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LOG NO: 12-04	RD.
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DIAMOND DRILLING REPORT
MT. SICKER PROPERTY

Victoria Mining Division
NTS 92 B/13
48° 59' N Lat. 123° 50' W Long.
Owner: Minnova Inc.
Operator: Minnova Inc.

Claims

Rocky Group

Lawarance

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

20,579

Minnova Inc.
Vancouver, B.C.

G. S. Wells
November 1990

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Diamond Drilling Report

Mt. Sicker Property

1. Introduction

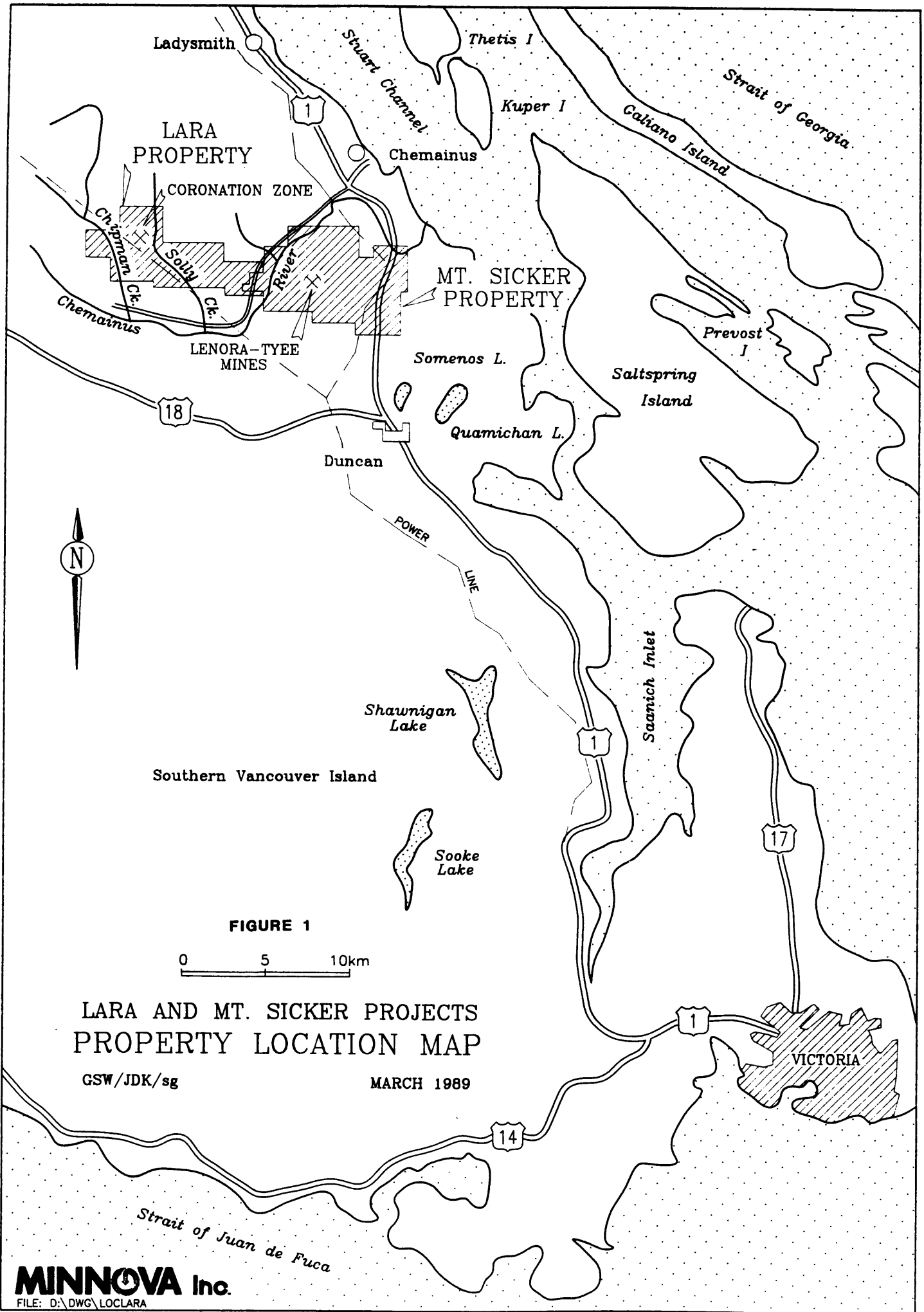
Minnova Inc. has acquired the mineral rights to claims in the Mt. Sicker area in order to evaluate the volcanogenic massive sulphide potential of the Sicker volcanics exposed on the property. This report describes the results of diamond drill hole MTS-92 which tested the down-dip potential of pyritic cherts and ashes in the Northeast Copper area. The work was done during the period May 3rd to 5th, 1990 by Frontier Drilling Ltd.

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 ten years.

b. Mineral Rights

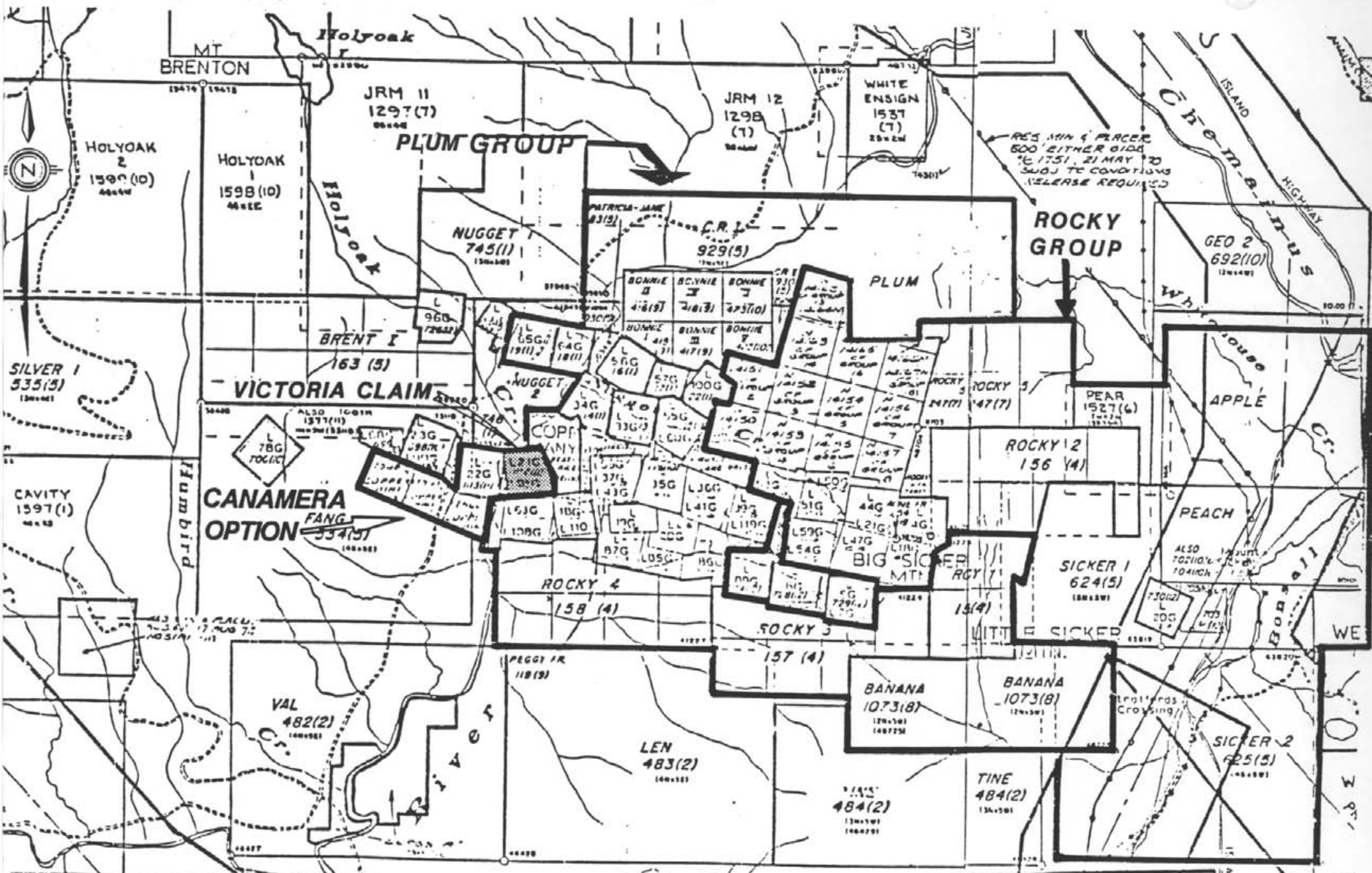
The drilling was carried out on the Rocky 2 claim which is part of the Rocky group (Figure 2). The claim status of the Rocky group is as follows:



LARA AND MT. SICKER PROJECTS
PROPERTY LOCATION MAP

GSW/JDK/sg

MARCH 1989



MINNOVA

CLAIM MAP

FIGURE 2

ROCKY GROUP

<u>Claim</u>	<u>No. 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

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 diamond drill hole MTS-92 which was drilled to a depth of 172.5 m by Frontier Drilling Ltd. The hole is located on the Rocky 2 claim in the vicinity of the Northeast Copper showing (see Figure 3). The drill core is stored at 9398 Trans-Canada highway in Chemainus, 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. Müller (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 (1988) has resulted in the following revised nomenclature and stratigraphy of the Sicker Group.

<u>Müller (1980)</u>	<u>Massey (1988)</u>
Buttle Lake Formation.Mount Mark Formation
Sediment - Sill UnitFourth Lake Formation
Myra FormationMcLaughlin 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. (Müller, 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.

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.

Numerous mineralized occurrences are present on the Mt. Sicker property. Most showings consist of disseminated and stringer pyrite zones but bedded, baritic, polymetallic massive sulphides are found at the former Lenora-Tyee mines. In the Northeast Copper area there is abundant chalcopyrite-pyrite stringer mineralization hosted in chloritic andesitic tuffs that underly pyritic chert horizons.

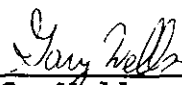
4. Diamond Drill Results

The Northeast Copper area is considered as an ideal area for the occurrence of volcanogenic massive sulphides due to the presence of chalcopyrite-pyrite stringers which are a reflection of a metal-rich hydrothermal system and well-bedded pyritic cherts which mark a break in the volcanic activity during which time massive sulphides could accumulate. The chert horizons dip at a shallow angle (30°) to the north-northeast and hole MTS-92 was

drilled to test their down-dip potential. Although chert was exposed less than five meters south of the collar, MTS-92 was drilled entirely in diorite or felsic dikes. Except for a thin chalcopyrite-bearing quartz vein in the diorite no zones of significant mineralization were intersected in drill hole MTS-92.

5. Conclusions

Hole MTS-92 intersected a thick diorite-felsic dike sequence which has cut-off the shallow, down-dip potential of chalcopyrite-pyrite stringers and chert horizons in the Northeast Copper area. The diorite dikes on Mt. Sicker dilate the Sicker volcanic sequence, so further deep drilling is required to fully evaluate the extent and significance of stringer mineralization and chert horizons exposed in the Northeast Copper area.



G. S. Wells
November, 1990

6. Itemized Cost Statement

Rocky 2 claim filed for \$9,429.13
Diamond Drill Holes MTS-92

Hole MTS-92

Contractor Costs (see attached invoices)	\$ 8259.13
P. Baxter: 3 days @ \$300/day	900.00
Truck: 3 days @ \$50/day	150.00
Food/Housing: 3 man days @ \$40/day	120.00

Total \$ 9,429.13

7. References

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

Massey, N. W. D., Friday, S. J., 1988: Geology of the Chemainus River - Duncan Area, Van. Island, pp. 81-92 in Geological Field Work 1987, BCDM Paper.

8. Statement of Qualifications

I, Gary S. Wells, hereby certify that:

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

Date: November 14, 1990

Gary Wells
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. 3rd Floor - 311 Water St.
Vancouver, B.C. Phone: 681-3771

Appendix I
Drill Log - MTS-92

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.00	<<OB>>					
3.00 TO 102.30	<<DIORITE>>	<p>Colour: speckled white and med. green Grain Size: medium to coarse Massive, equigranular diorite; strong surface oxidation along fracture surfaces to 133 m; very rubbly core with strong surface oxidation from 8.5 -18.9 and 55.2-80.5</p> <p>71.5-102.3 -moderate to strongly magnetic from dissem. magnetite</p> <p>74.6-94.6 -strong milled and sheared texture; strongly calcareous, irregular quartz clasts (qtz diorite)</p> <p>shearing 78.4 83.0 90.2 93.7</p>	38 10 0 0	88.0-88.5 -vuggy quartz vein	88.0-88.5 -20-25% brassy pyrite, <1-1% chalcopryrite intergrowth with pyrite	
102.30 TO 150.90	<<F DYKE>>	<p>Colour: light to med. grey Grain Size: fine Massive, fine grained, grey, siliceous material with green sericite/chlorite intergrowth; near margins green sericite/chlorite groundmass with fine grained, grey siliceous patches and grains; strongly magnetic</p> <p>-indistinct upper and lower contacts</p>		106.05-106.35 -3 cm wide qtz vein at 15 deg to core axis with 50% pyrite and 3-4% chalcopryrite		Similar to unit in hole MTS-85 which was logged as a lithic Tuff/Dyke?
150.90 TO 172.90	<<DIORITE>>	<p>Colour: speckled white green Grain Size: medium Massive, equigranular diorite; weak - mod magnetic sheared, calcareous, finer upper margin-coarser grained downhole</p>				

HOLE NUMBER: MTS-92

MINNOVA INC.
DRILL HOLE RECORD

DATE: 13-November-1990

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
	E.O.H.					

HOLE NUMBER: MTS-92

DRILL HOLE RECORD

LOGGED BY: P. BAXTER

PAGE: 3

Appendix II
Diamond Drilling Invoices

FRONTIER DRILLING (1989) LTD.

19644 33A Ave.

Langley, B.C. V3A 7X1

Phone: 604-530-4100

INVOICE DATE May 22, 1990 PERIOD May 1 - 15, 1990
INVOICE NUMBER 9001-2 JOB 9001-Mt. Sicker
LOCATION Duncan, B.C.

IN ACCOUNT WITH Minnova Inv.
4th Floor, 311 Water St.
Vancouver, B.C. V6B 1B8
Phone: 681-3771

PAGE ONE: DRILL FOOTAGE CHARGES	<u>\$37,854.88</u>
PAGE TWO: FIELD COST CHARGES	<u>\$ 6,092.00</u>
PAGE THREE: SUPPLIES AND SERVICES	<u>6,324.09</u>
TOTAL INVOICE	<u>\$50,270.88 97</u>

DUE JUNE 7, 1990

NOTIFICATION MUST BE MADE WITHIN 7 DAUS OF INVOICE DATE IF THERE IS DISAGREEMENT WITH INVOICE CALCULATIONS.

70580-600-205 - \$ 42,521.64
70580-600-242 - \$ 7,749.33

J.2.

DRILL FOOTAGE CHARGES

HOLE NUMBER	CASING			CORING		
	FROM	TO	TOTAL	FROM	TO	TOTAL
MTS. - 90				191	484	293
91	0	22	22	22	401	379
92	0	10	10	10	566	556
93	0	10	10	10	236	226
94	0	30	30	30	282	252
95	0	40	40	40	442	402
LARA 278	0	20	20	20	537	517
			132'			2625'
<p>CASING $132' \div 3.28 = 40.2$ metres X \$47.00 = \$ 1,889.40</p>						
<p>CORING $2625' \div 3.28 = 800.3$ metres X \$44.94 = \$ 35,965.48</p>						
<p>TOTAL DRILL FOOTAGE CHARGES - \$37,854.88</p>						

SUPPLIES AND SERVICES

MUL. AND ADDITIVES:

14 pls.Pac-Vis polymer @ \$96.00	\$1,344.00
1 Pail DD-2000 Polymer @ \$132.40	132.40
34 Pails bags QuiK-Gel @ \$9.70	329.80
TOTAL	\$1,806.20

1/2 MTS-94
1/2 MTS-95

DRILL BITS CHARGED:

1 NQ core bit-drilling sand and cave @ \$465.00	\$ 465.00
50% of 1 NQ reamer shell-hole stabilizing-@ \$332.00	166.00
1 - 2.15/16" tricone-advancing fault-@ \$247.50	247.50
TOTAL	\$ 878.50

✓ O.K. 8/22

OTHER DIAMOND PRODUCTS:

5 NW casing shoes @ \$133.30	\$ 666.50
4 10' NQ drill rods-wrecked in tight ground - \$122.40	489.60
TOTAL	\$1,156.10

O.K. 8/22

DRILLING TOOLS LOST OR DAMAGED:

18 10' NW casing @ \$124.66	\$2,243.88
1 - 2' NW casing @ \$41.66	41.66
5 NW casing caps @ \$39.55	197.75
TOTAL	\$2,483.29

MISC.:

COREBOXES:	
FUEL	
RENTALS	
HOLE TESTING	
MI	
TOTAL	0

TOTAL SUPPLIES AND SERVICES

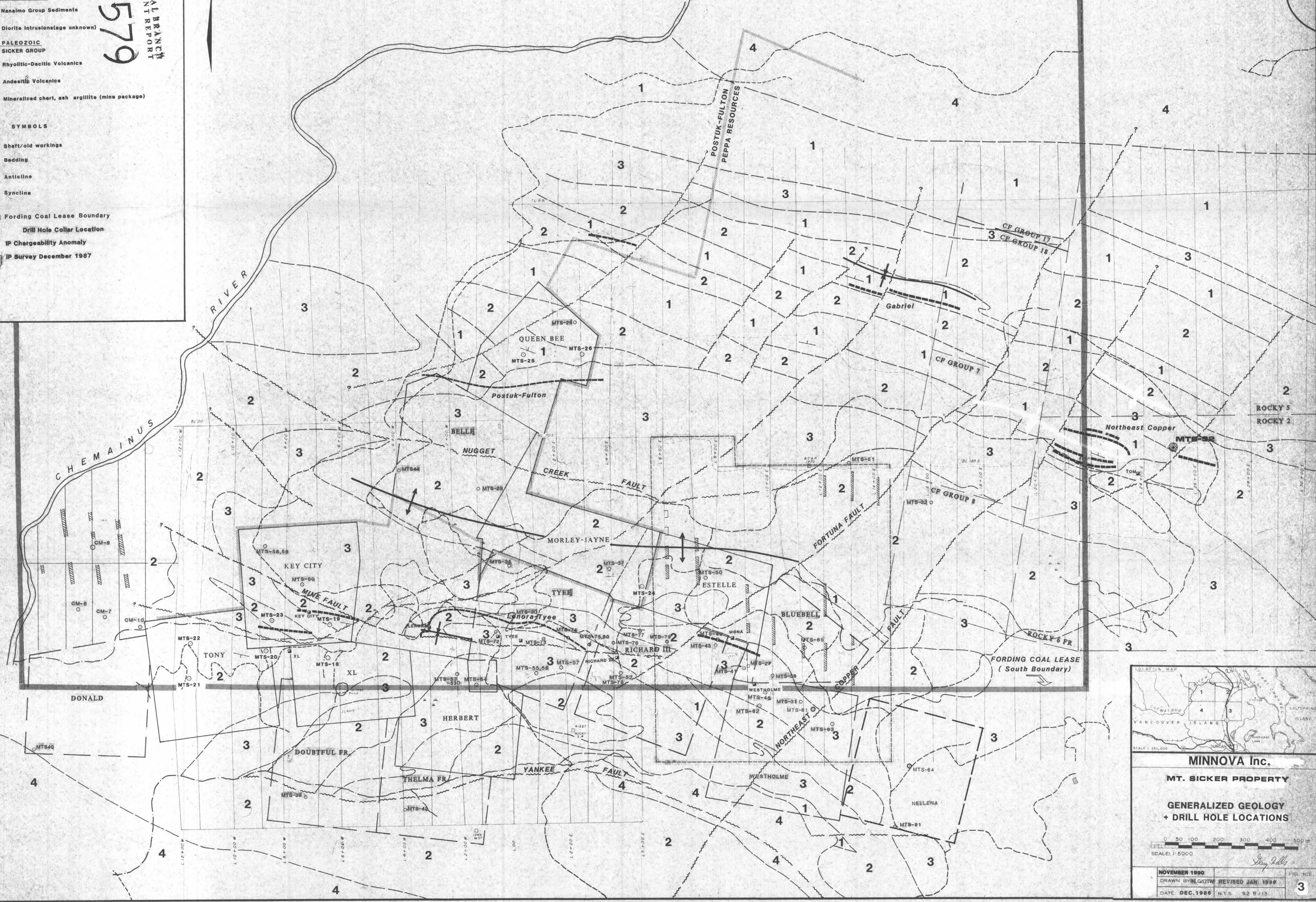
\$6,324.09

20,579

GEOLOGICAL BRANCH
ASSESSMENT REPORT

LEGEND

- CRETACEOUS**
- 4 Nanaimo Group Sediments
 - 3 Diorite Intrusions (age unknown)
- PALEOZOIC**
- SICKER GROUP**
- 2 Rhyolitic-Dacitic Volcanics
 - 1 Andeitic Volcanics
- Mineralized chert, ash argillite (mine package)
- SYMBOLS**
- Shaft/old workings
 - Bedding
 - Anticline
 - Syncline
 - Fording Coal Lease Boundary
 - MTS-77 Drill Hole Collar Location
 - IP Chargeability Anomaly
 - IP Survey December 1987



MINNOVA Inc.

MT. SICKER PROPERTY

**GENERALIZED GEOLOGY
+ DRILL HOLE LOCATIONS**

0 50 100 200 300 400 500 m
SCALE: 1:5000

NOVEMBER 1990
DRAWN BY: J.G.S.W. REVISED JAN. 1988
DATE: DEC. 1986 N.T.S. 92 B/13

3