ ) attempting to intersect the VLF-EM highs. Dip and azimuth on bottom as indicated by Sperry Sun tests were  $-64.5^\circ/97^\circ$ .

Although no significant intersections ( $>0.100$  oz/ton Au; 3.43 g/tonne) were encountered, six intervals with values ranging from 0.023-0.079 oz/ton (0.789-2.71 g/tonne Au) were encountered.

Two fault zones located at approximately 66 m and 122 m coincide with the VLF-EM anomalies. Au mineralization of 0.032 oz/ton and 0.023 g/ton (1.097-0.789 g/tonne) respectively is associated with the fault zones.

. DDH B83-4 (L4+00S, 9+40W, Dwg. B.83-15)

DDH B83-4 was drilled east (90°) to test a 500-1000 ppm As anomaly. It was also hoped that the thrust fault as mapped on surface would be intersected, however, this did not occur. The hole reached a depth of 167.94 m with dip and azimuth on bottom being -56°/95° as indicated by Sperry Sun tests.

No significant intersections were encountered. Surprisingly low As values predominantly <0.01% are present in the hole.

Surface anomalies suggest that the thrust fault truncates the gold mineralization and this is substantiated by the drilling results.

The intersection of an extensive graphitic unit (5D) could explain the 10° VLF-EM anomaly located on L5+00S immediately south of DDH B83-4 as well as the 10-15° VLF-EM anomaly located directly north of the drill hole on L3+00S.

. DDH B83-5 (L2+99S, 3+00W, Dwg. B.83-12)

DDH B83-5 was drilled to a depth of 112.17 m. The target was a 500 ppb Au and 1000 ppm As soil anomaly, thought to be a source area for Au-As mineralization. No significant VLF-EM or magnetometer values are present in the area. The hole was drilled on the same site as DDH B.83-1 but was drilled north (0°). Initial hole inclination was 45° and steepened to -58.5° on bottom. Azimuth deviated to 11° as measured by Sperry Sun test.

No significant intersections were encountered. Since there were two intersections of note in DDH B83-1 to the south, this would suggest that 3+00S, 3+00W is the northern most extent of the mineralized zone in this vicinity.

. DDH B83-6 (L4+00S, 4+50W, Dwg. B.83-16)

A 500 ppb Au/1000 ppm As and coincident 10° VLF-EM conductor was the target for DDH B83-6. Drilled to

the east of 90°, the hole obtained a depth of 296.88 m. Initial dip was -45° and steepened with depth to -68° on bottom. Azimuth deviated to 66°. Dip and azimuth were measured by Sperry Sun tests.

Four significant intersections were noted. The first, at 60-62 m assayed at 0.405 oz/ton Au (13.89 g/tonne) and was hosted by a rhyolitic tuff and an arsenopyrite bearing quartz vein, both located within a fault zone. A rhyolite tuff, arsenopyrite bearing quartz vein and dacite tuff carried 0.380 oz/ton Au (13.03 g/tonne) between 116 and 118 metres. At a depth of 118-120 m, a dacite tuff carried 0.260 oz/ton Au (8.91 g/tonne). The last intercept was at 126-128 m and carried 0.350 oz/ton Au (12.00 g/tonne) in a rhyolite tuff and arsenopyrite bearing quartz vein, both located within a fault zone.

The VLF-EM conductor appears to be reflecting the mineralized fault zone at 60-62 m. The mineralized zone from 116 to 128 m is faulted but has no surface expression with respect to the VLF-EM. It is however, coincident with a magnetometer high which is as yet still unexplained.

b. Results

- . Drilling is still at a very preliminary stage.
- . Drilling was completed over a large (640 x 500 m) area. As such, correlation between holes is difficult.
- . Significant intersections in three of the six widely spaced holes are encouraging.
- . As illustrated by DDH B83-2 and B83-6 coincident VLF-EM and geochemistry are providing the best targets for mineralization.
- . Mineralized intersections do not fully account for the size and intensity at the Au-As soil anomaly outlined by Cominco in 1981.
- . Gold mineralization is often accompanied by high As levels, but this relationship is not consistent. As indicated on surface and in core, arsenic values may be elevated without associated gold values. DDH B83-4 drilling an As anomaly supports this idea. A

two metre interval grading 0.036 oz/ton (1.23 g/tonne) was the only intersection of note. DDH B83-4 also indicates that the gold mineralization has been truncated by the thrust fault as indicated on surface.

- . Absence of any significant values in DDH B83-5 (drilled north) as opposed to two in DDH B83-1 (drilled south from the same location) suggests the VLF-EM conductor to the east of DDH B83-5 may be a better target than the geochemical target tested by hole No. 5.

#### c. Recommendations

- . Fill in drilling between DDH B83-1 and B83-3 at 50 m intervals.
- . Under cut holes below DDH B83-1, 2 and 6 to test depth continuity of mineralized zones.
- . Reconnaissance holes from L3+50S 3+50W to L5+50 4+00W to test the potential of the western limb of the Y-shaped VLF-EM conductor. Holes are to be drilled westward to approximately 200 m in depth with possible undercuts if Au mineralization is encountered.
- . At least two holes should be spotted to test the western VLF-EM conductors. Suggested sites are L4+00S 8+50W at 90° azimuth and L5+00S 8+50W at 90° azimuth.
- . A small VLF-EM conductor in the vicinity of 2+00S to 4+00S in coincident with anomalous soil geochemistry and a magnetometer high. This area requires further consideration.

### GEOLOGY

#### 1. Regional Geology

The BILL claims lie on the eastern edge of the Intermontane Belt near the fault boundary with rocks of the Omineca Crystalline Belt. The claims are underlain by a sequence of low grade metamorphosed volcanic and sedimentary rocks. Dolomitic rocks found in the middle of the sequence containing conodonts and crinoids suggest a Mississippian age for these rocks (Thorstad 1980).

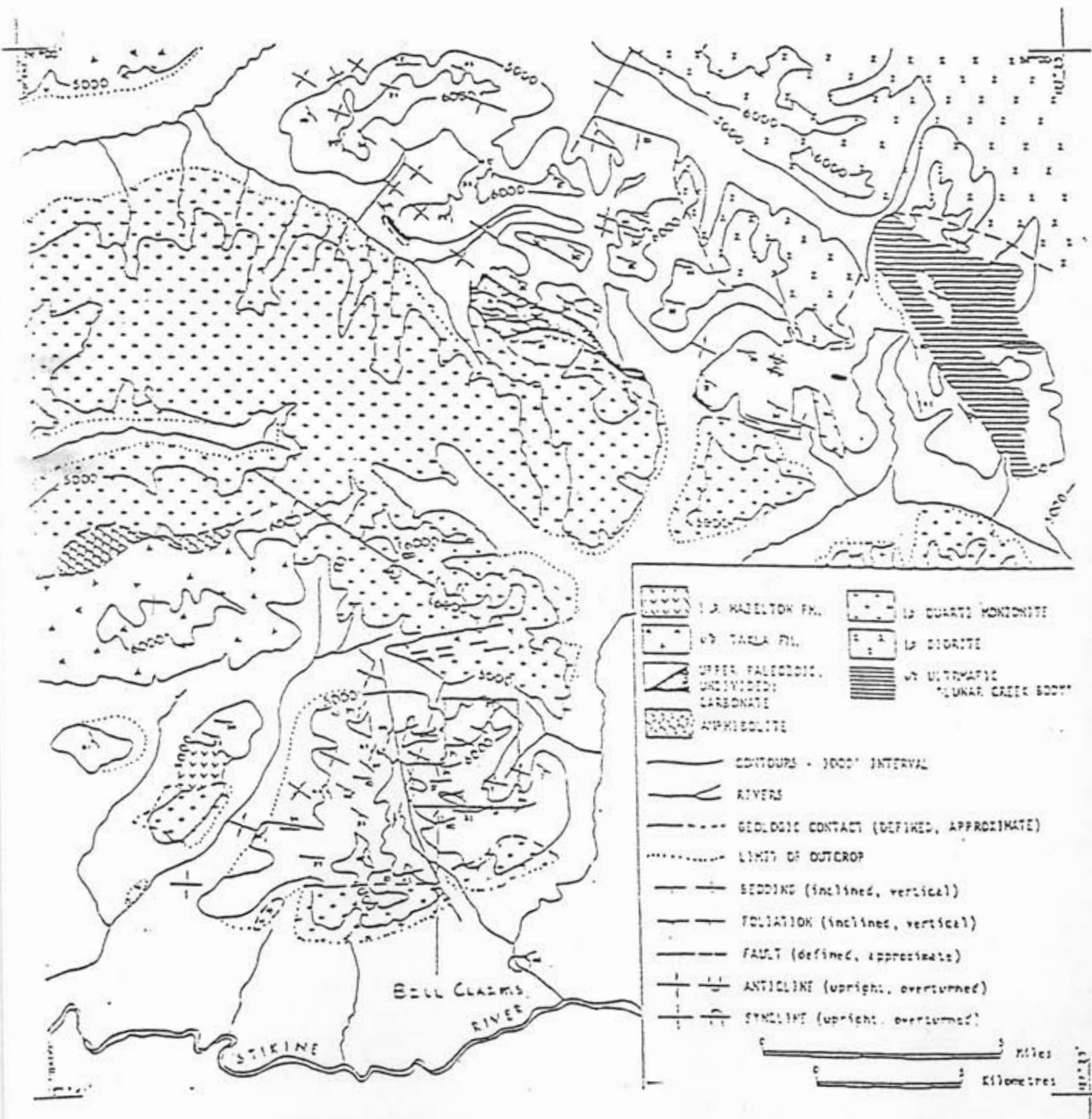


Figure 23.2. Geologic sketch map showing distribution and major structural elements of Upper Paleozoic rocks and relations to other rocks in the northwest Toocoggone map area.

These metamorphic rocks are intruded by Jurassic quartz monzonite and diorite to the north and east of the property. To the south of the claims, Lower Jurassic Toodoggone volcanic rocks and the Upper Triassic Takla Formation volcanic rocks dominate.

Small zones of Takla Formation and Hazelton Formation (Lower Jurassic crop out five kilometres west of the claims. See Figure 4, Regional Geology.

## 2. Detail Geology (from Sharp, 1981)

The sedimentary and volcanic rocks underlying the claim group have been regionally metamorphosed to lower greenschist grade and have been subjected to at least two phases of folding. Shearing has transformed most of the volcanic and sedimentary rocks into schist and phyllite but numerous textures have been preserved allowing one to classify them according to original rock type. The volcanic rocks are mainly tuffaceous except for some massive or locally pillowed basalt. The sedimentary rocks are weakly to moderately carbonaceous siliceous siltstone, often associated with crinoidal limestone, and are found as layers or lenses intercalated with intermediate to felsic tuffs. Calcareous sandstone and quartzite band represent a volcanoclastic stage of sedimentation which is locally gradational into carbonatized dacite to rhyolite tuff. A more distinctive sequence of sedimentary rocks made up of pelite and greywacke structurally overlies the volcanic stratigraphy and does not appear to be derived from erosion of the volcanic pile.

### a. Lithology

The extremely intercalated nature of the volcanic--sedimentary rocks as well as hydrothermal alteration and structural deformation makes mapping and correlation of lithologies difficult. To simplify mapping, nine basic rock categories were defined and each category was subdivided based on lithology, texture or composition.

Basalt (unit 1) forms the base of the volcanic pile and is overlain by a dominantly andesite tuff sequence; (unit 2, up to 110 m thick). A dacite crystal tuff horizon (unit 3, up to 125 m thick) contains intercalated rhyolite tuff to tuffite beds (unit 4, 1-5 m thick); minor beds of chemical or fine clastic sedimentary rocks (unit 5, 2-20 m thick); and abundant beds of carbonatized volcanic-sedimentary rocks (unit

6, 2-10 m thick). This sequence, often over 100 m, composed of 1-2 m thick dacite and andesite tuff beds, is highly variable in its dacite:andesite ratio and has been designated as a separate map unit (unit 7, 1-250 m thick) and subdivided as being dacite - or andesite-rich. Quartz veins (unit 8), 5 to 50 cm thick, are commonly found with sericitized or carbonatized rocks and usually carry specs to 1 cm thick veinlets or arsenopyrite or pyrite. Intrusive rocks are not abundant and generally occur as narrow (less than 1 m) dykes of rhyolite, and gabbro; a foliated diorite plug (75 m wide) is exposed in the centre of the Bill claims.

Arsenopyrite is the most important metallic mineral. It occurs as fracture fillings in quartz veins and in hydrothermally altered tuffs and tuffites. Some 50 cm patches carry up to 15% arsenopyrite but the average abundance in such zones is commonly less than 2%, often showing in only trace amounts. Pyrite is scattered throughout the altered tuffs and tuffites, usually making up less than 1% of the rock.

A description of the lithologies encountered in the 1983 drill program are as follows:

. Unit: Andesite Tuff 2A

Unit 2A was intersected by all diamond drill holes. Maximum intersected width was 72 metres.

The andesite tuff is dark grey green, fine to medium grained and moderately hard. Composition is andesitic and chloritization is pervasive throughout imparting a greenish colour to the core. Carbonation of the matrix is evident locally and decreases hardness. Bands of sericitized matrix paralleling foliation are common.

Quartz zones 1 mm to 5 cm parallel the core axis and commonly carry chloritized matrix fragments and/or carbonate patches.

One mm quartz carbonate veinlets parallel the core axis and truncate the quartz zones. Multiple late stage episodes of carbonate infilled microfractures which are randomly orientated are evident.

Pyrite (tr - 4%) is always present occurring most commonly as disseminations in the matrix and as 1 mm cubes crosscutting foliation.

Arsenopyrite may or may not be present. When visible, it usually lines quartz carbonate veinlets.

Trace chalcopyrite was noted.

. Unit: Andesite Crystal Tuff 2AX

Unit 2AX was intersected by DDH B83-1 and 3. Maximum intersected width was 32 metres.

This tuff is light grey to light grey green. Texture is coarse grained but locally may be masked. One mm anhedral feldspars are the dominant phenocryst forming up to 20% of the unit. Hardness is moderate. Chloritization is pervasive throughout the unit. Weak carbonation is noted locally. Foliation is absent to weakly developed.

A 1 mm to 1 cm fracture set is well developed and infilled with white to yellow quartz carbonate. Randomly orientated microfractures are carbonate infilled and crosscut the above.

Patches of carbonate may comprise up to 5% of the unit.

This unit carries both arsenopyrite and pyrite as disseminations, pods and fracture fillings.

. Unit: Dacite Tuff 2E

Unit 2E was intersected in DDH B83-3 only. Maximum width intersected was five metres.

This unit is light grey green to dark grey green. Composition is andesitic and chloritization imparts a greenish hue to the core. The tuff is weakly to well carbonated.

Hardness is variable due to the degree of carbonation and local silicification.

Thirty percent of the unit is five mm elongated dark green soft phenocrysts. These are possibly chloritized amphiboles.

Foliation is moderate.

Quartz carbonate veinlets are minor.



Pyrite occurs as fine-grained disseminations and as isolated cubes which cross cut foliation. Maximum pyrite is one percent.

The unit is moderately competent and core recovery is good.

. Unit: Dacite Tuff 3A

Unit 3A was intersected by all diamond drill holes. Maximum width intersected was 23 metres.

The dacitic tuff is light grey green, fine grained and moderately hard. Composition is dacitic and chloritization imparts a greenish hue to the core. Carbonation where present is weak. Locally, silicification has taken place.

Foliation is weak to well developed.

Compositional bands of quartz are common. Two generations of crystalline quartz carbonate veinlets are present.

Pyrite is always evident, commonly occurring as disseminations throughout the matrix and as pods and cubes which crosscut foliation. Pod and cubes may also line the quartz carbonate veinlets.

Arsenopyrite is present, occasionally occurring as disseminations in the matrix and in association with the quartz carbonate veinlets.

. Unit: Dacite Crystal Tuff 3BQ

All diamond drill holes intersected unit 3BQ. Maximum intersected width was 36 metres.

The crystal tuff ranges from pale green chloritized, well foliated, moderately soft sections to brown biotite-rich, weakly foliated, moderately hard sections.

Texture is coarse grained but masked increasing with the degree of foliation.

Composition is dacitic and commonly chloritization imparts a greenish hue to the core. The unit may be weakly carbonated.

Visible grains are 1-2 mm anhedral to subhedral feldspars which are unorientated, resistant to the

foliation process and comprise 20-30% of the unit. One mm quartz grains parallel foliation and may be present as up to 30% of the tuff.

Occasional 0.5 to 1 mm compositional quartz bands parallel foliation.

A set of quartz zones up to four centimetres in width also parallel foliation and carry remobilized pyrite and arsenopyrite along the selvages. Locally siliceous zones are found adjacent to these quartz zones.

One mm crystalline quartz carbonate zones were also noted to parallel foliation.

Three episodes of quartz carbonate veining were noted.

Fine-grained pyrite, arsenopyrite, chalcopyrite were noted as disseminations within the matrix. Pyrite is always present commonly occurring as 1 mm pods and cubes which crosscut foliation. Arsenopyrite when present, occurs as fine-grained pods and in association with quartz carbonate veinlets. Some sections carry hematite bands paralleling foliation and comprising up to 10% of the unit.

. Unit: Dacite Tuff 3E

Unit 3E was intersected in DDH B83-1, 4 and 5. Thirty-four metres was the maximum width intersected.

The matrix of the dacitic tuff is light grey green, medium grained, dacitic and very hard. The unit may be weakly carbonated. Chloritization imparts a greenish hue to the core.

Phenocrysts consist of 2-5%, 1-2 mm subhedral to anhedral feldspar grains which have resisted alignment and are slightly sericitized. Five to ten percent of the unit is composed of elongate and aligned soft glassy green phenocrysts which appear to be chloritized amphiboles.

Compositional quartz bands parallel the grain alignment.

This unit was noted to carry pyrite as disseminations and isolated cubes, specular hematite as lining on quartz carbonate veinlets, and trace sphalerite.

. Unit: Rhyolite Tuff 4A

All diamond drill holes intersected unit 4A. Maximum intersected width was 19 metres.

This unit is light beige, fine grained and hard. Foliation is moderate. Sericitization is pervasive throughout the unit either affecting the entire unit or occurring as thin bands paralleling foliation. Locally weak carbonation is evident.

The tuff often in association with both quartz veins and fault zones.

Mode of mineralization is diverse. Isolated minute arsenopyrite and pyrite cubes are present in the matrix and cross cut foliation. Minor quartz flooding carries occasional arsenopyrite as pods, cubes and fine-grained lining at the quartz matrix interface. One mm to one cm quartz carbonate veinlets running parallel to sub-parallel to the core axis can form up to 20% of the unit. Arsenopyrite occurs most commonly in association with these veinlets. Multiple late-stage microfractures randomly orientated, cross cut the quartz carbonate veinlets and carry both fine-grained arsenopyrite and pyrite.

Trace chalcopyrite and specular hematite are also present in the unit.

. Unit: Rhyolite Crystal Tuff 4AX

Diamond drill holes 1 and 6 intersected unit 4AX at a maximum width of 23 metres.

This rhyolite tuff is beige to light grey green. Commonly the core is pink to purple in colour due to oxidation of specular hematite. Sericitization is common but variable in intensity. The unit is moderately to well foliated.

Texture is coarse grained with most visible grains being quartz. These are often parallel to foliation.

Compositional quartz bands parallel foliation. Infrequent quartz carbonate veinlets truncate foliation. Multiple late stage carbonate infilled microfractures are present.

Competence and core recovery are moderate.

Pyrite and arsenopyrite are both present as disseminations in the matrix, as pods and cubes, and as linings on microfractures. Trace chalcopyrite was noted as disseminations within the matrix.

. Unit: Impure Limestone 5B

Unit 5B was intersected by DDH 4 only. Maximum intersected width was nine metres.

This limestone is predominantly dark grey. Bands up to 2 cm of grey black similar to 5D are evident. The unit is locally graphitic.

Bedding is well developed.

Texture is medium grained and the unit is moderately hard.

Multicoloured one to five cm bands of coarse-grained (sandstone?) are interbedded with the limestone. The sandstone is extremely carbonate rich.

Competence and core recovery are excellent.

Pyrite is pervasive throughout the unit as 1 mm cubes cross cutting foliation and as fine-grained disseminations throughout the matrix. Total pyrite is 5-7 percent.

. Unit: Graphitic Siltstone (Siliceous) 5D

Diamond drill hole B83-4 was the only hole to intersect unit 5D. The maximum width intersected was twenty two metres.

The siltstone is variable in colour from dark grey to black. This unit is carbon rich and often graphitic along fractures. A banded appearance is evident due to colour changes which in turn are resultant of variable carbon content.

The unit is weakly carbonate rich and locally silicified.

Hardness is variable depending on degree of silicification.

Bedding is well developed.

Occasional quartz bands up to four cm wide and parallel to bedding comprise two to three percent of the unit.

Quartz carbonate and carbonate bands parallel bedding and impart a banded appearance to the core. These are 1 mm to 0.5 cm in width and form 15 percent of the unit.

Infrequent quartz carbonate veinlets at a low angle to or parallel to the core axis are present.

Occasional small 1 to 3 mm carbonate patches are present and cross cut bedding.

Late stage randomly orientated carbonate infilled microfractures are present in minor amounts.

Pyrite is the predominant sulphide occurring as thin fine-grained bands paralleling bedding, as fine-grained disseminations within the carbonate patches, as disseminations and linings on quartz carbonate bands paralleling bedding, as fine-grained disseminations within carbonate patches, and as pods and cubes within the matrix. Total pyrite is 3 to 4 percent.

Trace arsenopyrite was noted as small pods associated with the quartz carbonate veinlets.

- Unit: Andesite Tuff/Tuffite, Minor Dacite Tuffite, with Limy Belts and Bands 7B

Unit 7B was intersected by DDH B83-4 only. Maximum intersected width was 16 metres.

Colour is variable from grey to grey green to pale green. Composition is predominantly andesitic. Chloritization is pervasive throughout the unit. Tuffite sections are very fine grained, pale green and have a very dull lustre. Occasional microbands of sericitized matrix parallel foliation.

Texture is fine grained and hardness is moderate.

The unit is well foliated and locally is intensely deformed.

A striped appearance is visible in the core due to limy bands 1 mm to 2 cm in width and forming 60 percent of the unit. Smaller carbonate bands are whitish while the larger bands tend to be more coarsely crystalline and pinkish in colour. All bands parallel foliation. Randomly orientated carbonate infilled fractures are also present.

Quartz flooded zones carrying low angle quartz carbonate veinlets were noted.

The unit is competent and core recovery is good.

Pyrite occurs in variable amounts (trace to 4 percent) as fine-grained disseminations throughout the matrix, as fine-grained 1 mm pods within the quartz flooded zones and as fine-grained infillings on quartz carbonate veinlets and carbonate microfractures.

Arsenopyrite (2 percent) is present as frequent 1 mm pods within quartz flooded zones and along the selvages of the zones. It also occurs as fine-grained linings along quartz carbonate veinlets.

Unit: Quartz Vein 8, Arsenopyrite Bearing 8A,  
Pyrite Bearing 8B

Quartz veins were intersected in all holes. Two and a half metres was the widest intersection.

The quartz veins are milky white and hard. Commonly, they are found in association with unit 4A and coincident fault zones.

Occasionally, multiple cream coloured dolomite patches and sericitized fragments from adjacent units, are present within the veins.

Pyrite and arsenopyrite both occur in the veins as 1 mm seams, as isolated pods and cubes, and as infillings on randomly orientated microfractures.

Trace sphalerite and chalcopyrite were noted.

. Unit: Rhyolite Dyke 9A

Unit 9A was intersected by DDH B83-1, 2 and 6. Maximum intersected width was 6 metres.

This dyke is tan, hard, medium grained and rhyolitic in composition. Two percent of the unit is composed of feldspars 1 to 5 mm in size. Five to eight percent of the unit is composed of 1 mm glassy green phenocrysts. These were thought to be chloritized amphiboles, however, thin section work indicates these are altered feldspars. Weak carbonation was noted locally.

The dyke exhibits no foliation or grain alignment.

Multiple 1 mm quartz carbonate infilled fractures are present.

Pyrite occurs as trace disseminations in the matrix. The unit was also noted to carry specular hematite and hematite.

b. Structural Geology (From Sharp, 1981)

Nearly all the rocks on the claim group exhibit some degree of foliation. The more massive basaltic rocks and the more competent siliceous siltstone lenses show much weaker foliation than do the altered felsic tuff and tuffites which are often highly sheared. Kink bands in the sheared felsic tuff indicate two periods of deformation. The rocks in the central part of the claims have been domed to form a NE-SW trending doubly plunging anticlinal fold. A syncline is evident in the southern portion of the claims. Prominent scarps have been produced by NW and NE trending high angle faults. Thrust faulting has displaced some of the western rocks toward the east in T-Bird 1.

Structural information as indicated by the 1983 diamond drilling is as follows.

The rhyolite, dacite and andesite tuffs (4A, 3A, 2A) were the most intensely foliated units intersected. Their crystal tuff equivalents display a much weaker foliation. A strong grain alignment as opposed to foliation is evident in Units 2E and 3E, andesitic and dacitic tuffs respectively. This may be a result of shearing. The dyke rocks intersected exhibited neither foliation nor preferred grain orientation.

Bedding was visible in units 5B and 5D, impure limestones and graphitic siltstones.

Kink bands, noted predominantly in tuffaceous units substantiate two periods of deformation as suggested by Sharp (1981).

The thrust fault as mapped on surface was not intersected by DDH B83-4 as hoped.

c. Alteration

Diamond drilling provided the following data on alteration:

. Oxidation

Oxidation encountered near surface extended to a depth of 10 to 30 metres and was commonly accompanied by broken core. Typical oxidation colouring was rusty orange to bright red.

Fault zones were intensely oxidized. Units adjacent to the zones often had oxidation prevalent along open fractures. Tuffaceous units occasionally carried thin red oxidized bands paralleling foliation.

. Chloritization

Chloritization was pervasive throughout the dacitic and andesitic units as well as their crystal tuff equivalents. Commonly, the core took on a greenish hue as a result. Many quartz bands and quartz veins located within these units carried intensely chloritized fragments of the adjacent tuffs.

. Sericitization

Sericitization was most prevalent in the rhyolitic tuff unit. This unit was typically sericitized entirely. Alternatively sericitized bands, preferentially altering certain compositional layers, were apparent parallel to foliation. These were commonly one mm in width.

Thin bands of sericitized material paralleling foliation were also noted in the andesite and dacitic tuff units.



Quartz veins and quartz bands often exhibited sericitized zones adjacent to their contacts.

. Carbonatization

Carbonatization is extensive and does not appear to be a function of lithology. All units have been affected. Multiple modes and phases of carbonate are identifiable.

The tuffaceous units, their crystal tuff counterparts and intersected dyke rocks tend to have weakly carbonatized matrices indicating replacement of sericite and chlorite by carbonate.

At least three episodes of crystalline quartz carbonate veinlets are evident, two of which are typically mineralized with both arsenopyrite and pyrite.

A late stage episode of microfracturing is infilled with a very fine-grained carbonate throughout most of the units.

Quartz carbonate, calcite and dolomite bands and patches were also noted to occur in several of the units. Spectrographic analyses suggests some barite occurs with the carbonates.

. Silicification

Silicification has occurred to a limited extent only. Some tuffaceous sections exhibit occasional zones of quartz flooding with quartz bands comprising up to 50% of the unit. Commonly, these flooded zones carry strongly chloritized or sericitized matrix fragments as well as carbonate patches, both of which often have associated pyrite and arsenopyrite mineralization. The actual quartz itself is generally barren.

d. Mineralization

Mineralization observed in the trenches was limited to minor pervasive pyrite in quartz pods and in one location, throughout a phyllitic andesite. Small fragments of quartz containing minor pyrite and arsenopyrite were observed in talus, but the source of these could not be traced. Sharp (1981) reports that quartz veins and pods occurring in the carbonatized volcanic rocks contain minor amounts of auriferous arsenopyrite.

Additional information regarding mineralization was obtained from the 1983 drill hole data.

Gold, arsenopyrite, pyrite, chalcopyrite, sphalerite, specular hematite and hematite were present.

. Gold

Visible gold was not identified in the core. Table 3 contains a summary of all intersected gold mineralization in excess of 0.020 oz/ton (0.686 g/tonne). Examination of this data reveals the following:

- Gold mineralization is not consistently related to areas of arsenic mineralization.
- All intersections greater than 0.300 oz/ton are located in unit 4A, the rhyolite tuff. Of these six intersections, four have arsenopyrite-bearing quartz veins associated with them and three have coincident fault zones. The best intersection of 1.020 oz/ton (34.97 g/tonne) occurred in an intensely fault gouged zone of rhyolite tuff.
- Approximately half of intersections of greater than 0.020 oz/ton Au (0.686 g/tonne) are in the rhyolite tuff, one third of the intersections contained arsenopyrite-bearing quartz veins and approximately one quarter had associated fault zones.
- Seventy-five percent of the intersections above 0.020 oz/ton (0.686 g/tonne) display carbonatized matrices. Quartz carbonate veinlets infilled with arsenopyrite are a favourable gold environment.
- Gold also occurs in areas lacking rhyolite tuff, quartz veins, obvious faults, quartz carbonate veinlets, or carbonatization.

. Pyrite

Pyrite is the dominant sulphide and is found in all units. Several phases and modes of occurrence were noted.

In the tuffaceous units typical occurrence was as fine-grained disseminations in the matrix, as fine-grained infillings on compositional quartz-rich

**TABLE 3**  
**SUMMARY OF GOLD MINERALIZATION**

DDH #	Au oz/ton	Au g/tonne	As	Interval	Core Recovery	Visible Mineralization	Units
1	0.022	0.754	0.06	60-62	100%	tr aspy	3E; oxidized, fractured zone
	0.124	4.25	0.25	76-78	100%	1-2% py	3Ac; oxidation throughout
	*0.365	12.51	0.03	102-104	100%	1% py, 2% aspy	4A brecciated, 8A in fault zone
	0.029	0.994	0.01	110-112	94%	tr py	4A
	0.065	2.91	<0.01	132-134	100%	1/2% py, 1/2% aspy	4Ac brecciated, in fault zone
2	0.036	1.23	0.65	50-52	95%	1-2% py, >2% aspy	4Ac
	*1.020	34.97	1.15	52-54	68%	--	4Ac; intensely fault gouged
	0.031	1.06	0.21	54-56	100%	1-2% py, >2% aspy	4Ac
	0.036	1.23	1.15	58-60	100%	2-3% py, >2% aspy	2AX; multiple aspy infilled quartz carbonate veinlets
	0.28	0.960	0.65	60-62	95%	2-3% py, >2% aspy	2AXc, 8A
	0.071	2.43	0.74	92-94	100%	1-2% py, >2% aspy	4Ac, 8A
	*0.347	11.90	0.40	94-96	90%	>2% aspy	8A, 4Ac
	0.020	0.686	0.58	96-98	100%	>2% aspy	4Ac
	0.034	1.17	0.17	110-112	75%	1/2% py, 1/2-1% aspy	3Ac; fault gouge
	0.040	1.37	0.12	116-120	84%	1/2% py, 1-2% aspy	4Ac, 2Ac, 8A
	0.150	5.14	1.24	120-122	100%	1% py, 1-2% aspy	2Ac; aspy infilled quartz carbon- ate veinlets
	0.076	2.61	1.06	134-136	100%	1% py, 1-2% aspy	2Ac; multiple quartz carbonate patches
	0.037	1.27	0.26	166-168	95%	1% py, 1-2% aspy	2Ac, 8A; 5% of 2Ac is aspy in- filled quartz carbonate vein- lets
	0.30	1.03	0.31	186-190	91%	2% py, 1-2% aspy	2Ac, 8Ac, 9Ac; 5% of 2Ac is aspy infilled quartz carbon- ate veinlets
3	0.035	1.20	0.02	14-16	100%	7-10% py, >2% aspy	2AXc; multiple aspy infilled quartz carbonate veinlets
	0.023	0.785	0.27	52-54	100%	2% py, tr aspy	4A; oxidized
	0.079	2.70	0.31	58-60	93%	--	4A; oxidized
	0.032	1.20	0.22	64-66	96%	2% py, >2% aspy	4A; bounded above by intense oxidation and below by fault gouge
	0.050	1.71	0.12	114-116	100%	2% py, tr aspy	2Ac
	0.023	0.785	<0.01	126-128	95%	2% py, tr aspy	2Ac
4	0.036	1.23	<0.01	16-18	100%	2% py, 1% aspy	2Ac/3Ac
5	0.026	0.651	0.29	58-60	100%	1/2% py, tr aspy	2A, 3A, 4A
6	*0.405	13.89	0.55	60-62	73%	3% py, >2% aspy	4A, 8A in fault zone
	*0.380	13.03	0.16	116-118	98%	3% py, tr aspy, tr cpy, tr spec. hem.	8A, 4A, 3Ac
	0.260	8.93	0.30	118-120	100%	3% py, tr aspy	3Ac
	0.025	0.994	<0.01	120-122	100%	3% py, tr aspy	3Ac
	0.055	1.89	0.11	124-126	92%	1% py, tr aspy, tr cpy	4Ac, 8A
	*0.350	12.00	0.74	126-128	100%	1% py, tr aspy, tr cpy	4Ac, 8A in fault zone
	0.020	0.686	0.14	200-202	100%	1/2% py, tr aspy tr spec. hem.	2A, intensely chloritized
	0.073	2.50	<0.01	208-210	98%	1/2% py, tr aspy	2A; intensely chloritized
0.038	1.30	0.04	222-224	100%	1% py, tr aspy	4A, 2Ac	

NOTE: "c" indicates unit is carbonated.

bands parallel to foliation and as 1 mm cubes cross cutting foliation.

Up to seven percent pyrite was observed in the sedimentary units intersected in DDH B83-4. Predominant mode of occurrence was 1 mm cubes.

Pyrite was also noted as pods, cubes and disseminations within carbonate-rich zones and patches, as infillings on several episodes of quartz carbonate veinlets and as linings on late stage carbonate infilled microfractures.

Association with arsenopyrite was common.

. Arsenopyrite

Arsenopyrite was the second most abundant sulphide. With the exception of the dyke rocks, all units were mineralized with arsenopyrite to some extent.

Highest amounts of arsenopyrite were commonly found in the rhyolite tuff unit and in quartz veins. Occurrence of the arsenopyrite in the quartz veins was generally as 1 mm seams.

With the exception of the quartz veins, the arsenopyrite mineralization was highly diverse. Fine-grained matrix disseminations, pods within the matrix, linings on quartz carbonate veinlets, infillings on late stage carbonate infilled fractures, pods associated with carbonate patches and pods in quartz-rich zones were all noted.

. Chalcopyrite

Chalcopyrite was observed in trace amounts. Flecks were noted in arsenopyrite-bearing quartz veins. Occurrences were also noted in rhyolitic, dacitic and andesitic tuffs. Within these units, chalcopyrite was present as linings on quartz carbonate veinlets, as fine-grained disseminations within quartz bands and in association with carbonate infilled microfractures.

. Sphalerite

Trace amounts of sphalerite were noted in arsenopyrite-bearing quartz veins. In addition, it was observed lining quartz carbonate veinlets in the dacite crystal tuff.

. Specular Hematite

Specular hematite comprised trace to four percent of the tuffaceous units it occurred in. Disseminations, fracture fillings, and linings on quartz carbonate veinlets were common. Alteration of this mineral often caused a pinkish colour to be imparted to the core. It is of interest to note that the presence of the specular hematite was usually below 100 metres in depth.

. Hematite

Hematite occurred in low amounts as thin bands paralleling foliation in the tuffaceous units, as linings on quartz carbonate veinlets and carbonate infilled microfractures, and along the selvages of quartz-rich zones.

3. Petrographic Studies

Vancouver Petrographics Ltd. of Fort Langley, B.C., completed the petrographic work on the BILL claims drill core sections. This included the preparation and petrographic description of seven polished thin sections (5950E-5956E) representative of mineralized zones in DDH B83-1, 2 and 6. In addition, fifteen thin sections were cut (5957E-5971E) illustrating each of the units intersected while drilling. Prepared offcuts accompanied all twenty-two slides.

Table 4 contains location data for each of the sections prepared.

Appendix G and H respectively contain the Vancouver Petrographic Report and thin section descriptions as compiled by Tom Drown.

4. Spectrographic Analysis

A thirty element spectrographic analysis of the six highest gold-bearing intersections was completed by Chemex Labs Ltd., North Vancouver, B.C. Procedures and results may be found in Appendix I and J respectively. Table 5 contains location and assay data of the analyzed intervals.

All six intersections are rhyolite tuffs, four of which carry arsenopyrite-bearing quartz veins.

TABLE 4

LOCATION OF PETROGRAPHIC SECTIONS

A. Mineralized Polished Thin Sections

DDH #	METERAGE	Au Oz/Ton	Au g/Tonne	UNIT	SAMPLE #
1	78.0	0.124	4.25	3A	5950E
1	102.61	0.365	12.52	8A	5951E
2	52.3	1.020	34.97	4A	5952E
2	58.1	0.036	1.23	2AX	5953E
2	167.35	0.037	1.27	2A	5954E
6	116.79	0.380	13.03	4A	5955E
6	127.60	0.350	11.99	8A	5956E

B. Lithological Thin Sections

DDH #	METERAGE	UNIT	SAMPLE #
1	29.4	3BQ	5957E
1	83.7	3A	5958E
1	114.0	9A	5959E
1	178.41	4AX	5960E
2	190.29	9C	5961E
3	26.6	2AX	5962E
3	158.60	2E	5963E
4	57.7	5D	5964E
4	89.5	5B	5965E
4	124.5	7B	5966E
5	16.7	4A	5967E
5	16.8	4A/8A	5968E
6	21.8	2A	5969E
6	116.39	8A	5970E
2	167.35	8A	5971E

TABLE 5

SPECTROGRAPHIC ANALYSIS

SAMPLE LOCATION AND ASSAY DATA

DDH #	INTERVAL	SAMPLE #	CHEMEX #	Au oz/ton	Au g/tonne	As%	UNIT
1	102-104	4550E	Sample 1	0.365	12.51	0.03	4A
2	52-54	4622E	2	1.020	34.97	1.15	4A
2	94-96	4643E	3	0.347	11.90	0.40	8A/4A
6	60-62	4927E	4	0.405	13.88	0.55	8A/4A
6	116-118	4954E	5	0.380	13.03	0.16	8A/4A/3A
6	126-128	4959E	6	0.350	11.99	0.74	8A/4A

As anticipated, arsenic values were elevated with five of the six samples containing greater than 1000 ppm arsenic.

Of particular interest are the manganese, barium and titanium values.

Manganese, reported in the 700-1000 ppm range is most likely responsible for the pink colour of some of the carbonate. Occasionally some units also appear pinkish in colour. This was originally attributed to iron, but may in fact be due to the manganese content.

Consideration of the barium results (200-1500 ppm) suggest that there is possibly barite present in the drill core. If so, it has been identified as carbonate (calcite and/or dolomite).

High titanium (2000-5000 ppm) levels can be accounted for within hematite and specular hematite.

Sample #2 (4622E) which carries the highest gold value intersected on the property, also carries the highest arsenic, barium, titanium and zirconium. In addition, this sample has twice as much potassium and more aluminum than any of the other analyzed samples. The elevated potassium and aluminum are most likely reflecting sericite content, suggesting that gold values are increasing with the degree of sericitization.

J. R. Forbes  
Geologist  
1983 October 17

JRF/krl



REFERENCES

Copland, H.J.; Drown, T.J.; Geological, Geochemical and Geophysical Report on the BILL claims; February 1982.

Lepeltier, C., 1969; A Simplified Statistical Treatment of Geochemical Data by Graphical Representation, Econ. Geology, Vol. 64, pp. 538-550.

Sharp, R. J., 1981; Assessment Report, 1981 Geological, Geochemical and Trenching Report on the BILL 1, 2, 3 and T-Bird 1, 2, 3, 4, 5, 6 Mineral Claims, Cominco Ltd., 8p.

Thorstad, L., 1980; Upper Paleozoic volcanic and volcanoclastic rocks in northwest Toadogone map area, British Columbia; in Current Research, Part B, Geological Survey of Canada, Paper 80-1B, pp. 207-211.

White, Glen E., 1982; Geophysical Report, Du Pont of Canada Exploration Limited, on Induced Polarization, Magnetometer and VLF-EM on the on the BILL 1 and 2 claims.

## Cost Statement

1. Diamond Drilling	\$79,230.30
2. Hole stabilization	1,575.50
3. Materials consumed (bits, rods, mud, core boxes)	10,282.29
4. Testing (acid and sperry-sun)	991.10
5. Moving between holes	10,010.00
6. Standby charges	900.00
7. Water supply (maintain waterlevels)	1,022.50
8. Mobilization/Demobilization	13,111.20
9. Fuel consumed (drill and pumps) . 250 l/day x 21 days x 1.00/l	5,250.00
10. Drillsite construction . Dieter Developments Ltd. Invoices #83103 and #83106	9,993.01
11. Camp Costs (room & board, fuel, etc.) . 340 mandays (June 15-August 4) @ \$35	11,900.00
12. Wages (June 15 to August 4) . 2 on-site geologists . 1 off-site geologist, supervisor . 2 senior assistants . 1 junior assistant . 1 cook	4,355.00 2,839.00 2,876.00 1,864.00 2,553.00 <u>14,487.00</u>
13. Geochemical Analyses . Min-En Laboratories Ltd. 188 soil geochem; As, Au @ \$7.75 ea 188 soil sample prep. @ \$0.85 ea. . Chemex Labs. Ltd. Spectrographic Analysis	1,457.00 159.80  290.50 <u>1,907.30</u>
14. Geophysical Survey . Interpretation	925.00



As a portion of all work was completed on two claim groups, the costs are split on a pro-rata basis. The basis for the split is as follows:

<u>Item</u>	<u>Group 82-1</u>	<u>Group 82-2</u>
Drilling related	17%	83%
Geophysical surveys	28%	72%
Geochemical surveys	79%	21%

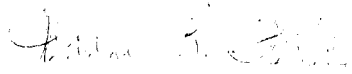
Pro-Rata Cost Statement

	<u>Group 82-1</u>	<u>Group 82-2</u>
1. Diamond Drilling	13,469.15	65,761.15
2. Holes Stabilization	267.84	1,307.66
3. Materials Consumed	1,747.99	8,534.30
4. Testing	168.49	822.61
5. Moving between Holes	1,701.70	8,308.30
6. Standby Charges	153.00	747.00
7. Water Supply	173.83	848.67
8. Mob/Demob	2,228.90	10,882.30
9. Fuel	892.50	4,357.50
10. Drillsite Construction	1,698.81	8,294.20
11. Camp Costs	3,766.00	8,134.00
12. Wages	2,462.79	12,024.21
13. Geochemical Analyses	1,506.78	400.52
14. Geophysical Interpretation	259.00	666.00
15. Assaying	1,618.66	7,902.84
16. Geotechnical Services	97.33	475.17
17. Equipment Rental	993.09	4,848.62
18. Fixed Wing Support	3,060.91	14,944.44
19. Rotary Wing Support	16,368.48	74,675.52
20. Freight	314.39	1,534.97
21. Report Preparation	771.16	3,765.06
	<u>53,720.80</u>	<u>239,235.04</u>

## QUALIFICATIONS

I, Joanne R. Forbes do certify that:

1. I am a geologist residing at 505-700 Chilco Street, Vancouver, British Columbia and employed by Du Pont of Canada Exploration Limited.
2. I am a graduate of the University of Calgary with a B.Sc. degree in Geology.
3. I have practised my profession in geology for the past two years in British Columbia and the Yukon Territory.
4. In the summer of 1983, I participated in the field program described in this report on behalf of Du Pont of Canada Exploration Limited.

  
J. R. Forbes  
1983 October

QUALIFICATIONS

I, Thomas J. Drown, do hereby certify that:

1. I am a geologist residing at 407 Cardiff Way, Port Moody, British Columbia and employed by Du Pont of Canada Exploration Limited.
2. I am a graduate of the University of British Columbia with a B.Sc. degree in honours geology.
3. I have practised my profession in geology for approximately eight years in various jurisdictions in Canada.
4. Between 1983 June 5 and August 5, I supervised/directed a field program on the Bill Project on behalf of Du Pont of Canada Exploration Limited.



Thomas J. Drown  
1984 February 24

APPENDICES

APPENDIX A

*MIN-EN Laboratories Ltd.*

*Specialists in Mineral Environments*

Corner 15th Street and Bewicke  
705 WEST 15TH STREET  
NORTH VANCOUVER, B.C.  
CANADA V7M 1T2

GOLD GEOCHEMICAL ANALYSIS BY MIN-EN  
LABORATORIES LTD.

Geochemical samples for Gold processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed and pulverized by ceramic plated pulverizer.

A suitable sample weight 5.0 or 10.0 grams are pretreated with  $\text{HNO}_3$  and  $\text{HClO}_4$  mixture.

After pretreatments the samples are digested with Acqua Regia solution, and after digestion the samples are taken up with 25% HCl to suitable volume.

Further oxidation and treatment of at least 75% of the original sample solutions are made suitable for extraction of gold with Methyl Iso-Butyl Ketone.

With a set of suitable standard solution gold is analysed by Atomic Absorption instruments. The obtained detection limit is 0.005 ppm (5ppb).



APPENDIX A

*MIN-EN Laboratories Ltd.*

*Specialists in Mineral Environments*

Corner 15th Street and Bewicke

705 WEST 15th STREET

NORTH VANCOUVER, B.C.

CANADA

ANALYTICAL PROCEDURE REPORTS FOR ASSESSMENT WORK

PROCEDURES FOR Mo, Cu, Cd, Pb, Mn, Ni, Ag, Zn, As, F

Samples are processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized by ceramic plated pulverizer.

1.0 gram of the samples are digested for 6 hours with  $\text{HNO}_3$  and  $\text{HClO}_4$  mixture.

After cooling samples are diluted to standard volume. The solutions are analyzed by Atomic Absorption Spectrophotometers.

Copper, Lead, Zinc, Silver, Cadmium, Cobalt, Nickel and Manganese are analysed using the  $\text{CH}_2\text{H}_2$ -Air flame combination but the Molybdenum determination is carried out by  $\text{C}_2\text{H}_2$ - $\text{N}_2\text{O}$  gas mixture directly or indirectly (depending on the sensitivity and detection limit required) on these sample solutions.

For Arsenic analysis a suitable aliquote is taken from the above 1 gram sample solution and the test is carried out by Gutzeit-method using  $\text{Ag CS}_2\text{N} (\text{C}_2\text{H}_5)_2$  as a reagent. The detection limit obtained is 1.2 ppm.

Fluorine analysis is carried out on a 200 milligram sample. After fusion and suitable dilutions the fluoride ion concentration in rocks or soil samples are measured quantitatively by using fluorine specific ion electrode. Detection limit of this test is 10 ppm F.

## APPENDIX B

### Calculation of Probability Graphs

(According to Lepeltier, 1969)

#### Procedure:

1. Geochemical data is assumed to follow a lognormal distribution.
2. Calculation of class interval

$$\text{Log}(\text{interval}) = \frac{\log R}{n} \quad \text{where } R: \text{Range of values} \\ N: \text{No points in curve}$$

This log interval is then recalculated as a ppb (or ppm) interval.

3. Cumulated frequencies are calculated from highest to lowest values and plotted on probability x log paper. A lognormal distribution should plot as a straight line. Two slopes represent a skewness in the population.
4. Analysis of graph: The following terms have been designated by Lepeltier.
  - a. Background (b): For a perfect lognormal distribution, this is also the geometric mean and occurs at a 50% value.
  - b. Deviation (s): Standard deviation is defined as 68.3% of the population falling between (b-s) and (b+s) and is graphically represented by the 16% and 84% ordinates.
  - c. Threshold (t): Is a function of the background and deviation  $\log t = \log b + 2S$  and is represented by the 2.5% ordinate.

Following is a sample calculation for arsenic (1981 soils):

Total population: 679

Range (R) 5 - 10,000 ppm

Number of points desired on graph (n): 20

Log interval:  $\frac{\log R}{n} = 0.2$

APPENDIX B (continued)

<u>Log Interval</u>	<u>Interval (ppm)</u>	<u>Frequency</u>	<u>%</u>	<u>Cumulative (%)</u>
0.0-0.2	0-1.58	0	-	-
0.2-0.4	1.58-2.51	1	0.15	100.00
0.4-0.6	2.51-3.98	4	0.59	99.85
0.6-0.8	3.98-6.3	8	1.18	99.26
0.8-1.0	6.3-10.0	9	1.33	98.08
1.0-1.2	10.0-15.8	15	2.21	96.75
1.2-1.4	15.8-25	29	4.27	94.54
1.4-1.6	25-40	28	4.12	90.27
1.6-1.8	40-63	68	10.01	86.15
1.8-2.0	63-100	75	11.05	76.14
2.0-2.2	100-158	64	9.43	65.09
2.2-2.4	158-251	80	11.78	55.66
2.4-2.6	251-398	65	9.57	43.88
2.6-2.8	398-630	74	10.90	34.31
2.8-3.0	630-1000	50	7.36	23.41
3.0-3.2	1000-1585	43	6.33	16.05
3.2-3.4	1585-2510	31	4.57	9.72
3.4-3.6	2510-3980	17	2.50	5.15
3.6-3.8	3980-6310	9	1.33	2.65
3.8-4.0	6310-10000	7	1.03	1.32
>4.0	>10000	<u>2</u>	0.29	0.29

TOTAL: 679

HJC/krl

APPENDIX B

TABLE 1

Results of Lognormal Geochemical Plots

	Au (ppb)				As (ppm)			
	1981 General	1982 Grid	1982 Trenches	1982 Rocks	1981 General	1982 Grid	1982 Trenches	1982 Rocks
Background (50%)	47	800	1000	47	200	1260	7100	500
Threshold (97.5%)	1775	8000	>10,000	1150	4000	6200	>10,000	8000
Deviation (16-84%)	7-300	250-2600	250-4000	9-240	43-900	56-2800	1255-6600	130-1500
# Samples	613	197	78	52	679	197	78	52

APPENDIX C

GEOPHYSICAL REPORT

DUPONT OF CANADA EXPLORATIONS LTD.

On

INDUCED POLARIZATION, MAGNETOMETER

And VLF-EM

Bill 1 and 2 claims, Stikine River area,  
Liard Mining Division.

N.T.S. 94 E/13, Lat.  $57^{\circ}45'N$ , Long.  $127^{\circ}45'W$

AUTHOR: Glen E. White, P. Eng.

DATE OF WORK: September 18-24/82

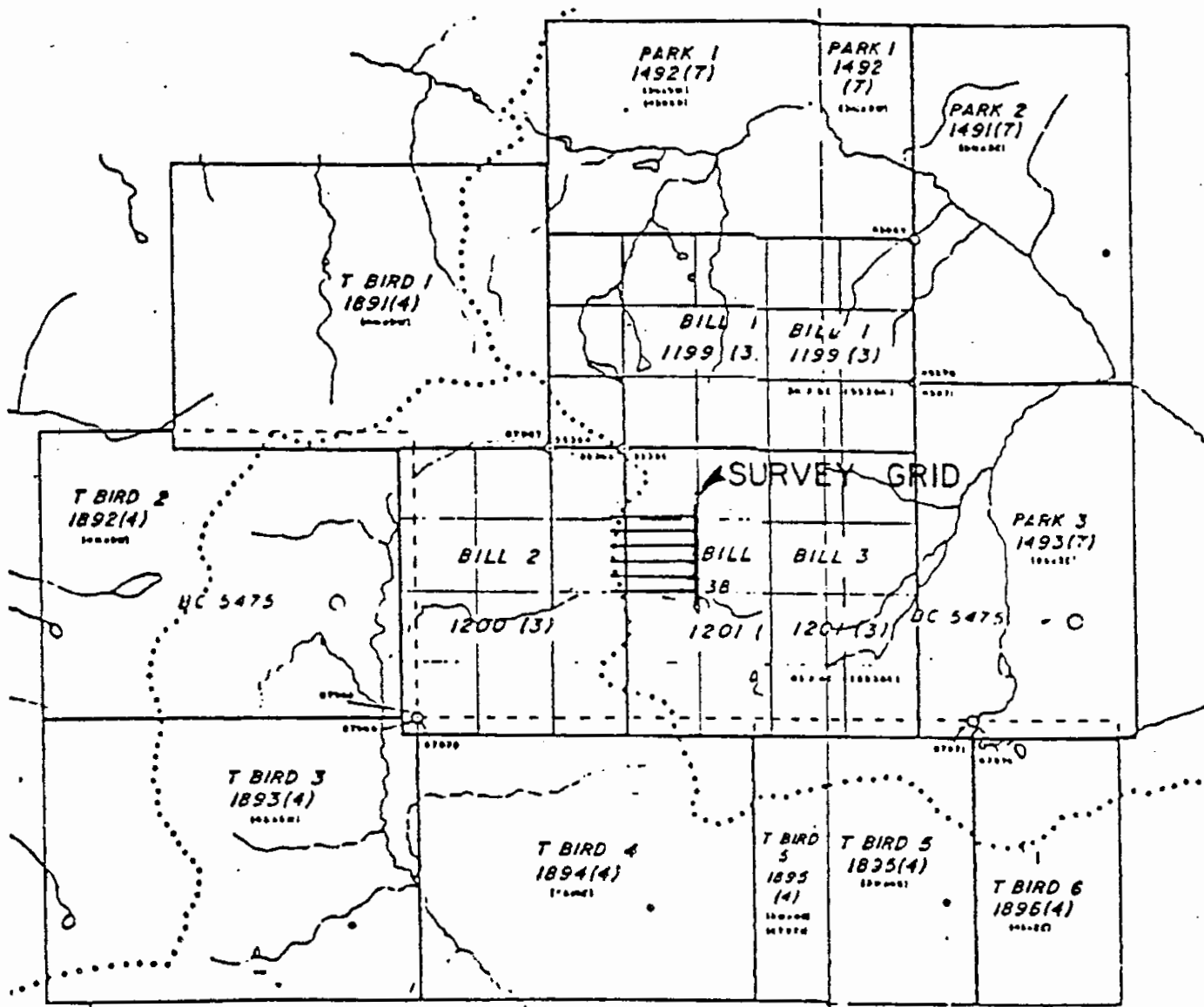
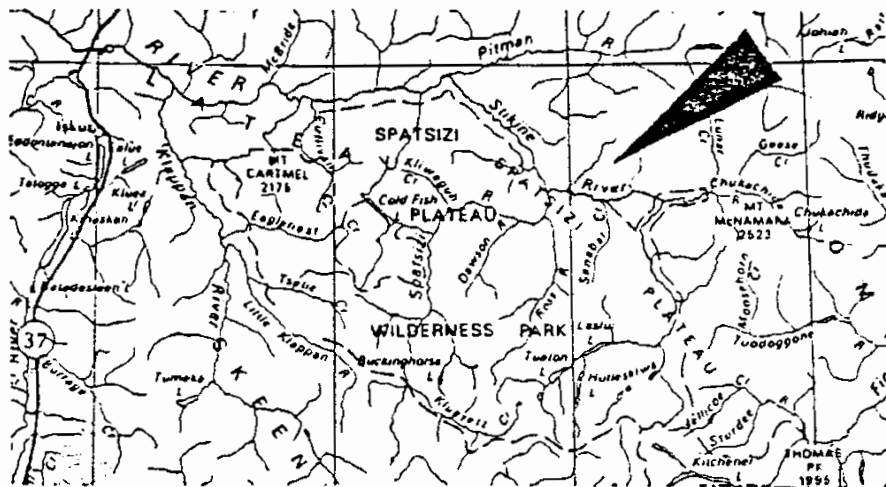
DATE OF REPORT: October 14, 1982

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57° 45'  
127° 45'

LIARD MINING DIVISION  
94 E/13  
1:50,000

DUPONT OF CANADA EXPLORATIONS LTD.  
— BILL CLAIMS —  
LOCATION AND CLAIMS MAP

*John C. White  
geographical consulting  
of  
Vancouver, B.C.*

## INTRODUCTION

This survey was conducted as a limited test program to determine if any definitive geophysical responses could be obtained over an area of interesting gold-arsenic geochemical values.

The work was conducted from a late season fly camp from September 18-24, 1982. Some 4.8 km of magnetometer and VLF-electromagnetometer surveying were conducted. The induced polarization survey was terminated at 3.2 km due to a transmitter failure.

## PROPERTY

The survey was conducted near the northeast corner of the Bill 2 mineral claims as illustrated on Figure 1. The Bill 1 and 2 claims are record numbers 1199 and 1200 respectively.

## LOCATION AND ACCESS

The Bill claims are located some 10 km northwest of the junction of the Stikine and Chukachida Rivers in the Stikine Mountain Range. The area is approximately 135 km southeast of Dease Lake at Latitude  $57^{\circ}45'N$ , Longitude  $127^{\circ}45'W$ , N.T.S. 94 E/13

Access is by helicopter.



## GENERAL GEOLOGY

A detailed description of the Bill and T-Bird mineral claims can be found in a geological-geochemical and trenching assessment report dated March 1982 by R. I. Sharp on behalf of Cominco Ltd.

Mr. Sharp reports that: "The Bill claims are underlain by an assemblage of metamorphosed volcanic and sedimentary rocks. Thorstad (1980) suggests a Mississippian age for these rocks. Upper Triassic rocks of the Takla Formation and lower Jurassic rocks of the Hazelton Formation lie to the west and east of the claims. Lower Jurassic quartz monzonite and granodiorite underlie a large area to the north, east and south of the claims." He reports that "auriferous arsenopyrite occurs as late stage fracture fillings, as quartz veins and pods, or along sericitized ( + silicified ) fractures in carbonatized felsic tuff and tuffite."

## SURVEY SPECIFICATIONS

### The Magnetometer Survey

The magnetometer survey was conducted using a scintrex MF-2 Fluxgate magnetometer. This instrument measures the vertical component of the earth's magnetic field to an accuracy of 10 gammas. Corrections for diurnal variation were made by tying into previously established base stations at intervals not exceeding one and one half hours. Readings were taken at 25 m intervals along the traverse lines.

### V.L.F. Electromagnetometer Survey

This survey was conducted using a Geonics EM-16 V.L.F. Electromagnetometer. This instrument acts as a receiver only. It utilizes the primary electromagnetic fields generated by VLF marine communication stations. These stations operate at a frequency between 15-25 KHZ, and have a vertical antenna-current resulting in a horizontal primary field. Thus, this VLF - EM measures the dip-angle of the secondary field induced in a conductor.

For maximum coupling, a transmitter station located in the same direction as the geological strike should be selected, since the direction of the horizontal electromagnetic field is perpendicular to the direction of the transmitting station.

Readings were taken at 25 m intervals and the data filtered in the field by the operator as described by D.C. Fraser, Geophysics Vol. 34, No. 6 (December 1969). The advantage of this method is that it removes the dc and attenuates long spatical wave lengths to increase resolution of local anomalies, and phase shifts the dip-angle data by 90 degrees so that cross-overs and inflections will be transformed into peaks to yield contourable quantities.

### INDUCED POLARIZATION

The equipment used on this survey was the Hunttec pulse-type unit and Mark III receiver. Power was obtained from a Briggs and Stratton motor coupled to a 2.5 KW 400 cycle, three phase generator, providing a maximum of 2.5 KW D.C. to the ground. The cycling rate is 1.5 seconds "current on" and 0.5 seconds "current off", the pulse reversing continuously in polarity. Power was transmitted to the ground through two potential electrodes,  $P_1$  and  $P_2$ , which were deployed in the three electrode array with an "a" spacing of 50 m and separations of  $n = 2$ .

The data recorded in the field consists of careful measurements of the current (I) in amperes flowing through electrodes  $C_1$  and  $C_2$ , the primary voltage ( $V_p$ ) appearing between electrodes  $P_1$  and  $P_2$  during the "current on" part of the cycle. A cycle time of 4 seconds was used with a duty ratio of 2.2 - 1,  $T_p$  .20 ms and  $T_d$  60 ms.

The apparent chargeability ( $M'$ ) in milliseconds, is calculated by  $T_p (M_1 + 2M_2 + 4M_3 + 8M_4) = M'$ , where  $T_p$  is the basic integrating time in tenths of seconds.  $M_1$ ,  $M_2$ ,  $M_3$  and  $M_4$  are the chargeability effects at various times on the voltage decay curve following switch off of the transmitter, measured as a percentage of the primary voltage,  $V_p$  recorded during the "current on" time. By the use of these factors, one can gain an estimate of the decay curve in terms of chargeability for the given time  $T_p$ . This gives a quantitative value to the data measured.

The apparent resistivity, in ohm-metres, is proportional to the ratio of the primary voltage to the measured current, the proportionality factor depending on the geometry of the electrode array used. The chargeability and resistivity obtained are called "apparent" as they are values which that portion of the earth sampled by the array would have if it were homogeneous. As the earth sample is usually inhomogeneous, the calculated apparent chargeability and apparent resistivity are functions of the actual chargeabilities and resistivities of the rocks sampled and of the geometry of the rocks.

## DISCUSSION OF RESULTS

Figure 6 has been prepared from the Cominco geochemical data and is a plot of the arsenic values across this test survey area. The geochemical data shows a pronounced anomaly of 3000 to 4000 ppm arsenic associated with up to 4650 ppb gold.

Correlation of the geochemical values with the induced polarization chargeability data indicates that this anomaly is reflected by low order chargeability values of 6 to 7 milliseconds. The lowest values obtained were in the order of 1.5 milliseconds which could be considered a background response. A strong anomaly of 26 milliseconds was obtained in the southwest corner of the grid. This is an area of low resistivity (see Figure 5) but does not appear to have any significant geochemical values. Thus, this response may possibly be due to a graphite-bearing phyllite. The apparent resistivity data shows high values which indicate shallow overburden conditions over resistive rock units.

The VLF-EM unit gave a well-defined conductor which trends north to north-northwest. This anomaly appears to show the closest correlation with the geochemical anomalies and would suggest that the arsenopyrite is possibly following a complex pattern of intersecting zones of structural weakness.

The magnetometer survey was conducted on a reconnaissance basis with a course sensitivity of 50 gammas. The responses were moderate; however, several linears are suggested which may relate to fault zones. It is interesting that the geochemical anomaly occurs between the

two western linears. This may indicate the arsenopyrite is controlled by oblique dilatent fissures between the two linears.

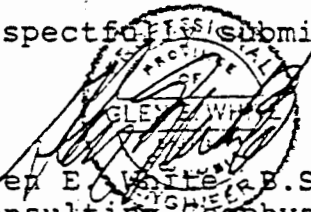
#### CONCLUSION AND RECOMMENDATIONS

A limited test program of geophysical surveying was conducted over a small portion of the Bill claims to test an area of auriferous arsenopyrite for any definitive response patterns.

The induced polarization chargeability data appears to be giving a general response on the limited survey. However, on a regional basis, the area of anomalous values may appear specific. A strong response of 26 ms indicates a good chargeable source to the southwest of the survey grid. The VLF-EM and magnetometer surveys suggested a conductive zone and magnetic low linears which appeared to be more closely related to the strong arsenic geochemical values.

Thus, a suggested exploration approach would be to conduct 1 gamma sensitivity magnetometer and VLF-EM surveys to correlate with the geochemical data followed by an induced polarization survey or a deep penetrating time domain pulse electromagnetometer survey over specific areas once a geological-geophysical model has been developed.

Respectfully submitted,



Glen E. White B.Sc., P. Eng.  
Consulting Geophysicist

A P P E N D I XInstrument SpecificationsMAGNETOMETERA. Instrument

- (a) Type - Fluxgate
- (b) Make - Scintrex MF-2

B. Specifications

- (a) Measurement - Vertical Magnetic Field
- (b) Range -  $\pm$  100 K gammas in 5 ranges
- (c) Sensitivity - Maximum 20 gammas per scale division
- (d) Accuracy -  $\pm$  10 gammas

C. Survey Procedures

- (a) Method - One and one half hour loops
- (b) Corrections - (i) Base  
(ii) Diurnal
- (c) Station relationship - each station read for  
intensity of vertical magnetic field.



A P P E N D I XInstrument SpecificationsELECTROMAGNETOMETERA. Instrument

- (a) Type - Geonics VLF - EM
- (b) Make - Ronka EM 16

B. Specifications

- Measurement -
- (i) Utilizes primary fields generated by VLF marine communication stations measures the vertical field components in terms of horizontal field present.
  - (ii) Frequency range 15-25 KHZ
  - (iii) Range of measurement - in phase  $\pm 150\%$   
or  $\pm 90^\circ$   
- quadrature  $\pm 40\%$
  - (iv) Method of reading - null detection by earphone, real and quadrature from mechanical dials.
  - (v) Accuracy -  $\pm 1\%$  resolution

C. Survey Procedures

- Method
- (a) Select closest VLF station perpendicular to traverse lines.
  - (b) In-phase dial measures degree of tilt from vertical position.
  - (c) Quadrature dial calibrated in percent - null.
  - (d) Station plot - plot values read at station surveyed.
  - (e) Manually filter dip-angle data.

INSTRUMENT SPECIFICATIONS

INDUCED POLARIZATION SYSTEM

A. Instruments

- (a) Type - pulse
- (b) Make - Hunttec
- (c) Serial No. - transmitter #107 - receiver #3016

B. Specifications

- (a) Size and Power - 2.5 KW
- (b) Sensitivity - 300 x 10.5 volts
- (c) Power Sources - 2.5 KW 400 cycle - three-phase generator
- (d) Power - 8 H.P. Briggs and Stratton © 3000 R.P.M.
- (e) Timing - electronic, remote and direct.
- (f) Readings - (i) amps (ii) volts primary and secondary
- (g) Calculate (i) Resistivity - ohm-meters (ohm-feet)  
(ii) Chargeability - milliseconds

C. Survey Procedures

- (a) Method - power supplied to mobile probe along TW 18 stranded wire from stationary set-up
- (b) Configuration - Pole-dipole (three electrode array)  
Plot point midway between  $C_1$  and  $P_1$

D. Presentation

- Contour Maps (i) Chargeability - milliseconds  
(ii) Resistivity - ohm-meters (ohm-feet)

STATEMENT OF QUALIFICATIONS

NAME: WHITE, Glen E., P.Eng.

PROFESSION: Geophysicist

EDUCATION: B.Sc. Geophysicist - Geology  
University of British Columbia.

PROFESSIONAL ASSOCIATIONS: Registered Professional Engineer,  
Province of British Columbia.  
Associate member of Society of Exploration Geophysicists.  
Past President of B.C. Society of Mining Geophysicists.

EXPERIENCE: Pre-Graduate experience in Geology -  
Geochemistry - Geophysics with Anaconda  
American Brass.  
Two years Mining Geophysicist with  
Sulmac Exploration Ltd. and Airborne  
Geophysics with Spartan Air Services  
Ltd.  
One year Mining Geophysicist and Technical  
Sales Manager in the Pacific  
north-west for W.P. McGill and Associates.  
Two years Mining Geophysicist and  
supervisor Airborne and Ground Geophysical  
Divisions with Geo-X Surveys  
Ltd.  
Two years Chief Geophysicist Tri-Con  
Exploration Surveys Ltd.  
Twelve years Consulting Geophysicist.  
Active experience in all Geologic provinces  
of Canada.

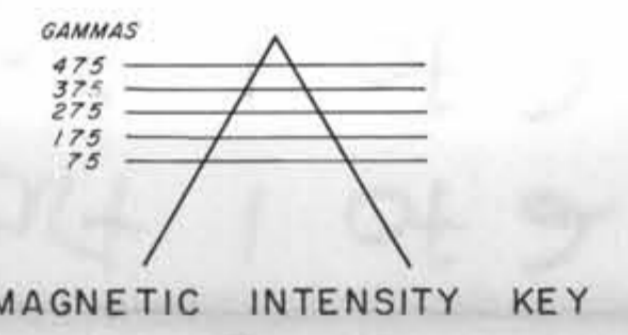
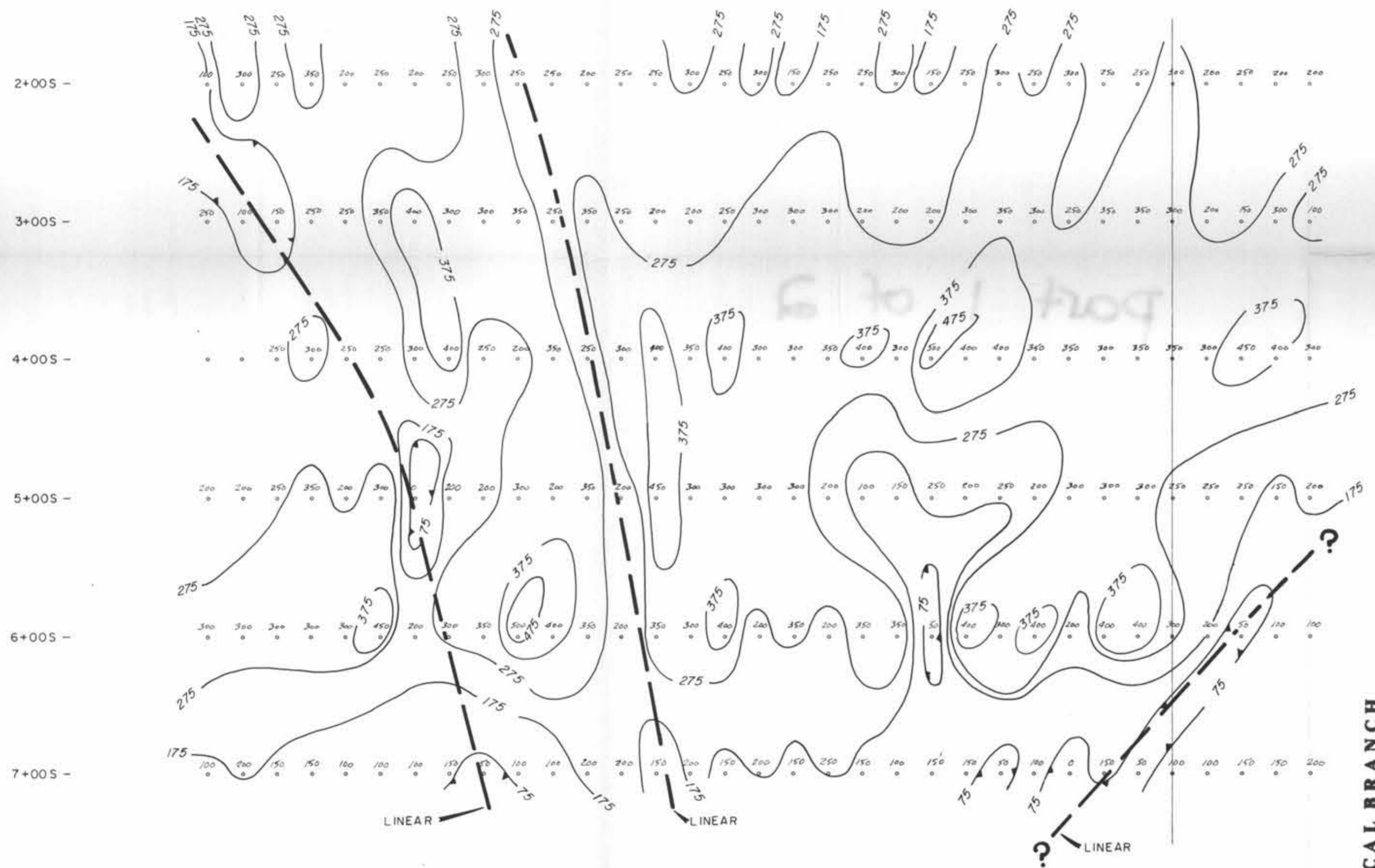
COST BREAKDOWN

<u>Personnel</u>	<u>Date</u>	<u>Wages</u>	<u>Total</u>
R. Hamilton	....Sept.18-24/82	.....\$275/day	.....\$1650.00
I. Clarke	....."....."	.....175/day	.....1050.00
S. Tompson	....."....."	.....170/day	.....1020.00
M. Kilby	....."....."	.....170/day	.....1020.00
Meals and accomodations...-			.....1440.00
Instrument Lease: I. P.			.....1350.00
Mag. and EM			.....300.00
Materials and office			.....270.00
Drafting, interpretation and reports			.....975.00
Airfares			.....1045.40
Airfreight			.....553.38
Total			..... <u>\$10,673.78</u>

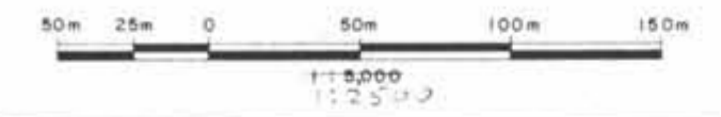
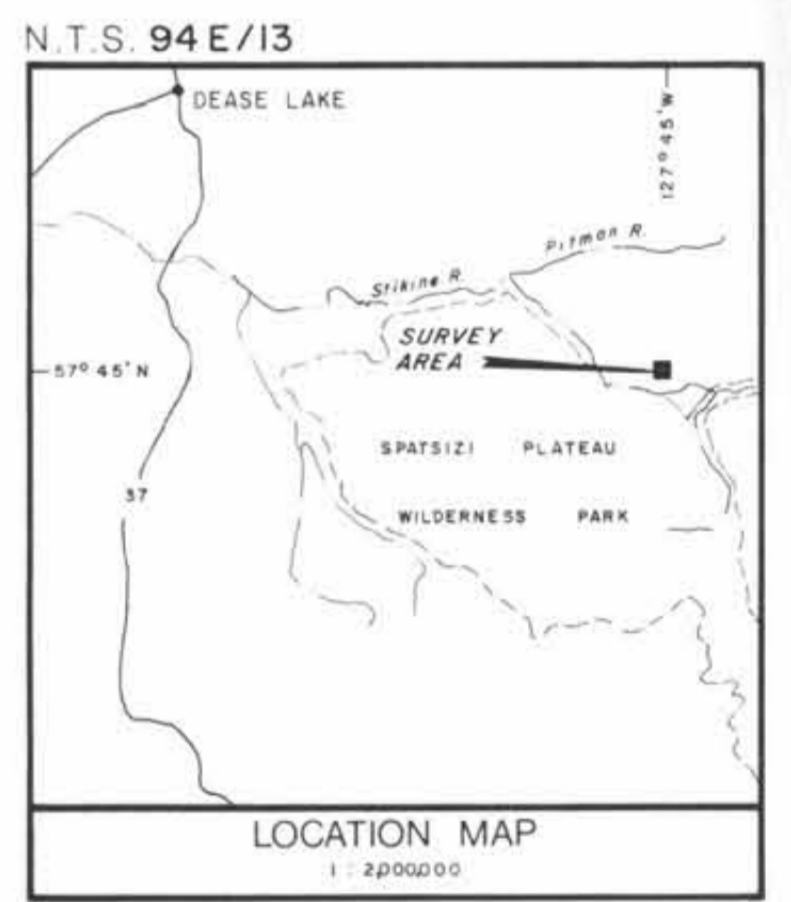
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**LEGEND:**  
 0.2m GRID STATION, MAGNETIC INTENSITY VALUE - GAMMAS  
 INSTRUMENT: SCINTREX MF-2 FLUXGATE MAGNETOMETER



part 1 of 2



**GEOLOGICAL BRANCH  
 ASSESSMENT REPORT**

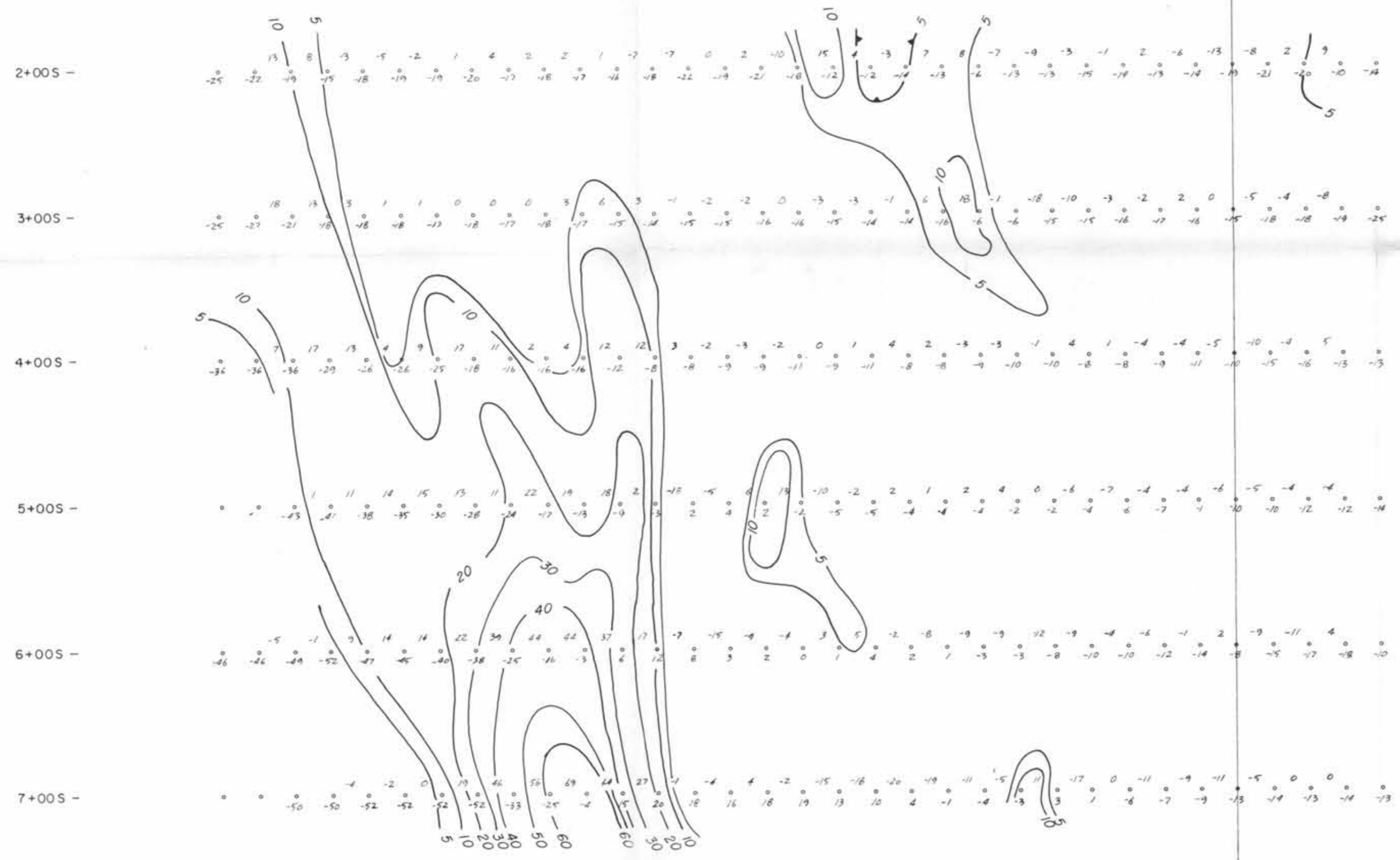
**11,493**

DUPONT OF CANADA EXPLORATIONS LTD.	
— BILL CLAIMS —	
LIARD MINING DIVISION — BRITISH COLUMBIA	
MAGNETOMETER SURVEY	
VERTICAL MAGNETIC INTENSITY - GAMMAS	
Interpreted By: G.E.W.	Drawn By: FINELINE DRAFTING LTD.
Checked By: G.E.W.	Date: OCT / 82
Fig No: 2	

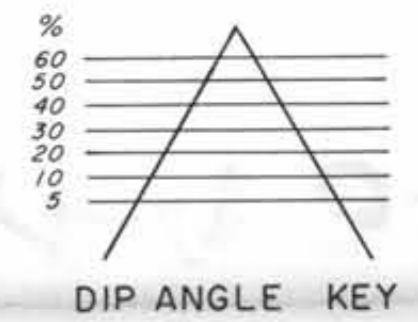
To Accompany Geophysical Report of  
 The BILL CLAIMS  
 Date: \_\_\_\_\_  
 By: GLENE WHITE - B.S.

GEOPHYSICIST

-7+00W      -6+00W      -5+00W      -4+00W      -3+00W      -2+00W      -1+00W      -0+00W B.L.      -1+00E



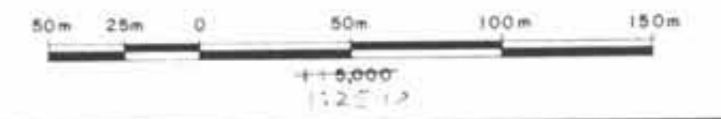
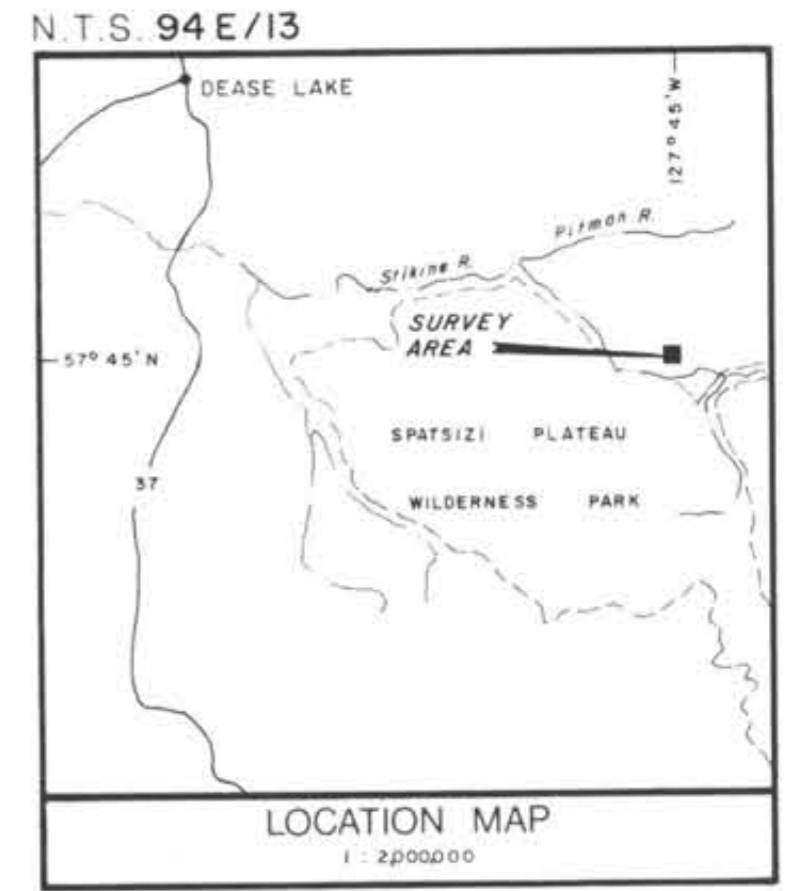
**LEGEND:**  
 ○ GRID STATION, FRAZER FILTERED VALUE - %  
 ○ DIP ANGLE VALUE - %  
 INSTRUMENT: GEONICS EM-16 VLF-ELECTROMAGNETOMETER



part 1 of 2

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

11,493



DUPONT OF CANADA EXPLORATIONS LTD. — BILL CLAIMS — LIARD MINING DIVISION — BRITISH COLUMBIA	
VLF-EM SURVEY FRAZER FILTERED DIP ANGLE - %	
Interpreted By: G.E.W. Drawn By: FINELINE DRAFTING LTD. Checked By: G.E.W. Date: OCT / 82 Fig No: 3	By: GLEN E. WHITE - B.Sc. GEOPHYSICIST

To Accompany Geophysical Report on  
 The BILL CLAIMS  
 Date  
 BY GLEN E. WHITE - B.Sc.

- 7+00W      - 6+00W      - 5+00W      - 4+00W      - 3+00W      - 2+00W      - 1+00W      - 0+00W B.L.      - 1+00E

2+00S -

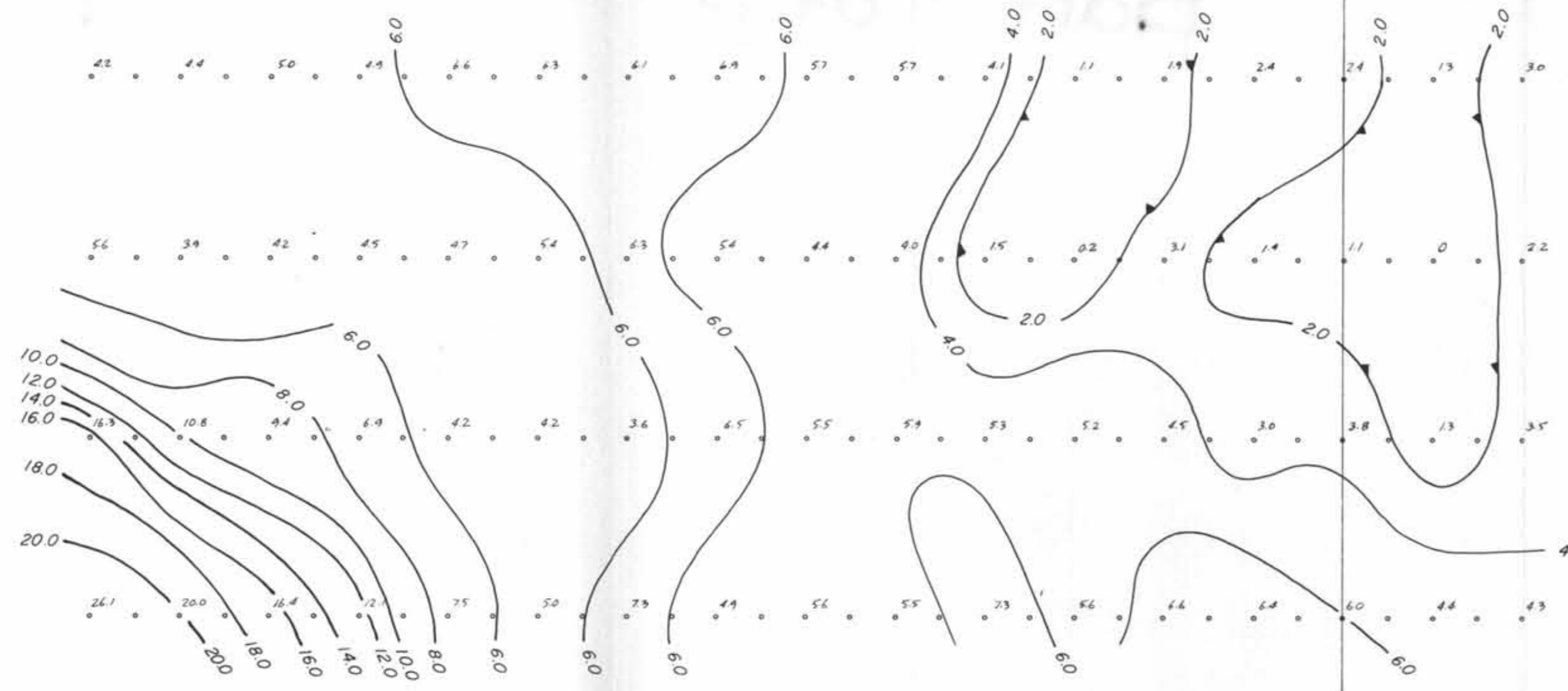
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4+00S -

5+00S -

6+00S -

7+00S -

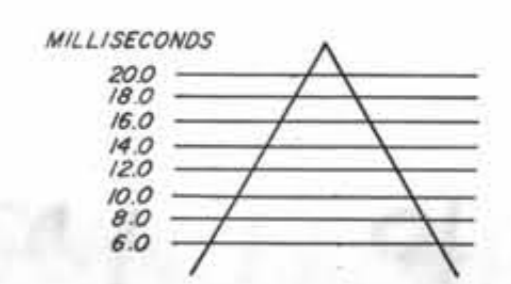
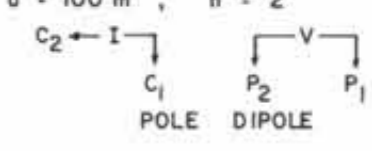


**LEGEND:**

30 GRID STATION, CHARGEABILITY VALUE - MILLISECONDS

INSTRUMENT: HUNTEC 2.5 Kw TIME DOMAIN

a = 100 m, n = 2



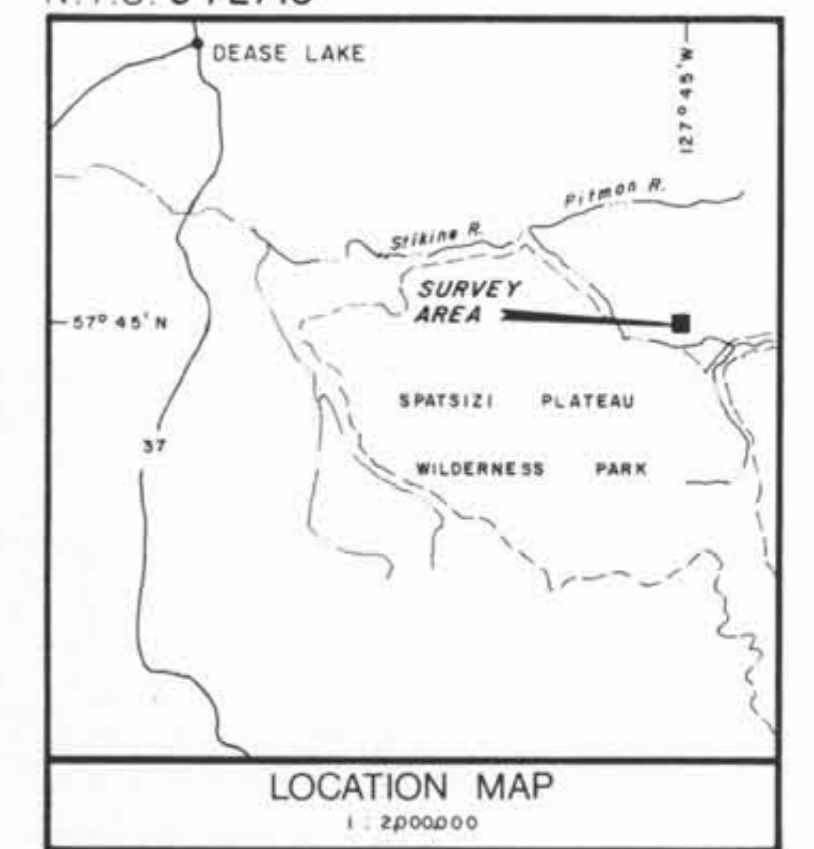
CHARGEABILITY KEY

**part 1 of 2**

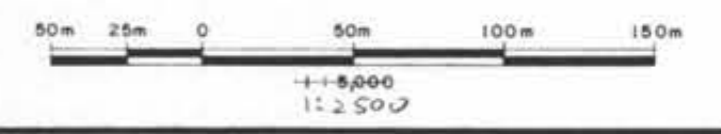
**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**11,493**

N.T.S. 94E/13



LOCATION MAP  
1:200000



DUPONT OF CANADA EXPLORATIONS LTD.  
- BILL CLAIMS -  
LIARD MINING DIVISION - BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY  
CHARGEABILITY - MILLISECONDS

*Glen E. White*  
geophysical consulting  
services Ltd.

Interpreted By: G.E.W.  
Drawn By: FINELINE DRAFTING LTD.  
Checked By: G.E.W.  
Date: OCT / 82  
Fig No: 4

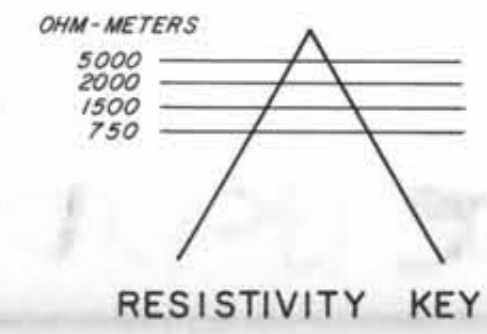
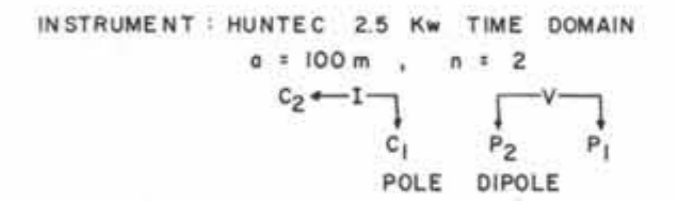
To Accompany Geophysical Report on  
The BILL CLAIMS  
Date  
By GLEN E. WHITE - B.Sc.

GEOPHYSICIST

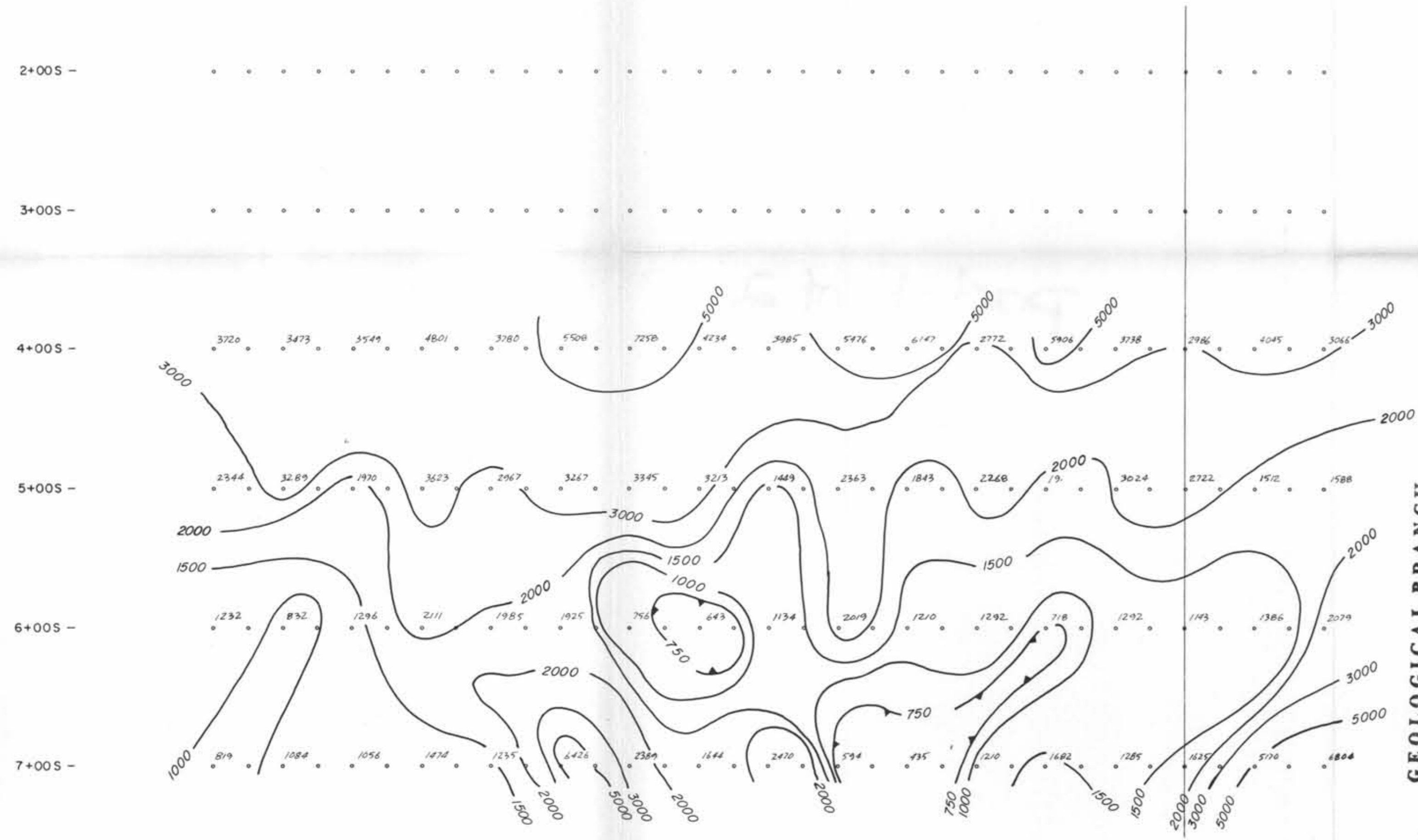
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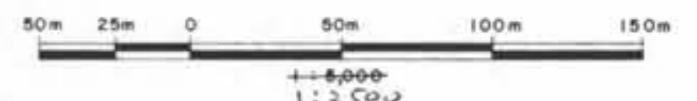
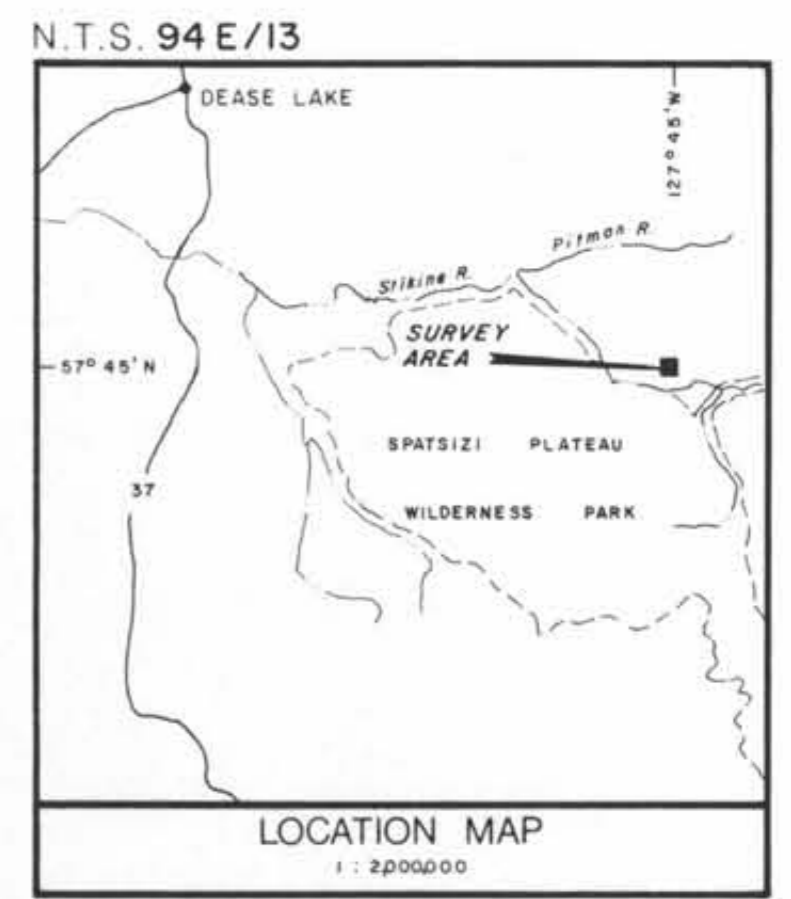


part 1 of 2



GEOLOGICAL BRANCH ASSESSMENT REPORT

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DUPONT OF CANADA EXPLORATIONS LTD.	
- BILL CLAIMS -	
LIARD MINING DIVISION - BRITISH COLUMBIA	
INDUCED POLARIZATION SURVEY RESISTIVITY - OHM-METERS	
Interpreted By: G.E.W.	Drawn By: FINELINE DRAFTING LTD.
Checked By: G.E.W.	Date: OCT / 82
Fig No: 5	

To Accompany Geophysical Report on  
 The BILL CLAIMS  
 Date: \_\_\_\_\_  
 By: GLEN E. WHITE - B.Sc.      GEOPHYSICIST

*Glen E. White*  
 geophysical consulting  
 &  
 services Ltd.

UNICAL 1134

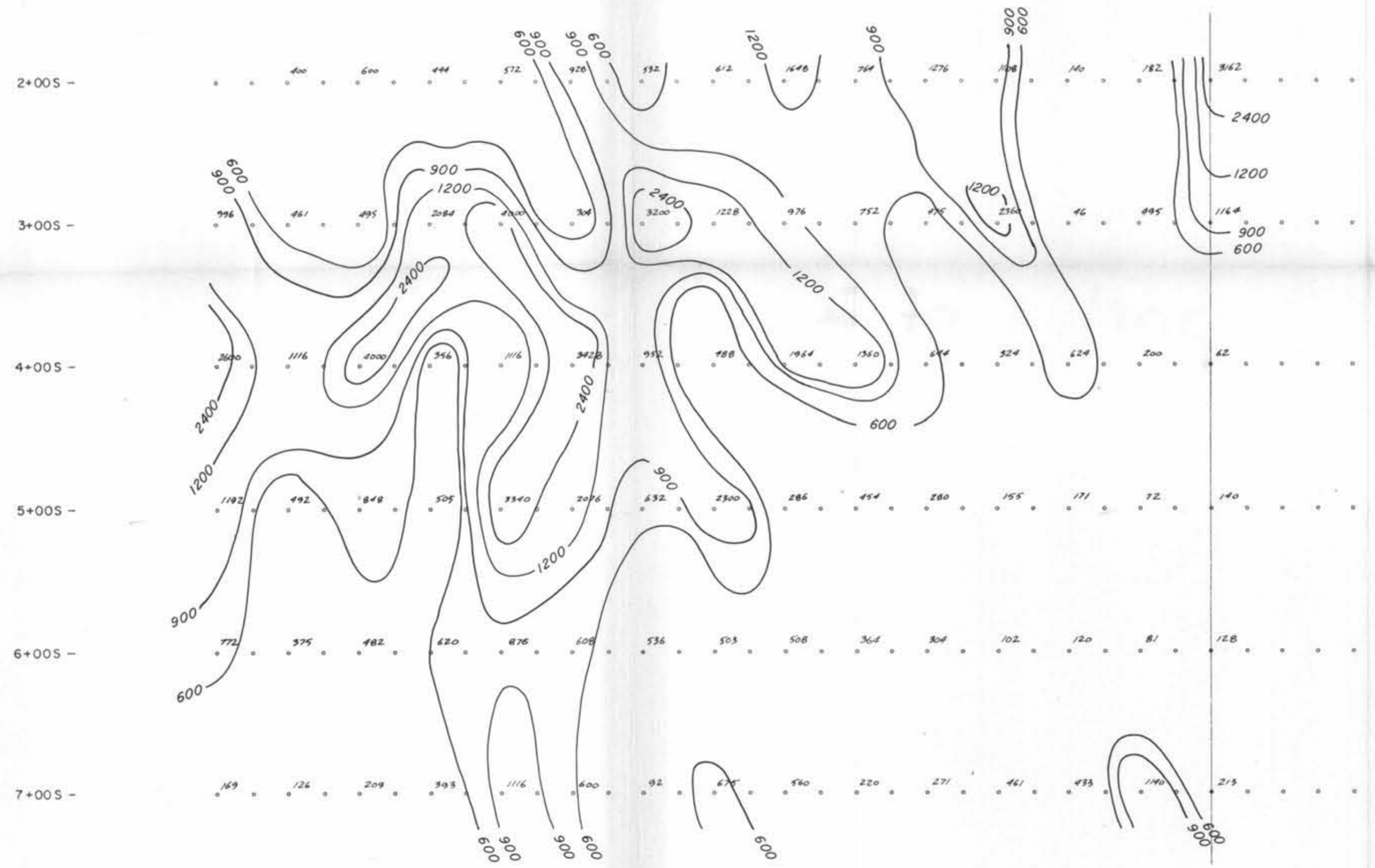
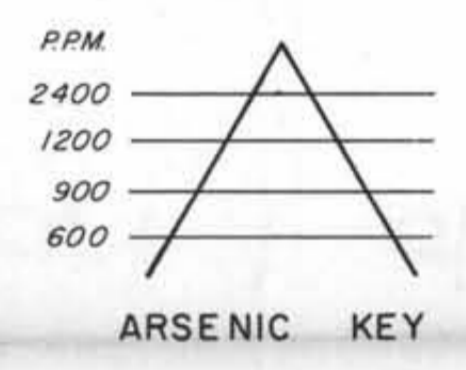


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**LEGEND:**

o 3142 GRID STATION, ARSENIC VALUE - P.P.M.

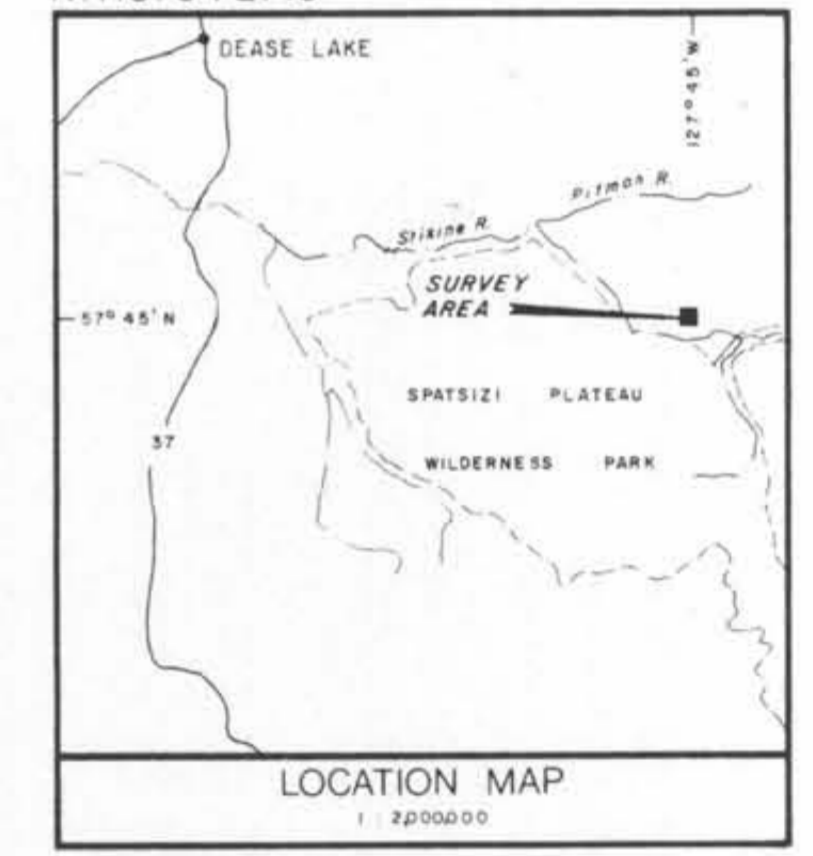


part 1 of 2

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

11,493

N.T.S. 94E/13



DUPONT OF CANADA EXPLORATIONS LTD.  
- BILL CLAIMS -  
LIARD MINING DIVISION - BRITISH COLUMBIA

**GEOCHEMICAL MAP**  
- ARSENIC - P.P.M. -

Interpreted by: G.E.W.
Drawn by: FINELINE DRAFTING LTD.
Checked by: G.E.W.
Date: OCT / 82
Fig No: 6

To Accompany Geochemical Report of  
The BILL CLAIMS  
Date  
By GUYNE WHITE - B.Sc.  
GEOPHYSICIST

GEOPHYSICIST

APPENDIX D

FRASER FILTERING - SABRE VLF-EM UNIT

<u>Line</u>	<u>Station</u>	<u>Reading</u>	<u>Filtered Reading</u>
6+00S	9+00W	-14	-2
	8+90W	-13	-6
	8+80W	-11	-4
	8+70W	-10	-3
	8+60W	-10	-7
	8+50W	-8	-5
	8+40W	-5	+3
	8+30W	-8	+2
	8+20W	-8	-4
	8+10W	-7	-4
	8+00W	-5	-4
	7+90W	-6	-4

APPENDIX E

ANALYTICAL PROCEDURES FOR DUPONT "BILL" DRILL CORE

A. ARSENIC

1. Accurately weigh out a 1.00 gram sample.
2. Add about 20 mls of concentrated nitric acid and digest for 10 minutes.
3. Add 10 mls of 1:1 sulfuric acid and take down to dense  $SO_3$  fumes.
4. Add 5 mls of nitric acid and 30 mls of distilled water, then heat to boiling to dissolve the salts.
5. Filter, bulk to 100 mls and present to Aa. (nitrous-oxide acetylene flame).

A number of checks were run using the above method with good reproducibility. Some samples were also run using a cold aqua regia leach and some using bromine with nitric and sulfuric acids. Again we were able to reproduce the original results. A number of samples were checked using the hydride vapour generator; these verified the original results also.

B. GOLD

1. Gold was determined using a standard fire-assay procedure.

## APPENDIX F

### FIRE ASSAY METHOD - Silver & Gold (Oz/Ton)

Silver and gold analyses are done by standard fire assay techniques. In the sample preparation stage the screens are checked for metallics which, if present, are assayed separately and calculated into the results obtained from the pulp assay.

0.5 assay ton sub samples are fused in litharge, carbonate and silicious fluxes. The lead button containing the precious metals is cupelled in a muffle furnace. The combined Ag & Au is weighed on a microbalance, parted, annealed and again weighed as Au. The difference in the two weighing is Ag.

APPENDIX F

A. Samples in Excess of 0.05 oz/ton Au; Reassayed for Au Only

DDH #	INTERVAL	SAMPLE #	Au oz/ton	As%	Au oz/ton (check assay)
1	76.0-78.0	4537E	0.124	0.25	0.152
1	102-104	4550E	0.365	0.03	0.448
1	132-134	4565E	0.085	<0.01	0.114
2	52-54	4622E	1.020	1.15	1.212
2	92-94	4642E	0.071	0.74	0.082
2	94-96	4643E	0.347	0.40	0.382
2	120-122	4654E	0.150	1.24	0.106
2	134-136	4661E	0.076	1.06	0.074
3	58-60	4717E	0.079	0.31	0.040
3	114-116	4745E	0.050	0.12	0.050
6	60-62	4927E	0.405	0.55	0.372
6	116-118	4954E	0.380	0.16	0.302
6	118-120	4955E	0.260	0.30	0.324
6	124-126	4958E	0.055	0.11	0.078
6	126-128	4959E	0.350	0.74	0.292
6	208-210	7601E	0.073	<0.01	0.072

B. Samples with high As but less than 0.05 oz/ton Au;  
Reassayed for Au and As

DDH #	INTERVAL	SAMPLE #	Au oz/ton	As%	Au oz/ton (Check Assay)	As% (Check Assay)
2	50-52	4621E	0.036	0.65	0.240	0.628
2	54-56	4623E	0.031	0.21	0.012	0.199
2	58-60	4625E	0.036	1.15	0.044	1.070
2	60-62	4626E	0.028	0.65	0.030	0.656
3	10-12	4693E	0.012	0.60	0.007	0.333
3	14-16	4695E	0.035	0.02	0.022	0.626
3	64-66	4720E	0.034	0.22	0.028	0.199
5	60-62	4873E	0.009	0.52	0.007	0.533
5	70-72	4878E	0.003	0.24	0.003	0.230
6	92-94	4942E	<0.001	0.48	0.003	0.410
6	104-106	4948E	0.014	0.81	0.080	0.681

APPENDIX G

VANCOUVER PETROGRAPHIC  
REPORT



# Vancouver Petrographics Ltd.

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## APPENDIX G

Invoice 4098

Report for: Joanne Forbes,  
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V6G 1A5

September 13, 1983

Samples: 5950E to 5956E inclusive

Project #36100500

### Summary

1) Quartz veins: 5951E, 5954E, 5956E.

These consist of coarse quartz which has been deformed and recrystallised around the larger grains and in narrow shear zones. Calcite occurs in veinlets and patches within the finer grained quartz.

Pyrite and arsenopyrite have formed in and near the recrystallised quartz. The arsenopyrite forms later than pyrite and both minerals predate the calcite mineralization; calcite occurs in small fractures in the sulphides.

Sample 5956E contains only minor arsenopyrite and no pyrite.

2) Quartz-calcite-sericite schist: 5952E and 5955E.

These are fine grained buff coloured metasediments with a well developed fine foliation due to compositional layering (quartz and sericite). Calcite forms extremely fine grains occurring in layers within the fine sericitic layers. This gives the rock its colour. The calcite appears to be replacing the sericite.

In sample 5952E arsenopyrite occurs in thin veinlets cutting the foliation. Pyrite occurs in small quartz lenses and may be surrounded by arsenopyrite. Calcite occurs in thin fractures in the sulphides.

In sample 5955E pyrite occurs within quartzitic layers.

Summary (continued)

3) Quartz-chlorite schists: 5950E and 5953E.

These are medium to fine grained greenish coloured metasediments consisting mainly of quartz and chlorite; in 5950E there is also a fairly high proportion of sericite which is being replaced by the chlorite. Sample 5953E also contains scattered plagioclase porphyroblasts. Calcite in both rocks forms extremely fine grains occurring in thin layers within the chloritic layers and appears to be replacing the chlorite and sericite. Probably carbonatisation and chloritisation occurred at the same time and replaced original sericite. These rocks are complexly folded. Calcite and chlorite post-date the folding. In sample 5953E calcite also occurs in veinlets (with quartz) which cut the foliation. Minor amounts of clay (kaolinite + illite?) are associated with the calcite.

Sample 5950E is essentially unmineralized apart from traces of pyrite.

Pyrite and traces of arsenopyrite are associated with the calcite veinlets in sample 5953E. There is also an unidentified mineral in this sample. I suspect it is a sulphosalt, possibly containing Ag.



A. L. Littlejohn, M.Sc.



5950E Quartz-sericite-chlorite-calcite schist

This is a medium to fine grained, more or less equigranular, greenish metasediment with a well developed foliation due to compositional layering (quartz, sericite+chlorite, calcite). The layering is crenulated. There is a calcite vein at one edge of the section. Composition is:

quartz	53%
sericite	20
chlorite	15
calcite	10
Fe-Ti oxides	1 (mixtures of rutile and hematite; mainly hematite)
clay	1 (kaolinite + illite?)
apatite	minor
pyrite	trace

Quartz forms subrounded grains 0.05 to 0.1mm in size and more shapeless grains up to 0.2mm in size which occur in small lenses about 1.0mm in length. The lenses are usually free of other minerals but in some there are poekiloblastic grains of chlorite about 0.5mm in size intergrown with the quartz. Traces of sericite and calcite occasionally occur in the lenses.

Sericite forms thin flakes 0.05 to 0.1mm in size which occur between the quartz grains and are concentrated in thin streaky layers up to 0.3mm in width. The flakes are oriented subparallel to the crenulations within the layers. Much of the sericite has been altered to chlorite which pseudomorphs the sericite.

Calcite forms extremely fine grains which occurs in crenulated layers about 0.2mm wide and spaced 1 to 4mm apart. It occurs within some of the sericite layers and appears to be replacing it. Small shapeless patches of calcite occur between quartz grains in the less sericitic and chloritic parts of the rock. There is a layer about 1mm thick which consists of subrounded interlocking calcite grains about 0.4mm in size. Relatively coarse quartz grains occur within this layer. The layer could be a quartz layer which has been replaced by calcite. The calcite vein at the edge of the section is at least 1mm thick and consists of calcite similar to that in the thick layer.

There are patches about 0.1mm in size occurring between quartz grains in some of the quartzitic layers. These consist of extremely fine grained clay which is probably a mixture of kaolinite and illite. It consists of fine matted flakes with low relief and birefringence with finer flakes of higher birefringence.

Apatite forms rounded grains 0.1 to 0.3mm in size which is intergrown with the quartz in the more quartzitic layers.

Fine grained Fe-Ti oxides, forming ragged rounded grains less than 0.03mm in size are disseminated throughout the sericite layers.

A few rounded grains of pyrite about 0.05mm in size are scattered about the rock.

5951E

Quartz vein with calcite veinlets and patches

This is a medium to coarse grained massive rock consisting mainly of quartz. Calcite occurs in patches and veinlets mixed with fine grained quartz. The quartz has been deformed. Traces of pyrite and arsenopyrite occur associated with fine grained, recrystallised quartz. Composition is:

quartz	85%
calcite	15
sericite	trace
pyrite	trace
arsenopyrtie	trace

Quartz forms angular to subrounded interlocking grains 0.3 to 1.0mm in size. There are a few idiomorphic quartz grains intergrown with the others. About 15% of the quartz has been recrystallised to a mass of fine interlocking shapeless grains 0.005 to 0.05mm in size. These occur in an interconnected patchwork around the larger grains. In places there is a narrow zone of fine quartz between the larger grains. The patches are usually less than 1.0mm in size and are subrounded or shapeless.

Calcite forms a mass of very fine grains which are intergrown with the fine recrystallised quartz. Some of the patches are composed mainly of calcite. A few thin veinlets less than 0.3mm in width consist of angular grains of calcite about 0.2mm in size. These grade into the patches. Sericite forms ragged patches less than 0.5mm in size which occur at the edges of the calcareous patches.

Traces of pyrite and rare arsenopyrite are scattered in the fine recrystallised quartz. Grains are subcubic and less than 0.05mm in size. They tend to occur in clusters of a few grains.

5952E Quartz-calcite-sericite schist with arsenopyrite veinlets

This is a fine grained, equigranular buff coloured metasediment with a well developed foliation due to compositional layering (quartz, sericite+calcite). Thin quartz lenses contain pyrite. Arsenopyrite occurs in veinlets cutting the foliation. Small drag folds occur at the veinlets. Composition is:

quartz	45%
calcite	28
sericite	21
arsenopyrite	4
pyrite	2
Fe-Ti oxide	1 (mixtures of rutile and hematite)
limonite	minor

Quartz forms shapeless to subrounded grains 0.04 to 0.1mm in size. In places there are slightly elongated grains parallel to the foliation. The quartz also occurs in thin lenses up to 0.5mm thick in which the grains are up to 0.3mm in size. In these the quartz is moderately strained. Some of the lenses appear to be deformed and fine grained, recrystallised quartz occurs between the larger grains. Pyrite forms cubic grains 0.1 to 1.0mm in size, averaging about 0.4mm, which are intergrown with the quartz in the lenses. Some pyrite occurs in the rock adjacent to the lenses.

Sericite forms ragged flakes less than 0.1mm in size which occur between the quartz grains and which are concentrated in layers up to 0.3mm thick. The sericite is intimately associated with calcite (replaced?) which forms extremely fine grains occurring in thin streaky patches within the sericitic layers. A few thin layers have cores of coarser calcite forming interlocking grains about 0.2mm in size. Calcite also occurs in veinlets about 0.2mm thick which cut the foliation. The sericite is full of fine disseminated grains of Fe-Ti oxide. A few small patches of hematite are present also. The grain size of the Fe-Ti oxide is less than 0.005mm. Brownish patches in the rock are calcite stained by limonite.

Arsenopyrite <sup>forms</sup> idiomorphic grains 0.1 to 0.3mm in size and smaller ragged, rounded grains which occur in thin veinlets cutting the foliation. Some arsenopyrite occurs in the quartz lenses where it tends to surround the pyrite. The arsenopyrite and the pyrite are fractured and calcite has filled these.

Apatite forms rounded grains about 0.05mm in size which are intergrown with the quartz. A few idiomorphic grains about 0.2mm in size are also present.

This is a medium to fine grained inequigranular metasediment, pale greenish in colour, which has a well developed foliation. The foliation has formed by tight isoclinal folding of thin quartz and chlorite layers. The quartz tends to be concentrated in the nose of the folds. Calcite (+ quartz) veinlets cut across the foliation. These are associated with pyrite. Composition is:

quartz	44%
chlorite	30
calcite	14
sericite	4
plagioclase	6
hematite	1
pyrite	2
clay	trace (kaolinite + illite?)
arsenopyrite	trace (more in hand specimen)
Mineral X	minor (sulphosalt?)

Quartz forms rounded grains 0.02 to 0.1mm in size which is intergrown with thin flakes of chlorite about 0.1mm in size. The quartz and chlorite are concentrated in alternating layers up to 0.4mm in thickness which have been isoclinally folded into very tight folds. In the nose of the folds the quartz is coarser and forms more shapeless grains up to 0.3mm in size. There is much less chlorite in these parts of the rock. Small ovoid patches of relatively coarse quartz also occur within the chloritic layers. Sericite forms thin streaks up to 0.2mm in size within the chlorite, suggesting that all the sericite has been altered to chlorite. A few flakes of sericite are scattered between quartz grains in the coarser patches. Fine grained hematite (+rutile??), forming ragged rounded grains less than 0.05mm in size are disseminated throughout the chlorite. It sometimes occurs in small clusters.

Calcite forms extremely fine grains occurring in thin discontinuous streaky patches within and cutting the layering at a shallow angle. The fine grains occur within the chloritic layers. These layers and veinlets are less than 0.1mm thick. Shapeless grains of calcite up to 0.4mm in size are intergrown with quartz in the quartzitic patches and layers. There are also a few ragged patches of clay about 0.1mm in size which occur between quartz grains associated with the calcite. These consist of fine matted grains with low relief and birefringence mixed with a more flakey mineral with slightly higher birefringence (illite?).

Plagioclase forms squat subhedral grains 0.4 to 1.5mm in size (porphyroblasts) which occur scattered about the rock within both the chloritic and quartzitic layers and patches.

Calcite also occurs in veins which cut the foliation. These are up to 1mm thick and the calcite forms ragged rounded interlocking grains about 0.4mm in size. Patches of extremely fine calcite (similar to that in the rock) occur between the larger grains. The thicker veins also contain quartz which forms elongated to shapeless grains up to 0.4mm in size. The calcite tends to occur between the quartz grains in these veins.

5953E (cont.)

Pyrite is associated with the calcite veins, occurring in them or in the rock adjacent to the veins. It forms rounded to subcubic grains 0.1 to 0.3mm in size with a few up to 1.5mm. The larger ones contain shapeless patches of quartz and sericite. Some are fractured and the fractures filled with calcite. A few idiomorphic arsenopyrite grains up to 0.3mm in size also occur in the veins.

There is an unidentified mineral forming ragged, elongated grains within and adjacent to a calcite layer within a chloritic layer. It is associated with pyrite. Maximum size is 0.6mm. It occurs in clusters of a few grains. It is soft, has fairly high reflectivity, greyish-white with a blue tinge in colour, has no birefringence, and is moderately anisotropic. It is probably a sulphosalt (containing Pb, Bi, As, Ag???) .

5954E

Quartz vein with pyrite, arsenopyrite

This is a medium to fine grained massive rock consisting mainly of quartz. Narrow shear zones within the quartz contain sericite, pyrite and arsenopyrite. Patches of calcite have formed around the sulphides and within the quartz about the shear zones. Composition is:

quartz	70%	
calcite	10	
pyrite	10	
sericite	6	
arsenopyrite	4	
Fe-Ti oxide	minor	(mixtures of rutile and hematite)

Quartz forms angular to subrounded interlocking grains 0.3 to 1.0mm in size. It is strained and extremely fine grained recrystallised quartz grains occur between the grains. Shear zones up to 2.0mm wide cut the rock and these are filled with a mass of streaky sericite mixed with some remnant fine grained quartz.

Pyrite forms cubic to prisamtic grains 0.1 to 1.0mm in size, averaging about 0.4mm, which occur within the shear zones and between the quartz grains adjacent to the zones. Smaller ragged, rounded grains of pyrite are clustered around the larger well formed grains. Many of the larger pyrites contain small shapeless patches of fine quartz and sericite and fine inclusions of rutile. Rutile is mixed with hematite and forms ragged grains less than 0.01mm in size which are disseminated within the sericite.

Arsenopyrite forms ragged, rounded grains 0.01 to 0.2mm in size and subidiomorphic grains 0.2 to 0.5mm in size. They cluster around the pyrite grains. The larger ones sometimes enclose pyrite. Streaky patches of arsenopyrite occur between quartz grains adjacent to the shears.

Calcite forms ragged patches up to 1.5mm in size which occur within the sericite and enclose the sulphides. The calcite forms angular grains 0.05 to 0.5mm in size with finer grains around the edges of the patches. Smaller patches occur between quartz grains throughout the rock. Extremely thin veinlets of calcite cut the sulphides.

5955E

Quartz - calcite - sericite schist with pyritic layers

This is a fine grained, equigranular buff coloured metasediment with a well developed foliation due to compositional layering (quartz, sericite, calcite) Two layers about 2mm thick consist of quartz and pyrite. Composition is:

quartz	40%
calcite	32
sericite	17
pyrite	10
Fe-Ti oxide	1 (mixtures of rutile and hematite)
apatite	minor

Quartz forms shapeless to subrounded grains 0.04 to 0.1mm in size. In places the grains are slightly elongated parallel to the foliation. In the quartz-pyrite layers the quartz grains are 0.05 to 0.2mm in size and are slightly strained. The pyrite is cubic in shape and ranges in size from 0.1 to 0.5mm; rounded grains are less than 0.1mm in size and cluster around the larger grains. Minor pyrite occurs within the rock adjacent to the quartz-pyrite layers.

Sericite forms fine ragged flakes occurring between the quartz grains and which are concentrated in layers less than 0.5mm in width. There are extremely fine grains of Fe-Ti oxides disseminated throughout the sericite. Grain size of the sericite is about 0.1mm.

The sericite is intimately intergrown with extremely fine grained calcite and occurs in thin streaky patches within the sericitic layers. Some layers are almost all calcite. Coarser, angular interlocking grains of calcite sometimes occur within the core of the fine grained calcitic layers. The calcite appears to have replaced the sericite.

Apatite forms rounded grains about 0.05mm in size which is intergrown with the quartz. Very fine grains are sometimes included in the quartz.

5956E Quartz vein with calcite veinlets

This is a medium to coarse grained massive rock consisting mainly of quartz. Calcite occurs in thin veinlets cutting the quartz. The quartz is strained and has been recrystallised along the grain margins. Minor arsenopyrite is associated with the recrystallised quartz. The calcite veinlets are later than the deformation. Composition is:

quartz	95%
calcite	5
arsenopyrite	minor

Quartz forms angular to subrounded interlocking grains 0.3 to 1.0mm in size. There are also a few idiomorphic quartz grains intergrown with the others. About 5% of the quartz has been recrystallised to a very fine interlocking aggregate of shapeless grains 0.01 to 0.1mm in size. This occurs in narrow zones less than 0.5mm thick which form an interconnected patchwork around the larger grains which are strained.

Arsenopyrite forms cubic to diamond shaped grains 0.05 to 0.2mm in size which occur in sinuous stringers and discontinuous veinlets within the fine grained recrystallised quartz. Finer grained arsenopyrite occurs disseminated around the stringers which are less than 0.2mm in width.

Calcite occurs in a network of veinlets 0.1 to 0.3mm in width which cut both the large quartz grains and the fine grained recrystallised zones, and the arsenopyrite stringers. The grains tend to be slightly elongated along the veinlets and are about 0.3mm in size.



APPENDIX H  
PETROGRAPHIC ANALYSIS  
OF  
DRILL CORE LITHOLOGIES

MEMORANDUM

VANCOUVER

1983 October 12

APPENDIX H

TO: File

FROM: T. J. Drown

Bill Claims - Petrographic Analyses

Thirteen thin sections, from diamond drill core, were examined by the author to determine rock type, alteration and correlate hand specimen descriptions from drill logs. In general, thin section findings are consistent with hand specimen descriptions as described by J.R. Forbes during core logging. In only a few cases were discrepancies noted. However, it is noted that one thin section from a 30 m core length is not truly a representative sample.

Alteration appears to be of two types, carbonate (calcite), sericite and quartz veining. It should be noted that alteration may be masked by metamorphism although some of the alteration (carbonate) is later, in part, than metamorphism.

The geology of the Bill as described by Sharp, 1981, is unchanged by this work, although more work is required to fully describe the geology petrographically. Petrographic analyses for individual core samples are given below.

Sample No.: 5957E  
Drill Hole: No. 1  
Interval: 29.4 m

Rock Name: Quartz-chlorite-schist  
Original Rock: Dacitic tuff

Present Mode: Quartz 40%  
Chlorite 20  
Plagioclase 15  
Calcite 12  
Sericite 10  
Albite 8  
Sphene Tr.  
Hematite Tr.

This is a medium- to fine-grained inequigranular rock with a well developed compositional layering giving a schistose texture. Alternating layers of quartz-chlorite and calcite-quartz vary from 0.2 mm to 0.8 mm in width with quartz-plagioclase the widest. Plagioclase is largely altered to mixture of quartz-sericite-albite with grains up to 1.0 mm across. Quartzose layers are frequently lens shaped and bounded by very fine sericite from 0.05 mm to 0.1 mm long.

Chlorite and sericite is frequently bent around the larger plagioclases giving hand specimen felsic eyes. Calcite occurs as cross-cutting veinlets as well as patches throughout the quartz-feldspar layers. Occasional calcite layers or veins are observed parallel to foliation. In these veins, tiny quartz crystals are frequently seen with euhedral boundaries.

Sample No.: 5958E  
 Drill Hole: No. 1  
 Interval: 83.7 m

Rock Name: Calcite-chlorite-quartz schist  
 Original Rock: Calcareous-siliceous sediment

Present Mode:	Quartz	45%
	Chlorite	25
	Calcite	15
	Graphite	10
	Albite	5
	Sericite	3
	Pyrite	Tr.
	Apatite	Tr.

This is an inequigranular schistose rock with a fine-grained xenoblastic texture. Schistosity is due to compositional layering of quartz-graphite, quartz-calcite, chlorite and calcite layers.

Quartz form xenoblastic grains from 0.05 mm to 0.1 mm with some clouded by fine graphite. Quartz is associated with graphite calcite and chlorite forming layers or bands with each.

Chlorite forms poikiloblastic grains with quartz in layers to 1 mm wide.

Graphite is common throughout the slide, but tends to concentrate in layers with quartz. Grains average about 0.01 mm across with frequent felty masses up to 0.15 mm across.

Calcite forms veins both paralleling and cross cutting foliation as well as agglomerated patches up to 0.1 mm across throughout the rock.

Sample No.: 5959E  
 Drill Hole: No. 1  
 Interval: 114.0 m

Rock Name: Sericitized felsic porphyry  
 Original Rock: Dacitic feldspar porphyry

Present Mode: Sericite 50%  
 Calcite 20  
 Plagioclase 15  
 Quartz 45  
 Pyrite Tr.

This rock is a medium-grained porphyritic rock with an intergranular texture.

Feldspars once composed about 70 percent of the rock but are now mostly altered to sericite-calcite-quartz. Relic plagioclase outlines indicate grains averaging about 0.3 mm with porphyritic phenocrysts up to 3.0 mm.

Sericite is largely massive within the plagioclase and forms blades elsewhere to 0.3 mm long and as veinlets to 2 mm across.

Quartz forms 0.1 mm grains between intersecting altered feldspars.

Calcite occurs as veinlets cross-cutting all other minerals up to 2 mm across, frequently containing minor sericite. Occasional circular patches of well crystallized calcite occur up to 2 mm diameter, possibly relic amygdale fillings.

Sample No.: 5961E  
 Drill Hole: No. 2  
 Interval: 190.29 m

Rock Name: Sericitized-chloritized andesite  
 Original Rock: Andesite

Present Mode: Sericite 50%  
 Quartz 15  
 Chlorite 15  
 Calcite 18  
 Hematite 2

This is a fine- to medium-grained rock with an intergranular texture.

Intense sericite-calcite alteration of plagioclase has left plagioclase with only relic outlines filled with felted masses of sericite and calcite.

Plagioclase relics range up to 2 mm long but average about 0.6 mm.

Calcite occurs within the altered plagioclase as well as veinlets up to 1 mm across. About one third of the calcite occurs as veinlets cross cutting all other minerals.

Chlorite occurs with calcite as 0.2 mm patches between the relic feldspar grains. Chlorite is typically poikiloblastic with quartz.

Quartz occurs as fillings or patches between intersecting plagioclase relics.

Sample No.: 5962E  
 Drill Hole: No. 3  
 Interval: 26.6 m

Rock Name: Chloritized-sericitized tuff  
 Original Rock: Andesitic crystal tuff

Present Mode: Quartz 25%  
 Sericite 25  
 Chlorite 20  
 Plagioclase 20  
 Opaques (pyrite) 3  
 Unidentified 3

This is a fine-grained rock with an intergranular to porphyritic texture. The rock is dominated by a jumbled collection of whole and broken altered plagioclase grains.

Plagioclase grains average about 0.5 mm long with larger clots up to 1.5 mm across. The plagioclase is largely altered where fresh, extinction angles give a composition of An<sub>30</sub>, to mixture of quartz-sericite.

Sericite occurs mostly within plagioclase but also as isolated bands frequently bending around the grains in a squashed fashion.

Quartz occurs also as patches between feldspar grains. Quartz is mostly irregular in shape with grains averaging 0.2 mm long.

Calcite forms patches within and nearby plagioclases. It also forms 0.2 mm to 0.5 mm patches in the groundmass and 0.2 to 0.5 mm stringers occasionally with pyrite or quartz.

Pyrite is finely disseminated throughout the rock with grains about 0.2 mm across. It also occurs as 0.1 mm veinlets cutting across all minerals.

Sample No.: 5963E  
 Drill Hole: No. 3  
 Interval: 158.6 m

Rock Name: Sericite-chlorite-quartz schist  
 Original Rock: Iron-magnesium rich pelitic sediment

Present Mode:	Quartz	35%
	Sericite	20
	Chlorite	20
	Calcite	15
	Actinolite	10
	Plagioclase	5
	Opatite	Tr.

This rock is a fine-grained phyllitic inequigranular rock with moderately well developed compositional layering. Compositional layers are 0.1 mm to 0.6 mm bands and lenses of sericite, chlorite, calcite and tremolite.

Quartz occurs as xenoblastic grains averaging 0.1 mm to 0.2 mm across. Quartz is a major component of layers containing chlorite and sericite.

Calcite occurs as veinlets up to 0.5 mm across, cutting all other minerals as well as thin layers mostly between the chlorite and sericite layers. Calcite also appears as 0.1 mm patches within the chlorite layers.

Sericite occurs only as 0.01 mm to 0.1 mm blades in layers up to 0.5 mm wide with quartz.

Between layers of quartz-chlorite and quartz-sericite are thin lenses of actinolite.

Opaque minerals, graphite and pyrite occur as very fine grains up to 0.05 mm across.

Hematite occurs along the margins of a calcite veinlet. The hematite is very fine grained <0.05 mm.

Sample No.: 5964E  
 Drill Hole: No. 4  
 Interval: 57.7 m

Rock Name: Quartz-carbonate schist  
 Original Rock: Siliceous pelitic sediment.

Present Mode:	Quartz	50%
	Calcite	30
	Sericite	10
	Opagues	5
	Apatite	minor

This rock is an inequigranular, compositionally layered rock. Layers are composed quartz, quartz-calcite and quartz-graphite-calcite.

Calcite occurs along the foliation with quartz as well as veinlets cross cutting the foliation frequently containing pyrite (opagues). The calcite layers average 0.3 mm wide and often appear to be elongated patches rather than layers.

Quartz layers contain irregularly shaped quartz grains averaging 0.2 mm across frequently containing 0.1 mm long patches of calcite.

Sericite occurs within the quartz bands for the most part but commonly form between the quartz and quartz-calcite layers.

Graphite is ubiquitous but tends to be most abundant where grain size of other minerals is least and particularly along margins of the various layers.

Pyrite occurs mostly as blebs 2 mm long, roughly parallel to the foliation, but occasionally with quartz and/or calcite in veinlets and as minor 0.05 mm cubes throughout the rock.

It is noted that some of the fine calcite appears to be fibrous with a beige colouration; possibly barite, not calcite.

Sample No.: 5965E  
 Drill Hole: No. 4  
 Interval: 89.5 m

Rock Name: Graphitic quartz-calcite schist  
 Original Rock: Calcareous siliceous mudstone

Present Mode:	Quartz	30%
	Calcite	25
	Sericite	15
	Graphite	8
	Plagioclase	8
	Actinolite	5
	Pyrite	3

This rock is a fine-grained inequigranular rock of probable sedimentary origin.

Quartz occurs in bands 0.2 mm wide with sericite and minor plagioclase. Quartz is mostly elongated parallel to banding, ranging up to 0.4 mm long. Quartz is mostly xenoblastic except in quartz-calcite veinlets where it is euhedral.

Plagioclase is mostly albitic and is speckled with very fine sericite along cleavage planes.

Calcite occurs along bands by itself or with quartz. Bands or layers range up to 0.7 mm wide with individual calcite grains up to 0.5 mm across. Calcite shows a well developed twinning where crystalline.

Sericite is intimately associated with quartz layers, where it averages 0.05 mm long.

Graphite is found within the quartz and quartz-sericite bands. It occurs as discrete grains between mineral grains as well as a fine dusting within quartz grains.

Minor actinolite occurs as 0.4 mm long needles paralleling but between some quartz-sericite bands.

Sulphides (mostly pyrite) are associated with calcite and/or quartz veins or lenses and have well defined crystal faces at their contacts with enclosing minerals. Pyrite is frequently poikilitic with quartz inclusions and occasionally rimmed by hematite.

Sample No.: 5966E  
 Drill Hole: No. 4  
 Interval: 124.5 m

Rock Name: Quartz chlorite calcite schist  
 Original Rock: Calcareous siliceous sediment

Present Mode:	Quartz	35%
	Chlorite	30
	Calcite	20
	Graphite	8
	Diopside	5
	Pyrite	3
	Apatite	Tr.

This is an inequigranular rock of sedimentary origin with a marked foliation (schistosity) imparted by chlorite.

Quartz occurs as xenoblastic grains up to 0.1 mm across averaging about 0.05 mm.



Chlorite occurs throughout the rock as poikiloblastic patches and bands frequently with quartz and often as bands by itself. The chlorite patches range from 0.1 to 0.5 mm long frequently rimming diopside.

Calcite occurs throughout the rock as 0.2 mm patches as well as tiny veinlet and large patches, 5 mm x 10 mm, with quartz.

Sample No.: 5967E  
 Drill Hole: No. 5  
 Interval: 16.7 m

Rock Name: Quartz-albite-sericite schist  
 Original Rock: Dacitic/rhyolitic porphyry

Present Mode:	Quartz	25%
	Albite	20
	Plagioclase	20
	Sericite	15
	Calcite	15
	Pyrite	5

This is a porphyritic volcanic rock with relic plagioclase phenocrysts to 5 mm long in a matrix of quartz-albite and plagioclase laths.

Plagioclase is almost totally replaced by sericite and calcite. Sericite occurs as fine blades paralleling cleavage traces in plagioclase as well as patches within the ground mass.

Quartz occurs as xenoblastic grains <0.1 mm throughout ground-mass and occasionally with calcite in veinlets.

Pyrite is present as 0.05 mm to 2 mm cubes and with calcite in veins to 0.5 mm wide.

Sample No.: 5969E  
 Drill Hole: No. 6  
 Interval: 21.8 m

Rock Name: Quartz-plagioclase-chlorite schist  
 Original Rock: Fine-grained andesite or Fe, Me rich pelitic sediment

Present Mode:	Chlorite	50%
	Quartz	20
	Plagioclase	20
	Calcite	5
	Graphite	2
	Pyrite	2
	Sericite	1

This rock is an inequigranular compositionally layered rock composed of alternating layers of quartz-plagioclase, quartz chlorite and chlorite.

Chlorite occurs throughout the rock as patches particularly within quartz layers and as individual layers as masses.

Calcite occurs mostly as 0.05 mm wide veinlets cross cutting schistosity.

Plagioclase occurs as subidioblastic grains averaging 0.1 mm long clouded by sericite blades about 0.02 mm long.

Plagioclase is observed almost entirely within quartzose layers.

Opaque material in the thin section are pyrite and graphite. These appear to occur randomly throughout quartz and chlorite layers.

Sample No.: 5970E  
 Drill Hole: No. 6  
 Interval: 116.39 m

Rock Name: Quartz vein  
 Original Rock: Quartz vein

Present Mode: Quartz 90%  
 Calcite 7  
 Pyrite 3

This rock consists of coarsely crystalline quartz which has been deformed and recrystallized along linear shear zones. Calcite stringers up to 2 mm wide cut the quartz and contain euhedral quartz crystals to 0.40 mm across.

Pyrite and possibly arsenopyrite occur within calcite veinlets, usually in the interior poikilitic calcite. Sulphides also occur along the calcite vein margins, as grains about 0.1 mm across.

Sample No.: 5971E  
 Drill Hole: No. 2  
 Interval: 167.35 m

Rock Name: Quartz vein  
 Original Rock: Quartz vein

Present Mode: Quartz 90%  
 Calcite 5  
 Pyrite 3  
 Arsenopyrite Tr.

This sample is identical to No. 5970E except that calcite veinlets cut across brecciated shear zones and contain a mixture of calcite and broken euhedral pyrite grains. Calcite veinlets are more abundant in this sample than 5970E and appear to emanate from a wider calcite-quartz vein or patch.



TJD/krl

## APPENDIX I

### SEMIQUANTITATIVE SPECTROGRAPHIC ANALYSIS FOR TWENTY AND THIRTY ELEMENTS IN GEOLOGICAL MATRICES

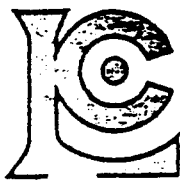
#### Instrumentation Parameters

Spectrograph: Jarrell-Ash 3.4 meter Wadsworth  
Spectrum: 2100 - 4600 A  
Dispersion: 5.2A/mm  
Slit Width: 14u  
Slit Height: 3 mm  
Current: 12 ampere, D.C.  
Duration: 30 sec (6-100-25%T filter) then 90 sec 6% T overlap  
Atmosphere: Stallwood Jet: 80:20 Argon:Oxygen  
Emulsion: Kodak SA-1, twin 4x10" plates  
Readout: NSL Spec Recorder  
Electrodes: S-12 sample, C-1 counter

#### Methodology:

A known amount of pulverized sample is mixed with specpure graphite in a ratio of 1:5 using a vial, mixing ball and reciprocal shaker. A 30 mg charge of mixture is weighed into an S-12 electrode. The sample is arced using a DC current and the emission spectrum recorded on the photographic plate.

Following development of the photographic plates the analysis is completed by comparison against six standard plates. The standard plates for the minor elements have a fixed matrix which approximates the most common geological matrices and varies only in the minor elements in concentration units of 1,2,5 ppm and up in multiples of 10. The samples are read to the nearest standard or in some cases to the mid point - in which case they are reported as 1,1.5,2,3,5,7 and up by multiples of 10. The major elements are variations of the matrix in which certain elements vary while all other major elements are held constant. These elements are reported in the same way as the minors except that the results are reported as %.



# CHEMEX LABS LTD.

212 BROOKSBANK AVE.  
NORTH VANCOUVER, B.C.  
CANADA V7J 2C1  
TELEPHONE: (604) 984-0221  
TELEX: 043-52597

## APPENDIX J

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

### CERTIFICATE OF ANALYSIS

TO : DUPONT OF CANADA EXPLORATION LIMITED

102 - 1550 ALBERNI STREET  
VANCOUVER, B.C.  
V6G 1A5

CERT. # : 48315077-001-1  
INVOICE # : 18315077  
DATE : 4-OCT-83  
P.C. # : NONE

ATTN: D.A. BARR

Parameter Description	Sample # 1	Sample # 2	Sample # 3	Sample # 4	Sample # 5
Sample preparation code	214	214	214	214	214
Aluminium (pct)	2	5	3	2	3
Antimony (ppm)	<100	<100	<100	<100	<100
Arsenic (ppm)	200	5000	2000	2000	1000
Barium (ppm)	200	1500	500	700	700
Beryllium (ppm)	<2	<2	<2	<2	<2
Bismuth (ppm)	<5	<5	<5	<5	<5
Boron (ppm)	20	<20	<20	<20	<20
Cadmium (ppm)	<20	<20	<20	<20	<20
Calcium (pct)	2	1	1	1	1
Chromium (ppm)	<10	<10	<10	<10	<10
Chloride (ppm)	<20	<20	<20	20	<20
Copper (ppm)	150	20	50	70	50
Germanium (ppm)	<10	<10	<10	<10	<10
Iron (pct)	1	7	5	7	5
Lead (ppm)	<10	20	<10	<10	<10
Magnesium (pct)	2	1	2	2	3
Manganese (ppm)	700	700	1000	1000	700
Molybdenum (ppm)	<100	<100	<100	<100	<100
Nickel (ppm)	<20	<20	20	20	<20
Niobium (ppm)	<200	<200	<200	<200	<200
Potassium (pct)	0.5	1	0.5	0.5	0.5
Silicon (pct)	30	30	30	30	30
Silver (ppm)	1	1	<1	<1	1
Sodium (pct)	<0.05	0.05	0.05	0.05	0.05
Thorium (ppm)	<500	<500	<500	<500	<500
Tin (ppm)	<10	<10	<10	<10	<10
Titanium (ppm)	2000	5000	3000	3000	3000
Vanadium (ppm)	<100	150	<100	150	<100
Zinc (ppm)	<20	30	20	50	50
Zirconium (ppm)	200	300	200	200	200

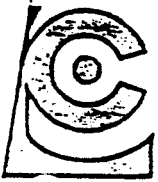
### SEMIQUANTITATIVE SPECTROGRAPH ANALYSIS

#### Sample description information

Sample # 1	4550E
Sample # 2	4622E
Sample # 3	4643E
Sample # 4	4927E
Sample # 5	4954E

#### Preparation code description

214 Bag pulp



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TELEX: 043-52597

## APPENDIX J

• ANALYTICAL CHEMISTS

• GEOCHEMISTS

• REGISTERED ASSAYERS

### CERTIFICATE OF ANALYSIS

TO : DUPONT OF CANADA EXPLORATION LIMITED

102 - 1550 ALBERNI STREET  
VANCOUVER, B.C.  
V6G 1A5

CERT. # : A8315077-G01-1  
INVOICE # : 18315077  
DATE : 4-OCT-83  
P.C. # : NONE

ATTN: D.A. BARR

Parameter Description	Sample # 6
Sample preparation code	214
Aluminium (pct)	2
Antimony (ppm)	<100
Arsenic (ppm)	2000
Barium (ppm)	700
Beryllium (ppm)	<2
Bismuth (ppm)	<5
Boron (ppm)	<20
Cadmium (ppm)	<20
Calcium (pct)	2
Chromium (ppm)	<10
Cobalt (ppm)	<20
Copper (ppm)	50
Germanium (ppm)	<10
Iron (pct)	5
Lead (ppm)	<10
Magnesium (pct)	3
Manganese (ppm)	700
Molybdenum (ppm)	<100
Nickel (ppm)	20
Niobium (ppm)	<200
Potassium (pct)	0.5
Silicon (pct)	30
Silver (ppm)	5
Sodium (pct)	<0.05
Thorium (ppm)	<500
Tin (ppm)	<10
Titanium (ppm)	2000
Vanadium (ppm)	100
Zinc (ppm)	20
Zirconium (ppm)	200

-----  
SEMIQUANTITATIVE SPECTROGRAPH ANALYSIS

Sample description information:  
Sample # 6 4959E

Preparation code description:  
214 Bag pulp

APPENDIX K

Diamond Drill Logs

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

CONTRACTOR: D.W. Cortes  
 DRILL TYPE: S-3B LENGTH: 209.10m  
 CLAIM: Bill Claims DIP: -45°  
 LATITUDE: 300S ELEVATION: 1,910m  
 LONGITUDE: 300W AZIMUTH: 180°S  
 HOLE STARTED: 1983 July 8 HOLE COMPLETED: 1983 July 11

ACID &/OR TRO - PARI TESTS					
DEPTH	DIP	AZIMUTH	DEPTH	DIP	AZIMUTH
59.13	57°				
150.57	75°				
209.10	79°				

HOLE NUMBER: DDH 883-1  
 SHEET 1 OF: 27  
 PROPERTY: BILL  
 ACCOUNT No.: 361-00-500  
 CORE SIZE: NQ  
 % CORE RECOVERY: 97%  
 LOGGED BY: J. Forbes

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS		
FROM	TO	WIDTH	RECVY		NUMBER	% SULPHIDES	INTERVAL (METRES)			OZ/TON Au	As I	PPM/CONC Au	
							FROM	TO	ROD				RECVY
					4500E		4.8	6.0	11	89%	0.001	0.02	0.034
					4501E		6.0	8.0	29	100%	0.001	0.01	0.034
0.00	4.80			Overburden.	4502E		8.0	10.0	40	100%	0.001	0.01	0.034
					4503E		10.0	12.0	63	100%	0.001	0.01	0.034
4.80	49.54			Dacite Crystal Tuff. 3BQ, 3B. The crystal tuff ranges from pale green, chloritic, well foliated, moderately soft sections to feldspar rich, brown purple, biotitic, weakly foliated, moderately hard sections. Texture is coarse grained but is masked increasingly with the degree of foliation. Composition is dacitic and locally biotite or chlorite respectively impart a brown or greenish hue to core. Visible grains are 1-2 mm anhedral to subhedral feldspars which are unorientated, resistant to the foliation process, and comprise 20-30% of the unit. In addition, 1 mm quartz	4504E		12.0	13.0	63	95%	0.001	<0.01	0.034
					4505E		14.0	16.0	48	100%	0.001	0.02	0.034
					4506E		16.0	18.0	100	99%	0.001	0.02	0.034
					4507E		18.0	20.0	100	99%	0.001	0.09	0.034
					4508E		20.0	22.0	96	99%	0.001	0.03	0.034
					4509E		22.0	23.0	95	100%	0.003	<0.01	0.103
					4510E		24.0	26.0	78	100%	0.003	0.01	0.103
					4511E		26.0	28.0	76	99%	0.001	0.01	0.36
					4512E		28.0	30.0	90	100%	0.001	<0.01	0.034
					4513E		30.0	32.0	78	100%	0.001	<0.01	0.034
					4514E		32.0	34.0	88	100%	0.001	0.03	0.034
					4515E		34.0	35.0	41	100%	0.001	0.02	0.034



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 2 OF 27

INTERVAL (METRES)				DESCRIPTION	NUMBER	SULPHIDES	SAMPLE INTERVAL (METRES)				ASSAYS		
FROM	TO	WIDTH	RECRY				FROM	TO	ROD	RECRY	OZ/CON Au	AS %	GM/CON Au
				grains locally contributing up to 30% of the unit, appear to be remnant quartz eyes and parallel	4516E		35.0	36.0	41	100%	0.003	0.22	0.103
				foliation. Foliation is variable and runs at 25-35° of C.A. Occasional 1/2 - 1 mm quartz bands	4517		36.0	38.0	77	100%	0.004	0.03	0.137
				parallel foliation and increase with the degree of	4518		38.0	40.0	88	100%	0.004	0.01	0.137
				foliation. These and locally oxidized and are	4519		40.0	42.0	77	99%	0.004	0.01	0.137
				always barren. A set of quartz zones up to 4 cm in	4520		42.0	44.0	81	100%	0.004	<0.01	0.137
				width also parallels the foliation. These are	4521		44.0	46.0	45	100%	0.004	<0.01	0.137
				infrequent and are themselves barren but carry	4522		46.0	48.0	71	58%	0.003	<0.01	0.103
				fine grained remobilized py and aspy along the	4523		48.0	50.0	92	100%	0.003	<0.01	0.103
				selvages. Locally silicified zones are found ad-	4524		50.0	52.0	90	95%	0.004	<0.01	0.137
				jaacent to these quartz zones. A third generation	4525		52.0	54.0	61	99%	0.004	<0.01	0.137
				of 1-5 mm veinlets occurs perpendicular to and	4526		54.0	56.0	66	100%	0.004	<0.01	0.137
				crosscutting foliation.	4527		56.0	58.0	82	100%	0.004	<0.01	0.137
				The unit is fairly competent and core recovery	4528		58.0	60.0	60	100%	0.004	<0.01	0.137
				is good. Oxidation along open fractures was noted.	4529		60.0	62.0	89	100%	0.022	0.06	0.754
					4530		62.0	64.0	70	100%	0.012	0.14	0.411
					4531		64.0	66.0	80	100%	0.009	<0.01	0.309
					4532		66.0	68.0	92	100%	0.001	<0.01	0.034
				Py (1-2%) is pervasive through out the unit as f.g.	4533		68.0	70.0	47	100%	0.006	<0.01	0.206
				disseminations within the matrix, commonly paralleling	4534		70.0	72.0	80	99%	0.003	<0.01	0.103
				foliation. The more feldspar rich brown biotitic	4535		72.0	74.0	67	100%	0.003	<0.01	0.103
				sections of the unit carry 3-4% py. Py and aspy	4536		74.0	76.0	90	100%	0.006	0.04	0.206
				occur as selvages of the previously described quartz	4537		76.0	78.0	90	100%	0.124	0.25	4.251
				zones. F.g. aspy and f.g. cpy were noted in trace	4538		78.0	80.0	98	100%	0.009	<0.01	0.309

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 3 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)		g/Lon Au	As %	gm/Tonne Au		
						FROM	TO	ROD	RCVRY				
				amounts in the matrix.	4539E		80.0	82.0	74	100%	0.003	<0.01	0.103
					4540		82.0	84.0	57	99%	0.006	<0.01	0.206
				4.80-6.00	4541		84.0	86.0	70	100%	0.003	<0.01	0.103
				9.10-9.50 oxidized and broken core.	4542		86.0	88.0	64	100%	0.003	0.01	0.103
				10.30-10.80	4543		88.0	90.0	54	100%	0.006	<0.01	0.206
				15.54-15.84	4544		90.0	92.0	62	100%	0.012	<0.01	0.411
					4545		92.0	94.0	92	100%	0.012	<0.01	0.411
				16.25-16.50 JB. These sections contain high	4546		94.0	96.0	92	100%	0.012	<0.01	0.411
				17.53-18.00 feldspar, are coarse grained, bio-	4547		96.0	98.0	85	100%	0.009	<0.01	0.309
				20.55-21.00 titic, weakly foliated, moderately	4548		98.0	100.0	95	100%	0.003	0.07	0.103
				hard and carry 3-4% py.	4549		100.0	102.0	100	100%	0.009	0.18	0.309
					4550		102.0	104.0	90	100%	0.365	0.03	12.514
				16.60-17.00 - brecciated silicified zone; barren.	4551		104.0	106.0	55	100%	0.017	0.06	0.583
					4552		106.0	108.0	95	100%	0.006	<0.01	0.206
				31.90 - quartz band perpendicular to foliation,	4553		108.0	110.0	92	100%	0.009	<0.01	0.309
				5 cm wide, barren, brecciated fragments of	4554		110.0	112.0	71	94%	0.029	0.01	0.994
				unit in q.v. are chloritized and dolomit-	4555		112.0	114.0	88	100%	0.003	0.01	0.103
				ized.	4556		114.0	116.0	100	100%	0.006	<0.01	0.206
					4557		116.0	118.0	94	100%	0.012	0.01	0.411
				33.72-34.44 - very competent, intensely silicified	4558		118.0	120.0	100	100%	0.006	0.01	0.206
				zone, pale yellow colour, hard; py	4559		120.0	122.0	96	100%	0.003	<0.01	0.103
				occurring as previously described and	4560		122.0	124.0	96	100%	0.006	<0.01	0.206
				also crosscuts foliation in the form	4561		124.0	126.0	92	100%	0.006	<0.01	0.206

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 4 of 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)		oz/Ton Au	As %	gm/Ton Au		
						FROM	TO	RQD	RCVRY				
				of cubes and pods 1-5 mm in width;	4562E		126.0	128.0	90	100%	0.009	<0.01	0.309
				minute carbonate infilled fractures	4563		128.0	130.0	98	100%	0.006	0.01	0.206
				parallel the core axis and carry py	4564		130.0	132.0	96	100%	0.004	0.01	0.137
				as pods up to 5 mm in length.	4565		132.0	134.0	100	100%	0.085	<0.01	2.914
					4566		134.0	136.0	83	100%	0.012	<0.01	0.411
				34.94-36.10 - intensely oxidized, silicified and	4567		136.0	138.0	45	100%	0.009	<0.01	0.309
				broken zone.	4568		138.0	140.0	83	100%	0.003	<0.01	0.103
					4569		140.0	142.0	61	100%	0.009	<0.01	0.309
				35.81-35.97 - quartz band 16 cm long, parallel	4570		142.0	144.0	93	100%	0.003	<0.01	0.103
				foliation; contains trace py and aspy	4571		144.0	146.0	77	100%	0.003	<0.01	0.103
				occurring as f.g. infillings on frac-	4572		146.0	148.0	69	100%	0.004	<0.01	0.137
				tures of less than 1 mm many of which	4573		148.0	150.0	76	100%	0.001	<0.01	0.034
				are oxidized; py and aspy also occur	4574		150.0	152.0	82	100%	0.010	<0.01	0.342
				as isolated pods and cubes 1 mm in	4575		152.0	154.0	100	100%	0.006	<0.01	0.206
				size; cubic outline is often infilled	4576		154.0	156.0	91	100%	0.006	<0.01	0.206
				with f.g. py and aspy.	4577		156.0	158.0	77	100%	0.006	<0.01	0.206
					4578		158.0	160.0	83	100%	0.006	<0.01	0.206
				36.78-37.28 - core oxidized along fractures.	4579		160.0	162.0	93	100%	0.007	<0.01	0.240
					4580		162.0	164.0	88	100%	0.004	<0.01	0.137
				39.08-39.22 - quartz band parallel foliation, 16	4581		164.0	166.0	96	100%	0.012	<0.01	0.411
				cm wide, tr py occurring as f/g blebs	4582		166.0	168.0	100	100%	0.012	<0.01	0.411
				and f/g infillings of cubic outlines;	4583		168.0	170.0	100	100%	0.004	<0.01	0.137
				Py secondary as it crosscuts	4584		170.0	172.0	100	100%	0.007	<0.01	0.240
				foliation.									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 5 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE					ASSAYS			
FROM	TO	PISTON	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)			GZ/TON Au	As %	GM/TON Au	
							FROM	TO	ROD RCVRY				
40.54	42.25			Gradational Contact. 41.90-42.24 - quartz flooding	4585E		172.0	174.0	99	100%	0.004	<0.01	0.137
				of gradational contact; py occurs as 1-5 mm cubes	4586		174.0	176.0	99	100%	0.015	0.06	0.514
				in tr. amounts.	4587		176.0	178.0	79	100%	0.006	0.46	0.206
					4588		178.0	180.0	90	100%	0.009	<0.01	0.309
42.25	45.14			Andesite Tuff 2A. The andesite tuff is dark grey	4589		180.0	182.0	90	100%	0.003	<0.01	0.103
				green, fine to medium grained and moderately hard.	4590		182.0	184.0	100	100%	0.006	0.07	0.206
				Composition is andesite and chloritization is pre-	4591		184.0	186.0	93	100%	0.006	<0.01	0.206
				valent throughout the unit. The unit is weakly	4592		186.0	188.0	98	100%	0.006	<0.01	0.206
				carbonated. Foliation is weakly developed at 45-50°	4593		188.0	190.0	100	100%	0.006	<0.01	0.206
				to C.A.	4594		190.0	192.0	91	100%	0.003	<0.01	0.103
					4595		192.0	194.0	95	100%	0.003	<0.01	0.101
				In frequent quartz rich zones, 1-5 mm in width	4596		194.0	196.0	72	100%	0.003	<0.01	0.103
				parallel the C.A. These are occasionally carbonate	4597		196.0	198.0	91	100%	0.006	<0.01	0.206
				in filled and are barren. Multiple episodes of micro	4598		198.0	200.0	91	100%	0.015	<0.01	0.514
				fracturing have occurred both parallel and perpen-	4599		200.0	202.0	100	100%	0.006	<0.01	0.206
				dicular to foliation. These are carbonate in filled	4600		202.0	204.0	100	100%	0.006	<0.01	0.206
				and barren.	4601		204.0	206.0	95	100%	0.003	<0.01	0.103
					4602		206.0	209.1	96	100%	0.003	<0.01	0.103
				The unit is very broken but core recovery is good.			E.O.H.						
				Py occurs in trace amounts as isolated 1 mm cubes									
				crosscutting foliation.									
				44.15 - 1.5 cm d.v. parallel to foliation barren.									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 6 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)							
							FROM	TO	WIDTH	RCVRY				
45.14				Sharp Irregular Contact. This contact runs sub-parallel to foliation. A 2 mm veinlet of quartz parallel to C.A. bridges the contact and is truncated by 2 mm py cubes.										
45.14	50.82			Dacite Tuff 3E. This dark tuff matrix is light grey green, medium grained, dacitic, and very hard. This unit is weakly carbonated. Phenocrysts consist of 2-5%, 1-2 mm sub-anhedral feldspar grains which have resisted alignment and are slightly silicitized. 5-10% of the unit is composed of 1 mm - 1 cm elongate and aligned soft glassy green phenocrysts which appear to be chloritized amphiboles.  Occasional 2 mm wide quartz carb veinlets run parallel to the C.A. and are barren. Infrequent 2 mm quartz zones paralleling the grain alignments are barren. A few 1-2 cm transparent quartz veins were noted perpendicular to the grain alignment and carry f.e. disseminated py.  Py is the only sulphide present occurring in trace										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 7 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRY									
50.82	51.44																		
51.44	52.38																		
52.38	66.88																		

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 83-1

SHEET NUMBER 8 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	ACVRY		NUMBER	SULPHIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	ACVRY				
				58.00 - oxidized fracture.									
				61.43-61.53 - oxidized broken, highly fractured and silicified zone; cr. f.g. aspy.									
				61.53-62.63 - dacite porphyry is interbedded with andesite tuff.									
66.88	67.48			Gradational Contact. Trace py was noted in minute fractures running perpendicular to foliation.									
67.48	91.44			Dacite Tuff 3A. The dacite is light grey green, fine grained, and moderately hard. Composition is dacitic but may vary to andesitic. Chloritization imparts the greenish colour to the unit. The unit is weakly carbonatized.									
				Foliation is absent to moderately well developed at 65° to C.A.									
				1-2 mm quartz carbonate veinlets occur in two generations. One is perpendicular to foliation and one parallel to C.A. and truncates the first, minute									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 83-1

SHEET NUMBER 9 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SIZES	INTERVAL (METRES)						
						FROM	TO	WIDTH					RCVRY
				randomly orientated carbonate infilled fractures are barren.									
				Py (1-2%) occurs as isolated 1-2 mm pods and cubes both parallel to and cross cutting foliation and within 1-2 mm quartz bands parallel to foliation replacing as much as 90% of the quartz as a fine grained infilling. Total py is 1-2%.									
				The unit is very competent and core recovery excellent. Oxidization along fractures is pervasive through out the unit.									
				74.53-74.63 - quartz rich brecciated zone; tr v.f.g. remobilized py along quartz/unit interface.									
				81.53-81.98 - brecciated and silicified zone; light grey matrix with creamy angular brecciated quartz fragments 1 mm - 1 cm in size; very hard; c.g. py along random oxidized fractures and also in quartz itself as cubes and pods.									
				83-30 - 4 cm wide quartz band running sub-parallel									



# DRILL HOLE RECORD

## DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 83-1

SHEET NUMBER 10 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RCVRY				
					to foliation; tr. f.g. py along selvage.								
					83-43 - 5 cm wide quartz band running sub-parallel to foliation; tr. f.g. py along selvage.								
					90.00-91.44 - unit becomes moderately well foliated; multiple 1-4 cm quartz bands parallel foliation.								
91.44	98.92				Interbedded Andesite and Dacite Tuff 2A, 3A. This interbedded unit is andesitic to dacitic in composition. Colour varies from light grey green to dark grey green. Chloritization imparts a greenish hue to the core. The unit is weakly carbonated. Locally the unit may be silicified and brecciated. The unit is fine to medium grained and medium hard. Quartz comprises 10-15% of the unit as 1 mm - 14 cm bands parallel to foliation.  Foliation runs at 35-40° to G.A. and is weakly to moderately developed. Foliation is developed best in the dacite.								

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 11 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RECOVERY		NUMBER	SULPHUR	INTERVAL (METRES) FROM TO	WIDTH	RECOVERY				
				Mode of mineralization is diverse. Py occurs as fine grained disseminations throughout the matrix, as 1-5 mm cubes and pods which parallel and cross cut foliation, within the tuff adjacent to quartz rich layers, as fine grained layers paralleling foliation, in quartz rich layers as 1 mm pods and as stringers in silicified zones. Total py. is 1%.									
				Aspy occurs as f.g. disseminations throughout the matrix and as one seam in a silicified zone, comprises 1/2% of the unit.									
				The unit is competent and core recovery is excellent.									
				91.71 - 22 cm quartz vein, milky white, barren; locally up to 2% pyrite along selvage.									
				94.80 - 16 cm g.v. milky white, locally up to 2% f.g. py in 1-3 mm pods along selvage.									
				97.20-98.92 - well foliated, light grey dacitic section which has been silicified, brecciated and deformed; py occurs in pods and stringers, parallel to foliation as 1 mm cubes which crosscut foliation; aspy occurs as fine grained									

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER, DDH B83-1

SHEET NUMBER 12 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)							
							FROM	TO	WIDTH	RCVRY				
				<p>Pods associated with py in quartz; at 98.19 a 6 mm seam of f.g. py and aspy, locally py 10% and aspy 20%.</p>										
98.92	99.02			<p>Quartz Vein 8A. This quartz vein is milky white hard and acts as a contact with the over and underlying units. Aspy occurs as 1 mm seams and as f.g. disseminations along the selvage. Total py is 1/2-1% as is the total aspy.</p>										
99.02	99.27			<p>Gradational Contact.</p>										
99.27	102.46			<p>Rhyolite Tuff 4A. The tuff is light beige, fine grained, hard, and rhyolitic in composition. 10% of the unit is comprised of quartz grains elongated parallel to foliation. Foliation is moderately developed at 30° to C.A.</p> <p>Multiple 1-5 mm, randomly orientated fractures infilled with quartz and aspy, quartz and py; and quartz pyrite and aspy host all the mineralization. Mineralization is fine grained. Total aspy is 2% and py 1%.</p>										

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-1

SHEET NUMBER 13 of 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS								
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)										
							FROM	TO	WIDTH	RCVRY							
102.46																	
102.46	103.11																
103.11	104.85																
104.85	108.51																

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 14 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES) FROM	TO	WIDTH	RCVRY				
				slippery with a clay alteration on surface. In intensely gouged zones the unit is mud. Locally the tuff has been brecciated a 1-5 mm scale with fragments predominantly creamy quartz.										
				Multiple 1 mm randomly orientated fractures are the dominant carriers of py and aspy. Py also occurs as pods 1-7 mm in size. Total aspy is 1X and total py 1/2X.										
108.51	112.84			Rhyolite Tuff 4A. This unit is as described in 99.27-102.46. Foliation runs at 45°. Py is the only sulphide and occurs as 1-5 mm pods and is in trace concentrations only.										
				110.10 - 8 cm quartz band parallel to foliation, barren, 1 mm pods py adjacent to contact.										
				111.89-112.20 - altered zone; soft and clay rich.										
				111.90 - 12 cm quartz band parallel to foliation, barren.										
112.84	113.67			Gradational Contact. This contact is an intermixed										

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDII BR3-1

SHEET NUMBER 15 of 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RCVRY				
				zone of rhyolite and a rhyolitic dike. The section is brecciated on a 4 cm scale with angular quartz fragments comprising 25% of the unit. Multiple barren 1-4 mm randomly orientated quartz carbonate veinlets and multiple 1 mm seams infilled with an unidentified f.g. hard black substance, were observed. Specular hematite lines some 1 mm seams and trace py is associated.									
113.67	119.29			Rhyolite Dike 9A. This unit is tm, hard medium grained and rhyolitic in composition. 2% of the dike is composed of feldspars 1-5 mm in size. 5-8% of unit is 1 mm glassy green phenocrysts which are probably chloritized amphiboles. Multiple 1 mm quartz carbonate randomly orientated fractures are present and cross cut a 1 cm quartz filled fracture set which is at 30° to the C.A. Py, hematite and specular hematite, all in trace amounts line the above described fractures. The unit is competent and core recovery excellent. 114.70 - 15 cm quartz bands, barren.									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 16 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS								
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)												
				FROM			TO	WIDTH	RCVRY										
119.20	119.90			Gradational Contact. This brecciated section is partially silicified and partially friable. The silicified section carries light grey creamy quartz fragments 1-3 cm in size. The friable zone is light grey and has a slippery clay along fractures.															
				Py occurs as f.g. disseminations, as 1 mm cubes and as infrequent 3 mm pods. Total py for the unit is tr - 1/2%.															
119.90	138.67			Rhyolite Tuff 3A. This unit is as previously described in section 99.27-102.46m. A slight foliation at 40° is present.															
				Below 126.67 the unit is brecciated and a large fault zone is present. Angular creamy quartz fragments 1 mm - 2 cm in size form 50% of the unit and were formed by multiple episodes of veining and fracturing.															
				Multiple 1 mm randomly orientated fractures cross cut the brecciated zones. These carry tr f.g. py and aspy in the amounts of 1/2% & tr respectively.															

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 083-1

SHEET NUMBER 17 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVBY		NUMBER	SUBS	INTERVAL (METRES) FROM	TO	WIDTH	RCVBY				
				123.35-123.75 - q.v. perpendicular to foliation, slightly brecciated; aspy as f.g. infillings of a cube outline, fine brecciated quartz fragments, py occurs in 1-3 mm pods.										
				124.55 - 3 mm seam f.g. py and aspy perpendicular to foliation.										
				133.36 - 3 mm py and aspy seam; py dominant tr aspy.										
124.67	138.67			Fault Zone. Brecciated 4A.										
				131.15-138.67 - intensely oxidized portions of the brecciated zone.										
138.67	146.06			Interbedded Rhyolite Tuff and Andesite Tuff 4A/2A. The rhyolite tuff is light beige, fine grained, hard and locally may be sericitized. The andesite tuff is dark grey green, fine to medium grained, hard and chloritic. Locally the unit is brecciated, sericitized, silicified and quartz flooded.										
				Foliation is moderately developed at 45° to C.A.										



# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER DDH B83-1

SHEET NUMBER 18 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RECRY		NUMBER	SULFIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RECRY									
				Multiple 1-3 cm quartz bands parallel foliation. The entire unit is quartz flooded and flooding comprises up to 25% of the unit.															
				Py and aspy both occur in trace-1/2% amounts. In the andesite tuff py is present as isolated 3 mm cubes and pods cross cutting foliation and as f.g. disseminations within the matrix. The rhyolite tuff carries py in 1-3 mm seams in the above mentioned quartz bands.															
				Aspy occurs within a sericitized zone of rhyolite tuff as fine grained disseminations and as 1 mm seams also within sericitized rhyolite.															
				The unit is broken but core recovery is excellent. 142.04-143.71 - brecciated, sericitized and quartz flooded section; quartz flooding comprises 50% of the unit, py occurs as 1-5 mm pods which cross cut both brecciated fragments and pieces; at 142.50 there is a 4 cm sericitized zone of rhyolite tuff which carries f.g. aspy.															

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 19 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SUL. Pcs	INTERVAL (METRES) FROM	TO	WIDTH	RCVRY				
				144.63-146.07 - brecciated and silicified zone of andesite tuff; quartz forms 50% of the unit, matrix is strongly chloritized and locally sericitized; quartz zones vary from 1-3 cm bands paralleling foliation, chloritized fragments occur in quartz flooded zones.										
				144.71 - massive py pod 3 cm wide located in a chloritized fragment within the quartz flooded zone.										
				144.82 - 1 mm seam f.g. aspy in a sericitized fragment. Oxidization along fractures is prevalent.										
146.05				Sharp Contact. Contact is at 45° to C.A.										
146.06	150.28			Dacite Tuff 3A. The dacite tuff is medium grey green, medium grained, and moderately hard. Composition is dacitic and the unit is chloritized.										
				Foliation is moderately developed at 45° to C.A.										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 20 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RECRY		NUMBER	% SULPHIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RECRY				
				2 mm quartz carbonate veinlets occur perpendicular to foliation. These are truncated by randomly orientated carbonate infilled microfractures.									
				Mineralization is restricted to py occurring as isolated 1 mm pods and cubes cross cutting foliation; as disseminations in the matrix, and as linings on quartz carbonated veinlets and microfractures.									
				Total py is trace - 1/2X.									
				The unit is broken and oxidized along fractures but core recovery is good.									
150.53	152.65			Rhyolite Tuff 4A. The rhyolite tuff is medium grained, hard and has a pinkish hue to it due to altered specular hematite. Where the pinkish hue is absent the typical light grey colouring can be observed. The unit is locally carbonate rich.									
				Foliation is moderately developed at 45° to C.A.									
				Multiple 1 mm randomly orientated quartz carbonate infilled fractures are prevalent.									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH BRJ-1

SHEET NUMBER 21 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRT		NUMBER	SULPHIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRT									
				Py is the only sulphide present and occurs in trace amounts as v.f.g. disseminations through out the matrix.															
				The unit is broken but core recovery is good.															
152.65	155.35			Dacite Tuff 1A. This unit is an previously described in section 140.06-150.28. Specular hematite altered to a bright red occasionally lines fractures. Trace f.g. py was noted in the matrix. 154.44 - 6 cm zone of microbrecciation.  154.80-155.35 - unit locally becomes coarse grained.															
155.35	156.97			Andesite Crystal Tuff 2AX. This unit is identified to the dacite and tuff at the top of the hole (section 4.8-40.54) except its composition is more mafic and its colour a darker grey green.  Py occurs as disseminations in the matrix in trace amounts.  The unit is competent and core recovery is good.															

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH RB3-1

SHEET NUMBER 22 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RCVRY				
156.97	157.10			Gradational Contact.									
157.10	158.46			Dacite Crystal Tuff 3BQ. This unit is as described in section (4.8-40.54). Foliation runs at 70° to C.A.									
				Py occurs in trace amounts as disseminations in the matrix.									
				The unit is moderately competent and core recovery is good.									
158.46	159.85			Dacite Tuff 3A. The unit is light grey, fine grained, hard, and dacitic in composition. Brecciation and later silicification has occurred throughout large portions of the tuff have a reddish hue to them due to the alteration of disseminated specular hematite. Specular hematite is 1-2%.									
				Foliation is moderate at 35° to C.A.									
				No sulphides are present.									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 23 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SOL	IDES	INTERVAL (METRES)				
							FROM	TO	WIDTH	RCVRY		
				The unit is moderately competent and core recovery is good.								
159.85				Sharp Contact. The contact occurs at 35° to C.A. A 3 mm sericitized band of tuff is adjacent to the contact. No mineralization is present.								
159.85	170.61			Andesite Tuff. The andesite tuff is dark grey green (fine to medium grained, moderately hard, andesitic in composition and chloritized.  Foliation is absent to well developed at 35° to C.A.  Minor quartz bands 3 mm in width-parallel foliation. Occasional quartz carbonate veinlets are perpendicular to and cross cut foliation. Multiple randomly orientated carbonate infilled microfractures cross cut both of the above.  Py (tr) occurs as isolated 1-2 mm cubes which cross cut foliation and as f.g. disseminations throughout the matrix which parallel the foliation. Aspy occurs as infillings on the quartz carbonate veinlet								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 24 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)					
							FROM	TO	WIDTH	RCVRY		
				and later stage carbonate infilled fractures. Total aspy is tr - 1/2%. Trace cpy was observed in the matrix.								
				The unit is competent and core recovery good.								
				160.80 - 8 cm quartz band barren; f.g. aspy in matrix adjacent to q.v.								
				166.90 - 11 cm quartz band barren, contains chloritized fragments and matrix, 1 mm pods of py and tr cpy were observed adjacent to the selvage.								
				170.56 - 1 cm sericitized zone; py occurs in matrix adjacent to it as 1 mm py pods and cubes.								
170.63	171.36			Gradational Contact.								
171.36	178.60			Rhyolite Tuff 5A/4AX. The rhyolite tuff is beige to light grey green, fine to medium grained, and hard. Quartz eyes are elongated parallel to foliation. Locally specular hematite alters and imparts a pinkish hue to the core. Sericitization has occurred on a very minor scale.								

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 25 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SUBS	INTERVAL (METRES)					
							FROM	TO	WIDTH	RCVRY		
				The unit is moderately foliated at 35° to C.A.								
				Quartz bands parallel foliation. Infrequent quartz carbonate veinlets are perpendicular to foliation.								
				Multiple randomly orientated carbonate infilled microfractures are present and truncate both the above. Py occurs as isolated pods and disseminations in the matrix as well as linings on microfractures. Aspy is visible as f.g. lining on microfractures with py and as isolated pods. Both aspy and py occur as f.g. disseminations in sericitized matrix adjacent to quartz bands. Total py is tr - 1/2% as is the aspy.								
				173.07 - 7 cm quartz band parallel to foliation; either side lined by a sericitized band; contains minor 1 mm cubes of py.								
				175.90-178.00 - multiple late stage 1 mm fractures randomly orientated predominately aspy infilled with py associated; locally 3-4% aspy.								
178.60	179.05			Gradational Contact. No visible mineralization.								
179.05	207.04			Andesite Tuff 2A. The andesite tuff is grey green,								



# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-1

SHEET NUMBER 26 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RECRY		NUMBER	SIZES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RECRY				
				moderately hard and fine to medium grained. Composition is andesitic and the unit is chloritized. Locally the unit is weakly carbonated.									
				Foliation is absent to weakly developed at 30° to C.A.									
				Occasional 4 mm - 7 cm quartz bands parallel foliation. 1 mm quartz carbonate veinlets parallel the C.A. and truncate the quartz bands. Multiple random microfractures infilled with carbonate cross cut both of the above.									
				Both py and aspy occur as disseminations throughout the matrix. Py occurs as 1-5 mm pods and cubes lining random fractures. Aspy infills quartz carbonate veinlets.									
				Total py is tr - 1/22 and aspy is tr - 1/22.									
207.04	207.31			Quartz Vein B. This hard milky white quartz vein contains chloritized matrix fragments. Immediately adjacent to the vein are sericitized bands at both									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 27 OF 27

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RECRY		NUMBER	SUL	NOCS	INTERVAL (METRES)				
							FROM	TO	WIDTH	RECRY		
				ends carrying f.g. py and aspy in trace amounts. The vein itself is barren.								
				The vein contacts sharply with the underlying unit at 45°.								
207.31	209.10			Rhyolite Tuff 4AX. This unit is as described in section 171.34-178.60. Grain size is coarse. The core has a pinkish tinge to it due to specular hematite filtering.  Py is visible as isolated 1 mm pods and cubes and as disseminations in the matrix.  Core is broken but core recovery is good.								
209.10	E.O.H.											

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

CONTRACTOR: D.W. Coates  
 DRILL TYPE: S-38 LENGTH: 198.73m  
 CLAIM: Bill Claims DIP: -45°  
 LATITUDE: 500S ELEVATION: 1,850m  
 LONGITUDE: 400W AZIMUTH: 90°E  
 HOLE STARTED: 1983 July 13 HOLE COMPLETED: 1983 July 17

ACID &/OR TRO-PARI TESTS					
DEPTH	DIP	AZIMUTH	DEPTH	DIP	AZIMUTH
64.92m	48°				
132.99m	55°				
196.90m	58°				

HOLE NUMBER: DDH B83-2  
 SHEET 1 OF: 29  
 PROPERTY: BILL  
 ACCOUNT No.: 361-00-500  
 CORE SIZE: NQ  
 % CORE RECOVERY: 93%  
 LOGGED BY: J. Forbes

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RECRY		NUMBER	% SULFIDES	INTERVAL (METRES)		RECRY	gZ/ton Au	As %	gM/ton Au
						FROM	TO	RECRY				
0.00	4.88m			Overburden.	4603E	4.88	9.14	0	67%	0.003	<0.01	0.103
					4604	9.14	12.19	0	81%	0.003	<0.01	0.103
4.88	15.10			Dacite Crystal TuFF, JBQ. This unit is light greenish grey in colour. Texture is coarse grained but is masked increasingly with the degree of foliation. Visible grains are 20% sub-anhedral feldspars 1-2 mm in size and 50% quartz which appear to be remnant quartz eyes. The remaining 30% is finer grained and can not be distinguished. Composition is dacitic and chloritization imparts a greenish hue to the core. Locally the unit may be weakly carbonated causing the typically moderately hard core to become softer.	4605	12.19	16.00	27	77%	0.002	0.01	0.069
					4606	16.0	18.0	55	90%	0.002	<0.01	0.069
					4607	18.0	20.0	35	100%	0.006	<0.01	0.206
					4608	20.0	22.0	57	100%	0.003	<0.01	0.103
					4609	22.0	25.0	3	60%	0.003	0.05	0.103
					4610	25.0	29.0	48	66%	0.002	0.02	0.069
					4611	29.0	32.0	6	50%	0.003	0.03	0.103
					4612	32.0	34.0	29	100%	0.006	0.03	0.206
					4613	34.0	36.0	24	100%	0.006	0.09	0.206
					4614	36.0	38.0	5	100%	0.008	0.29	0.274
					4615	38.0	40.0	33	100%	0.009	0.80	0.309
					4616	40.0	42.0	52	93%	0.009	0.54	0.309
				Foliation is well developed at 30° to C.A. Feldspar grains may still be coherent in which case the	4617	42.0	44.0	91	72%	0.006	0.66	0.206
					4618	44.0	46.0	84	96%	0.006	1.25	0.206

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 2 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	INTERVAL (METRES)		OZ/ton Au	As %	gm/tonne Au		
							FROM	TO				ROD	RCVRY
				foliation wraps around them, or, unlike DDH #1,	4619E		46.0	48.0	59	100%	<0.001	0.49	<0.034
				they may be aligned parallel to foliation. Quartz	4620		48.0	50.0	74	100%	<0.001	1.15	<0.034
				grains run parallel to foliation.	4621		50.0	52.0	79	95%	0.036	0.65	1.234
					4622		52.0	54.0	0	68%	1.020	1.15	34.971
				Multiple 1 mm hematitic bands run parallel to foliation and locally comprises 10% of the unit.	4623		54.0	56.0	99	100%	0.031	0.21	1.062
					4624		56.0	58.0	100	100%	0.015	0.16	0.514
					4625		58.0	60.0	100	100%	0.036	1.15	1.234
				The unit is broken and core recovery is poor	4626		60.0	62.0	90	95%	0.028	0.65	0.960
				( 75%). Core has been moderately to strongly	4627		62.0	64.0	74	100%	0.006	0.13	0.206
				oxidized.	4628		64.0	66.0	18	68%	0.010	0.34	0.343
					4629		66.0	68.0	64	70%	0.013	0.65	0.446
				Py (tr-1/2%) is present as f.g. disseminations t/o	4630		68.0	70.0	73	100%	0.004	0.12	0.137
				the matrix paralleling foliation.	4631		70.0	72.0	91	73%	0.006	0.22	0.206
				4.88-15.10 - broken and oxidized core.	4632		72.0	74.0	20	75%	0.004	0.15	0.137
				NOTE: Contact with the underlying andesite tuff is in	4633		74.0	76.0	68	98%	0.013	0.35	0.446
				unbroken oxidized core.	4634		76.0	78.0	78	95%	0.004	0.02	0.137
					4635		78.0	80.0	99	100%	0.003	<0.01	0.103
15.10	29.26			Andesite Tuff, 2A. The andesite tuff varies from	4636		80.0	82.0	86	100%	0.016	0.10	0.549
				medium to dark grey green in colour and from fine	4637		82.0	84.0	96	100%	0.007	<0.01	0.240
				to medium grained in size. The unit is moderately	4638		84.0	86.0	75	100%	0.004	0.08	0.137
				soft due to its carbonate rich nature. Composition	4639		86.0	88.0	67	90%	0.004	0.01	0.137
				is andesitic and chloritization is present t/o the	4640		88.0	90.0	18	75%	0.007	0.51	0.240
				unit.	4641		90.0	92.0	65	100%	0.010	0.19	0.343

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-2

SHEET NUMBER 3 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% PUL PDES	INTERVAL (METRES)			oz/Ton Au	As %	gm/Tonns Au	
							FROM	TO	RCVRY				
				Foliation is at 30° to C.A. It may be absent to	4642E		92.0	94.0	63	100%	0.071	0.74	2.434
				well developed and is inversely proportional to	4643		94.0	96.0	37	90%	0.347	0.40	11.897
				grain size. Where foliation is prominent, 1 mm	4644		96.0	98.0	87	100%	0.020	0.58	0.686
				sericitized bands parallel to foliation are common.	4645		98.0	100.0	56	100%	0.013	0.86	0.446
				Occasional fractures are present perpendicular to	4646		100.0	102.0	81	89%	0.007	0.56	0.240
				foliation and are commonly oxidized.	4647		102.0	104.0	90	100%	0.025	0.35	0.857
					4648		104.0	106.0	35	100%	0.010	0.11	0.343
				Although the unit is broken and oxidized, core	4649		106.0	110.0	61	66%	0.019	0.21	0.651
				recovery is good.	4650		110.0	112.0	75	100%	0.034	0.17	1.166
					4651		112.0	114.0	87	100%	0.015	0.16	0.514
				Mineralization is variable. The finer grained well	4652		114.0	116.0	87	100%	0.016	0.31	0.549
				foliated sections carry trace py and aspy as dissem-	4653		116.0	120.0	51	84%	0.040	0.12	1.371
				inations t.o the matrix parallel to foliation where	4654		120.0	122.0	60	100%	0.150	1.24	5.143
				as the coarser grained sections carry py only.	4655		122.0	124.0	84	100%	0.005	0.03	0.171
				15.90-16.00 } broken and oxidized core; rusty	4656		124.0	126.0	46	100%	0.015	0.12	0.514
				21.80-24.00 } orange to bright red.	4657		126.0	128.0	64	100%	0.005	0.01	0.171
				28.50-29.26 }	4658		128.0	130.0	92	100%	0.005	0.11	0.171
					4659		130.0	132.0	88	100%	0.016	0.61	0.549
				25.07 - 4 cm band calcite parallel to foliation, a	4660		132.0	134.0	93	100%	0.013	0.36	0.446
				reddish alteration is associated with it	4661		134.0	136.0	73	100%	0.076	1.06	2.606
				and appears to be an oxidization product.	4662		136.0	138.0	90	100%	0.009	0.09	0.309
					4663		138.0	140.0	50	100%	0.003	< 0.01	0.103
				NOTE: Contact with the underlying dacite crystal	4664		140.0	142.0	46	98%	0.008	0.09	0.274
				tuff is in broken core.									

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 4 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS		
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	INTERVAL (METRES)				OZ/Ton Au	Ag Z	g/ton Au
							FROM	TO	ROD	RCVRY			
29.26	35.15			Dacite Crystal Tuff, 3BQ. The unit is as previously described (4.88-15.10) with the following exceptions. The entire unit is weakly carbonated. Occasional minute fractures parallel to the C.A. and cross cutting foliation are infilled with a reddish carbonate (ankerite?). Feldspar grains are more coherent and do not parallel foliation.	4665E		142.0	144.0	94	100%	0.009	<0.01	0.309
					4666		144.0	146.0	58	100%	0.010	0.06	0.343
					4667		146.0	148.0	82	100%	0.008	0.08	0.274
					4668		148.0	150.0	55	99%	0.005	0.05	0.171
					4669		150.0	152.0	67	100%	0.004	0.01	0.137
					4670		152.0	154.0	78	100%	0.006	0.01	0.206
					4671		154.0	156.0	43	100%	0.007	0.05	0.240
					4672		156.0	158.0	93	99%	0.004	<0.01	0.137
				The entire unit is broken and intensely oxidized. Core recovery is poor (70%).	4673		158.0	160.0	95	100%	0.003	<0.01	0.103
				35.15-36.00 - broken and intensely oxidized core; reddish to rusty brown in colour.	4674		160.0	162.0	95	100%	0.006	<0.01	0.206
					4675		162.0	164.0	85	100%	0.008	<0.01	0.274
					4676		164.0	166.0	62	100%	0.011	0.22	0.377
					4677		166.0	168.0	32	95%	0.037	0.26	1.269
				Again contact with the underlying unit is in broken core.	4678		168.0	170.0	75	100%	0.004	<0.01	0.137
					4679		170.0	172.0	44	92%	0.003	<0.01	0.103
					4680		172.0	174.0	85	100%	<0.001	<0.01	<0.034
36.00	39.16			Andesite Tuff, 2A. The tuff is grey green, f.g. and moderately soft. Chloritization of the andesite matrix imparts a greenish hue to the core. The unit is weakly carbonated.	4681		174.0	176.0	91	100%	0.003	<0.01	0.103
					4682		176.0	178.0	56	100%	0.003	<0.01	0.103
					4683		178.0	180.0	75	100%	0.005	<0.01	0.171
					4684		180.0	182.0	20	100%	0.015	0.11	0.514
					4685		182.0	186.0	49	85%	0.006	0.48	0.206
				Although core recovery is good the unit is very brown and oxidized especially along fractures.	4686		186.0	190.0	43	91%	0.030	0.31	1.029
					4687		190.0	192.0	26	100%	0.016	<0.01	0.549

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 5 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)		ROD	RCVRY	OZ/TON Au	AS %	GM/TONNE Au
							FROM	TO					
				The only mineralization present is a 3.5 cm x 3 cm pod infilled with f.g. py and aspy running parallel to foliation at 36.7m.	4688E		192.0	196.0	27	53%	0.015	<0.01	0.514
					4689		196.0	198.73	69	100%	0.005	<0.01	0.171
							E.O.H.						
				37.32-38.00 - zone of intense quartz flooding; multiple 3-4 mm fractures randomly orientated and strongly oxidized; no associated mineralization.									
39.16	39.89			Dacite Crystal Tuff, JRQ. This is as previously described in section 4.88-15.10. Weak carbonation of the tuff has taken place. Feldspars are muted and parallel to foliation. Occasional 1-5 mm quartz carbonate veinlets are present. These are crystalline, very hard and effervesce when scratched. Typically they are parallel to C.A. and cross cut foliation. Oxidization occurs along the selvage of veinlets.									
				Mineralization occurs predominantly as 1 mm pods of f.g. aspy with py forming the periphery of the pod. Locally aspy is 5% and py 1/2%. One 2 cm fracture infilled with dolomite and cross cutting a quartz carbonate veinlet was also noted to carry aspy pods.									

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 6 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRT		NUMBER	SULPH	MOES	INTERVAL (METRES)				
							FROM	TO	WIDTH	RCVRT		
				Trace amounts of aspy were seen occurring as f.g. infillings of isolated pods and cubes 1-2 mm in size. Total mineralization is cr-1/2% py, 2-3% aspy.								
39.89	40.01			Andesite Tuff, 2A. Carbonate flooding of the previously described andesite tuff (15.10-29.26m) imparts a marble like texture to the core. Carbonate forms 50% of the unit. Quartz flooding has occurred but on a minor scale. Mineralization occurs as 1 mm aspy cubes in the matrix, 1-3 mm pods and cubes infilling dolomite veinlets, as fine grained disseminations along dolomite selvages and as trace disseminations parallel to foliation within the matrix. All aspy is f.g. Total aspy is 10-15%. No pyrite was noted.								
				Contact with the underlying q.v. is in broken core.								
40.01	40.14			Quartz Vein, 8A. This creamy white quartz vein is identical to the one noted in DDH #1.								
				Multiple less than 1 mm randomly orientated								



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

 HOLE NUMBER: DDH 883-2

 SHEET NUMBER 7 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS													
FROM	TO	WIDTH	RCVRY		NUMBER	SUC.	INTERVAL (METRES)															
							FROM	TO	WIDTH	RCVRY												
				fractures are infilled with f.g. aspv. Isolated pods and cubes infilled with f.g. pv and aspv are also present. Total aspy is 10% while py is present in tr-1/2% amounts.																		
40.14	48.60			Andesite/Dacite Tuff, JA/2A. This interbedded unit is comprised of chloritized andesitic and dacitic tuff. Minor sericitization of matrix occurs as 1-2 mm bands parallel to foliation. Colour varies from light to dark grey green. The tuff is moderately soft due to slight carbonate enrichment. Grain size varies from fine to medium grained. Foliation is weakly developed at 20° to C.A. Two of the qtz flooded zones were noted. All core is oxidized along fractures. The unit is fairly competent and core recovery is fair (92%). Quartz bands parallel to foliation, transparent in colour and 1/2 cm in width are present. Multiple crystalline quartz/carbonate veinlets running parallel to sub-parallel to C.A., cross cut foliation and the above mentioned quartz bands. These																		

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 8 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)					
							FROM	TO	WIDTH	RCVRY		
				vary in width from 1-5 mm. Colour ranges from creamy white to reddish, the reddish hue being some form of oxidization product.								
				Mineralization occurs predominantly as 1-3 mm pods of f.g. py and aspy along the selvages of the quartz carbonate veins. Randomly orientated carbonate infilled microfractures appear to be barren. Py also occurs as isolated 1 mm cubes cross cutting foliation. Total aspy for the unit is 2-3% and py is 1/2%.								
				40.14-41.75 } Quartz flooded sections.								
				45.55-48.60 }								
				These sections carry upto 50% quartz parallel and sub-parallel to foliation. Although quartz flooding has occurred no brecciation has taken place. The presence of the quartz imparts a marble like appearance of the core. Large sections of the matrix have been sericitized. Silicification has increased the hardness of the unit.								
				Py and aspy are present in trace amounts lining								

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 9 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)					
							FROM	TO	WIDTH	RCVRY		
				quartz matrix interfaces. The previously described quartz carbonate veinlets cross cut foliation and the quartz flooding and carry minor aspy and py pods. Most of the actual quartz is barren but at 41.16 subhedral to euhedral f.g. aspy is present within it. Here aspy is 20% locally. Oxidized carbonate rich microfractures randomly orientated cross cut the quartz and quartz carbonate veinlets and are filled with v.f.g. aspy. Aspy is also present as f.g. disseminations in trace amounts in the matrix. Total aspy and py for the quartz flooded zones is 1/2-1%.								
48.60	49.27			Gradational Contact. The tuff in this gradational zone is predominantly rhyolitic in composition but locally may become dacitic. The matrix which forms 35% of the contact zone is almost completely sericitized. Quartz flooding comprises 50% of the unit and carries multiple oxidized microfractures perpendicular to the C.A. 15% of the unit is crystalline quartz carbonate veinlets and patches which cross cut quartz flooding and sericitized zones.								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 10 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRT		NUMBER	% SULPHIDES	INTERVAL (METRES)		FROM	TO	WIDTH	RCVRT
				Mode of mineralization is diverse. Quartz flooded zones carry 1 mm pods of f.g. aspy and aspy as f.g. lining along quartz/matrix interfaces. Quartz carbonate veinlets carry 1 mm pods and cubes of f.g. aspy. Aspy also lines veinlet matrix and veinlet quartz interfaces. 1 mm pods and cubes are present in the matrix cross cutting foliation. Oxidized microfractures in quartz perpendicular to C.A. occasional carry f.g. aspy. Total aspy is 10%. 1% py was noted.								
49.27	55.47			Rhyolite Tuff, 4A. This unit is light grey to beige, f.g., very weakly carbonated and moderately hard although softer than in DDH #1. Foliation is moderately well developed at 20° to C.A. 1 mm bands of sericitized matrix parallel to foliation are common.								
				Mode of mineralization is highly diverse. Isolated minute aspy cubes and py cubes (up to 3 x 3 mm) are present in the matrix and cross cut foliation. Minor quartz flooding carries occasional aspy as pods, cubes, and f.g. linings at the quartz/matrix								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-2

SHEET NUMBER 11 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS												
FROM	TO	WIDTH	RCVRY		NUMBER	SULFOES	INTERVAL (METRES)														
							FROM	TO	WIDTH	RCVRY											
																					interface. Occasional quartz bands perpendicular to foliation and 5 mm in width are present. These carry trace f.g. aspy and minor py as disseminations and pods. 1 mm - 2 cm quartz carbonate veinlets running parallel to sub-parallel to C.A. form 15-20% of the unit. Oxidized microfractures are present in the quartz carbonate veinlets. Quartz carbonate veinlets the dominant mode of mineralization carry locally up to 50% aspy in f.g. pods up to 1 x 1 cm. Occasionally aspy is present as f.g. infillings of cubes in the veinlets. Py much less pervasive than aspy also occurs in the quartz carbonate veinlets as pods up to 3 mm x 3 mm in size. Multiple late stage microfractures randomly cross cut quartz carbonate veinlets and carry f.g. aspy and minor py. Total aspy is 7-10%. Total py is 1-2%.
																					Both competence and core recovery are fair. Oxidization along fractures is prevalent.
52.00	53.90																				Fault Gouge. This zone is reddish brown, very rusty, and has been completely oxidized and weathered to mud.

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 12 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)							
						FROM	TO	WIDTH	RCVRY					
55.47	56.00			Gradational Contact. The rhyolite tuff grades into a coarse grained, grey green andesitic tuff. The zone is carbonate rich and foliation moderately well developed at 35° to C.A. Minor sericitization of 1 mm bands parallel to foliation are present.										
				A drastic decrease in veining and mineralization is evident. Only one quartz/carbonate veinlet was noted. This was orientated perpendicular to foliation and carried f.g. aspy as a lining of the veinlet matrix interface. Carbonate infilled microfractures randomly orientated are lined with py and aspy. Total aspy 1/2-1%, py 1/2%.										
56.00	62.79			Andesite Crvstal Tuff, 2AX. This unit is grey to dark grey green, is coarse grained and moderately soft due to weak carbonatization. Composition is andesitic and chloritization is prevalent t/o unit. Foliation is moderately well developed and nears the coarse grained texture in places.										
				Aspy is the dominant sulphide occurring as f.g. disseminations parallel to foliation and more										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH R83-2

SHEET NUMBER 13 of 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRT		NUMBER	SULPHIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RCVRT				
				commonly as f.g. 1 mm pods within 3 mm quartz carbonate veinlets that are parallel to or at a low angle to the C.A. Minor amounts are also found along late stage randomly orientated carbonate filled fractures. Total aspy is 7-10%. Py is present as isolated 1-3 mm f.g. cubes and pods which cross cut foliation, and at the periphery of aspy pods in quartz carbonate veinlets as f.g. disseminations t/o unit. Total py is 2-3%.									
				The unit is fairly competent and core recovery is good.									
				59.54 - .5 mm l/a fracture infilled with quartz carbonate; 80% infilled with f.g. aspy, minor py associated.									
				59.22-60.00 - multiple 0.5-1 cm quartz carbonate veins at l/a to C.A. infilled with f.g. aspy and py in pods; a second set of quartz carbonate veins parallel to C.A. cross cut the above and these are also mineralized; locally 10-15% aspy and 2-3% py.									

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 14 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)							
							FROM	TO	WIDTH	RCVRY				
60.30	60.40			Quartz Vein, 8A. This milky white quartz vein carries 1-2% aspy along microfractures.										
62.79	64.00			Gradational Contact. This contact is in broken core which is slightly oxidized along fractures.										
64.00	89.00			Andesite Tuff, 2A. The tuff is grey green, f.g. and moderately soft due to weak carbonitization. Composition is andesitic and chloritization is pervasive t/o the unit. Locally sericitization has taken place. Foliation is moderately to well developed at 25° to C.A. The unit is competent and core recovery is 90%.  Py comprising 1-2% of the unit occurs as disseminations parallel to foliation, as isolated less than 1 mm pods in the matrix which cross cut foliation and quartz carbonate veins, as small pods along 1/a quartz carbonate infilled fractures and finally as fillings along minute carbonate infilled randomly orientated fractures. Aspy, the more abundant sulphide is present most often as f.g. pods up to 3 mm, and as stringers within 1/a quartz carbonate										



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-2

SHEET NUMBER 15 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRT		NUMBER	SULPHIDES	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				infilled fractures. These fractures are 1/2 cm wide and may occasionally be lined with aspy as well. Minute carbonate infilled randomly orientated fractures also carry aspy. Total aspy is 3-4%.								
				80.00-80.64 - quartz flooded section of andesite identical to 40.14-41.75 and 45.55-48.60.								
				84.77-88.14 - quartz flooded section of andesite identical to 40.14-41.75 and 45.55-48.60.								
				88.14-89.00 - broken and oxidized core.								
89.00	92.77			Rhyolite Tuff, 4A. This unit is as previously described at 49.27-52.00m with foliation at 45° to C.A. Oxidization along fractures is absent.								
				1-3 mm wide crystalline quartz carbonate veinlets parallel and at a low angle to the C.A. comprise 10% of the unit and are the dominant carriers of mineralization. Py and aspy are both present as f.g. pods and as linings along veinlet selvages. Late								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 16 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRT		NUMBER	% SULPHIDES	INTERVAL (METRES) FROM	TO	WIDTH	RCVRT				
				stage randomly orientated carbonate infilled micro-fractures also carry py and aspy as f.g. infillings. Total aspy is 5% and py 1-2%.										
				89.00-90.30 - oxidized and intensely fractured quartz flooded rhyolite tuff; quartz										
				50% of the unit imparts a marble like texture of the core; locally the rhyolite has been sericitized; quartz and rhyolite have been truncated by quartz carbonate fractures infilled with trace f.g. aspy.										
				The contact with the underlying 8A is in broken core.										
92.77	95.33			Quartz Vein, 8A. This quartz vein is similar to those described in DDH 883-1. It is hard and milky white in colour.										
				Core is competent and core recovery is good. Oxidization along open fractures is common.										
				Aspy (2-3%) is the only visible sulphide and occurs as f.g. infillings on randomly orientated micro-fractures and along infrequent 1 mm quartz carbonate										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-2

SHEET NUMBER 17 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS											
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)													
							FROM	TO	WIDTH					RCVRY						
																				veinlets running parallel to C.A.
95.33	95.69																			Gradational Contact.
95.69	98.00																			Rhyolite Tuff, 4A. This unit is as previously described in 49.27-52.00. Locally the matrix becomes dacitic. Some quartz carbonate veins are now running perpendicular to the C.A.
98.00																				Sharp Contact. Contact is running at 45° to C.A.
98.00	99.41																			Quartz Vein, 8A. This quartz vein is as described in section 92.77-95.33 with the addition of aspy present as 1-3 mm isolated anhedral pods and as minute flecks c/o. Aspy occurs is 3-4% of the vein.
99.41																				Sharp Contact. This contact runs at 90° to C.A. Lining the contact is a 1 mm quartz carbonate which is infilled with aspy.
99.41	101.06																			Mixed Zone, 8A/4A. This mixed zone is comprised of 25% 8A and 75% 4A. Mineralization is specific to each unit with the exception of a quartz carbonate

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 18 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES) FROM	TO	WIDTH	RCVRY				
				veinlet cross cutting 8A and 8A now carries py in 1 mm pods. Total aspy is 3-4% and total py 1/2-1%.										
101.06	102.00			Gradational Contact. A gradual change from beige to light grey green in colour as well as a decrease in quartz carbonate veinlets and the associated aspy mineralization was noted.										
102.00	112.30			Dacite Tuff, 3A. This tuff is light grey to light grey green in colour, predominantly f.g. and moderately soft due to carbonation. Composition is dacitic and weak chloritization is pervasive t/o the unit imparting the greenish tinge to the core.  Foliation is weakly developed at 45° to C.A. 1 mm bands of sericitized tuff parallel to foliation are common. The core is very broken and core recovery fair.  Occasionally 1-3 mm crystalline quartz carbonate veinlets at a 1/3 to C.A. are lined with and contain pods of py and aspy. Py often occurs at the periphery of the aspy. Aspy is present as 1/2-1% of										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 19 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	INTERVAL (METRES)						
							FROM	TO	WIDTH	RCVRY			
				the unit and py as tr-1/2%.									
				107.53-108.16 - broken core.									
				108.51-108.71 - broken core (108.51 TNL).									
				108.71-110.00 - quartz and quartz carbonate flooded section of chloritized and sericitized dacite tuff; quartz zones carry 1 cm unmineralized dolomite patches and are truncated by 1-3 mm quartz carbonate veinlets running parallel to the C.A.; two episodes of quartz carbonate veining are evident and both mineralized; quartz 25% of the section and quartz carbonate 5% of section; total aspy is 2-3%; 1% py.									
111.26	111.46			Fault Gouge.									
111.30	112.69			Quartz Vein, 8A. This quartz vein signifies the end of the dacitic unit. Contact is sharp at 45° to C.A.									
				The quartz vein is very hard and milky white in colour. Multiple cream coloured dolomitic patches (up to 4 x 4 cm in size and irregular in shape) are									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 20 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)							
							FROM	TO	WIDTH	RCVRY				
112.69														
112.69	117.35													

# DRILL HOLE RECORD

## DU PONT OF CANADA EXPLORATION LIMITED

 HOLE NUMBER DDH B83-2

 SHEET NUMBER 21 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				The dominant mode of mineralization is aspy and py associated with quartz carbonate veinlets infilling 1/a fractures. These are up to 1 cm in width and carry tr-1/2% py and 1-2% aspy. Very few randomly late stage microfractures were noted.								
117.35	117.59			Gradational Contact. A gradual beige to grey green colour change was noted. Moderate foliation at 45° to C.A. remains constant. No mineralization was observed.								
117.59	119.59			Andesite Tuff, 2A. This is part of 2A described in 119.82-159.48.								
119.59	119.82			Quartz Vein, 8A. Quartz infills along a low angle fracture and carries 1% py and 2-3 aspy.								
				Aspy occurs as pods in the quartz and as linings at quartz carbonate veinlet/quartz interfaces. Py is associated with aspy as pods within the quartz and as isolated cubes which truncate the quartz carbonate veinlets.								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 881-2

SHEET NUMBER 22 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RCVRY				
				The contact with the underlying unit is broken.									
119.82	159.48			Andesite Tuff, 2A. This is an extensive unit of medium-dark grey green andesitic tuff. The tuff is predominantly f.g. and moderately soft due to carbonatization. Composition is andesitic and weak chloritization imparts a greenish hue to the core. Multiple 1 mm bands of sericitized tuff parallel to foliation are common. Foliation is moderately to well-developed at 45° to C.A. This unit is slightly phyllitic along fractures.									
				The unit is very broken but core recovery is good. Broken core occurs at 124.46-125.23, 139.50-140.21, 148.22-148.74, 154.08-154.18, and 154.99-155.26.									
				Infrequent 1-2 mm crystalline quartz carbonate zones with trace dolomite associated and running parallel to foliation carry f.g. pyrite. Occasional 1 mm - 1 cm quartz/carbonate infillings on fractures parallel to C.A. host f.g. aspy in 2 mm pods and less often py in f.g. pods of the same size. Minor 1 mm carbonate infilled random fractures may carry									



# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-2

SHEET NUMBER 23 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS						
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)								
							FROM	TO	WIDTH	RCVRY					
				f.g. py. Trace f.g. py t/o. Total py for the unit is 1-2%, while total aspy 1-2%.											
				120.70-121.00 - 5 cm quartz zone infills parallel to C.A. inbetween two quartz carbonate veinlets; aspy lines quartz zone and quartz carbonate veinlets as well as occurring within the quartz itself, total aspy is 3-4%.											
				127.60-130.85 - quartz flooding ( 10% of the unit) is present parallel to foliation in bands 1-7 cm in width imparting a marble like texture to the core; adjacent to the quartz zones intense chloritization has occurred; quartz zones and foliation are cross cut by 1-5 mm quartz carbonate veinlets at a low angle to C.A. and these are infilled with pods and stringers of py and aspy; aspy is 1/2-1%, py 1-2%; 1 cm quartz zone is completely infilled with py.											
				134.42-136.00 - minor quartz flooding parallel to foliation, multiple 1-5 mm quartz carbonate veins predominantly at a 1/a to the C.A. carry py and aspy as 2-3 mm pods and thin stringers; minor amounts of py in 1 mm cubes cross cut quartz											

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-2

SHEET NUMBER 24 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS						
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)								
							FROM	TO	WIDTH	RCVRY					
				carbonate; minor randomly orientated carbonate in-filled fractures present; aspy, py are both present as 2-3%; at 135.17 massive aspy 4 x 4 cm patch associated with a quartz carbonate vein.											
				142.48-148.22 - major zone of quartz flooding with 1 cm quartz bands parallel to foliation comprising 50% of the section; these bands commonly contain strongly chloritized and sericitized matrix fragments; minor py and aspy are associated with the sericitized matrix fragments; minor quartz carbonate veinlets up to 1 cm wide, cross cut quartz and carry f.g. aspy and py; py also occurs as f.g. disseminations t/o the matrix and in trace amounts as thin stringers parallel to foliation; total py 1%, total aspy 1%.											
				152.00-153.20 - locally composition becomes dacitic.											
				156.00-157.08 - locally composition is dacitic and section is coarse grained; much of section is reddish due to alteration of specular hematite.											

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 25 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SUL	FeS	INTERVAL (METRES)				
							FROM	TO	WIDTH	RCVRY		
				157.28-157.90 - composition is andesitic and coarse grained; much of unit is reddish in bands parallel to foliation due to altered specular hematite; no mineralization.								
159.48				Sharp Contact. The contact is sharp at 35° to C.A. No mineralization is associated.								
159.48	161.37			Dacite Crystal Tuff, JBQ. This unit is light grey, coarse grained, moderately hard and weakly carbonated. Composition is dacitic and no chloritization has taken place. Foliation is well developed at 30° to C.A. Multiple 1 mm - 1 cm quartz bands parallel foliation. Minor 1-3 mm quartz/carbonated veinlets run perpendicular to C.A.  The unit is competent and core recovery is good. No associated mineralization was noted.								
161.37				Sharp Contact. The contact is sharp and runs parallel to foliation at 30° to C.A. 3 mm py pods were noted adjacent to the contact and cross cut foliation.								

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER DDH 883-2

SHEET NUMBER 26 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS											
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)													
							FROM	TO	WIDTH					RCVRY						
161.37	188.88			Andesite Tuff, 2A. This unit is as previously described in 119.82-159.48. Broken core occurs at 164.80-165.20, 167.38-168.28, 170.27-170.70, 180.00-180.14, and 181.00-181.80.																
				165.20-167.17 - sudden increase in quartz carbonate veinlets; form 5% of the unit, these are lined with py and aspy; much more py is associated with the aspy than previously; an increase in randomly orientated microfractures which are carbonate infilled and carry py and aspy was noted; total aspy 1%, py 1%.																
167.17				Sharp Contact. The contact with the quartz veinlet at 20° to C.A. Fine grained aspy and py in an approximately 2 mm wide band lines the contact.																
167.17	167.39			Quartz Vein, 8A. Aspy occurs along selvages as f.g. infillings on minute fractures within the quartz veins. One 1 cm quartz carbonate veinlet cross cuts the q.v. Total aspy is 2%.																
				182.00-187.15 - 2A cont'd. F.g. andesite; increasing amounts of 2 mm quartz/carbonate veinlets parallel or at a 1/a/ to the C.A.																

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 27 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)					
							FROM	TO	WIDTH	RCVRY		
				comprising 5% of the unit carry 1 mm pods of py and aspy; py also occurs as f.g. disseminations t/o the matrix and occasionally as pods in the matrix; total aspy is 2%, py is 2-3%.								
				188.68 - 20 cm zone of quartz flooded and quartz carbonate veined andesite; aspy is locally 4-5% and predominantly associated with quartz carbonate veinlets that truncate the quartz flooding; py occurs from 2-3% and appears on random microfractures and as 1 mm zones along quartz matrix interfaces.								
188.88	198.73			Mixed Dike Rock, 9A.								
188.88	189.08			Dacite Feldspar Porphyry. This unit is dacitic in composition, light grey, f.g., hard, weakly carbonated, porphyritic and displays no foliation. Phenocrysts are 10%, 1-2 mm euhedral feldspar grains and 10% glassy green crystals (chloritized amphiboles). The appearance of this porphyry is very similar to 9A in DDH #1 but is dacitic in composition.								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B63-2

SHEET NUMBER 28 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS									
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	INTERVAL (METRES)											
							FROM	TO	WIDTH	RCVRY								
				Trace py is disseminated t/o the matrix and trace-1/2X py was noted to line quartz carbonate veinlets running parallel to the C.A. as well as random carbonate infilled microfractures which cross cut the carbonate.														
189.08	189.13			Gradational Zone.														
189.13	190.35			Diabase, 9C-C. This diabase is dark green grey, coarse grained and contains 5% 1-3 mm anhedral pinky white feldspar grains and 5 mm glassy green flecks of chloritized hornblende, pyroxene, and biotite. The two types of phenocrysts create a salt and pepper appearance.														
				Mineralization is identical to that encountered in the above described Dacite Feldspar Porphyry.														
190.35	190.40			Gradational Contact.														
190.40	192.00			Dacite Feldspar Porphyry.														
192.00	195.68			Fault Gouge.														

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-2

SHEET NUMBER 29 OF 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)						
							FROM	TO					WIDTH
195.68	198.73			Rhyolite Porphyry, 9A. This unit is light grey, hard, weakly carbonate and phyllitic. Feldspar phenocrysts are rare but when encountered can be up to 3 mm in size and are anhedral in shape. 20% of this porphyry is composed of light glassy green (probably altered amphiboles) phenocrysts which are not aligned. No foliation is developed.									
				25% of the unit has been intensely fractured and later infilled with quartz carbonate. These infilled fractures vary from minute to 1 cm in width. Trace py was noted in association. These fractures are the same type as those which carry the mineralization in the rest of the core but are barren.									
				195.87-195.98 - silicified zone 40° to C.A.; cross cut by barren quartz carbonate veinlets, tr py disseminated t/o, tr f.g. aspy noted.									
198.73	E.O.H.												

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

CONTRACTOR: D.W. Coates  
 DRILL TYPE: S-38 LENGTH: 189.89m  
 CLAIM: BILL CLAIMS DIP: -45°  
 LATITUDE: 800S ELEVATION: 1,760m  
 LONGITUDE: 470W AZIMUTH: 90°E  
 HOLE STARTED: 1983 July 19 HOLE COMPLETED: 1983 July 22

ACID B/OR TRO - PARI TESTS					
DEPTH	DIP	AZIMUTH	DEPTH	DIP	AZIMUTH
64.90m	49°				
129.24m	54°				
Sperry Sun test					
188.92	64.5°	97°			

HOLE NUMBER: DDH B83-3  
 SHEET 1 OF: 25  
 PROPERTY: BILL  
 ACCOUNT No.: 361-00-500  
 CORE SIZE: NQ  
 % CORE RECOVERY: 97%  
 LOGGED BY: J. Forbes

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	INTERVAL (METRES)		OZ/TON Au	As %	GM/CONTENT Au		
							FROM	TO				ROD	RCVRY
0.00	2.44m			Overburden.	4690E		2.44	6.0	16	86%	0.015	0.02	0.514
					4691		6.0	8.0	46 81	63% 93%	0.009	< 0.01	0.309
2.44	4.02			Andesite Crystal Tuff, 2AX. This unit is light grey green, moderately soft, coarse grained and nonfoliated. The composition is andesitic and chloritization imparts a greenish hue to the core. Distinguishable grains, although masked are pre-dominantly feldspars.	4692		8.0	10.0	77	100%	0.012	0.08	0.411
					4693		10.0	12.0	88	99%	0.012	0.60	0.411
					4694		12.0	14.0	84	99%	0.017	0.18	0.583
					4695		14.0	16.0	92	100%	0.035	0.02	1.200
					4696		16.0	18.0	94	100%	0.009	< 0.01	0.309
					4697		18.0	20.0	94	100%	0.009	0.24	0.309
					4698		20.0	22.0	66	86%	0.012	0.08	0.411
				Multiple microfractures randomly orientated, intensely oxidized and carbonate infilled carry f.g. py and also py as isolated 1 mm pods. Total py is tr-1/2%.	4699		22.0	24.0	65	100%	0.016	< 0.01	0.549
					4700		24.0	26.0	90	100%	0.009	0.15	0.309
					4701		26.0	28.0	99	99%	0.009	0.01	0.309
					4702		28.0	30.0	92	100%	0.002	0.54	0.069
					4703		30.0	32.0	88	100%	0.002	0.16	0.069
				Core is extremely broken and oxidized.	4704		32.0	34.0	96	100%	0.002	0.25	0.069
				4.02-4.72 - broken core - probably 2AX.	4705		34.0	36.0	88	100%	0.002	0.21	0.069



# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-3

SHEET NUMBER 2 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE					ASSAYS			
FROM	TO	WIDTH	RCVRT		NUMBER	SULPHIDES	INTERVAL (METRES)			OZ/Ton Au	As %	gm/Tonne Au	
						FROM	TO	ROD	RCVRT				
				4.72-4.92 - quartz vein in broken and oxidized core; chloritized and sericitized fragments of andesite compose 15% of the unit with trace py occurring at the periphery; these fragments are cross cut and surrounded by oxidized, randomly orientated microfractures isolated 1 mm pods of carbonate noted.	4706E		36.0	38.0	80	100%	0.002	0.10	0.069
					4707		38.0	40.0	87	100%	0.004	0.03	0.137
					4708		40.0	42.0	86	99%	0.004	0.08	0.137
					4709		42.0	44.0	70	83%	0.006	0.36	0.206
					4710		44.0	46.0	90	100%	0.006	0.54	0.206
					4711		46.0	48.0	83	99%	0.006	0.07	0.206
					4712		48.0	50.0	22	100%	0.006	0.03	0.206
					4713		50.0	52.0	64	100%	0.009	0.50	0.309
				4.92-5.77 - broken and oxidized core, poor core recovery.	4714		52.0	54.0	32	100%	0.023	0.27	0.789
					4715		54.0	56.0	80	100%	0.003	0.03	0.103
					4716		56.0	58.0	32	100%	0.002	0.01	0.069
5.77	6.34			Andesite Crystal Tuff, 2AX. This unit is as previously described. The matrix is now weakly carbonated. Multiple microfractures randomly orientated and strongly oxidized carry trace py. Infrequent 1 mm quartz carbonate veinlets up to 1 mm in length contain isolated py pods 0.5 mm in size.	4717		58.0	60.0	20	93%	0.079	0.31	2.709
					4718		60.0	62.0	70	100%	0.017	0.11	0.583
					4719		62.0	64.0	82	100%	0.006	0.06	0.206
					4720		64.0	66.0	65	98%	0.032	0.22	1.097
					4721		66.0	68.0	58	100%	0.015	0.22	0.514
					4722		68.0	70.0	50	100%	0.015	0.11	0.514
					4723		70.0	72.0	91	100%	0.006	0.03	0.206
				Core is competent but strongly oxidized.	4724		72.0	74.0	52	100%	0.009	0.06	0.309
					4725		74.0	76.0	92.6	95%	0.015	0.01	0.514
6.34	6.71			Gradational Contact. No associated mineralization.	4726		76.0	78.0	90	99%	0.003	<0.01	0.103
					4727		78.0	80.0	96	100%	0.003	<0.01	0.103
6.71	9.08			Rhyolite Tuff, 4A. (Quartz flooded). This entire	4728		80.0	82.0	82	100%	0.006	<0.01	0.206

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH BR3-3

SHEET NUMBER 3 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVAT		NUMBER	% SULFIDES	INTERVAL (METRES)			OZ/Ton Au	As %	gm/Tonns Au	
							FROM	TO	ROD				RCVAT
				unit is broken and oxidized and extremely difficult to log.	4729F		82.0	84.0	78	90%	0.015	< 0.01	0.514
					4730		84.0	86.0	89	99%	0.003	< 0.01	0.103
					4731		86.0	88.0	78	100%	0.003	< 0.01	0.103
				The tuff is light beige green. Composition is rhyolitic and faint chloritization is locally present. Grain size and hardness is variable. Weak carbonation of the matrix was noted. Oxidization and sericitization of the core are common.	4732		88.0	90.0	50	100%	0.003	< 0.01	0.103
					4733		90.0	92.0	94	96%	0.006	< 0.01	0.206
					4734		92.0	94.0	87	88%	0.003	< 0.01	0.103
					4735		94.0	96.0	100	100%	0.004	< 0.01	0.137
					4736		96.0	98.0	82	100%	0.004	< 0.01	0.137
					4737		98.0	100.0	100	100%	0.004	< 0.01	0.137
				Foliation runs parallel to the C.A.	4738		100.0	102.0	92	98%	0.006	< 0.01	0.206
					4739		102.0	104.0	72	93%	0.006	< 0.01	0.206
				Quartz forms 80% of the unit and frequently carries chloritized matrix fragments. Flooding appears to parallel the C.A. Strong oxidization of the quartz matrix interface is present.	4740		104.0	106.0	30	90%	0.008	< 0.01	0.274
					4741		106.0	108.0	58	81%	0.006	< 0.01	0.206
					4742		108.0	110.0	53	100%	0.009	< 0.01	0.309
					4743		110.0	112.0	72	95%	0.012	< 0.01	0.411
					4744		112.0	114.0	55	100%	0.007	< 0.01	0.240
				Visible mineralization is trace-1/2% py. Multiple carbonate infilled microfractures carry py occasionally. Py also occurs as isolated 1-3 mm cubes cross cutting the quartz flooded zones.	4745		114.0	116.0	51	100%	0.050	0.12	1.714
					4746		118.0	120.0	50	100%	0.006	< 0.01	0.206
					4747		122.0	124.0	47	95%	0.006	0.01	0.206
					4748		126.0	128.0	94	95%	0.023	< 0.01	0.789
					4749		130.0	132.0	76	98%	0.004	0.01	0.137
9.08	9.53			Gradational Contact. A gradual change from beige to grey green was noted in addition to the	4750		134.0	136.0	51	100%	0.004	< 0.01	0.137
					4751		138.0	140.0	77	98%	0.004	0.01	0.137

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-3

SHEET NUMBER 4 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)		ROD	RCVRY	oz/ton	gm/tonne	
							FROM	TO			Au	As %	Au
				increasing grain size. The first 30 cm of the	4752E		142.0	144.0	68	92%	0.004	0.01	0.137
				contact is marked by a dramatic increase in py	4753		146.0	148.0	90	100%	0.003	<0.01	0.103
				(5-10%) as disseminations throughout the unit, as	4754		150.0	152.0	75	98%	0.003	<0.01	0.103
				f.g. pods and as linings on microfractures.	4755		154.0	156.0	81	100%	0.004	<0.01	0.137
				9.43 - first appearance of aspy; foliation is at	4756		158.0	160.0	60	91%	0.004	<0.01	0.137
				15° to C.A.; py as 1-5 mm pods t/o the	4757		162.0	164.0	40	99%	0.004	<0.01	0.137
				matrix imparts a speckled appearance to the core	4758		166.0	168.0	67	100%	0.004	<0.01	0.137
				and locally is 10% aspy and py infill microfrac-	4759		170.0	172.0	75	95%	0.004	<0.01	0.137
				tures which are carbonate infilled and appear to	4760		174.0	176.0	91	95%	0.004	<0.01	0.137
				be running at a 1/a to the C.A.; trace disseminated	4761		178.0	180.0	37	100%	0.004	<0.01	0.137
				aspy was noted t/o the matrix.	4762		182.0	184.0	80	94%	0.009	<0.01	0.309
				9.47 - 2 mm seam aspy found at quartz/unit inter-	4763		186.0	188.0	50	96%	0.003	<0.01	0.103
				face.	4764		188.0	189.68	29	80%	0.003	<0.01	0.103
							E.O.H.						
				Total aspy over the gradational contact is 1-2%.									
				Py occurs as 10% of the unit.									
9.53	41.07			Andesite Crystal Tuff, 2AX. This unit is light									
				grey to light grey green. Texture is coarse grained									
				but locally may be masked. 1 mm anhedral feldspars									
				are the dominant phenocryst. The unit is moderately									
				hard and weakly carbonate rich.									

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-3

SHEET NUMBER 5 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRY									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-3

SHEET NUMBER 6 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS									
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)											
							FROM	TO	WIDTH	RCVRY								
				11.25 - 7 cm zone of randomly orientated fractures infilled with aspy; locally 25-30%; minor py associated; mineralization truncates quartz carbonate veinlets running at 45° and also cross cuts the microfractures.														
				13.73-13.85 - minor q.v. 8A, 8B; vein contains 10% carbonate patches; aspy present as f.g. disseminations within vein and along selvage; massive py - locally 15% lines selvage and occurs in quartz/carbonate veinlet sub parallel to C.A.														
				14.62 - aspy locally 10% associated with a quartz/carbonate veinlet.														
				14.75 - low angle fracture infilled with aspy and carbonate.														
				20.51 - 10 cm quartz flooded zone; quartz included chloritized matrix fragments and small patches of cream coloured carbonate; matrix sericitized along the selvage; py occurs as f.g. disseminations at the periphery of chloritized matrix														

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-3

SHEET NUMBER 7 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				fragments and as 1 cm pods parallel to foliation and adjacent to the contact; no aspy noted.								
				23.40 - 4 cm q.v. 8A at 30° to C.A.; f.g. aspy lines entire contact; locally 5-7% aspy.								
				28.61-28.84 - crystalline quartz/carbonate zone running at 35° to C.A.; carries multiple pods of f.g. aspy up to 1 cm in length; locally aspy 10%.								
				29.38-29.52 - 14 cm quartz carbonate veinlet parallel to C.A.; entire selvage lined with f.g. aspy.								
				31.66 - foliation weakly developed at 30° to C.A.								
				35.36-36.19 - locally unit becomes very f.g.								
				36.19-41.07 - decreased in the amount of quartz carbonate veins and random microfractures; combined 1%; decrease in mineralization, 1% aspy predominantly as f.g. disseminations in matrix.								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-3

SHEET NUMBER 8 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRT		NUMBER	SULFIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRT									
41.07	41.45			Gradational Contact. A gradual decrease in grain size and a gradual increase in foliation is evident. Colour changes from grey green to beige.															
41.45	70.00			Rhyolite Tuff, 4A./4AX. The rhyolite tuff is light grey to beige and locally becomes orange due to oxidization. Composition is rhyolitic. Locally the unit may be weakly carbonate rich, sericitized and/or silicified. Hardness is variable. Silicified sections are hard whereas carbonated sections are much softer. The tuff is fine to coarse grained and foliation is absent to locally well developed at 30-45° to C.A. 10% of the unit is quartz/carbonate flooded.															
				The unit varies from being very competent to extremely broken. Most of the unit is oxidized along fractures.															
				The most common mode of mineralization is associated with quartz/carbonate veinlets infilling low angle fractures 10° to C.A. These comprise 2% of the unit and are 2 mm in width. Two episodes of															

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-3

SHEET NUMBER 9 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRT		NUMBER	% SULPHIDES	INTERVAL (METRES)							
						FROM	TO	WIDTH	RCVRT					
				quartz carbonate veining are present. Both f.g. aspy and py are evident in trace amounts in the quartz/carbonate veinlets. Occasionally py and aspy completely infill the l/a fractures with aspy being the dominant sulphide. F.g. aspy and lesser f.g. py infill minute fractures parallel to foliation and also at 45° to C.A. Aspy also occurs as disseminated flecks in the matrix running parallel to foliation. Minor isolated carbonate patches up to 5 mm in width carry f.g. aspy. Py was noted as isolated 1-2 mm cubes cross cutting foliation as well as in quartz carbonate veinlets and the minute fracture set. F.g. py infilling cubic out-lines was noted to cross cut quartz/carbonate flooded zones.										
				Quartz carbonate veinlets were noted to be unmineralized occasionally and commonly these are altered to a pale green colour.										
				Total aspy in this section is 3-4% and total py is 2%.										



# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B81-3

SHEET NUMBER 10 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRT		NUMBER	SULPHIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRT									
				41.67-42.60 - core is locally oxidized to a light brown red colour; minor brecciation has occurred; two episodes of mineralized quartz/carbonate veinlets noted; both py and aspy present.															
				42.34-42.60 - two 0.3 cm veinlets parallel to foliation both containing creamy yellow patches which are hard and are carbonated.															
				42.60-43.90 - interbedded alternating bands of andesite and rhyolite tuff.															
44.04	44.19			Quartz Vein, 8A. This minor quartz vein interrupts the rhyolite tuff. The vein carries py only in 1-2% amounts as infilling on 1/a fractures and as 1 mm pods in the quartz itself. The tuff on both sides of the q.v. is intensely silicified and sericitized. The q.v. is at 30° to the C.A.															
				47.69-48.46 - quartz flooding in 1 cm bands parallel to foliation forms 10% of the unit; the matrix between quartz bands is green to red brown due to chloritization, sericitization and oxidization.															

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-3

SHEET NUMBER 11 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRY									
				48.86-49.99															
				51.06-51.51															
				52.00-54.00															
				52.00-54.00 - entire portion of the unit is sericitized, silicified and partially oxidized; carries predominantly py as massive elongated rectangulars up to 1 cm in length associated with quartz/carbonate veinlets; aspy occurs as isolated 1 mm pods along 1/a quartz carbonate veinlets; total py is 2-3%; aspy is in trace amounts only.															
				55.93-55.94 - broken core and fault gouge.															
				55.94-62.03 - well foliated section of unit at 30°; colour is tan from oxidization; intense sericitization and silicification has occurred, several 2-3 cm quartz zones parallel to foliation are barren.															
				62.03-64.00 - 15% of unit is multiple 1 cm quartz bands parallel to foliation; intense															

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-3

SHEET NUMBER 12 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH					RCVRY					
				oxidation imparts a rusty colour to core; quartz zones carry pale creamy yellow carbonate patches; quartz zones and associated carbonate patches are barren.															
				66.56-67.42 - fault gouge.															
				67.42-70.00 - locally unit becomes coarse grained 4AX; foliation is 45° to C.A.; the unit is reddish brown due to oxidation.															
				67.82 - 1/a fractures infilled with c.g. carbonate; a circular 3 cm solution cavity is infilled with clear rhombohedral calcite crystals; no associated mineralization; sericitization is common t/o section; 5% of section is carbonate veinlets and patches carrying up to 7-10% aspy.															
				At the end of this rhyolitic unit there is an abrupt end to the oxidation.															
70.00	70.10			Gradational Contact.															

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-3

SHEET NUMBER 13 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RECRY		NUMBER	SULFIDES	INTERVAL (METRES)							
							FROM	TO	WIDTH	RECRY				
70.10	72.46			Dacite Tuff, 3A. This unit is light grey, medium to f.g., weakly carbonated and moderately hard. Foliation is moderately developed at 35° to C.A., 15% of the unit is comprised of 1-3 mm crystalline quartz carbonate veinlets and patches which are white to pinky white and parallel to the C.A. These are predominantly barren. Microfractures randomly orientated and carbonate infilled are seen occasionally.										
				The unit is competent, core recovery is good and oxidation is absent.										
				Mineralization where present is dominantly py lining quartz carbonate veinlets. Py is also noted as isolated 1 mm cubes cross cutting quartz carbonate veinlets. The above mentioned microfractures may carry f.g. aspy. Total py is 2-3% and aspy occurs in trace-1/2% amounts.										
72.46	72.81			Gradational Contact. A gradual colour change to dark grey green is present. A 5 cm quartz carbonate band perpendicular to the C.A. is located at the upper contact and carries 1 mm pods of py.										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-3

SHEET NUMBER 14 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	SUL	%DES	INTERVAL (METRES)											
								FROM	TO	WIDTH	RCVRY								
72.81	84.13			Andesite Tuff, 2A. This unit is dark grey green, fine to coarse grained, weakly carbonated, and moderately soft. Composition is andsitic and chloritization imparts a greenish tinge to the core. Foliation is absent in coarser grained sections and well developed at 30° to the C.A. in the finer grained portions of the unit. Fleahy pink coloured, 2 mm low angle quartz/carbonated veinlets and fleshy pink coloured 0.5 mm randomly orientated microfractures are present in varying amounts.															
				The unit is competent and core recovery is good.															
				Py is the dominant mineralization present and occurs as f.g. linings on quartz/carbonate veinlets as isolated minute pods, as f.g. disseminations t/o the matrix. Total py is 2%. Aspy is present in trace amounts associated with quartz/carbonate veinlets.															
				72.81-74.52 - medium grained section of unit; quartz carbonate 2 mm veinlets at a 1/a to the C.A. and fleshy pink in colour comprise 10% of the unit; fleshy pink 0.5 mm randomly															

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH BRJ-3

SHEET NUMBER 15 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	of SULPHIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RCVRY				
				orientated carbonate infilled fractures comprise 5% of the unit; py is the only mineralization present and occurs in all modes previously described.									
				76.82 - kink band of quartz 1 cm wide, selvage strongly chloritized.									
				76.90 - kink band in matrix identical in form to the above.									
				74.52 - unit becomes finer grained; quartz carbonate veining drops to 1Z.									
				77.15; 77.65; 78.10; 78.22 - 3-6 cm zones of quartz flooding parallel to foliation form 5Z of unit and are barren; selvages are strongly chloritized.									
84.13	84.23			Gradational Contact. Disseminated flecks of specular hematite were noted in the dacite tuff adjacent to the contact.									
84.23	88.20			Dacite tuff, 3A. The tuff is light grey to light									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-1

SHEET NUMBER 16 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH					RCVRY
				grey green where the dacitic composition is locally chloritized. The unit is f.g., moderately soft and weakly carbonated. Foliation is absent to moderately well developed at 40-45° to C.A. Only a few quartz carbonate veinlets are present and these are at 35° to C.A. and 1 mm in width. These veinlets are infilled by or carry flecks of specular hematite and consequently may have a pinkish hue to them.									
				Mineralization consists of py and specular hematite. Py occurs as f.g. disseminations, as f.g. bands 1-2 mm in width paralleling foliation and is present as 1/2% of the unit. Specular hematite both fresh and oxidized, lines quartz/carbonate veinlets and also occurs as flecks within the veinlets. Specular hematite occurs in trace amounts only.									
				86.56-87.52 - f.g. chloritized and silicified zone. f.g. py as disseminations is the only mineralization noted.									
88.20	88.44			Gradational Contact. The above tuff becomes coarse grained and strongly foliated. No associated mineralization.									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-3

SHEET NUMBER 17 of 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS									
FROM	TO	WIDTH	RCVRT		NUMBER	% SULPHIDES	INTERVAL (METRES)											
							FROM	TO	WIDTH	RCVRT								
88.44	93.27			Dacite Crystal Tuff, 3BQ. This unit is light grey to light green grey. Composition is dacitic and the tuff is locally weakly chloritized. Texture is coarse grained (3 mm) and coherent grains which are predominantly quartz, parallel foliation. This unit is less metamorphosed than the two previous holes in that grains are more coherent and no phyllitic fractures are apparent. The tuff is hard and non carbonated. Less than 1% of the unit is comprised of yellowish 1-2 mm quartz carbonate veinlets at a low angle to the C.A. No mineralization is associated with the veinlets. Minor randomly orientated microfractures infilled with carbonate were noted. Locally 0.5-1 cm quartz bands parallel foliation.														
				Core recovery and competence are both moderately good.														
				Both f.g. aspy and f.g. py occur along the above described microfractures and along the selvage of quartz bands. Total py is 1% and aspy occurs in trace amounts.														



# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DOH B83-3

SHEET NUMBER 18 of 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRT		NUMBER	g SULPHIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRT									
				96.61-98.00 - strongly quartz banded (0.5-1 cm width) and foliated zone; foliation runs parallel to subparallel to C.A., quartz bands run parallel to foliation and comprise 10% of the unit; quartz zones are cross cut by yellowish quartz carbonate veinlets; a few kink bands were noted; f.g. py and aspy line selvages of quartz bands.															
99.27	99.37			Gradational Contact.															
99.37	103.83			Andesite Crystal Tuff, 2AX. This unit is as above described with the composition becoming andesitic. Colour is dark grey green.															
103.83	105.46			Gradational Contact. A gradual decrease in grain size and change in colour to grey green is apparent. Py is the only mineralization present.															
105.46	154.79			Andesite Tuff, 2A. The tuff is grey to grey green. Composition is andesitic but occasionally may vary to dacitic. Chloritization is pervasive t/o the unit and locally is intensive. The unit is weakly carbonated. Minor zones of silicification are pre-															

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-3

SHEET NUMBER 19 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RCVRY				
				sent. Sericitization is predominantly absent but may occur as thin 1 mm bands paralleling foliation.									
				Texture is f.g., however, occasional medium grained sections do occur.									
				Foliation is absent to well developed at 20-40° to the C.A.									
				Bands of quartz parallel to foliation and 1-20 cm in width comprise 3-5% of the unit. Typically these are bounded by thin bands of sericitized matrix and carry chloritized matrix fragments. Locally quartz flooding is observed.									
				Crystalline quartz/carbonate veinlets 1-5 mm in width and running parallel to or at a 1/a to the C.A. constitute 1% of the unit and cross cut the above described quartz bands. These vary in colour and may be white, yellow or pink.									
				Randomly orientated microfractures are carbonate filled, constitute 1/2% of the tuff and cross cut									

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

 HOLE NUMBER: DDH B83-3

 SHEET NUMBER 20 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS									
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)											
							FROM	TO	WIDTH					RCVRY				
				both the quartz carbonate veinlets and the quartz bands.														
				Quartz carbonate may occur as isolated patches cross cutting both of the quartz carbonate veinlets and the microfractures.														
				The unit has several broken sections but core recovery is good.														
				Mineralization is highly variable in occurrence. Py occurs as f.g. disseminations and pods paralleling foliation, as 1-2 mm f.g. linings on the selvages of quartz bands, as 0.5-5 mm pods and cubes in the quartz carbonate veinlets along the selvage of the same veinlets, and as f.g. infillings of isolated quartz/carbonate patches. Total py is 2-3%.														
				Aspy occurs as f.g. pods in and along the selvage of the quartz carbonate veinlets. Isolated patches of aspy were also noted. Aspy is present in trace amounts only.														

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER DDH B83-3

SHEET NUMBER 21 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS											
FROM	TO	WIDTH	RCVRY		NUMBER	SPLICES	INTERVAL (METRES)													
							FROM	TO	WIDTH	RCVRY										
				Specular hematite was noted in trace amounts and is observed along quartz carbonate fractures as disseminations t/o and associated with quartz flooding.																
				NOTE: In general aspy and specular hematite are mutually exclusive.																
				Broken core occurs at: 116.27-116.74, 117.96-118.00, 118.55-119.09 Fault gouge, 122.00-122.53, 123.82-124.54.																
				126.13 - 2 x 3 cm patch of f.g. aspy locally 5%.																
				138.30-138.47 - locally composition becomes rhyolitic.																
				140.81-142.58 - unit is strongly chloritized, dark green and medium grained; quartz flooding comprises 30% of the zone and imparts a marble texture to the core; within the quartz flooded areas, 1 mm - 1 cm patches of a bright red to red brown mineral (probably altered specular hematite) was noted.																

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 882-3

SHEET NUMBER 22 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRY									
				152.53 - specular hematite lines a quartz carbonate infilled fracture.															
				153.93-154.69 - quartz flooded zone; quartz is parallel to foliation ( 35°) in bands up to 11 cm wide and forms 75% of this section; quartz imparts a marble like texture to the core; bands of sericitized matrix are adjacent to the quartz bands of strongly chloritized matrix.															
				154.69-154.79 - silicified zone of strongly chloritized non foliated andesite.															
154.79	155.88			Gradational Contact. An increase to 5% of 1-2 mm veinlets randomly orientated and quartz carbonate infilled is observable. Multiple 4 mm f.g. infilled py cubes are present. The appearance of 0.5 mm dark green phenocrysts softer than the surrounding matrix and paralleling foliation was noted.															
155.88	160.61			Andesite Tuff. 2E. This unit is similar to 3E in DDH #1 with the composition being andesitic.															

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER DDH 883-3

SHEET NUMBER 23 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SUL	DOES	INTERVAL (METRES)						
							FROM	TO	WIDTH	RCVRY				
				The unit is light grey green to dark grey green.										
				Composition is andesitic, locally varying to dacitic and chloritization imparts a greenish hue to the core. The tuff is weakly to well carbonated.										
				Hardness is moderately soft to hard in places where silicification has occurred.										
				30-40% of the unit is 0.5 mm elongated dark green soft phenocrysts which parallel foliation.										
				These are chloritized amphiboles?										
				Foliation is moderately developed at 30° to the C.A.										
				Quartz flooding occurs in one instance.										
				Minor 1-2 mm quartz carbonate veinlets parallel foliation and are cross cut by a few randomly orientated microfractures which are carbonate infilled.										
				A few 0.5 cm kink bands were noted and are quartz infilled.										

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER DDH B83-3

SHEET NUMBER 24 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS											
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)													
							FROM	TO	WIDTH	RCVRY										
160.61	161.20																			
161.20	189.99																			

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-3

SHEET NUMBER 25 OF 25

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RCVRY				
				175.19 } 2 cm bands perpendicular to C.A. which have									
				175.98 } been brecciated; matrix is quartz carbonate									
				and contains brecciated quartz fragments up									
				to 4 mm; 2 mm py cubes cross cut band/									
				foliation contact.									
				169.70-177.17 - section of intensely foliated, de-									
				formed and silicified andesite.									
				180.62-181.66 - blood red oxidation on open frac-									
				tures probably specular hematite.									
				189.87-189.89 - fault gouge.									
189.89	E.O.H.												



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

CONTRACTOR: D.W. Coates  
 DRILL TYPE: S-3R LENGTH: 167.94  
 CLAIM: BILL CLAIMS DIP: -45°  
 LATITUDE: 400S ELEVATION: 1800m  
 LONGITUDE: 960W AZIMUTH: 90°E  
 HOLE STARTED: 1983 July 23 HOLE COMPLETED: 1983 July 24

ACID &/OR TRO-PARI TESTS					
DEPTH	DIP	AZIMUTH	DEPTH	DIP	AZIMUTH
SPERRY SUN TESTS					
85.34	49°	95°			
167.95	56°	95°			

HOLE NUMBER: DDH B83-4  
 SHEET 1 OF: 28  
 PROPERTY: BILL  
 ACCOUNT No.: 361-00-500  
 CORE SIZE: NQ  
 % CORE RECOVERY: 97%  
 LOGGED BY: J. Forbes

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS		
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)				gZ/LNH	As %	gM/CONTR
							FROM	TO	RCVRY	gZ/CONTR			
0.00	3.96			Overburden.	4765F		3.96	10.0	55	50Z	0.002	<0.01	0.069
					4766		10.0	12.0	52	100Z	0.003	<0.01	0.103
3.96	24.06			Interbedded Andesite and Dacite Tuff, 2A/3A. This unit is light grey green to dark grey green. Composition is andesitic, locally varying to dacitic, and chloritization imparts a greenish hue to the core. Locally the unit may be carbonate rich or silicified.	4767		12.0	14.0	55	96Z	0.004	<0.01	0.137
					4768		14.0	16.0	37	98Z	0.004	<0.01	0.206
					4769		16.0	18.0	33	100Z	0.034	<0.01	1.234
					4770		18.0	20.0	60	100Z	0.014	0.16	0.480
					4771		20.0	22.0	31	71Z	0.003	0.06	0.103
					4772		22.0	24.0	50	90Z	0.003	<0.01	0.103
					4773		24.0	26.0	69	92Z	0.004	<0.01	0.103
					4774		26.0	28.0	85	100Z	0.003	<0.01	0.103
					4775		28.0	30.0	49	92Z	0.007	<0.01	0.240
					4776		30.0	32.0	45	100Z	0.010	0.04	0.343
					4777		32.0	34.0	72	99Z	0.009	<0.01	0.309
					4778		34.0	36.0	75	97Z	0.012	<0.01	0.611
					4779		36.0	38.0	54	92Z	0.003	<0.01	0.103
					4780		38.0	40.0	41	90Z	0.006	<0.01	0.206

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-4

SHEET NUMBER 2 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)		OXIDATION	Au	As %	gm/tonne	
							FROM	TO					ROD
				stely hard but is softer when carbonated and harder when silicified.	4781E		40.0	42.0	63	77%	0.002	< 0.01	0.069
					4782		42.0	44.0	84	95%	0.003	< 0.01	0.103
					4783		44.0	46.0	67	96%	0.002	< 0.01	0.069
				Multiple 2 mm - 1 cm quartz bands parallel foliation and form 5% of the unit. Multiple creamy white crystalline quartz carbonate (0.5 cm bands) also parallel foliation and comprise 5% of the unit.	4784		46.0	48.0	72	99%	0.002	< 0.01	0.069
					4785		48.0	50.0	93	93%	0.003	< 0.01	0.103
					4786		50.0	52.0	60	100%	0.006	0.04	0.206
					4787		52.0	54.0	77	100%	0.003	0.02	0.103
					4788		54.0	56.0	84	100%	0.002	< 0.01	0.069
				Very occasional 1-2 mm crystalline quartz/carbonate veinlets at 30° to C.A. are present. These form less than 2% of the unit.	4789		56.0	58.0	60	100%	0.002	< 0.01	0.069
					4790		58.0	60.0	44	100%	0.003	< 0.01	0.103
					4791		60.0	62.0	54	100%	0.003	< 0.01	0.103
					4792		62.0	64.0	89	98%	0.017	< 0.01	0.583
				Occasional late stage microfractures which are randomly orientated and carbonate infilled, truncate the quartz and quartz carbonate bands paralleling foliation and also cross cut quartz carbonate veinlets.	4793		64.0	66.0	62	100%	0.001	< 0.01	0.034
					4794		66.0	68.0	34	98%	0.006	< 0.01	0.206
					4795		68.0	70.0	47	98%	0.003	< 0.01	0.103
					4796		70.0	72.0	66	98%	0.006	< 0.01	0.206
					4797		72.0	74.0	80	97%	0.004	< 0.01	0.137
					4798		74.0	76.0	80	100%	0.004	< 0.01	0.137
				The unit is broken and core recovery is good.	4799		76.0	78.0	84	100%	0.003	< 0.01	0.103
				Oxidation along open fractures is prevalent t/o the unit. The unit itself is oxidized until 11.25m.	4800		78.0	80.0	95	100%	0.003	< 0.01	0.103
					4801		80.0	82.0	77	94%	0.003	< 0.01	0.103
					4802		82.0	84.0	90	100%	0.003	< 0.01	0.103
				By comprises 2-3% of the unit and occurs as trace	4803		84.0	86.0	93	98%	0.004	< 0.01	0.137

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-4

SHEET NUMBER 3 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RECY		NUMBER	SPLICES	INTERVAL (METRES)		RECY	GZ/TON Au	As %	RM/TON Au	
							FROM	TO					ROD
				disseminations t/o the matrix, as trace disseminations associated with the quartz carbonate bands paralleling foliation and as pods, cubes and E.g. infillings associated with the quartz/carbonate veinlets.	4804E		86.0	88.0	96	100%	0.006	<0.01	0.206
					4805		88.0	90.0	100	100%	0.003	<0.01	0.103
					4806		90.0	92.0	96	99%	0.003	<0.01	0.103
					4807		92.0	94.0	95	100%	0.004	<0.01	0.137
					4808		94.0	96.0	98	99%	0.004	<0.01	0.137
					4809		96.0	98.0	87	100%	0.004	<0.01	0.137
				Aspy is present as IX of the unit and occurs as f.g. 0.5-3 mm pods within quartz carbonate veinlets.	4810		98.0	100.0	96	98%	0.004	<0.01	0.137
					4811		100.0	102.0	97	100%	0.006	<0.01	0.206
				3.96-9.14	4812		102.0	104.0	91	98%	0.006	<0.01	0.206
				20.15-21.49 broken and oxidized core.	4813		104.0	106.0	64	99%	0.006	<0.01	0.206
				22.24-22.91	4814		106.0	108.0	85	98%	0.003	0.03	0.103
					4815		108.0	110.0	68	100%	0.003	<0.01	0.103
24.06	24.08			Contact. This contact is located within broken and oxidized core.	4816		110.0	112.0	78	100%	0.003	<0.01	0.103
					4817		112.0	114.0	76	97%	0.003	<0.01	0.103
					4818		114.0	116.0	89	100%	0.003	<0.01	0.103
24.08	38.79			Dacite Crystal Tuff, 3BQ. This unit is light grey green. Composition is dacitic and chloritization imparts a greenish hue to the core. The unit is weakly carbonated.	4819		116.0	118.0	97	100%	0.006	0.09	0.206
					4820		118.0	120.0	77	97%	0.009	0.59	0.309
					4821		120.0	122.0	80	98%	0.009	0.28	0.309
					4822		122.0	124.0	86	100%	0.009	0.32	0.309
					4823		124.0	126.0	93	97%	0.009	<0.01	0.309
				Texture is coarse grained but actual grain boundaries are not discernable. Grains appear to be predominantly feldspars.	4824		126.0	128.0	94	99%	0.009	<0.01	0.309
					4825		128.0	130.0	76	99%	0.009	0.11	0.309
					4826		130.0	132.0	87	99%	0.009	<0.01	0.309

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-4

SHEET NUMBER 4 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SUB NOES	INTERVAL (METRES) FROM TO	RQD	RCVRY	gZ/Ltmt Au	As %	gm/Ltmt Au
				Foliation is moderate at 65° to the C.A.	4827E		132.0 134.0	99	100%	0.009	< 0.01	0.309
					4828		134.0 136.0	90	100%	0.003	< 0.01	0.103
				Multiple 1 mm crystalline quartz carbonate zones	4829		136.0 138.0	91	99%	0.003	< 0.01	0.103
				parallel foliation. These comprise 10% of the unit	4830		138.0 140.0	88	99%	0.003	< 0.01	0.103
				and are not mineralized.	4831		140.0 142.0	89	100%	0.003	< 0.01	0.103
					4832		142.0 144.0	79	97%	0.003	< 0.01	0.103
				Occasional 0.5-1 cm crystalline quartz carbonate	4833		144.0 146.0	92	96%	0.003	< 0.01	0.103
				veinlets run at 10° to the C.A. Three episodes of	4834		146.0 148.0	90	100%	0.004	< 0.01	0.137
				these veinlets were noted. Late stage microfractures	4835		148.0 150.0	78	99%	0.004	< 0.01	0.137
				are absent.	4836		150.0 152.0	91	100%	0.004	< 0.01	0.137
					4837		152.0 154.0	95	97%	0.004	< 0.01	0.137
				Overall py is 1/2% as is overall aspy. Mineraliza-	4838		154.0 156.0	100	100%	0.004	< 0.01	0.137
				tion is predominantly associated with quartz carbon-	4839		156.0 158.0	96	99%	0.006	< 0.01	0.206
				ate veinlets. Both py and aspy occur as f.g. pods	4840		158.0 160.0	75	89%	0.006	0.05	0.206
				within the veinlets. Commonly these pods are adja-	4841		160.0 162.0	87	100%	0.004	< 0.01	0.137
				cent to one another with py often occurring on the	4842		162.0 164.0	88	100%	0.004	< 0.01	0.137
				periphery of the aspy. Locally, in this mode, py	4843		164.0 166.0	90	100%	0.004	< 0.01	0.137
				is 2-3% as is aspy. Both py and aspy were noted to	4844		166.0 167.95	70	100%	0.004	< 0.01	0.137
				occur as disseminations in the matrix and in areas			E.O.II					
				immediately adjacent to the quartz carbonate veinlets								
				The unit is competent and core recovery is good.								
				Oxidation is common along open fractures.								

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-4

SHEET NUMBER 5 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	REVRV		NUMBER	SUBS	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				24.08-24.12 - quartz carbonate band parallel to foliation at 65° to C.A.; this marks the top of the unit; the matrix is sericitized along both selvages; no associated mineralization.								
38.79	39.13			Gradational Contact. A gradual decrease in grain size accompanied by an increase in foliation is visible. No mineralization is present.								
39.13	45.26			Interbedded Dacite/Andesite Tuff, 2A/3A. This unit varies from light grey green to dark grey green. Composition is andesitic to dacitic and the entire unit is chloritized.								
				The tuff is weakly to well carbonated. Hardness decreases with increasing carbonation. Locally silicification is evident.								
				Texture is fine grained.								
				Foliation is intense and varies from 35-40° at the top of the section to 65-70° at the bottom.								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-4

SHEET NUMBER 6 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SIZES	INTERVAL (METRES)						
							FROM	TO	WIDTH	RCVRY			
45.26	45.56												
48.56	48.56												

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-4

SHEET NUMBER 7 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	FROM	TO	WIDTH	RCVRY				
				fractures. A banded appearance is evident due to colour changes which in turn seem to be a result of carbon content.										
				The unit is weakly carbonate rich and locally silicified. Hardness is variable depending on degree of silicification.										
				Bedding is well developed at 85° to C.A.										
				Occasional quartz bands up to 4 cm wide and parallel bedding comprise 2-3% of the unit.										
				Quartz carbonate and carbonate bands parallel bedding and impart a banded appearance to the core. These are 1 mm - 2 cm in width and form 15% of the unit.										
				Infrequent quartz carbonate veinlets at a 1/A to or parallel to the C.A. are present.										
				Occasional small 1-3 mm carbonate patches are present and cross cut bedding.										

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-4

SHEET NUMBER 8 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	SUL	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRY									
48.54																			
58.54	50.60																		



# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-4

SHEET NUMBER 9 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RCVRY				
				f. g. and very weakly carbonated. Locally thin bands of sericitized matrix (up to 0.5 cm) parallel foliation.									
				Hardness is variable but is predominantly moderate.									
				Foliation is moderately developed at 85° to C.A.									
				Occasional quartz bands up to 17 cm wide were noted to parallel foliation. These may carry quartz carbonate patches within them.									
				Infrequent 1 mm quartz carbonate veins cross cut foliation and are parallel to the C.A.									
				The unit is competent and core recovery is good.									
				Py, Fe-1/2Z occurs as isolated pods in the matrix and along selvages of quartz bands.									
				Aspy occurs in trace amounts along the selvage of quartz bands.									
				50.20 - 3 cm quartz band carrying aspy and py along selvage.									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER DDH B83-4

SHEET NUMBER 10 of 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)							
							FROM	TO	WIDTH	RCVRY				
				50.47 - 17 cm quartz band containing quartz carbonate patches within; sericitized along the selvages; no associated mineralization.										
50.60				Sharp Contact. Sharp contact at 85° to C.A. No associated mineralization is present.										
50.60	72.15			Graphitic Siltstone (Siliceous), 50. The siltstone is variable in colour from dark grey to black. This unit is carbon rich & often graphitic along fractures. Colour is proportional to carbon content (ie. becomes blacker).  Texture is fine grained.  Hardness is variable and is affected by the intensity of silicification.  Bedding is well developed at 85° to the C.A.  Occasional quartz bands varying up to 5 cm in width and parallel bedding comprise up to 1% of the unit.										

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDIL B83-4

SHEET NUMBER 11 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)		ASSAYS					
						FROM	TO	WIDTH	RCVRY					
				<p>Quartz carbonate and carbonate bands 1 mm - 0.5 cm in width impart a banded appearance to the core. These comprise 10-15% of the unit.</p> <p>Infrequent quartz carbonate veinlets parallel to or at a 1/a to the C.A. were noted.</p> <p>Small (1-3 mm) carbonate patches are present and truncate bedding. These are in low abundance.</p> <p>Late stage randomly orientated carbonate filled microfractures are present in minor amounts.</p> <p>The unit is competent and core recovery is good. Open fractures are graphitic.</p> <p>Py is the predominant sulphide occurring as thin f.g. bands paralleling bedding, as f.g. disseminations within carbonate patches, as disseminations and linings on quartz carbonate bands paralleling bedding, as f.g. disseminations within carbonate patches, as pods and cubes within the matrix and associated with the a forementioned veinlets.</p>										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-4

SHEET NUMBER 12 OF 28

INTERVAL (METRES)				DESCRIPTION	NUMBER	SULPHIDES	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RECRY				FROM	TO	WIDTH	RECRY					
				Total py is 3-6%.											
				Trace aspy was noted as small pods associated with the quartz carbonate veinlets.											
				65.60-65.84 - fault gouge.											
72.15	73.24			Gradational Contact. The colour change from dark grey to light grey. Foliation is well developed at 70° to the C.A. Py is disseminated t/o, and present as both 1 mm pods cross cutting foliation and minute stringers paralleling foliation.											
73.24	78.03			Rhyolite Tuff, 4A. The rhyolite tuff is light grey to beige, moderately hard, f.g. and has a non carbonate matrix.											
				Foliation is well developed at 40° to the C.A.											
				Multiple quartz bands parallel to foliation and 1-2 cm in width are evident comprising 10% of the unit. These quartz bands often carry irregular patches of pinkish to creamy coloured dolomite.											
				Bands of sericitized matrix varying from minute to											

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-6

SHEET NUMBER 13 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES) FROM	TO	WIDTH	RCVRY				
				2 cm in width, are common adjacent to the quartz bands and locally impart a yellow green hue to the core.										
				One 1 mm quartz carbonate veinlet was noted parallel to the C.A. This was barren.										
				The unit is competent and core recovery is good. Open fractures are commonly phyllitic.										
				No mineralization was noted.										
				73.47-73.53 - milky white q.v. parallel foliation; no mineralization; contact dipping at 70°.										
78.03	78.23			Gradational Contact. A gradual change from beige to green is evident. Grain size is a bit coarser but is still predominantly f.g. Foliation decreases and is almost absent.										
				Total py is 1% occurring as f.g. disseminations c/o, as thin stringers and as 0.5 mm pods cross cutting foliation.										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-4

SHEET NUMBER 14 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SUB/DOES	INTERVAL (METRES) FROM	TO	WIDTH	RCVRY				
				Aspy occurs in trace amounts paralleling foliation. Minor oxidation was noted.										
78.23	84.98			Andesite Tuff, 2A. The andesite tuff is light hunter green and chloritization is pervasive t/o. The unit is weakly carbonated. Occasional minute bands of sericitized matrix parallel foliation. Infrequent zones of intense sericitization up to 6 cm in width are apparent. Most of the unit has multiple flecks of sericite (0.25 mm) which are yellowish brown and are white on the fresh surface. These are parallel to foliation but appear to be late stage.  The unit is fine to medium grained and moderately hard.  Foliation is absent to weakly developed at 35° to the C.A.  Infrequent 3 cm quartz bands paralleling foliation often carry chloritized matrix fragments.  Occasional zones of intense sericitization above										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 083-4

SHEET NUMBER 15 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SUBSIDES	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				described, often carry reddish quartz bands.								
				This unit is competent and core recovery is good.								
				No mineralization whatsoever was observed.								
84.98	85.02			Quartz Vein, 8. This milky white q.v. has a sharp upper contact at 50° and is unmineralized. The lower contact is sharp and at 50°.								
85.02	86.29			Rhyolite Tuff, 4A. The rhyolite tuff is light beige-grey. The entire unit is moderately to strongly sericitized. The tuff is weakly carbonated.								
				Texture is f.g. and the tuff is moderately hard.								
				Foliation is well developed at 20° to the C.A.								
				Quartz bands up to 4 cm in width and paralleling foliation, commonly carry pink dolomite patches and some chloritized matrix fragments.								
				Multiple quartz carbonate bands, 1-2 mm in width and								

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

 HOLE NUMBER: DDH 883-4

 SHEET NUMBER 16 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS												
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)														
							FROM	TO	WIDTH	RCVRY											
																					paralleling foliation are present.
																					Infrequent quartz carbonate veinlets at a l/a to the C.A. were noted.
																					Py is the only visible mineralization and occurs in trace amounts as f.g. disseminations.
86.29																					Sharp Contact. A sharp unmineralized contact at 60° is observable.
86.29	86.97																				Graphic Siltstone, 5D. This unit is as previously described (50.60-72.15).  Bedding is at 85° to C.A.  Py is 3-4%. Aspy occurs in trace amounts.
86.97	87.17																				Gradational Contact. No associated mineralization is observable.
87.17	88.75																				Rhyolite Tuff, 4AC. This unit is as previously described in section (85.02-86.29).



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-4

SHEET NUMBER 17 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RCVRY				
				Foliation is at 60° to the C.A.									
				Py occurs in trace amounts as disseminations.									
88.75	89.13			Gradational Contact. No associated mineralization is observable.									
89.13	91.00			Impure Limestone, SB. The limestone is predominantly dark grey. Bands up to 2 cm of grey black colour and similar to 5D are evident. The unit is locally graphitic.									
				Bedding is well developed at 70° to the C.A.									
				Texture is medium grained and the unit is moderately hard.									
				Banded sandstone? is interbedded with the limestone. The sandstone is extremely carbonate rich.									
				Both core recovery and competence are excellent.									
				Py is pervasive in the limestone (5-7%) but does not									

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-4

SHEET NUMBER 18 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SUBS	INTERVAL (METRES) FROM TO	WIDTH	RCVRY				
				extend into the sandstone. It is present as multiple 1 mm cubes cross cutting foliation and as f.g. disseminations t/o the matrix.									
				90.00-91.00 - coarse grained crystalline carbonate rich sandstone?; banded appearance due to various colour shades; bands vary from 1-5 cm thick and may be pink, pale green or grey.									
91.00				Sharp Contact. A sharp unmineralized contact at 60° to the C.A. is present.									
91.00	103.84			Andesite Tuff/Tuffite, Minor Dacite Tuffite. All containing Limy Belts and Bands, 7B. Colour is variable from grey to grey green to pale green. Composition is predominantly andesitic. Chloritization is pervasive t/o the unit. Tuffite sections are v.f.g. pale green and very dull in lustre.  Texture is fine grained.  Hardness is moderate.  The unit is well foliation at 60° and locally is									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDU 883-6

SHEET NUMBER 19 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS						
FROM	TO	WIDTH	RCVRY		NUMBER	SUBS	FROM	TO	WIDTH	RCVRY					
				intensely deformed.											
				The unit appears stripped due to carbonate (limy) bands 1 mm - 2 cm in size and forming 60° of the unit. Smaller carbonate bands are whitish while the larger bands tend to be more coarsely crystalline and pinkish in colour. These bands parallel foliation.											
				The unit is competent and core recovery is good.											
				Py is the only visible mineralization and occurs in trace amounts as f.g. disseminations t/o the unit.											
				102.79 - 12 cm quartz carbonate infilling parallel to foliation; barren; sericitized at edges; carbonate is crystalline, pink and effervesces strongly.											
103.84				Sharp Contact. A sharp unmineralized contact at 55° to the C.A. is present. A sudden disappearance of the limy bands is evident. No associated mineralization was noted.											
103.84	110.44			Andesite Tuff, 2A. This unit is green grey. Compo-											

# DRILL HOLE RECORD

## DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DPH 883-4

SHEET NUMBER 20 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	# SPTS/FOES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRY									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-4

SHEET NUMBER 21 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	REVRT		NUMBER	SULPHIDES	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				Total py is 27. Occurrence is noted as f.g. linings on the selvages of quartz bands. Low angle quartz carbonate veinlets are partially and sometimes completely infilled with py.								
				108.10-108.48 - quartz flooded and intensely deformed zone; strongly phyllitic; trace disseminated py noted; multiple intensely chloritized matrix fragments noted within the quartz.								
110.44	110.74			Gradational Contact. A gradual change from grey green to beige is evident. Grain size becomes finer. No associated mineralization is present.								
110.74	116.54			Rhyolite Tuff, 4A. The colour of this unit is predominantly beige. Some sections are green due to chloritization while others have a light purple hue to them most probably due to Fe content. The unit is non carbonate. Minute sericitized bands parallel foliation.  The tuff is moderately hard.  Foliation is absent to well developed at 45° to the C.A.								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 22 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)					
							FROM	TO	WIDTH	RCVRY		
				Infrequent, up to 3 cm quartz bands, parallel foliation. These commonly have carbonate associated with them as creamy white and pink patches.								
				Occasional randomly orientated microfractures are evident. These are carbonate infilled and truncate quartz bands.								
				The unit is competent and core recovery is good. No oxidation is present.								
				Py is the only sulphide and occurs as f.g. disseminations at the periphery of quartz bands and along microfractures. Total py is tr-1/2%.								
116.50	116.83			Gradational Contact. Colour changes from beige to grey green to pale green.								
				Multiple randomly orientated microfractures which are carbonate infilled carry f.g. py and aspy.								
				A quartz carbonate band was noted adjacent to the lower contact. The carbonate within is flesh								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 23 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES) FROM TO	WIDTH	RCVRY				
				coloured dolomite. The band also carries strongly chloritized matrix fragments. Py and aspy occur with the quartz carbonate as disseminations and f.g. pods.									
				Total py is 3-4% and aspy is 2-3%.									
116.83	132.67			Andesite Tuff/Tuffite, Minor Dacite, Tuffite, All Containing Limy Belts and Bands, 7B. This unit is grey to grey green. Occasional microbands of sericitized material parallel foliation. Locally chloritization is evident. The matrix itself is non carbonated. The tuffite is v.f.g., pale green and has a dull lustre.									
				Texture is f.g. The unit is hard.									
				Foliation is moderately developed at 85° to the C.A.									
				Multiple hard crystalline carbonate bands locally comprising 5-50% of the unit, impart a stripped appearance to the core. These vary in width from 1 mm - 3 cm.									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDR B83-4

SHEET NUMBER 24 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SUBS	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				Occasional quartz bands 2-11 cm in width parallel foliation and commonly carry small patches of carbonate in addition to strongly chloritized matrix fragments.								
				Quartz flooded zones carrying 1/8 quartz carbonate veinlets were noted and are described in detail below								
				Randomly orientated carbonate infilled fractures are also present.								
				The core is competent and core recovery is good. No oxidation is evident.								
				Py. (3-4%) occurs as f.g. disseminations t/o the matrix, as f.g. 1 mm pods within the quartz flooded zones and as f.g. infillings on quartz carbonate veinlets. It is also noted along carbonate infilled microfractures.								
				Aspy. (2-3%) is present as f.g. 1 mm pods within the quartz flooded zones and along the selvages of the zones. It also occurs as f.g. linings along quartz								





# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-4

SHEET NUMBER 26 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS						
FROM	TO	WIDTH	RECRY		NUMBER	% SULPHIDES	INTERVAL (METRES)		WIDTH	RECRY					
						FROM	TO								
				is pervasive t/o the dacite. Locally 1-3 cm bands of sericitized material are present. Elongate chloritized amphiboles form 15% of the unit. These grains are generally 5 mm in length and glassy green in colour.											
				The matrix is f.g. and moderately hard.											
				No foliation is developed but the above described phenocrysts are aligned at 50° to the C.A.											
				One minor section of carbonate flooding was noted. Infrequent quartz zones parallel foliation. These may be up to 5 cm in width and commonly carry small carbonate patches. Selvages may be sericitized.											
				Occasional quartz carbonate veinlets 1 mm in width are perpendicular to grain alignment. 2 mm quartz carbonate bands <sup>were</sup> noted to parallel grain alignment in a few instances. These are cross cut by the veinlets perpendicular to alignment.											
				Microfractures paralleling the C.A. and infilled with											



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDII 883-4

SHEET NUMBER 28 of 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRY									
				147.21-148.37															
				locally unit becomes coarse grained; carbonate flooding in the form of coarse grained patches forms 50% of the section; tr disseminated cpy, py and specular hematite noted.															
				148.27															
				bands of chloritized matrix with multiple dull grey cubes - minute to 2 mm in size and anhedral to cubedral in shape; these are hard with a brown grey streak; some tetrahedrons are visible - this may be sp? or tetrahedrite.															
167.94	F.O.H.																		

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

CONTRACTOR: D.W. Coates  
 DRILL TYPE: S-38 LENGTH: 112.17m  
 CLAIM: BILL CLAIMS DIP: -45°  
 LATITUDE: 299S ELEVATION: 1,910m  
 LONGITUDE: 300W AZIMUTH: 0°N  
 HOLE STARTED: 1983 July 26 HOLE COMPLETED: 1983 July 27

ACID B/OR TRO - PARI TESTS					
DEPTH	DIP	AZIMUTH	DEPTH	DIP	AZIMUTH
SPERRY	SUN	TESTS			
56.00m	54°	9°			
110.95m	58.5°	11°			

HOLE NUMBER: DDH 883-5  
 SHEET 1 OF: 28  
 PROPERTY: BILL  
 ACCOUNT No.: 361-00-500  
 CORE SIZE: NQ  
 % CORE RECOVERY: 99%  
 LOGGED BY: J. Forbes

INTERVAL (METRES)				DESCRIPTION	NUMBER	% SWELDES	SAMPLE				ASSAYS		
FROM	TO	WIDTH	RCVRY				FROM	TO	ROD	RCVRY	OZ/LON Au	As %	gms/tonne Au
0.00	3.35			Overburden.	4845E		3.35	6.0	30	88%	0.004	0.01	0.137
					4846		6.0	8.0	55	98%	0.004	<0.01	0.137
3.35	8.89			Interbedded Andesite Tuff & Andesite Crystal Tuff, 2A/2AX. This unit is grey green, andesitic and chloritized t/o. The andesite tuff is f.g. and foliation is moderately to well developed at 35° to the C.A. The andesite crystal tuff is coarse grained and foliation is absent to moderately developed at 45° to the C.A. Locally silicification if evident. Minor quartz flooding is present.	4847		8.0	10.0	77	99%	0.004	0.20	0.137
					4848		10.0	12.0	71	98%	0.006	0.11	0.206
					4849		12.0	14.0	53	100%	0.004	0.08	0.137
					4850		14.0	16.0	50	100%	0.006	0.60	0.206
					4851		16.0	18.0	30	99%	0.004	0.61	0.137
					4852		18.0	20.0	78	98%	0.004	<0.01	0.137
					4853		20.0	22.0	53	97%	0.004	<0.01	0.137
					4854		22.0	24.0	60	100%	0.004	<0.01	0.137
					4855		24.0	26.0	94	99%	0.004	<0.01	0.137
				Occasional quartz bands parallel to foliation and up to 5 cm in width are present. Infrequent 1-3 mm quartz bands occur at a low angle to the C.A.	4856		26.0	28.0	34	100%	0.004	<0.01	0.137
					4857		28.0	30.0	18	86%	0.003	<0.01	0.103
					4858		30.0	32.0	16	98%	0.003	<0.01	0.103
					4859		32.0	34.0	25	98%	0.003	<0.01	0.103
				Minor 1/4 quartz carbonate veinlets are observable.	4860		34.0	36.0	63	100%	0.003	<0.01	0.103

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-5

SHEET NUMBER 2 of 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRT		NUMBER	SULPHIDES	INTERVAL (METRES)		oz./ton Au	As %	gm/tonne Au		
							FROM	TO				RQD	RCVRT
				Minute bands of pink dolomite run at 45° to the C.A.	4861E		36.0	38.0	64	100%	0.004	<0.01	0.137
					4862		38.0	40.0	16	95%	0.003	<0.01	0.103
				Multiple minute carbonate bands parallel and at a	4863		40.0	42.0	62	100%	0.003	<0.01	0.103
				low angle to the C.A. cross cut foliation.	4864		42.0	44.0	36	100%	0.009	<0.01	0.309
					4865		44.0	46.0	0	100%	0.009	<0.01	0.309
				The unit is competent and core recovery is moderate.	4866		46.0	48.0	0	100%	0.006	<0.01	0.206
				Oxidation along open fractures is common.	4867		48.0	50.0	0	98%	0.009	<0.01	0.309
					4868		50.0	52.0	50	100%	0.009	<0.01	0.309
				Trace disseminated py is present t/o and commonly	4869		52.0	54.0	94	100%	0.006	<0.01	0.206
				parallels foliation.	4870		54.0	56.0	39	97.5%	0.006	<0.01	0.206
					4871		56.0	58.0	36	100%	0.004	<0.01	0.137
				Py and aspy occur as f.g. stringers and 0.5 mm pods.	4872		58.0	60.0	68	100%	0.026	0.29	0.891
				lining quartz carbonate veinlets.	4873		60.0	62.0	87	100%	0.009	0.52	0.309
					4874		62.0	64.0	98	99%	0.004	0.01	0.137
				Trace cpy was noted within a silicified zone of 2AX.	4875		64.0	66.0	50	99%	0.004	<0.01	0.137
					4876		66.0	68.0	50	100%	0.004	0.28	0.137
				Total py is 1-2%. Aspy is present at tr-1/2%.	4877		68.0	70.0	87	100%	0.003	0.28	0.103
				Cpy is evident in trace amounts only.	4878		70.0	72.0	92	100%	0.003	0.24	0.103
				8.27-8.36 - silicified 2AX; carries multiple quartz	4879		72.0	74.0	87	100%	0.003	0.05	0.103
				carbonate veinlets 1 mm - 1 cm in width	4880		74.0	76.0	94	100%	0.003	0.01	0.103
				which runs at 45° to C.A. and carries py and aspy pods;	4881		76.0	78.0	61	99%	0.004	0.02	0.137
				locally aspy is 1/2% and py 1%, trace cpy noted.	4882		78.0	80.0	67	100%	0.003	0.02	0.103
					4883		80.0	82.0	87	100%	0.003	<0.01	0.103

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-5

SHEET NUMBER 3 of 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)		RCVRY	oz/ton	As %	gm/tonne	
							FROM	TO		RD	Au	Au	Au
3.89	8.98			Gradational Contact. Colour changes to a paler green and composition becomes dacitic. Foliation is weakly developed at 50° to C.A. One quartz carbonate veinlet infilled with f.g. aspy is present. Py is disseminated. Total aspy is 1% and total py is 1/2%.	4884E		82.0	84.0	90	99%	0.003	<0.01	0.103
					4885		84.0	86.0	84	100%	0.003	<0.01	0.103
					4886		86.0	88.0	50	100%	0.003	0.18	0.103
					4887		88.0	90.0	43	99%	0.004	0.10	0.137
					4888		90.0	92.0	50	100%	0.004	<0.01	0.137
					4889		92.0	94.0	60	100%	0.004	0.32	0.137
					4890		94.0	96.0	82	100%	0.003	0.07	0.103
8.98	13.72			Dacite Tuff/Dacite Crvstal Tuff, 3A; 3BQ. This unit is light grey green. Composition is dacitic and chloritization is present t/o. Both types of tuff are weakly carbonate rich.	4891		96.0	98.0	84	100%	0.003	0.20	0.103
					4892		98.0	100.0	86	100%	0.003	0.04	0.103
					4893		100.0	102.0	91	100%	0.004	0.07	0.137
					4894		102.0	104.0	94	100%	0.004	0.27	0.137
					4895		104.0	106.0	95	100%	0.006	<0.01	0.206
				Texture varies from fine to coarse grained. In the coarse grained sections (3BQ) texture is well preserved and grain size is 1 mm. Visible grains are quartz and feldspar and are commonly oxidized to a reddish colour.	4896		106.0	108.0	85	100%	0.003	<0.01	0.103
					4897		108.0	110.0	43	98%	0.004	<0.01	0.137
					4898		110.0	112.17	76	100%	0.004	<0.01	0.137
							E.O.H.						
				The entire unit contains a f.g. honey brown platy mineral running parallel to foliation. This is probably sericite.									
				Foliation is moderately developed in coarse grained									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B81-5

SHEET NUMBER 4 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	OF SPLICES	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				sections and well developed in f.g. portions of the unit. Foliation is 80° to the C.A.								
				The unit is moderately hard.								
				Occasional quartz carbonate veinlets paralleling foliation are present. These are cross cut by multiple minute to 2 mm quartz carbonate infilled fractures running at 20-30° to the C.A. Two episodes of these low angle veinlets are observable. Infrequent late stage carbonate infilled randomly orientated microfractures cross cut both of the above.								
				Core recovery is good. The unit is broken and oxidation along open fractures is common.								
				Py is disseminated t/o the matrix ( 1/2X) and also occurs as f.g. pods up to 2 mm in size within the matrix. Occasional quartz carbonate veinlets paralleling foliation contain 1 mm f.g. py pods.								
				Both py and aspy are associated with quartz carbon-								



# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-5

SHEET NUMBER 5 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	SUL	DOES	INTERVAL (METRES)											
								FROM	TO	WIDTH	RCVRY								
				ate veinlets which are orientated at 20-30° to C.A. Py is observable as isolated pods up to 1 mm wide and along the selvage. Aspy is f.g. and associated with py along the selvage.															
				Random microfractures carry both py and aspy as f.g. pods which truncate the microfractures and extend into the matrix.															
				Total aspy is 1-2%. Py comprises 2-3% of the unit. 9.08-9.37 - creamy white quartz carbonate vein, non crystalline; 1.5 cm wide; carries f.g. aspy and py within the vein and along the selvage; the selvage is oxidized in places; immediately adjacent in the matrix are 1 mm f.g. py pods.															
13.72	14.24			Gradational Contact. A gradual colour change from pale grey green to light grey beige is observable.															
				Texture is f.g. and foliation is moderately devel- oped at 90° to C.A.															
				Quartz carbonate bands parallel to the C.A. and															

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-5

SHEET NUMBER 6 of 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				approximately 3 cm wide are well mineralized carrying aspy as f.g. pods. Locally aspy is 3%. Multiple minute py pods are present in the matrix adjacent to the quartz carbonate bands.								
				Randomly orientated carbonate microfractures carry traces of py, aspy and cpy.								
				The matrix carries f.g. disseminated py and aspy.								
				Oxidation along open fractures is common.								
14.24	18.00			Rhyolite Tuff, 4A. The rhyolite is light grey beige. Texture is f.g. and the unit is hard.								
				Carbonation is weak. Multiple microbands paralleling foliation have been sericitized.								
				Foliation is moderately developed at 85° to the C.A.								
				Occasional quartz flooding both parallel and sub-parallel to foliation is evident.								



# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-5

SHEET NUMBER 8 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)														
							FROM	TO	WIDTH	RCVRY											
																					often extending into the matrix. Trace cpy is associated with the pyrite in this mode.
																					Total aspy for the unit is 2-3%. Py comprises 3-4% of the unit and cpy was noted in trace amounts.
																					16.76-17.08 - quartz flooded silicified zone; occurs parallel to sub parallel to foliation; within quartz flooding sericitized bands of matrix present; quartz flooding is truncated by later stage pinkish carbonate veinlet at a l/a to the C.A.; py and aspy are present as pods and cubes up to 1 mm in size in the quartz flooded area; f.g. aspy lines the selvage of the pink carbonate veinlets.
																					17.08-17.48 - silicified zones slightly brecciated; minor quartz flooding; entire section including foliation is truncated by two episodes of quartz/carbonate veining 2-3 mm in width; neither episode is mineralized in this section; within the brecciated zone massive f.g. aspy locally comprises 10% of the unit; late stage aspy and py truncate the quartz carbonate veinlets.

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-5

SHEET NUMBER 9 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)					
							FROM	TO				
18.00	18.56			Gradational Contact. This section is hard, competent and non oxidized. Weak carbonation is present.								
				Colour changes from beige to pale green. Foliation is moderate at 70° to the C.A. Texture becomes coarser grained up to 1 mm.								
				The matrix carries trace disseminated py. Minute carbonate infilled fractures are barren.								
18.56	19.75			Andesite Crystal Tuff, 2AXC. The unit is grey green and chloritized. Composition is andesitic.								
				Texture is coarse grained (1 mm). Visible grains are feldspar and quartz in approximately equal amounts. Both feldspar and quartz are oxidized to a reddish colour.								
				Foliation is moderately developed at 60° to the C.A.								
				Minute flecks of honey brown sericite parallel foliation and are pervasive t/o.								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER DDH 883-5

SHEET NUMBER 10 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SUL	INTERVAL (METRES)						
							FROM	TO					WIDTH
				Occasional quartz/carbonate veinlets are present along low angle fractures.									
				The unit is moderately competent and core recovery is good.									
				Py is present in trace amounts and occurs as 0.5 mm pods in the quartz carbonate veinlets.									
19.75	20.00			Contact. This section is extremely broken and the contact is obscured.									
20.00	28.28			Andesite Tuff, 2A. This unit is grey green to dark grey green. Composition is andesitic and the tuff is chloritized t/o. Locally weak carbonation is present.									
				Texture is fine to medium grained and the unit is hard.									
				Foliation is moderately developed at 65° to the C.A.									
				Occasional hematitic bands parallel foliation.									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-5

SHEET NUMBER 11 of 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS						
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)								
							FROM	TO	WIDTH	RCVRY					
				Minute flecks of honey brown sericite parallel foliation.											
				Multiple zones of quartz carbonate flooding comprise 10-15% of the unit. The zones are parallel to sub parallel to foliation. Locally up to 50% of the flooded section is composed of intensely chloritized matrix fragments varying by 2-20 cm in length. Commonly the matrix is sericitized adjacent to the flooded areas. Pink dolomite occurs within the flooded zones as 5 mm patches. These zones are barren.											
				Infrequent crystalline quartz carbonate veinlets parallel the C.A. and truncate quartz/carbonate flooded zones.											
				Minor randomly orientated carbonate infilled micro-fractures cross cut both quartz carbonate flooding and quartz/carbonate veinlets.											
				The unit is moderately competent and core recovery is good.											

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-5

SHEET NUMBER 12 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS									
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)											
							FROM	TO	WIDTH					RCVRY				
				Py and aspy are both present in trace amounts. Py occurs as cubes in quartz carbonate veinlets. Aspy occurs as f.g. linings along quartz carbonate veinlets.														
28.28	28.38			Gradational Contact. A decrease and disappearance of foliation is evident. When present it is at 60° to C.A.														
				Oxidation along open fractures is common.														
				No visible mineralization was noted.														
28.38	42.43			Dacite Tuff, JE. This unit is light grey green. Composition is dacitic locally varying to andesitic and chloritization is prevalent t/o.														
				Weak carbonation of the dacite is present.														
				Phenocrysts (fragments ?) comprise 10% of the unit and are elongate chloritized amphiboles? ranging from 1 mm - 1 cm in length.														



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-5

SHEET NUMBER 13 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS												
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)														
							FROM	TO	WIDTH	RCVRY											
																					No foliation is developed but phenocrysts are aligned at 70° to C.A.
																					Two phases of quartz carbonate veinlets, both orientated at a low angle to the C.A., are evident. These are commonly intensely chloritized along their selvages. Width varies up to 1 cm. Typically these veinlets are barren.
																					Occasional creamy white carbonate veinlets perpendicular to the C.A. are noted. These are typically oxidized along the selvage.
																					Multiple randomly orientated carbonate infilled microfractures truncate both of the above veinlet types. Specular hematite was noted to line these microfractures in a few cases.
																					The unit is broken and intense oxidation along open fractures is common.

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-5

SHEET NUMBER 14 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RECRY		NUMBER	SULFIDES	INTERVAL (METRES)		WIDTH	RECRY		
						FROM	TO					
				Trace disseminated py and aspy in the matrix are the only visible mineralization.								
				36.53-37.05 - well developed stockwork of micro-fractures paralleling the C.A.; carbonate infilled and strongly chloritized along the selvage; no associated mineralization was noted.								
				37.05-37.70 - locally unit is andesitic in composition.								
				38.41-38.77 } intensely broken and oxidized to a 39.77-40.36 } blood red or bright orange colour.								
42.43	43.00			Gradational Contact. This appears to be a contact grading into a rhyolite tuff. Composition becomes more felsic. Oxidation is intense due to the underlying fault zone. Minute pods of py are present. These pods are oxidized at the periphery.								
43.00	50.16			Fault Zone, 4A7. This section is intensely oxidized and gouged core. Colour is rusty orange to bright red and core is very friable.								

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-5

SHEET NUMBER 15 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRT		NUMBER	SULPHIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRT									
50.16	51.17																		

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-5

SHEET NUMBER 16 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SUB	PROCES	INTERVAL (METRES)				
							FROM	TO	WIDTH	RCVRY		
				common. Oxidation occasionally imparts an orangish tinge to the core.								
				The unit is f.g. and hard.								
				Foliation is weakly developed at 45° to the C.A.								
				Occasional quartz bands approximately 2 cm wide occur at a low angle to the C.A.								
				Multiple 4 mm - 2 cm randomly orientated carbonate stringers are present.								
				Multiple randomly orientated carbonate infilled microfractures cross cut the above mentioned stringers.								
				Core is broken but core recovery is good. Oxidation along open fractures is common.								
				Py occurs in trace amounts lining quartz carbonate stringers.								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER DDH 883-5

SHEET NUMBER 17 of 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SUBS	FROM	TO	WIDTH	RCVRY				
51.37				<p>Contact. This contact is sharp and at 50° to C.A. All oxidation prevalent in the overlying unit has disappeared in the vicinity of the contact.</p> <p>F.g. py and aspy line the contact. Here py is 1X locally and aspy 2X.</p>										
51.37	59.38			<p>Interbedded Andesite, Dacite and Rhyolite Tuff, 2A/3A/4A. Colour varies from beige to dark grey green. Composition varies from rhyolitic to andesitic. Chloritization is more common in the andesitic and dacitic sections.</p> <p>All units are f.g., moderately hard and non carbonate. Foliation is poorly developed at 85° to C.A.</p> <p>Multiple quartz bands varying from 0.5-9 cm in width parallel foliation. These form 10% of the unit. Commonly the matrix is sericitized and oxidized adjacent to the quartz bands. The bands often contain chloritized matrix patches. The andesitic portion of the unit carry most of the quartz bands. These bands are all barren.</p>										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-5

SHEET NUMBER 18 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	FROM	TO	WIDTH	RCVRY				
				Occasional 1 cm quartz carbonate bands were also noted to parallel foliation.										
				1 mm quartz carbonate veinlets parallel or run at a low angle to the C.A. These cross cut both the quartz and quartz carbonate bands commonly the veinlets are reddish from oxidation. Randomly orientated carbonate infilled microfractures cross cut all of the above bands and veinlets.										
				The unit is fairly broken but core recovery is good. Locally core is oxidized especially in the rhyolite sections. Oxidation along open fractures is common t/o.										
				Total mineralization is trace aspy and trace-1/2% py										
				Rhyolitic sections are mineralized the best. These carry f.g. py paralleling foliation as well as dis-										
				minated by pods 1 mm in size.										
				F.g. 1 mm py pods lining quartz carbonate veinlets are common in andesitic portions.										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-5

SHEET NUMBER 19 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRY									
59.38																			
59.38	60.00																		

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-5

SHEET NUMBER 20 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RCVRY				
				Total mineralization is 1/2% aspy and 1/2% py.									
60.00				Sharp Contact. A sharp contact orientated at 45° to the C.A. is present. The contact is oxidized. Disseminated aspy and py parallel the contact.									
60.00	60.36			Dacite Crystal Tuff, JBQ. This unit is light grey green and chloritized. Texture is coarse grained and the unit is hard. Foliation is absent.  Locally the core is oxidized to a rusty orange colour in zones parallel to low angle quartz carbonate veinlets.  The unit is moderately competent and core recovery is good.  F.g. py and sphalerite occur in trace amounts associated with low angle quartz carbonate veinlets.									
60.36				Sharp Contact. A sharp contact with the underlying BA is orientated at 45° to the C.A. No mineralization is associated with the contact.									



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-5

SHEET NUMBER 21 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH					RCVRY					
60.36	60.82			Quartz Vein, 8A. The quartz vein is creamy white. Locally the core has a greyish hue to it.															
				Small zones of microbrecciation are present. Occasional thin bands of sericitized matrix are located within the quartz vein. These bands have f.g. aspy along the selvage. Minute carbonate patches are present within the quartz vein.															
				Multiple episodes of fracturing have occurred on a fine scale.															
				Aspy is present as 10% of the unit. Mode of occurrence is variable. Stringers of aspy 1mm wide are randomly orientated. Pods of aspy up to 4 x 4 mm are present. Occasionally aspy is present in the euhedral form. minute patches of carbonate often have f.g. aspy at their periphery.															
				No py is present.															
60.82				Sharp Contact. This contact is sharp and at 90° to the C.A. It is lined by sericitized portions of															

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-5

SHEET NUMBER 22 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)							
							FROM	TO	WIDTH	RCVRY				
				the underlying unit. The underlying andesitic tuff also is intensely chloritized adjacent to the contact. F.g. py lines the contact.										
60.82	112.17			Andesite Tuff, 2A. The andesite tuff is light grey green to grey green in colour. Composition is predominantly andesitic but locally may vary to dacitic or rhyolitic. Chloritization imparts a greenish hue to the core t/o the unit. The tuff is weakly carbonated. Microbands of sericitized matrix are common and parallel foliation. Locally minute flecks of honey brown sericite parallel foliation.										
				Texture is f.g. and the unit is moderately hard.										
				Foliation is absent to well developed and varies between 60° and 90° to the C.A.										
				Quartz flooded zones in the form of quartz bands parallel to foliation, range from 0.5-8 cm in width and compose 3% of the unit. Commonly these bands have sericitized matrix adjacent to them and chloritized matrix fragments within them. Occasional										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-5

SHEET NUMBER 23 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS											
FROM	TO	WIDTH	RCVRT		NUMBER	SULFIDES	INTERVAL (METRES)													
							FROM	TO	WIDTH	RCVRT										
				quartz bands carry cream coloured carbonate patches up to 2 cm in length.																
				1 cm crystalline carbonate zones parallel foliation and comprise 1% of the unit. These may take on a pinkish hue.																
				Two generations of quartz carbonate veinlets orientated parallel to or at a low angle to the C.A. are present. These truncate both quartz bands and quartz carbonate zones. The veinlets are coarsely crystalline, up to 3 cm in width and comprise 2% of the unit.																
				Randomly orientated carbonate infilled microfractures cross cut all of the above and comprise 1% of the unit.																
				The unit is fairly broken but core recovery is very good. Oxidation along open fractures is common.																
				Mineralization for the unit is py 5%, aspy 1/2-1% and trace cpy. Specular hematite appears at 101.03																

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-5

SHEET NUMBER 24 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS						
FROM	TO	WIDTH	RCVRY		NUMBER	SIZES	INTERVAL (METRES)								
							FROM	TO	WIDTH					RCVRY	
				and is 2% from this point until E.O.H.											
				F.g. disseminated py is present t/o the matrix. Py also occurs in the matrix as isolated 1 mm cubes.											
				Quartz flooded zones in the form of quartz bands carry f.g. py along their selvages. Trace py, some in euhedral form are located within the quartz and are associated with the chloritized matrix fragments. F.g. aspy and cpy are also found within chloritized matrix fragments. Cream coloured carbonate patches carry aspy and py as pods up to 3 mm in size.											
				F.g. py occurs within the coarsely crystalline carbonate which parallels foliation.											
				Py, aspy and cpy are associated with the quartz carbonate veinlets. Both py and aspy occur as f.g. linings and pods along the selvages of the veinlets. Very occasionally the veinlets are well mineralized with aspy in pods and stringers up to 4 cm in length. Some of the aspy is striated and euhedral in form.											

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-5

SHEET NUMBER 25 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				Random microfractures are not mineralized.								
				61.29-61.59 - quartz flooded rhyolite zone well mineralized with py and aspy; mineralization is associated with chloritized matrix fragments or carbonate patches within the quartz flooding; py may occur as striated cubes; py and aspy are present as isolated pods within the zones and as stringers paralleling foliation; total aspy is 5% and total py is 5%.								
				66.60-67.06 - extremely crystalline quartz carbonate bands at a low angle to the C.A.; well mineralized with py and aspy both f.g. and occurring along the selvage; aspy is disseminated t/o; py occurs within the quartz carbonate as isolated cubes; total aspy 7-10% and py 7-10%.								
				70.80-71.80 - rhyolitic section which is light grey and f.g.; infills between two 45° quartz carbonate fracture infillings; rhyolite is well mineralized with multiple 1-3 mm py and aspy pods and striated cubes creating a speckled appearance and carries 2 mm - 2 cm long stringers as well;								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-5

SHEET NUMBER 26 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				total py locally is 5-7%; total aspy is 5-7%.								
72.40	72.60			Quartz Vein, 8B. This minor q.v. interrupts the andesite tuff. The upper contact is sharp and at 90° the C.A. (in parallel to foliation).								
				Quartz carbonate veinlets in this quartz vein carrying f.g. py and aspy, parallel the C.A. In frequent matrix fragments which are intensely chloritized and located within the q.v. have py associated on their periphery. 1-2% py is present as stringers adjacent to both the upper and lower contacts.								
				2A continued.								
				72.70-72.79 - quartz flooded zone truncated by two episodes of quartz carbonate veining; quartz carbonate is coarsely crystalline and well mineralized; aspy is found within the quartz carbonate as f.g. pods and cubes; py occurs as pods when the quartz carbonate and within chloritized matrix fragments; locally aspy is 7% and py is 5%.								
				86.20-86.78 - locally composition becomes dacitic.								

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-5

SHEET NUMBER 27 OF 28

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)						
							FROM	TO	WIDTH	RCVRY			
				89.00-89.58 - interbedded rhyolite and andesite; 1-3 cm quartz bands predominantly within the rhyolite are well mineralized; total py is 4% and aspy 1-2%; py occurs as flecks, pods and cubes; f.g. aspy lines quartz carbonate veinlets which truncate the rhyolite.									
				92.41-93.27 - zone of broken core with intense oxid- ation along open fractures.									
				102.36 - 4 x 4 cm quartz carbonate patch with assoc- iated f.g. and euhedral aspy, f.g. and euhedral py as well as trace cpy; locally aspy is 5%, py 4%.									
				103.03 - marks the appearance of specular hematite and hematite lining random microfractures and quartz carbonate veinlets.									
				103.03-103.33 - zone of increased carbonate parallel to bedding; carbonate occurs in 1-2 mm elongated patches and imparts a speckled appearance to the core; py is present as isolated euhedral cubes; hematite is found within carbonate									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B81-5

SHEET NUMBER 28 of 29

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS									
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)											
							FROM	TO	WIDTH	RCVRY								
112.17	E.O.H.																	



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

CONTRACTOR: D.W. Cortes  
 DRILL TYPE: S-38 LENGTH: 296.88m  
 CLAIM: BILL DIP: -45°  
 LATITUDE: 400S ELEVATION: 1,885m  
 LONGITUDE: 450W AZIMUTH: 90°  
 HOLE STARTED: 1983 July 28 HOLE COMPLETED: 1983 August 1

ACID B/OR TRO-PARI TESTS					
DEPTH	DIP	AZIMUTH	DEPTH	DIP	AZIMUTH
SPERR	SUN	EST	296.32m	68°	66°
70.71m	50°	87°			
146.92	52°	84°			
223.12	56°	79°			

HOLE NUMBER: DDH B83-6  
 SHEET 1 OF: 47  
 PROPERTY: BILL  
 ACCOUNT No.: 361-00-500  
 CORE SIZE: NQ  
 % CORE RECOVERY: 94%  
 LOGGED BY: J. Foches

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS		
FROM	TO	WIDTH	RECVT		NUMBER	% SUCCEDES	INTERVAL (METRES)	ROD	RECVT	gZ/ton Au	As %	gM/ton Au	
0.00	3.96			4899E		3.96	6.40	35.5	62%	<0.001	0.01	<0.034	
				4900		6.40	8.23	0	84%	<0.001	0.04	<0.034	
3.96	17.27			4901		8.23	9.81	22	85%	<0.001	0.05	<0.034	
				4902		9.81	13.41	21	50%	<0.001	0.03	<0.034	
				4903		13.41	15.24	46	73%	<0.001	0.01	<0.034	
				4904		15.24	17.07	37	84%	<0.001	0.02	<0.034	
				4905		17.07	18.90	52	85%	<0.001	0.01	<0.034	
				4906		18.90	20.12	25	82%	<0.001	<0.01	<0.034	
				4907		20.12	22.0	83	87%	<0.001	<0.01	<0.034	
				4908		22.0	24.0	35	90%	<0.001	<0.01	<0.034	
				4909		24.0	26.0	68	92%	<0.001	<0.01	<0.034	
				4910		26.0	28.0	78	92%	<0.001	<0.01	<0.034	
				4911		28.0	30.0	58	100%	<0.001	<0.01	<0.034	
				4912		30.0	32.0	46	94%	<0.001	<0.01	<0.034	
				4913		32.0	34.0	35	85%	<0.001	0.07	<0.034	
				4914		34.0	36.0	37	100%	<0.001	0.01	<0.034	

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 2 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)		g/t (or Au)	As %	g/t (or Au)		
							FROM	TO				g/t	RCVRY
				The entire unit is extremely broken and oxidized.	4915E		36.0	38.0	33	87%	<0.001	0.01	<0.034
				Core recovery is poor. Oxidation along open frac-	4916		38.0	40.0	87	94%	<0.001	<0.01	<0.034
				tures and in the unit itself impart a reddish hue	4917		40.0	42.0	44	98%	<0.001	0.47	<0.034
				to the core.	4918		42.0	44.0	76	99%	<0.001	<0.01	<0.034
					4919		44.0	46.0	100	100%	<0.001	<0.01	<0.034
				Mineralization consists of trace disseminated py t/o	4920		46.0	48.0	35	100%	0.006	<0.01	0.206
				the matrix.	4921		48.0	50.0	45	89%	0.006	<0.01	0.206
					4922		50.0	52.0	36	86%	0.002	0.16	0.069
				The entire unit is broken but the following gouged	4923		52.0	54.0	49	73%	0.009	0.28	0.309
				sections indicate faults; 8.00-8.23.	4924		54.0	56.0	28	77%	0.004	0.26	0.137
					4925		56.0	58.0	71	89%	0.004	0.29	0.137
17.27	17.37			Gradational Contact. Colour becomes darker. Grain	4926		58.0	60.0	55	97%	0.004	0.16	0.137
				size decreases. Foliation is at 35° to the C.A.	4927		60.0	62.0	15	73%	0.405	0.55	13.886
					4928		62.0	64.0	53	100%	<0.001	0.04	<0.034
17.37	37.69			Andesite Tuff, 2A. The andesite tuff is grey green,	4929		64.0	66.0	59	99%	<0.001	<0.01	<0.034
				andesitic and chloritized t/o. Locally the unit is	4930		66.0	68.0	72	96%	<0.001	0.03	<0.034
				phyllitic.	4931		68.0	70.0	43	92%	<0.001	0.01	<0.034
					4932		70.0	72.0	38	89%	<0.001	0.02	<0.034
				Carbonation is variable. Weakly carbonated sections	4933		72.0	74.0	82	100%	<0.001	0.02	<0.034
				are hard where as intensely carbonated sections are	4934		74.0	76.0	28	87%	<0.001	0.34	<0.034
				much softer.	4935		76.0	80.0	56	61%	<0.001	0.37	<0.034
					4936		80.0	82.0	78	93%	<0.001	0.66	<0.034
				Locally, 1-2 mm sericitized bands parallel foliation.	4937		82.0	84.0	76	100%	<0.001	0.14	<0.034

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-6

SHEET NUMBER 3 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS		
FROM	TO	WIDTH	RCVRY		NUMBER	SULFOES	INTERVAL (METRES)				GZ/CON Au	As %	G/G/CON Au
							FROM	TO	RQD	RCVRY			
					4938E		84.0	86.0	95	95%	<0.001	0.15	<0.034
					4939		86.0	88.0	71	99%	0.006	0.09	0.206
					4940		88.0	90.0	80	99%	<0.001	0.25	<0.034
					4941		90.0	92.0	97	100%	<0.001	0.28	<0.034
					4942		92.0	94.0	100	96%	<0.001	0.48	<0.034
					4943		94.0	96.0	96	96%	<0.001	0.09	<0.034
					4944		96.0	98.0	79	99%	0.014	0.11	0.480
					4945		98.0	100.0	44	98%	0.003	0.17	0.103
					4946		100.0	102.0	58	90%	0.003	0.08	0.103
					4947		102.0	104.0	72	100%	0.003	0.35	0.103
					4948		104.0	106.0	96	100%	0.014	0.81	0.480
					4949		106.0	108.0	81	100%	0.003	0.37	0.103
					4950		108.0	110.0	98	100%	0.003	0.35	0.103
					4951		110.0	112.0	86	100%	0.006	0.60	0.206
					4952		112.0	114.0	91	100%	0.004	0.16	0.137
					4953		114.0	116.0	80	100%	0.004	0.31	0.137
					4954		116.0	118.0	81	98%	0.380	0.16	13.029
					4955		118.0	120.0	76	100%	0.260	0.30	8.914
					4956		120.0	122.0	77	100%	0.029	<0.01	0.994
					4957		122.0	124.0	94	97%	0.003	<0.01	0.103
					4958		124.0	126.0	60	92%	0.055	0.11	1.886
					4959		126.0	128.0	62	100%	0.350	0.74	12.000
					4960		128.0	130.0	47	95%	0.004	1.12	0.137

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

 HOLE NUMBER: DDH 883-6

 SHEET NUMBER 4 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRT		NUMBER	DUL/TOES	INTERVAL (METRES)		gZ/CON Au	As %	gM/CON Au		
						FROM	TO	ROD	RCVRY				
				Core recovery is poor at the top but improves as one progresses through the tuff.	4961E		130.0	132.0	83	95%	<0.001	<0.01	<0.034
					4962		132.0	134.0	100	98%	<0.001	0.01	<0.034
					4963		134.0	136.0	97	99%	<0.001	0.09	<0.034
				Py occurs as 1 mm cubes in quartz flooded zones and in quartz carbonate veinlets. It is also present as f.g. disseminations and cubes in the matrix adjacent to the above. Total py is cr-1/2%.	4964		136.0	138.0	100	100%	<0.001	0.30	<0.034
					4965		138.0	140.0	84	100%	<0.001	<0.01	<0.034
					4966		140.0	142.0	94	97%	<0.001	<0.01	<0.034
					4967		142.0	144.0	88	97%	<0.001	0.01	<0.034
					4968		144.0	146.0	100	95%	<0.001	<0.01	<0.034
				Specular hematite and hematite are common as selvage linings on veinlets and microfractures. Total specular hematite is cr-1/2%.	4969		146.0	148.0	98	100%	<0.001	<0.01	<0.034
					4970		148.0	150.0	82	95%	<0.001	<0.01	<0.034
					4971		150.0	152.0	88	100%	<0.001	<0.01	<0.034
				27.76-28.10 - quartz flooded zone; quartz is creamy white and the matrix is intensely chloritized along the selvage; chloritized matrix fragments are found within the flooding; occasional patches of oxidization are present along the selvage.	4972		152.0	154.0	81	99%	<0.001	<0.01	<0.034
					4973		154.0	156.0	74	97%	<0.001	<0.01	<0.034
					4974		156.0	158.0	81	100%	<0.001	<0.01	<0.034
					4975		158.0	160.0	81	100%	<0.001	<0.01	<0.034
					4976		160.0	162.0	86	100%	<0.001	0.01	<0.034
					4977		162.0	164.0	92	95%	<0.001	<0.01	<0.034
31.58	32.92			Fault Zone. very broken, intensely oxidized gouge.	4978		164.0	166.0	85	97%	<0.001	<0.01	<0.034
					4979		166.0	168.0	87	98%	<0.001	<0.01	<0.034
32.69	40.00			Quartz Vein, 8. This quartz vein interrupts the 2A. The upper contact is in broken core while the lower contact is sharp at 50° to the C.A.	4980		168.0	170.0	80	100%	<0.001	<0.01	<0.034
					4981		170.0	172.0	92	97%	<0.001	<0.01	<0.034
					4982		172.0	174.0	69	100%	<0.001	0.17	<0.034
					4983		174.0	176.0	94	100%	<0.001	0.01	<0.034

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 5 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	ACVRY		NUMBER	SPLICES	INTERVAL (METRES)		RQD	RCVRY	g2/Lon	As %	gB/100g
							FROM	TO			Au	Au	Au
				The vein is milk white and is comprised of 15% yellowish carbonate patches. Multiple microfractures randomly orientated and carbonate infilled, truncate the carbonate patches and are often oxidized.	4984		176.0	178.0	75	100%	<0.001	0.01	<0.034
					4985		178.0	180.0	82	99%	<0.001	<0.01	<0.034
					4986		180.0	182.0	81	100%	<0.001	<0.01	<0.034
					4987		182.0	184.0	93	100%	0.011	0.50	0.377
					4988		184.0	186.0	92	100%	0.007	0.48	0.240
				No visible mineralization is evident.	4989		186.0	188.0	80	96%	0.006	0.06	0.206
					4990		188.0	190.0	85	100%	0.002	<0.01	0.069
40.00	40.76			Andesite Tuff, 2A. This is as previously described in section 17.27-39.69.	4991		190.0	192.0	95	100%	0.002	<0.01	0.069
					4992		192.0	194.0	68	99%	0.002	0.03	0.069
					4993		194.0	196.0	100	100%	0.002	0.01	0.069
40.76	41.15			Quartz Vein, 8A. The upper contact is sharp at 50°.	4994		196.0	198.0	72	100%	0.001	0.09	0.103
				The vein is milky white and carbonate patches comprise 10-15% of the unit. Locally microbrecciation has occurred. Multiple 1-2 mm fractures are infilled with aspy. Aspy is also present as 1-2 mm pods and f.g. disseminations. Total aspy is 10%.	4995		198.0	200.0	82	96%	0.003	<0.01	0.103
					4996		200.0	202.0	60	100%	0.020	0.14	0.686
					4997		202.0	204.0	85	100%	0.002	<0.01	0.069
					4998		204.0	206.0	75	98%	0.002	<0.01	0.069
					4999		206.0	208.0	80	100%	0.002	0.02	0.069
					7601		208.0	210.0	79	98%	0.073	<0.01	2.502
41.15				Sharp Contact. This contact is sharp and runs at 25° to the G.A.	7602		210.0	212.0	60	100%	0.003	0.01	0.103
					7603		212.0	214.0	86	100%	0.009	0.03	0.209
					7604		214.0	216.0	93	98%	0.003	<0.01	0.103
41.15	41.50			Andesite Tuff, 2A? This appears to be the andesite tuff as described in section 17.27-39.69. The unit is intensely oxidized.	7605		216.0	218.0	91	100%	0.014	<0.01	0.480
					7606		218.0	220.0	74	100%	0.003	<0.01	0.103
					7607		220.0	222.0	94	100%	0.003	<0.01	0.103

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER DDH 083-6

SHEET NUMBER 6 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES) FROM TO	QDQ	RCVRY	Oz/Ton Au	As %	ppm/Tonne Au	
				Locally brecciation has occurred on a 1 mm scale.	7608F		222.0	224.0	93	100%	0.038	0.04	1.303
				Py and aspy act as f.g. infillings between brecciated fragments.	7609		224.0	226.0	91	98%	0.003	<0.01	0.103
					7610		226.0	228.0	87	100%	0.002	<0.01	0.069
					7611		228.0	230.0	80	100%	0.002	<0.01	0.069
				Py and aspy occur as stringers and pods 1-2 mm in size in quartz carbonate veinlets.	7612		230.0	232.0	96	99%	0.002	<0.01	0.069
					7613		232.0	234.0	93	99%	0.002	<0.01	0.069
					7614		234.0	236.0	85	100%	0.002	<0.01	0.069
				Py and aspy are both present as 1/2% of the unit.	7615		236.0	238.0	92	100%	0.002	<0.01	0.069
				41.46-41.50 - this brecciated section marks the beginning of a fault zone.	7616		238.0	240.0	80	100%	0.006	<0.01	0.206
					7617		240.0	242.0	87	97%	0.002	<0.01	0.069
					7618		242.0	244.0	90	100%	0.002	<0.01	0.069
41.50	42.00			Fault Zone. This zone consists of oxidized, broken and gouged core.	7619		244.0	246.0	100	96%	0.002	<0.01	0.069
					7620		246.0	248.0	96	99%	0.002	<0.01	0.069
					7621		248.0	250.0	87	99%	<0.001	<0.01	<0.034
42.00	55.78			Andesite Tuff, 2A. This is as previously described (17.27-39.69).	7622		250.0	252.0	94	100%	<0.001	<0.01	<0.034
					7623		252.0	254.0	95	100%	<0.001	<0.01	<0.034
				42.00-46.71 - locally an increase in carbonate is noted; carbonate now comprises 5-7% of	7624		254.0	256.0	83	99%	<0.001	<0.01	<0.034
				the unit as 1 mm - 8 cm bands paralleling foliation	7625		256.0	258.0	91	93%	<0.001	<0.01	<0.034
				and as less than 1 mm flecks paralleling foliation;	7626		258.0	260.0	81	98%	<0.001	<0.01	<0.034
				no associated mineralization.	7627		260.0	262.0	87	99%	<0.001	<0.01	<0.034
					7628		262.0	264.0	98	100%	<0.001	<0.01	<0.034
					7629		264.0	266.0	78	100%	<0.001	<0.01	<0.034
				46.71-50.79 - locally unit becomes coarser; foliation	7630		266.0	268.0	98	94%	<0.001	<0.01	<0.034

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 7 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RECRY		NUMBER	SULPHIDES	INTERVAL (METRES)		OZ/LON Au	AS %	GMS/TONNE Au		
							FROM	TO				RQD	RECRY
				is well developed at 30° to the C.A.; multiple minute sericitized bands parallel foliation; multiple minute oxidized bands also parallel foliation; trace disseminated py is present t/o the matrix and is occasionally associated with carbonate bands parallel to foliation; py also occurs as isolated cubes in the matrix cross cutting foliation.	7631F		268.0	270.0	85	94%	<0.001	<0.01	<0.034
					7632		270.0	272.0	85	98%	<0.001	0.39	<0.034
					7633		272.0	274.0	94	100%	<0.001	0.02	<0.034
					7634		274.0	276.0	100	97%	<0.001	0.01	<0.034
					7635		276.0	278.0	77	99%	<0.001	<0.01	<0.034
					7636		278.0	280.0	72	95%	<0.001	0.07	<0.034
					7637		280.0	282.0	86	98%	<0.001	0.16	<0.034
					7638		282.0	284.0	53	100%	<0.001	0.07	<0.034
				50.29-55.78 - unit is f.g. and well foliated at 30° to the C.A.; a dramatic increase in quartz flooding is evident; quartz bands paralleling foliation and up to 1 cm wide now comprise 5% of the unit; multiple 1 mm bands of both sericitized and oxidized matrix parallel foliation; the matrix is intensely chloritized adjacent to quartz flooding; aspy is associated with quartz flooded sections at 51.68 and 51.84 as f.g. pods and disseminations along the selvage; locally aspy is 2-3%; py occurs as isolated 1 mm cubes in the matrix.	7639		284.0	286.0	84	92%	<0.001	<0.01	<0.034
					7640		286.0	288.0	47	97%	<0.001	0.01	<0.034
					7641		288.0	290.0	82	99%	<0.001	<0.01	<0.034
					7642		290.0	292.0	94	100%	<0.001	<0.01	<0.034
					7643		292.0	294.0	95	97%	<0.001	<0.01	<0.034
					7644		294.0	296.88	92	100%	<0.001	<0.01	<0.034
							E.O.H.						
				Total mineralization for 42.00-55.78 is py 1/2% and aspy 1-2%.									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH BRJ-6

SHEET NUMBER 8 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	INTERVAL (METRES) FROM TO	WIDTH	RCVRY				
55.78				Sharp Contact. The contact is broken but must be fairly sharp as evidenced by the sudden change in core composition.									
55.78	58.00			Dacite Tuff, 3A. The dacite tuff is light grey green. Composition is dacitic and chloritization is prevalent t/o. Occasionally the tuff is phyllic. Locally the core has been silicified. Weakly carbonated sections of the core were noted.  Hardness is variable depending on the degree of silicification or carbonation.  Foliation is well developed at 20° to the C.A.  Quartz flooding, 1 cm quartz bands parallel to foliation, 1-4 mm crystalline quartz carbonate veinlets paralleling the C.A. and late stage carbonate microfractures, all occur in minor amounts.  The unit is broken. Core recovery is good. Oxidation along open fractures is common.									



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 9 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS						
FROM	TO	WIDTH	RECRY		NUMBER	SULFIDES	INTERVAL (METRES) FROM	TO	WIDTH	RECRY					
				Mineralization is associated with the quartz carbonate veinlets. Both py and aspy occur as pods (up to 3 cm) within the veinlets and as linings along the selvages. Total py is 4-5% and aspy is 2-3%.											
				56.20 - 4 cm pod of f.g. aspy and py associated with a carbonate patch within a quartz flooded zone; total py is 1-2% and aspy is 1.2-1%.											
58.00	58.22			Gradational Contact. This contact consists of interbedded dacite and rhyolite tuff. Foliation is well developed at 45° to the C.A.											
58.22	66.00			Rhyolite Tuff, 4A (Quartz Flooded). The unit is beige in colour, however, oxidation imparts a reddish colour to most of the core.											
				The tuff is carbonated. Texture is f.g. Foliation is well developed at 45° to the C.A.											
				Quartz flooding occurs parallel and subparallel to the C.A. and comprises 50% of the unit. Often crystalline carbonate lines the selvage of the flooded zones.											

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 10 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRT		NUMBER	SUBDES	FROM	TO	WIDTH	RCVRT				
				Crystalline quartz carbonate occurs parallel to foliation and as veinlets at 25° to or parallel to the C.A. These veinlets cross cut foliation and quartz flooding.										
				The core is broken and recovery is moderate. Intense oxidation on open fractures is common.										
				Aspy occurs as thin stringers within the tuff.										
				Py and aspy are present as massive pods (2 cm) along quartz flooded selvages. Both occur as 1 mm pods and cubes in the matrix adjacent to quartz flooded selvages.										
				Py and aspy are evident as f.g. lining on quartz carbonate veinlets.										
				Total py is 3-6% and total aspy is 3-6%.										
				58.22-58.41 - quartz flooded zone parallel to foliation initiates the unit; contains chloritized matrix fragments; multiple randomly orientated microfractures noted.										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B8J-6

SHEET NUMBER 11 of 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	THICKNES	INTERVAL (METRES)						
							FROM	TO	WIDTH				
59.41	61.72			<p>Fault Zone. This section is intensely broken, oxidized and gouged.</p> <p>60.60-61.00 - this appears to be 8A within the fault zone although oxidation makes it difficult to discern; q.v. where visible is milky white, intensely fractured and carries carbonate patches; aspy comprises 5% of the unit and occurs as f.g. disseminations along fractures which parallel the C.A. and as f.g. disseminations associated with carbonate patches.</p>									
66.00	66.45			<p>Gradational Contact. This gradational contact is composed of interbedded rhyolite and andesite in 1 cm bands. The section is f.g. Oxidation in the form of 1 cm orange bands, parallels foliation at 45° to the C.A. Chloritization is local.</p> <p>Multiple 0.5-2 cm wide quartz bands parallel foliation.</p> <p>Infrequent crystalline quartz carbonate veinlets running at a low angle to the C.A. were noted. These carry f.g. aspy t/o and py as 1 mm cubes and pods.</p>									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 12 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	REVRY		NUMBER	of Sulphides	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				Py also occurs as disseminations and thin stringers in the matrix.								
				Py and aspy occur in trace amounts only in the gradational contact.								
66.45	83.06			Interbedded Andesite and Rhyolite Tuff, 2A/4A. The andesite is grey green, f.g., fairly hard and is moderately well foliated at 45° to the C.A. Locally silicification is evident. Carbonation is weak.								
				The rhyolite is light grey, f.g., hard and moderately well foliated at 30° to the C.A. Locally silicification is evident. Carbonation is weakly developed.								
				The scale of interbedding ranges from 1 cm to 6 m. The unit is predominantly rhyolite.								
				Occasional brecciation has occurred.								
				Quartz flooding imparts a marble like texture to the core. Quartz flooding is more common in the andesite.								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-6

SHEET NUMBER 13 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	% SPLICES	INTERVAL (METRES)		WIDTH		RCVRY	
						FROM	TO	FROM	TO	FROM	TO	
				<p>Infrequent 2 cm wide quartz bands parallel foliation. These quartz bands contain chloritized matrix fragments and are sericitized along selvages. Bands are truncated by crystalline quartz carbonate veinlets which are white to yellow in colour. The quartz carbonate veinlets are parallel to or at a low angle to the C.A. Quartz carbonate veinlets are prevalent in the quartz flooded zones and comprise 2% of the unit.</p> <p>Multiple randomly orientated carbonate infilled fractures cross cut quartz flooding, quartz bands and quartz carbonate veinlets.</p> <p>The unit is broken and core recovery is moderate.</p> <p>The rhyolite is better mineralized than the andesite.</p> <p>Within the rhyolite py occurs as 1-2% as does aspy. Py and aspy are disseminated t/o the matrix. Thin stringers of py are orientated at 45° to the C.A. These stringers cross cut quartz carbonate veinlets and impart a speckled appearance to the core. 1 mm</p>								



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 15 of 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRY									
				78.64-79.14															
				zone of 1 cm interbedded rhyolite and andesite tuff.															
				79.21-80.67															
				zone of quartz flooded andesite; quartz flooding imparts a marble texture to the core; aspy lines selvages of the flooded zone and occurs as f.g. disseminations in the matrix and as 1 mm pods and cubes within the quartz itself; stringers of aspy truncate both foliation and quartz flooded zones; py is f.g. in the matrix and is visible with aspy as pods and cubes along the selvages of quartz carbonate veinlets; trace cpy is associated with the quartz carbonate veinlets; total aspy is 2-3% and py is 2%; cpy is present in trace amounts.															
83.06	83.28			Quartz Vein, 8A.															
				The quartz vein is milky white. Aspy is disseminated c/o, lines quartz carbonate veinlets, and is associated with small quartz carbonate patches.															
				Py is associated predominantly with late stage carbonate infilled microfractures.															

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

POLE NUMBER: DDH 881-6

SHEET NUMBER 16 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRT		NUMBER	SULFIDES	INTERVAL (METRES) FROM TO	WIDTH RCVRT				
				Total aspy is 5-7% and py is 2%.								
				Upper and lower contacts are sharp at 45° to the C.A.								
83.28	92.90			Interbedded Andesite & Rhyolite Tuff, 2A/4A. This unit is as previously described (66.45-83.06). 89.72-90.00 - quartz flooded zone in andesite; contains intensely chloritized matrix fragments.								
92.90	93.00			Gradational Contact. The overlying unit is terminated by a gradational contact into a quartz vein. This contact carries f.g. py, aspy and cpy along the quartz selvage and in the adjacent matrix.								
93.00	93.27			Quartz Vein, 8A. The vein is milky white and hard. Mineralization is aspy only occurring as f.g. disseminations in the vein and as f.g. linings on multiple microfractures. The lower contact is lined by a 1 mm seam of aspy. Aspy is 2-3%. Adjacent to the contact in the underlying unit pods								



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-6

SHEET NUMBER 17 of 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SUBSIDES	INTERVAL (METRES)		WIDTH	RCVRY				
						FROM	TO							
				and cubes of both py and aspy are present. These are randomly orientated and cross cut foliation.										
				The lower contact is sharp at 45° to the C.A.										
93.27	115.72			Andesite Tuff, 2A. The unit is light grey green but locally may be dark grey green to beige. Composition is predominantly andesitic but locally ranges from dacitic to rhyolitic. Chloritization is prevalent t/o. Multiple less than 1 mm bands of sericitized matrix parallel foliation. The unit is weakly carbonated.										
				Texture is fine to medium grained and the tuff is soft.										
				Foliation is moderately well developed and varies from 15-45° to C.A. Values of 45° are the most common.										
				Small sections of quartz flooding were noted.										
				Quartz bands parallel foliation and may be up to										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 18 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	Sub Mts	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				5 cm in width. These commonly carry chloritized matrix fragments.								
				Multiple 1 cm quartz carbonate veinlets are present. These are crystalline, white to yellow in colour and occur at a low angle or parallel to the C.A. Two episodes of quartz carbonate veining are present. Quartz carbonate veinlets comprise 2-3% of the unit.								
				Late stage carbonate infilled randomly orientated microfractures are evident.								
				Core is moderately competent and core recovery is good.								
				Py is present as 3-4% of the unit as is aspy.								
				Py is present in the matrix as 1 mm pods and cubes. F.g. disseminated py is common as thin bands paralleling foliation often adjacent to sericitized bands. Quartz bands carry py along the selvage. Trace cpy was noted within a quartz band.								



# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 043-6

SHEET NUMBER 20 of 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SUBS	INTERVAL (METRES) FROM TO	WIDTH	RCVRY				
				115.00-115.72 - locally composition becomes rhyolitic slightly chloritized and no quartz flooding or quartz carbonate veining associated.									
115.72	116.49			Quartz Vein, 8A. The upper contact is sharp at 25° to the C.A. and is lined with f.g. aspy. Directly adjacent to the contact 50% of the unit is crystalline quartz carbonate with disseminated aspy associated.  The vein is milky white and hard. Infrequent microfractures are present at 45° to the C.A. and appear to be aspy infilled. Cpy is associated with the microfractures.  1-3 mm pods of yellowish quartz carbonate are disseminated t/o and carry f.g. aspy. Total aspy is 7-10%. Py and cpy both occur in trace amounts.  The lower contact is sharp at 20° to the C.A. and is lined by 2 - 1 mm bands of f.g. aspy.									
116.49	123.75			Dacite Tuff, 3A. This unit is a continuation of									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 21 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	INTERVAL (METRES)					
							FROM	TO				
				(93.27-115.72),								
				116.49-117.61 - continuation of locally rhyolitic zone; one small quartz carbonate veinlet noted to carry aspy and py.								
123.75				Sharp Contact. A sharp contact at 45° to the C.A. is present.								
123.75	134.50			Rhyolite Tuff, 4A. This unit is light grey. Composition is rhyolitic and chloritization is local. Local carbonation is evident. Locally silicification has occurred.  Texture is f.g. and the tuff is hard.  Foliation is absent to moderately well developed at 30° to the C.A.  Occasional quartz bands parallel foliation and range from 0.5-2 cm in width. These are chloritized along their selvages and are typically barren. The quartz bands may contain quartz carbonate patches and chloritized matrix fragments.								

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 22 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RCVRY				
				Infrequent yellowish carbonate infilled fractures are perpendicular to the C.A. and cross cut foliation.									
				Quartz carbonate veining is uncommon. When present veinlets parallel the C.A.									
				The unit is broken and core recovery moderate.									
				Py is 1-2% while cpy and aspy occur in trace amounts only. Py is present within thin silicious bands paralleling foliation.									
				Quartz bands carry f.g. aspy and cpy. The bands are truncated by 1 cm pods of py. Aspy is noted in the matrix paralleling foliation and adjacent to quartz bands.									
				Quartz carbonate veinlets contain f.g. aspy as lining along the selvages.									
125.53	125.78			Quartz Vein, BA. Both upper and lower contacts are sharp and running parallel to the C.A.									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER DDH BRJ-6

SHEET NUMBER 23 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRT		NUMBER	SUBS	INTERVAL (METRES) FROM TO	WIDTH	RCVRT				
				The quartz vein is milky white and hard. The quartz vein is intensely microfractured.									
				Aspy is present within the q.v. as pods up to 0.5 cm in size. Crystalline carbonate patches located within the q.v. and up to 5 cm in size carry f.g. aspy. Aspy is present in trace amounts only.									
126.34	128.32			Quartz Vein, BA. Both contacts are sharp. The upper contact is at 10° to the C.A. and the lower contact is in broken core.									
				The vein is extremely broken.									
				Colour is milky white and the unit is hard.									
				Aspy is 5-2% and py 1-2%. Trace cpy is present.									
				Aspy is present along the selvage, and infilling low angle fractures 1-2 mm wide and orientated at a low angle to the C.A.									
				Py occurs at 1-2 mm pods within the q.v.									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 881-6

SHEET NUMBER 24 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS										
FROM	TO	WIDTH	RCVRY		NUMBER	SIZES	INTERVAL (METRES)												
							FROM	TO	WIDTH	RCVRY									
127.80	128.32																		
128.32	129.50																		
134.50	136.25																		



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 25 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)		WIDTH	RCVRY			
						FROM	TO						
136.25	140.39			<p>Dacite Tuff, 3A. The dacite is light green and chloritized t/o weak carbonation as well as silicification are noted locally. Sericitized matrix paralleling foliation imparts a banded texture to the core.</p> <p>Texture is f.g. and the unit is hard.</p> <p>Minor quartz flooded sections cross cutting foliation carry quartz carbonate patches and chloritized matrix fragments.</p> <p>Quartz bands parallel foliation and may be up to 1 cm wide. Commonly these bands contain 1 cm patches of pink carbonate.</p> <p>Occasional quartz/carbonate veinlets orientated at a low angle to the C.A., cross cut foliation and quartz flooded zones. Two episodes of quartz carbonate veining were noted.</p> <p>The unit is competent and core recovery is good.</p>									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 26 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SUB LOTS	INTERVAL (METRES)		WIDTH	RCVRY		
						FROM	TO					
				Both aspy and py occur as 2% of the unit.								
				Py occurs as disseminations t/o the matrix and as thin (1 mm) bands paralleling foliation.								
				Both py and aspy occur as pods up to 3 mm in size within the quartz carbonate veinlet. Aspy also lines selvages of the quartz carbonate veinlets.								
140.39	141.38			Gradational Contact. A change in colour from green grey to beige and an increase in grain size is evident. Foliation is at 10° to the C.A. Locally chloritization has occurred.								
				Py is disseminated t/o the gradational contact. One pinkish quartz carbonate veinlet carries f.g. aspy along its selvage.								
141.38	163.37			Rhyolite Crystal Tuff, 4AX. This unit is beige. Commonly the core is purple due to specular hematite. Locally greenish bands up to 2 cm wide are present. These are sericitized matrix.								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 881-6

SHEET NUMBER 27 of 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SUBS	INTERVAL (METRES) FROM TO	WIDTH	RCVRY					
				Texture is coarse grained with most visible grains being quartz.										
				Foliation is well developed at 45° to the C.A.										
				Minor quartz flooding is present. Commonly flooded zones carry patches of pink carbonate.										
				Occasional small patches of pink carbonate truncate foliation and have a bright red alteration rim surrounding them.										
				Two episodes of quartz carbonate veinlets are present. One paralleling the C.A. and is white. The other is perpendicular to the C.A., 1-2 mm wide and yellowish in colour.										
				Both competence and recovery are moderate.										
				Py is present as 1/2-1Z. Both cpy and aspy are present in trace amounts.										
				Py, cpy and aspy all occur within the quartz carbonate veinlets as f.g. disseminations.										



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER DDH B81-6

SHEET NUMBER 29 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS						
FROM	TO	WIDTH	RECRY		NUMBER	SUBS	INTERVAL (METRES) FROM	TO	WIDTH	RECRY					
163.37	167.70			<p>Gradational Contact. A gradual change from f. g. rhyolite to dark green andesite is noted. Andesitic portions of the unit have been chloritized. Locally silicification has occurred. Sericitization in the form of 1 mm bands paralleling foliation and Fe alteration (purple) are also evident.</p> <p>Texture is f. g. and the section is hard.</p> <p>Foliation is well developed at 45° to the C.A.</p> <p>Quartz flooding comprises locally 30% of the unit and imparts a marble like texture to the core. Commonly flooded zones contain chloritized matrix fragments, pinkish carbonate patches and sericitized portions of the matrix.</p> <p>Competance and recovery are both moderate.</p> <p>Trace py and aspy occur adjacent to quartz flooded zones.</p> <p>164.26 - granular chloritized matrix fragment approximately 6 cm in width; 1 mm carbonate cubes</p>											

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 30 of 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	% SILT/CLAY	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				contain multiple tiny fragments of sphalerite.								
167.70	221.28			<p>Andesite Tuff, 2A. The andesite is dark grey green. Composition is andesitic and chloritization is pervasive t/o. Locally composition becomes rhyolitic. Sericitized bands approximately 1 mm in width are common and parallel foliation. Weak carbonation is present.</p> <p>Texture is f.g. and the unit is moderately soft.</p> <p>Foliation is absent to well developed at 45° to C.A.</p> <p>Locally quartz flooded zones comprise up to 50% of the unit. These zones are generally parallel to subparallel to the foliation. Commonly chloritized matrix fragments and creamy white to pink crystalline carbonate patches are found within the quartz flooded areas.</p> <p>1-4 mm crystalline quartz carbonate veinlets parallel the C.A. and these are truncated by later stage yellowish 1-5 mm carbonate veinlets which are at a</p>								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 31 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SLIDES	INTERVAL (METRES) FROM	TO	WIDTH	RCVRY				
				1/a to the C.A. Both episodes of veinlets truncate the quartz flooding.										
				The core is competent and core recovery is good.										
				Py is present in 1/2-1% amounts. Aspy is evident in trace amounts only.										
				F.g. disseminated py. and isolated 1-2 mm cubes of py are located in the matrix. Py occasionally is noted to occur as 1-6 mm f.g. bands paralleling foliation. In this mode the py is associated with quartz rich or siliceous bands which also parallel foliation.										
				Py is found as small (1 mm) cubes in the matrix adjacent to quartz flooded zones. Within the quartz flooded zone itself py is associated with carbonate patches as 1-3 mm pods and cubes. Py is further evident as f.g. disseminations within the chloritized matrix fragments commonly located inside flooded areas.										

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-6

SHEET NUMBER 32 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES)							
							FROM	TO	WIDTH	RCVRY				
				Aspy is 1-2% and py is 2-3% in the vicinity of quartz carbonate veinlets. Both episodes are mineralized with aspy and py in the form of 1 mm pods. F.g. py and aspy also line the selvages of the veinlets. The carbonate veinlets at a 1/a to the C.A. are occasionally infilled with a reddish material probably hematite.										
				169.50-172.10 - intensely quartz flooded zone forming approximately 30% of the unit.										
				182.00-183.50 - intensely quartz flooded zone forming approximately 50% of the unit; f.g. py, cpy and aspy occur in the matrix adjacent to the quartz flooding; a few 1 mm aspy cubes were noted.										
				183.75-184.71 - locally composition becomes rhyolitic; zone is quartz flooded comprising 15-20% of the unit; py is pervasive t/o as disseminations in the matrix adjacent to the quartz flooding; as pods within the matrix and as linings on both quartz carbonate and carbonate veinlets; and as pods up to 6 mm in size in the quartz carbonate veinlets; quartz carbonate veinlets comprise 3-4% of the unit.										



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 33 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)		FROM	TO	WIDTH	RCVRY
				Aspy - occurs within quartz carbonate veinlets as f.g. linings and as minute cubes in the matrix adjacent to quartz carbonate veinlets.								
				186.27-190.00 - quartz flooded zone; occurs predominantly as 1-2 mm bands parallel to foliation.								
				190.81-193.86 - quartz flooded zones form approximately 40% of the unit; occasional thin fractures infilled with a bright red oxidation product truncate the flooded zone.								
				194.26-195.33 - locally composition becomes rholitic; a few 0.5 cm py cubes cross cut foliation.								
				202.20-216.20 - intensely altered portions of unit; 3 cm wide chloritized band is below a 2 cm purple band which in turn is below a 4 cm sericitized band which is below another purple band 8 cm in width.								

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 36 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SIL FIDES	INTERVAL (METRES)						
						FROM	TO	WIDTH	RCVRY				
221.29	221.48			Gradational Contact. The unit gradually changes to a beige colour. Grain size becomes finer. Foliation is moderately developed at 45° to the C.A.									
				One quartz carbonate veinlet is present and is un-mineralized.									
				Occasional isolated 1-2 mm py cubes were noted in the matrix. Foliation wraps around the cubes.									
221.48	223.42			Rhyolite Tuff, 4A. The tuff is light grey to beige. Silicification is common.									
				Texture is f.g. Hardness is a function of the degree of silicification otherwise core is moderately soft.									
				Foliation is absent to weakly developed at 45° to the C.A.									
				Minor quartz flooding is visible with crystalline carbonate patches associated.									
				Quartz carbonate veinlets are orientated parallel									



# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 36 of 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	SUBSIDES	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				Cpy was noted as isolated grains within quartz carbonate veinlets.								
223.42				Sharp Contact. A sharp unmineralized contact at 90° to the C.A. was noted.								
223.42	229.75			Andesite Tuff, 2A. This section is a continuation of 167.71-221.28.								
				Extremely convoluted quartz carbonate patches were noted.								
				225.00-225.47 - bright purple alteration which streaks red (hematite?) is noted on quartz rich and quartz carbonate rich layers.								
				226.73-227.28 - unit locally becomes rhyolitic; one large (6 cm) patch of carbonate noted in association with py pods.								
				227.70-228.70 - locally composition becomes dacitic; multiple quartz carbonate bands 1-4 mm in width, parallel foliation; foliation is poorly developed at 70° to the C.A.; trace disse-								

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 37 of 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RECRY		NUMBER	SUBS	FROM	TO	WIDTH	RECRY				
				inated by noted t/o; 1 mm fractures, infilled with a soft grey black mud like material parallel foliation.										
229.75	230.73			Gradational Contact. F.g. weakly foliated (45°) andesite grades into f.g. rhyolite tuff.										
230.73	232.64			Rhyolite Tuff, 4A. This unit is light grey. Composition is rhyolitic. locally silicification has occurred. Brecciation on a 0.5-2 cm scale occurs in the later part of the unit.  Texture is f.g. and the unit is hard.  No foliation is visible.  1-1 mm quartz carbonate veinlets are orientated at a low angle to the C.A. These are cross cut by microfractures which are late stage, randomly orientated and carbonate infilled.  The unit is competent and core recovery is good.										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 88J-6

SHEET NUMBER 38 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	FROM	TO	WIDTH	RCVRY				
				Total mineralization is tr-1/2% py.										
				Py is present as disseminations c/o the matrix, as 1 mm isolated pods in quartz carbonate veinlets and as linings along brecciated quartz fragments as well.										
231.86	232.64			Fault Gouge. Brecciation has occurred in a 0.5-2 cm scale; 25% of the unit is large quartz fragments; 1/2 cm pink carbonate fragments are also present; infilling in between brecciated fragments is by a black mud like material; sericitization of some fragments has occurred.										
232.64				Sharp Contact. A sharp unmineralized contact at 90° to the C.A. is present.										
232.64	234.55			Rhyolite Dike, 9A. The matrix of the dike is light beige f.g. and moderately hard.  5% of the unit is anhedral 1 mm glassy green grains (chloritized amphiboles). Some of the glassy green grains are sericitized. 1% of the dike is composed of anhedral feldspars less than 1 mm in size.										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER DDH B83-6

SHEET NUMBER 39 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS				
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES) FROM TO	WIDTH	RCVRY				
				No orientation of phenocrysts or foliation was noted.									
				Occasional (12) 1-3 mm carbonate pods are visible.									
				Infrequent quartz carbonate bands are noted perpendicular to the C.A.									
				Multiple late stage randomly orientated carbonate infilled fractures are present.									
				The unit is competent and core recovery is good.									
				Total mineralization is trace py occurring as disseminations t/o the matrix.									
234.55				Contact. A 12 cm zone of brecciation marks the contact. The contact is orientated at 90° to the C.A.									
234.55	236.87			Rhyolite Tuff, 4A. This is a continuation of section 230.73-232.64.									
				No brecciation is present.									

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 40 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE						ASSAYS							
FROM	TO	WIDTH	RECRY		NUMBER	SULFIDES	INTERVAL (METRES)											
							FROM	TO	WIDTH	RECRY								
236.87	238.00			<p>Gradational Contact. A gradual change in colour from beige to grey green and an increase in foliation are evident. Foliation occurs at 45° to the C.A.</p> <p>Thin sericitized bands of matrix parallel to foliation are common. Yellow carbonate occurs in 1 mm - 1 cm patches and commonly py is found at their periphery. Py also is present as thin bands paralleling foliation and as pods in the matrix.</p> <p>Total mineralization is trace py.</p>														
238.00	287.26			<p>Andesite Tuff, 2A. This unit is light grey, light grey green and light pale green. Pale green sections are similar to tuffite sections in 7B of DDH 883-6. Composition is andesitic but locally may vary to dacite and rhyolite. Locally chloritization and carbonation have occurred. A reddish oxidation occasionally colour the core.</p> <p>Texture is fine to medium grained. Hardness is moderate.</p>														



# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 41 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES) FROM	TO	WIDTH	RCVRY				
				Foliation is predominantly absent. It is usually weakly present in the f.g. portions of the unit at 45° to the C.A.										
				Minor quartz flooding has occurred.										
				Quartz bands up to 4 cm in width parallel foliation. These are present in low abundance.										
				Locally crystalline carbonate rich bands parallel foliation. These are commonly related to pale green, f.g., dull lustre (tuffite) sections.										
				Infrequent pink carbonate bands are orientated at a low angle to the C.A.										
				Crystalline quartz carbonate veinlets at a low angle to the C.A. are very minor.										
				The unit is competent and core recovery is good.										
				Mineralization present is tr py, tr aspy and tr specular hematite.										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH B83-6

SHEET NUMBER 42 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SULFIDES	INTERVAL (METRES)							
						FROM	TO	WIDTH	RCVRY					
				Py occurs as isolated 1 mm pods and f.g. disseminations in the matrix. It is also present as 1 mm pods associated with carbonate patches.										
				Aspy is f.g. and associated with chvolute portions of the unit.										
				Specular hematite lines quartz carbonate veinlet and late stage microfractures.										
				238.00-238.63 - zone of quartz flooding parallel to C.A.; chloritization and sericitization are visible along selvages; flooded zone contains chloritized matrix fragments; locally quartz flooding comprises 10% of the unit; flooded zone contains carbonate patches up to 1 cm in size and yellowish in colour; 15% of the unit is comprised of yellow carbonate infilled fractures that are 1 cm in width and are perpendicular to the C.A.; multiple randomly orientated microfractures are pervasive t/o.										
				241.60-242.42 - locally unit becomes rhyolitic; py occurs as thin pods and lenses parallel to foliation; trace f.g. aspy is present										

# DRILL HOLE RECORD

# DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 43 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	% SULFIDES	INTERVAL (METRES) FROM TO WIDTH RCVRY							
				along 1/a quartz carbonate fractures.										
				243.06-243.97 - reddish purple bands of alteration; these are primary 1 cm folds which have been altered; these bands are often bounded by two thin chloritized bands; py occurs as isolated pods in the matrix.										
				245.67-252.12 - section is pale green and similar to tuffite in 7B; quartz flooding carrying carbonate patches forms 5% of the unit; crystalline carbonate as 1 mm pods and bands up to 5 cm wide form 20% of the unit; often both quartz and carbonate bands are intensely chloritized along the edges; trace amounts of disseminated py are associated with carbonate; occasional py pods up to 3 mm wide are present.										
				257.86-259.55 - composition locally becomes dacitic; purple alteration pervasive t/o; trace disseminated py t/o.										
				276.15-277.58 - unit takes on banded appearance due										

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER DDH 883-6

SHEET NUMBER 44 of 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS			
FROM	TO	WIDTH	RCVRY		NUMBER	% SULPHIDES	INTERVAL (METRES)					
						FROM	TO	WIDTH				
				to alternating purple, rose and green bands of alteration.								
282.15	282.25			Quartz Vein, 8A. A minor quartz vein is present in a zone of broken core. F.g. py and py pods comprise 1-2% of the unit. Aspy (f.g.) represents 2-3% of the unit. 283.65-287.26 - the unit becomes broken and oxidized along open fractures; a dramatic increase in specular hematite is present as f.g. infillings on quartz carbonate fractures and late stage microfractures.								
287.26	288.00			Gradational Contact. The unit gradually becomes light grey. A decrease in carbonate veinlets is noted. Oxidation on fractures and specularite are no longer present. Isolated py pods up to 3 cm are visible.								
288.00	295.23			Rhyolite Tuff, 4AX. The tuff is light beige. Much of the core is altered to a purple colour due to specular hematite. Composition is rhyolitic. Quartz grains 1 mm in size and elongated parallel to folia-								

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 45 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS						
FROM	TO	WIDTH	RCVRY		NUMBER	SUBS	INTERVAL (METRES) FROM	TO	WIDTH	RCVRY					
				tion impart a coarse grained texture to the core.											
				Foliation is moderately developed at 45° to the C.A.											
				The unit is moderately hard.											
				Quartz bands (1-5 cm) parallel to foliation and continuing pink carbonate patches, are common.											
				Inrequent pink carbonate patches are found t/o.											
				Minor quartz carbonate veinlets parallel or at a low angle to the C.A., are present.											
				The unit is moderately competent and core recovery is good.											
				Py and aspy are present in trace amounts. Py occurs as 1 mm isolated pods. E.g. aspy was noted in one instance associated with a quartz carbonate veinlet. Specular hematite imparts the purple hue to the core and is present as 1-2%.											
				293.33-295.23 - intensely altered, quartz flooded											

# DRILL HOLE RECORD

DU PONT OF CANADA EXPLORATION LIMITED

HOLE NUMBER: DDH 883-6

SHEET NUMBER 46 OF 47

INTERVAL (METRES)				DESCRIPTION	SAMPLE				ASSAYS					
FROM	TO	WIDTH	RCVRY		NUMBER	SULPHIDES	INTERVAL (METRES) FROM	TO	WIDTH	RCVRY				
				and silicified zone; alteration is predominantly purple; pale green (sericite) bands commonly line quartz matrix interface; the core has a spotted appearance in places due to variable alteration ie. 2 cm rusty and patches within larger zones of purple alteration; this section is possible a welded Tuff?; py is disseminated t/o and is also present as isolated 1 mm pods which cross cut foliation.										
295.23				Sharp Contact. A sharp unmineralized contact is orientated at 90° to the C.A.										
295.27	296.88			Andesite Tuff, 2A. The unit is hunter green and chloritization is present t/o.  Texture is medium grained and the unit is moderately hard.  Foliation is moderately developed at 60° to the C.A.  Multiple carbonate rich bands 1 mm - 1 cm parallel foliation. These are commonly intermixed with quartz and altered to a pale green yellow.										

