

LOG NO: 0627	RD.
ACTION:	
FILE NO:	

**DIAMOND DRILLING REPORT**  
**MT. SICKER PROPERTY**  
VICTORIA MINING DIVISION

NTS 92 B/13  
48° 50' N Latitude  
123° 50' W Longitude  
Owner: MINNOVA INC.  
Operator: MINNOVA INC.  
By: G.S. Wells  
May 1989

**FILMED**

CLAIMS

Rocky Group

Plum Group

- Rocky 2
- Rocky 5
- Rocky 6 Fr.
- Acme Fr.
- Sicker 1
- Sicker 2
- Pear
- CF Group 1
- CF Group 2
- CF Group 3
- CF Group 4
- CF Group 5
- CF Group 6
- CF Group 7
- CF Group 8
- CF Group 13
- CF Group 14
- CF Group 15
- CF Group 16
- CF Group 17
- CF Group 18

- Bonnie V
- Bonnie VI
- CR I
- CR II
- CR II
- Banana
- Stephanie Fr.
- International A Fr.
- Patricia Jane Fr.
- Morley - Jane Fr.
- Rocky 1
- Rocky 3
- Rocky 4
- Plum

**GEOLOGICAL BRANCH**  
**ASSESSMENT REPORT**

**18,859**

Table of Contents

I. Introduction

- a: Location and Access.....1
- b: Mineral Rights.....1
- c: History.....6

2. Work Done.....6

3. Geology

- a: Regional Geology.....7
- b: Geology of the Mt. Sicker Property.....8

4. Diamond Drilling Results.....9

5. Conclusions.....10

6. Cost Statements.....11

7. References.....14

8. Author's Qualifications.....15

9. Diamond Drilling Invoices.....16

Appendix I: Drill Logs

List of Figures

Figure 1: Location Map.....2

Figure 2: Claim Map.....3

Figure 3: Generalized Geology and DDH Location 1:5000..in pocket

Diamond Drilling Report  
Mt. Sicker Property

1. Introduction

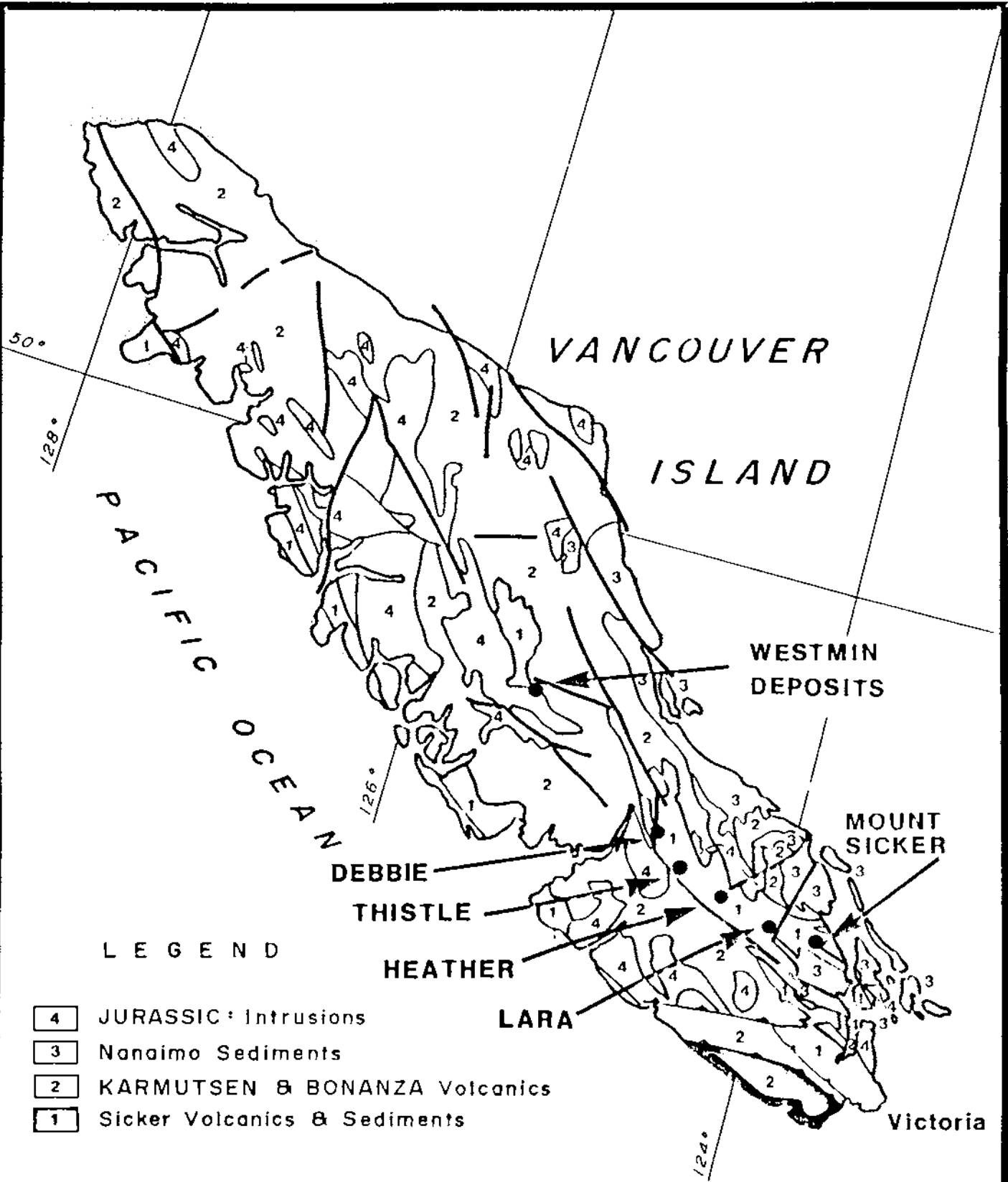
Minnova Inc. has acquired the mineral rights to claims which cover much of Mt. Sicker in order to evaluate the volcanogenic massive sulphide potential of the property. This report describes the results of diamond drilling in the Mona, Key City and Lenora areas. The work was done during the periods May 4 to May 27th, 1988 and October 17 to December 4, 1988 by Burwash Contract Drilling.

a: Location and Access

The Mt. Sicker property is located 40 km and 10 km north of Victoria and Duncan respectively (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 from 150 to 700 metres above sea level. Mt. Sicker is covered by a mixed forest of Douglas Fir, Alder, and Cedar which has been selectively clear cut over the last 10 years.

b: Mineral Rights

The drilling was carried out on the Nellena, Westholme, Bluebell, Key City, Herbert and Tyee claims which are part of the Plum and Rocky groups (Figure 2). The claim status of the Plum and Rocky groups is as follows:



**VANCOUVER ISLAND**

**GEOLOGY**

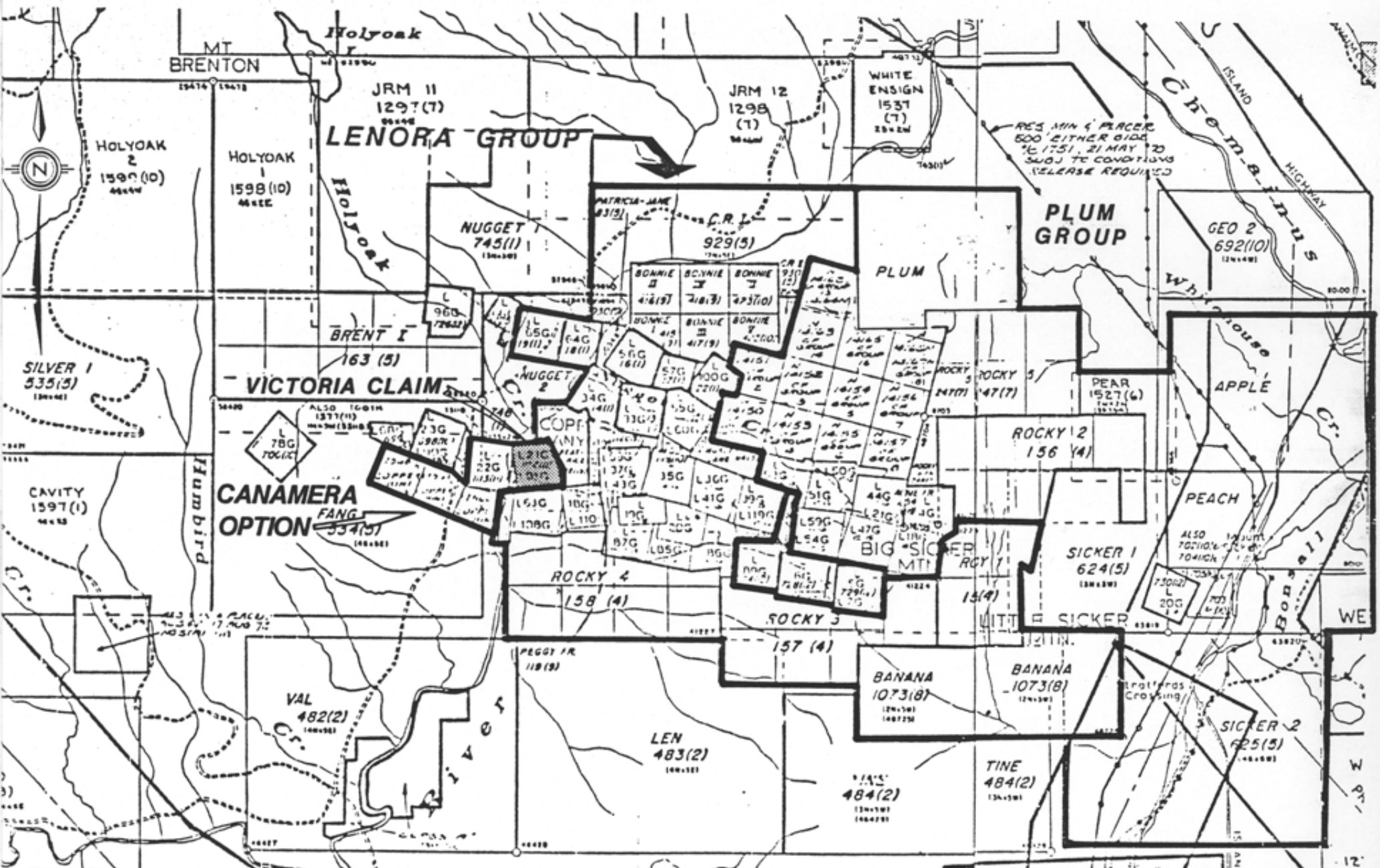
SCALE 1 : 2,000,000

PLUM GROUP

<u>Claim</u>	<u># of units</u>	<u>Record Number</u>	<u>Month of Record</u>
Little Nugget	1	13	January
Chemainus	1	14	January
Belle	1	15	January
Dunsmuir	1	16	January
Seattle	1	17	January
Copper King	1	18	January
Copper Queen	1	19	January
Queen Bee	1	22	January
Patricia Jane Fr.	1	83	May
Morley Jane Fr.	1	84	May
Peggy Fr.	1	119	September
Alliance Fr.	1	120	September
Beatrice	2	121	September
Rocky 1	4	155	April
Rocky 3	8	157	April
Rocky 4	8	158	April
Bonnie I	1	415	September
Bonnie II	1	416	September
Bonnie III	1	417	September
Bonnie IV	1	418	September
Bonnie V	1	422	October
Bonnie VI	1	423	October
CRI	10	929	May
CRII	10	930	May
Banana	10	1073	August
Stephanie Fr.	1	1074	August
International A. Fr.	1	1119	October
Plum	6	1665	April
XL	1	19G	Crown Grant
Herbert	1	20G	Crown Grant
Lenora	1	35G	Crown Grant
Tyee	1	36G	Crown Grant
Key City	1	37G	Crown Grant
Richard III MC	1	39G	Crown Grant
Magic Fr. MC	1	41G	Crown Grant
NT Fr.	1	43G	Crown Grant
Westholme Fr. MC	1	59G	Crown Grant
International Fr.	1	60G	Crown Grant
Donald	1	63G	Crown Grant
Thelma Fr.	1	85G	Crown Grant
Imperial Fr.	1	86G	Crown Grant
Doubtful Fr.	1	87G	Crown Grant
Muriel Fr.	1	108G	Crown Grant
Phil Fr.	1	110G	Crown Grant

ROCKY GROUP

<u>Claim</u>	<u># of units</u>	<u>Record Number</u>	<u>Month of Record</u>
Sicker 1	9	624	May
Rocky 2	8	156	April
Sicker 2	20	625	May
Rocky 5	6	247	July
Rocky 6 Fr.	1	248	July
Acme Fr.	1	254	August
CF Group 1	1	14150	October
CF Group 2	1	14151	October
CF Group 3	1	14152	October
CF Group 4	1	14153	October
CF Group 5	1	14154	October
CF Group 6	1	14155	October
CF Group 7	1	14156	October
CF Group 8	1	14157	October
CF Group 13	1	14162	October
CF Group 14	1	14163	October
CF Group 15	1	14164	October
CF Group 16	1	14165	October
CF Group 17	1	14166	October
CF Group 18	1	14167	October
Lawarance	1	730	December
Pear	4	1527	June
Peach	12	1623	January
Apple	12	1624	January
Acme MC	1	46	Crown Grant
Tony	1	18G	Crown Grant
Donagan	1	18G	Crown Grant
Dixie Fr.	1	21G	Crown Grant
Golden Rod MC	1	44G	Crown Grant
Nellena MC	1	47G	Crown Grant
Moline Fr. MC	1	50G	Crown Grant
Bluebell MC	1	51G	Crown Grant
Estelle MC	1	53G	Crown Grant
Westholme MC	1	54G	Crown Grant



**MINNOVA**

**CLAIM MAP**

FIGURE 2

### c: History

Two former producers - the Lenora and Tyee mines occur on the Mt. Sicker property. These deposits were discovered in 1898 and were largely mined out by 1909, although they were worked periodically until 1947. A total of 300,000 tons of ore with an estimated grade of 3.3% Cu, 7.5% Zn, 2.75 oz/t Ag and 0.13 oz/t Au were recovered from these two mines. Recent exploration on the property has been done by Duncanex, Mt. Sicker Mines and Serem in the vicinity of the former mines and the Postuk-Fulton and NE Copper showings. Minnova Inc. (formerly Corporation Falconbridge Copper) has been actively exploring the property since 1983 using geological, geochemical and geophysical surveys and diamond drilling. All aspects of this continuing integrated program are aimed at discovering a polymetallic volcanogenic massive sulphide deposit.

### 2. Work Done

This report summarizes the results of eight diamond drill holes totalling 3102.7 meters which tested the extent of mineralization in the vicinity of old shafts in the Lenora, Key City and Mona areas (Figure 3). Holes MTS-53 and 57 were drilled on the Herbert and Tyee claims; Holes MTS-61, 64, and 65 were drilled on the Nellena, Westholme and Bluebell claims and holes MTS-58, 59 and 60 were drilled on the Key City claim. All of the diamond drilling was done by Burwash Contract Drilling.

Lithochemical samples were taken routinely throughout the hole, sent to Min-en Laboratories in Vancouver and analyzed for major and trace elements ( $\text{SiO}_2$ ,  $\text{TiO}_2$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{Na}_2\text{O}$ ,  $\text{M}_2\text{O}$ ,  $\text{MgO}$ ,  $\text{Fe}_2\text{O}_3$ , Ba,  $\text{MnO}_2$ , S, Ag, As, Cu, Pb, Zn, Au, Sb) using a total digestion ICP technique. Mineralized sections were analyzed for Cu, Zn, Ag, Au, and Ba, using an atomic absorption method. The drill core is stored at 6722 Lakes Road in Duncan, B.C.



3. Geology

a: Regional Geology

The Mt. Sicker property is located in the Cowichan-Horne Lake uplift which is one of three fault - bounded areas that expose the Paleozoic Sicker Group on Vancouver Island. 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 lavas and agglomerates with minor to massive banded tuff layers.

Recent mapping by Massey (1987) has resulted in the following revised nomenclature and stratigraphy of the Sicker Group.

<u>Muller (1980)</u>	<u>Massey (1988)</u>
Buttle Lake Formation.....	Mount Mark Formation
Sediment - Sill Unit.....	Cameron River Formation
Myra Formation.....	McLaughlin Ridge Formation
Nitinat Formation.....	Nitinat Formation

Cretaceous sediments of the Nanaimo Group unconformably overly 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. (Mullen, 1980). West-northwest and northeast trending faults dissect the Sicker group in the Cowichan-Horne Lake uplift into a number of fault blocks. Movement along these faults is interpreted to have been mostly Tertiary in age.

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. (Figure 3). The Sicker Group can be subdivided into the Mclaughlin Ridge and Nitinat formations. The Mclaughlin Ridge formation consists of thick units of felsic pyroclastic and flow units with minor ash, argillite and chert. The Lenora - Tyee massive sulphide deposit is hosted in Mclaughlin Ridge formation quartz - eye crystal tuffs and is intimately associated with argillaceous sediments. The Lenora-Tyee deposits are considered to be the stratigraphic equivalent of Westmin's Myra-Lynx deposits at Buttle Lake.

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

Numerous mineralized occurrences are present on the Mt. Sicker property. Except for the former orebodies, most of the mineralization consists of disseminated and stringer sulphide zones which are thought to be an expression of a synvolcanic hydrothermal system. This type of mineralization is particularly abundant in the Mona shaft area.

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. Small drag folds associated with the Mt. Sicker anticline occur at NE Copper and Lenora-Tyee.

#### 4. Diamond Drilling Results.

Holes MTS-53 and MTS-57 tested the down dip extent of the Lenora-Tyee massive sulphide zone. Each hole collared in a sequence of andesitic and QFP crystal tuffs. A zone of intermediate ashes and cherts which occurs at the contact between a dominantly andesitic package and an underlying felsic tuff package is interpreted as the down-dip expression of the massive sulphides. In MTS-53, the underlying felsics are relatively unaltered, but in MTS-57, a 20.1 meter wide pyritic stringer zone occurs in strongly sericitic felsic ashes. No economic sulphide mineralization is present in either hole.

Holes MTS-58, 59 and 60 were drilled in the vicinity of the Key City shaft which is located approximately 1.0 km west of the old Lenora adits and pits. Holes MTS-58 and 59 intersected a wide zone of intermediate tuffs and cherts that occur at the contact between andesitic crystal tuffs and felsic crystal tuffs and ashes. In hole MTS-58, a complete section of the volcanic sequence was not obtained due to the presence of a series of diorite dikes. In MTS-59, which was drilled 150 meters down dip of MTS-58, the upper 2.1 meters of the intermediate tuff/chert sequence consists of finely bedded pyrite, chert and ash. In addition, a 40.6 meter wide zone of quartz-pyrite stringers is hosted in the underlying felsic volcanic sequence. Hole MTS-60 tested the same sequence as MTS-58 and 59, but is located 130 meters to the east. The intermediate tuff, chert sequence in MTS-60, is considerably thinner (6.1 m.) and pyrite-quartz stringers occur in an overlying felsic tuff unit. Despite the presence of sulphide-rich stringers and horizons, no zones of economic mineralization were located in the Key City area.

Holes MTS-61, 64, and 65 tested IP anomalies and the extent of sulphide mineralization in felsic ashes and crystal tuffs in the Mona shaft area which is located approximately 1.2 km east of the Tyee shaft. All three of the holes tested the felsic sequence beneath the B.C. Tel diorite, a flat lying, 200 meter

thick mafic intrusion. The IP anomalies are due to quartz-pyrite - chalcopyrite stringers which occur in the felsic sequence both above and below the B.C. Tel diorite. No zones of economic mineralization are present in the three holes.

Detailed logs for holes MTS-53, 57, 58, 59, 60, 61, 64 and 65 are included in Appendix I and the location of each is shown in Figure 3.

## 5. Conclusions

Holes MTS-53 and MTS-57 intersected a sequence of intermediate ashes and chert which are interpreted as the lateral equivalent of the Lenora-Tyee massive sulphide. A 20 meter wide pyrite stringer zone occurs in the footwall to this zone in hole MTS-57. The cherty layers indicate that there has been a pause in the volcanism to allow sediment and possibly massive sulphides to accumulate whereas the pyrite stringers indicate that a synvolcanic hydrothermal system did exist. Further testing of the volcanic stratigraphy in the Lenora-Tyee area is warranted.

Holes MTS-58, 59 and 60 which were drilled in the Key City area, 1 km west of the old Lenora adits, intersected a similar sequence of intermediate ashes and cherts. Sulphide stringer zones are also present in footwall and hanging wall units. Further testing of this active massive sulphide environment is warranted.

Holes MTS-61, 64 and 65, tested the extent of IP anomalies and sulphide mineralization in the Mora area. Thin zones of intermediate ashes and cherts were intersected. In all three holes, abundant quartz-pyrite stringers are present. As noted above, both features are characteristic of a massive sulphide environment. As such, further testing of the volcanic stratigraphy in the Mona area is warranted.

*Gary Bell*

Cost Statements

Nellena, Westholme, Bluebell claims filed for \$103,307.11  
- diamond drill holes MTS-61, 64, 65

Hole MTS-61

Contractor Costs (see attached invoices)	29,891.75
G.S. Wells: 2 days at \$350.00/day	700.00
P. Baxter: 8 days at \$300.00/day	2,400.00
A. Brielsman: 1 day at \$100.00/day	100.00
Truck: 10 days at \$ 50.00/day	500.00
Food/Housing: 10 days at \$ 40.00/day	<u>400.00</u>
Subtotal:	\$33,991.75

Hole MTS-64

Contractor Costs (see attached invoices)	30,255.53
G.S. Wells: 6 days at \$350.00/day	2,100.00
P. Baxter: 2 days at \$300.00/day	600.00
A. Brielsman: 1 day at \$100.00/day	100.00
Truck: 8 days at \$ 50.00/day	400.00
Food/Housing: 8 days at \$ 40.00/day	<u>320.00</u>
Subtotal:	\$33,775.53

Hole MTS-65

Contractor Costs (see attached invoices)	31,729.83
P. Baxter: 9 days at \$300.00/day	2,700.00
A. Brielsman: 3 day at \$100.00/day	300.00
Truck: 9 days at \$ 50.00/day	450.00
Food/Housing: 9 days at \$ 40.00/day	<u>360.00</u>
Subtotal:	\$35,539.83

Total: \$103,307.11

Key City claim:                    diamond drill holes MTS-58, 59, 60

filed for \$64,778.98

Hole MTS-58

Contractor Costs (see attached invoices)	20,344.09
G.S. Wells:     6 days at \$350.00/day	2,100.00
A. Brielsman:  1 day  at \$100.00/day	100.00
Truck:           6 days at \$ 50.00/day	300.00
Food/Housing:  6 days at \$ 40.00/day	<u>240.00</u>

Subtotal:                    \$23,084.09

Hole MTS-59

Contractor Costs (see attached invoices)	20,565.11
P. Baxter:       5 days at \$300.00/day	1,500.00
A. Brielsman:  1 day  at \$100.00/day	100.00
Truck:           5 days at \$ 50.00/day	250.00
Food/Housing:  5 days at \$ 40.00/day	<u>200.00</u>

Subtotal:                    \$22,615.11

Hole MTS-60

Contractor Costs (see attached invoices)	17,029.78
P. Baxter:       5 days at \$300.00/day	1,500.00
A. Brielsman:  1 day  at \$100.00/day	100.00
Truck:           5 days at \$ 50.00/day	250.00
Food/Housing:  5 days at \$ 40.00/day	<u>200.00</u>

Subtotal:                    \$19,079.78

Total:                        \$64,778.98

Herbert, Tye claims: diamond drill holes MTS-53, 57

filed for \$44,969.50

Hole MTS-53

Contractor costs (see attached invoices)	18,995.49
G.S. Wells: 5 days at \$350.00/day	1,750.00
M. Fulton: 1 day at \$100.00/day	100.00
Truck: 5 days at \$ 50.00/day	250.00
Food/Housing: 7 days at \$ 40.00/day	<u>240.00</u>
Subtotal:	\$21,335.49

Hole MTS-57

Contractor costs (see attached invoices)	21,404.01
P. Baxter: 5 days at \$350.00/day	1,500.00
M. Fulton: 2 day at \$100.00/day	200.00
Truck: 5 days at \$ 50.00/day	250.00
Food/Housing: 5 days at \$ 40.00/day	<u>200.00</u>
Subtotal:	\$23,634.01

---

Total: \$44,969.50

---

References

Muller, J.E.

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

Massey, N.W.D. and Friday, S.J.

1988 : Geology of the Chemainus River - Duncan Area, Van. Island  
pp: 81-92 in Geological Field Work 1987, BCDM Paper '88-1

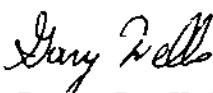


Statement of Qualification

I, Gary S. Wells, hereby certify that:

1. I hold an Honours Bachelor of Science degree in combined geology and chemistry (1975) from Carleton University, Ottawa, Ontario and a Ph.D degree in geology (1980) from Queen's University, Kingston, Ontario.
2. I am an associate member of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy
3. I have practised my profession in exploration continuously since graduation in 1980.

Date: May 31, 1989

  
Gary S. Wells  
Vancouver, B.C.

Statement of Qualifications of Field Personnel

Paul Baxter:            B.Sc. (Geology) 1985, University of Alberta  
                          2 years full-time experience in mineral exploration  
                          3 years part-time experience in mineral exploration

Address: c/o Minnova Inc. 4th Floor - 311 Water Street  
Vancouver, B.C. Phone: 681-3771

# Burwash Contract Drilling

1236 WILDER ROAD - R.R. 2 - COBBLE HILL, B.C. V0R 1L0 - VANCOUVER ISLAND - TEL. 743-3092

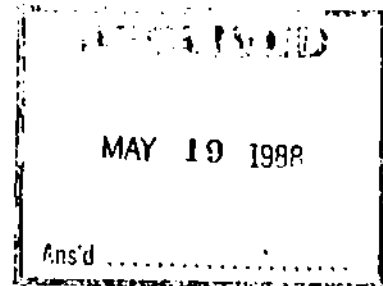
May 16, 1988

Minnova Inc.  
4th Floor, 311 Water Street  
Vancouver, B.C. V6B 1B8

Dear Sirs:

Please find enclosed invoices for diamond drilling on your Mt. Sicker property from May 1 - 16, 1988.

Hole MTS-52		\$12,059.56	
Hole MTS-53		18,995.49	←
Hole MTS-54		20,596.85	
Hole MTS-55 (incomplete)		16,804.33	
Equipment and labour lost in			
Hole MTS-49 (50%)	6,241.74	<del>12,483.48</del>	
	<u>\$ 74,697.97</u>	<u>\$80,939.71</u>	



Yours truly,  
BURWASH CONTRACT DRILLING  
Per:

*D. Burwash*

CORPORATION (REAL COMPANY) (CORP)

VENDOR NAME		16 MAY 88	
BURWASH CONTR.			
ACCOUNT CODE		74-69747	
GENERAL LEDGER	PLANS	305	
7015810	61010		
AFFROVED	EMER		
<i>J</i>	<i>J</i>		

*J* T-88-011

HOLE MTS-52 (to completion)

Core	
51' @ \$16.00/ft.	\$816.00
565' @ \$18.00/ft.	10,170.00
Consumables	
6 pails Polymer mud @ \$110.00 ea.	660.00
6% P.S.T.	39.60
Cost + 10%	69.96
Hole Stabilization	
6 man hours @ \$24.00/hr.	144.00
3 drill hours @ \$20.00/hr.	60.00
Testing	
2 acid tests @ \$50.00 ea.	100.00
	<u>100.00</u>
	<u>\$12,059.56</u>

HOLE MTS-53

Moving	
4 tractor hours @ \$60.00/hr.	\$240.00
4 man hours cat operating @ \$24.00/hr.	96.00
Overburden	
10' @ \$16.00/ft.	160.00
Core	
990' @ \$16.00/ft.	15,840.00
66' @ \$18.00/ft.	1,188.00
Consumables	
2 x 10' NW Casing @ \$150.00	300.00
1 NW Casing shoe @ \$152.00	152.00
1 NW Casing cap @ \$40.00	40.00
7 pails polymer mud @ \$110.00 ea.	770.00
6% P.S.T.	75.72
Cost + 10%	133.77
	<u>133.77</u>
	<u>\$18,995.49</u>

# Burwash Contract Drilling

1236 WILDER ROAD - R.R. 2 - COBBLE HILL, B.C. V0R 1L0 - VANCOUVER ISLAND - TEL. 743-3092

June 1, 1988

Minnova Inc.  
4th Floor, 311 Water Street  
Vancouver, B.C. V6B 1B8

Dear Sirs:

Please find enclosed invoices for diamond drilling from May 16 - May 31, 1988 for the following holes:

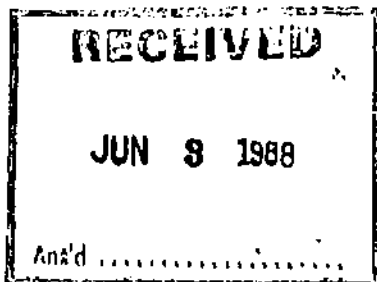
Hole MTS-55 (to completion)	\$2,280.26	}	70580	600	305
Hole MTS-56	24,217.25				
Hole MTS-57	21,404.01 *				
Hole CM-7	12,783.94	}	70580	600	326
Hole CM-8 (incomplete)	8,488.87				
	<u>\$69,174.33</u>				

Yours truly,  
BURWASH CONTRACT DRILLING  
Per:



## CORPORATION FALCONBURD

VENDOR NAME		DATE	
BURWASH CONTR		01 JUN 88	
ACCOUNT CODE			
GENERAL LEDGER	DETAIL		AMOUNT
70580	600	305	47901.52
70580	600	326	21272.81
APPROVED	CODED	FILE #	AMOUNT
	OC	Je	188-012



Vendor #317

HOLE MTS-57

Moving

4 tractor hours @ \$60.00/hr.	\$240.00
4 man hours cat operating @ \$24.00/hr.	96.00
2 man hours moving @ \$24.00/hr.	48.00

Overburden

10' @ \$16.00/ft.	160.00
-------------------	--------

Core

990' @ \$16.00/ft.	15,840.00
164' @ \$18.00/ft.	2,952.00

Consumables

1 x 10' NW Casing @ \$150.00	150.00
1 NW Casing shoe @ \$152.00	152.00
1 NW Casing cap @ \$40.00	40.00
10 pails polymer mud @ \$110.00 ea.	1,100.00
4 bags gel @ \$10.00 ea.	40.00

6% P.S.T.	88.92
Cost + 10%	157.09

ole Stabilization

10 man hours @ \$24.00/hr.	240.00
5 drill hours @ \$20.00/hr.	100.00

---

\$21,404.01



HOLE MTS-58

Moving

4 tractor hours @ \$60.00/hr. \$ 240.00

Overburden

10' @ \$16.00/ft. 160.00

Core

990' @ \$16.00/ft. 15,840.00  
137' @ \$18.00/ft. 2,466.00

Consumables

1 x 10' NW Casing @ \$150.00 150.00  
1 NW Shoe @ \$152.00 152.00  
1 NW Casing Cap @ \$40.00 40.00  
3 bags Gel @ \$10.00 ea. 30.00  
9 pails Polymer mud @ \$110.00 ea. 990.00

6% P.S.T. 81.72  
Cost + 10% 144.37

1 Acid Test @ \$50.00

50.00  
\$ 20,344.09



HOLE MTS-59

Overburden

10' @ \$16.00/ft. \$ 160.00

Core

990' @ \$16.00/ft. 15,840.00  
157' @ \$18.00/ft. 2,826.00

Consumables

1 x 10' NW Casing @ \$150.00 150.00  
1 NW Casing shoe @ \$152.00 152.00  
1 NW Casing cap @ \$40.00 40.00  
9 pails Polymer mud @ \$110.00 ea. 990.00  
6% P.S.T. 79.92  
Cost + 10% 141.19

1 Acid Test @ \$50.00 50.00

Hole Stabilization

4 man hours @ \$24.00/hr. 96.00  
2 drill hours @ \$20.00/hr. 40.00

\$ 20,565.11

HOLE MTS-60

Moving

2 tractor hours @ \$60.00/hr. \$ 120.00

Overburden

44' @ \$16.00/ft. 704.00

Core

871' @ \$16.00/ft. 13,936.00

Consumables

4 x 10' NW Casing @ \$150.00	600.00
2 x 2' NW Casing @ \$49.00 ea.	98.00
1 NW Casing shoe @ \$152.00	152.00
1 NW Casing cap @ \$40.00	40.00
8 pails Polymer mud @ \$110.00 ea.	880.00
6 bags Gel @ \$10.00 ea.	60.00

6% P.S.T.	109.80
Cost + 10%	193.98

Hole Stabilization

4 man hours @ \$24.00/hr.	96.00
2 drill hours @ \$20.00/hr.	40.00

\$ 17,029.78

HOLE MTS-61 (incomplete)

Moving

8 man hours @ \$24.00/hr.	\$ 192.00
7 tractor hours @ \$60.00/hr.	420.00

Overburden

10' @ \$16.00/ft.	160.00
-------------------	--------

Core

85' @ \$16.00/ft.	1,360.00
-------------------	----------

Consumables

1 x 10' NW Casing @ \$150.00 ea.	150.00
1 NW Casing shoe @ \$152.00 ea.	152.00
1 NW Casing cap @ \$40.00 ea.	40.00
3 bags Gel @ \$10.00 ea.	30.00
1 pail Polymer mud @ \$110.00	110.00

6% P.S.T.	28.92
Cost + 10%	51.09

\$2,694.01



HOLE MTS-61 (to completion)

Core

905' @ \$16.00/ft.	\$ 14,480.00
503' @ \$18.00/ft.	9,054.00

Consumables

16 pails Polymer Mud @ \$110.00 ea.	1,760.00
13 bags Gel @ \$10.00 ea.	130.00
6% P.S.T.	113.40
Cost + 10%	200.34

Testing

2 Acid Tests @ \$50.00 ea.	100.00
----------------------------	--------

Hole Stabilization

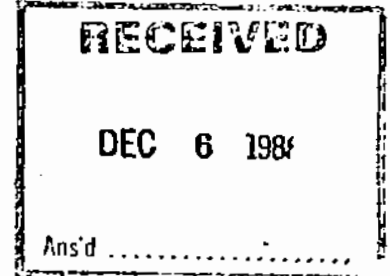
40 man hours @ \$24.00/hr.	960.00
20 drill hours @ \$20.00/hr.	400.00
	<hr/>
	<u>\$ 27,197.74</u>

# Burwash Contract Drilling

1236 WILDER ROAD - R.R. 2 - COBBLE HILL, B.C. V0R 1L0 - VANCOUVER ISLAND - TEL. 743-3092

December 1, 1988

Minnova Inc.  
4th Floor, 311 Water Street  
Vancouver, B.C. V6B 1B8



Dear Sirs:

Please find enclosed invoices for diamond drilling on your Mount Sicker property from November 16 - 30, 1988 for the following holes:

Hole MTS-88-41-D (to completion)	\$ 5,649.00 ✓
Hole MTS 88-62 (to completion)	13,990.52 ✓
Hole MTS-88-63	31,306.02 ✓
Hole MTS-88-64	30,255.53 ✓
Hole MTS-88-65 (incomplete)	20,848.27 ✓
Hole MTS-88-66 (incomplete)	1,529.41 ✓
	<u>\$ 103,578.75</u>

Yours truly,  
BURWASH CONTRACT DRILLING  
Per:

*A. Burwash*

## CORPORATION FALCONBRIDGE COPPER

VENDOR NAME		INVOICE NUMBER OR DATE		CURRENCY
BURWASH CONTRACT DRILLING		DEC 1/88		1
ACCOUNT CODE		AMOUNT		CR
GENERAL LEDGER	DETAIL	EXPLORATION PROJECTS		X
705180	6010	3105	103,578.75	
APPROVED	CODED	EXT. & ADDITION	A. FAX	
<i>J</i>	<i>je</i>		T88-032	

#317

HOLE MTS-88-64

Moving

6 tractor hours @ \$60.00/hr.	\$ 360.00
3 man hours tractor operating @ \$24.00/hr.	72.00
13 man hours @ \$24.00/hr.	312.00

Overburden

10' @ \$16.00/ft.	160.00
-------------------	--------

Core

990' @ \$16.00/ft.	15,840.00
577' @ \$18.00/ft.	10,386.00

Consumables

1 x 10' NW Casing @ \$150.00	150.00
1 NW Casing shoe @ \$152.00	152.00
1 NW Casing cap @ \$40.00	40.00
21 bags Gel @ \$10.00 ea.	210.00
15 pails Polymer Mud @ \$110.00 ea.	1,650.00
6% P.S.T.	132.12
Cost + 10%	233.41

3 Acid Tests @ \$50.00 ea.	150.00
----------------------------	--------

Tropary Testing

2 man hours @ \$24.00/hr.	48.00
1 drill hour @ \$20.00/hr.	20.00

Hole Stabilization

10 man hours @ \$24.00/hr.	240.00
5 drill hours @ \$20.00/hr.	100.00

\$ 30,255.53

HOLE MTS-88-65 (incomplete)

Moving

3 tractor hours @ \$60.00/hr.	\$ 180.00
3 man hours tractor operating @ \$24.00/hr.	72.00

Overburden

10' @ \$16.00/ft.	160.00
-------------------	--------

Core

990' @ \$16.00/ft.	15,840.00
122' @ \$18.00/ft.	2,196.00

Consumables

2 x 10' NW Casing @ \$150.00 ea.	300.00
1 NW Casing shoe @ \$152.00	152.00
1 NW Casing cap @ \$40.00	40.00
11 bags Gel @ \$10.00 ea.	110.00
9 pails Polymer Mud @ \$110.00 ea.	990.00
6% P.S.T.	95.52
Cost + 10%	168.75

Ream Casing

4 man hours @ \$24.00/hr.	96.00
2 drill hours @ \$20.00/hr.	40.00

Hole Stabilization

12 man hours @ \$24.00/hr.	288.00
6 drill hours @ \$20.00/hr.	120.00

\$ 20,848.27



# Burwash Contract Drilling

1236 WILDER ROAD - R.R. 2 - COBBLE HILL, B.C. V0R 1L0 - VANCOUVER ISLAND - TEL. 743-3092

DEC 23 1988

December 19, 1988

Minnova Inc.  
4th Floor, 311 Water Street  
Vancouver, B.C. V6B 1B8

Dear Sirs:

Please find enclosed invoices for diamond drilling on your Mount Sicker property from December 1 - 19, 1988 for the following holes:

Hole MTS 88-65 (to completion)	\$ 10,881.56 ✓*
Hole MTS 88-66 (to completion)	12,665.30 ✓
Hole MTS 88-67	13,511.99 ✓
Hole MTS 88-68	12,083.13 ✓
Hole MTS 88-69	14,590.89 ✓
Hole MTS 88-70	14,662.03 ✓
Hole MTS 88-71	18,434.58 ✓
	<u>\$ 96,829.48</u> ✓

Yours truly,  
BURWASH CONTRACT DRILLING  
Per:



## CORPORATION FALCONBRIDGE COPPER

VENDOR NAME		INVOICE NUMBER OR DATE	CURRENCY 1 CAN 2 US	P. L. I.
BURWASH		DEC 19/88	1	
ACCOUNT CODE			AMOUNT	CR
GENERAL LEDGER	DETAIL	EXPLORATION PROJECTS		X
7051810	6010	3015	96,829.48	
APPROVED	CODED	EXT & ADDITION	A/PAY	
<i>J</i>	<i>Je</i>	<i>Je</i>	789-001	

HOLE MTS 88-65 (to completion)

Core		
527' @ \$18.00/ft.		\$ 9,486.00

Consumables

6 pails Polymer Mud @ \$110.00 ea.		660.00
	6% P.S.T.	39.60
	Cost + 10%	69.96

Testing

3 Acid Tests @ \$50.00 ea.		150.00
1 Tropari Test		
2 man hours @ \$24.00/hr.		48.00
1 drill hour @ \$20.00/hr.		20.00

Hole Stabilization

12 man hours @ \$24.00/hr.		288.00
6 drill hours @ \$20.00/hr.		120.00
		<u>\$ 10,881.56</u>

HOLE MTS 88-66 (to completion)

Core		
743' @ \$16.00/ft.		\$ 11,888.00

Consumables

5 Pails Polymer Mud @ \$110.00 ea.		550.00
	6% P.S.T.	33.00
	Cost + 10%	58.30

Hole Stabilization

4 man hours @ \$24.00/hr.		96.00
2 drill hours @ \$20.00/hr.		40.00
		<u>\$ 12,665.30</u>

Appendix I:

Diamond Drill Logs

MTS-53, 57, 58, 59, 60, 61, 64, 65



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 4.10	OVERBURDEN «OB»					Casing
4.10 TO 36.65	DIORITE «DIOR»	Colour - greyish green. Grain Size - medium grained. Massive. - feldspar-porphyratic - 15-20% fsp laths in fine grained green, mafic matrix.  35.3 - 36.65 Fine grained chill margin. 36.65m (contact)	55	1-2% qtz-carbonate veinlets. Tr leucoxene after ilmenite.	None.	
36.65 TO 60.55	QFP FLOW «FF,QFP»	Colour - greenish grey. Grain Size - medium grained. Massive. - possibly fragmental - have the odd faint QFP fragment.  60.4 - 60.55 Fault gouge associated with qtz vein.		«M chl»  - weak pervasive chlorite with bleached, sericitic areas at: 37.9 - 38.7 46.35 - 47.5  {49.5 - 60.55} «tr carb-hem veins»  {57.25 - 58.6} «60% qtz veins»	«Tr py»  - trace pyrite in veinlets	
60.55 TO 149.80	ANDESITIC TO MAFIC CRYSTAL TUFF «And-MT,FP»	Colour - dark green. Grain Size - fine - medium grained. Weakly foliated. - sequence of interlayered crystal-rich and ash beds - crystal-rich beds have 25-30% epidote crystals - after fsp? - also have 5-10% dark green equant crystals * pyroxene  {91.9 - 92.95} «F dyke» - fine grained, grey felsic dyke 92.95m (contact)	60	«M chl, 1-2% qtz-carb hem veins, » «patchy epidote»  - moderately chloritic, 1-2% qtz-carb-hematite veinlets - patches with moderate to strong epidote	None.	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		97.4m (foliation) {99.0 - 99.3} «f dyke» {99.45 - 99.55} «f dyke» {99.8 - 100.15} «f dyke» 101.9m (bedding is ash) 106.7 - 111.75 - medium grained felsic dyke with 5-10% dark green crystals = pyroxene or chl; 5% fsp & 10% epidotized crystals - good chill at upper contact, dark green colour due to pervasive chl - hard to distinguish from adjacent mafic rock 106.7m (contact) {111.75 - 128.1} «QFP frags» - 2-3% grey, fine - medium grained QFP frags in ashy matrix - generally outlines very diffuse - hard to distinguish from matrix {128.1 - 135.1} «M Ash» - fine grained, dark green mafic ash 135.1 - 149.8 - feldspar +/- qtz crystal tuff - approximately 15% feldspar crystals - laths & broken fragments - 3-5% epidote-rich crystals - possibly after pyroxene - stubby equant (up to 4mm across)	70   55   70	{97.45 - 100.15} «S hem-qtz-carb» - strong hematite-qtz-carb veining associated with felsic dykes		
149.80 TO 159.05	INTER-MEDIATE MAFIC ASH WITH INTER-BEDDED CHT «I-M Ash,» «CHT»	Colour - dark green to grey. Grain Size - very fine - fine grained. - interbedded ash and chert - chert finely bedded - layers 0.5cm to 0.5m thick - have chert fragments in ash {150.15 - 151.0} «And T» - bed of andesitic crystal tuff with 10% epidotized crystals. 151.7m (bedding) 152.7m (bedding) 153.3m (bedding)	55 60 50	«M-M chl» - ashy layers are weakly to moderately chloritic - tr carb veinlets in ashy layers	«1-2% py in CHT» - 1-2% syngenetic, bedded py in chert layers	Nice looking horizon, especially between 151.0 & 154.0.



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
225.70 TO 238.90	INTER-MEDIATE CRYSTAL TUFF, ASH MINOR CHERT «IT,Ash,» «CHT»	Colour - greenish grey. Grain Size - fine grained. Weakly foliated. - have interbedded ashy layers and fsp-rich layers - contacts between each are indistinct - unit more felsic than above unit - contact sharp - indistinct, thin cherty layers and fragments in unit  225.7m (bedding) 232.4m (foliation)	45 45	«W ep-chl»  - fsp crystals are weakly epidote-rich; - ashy layers weakly chloritic - 1% carb. veinlets	None.	
238.90 TO 248.35	MAFIC CRYSTAL TUFF «MT»	Colour - dark green. Grain Size - fine to medium grained. - have feldspar-rich layers and ashy layers - more mafic than above unit - contact somewhat indistinct - contact with underlying unit sharp  240.7m (ashy beds)	80	«W ep, 1% hem-carb v's»  - feldspar crystals weakly altered to epidote - approximately 1% epidote patches	None.	- variability of concentration of feldspar crystals more indicative of a crystal tuff rather than a dyke
248.35 TO 264.20	INTER-MEDIATE TUFF WITH MINOR CHERT «IT,CHT»	Colour - greenish grey. Grain Size - fine grained.  248.35 - 256.1 - well-foliated and locally crenulated 252.3m (foliation)  256.1 - 256.3 - fault gouge  256.3 Fine ash and trace lithic fragments (including chert) - weakly foliated.  257.6 - 257.65 - chert bed or larger fragment	60	«M chl»  - moderately chloritic throughout - may be somewhat due to primary composition of unit	«tr-1% py, tr cp»  - sulphides primarily as fine grained stringers parallel to foliation  252.3 - carb veinlet (2-3mm) with galena, sph & cp	- does this unit correlate with intermediate sed/tuff in holes



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		257.65m (bedding) 270.0m (foliation) 273.2 - 284.2 1-2% rounded qtz crystals (up to 5mm diameter) 283.7m (foliation)	75 65 50		{269.6 - 271.2} «2-3% py, tr cp» - sulphides as stringers & wisps parallel to foliation {273.9 - 275.35} «1-2% py, tr cp» {279.85 - 280.05} «20% py, tr cp»	MTS-38, 48, 497
284.20 TO 286.25	MINE FAULT «MINE FLT»	- pervasive fault gouge - argillite bands at 285.6 - 286.25 286.0m (arg. beds) - gouge primarily consists of Intermediate Tuff - lower contact of fault zone knife sharp - 286.25m (contact)	40 50		«1-2% py» - 1-2% py as bands in fault gouge	
286.25 TO 295.60	DIORITE «DIOR»	Colour - dark green. Grain Size - medium grained. Massive. - good intergranular texture - chilled contact - actual orientation of contact obscured by blocky core		1% carbonate veinlets.	None.	
295.60 TO 324.90	RHYOLITE FLOW «FF»	Colour - light to dark grey. Grain Size - fine grained. 295.6 - 301.0 - unit has good breccia texture - 3-5% green "specks" = possible chlorite-filled vesicles		«patchy sil, ser»	«tr py»	

HOLE NUMBER: MTS-53

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		301.0 - - unit generally massive with possible flow banding at: 305.1 - 305.7		315.4 - 316.3 {M-S ser} - moderate to strong sericite assoc- iated with carb-qtz vein  - unit has heterogeneous look - due in part to varying degrees of silici- fication.		

HOLE NUMBER: MTS-53

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

PAGE: 7

HOLE NUMBER: MTS-53

## ASSAY SHEET

DATE: 22-June-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL						COMMENTS	
				CU %	ZN %	PB %	AG gm/T	AU gm/T	CU ppm	ZN ppm	PB ppm	AG ppm	AU ppb	AS ppm		BA ppm
9164	57.25	58.60	1.35						25	17		.6	20			
9165	149.80	150.15	0.35						164	65		.8	30			
9166	150.15	151.00	0.85						63	71		1.1	15			
9167	151.00	152.50	1.50						139	59		.7	10			
9168	152.50	154.00	1.50						98	65		.8	50			
9169	250.40	251.80	1.40						122	292		1.0	40		2450	
9170	254.50	255.90	1.40						140	431		1.2	25		3950	
9171	257.30	258.30	1.00						127	423		.8	15		6700	
9172	269.60	271.20	1.60						732	242		1.1	5		4300	
9173	273.20	274.30	1.10						1065	238		1.4	10		4000	
9174	274.30	275.35	1.05						473	186		1.6	20		5700	
9175	279.05	280.05	1.00						8680	370		5.3	145		4900	
9176	284.20	285.60	1.40						447	249		1.2	35		4650	
9177	285.60	286.25	0.65						638	179		1.1	20		1040	

HOLE NUMBER: MTS-53

## ASSAY SHEET

PAGE: 8

MOLE NUMBER: MTS-53

GEOCHEM. SHEET

DATE: 22-June-1989

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO2 %	TiO2 %	BA %	Cl PPM	Zn PPM	Pb PPM	Ag PPM	Au PPB	As PPM	Sb PPM	Sr %	Zr %	TOTAL %
9278	47.50	50.60	3.10	66.50	15.42	2.40	1.60	4.14	1.66	3.94	.06	.35	.049	3	41	12	.7	5	21	2	.02	.0140	92.21
9279	80.60	83.60	3.00	50.63	16.96	7.30	4.84	3.79	.42	9.30	.25	.75	.019	37	87	9	.3	5	18	4	.04	.008	85.01
9280	115.80	118.90	3.10	59.23	16.42	2.35	4.40	4.10	1.85	7.05	.20	.60	.097	3	72	15	.5	5	28	4	.02	.008	89.27
9281	143.60	146.60	3.00	55.02	17.16	4.19	3.43	4.78	1.55	7.96	.14	.64	.040	5	60	16	.4	5	27	4	.03	.011	86.99
9282	159.40	161.85	2.45	66.95	13.78	2.35	2.73	3.31	2.00	4.48	.09	.37	.061	11	62	11	.6	5	16	1	.02	.009	91.67
9283	199.30	202.30	3.00	62.84	15.87	2.04	3.29	3.76	2.14	5.72	.09	.57	.072	32	48	17	.4	5	30	1	.01	.008	90.70
9284	228.90	231.90	3.00	52.87	19.05	2.76	5.89	5.42	.57	8.08	.20	.69	.022	12	73	10	.3	5	34	4	.01	.012	95.58
9285	244.20	247.20	3.00	50.39	18.24	5.25	4.95	4.31	.51	10.76	.25	.79	.031	82	96	16	.1	5	26	3	.03	.008	95.51
9286	265.60	268.80	3.20	57.80	16.87	.93	6.42	3.26	.89	8.87	.48	.72	.064	336	290	33	.2	5	31	5	.01	.010	96.33
9287	310.60	313.60	3.00	65.83	15.23	2.38	2.31	3.90	1.24	4.40	.15	.30	.103	433	55	22	.8	5	41	5	.01	.009	95.87

MOLE NUMBER: MTS-53

GEOCHEM. SHEET

PAGE: 9



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.00	OVERBURDEN «OB»					Casing - no core recovered.
3.00 TO 90.30	DIORITE «DIOR»	<p>Colour - dark green. Grain Size - medium to coarse grained. Massive, medium grained, good intergranular texture, numerous zones of coarse grained feldspar amphibole pegmatites near top of unit. Weakly magnetic with strongly magnetic zones at top of unit. Some magnetite localized within tiny veinlets. Leucoxene often ilmenite. Very dark green zones with 1-2% feldspar. Minor patches with weak foliation.</p> <p>49.5m (foliation)</p> <p>232.3 - 232.6 Fine grained dark green mafic dyke.</p> <p>{61.2 - 62.5} «fsp phyric dior.» Feldspar phyric diorite dyke within diorite with good equigranular texture. 62.5m (contact)</p> <p>{72.7 - 74.5} «felsic Dyke» Fine grained greyish green felsic Dyke. Massive, 1% feldspar crystals.</p> <p>74.5 - 88.5 Feldspar phyric, 2-3% fsp.</p> <p>88.5 - 90.3 Fine grained diorite, &lt;1% feldspars. 90.3m (contact)</p>	65  25  75	<p>Minor quartz carbonate +/- chlorite veinlets. Patchy epidote alteration of mafic minerals. Pervasive carbonate below 39.5m.</p> <p>{72.7 - 74.5} «S sil» Very strongly silicified.</p>		
90.30 TO 103.20	QP TUFF (FLOW?) «QP FT»	<p>Colour - medium grey. Grain Size - fine grained. 5-7% white quartz grains and rare white feldspars. Massive. Possible rare QP fragments. Later brecciation @ 92.0m.</p>		<p>«W chl»</p> <p>Weak chlorite alteration in groundmass. Silicified throughout.</p>	<p>«&lt;1% py»</p> <p>Rare thin mm criss-crossing py stringers.</p> <p>{91.0 - 91.4} «3% py, &lt;1% cpy»</p>	



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		147.1m (contact)	30			
149.70 TO 171.00	ANDESITE ASH, TUFF, CRYSTAL TUFF «AndA, T»	Colour - medium green. Grain Size - fine grained. Massive andesitic ash and tuff with zones of 3-5% epidote balls and 5-7% epidote altered feldspars. Epidote balls <1cm, some with very dark pyroxene? cores, others very fragmental looking.  Minor zones with granular clastic look.  166.4 - 169.0 «Dyke» Massive, fine grained, weakly magnetic. Very faint light green rounded crystals. Indistinct upper and lower contacts, no chill margins. 169.0m (contact)	40	«W chl, W-Mod ep»  Patchy zones 10-20cm in width with moderate to strong pervasive epidote alteration. Moderate epidote alteration of feldspars. Weak hematite staining of fracture surfaces.  166.4 - 169.0 Fine carbonate veinlets and carbonate specks.	Trace pyrite.  Trace disseminated pyrite.	166.4 - 169.0 Unit very hard to distinguish from Andesitic tuff.
171.00 TO 187.60	MAFIC DYKE «M DYKE»	Colour - dark green. Grain Size - fine grained. Massive, weakly magnetic. Very faint mm whitish light green rounded crystals. Rare epidotized feldspars and rare epidote balls.  181.8 5cm clay gouge. 181.8m (fault?)  Upper and lower contacts very difficult to pick.	40	«W chl, W ep»  Weakly chloritic throughout, rare carbonate veinlets, rare hematite +/- magnetite veinlets.		Unit very difficult to distinguish from Andesitic Tuff. Contacts almost indistinguishable.
187.60 TO 223.35	ANDESITIC ASH, TUFF, CRYSTAL TUFF «AndA, T» «Xstal T»	Colour - medium to dark green. Grain Size - fine grained. Massive andesitic ash and tuff with 2% epidote balls, crystal rich beds with 10% epidotized feldspars and some zones with 3-5% pyroxene?. Some epidote balls show dark pyroxene? cores. Larger epidote balls possible epidote altered fragments.		«W chl, W-Mod. ep»  Weakly chloritic throughout, patchy weak - moderate pervasive epidote alteration, moderate epidote alteration of feldspars. Fine hematite stockwork throughout.	Trace pyrite.	Unit is missing the felsic ash sub-interval encountered in MTS-55.



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>{205.3 - 205.4} «M Dyke» Fine grained dark green mafic dyke. Upper and lower chill margins. 205.4m (contact)</p> <p>{208.9 - 209.9} «AndT, Cht» Andesitic tuff with light to medium green chert fragments. 209.2 - 4cm chert bed (or very large fragment?) Carbonate filled tension gashes within cherts. 209.2m (bedding)</p> <p>223.0 - 223.35 Milled and gougy zone. Sharp lower contact. 223.35m (contact)</p>	70  40  45		208.9 - 209.9 Cherts barren of sulphides.	
223.35 TO 223.80	FAULT GOUGE, ARGILLITE «FAULT, ARG»	<p>Colour - dark grey. Grain Size - very fine grained. Massive fault gouge, thin laminations evident at bottom of unit. Very dark colour = argillite = Mine fault. 223.7m (bedding?) 223.8m (contact)</p>	25 15		«1% fine sulphides»  1% very fine sulphide evident in laminations at base of unit.	Down dip extension of Lenora-Lyce South Zone.
223.80 TO 239.40	INTER-MEDIATE TUFF «IT»	<p>Colour - medium to dark green. Grain Size - fine grained. Weakly foliated tuff, minor intermediate ash. 1% mm whitish quartz grains, and feldspar crystals. Milled and weakly gougy zones.</p> <p>223.8 - 224.2 Milled and gougy, minor light green barren chert fragments.</p> <p>225.5 - 227.0 Rare cherts, slightly gouge. 227.0m (bedding)</p> <p>{233.6 - 234.5} «Chl A»</p>	50	«M - Mod. chl»  Weakly chloritic, more ashy layers moderately chloritic.	«1% py»  227.0 3mm chert, 1-2% fine sulphides parallel to bedding.	
		{233.6 - 234.5} «Chl A»		{233.6 - 234.5} «Mod. chl»		



MINNOVA INC.  
DRILL HOLE RECORD

HOLE NUMBER: MTS-57

DATE: 22-June-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
261.90 TO 263.15	ARGILLITE, ASHY ARGILLITE «ARG, » «ASHY ARG»	<p>Colour - medium to dark grey, greenish grey. Grain Size - fine grained. Laminated to thinly bedded dark grey to black argillite and medium - dark grey ashy argillite. Rare 1-2mm light green cherts and thicker light green ash.</p> <p>263.0m (bedding)</p> <p>Sharp lower contact. 263.15m (contact, bedding)</p>	55 50	Brecciated white quartz veins up to 10cm and quartz fragments.	<p>«2-3% fine sulphides»</p> <p>2-3% very fine disseminated sulphides parallel to bedding.</p>	Down dip extension of the Lenora-Tyee North Zone.
263.15 TO 354.80	FELSIC ASH, CRYSTAL TUFF «FA, » «XSTAL T»	<p>Colour - light grey, light green. Grain Size - fine grained. Light grey and light green weak to moderately foliated ashes. Light green ashes possibly more intermediate in composition or just an alteration feature. Minor patches with distorted foliations. Patchy milled and gougy zones.</p> <p>236.15 - 265.1 Brecciated and milled, rare light green barren chert fragments.</p> <p>268.8 - 271.0 Strongly sericitic, milled and weakly gougy. Very rubbly core, poor recovery.</p> <p>279.2m (foliation)</p> <p>{290.2 - 290.6} «FA, Arg» Felsic ash, distorted foliations with thin wisps of argillaceous ash, muddy ash with felsic ash fragments.</p> <p>{291.0 - 291.6} «CAL Ash» Medium to dark green, very fine, soft chloritic</p>	40	<p>{263.15 - 312.1} «M ser, W chl» Moderate sericite alteration, some strongly sericitic zones. Weakly chloritic.</p> <p>{285.5 - 288.8} «S ser» Intense sericite alterations, very light grey colour.</p> <p>{291.0 - 291.6} «S chl»</p>	<p>«&lt;1% py»</p> <p>&lt;1% py disseminated and thin wisps. Rare pyrite fragments from 268.5 - 273.5m.</p> <p>{285.5 - 288.8} «1% py» 1% pyrite as thin wisps. Top of interval, 1cm Qtz pyrite stringer.</p>	<p>Similar footwall alteration as in MTS-55.</p> <p>290.2 - 290.6 Possibly up dip extension of mud flow encountered in MTS-56?</p>

HOLE NUMBER: MTS-57

DRILL HOLE RECORD

LOGGED BY: P. T. B.

PAGE: 7

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		(Mafic) ash. 292.7m (foliation)	50			
		{293.5 - 293.7} «Chl Ash» 293.5m (contact)	20	{293.5 - 293.7} «S chl»		
		306.4 - 306.5 Fault gouge: milled and gougy core, thin dark grey argillite wisps. 306.4m (fault)	20	{298.4 - 308.5} «S ser, sil» Strong sericite alteration, silicified throughout.	{298.4 - 308.5} «5% py» Stringer zone mineralization 3-5% pyrite and locally 7% thin pyrite stringers parallel to and cross-cutting foliation.	Stringer zone equivalent to MTS-55.
		{311.7 - 312.1} «Chl A» Dark green fine grained chloritic ash distorted and mixed with surrounding felsic ash. Minor light green chert along contact.				
		{316.9 - 322.9} «S sil or Chty Ash» Unit characterized by thin white carbonate tension gashes. Unit is either very cherty or pervasively silicified.		{312.1 - 316.9} «W-H ser»		
		322.9 Starting to pick up quartz +/- feldspar crystals.		{316.9 - 322.9} «S sil» Strong pervasive silicification or very cherty ash?		
		{325.1 - 326.5} «Chl A» Dark green very fine, soft chloritic mafic ash. 5-7cm felsic tuff fragments at top of unit. 325.1m (contact)	60	{322.9 - 325.1} «W ser»		
		{327.3 - 328.3} «Chl A» Dark green, very fine grained chloritic mafic ashes. Fairly massive, irregular contacts.		{325.1 - 326.5} «S chl»		
		{328.3 - 354.8} «QP Tuff» QP felsic crystal tuff. Medium grey, fine grained, massive. 3-5% white and semi-clear mm quartz grains in a greyish green felsic ground-mass.		{327.3 - 328.3} «S chl» Strongly chloritic, minor quartz carbonate veining.	Trace pyrite.	
				{328.3 - 345.7} «W chl, W-H sil» Weak chlorite alteration of groundmass. Weak - moderately silicified.		

HOLE NUMBER: MTS-57

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		Patchy zones with fragmental appearance. Thin ash/OP Tuff contact at 338m gives bedding angle. 338.0m (bedding)	30	345.7 - 354.8 W-M chl increasing chlorite alteration of groundmass.		

HOLE NUMBER: MTS-57

DRILL HOLE RECORD

LOGGED BY: P. T. B.

PAGE: 9

HOLE NUMBER: MTS-57

## ASSAY SHEET

DATE: 22-June-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL						COMMENTS		
				CU %	ZN %	PB %	AG gm/T	AU gm/T	CU ppm	ZN ppm	PB ppm	AG ppm	AU ppb	AS ppm		BA ppm	
9229	223.35	223.80	0.45						211	152		1.2	5				
9230	247.00	248.20	1.20						469	147		0.9	10				
9231	248.20	250.70	1.90						1065	96		1.4	30				
9232	259.55	260.00	0.45						2980	257		4.3	70				
9233	260.00	260.90	0.90						3110	262		1.9	320				
9234	260.90	261.90	1.00						129	184		0.7	10				
9235	261.90	263.15	1.25						181	171		1.2	90				

HOLE NUMBER: MTS-57

ASSAY SHEET

PAGE: 10

HOLE NUMBER: MTS-57

GEOCHEM. SHEET

DATE: 22-June-1989

Sample	From (m)	To (m)	Length (m)	SI02 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FE2O3 %	MNO2 %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPM	SR %	ZR %	TOTAL %
9266	110.00	113.00	3.00	46.63	15.41	6.71	6.03	2.29	1.31	13.35	0.38	1.80	0.049	20	78	18	1.6	10	44	5	.04	.015	94.01
9267	139.00	142.00	3.00	66.36	14.98	1.03	1.86	3.67	2.52	4.65	0.06	0.36	0.092	4	35	17	1.2	5	31	2	.02	.011	95.62
9268	160.00	163.00	3.00	51.18	17.57	5.16	4.71	4.39	1.06	8.16	0.23	0.76	0.033	54	75	18	1.4	5	36	4	.03	.008	93.31
9269	181.00	184.00	3.00	51.30	16.90	1.66	8.08	3.58	1.74	8.68	0.24	0.75	0.049	5	69	9	1.0	5	30	6	.02	.009	93.00
9270	205.00	208.00	3.00	50.15	17.44	5.09	4.82	4.46	1.01	8.59	0.23	0.76	0.047	11	79	21	1.2	5	40	1	.03	.007	92.62
9271	228.00	230.00	2.00	51.53	18.35	1.38	7.40	3.76	0.75	8.73	0.22	0.76	0.058	81	193	23	0.2	5	37	1	.02	.013	92.96
9272	239.80	242.80	3.00	66.52	14.68	1.98	3.06	0.67	2.54	4.61	0.18	0.32	0.097	48	142	22	0.6	5	21	3	.01	.012	94.68
9234	260.90	261.90	1.00	66.92	13.04	0.64	4.40	0.40	1.89	7.07	0.13	0.26	0.067	104	197	22	0.6	5	17	1	.02	.010	94.85
9273	280.00	283.00	3.00	65.81	16.89	1.91	2.69	1.16	2.72	3.11	0.06	0.35	0.165	4	62	19	0.9	5	27	3	.02	.015	94.89
9274	303.00	306.00	3.00	63.66	18.19	2.82	1.54	0.83	3.84	3.55	0.06	0.38	0.205	15	40	19	2.4	10	43	3	.03	.013	95.12
9275	335.00	338.00	3.00	65.52	14.57	2.30	1.74	4.52	0.87	4.53	0.12	0.31	0.032	17	46	24	0.6	5	21	3	.02	.011	94.54

HOLE NUMBER: MTS-57

GEOCHEM. SHEET

PAGE: 11





FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.70	OVERBURDEN «OB»					Casing
3.70 TO 35.20	DIORITE «Dior»	Colour - green. Grain Size - fine to medium grained. Massive. Have carb-chl-rich mafic dykes interfingered with fine grained feldspar-porphyrific (3-5%) diorite.  {3.7 - 10.6} «H dyke» {12.6 - 18.2} «H dyke» {25.2 - 25.4} «H dyke»  18.2 (contact) 35.2 (contact) lower contact chilled & sharp	50 30	Generally unaltered.	None.	
35.20 TO 47.40	ANDESITE CRYSTAL TUFF/ASH «Andl, Ash»	Colour - green. Grain Size - medium grained. Crystal-rich patches with 10% weakly epidotized fsp crystals - separated by fine grained ashy matrix. 1% epidote patches.  - lower contact obscured by blocky core		«H Ep»  - feldspar crystals weakly epidotized	«Tr py»  - trace disseminated pyrite	
47.40 TO 102.50	FELSIC TUFF/FLOW? «FT, FF?»	Colour - light grey. Grain Size - fine grained. Unit generally massive with local weakly foliated zones. - unit quite siliceous looking - 1-2% qtz crystals throughout - generally rounded (1-2mm diameter) - patches with 1% diffuse fsp crystals  65.0 (foliation)  {61.65 - 62.5} «H dyke» - fine grained, greenish grey mafic dyke; carb-rich - sharp, chilled contacts 61.65 (contact)	70  60	«H Ser»  - weakly sericitic to relatively unaltered - siliceous look probably a primary feature  {62.8 - 63.8} «qtz vein»	«Tr py, tr cp»  - trace disseminated pyrite and as thin (0.5cm) stringers	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		91.0 (foliation) Fault gouge between 100.0 - 101.0	60		Pyrite-chalcopyrite stringers at: 84.4 - 84.5 85.2 (1cm) 87.85 - 87.9 89.5 - 89.55	
102.50 TO 139.30	DIORITE «Dior»	Colour - green. Grain Size - medium to coarse grained. Upper contact sharp with only a 1cm chill margin. 102.5 (contact) - diorite is fsp-porphyrific (5%) set in inter-granular matrix - Carb-chl rich mafic dykes at: 107.1 - 108.3.  139.3 (contact) lower contact sharp	65  35	Unaltered.	None.  Tr chalcopyrite in qtz vein at 120.1m	
139.30 TO 146.10	FELSIC TUFF/FLOW? «FT,FF?»	Colour - grey. Grain Size - fine to medium grained. Generally massive to weakly foliated. 2-3% subrounded qtz crystals (2-3mm diameter).  144.5 (foliation)	60	«W Ser»  - unit siliceous with weakly sericitic zones	«Tr - 1% py»  - pyrite occurs primarily as stringers	- looks like unit above diorite
146.10 TO 151.10	MAFIC DYKES «M Dyke»	Colour - brownish green. Grain Size - fine grained. Mafic dyke swarm separated by siliceous felsic tuff as noted below. 147.0 - 147.25 147.65 - 147.7 148.95 - 149.1 149.15 - 149.3 149.45 - 149.7 150.2 - 150.7  147.0 (contact) 147.25 (contact) 147.7 (contact) 148.95	40 50 35 50	«2-3% qtz veins»  - 2-3% qtz veins throughout zones	«1-2% py»  - 1-2% fine grained pyrite in both dykes and felsic tuffs  148.1 - 148.7 blocky core	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
151.10 TO 188.80	FELSIC TUFF «FT»	Colour - grey. Grain Size - fine to medium grained. - Well foliated. - wispy white fsp crystals (2-3%) with the odd qtz crystal  153.0 (foliation)  ‡153.7 - 156.5‡ «M dyke» Fine grained, dark green mafic dyke. Sharp contacts. 156.5 (contact)  160.0 (foliation)  169.0 (foliation)  178.65 - 188.8 2-3% rounded qtz crystals with the odd patch of fsp crystals.	63   50  70  73	«M Ser»  - weakly to moderately sericitic	«1-2% py, tr cp»  - 1-2% pyrite, trace chalcopyrite as stringers with larger stringers noted below.  ‡157.25 - 157.9‡ «15% py» ‡160.15 - 160.45‡ «50-60% py» ‡169.8 - 169.9‡ «15-20% py»	
188.80 TO 213.20	DIORITE «Dior»	Colour - greyish green. Grain Size - fine to medium grained. Upper part well-foliated. - becoming fsp-porphyrific from 196.35 - 200.0 206.5 - 209.2  188.8 (contact) 213.2 (contact)	55 68	‡188.8 - 196.35‡ «chl-carb» - pervasive chlorite-carbonate alteration of this phase of diorite  ‡200.0 - 206.5‡ «chl-carb» ‡209.2 - 213.2‡ «chl-carb»	None.	
213.20 TO 227.30	CHERT, INTERMED- IATE TUFF «CHT, ITuff»	Colour - grey. Grain Size - fine grained. Well-bedded chert layers interlayered with greenish grey intermediate tuff/ash. - locally siliceous cherty zones have 2-3% mm-sized fsp crystals  214.0 (bedding)  ‡216.5 - 219.1‡ «Dior»	70	«M Chl»  - weak chlorite alteration restricted to tuffaceous layers	«2-3% py, tr cp»  - 2-3% py, tr cp occurs as finely bedded sulphide layers (0.3cm thick) associated with cherts; also have pyrite stringers - have disseminated pyrite in I Tuff layers	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		- fine grained carb-chl rich, foliated diorite dyke  218.5 (foliation) 225.0 (bedding) 226.4 (bedding_	60 70 60			
227.30 TO 231.15	DIORITE «Dior»	Colour - light green. Grain Size - fine to medium grained. - weakly foliated 2-3X "ragged" looking fsp crystal set in fine grained matrix. Lower contact sharp. 231.15 (contact)	55	«W carb»  - weak carbonate veining (1-2%)	- none	
231.15 TO 237.40	CHERT, INTERMED- LATE TUFF «CHT, ITuff»	Colour - grey to greenish grey. Grain Size - fine grained. - Interlayered grey chert and intermediate tuff with 5X mm-sized fsp crystals. 234.5 (bedding)	60	«W chl»  - intermediate tuff layers are weakly chloritic	«Tr py»  - trace disseminated pyrite - pyrite content lower than chert/tuff sequence intersected higher in hole	
237.40 TO 239.85	DIORITE «Dior»	Colour - green. Grain Size - fine to medium grained. Core = fsp-porphyrific diorite; margin = chl-carb foliated phase. 239.85 (contact)	70	«Carb-chl»	- none	
239.85 TO 241.80	FELSIC TUFF «FT»	Colour - grey. Grain Size - fine grained. - felsic tuff/ash with thin (<0.1m) diorite dykes - weakly foliated		«W ser»  - weakly sericitic near upper contact	{239.85 - 240.4} «1% py, tr cp, sph?» - thin microveinlets of pyrite, chalcopyrite & possibly sphalerite near upper contact of this unit	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
241.80 TO 269.00	DIORITE «Dior»	<p>Colour - light to dark green. Grain Size - medium grained. - massive - fsp-porphyrific from 241.8 - 246.0</p> <p>246.0 - Unit massive dark green, 2-3% pyroxene? crystals.</p> <p>241.8 (contact)</p> <p>260.1 - 266.5 - magnetic due to finely disseminated mt.</p> <p>- fault gouge (3cm) at lower contact</p>	70	<p>«H carb»</p> <p>- pervasive moderate carb veining</p> <p>{266.5 - 269.0} «1-2% qtz veins»</p>	<p>- none</p> <p>{266.5 - 269.0} «tr py, cp» - trace pyrite, chalcopyrite in quartz veins at lower contact of diorite</p>	
269.00 TO 301.25	FELSIC TUFF «FT»	<p>Colour - greenish grey. Grain Size - fine grained. - well foliated - foliation is locally folded - unit has trace - 1% qtz and fsp crystals (mm-sized) locally - have fine grained siliceous patches intermixed with foliated zones</p> <p>{281.2 - 281.6} «FAULT» - fault gouge</p> <p>{285.05 - 285.2} «FAULT» - fault gouge</p> <p>286.0 (foliation)</p> <p>291.7 (foliation)</p>	70 50	<p>«W-M chl»</p> <p>- weakly to moderately chloritic - locally alteration gives unit a mottled look</p>	<p>«1% py, tr cp»</p> <p>- pyrite occurs as thin (&lt;0.5cm) veinlets generally aligned parallel to foliation</p>	
301.25 TO 315.40	INTERMEDIATE TUFF «IT»	<p>Colour - grey. Grain Size - fine grained. - weakly foliated - tuffaceous material with cherty fragments and lithic fragments (&lt;5%) - looks similar to 1 Tuff associated with cherts</p>		<p>«M chl»</p> <p>- pervasive moderate chlorite</p>	<p>«1-2% py, tr cp»</p> <p>- pyrite &amp; chalcopyrite occur as fine grained disseminations</p>	

HOLE NUMBER: MTS-58

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		higher in hole - lower contact sharp 307.0 (foliation)	60			
315.40 TO 346.60	FELSIC FLOW «FF»	Colour - light grey. Grain Size - fine grained. - unit massive, siliceous looking - locally foliated in more altered zones - aphyric 326.7 (foliation) 333.0 (foliation)  346.6m End of Hole	55 60	«w chl, ser»  - weak chlorite, sericite veining gives unit a mottled look	«tr py»  {339.6 - 339.75} «50% py, tr cp» - pyrite - chalcopyrite stringer  {339.85 - 340.05} «30% py, tr-1% cp» - 2cm wide py-cp stringer at 15 degrees to C.A.	

HOLE NUMBER: MTS-58

DRILL HOLE RECORD

LOGGED BY: G. S. WELLS

PAGE: 7

HOLE NUMBER: MTS-58

ASSAY SHEET

DATE: 22-June-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS					BA ppm	GEOCHEMICAL					COMMENTS
				CU ppm	ZN ppm	PB ppm	AG ppm	AU ppb		CU %	ZN %	PB %	AG g/t	AU g/t	
	0.00	0.00	0.00												

HOLE NUMBER: MTS-58

ASSAY SHEET

PAGE: 8

HOLE NUMBER: MTS-5B

## GEOCHEM. SHEET

DATE: 22-June-1989

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO2 %	TiO2 %	Ba %	Cu ppm	Zn ppm	Pb ppm	Ag ppm	Au ppb	As ppm	Sb ppm	Sr %	Zr %	Total %	S %
11233	42.00	45.00	3.00	49.2	16.83	5.03	7.45	3.34	0.27	9.92	0.43	0.73	0.012	49	167	37	0.8	5	49	4			93.51	0.09
11234	70.00	73.00	3.00	66.87	13.74	1.19	3.08	2.65	1.84	3.72	0.31	0.27	0.135	305	128	48	1.1	15	12	1			95.57	1.65
11235	142.50	145.50	3.00	70.17	13.86	0.41	3.48	0.83	2.91	3.91	0.08	0.27	0.199	7	24	22	1.3	10	9	1			97.18	0.92
11236	175.00	178.00	3.00	70.01	13.39	0.52	3.08	0.47	2.64	4.05	0.14	0.27	0.094	39	47	21	1.2	5	3	1			95.97	1.17
11237	220.00	223.00	3.00	62.8	14.82	2.37	3.1	2.23	1.4	6.11	0.29	0.52	0.066	145	97	29	0.5	5	12	1			94.85	0.98
11238	232.00	235.00	3.00	63.27	14.93	1.79	2.97	3.98	0.64	5.63	0.36	0.43	0.043	39	495	50	0.3	5	3	1			95.32	1.12
11239	289.00	292.00	3.00	65.11	14.57	2.86	2.47	2.04	2.09	3.58	0.21	0.3	0.203	6	60	19	0.8	5	28	1			94.82	1.25
11240	305.00	308.00	3.00	52.5	16.51	3.18	5.08	2.94	1.05	9.2	0.76	0.7	0.061	351	240	20	0.4	10	37	1			94.01	1.8
11241	333.00	336.00	3.00	69.46	14.19	0.48	2.59	3.47	1.24	3.37	0.2	0.29	0.047	65	72	16	1	5	1	1			96.04	0.57

HOLE NUMBER: MTS-5B

GEOCHEM. SHEET

PAGE: 9





FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.00	OVERBURDEN «OB»					
3.00 TO 33.90	MAFIC DYKES AND DIORITE «Dyke» «Dior»	Colour - green. Grain Size - fine grained. 3.0 - 24.8 and 25.3 - 29.8 Mafic dykes, massive fine grained.  24.8 - 25.3 and 29.8 - 32.9 Massive fine grained diorite with 2-3% ragged fairly unaltered feldspars. 25.3 (contact)  Chilled lower contact, 1m wide; sheared appearance 33.9 irregular contact.	15	Pervasive calcite alteration, abundant quartz, iron carbonate veins in first 10m.		
33.90 TO 61.80	ANDESITE CRYSTAL TUFF «And Xstal» «Tuff»	Colour - dark green. Grain Size - fine grained. Fairly massive, 1-2% 5mm epidote balls and rare patches to 10cm. 1-2% weakly epidote altered feldspars.  44.5 - 61.9 7-15% feldspars with occasional ashier zones.  51.0 Fairly sharp break between crystal rich & ashy andesite. Possible bedding angle. 51.0  50.3 - 50.5 2-3cm weakly epidotized andesitic fragments. Lower contact in rubble.	20	«W ep»  weak epidote alteration of feldspars. 1-2% 5mm epidote balls.	«Tr py»  - trace disseminated pyrite	
61.80 TO 68.00	INTERMEDIATE ASH «IA»	Colour - greenish grey. Grain Size - fine grained. Weak to locally well foliated fine ash. Foliations or possible bedding very shallow angles to core axis.		«W-M chl»  Weakly chloritic to moderately chloritic in more foliated areas.	«Tr py»  Trace disseminated pyrite.	

HOLE NUMBER: MTS-59

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		66.5 (foliation, bedding?)	5			
68.00 TO 71.60	DIORITE «Dior»	Colour - green. Grain Size - fine grained. Diorite: massive. Porphyritic ragged 1-2mm feldspars. 70cm weakly sheared calcite veined upper chill argin and 30cm lower chill margin.				
71.60 TO 77.10	FELSIC TUFF FLOW? «FT,FF?»	Colour - greenish grey. Grain Size - fine grained. Weakly foliated, granular looking, patchy zones with 1% white fsp crystals. Occasional quartz grains with 3-5% quartz eyes in last 30cm. 76.0 (foliation)	20	«chl»  Weakly chloritic throughout.	«Tr py»  Trace disseminated pyrite. {75.5 - 77.1} «1% py» 1% disseminated pyrite.	
77.10 TO 89.80	ANDESITE CRYSTAL TUFF «And Xstal» «Tuff»	Colour - green. Grain Size - fine grained. Weakly foliated. 3-5% and locally 10% 1-2mm epidote altered fspa. Homogeneous throughout.  82.6m Graded bedding, tops up hole.  84.6 (bedding)	35	«W ep, W chl»  Weak epidote alteration of feldspars, weakly chloritic throughout.	Trace disseminated pyrite.	
89.80 TO 109.20	FELSIC TUFF FLOW? «FT,FF?»	Colour - light grey. Grain Size - fine grained. Very weakly foliated with some massive zones. <1-1% 1-2mm rounded quartz eyes.  {91.2 - 91.7} «Qtz Vns» Quartz vein, greyish white, almost cherty looking, black, 2-3mm clay gouge at lower contact.  102.0 - 102.4		«W ser»  Weakly sericitic, more massive zones less altered looking.	«Tr py»  Trace disseminated pyrite.  {96.6 - 98.5} «1-3% py, tr cpy» 1-3% disseminated pyrite & 2-3mm stringers with trace chalcopyrite.	

HOLE NUMBER: MTS-59

DRILL HOLE RECORD

LOGGED BY: P.T. BAXTER

PAGE: 3

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>Bleached silicified zone adjacent to diorite.</p> <p>‡102.4 - 103.3‡ «Dior»</p> <p>‡104.9 - 105.3‡ «Dior» 105.3 (contact)</p> <p>Sharp lower contact to unit with 10cm bleached zone. 109.2 (contact)</p>	60 80			
109.20 TO 122.10	DIORITE «Dior»	<p>Colour - green. Grain Size - fine grained. 2-3% 1-4mm ragged white feldspar crystals. Massive, rare &lt;10cm quartz chlorite veins.</p> <p>119.7 - 120.0 Light green mafic dyke. 2-3% pyroxene or amphiboles.</p> <p>121.45 - 122.1 Bleached light green.</p>			<p>‡118.15 - 118.4‡ «2% py, 1% po, tr cpy» 2% pyrite, 1% pyrrhotite and trace chalcopyrite as 205mm stringers.</p> <p>‡119.7 - 120.2‡ «1-3% py &amp; po» 1-3% combined pyrite and pyrrhotite disseminated and 1mm wisps.</p> <p>‡121.45 - 122.1‡ «1% po, &lt;1-1% py» 1% pyrrhotite and &lt;1-1% pyrite as thin stringers and disseminated.</p>	
122.10 TO 141.90	FELSIC FLOW QP, QFP «FF»	<p>Colour - light grey. Grain Size - fine grained. Massive becoming weakly foliated and rubbly below 135m.</p> <p>124 - 128 QFP with 1-2% white feldspar crystals and quartz eyes.</p> <p>Below 128m predominantly quartz-phyric with 1-3% 2-3mm quartz eyes.</p>		Pervasive siliceous appearance otherwise relatively unaltered.	<p>«Tr py»</p> <p>Trace disseminated pyrite.</p> <p>‡129.0 - 130.5‡ «1% py, 1% po, &lt;1% cpy» 1% pyrite and 1% pyrrhotite locally up to 3-4% over 7cm disseminated throughout. Higher percentage along fractures forming very weak stockwork. &lt;1%</p>	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		Sharp lower contact, somewhat irregular. 141.9	65	thin quartz chlorite veining within rubbly core from 135.0 to 138.4m.  140.8 - 141.2 Strongly chloritic probably a mafic ash. Very rubbly core.	chalcopyrite. Up to 1% in areas of high py, po.  {130.5 - 133.8} <1% py, po> 1% combined pyrite pyrrhotite both disseminated % py > % po.  {139.0 - 141.5} <1% py> 1% disseminated pyrite. Includes zone from 139.2 to 139.75 with 1-2mm laminae at 30-40 degrees to core axis of very fine dark pyrite.	
141.90 TO 174.20	DIORITE <Dior>	Colour - dark green. Grain Size - fine grained. Massive, 2-5% ragged feldspar. 20cm upper chill margin with <1-1% disseminated pyrrhotite, and pyrite. Occasional thin mafic dykes with quartz calcite chlorite veining listed below.  {162.5 - 162.9} <M Dyke> 162.9 {165.5 - 166.4} <M Dyke> {167.7 - 168.1} <M Dyke> {170.75 - 171.6} <M Dyke> 171.6 {172.7 - 174.2} <M Dyke>	70  60			
174.20 TO 206.10	FELSIC TUFF FLOW? <FT,FF>	Colour - light grey. Grain Size - fine grained. Weakly foliated, some distorted and folded foliations. 2-3% rounded 102mm quartz grains and 2-3mm white wispy grains possibly feldspars. Unit becoming more massive @ 190m. 185.7 (foliation)	40	<M ser>  Weakly sericitic throughout.	<Tr - <1% py>  Trace to <1% disseminated pyrite and rare 1-2mm stringers.	174.2 - 190 OP Tuff

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>{191.1 - 193.5} «M Dyke» Mafic Dyke: medium green fine grained. 20% quartz chlorite carbonate veining up to 30cm wide. 193.5 (contact)</p> <p>193.5 - 206.1 More massive, probably a felsic flow with 1-2% feldspars and 2-4% quartz grains. Siliceous appearance especially towards lower contact. Sharp lower contact @ 206.1</p>	20  35	<p>188 - 206.1 Very fresh &amp; unaltered looking.</p> <p>{191.1 - 193.5} «W ep»</p>	1% pyrite in first 15cm.	190 - 206 OP & RFP Flow
206.10 TO 208.20	INTERMEDIATE ASH «IA»	<p>Colour - medium grey, greenish grey. Grain Size - fine grained. Very thinly bedded, very fine pyritic ashes and rare 1cm grey cherts. Gradational lower contact marked by decreasing pyrite and coarser granular look. 206.5 (bedding) 207.6 (bedding) 207.8 (bedding)</p>	35 40 50	<p>«W ser»</p> <p>Weakly sericitic.</p>	<p>«5-10% pyr»</p> <p>5-10% very fine dark syngenetic bedded pyrite.</p>	
208.20 TO 239.80	INTERMEDIATE TUFF «IT»	<p>Colour - Grain Size - Massive to very weakly foliated intermediate tuff with mm white specks probably feldspar. Occasional finer grained ashier zones.</p> <p>{209.0 - 211.1} «M Dyke» Mafic dyke. Green, fine grained, massive. Abundant &lt;1mm white specks. &lt;1% mm calcite amygdules. 211.1 (contact)</p> <p>{211.1 - 213.0} «Ft» Felsic tuff; light grey, weakly foliated &lt;1-1% quartz eyes.</p>	20	<p>«W chl»</p> <p>Weakly chloritic throughout.</p> <p>Weak epidote alteration. 209.35 - 209.7 Quartz chlorite, carbonate veining with strong chlorite alteration adjacent to vein. {211.1 - 213.0} «W Ser/chl»</p>	<p>«1% pyr»</p> <p>1% disseminated pyrite &amp; occasional mm stringer.</p> <p>1% pyrite within first 20cm.</p> <p>212.9 5-7cm quartz pyrite stringer with 25% brassy pyrite.</p>	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>{213.0 - 213.5} «CHT, CHTY A» Chert and cherty ash. Grey, fairly massive, barren of sulphides.</p> <p>{213.5 - 218.2} «And T» Andesitic crystal tuff. Massive. Locally 15-20% mm feldspars 2cm gouge at upper contact. 218.2 (contact)</p> <p>227.2 - 233.5 Very weak gougy appearance. 232.9 - 233.2 2-3mm block argillaceous partings.</p> <p>234.0 (foliation)</p> <p>234.3 - 235.6 Indistinct lithic fragments and possible flame.</p> <p>Sharp lower contact</p>	20   45  20	<p>Weak epidote alteration of feldspars. Minor calcite veining.</p> <p>{239.8 - 241.9} «W-M chl, W ep» Weak to moderately chloritic, weak epidote alteration of feldspars.</p>	<p>&lt;1% disseminated pyrite.</p> <p>213.5 - 241.9 Rare 2-3mm diameter pyrite nodules. Possible massive sulphide fragments.</p>	<p>239.8 - 241.9 Interval looks more mafic probably due to greater chlorite alteration.</p>
239.80 TO 244.80	FELSIC FLOW «FF»	<p>Colour - light grey. Grain Size - fine grained. Massive, 2% whitish mm feldspars and rare quartz eyes. Very siliceous looking. Sharp lower contact</p>	25	<p>«W chl»</p> <p>Siliceous looking probably a primary feature. Weak chlorite alteration.</p>	<p>«&lt;1-1% py»</p> <p>&lt;1-1% disseminated pyrite. 2mm very dark fine pyritic horizon at 241.9m.</p>	
244.80 TO 293.50	INTERMEDIATE TUFF, LITHIC TUFF & ASH «IT»	<p>Colour - medium green. Grain Size - fine to medium grained. Very massive feldspar phyric crystal tuffs and occasional ashier zones. Locally 5-7% 2-3mm weakly epidote altered feldspars.</p> <p>{290.2 - 290.6} «Py Nud» 40cm zone of very dark fine grained pyritic mud with a minor mafic ash component. 290.2 (contact)</p>	20	<p>«W ep, W chl»</p> <p>Weak epidote alteration of feldspars. Weakly chloritic throughout. Rare &lt;10cm quartz chlorite veining.</p>	<p>«1-2% py, tr cpy»</p> <p>1-2% disseminated pyrite and occasional 2-3m stringers. Trace disseminated chalcopyrite. Rare 2-4mm diameter pyrite nodules. Possible massive pyrite fragments.</p> <p>{290.2 - 290.6} «5% py» 5% very fine pyrite. Pyrite content very difficult to estimate because of very fine grained occurrence.</p>	





FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>{328.2 - 330.5} «M Ash» Mafic Ash. Dark green, fine grained, weakly foliated, indistinct stretched fragments at base of interval. 330.0 (foliation) 330.5 (contact)</p> <p>340.0 - 340.5 1mm laminae of very dark pyritic mud. Majority of laminations within first 15cm. Rubbly core within interval.</p> <p>Rare indistinct fragments below 343m.</p>	15 10	<p>{325.5 - 325.9} «Qtz-Chl Vm» {328.2 - 330.5} «M Chl» Moderately chloritic.</p> <p>{333.0 - 333.6} «Qtz-Chl Vm» {337.8 - 339.3} «Qtz-Chl Vm»</p> <p>{339.3 - 340} «M ep» Moderate epidote.</p> <p>{340.5 - 341.5} «Qtz +/- Chl Vm» 341.5 - 342.6 Brecciated appearance with wormy quartz veining.</p>	<p>{325.5 - 325.9} «1-2% py, tr cpy» 1% disseminated pyrite.</p> <p>{333.0 - 333.6} «1% py» {337.8 - 338.15} «7-10% py, tr cpy» {338.15 - 339.3} «1-2% py, tr cpy» locally 25% py over 5cm.</p> <p>{340.5 - 340.8} «10-15% py, tr cpy» {340.8 - 341.6} «&lt;1-1% py»</p>	

HOLE NUMBER: MTS-59

## ASSAY SHEET

DATE: 22-June-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL					COMMENTS	
				CU ppm	ZN ppm	PB ppm	AG ppm	AU ppb	BA ppm	CU %	ZN %	PB %	AG g/t		AU g/t
11264	307.50	308.10	0.60	75	7	-	0.5	5	-						
11265	308.30	309.20	0.90	240	10	-	0.5	5	-						
11266	311.50	312.25	0.75	306	12	-	0.8	10	1000						
11267	312.25	313.00	0.75	90	10	-	0.4	5	1750						
11268	313.00	313.40	0.40	19	10	-	0.4	5	-						
11269	322.55	323.10	0.55	118	18	-	0.8	5	-						
11270	325.50	325.90	0.40	210	14	-	0.6	5	-						
11271	333.00	333.60	0.60	37	12	-	0.3	5	-						
11272	337.80	338.55	0.75	394	17	-	0.6	5	-						
11273	338.55	339.30	0.75	250	12	-	0.4	5	-						
11274	340.50	340.80	0.30	730	17	-	0.8	5	640						
11275	340.80	341.50	0.70	93	12	-	0.2	5	-						

HOLE NUMBER: MTS-59

ASSAY SHEET

PAGE: 10

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO2 %	TiO2 %	Ba %	Cu ppm	Zn ppm	Pb ppm	Ag ppm	Au ppb	As ppm	Sb ppm	Sr %	Zr %	Total %	S %
11244	51.00	54.00	3.00	51.94	17.33	5.05	5.31	4.05	0.35	7.73	0.24	0.74	0.022	7	46	6	0.5	5	41	1			93.03	0.02
11243	73.00	75.00	2.00	47.57	18.95	3.94	7.86	3.73	1.31	6.71	0.24	0.83	0.091	7	73	9	0.7	5	39	4			91.55	0.08
11242	82.00	85.00	3.00	52.57	17.19	2.23	7.38	3.68	0.21	8.98	0.31	0.68	0.017	33	102	17	0.4	10	54	5			93.5	0.03
11245	95.00	98.00	3.00	67.77	14.83	0.49	3.41	1.9	2.54	3.68	0.18	0.3	0.119	66	230	18	1	5	18	1			95.95	0.61
11246	119.70	120.20	0.50	46.3	14.86	9.5	5.44	2.22	0.05	12.83	0.39	2.06	0.005	239	53	16	1.7	10	10	1			95.04	1.13
11247	121.45	122.10	0.65	45.44	13.94	8.44	5.46	1.9	0.06	13.03	0.34	2	0.007	281	58	12	0.8	10	5	5			92.46	1.58
11248	129.00	130.50	1.50	67.24	13.7	1.53	2.2	2.82	1.83	4.49	0.08	0.28	0.154	1556	281	23	2.6	25	9	1			95.56	1.1
11249	180.00	183.00	3.00	69.6	13.67	1.11	2.97	2.41	1.73	3.3	0.14	0.26	0.103	98	36	15	1.2	5	2	1			95.78	0.34
11250	206.10	207.10	1.00	55.23	17.44	0.81	6.15	2.76	1.9	6.85	0.42	0.65	0.125	131	128	19	0.5	10	1	4			94.39	1.85
11276	207.10	208.20	1.10	52.57	17.22	0.83	6.43	3.02	1.4	8.34	0.44	0.65	0.102	38	116	13	0.5	5	2	5			94.14	2.95
11277	228.00	231.00	3.00	60.83	15.88	0.65	4.78	1.97	2.11	6.42	0.33	0.47	0.094	7	109	22	0.5	5	29	1			94.93	1.23
11278	239.80	241.90	2.10	57.94	16.71	1.33	5.9	2.15	1.77	6.66	0.47	0.5	0.105	191	85	13	0.4	10	3	3			94.28	0.56
11279	242.00	244.00	2.00	71.8	13.33	0.45	3.04	0.79	2.91	2.68	0.18	0.22	0.163	8	36	13	1.1	5	4	1			96.04	0.35
11280	260.00	263.00	3.00	60.96	16.3	0.64	4.37	2.23	2.19	6.32	0.29	0.49	0.125	162	48	14	0.5	5	8	1			94.94	0.87
11281	290.20	290.60	0.40	39.62	16.72	0.73	9.52	0.49	1.30	15.01	0.57	0.56	0.109	1478	110	7	0.5	60	67	5			91.99	7.20
11335	293.50	294.80	1.30	61.32	12.35	0.24	2.69	0.19	3.01	8.16	0.08	0.31	0.156	144	33	9	1	15	9	2			96.12	7.5
11282	300.00	303.00	3.00	66.43	13.76	1.31	1.14	1.32	2.79	5.04	0.04	0.32	0.523	76	19	39	1.4	15	1	1			96.68	3.85
11284	340.00	340.50	0.50	55.05	16.33	1.77	3.35	0.83	1.76	13.30	0.16	0.73	0.180	10	27	15	0.4	5	19	2			95.40	1.73
11283	345.00	348.00	3.00	65.84	14.84	0.96	2.18	2.30	2.23	5.27	0.10	0.30	0.101	10	21	22	1.3	10	1	1			95.85	1.63





FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>{59.2 - 60.3} «I Dyke» 59.2 (contact)</p> <p>{61.05 - 61.7} «I Dyke» Strong contact @ 61.3. 61.3 - 61.7 mixing of felsic tuff and Int. Dyke. 61.3 (contact)</p> <p>{62.4 - 62.5} «I Dyke» 62.5</p> <p>{62.8 - 63.15} «I Dyke» 62.9</p> <p>63.7 (foliation)</p> <p>{63.9 - 64.0} «I Dyke» 64.0</p> <p>69.1 (foliation)</p>	<p>30</p> <p>60</p> <p>35</p> <p>35</p> <p>25</p> <p>50</p> <p>40</p>	<p>{59.2 - 60.3} «W ep» Weak epidote alteration of 2-3mm grains.</p> <p>{61.05 - 61.7} «W ep»</p> <p>{62.4 - 62.5} «W ep»</p> <p>{62.8 - 63.15} «W ep»</p> <p>{63.9 - 64.0} «W ep»</p>	<p>{59.2 - 60.3} «1-2% py, tr cpy»</p> <p>{61.05 - 61.7} «2-3% py»</p> <p>{62.4 - 62.5} «1% py»</p> <p>{62.8 - 63.15} «2-3% py»</p> <p>{63.9 - 64.0} «&lt;1% py»</p>	
73.00 TO 115.00	MAFIC DYKES & DIORITE «DIOR»	<p>Colour - dark green. Grain Size - fine grained. Weak sheared appearance occasional zones with 3-5% ragged white feldspars as found in diorites. Some zones with 2-3% mm leucoxene.</p> <p>73.1 (contact)</p> <p>89.1 - 104.4 Diorite: 3-7% ragged white feldspar phenocrysts. Gradational upper contact, fairly sharp lower contact. 104.4 (contact)</p> <p>108.1 - 115.0 Diorite as above becoming much finer grained with occasional feldspar phenos. 115.0 (contact)</p>	<p>50</p> <p>50</p> <p>80</p>	<p>«S Calc»</p> <p>Pervasive calcite veining throughout unit.</p> <p>{77.8 - 78.1} «Qtz Chl Cal Vn» Quartz chlorite calcite vein.</p>	<p>77.8 - 78.1 Trace chalcopryrite.</p> <p>{114.6 - 115.0} «&lt;1-1% py» &lt;1-1% disseminated pyrite.</p>	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
115.00 TO 168.60	FELSIC TUFF, FLOW? «OPT, FF?»	Colour - light grey. Grain Size - fine grained. Interlayered quartz phyric weak to moderately foliated tuff and massive, siliceous looking QP & QFP zones = flow. More massive zones = flow as follows.		«M Ser, Sil»	«<1-1X py»	
		{115.0 - 119.2} «FF» 121.3 (foliation)	45	Weakly sericitic within foliated zones. Massive zones more siliceous looking probably a primary feature.	<1-1X disseminated pyrite.	
		{122.8 - 129.4} «FF» 122.8 129.4	35 40		122.6 - 122.8 3-5% disseminated pyrite.	
		131.8 (foliation)	45			
		{134.3 - 135.75} «FF»				
		{135.75 - 136.1} «M Ash» Mafic Ash: green, fine grained. 135.75	25	{135.75 - 136.1} «M-Chl» Weak to moderately chloritic.	{135.75 - 136.1} «2-3% py» 2-3% pyrite as <1cm stringers parallel to contact.	
		{136.1 - 138.3} «FF» Massive flow. First 50cm QFP.			{137.8 - 138.3} «1-2% py, tr cpy»	
		{138.3 - 138.6} «M Dyke» Mafic Dyke. Weak sheared appearance. 138.3 138.6	50 25	{138.3 - 138.6} «M-Chl, Calcite» Weak - moderately chloritic. Pervasive calcite veining.		
		143.2 (foliation)	40			
		{150.8 - 151.2} «Fel Dyke» Felsic Dyke. 3-5% mm feldspars. Massive. Sharp lower contact. 151.2 (contact)	60			
		{156.0 - 156.4} «M Ash» Mafic Ash. Fine grained, fairly massive. 156.4 (contact)	35	{156.0 - 156.4} «M-S Chl, Patchy ep» Moderately to strongly chloritic. Patchy epidote.	{156.0 - 156.4} «<1-1% py» {157.0 - 157.3} «3-4% py» {159.0 - 160.4} «1-2% py»	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		{160.4 - 168.6} «FFPT» QFP felsic tuff: 1-2% rounded quartz eyes and 2-3% weakly epidote altered feldspars. Weakly foliated. 164.6 (foliation) 168.6 (contact)	35 43	{160.4 - 168.6} «W ep, W ser» Weak epidote alteration of feldspars. Weakly sericitic throughout.	{160.4 - 168.6} «1% py» 1% pyrite, locally 2-3% pyrite.	
168.60 TO 174.90	INTERMEDIATE TO MAFIC ASH, CHERTY ASH AND CHERT «I-MA, CHT»	Colour - grey green to dark green. Grain Size - fine grained. Interlayered intermediate to andesitic ash and thin greyish barren cherts and cherty ashes to 171.3m.  169.0 (bedding) 169.3 (bedding)  171.3 - 172.8 Ashes more mafic with occasional cherts.  171.9 - 172.1 Mineralized ash and grey cherts. 171.9 172.1  172.8 - 174.9 Predominantly pale green thinly bedded barren cherts and cherty andesitic ash. 173.2 (bedding) 173.9 (bedding) 174.9 (bedding)	40 30  50 40  0 20 35	{168.6 - 171.3} «W Ser, W Ep» Weakly sericitic & weak disseminated epidote.  {171.3 - 172.8} «M-W Chl» Moderately chloritic becoming weaker below 172.1	«tr - <1% py»  {168.6 - 168.7} «5-7% py, tr cpy» 5-7% pyrite & trace chalcocopyrite disseminated & distinctly layered parallel to upper contact.  {171.9 - 172.1} «5% py, 1% cpy, <1-1% Hemo» 5% pyrite, 1% chalcocopyrite and <1-1% specular hematite disseminated wisps & stringers parallel to contacts.	
174.90 TO 201.20	FELSIC TUFF, FLOW? «FT, FF»	Colour - light grey. Grain Size - fine grained. Very weakly foliated. 3-5% mm quartz eyes, locally up to 10%. Occasional zones with 2-4% epidote altered feldspars.		«W Ser, Patchy Ep»  Weakly sericitic throughout with weak epidote alteration of feldspars and patchy irregular epidote balls. Last 50cm epidote altering stronger as approaching mafic unit at 191.0.	«<1-1% py»  <1-1% disseminated pyrite.	



MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

HOLE NUMBER: MTS-60

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		176.0 (foliation)	40	{176.5 - 176.65} «Qtz Sulf Vm» Quartz sulphide vein.	{176.5 - 176.65} «15% py, 2% cpy» 15% pyrite and 2-3% chalcocopyrite.  {176.65 - 177.3} «2-3% py, tr cpy» 2-3% pyrite & trace chalcocopyrite disseminated & mm stringers parallel to foliation, includes 7cm quartz pyrite stringer with 3-5% pyrite at end of zone.	
		179.1 - 181.4 Very mottled appearance caused by epidote alteration.				
		185.0 (foliation) 191.0 (contact)	40 45			
		{191.0 - 191.5} «M Dyke» Mafic Dyke: Massive, green, fine grained. <1mm epidote altered grains = feldspar. Hematitic fracture coatings. 191.0 191.5	45 65	{191.5 - 201.0} «M-Chl» Weak to moderate chlorite alteration.	192.6 - 193.5 1-2% very finely disseminated pyrite.	
		{194.1 - 194.7} «And T» Andesitic crystal tuff, 1-2% epidote altered grains to 3-4mm = feldspar.				
		{194.7 - 194.9} «M Dyke» Mafic Dyke: fine grained pervasive calcite veining. 194.9	50	194.9 - 195.3 Strongly chloritic.		
		{195.3 - 195.5} «M Dyke» Mafic Dyke: Green, fine grained, sheared appearance, pervasive calcite veining. 195.3 195.5	30 40			
		{197.3 - 197.7} «M Ash, Py Muz» Mafic Ash. Dark green fine chloritic ash mixed with black pyritic argillaceous distorted		{197.3 - 197.7} «S Chl» Strongly chloritic.	{197.3 - 197.7} «2-3% py» 2-3% finely disseminated pyrite. Very dark laminations may contain	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		Laminations. 197.7 (contact)  Sharp but somewhat irregular lower contact. 201.2	40  40		greater pyrite.	
201.20 TO 216.80	DIORITE «DIOR»	Colour - dark green. Grain Size - fine to medium grained. Massive, <1-mm feldspar grains.  201.2 - 206.3 Finer grained pervasive calcite veining with weak sheared appearance grading into more massive feldspar phyrlic diorite. Hematitic fracture coatings.  Irregular lower contact approximate contact angle 216.8	40	«Qtz Chl Calc Vns»  Occasional quartz chlorite calcite veins.	213.4 - 213.6 <1% pyrite and chalcopyrite within quartz chlorite vein.	
216.80 TO 229.20	FELSIC ASH, FLOW? «FA,FF?»	Colour - light grey. Grain Size - fine grained. Very weak to weakly foliated. Weak patchy mottled appearance. <1% 2-3mm feldspars at top of unit.  224.0 - 224.5 Mafic Dyke. 224.0 224.5  228.6 (foliation) 229.2 (contact)	50 55  40 20	«W Ser, Sil»  Weakly sericitic. Siliceous appearance primary feature.	«<1% pyr»  <1% disseminated pyrite.	
229.20 TO 250.00	INTERMED- IATE TUFF «IT»	Colour - medium green grey. Grain Size - fine to medium grained. Weakly foliated, weak granular appearance, occasional quartz grains.		«W Chl»  Weakly chloritic.	«<1-1% pyr»  <1-1% disseminated pyrite.	Increasing mixing of felsic & intermediate material downhole. Quartz grains resemble siliceous felsic flow,

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		234.8 (foliation)  235 - 243 1-2% 2-4mm quartz grains. Possible siliceous felsic fragments.  237.2 - 237.3 Interval contains 3 laminations of very dark fine grained pyritic mud. 237.2 (vn contact)  243.0 - 250.0 3-5% & locally 7% rounded 2-5mm quartz grains and possible felsic fragments. 250.0	45   45  50	  {237.1 - 237.2} «Qtz Vn» Grey mottled quartz vein.	{234.3 - 250.0} «1-3% py, tr cpy» 1-3% finely disseminated pyrite and trace chalcopyrite.  {237.1 - 237.2} «5% py, 2% cpy» 5% pyrite & 2% chalcopyrite disseminated.	may therefore be fine felsic lithic fragments.
250.00 TO 258.70	INTERMEDIATE TO FELSIC LAPILLI TUFF «I-F LT»	Colour - light grey, green grey. Grain Size - fine grained. Lithic fragments of siliceous massive felsic flow averaging 1-3cm in a more intermediate looking tuffaceous matrix.  256.1 - 256.4 Brecciated weak to moderate gouge development.  {256.4 - 256.7} «FAULT» Grey pyritic fault gouge. 256.7	30	«W Chl»  Weak chlorite alteration of groundmass.  {256.0 - 256.1} «Qtz Vn»	«<1% py»  <1-1% disseminated pyrite within groundmass. Fragment poor zones may contain up to 3% pyrite and trace <1% chalcopyrite.  {256.0 - 256.1} «25% py»  {256.4 - 256.7} «7-10% py» 7-10% brassy disseminated & stringer pyrite.	
258.70 TO 278.90	FELSIC FLOW «FF»	Colour - light grey. Grain Size - fine grained. Massive to weakly foliated, siliceous looking and brecciated appearance throughout.  {261.1 - 262.9} «FLT» Felsic Lapilli Tuff. Similar to above unit but groundmass more felsic looking. 5mm pyritic mud		«W Ser»  Weakly sericitic.  {261.1 - 262.9} «W Chl» Weakly chlorite. 261.4 - 262.0	«<1% py»  <1% disseminated pyrite.	

HOLE NUMBER: MTS-60

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		at base of interval. {262.9 - 266.4} «F1» Felsic Tuff: Weakly foliated 1-3% rounded mm quartz eyes decreasing downhole.		Irregular quartz veining. {262.9 - 266.4} «W ser»	{262.6 - 263.1} «2-4% py, tr cpy»	
				{272.4 - 272.6} «Qtz Vn» Very irregular quartz vein.	{272.4 - 272.6} «2% py, tr cpy, sp» 2% disseminated pyrite. Trace chalcopyrite & sphalerite at top of interval.	
		278.9m End of Hole				

HOLE NUMBER: MTS-60

DRILL HOLE RECORD

LOGGED BY: P. T. BAXTER

PAGE: 9

HOLE NUMBER: MTS-60

ASSAY SHEET

DATE: 22-June-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL					COMMENTS	
				CU ppm	ZN ppm	PB ppm	AG ppm	AU ppb	BA ppm	CU %	ZN %	PB %	AG g/t		AU g/t
11126	33.60	35.10	1.50	760	31	-	1.6	5	5170						

HOLE NUMBER: MTS-60

ASSAY SHEET

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO2 %	TiO2 %	Se %	Cu ppm	Zn ppm	Pb ppm	Ag ppm	Au ppb	As ppm	Sb ppm	Sr %	Zr %	Total %	S %
11285	41.30	43.10	1.80	40.16	8.84	0.79	4.28	0.14	1	20.27	0.2	0.13	0.07	240	76	44	0.8	5	20	6			95.52	19.5
11297	43.10	44.20	1.10	65.62	10.77	0.36	2.66	0.19	1.98	7.12	0.12	0.15	0.13	8	41	26	1.1	5	5	2			96.44	7.25
11286	59.20	60.30	1.10	40.19	16.52	7.92	6.94	0.5	0.48	12.59	0.49	2.9	0.035	215	160	28	0.6	5	24	1			92.55	3.45
11287	123.00	126.00	3.00	69.53	14.05	1.27	1.99	2.07	2.2	3.23	0.11	0.29	0.079	117	38	26	1.7	5	5	1			96.09	1.12
11288	160.00	163.00	3.00	67.87	13.28	1.51	3.14	0.47	2.47	5.12	0.15	0.28	0.109	13	57	25	1.1	5	3	1			96.05	1.53
11289	168.60	169.00	0.40	64.02	11.99	2.16	2.82	0.46	2.3	7.7	0.14	0.25	0.106	131	87	56	1.2	10	1	1			95.27	3.2
11290	171.80	172.50	0.70	54.74	13.07	6.4	2.51	0.38	1.77	10.03	0.25	0.45	0.089	1392	79	21	1.4	5	1	3			93.69	3.75
11291	182.00	185.00	3.00	72.58	13.29	1.4	1.84	0.35	3.34	3.05	0.08	0.15	0.148	18	49	20	2.1	5	9	1			97.1	0.78
11292	197.30	197.70	0.40	48.07	15.3	0.78	9.38	0.03	1.41	12.97	0.35	0.45	0.189	35	164	16	0.6	5	11	8			92.59	3.45
11293	225.00	228.00	3.00	68.71	15.89	0.42	1.09	2.4	2.96	3.33	0.05	0.34	0.31	26	27	12	1.8	5	8	1			96.88	1.23
11294	239.00	242.00	3.00	51.77	16.17	2.58	4.22	3.53	1.03	9.83	0.64	0.68	0.147	454	188	26	0.6	5	5	1			93.94	3.16
11295	256.00	256.70	0.70	48.27	11.17	1.35	2.44	0.82	1.85	13.72	0.26	0.34	0.12	1									95.66	15.2
11296	270.00	275.00	3.00	70.58	14.16	0.62	1.86	3.42	1.47	3.03	0.12	0.29	0.071										96.82	1.09



MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

HOLE NUMBER: MTS-61

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.00	«OB» OVERBURDEN					
3.00 TO 50.40	«DIOR» DIORITE	<p>Colour: green Grain Size: m.g. -2-5 mm white subhedral feldspars and anhedral green amphibole (hornblende), massive, occasional finer grained aphyric mafic dykes. Occasional zones with orangish tan Leucozone? crystals to 2 mm</p> <p>faulted lower contact 50 m</p>	40	<p>«w. patchy ep, w calc»</p> <p>-weak, patchy epidote. occasional 1-2 cm calcite veining</p>	<p>-tr. pyrite -trace chalcopyrite within calcite veins.</p>	
50.40 TO 74.20	«FF» FELSIC FLOW	<p>Colour: light grey Grain Size: f.gr. -Generally aphyric massive siliceous looking, occasional feldspar phytic zones with 2-3% white feldspar grains.</p> <p>{50.4-59.0} «fault» -Top of unit strongly faulted with development of numerous zones of grey green clay fault gouge containing felsic flow fragments. Rubbly broken core, brecciated outside of gouge zones.</p> <p>-Broken rubbly core continues to 67.1 m</p> <p>{66.7-67.1} «fault» -Dark green and whitish gray fault gouge.</p> <p>sharp lower contact 74.2 m</p>	70	<p>«# Sil»</p> <p>-moderate siliceous appearance, probably primary</p> <p>72.0-74.2 -very weakly chloritic</p>	<p>«tr - &lt;1% py»</p> <p>-trace - &lt; 1% pyrite</p> <p>{62.5-65.0} «1-2% py, tr. cpy» -1-2% disseminated pyrite and trace chalcopyrite</p> <p>{65.0-68.5} «&lt;1% -1% py»</p>	<p>-very rubbly core, poor recovery through faulted zones</p>

HOLE NUMBER: MTS-61

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 2



MIRINDVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

HOLE NUMBER: MTS-61

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
74.20 TO 275.00	«DIOR» DIORITE	<p>Colour: green Grain Size: m.gr.</p> <p>-Massive equigranular with interlocking white feldspars and green amphibole. 80 cm fine grained aphyric upper contact becoming feldspar phytic with increasing percentages of 1-4 mm white feldspars downhole to 98.4 m</p> <p>-Occasional narrow pegmatitic zones. Abundant narrow fine grained calcite veined mafic dykes with wider dykes listed below. 96.3-98.4      140.3-144.7 146.6-153.0    156.5-162.4</p> <p>{100.0-100.2} «Fault» -green fault gouge</p> <p>{122.3-124.8} «FDYKE»                      122.3 -felsic Dyke: medium grey, fine grained, 1-2X mm white specks = feldspars. -very massive, weakly magnetic      124.8 m</p> <p>{219.3-220.0} «Fault» -Fault, rubbly core and gouge -development parallel to core axis</p> <p>{221.9-222.8} «Fault»</p> <p>237.6-245.1 -rubbly core, minor gouge</p> <p>256.2 -diopite becoming much finer grained with equigranular patches. -feldspar porphyritic from 268.4-274.3. Aphyric to end of unit.  Lower contact within rubble</p>		<p>«Patchy ep, calc, Qtz, chl Vn»</p> <p>-Patchy epidote alteration over 10-15 cm. Occasional thin calcite and quartz chlorite veins</p>	<p>«tr py»</p> <p>{116.7-127.0} «MT» -weakly magnetite-disseminated magnetite</p> <p>{135.6-140.0} «MT» -weakly magnetic</p>	<p>-Overall unit is fairly broken with numerous rubbly zones</p>
			40			
			45			
				{256.2-274.3} «chl»		

HOLE NUMBER: MTS-61

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 3







MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

HOLE NUMBER: MTS-61

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
396.90 TO 414.60	«M. DYKE» MAFIC DIKE	<p>Colour: medium green Grain Size: fine grained -massive, fairly homogeneous, fine speckled appearance. -occasional felsic xenoliths up 30 cm</p> <p>407.2-409.4 -diorite: weakly felspar phyrlic</p> <p>409.7-410.0 -felsic screen with 3% disseminated pyrite and &lt;1% chalcopyrite</p> <p>sharp lower contact somewhat irregular at approx 25 deg to core axis</p>		<p>«w epi»</p> <p>-weak epidote alterationn throughout</p>	<p>«&lt;1%-1% py»</p> <p>-&lt;1-1% disseminated pyrite and &lt;1 mm stringers</p> <p>{400.5-402.1} «&lt;1-1% py, po, tr. cpy» -&lt;1% py and pyrrhotite as mm stringers -1-25 pyrite and pyrrhotite with &lt;1% cpy from 401.4-401.7</p> <p>{402.1-405.7} «2-3% py» -2-3% pyrite as mm stringers and disseminations</p>	
414.60 TO 420.70	«FT, FF?» FELSIC TUFF, FLOW	<p>Colour: light to medium grey Grain Size: fine grained -massive to weakly foliated -quartz phyrlic with 2-4% rounded and occasional angular and square quartz eyes 2-5 mm -pumice fragment observed at 416.9 m foliation 416.8 m</p> <p>sharp lower contact @ 420.7 m</p>	<p>30</p> <p>80</p>	<p>«w ser, w sil»</p> <p>-weakly sericitic -weak siliceous appearance, possibly a result of mafic and diorite intrusive baking</p>	<p>«&lt;1% py»</p> <p>-&lt;1% disseminated pyrite -occasional 2-7 cm Qtz pyrite chalcopyrite -Qtz pyrite chalcopyrite stringers as follows:</p> <p>{414.7-414.72} «15% py, 2% cpy» -sulfide stringer, cpy also filling 3-4 mm long tension fractures.</p> <p>{416.2-416.27} «7% py, 2% cpy»</p> <p>{417.9-417.92} «5% py, tr cpy»</p>	<p>{409.7-414.6} «1-2% py, tr cpy» -1-2% disseminated pyrite and occasional mm stringers -trace chalcopyrite</p>

HOLE NUMBER: MTS-61

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 7



HOLE NUMBER: MTS-61

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
	E. O. H.	foliation 448.0 m	40	{452.0-453.5} «patchy Qtz V» - patchy quartz veining throughout interval	-1-2% py mainly within first 30 cm {452.0-453.5} «2-3% py» -2-3% disseminated pyrite -5-7% pyrite over 15 cm @ 452.9 m 455.4 -5 cm with 5-7% py, 1% cpy as stringers	-footage problems at 1290 ft. -footage block 1280 hole at 1290. -rod tally at E.O.H. hole at 1493.5 ft (455.2 m) not 1523.5 ft (461.3 m)

HOLE NUMBER: MTS-61

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 9

HOLE NUMBER: MTS-61

## ASSAY SHEET

DATE: 22-June-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL					COMMENTS	
				CU ppm	ZN ppm	PB ppm	AG ppm	AU ppb	BA ppm	CU %	ZN %	PB %	AG g/t		AU g/t
11127	396.40	396.90	0.50	37	22	-	0.6	5	2350						
11128	439.10	440.10	1.00	294	13	-	0.6	10	1200						
11129	441.50	442.20	0.70	45	14	-	0.4	5	1300						

HOLE NUMBER: MTS-61

ASSAY SHEET

PAGE: 10



HOLE NUMBER: MTS-61

GEOCHEM. SHEET

DATE: 22-June-1989

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO2 %	TiO2 %	Ba %	Cu ppm	Zn ppm	Pb ppm	Ag ppm	Au ppb	As ppm	Sb ppm	Sr %	Zr %	Total %	S %
11298	67.10	70.10	3.00	69.9	13.75	1.3	1.64	5.31	0.8	2.09	0.02	0.31	0.032	49	23	13	1.3	5	6	1			95.87	0.56
11299	280.10	283.10	3.00	66.8	12.91	0.87	3.21	0.17	2.77	5.5	0.06	0.26	0.098	638	48	12	1.3	5	6	1			95.01	2.25
11300	307.00	310.00	3.00	64.11	13.42	1.29	4.78	0.46	2.13	5.4	0.08	0.27	0.12	31	31	10	1.1	5	5	1			93.4	1.23
11326	314.90	316.40	1.50	53.33	13.28	5.05	6.88	0.57	0.62	9.27	0.12	0.46	0.049	367	56	12	0.8	5	1	1			91.6	1.75
11327	342.00	345.00	3.00	43.7	15.25	8.53	6.06	1.16	0.04	13.18	0.22	1.73	0.023	188	49	24	1.2	5	2	1			91.07	0.87
11328	380.00	383.00	3.00	67.19	14.08	0.44	2.66	0.22	3.24	4.76	0.06	0.37	0.172	14	28	10	0.9	5	1	1			94.59	1.28
11329	400.50	402.10	1.60	43.12	15.24	11.41	4.68	0.03	0.05	12.18	0.25	1.78	0.002	61	61	21	1.4	10	2	2			89.62	0.55
11330	416.00	419.00	3.00	70.73	13.96	0.36	2.4	0.71	3.65	3.35	0.03	0.3	0.192	34	18	15	1.2	5	1	1			96.02	0.23
11331	436.20	438.90	2.70	69.74	12.66	1.38	1.77	1.34	2.66	3.93	0.03	0.25	0.145	40	14	15	1.1	5	2	1			95.53	1.51
11332	443.70	444.50	0.80	62.05	11.37	1.8	1.83	0.41	2.63	7.36	0.04	0.24	0.124	19	19	13	1.1	5	2	1			95.57	7.6
11333	448.80	449.80	1.00	66.31	10.72	1.62	1.61	0.72	2.19	5.44	0.04	0.22	0.106	6	14	13	1.1	5	2	1			92.77	3.72
11334	452.00	453.50	1.50	70.43	7.46	1.86	0.74	0.36	1.91	6.02	0.03	0.15	0.089	29	10	14	1.2	5	9	1			96.31	7.2

HOLE NUMBER: MTS-61

GEOCHEM. SHEET

PAGE: 11



MINKOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

HOLE NUMBER: HTS-64

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.50	OVERBURDEN «OB»					
3.50 TO 168.70	DIORITE «DOR»	<p>Colour - green. Grain Size - fine to medium grained. Massive, equigranular with occasional finer grained mafic dykes with calcite veining and weak sheared appearance. Some finer grained zones contain 2-3% dark metallic mineral = ilmenite? Some zones with tan brown leucoxene.</p> <p>12.2 15cm fault zone, clay gouge.</p> <p>{42.2 - 44.1} «Fel Dyke» Felsic dyke: medium grey, fine grained, massive &lt;1% white mm fsp. 42.2 (contact) 44.1 (contact)</p> <p>{120.7 - 121.0} «Fault» Fault. Gougy &amp; milled core.</p> <p>{128.5 - 136.4} «M Dyke» Mafic Dyke, weakly foliated, abundant calcite veinlets. 136.4 (contact)</p> <p>136.4 - 168.7 - feldspar-porphyrific phase of diorite 10-15% fsp crystals - becoming fine grained and less porphyritic towards lower contact - contact zone obscured by blocky core</p>	<p>30 10</p> <p>{63.1 - 63.5} «Qtz Ep Vm» Quartz epidote veining.</p> <p>{128.5 - 136.4} «M Chl» {131.0 - 132.7} «S Carb, S Chl» Strong carbonate veining &amp; chlorite alteration.</p>	<p>{42.2 - 44.1} «1% py» 1% finely disseminated pyrite.</p> <p>Trace chalcopyrite in chalcopyrite veinlet at 164.1.</p>	<p>152.2 - 159.1 - blocky core.</p> <p>167.6 - 170.1 - very blocky core.</p>	
168.70 TO 195.90	FELSIC TUFF «FT»	<p>Colour - grey to greenish grey. Grain Size - fine to medium grained. Massive to weakly foliated. - unit has a very siliceous look in upper parts (due to diorite?)</p>				

HOLE NUMBER: HTS-64

DRILL HOLE RECORD

LOGGED BY: P.T. BAXTER, G.S. WELLS

PAGE: 2

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<ul style="list-style-type: none"> <li>- trace quartz crystals with up to 5% quartz eyes locally</li> <li>- have the odd siliceous fragment</li> </ul> 175.3 (foliation) 178.7 - 178.8 Fault gouge.	45	{175.0 - 194.6} «W-M Chl» - weak to moderate pervasive chlorite alteration  {194.6 - 195.9} «M Sil, W Ep» - unit becoming moderately siliceous with weak pervasive epidote veining	{175.0 - 194.6} «1-2% py» - 1-2% pyrite as fine grained disseminations and stringers	
195.90 TO 208.90	FP FRAG-MENTAL TUFF «FP FRAG T»	Colour - greenish grey. Grain Size - fine grained. - good fragmental texture - fine grained feldspar porphyritic and siliceous fragments in fine grained green, intermediate ash - some frags up to 10cm across - most 1-2cm across - subrounded. - overall have approx. 10-15% fragments  {197.7 - 197.9} «Bedded Ash» 197.7 (bedding)  202.5 (stringer)	40   15	«W Ep, Chl»  - feldspar crystals are weakly epidote-rich matrix - weak chlorite alteration  Strongly siliceous zones as noted below: {195.9 - 196.2} «S Sil»  {198.85 - 203.1} «S Sil»  {207.9 - 208.9} «1-2% hem» - 1-2% disseminated red hematite	«1% py»  - 1% disseminated pyrite with local sulphide enrichments noted below.  {197.7 - 197.9} «2-3% py, 1% cp, 1% sp» - sulphides occur parallel to bedding in thin ashy interbed in FP fragmental  {200.9 - 201.2} «15% py, tr cp» {201.6 - 202.1} «5-7% py, tr cp» {202.4 - 202.75} «10% py» - 1-2cm thick massive pyrite stringer at 15 degrees to core axis	- is this a flow top breccia?
208.90 TO 210.20	MAFIC DYKE «M DYKE»	Colour - greenish grey. Grain Size - fine grained. - upper contact marked by fault gouge from 208.9 - 209.2  209.0 (fault)	15	«W carb-hem»  - pervasive weak carbonate-hematite veining		

MINHOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

HOLE NUMBER: MTS-64

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		Lower contact sharp 210.2 (contact)	45			
210.20 TO 216.20	FELSIC FLOW, TUFF? DIORITE «FF, FT»	Colour - light grey. Grain Size - fine grained. - massive - locally have 5X mm-sized fsp crystals  fine grained, light to dark green mafic dykes at: 214.0 - 214.35 214.8 - 215.1 215.5 - 216.15		«W Ser, Chl»  - pervasive, weak sericite and chlorite alteration in felsic unit	«1-2% diss. py»  - 1-2% disseminated pyrite occurs both in felsic flow/tuff and in mafic dykes/diorite	
216.20 TO 227.00	DIORITE «DIOR»	Colour - green. Grain Size - medium grained. - massive - patches with 10X fsp crystals - upper contact sharp  216.2 (contact)  {218.5 - 218.85} «FP Dyke» - fine grained grey, fp dyke, 5% euhedral, mm-sized fsp crystals  {223.85 - 224.2} «FP Dyke» - very irregularly shaped dyke  - lower contact sharp 227.0	45          50	«W Ep, carb-hem veining»  - weak epidote; 1-2% carb +/- hematite veining		
227.00 TO 274.70	FELSIC TUFF, ASH «FT, FA»	Colour - grey. Grain Size - fine grained. massive; pervasively siliceous - patches with 5X mm-sized fsp crystals - locally have zones with small (1-2mm across) lithic, siliceous fragments		«S Sil, W chl-ser»  - unit has a strongly siliceous look (may be primary feature) - weak chl-sericite alteration gives core a mottled/pseudo-fragmental look in upper part of unit		{227.0 - 245.6} «1-2% py» - 1-2% fine grained pyrite disseminated

HOLE NUMBER: MTS-64

DRILL HOLE RECORD

LOGGED BY: P.T. BAXTER, G.S. WELLS

PAGE: 4

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

HOLE NUMBER: MTS-64

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>{230.85 - 231.2} «M Dyke» - fine grained, carb-rich, mafic dyke</p> <p>{242.0 - 242.5} «F dyke» - fine grained, massive, grey felsic dyke</p> <p>{245.6 - 274.7} - unit homogeneous fine grained felsic ash</p> <p>{262.85 - 263.15} «FP dyke» - felsic, light grey, fp dyke with tr - 1% pyrite veinlets at contact</p>			<p>throughout unit</p> <p>{245.6 - 274.7} «tr - 1% py» - sulphide content lower in unit is less</p>	273.4 - 274.7 - blocky core
274.70 TO 285.40	DIORITE «DIOR»	<p>Colour - green. Grain Size - medium grained. - massive - feldspar-porphyrific (15-20% f's) - lower contact obscured by blocky core</p>		<p>«/ carb-hem veining» - 1% carb-hematite veins</p>	- none	
285.40 TO 302.60	FELSIC FLOW/TUFF «FF, FT»	<p>Colour - grey. Grain Size - fine grained. - massive - 1-2% mm-sized quartz crystals locally - unit very siliceous</p>		<p>{293.15 - 293.5} «qtz-chl veins»</p>	<p>Pyritic stringers as noted below:                      {288.2 - 288.3} «50% py» - coarse grained pyrite cubes                      {292.0 - 292.3} «10% py» - 10% pyrite associated with quartz vein                      {293.15 - 293.5} «1% py, tr cp»                      {300.9 - 301.1} «10% py»</p>	
302.60 TO 344.90	FELSIC LITHIC TUFF «F LITH T»	<p>Colour - greenish grey. Grain Size - fine grained. Unit greener colour, also have patches with 10% mm-sized fsp crystals; also see the odd mm-sized siliceous frag.</p>				

HOLE NUMBER: MTS-64

DRILL HOLE RECORD

LOGGED BY: P.T. BAXTER, G.S. WELLS

PAGE: 5

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

HOLE NUMBER: MTS-64

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>{307.95 - 309.2} «FP dyke» - fine grained chilled contacts; 5-10% diffuse fsp phenocrysts, greenish grey colour</p> <p>307.95 (contact)</p> <p>316.4 (stringer)</p>	<p>45</p> <p>20</p>	<p>{302.6 - 321.25} «M Chl» - weak pervasive chlorite gives rock greenish hue</p> <p>{307.55 - 307.95} «qtz vein»</p> <p>{318.5 - 321.25} «qtz-ep-chl veins»</p> <p>{321.25 - 344.9} «S Sil, M Chl» - strong silica alteration (qtz veining throughout) &amp; moderate chlorite alteration - trace hematite veining</p>	<p>{307.55 - 307.95} «5-7% py»</p> <p>{316.25 - 316.5} «10% py» - 10% py concentrated in 1cm wide pyrite stringer at 20 degrees to C.A.</p> <p>{318.5 - 321.25} «10% py, tr cp, sph» - overall have 10% pyrite, trace chalcopyrite, sphalerite - reddish brown sphalerite concentrated in quartz vein at 320.7 - 321.0</p> <p>{321.25 - 344.9} «tr py» - pyrite primarily in siliceous patches and quartz veins</p>	
344.90 TO 356.10	FELSIC FRAGMENTAL «F Frag»	<p>Colour - grey. Grain Size - fine grained. - 15% coarse fragments in fine grained siliceous and feldspar-rich matrix - several fragment types: - fine grained, grey siliceous/cherty one; feldspar porphyritic ones; at 356.1 have irregular shaped pyritic OP fragment - fragments slightly elongate in plane of foliation - size: up to 3-4cm across</p> <p>346.7 (foliation)</p>	45	<p>«M Chl»</p> <p>- matrix is weakly pervasively chlorite 1-2% quartz veins - but not as strongly veined as above unit.</p>	<p>«Tr - 1% py»</p> <p>- trace - 1% disseminated pyrite - commonly in more siliceous areas</p>	<p>- this is the coarsest fragmental seen on the property - possibly correlates with finer-grained lithic tuffs noted in Mona area.</p>

HOLE NUMBER: MTS-64

DRILL HOLE RECORD

LOGGED BY: P.T. BAXTER, G.S. WELLS

PAGE: 6

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

HOLE NUMBER: MTS-64

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
356.10 TO 371.30	INTERMEDIATE LITHIC /CRYSTAL TUFF «L Lith T»	Colour - green. Grain Size - fine grained. Unit massive. - has "clastic" look due to abundant (25%) broken feldspar crystals - 1% grey siliceous fragments		«W Chl»  - weak pervasively chloritic matrix		
371.30 TO 373.35	MAFIC ASH «MS»	Colour - dark green. Grain Size - very fine grained. Weakly bedded. - fine grained ashy layers with mx fsp-crystals in layers - grading indicates tops up hole (except last piece which may have been put in upside down) - siliceous fragment similar to underlying unit at: 373.1 - 373.2  373.0m (bedding)	35	«M-S Chl»  - moderate to strong chlorite alteration	- none	
373.35 TO 426.90	QP TUFF «QPT»	Colour - greenish grey. Grain Size - fine grained. - 2% subrounded quartz "eyes" in fine grained greenish grey ashy matrix - unit pervasive weak foliation quartz eyes up to 0.3cm across  379.0 (foliation)  385.05 - 385.9 Fault gouge parallel to core axis.	40	«W Chl»  - weakly chloritic throughout	«1-2% py»  - 1-2% finely disseminated pyrite  405.75 - 410.0 - 2-3cm wide pyrite stringer parallel to core axis - fine grained black material with pyrite = argillite or very fine grained pyrite  424.3 3 1cm diameter pyrite nodules associated with pyrite stringer.	

HOLE NUMBER: MTS-64

DRILL HOLE RECORD

LOGGED BY: P.T. BAXTER, G.S. WELLS

PAGE: 7



MINNOVA INC.  
DRILL HOLE RECORD

HOLE NUMBER: MTS-64

DATE: 22-June-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
426.90 TO 451.10	MAFIC DYKE «M DYKE»	Colour - dark green. Grain Size - fine grained. - massive - locally strongly magnetic - upper contact sharp 426.9  431.4 - 433.05 - dyke looks bedded/ probably foliation 433.0 (foliation)  - lower contact indistinct	40  45	«W patchy Ep»  - weak patchy epidote - tr carb-hematite veins - 1% Qtz-carb-chl veins	«1% diss. py»	
451.10 TO 480.70	ANDESITE CRYSTAL TUFF/ASH «AndT, AndA»	Colour - greyish green. Grain Size - fine to medium grained. - weakly foliated  451.1 - 464.4 - good andesite crystal tuff with 1% "epidote balls" up to 3cm across - patches with 15-20% epidotized fsp crystals  464.4 - 480.7 - primarily a fine grained ash with the odd? siliceous fragments (1cm X 0.1cm) - generally ash is well-foliation  473.0 (foliation)	40	{451.1 - 464.4} «W Ep» - epidote alteration pervasive but weak  {464.6 - 480.7} «M-S Chl» - moderate to strong chlorite alteration	{451.1 - 464.4} «Tr diss. py»  {464.6 - 480.7} «1% diss. py» - 1% disseminated pyrite - generally aligned parallel to foliation	

HOLE NUMBER: MTS-64

DRILL HOLE RECORD

LOGGED BY: P.T. BAXTER, G.S. WELLS

PAGE: 8

HOLE NUMBER: MTS-64

## ASSAY SHEET

DATE: 22-June-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS					BA ppm	GEOCHEMICAL					COMMENTS
				CU ppm	ZN ppm	PB ppm	AG ppm	AU ppb		CU %	ZN %	PB %	AG g/t	AU g/t	
11162	197.70	197.90	0.20	1360	4650	15	1.9	5	-						
11163	200.90	202.10	1.20	150	40	14	1.1	5	-						
11164	202.40	203.10	0.70	575	30	13	1.2	5	-						
11165	292.00	293.50	1.50	70	23	10	1.0	10	-						
11166	307.55	307.95	0.40	221	22	12	1.1	5	-						
11167	316.25	316.50	0.25	725	30	18	1.4	5	-						
11168	318.50	319.60	1.10	64	23	10	0.8	5	-						
11169	319.60	320.70	1.10	1320	67	21	1.8	10	-						
11170	320.70	321.25	0.55	375	7000	12	0.9	30	-						

HOLE NUMBER: MTS-64

ASSAY SHEET

PAGE: 9

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO2 %	TiO2 %	Ba %	Cu ppm	Zn ppm	Pb ppm	Ag ppm	Au ppb	As ppm	Sb ppm	Sr %	Zr %	Total %	S %
11374	183.20	186.70	3.50	53.08	16.15	2.19	4.92	0.93	2.99	8.14	0.36	0.72	0.102	230	145	8	0.6	5	2	1			93.66	3.95
11375	203.60	206.20	2.60	62.01	14.98	0.99	2.9	1.53	2.3	8.16	0.1	0.53	0.237	763	70	17	1.7	10	13	3			95.54	1.76
11376	236.80	239.80	3.00	65.65	15.45	1.32	2.25	2.19	2.72	4.47	0.07	0.35	0.145	518	39	12	1.1	5	1	4			95.75	1.12
11377	267.00	270.00	3.00	64.73	15.33	2.97	2.66	1.52	2.45	4.67	0.07	0.34	0.141	55	34	13	1.4	5	13	2			95.1	0.2
11378	297.50	300.50	3.00	67.76	14.42	2.17	1.98	3.39	1.81	3.32	0.04	0.32	0.11	63	24	13	1	5	8	1			95.61	0.27
11379	331.00	334.00	3.00	73.37	11.42	2.25	1.19	2.89	1.17	3.14	0.05	0.23	0.086	24	20	16	1.2	5	1	4			96.17	0.36
11380	349.60	352.70	3.10	64.74	15.03	1.57	3.11	3.62	1.47	4.89	0.1	0.41	0.058	10	39	13	1	5	3	4			95.32	0.32
11381	365.80	368.80	3.00	56.28	17.03	2.37	4.94	3.24	1.58	7.31	0.16	0.57	0.052	10	51	13	0.5	5	28	1			93.84	0.27
11382	395.00	398.10	3.10	69.46	13.29	0.82	2.4	3.19	1.66	3.8	0.06	0.27	0.06	10	24	11	1	5	18	2			95.89	0.86
11383	437.70	440.70	3.00	45.17	14.92	7.39	4.92	3.57	0.47	13.83	0.24	2.46	0.012	10	46	13	3.7	5	16	5			93.51	0.07



MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

HOLE NUMBER: MTS-65

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.00	<OB> OVERBURDEN					
3.00 TO 149.40	<FT> FELSIC TUFF	<p>Colour: light grey Grain Size: f.gr. -very weakly epidotized sericitic -&lt;1-1% mm rounded quartz eyes and patchy zones with 1-2% sericitized and epidotized feldspars -may contain fragments as &lt;1 cm wisps</p> <p>6.2-7.75 -mafic dyke: f.gr., massive, green, 7-10% epidotized feldspars, fine grained chill margins contact 6.2 m</p> <p>foliation 29.6 m less than</p> <p>foliation 44.5 m</p> <p>50.6-79.0 -QFP tuff 1-1-2% rounded quartz eyes and patchy &lt;1-1% sericitized feldspars some minor epidotization of fsp foliation 59.0 m below 79.0 m &lt;1-1% locally 3-4% mm quartz eyes</p>	<p>40</p> <p>10</p> <p>0</p> <p>5</p>		<p>5.2-6.05 -5-7% py, 1% cpy</p> <p>17.4-18.15 -3% py, &lt;1% cpy</p> <p>21.9-22.15 -60% py</p> <p>27.3-28.95 -8-10% pyrite stringers x-cutting</p> <p>47.25-48.8 -10% pyrite as 1-2 cm stringers @ 5 deg to core axis. trace cpy</p> <p>59.0-61.9 -5% pyrite, &lt;1% chalcopyrite as 1-3 cm stringers parallel to core axis = foliation</p> <p>{62.0-114.0} &lt;1-2% py, tr cpy&gt; -1-2% py and tr cpy mainly as occasional &lt;1-5 cm wide stringers -some thicker zones as follows:</p> <p>73.0-73.2</p>	

HOLE NUMBER: MTS-65

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 2

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

HOLE NUMBER: MTS-65

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		foliation 96.3 m	30		-7% py, 1% cpy associated with 3-5% calcite	
		foliation 112.0 m	15	{99.7-101.3} «qtz vrn» -irregular white chlorite veining	74.7-74.9 -20% pyrite associated with quartz veining	
		118.5-122.2 -unit taking on a weakly siliceous fragmental appearance			105.65-105.9 -15% py, 1% cpy stringer mineralization	
		{127.7-136.9} «I, T» -intermediate ash and tuff: med green, fine grained, weakly foliated		{127.7-136.9} «m-s chl» -moderate to strongly chloritic -ash zones show stronger alteration	{127.7-136.9} «1-2% py, tr cpy» -1-2% disseminated pyrite and tr. chalcopyrite	
		128.7-130.3 -occasional zones with thin <0.5 cm distorted chert beds. No bedding angles available -coarser tuff zones abundant < 1mm whitish specks foliation 130.4 upper contact gradational over 1 m	30			
		{137.2-140.0} «I-fA» -intermediate to felsic ash, f.gr. grey green, weak to moderately foliated, aphyric minor screens of felsic tuff -lower contact sharp, looks parallel to foliation foliation 138.6 m contact 140.0 m	10 15	{137.2-140.0} «m ser» -moderately sericitic some patchy stronger zones -minor quartz veining over 30 cm		
		140.0-141.7 -fsp phyrlic -2% fairly fresh andradal feldspars				
		141.7 -6 cm zone looks very much like chert with 5% sulphides			141.7-142.1 -<1% cpy -5% fine disseminated pyrite -chalcopyrite limited to 6 cm qtz vein	
		141.7-149.4 -occasional fine grained, greyish green, mod sericitized ash zones within coarser grey felsic tuffs				

HOLE NUMBER: MTS-65

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 3

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

HOLE NUMBER: MTS-65

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
149.40 TO 294.90	<DIOR> DIORITE	<p>Colours: green Grain Size: f. - m.gr. -massive fsp porphyritic with 1-5% ragged white feldspars -feldspars phyrlic zone grading downhole into more equigranular diorite around 171 m -abundant finer grained phases with pervasive calcite -some show sharp contacts with coarser diorite -rare pegmatitic zones -&lt;1%-2% disseminated ilmenite with minor leucoxene alteration</p> <p>190.0-220.0 -patchy zones, weakly magnetic</p> <p>225.2-225.3 -fault- gougy milled core</p> <p>282.0 -equigranular diorite grading downhole into feldspar phyrlic diorite</p> <p>sharp lower contact 294.9</p>	70	<p>&lt;patchy m calc, qtz chl carb Vns&gt;</p> <p>-pervasive moderate calcite within finer grained mafic dykes -occasional quartz chlorite carbonate veins</p> <p>226.8-227.4 -Fe carbonate veining</p> <p>250.4-254.7 -strong altered appearance -abundant iron carbonate veining -moderately siliceous, 1-2% leucoxene</p>	<p>290.8 -minor quartz chlorite veining with &lt;1% chalcopyrite</p>	
294.90 TO 326.50	<FT, FF> DP FELSIC TUFF FELSIC FLOW	<p>Colour: light grey Grain Size: f.gr. -weakly foliated -1% 1-3 mm rounded quartz eyes. Occasional triangular quartz eyes. -weak siliceous appearance</p>		<p>&lt;w ser, w sil&gt;</p> <p>-weakly sericitic, weak siliceous appearance 303.1-303.3 -mod sericitic = ash layer</p>	<p>&lt;&lt;1% py, tr cpy&gt;</p> <p>-&lt;1% pyrite and trace chalcopyrite disseminated and rare mm stringers</p>	

HOLE NUMBER: MTS-65

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 4

MINNOVA INC.  
DRILL HOLE RECORD

DATE: 22-June-1989

HOLE NUMBER: MTS-65

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>foliation 299.7 m foliation 316.2 m</p> <p>{317.8-321.85} «1, A, T» -intermediate ash and tuff: medium green, fine grained -coarser intermediate tuffs becoming fine grained ashes below 319.1 m -very fine bedding within ashes, marked by thin chert beds -gougy faulted lower contact</p> <p>bedding 319.7 bedding 321.0 bedding 321.2</p> <p>-gougy faulted lower contact 324.5</p>	<p>30 30</p> <p>85</p> <p>40 25 15 5</p> <p>15</p>	<p>{317.8-321.85} «m chl» -moderately chloritic -calcite veining within first 40 cm</p>	<p>{317.8-321.85} «1-3%» -1-3% very fine disseminated syngenetic pyrite</p> <p>321.85 -3 cm quartz vein with 3% pyrite and 5% chalcopryite</p>	
324.50 TO 332.15	«D10R» DIORITE	<p>Colour: green Grain Size: f.gr. -massive, fsp phytic -fine grained phase with calcite veining at top of unit -gouge and carbonate veining 329.4 over 6 cm @ lower contact 332.15 m</p>	<p>75 40</p>	<p>326.1 3 cm Qtz vein @ 40 deg to c.a.</p> <p>{329.4-329.8} «Qtz Chl Vw»</p>	<p>326.1 -2% py, &lt;1% cpy</p> <p>{329.4-329.8} «10% po, 5% cpy, 3-4% py, 1-2% Hemo</p>	
332.15 TO 380.65	«FA, FF?» FELSIC, ASH FLOW?	<p>Colour: light grey Grain Size: f.gr. -massive to weakly foliated -aphytic -pervasive silicified look to 357.2 m = Flow?</p> <p>343.0-343.3 -gougy core, gouge developed 5-10 deg to c.a.</p> <p>foliation 346.0</p> <p>{346.95-348.4} «Litho Dyke»</p>	<p>25</p>	<p>«w ser, s sil, w calc»</p> <p>-weakly sericitic, strongly silicified appearance -patchy weak calcite veining</p> <p>{346.95-348.4} «s calc, m chl»</p>	<p>«tr - &lt;1% py»</p> <p>-occasional mm stringers</p> <p>333.5-334.1 -7-8% and &lt;1% cpy associated with calcite veining</p> <p>{346.95-348.4} «1% py»</p>	-Litho Dyke

HOLE NUMBER: MTS-65

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 5



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>- mafic dyke, brownish green, w-mad foliated abundant calcite veinlets with sheared appearance near contacts</p> <p>foliation 346.0 m contact 346.95 m contact 348.4 m</p> <p>357.2-374.6 -less silicified looking, rare rounded quartz eyes</p> <p>foliation 359.1 foliation 366.2 foliation 370.4</p> <p>sharp lower contact 380.65</p>	<p>25 45 25</p> <p>45 40 40</p> <p>75</p>	-strong, pervasive calcite veining	<p>349.8-351.3 -1-2% pyrite</p> <p>355.5-366.4} «1% py» -1% fine disseminated pyrite and occasional m stringers -zones of greater pyrite as follows: 355.5-356.45 -2-3% py 357.65-358.1 -10% py associated with quartz calcite veinlets 364.05-364.13 -20% py with quartz calcite veining</p>	
380.65 TO 404.70	«DIOR» DIORITE	<p>Colour: green Grain Size: f.gr. -massive -fsp porphyritic, 5-7% ragged fsp -weakly equigranular from 387-402</p> <p>404.7</p>	25			
404.70 TO 424.65	«FA» FELSIC ASH	<p>Colour: light grey Grain Size: f.gr. -weakly foliated -aprylic -some coarser tuffaceous zones near top of unit -very weak pseudobreccia texture in zones of sulphide stringers</p> <p>foliation 412.9 m foliation 419.4 m</p>	<p>5 0</p>	<p>«m-m ser»</p> <p>-weak to moderately sericitic -irregular quartz veining as follows:</p> <p>412.05-412.6} «qtz vns»</p>	<p>«1-1% py»</p> <p>-&lt;1-1% disseminated pyrite -quartz sulfide stringers as follows:</p> <p>412.05-412.6} «40% py» -40% disseminated pyrite</p>	<p>412.05-424.65 -stringer zone</p>

MINNOVA INC.  
DRILL HOLE RECORD

HOLE NUMBER: MTS-65

DATE: 22-June-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		foliation 420.2 m foliation 422.8 m contact 424.65 m	30 5 15	414.05-414.2 -quartz veining  420.8-421.25 -wormy white barren quartz veining {421.7-422.5} «Qtz Vn» {423.1-424.65} «Qtz Calc Vn» -quartz calcite veining, predominantly quartz minor calcite	414.05-414.2 -20% disseminated pyrite  418.7-418.8 -25-30% pyrite  {421.7-422.5} «7-10% py, 1-2% cpy» {423.1-424.65} «20% py, 1-2% cpy, tr sp gn» -20% pyrite and 1-2% chalcopyrite coarsely disseminated and stringers -interval includes: 423.25-423.35 -5% honey and red brown sphalerite and <1% galena, calcite rich area	
424.65 TO 439.35	«FF» OP FELSIC FLOW	Colour: light grey Grain Size: f.gr. -very weakly foliated -quartz phyric with 5-10% angular and some rounded 1-2 mm quartz eyes -patchy mottled grey green coloration		«w. ser, w-m sil, patchy s sil»  -weakly sericitic -patchy, strongly siliceous, mottled zones	«tr py»	
439.35 TO 446.65	«FT, FA» FELSIC TUFF AND ASH	Colour: light to medium green grey Grain Size: f.gr. -fine grained aphyric, weakly foliated felsic ash and coarser, weakly granular, more massive tuff -rare quartz eyes  foliation 442.5 m sharp lower contact	25 40	«w ser»	«tr py»	
446.65 TO 449.10	«QP, FF» O(F)P FELSIC	Colour: mottled green Grain Size: f.gr. -fairly massive -2-5% angular 1-3 mm quartz eyes		«w ser»  -weakly sericitic	«<1% py»  -<1% pyrite	

HOLE NUMBER: MTS-65

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 7



MINNOVA INC.  
DRILL HOLE RECORD

HOLE NUMBER: MTS-65

DATE: 22-June-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		sharp lower contact bedding	30 30	margins		
491.00 TO 502.60	<AND T> ANDESITE CRYSTAL TUFF	Colour: speckled medium green Grain Size: f.gr. -massive, patchy weak foliation -7-10% weakly epidotized < 5 mm feldspars, locally 25-30% feldspars -hematite fracture planes at top of unit foliation 499.6 m  500.12-502.6 -rare, green, barren chert fragments and 1% grey 4-5 mm rounded felsic fragments	30	<w ep>  -weak epidote alteration of feldspars  500.0-500.12 -irregular quartz veining, strong chlorite	<<1% py, tr cpy>   500.0-500.12 -7% py, 1% cpy associated with quartz veining	
	E. O. H.					

HOLE NUMBER: MTS-65

DRILL HOLE RECORD

LOGGED BY: P. Baxter

PAGE: 9

HOLE NUMBER: MTS-65

## ASSAY SHEET

DATE: 22-June-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL					COMMENTS	
				CU ppm	ZN ppm	PB ppm	AG ppm	AU ppb	BA ppm	CU %	ZN %	PB %	AG g/t		AU g/t
11171	5.20	6.05	0.85	3200	38	11	1.2	40	-						
11172	21.90	22.15	0.25	88	23	14	1.0	5	-						
11173	27.30	28.20	0.90	24	15	10	0.6	5	-						
11174	28.20	28.95	0.75	80	14	10	0.8	5	-						
11175	47.25	48.80	1.55	640	22	17	1.2	10	-						
11176	59.00	60.00	1.00	710	15	16	1.2	5	-						
11177	60.00	61.00	1.00	734	25	24	1.5	5	-						
11178	61.00	61.90	0.90	222	21	22	1.0	5	-						
11179	74.60	74.90	0.30	80	13	29	1.1	5	-						
11180	105.65	105.90	0.25	5950	27	21	3.4	180	-						
11181	329.40	329.80	0.40	29600	102	22	9.0	125	-						
11182	333.50	334.10	0.60	1600	42	23	2.2	15	-						
11183	357.65	358.10	0.45	53	26	17	1.2	5	-						
11184	412.05	412.60	0.55	44	8	18	1.0	5	-						
11185	421.70	422.50	0.80	1830	47	16	1.8	40	-						
11186	423.10	423.90	0.80	1600	4900	770	6.0	140	2630						
11187	423.90	424.65	0.75	540	36	22	1.2	15	2330						

HOLE NUMBER: MTS-65

ASSAY SHEET

PAGE: 10

HOLE NUMBER: MTS-65

GEOCHEM. SHEET

DATE: 22-June-1989

Sample	From (m)	To (m)	Length (m)	SiO2 %	Al2O3 %	CaO %	MgO %	Na2O %	K2O %	Fe2O3 %	MnO2 %	TiO2 %	Ba %	Cu ppm	Zn ppm	Pb ppm	Ag ppm	Au ppb	As ppm	Sb ppm	Sr %	Zr %	Total %	S %
11386	17.40	18.15	0.75	67.66	10.15	0.41	1.48	0.09	2.61	6.92	0.03	0.21	0.114	352	21	13	1.1	10	1	3			96.8	7.1
11387	40.50	41.50	1.00	54.86	9.6	0.66	2.4	0.24	1.96	12.15	0.04	0.19	0.1	325	25	9	1	5	19	2			96.22	14
11388	68.80	71.80	3.00	65.64	13.5	1.64	3.92	1.37	2.16	4.5	0.04	0.28	0.098	120	18	11	1	5	1	2			95.29	2.1
11389	101.50	104.50	3.00	68.26	14	0.36	4.68	0.6	2.76	3.64	0.05	0.28	0.113	78	21	9	1	5	18	1			95.64	0.89
11390	128.70	130.30	1.60	53.08	16.84	0.49	8.51	0.01	2.25	9.32	0.16	0.68	0.106	460	65	11	1	10	38	1			93.46	1.84
11391	143.00	146.60	3.60	62.12	15.94	0.6	4.16	0.47	3.37	5.98	0.06	0.43	0.223	46	39	10	1.4	5	1	1			95.32	1.92
11392	305.00	308.00	3.00	66.77	13.46	1.27	4.44	1.63	1.74	4.13	0.08	0.27	0.096	60	38	14	1	5	1	1			94.64	0.75
11393	319.10	320.50	1.40	56.56	15.78	0.41	6.44	1.4	1.76	8.8	0.18	0.57	0.108	42	97	10	0.4	5	27	1			93.96	1.87
11394	320.50	321.85	1.35	57.06	15.92	0.56	5.29	2.71	1.53	7.81	0.16	0.54	0.092	74	87	16	0.5	10	33	1			94.37	2.65
11395	340.80	343.70	2.90	64.69	14.83	1.44	3.3	0.79	3.03	4.68	0.07	0.38	0.174	11	30	11	0.8	10	9	2			95.13	1.72
11396	374.00	377.00	3.00	65	15.41	0.62	2.96	3.29	2.02	4.91	0.05	0.41	0.125	12	30	7	1.1	5	3	3			95.71	0.89
11397	422.50	423.10	0.60	62.45	14.63	0.72	2.04	1.58	2.94	5.98	0.05	0.38	0.147	587	52	16	1.2	5	9	3			96.13	5.2
11398	430.00	433.00	3.00	68.26	12.6	4.39	1.83	0.7	2.25	3.96	0.08	0.29	0.082	28	22	12	1	10	1	3			95.2	0.74
11399	466.10	468.55	2.45	56.09	15.25	0.08	7.42	1.66	1.19	9.28	0.32	0.49	0.044	25	128	9	0.5	5	24	1			93.57	1.69
11400	486.20	489.20	3.00	71.2	13.48	1.2	1.54	2.73	2.41	2.99	0.07	0.23	0.088	10	22	13	1.1	5	1	2			96.47	0.51
11401	495.10	498.00	2.90	54.7	15.39	2.84	6.12	2.93	0.33	9.7	0.29	0.59	0.019	1144	70	14	0.4	5	39	1			93.48	0.43

HOLE NUMBER: MTS-65

GEOCHEM. SHEET

PAGE: 11



LEGEND

CRETACEOUS

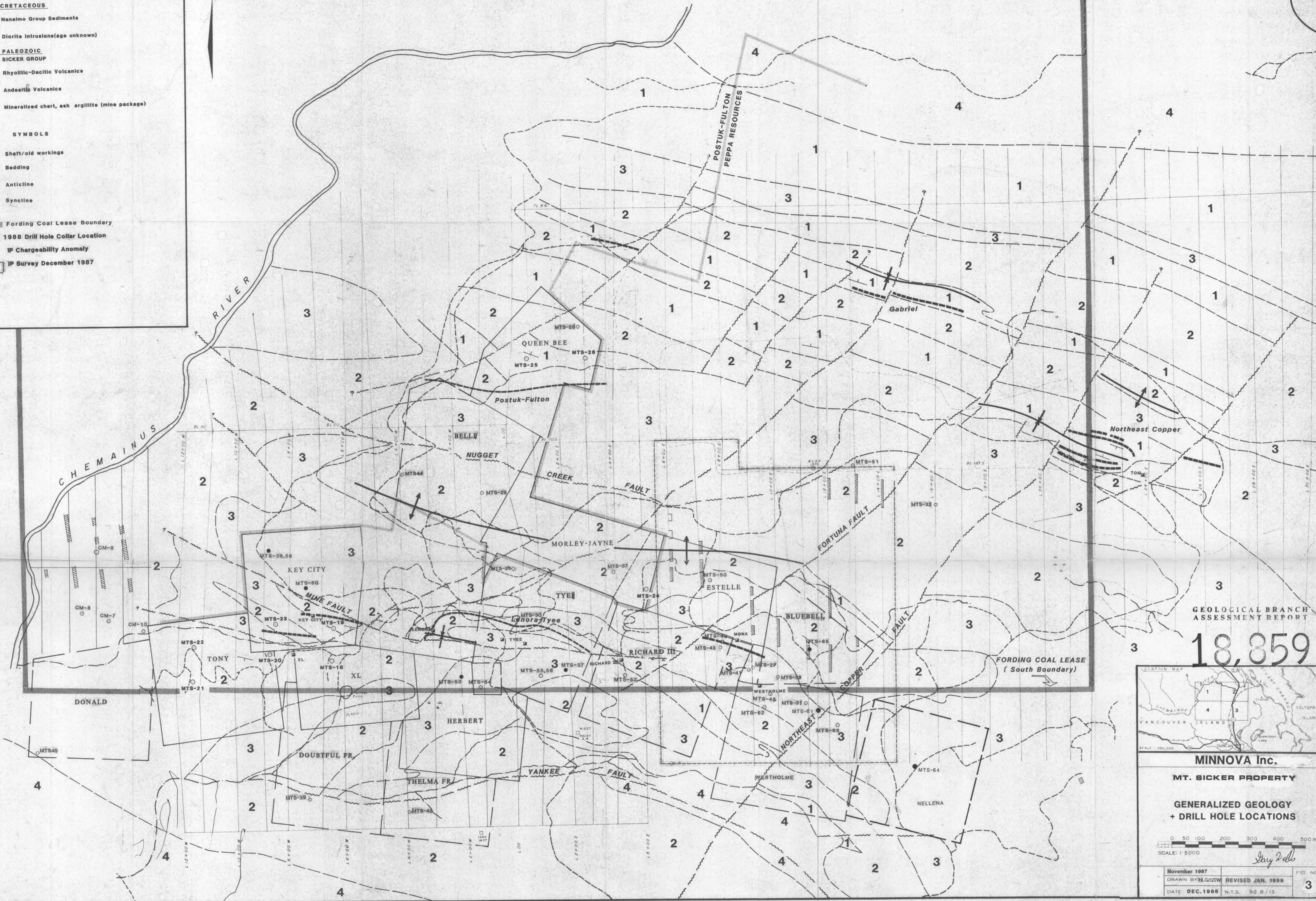
- 4 Nanaimo Group Sediments
- 3 Diorite Intrusions (age unknown)

PALEOZOIC  
SICKER GROUP

- 2 Rhyolitic-Dacitic Volcanics
- 1 Andesitic Volcanics
- Mineralized chert, ash argillite (mine package)

SYMBOLS

- Shaft/old workings
- Bedding
- ↗ Anticline
- ↘ Syncline
- ▬ Fording Coal Lease Boundary
- MTS-61 1988 Drill Hole Collar Location
- ▨ IP Chargeability Anomaly
- IP Survey December 1987



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

18,859



MINNOVA Inc.

MT. SICKER PROPERTY

GENERALIZED GEOLOGY  
+ DRILL HOLE LOCATIONS



November 1987	FIG. NO. 3
DRAWN BY HLG/SW	REVISED JAN. 1988
DATE DEC. 1986	N.T.S. 92 B/13