

Summary of 1988 Field Work

Mt. Sicker Property

MNC Lease Area

G. S. Wells  
Minnova Inc.

April 21, 1989  
827156

MTS-66 - geo + assay.  
MTS-67 - missing assays/geocham.  
MTS-68 - missing assay/geocham.

MNC Lease Area  
1988 work.

| holes drilled. | dates.                       | # days | T.D.(m) | GSW | PB | helper    | contractor costs. |
|----------------|------------------------------|--------|---------|-----|----|-----------|-------------------|
| MTS-45         | 232.3 Mar. 21 - 24           | 5      |         |     |    | 1 Murray. | 13,160.94         |
| MTS-46         | 505.1 Mar. 24 - Apr. 1       | 9      |         |     |    | 2 Murray. | 32,453.97         |
| MTS-66         | 229.5 Nov 30 - Dec 4         | 5      |         |     |    | 2 Al.     | 14,194.71         |
| MTS-67         | 220.4 Dec 4 - Dec 6          | 3      |         |     |    | 2 Al.     | 13,511.99         |
| MTS-68         | <u>185.9</u> Dec. 4 - Dec. 6 | 3      |         |     |    | 2 Al.     | <u>12,083.13</u>  |
| total.         | 1383.2 m.                    |        |         |     |    |           | 85,404.74         |
|                |                              |        |         |     |    |           | 61.74/m           |

Geophysics.

PEM - MTS-45, 46.

$$\begin{array}{rcl} 2 \text{ days @ } & 1200 & = 2400 \\ & + 150 \text{ mob - demob} & \cancel{= 150} \\ & & 2550. \end{array}$$

report \$250 for MTS-45, 46.

PEM - MTS-68

$$1 \text{ day @ } 1000 + \text{ report } 250 = 1250.$$

CSAMT. L26 E. 1.7 km on MNC ground \$2713

Option Payment \$10,000

| hole#  | # ICP Lthos | # assays. Cu Zn Pb Ag Au<br>Ba |
|--------|-------------|--------------------------------|
| MTS-45 | 5           | 6                              |

|    |                 |    |
|----|-----------------|----|
| 46 | <del>47</del> 6 | 17 |
|----|-----------------|----|

|    |     |    |    |
|----|-----|----|----|
| 66 | 10. | 12 | 8. |
|----|-----|----|----|

|    |    |    |     |
|----|----|----|-----|
| 67 | 9. | 16 | 13. |
|----|----|----|-----|

|    |                    |                      |
|----|--------------------|----------------------|
| 68 | <del>8</del><br>38 | <del>22</del><br>73. |
|----|--------------------|----------------------|

$$\text{ICP} = \$23.50$$

$$\text{Cu, Zn, Ag} = 4.50$$

$$\text{Au} = 4.75$$

$$\text{Pb} = 1.00$$

$$\text{Sample prep} = 3.75$$

$$\text{Ba} = 4.50$$

XPPR

$$\text{ICP samples. } 38 \times 23.50 = 893$$

$$\text{Cu, Zn, Ag, Ag} = 13 \times 949$$

$$\text{Ba} = 21 \times 4.50 = 94.50$$

$$\text{total. } \underline{1936.50}$$

# MINNOVA

May 23, 1989

**Minnova Inc.**  
Mining Innovation  
4th Floor  
311 Water Street  
Vancouver, British Columbia  
V6B 1B8  
Telephone (604) 681-3771  
Telecopier (604) 681-3360

The Corporation of the District  
of North Cowichan  
P.O. Box 278,  
Duncan, B.C.  
V9L 3X4

Attention: J.N. Berikoff

Dear Mr Berikoff,

Please find enclosed a copy of the "Summary of 1988 Field Work" on the Municipality of North Cowichan Lease Area as per section 62 of the lease agreement. An estimated \$116,081.24 was spent on this part of our Mt. Sicker property during 1988.

Further diamond drilling is being planned for the fall of 1989. If you have any questions, please give me a call.

Yours sincerely,



G.S. Wells  
Sr Project Geologist

Enclosure

SUMMARY OF 1988 FIELD WORK

MT. SICKER PROPERTY

MUNICIPALITY OF NORTH COWICHAN LEASE AREA

NTS 92B/13W

VICTORIA MINING DIVISION

Minnova Inc.

Vancouver, B.C.

G. S. Wells

April 21, 1989

## Table of Contents

|   | <u>Page</u> |
|---|-------------|
| 1. Introduction                                       |             |
| a. Location and Access. . . . .                       | 1           |
| b. Property Status. . . . .                           | 1           |
| c. History. . . . .                                   | 1           |
| 2. Geology  |             |
| a. Regional Geology. . . . .                          | 4           |
| b. Geology of the Mt. Sicker property. . . . .        | 5           |
| 3. 1988 Exploration Program - MNC Lease Area. . . . . | 6           |
| 4. Results  |             |
| a. Drilling. . . . .                                  | 6           |
| b. Geophysics. . . . .                                | 10          |
| 5. Conclusions. . . . .                               | 11          |
| 6. References . . . . .                               | 12          |
| 7. Itemized Cost Statement. . . . .                   | 13          |

## List of Figures

|           |  |           |
|-----------|--|-----------|
| Figure 1: | Location Map . . . . .                 | 2         |
| Figure 2: | Claim Map with MNC Lease Area. . . . . | 3         |
| Figure 3: | Geology & 1988 DDH Locations . . . . . | in pocket |
| Figure 4: | CSAMT survey - line 26E. . . . .       | in pocket |

## List of Appendices

|             |                            |
|-------------|----------------------------|
| Appendix I  | Drill Logs                 |
| Appendix II | PEM technique and profiles |

SUMMARY OF 1988 FIELD WORK  
MUNICIPALITY OF NORTH COWICHAN LEASE AREA

1. Introduction

This report summarizes work done in 1987 by Minnova Inc. on the parts of our Mt. Sicker property covered by the Municipality of North Cowichan Lease Area. An estimated \$116,081.24 was spent to carry out this work.

a. Location and Access

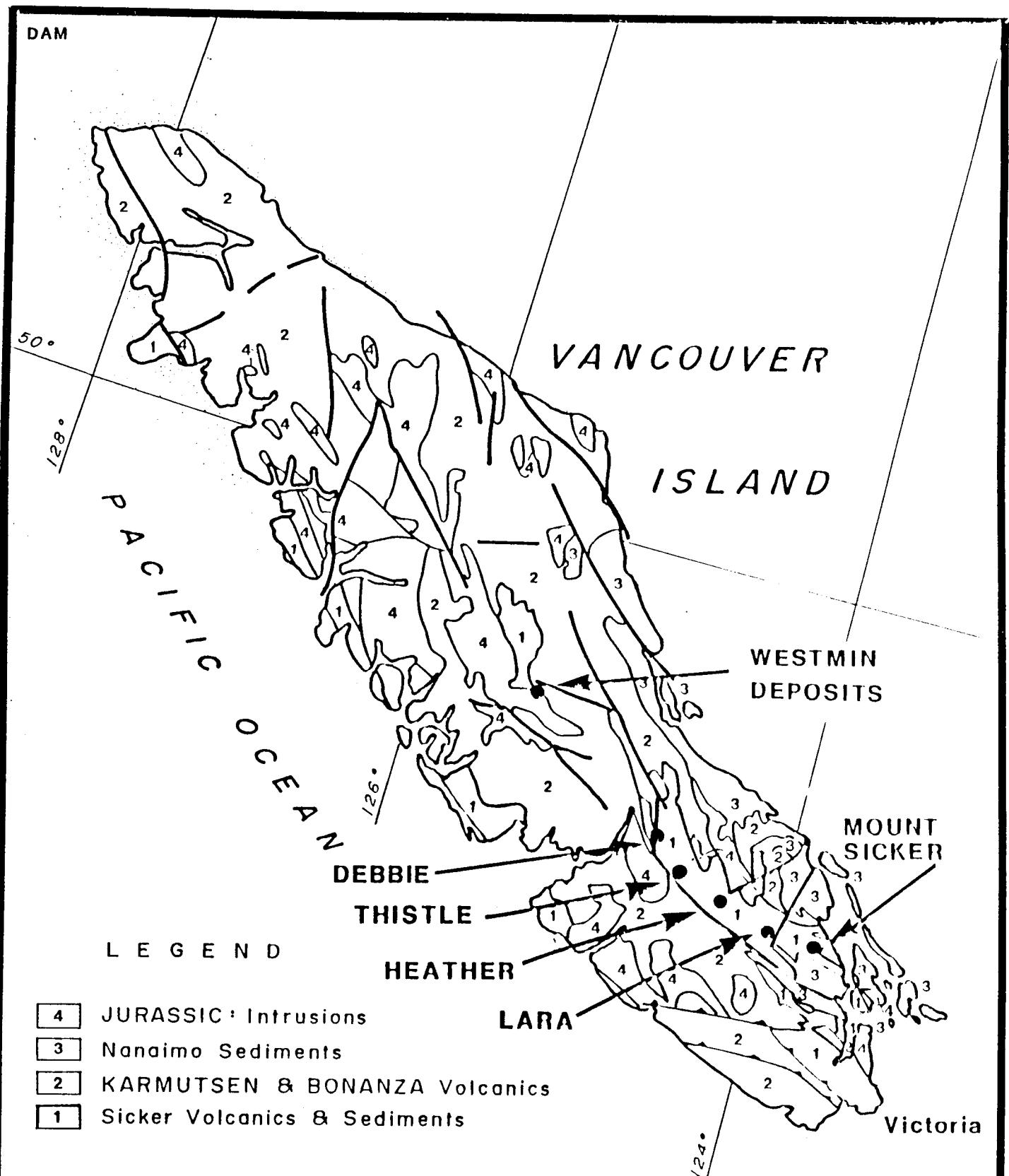
The Mt. Sicker property is located on Vancouver Island, 10 km north of Duncan and 40 km north of Victoria (Figure 1). An extensive system of logging roads from the Island Highway provides excellent access to the property. Topographic relief is moderate with elevations ranging between 150 and 700 meters above sea level. The property is covered by a mixed forest of Douglas fir, alder and cedar.

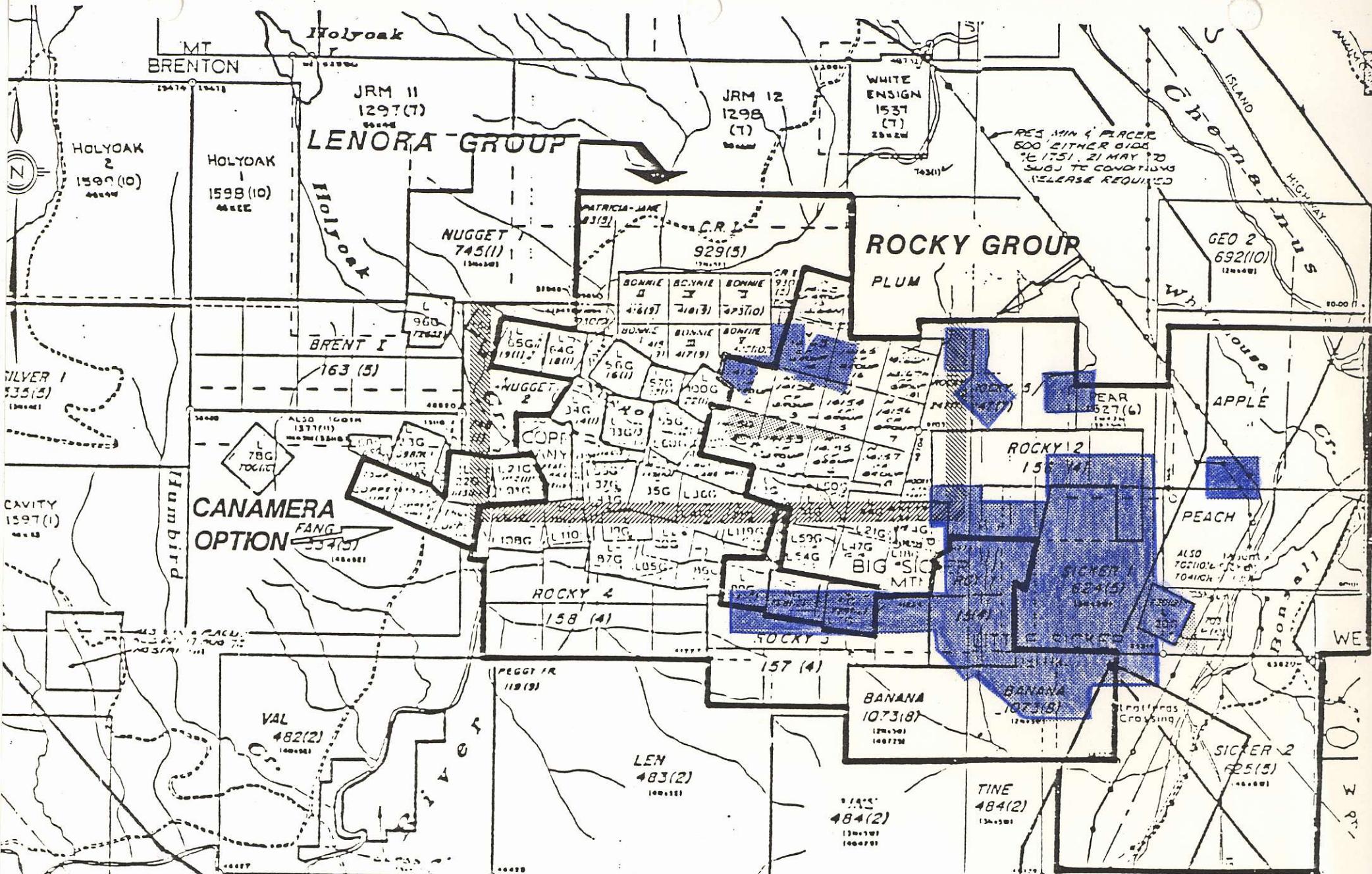
b. Property Status

Minnova's Mt. Sicker property consists of 4 contiguous options (Postuk-Fulton, Peppa, Lieberman, Canamera) and Minnova claims for a total of 198 units. The Municipality of North Cowichan owns the base metal rights for certain claims in the eastern part of the property (Figure 2). By the virtue of the Minnova - MNC lease agreement, Minnova Inc. has the right to obtain these base metal rights in exchange for cash payments and a retained royalty interest.

c. History

Two former producers (the Lenora and Tyee mines) occur on the Mt. Sicker property. These deposits were discovered in 1898





#### MNC BASE METALS

## FORDING COAL LEASE BOUNDARY

NTS 92B/13  
0 1 2Km

**MT. SICKER PROPERTY**

**CLAIM MAP**

# MINNOVA

and were largely mined out by 1909. Approximately 300,000 tons of ore grading 3.31% Cu, 7.5% Zn, 2.75 oz/T Ag and 0.13 oz/T Au were recovered from these 2 mines. Recent exploration on the property has been done by Duncanex, Mt. Sicker Mines and Serem in the vicinity of the former mines. Minnova Inc. (formerly Corporation Falconbridge Copper) has been actively exploring the property since 1983 using a variety of geological, geochemical and geophysical techniques followed by diamond drilling in an attempt to discover a polymetallic massive sulphide deposit. Work done on the MNC lease area in 1987 was summarized in a report by Wells (1988).

2. Geology

a. Regional Geology

The Mt. Sicker property is located in the Cowichan-Horne Lake uplift which is one of 3 fault-bounded areas that expose the Paleozoic Sicker Group on Vancouver Island (Figure 1). Muller (1980) subdivided the Sicker Group, as follows, in order of increasing age:

1. Buttle Lake Formation - consists of recrystallized crinoidal limestone interbedded with calcareous siltstone and chert.
2. Sediment - Sill Unit - thinly bedded to massive argillite, siltstone, and chert interlayered with diabase sills.
3. Myra Formation - basic to rhyodacitic banded tuff, breccia and lava with interbedded argillite, siltstone and chert.
4. Nitinat Formation - basaltic lava and agglomerates with minor massive to banded tuff layers.

Cretaceous sediments of the Nanaimo group unconformably overlie the Sicker group. The contact is commonly marked by a basal conglomerate containing volcanic fragments derived from the Sicker Group.

The structure of the Sicker group is characterized by southwest verging, asymmetric and vertical, open and isoclinal folds (Muller, 1980). West-northwest and northeast trending faults dissect the Sicker Group into a series of fault blocks. Movements along these faults are interpreted to have been Tertiary in age. Metamorphic grade ranges from sub-greenschist to greenschist facies.

b. Geology of the Mt. Sicker Property

The Mt. Sicker property is underlain by Sicker Group volcanic rocks, Nanaimo Group sediments and dioritic intrusions of possible Triassic age. Only the Myra and Nitinat formations of the Sicker group are exposed on the property. The Myra formation consists of thick units of felsic and mafic pyroclastics with minor ash, argillaceous sediment and chert. The Lenora-Tyee massive sulphide deposits occur within the Myra formation.

The Nitinat formation is restricted to the east end of the property and is well-exposed along the Island Highway. It consists of epidotized pyroxene and/or plagioclase porphyritic basaltic flows, flow breccias and debris flows.

The structure of the Mt. Sicker property is dominated by a large asymmetric, west-northwesterly trending, shallow west-plunging anticline. The fold axis is interpreted to lie 300 meters north of the Lenora-Tyee deposits. The axial plane of the anticline is reflected by a pervasive moderately to intensely developed, vertically dipping foliation.

### 3. 1988 Exploration Program - MNC Lease Area

In 1988, five diamond drill holes (1383.2 m) tested IP and lithogeochemical anomalies in the southeastern part of the lease area (Figure 3). Lithogeochemical samples were taken routinely throughout the holes and analyzed for major and trace elements using ICP and atomic absorption techniques at Min-En Labs in Vancouver. Mineralized sections were analyzed for Cu, Zn, Ag, Au and Ba.

Downhole PEM geophysical surveys were done in holes MTS-45, 46 and 68 to test for off-hole conductive zones. Other geophysical work carried out on the lease area includes 1.7 km of controlled source audio-magnetotelluric (CSAMT) surveying.

### 4. Results

#### a. Drilling

Summary logs for each of the five drill holes are given below and the location of these holes is presented in a plan view in Figure 2. All of the drill holes tested IP and lithogeochemical anomalies. The sulphides intersected in the holes were in sufficient concentrations to explain the IP anomalies but no zones of economic mineralization were intersected.

##### MTS - 45

|               |   |
|---------------|---|
| 0 - 3.7       | Overburden                                |
| 3.7 - 43.1    | Andesite Crystal Tuff with epidote clasts |
| 3.7 - 15.35:  | 5%  |
| 15.35 - 33.6: | 3-5% py                                   |
| 43.1 - 77.1   | Diorite                                   |

|                 |   |
|-----------------|---|
| 77.1 - 97.7     | Andesite Crystal Tuff: 1-2% py  |
| 97.7 - 127.35   | Mafic Flow - Nitinat - pyroxene-bearing   |
|                 | 97.7 - 98.4: qtz-ep-mt vein   |
|                 | 98.7 - 99.1: qtz-ep vein  |
|                 | 99.1 - 106.9: strongly chloritic  |
| 127.35 - 131.75 | Intermediate Crystal Tuff - Nitinat - feldspar + pyroxene porphyritic<br>5% epidote patches |
|                 | 146.7 - 156.45: 2-3% py   |
| 165.3 - 195.7   | Mafic Crystal Tuff  |
| 195.7 - 232.3   | Diorite with FP dikes   |
| 232.3           | E.O.H.  |

MTS - 46 - Gap Area

|               |   |
|---------------|---|
| 0 - 12.0      | Overburden  |
| 12.0 - 24.05  | Intermediate Ash Tuff, patchy sericitic and silicified areas, 3-5% py |
| 24.05 - 40.0  | Felsic Ash, tr. green mica, 8-10% py                                  |
| 40.0 - 45.2   | Intermediate Ash, patchy epidote, 2-3% py                             |
| 45.2 - 104.5  | Diorite   |
| 104.5 - 116.4 | Felsic Ash, 1-2% qtz crystals; 1% py                                  |
| 116.4 - 118.6 | Pyritic Ash with tr. chert fragments, moderate sericite, 3-5% py      |
| 118.6 - 135.0 | Andesitic Crystal Tuff, epidote patches                               |
|               | 118.6 - 121.1: 2-3% py  |

|               |                          |
|---------------|--------------------------|
| 135.0 - 140.5 | QFP Crystal Tuff - 1% py |
| 140.5 - 142.9 | Felsic Ash: 5-7% py      |
| 142.9 - 505.1 | Diorite                  |
| 505.1         | E.O.H.                   |

MTS-66

|              |  |
|--------------|--|
| 0.0-3.0      | Overburden   |
| 3.0-21.95    | Intermediate Tuff with screens of pyritic (3-5%) Felsic Tuff<br>weak to moderate sericite  |
| 21.95-43.5   | Pyritic Felsic Tuff 7-10% py; strongly sericitic<br><br>29.55-30.8: 60% py: 240 ppm Cu, 10 ppm Zn,<br>1.0 ppm Ag, 65 ppb Au  |
| 43.5-95.1    | QP Flow - 1-2% py stringers throughout<br><br>43.5-51.45: strongly sericitic<br>58.35-64.8: strongly sericitic 5-7% py, tr cp<br>best assays: 58.35-59.5 <u>0.14% Cu</u> |
| 95.1-128.15  | Pyritic Felsic Tuff, Ash 7-10% py, strongly sericitic<br><br>110.9-115.3 5% gypsum veinlets  |
| 128.15-210.1 | Andesite Ash, Tuff 1-5% diss. py; mod.chlorite   |
| 210.1-223.45 | Felsic Flow - massive, siliceous   |
| 223.45-229.5 | Andesite Tuffs - 3% py   |
| 229.5        | E. O. H.   |

MTS-67

0.0-8.1      Overburden

8.1-24.8      Felsic tuff  5-7% py; strong to mod. sericite

24.8-25.4      Fault gouge and well bedded pyritic Argillite.  
(10-15% py?)  
158 ppm Cu, 62 ppm Zn, 1500 ppm Ba / 0.6 m

25.4-45.7      Intermediate Tuff with screens of pyritic  
felsic tuff  
  
34.05-34.3:  60-70% py (170 ppm Cu)

45.7-82.7      Pyritic Volcaniclastic with chert, felsic tuff  
and the odd pyrite fragment - strong sericite;  
tr. green mica:  10-15% v.f.gr. py  
  
64.2-82.7 -2-3% gypsum veinlets

82.7-109.1      QP flow  
  
82.7-86.2      strongly sericitic include 40%  
py, tr cp (642 ppm Cu) from  
82.7-83.5

109.1-181.2      Felsic Pyritic Tuff - moderate to strong  
sericite; 5-7% py  
  
124.1-139.1:  2-3% gypsum veinlets  
158.1-171.3:  3-5% gypsum veins

181.2-198.5      Intermediate FP Tuff; 1-2% py

198.5-218.2      Felsic Tuff, Lapilli Tuff; 2-3% py, moderate  
sericite

218.2-230.4      Mafic Dikes (magnetic) / Andesite Ash

230.4      E. O. H.

MTS-68 - Gap Area

|              |  |
|--------------|--|
| 0.0-3.0      | Overburden   |
| 3.0-47.1     | Felsic Tuff  |
| 47.1-51.5    | Mafic Dike   |
| 51.5-56.5    | Felsic Tuff - 1-2% py                                      |
| 56.5-59.35   | Mafic Dike   |
| 59.35-67.1   | Felsic Tuff  |
| 67.1         | Fault gouge  |
| 67.1-95.25   | Pyritic Tuff 7-8% py; strong sericite                      |
| 95.25-103.2  | QP Flow - moderately sericitic                             |
| 103.2-136.65 | Felsic Pyritic Tuff - 7-8% py; moderate to strong sericite |
| 136.65-143.5 | Intermediate FP Tuff - 3-4% py                             |
| 143.5-151.4  | Felsic Dike  |
| 151.4-185.9  | Andesite Tuff  |
| 185.9        | E.O.H.   |

b. Geophysics(i) PEM

Downhole PEM surveys were carried out on holes MTS-45, 46 and 68 by White Geophysics. The Pulse EM system uses time domain downhole EM instrumentation that is capable of detecting conductive mineralization which has been either intersected in the drill hole or is lying offhole. A brief description of the techniques (after Woods, 1988) is given in Appendix I. The PEM

profiles for each of the three holes are also included. No anomalies were detected which indicates that there are no conductive zones in close proximity to the drill holes.

(ii) CSMAT

A controlled source audiomagnetotelluric test survey (CSAMT) was done over four test lines by Pacific Geophysical. A total of 1.7 km of this type of surveying was carried out on the MNC lease area. The objective of the CSAMT survey was to define deep conductive sulphide zones and fault structures. Two anomalies are present on line 26E as shown in Figures 3 and 4. These anomalies are closely correlative with shallow (< 100 m) sulphides zones. No deep conductors or structures were defined by this survey.

5. Conclusions

The diamond drilling in the areas of holes MTS-46, 66, 67 and 68 intersected a zone of pyritic felsic tuff which overlies an altered quartz porphyry flow. Although no economic mineralization was intersected, copper contents of this pyritic tuff are anomalous (200<sup>+</sup> ppm). Since the geological setting is similar to that noted in the vicinity of the old mines, further drilling is required in the area to fully evaluate its economic potential.

Drill holes MTS-45 and 46 also intersected zones of disseminated pyrite which explains the surface IP anomalies. No economic mineralization was intersected in either hole. Downhole geophysical surveys (PEM) indicated that there are no conductive zones (ie. massive sulphides) in close proximity to holes MTS-45, 46 or 68.

*Gary Zello*

6. References

Muller, J. E. 1980: The Paleozoic Sicker Group of Vancouver Island, B.C. GSC paper 79-30, 22 p.

Wells, G. S., 1988: Summary of 1988 Field Work, MNC Lease Area. Internal Minnova report.

7. Itemized Cost Statement

1988 Drill Program - MNC Lease Area

|    |   |           |
|----|---|-----------|
| 1. | Contract Costs (Burwash Contract Drilling)    | 85,404.74 |
| 2. | Salaries                                      |           |
|    | G. S. Wells 18 days @ \$350/day               | 6,300.00  |
|    | P. Baxter 8 days @ \$300/day                  | 2,400.00  |
|    | M. Fulton 3 days @ \$100/day                  | 300.00    |
|    | A. Brielsman 6 days @ \$100/day               | 600.00    |
| 3. | Field Expenses                                |           |
|    | Truck 25 days @ \$50/day                      | 1,250.00  |
|    | Food and Accommodation 28 man-days @ \$40/day | 1,120.00  |
| 4. | Analyses                                      | 1,936.50  |

Geophysics

|    |                                   |          |
|----|-----------------------------------|----------|
| 1. | downhole PEM for holes 45, 46, 68 | 4,050.00 |
| 2. | CSAMT 1.7 km @ \$1600/km          | 2,720.00 |

|                       |                  |
|-----------------------|------------------|
| <u>Option Payment</u> | <u>10,000.00</u> |
| Total                 | \$116,081.24     |

## **Appendix I**

### **Drill Logs**

HOLE NUMBER: MTS-45

MINNOVA INC.  
DRILL HOLE RECORD

**IMPERIAL UNITS:**      **METRIC UNITS:**

METRIC UNITS: x

PROJECT NAME: SIC  
PROJECT NUMBER: 305  
CLAIM NUMBER:  
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: MTS  
NORTH: 2025.00S  
EAST: 2787.00E  
ELEV: 480.00

ALTERNATE COORDS GRID:  
NORTH: 0+ 0  
EAST: 0+ 0  
ELEV: 0.00

COLLAR DIP: -60° 0' 0"  
LENGTH OF THE HOLE: 232.30m  
START DEPTH: 0.00m  
FINAL DEPTH: 232.30m

COLLAR GRID AZIMUTH: 25° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 25° 0' 0"

DATE STARTED: March 21, 1988  
DATE COMPLETED: March 24, 1988  
DATE LOGGED: 0, 0

COLLAR SURVEY: NO  
MULTISHOT SURVEY: NO  
RQD LOG: NO

PULSE EM SURVEY: YES  
PLUGGED: NO  
HOLE SIZE: NO

CONTRACTOR: BURWASH ENTERPRISES  
CASING: 3.7M  
CORE STORAGE: 6722 LAKES ROAD, DUNCAN

PURPOSE: TO TEST A STRONG IP ANOMALY 200 METRES EAST OF MTS-34.

**DIRECTIONAL DATA:**

---

HOLE NUMBER: MTS-45

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

PAGE : 1

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

HOLE NUMBER: MTS-45

| FROM<br>TO           | ROCK<br>TYPE   | TEXTURE AND STRUCTURE  | ANGLE<br>TO CA | ALTERATION   | MINERALIZATION  | REMARKS  |
|----------------------|--|--|----------------|--|---|--|
| 0.00<br>TO<br>3.70   | OVERBURDEN<br>«OB»   |  |                |  |   | Casing   |
| 3.70<br>TO<br>43.10  | ANDESITIC<br>TO INTER-<br>MEDIATE<br>CRYSTAL<br>TUFF<br>«AndT, IT» | <p>Colour - grey to greenish grey.<br/>           Grain Size - fine grained matrix.<br/>           Well-foliated ash with 1-2% epidote patches &amp; 3-5% fsp crystals.<br/> <math>\{4.2 - 5.05\}</math> «l dyke»<br/>           - fine grained, light green, chilled contacts.<br/>           5.05 (contact)<br/>           7.0m (foliation)</p> <p><math>\{15.35 - 24.45\}</math> «25-30% fsp»<br/>           25-30% fsp crystals in fine grained ashy matrix.</p> <p>26.5m (foliation)</p> <p><math>\{31.5 - 32.5\}</math> «m dyke»<br/>           Fine grained dark green mafic dyke with 1-2% carbonatized fsp crystals and 1-2% pyroxene crystals.</p> <p><math>\{33.6 - 41.6\}</math> «FP dyke»<br/>           Fine - medium grained, grey feldspar-porphyritic dyke - massive.</p> | 50<br>45       | <p>«W chl, ep»<br/>           Weakly chloritic with fsp crystals altered to epidote, 1-2% epidote "balls".</p> <p>12.45 - 13.05 quartz-chl vein.</p> | <p><math>\{3.7 - 5.35\}</math> «5% py, tr cp»<br/>           Sulphides as stringers and disseminations parallel to foliation.</p> <p><math>\{15.35 - 33.6\}</math> «3-5% py»<br/>           3-5% disseminated pyrite in andesitic tuffs. Little to no sulphides in dykes.</p> | <p>33.0 - 35.7<br/>           Blocky core at upper contact of felsic dyke.</p>   |
| 43.10<br>TO<br>77.10 | DIORITE<br>«DIOR»  | <p>Colour - light green.<br/>           Grain Size - fine - medium grained.<br/>           Massive; feldspar-porphyritic<br/>           5-7% "ragged" white feldspar crystals.</p> <p>Fine grained purplish grey FP, massive dykes at:<br/> <math>\{45.8 - 47.45\}</math> «FP dyke»<br/> <math>\{49.6 - 49.7\}</math> «FP dyke»<br/> <math>\{49.85 - 49.9\}</math> «FP dyke»</p>   |                | <p>Locally weakly carbonate rich; + 1-2% qtz-carb veins.</p>   | <p>None.</p>  | <p>Unit = blocky core</p> <p>FP dykes related to felsic intrusions on Saltspring &amp; not Myra volcanics as they cut diorite dykes which are younger than Myra.</p> |

HOLE NUMBER: MTS-45

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

PAGE: 2

HOLE NUMBER: MTS-45

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO             | ROCK<br>TYPE                                 | TEXTURE AND STRUCTURE   | ANGLE<br>TO CA | ALTERATION  | MINERALIZATION  | REMARKS   |
|------------------------|--|---|----------------|---|---|---|
| 77.10<br>TO<br>97.70   | ANDESITIC<br>CRYSTAL<br>TUFF<br>«And T»      | Colour - green.<br>Grain Size - fine grained.<br>Generally well-foliated; fsp rich beds; 5% epidote patches = fragments and/or alteration.<br>78.0m (foliation)<br><br>86.55 - 87.8 «I dyke»<br>Fine grained intermediate dyke, 1% fsp crystals;<br>massive, light green - possibly a phase of diorite. | 60             | {77.1 - 97.7} «W chl, ep»<br>Weakly chloritic with epidote patches & epidotized fsp crystals.   | {77.1 - 97.7} «1-2% py»<br>Pyrite occurs as disseminations and the odd stringer.  |   |
| 97.70<br>TO<br>127.35  | MAFIC FLOW<br>NITINAT<br>«MaF, Nit»          | Colour - dark green<br>Grain Size - fine grained.<br>Generally massive to weakly foliated. Locally have patches with 5-10% weakly epidotized fsp crystals.<br><br>109.75 - 110.0<br>3% qtz-filled elliptical vesicles (up to 1xm long)  |                | {97.7 - 98.4} «qtz-ep vein»<br>{98.7 - 99.1} «qtz-ep vein»<br>{99.1 - 106.9} «S chl»<br>Strong pervasive chlorite alteration.<br><br>{106.9 - 127.35} «W chl, ep»<br>Weak patchy chlorite 3-5% epidote patches and epidotized fsp crystals.<br>- pyroxene crystals present in epidote patches.<br>Qtz-ep-chl veins at:<br>119.95 - 120.1<br>126.3 - 126.45<br>126.95 - 125.2<br>127.1 - 127.35 (1% mt as stringers in vein) | {97.7 - 98.4} «tr cp, mt veinlets»<br>Tr cp & mt veinlets in quartz vein.<br>{98.7 - 99.1} «1% py»<br>{99.1 - 106.9} «tr - 1% py»<br><br>{106.9 - 127.35} «tr py» | Similar to MTS-34 - top of Nitinat.<br><br>Epidote patches = remnant fragments of a flow breccia? |
| 127.35<br>TO<br>131.75 | INTER-<br>MEDIATE<br>CRYSTAL<br>TUFF<br>«IT» | Colour - greyish green<br>Grain Size - fine grained.<br>Well-foliated.<br>2-3% fsp crystals and ash interlayered with more siliceous (cherty layers).<br>- contacts between underlying & overlying Nitinat flow are indistinct.<br>129.0m (foliation)   | 45             | «W-M chl»<br>- weakly to moderately chloritic.  | «1-2% py»<br>- pyrite occurs as disseminations aligned parallel to foliation.   |   |

HOLE NUMBER: MTS-45

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

PAGE: 3

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

HOLE NUMBER: MTS-45

| FROM<br>TO             | ROCK<br>TYPE   | TEXTURE AND STRUCTURE  | ANGLE<br>TO CA | ALTERATION  | MINERALIZATION  | REMARKS                                     |
|------------------------|--|--|----------------|---|---|---|
| 131.75<br>TO<br>165.30 | NITINAT<br>MAFIC FLOW<br>CRYSTAL<br>TUFF?<br>«Maf, Mt» | Colour - dark green.<br>Grain Size - fine grained.<br>Massive to weakly foliated.<br>- fsp (5-10%) and weakly pyroxene (tr - 1%) porphyritic.<br>- pyroxene crystals most noticeable in epidote patches.<br><br>142.0m (foliation)   | 45             | «W, M chl, ep»<br>- patchy chlorite (weak to moderate) with 5% epidote patches.   | «tr py»<br>- pyrite as fine disseminations and/or stringers.<br><br>146.7 - 156.45 «2-3% py»<br>Pyrite occurs as disseminations aligned parallel to foliation and in stringers where py is medium-coarse grained. |   |
| 165.30<br>TO<br>195.70 | MAFIC<br>CRYSTAL<br>TUFF<br>«Mt»                       | Colour - dark green.<br>Grain Size - fine grained.<br>Near upper contact have finely bedded ashy layers.<br>- grading in fine - medium grained crystal tuff with the odd grey, cherty lithic fragment.<br>(e.g. at 178.8 , 181.6)<br>165.6m (bedding)<br><br>192.1 - 193.0 «FP dyke»<br>- fine grained FP dyke, massive, dark grey.                        | 60             | «W chl»<br>Weakly chloritic throughout.<br><br>185.3 - 185.9<br>Qtz-mt vein.<br><br>186.9 - 192.1 «S carb»<br>- pervasive strong carbonate veining (5-10%). | 186.9 - 192.1 «tr cp»<br>- tr cp in carb. veins.  | - unit lacks epidote "balls" of above unit. |
| 195.70<br>TO<br>232.30 | DIORITE<br>WITH<br>FP DYKES<br>«DIOR, FP»<br>«DYKES»   | Colour - light green.<br>Grain Size - fine - medium grained.<br>Massive, chilled upper margin.<br>- patches of diorite are feldspar-porphyritic (1-2% "ragged fsp crystals).<br>- locally also have intergranular texture.<br>195.7m (contact)<br><br>203.1 - 208.7 «FP dyke»<br>203.1m<br>208.7<br><br>208.9 - 209.0 «FP dyke»<br>209.1 - 209.3 «FP dyke» | 45             | «M carb»<br>- pervasive carbonate alteration.   | 201.6<br>- cp in 0.5cm wide qtz-carb veinlet.   |   |
|                        |  |  | 45             | 206.8 - 208.7<br>- FP bleached white adjacent to 1cm wide epidote vein which parallel core axis.  | 60  |   |

HOLE NUMBER: MTS-45

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

PAGE: 4

HOLE NUMBER: MTS-45

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO | ROCK<br>TYPE | TEXTURE AND STRUCTURE  | ANGLE<br>TO CA | ALTERATION | MINERALIZATION | REMARKS                       |
|------------|--------------|--|----------------|------------|----------------|-------------------------------|
|            |              | 209.3m<br>  215.55 - 215.85   «FP dyke»<br>  216.7 - 217.2   «FP dyke»<br>  217.55 - 219.3   «FP dyke»<br>217.55m<br>  219.8 - 221.0   «FP dyke»<br>219.8m | 65<br>50<br>50 |            |                | 226.0 - 232.3<br>Blocky core. |

HOLE NUMBER: MTS-45

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

PAGE: 5

HOLE NUMBER: MTS-45

## ASSAY SHEET

DATE: 17-May-1989

| Sample | From<br>(m) | To<br>(m) | Length<br>(m) | ASSAYS  |         |         |            | GEOCHEMICAL |           |           |           |           | COMMENTS  |  |
|--------|-------------|-----------|---------------|---------|---------|---------|------------|-------------|-----------|-----------|-----------|-----------|-----------|--|
|        |             |           |               | CU<br>% | ZN<br>% | PB<br>% | AG<br>gm/T | AU<br>gm/T  | CU<br>ppm | ZN<br>ppm | PB<br>ppm | AG<br>ppm | AU<br>ppb |  |
| 6926   | 97.70       | 98.40     | 0.70          |         |         |         |            |             | 355       | 32        | 21        | 0.6       | 15        |  |
| 6927   | 98.40       | 99.10     | 0.70          |         |         |         |            |             | 72        | 72        | 33        | 0.9       | 5         |  |
| 6928   | 127.10      | 127.35    | 0.25          |         |         |         |            |             | 12        | 45        | 20        | 0.9       | 5         |  |
| 6929   | 127.35      | 128.90    | 1.55          |         |         |         |            |             | 25        | 77        | 31        | 0.9       | 5         |  |
| 6930   | 128.90      | 130.40    | 1.50          |         |         |         |            |             | 17        | 73        | 35        | 1.1       | 10        |  |
| 6931   | 130.40      | 131.75    | 1.35          |         |         |         |            |             | 41        | 84        | 39        | 0.9       | 10        |  |

HOLE NUMBER: MTS-45

## ASSAY SHEET

PAGE: 6

HOLE NUMBER: MTS-45

## GEOCHEM. SHEET

DATE: 17-May-1989

| Sample | From<br>(m) | To<br>(m) | Length<br>(m) | SiO <sub>2</sub><br>% | Al <sub>2</sub> O <sub>3</sub><br>% | CaO<br>% | MgO<br>% | Na <sub>2</sub> O<br>% | K <sub>2</sub> O<br>% | Fe <sub>2</sub> O <sub>3</sub><br>% | MnO <sub>2</sub><br>% | TiO <sub>2</sub><br>% | Ba<br>% | Cu<br>PPM | Zn<br>PPM | Pb<br>PPM | Ag<br>PPB | Au<br>PPB | As<br>PPM | SB<br>PPM | SR<br>% | Zr<br>% | Total<br>% |
|--------|-------------|-----------|---------------|-----------------------|-------------------------------------|----------|----------|------------------------|-----------------------|-------------------------------------|-----------------------|-----------------------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|---------|------------|
| 6901   | 20.10       | 23.20     | 3.10          | 48.66                 | 17.04                               | 8.10     | 8.68     | .56                    | .15                   | 12.26                               | .44                   | .70                   | .023    | 131       | 86        | 38        | 1.2       | 5         | 13        | 6         | .03     | .005    | 96.65      |
| 6902   | 81.10       | 84.10     | 3.00          | 51.32                 | 18.74                               | 5.42     | 4.64     | 2.75                   | 1.48                  | 9.27                                | .27                   | .75                   | .064    | 47        | 70        | 33        | 0.9       | 10        | 11        | 1         | .03     | .005    | 94.77      |
| 6903   | 102.10      | 105.10    | 3.00          | 56.50                 | 15.32                               | 3.14     | 8.17     | .93                    | .71                   | 10.51                               | .38                   | .57                   | .027    | 212       | 89        | 43        | 1.6       | 5         | 15        | 4         | .02     | .005    | 96.29      |
| 6904   | 147.80      | 150.80    | 3.00          | 54.18                 | 16.10                               | 2.63     | 7.73     | 1.93                   | .76                   | 11.56                               | .30                   | .62                   | .043    | 34        | 70        | 30        | 1.1       | 5         | 12        | 5         | .02     | .005    | 95.89      |
| 6905   | 175.50      | 178.60    | 3.10          | 50.02                 | 19.02                               | 3.54     | 8.17     | 3.43                   | .51                   | 9.80                                | .45                   | .72                   | .021    | 77        | 90        | 34        | 1.1       | 5         | 11        | 1         | .03     | .005    | 95.73      |

HOLE NUMBER: MTS-45

## GEOCHEM. SHEET

PAGE: 7

HOLE NUMBER: MTS-46

**MINNOVA INC.**  
**DRILL HOLE RECORD**

## **IMPERIAL UNITS:**

**METRIC UNITS - X**

PROJECT NAME: SIC  
PROJECT NUMBER: 305  
CLAIM NUMBER:  
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: MTS  
NORTH: 2265.00S  
EAST: 2546.00E  
ELEV: 472.00

ALTERNATE COORDS · GRID:  
NORTH: 0+ 0  
EAST: 0+ 0  
ELEV: 0.00

COLLAR DIP: -65° 0' 0"  
LENGTH OF THE HOLE: 505.10m  
START DEPTH: 0.00m  
FINAL DEPTH: 505.10m

COLLAR GRID AZIMUTH: 25° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 25° 0' 0"

DATE STARTED: March 24, 1988 COLLAR SURVEY: NO  
DATE COMPLETED: April 1, 1988 MULTISHOT SURVEY: NO  
DATE LOGGED: 0 0 ROD LOG: NO

PULSE EM SURVEY: YES  
PLUGGED: NO  
HOLE SIZE: NO

**CONTRACTOR: BURWASH ENTERPRISES  
CASING: 12.2M  
CORE STORAGE: 6722 LAKES ROAD DUNCAN**

PURPOSE: TO TEST A STRONG IP ANOMALY LOCATED AT CONTACT BETWEEN FELSIC AND INTERMEDIATE TUFFS.

**DIRECTIONAL DATA:**

---

HOLE NUMBER - MTS-66

**DRILL HOLE RECORD**

LOGGED BY: G. S. WELLS

PAGE: 1

HOLE NUMBER: MTS-46

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO            | ROCK<br>TYPE  | TEXTURE AND STRUCTURE  | ANGLE<br>TO CA | ALTERATION   | MINERALIZATION  | REMARKS |
|-----------------------|---|--|----------------|--|---|---------|
| 0.00<br>TO<br>12.00   | OVERBURDEN<br>«OB»                                  |  |                |  |   | Casing  |
| 12.00<br>TO<br>24.05  | INTER-MEDIATE<br>ASH TUFF<br>«I Ash»                | Colour - greenish grey.<br>Grain Size - very fine grained.<br>Massive to weakly foliated.<br><br>20.0 - 20.6 «FAULT»<br>- sericitic fault gouge.<br>22.5m (foliation)  | 40             | White silicified veinlets & grey<br>silicified patches throughout.<br>- patchy sericite bleaches core white. | ≤3-5% py»<br>Pyrite occurs as fine grained<br>disseminations and medium grained<br>stringers. |         |
| 24.05<br>TO<br>40.00  | INTER-MEDIATE ASH<br>CRYSTAL<br>TUFF<br>«I Ash, FT» | Colour - dark grey.<br>Grain Size - very fine grained.<br>Massive to weakly foliated.<br>patches with ragged grey fsp? crystals - some are<br>tabular.<br>25.3m (foliation)<br><br>29.0 - 29.2<br>Fold interference patterns.<br><br>34.6m<br><br>- contacts with underlying & overlying intermediate<br>ash units indistinct. | 55             | Silicified look, tr green mica at 25.3.  | ≤8-10% py»<br>- very fine grained disseminated pyrite<br>throughout.                          |         |
| 40.00<br>TO<br>45.20  | INTER-MEDIATE<br>ASH TUFF<br>«I Ash»                | Colour - greenish grey.<br>Grain Size - fine grained.<br>Massive to weakly foliated.<br><br>43.0m (foliation)  | 70             | Patchy epidote "spots" 2-3cm diameter<br>near upper contact. Patchy silicified<br>zones.                     | ≤2-3% py»   |         |
| 45.20<br>TO<br>104.50 | DIORITE<br>«DIOR»                                   | Colour - greenish grey.<br>Grain Size - fine - medium grained.<br>Feldspar-porphyritic (10%) 0.2m wide chill at<br>upper contact.<br>45.2m (contact)<br><br>- patches have good medium grained intergranular   | 70             | 1-2% carb-qtz veinlets & veins.  | None.   |         |

HOLE NUMBER: MTS-46

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

PAGE: 2

HOLE NUMBER: MTS-46

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO             | ROCK<br>TYPE   | TEXTURE AND STRUCTURE   | ANGLE<br>TO CA | ALTERATION   | MINERALIZATION  | REMARKS   |
|------------------------|--|---|----------------|--|---|---|
|                        |  | texture<br>62.5m (veins)  | 60             |  |   |   |
| 104.50<br>TO<br>116.40 | FELSIC ASH<br>«F Ash»  | Colour - dark grey.<br>Grain Size - fine grained.<br>Weakly foliated<br>1-2% qtz phenocrysts - rounded (up to 5mm diameter) set up very fine grained ashy matrix.   |                | «W ser»  | «1% py»<br>- 1% disseminated pyrite parallel to foliation.  |   |
| 116.40<br>TO<br>118.60 | PYRITIC<br>ASH WITH<br>TRACE CHERIT<br>FRAGMENTS<br>«Py Ash» | Colour - grey.<br>Grain Size - very fine grained.<br>Well-foliated - "silver dollars".<br>Tr - 1% grey fine grained cherty - looking fragments aligned parallel to foliation.<br>118.0m (foliation)   | 50             | «W ser»  | «3-5% py»<br>Very fine grained pyrite disseminated throughout unit; also have the odd stringer where py is coarser grained.                               | Looks similar to unit in Mona area - MTS-38 - 40 but not as pyritic.<br>- Unit occurs at top of Andesitic Crystal Tuff. |
| 118.60<br>TO<br>135.00 | ANDESITIC<br>CRYSTAL<br>TUFF<br>«And T»                      | Colour - dark green.<br>Grain Size - fine - medium grained.<br>Contact with pyritic ash gradational.<br>- 1-2% epidote patches = remnant fragments?<br>- Fsp crystals (10-15%).<br><br>124.9 - good bedding contact between medium grained crystal tuff and ash - ash grades downwards into crystal tuff indicating tops up hole.<br>124.9m (bedding) | 55             | «W-M epe»<br>- epidote patches & weakly epidotized fsp crystals. | {118.6 - 121.1} «2-3% py»<br>- 2-3% py disseminated parallel to foliation with tr cp in quartz vein at 119.5 - 119.6.<br><br>{121.1 - 128.6} «tr - 1% py» |   |
|                        |  | 129.3m (foliation)  | 55             |  | {128.6 - 129.9} «5% py»   |   |
|                        |  | 129.9 - 135.0<br>10% equant shaped epidote crystals = pseudomorphs after pyroxene?  |                |  |   |   |
| 135.00<br>TO<br>140.50 | QFP CRYSTAL<br>TUFF<br>«FT, QFP»                             | Colour - grey.<br>Grain Size - medium grained.<br>Massive to weakly foliated.<br>15% qtz crystals - subrounded and broken; 2-3% fsp crystal near lower contact.   |                | Relatively unaltered.  | «1% py»   | Unit - blocky core.   |

HOLE NUMBER: MTS-46

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

PAGE: 3

HOLE NUMBER: MTS-46

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO             | ROCK<br>TYPE                         | TEXTURE AND STRUCTURE  | ANGLE<br>TO CA | ALTERATION   | MINERALIZATION   | REMARKS  |
|------------------------|--------------------------------------|--|----------------|--|--|--|
|                        |                                      | 137.0m (foliation)   | 55             |  |  |  |
| 140.50<br>TO<br>142.90 | PYRITIC<br>FELSIC ASH<br>«F Ash, Py» | Colour - dark grey.<br>Grain Size - fine grained.<br>- Massive.  |                | Tr - 1% qtz-carb veins.<br>Tr epidote patches.                                   | ≤5-7% py, tr cp<br>- sulphides very fine grained;<br>disseminated throughout unit. | Not as exhalative looking as unit at<br>116.4 - 118.6. |
| 142.90<br>TO<br>505.10 | DIORITE<br>«DIOR»                    | Colour - dark green.<br>Grain Size - medium grained.<br>0.4m chilled upper contact<br>- feldspar porphyritic<br>3-5% "ragged" fsp crystals.<br>142.9m (contact)<br><br>156.7 - 165.3<br>2-3% black subhedral crystals = ilmenite? - non-magnetic.<br><br>{173.4 - 196.3} «5-8% mt»<br>- coarse grained, intergranular texture with<br>5-8% mt crystals, strongly magnetic.<br>- dark green.<br><br>196.3 - 234.75<br>- Unit fine-medium grained, intergranular texture-<br>no fsp phenocrysts.<br><br>Grey FP dykes at:<br>229.8 - 229.85<br>230.2 - 230.25<br><br>{234.75 - 234.85} «FAULT»<br>- Fault breccia.<br><br>234.85 - 329.45<br>- Diorite medium grained with 3-5% white fsp<br>crystals; unit light grey - greenish grey colour<br>Grey FP dykes at:<br>241.8 - 241.95 | 55             | 1-2% carbonate veins.  | None.  |  |
|                        |                                      |  |                |  | {184.35 - tr cp associated with carb-qtz<br>vein.                                  |  |
|                        |                                      |  |                | {224.0 - 228.1} «S chl, carb»<br>- pervasive carbonate - chlorite<br>alteration. |  |  |
|                        |                                      |  |                | {277.3 - 279.7} «W hem»  |  |  |

HOLE NUMBER: MTS-46

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

PAGE: 4

HOLE NUMBER: MTS-46

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO | ROCK<br>TYPE | TEXTURE AND STRUCTURE  | ANGLE<br>TO CA | ALTERATION  | MINERALIZATION | REMARKS |
|------------|--------------|--|----------------|---|----------------|---------|
|            |              | <p>3280.75 - 283.9½ «FAULT»<br/> - blocky core with minor fault gouge.</p> <p>3289.9 - 291.1½ «FAULT»<br/> - fault gouge.</p> <p>311.5 - fine grained, chilled contact = top of another fsp-porphyritic dyke - looks identical to overlying rock except that 5% fsp's in fine grained matrix - may be a chill zone effect.</p> <p>311.5m (contact)</p> <p>320.8 - 320.9<br/> Fault gouge at 45 degrees to C.A.</p> <p>329.45 - 361.4<br/> - diorite medium grained - intergranular texture (non porphyritic).<br/> 332.1 - 333.7 - 3-5% mt crystals - strongly magnetic.</p> <p>336.7 - 361.4<br/> Unit well-foliated.</p> <p>352.0m (foliation)<br/> 357.0m (foliation)</p> <p>361.4 - 491.0<br/> Unit massive; foliated in carbonate-rich sections.<br/> 3-5% fsp crystals.</p> <p>371.0m (foliation)</p> <p>384.8 - 385.6 - strongly magnetic.</p> <p>395.0m (foliation)</p> <p>404.5 - 491.0<br/> Locally weakly magnetic.</p> | 70             | <p>- core reddish colour due to weak hematite staining associated with carb veins.</p> <p>329.45 - 331.0<br/> 3-5% white leucoxene after magnetite/ilmenite.</p> <p>336.7 - 351.1½ «5% carb-qtz veins»<br/> - diorite bleached light greenish grey adjacent to qtz-carb veins.</p> <p>351.1 - 361.4½ «S carb»<br/> Pervasively carbonate-rich due to numerous microveinlets (5%) of carbonate.</p> <p>Carb-rich zones at:<br/> 365.1 - 365.95½ «S carb»<br/> 370.8 - 372.2½ «S carb»<br/> 377.8 - 379.3½ «S carb»</p> <p>394.1 - 396.95½ «S carb»</p> |                |         |

HOLE NUMBER: MTS-46

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

PAGE: 5

HOLE NUMBER: MTS-46

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO | ROCK<br>TYPE | TEXTURE AND STRUCTURE   | ANGLE<br>TO CA | ALTERATION                      | MINERALIZATION | REMARKS |
|------------|--------------|---|----------------|---------------------------------|----------------|---------|
|            |              | <p>{445.1 - 446.3} «FP dyke»<br/>         Fine grained, grey, feldspar-porphyritic dyke - sharp contacts.<br/>         446.3m (contact)</p> <p>491.0 - 502.9<br/>         Diorite fine grained - tr leucoxene crystals - foliated.<br/>         498.5m</p> <p>{499.9 - 500.1} «FAULT»<br/>         - fault gouge</p> <p>502.9 - 505.1<br/>         1-2% white fsp phenocrysts in dark green matrix.</p> <p>{500.4 - 501.4} «FAULT»<br/>         - blocky core, qtz-carb vein &amp; fault gouge.</p> | 50<br>25       | {491.0 - 502.9} «M-S chl, carb» |                |         |

HOLE NUMBER: MTS-46

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

PAGE: 6

HOLE NUMBER: MTS-46

## ASSAY SHEET

DATE: 17-May-1989

| Sample | From<br>(m) | To<br>(m) | Length<br>(m) | ASSAYS  |         |         |            |            | GEOCHEMICAL |           |           |           |           | COMMENTS |
|--------|-------------|-----------|---------------|---------|---------|---------|------------|------------|-------------|-----------|-----------|-----------|-----------|----------|
|        |             |           |               | CU<br>% | ZN<br>% | PB<br>% | AG<br>gm/T | AU<br>gm/T | CU<br>ppm   | ZN<br>ppm | PB<br>ppm | AG<br>ppm | AU<br>ppb |          |
| 6932   | 24.05       | 25.50     | 1.45          |         |         |         |            |            | 33          | 51        | 16        | 1.0       | 5         |          |
| 6933   | 25.50       | 27.00     | 1.50          |         |         |         |            |            | 42          | 56        | 18        | 1.2       | 5         |          |
| 6934   | 27.00       | 28.60     | 1.60          |         |         |         |            |            | 18          | 61        | 27        | 1.4       | 10        |          |
| 6935   | 28.60       | 30.00     | 1.40          |         |         |         |            |            | 28          | 44        | 18        | 1.2       | 5         |          |
| 6936   | 30.00       | 31.50     | 1.50          |         |         |         |            |            | 25          | 58        | 25        | 1.1       | 15        |          |
| 6937   | 31.50       | 33.00     | 1.50          |         |         |         |            |            | 18          | 42        | 26        | 1.2       | 5         |          |
| 6938   | 33.00       | 34.80     | 1.80          |         |         |         |            |            | 42          | 25        | 17        | 1.0       | 10        |          |
| 6939   | 34.80       | 36.30     | 1.50          |         |         |         |            |            | 51          | 45        | 19        | 0.7       | 5         |          |
| 6940   | 36.30       | 37.80     | 1.50          |         |         |         |            |            | 29          | 48        | 23        | 1.0       | 5         |          |
| 6941   | 37.80       | 38.90     | 1.10          |         |         |         |            |            | 22          | 45        | 19        | 0.9       | 5         |          |
| 6942   | 38.90       | 40.00     | 1.10          |         |         |         |            |            | 29          | 47        | 24        | 0.9       | 10        |          |
| 6943   | 116.40      | 117.50    | 1.10          |         |         |         |            |            | 50          | 55        | 29        | 0.7       | 5         |          |
| 6944   | 117.50      | 118.60    | 1.10          |         |         |         |            |            | 36          | 43        | 15        | 0.3       | 5         |          |
| 6945   | 118.60      | 119.60    | 1.00          |         |         |         |            |            | 491         | 51        | 19        | 0.6       | 10        |          |
| 6946   | 128.60      | 129.90    | 1.30          |         |         |         |            |            | 45          | 66        | 20        | 0.7       | 5         |          |
| 6947   | 140.50      | 141.70    | 1.20          |         |         |         |            |            | 66          | 44        | 14        | 0.3       | 5         |          |
| 6948   | 141.70      | 142.90    | 1.20          |         |         |         |            |            | 174         | 45        | 16        | 0.8       | 10        |          |

HOLE NUMBER: MTS-46

ASSAY SHEET

PAGE: 7

HOLE NUMBER: MTS-46

## GEOCHEM. SHEET

DATE: 17-May-1989

| Sample | From<br>(m) | To<br>(m) | Length<br>(m) | SiO <sub>2</sub><br>% | Al <sub>2</sub> O <sub>3</sub><br>% | CaO<br>% | MgO<br>% | Na <sub>2</sub> O<br>% | K <sub>2</sub> O<br>% | Fe <sub>2</sub> O <sub>3</sub><br>% | MnO <sub>2</sub><br>% | TiO <sub>2</sub><br>% | Ba<br>% | Cu<br>PPM | Zn<br>PPM | Pb<br>PPM | Ag<br>PPM | Au<br>PPB | As<br>PPM | Sb<br>PPM | SR<br>% | Zr<br>% | Total<br>% |
|--------|-------------|-----------|---------------|-----------------------|-------------------------------------|----------|----------|------------------------|-----------------------|-------------------------------------|-----------------------|-----------------------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|---------|------------|
| 6906   | 18.60       | 21.40     | 2.80          | 55.70                 | 18.05                               | 2.00     | 2.92     | 5.01                   | 1.10                  | 9.98                                | .16                   | .93                   | .078    | 38        | 65        | 24        | 1.2       | 5         | 12        | 1         | .03     | .008    | 95.95      |
| 6937   | 31.50       | 33.00     | 1.50          | 51.77                 | 19.17                               | 2.65     | 1.74     | 6.40                   | .93                   | 10.41                               | .08                   | .99                   | .122    | 18        | 42        | 26        | 1.2       | 5         | 4         | 1         | .03     | .008    | 94.31      |
| 6907   | 40.80       | 43.90     | 3.10          | 55.41                 | 18.68                               | 4.05     | 3.41     | 4.66                   | .61                   | 8.26                                | .16                   | .82                   | .058    | 25        | 60        | 25        | 1.1       | 5         | 14        | 1         | .04     | .006    | 96.16      |
| 6908   | 108.50      | 111.40    | 2.90          | 70.75                 | 13.55                               | .88      | 2.99     | 1.93                   | 1.81                  | 4.86                                | .10                   | .25                   | .114    | 7         | 40        | 16        | 0.3       | 10        | 7         | 2         | .02     | .008    | 97.27      |
| 6909   | 131.10      | 134.10    | 3.00          | 55.01                 | 19.10                               | 4.17     | 4.20     | 4.34                   | .60                   | 7.21                                | .21                   | .70                   | .049    | 12        | 70        | 33        | 1.4       | 10        | 11        | 1         | .03     | .006    | 95.62      |
| 6910   | 137.50      | 139.80    | 2.30          | 71.38                 | 13.61                               | 1.26     | 1.70     | 3.04                   | 1.54                  | 4.10                                | .05                   | .23                   | .101    | 14        | 33        | 12        | 0.3       | 5         | 9         | 1         | .02     | .010    | 97.02      |

HOLE NUMBER: MTS-46

## GEOCHEM. SHEET

PAGE: 8

HOLE NUMBER: MTS-66

MINNOVA INC.  
DRILL HOLE RECORD

**IMPERIAL UNITS:**      **METRIC UNITS:**

PROJECT NAME: SIC  
PROJECT NUMBER: 305  
CLAIM NUMBER:  
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: MTS  
NORTH: 2070.005  
EAST: 2260.00E  
ELEV: 567.00

ALTERNATE COORDS GRID:  
NORTH: 0+ 0  
EAST: 0+ 0  
ELEV: 0.00

COLLAR DIP: -50° 0' 0"  
LENGTH OF THE HOLE: 229.50m  
START DEPTH: 0.00m  
FINAL DEPTH: 229.50m

COLLAR GRID AZIMUTH: 45x 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 45x 0' 0"

DATE STARTED: November 30, 1998 COLLAR SURVEY: NO  
DATE COMPLETED: December 4, 1988 MULTISHOT SURVEY: NO  
DATE LOGGED: 0, 0 RRD LOG: NO

PULSE EM SURVEY: NO  
PLUGGED: NO  
HOLE SIZE: NO

CONTRACTOR: BURWASH ENTERPRISES  
CASING: 3.0M  
CORE STORAGE: 6722 LAKES ROAD, DUNCAN

PURPOSE: TO TEST A WELL-DEFINED IP-ANOMALY AND LITHO- GEOCHEM ANOMALY IN THE GAP AREA

**DIRECTIONAL DATA:**

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 29-November-1989

HOLE NUMBER: MTS-66

| FROM  | ROCK        | ANGLE   | TO CAI                   | ALTERATION  | MINERALIZATION                         | REMARKS                           |
|-------|-------------|---|--------------------------|---|--|-----------------------------------|
| TO    | TYPE        | TEXTURE AND STRUCTURE   |                          |   |  |                                   |
| 0.00  | OVERBURDEN  |   |                          |   |  |                                   |
| TO    | .OB/        |   |                          |   |  |                                   |
| 3.00  |             |   |                          |   |  |                                   |
| 3.00  | DACITE TO   |   |                          | .W Ser/   | .X1% py/                               |                                   |
| TO    | INTERMED-   | Colour - light green.   |                          |   |  |                                   |
| 21.95 | IATE TUFF,  | Grain Size - fine grained.  |                          |   |  |                                   |
|       | CRYSTAL     | - massive to weakly foliated  |                          | Very weakly sericitic, weakly altered             |  |                                   |
|       | TUFF        | - zones with 2-3% weakly sericitized feldspars  |                          | appearance.                                       |  |                                   |
|       | .DAC-IT/    | - limonitic fracture staining = surface weathering  |                          |   |  |                                   |
|       |             | - zones as follows of light grey felsic pyritic ashes/tuffs                                       |                          |   |  |                                   |
|       |             | 97.4 - 7.6L .Py FA/   | 97.4 - 7.6L .W Ser/      | 97.4 - 7.6L .5-7% py/                             |  |                                   |
|       |             | Light gray, fine grained, weakly foliated. <1mm   |                          | 5-7% very finely disseminated pyrite              |  |                                   |
|       |             | possible siliceous pyritic exhalites?   |                          |   |  |                                   |
|       |             | Sharp lower contact = bedding.  | 40                       |   |  |                                   |
|       |             | 914.85 - 16.9L .Py FT/  | 914.85 - 16.9L .W-M Ser/ | 914.85 - 16.9L .3-5% py/                          |  |                                   |
|       |             | Pyritic Felsic Tuff: light grey, weakly foliated, some mixing with fsp phryic dacite.             |                          | 3-5% finely disseminated pyrite.                  |  |                                   |
|       |             | 14.85 (contact)   | 60                       | 5cm semi massive pyrite @ 16.7m.                  |  |                                   |
|       |             | 18.0 (foliation)  | 40                       |   |  |                                   |
|       |             | 919.90 - 20.8L .Py FT/  | 919.90 - 20.8L .W-M Ser/ | 919.90 - 20.8L .3-5% py/                          |  |                                   |
|       |             | Pyritic Felsic Tuff: light grey, fine grained, weakly foliated, rare grains of <1mm green silica. |                          | 3-5% finely disseminated pyrite.                  |  |                                   |
|       |             | - minor mixing with dacite  |                          | Includes 20.2 - 20.3 with 90% massive pyrite.     |  |                                   |
|       |             | 20.8 (contact)  | 50                       |   |  |                                   |
|       |             | 21.5 - 21.95  |                          | 921.5 - 21.95L .3-5% py/                          |  |                                   |
|       |             | Finer grained ashier looking.   |                          | 3-5% finely disseminated pyrite.                  |  |                                   |
|       |             | Sharp lower contact = bedding @ 21.95.  | 70                       |   |  |                                   |
| 21.95 | PYRITIC     |   |                          | .S-I Ser/   | .7-10% py/                             |                                   |
| TO    | FELSIC TUFF | Colour - light & dark grey.   |                          |   |  |                                   |
| 43.50 | .Py FT/     | Grain Size - fine grained.  |                          | Strong to intense sericitization. Very soft core. | 7-10% very finely disseminated pyrite. | Very Poor Recovery!!              |
|       |             |   |                          |   |  |                                   |
|       |             |   |                          |   |  | 26.4 - 42.4 Average recovery 40%. |
|       |             |   |                          |   |  | Includes: 32.0 - 34.1 10%         |
|       |             |   |                          |   |  | 34.1 - 35.4 0%                    |
|       |             |   |                          |   |  | 35.4 - 38.1 26I                   |
|       |             | 21.95 - 27.5  |                          |   |  |                                   |
|       |             | Light grey weak - moderately foliated, aphyric.   |                          |   |  |                                   |

HOLE NUMBER: MTS-66

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 29-November-1989

| FROM  | ROCK      | ANGLE  | TD CAI | ALTERATION | MINERALIZATION   | REMARKS   |
|-------|-----------|--|--------|------------|--|---|
| TO    | TYPE      | TEXTURE AND STRUCTURE  |        |            |  |   |
|       |           | 27.5 - 43.5  |        |            |  |   |
|       |           | Becoming dark grey, more strongly foliated.  |        |            |  |   |
|       |           | Very soft core, numerous gougy zones - very poor recovery within interval.   |        |            | 929.55 - 30.8L .60% py/ 60% pyrite, faintly banded at 55               |   |
|       |           | 27.0 (foliation)   | 65     |            | degrees as coarse brassy pyrite and                                    |   |
|       |           | 31.0 (foliation)   | 75     |            | very fine dark pyrite.   |   |
|       |           | 42.6 (foliation)   | 80     |            | Misatch through interval only 50% recovery.                            |   |
| 43.50 | QP FELSIC |  |        |            | .1-2% py/  |   |
| TO    | FLOW      | Colour - creamy grey, light green grey.  |        |            |  |   |
| 95.10 | QP FF/    | Grain Size - fine grained.   |        |            |  |   |
|       |           | Very weakly foliated.  |        |            | 1-2% disseminated pyrite & occasional thin stringers.                  |   |
|       |           | - quartz phritic, 3-7% angular & rounded 1-3mm quartz eyes. Locally 10%. Occasional faults which seem to truncate alteration & mineralization. |        |            |  |   |
|       |           | 43.5 - 51.45   |        |            | 943.5 - 51.45L .S Ser, W-M Sil/  |   |
|       |           | Creamy white.  |        |            | Strongly sericitic, weak to moderately siliceous. Creamy white colour. |   |
|       |           | 50.0 - 50.5  |        |            |  |   |
|       |           | Creamy gougy milled core.  |        |            |  |   |
|       |           | 50.6 - 52.5  |        |            |  |   |
|       |           | Weak milled appearance some distorted foliation.   |        |            |  |   |
|       |           | 51.45  |        |            |  |   |
|       |           | 3cm black & creamy white clay gouge.   |        |            |  |   |
|       |           | 51.45 - 58.35  |        |            | 951.45 - 58.35L .W Ser, W-M Sil/                                       |   |
|       |           | Light green grey, less altered looking.  |        |            |  |   |
|       |           | Siliceous appearance.  |        |            |  |   |
|       |           | 58.35 - 64.8   |        |            | 958.35 - 64.8L .W Ser, W Sil/  | 958.35 - 64.8L .5-7% py, <1% cpy/   |
|       |           | Light creamy colour. Occasional epidotized mm feldspars.   |        |            | Strongly sericitic, weakly silicified.                                 | 5-7% pyrite disseminated and numerous <1cm stringers cross-cutting & parallel to foliation. |
|       |           | 60.1 - 60.2  |        |            |  |   |
|       |           | <1% chalcopyrite.  |        |            |  |   |
|       |           | 64.8 - 65.8  |        |            |  |   |
|       |           | Fault zone: gougy milled core. (0.5cm black gouge & minor veining at upper & lower contacts.   |        |            |  | Small fault zone similar to small thrusts seen up at Lara.                                  |

HOLE NUMBER: MTS-66

## DRILL HOLE RECORD

DATE: 29-November-1989

| FROM   | ROCK   | TEXTURE AND STRUCTURE   | ANGLE<br>TO CA                 | ALTERATION  | MINERALIZATION  | REMARKS  |
|--------|--|---|--------------------------------|---|---|--|
| TO     | TYPE   |   |                                |   |   |  |
|        |  |   |                                |   |   |  |
|        | 64.8   |   | 35                             |   |   |  |
|        | 65.8   |   | 40                             |   |   |  |
|        |  | Distorted foliations & minor gouge down to 67.0m  |                                |   |   |  |
|        | 65.8 - 95.1  |   | 955.8 - 95.1L .W-M Ser, W Sil/ |   |   |  |
|        | Light green, patchy light grey, very quartz phryic | with up to 10% angular quartz eyes. Patches with 1-2% mm feldspars. Weakly - moderately foliated. |                                | Weakly sericitic patchy moderately sericitic zones.                         |   |  |
|        | 71.7 - 71.8  |   |                                |   |   |  |
|        | Gougy milled core.                                 |   |                                |   |   |  |
|        |  | Last 10cm minor gouge.  |                                |   |   |  |
|        | 77.7 (foliation)                                   |   | 70                             |   |   |  |
|        | 84.7 (foliation)                                   |   | 70                             |   |   |  |
|        | 94.0 (foliation)                                   |   | 60                             |   |   |  |
|        | Lower contact                                      |   | 73                             |   |   |  |
|        |  |   |                                |   |   |  |
| 95.10  | PYRITIC  |   | .S Ser/                        |   | .7-10% py, <1% cpy/   |  |
| TD     | FELSIC ASH,  | Colour - light to medium grey.  |                                |   |   |  |
| 128.15 | TUFF   | Grain Size - fine grained.  |                                |   |   |  |
|        | .Py FA,T/  | - moderately foliated<br>- Fairly soft core, occasional gougy zones.                              |                                | Strong sericite alteration. Rare quartz +/- calcite veining up to 5cm wide. | 7-10% disseminated pyrite. Minor alignment parallel to foliation.<br>Occasional mm stringers parallel to foliation. <1% cpy disseminated & within pyrite stringers. | Much better recovery than previous pyritic tuff. |
|        |  |   |                                |   |   |  |
|        | 96.3 (foliation)                                   |   | 70                             |   | 96.5 - 96.95<br>10% pyrite & <1% chalcopyrite mainly as stringers.  |  |
|        |  |   |                                |   |   |  |
|        | 97.7 - 97.85                                       |   |                                |   |   |  |
|        | Fault: gougy core.                                 |   |                                |   |   |  |
|        |  | Top of unit cut by light grey, massive fresh FP Felsic Dykes, with 2-3% white mm feldspars.       |                                |   |   |  |
|        | 997.9 - 98.05L .Fel Dyke/                          |   |                                |   |   |  |
|        | 97.9   |   | 50                             |   |   |  |
|        | 98.85  |   | 55                             |   |   |  |
|        |  |   |                                |   |   |  |
|        | 999.3 - 101.5L .Fel Dyke/                          |   |                                |   |   |  |
|        | Rare quartz eyes.                                  |   |                                |   |   |  |
|        |  |   |                                |   |   |  |
|        | 9102.25 - 105.05L .Fel Dyke/                       |   |                                |   |   |  |
|        | Felsic dyke. 4cm sheared zone @ 50 degrees         |   |                                |   |   |  |

HOLE NUMBER: MTS-66

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 29-November-1989

| FROM   | ROCK       | TEXTURE AND STRUCTURE   | ANGLE | TO CA          | ALTERATION  | MINERALIZATION  | REMARKS |
|--------|------------|---|-------|----------------|---|---|---------|
|        |            | : with minor gouge at top of unit.<br>: 102.25<br>: 105.05  |       | 50             |   |   |         |
|        |            | : 107.6 (foliation)   |       | 80             |   |   |         |
|        |            | : Rare wisp & mm spots of light green fuchsite?   |       |                |   |   |         |
|        |            | : 110.9 - 115.3<br>: Numerous 1-2mm gypsum veinlets parallel to<br>: foliation.   |       |                |   |   |         |
|        |            | : 111.0 (foliation)   |       | 70             |   |   |         |
|        |            | : 115.3 - 119.25<br>: Unit becoming more massive. Weak siliceous<br>: appearance. Weak brecciated appearance marked<br>: by a pyrite stockwork around brecciated frags. |       |                |   | 115.3 - 119.25<br>Pyrite disseminated and as a thin<br>stockwork between brecciated fragments.          |         |
|        |            | : 121.7 (foliation)   |       | 75             |   |   |         |
|        |            | : 9122.5 - 123.4L .Fel QFP Dyke/<br>: QFP Dyke. Massive 2-3% white mm feldspars and<br>: <1% quartz grains.   |       |                |   | 9122.5 - 123.4L .<1% py/<br><1% disseminated pyrite with a reddish<br>stain, alteration.                |         |
|        |            | : 123.4 (contact)   |       | 75             |   |   |         |
|        |            | : 126.5 (foliation)   |       | 80             |   |   |         |
|        |            | : Gradational lower contact.  |       |                |   |   |         |
| 128.15 | ANDESITE   |   |       |                | .M Chi, M-S Ep/   | .<1% py/  |         |
| TO     | ASH & TUFF | Colour - medium to dark green.  |       |                |   |   |         |
| 199.30 | And A, T/  | Grain Size - fine grained.  |       |                |   |   |         |
|        |            |   |       |                | Moderate chlorite alteration more<br>pronounced in finer grained zones.<br>Moderate to strong epidote alteration<br>of feldspars forming 2-3cm balls. | <1% disseminated pyrite.  |         |
|        |            | : 128.15 - 129.6<br>: Mixing with above unit. Light grey & medium green<br>: layering parallel to foliation.  |       |                |   | 9128.15 - 130.95L .3-5% py/<br>3-5% pyrite generally decreasing below                                   |         |
|        |            | : 129.5 (foliation)   |       | 70             |   | 129.6 pyrite occurs as disseminations<br>and thin stringers parallel to folia-<br>tion.                 |         |
|        |            | : Below 129.6<br>: Weakly granular weakly foliated, fine grained<br>ashes and tuffs with mm green epidote grains.   |       |                |   | 9130.95 - 130.55L .1-2% py/<br>1-2% pyrite weakly disseminated & as<br>mm stringers defining foliation. |         |
|        |            | : Numerous zones with 3-7% & up to 15% 1-5mm<br>epidote clots, = feldspars.   |       | 135.25 - 136.2 | Minor quartz epidote veining.   | Includes 135.95 - 136.2 15-20%<br>brassy pyrite.  |         |
|        |            | : Occasional epidote balls up to 2-3cm.   |       |                |   |   |         |
|        |            | : 135.0 (foliation)   |       | 75             |   |   |         |

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 29-November-1989

HOLE NUMBER: MTS-66

| FROM   | ROCK<br>TO                | TEXTURE AND STRUCTURE   | ANGLE<br>(TO CAV) | ALTERATION  | MINERALIZATION   | REMARKS |
|--------|---------------------------|---|-------------------|---|--|---------|
|        |                           | 162.1 - 171.0<br>Lighter green colouration. Moderate quartz<br>veining. Looks more intermediate in composition.<br>Rare fragments of grey felsic tuff.<br>Feldspar fairly fresh around 170m.<br>164.6 (foliation) |                   | Epidote alteration limited more to<br>veining & epidote balls below 165.0m.                             | 9162.1 - 163.7L .5% py/<br>9164.45 - 171.0L .4-5% py, tr cpy/<br>3-5% finely disseminated pyrite &<br>minor stringers.         |         |
|        |                           | 181.4 - 193.4<br>Fragmental Andesite. Fragments of dark grey<br>pyritic felsic? tuff within Andesitic groundmass.<br>Granular appearance to interval.   | 70                |   | 9177.4 - 193.4L .3% py/<br>3% pyrite as fine 3-5mm stringers &<br>weak disseminations. Locally 5% pyrite<br>as thin stringers. |         |
|        |                           | 9193.4 - 196.8L .Py FT/<br>Pyritic Felsic Tuff: Light grey, fine grained,<br>moderately foliated.<br>Rubby upper & lower contacts.  |                   | 9193.4 - 196.8L .M Ser/<br>Moderately sericitic.  | 9193.4 - 196.8L .5-7% py/<br>5-7% finely disseminated pyrite.  |         |
|        |                           | 193.8 (foliation)   | 80                |   |  |         |
| 199.30 | INTERMEDI-<br>ATE CRYSTAL | .W Ser/chi, W Ep/   |                   |   | .3% py/  |         |
| 210.10 | TUFF<br>.IT/              | Colour - medium grey.<br>Grain Size - fine grained.<br>Fairly massive.<br>Very granular appearance caused by abundant<br><1mm translucent subhedral to euhedral<br>feldspar crystals.                             |                   | Very weak sericite/chlorite alteration<br>of groundmass. Weak epidote alteration<br>from 209.1 - 213.2. | 3% fine pyrite disseminated and 2-3mm<br>stringers.  |         |
|        |                           | 209.1 - 213.2<br>Mixing with more andesitic component.<br>- weakly epidotized feldspars and lcm epidote<br>clots.   |                   |   | 204.3 - 204.8<br>7% pyrite stringers.  |         |
| 210.10 | FELSIC<br>TO TUFF, FLOW?  | .W Ser, Mod. Sil/   |                   |   | .<1% py/   |         |
| 223.45 | .FT, FF?/                 | Colour - medium grey.<br>Grain Size - fine grained.<br>- fairly massive<br>- quartz phrytic with <1-11 2-4mm fairly rounded<br>quartz eyes<br>- moderate siliceous appearance                                     |                   | Weakly sericitic, moderate siliceous<br>appearance = primary feature?                                   |  |         |
|        |                           | 9220.55 - 222.9L .MA/<br>Mafic Ash: Fine grained, aphyric, green, very<br>weakly foliated.  |                   | 9220.55 - 222.9L .W-M Chl/  | .220.55 - 222.9/ .1-11 py/   |         |
|        |                           | Lower contact   | 45                |   |  |         |

HOLE NUMBER: MTS-66

**MINNOVA INC.**  
**DRILL HOLE RECORD**

DATE: 29-November-1989

| FROM   | ROCK        | ANGLE   | TO CAT | ALTERATION  | MINERALIZATION                    | REMARKS |
|--------|-------------|---|--------|-------------|-----------------------------------|---------|
| TO     | TYPE        | TEXTURE AND STRUCTURE                             |        |             |                                   |         |
| 223.45 | FELSIC DYKE |   |        |             |                                   |         |
| TD     | ,FEL DYKE/  | Colour - light grey.                              |        |             |                                   |         |
| 226.20 |             | Grain Size - fine grained.                        |        |             |                                   |         |
|        |             | - massive   |        | - nil       | - nil                             |         |
|        |             | - <1mm white specks = fsp?                        |        |             |                                   |         |
| 226.20 | INTERMEDI-  |   |        | .Patchy Ep/ | .3% py/                           |         |
| TD     | ATE TO      | Colour - greyish green.                           |        |             |                                   |         |
| 229.50 | ANDESITIC   | Grain Size - fine grained.                        |        |             |                                   |         |
|        | CRYSTAL     | Weakly foliated.                                  |        |             | Irregular epidote patches & 2-3mm |         |
|        | TUFF,       | - granular appearance with <1mm fsp laths similar |        | grains.     | 3% disseminated & mm irregular    |         |
|        | LAPILLI     | to previous intermediate unit                     |        |             | stringers.                        |         |
|        | TUFF        | - fragments of grey pyritic felsic tuff           |        |             |                                   |         |
|        | I-And T/    | - occasional 2-3mm epidotized grains = fsp.       |        |             |                                   |         |

HOLE NUMBER: MTS-66

DRILL HOLE RECORD

LOGGED BY: P. T. BAXTER

PAGE: 7

HOLE NUMBER: MTS-66

## ASSAY SHEET

DATE: 29-November-1989

| Sample | From<br>(m) | To<br>(m) | Length<br>(m) | ASSAYS    |           |           |           |           |           | GEOCHEMICAL |         |         |           |           |  | COMMENTS |
|--------|-------------|-----------|---------------|-----------|-----------|-----------|-----------|-----------|-----------|-------------|---------|---------|-----------|-----------|--|----------|
|        |             |           |               | CU<br>ppm | ZN<br>ppm | PB<br>ppm | AG<br>ppm | AU<br>ppb | BA<br>ppm | CU<br>z     | ZN<br>z | PB<br>z | AG<br>g/t | AU<br>g/t |  |          |
| 11188  | 19.90       | 20.80     | 0.90          | 143       | 62        | 32        | .7        | 5         | 1780      |             |         |         |           |           |  |          |
| 11189  | 29.55       | 30.80     | 1.25          | 240       | 10        | 23        | 1.0       | 65        | 300       |             |         |         |           |           |  |          |
| 11190  | 30.80       | 32.30     | 1.50          | 54        | 43        | 13        | .6        | 10        | 1490      |             |         |         |           |           |  |          |
| 11191  | 58.35       | 59.50     | 1.15          | 1400      | 74        | 7         | .5        | 5         | -         |             |         |         |           |           |  |          |
| 11192  | 64.00       | 64.80     | 0.80          | 60        | 50        | 8         | .4        | 5         | -         |             |         |         |           |           |  |          |
|        |             |           |               |           |           |           |           |           |           |             |         |         |           |           |  |          |
| 11193  | 96.20       | 97.20     | 1.00          | 95        | 11        | 10        | .8        | 35        | 1200      |             |         |         |           |           |  |          |
| 11194  | 115.30      | 116.30    | 1.00          | 62        | 27        | 7         | .8        | 5         | 1120      |             |         |         |           |           |  |          |
| 11195  | 123.40      | 124.40    | 1.00          | 101       | 8         | 9         | .4        | 5         | 710       |             |         |         |           |           |  |          |
| 11196  | 135.60      | 136.20    | 0.60          | 80        | 80        | 18        | 1.4       | 5         | 420       |             |         |         |           |           |  |          |
| 11197  | 162.10      | 162.90    | 0.80          | 290       | 58        | 13        | .8        | 5         | -         |             |         |         |           |           |  |          |
|        |             |           |               |           |           |           |           |           |           |             |         |         |           |           |  |          |
| 11198  | 162.90      | 163.70    | 0.80          | 343       | 35        | 12        | .6        | 5         | 1700      |             |         |         |           |           |  |          |
| 11199  | 165.20      | 166.00    | 0.80          | 47        | 33        | 10        | .9        | 5         | -         |             |         |         |           |           |  |          |

HOLE NUMBER: MTS-66

## GEOCHEM. SHEET

DATE: 29-November-1989

| Sample | From<br>(m) | To<br>(m) | Length<br>(m) | SiO <sub>2</sub> | Al <sub>2</sub> O <sub>3</sub> | CaO  | MgO  | Na <sub>2</sub> O | K <sub>2</sub> O | Fe <sub>2</sub> O <sub>3</sub> | MnO <sub>2</sub> | TiO <sub>2</sub> | Ba    | Cu   | Zn  | Pb  | Ag  | Au  | As  | Sb  | Sr  | Zr    | Total | S   |
|--------|-------------|-----------|---------------|------------------|--------------------------------|------|------|-------------------|------------------|--------------------------------|------------------|------------------|-------|------|-----|-----|-----|-----|-----|-----|-----|-------|-------|-----|
|        |             |           |               | ppm              | ppm                            | ppm  | ppm  | ppm               | ppm              | ppm                            | ppm              | ppm              | ppm   | ppm  | ppm | ppm | ppb | ppm | ppm | ppm | ppm | ppm   | ppm   | ppm |
| 11402  | 16.90       | 19.90     | 3.00          | 66.33            | 15.44                          | 2.96 | 1.89 | 0.98              | 2.58             | 4.44                           | 0.09             | 0.34             | 0.122 | 129  | 73  | 24  | 0.9 | 20  | 83  | 2   |     | 96.06 | 0.75  |     |
| 11403  | 42.40       | 43.50     | 1.10          | 54.56            | 18.65                          | 0.3  | 0.3  | 1.76              | 2.69             | 9.08                           | 0                | 0.68             | 0.097 | 52   | 12  | 13  | 0.4 | 5   | 9   | 1   |     | 97.52 | 9.25  |     |
| 11404  | 45.00       | 48.00     | 3.00          | 72.55            | 14.16                          | 0.27 | 0.8  | 1.03              | 2.62             | 2.92                           | 0.02             | 0.26             | 0.111 | 125  | 26  | 15  | 0.6 | 5   | 16  | 1   |     | 97.45 | 2.65  |     |
| 11405  | 59.50       | 60.70     | 1.20          | 66.33            | 11.79                          | 0.42 | 0.67 | 0.36              | 2.98             | 6.65                           | 0.02             | 0.19             | 0.141 | 1252 | 41  | 11  | 0.9 | 5   | 20  | 2   |     | 97.07 | 7.5   |     |
| 11406  | 88.80       | 91.80     | 3.00          | 73.13            | 13.44                          | 1.27 | 1.3  | 0.62              | 3                | 2.74                           | 0.08             | 0.22             | 0.081 | 97   | 65  | 14  | 0.7 | 5   | 19  | 1   |     | 96.53 | 0.62  |     |
|        |             |           |               |                  |                                |      |      |                   |                  |                                |                  |                  |       |      |     |     |     |     |     |     |     |       |       |     |
| 11407  | 110.90      | 111.90    | 1.00          | 45.12            | 16.31                          | 5.86 | 1.37 | 1.11              | 3.44             | 8.31                           | 0.03             | 0.67             | 0.12  | 554  | 25  | 17  | 1.3 | 10  | 11  | 2   |     | 93.82 | 11.3  |     |
| 11408  | 141.00      | 144.00    | 3.00          | 51.71            | 18.19                          | 5.54 | 4.32 | 4.69              | 0.2              | 7.75                           | 0.23             | 0.69             | 0.007 | 138  | 73  | 18  | 0.1 | 5   | 28  | 3   |     | 93.57 | 0.08  |     |
| 11409  | 184.00      | 187.00    | 3.00          | 50.67            | 17.58                          | 2.09 | 4.53 | 3.55              | 1.78             | 9.65                           | 0.12             | 0.82             | 0.067 | 222  | 47  | 16  | 1.1 | 5   | 1   | 1   |     | 94.32 | 3.26  |     |
| 11410  | 204.30      | 205.30    | 1.00          | 46.24            | 16.87                          | 1.65 | 1.69 | 3.91              | 2.64             | 11.53                          | 0.05             | 0.88             | 0.089 | 10   | 34  | 15  | 1.6 | 5   | 9   | 2   |     | 96.23 | 10.5  |     |
| 11411  | 226.20      | 229.00    | 2.80          | 50.22            | 17.57                          | 4    | 3.44 | 3.18              | 2.19             | 7.92                           | 0.13             | 0.7              | 0.086 | 104  | 51  | 18  | 1.3 | 5   | 1   | 3   |     | 94.2  | 4.6   |     |
|        |             |           |               |                  |                                |      |      |                   |                  |                                |                  |                  |       |      |     |     |     |     |     |     |     |       |       |     |

HOLE NUMBER: MTS-66

GEOCHEM. SHEET

PAGE: 9

HOLE NUMBER: MTS-67

**MINNOVA INC.**  
**DRILL HOLE RECORD**

**IMPERIAL UNITS:**                   **METRIC UNITS: X**

**METRIC UNITS: X**

PROJECT NAME: SIC  
PROJECT NUMBER: 305  
CLAIM NUMBER:  
LOCATION: NTS 92 B/13

PLOTTING COORDS GRID: MTS  
NORTH: 2128.000  
EAST: 2245.000  
ELEV: 562.00

ALTERNATE COORDS GRID:  
NORTH: 0+ 0  
EAST: 0+ 0  
ELEV: 0.0

COLLAR DIP: 45° 0' 0"  
LENGTH OF THE HOLE: 230.40m  
START DEPTH: 0.00m  
FINAL DEPTH: 230.40m

COLLAR GRID AZIMUTH: 45° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 45° 0' 0"

DATE STARTED: December 4, 1988 COLLAR SURVEY: NO  
DATE COMPLETED: December 3, 1988 MULTISHOT SURVEY: NO  
DATE LOGGED: 0 0 ROD LOG: NO

PULSE EM SURVEY: NO  
PLUGGED: NO  
HOLE SIZE: NO

**CONTRACTOR:** Burwash Enterprises  
**CASING:**  
**CORE STORAGE:**

PURPOSE: To test a well defined IP anomaly 75 m down-dip of hole MTS-66

**DIRECTIONAL DATA:**

HOLE NUMBER: MTS-67

DRILL HOLE RECORD

LOGGED BY: G. S. Wells

PAGE: 1

HOLE NUMBER: MTS-67

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO           | ROCK<br>TYPE                             | TEXTURE AND STRUCTURE   | ANGLE<br>TO CA | ALTERATION   | MINERALIZATION   | REMARKS |
|----------------------|--|---|----------------|--|--|---------|
| 0.00<br>TO<br>8.10   | «OB»<br>OVERBURDEN                       |   |                |  |  |         |
| 8.10<br>TO<br>24.80  | «FT»<br>FELSIC TUFF                      | <p>Colour: grey<br/>Grain Size: f.gr.<br/>-unit well-foliated</p> <p>8.1-15.6<br/>-foliation at shallow core angles; also folded<br/>-numerous fault gouge zones in upper part of hole<br/>    foliation 13.0 m<br/>    foliation 14.4 m</p> <p>            foliation 17.0 m</p> <p>20.3-24.8<br/>-contorted foliations in lower part of unit</p> <p>{23.1-24.8} «FAULT»<br/>-fault gouge</p> | 0<br>30<br>65  | {8.1-15.6} «s ser»<br>-strongly sericitic<br><br>{15.6-20.3} «w-m ser»<br>-weak to moderate sericite, tr. carb veins<br><br>{20.3-24.8} «s ser»<br>-strongly sericitic | «5-7% py»<br><br>-5-7% f.gr. pyrite occurs primarily as disseminations parallel to foliation; have the odd py stringer |         |
| 24.80<br>TO<br>25.40 | «FAULT, ARG»<br>FAULT GOUGE<br>ARGILLITE | <p>Colour: black<br/>Grain Size: f.gr.</p> <p>24.8-25.1<br/>-fault gouge, 55 white siliceous fragments in f.gr., black, pyritic matrix</p> <p>25.1-25.4<br/>-f.gr. bedded argillite<br/>    bedding 25.3</p>  | 20             |  | «10-15% py?»<br><br>-v.f.gr. pyrite throughout zone - hard to estimate due to f.gr. nature of sulphides                |         |

HOLE NUMBER: MTS-67

DRILL HOLE RECORD

LOGGED BY: G. S. Wells

PAGE: 2

HOLE NUMBER: MTS-67

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO           | ROCK<br>TYPE  | TEXTURE AND STRUCTURE   | ANGLE<br>TO CA | ALTERATION  | MINERALIZATION   | REMARKS |
|----------------------|---|---|----------------|---|--|---------|
| 25.40<br>TO<br>45.70 | «I TUFF, F<br>TUFF»<br>INTERMED<br>TUFF WITH<br>SCREENS OF<br>FELSIC TUFF | Colour: green with light grey zones<br>Grain Size: f. to m.gr.<br>-well foliated, tr. fsp crystals in intermediate tuff zones and tr. siliceous fragments<br>foliation 28.0<br><br>felsic tuff zones at:<br>31.35-31.9<br>34.05-34.8<br>foliation 34.1  | 50             | «m ser-chl»<br><br>-moderate pervasive sericite-chlorite<br><br>-intense sericite at:<br>{31.35-31.9} «s ser»<br>{34.05-34.8} «s ser» | «tr-1% diss py»<br><br>-tr-1% diss py; locally enriched in felsic tuff screens<br><br>{31.35-31.9} «5% py»<br>{34.05-34.8} «semi massive py»<br>-60-70% py<br><br>-semi massive py stringers associated with qtz-chl veins at:<br>44.1-44.2<br>45.4-45.5 |         |
| 45.70<br>TO<br>82.70 | «PYASH, VC»<br>PYRITIC ASH<br>VOLCANICLASTIC                              | Colour: light to dark grey<br>Grain Size: f.gr.<br>-well foliated/beded<br>-1-2% chert and felsic tuff fragments set in f.gr. pyritic ash matrix.<br>-locally finely bedded/foliated pyrite<br>-sulphide (py) fragments noted at 55.2, 60.5<br>foliation 48.0<br><br>{61.6-62.1} «FAULT»<br>{62.4-62.9} «FAULT»<br><br>65.8 foliation<br>70.0 foliation<br>74.0 foliation<br>80.0 foliation<br><br>0.1 cm wide fault gouge at lower contact | 60             | «s ser, tr. green mica»<br><br>-unit has a pervasive strong sericite alteration<br>-tr green mica flakes along foliation planes       | «10-15% py»<br><br>-v. f.gr. py -locally enriched to 20% over 0.1 m intervals<br><br>{47.5-48.6} «30% py»<br>-30% v. f.gr. py associated with Ash and chert fragments  |         |
|                      |   |   | 55             | {64.2-82.7} «2-3% gypsum veins»<br>-2-3% microveinlets of gypsum/anhydrite parallel to foliation                                      |  |         |

HOLE NUMBER: MTS-67

DRILL HOLE RECORD

LOGGED BY: G. S. Wells

PAGE: 3

HOLE NUMBER: MTS-67

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO             | ROCK<br>TYPE                             | TEXTURE AND STRUCTURE  | ANGLE<br>TO CA | ALTERATION   | MINERALIZATION   | REMARKS |
|------------------------|--|--|----------------|--|--|---------|
| 82.70<br>TO<br>109.10  | «QP, FF»<br>QP FLOW?                     | <p>Colour: grey<br/>Grain Size: f.- m.gr.<br/>-well foliated<br/>-approx 8-10% rounded to subangular qtz "eyes"<br/>-1-2% mm-sized fsp crystals in less altered zone</p> <p style="text-align: center;">89.0 m</p> <p>-lower contact marked by thin (5 mm) fault gouge</p>   | 53             | <p>{82.7-86.2} «S ser»<br/>-strong pervasive sericite<br/>-minor fault gouge marks lower contact of the zone</p> <p>{86.2-109.1} «W ser»<br/>-weakly sericitic</p> | <p>{82.7-83.5} «40% py, tr. cpx»<br/>-sulphides occur as stringer in QP</p> <p>{83.5-109.1} «2-3% py»<br/>-2-3% py occurs as stringers and disseminations<br/>-stringers generally aligned parallel to foliation</p> |         |
| 109.10<br>TO<br>181.20 | «FT, Py»<br>SILICEOUS<br>PYRITIC<br>TUFF | <p>Colour: grey to brownish grey<br/>Grain Size: f.gr.<br/>-well foliated<br/>-quite siliceous matrix with 1-2% rounded qtz crystals<br/>-have the odd angular small (1 cm x 0.2 cm) siliceous/chert fragment</p> <p style="text-align: center;">113.0 foliation</p> <p>fault gouge at:</p> <p>117.8-117.9<br/>118.6 - 5 cm<br/>119.4-119.45<br/>119.6 - 2 cm<br/>121.0-121.05</p> <p style="text-align: center;">126.7 foliation<br/>136.0 foliation</p> <p>{136.9-138.2} «FAULT»<br/>-fault gouge and healed fault zone about 20 deg to c.a.</p> <p>f.gr., green mafic dikes at:</p> | 70             | <p>«M-S ser»</p> <p>-moderately to strongly sericitic throughout</p>   | <p>«5-7% py»</p> <p>-5-7% v. f.gr. py aligned parallel to foliation and as veinlets/stringers oriented randomly</p>  |         |
|                        |  |  | 60<br>80       | <p>{124.1-139.1} «2-3% gypsum veins»<br/>-2-3% gypsum/anhydrite veins aligned parallel to foliation</p>  |  |         |

HOLE NUMBER: MTS-67

DRILL HOLE RECORD

LOGGED BY: G. S. Wells

PAGE: 4

HOLE NUMBER: MTS-67

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO             | ROCK<br>TYPE  | TEXTURE AND STRUCTURE  | ANGLE<br>TO CA | ALTERATION   | MINERALIZATION  | REMARKS |
|------------------------|---|--|----------------|--|---|---------|
|                        |   | <p>{139.1-142.6} «M dike»<br/> {143.2-144.7} «M dike»<br/> {145.7-148.7} «M dike»<br/> {152.1-152.35} «M dike»</p> <p>156.0 foliation</p> <p>{165.0-166.0} «FP dike»</p> <p>164.5 foliation</p> <p>166.0 contact</p>   | 60             |  |   |         |
|                        |   |  | 50             | <p>{158.1-171.3} &lt;3-5% gypsum veins&gt;<br/> -3-5% gypsum veins<br/> -generally aligned parallel to foliation</p> <p>{179.2-179.3} &lt;5% green mica flakes aligned parallel to foliation</p>   | <p>{156.8-157.1} &lt;20% py&gt;<br/> -20% f.gr. py</p>  |         |
| 181.20<br>TO<br>198.50 | «IT, FP»<br>INTERMED.<br>FELDSPAR-<br>RICH<br>CRYSTAL<br>TUFF | <p>Colour: green<br/> Grain Size: f.gr.<br/> -massive to weakly foliated<br/> -20% mm sized, relatively unaltered feldspar crystals, albite twins, still preserved</p>   |                | <p>«W chl, W ep»</p> <p>-weakly chloritic matrix with tr. ep. patches</p> <p>{194.3-198.5} «W-M sil»<br/> -weak to moderate pervasive silica alteration gives matrix a greyish brown look<br/> -have green fragments of I Tuff in this more siliceous matrix</p> | <p>&lt;1-2% py&gt;</p> <p>-1-2% f.gr. py disseminated throughout unit</p>                         |         |
| 198.50<br>TO<br>218.20 | «FT, F<br>frag»<br>SILICEOUS<br>TUFF WITH<br>FELSIC<br>FRAGS  | <p>Colour: light grey<br/> Grain Size: f.gr.<br/> -generally well foliated 2-3% grey pyritic, felsic fragments<br/> -generally rounded (up to 3 cm diameter) from 203.0-207.1</p> <p>201.0 m</p> <p>-20-25% fsp crystals mm sized in f.gr. felsic matrix<br/> -these crystals are most noticeable in the more chloritic zones</p> <p>{212.9-214.6} «FP dike»</p> | 60             | <p>«M ser»</p> <p>-moderate pervasive sericite</p> <p>{208.1-211.9} «M chl»<br/> -moderate chloritic alteration gives</p>  | <p>&lt;2-3% py&gt;</p> <p>-2-3% f.gr. disseminated pyrite<br/> -fragments are py rich (5-10%)</p> |         |

HOLE NUMBER: MTS-67

DRILL HOLE RECORD

LOGGED BY: G. S. Wells

PAGE: 5

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

HOLE NUMBER: MTS-67

| FROM<br>TO             | ROCK<br>TYPE  | TEXTURE AND STRUCTURE   | ANGLE<br>TO CA | ALTERATION  | MINERALIZATION  | REMARKS |
|------------------------|---|---|----------------|---|---|---------|
|                        |   | -f.gr. grey feldspar phryritic (10%) dike   |                | rock a green colour   |   |         |
| 218.20<br>TO<br>230.40 | «M dike<br>And Ash»<br>MAFIC DIKE<br>ANDESITE<br>DIKE | Colour: dark green<br>Grain Size: f.gr.<br>-massive<br>-strongly magnetic locally<br><br>#225.3-226.7# «F Tuff»<br>-f.gr. greenish grey |                | «patchy M-S ep»<br><br>-patches of moderate to strong epidote | -none<br><br>#225.3-226.7# «2-3% py»<br>-2-3% diss py |         |
|                        | E.O.H.  |   |                |   |   |         |

HOLE NUMBER: MTS-67

DRILL HOLE RECORD

LOGGED BY: G. S. Wells

PAGE: 6

HOLE NUMBER: MTS-67

## ASSAY SHEET

DATE: 29-November-1989

| Sample | From<br>(m) | To<br>(m) | Length<br>(m) | ASSAYS    |           |           |           |           |           | GEOCHEMICAL |         |         |           |           |  | COMMENTS |
|--------|-------------|-----------|---------------|-----------|-----------|-----------|-----------|-----------|-----------|-------------|---------|---------|-----------|-----------|--|----------|
|        |             |           |               | CU<br>ppm | ZN<br>ppm | PB<br>ppm | AG<br>ppm | AU<br>ppb | BA<br>ppm | CU<br>z     | ZN<br>z | PB<br>z | AG<br>g/t | AU<br>g/t |  |          |
| 11426  | 23.10       | 24.80     | 1.70          | 56        | 34        | -         | .6        | 5         | 1080      |             |         |         |           |           |  |          |
| 11427  | 24.80       | 25.40     | 0.60          | 158       | 62        | -         | .6        | 10        | 1500      |             |         |         |           |           |  |          |
| 11428  | 34.05       | 34.50     | 0.45          | 170       | 16        | -         | .6        | 35        | -         |             |         |         |           |           |  |          |
| 11429  | 47.50       | 48.60     | 1.10          | 154       | 8         | -         | .8        | 45        | 1510      |             |         |         |           |           |  |          |
| 11430  | 48.60       | 50.00     | 1.40          | 80        | 7         | -         | .7        | 60        | 1340      |             |         |         |           |           |  |          |
|        |             |           |               |           |           |           |           |           |           |             |         |         |           |           |  |          |
| 11431  | 50.00       | 51.50     | 1.50          | 151       | 8         | -         | .4        | 30        | 1500      |             |         |         |           |           |  |          |
| 11432  | 51.50       | 53.00     | 1.50          | 107       | 10        | -         | .3        | 15        | 1320      |             |         |         |           |           |  |          |
| 11433  | 53.00       | 54.50     | 1.50          | 142       | 10        | -         | .6        | 25        | 900       |             |         |         |           |           |  |          |
| 11434  | 54.50       | 55.50     | 1.00          | 300       | 9         | -         | .6        | 80        | 500       |             |         |         |           |           |  |          |
| 11435  | 82.70       | 83.50     | 0.80          | 642       | 36        | -         | .6        | 5         | -         |             |         |         |           |           |  |          |
|        |             |           |               |           |           |           |           |           |           |             |         |         |           |           |  |          |
| 11436  | 83.50       | 84.50     | 1.00          | 15        | 172       | -         | .4        | 5         | -         |             |         |         |           |           |  |          |
| 11437  | 155.80      | 156.80    | 1.00          | 37        | 23        | -         | .3        | 10        | 1400      |             |         |         |           |           |  |          |
| 11438  | 156.80      | 157.10    | 0.30          | 100       | 28        | -         | 1.0       | 15        | 1020      |             |         |         |           |           |  |          |
| 11439  | 157.10      | 158.10    | 1.00          | 164       | 8         | -         | .4        | 10        | 1640      |             |         |         |           |           |  |          |
| 11440  | 179.20      | 180.20    | 1.00          | 207       | 25        | -         | .8        | 5         | 1300      |             |         |         |           |           |  |          |
|        |             |           |               |           |           |           |           |           |           |             |         |         |           |           |  |          |
| 11441  | 180.20      | 181.20    | 1.00          | 34        | 75        | -         | .7        | 5         | 800       |             |         |         |           |           |  |          |

HOLE NUMBER: MTS-67

ASSAY SHEET

PAGE: 1

HOLE NUMBER: MTS-67

## GEOCHEM. SHEET

DATE: 29-November-1989

| Sample | From<br>(m) | To<br>(m) | Length<br>(m) | SiO2  | Al2O3 | CaO  | MgO  | Na2O | K2O  | Fe2O3 | MnO2 | TiO2 | Ba    | Cu  | Zn | Pb | Ag  | Au | As | Sb | Sr | Zr    | Total<br>I | S<br>I |
|--------|-------------|-----------|---------------|-------|-------|------|------|------|------|-------|------|------|-------|-----|----|----|-----|----|----|----|----|-------|------------|--------|
| 11412  | 11.90       | 14.30     | 2.40          | 54.38 | 18.86 | 0.25 | 1.07 | 0.85 | 4.28 | 8.57  | 0.01 | 0.78 | 0.11  | 20  | 17 | 14 | 0.5 | 5  | 16 | 1  |    | 97.23 | 7.9        |        |
| 11413  | 40.20       | 43.20     | 3.00          | 64.91 | 15.41 | 1.61 | 2.51 | 3.67 | 1.56 | 4.62  | 0.12 | 0.34 | 0.069 | 114 | 83 | 23 | 0.7 | 5  | 16 | 2  |    | 95.79 | 0.89       |        |
| 11414  | 71.60       | 74.70     | 3.10          | 46.6  | 16.40 | 3.56 | 0.86 | 0.96 | 3.37 | 9.45  | 0.01 | 0.61 | 0.072 | 53  | 27 | 18 | 0.6 | 5  | 11 | 1  |    | 94.89 | 12.9       |        |
| 11415  | 101.00      | 104.00    | 3.00          | 71.3  | 13.64 | 0.68 | 2.08 | 3.28 | 1.5  | 2.83  | 0.1  | 0.24 | 0.063 | 17  | 58 | 17 | 0.6 | 10 | 17 | 1  |    | 96.26 | 0.51       |        |
| 11416  | 129.20      | 132.90    | 3.10          | 46.15 | 16.57 | 7.22 | 1.58 | 1.74 | 1.83 | 7.91  | 0.04 | 0.66 | 0.073 | 62  | 28 | 20 | 0.6 | 5  | 23 | 2  |    | 93.13 | 9.2        |        |
|        |             |           |               |       |       |      |      |      |      |       |      |      |       |     |    |    |     |    |    |    |    |       |            |        |
| 11417  | 166.40      | 169.50    | 3.10          | 44.17 | 16.59 | 5.52 | 0.44 | 1.43 | 2.76 | 8.18  | 0    | 0.73 | 0.086 | 40  | 10 | 24 | 0.4 | 5  | 12 | 1  |    | 94.19 | 14.1       |        |
| 11418  | 185.60      | 188.50    | 2.90          | 48.96 | 16.96 | 2.99 | 3.91 | 4.16 | 1.31 | 9.21  | 0.17 | 0.72 | 0.057 | 12  | 61 | 13 | 0.3 | 5  | 30 | 2  |    | 93.9  | 5.3        |        |
| 11419  | 209.10      | 212.10    | 3.00          | 49.22 | 17.51 | 2.33 | 2.85 | 3.11 | 2.63 | 8.99  | 0.1  | 0.92 | 0.084 | 18  | 52 | 19 | 1.7 | 5  | 1  | 2  |    | 95.22 | 7.2        |        |
| 11420  | 226.80      | 229.40    | 2.60          | 46.51 | 14.77 | 9.44 | 5.34 | 1.32 | 0.02 | 11.96 | 0.2  | 2.18 | 0.001 | 10  | 77 | 18 | 2   | 5  | 26 | 4  |    | 92.21 | 0.06       |        |

HOLE NUMBER: MTS-67

## GEOCHEM. SHEET

PAGE: 1

HOLE NUMBER: MTS-68

MINNOVA INC.  
DRILL HOLE RECORD

**IMPERIAL UNITS:**      **METRIC UNITS:** X

METRIC UNITS: X

PROJECT NAME: SIC  
PROJECT NUMBER: 305  
CLAIM NUMBER:  
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: MTS  
NORTH: 1963.005  
EAST: 2168.008  
ELEV:

ALTERNATE COORDS GRID:  
NORTH: 0+ 0  
EAST: 0+ 0  
ELEV: 0.0

COLLAR DIP: -55° 0' 0"  
LENGTH OF THE HOLE: 185.90m  
START DEPTH: 0.00m  
FINAL DEPTH: 185.90m

COLLAR GRID AZIMUTH: 45° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 45° 0' 0"

DATE STARTED: December 4, 1988  
DATE COMPLETED: December 6, 1988  
DATE LOGGED: 0. 0

COLLAR SURVEY: NO  
MULTISHOT SURVEY: NO  
ROD LOG: NO

PULSE EM SURVEY: NO  
PLUGGED: NO  
HOLE SIZE: NO

**CONTRACTOR:** Burwash Enterprises  
**CASING:** 3.0 m  
**CORE STORAGE:**

PURPOSE: To test a well defined IP and lithogeochem anomaly in the Gap area

**DIRECTIONAL DATA:**

HOLE NUMBER: MTS-68

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 1

HOLE NUMBER: MTS-68

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO          | ROCK<br>TYPE        | TEXTURE AND STRUCTURE   | ANGLE<br>TO CA | ALTERATION   | MINERALIZATION  | REMARKS |
|---------------------|---------------------|---|----------------|--|---|---------|
| 0.00<br>TO<br>3.00  | «OB»<br>OVERBURDEN  |   |                |  |   |         |
| 3.00<br>TO<br>47.10 | «FT»<br>FELSIC TUFF | <p>Colour: light to medium grey green, light grey<br/>       Grain Size: f.gr.</p> <ul style="list-style-type: none"> <li>-massive, very weakly foliated</li> <li>-aphyric, patchy fine spotted granular areas</li> <li>-rare felsic and pyritic tuff fragments</li> <li>-patchy silicified mottled areas</li> </ul> <p>20.0-20.3<br/>       -gougy milled core</p> <p>24.2-32.8<br/>       -weak to moderate siliceous appearance</p> <p>29.6-29.7<br/>       -weak gougy milled core</p> <p>34.8 foliation<br/>       35.5 contact</p> <p>{35.5-39.1} «FP Fel Dyke»<br/>       -feldspar phryic felsic dyke:<br/>       Light grey, fine grained, massive<br/>       -2-3% mm white fresh feldspars<br/>       39.1 contact</p> | 50<br>50       | <ul style="list-style-type: none"> <li>-very weakly sericitic patchy moderate sericitic in fine ashes</li> <li>-patchy strong silicification within mottled green areas</li> </ul> | <ul style="list-style-type: none"> <li>-&lt;1%-1% disseminated pyrite</li> <li>-occasional pyritic tuff zones with greater sulfide concentrations as follows:</li> <li>4.5-4.9<br/>           -3-5% py, &lt;1% cpy mainly as stringers</li> <li>7.85-9.3<br/>           -3-5% pyrite disseminated and fine stringers</li> <li>14.7-15.8<br/>           -1-2% fine diss pyrite</li> <li>16.9-17.15<br/>           -3% fine diss py</li> <li>19.0-19.3<br/>           -2-3% pyrite</li> <li>32.8-33.7<br/>           -finely diss pyrite</li> </ul> <p>{43.8-44.2} «Qtz Chl Vn»</p> |         |
|                     |                     |   | 45             |  | 43.8-44.2   |         |

HOLE NUMBER: MTS-68

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 2

HOLE NUMBER: MTS-68

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO           | ROCK<br>TYPE           | TEXTURE AND STRUCTURE  | ANGLE<br>TO CA | ALTERATION   | MINERALIZATION                                     | REMARKS                                 |
|----------------------|------------------------|--|----------------|--|--|---|
|                      |                        |  |                | -quartz chlorite vein<br>-massive white quartz<br><br>{45.7-46.0} «Qtz carb chl Vn»<br>-white quartz carbonate chlorite<br>veining<br><br>{46.9-47.1} «Qtz chl Vn»   | -<1% pyrite  |   |
| 47.10<br>TO<br>51.50 | «M DYKE»<br>MAFIC DYKE | Colour: green<br>Grain Size: f.gr.<br>-massive<br>-fsp phryic with very weakly epidotized feldspars<br>-patchy finer grained zones<br>-some zones with 2-3% disseminated leucoxene<br>irregular lower contact    |                | «w ep, patchy s chl»<br><br>-weak epidote alteration of feldspars,<br>weakly chloritic with patchy strong<br>chlorite near quartz veins<br><br>{47.75-48.4} «Qtz, Chl, Calc Vn»<br>-quartz chlorite calcite vein<br>-rare epidote veinlets | -tr py   | -little to check<br>-dyke or andesite?? |
| 51.50<br>TO<br>56.50 | «FT»<br>FELSIC TUFF    | Colour: light grey<br>Grain Size: f.gr.<br>-fairly massive<br>-pervasive silicified look caused by grey<br>siliceous material in a greenish groundmass<br><br>53.2-53.3<br>-FP Felsic Dyke<br><br>56.6 m contact | 60             | «w ser/chl, m sil»<br><br>-weak sericite/chlorite alteration of<br>groundmass<br>-moderate siliceous appearance possibly<br>primary  | -1-2% disseminated pyrite                          |   |
| 56.50<br>TO<br>59.35 | «M DIKE»<br>MAFIC DYKE | Colour: green<br>Grain Size: f.gr.<br>-very weakly foliated<br>-abundant very weakly epidotized feldspars<br>-weak shearing near upper contact<br>-bleaching finer grained<br>59.35 lower contact                | 50             | «w ep, w chl»<br><br>-weak epidote alteration of feldspars<br>-rare epidote veining  | -tr py<br><br>-trace py at upper and lower contact |   |

HOLE NUMBER: MTS-68

## DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 3

HOLE NUMBER: MTS-68

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO           | ROCK<br>TYPE               | TEXTURE AND STRUCTURE  | ANGLE<br>TO CA | ALTERATION   | MINERALIZATION   | REMARKS |
|----------------------|----------------------------|--|----------------|--|--|---------|
| 59.35<br>TO<br>67.10 | «FT»<br>FELSIC TUFF        | <p>Colour: light grey, creamy light grey<br/>Grain Size: f.gr.<br/>-weak to moderately foliated</p> <p>59.35-60.65<br/>-possibly more intermediate, very granular appearance &lt;1 mm quartz or fsp grains</p> <p>60.65-63.0<br/>-rare, rounded quartz eyes, 1-2% faint sericitized feldspars</p> <p>63.0-67.1<br/>-rock becoming very light creamy grey<br/>-very soft, moderately foliated</p> <p>64.1<br/>-13 cm of fsp phryic with sharp upper and lower contacts<br/>64.1 bedding?<br/>-10 cm gougy lower contact</p> |                | <p>{59.35-63.0} «w ser»</p> <p>{63.0-67.1} «m-s ser»<br/>-moderate to strongly sericitic</p> | <p>{59.35-63.0} «&lt;1-1% py»<br/>-&lt;1-1% disseminated pyrite</p> <p>{63.0-67.1} «2% py, tr cpy»<br/>-2% finely disseminated pyrite, trace chalcopyrite</p>  |         |
| 67.10<br>TO<br>92.25 | «Py, T»<br>PYRITIC<br>TUFF | <p>Colour: medium grey<br/>Grain Size: f.gr.<br/>-well foliated<br/>-aphryic<br/>-numerous 1-2 mm white soft (gypsum?) veinlets parallel to foliation<br/>-rare grey chert fragments</p> <p>67.5 m foliation<br/>67.9 m bedding<br/>71.2 m foliation<br/>76.0 m foliation<br/>77.6 m contact</p> <p>{77.6-80.75} «M DYKE»<br/>{81.35-82.55} «M DYKE»<br/>-Mafic Dykes, medium green, f.gr., massive</p>  | 73             | <p>«S-I ser»</p> <p>-strong to intense sericite alteration</p>                               | <p>«7-8% py, tr cpy»</p> <p>-7-8% finely disseminated syngenetic pyrite and &lt;1-mm stringers parallel to foliation<br/>-trace diss chalcopyrite</p> <p>67.9<br/>-5 cm, 85% pyrite syngenetic, weak alignment at 80 deg = bedding</p> |         |

HOLE NUMBER: MTS-68

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 4

HOLE NUMBER: MTS-68

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO            | ROCK<br>TYPE                 | TEXTURE AND STRUCTURE   | ANGLE<br>TO CA | ALTERATION                                   | MINERALIZATION  | REMARKS |
|-----------------------|------------------------------|---|----------------|--|---|---------|
|                       |                              | <p>epidotized feldspars, bleached, fine grained chill margins with 5% pyrite over 5 cm</p> <p>85.9-86.4<br/>-fault zone, gougy milled core, distorted foliations</p> <p>86.4-87.2<br/>QP Felsic Flow<br/>-creamy grey, weakly foliated, 3% angular, square and triangular quartz eyes</p> <p>91.45<br/>-4 cm QP Flow = Fragment?</p> <p>93.3-94.1<br/>-weak fragmental appearance</p> <p>94.1-95.25<br/>-rare quartz eyes</p> |                | <p>86.4-87.2<br/>-mod-strongly sericitic</p> | <p>86.4-87.2<br/>-2% diss pyrite</p> <p>{90.2-94.1} &lt;2-3% py&gt;<br/>-2-3% pyrite except as noted below:</p> <p>{90.45-91.45} &lt;1-% py, 2% cpy&gt;<br/>-10% coarse pyrite, chalcopyrite limited to first 10 cm = 5% cpy</p> <p>{91.6-92.25} &lt;7% py, &lt;1% cpy&gt;<br/>-7% pyrite + &lt;1% chalcopyrite as coarse stringers 5-8 cm wide</p> <p>93.3-93.4<br/>-50% coarse brassy pyrite</p> <p>{93.65-94.1} &lt;20% py&gt;<br/>-20% coarse brassy pyrite</p> |         |
| 92.25<br>TO<br>103.20 | «QP FF»<br>QP FELSIC<br>FLOW | <p>Colour: light green<br/>Grain Size: f.gr.<br/>-weakly foliated<br/>-5-7% angular square and triangular 1-3 mm quartz eyes<br/>-possible fsp grains as faint &lt;1-1 mm sericite grains.</p> <p>97.9 foliation</p> <p>-sharp lower contact parallel to foliation<br/>-8 cm pyritic tuff @ 102.8 m</p> <p>contact</p>  | 80             | <p>«M ser»</p>                               | <p>&lt;&lt;1% py&gt;&gt;</p> <p>-moderately sericitic</p>   |         |

HOLE NUMBER: MTS-68

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 5

HOLE NUMBER: MTS-68

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO             | ROCK<br>TYPE                 | TEXTURE AND STRUCTURE  | ANGLE<br>TO CA | ALTERATION   | MINERALIZATION  | REMARKS |
|------------------------|------------------------------|--|----------------|--|---|---------|
| 103.20<br>TO<br>136.65 | «FT»<br>FELSIC TUFF          | <p>Colour: light grey<br/>Grain Size: f.gr.</p> <p>103.2-121.3<br/>           -strongly foliated, rare quartz eyes, rare fragments of darker coloured pyritic tuff<br/>           -occasional zones with weakly developed fault gouge and distorted foliations over 20 cm<br/>           105.7 foliation<br/>           111.6 foliation<br/>           118.0 foliation<br/>           120.7 foliation</p> <p>120.7-121.3<br/>           -minor 1-2 mm veinlets of soft white mineral<br/>           = gypsum</p> <p>121.3-135.7<br/>           -unit becoming more massive, very weak foliation<br/>           -patchy fine granular appearance possibly fine feldspars?? or felsic grains<br/>           -interval characterized by moderate to strong pseudobreccia with a fine pyrite stockwork<br/>           -rare green mica</p> <p>{131.5-12.1} «Fel Dyke»<br/>           Felsic Dyke: medium grey, f.gr., fresh, 2-3% &lt; 1mm white specks = fsp<br/>           -sharp contacts</p> <p>131.5 contacts<br/>           132.1 contacts</p> | 70             | <p>{103.2-121.3} «S-I ser»<br/>           -strong to intense sericite alteration</p> | <p>«7-8% py, tr cpy»</p> <p>-7-8% disseminated pyrite parallel to foliation and thin mm stringer chalcopyrite as thin stringers from 109.85-110.2 and 110.55-110.6<br/>           -occasional zones below 114.5 m with pyrite stockwork</p> |         |
| 136.65<br>TO<br>143.50 | «Int T»<br>INTERMED.<br>TUFF | <p>Colour: medium green grey<br/>Grain Size: f.gr.</p> <p>-weakly foliated<br/>           -fine granular appearance abundant &lt;1 mm grey</p>   | 45             | <p>«W ser»</p> <p>-weakly sericitic</p>  | <p>«3-4% py»</p> <p>-3-4% disseminated pyrite zones as follows with pyrite stringers</p>  |         |

HOLE NUMBER: MTS-68

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 6

HOLE NUMBER: MTS-68

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

| FROM<br>TO             | ROCK<br>TYPE                                    | TEXTURE AND STRUCTURE  | ANGLE<br>TO CA | ALTERATION  | MINERALIZATION   | REMARKS |
|------------------------|---|--|----------------|---|--|---------|
|                        |   | translucent grains<br><br>141.0 foliation  | 50             |   | 137.1-137.5<br>-5-7% py<br><br>139.45-140.25<br>-7-10% pyrite forming strong stockwork<br><br>143.15-143.5<br>-7% pyrite stringers, includes 5 cm<br>with 25% pyrite |         |
| 143.50<br>TO<br>151.40 | «Fel Dyke»<br>FP FELSIC<br>DYKE                 | -irregular lower contact approx 60-65 deg to axis<br><br>Colour: light grey<br>Grain Size: f.gr.<br>-massive<br>-2-3% and locally 5-7% <1-2 mm white fresh<br>feldspar crystals<br><br>{148.15-149.05} «FT»<br>-Felsic Tuff: light gey, f.gr., weakly foliated,<br>weak fragmental appearance  |                | -nil  | -tr py   |         |
|                        |   | 151.4 contact  | 60             | {148.15-149.05} «W ser»   | {148.15-149.05} «3% py»  |         |
| 151.40<br>TO<br>185.90 | «And T»<br>ANDESITE<br>TUFF,<br>CRYSTAL<br>TUFF | Colour: medium to dark green<br>Grain Size: f.gr.<br><br>151.4-156.5<br>-granular tuffaceous zone, possible reworking of<br>top of unit<br>below 156.5<br>-abundant 1-5 mm epidote altered grains (fsp or<br>pyroxene?)<br>-occasional zones with epidote balls = fragments?<br>-occasional irregular epidote patches<br>-patchy granular texture with <1-1 mm translucent<br>crystals |                | «Patchy S ep, W chl»<br><br>-patchy strong epidote alteration of<br>crystals, fragments and forming<br>irregular patches<br>-weakly chloritic, stronger in ash<br>zones | «tr py, cpy»<br><br>{151.4-156.5} «1% py»<br>-1% pyrite disseminated and rare mm<br>stringers  |         |

HOLE NUMBER: MTS-68

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 7

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 17-May-1989

HOLE NUMBER: MTS-68

| FROM<br>TO | ROCK<br>TYPE | TEXTURE AND STRUCTURE                | ANGLE<br>TO CA | ALTERATION  | MINERALIZATION  | REMARKS |
|------------|--------------|--------------------------------------|----------------|---|---|---------|
|            | E.O.H.       | -some = feldspar<br>-minor ash zones |                | 163.75-164.1<br>-mod to strong chlorite adjacent to<br>pyrite zones | 163.94-164.0<br>-80% coarse brassy pyrite<br>-within finer ash zone |         |

HOLE NUMBER: MTS-68

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 8

HOLE NUMBER: MT5-68

## ASSAY SHEET

DATE: 29-November-1989

| Sample | From<br>(m) | To<br>(m) | Length<br>(m) | ASSAYS    |           |           |           |           |           | GEOCHEMICAL |         |         |           |           |  | COMMENTS |
|--------|-------------|-----------|---------------|-----------|-----------|-----------|-----------|-----------|-----------|-------------|---------|---------|-----------|-----------|--|----------|
|        |             |           |               | CU<br>ppm | ZN<br>ppm | PB<br>ppm | AG<br>ppm | AU<br>ppb | BA<br>ppm | CU<br>z     | ZN<br>z | PB<br>z | AG<br>g/t | AU<br>g/t |  |          |
| 11442  | 4.30        | 4.90      | 0.60          | 3793      | 58        | 21        | 2.1       | 85        | 62        |             |         |         |           |           |  |          |
| 11443  | 7.85        | 9.30      | 1.45          | 1091      | 43        | 17        | 0.6       | 10        | 75        |             |         |         |           |           |  |          |
| 11444  | 43.80       | 44.20     | 0.40          | 30        | 32        | 17        | 0.6       | 5         | 16        |             |         |         |           |           |  |          |
| 11445  | 67.10       | 68.10     | 1.00          | 133       | 9         | 15        | 0.4       | 10        | 40        |             |         |         |           |           |  |          |
| 11446  | 73.10       | 74.60     | 1.50          | 38        | 34        | 24        | 0.3       | 25        | 46        |             |         |         |           |           |  |          |
| 11447  | 74.60       | 76.10     | 1.50          | 44        | 21        | 19        | 0.3       | 5         | 76        |             |         |         |           |           |  |          |
| 11448  | 76.10       | 77.60     | 1.50          | 1007      | 35        | 18        | 0.3       | 15        | 54        |             |         |         |           |           |  |          |
| 11449  | 90.95       | 91.60     | 0.65          | 9643      | 29        | 21        | 3.6       | 30        | 63        |             |         |         |           |           |  |          |
| 11450  | 91.60       | 92.45     | 0.85          | 1037      | 35        | 21        | 1.1       | 5         | 80        |             |         |         |           |           |  |          |
| 11451  | 92.45       | 93.30     | 0.85          | 152       | 9         | 15        | 0.3       | 10        | 89        |             |         |         |           |           |  |          |
| 11452  | 93.30       | 94.10     | 0.80          | 101       | 24        | 18        | 0.4       | 45        | 48        |             |         |         |           |           |  |          |
| 11453  | 109.60      | 110.60    | 1.00          | 3093      | 33        | 20        | 3.2       | 65        | 60        |             |         |         |           |           |  |          |
| 11454  | 110.60      | 111.60    | 1.00          | 142       | 11        | 20        | 0.7       | 40        | 55        |             |         |         |           |           |  |          |
| 11455  | 111.60      | 113.10    | 1.50          | 147       | 8         | 25        | 0.5       | 20        | 75        |             |         |         |           |           |  |          |
| 11456  | 113.10      | 114.60    | 1.50          | 339       | 16        | 17        | 0.9       | 25        | 66        |             |         |         |           |           |  |          |
| 11457  | 114.60      | 116.10    | 1.50          | 305       | 16        | 19        | 1         | 15        | 86        |             |         |         |           |           |  |          |
| 11458  | 132.10      | 133.60    | 1.50          | 61        | 22        | 24        | 1.1       | 5         | 62        |             |         |         |           |           |  |          |
| 11459  | 133.60      | 135.10    | 1.50          | 22        | 36        | 22        | 1.2       | 10        | 58        |             |         |         |           |           |  |          |
| 11460  | 135.10      | 136.65    | 1.55          | 33        | 26        | 18        | 1.3       | 5         | 74        |             |         |         |           |           |  |          |
| 11461  | 136.65      | 138.05    | 1.40          | 37        | 100       | 29        | 1.2       | 5         | 52        |             |         |         |           |           |  |          |
| 11462  | 139.45      | 140.25    | 0.80          | 10        | 91        | 24        | 0.6       | 40        | 46        |             |         |         |           |           |  |          |
| 11463  | 163.30      | 164.00    | 0.70          | 12        | 75        | 22        | 0.8       | 10        | 26        |             |         |         |           |           |  |          |

HOLE NUMBER: MT5-68

ASSAY SHEET

PAGE: 1

HOLE NUMBER: MTS-68

## GEOCHEM. SHEET

DATE: 29-November-1989

| Sample | From<br>(m) | To<br>(m) | Length<br>(m) | SiO <sub>2</sub> | Al <sub>2</sub> O <sub>3</sub> | CaO  | MgO  | Na <sub>2</sub> O | K <sub>2</sub> O | Fe <sub>2</sub> O <sub>3</sub> | MnO <sub>2</sub> | TiO <sub>2</sub> | Ba    | Cu  | Zn  | Pb  | Ag  | Au  | As  | Sb | Sr | Zr    | Total | S |
|--------|-------------|-----------|---------------|------------------|--------------------------------|------|------|-------------------|------------------|--------------------------------|------------------|------------------|-------|-----|-----|-----|-----|-----|-----|----|----|-------|-------|---|
|        |             |           |               | I                | I                              | I    | I    | I                 | I                | I                              | I                | I                | I     | ppm | ppm | ppm | ppb | ppm | ppm | I  | I  | I     | I     |   |
| 11421  | 14.70       | 15.80     | 1.10          | 68.9             | 13.12                          | 0.35 | 1.41 | 0.49              | 3.48             | 5.01                           | 0.02             | 0.27             | 0.16  | 88  | 24  | 17  | 0.6 | 5   | 15  | 1  |    | 96.79 | 3.5   |   |
| 11422  | 40.10       | 42.10     | 2.00          | 68.35            | 14.37                          | 1.26 | 1.84 | 2.41              | 2.41             | 3.78                           | 0.05             | 0.31             | 0.105 | 136 | 41  | 16  | 0.6 | 5   | 18  | 1  |    | 96.15 | 1.13  |   |
| 11423  | 61.00       | 63.00     | 2.00          | 66.5             | 15.30                          | 2.79 | 2.15 | 0.39              | 2.91             | 3.92                           | 0.07             | 0.33             | 0.137 | 162 | 58  | 10  | 0.6 | 5   | 9   | 1  |    | 95.92 | 1.27  |   |
| 11424  | 84.10       | 85.10     | 1.00          | 51.16            | 16.73                          | 5.38 | 0.21 | 2.19              | 1.48             | 7.45                           | 0.01             | 0.61             | 0.068 | 20  | 9   | 15  | 0.4 | 10  | 9   | 1  |    | 94.58 | 9.15  |   |
| 11425  | 98.00       | 101.00    | 3.00          | 71.07            | 13.98                          | 2.38 | 1.44 | 1.42              | 2.31             | 2.56                           | 0.09             | 0.22             | 0.074 | 130 | 77  | 14  | 0.7 | 5   | 13  | 1  |    | 96.17 | 0.54  |   |
|        |             |           |               |                  |                                |      |      |                   |                  |                                |                  |                  |       |     |     |     |     |     |     |    |    |       |       |   |
| 6726   | 123.60      | 125.10    | 1.50          | 44.38            | 18.39                          | 2.36 | 2.09 | 2.97              | 2.7              | 10.59                          | 0.06             | 0.8              | 0.07  | 78  | 41  | 18  | 0.8 | 5   | 9   | 1  |    | 99.41 | 14.9  |   |
| 6727   | 138.05      | 139.45    | 1.40          | 50.15            | 18.56                          | 2.02 | 4    | 4.19              | 1.77             | 8.79                           | 0.15             | 0.7              | 0.062 | 23  | 99  | 26  | 0.9 | 5   | 1   | 1  |    | 95.17 | 4.58  |   |
| 6728   | 170.70      | 173.70    | 3.00          | 50.4             | 17.26                          | 5.68 | 4.89 | 3.82              | 0.11             | 8.65                           | 0.24             | 0.67             | 0.006 | 78  | 60  | 23  | 1.4 | 10  | 37  | 1  |    | 91.99 | 0.04  |   |

HOLE NUMBER: MTS-68

## GEOCHEM. SHEET

PAGE: 1

**Appendix II**

**PEM technique and profiles**

**MINNOVA INC.**  
**GEOPHYSICAL REPORT ON AN**  
**BOREHOLE PULSE EM SURVEY**  
**MT. SICKER PROPERTY, HOLES MTS-45,**  
**MTS-46, MTS-47, AND MTS-48**  
**LATITUDE: 48° 52'N LONGITUDE: 123° 47'W**  
**NTS: 92B/11E**  
**AUTHOR: DENNIS V. WOODS, Ph.D., P.Eng.**  
**Geophysicist**  
**DATE OF WORK: 6-7, 18 April 1988**  
**DATE OF REPORT: 6 May 1988**

|   | <b>PAGE</b> |
|---|-------------|
| INTRODUCTION .....  | 1           |
| PROPERTY LOCATION AND ACCESS .....                                  | 1           |
| BOREHOLE PULSE EM TECHNIQUE .....                                   | 1-3         |
| SURVEY PROCEDURE .....  | 3           |
| DISCUSSION OF RESULTS .....   | 3-4         |
| CONCLUSIONS AND RECOMMENDATIONS .....                               | 4           |
| REFERENCES .....  | 5           |
| INSTRUMENT SPECIFICATIONS .....                                     | 6-7         |
| STATEMENT OF QUALIFICATIONS<br>Dennis V. Woods, Ph.D., P.Eng. ..... | 8           |

#### **ILLUSTRATIONS**

- Figure 1      Borehole Location Maps  
Figures 2-5    Borehole Pulse EM Profiles

**INTRODUCTION:**

On 6-7 and 18 April 1988, borehole Pulse EM surveys were carried out on Minnova Inc. boreholes MTS-45, MTS-46, MTS-47 and MTS-48 on the Mt. Sicker property, Vancouver Island.

The purpose of the surveys was to explore for possible zones of conductive sulphide mineralization in the vicinity of the drillholes, not necessarily intersected by the holes.

**PROPERTY LOCATION AND ACCESS:**

The Mt. Sicker property is located about 10 km northeast of Duncan, B.C. on Vancouver Island. Access is via logging roads off the Lake Cowichan highway 1.5 km east of the Trans Canada highway.

**BOREHOLE PULSE EM TECHNIQUE**

The Crone borehole pulse EM system is a time domain downhole EM instrument capable of detecting conductive mineralization intersected by the drillhole or lying offhole. The borehole pulse EM system utilizes a special downhole receiver coil, 600m cable and winch in conjunction with a standard PEM transmitter and receiver normally employed in surface surveys.

The primary field is produced by a 150m by 150m square surface loop driven by the 500 watt PEM transmitter. Large loop surveys (e.g. 500m by 1000m) using the 2000 watt transmitter, and small loop surveys using the 10m diameter portable equipment, can be carried out depending on the depth and size of the expected conductive target.

The time derivative of the secondary EM field is measured using an axial receiver coil lowered down the diamond drillhole. The minimum size of drillhole which can be accommodated is AQ (1 3/4"

diameter). The receiver obtains eight samples of the secondary field during the primary field off-time. Sample times range from 0.15 to 6.4 ms after primary field shut-off on a 10.8 ms transmitter time base.

Multiple transmitter loops may be used to provide various loop to conductor coupling geometries in order to obtain conductor attitude and position information. A complete survey of a given borehole may entail logging the hole from five transmitter loop setups. One of these loops would be approximately centred over the area of interest with the remaining four loops away from and distributed around the borehole.

When an anomalous response is observed in a borehole log from a single transmitter loop, the nature of this anomaly allows the determination of the location of the conductive source relative to the drillhole. As shown by Woods and Crone (1980, Figs. 7 & 8), the response can indicate whether the borehole is intersecting the centre of the conductor, the margin of a conductor, with the bulk of conductive material away from the hole, or whether the conductor is entirely off-hole.

Model study curves for various conductor to borehole geometries from Woods (1975) are employed in the interpretation. Quantitative analysis of the conductor's attitude, position and conductance is made using nomograms presented by Woods, et al. (1980). Computer plate modelling, using the routines developed by Dyck, et al (1980), can be used to confirm the interpretation.

In the case of a dike-like or tabular conductor, the magnitude of an anomaly varies with the angle that the primary field cuts the conductor. Thus, the degree to which coupling is obtained to the conductor, in coverage of a borehole from several loop setups, will provide information on the attitude and position of the conductive mineralization.

If the conductor tends towards a more spheroidal shape, the anomaly character will change, as well as its magnitude, when the primary field angle is altered. This occurs because the eddy currents are not constrained to flow within a conductive sheet. Thus, multiple transmitter loop coverage can also provide information on the shape of a conductive body.

In practice the responses observed in field situations are much more complex than those of simple models, but the results are sufficiently interpretable that the method has general acceptance and a number of discovery case histories exist.

#### **SURVEY PROCEDURE:**

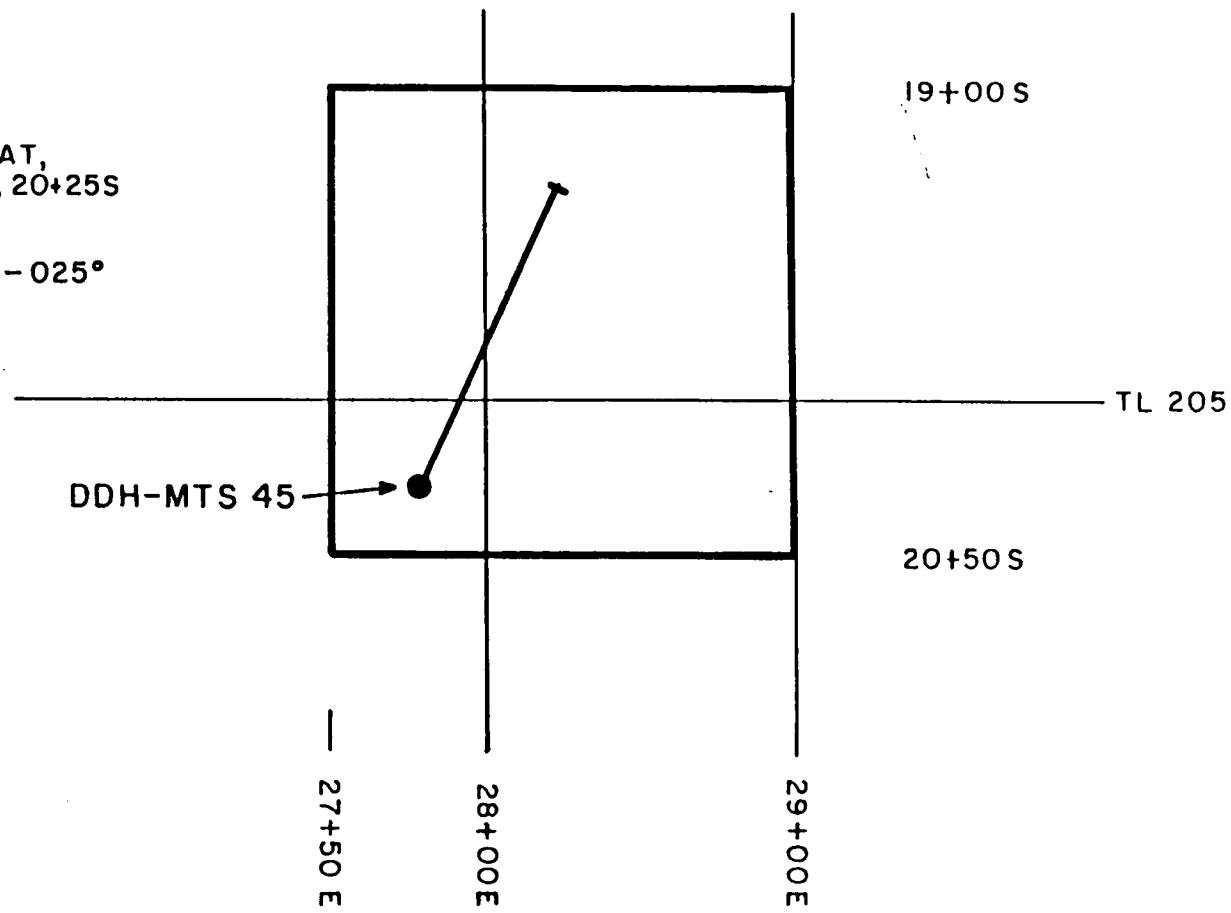
Holes MTS-45, MTS-46 and MTS-47 were surveyed on 6-7 April 1988 using the Crone 500W P.E.M. 8-channel transient EM system. A 150m x 150m transmitter loop was laid out around each hole as shown in Figure 1. These loop positions give maximum EM coupling for the geologic structure in the vicinity of the drillholes. Primary and secondary field readings were taken every 10m down the holes with the instrument set at a constant maximum gain of 100%.

Hole MTS-48 was surveyed on 18 April 1988 using a 2.5 KW P.E.M. transmitter and a 300m x 300m transmitter loop as shown in Figure 1. This higher powered system was used to increase the chances of detecting weakly conductive zones and to decrease the noise level apparent on the later channels.

#### **DISCUSSION OF RESULTS:**

No anomalies are noted in the borehole data of MTS-45, MTS-46, MTS-47 or MTS-48. The secondary field profiles display only the typical background response due to the background conductivity of

COLLAR AT,  
27+87E, 20+25S  
DIP - 60°  
AZIMUTH - 025°

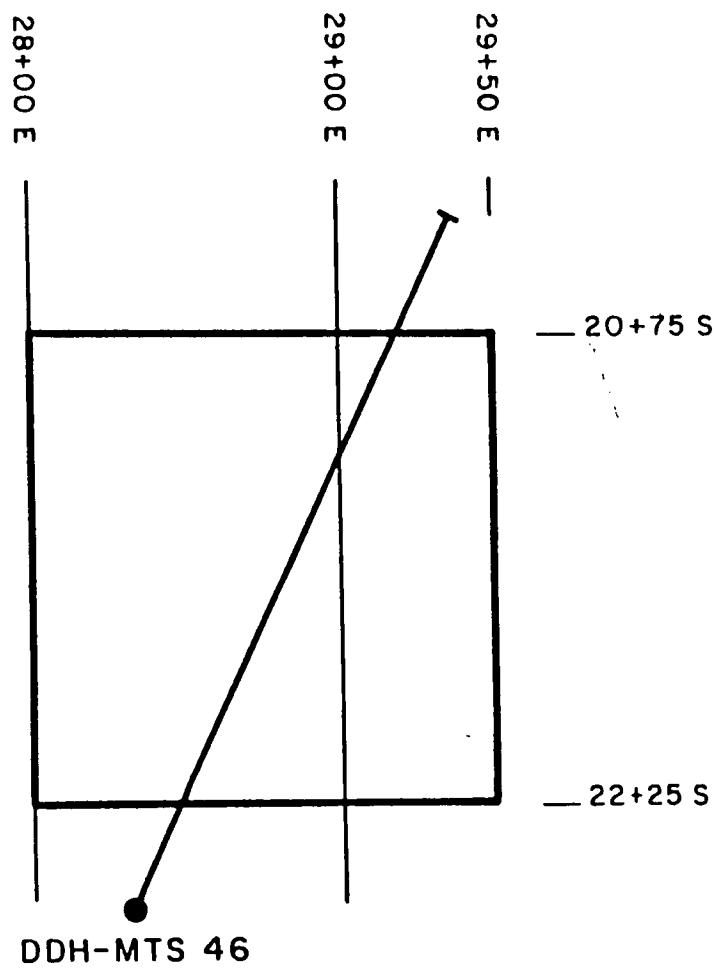


MINNOVA INC.  
MT. SICKER - VANCOUVER ISLAND  
LOOP "C" LOCATION SKETCH  
DDH-MTS 45

0 25 50 100 150 m

FIG.1C

COLLAR AT,  
22+66S, 25+39E  
DIP - 60°  
AZIMUTH - 025°



MINNOVA INC.  
MT. SICKER - VANCOUVER ISLAND  
LOOP "A" LOCATION SKETCH  
DDH-MTS 46

0 25 50 100 150 m

FIG.1A

the host rocks of the area. This background response tends to parallel the primary field - hence the cross-over type response at 60m depth in MTS-46 (Figure 3).

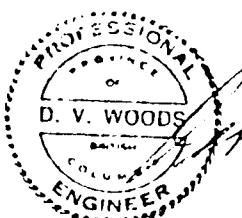
The only other feature of note in the borehole PEM data is the higher noise level in the late channels of MTS-45, MTS-46, and MTS-47 compared with the data from the higher powered survey in MTS-48. The source of this noise is unknown - it might be related to 60 Hz signals from power transmission lines in the area.

#### CONCLUSIONS AND RECOMMENDATIONS:

Although sulphides were reportedly encountered in some of these boreholes, there is no indication of any conductive mineralization in holes MTS-45, MTS-46, MTS-47 and MTS-48. The borehole P.E.M. system has an effective search radius of about 50m to 100m depending on the size of the conductive target, hence it can be concluded that no conductive sulphide zones exist in the vicinity of holes MTS-45, MTS-46, MTS-47 and MTS-48.

Massive sulphide occurrences are known to be quite localized in the Sicker Group volcanics (e.g. Abermin Coronation zone), hence it is recommended that other Minnova Inc. drillholes on the Mt. Sicker property be surveyed using borehole Pulse E.M. to search for small, massive sulphide zones not intersected by the drilling.

Non-conductive zones of economic sulphides may be detected using downhole IP techniques. Although the search radius is not as large as downhole EM, an IP survey will indicate the presence of sulphide concentrations surrounding a borehole.



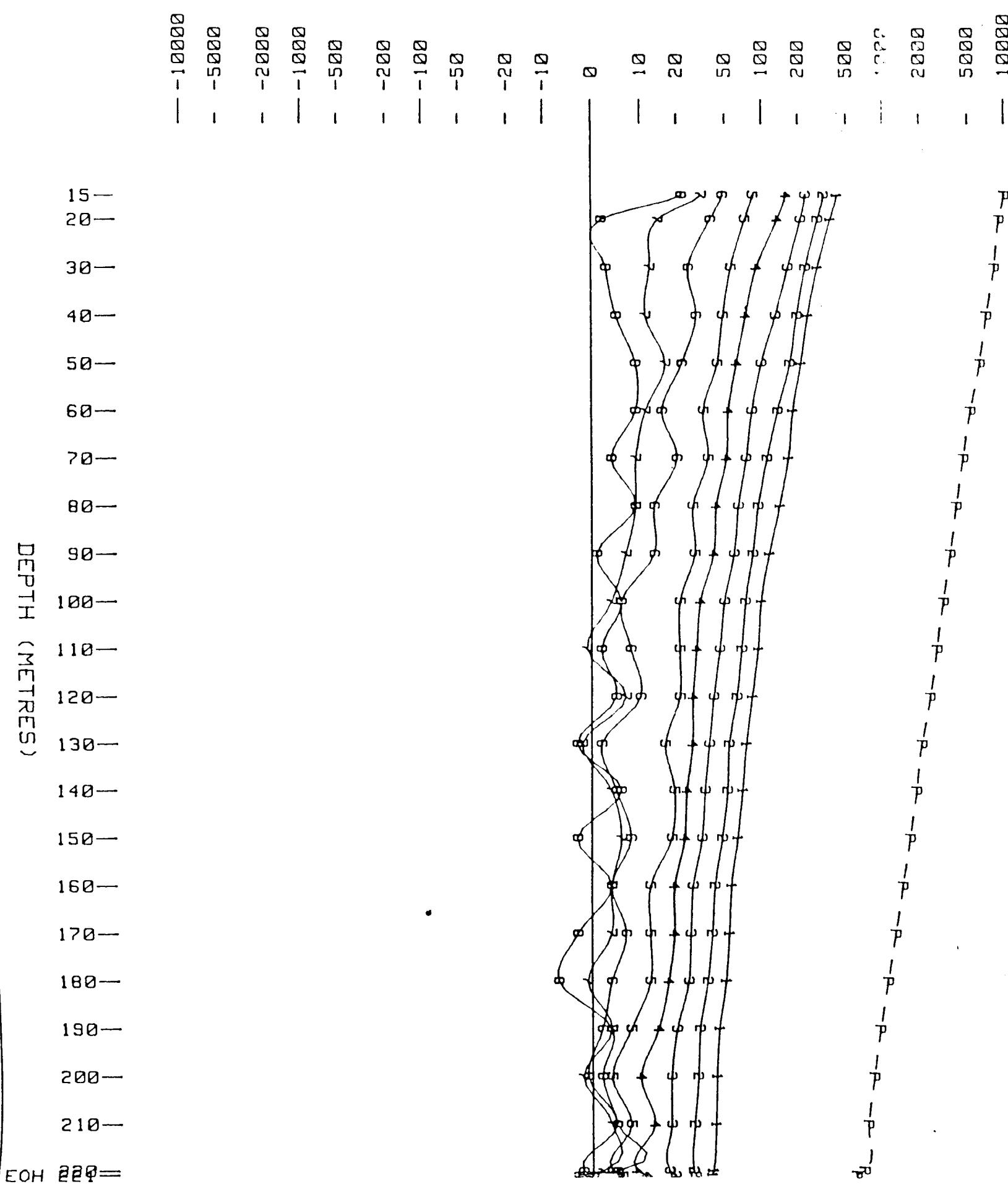
**REFERENCES:**

Woods, D.V., 1975; A model study of the Crone Borehole pulse electromagnetic (PEM) system; unpublished M.Sc. thesis, Queen's University, Kingston, Ontario.

Woods, D.V. and Crone, J.D. 1980; Scale model study of a borehole pulse electromagnetic system; C.I.M. Bulletin, vol.73, no. 817, pp.96-104.

Woods, D.V., Rainsford, D.R.B. and Fitzpatrick M.N. 1980; Analogue modelling and quantitative interpretation of borehole PEM measurements (abstract only); EOS Transactions of the American Geophysical Union, vol. 61, no. 17, pp. 414-415.

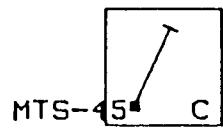
CRONE BOREHOLE PEM UNITS



INSTRUMENT: CRONE PEM

TIME BASE: 10 MSEC

CONSTANT GAIN 100%



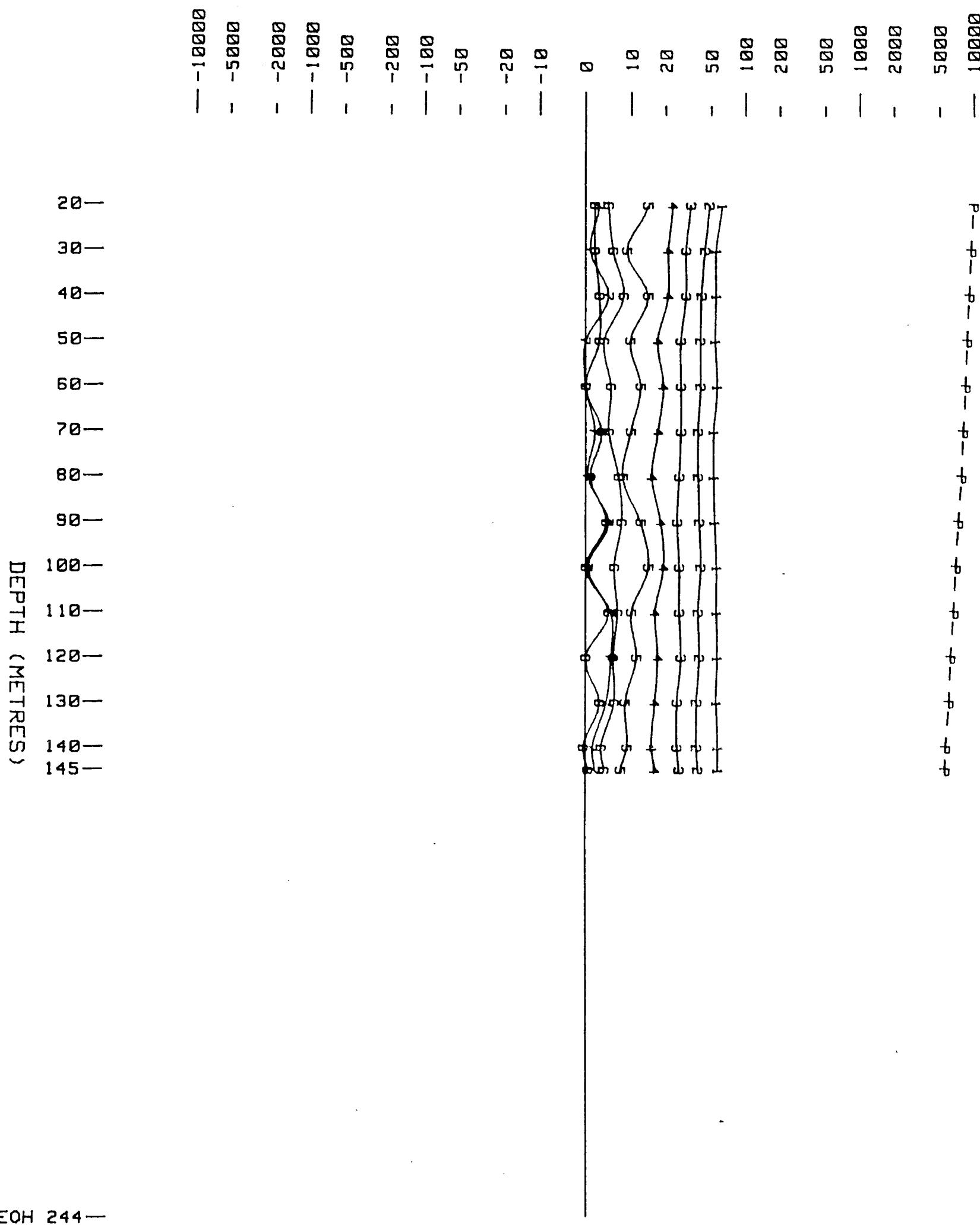
MINNOVA INC.  
MT. SICKER PROJECT  
BOREHOLE PULSE EM SURVEY  
DDH MTS-45 LOOP C

WHITE GEOPHYSICAL INC.

DATE: APRIL/88

FIG. 2

CRONE BOREHOLE PEM UNITS

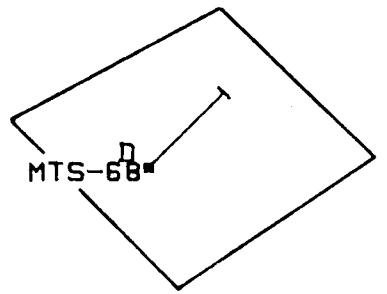


E0H 244—

INSTRUMENT: CRONE PEM

TIME BASE: 10 MSEC

CONSTANT GAIN 100%



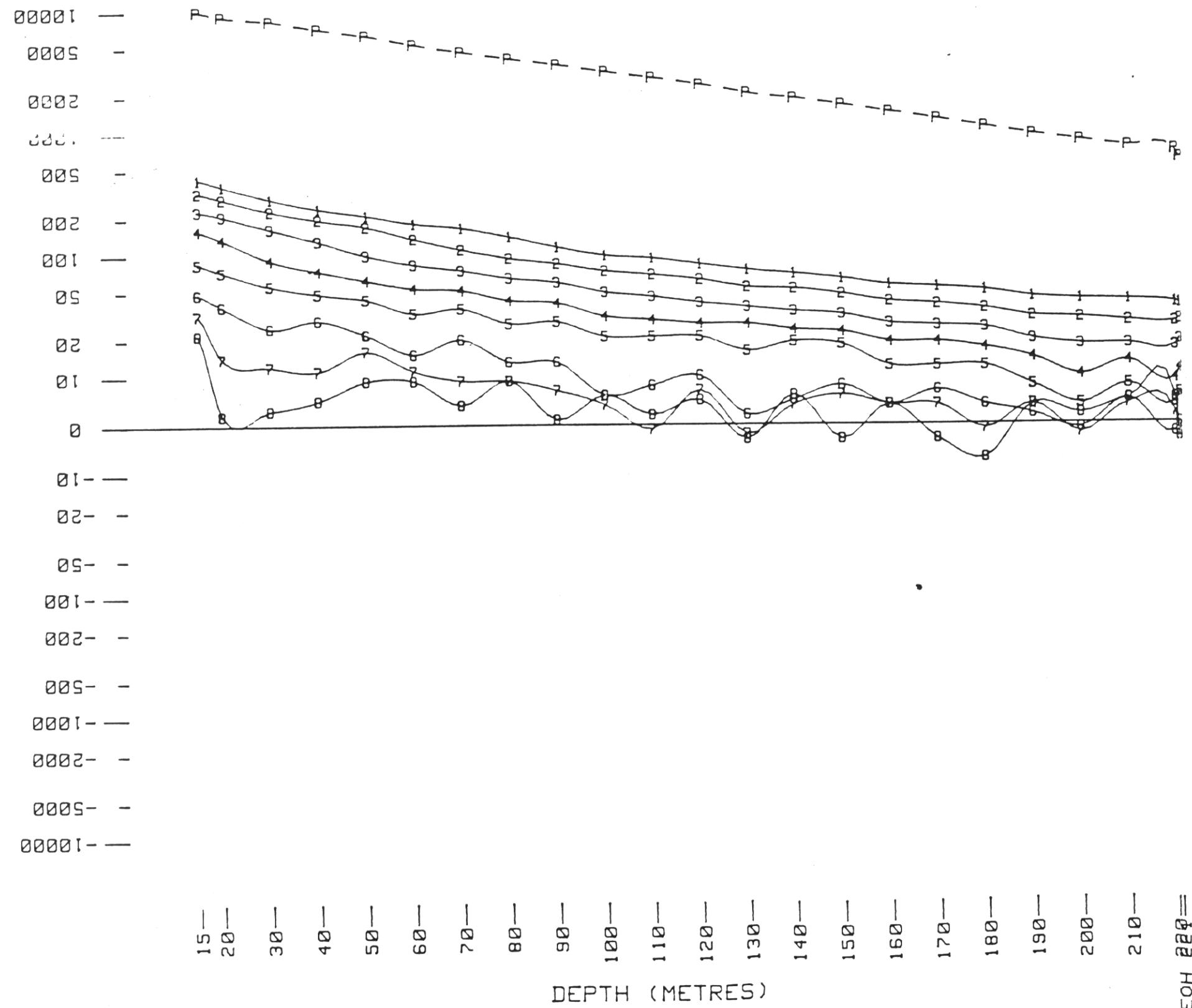
WHITE GEOPHYSICAL INC.

MINNOVA INC.  
MT. SICKER PROJECT  
BOREHOLE PULSE EM SURVEY  
DDH MTS-68 LOOP D

DATE: DEC/88

FIG. 9

## CRONE BOREHOLE PEM UNITS



INSTRUMENT: CRONE PEM  
TIME BASE: 10 SEC  
CONSTANT GAIN 100%

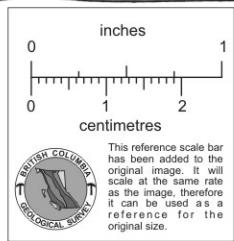
WHITE GEOPHYSICAL INC.

MTS-45 C

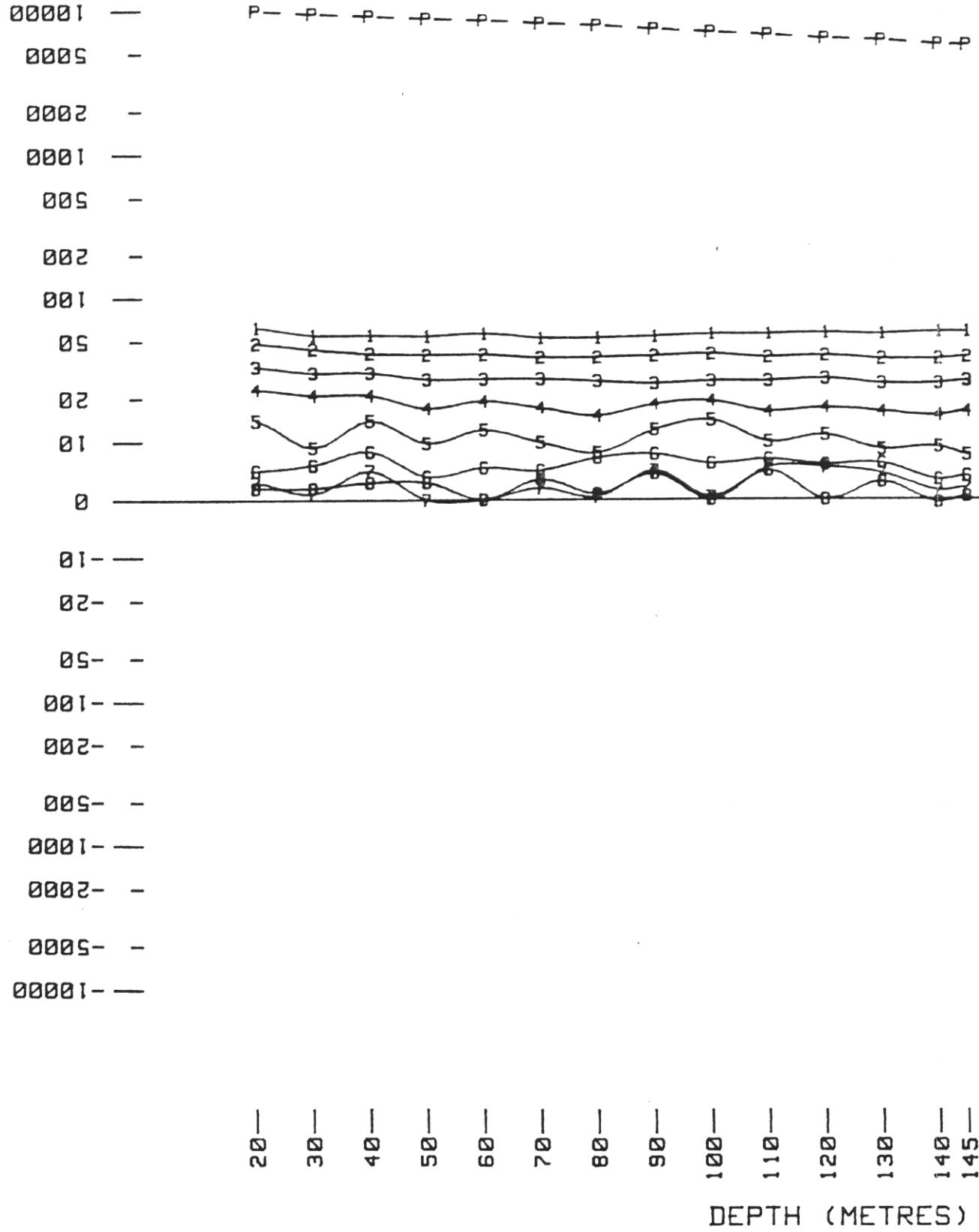
MINNOVA INC.  
MT. SICKER PROJECT  
BOREHOLE PULSE EM SURVEY

DDH MTS-45 LOOP C  
DATE: APRIL/88

FIG. 2

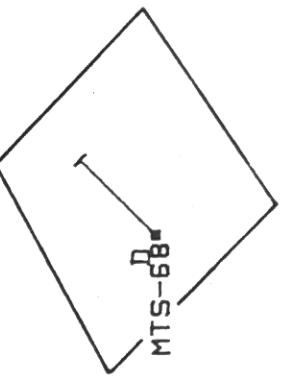


## CRONE BOREHOLE PEM UNITS



EOH 244—

INSTRUMENT: CRONE PEM  
TIME BASE: 10 SEC  
CONSTANT GRAIN 100%

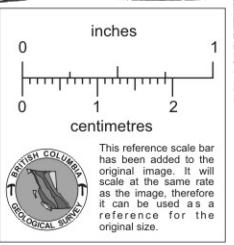


MINNOVA INC.  
MT. STICKER PROJECT  
BOREHOLE PULSE EM SURVEY  
DDH MTS-68 LOOP D

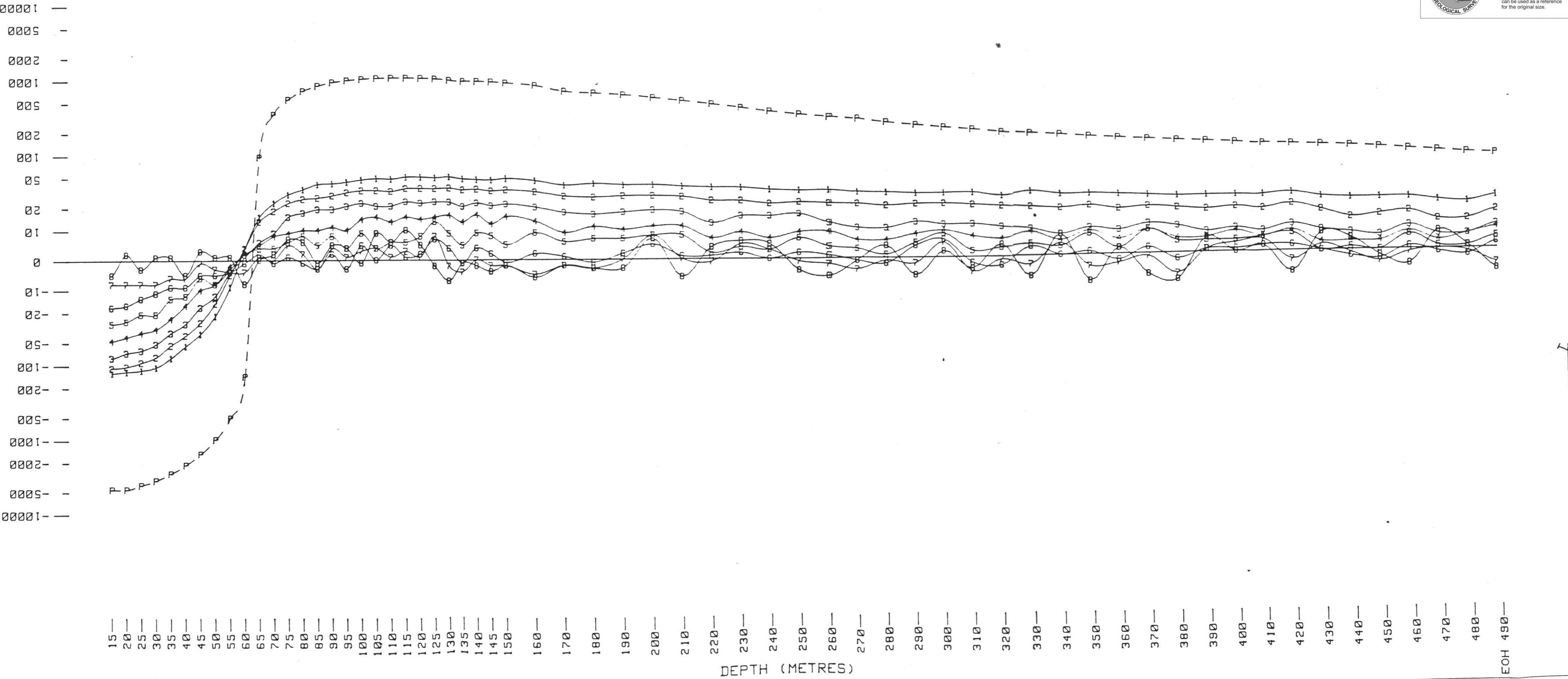
WHITE GEOPHYSICAL INC.

DATE: DEC/88

FIG. 9



## CRONE BOREHOLE PEM UNITS



INSTRUMENT: CRONE PEM  
TIME BASE: 10 MSEC  
CONSTANT GAIN 100%

WHITE GEOPHYSICAL INC.  
MTS-46

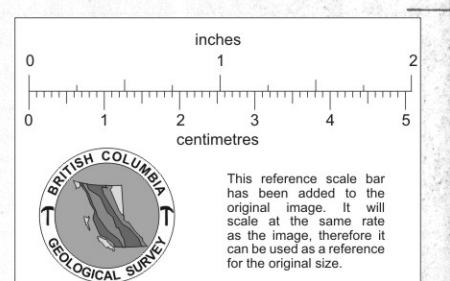
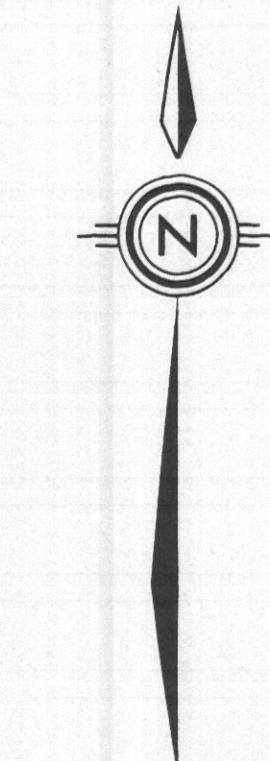
MINNOVA INC.

MT. SICKER PROJECT

BOREHOLE PULSE EM SURVEY

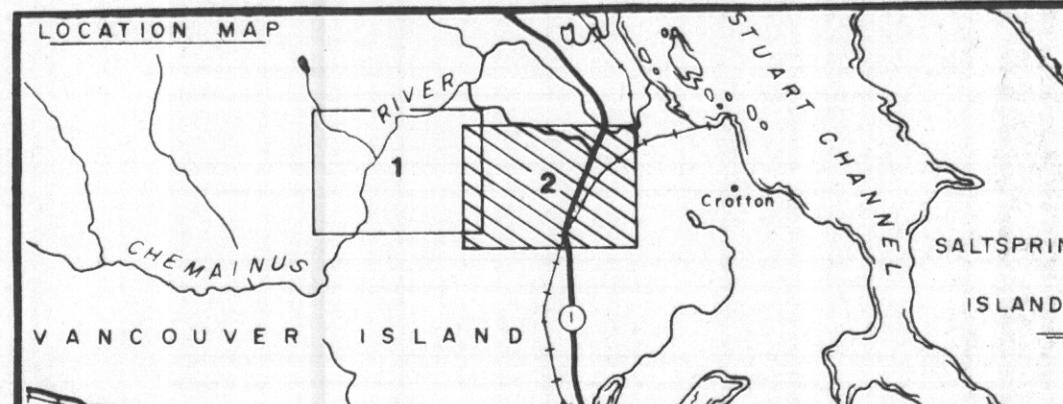
DDH MTS-46 LOOP A

FIG. 3



LEGEND

- [4.1] Diorite sills + dykes [4.2] Gabbro
- [3] Felsic ash , crystal tuffs with minor lapilli and breccia
- [3.1] QP: quartz porphyry crystal tuff
- [3.2] F-Q: feldspar ± quartz crystal tuff
- [3.3] QFP : quartz feldspar porphyry crystal tuff
- [3.4] QFP dyke
- [2] Intermediate fine ash, crystal tuffs with minor interbedded cherty tuffs
- [2.1] Feldspar phryic tuff
- [2.2] Feldspar ± quartz phryic tuff
- [1] Mafic ash , crystal, lapilli tuffs, and breccias
- [1.2] Pyroxene phryic Nilnat
- [1.5] Feldspar phryic Nilnat + Transition moderate to strong epidotization (20% epi patches - balls)



### MINNOVA Inc.

### MT. SICKER PROJECT

### GEOLOGY 1988 PROPOSED DRILLING

SCALE: 1: 5000

N.T.S. 92 B/13

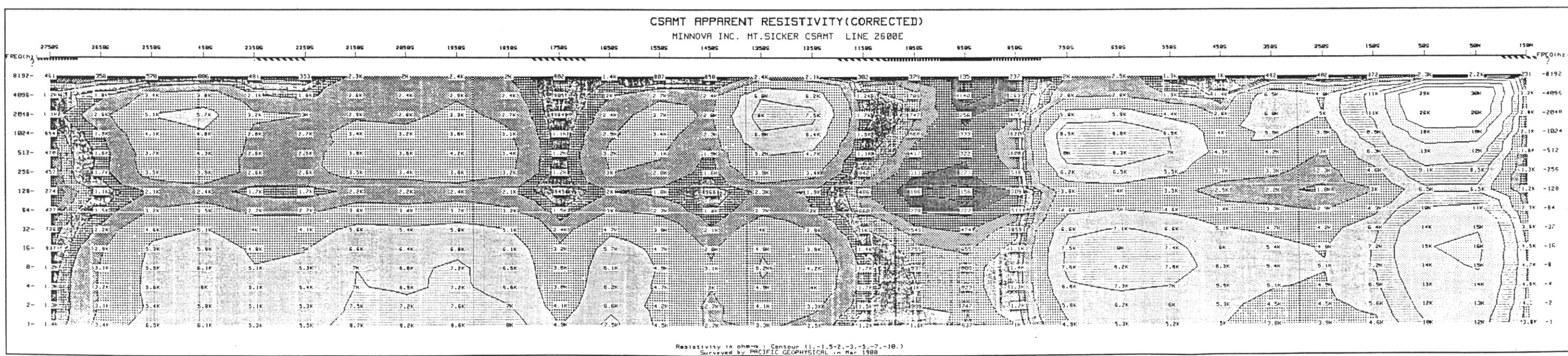
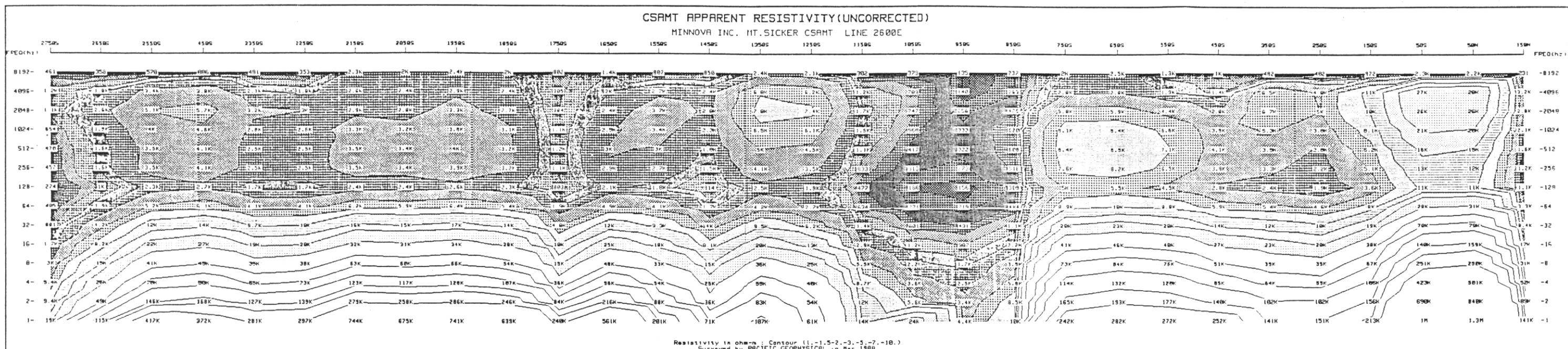
DRAWN BY: G.Wsg

DATE: JAN. 1988

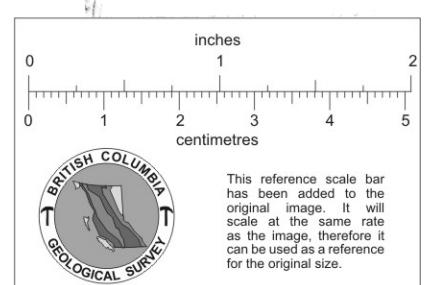
MAP: 3

- SYMBOLS
- - - Geological Contact
  - Fault
  - Rivers, Streams
  - Major Roads
  - Secondary Roads
  - Old Road Bed
  - Swamp Area
  - Adit
  - Trench
  - Bedding
  - Old Road Bed
  - Float
  - IP Chargeability Anomaly





## FIGURE 4



This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.